LETTING DATE
November 20, 2018

PCC PAVEMENT - GRADE AND REPLACE
NHSX-151-3(158)--3H-57
LINN Co.

## INDEX OF SHEETS


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|---|---|
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IOWA DOT

*Highway Division*

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

# LINN COUNTY

## PCC PAVEMENT - GRADE AND REPLACE

**U.S. HIGHWAY 151 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.

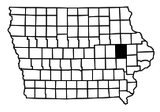
Value Engineering Saves. Refer to Article 1105.14 of the Specifications.

**NO MILEAGE SUMMARY**


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



For Project Location Map
Refer to Sheet A.2

| U.S. HIGHWAY 151 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 | -- | |

| U.S. HIGHWAY 151 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 | -- | |

INDEX OF SEALS

| SHEET NO. | NAME | TYPE |
|---|---|---|
| A.1 | Nathan E. Carhoff | Primary Signature Block |
| CS.1 | Matthew D. Cushman | Geotechnical Design |
| U.1 | Matthew J. Feuerhelm | Sanitary Sewer Design |
| V.1 | Haiping Chen | Structural Design |
| | | |
| | | |
| | | |

**ROADWAY DESIGN**

LICENSED PROFESSIONAL ENGINEER
NATHAN E. CARHOFF
19699
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.

Signature — Date 09/21/2018

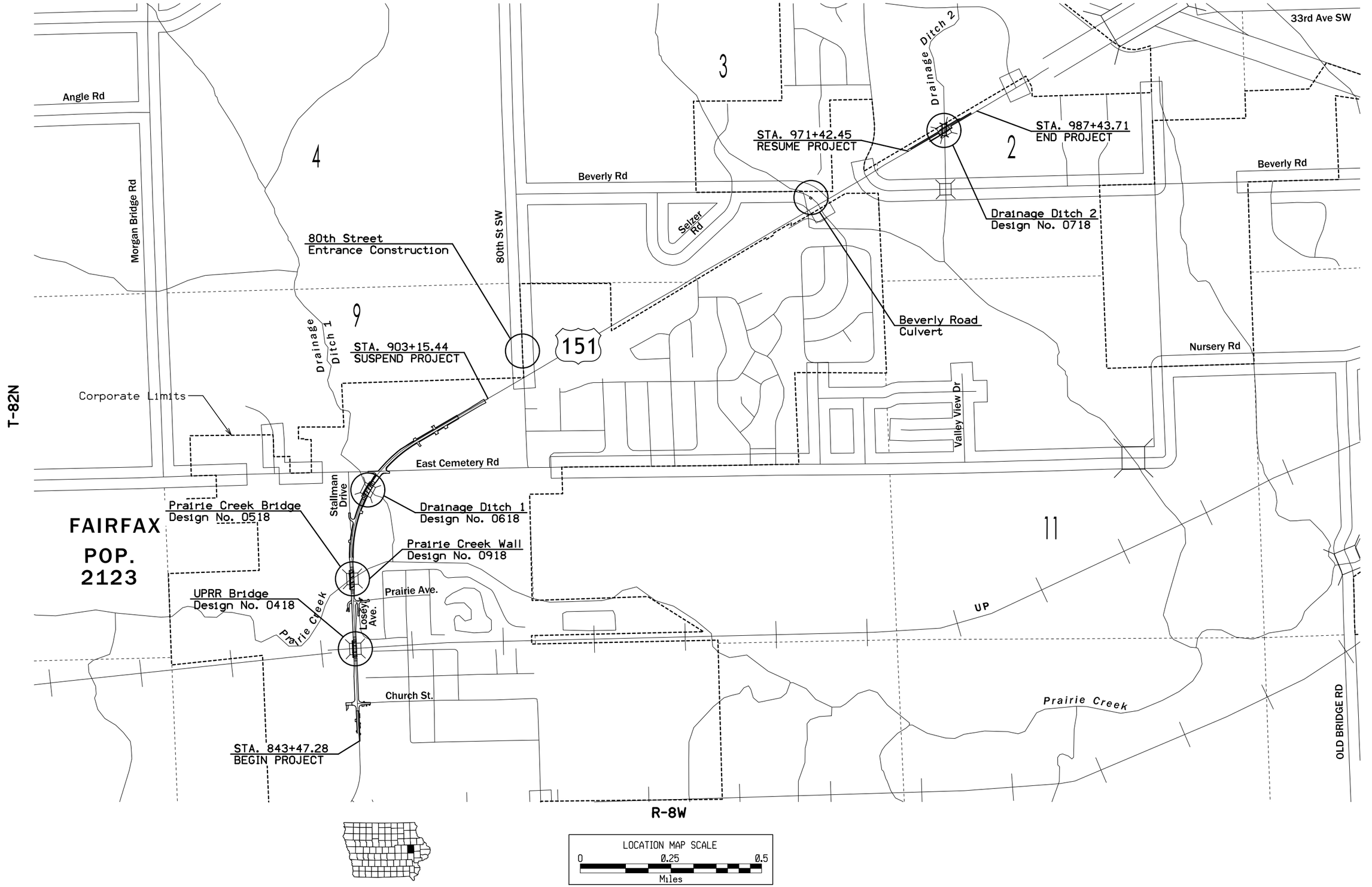
Nathan E. Carhoff
Printed or Typed Name

My license renewal date is December 31, 2019

Pages or sheets covered by this seal: A.1-A.2, B.1-B.11, C.1-C.30, D.1-D.7, E.1-E.8, F.1, G.1-G.7, J.1-J.39, L.1-L.22, M.1-M.10, T.1-T.9, U.6-U.8, V.20-V.22, W.1-W.58, X.1-X.19

REVISIONS

| TOTAL 286 |
|---|
| PROJECT IDENTIFICATION NUMBER |
| 08-57-151-020 |
| PROJECT NUMBER |
| NHSX-151-3(158)--3H-57 |
| R.O.W. PROJECT NUMBER |
| NHSN-151-3(135)--2R-57 |
| NHSN-151-3(147)--2R-57 |




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

10:31:50 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158A01.sht

Note:
(1) Top 6" Modified Subbase Shall be of Virgin Material

## 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_ Modified |
|---|---|---|---|
| BEGIN STATION | END STATION | (P) Feet | Curb Type See PV-102 |
| 845+05.45 | 848+30.33 | 3' | 6" Sloped |
| | | | |
| | | | |
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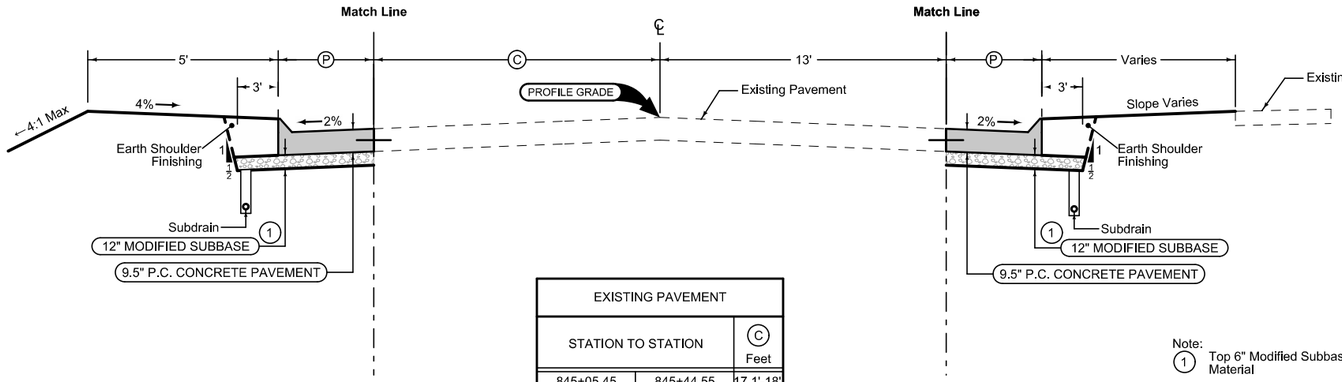
| | | | |
| | | | |




| 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

| | | | 2_Curb_ Modified |
|---|---|---|---|
| BEGIN STATION | END STATION | (P) Feet | Curb Type See PV-102 |
| 843+88.58 | 845+60.00 | 2.9'-6.7' | 6" Sloped |
| | | | |
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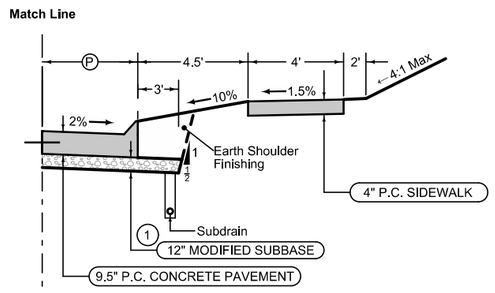
| | | | |

Note:
(1) Top 6" Modified Subbase Shall be of Virgin Material



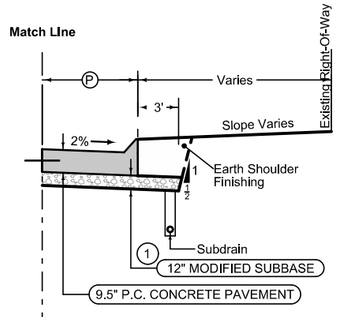

## Curbed Shoulder

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_ Modified |
|---|---|---|---|
| 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+90.50 | 8' | 6" Sloped |
| | | | |
| | | | |
| | | | |
| | | | |

Note:
(1) Top 6" Modified Subbase Shall be of Virgin Material




## 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_ Modified |
|---|---|---|---|
| BEGIN STATION | END STATION | (P) Feet | Curb Type See PV-102 |
| 847+90.50 | 848+30.33 | 8' | 6" Sloped |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

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

See Tab 112-9 for shoulder quantities.

Note:
(1) Top 6" Modified Subbase Shall be of Virgin Material

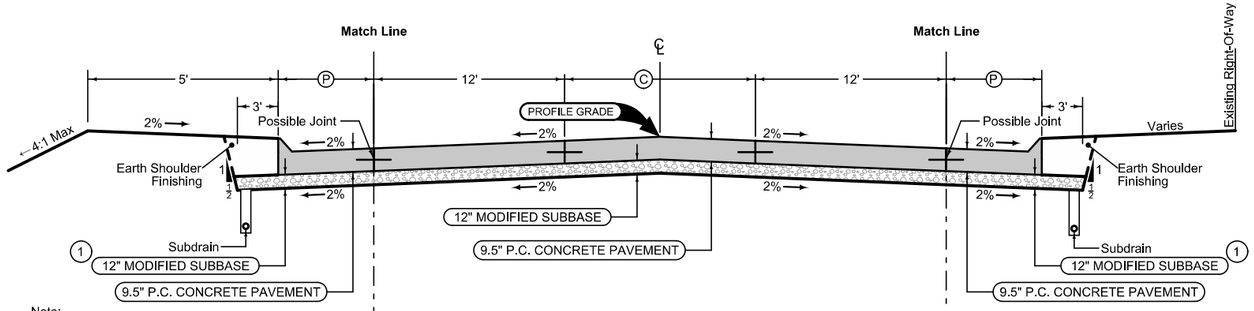
**US HIGHWAY 151**

## 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

| BEGIN STATION | END STATION | (P) Feet | 2_Curb_ Modified Curb Type See PV-102 |
|---|---|---|---|
| 848+30.33 | 848+69.80 | 3' | 6" Sloped |
| | | | |




Note:
(1) Top 6" Modified Subbase Shall be of Virgin Material

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

| 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+48.61 | 14' |
| 869+26.20 | 879+38.00 | 14' |
| 882+34.00 | 898+00.00 | 14' |
| | | |

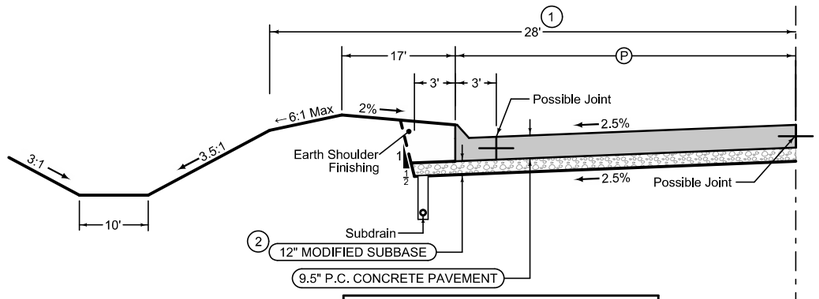
## Curbed Shoulder

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

| BEGIN STATION | END STATION | (P) Feet | 2_Curb_ Modified Curb Type See PV-102 |
|---|---|---|---|
| 848+30.33 | 848+70.64 | 3' | 6" Sloped |
| | | | |

Note:
(1) Top 6" Modified Subbase Shall be of Virgin Material



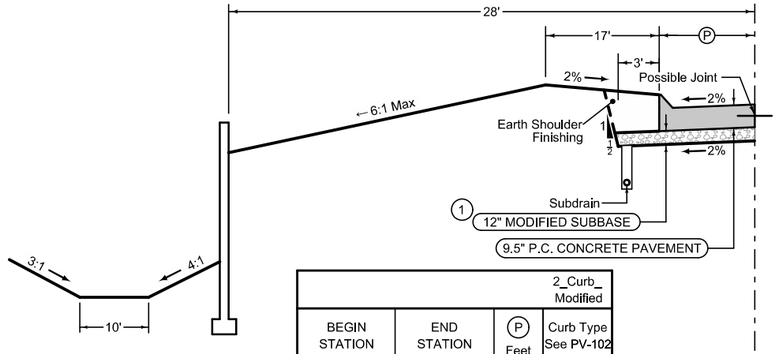

## Curbed Shoulder

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

| BEGIN STATION | END STATION | (P) Feet | 2_Curb_ Modified Curb Type See PV-102 |
|---|---|---|---|
| 850+01.96 | 853+34.27 | 15' | 6" Sloped |
| 853+34.27 | 855+14.27 | 15'-3' | 6" Sloped |
| | | | |
| | | | |

Note:
(1) Where "P" Plus 17' Exceeds 28' Clear Zone, Eliminate 6:1 Slope.
(2) Top 6" Modified Subbase Shall be of Virgin Material



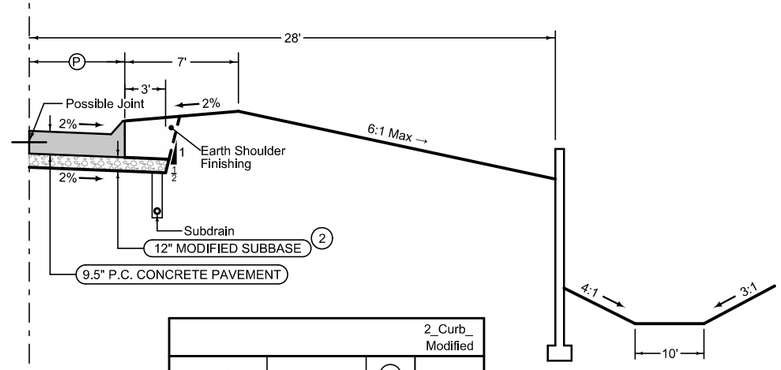

## Curbed Shoulder

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

| BEGIN STATION | END STATION | (P) Feet | 2_Curb_ Modified Curb Type See PV-102 |
|---|---|---|---|
| 855+14.27 | 855+59.10 | 3'-6' | 6" Sloped |
| 859+06.10 | 861+73.23 | 9'-3' | 6" Sloped |
| 861+73.23 | 863+87.58 | 3' | 6" Sloped |
| | | | |

Note:
(1) Top 6" Modified Subbase Shall be of Virgin Material



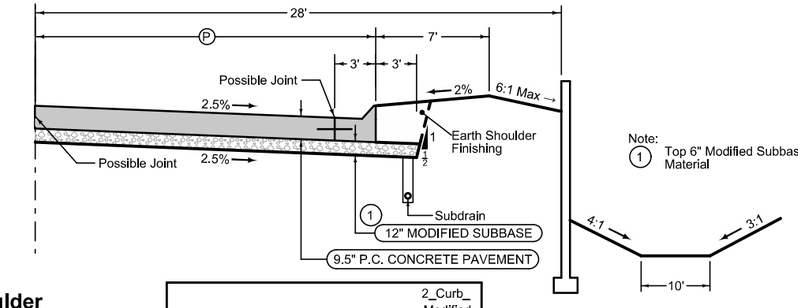

## Curbed Shoulder

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

| BEGIN STATION | END STATION | (P) Feet | 2_Curb_ Modified Curb Type See PV-102 |
|---|---|---|---|
| 849+97.65 | 853+34.27 | 3' | Sloped (1) |
| 853+34.27 | 855+59.10 | 3'-8' | 6" Sloped |
| 859+06.10 | 859+93.36 | 9' | 6" Sloped |
| 864+74.60 | 865+48.61 | 3' | 4" Sloped |
| | | | |
| | | | |

NOTE:
(1) Refer to L-Sheets for Curb Type at Guardrail installations
(2) Top 6" Modified Subbase Shall be of Virgin Material




Note:
(1) Top 6" Modified Subbase Shall be of Virgin Material

## 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

| BEGIN STATION | END STATION | (P) Feet | 2_Curb_ Modified 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.

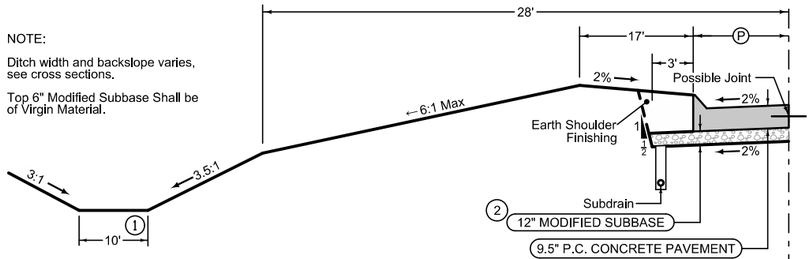
See Tab 112-9 for shoulder quantities.

**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 |
|---|---|---|---|---|---|---|---|

8:40:23 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158B01.sht

Match Line




NOTE:

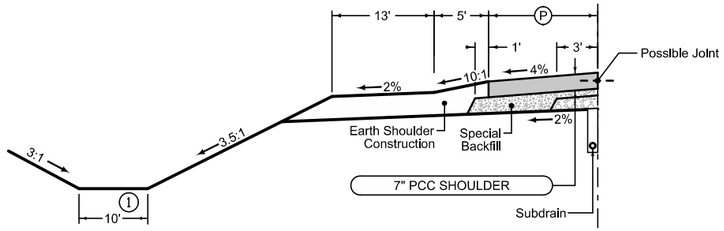
1. Ditch width and backslope varies, see cross sections.
2. Top 6" Modified Subbase Shall be of Virgin Material.

## 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_ Modified | | | |
|---|---|---|---|
| BEGIN STATION | END STATION | (P) Feet | Curb Type See PV-102 |
| 864+64.13 | 865+48.61 | 3' | 6" Sloped |
| 869+26.20 | 870+00.00 | 3' | 4" Sloped |
| 870+00.00 | 870+70.00 | 3'-10' | 4" Sloped |
| | | | |
| | | | |



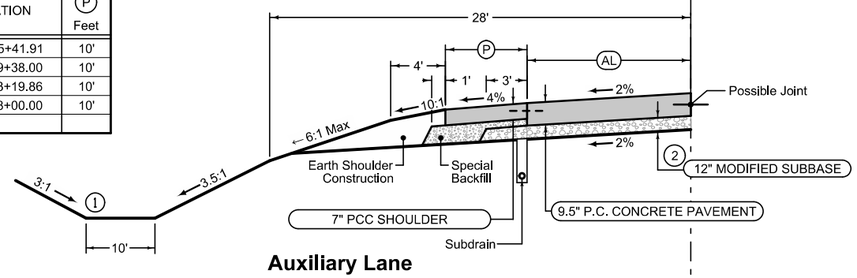

NOTE:

1. Ditch width varies, see cross sections

## PCC Shoulder

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

| 2_P_PCC_ Modified | | |
|---|---|---|
| STATION TO STATION | | (P) Feet |
| 870+70.00 | 875+41.91 | 10' |
| 876+49.90 | 879+38.00 | 10' |
| 882+34.00 | 883+19.86 | 10' |
| 890+21.24 | 898+00.00 | 10' |
| | | |




NOTES:

1. Ditch width and backslope varies, see cross sections.
2. Top 6" Modified Subbase Shall be of Virgin Material.

## Auxiliary Lane

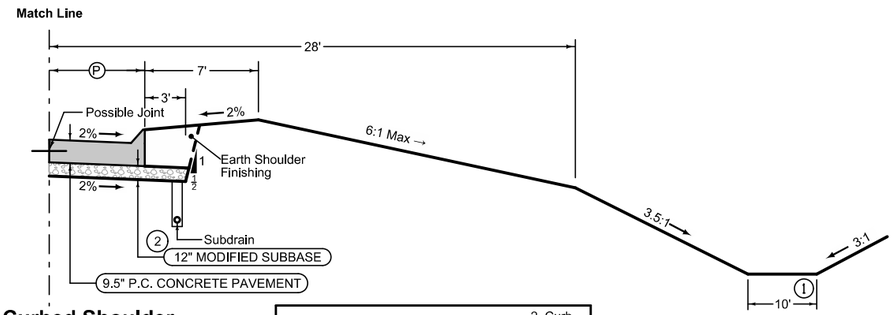
Longitudinal joint: L or KT
Transverse joint: Match Mainline

| 2_AuxLane_PCC_ Modified | | | 2_AL_Shldr_PCC_ Modified |
|---|---|---|---|
| STATION TO STATION | | (AL) Feet | (P) Feet |
| 884+25.93 | 888+43.66 | 12' | 6' |
| 888+43.66 | 889+31.04 | 12'-4' | 6' |
| 889+31.04 | 890+21.24 | 4'-0' | 6'-10' |
| | | | |

## Auxiliary Lane
## PCC Shoulder

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

Match Line




## Curbed Shoulder

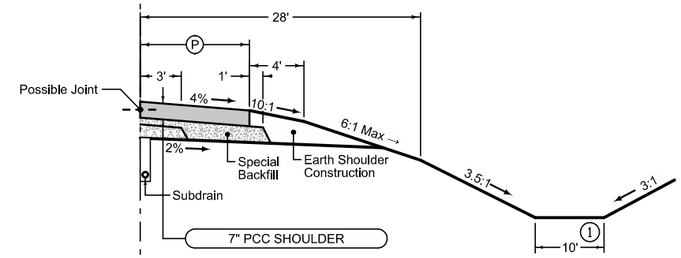
Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

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

| 2_Curb_ Modified | | | |
|---|---|---|---|
| BEGIN STATION | END STATION | (P) Feet | Curb Type See PV-102 |
| 869+26.20 | 870+00.00 | 3' | 6" Sloped |
| 870+00.00 | 870+70.00 | 3'-10' | 6" Sloped |
| | | | |
| | | | |

NOTE:

1. Ditch width and backslope varies, see cross sections.
2. Top 6" Modified Subbase Shall be of Virgin Material.



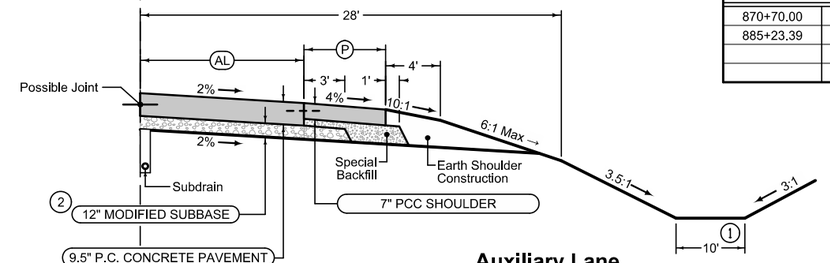

NOTE:

1. Ditch width varies, see cross sections

## PCC Shoulder

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

| 2_P_PCC_ Modified | | |
|---|---|---|
| STATION TO STATION | | (P) Feet |
| 870+70.00 | 879+38.00 | 10' |
| 885+23.39 | 898+00.00 | 10' |
| | | |
| | | |




## Auxiliary Lane
## PCC Shoulder

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

NOTE:

1. Ditch width and backslope varies, see cross sections.
2. Top 6" Modified Subbase Shall be of Virgin Material.

## Auxiliary Lane

Longitudinal joint: L or KT
Transverse joint: Match Mainline

| 2_AuxLane_PCC_ Modified | | | 2_AL_Shldr_PCC_ Modified |
|---|---|---|---|
| STATION TO STATION | | (AL) Feet | (P) Feet |
| 882+34.00 | 882+78.25 | 8.5'-12' | 6' |
| 882+78.25 | 883+76.66 | 12' | 6' |
| 883+76.66 | 883+95.73 | 12' | 6'-8' |
| | | | |

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

See Tab 112-9 for shoulder quantities.

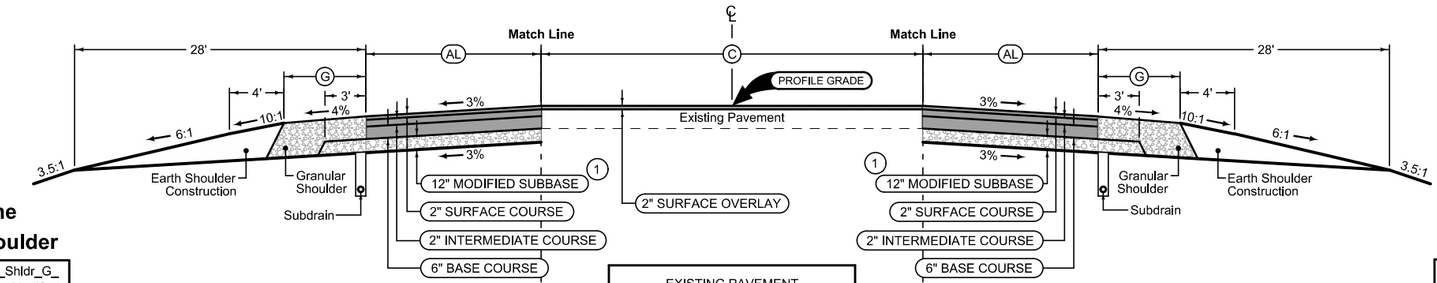
**US HIGHWAY 151**

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

## Auxiliary Lane
Longitudinal joint: B

## Auxiliary Lane Granular Shoulder

| STATION TO STATION | | 2_AuxLane_HMA_ 10-18-16 (AL) Feet | 2_AL_Shldr_G_ Modified (G) Feet |
|---|---|---|---|
| 898+00.00 | 900+09.70 | 5.2'-0' | 6' |
| 900+09.70 | 902+58.42 | 0' | 6' |
| | | | |
| | | | |




| EXISTING PAVEMENT | | |
|---|---|---|
| STATION TO STATION | | (C) Feet |
| 898+00.00 | 900+00.00 | 34'-38.3' |
| 900+00.00 | 902+58.42 | 38.3'-55.6' |
| | | |
| | | |

Note:
(1) Top 6" Modified Subbase Shall be of Virgin Material

## Auxiliary Lane
Longitudinal joint: B

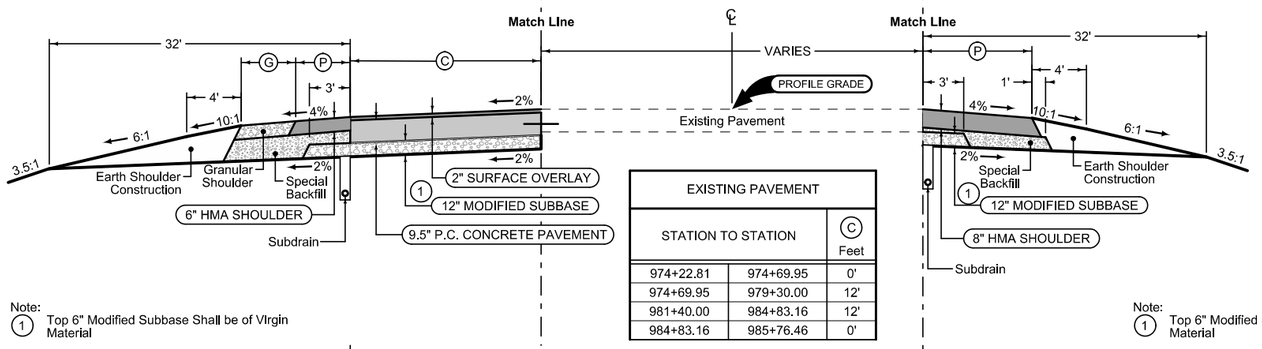
## Auxiliary Lane Granular Shoulder

| STATION TO STATION | | 2_AuxLane_HMA_ 10-18-16 (AL) Feet | 2_AL_Shldr_G_ Modified (G) Feet |
|---|---|---|---|
| 898+00.00 | 901+81.55 | 6.8'-1.7' | 6' |
| 901+81.55 | 902+58.42 | 1.7'-2' | 6' |
| | | | |
| | | | |

Note:
(1) Top 6" Modified Subbase Shall be of Virgin Material

## Combination Shoulder
Shoulder Jointing:
Longitudinal joint: B

| STATION TO STATION | | 2_C_ Modified (P) Feet | (G) Feet |
|---|---|---|---|
| 974+22.81 | 974+69.65 | 0'-4' | 6' |
| 974+69.95 | 979+30.00 | 4' | 6' |
| 981+40.00 | 982+06.34 | 13.3' | 0' |
| 982+06.34 | 982+49.54 | 13.3'-15 | 0' |
| 982+49.54 | 982+76.24 | 15' | 0' |
| 982+76.24 | 984+83.16 | 4' | 6' |
| 984+83.16 | 985+76.45 | 0' | 6'-0' |




| EXISTING PAVEMENT | | |
|---|---|---|
| STATION TO STATION | | (C) Feet |
| 974+22.81 | 974+69.95 | 0' |
| 974+69.95 | 979+30.00 | 12' |
| 981+40.00 | 984+83.16 | 12' |
| 984+83.16 | 985+76.46 | 0' |

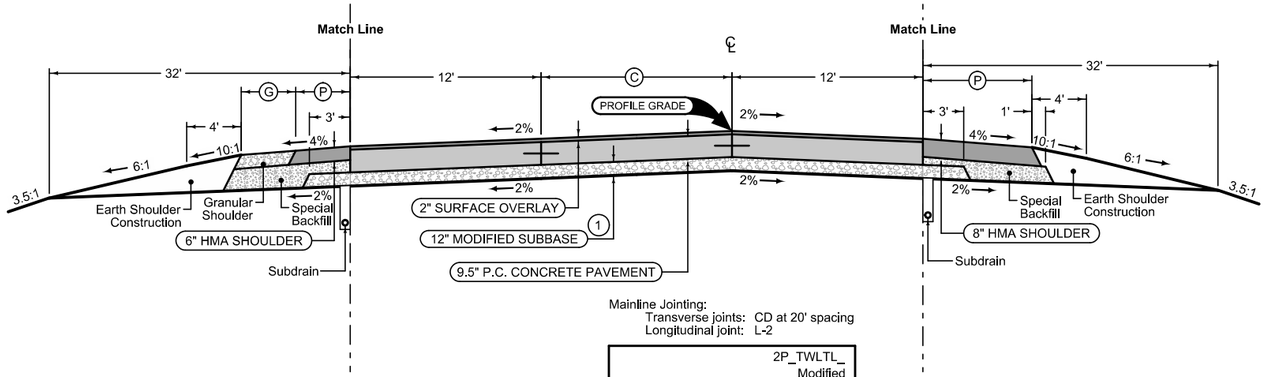
Note:
(1) Top 6" Modified Subbase Shall be of Virgin Material

## HMA Shoulder
Shoulder Jointing:
Longitudinal joint: B

| STATION TO STATION | | 2_P_HMA_ Modified (P) Feet |
|---|---|---|
| 977+55.34 | 977+81.50 | 0' |
| 977+81.50 | 978+01.97 | 6.9'-5.2' |
| 978+01.97 | 978+51.41 | 5.2'-3.2' |
| 978+51.41 | 979+30.00 | 3.2' |

## Combination Shoulder
Shoulder Jointing:
Longitudinal joint: B

| STATION TO STATION | | 2_C_ Modified (P) Feet | (G) Feet |
|---|---|---|---|
| 979+30.00 | 979+80.09 | 4' | 6' |
| 979+80.09 | 981+40.00 | 13.3' | 0' |
| | | | |
| | | | |
| | | | |




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

| STATION TO STATION | | 2P_TWLTL_ Modified (C) Feet |
|---|---|---|
| 979+30.00 | 981+40.00 | 16' |
| | | |
| | | |
| | | |

Note:
(1) Top 6" Modified Subbase Shall be of Virgin Material

## HMA Shoulder
Shoulder Jointing:
Longitudinal joint: B

| STATION TO STATION | | 2_P_HMA_ Modified (P) Feet |
|---|---|---|
| 979+30.00 | 980+65.15 | 13.3' |
| 980+65.15 | 981+40.00 | 10' |
| | | |
| | | |

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

See Tab 112-9 for shoulder quantities.

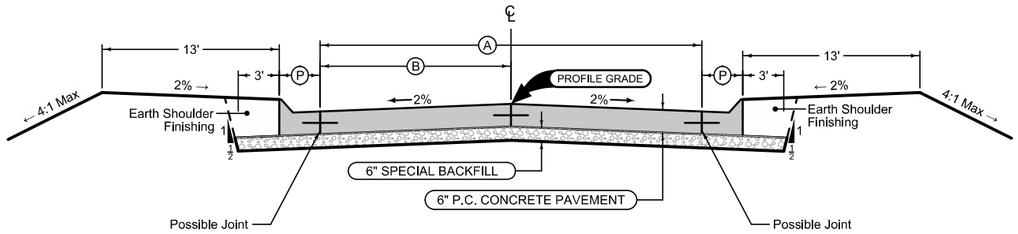
**US HIGHWAY 151**

## Curbed Shoulder

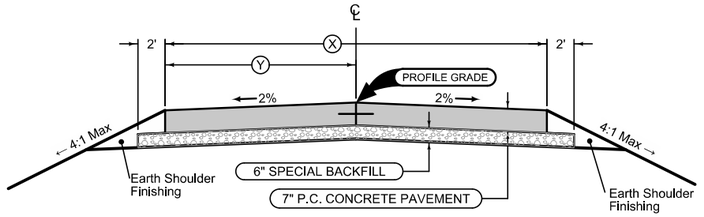
Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

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

| LOCATION | | | | 2_Curb_ Modified |
|---|---|---|---|---|
| ROAD IDENTIFICATION | STATION TO STATION | | (P) Feet | Curb Type See PV-102 |
| CHURCH STREET | 1848+56.14 | 1849+04.97 | 3' | 6" Std. |
| CHURCH STREET | 1849+52.97 | 1850+11.77 | 3' | 6" Std. |
| PRARIE AVENUE | 2864+82.50 | 2865+30.81 | 2.5' | 6" Std. |
| LOSEY AVENUE | 3862+86.45 | 3864+59.42 | 2.5' | 6" Std. |
| | | | | |
| | | | | |
| | | | | |




| LOCATION | | | DIMENSIONS | |
|---|---|---|---|---|
| ROAD IDENTIFICATION | STATION TO STATION | | (A) Feet | (B) Feet |
| CHURCH STREET | 1848+56.14 | 1849+04.97 | 36' | 18' |
| CHURCH STREET | 1849+52.97 | 1850+11.77 | 31' | 15.5' |
| PRAIRIE AVENUE | 2864+82.50 | 2865+30.81 | 23' | 11.5' |
| LOSEY AVENUE | 3862+86.45 | 3864+59.42 | 18' | 9' |
| | | | | |
| | | | | |



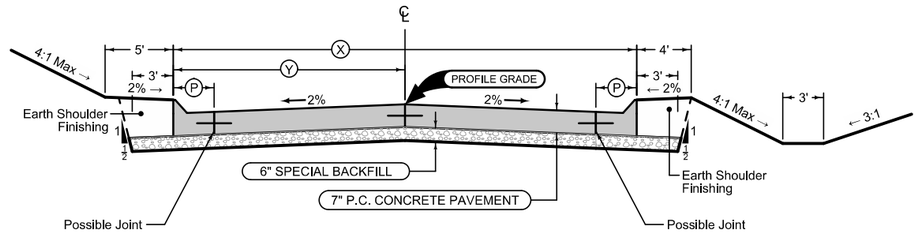

## Curbed Shoulder

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

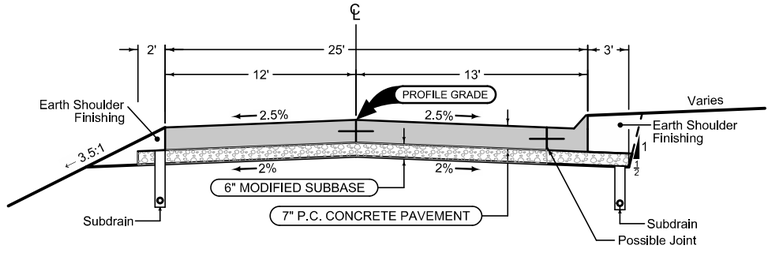
Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

| LOCATION | | | | 2_Curb_ Modified |
|---|---|---|---|---|
| ROAD IDENTIFICATION | STATION TO STATION | | (P) Feet | Curb Type See PV-102 |
| CHURCH STREET | 1848+56.14 | 1849+04.97 | 3' | 6" Std. |
| CHURCH STREET | 1849+52.97 | 1850+11.77 | 3' | 6" Std. |
| PRARIE AVENUE | 2864+82.50 | 2865+30.81 | 2.5' | 6" Std. |
| LOSEY AVENUE | 3862+85.37 | 3864+56.28 | 2.5' | 6" Std. |
| | | | | |
| | | | | |
| | | | | |

| LOCATION | | | DIMENSIONS | |
|---|---|---|---|---|
| ROAD IDENTIFICATION | STATION TO STATION | | (X) Feet | (Y) Feet |
| CHURCH STREET | 1847+69.25 | 1848+56.14 | 36' | 18' |
| CHURCH STREET | 1850+11.77 | 1851+01.77 | 37'-25' | 18.5'-12.5' |
| CHURCH STREET | 1851+01.77 | 1851+25.00 | 25' | 12.5' |
| PRAIRIE AVENUE | 2865+30.81 | 2866+56.00 | 23' | 11.5 |
| STALLMAN DRIVE | 4874+25.00 | 4875+43.95 | 25' | 12.5' |
| CEMETERY ROAD | 5882+30.00 | 5883+60.60 | 25' | 12.5' |




| LOCATION | | | DIMENSIONS | | |
|---|---|---|---|---|---|
| ROAD IDENTIFICATION | STATION TO STATION | | (X) Feet | (Y) Feet | (P) Feet |
| LOSEY AVENUE | 3862+86.45 | 3864+80.81 | 23' | 11.5' | 2.5' |
| | | | | | |

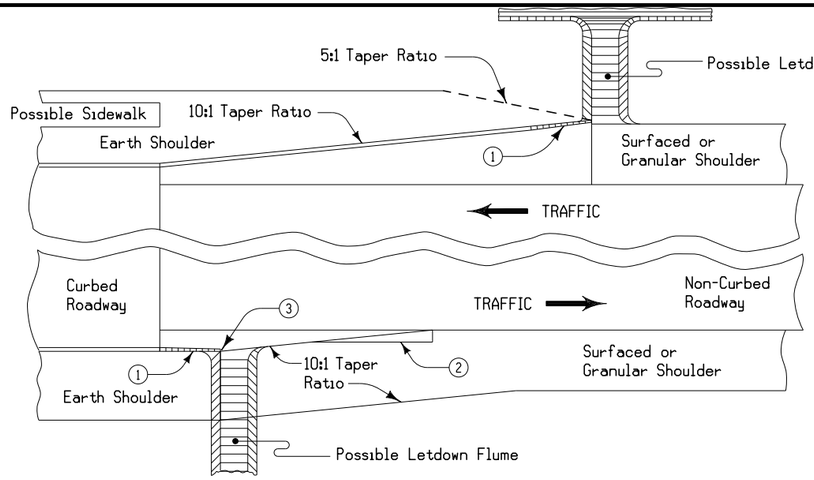



| LOCATION | | |
|---|---|---|
| ROAD IDENTIFICATION | STATION TO STATION | |
| CEMETERY ROAD | 5884+86.04 | 5885+42.00 |
| | | |

See Tab 100-24 for pavement quantities.

**SIDEROADS**

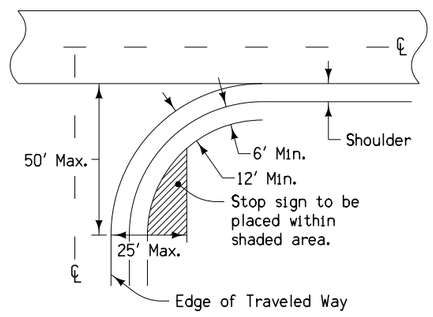
6147
10-20-15



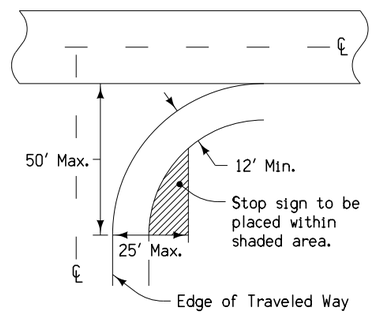

1. Runout curb according to PV-102
2. End of Taper Details see Typical Detail 7101
3. End earth shoulder at the end of the curb transition when no flume is needed.

## TRANSITION BETWEEN CURBED AND NON-CURBED ROADWAYS

9503
07-15-97




## CASE 'A' WITH SHOULDER




## CASE 'B' WITHOUT SHOULDER

NOTES:

Stop signs should be confined to the shaded areas, but as close to the approach roadway as possible to provide the motorist with the best visual impact.

If possible, stop signs should be placed at the point where vehicles are to stop or as near as practical.

In rural areas, the lateral clearance should not be closer than 6' from the edge of a usable shoulder, or if none, 12' from edge of the traveled way.

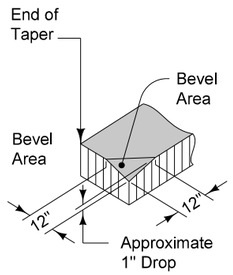
In urban areas, stop signs should be placed a minimum of 6' from the near edge of the intersected street or a minimum of 4' in advance of the near edge of a marked crosswalk. Lateral clearance may be reduced to a minimum of 2' from the face of a curb.

Where the approach roadway consists of two lanes of traffic, a second stop sign should be placed where it is visible to traffic in the inner lane.

At channelized intersections, the additional stop sign may be placed on a channelized island or median.

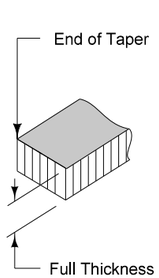
## STOP SIGN PLACEMENT

7101
10-19-10




### DETAIL 'A'

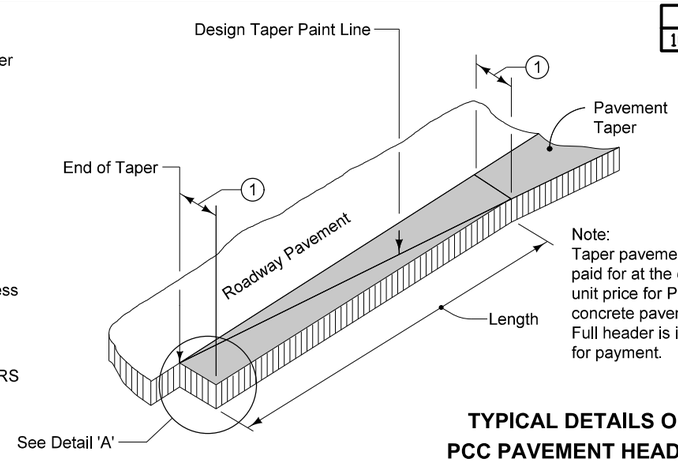
FOR
GRANULAR SHOULDERS




### DETAIL 'A'

FOR
PAVED SHOULDERS

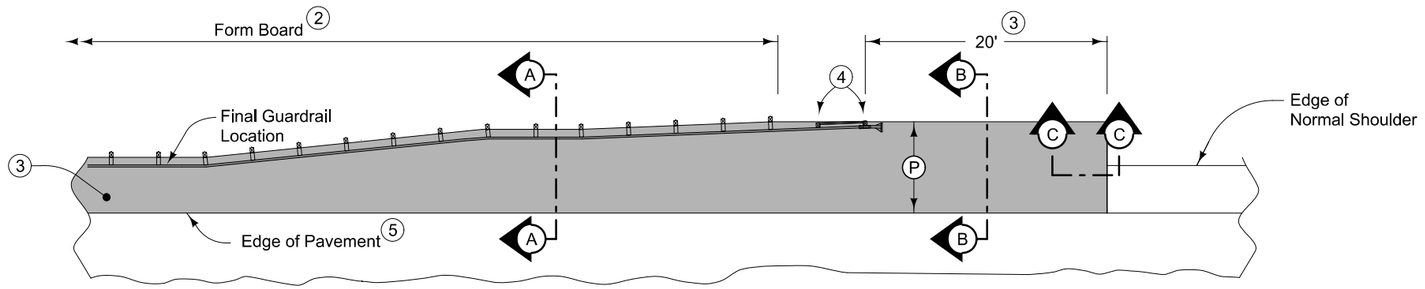
(1) Normal width is 2'-0". Construct 4'-0" width when butting into 4' wide HMA shoulders (See Typical 7154A).



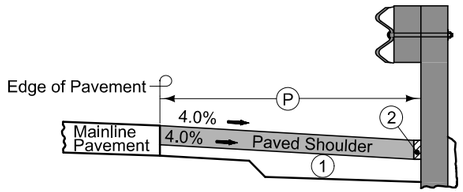

Note:
Taper pavement to be paid for at the contract unit price for P.C. concrete pavement. Full header is included for payment.

## TYPICAL DETAILS OF PCC PAVEMENT HEADER

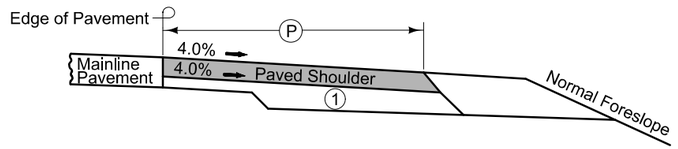
7156
Modified




PLAN VIEW

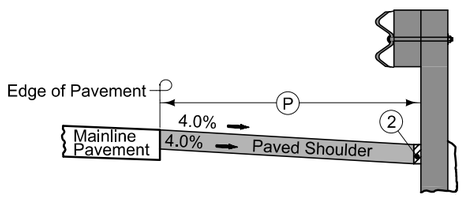



Section A-A

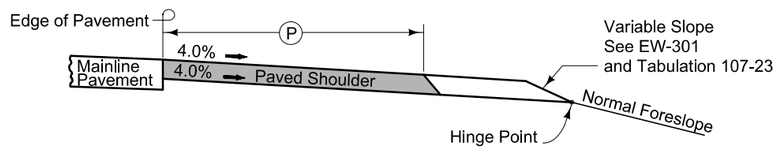



Section B-B

NEW CONSTRUCTION




Section A-A




Section B-B

EXISTING SHOULDER

Compaction of HMA is required to face of guardrail post. Hand compaction will be allowed under guardrail. Removal and reinstallation of guardrail will be allowed with no additional payment.

Refer to Tabulation 112-9 for shoulder quantities.

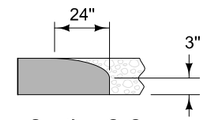
(1) For subgrade treatment, refer to other details in the plan.

(2) PCC: When guardrail posts are installed prior to construction of PCC paved shoulder, fasten form board to the face of guardrail posts for the length shown. Refer to note 4 for final 2 posts.

(3) Continue paved shoulder to existing paved shoulder or 20 feet beyond the center of the first post.

(4) Shoulder may be notched for final 2 posts or post sleeves may be installed through pavement. Do not drive posts through pavement.

(5) 'KT-1 joint for PCC shoulder.
'B' joint for HMA shoulder.




Section C-C
Roll down at granular shoulder or earth.

PAVED SHOULDER AT GUARDRAIL

| LOCATION | | | DIMENSIONS | | | | | | 6" Special Backfill | Earth Shoulder Construction | Area |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ROAD IDENTIFICATION | STATION TO STATION | | HMA | | | PCC | | | | | |
| | | | (PW) Feet | (T) Inches | (SGW) Feet | (PW) Feet | (T) Inches | (SGW) Feet | Tons | Station | SY |
| Hwy 151 - Stage 1C | 869+08.50 | 870+79.40 | 0-21 | 9 | 0-27.3 | 0-21 | 8 | 0-26.9 | 41 | 1.71 | |
| | 870+79.40 | 877+08.33 | 21 | 9 | 27.3 | 21 | 8 | 26.9 | 455 | 6.29 | |
| | 877+08.33 | 877+82.62 | 21-15.5 | 9 | 27.3-21.8 | 21-15.5 | 8 | 26.9-21.4 | 47 | 0.74 | 1,901.8 |
| | 877+82.62 | 878+58.49 | 15.5-7.5 | 9 | 21.8-13.8 | 15.5-7.5 | 8 | 21.4-13.4 | 31 | 0.76 | |
| | 878+58.49 | 879+14.71 | 7.5-6 | 9 | 13.8-12.3 | 7.5-6 | 8 | 13.4-11.9 | 14 | 0.56 | |
| | | | | | | | | | | | |
| Hwy 151 - Stage 1C | 882+63.44 | 883+85.91 | 0-7.4 | 9 | 0-13.7 | 0-7.4 | 8 | 0-13.3 | 15 | 1.22 | 46.6 |
| | 883+85.91 | 883+99.64 | 1.1-0 | 9 | 7.4-0 | 1.1-0 | 8 | 7-0 | 2 | 0.14 | |
| | | | | | | | | | | | |
| Hwy 151 - Stage 1C | 884+99.85 | 885+73.34 | 0-21 | 9 | 0-27.3 | 0-21 | 8 | 0-26.9 | 37 | 0.73 | |
| | 885+73.34 | 890+52.10 | 21 | 9 | 27.3 | 21 | 8 | 26.9 | 346 | 4.79 | 1,258.5 |
| | 890+52.10 | 890+92.18 | 12.1-0 | 9 | 18.4-0 | 12.1-0 | 8 | 18-0 | 16 | 0.40 | |
| | | | | | | | | | | | |
| Hwy 151 - Stage 1C | 891+27.79 | 891+39.51 | 0-12.5 | 9 | 0-18.8 | 0-12.5 | 8 | 0-18.4 | 3 | 0.12 | |
| | 891+39.51 | 893+78.67 | 21 | 9 | 27.3 | 21 | 8 | 26.9 | 176 | 2.39 | 593.1 |
| | 893+78.67 | 893+96.76 | 19-0 | 9 | 25.3-0 | 19-0 | 8 | 24.9-0 | 9 | 0.18 | |
| | | | | | | | | | | | |
| Hwy 151 - Stage 1C | 894+37.55 | 894+56.81 | 0-19 | 9 | 0-25.3 | 0-19 | 8 | 0-24.9 | 10 | 0.19 | |
| | 894+56.81 | 895+38.01 | 21 | 9 | 25.3 | 21 | 8 | 24.9 | 60 | 0.81 | 247.1 |
| | 895+38.01 | 895+56.49 | 19-0 | 9 | 25.3-0 | 19-0 | 8 | 24.9-0 | 10 | 0.18 | |
| | | | | | | | | | | | |
| Hwy 151 - Stage 1C | 895+98.24 | 896+18.20 | 0-18.5 | 9 | 0-24.8 | 0-18.5 | 8 | 0-4.4 | 10 | 0.20 | |
| | 896+18.20 | 898+00.16 | 20.5 | 9 | 26.8 | 20.5 | 8 | 26.4 | 133 | 1.82 | |
| | 898+00.16 | 899+40.00 | 20.5-13.5 | 9 | 26.8-19.8 | 20.5-13.5 | 8 | 26.4-19.4 | 84 | 1.40 | 1,110.3 |
| | 899+40.00 | 900+97.41 | 13.5 | 9 | 19.8 | 13.5 | 8 | 19.4 | 75 | 1.57 | |
| | 900+97.41 | 902+84.49 | 13.5-0 | 9 | 19.8-0 | 13.5-0 | 8 | 19.4-0 | 48 | 1.87 | |
| | | | | | | | | | | | |
| Hwy 151 - Stage 2A | 860+81.21 | 863+59.72 | 0-17.5 | 9 | 0-23.8 | 0-17.5 | 8 | 0-23.4 | 86 | 2.79 | |
| | 863+59.72 | 864+64.09 | 17.5-16.5 | 9 | 23.8-22.8 | 17.5-16.5 | 8 | 23.4-22.4 | 63 | 1.04 | 720.4 |
| | 864+64.09 | 865+98.61 | 16.5-17 | 9 | 22.8-23.3 | 16.5-17 | 8 | 22.4-22.9 | 80 | 1.35 | |
| | | | | | | | | | | | |
| Hwy 151 - Stage 2A | 868+76.20 | 870+70.00 | 18 | 9 | 24.3 | 18 | 8 | 23.9 | 123 | 1.94 | 439.2 |
| | 870+70.00 | 872+09.69 | 8-0 | 9 | 14.3-0 | 8-0 | 8 | 13.9-0 | 16 | 1.40 | |
| | | | | | | | | | | | |
| Hwy 151 - Stage 2A | 876+23.77 | 876+99.08 | 0-8 | 9 | 0-8.8 | 0-2.5 | 8 | 0-8.4 | 14 | 0.75 | |
| | 876+99.08 | 878+42.11 | 8 | 9 | 14.3 | 8 | 8 | 13.9 | 41 | 1.43 | 325.4 |
| | 878+42.11 | 879+40.54 | 8-13.2 | 9 | 14.3-19.5 | 8-13.2 | 8 | 13.9-19.1 | 36 | 0.98 | |
| | 879+40.54 | 879+68.00 | 13.2 | 9 | 19.5 | 13.2 | 8 | 19.1 | 13 | 0.27 | |
| | | | | | | | | | | | |
| Hwy 151 - Stage 2A | 882+04.00 | 882+45.25 | 13.2 | 9 | 19.5 | 13.2 | 8 | 19.1 | 20 | 0.41 | |
| | 882+45.25 | 883+41.78 | 13.2-8 | 9 | 19.5-14.3 | 13.2-8.05 | 8 | 19.1-13.9 | 36 | 0.97 | 176.0 |
| | 883+41.78 | 883+46.75 | 8-0 | 9 | 14.3-0 | 8-0 | 8 | 13.9-0 | 1 | 0.05 | |
| | | | | | | | | | | | |
| Hwy 151 - Stage 2B | 898+00.00 | 901+97.45 | 6-0 | 9 | 12.3-0 | 8-0 | 8 | 11.9-0 | 287 | 3.97 | 203.1 |
| | | | | | | | | | | | |
| | | | | | | | | Total: | 2,438 | 45.42 | 7,021.5 |

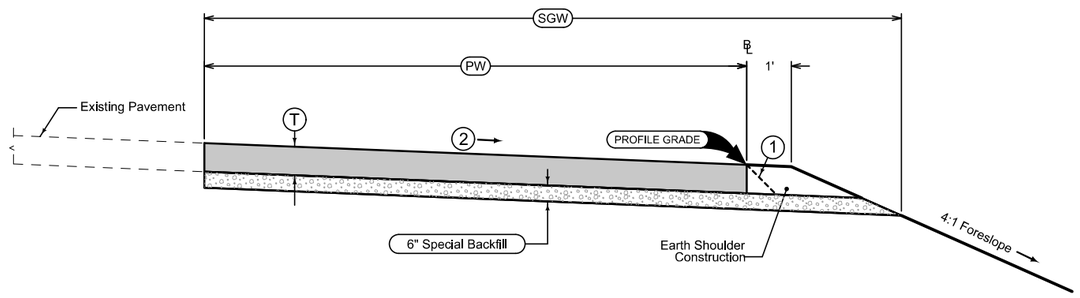
Quantity calculations based on vertical pavement edges.

Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.

(1) Possible HMA 1:1 slope

(2) Match Existing Pavement Slope

D_Detour A
Modified




## DETOUR PAVING AT STAGE 1C AND STAGE 2A

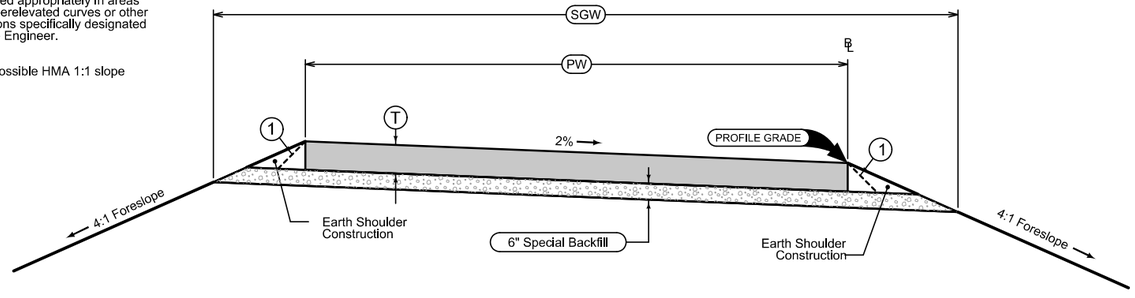
| LOCATION | | | DIMENSIONS | | | | | | 6" Special Backfill | Earth Shoulder Construction | Area |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ROAD IDENTIFICATION | STATION TO STATION | | HMA | | | PCC | | | | | |
| | | | (PW) Feet | (T) Inches | (SGW) Feet | (PW) Feet | (T) Inches | (SGW) Feet | Tons | Station | SY |
| Hwy 151 - DD No. 2 | 1978+22.02 | 1979+03.23 | 0-24 | 9 | 0-28 | 0-24 | 8 | 0-27.7 | 37 | 0.81 | |
| | 1979+03.23 | 1980+76.44 | 24 | 9 | 28-32.7 | 24 | 8 | 27.7-32.1 | 146 | 3.46 | 1,124.8 |
| | 1980+76.44 | 1982+12.34 | 24-0 | 9 | 28-0 | 24-0 | 8 | 27.7-0 | 60 | 1.36 | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | Total: | 243 | 5.63 | 1,124.8 |

Quantity calculations based on vertical pavement edges.

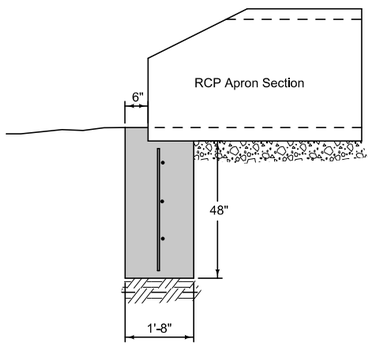
Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.

(1) Possible HMA 1:1 slope

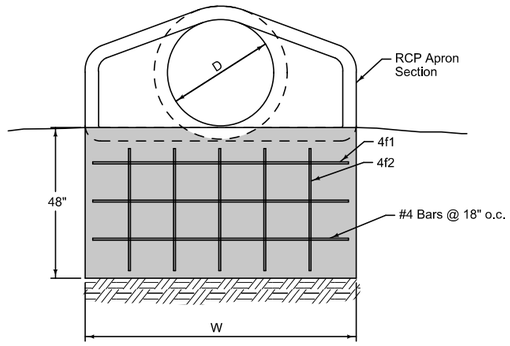
D_Detour B
Modified




## DETOUR PAVING AT DRAINAGE DITCH #2




TYPICAL SECTION




ELEVATION

REINFORCING BAR LIST

| D | W | Mark | Size | Length | Count |
|---|---|---|---|---|---|
| 12" | 2'-4" | 4f1 | 4 | 2'-0" | 3 |
| | | 4f2 | 4 | 3'-8" | 2 |
| 15" | 2'-10 ½" | 4f1 | 4 | 2'-6 ½" | 3 |
| | | 4f2 | 4 | 3'-8" | 2 |
| 18" | 3'-5" | 4f1 | 4 | 3'-1" | 3 |
| | | 4f2 | 4 | 3'-8" | 3 |
| 24" | 4'-6" | 4f1 | 4 | 4'-2" | 3 |
| | | 4f2 | 4 | 3'-8" | 3 |
| 30" | 5'-7" | 4f1 | 4 | 5'-3" | 3 |
| | | 4f2 | 4 | 3'-8" | 4 |
| 36" | 6'-8" | 4f1 | 4 | 6'-4" | 3 |
| | | 4f2 | 4 | 3'-8" | 5 |
| 42" | 7'-3" | 4f1 | 4 | 6'-11" | 3 |
| | | 4f2 | 4 | 3'-8" | 5 |
| 48" | 7'-10" | 4f1 | 4 | 7'-6" | 3 |
| | | 4f2 | 4 | 3'-8" | 6 |
| 54" | 8'-5" | 4f1 | 4 | 8'-1" | 3 |
| | | 4f2 | 4 | 3'-8" | 6 |
| 60" | 8'-11" | 4f1 | 4 | 8'-7" | 3 |
| | | 4f2 | 4 | 3'-8" | 6 |
| 66" | 8'-11" | 4f1 | 4 | 8'-7" | 3 |
| | | 4f2 | 4 | 3'-8" | 6 |
| 72" | 10'-0" | 4f1 | 4 | 9'-8" | 3 |
| | | 4f2 | 4 | 3'-8" | 7 |
| 78" | 10'-7" | 4f1 | 4 | 10'-3" | 3 |
| | | 4f2 | 4 | 3'-8" | 7 |
| 84" | 11'-1" | 4f1 | 4 | 10'-9" | 3 |
| | | 4f2 | 4 | 3'-8" | 8 |

FIGURE 4030.221

SHEET 1 OF 1

SUDAS

| REVISION | |
|---|---|
| 1 | 10-21-14 |

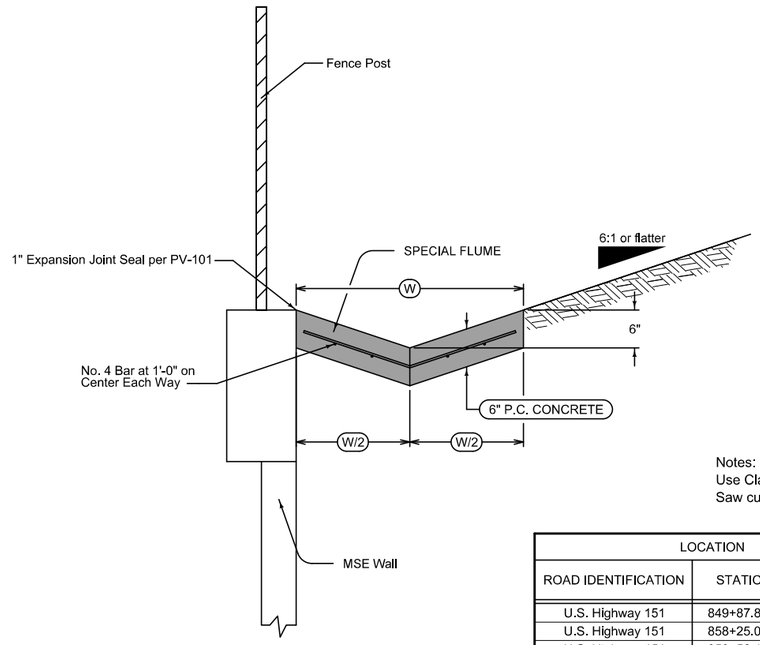
4030.221

SHEET 1 of 1

SUDAS Standard Specifications

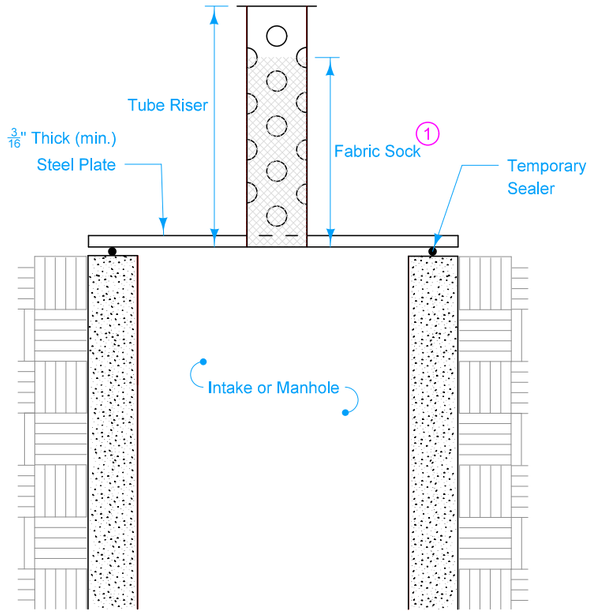
RCP APRON SECTION FOOTING

Flume

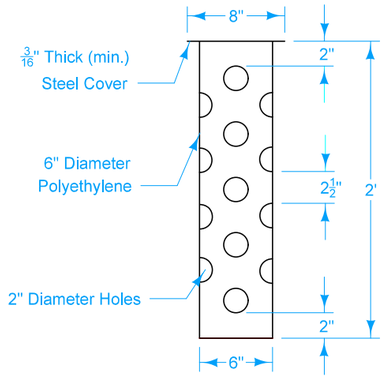



Notes:
Use Class C Concrete.
Saw cut Transverse Joints at 8'-0" on Center.

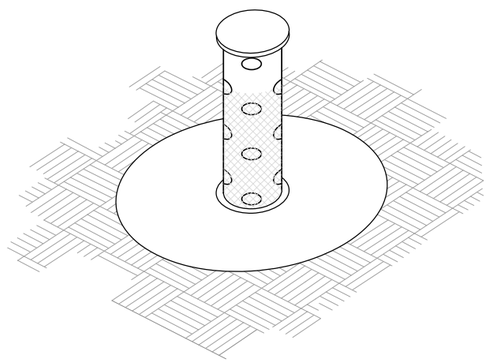
| LOCATION | | | | DIMENSIONS | | REMARKS |
|---|---|---|---|---|---|---|
| ROAD IDENTIFICATION | STATION TO STATION | | SIDE | LENGTH | WIDTH (W) | |
| U.S. Highway 151 | 849+87.80 | 856+66.00 | RT | 678.2' | 4' | MSE Wall No. 1 |
| U.S. Highway 151 | 858+25.00 | 863+52.00 | RT | 527.0' | 4' | MSE Wall No. 2 |
| U.S. Highway 151 | 858+56.40 | 863+42.00 | LT | 485.6' | 4' | MSE Wall No. 3 |
| | | | | | | |
| | | | | | | |



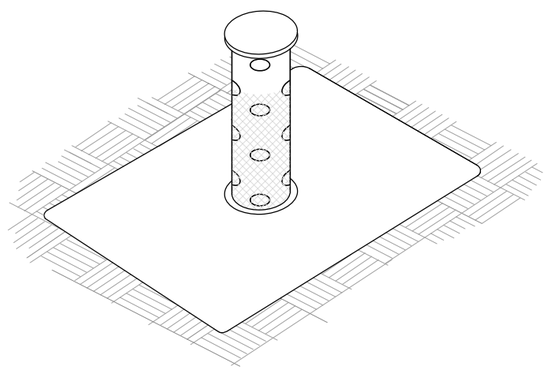

SECTION VIEW




TUBE RISER 2

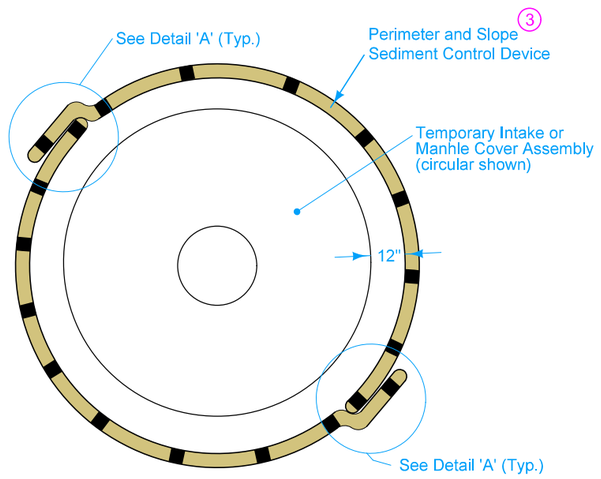


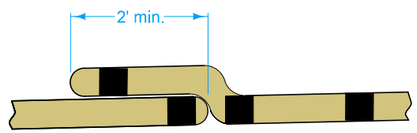
ISOMETRIC VIEW
(Circular)



ISOMETRIC VIEW
(Rectangular)

TEMPORARY INTAKE OR MANHOLE COVER ASSEMBLY




DETAIL 'A' 4
(Overlap Joint)

PERIMETER AND SLOPE SEDIMENT CONTROL

Method of Measurement for Temporary Intake or Manhole Cover Assembly will be by count.

Basis of Payment for Temporary Intake or Manhole Cover Assembly will be at the contract unit price for each device installed.

Method of Measurement for Maintenance of Temporary Intake or Manhole Cover Assembly will be by count.

Basis of Payment for Maintenance of Temporary Intake or Manhole Cover Assembly will be at the contract unit price for each occurance. Payment is full compensation for inspecting fabric sock and replacing when flow capicity has been reduced to 50%.

Method of Measurment for Removal of Temporary Intake or Manhole Cover Assembly will be by count.

Basis of Payment for Removal of Temporary Intake or Manhole Cover Assembly will be at the contract unit price for each device removed.

1. Wrap fabric sock around tube riser. Use fabric complying with Article 4196.01, B, 1 with a minimum flow rate of 90 gallons per minute per square foot. Ensure top of sock is below form grade elevation.
2. Tube riser may be such that it can be pushed down and pulled up.
3. Place Perimeter and Slope Sediment Control Devices around all intake or manhole wells. Use 20 inch diameter device.
4. Extra material required to install overlaps will not be included in the installation length.

Possible Contract Items:
- Temporary Intake or Manhole Cover Assembly
- Maintenance of Temporary Intake or Manhole Cover Assembly
- Removal of Temporary Intake or Manhole Cover Assembly
- Perimeter and Slope Sediment Control Device

Possible Tabulations:
- 100-11
- 100-19

IOWA DOT

REVISION
1 | 04-18-17

# ROAD DESIGN DETAIL

570-5

SHEET 1 of 1

REVISIONS: Add bid items for maintenance and removal. Added basis of payment and method of measurement.

## EROSION CONTROL FOR INTAKE OR MANHOLE WELL

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

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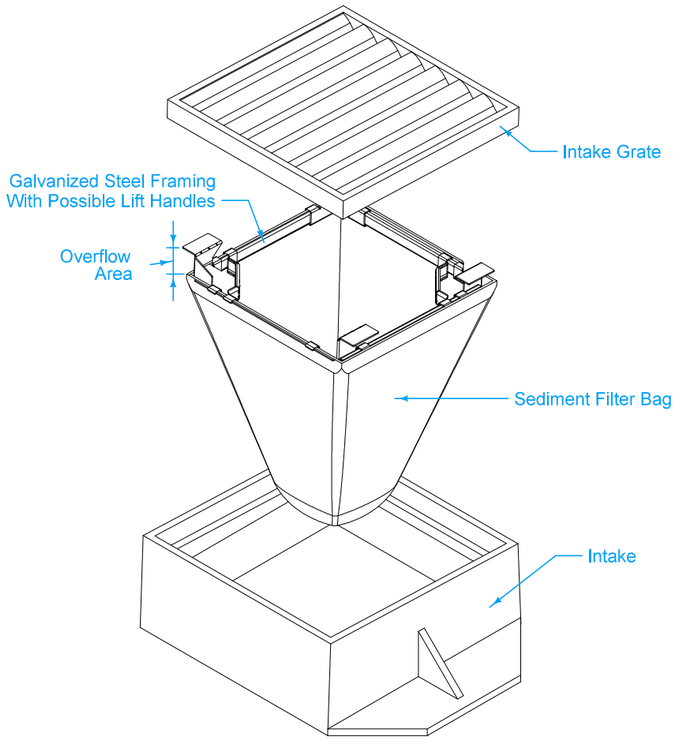
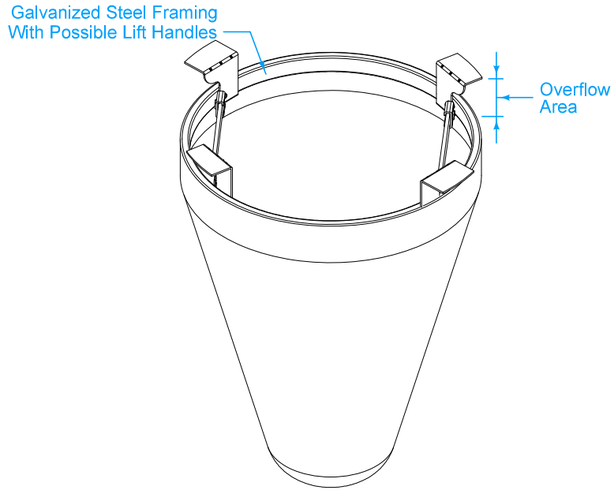
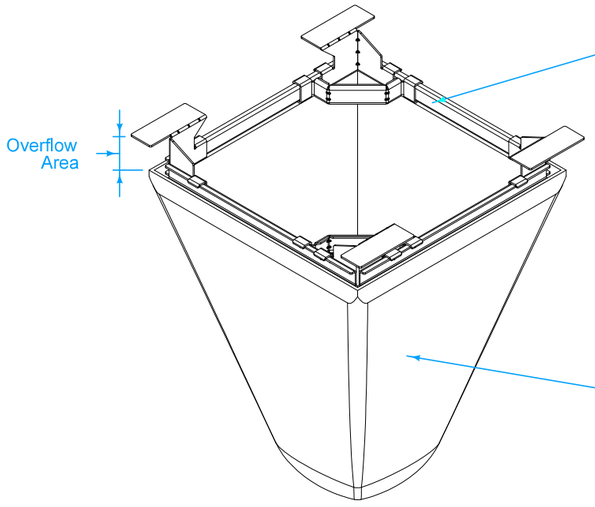


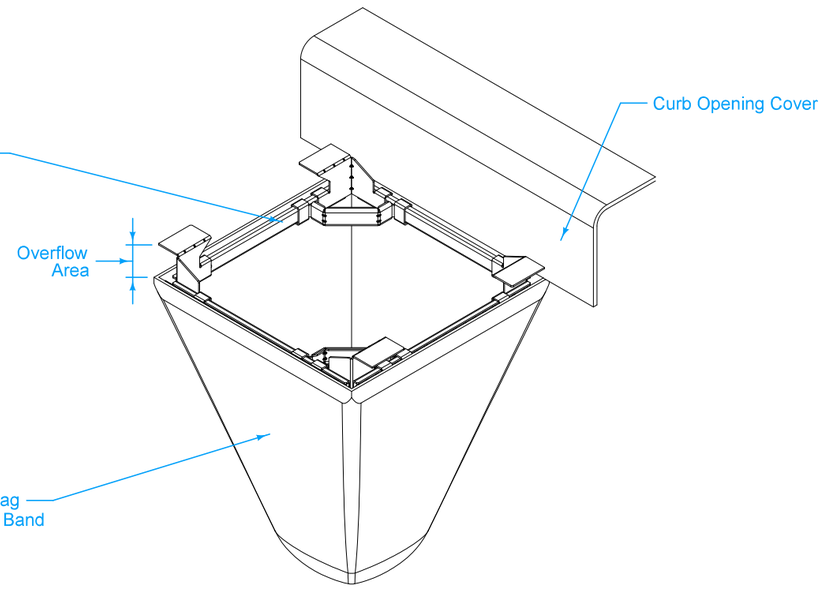

TYPICAL SEDIMENT FILTER BAG PLACEMENT




SEDIMENT FILTER BAG FOR CIRCULAR GRATE




SEDIMENT FILTER BAG FOR SQUARE
OR RECTANGULAR GRATE




SEDIMENT FILTER BAG FOR COMBINATION
GRATE WITH CURB OPENING

Remove sediment filter bag upon stabilization of sediment sources.

Measurement for Grate Intake Sediment Filter Bag will be by count.

Basis of Payment for Grate Intake Sediment Filter Bag will be at the contract unit price for each device installed. Payment is full compensation for furnishing all equipment, labor, and materials required to install the Grate Intake Sediment Filter Bag as shown.

Method of Measurement for Maintenance of Grate Intake Sediment Filter Bag will be by count.

Basis of Payment for Maintenance of Grate Intake Sediment Filter Bag will be at the contract unit price for each occurence. Payment is full compensation for clean out and disposal of material when capacity reaches 50%, and for any other repair needed during the project.

Measurement for Removal of Grate Intake Sediment Filter Bag will be by count.

Basis of Payment for Removal of Grate Intake Sediment Filter Bag will be at the contract unit price for each device removed. Payment is full compensation for all labor and equipment required for removal.

(1) Woven material meeting the requirements of Table 4196.01-1 of the Standard Specifications, except a maximum apparent opening size US Sieve No. 10 and a minimum flow rate of 145 gallons per minute per square foot.

Possible Contract Items:
- Grate Intake Sediment Filter Bag
- Maintenance of Grate Intake Sediment Filter Bag
- Removal of Grate Intake Sediment Filter Bag

Possible Tabulation:
- 100-37

IOWA DOT

| REVISION | |
|---|---|
| NEW | 04-18-17 |

# ROAD DESIGN DETAIL

570-7

SHEET 1 of 1

REVISIONS: NEW

## GRATE INTAKE SEDIMENT FILTER BAG

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

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# ESTIMATED PROJECT QUANTITIES
# (UP TO A 5 DIVISION PROJECT)

Division 1: State Funding
Division 2: City of Fairfax Funding
Division 3: State/City of Fairfax Shared Funding
Division 4: City of Cedar Rapids Funding
Division 5: Retaining Wall Design No. 918

| Item No. | Item Code | Item | Unit | Quantities | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Estimated | | | | | | As Built | | | | |
| | | | | Division 1 | Division 2 | Division 3 | Division 4 | Division 5 | Total | Division 1 | Division 2 | Division 3 | Division 4 | Division 5 |
| 1 | 2101-0850001 | CLEARING & GRUBBING | ACRE | 2.8 | | | | | 2.8 | | | | | |
| 2 | 2101-0850002 | CLEARING & GRUBBING | UNIT | 131 | | | | | 131 | | | | | |
| 3 | 2102-0425070 | SPECIAL BACKFILL | TON | 6868.8 | 81.1 | | | | 6949.9 | | | | | |
| 4 | 2102-2625001 | EMBANKMENT-IN-PLACE, CONTRACTOR FURNISHED | CY | 4088 | | | | | 4088 | | | | | |
| 5 | 2102-2710070 | EXCAVATION CLASS 10, ROADWAY & BORROW | CY | 78624 | 169 | | | | 78793 | | | | | |
| 6 | 2102-2712015 | EXCAVATION, CLASS 12, BOULDERS OR ROCK FRAGMENTS | CY | 50 | | | | | 50 | | | | | |
| 7 | 2105-8425005 | TOPSOIL, FURNISH AND SPREAD | CY | 4061 | | | | | 4061 | | | | | |
| 8 | 2105-8425015 | TOPSOIL, STRIP, SALVAGE AND SPREAD | CY | 11455 | 47 | | | | 11502 | | | | | |
| 9 | 2107-0875100 | COMPACTION WITH MOISTURE CONTROL | CY | 51561 | | | | | 51561 | | | | | |
| 10 | 2107-3825025 | GRANULAR MATERIAL FOR BLANKET AND SUBDRAIN | CY | 2361 | | | | | 2361 | | | | | |
| 11 | 2115-0100000 | MODIFIED SUBBASE | CY | 16116.2 | | | | | 16116.2 | | | | | |
| 12 | 2121-7425010 | GRANULAR SHOULDERS, TYPE A | TON | 846.7 | | | | | 846.7 | | | | | |
| 13 | 2122-5190007 | PAVED SHOULDER, P.C. CONCRETE, 7 IN. | SY | 4544.4 | | | | | 4544.4 | | | | | |
| 14 | 2122-5500060 | PAVED SHOULDER, HOT MIX ASPHALT MIXTURE, 6 IN. | SY | 776.1 | | | | | 776.1 | | | | | |
| 15 | 2122-5500080 | PAVED SHOULDER, HOT MIX ASPHALT MIXTURE, 8 IN. | SY | 347.4 | | | | | 347.4 | | | | | |
| 16 | 2123-7450000 | SHOULDER CONSTRUCTION, EARTH | STA | 120.85 | | | | | 120.85 | | | | | |
| 17 | 2123-7450020 | SHOULDER FINISHING, EARTH | STA | 120.85 | | | | | 120.85 | | | | | |
| 18 | 2213-7100400 | RELOCATION OF MAIL BOXES | EACH | 10 | | | | | 10 | | | | | |
| 19 | 2214-5145150 | PAVEMENT SCARIFICATION | SY | 576.1 | | | | | 576.1 | | | | | |
| 20 | 2301-0690203 | BRIDGE APPROACH, BR-203 | SY | 1678.6 | | | | | 1678.6 | | | | | |
| 21 | 2301-0690205 | BRIDGE APPROACH, BR-205 | SY | 1188.8 | | | | | 1188.8 | | | | | |
| 22 | 2301-1033070 | STD OR SLIP FORM PCC PAVEMENT, CLASS C, CLASS 2 DURABILITY, 7 IN. | SY | 4131.6 | 347.6 | | | | 4479.2 | | | | | |
| 23 | 2301-1033095 | STD OR SLIP FORM PCC PAVEMENT, CLASS C, CLASS 3 DURABILITY, 9.5 IN. | SY | 21572.7 | | | | | 21572.7 | | | | | |
| 24 | 2301-6911722 | PORTLAND CEMENT CONCRETE PAVEMENT SAMPLES | LS | 1 | | | | | 1 | | | | | |
| 25 | 2303-1041500 | HOT MIX ASPHALT HIGH TRAFFIC, BASE COURSE, 1/2 IN. MIX | TON | 129.9 | | | | | 129.9 | | | | | |
| 26 | 2303-1042500 | HOT MIX ASPHALT HIGH TRAFFIC, INTERMEDIATE COURSE, 1/2 IN. MIX | TON | 43.3 | | | | | 43.3 | | | | | |
| 27 | 2303-1043502 | HOT MIX ASPHALT HIGH TRAFFIC, SURFACE COURSE, 1/2 IN. MIX, FRICTION L-2 | TON | 546.1 | | | | | 546.1 | | | | | |
| 28 | 2303-1258284 | ASPHALT BINDER, PG 58-28H, HIGH TRAFFIC | TON | 43.2 | | | | | 43.2 | | | | | |
| 29 | 2304-0100000 | DETOUR PAVEMENT | SY | 8146.3 | | | | | 8146.3 | | | | | |
| 30 | 2315-8275025 | SURFACING, DRIVEWAY, CLASS A CRUSHED STONE | TON | 414 | | | | | 414 | | | | | |
| 31 | 2401-6750001 | REMOVALS, AS PER PLAN | LS | 1 | | | | | 1 | | | | | |
| 32 | 2402-0425030 | GRANULAR BACKFILL | TON | 54423.4 | | | | | 54423.4 | | | | | |
| 33 | 2402-0425040 | FLOODED BACKFILL | CY | 285.2 | | | | | 285.2 | | | | | |
| 34 | 2402-2720100 | EXCAVATION, CLASS 20, FOR ROADWAY PIPE CULVERT | CY | 975.5 | | | | | 975.5 | | | | | |
| 35 | 2403-0100000 | STRUCTURAL CONCRETE (MISCELLANEOUS) | CY | | | 1.4 | | | 1.4 | | | | | |
| 36 | 2404-7775000 | REINFORCING STEEL | LB | | | 21 | | | 21 | | | | | |
| 37 | 2412-0000100 | LONGITUDINAL GROOVING IN CONCRETE | SY | 5485 | | | | | 5485 | | | | | |
| 38 | 2416-0100012 | APRONS, CONCRETE, 12 IN. DIA. | EACH | | 2 | | | | 2 | | | | | |
| 39 | 2416-0100015 | APRONS, CONCRETE, 15 IN. DIA. | EACH | 1 | 1 | | | | 2 | | | | | |
| 40 | 2416-0100018 | APRONS, CONCRETE, 18 IN. DIA. | EACH | 2 | | 1 | | | 3 | | | | | |
| 41 | 2416-0100030 | APRONS, CONCRETE, 30 IN. DIA. | EACH | | | 1 | | | 1 | | | | | |
| 42 | 2416-0100042 | APRONS, CONCRETE, 42 IN. DIA. | EACH | 4 | | | | | 4 | | | | | |
| 43 | 2416-0101136 | REMOVE AND REINSTALL CONCRETE PIPE APRONS GREATER THAT 36 IN. | EACH | 1 | | | | | 1 | | | | | |
| 44 | 2416-1160030 | CULVERT, CONCRETE ENTRANCE PIPE, 30 INCH | LF | 56 | | | | | 56 | | | | | |
| 45 | 2416-1180042 | CULVERT, CONCRETE ROADWAY PIPE, 42 INCH | LF | 244 | | | | | 244 | | | | | |
| 46 | 2416-1180048 | CULVERT, CONCRETE ROADWAY PIPE, 48 INCH | LF | 2 | | | | | 2 | | | | | |
| 47 | 2417-0225012 | APRONS, METAL, 12 IN. DIA | EACH | 2 | | | | | 2 | | | | | |
| 48 | 2417-0225018 | APRONS, METAL, 18 IN. DIA. | EACH | 6 | | | | | 6 | | | | | |
| 49 | 2417-1007000 | CORRUGATED PIPE CULVERT, ENTRANCE PIPE, 12 IN. DIA. | LF | 28 | | | | | 28 | | | | | |
| 50 | 2417-1040018 | CULVERT, CORRUGATED METAL ENTRANCE PIPE, 18 IN. DIA. | LF | 150 | | | | | 150 | | | | | |
| 51 | 2432-0000100 | MECHANICALLY STABILIZED EARTH RETAINING WALL | SF | 31998 | | | | | 31998 | | | | | |
| 52 | 2435-0130148 | MANHOLE, SANITARY SEWER, SW-301, 48 IN. | EACH | | 1 | | | | 1 | | | | | |
| 53 | 2435-0130160 | MANHOLE, SANITARY SEWER, SW-301, 60 IN. | EACH | | | | 4 | | 4 | | | | | |
| 54 | 2435-0140148 | MANHOLE, STORM SEWER, SW-401, 48 IN. | EACH | 1 | 1 | | | | 2 | | | | | |
| 55 | 2435-0140172 | MANHOLE, STORM SEWER, SW-401, 72 IN. | EACH | | | 1 | | | 1 | | | | | |
| 56 | 2435-0250700 | INTAKE, SW-507 | EACH | | 1 | 1 | | | 2 | | | | | |
| 57 | 2435-0250900 | INTAKE, SW-509 | EACH | 12 | | 1 | | | 13 | | | | | |
| 58 | 2435-0251000 | INTAKE, SW-510 | EACH | 3 | | | | | 3 | | | | | |
| 59 | 2435-0251230 | INTAKE, SW-512, 30 IN. | EACH | | | 1 | | | 1 | | | | | |
| 60 | 2435-0251300 | INTAKE, SW-513 | EACH | 3 | 1 | | | | 4 | | | | | |
| 61 | 2435-0600020 | MANHOLE ADJUSTMENT, MAJOR | EACH | | 5 | | | | 5 | | | | | |
| 62 | 2435-0700010 | CONNECTION TO EXISTING MANHOLE | EACH | | 1 | | 1 | | 2 | | | | | |
| 63 | 2435-0700020 | CONNECTION TO EXISTING INTAKE | EACH | | | 1 | | | 1 | | | | | |
| 64 | 2499-3575000 | SPECIAL FLUME | EACH | 3 | | | | | 3 | | | | | |
| 65 | 2501-8400172 | TEMPORARY SHORING | LS | 1 | | | | | 1 | | | | | |
| 66 | 2502-8212034 | SUBDRAIN, LONGITUDINAL, (SHOULDER), 4 IN. DIA. | LF | 10826 | | | | | 10826 | | | | | |
| 67 | 2502-8221303 | SUBDRAIN OUTLET, DR-303 | EACH | 32 | | | | | 32 | | | | | |
| 68 | 2502-8221305 | SUBDRAIN OUTLET, DR-305 | EACH | 36 | | | | | 36 | | | | | |
| 69 | 2503-0114212 | STORM SEWER GRAVITY MAIN, TRENCHED, RCP, 2000D (CLASS III), 12 IN. | LF | | 82 | | | | 82 | | | | | |
| 70 | 2503-0114215 | STORM SEWER GRAVITY MAIN, TRENCHED, RCP, 2000D (CLASS III), 15 IN. | LF | 820 | 66 | 528 | | | 1414 | | | | | |
| 71 | 2503-0114218 | STORM SEWER GRAVITY MAIN, TRENCHED, RCP, 2000D (CLASS III), 18 IN. | LF | 200 | | 262 | | | 462 | | | | | |
| 72 | 2503-0114224 | STORM SEWER GRAVITY MAIN, TRENCHED, RCP, 2000D (CLASS III), 24 IN. | LF | 62 | 106 | | | | 168 | | | | | |
| 73 | 2503-0114230 | STORM SEWER GRAVITY MAIN, TRENCHED, RCP, 2000D (CLASS III), 30 IN. | LF | 46 | | 362 | | | 408 | | | | | |
| 74 | 2503-0200036 | REMOVE STORM SEWER PIPE LESS THAN OR EQUAL TO 36 IN. | LF | 1331 | | | | | 1331 | | | | | |
| 75 | 2503-0500401 | BRIDGE END DRAIN, DR-401 | EACH | 6 | | | | | 6 | | | | | |
| 76 | 2504-0114010 | SANITARY SEWER GRAVITY MAIN, TRENCHED, POLYVINYL CLORIDE PIPE (PVC), 10 IN. | LF | | 146 | | | | 146 | | | | | |
| 77 | 2504-0116024 | SANITARY SEWER GRAVITY MAIN, TRENCHED, DUCTILE IRON PIPE (DIP), 24 IN. | LF | | | | 277 | | 277 | | | | | |
| 78 | 2504-0146024 | SAN. SWR. GTY. MAIN WITH CASING PIPE, TRENCHLESS, DUCTILE IRON PIPE (DIP), 24 IN. | LF | | | | 155 | | 155 | | | | | |
| 79 | 2504-0240036 | REMOVE SANITARY SEWER PIPE LESS THAN OR EQUAL TO 36 IN. | LF | | | | 100 | | 100 | | | | | |
| 80 | 2504-0240236 | SANITARY SEWER ABANDONMENT, FILL AND PLUG, LESS THAN OR EQUAL TO 36 IN. DIA. | LF | | | | 246 | | 246 | | | | | |

# ESTIMATED PROJECT QUANTITIES
# (UP TO A 5 DIVISION PROJECT)

Division 1: State Funding
Division 2: City of Fairfax Funding
Division 3: State/City of Fairfax Shared Funding
Division 4: City of Cedar Rapids Funding
Division 5: Retaining Wall Design No. 918

| Item No. | Item Code | Item | Unit | Quantities | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Estimated | | | | | | As Built | | | | |
| | | | | Division 1 | Division 2 | Division 3 | Division 4 | Division 5 | Total | Division 1 | Division 2 | Division 3 | Division 4 | Division 5 |
| 81 | 2505-4008120 | REMOVAL OF STEEL BEAM GUARDRAIL | LF | 2596.4 | | | | | 2596.4 | | | | | |
| 82 | 2505-4008300 | STEEL BEAM GUARDRAIL | LF | 1562.5 | | | | | 1562.5 | | | | | |
| 83 | 2505-4008410 | STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION, BA-201 | EACH | 8 | | | | | 8 | | | | | |
| 84 | 2505-4021010 | STEEL BEAM GUARDRAIL END ANCHOR, BOLTED | EACH | 8 | | | | | 8 | | | | | |
| 85 | 2505-4021020 | STEEL BEAM GUARDRAIL END ANCHOR, W-BEAM | EACH | 2 | | | | | 2 | | | | | |
| 86 | 2505-4021720 | STEEL BEAM GUARDRAIL TANGENT END TERMINAL, BA-205 | EACH | 10 | | | | | 10 | | | | | |
| 87 | 2505-4502100 | STEEL BEAM GUARDRAIL, POST ADAPTER UNIT, BA-210 | EACH | 22 | | | | | 22 | | | | | |
| 88 | 2507-3250005 | ENGINEERING FABRIC | SY | 409.6 | | | | | 409.6 | | | | | |
| 89 | 2507-6800061 | REVETMENT, CLASS E | TON | 399.5 | | | | | 399.5 | | | | | |
| 90 | 2510-6745850 | REMOVAL OF PAVEMENT | SY | 33775.8 | | | | | 33775.8 | | | | | |
| 91 | 2510-6750600 | REMOVAL OF INTAKES AND UTILITY ACCESSES | EACH | 13 | | | 3 | | 16 | | | | | |
| 92 | 2511-0302600 | RECREATIONAL TRAIL, PORTLAND CEMENT CONCRETE, 6 IN. | SY | | 93.4 | | | | 93.4 | | | | | |
| 93 | 2511-6745900 | REMOVAL OF SIDEWALK | SY | 49.8 | | | | | 49.8 | | | | | |
| 94 | 2511-7526004 | SIDEWALK, P.C. CONCRETE, 4 IN. | SY | 60.3 | | | | | 60.3 | | | | | |
| 95 | 2515-2475006 | DRIVEWAY, P.C. CONCRETE, 6 IN. | SY | 2739.4 | | | | | 2739.4 | | | | | |
| 96 | 2515-6745600 | REMOVAL OF PAVED DRIVEWAY | SY | 1907.3 | | | | | 1907.3 | | | | | |
| 97 | 2518-6910000 | SAFETY CLOSURE | EACH | 47 | | | | | 47 | | | | | |
| 98 | 2519-1004072 | FENCE, CHAIN LINK, 72 IN. HEIGHT, ON WALL | LF | 1782.5 | | | | | 1782.5 | | | | | |
| 99 | 2519-4200190 | REMOVAL OF FENCE, AS PER PLAN | LF | 155.1 | | | | | 155.1 | | | | | |
| 100 | 2526-8285000 | CONSTRUCTION SURVEY | LS | 0.93 | 0.04 | | 0.03 | | 1 | | | | | |
| 101 | 2527-9263109 | PAINTED PAVEMENT MARKING WATERBORNE OR SOLVENT-BASED | STA | 312.1 | | | | | 312.1 | | | | | |
| 102 | 2527-9263131 | WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS | LF | 548.93 | | | | | 548.93 | | | | | |
| 103 | 2527-9263137 | PAINTED SYMBOLS AND LEGENDS, WATERBORNE OR SOLVENT-BASED | EACH | 43 | | | | | 43 | | | | | |
| 104 | 2527-9263180 | PAVEMENT MARKINGS REMOVED | STA | 380.93 | | | | | 380.93 | | | | | |
| 105 | 2528-8400048 | TEMPORARY BARRIER RAIL, CONCRETE | LF | 11825 | | | | | 11825 | | | | | |
| 106 | 2528-8400157 | TEMPORARY FLOODLIGHTING LUMINAIRE | EACH | 2 | | | | | 2 | | | | | |
| 107 | 2528-8400256 | TEMPORARY TRAFFIC SIGNALS | EACH | 5 | | | | | 5 | | | | | |
| 108 | 2528-8445110 | TRAFFIC CONTROL | LS | 0.93 | 0.04 | | 0.03 | | 1 | | | | | |
| 109 | 2528-8445113 | FLAGGERS | EACH | | | | | | | | | | | |
| 110 | 2528-8445115 | PILOT CARS | EACH | | | | | | | | | | | |
| 111 | 2528-9109020 | TEMPORARY LANE SEPARATOR SYSTEM | LF | 1764 | | | | | 1764 | | | | | |
| 112 | 2529-5070110 | PATCHES, FULL DEPTH FINISH, BY AREA | SY | 80 | | | | | 80 | | | | | |
| 113 | 2529-5070120 | PATCHES, FULL DEPTH FINISH, BY COUNT | EACH | 2 | | | | | 2 | | | | | |
| 114 | 2533-4980005 | MOBILIZATION | LS | 0.93 | 0.04 | | 0.03 | | 1 | | | | | |
| 115 | 2551-0000110 | TEMPORARY CRASH CUSHION | EACH | 3 | | | | | 3 | | | | | |
| 116 | 2551-0000130 | TEMPORARY CRASH CUSHION, SEVERE USE (SU) | EACH | 31 | | | | | 31 | | | | | |
| 117 | 2552-0000230 | SPECIAL PIPE EMBEDMENT OR ENCASEMENT | LF | | | | 95 | | 95 | | | | | |
| 118 | 2552-0000300 | TRENCH COMPACTION TESTING | LS | | | | 1 | | 1 | | | | | |
| 119 | 2554-0114008 | WATER MAIN, TRENCHED, POLYVINYL CLORIDE PIPE (PVC), 8 IN. | LF | | 45 | | | | 45 | | | | | |
| 120 | 2554-0114012 | WATER MAIN, TRENCHED, POLYVINYL CLORIDE PIPE (PVC), 12 IN. | LF | | 15 | | | | 15 | | | | | |
| 121 | 2554-0134008 | WATER MAIN WITH CASING PIPE, TRENCHED, POLYVINYL CLORIDE PIPE (PVC), 8 IN. | LF | | 84 | | | | 84 | | | | | |
| 122 | 2554-0134012 | WATER MAIN WITH CASING PIPE, TRENCHED, POLYVINYL CLORIDE PIPE (PVC), 12 IN. | LF | | 130 | | | | 130 | | | | | |
| 123 | 2554-0207008 | VALVE, GATE, DIP, 8 IN. | EACH | | 2 | | | | 2 | | | | | |
| 124 | 2554-0207012 | VALVE, GATE, DIP, 12 IN. | EACH | | 2 | | | | 2 | | | | | |
| 125 | 2554-0210201 | FIRE HYDRANT ASSEMBLY, WM-201 | EACH | | 6 | | | | 6 | | | | | |
| 126 | 2554-0214000 | FIRE HYDRANT ADJUSTMENT | EACH | | 5 | | | | 5 | | | | | |
| 127 | 2595-0005150 | RAILROAD PROTECTIVE LIABILITY INSURANCE FOR UNION PACIFIC RAILROAD CO. | LS | 1 | | | | | 1 | | | | | |
| 128 | 2599-9999010 | INTERMEDIATE FOUNDATION IMPROVEMENTS | LS | 1 | | | | | 1 | | | | | |
| 129 | 2599-9999010 | INTERMEDIATE FOUNDATION IMPROVEMENTS VERIFICATION TESTING | LS | 1 | | | | | 1 | | | | | |
| 130 | 2601-2634100 | MULCHING | ACRE | 12.1 | | | | | 12.1 | | | | | |
| 131 | 2601-2634105 | MULCHING, BONDED FIBER MATRIX | ACRE | 12.1 | | | | | 12.1 | | | | | |
| 132 | 2601-2636043 | SEEDING AND FERTILIZING (RURAL) | ACRE | 5.3 | | | | | 5.3 | | | | | |
| 133 | 2601-2636044 | SEEDING AND FERTILIZING (URBAN) | ACRE | 6.8 | | | | | 6.8 | | | | | |
| 134 | 2601-2638352 | SLOPE PROTECTION, WOOD EXCELSIOR MAT | SQ | 1539 | | | | | 1539 | | | | | |
| 135 | 2601-2642100 | STABILIZE CROP - SEEDING AND FERTILIZING | ACRE | 12.1 | | | | | 12.1 | | | | | |
| 136 | 2601-2643110 | WATERING FOR SOD, SPECIAL DITCH CONTROL, OR SLOPE PROTECTION | MGAL | 307.8 | | | | | 307.8 | | | | | |
| 137 | 2601-2643300 | MOBILIZATION FOR WATERING | EACH | 3 | | | | | 3 | | | | | |
| 138 | 2602-0000020 | SILT FENCE | LF | 7540 | | | | | 7540 | | | | | |
| 139 | 2602-0000030 | SILT FENCE FOR DITCH CHECKS | LF | 1880 | | | | | 1880 | | | | | |
| 140 | 2602-0000071 | REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS | LF | 4519 | | | | | 4519 | | | | | |
| 141 | 2602-0000101 | MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK | LF | 910 | | | | | 910 | | | | | |
| 142 | 2602-0000150 | STABILIZED CONSTRUCTION ENTRANCE | LF | 1400 | | | | | 1400 | | | | | |
| 143 | 2602-0000320 | PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 20 IN. DIA. | LF | 5799 | | | | | 5799 | | | | | |
| 144 | 2602-0000350 | REMOVAL OF PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE | LF | 5799 | | | | | 5799 | | | | | |
| 145 | 2602-0000400 | TEMPORARY INTAKE OR MANHOLE COVER ASSEMBLY | EACH | 25 | | | | | 25 | | | | | |
| 146 | 2602-0000410 | MAINTENANCE OF TEMPORARY INTAKE OR MANHOLE COVER ASSEMBLY | EACH | 25 | | | | | 25 | | | | | |
| 147 | 2602-0000420 | REMOVAL OF TEMPORARY INTAKE OR MANHOLE COVER ASSEMBLY | EACH | 25 | | | | | 25 | | | | | |
| 148 | 2602-0000500 | OPEN-THROAT CURB INTAKE SEDIMENT FILTER | LF | 136 | | | | | 136 | | | | | |
| 149 | 2602-0000510 | MAINTENANCE OF OPEN-THROAT CURB INTAKE SEDIMENT FILTER | EACH | 18 | | | | | 18 | | | | | |
| 150 | 2602-0000520 | REMOVAL OF OPEN-THROAT CURB INTAKE SEDIMENT FILTER | EACH | 18 | | | | | 18 | | | | | |
| 151 | 2602-0010010 | MOBILIZATIONS, EROSION CONTROL | EACH | 5 | | | | | 5 | | | | | |
| 152 | 2602-0010020 | MOBILIZATIONS, EMERGENCY EROSION CONTROL | EACH | 5 | | | | | 5 | | | | | |
| | | | | | | | | | | | | | | |
| | | Refer to Sheet V.1 for Reinforced Concrete Retaining Wall (Division 5) Quantities | | | | | | | | | | | | |

# ESTIMATE REFERENCE INFORMATION

| Item No. | Item Code | Description |
|---|---|---|
| 1 | 2101-0850001 | CLEARING & GRUBBING |
| 2 | 2101-0850002 | CLEARING & GRUBBING |
| | | Refer to Tab. 110-17 and D Sheets for locations. Clearing and grubbing areas shall be approved by the Engineer prior to beginning of clearing operations. Take care to protect all trees and other plant material to remain. |
| 3 | 2102-0425070 | SPECIAL BACKFILL |
| | | Refer to typical sections on B Sheets and Tab. 112-9 for locations. Includes material for construction of detour pavement. |
| 4 | 2102-2625001 | EMBANKMENT-IN-PLACE, CONTRACTOR FURNISHED |
| 5 | 2102-2710070 | EXCAVATION CLASS 10, ROADWAY & BORROW |
| | | Refer to T Sheets. Quantity includes excavation needed for construction of MSE walls and detour pavement. Quantity includes 78,793 CY adjusted roadway cut and 73,480 adjusted fill +30% shrink for a net furnish of 4,088 CY. There will be no additional compensation for overhaul of excavated materials. |
| 6 | 2102-2712015 | EXCAVATION, CLASS 12, BOULDERS OR ROCK FRAGMENTS |
| | | Refer to sheet CS.1 and Q Sheets. |
| 7 | 2105-8425005 | TOPSOIL, FURNISH AND SPREAD |
| 8 | 2105-8425015 | TOPSOIL, STRIP, SALVAGE AND SPREAD |
| | | Refer to T Sheets. Quantity includes: 7,440 CY of strip and 11,502 CY of placement +40% shrink. Contractor to be responsible for a net furnish of 4,061 CY. There will be no additional compensation for overhaul of excess materials. |
| 9 | 2107-0875100 | COMPACTION WITH MOISTURE CONTROL |
| 10 | 2107-3825025 | GRANULAR MATERIAL FOR BLANKET AND SUBDRAIN |
| | | Refer to Sheet CS.1 and Q Sheets. |
| 11 | 2115-0100000 | MODIFIED SUBBASE |
| | | Refer to Tab 100-24 and B Sheets for locations. On mainline paving, top six inches of modified subbase shall be of virgin material. |
| 12 | 2121-7425010 | GRANULAR SHOULDERS, TYPE A |
| 13 | 2122-5190007 | PAVED SHOULDER, P.C. CONCRETE, 7 IN. |
| 14 | 2122-5500060 | PAVED SHOULDER, HOT MIX ASPHALT MIXTURE, 6 IN. |
| 15 | 2122-5500080 | PAVED SHOULDER, HOT MIX ASPHALT MIXTURE, 8 IN. |
| | | Refer to Tab. 112-9, Tab. 100-25, and B Sheets for locations. |
| 16 | 2123-7450000 | SHOULDER CONSTRUCTION, EARTH |
| 17 | 2123-7450020 | SHOULDER FINISHING, EARTH |
| | | Refer to B Sheets for locations. Includes backfill and finish grading behing all curbs. Includes locations of detour pavement. |
| 18 | 2213-7100400 | RELOCATION OF MAIL BOXES |
| | | Relocated mailboxs at station 863+80, 877+10, 897+15, 899+40, 983+45, 2866+25 and 4874+75. Item includes removing, salvaging, and maintaining temporary mailboxes during construction. After project is completed, reinstall mailboxes per https://www.usps.com/manage/mailboxes.htm. Contact Clifford Brause, Postmaster - (319) 984-6230 to ascertain the requirements for maintenance of postal service to residents and businesses within the project area. Place and maintain mailboxes at temporary locations as designated by the postmaster. Reinstalled mailboxes to be approved by the postmaster following construction. Not less than 48 hours prior to removing any mailbox, notify each affected property owner in writing notifying them of the move and the location of the temporary mailbox. Temporary mailboxes shall be in a place so postal service is maintained at all times. Any permanent mailbox that must be removed shall be stored on the property to which it belongs and at a sufficient distance from the work area to ensure it will not be damaged during construction. Provide an accessible route to the temporary mailbox location for each property. Each mailbox relocated will be counted for payment. Payment will be at contract unit price for each and includes all material, labor, equipment, and coordination to maintain postal service to property owners and properly reinstall mailboxes. |
| 19 | 2214-5145150 | PAVEMENT SCARIFICATION |
| | | Item includes milled wedge from Sta. 901+58 to Sta. 902+58 to transition HMA overlay to match existing pavement elevation. Refer to Tab. 102-16. |
| 20 | 2301-0690203 | BRIDGE APPROACH, BR-203 |
| 21 | 2301-0690205 | BRIDGE APPROACH, BR-205 |
| | | Refer to Tab. 112-6 for locations. |
| 22 | 2301-1033070 | STD OR SLIP FORM PCC PAVEMENT, CLASS C, CLASS 2 DURABILITY, 7 IN. |
| 23 | 2301-1033095 | STD OR SLIP FORM PCC PAVEMENT, CLASS C, CLASS 3 DURABILITY, 9.5 IN. |
| 24 | 2301-6911722 | PORTLAND CEMENT CONCRETE PAVEMENT SAMPLES |
| | | Refer to Tab. 100-24 and B Sheets. Quantity includes curb and gutter area. |
| 25 | 2303-1041500 | HOT MIX ASPHALT HIGH TRAFFIC, BASE COURSE, 1/2 IN. MIX |
| 26 | 2303-1042500 | HOT MIX ASPHALT HIGH TRAFFIC, INTERMEDIATE COURSE, 1/2 IN. MIX |
| 27 | 2303-1043502 | HOT MIX ASPHALT HIGH TRAFFIC, SURFACE COURSE, 1/2 IN. MIX, FRICTION L-2 |
| 28 | 2303-1258284 | ASPHALT BINDER, PG 58-28H, HIGH TRAFFIC |
| | | Refer to Tab. 100-25 and B Sheets for locations. Binder quantity is based on 6.0% binder content. Items include 5% to account for overruns. |
| 29 | 2304-0100000 | DETOUR PAVEMENT |
| | | Refer to details on Sheet B.8 and J Sheets. |
| 30 | 2315-8275025 | SURFACING, DRIVEWAY, CLASS A CRUSHED STONE |
| | | Refer to Tab. 102-3. |

100-4A
10-29-02

# ESTIMATE REFERENCE INFORMATION

| Item No. | Item Code | Description |
|---|---|---|
| 31 | 2401-6750001 | REMOVALS, AS PER PLAN |
| | | Refer to Tab. 110-2. |
| 32 | 2402-0425030 | GRANULAR BACKFILL |
| | | For material placed as part of the MSE Wall construction. Material depth is assumed to be equal to the wall height. Actual material quantity will be determined based on wall design and delivery tickets. |
| 33 | 2402-0425040 | FLOODED BACKFILL |
| 34 | 2402-2720100 | EXCAVATION, CLASS 20, FOR ROADWAY PIPE CULVERT |
| | | Refer to Tab. 104-3 for locations and quantities. |
| 35 | 2403-0100000 | STRUCTURAL CONCRETE (MISCELLANEOUS) |
| 36 | 2404-7775000 | REINFORCING STEEL |
| | | For construction of apron footings, refer to detail on B Sheets. Refer to Sheet M.1 for location. |
| 37 | 2412-0000100 | LONGITUDINAL GROOVING IN CONCRETE |
| | | Refer to Tab. 100-28. |
| 38 | 2416-0100012 | APRONS, CONCRETE, 12 IN. DIA. |
| 39 | 2416-0100015 | APRONS, CONCRETE, 15 IN. DIA. |
| 40 | 2416-0100018 | APRONS, CONCRETE, 18 IN. DIA. |
| 41 | 2416-0100030 | APRONS, CONCRETE, 30 IN. DIA. |
| 42 | 2416-0100042 | APRONS, CONCRETE, 42 IN. DIA. |
| | | Refer to the M and V Sheets, Tab. 102-3, Tab 104-3 and Tab. 104-5B for locations. Install apron guards on all aprons. Apron guards are incidental to the contract unit price for each apron. |
| 43 | 2416-0101136 | REMOVE AND REINSTALL CONCRETE PIPE APRONS GREATER THAT 36 IN. |
| | | Refer to Tab. 104-3 and Sheet V.21. |
| 44 | 2416-1160030 | CULVERT, CONCRETE ENTRANCE PIPE, 30 INCH |
| | | Refer to Tab. 102-3. |
| 45 | 2416-1180042 | CULVERT, CONCRETE ROADWAY PIPE, 42 INCH |
| 46 | 2416-1180048 | CULVERT, CONCRETE ROADWAY PIPE, 48 INCH |
| | | Refer to Tab. 104-3 and V Sheets. |
| 47 | 2417-0225012 | APRONS, METAL, 12 IN. DIA |
| 48 | 2417-0225018 | APRONS, METAL, 18 IN. DIA. |
| | | Refer to Tab. 102-3. |
| 49 | 2417-1007000 | CORRUGATED PIPE CULVERT, ENTRANCE PIPE, 12 IN. DIA. |
| | | Refer to Tab. 102-3. Materials, construction, method of measurement and basis of payment shall be per specification section 2417. |
| 50 | 2417-1040018 | CULVERT, CORRUGATED METAL ENTRANCE PIPE, 18 IN. DIA. |
| | | Refer to Tab. 102-3. |
| 51 | 2432-0000100 | MECHANICALLY STABILIZED EARTH RETAINING WALL |
| | | Refer to D Sheets for retaining wall locations and U Sheets for retaining wall situation plans. |
| 52 | 2435-0130148 | MANHOLE, SANITARY SEWER, SW-301, 48 IN. |
| | | Refer to Tab. 104-5B and M Sheets. |
| 53 | 2435-0130160 | MANHOLE, SANITARY SEWER, SW-301, 60 IN. |
| | | Refer to U Sheets. Manhole joints shall be tied per details on Sheet U.5. Manhole lids shll be bolt down type. Item includes external chimney seal, bold-down frame and lid, adjusting rings (pro-ring) and PVC liner. Sanitary sewer bypass pumping and dewatering are incidental to sanitay sewer construciton. |
| 54 | 2435-0140148 | MANHOLE, STORM SEWER, SW-401, 48 IN. |
| 55 | 2435-0140172 | MANHOLE, STORM SEWER, SW-401, 72 IN. |
| 56 | 2435-0250700 | INTAKE, SW-507 |
| 57 | 2435-0250900 | INTAKE, SW-509 |
| 58 | 2435-0251000 | INTAKE, SW-510 |
| 59 | 2435-0251230 | INTAKE, SW-512, 30 IN. |
| 60 | 2435-0251300 | INTAKE, SW-513 |
| | | Refer to Tab. 104-5B and M Sheets. |
| 61 | 2435-0600020 | MANHOLE ADJUSTMENT, MAJOR |
| | | Refer to Tab. 104-10. |
| 62 | 2435-0700010 | CONNECTION TO EXISTING MANHOLE |
| | | Refer to M Sheets and U Sheets. |
| 63 | 2435-0700020 | CONNECTION TO EXISTING INTAKE |
| | | Refer to M Sheets. |
| 64 | 2499-3575000 | SPECIAL FLUME |
| | | Construct flume at each MSE wall location, refer to flume detail on Sheet B.9. Concrete shall meet the requriements of specification section 2403. Reinforcing shall meet the requirements of specification section 2404. Compact sub-grade 6" below each flume per specification section 2109. Each flume propertly installed will be counted for payment. Payment will be at the contract unit price of each and includes all materials, labor |

# ESTIMATE REFERENCE INFORMATION

| Item No. | Item Code | Description |
|---|---|---|
| | | and equipment needed to construct each flume per plans. |
| 65 | 2501-8400172 | TEMPORARY SHORING |
| | | Install temporary shoring as needed for MSE wall construction. Temporary shoring will be measured and paid for at the contract unit price of lump sum. |
| 66 | 2502-8212034 | SUBDRAIN, LONGITUDINAL, (SHOULDER), 4 IN. DIA. |
| 67 | 2502-8221303 | SUBDRAIN OUTLET, DR-303 |
| 68 | 2502-8221305 | SUBDRAIN OUTLET, DR-305 |
| | | Refer to Tab. 104-9. |
| 69 | 2503-0114212 | STORM SEWER GRAVITY MAIN, TRENCHED, RCP, 2000D (CLASS III), 12 IN. |
| 70 | 2503-0114215 | STORM SEWER GRAVITY MAIN, TRENCHED, RCP, 2000D (CLASS III), 15 IN. |
| 71 | 2503-0114218 | STORM SEWER GRAVITY MAIN, TRENCHED, RCP, 2000D (CLASS III), 18 IN. |
| 72 | 2503-0114224 | STORM SEWER GRAVITY MAIN, TRENCHED, RCP, 2000D (CLASS III), 24 IN. |
| 73 | 2503-0114230 | STORM SEWER GRAVITY MAIN, TRENCHED, RCP, 2000D (CLASS III), 30 IN. |
| | | Refer to Tab. 104-5B and M Sheets. Installed O-ring or profile gasketed joints where indicated. |
| 74 | 2503-0200036 | REMOVE STORM SEWER PIPE LESS THAN OR EQUAL TO 36 IN. |
| | | Refer to Tab. 110-14 for locations. Item includes disposal of material offsite. Removal of aprons is included in this item. |
| 75 | 2503-0500401 | BRIDGE END DRAIN, DR-401 |
| | | Refer to Tab.104-8A |
| 76 | 2504-0114010 | SANITARY SEWER GRAVITY MAIN, TRENCHED, POLYVINYL CLORIDE PIPE (PVC), 10 IN. |
| | | Refer to Tab. 104-5B and M Sheets. Pipe shall be SDR-26. |
| 77 | 2504-0116024 | SANITARY SEWER GRAVITY MAIN, TRENCHED, DUCTILE IRON PIPE (DIP), 24 IN. |
| | | Pipe shall be 24" DIP with ceramic epoxy lining, restrained joints and encased in polyethylene. Dewatering and any necessary temporay stream diversion is incidental. Pipe bedding to be Class F-3 per Standard Road Plan SW-103, modify where Special Pipe Embedment or Encasement is used. Pipe bedding material shall be granular backfill. Disposal of excess material from trench shall be incidental. |
| 78 | 2504-0146024 | SAN. SWR. GTY. MAIN WITH CASING PIPE, TRENCHLESS, DUCTILE IRON PIPE (DIP), 24 IN. |
| | | Refer to U Sheets. Access for launching and receiving pits is limited to the temporary easements. Casing pipe shall be coal tar expoxied and incidental. Steel casing pipe shall be 48" diameter and minimum wall thickness shall be 0.344". Carrier pipe shall be 24" DIP with ceramic epoxy lining and restrained joints. Any necessary or temporary stream diversion is incidental. |
| 79 | 2504-0240036 | REMOVE SANITARY SEWER PIPE LESS THAN OR EQUAL TO 36 IN. |
| | | Refer to U Sheets. Dispose of removed pipe. |
| 80 | 2504-0240236 | SANITARY SEWER ABANDONMENT, FILL AND PLUG, LESS THAN OR EQUAL TO 36 IN. DIA. |
| | | Refer to U Sheets. Remove and dispose of existing manhole cone sections. Pipe and remaining manhole sections to be filled with flowable mortar. Plug upstream and downstream pipe ends. |
| 81 | 2505-4008120 | REMOVAL OF STEEL BEAM GUARDRAIL |
| | | Refer to Tab. 110-7A. |
| 82 | 2505-4008300 | STEEL BEAM GUARDRAIL |
| 83 | 2505-4008410 | STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION, BA-201 |
| 84 | 2505-4021010 | STEEL BEAM GUARDRAIL END ANCHOR, BOLTED |
| 85 | 2505-4021020 | STEEL BEAM GUARDRAIL END ANCHOR, W-BEAM |
| 86 | 2505-4021720 | STEEL BEAM GUARDRAIL TANGENT END TERMINAL, BA-205 |
| 87 | 2505-4502100 | STEEL BEAM GUARDRAIL, POST ADAPTER UNIT, BA-210 |
| | | Refer to Tab. 108-8A and Tab. 108-8C. |
| 88 | 2507-3250005 | ENGINEERING FABRIC |
| 89 | 2507-6800061 | REVETMENT, CLASS E |
| | | Refer to Tab. 100-23. |
| 90 | 2510-6745850 | REMOVAL OF PAVEMENT |
| | | Refer to Tab. 102-5 and Tab 110-1. If the removal limits are within 2-feet of an existing joint, extend removal to the joint. The Contractor is responsible for replacing any damaged pavement beyond the removal limits, no additional payment will be allowed for this work. |
| 91 | 2510-6750600 | REMOVAL OF INTAKES AND UTILITY ACCESSES |
| | | Refer to Tab. 110-15 and M Sheets. |
| 92 | 2511-0302600 | RECREATIONAL TRAIL, PORTLAND CEMENT CONCRETE, 6 IN. |
| | | Item for construction of trail under Drainage Ditch No. 1 Bridge. Use Class C concrete. Construct at 1.5% cross slope on bench provided in berm slope. Refer to Drainage Ditch No. 1 plans (BRF-151-3(152)--38-57). |
| 93 | 2511-6745900 | REMOVAL OF SIDEWALK |
| | | Refer to Tab. 110-5. Contractor is responsible for replacing any damaged pavement beyond the removal limits. |
| 94 | 2511-7526004 | SIDEWALK, P.C. CONCRETE, 4 IN. |
| | | Refer to Tab. 113-1 and B Sheets. Refer to sheet L.1 for shaping information. Sidewalk through driveways shall be paid for as PCC Driveway. Use Class C concrete for all sidewalk construction. |
| 95 | 2515-2475006 | DRIVEWAY, P.C. CONCRETE, 6 IN. |
| | | Refer to Tab. 102-3. Quantity includes sidewalk area within driveways. |
| 96 | 2515-6745600 | REMOVAL OF PAVED DRIVEWAY |
| | | Refer to Tab. 110-8. Contractor is responsible for replacing any damaged pavement beyond the removal limits. |
| 97 | 2518-6910000 | SAFETY CLOSURE |
| | | Refer to Tab. 108-13A and J Sheets. |
| 98 | 2519-1004072 | FENCE, CHAIN LINK, 72 IN. HEIGHT, ON WALL |
| | | Refer to Tab. 100-7. Install per wall manufacturer's recommendations. |
| 99 | 2519-4200190 | REMOVAL OF FENCE, AS PER PLAN |
| | | Refer to Tab. 100-08. |
| 100 | 2526-8285000 | CONSTRUCTION SURVEY |
| | | Includes construction survey for all project divisions. |
| 101 | 2527-9263109 | PAINTED PAVEMENT MARKING WATERBORNE OR SOLVENT-BASED |
| 102 | 2527-9263131 | WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS |
| 103 | 2527-9263137 | PAINTED SYMBOLS AND LEGENDS, WATERBORNE OR SOLVENT-BASED |
| 104 | 2527-9263180 | PAVEMENT MARKINGS REMOVED |
| | | Refer to Tab. 108-22 and Tab. 108-29. Refer to J Sheets for layout. Pavement cure shall be completely removed from pavement surface prior to application of pavement markings and symbols and legends. |
| 105 | 2528-8400048 | TEMPORARY BARRIER RAIL, CONCRETE |
| | | Refer to Tab. 108-33 and J Sheets. |
| 106 | 2528-8400157 | TEMPORARY FLOODLIGHTING LUMINAIRE |
| | | Refer to J Sheets. |
| 107 | 2528-8400256 | TEMPORARY TRAFFIC SIGNALS |
| | | Refer to Tab. 108-28 and J Sheets. |
| 108 | 2528-8445110 | TRAFFIC CONTROL |
| | | Refer to J Sheets. |
| 111 | 2528-9109020 | TEMPORARY LANE SEPARATOR SYSTEM |
| | | Refer to Tab. 108-35 and J Sheets. |
| 112 | 2529-5070110 | PATCHES, FULL DEPTH FINISH, BY AREA |
| 113 | 2529-5070120 | PATCHES, FULL DEPTH FINISH, BY COUNT |
| | | Refer to Tab. 102-6C. |
| 115 | 2551-0000110 | TEMPORARY CRASH CUSHION |
| 116 | 2551-0000130 | TEMPORARY CRASH CUSHION, SEVERE USE (SU) |
| | | Refer to Tab. 108-30 and J Sheets. |
| 117 | 2552-0000230 | SPECIAL PIPE EMBEDMENT OR ENCASEMENT |
| | | Refer to U Sheets and detail on sheet U.5. Applies to pipe P-3. |
| 118 | 2552-0000300 | TRENCH COMPACTION TESTING |
| | | Includes testing for sanitary sewer shown on U Sheets, performed by an independent testing labratory. Provide a minimum of 6 tests ramdomly spaced over sanitary sewer trench. No compensation will be made for re-testing failed tests. |
| 119 | 2554-0114008 | WATER MAIN, TRENCHED, POLYVINYL CLORIDE PIPE (PVC), 8 IN. |
| 120 | 2554-0114012 | WATER MAIN, TRENCHED, POLYVINYL CLORIDE PIPE (PVC), 12 IN. |
| 121 | 2554-0134008 | WATER MAIN WITH CASING PIPE, TRENCHED, POLYVINYL CLORIDE PIPE (PVC), 8 IN. |
| 122 | 2554-0134012 | WATER MAIN WITH CASING PIPE, TRENCHED, POLYVINYL CLORIDE PIPE (PVC), 12 IN. |
| 123 | 2554-0207008 | VALVE, GATE, DIP, 8 IN. |
| 124 | 2554-0207012 | VALVE, GATE, DIP, 12 IN. |
| 125 | 2554-0210201 | FIRE HYDRANT ASSEMBLY, WM-201 |
| | | Refer to D Sheets and M Sheets. Steel casing pipe shall be 20" diameter for both 8" and 12" water main. Install tracer wire system for all water main per standard road plan WM-102. Provide restrained joint PVC pipe and stainless steel nuts and bolts for all water main fixtures and connections. Fire Hydrant Assembly shall be either Clow or Waterous with Storz connections. |
| 126 | 2554-0214000 | FIRE HYDRANT ADJUSTMENT |
| | | Refer to Tab. 104-10. |
| 128 | 2599-9999010 | INTERMEDIATE FOUNDATION IMPROVEMENTS |
| 129 | 2599-9999010 | INTERMEDIATE FOUNDATION IMPROVEMENTS VERIFICATION TESTING |
| | | Refer to special provisions for Intermediate Foundation Improvements for additional information, method of measurement and basis of payment. |
| 130 | 2601-2634100 | MULCHING |
| 131 | 2601-2634105 | MULCHING, BONDED FIBER MATRIX |
| 132 | 2601-2636043 | SEEDING AND FERTILIZING (RURAL) |
| 133 | 2601-2636044 | SEEDING AND FERTILIZING (URBAN) |
| | | Seeding, fertilizing, and mulching are intended for use on all final restoration areas within the project limits. Use Urban mix in lawn areas adjacent to residences. Use Rural mix on all other disturbed areas. |
| | | Mulching is intended to be used for temporary seeding needed to comply with the NPDES Permit. Use Mulching, |

100-4A
10-29-02

## ESTIMATE REFERENCE INFORMATION

| Item No. | Item Code | Description |
|---|---|---|
| | | Bonded Fiber Matrix for permanent seeding areas as noted above. |
| 134 | 2601-2638352 | SLOPE PROTECTION, WOOD EXCELSIOR MAT |
| | | Item for slope protection of long steep slopes, generally near structures. Refer to Tab. 100-22. |
| 135 | 2601-2642100 | STABILIZE CROP - SEEDING AND FERTILIZING |
| | | Item intended to be used for temporary seeding needed to comply with NPDES Permit. |
| 136 | 2601-2643110 | WATERING FOR SOD, SPECIAL DITCH CONTROL, OR SLOPE PROTECTION |
| 137 | 2601-2643300 | MOBILIZATION FOR WATERING |
| | | Items associated with installation of slope protection. Refer to Tab. 100-22. |
| 138 | 2602-0000020 | SILT FENCE |
| | | Refer to Tab. 100-17. The tabulation includes estimated locations for placement of silt fence to address possible erosion during construction. Verify the specific locations with the Engineer prior to placement. Bid item includes 25% additional quantity for field adjustments and replacements. |
| 139 | 2602-0000030 | SILT FENCE FOR DITCH CHECKS |
| | | Refer to Tab. 100-18. The tabulation includes estimated locations for placement of silt fence for ditch checks to address possible erosion during construction. Verify the specific locations with the Engineer prior to placement. Bid item includes 50% additional quantity for field adjustments and replacements. |
| 140 | 2602-0000071 | REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS |
| | | This item is included for silt fence and silt fence for ditch check removal required for staging reasons, for replacement (replacement to be paid separately), or for areas that have achieved 70% permanent growth. |
| 141 | 2602-0000101 | MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK |
| | | This item is included for cleanout and repair of the silt fence and silt fence for ditch checks during the project. |
| 142 | 2602-0000150 | STABILIZED CONSTRUCTION ENTRANCE |
| | | Install as necessary for access to work areas during staged construction. Refer to Sheet C.28 - C.30. |
| 143 | 2602-0000320 | PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 20 IN. DIA. |
| 144 | 2602-0000350 | REMOVAL OF PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE |
| | | Refer to Tab. 100-19. |
| 145 | 2602-0000400 | TEMPORARY INTAKE OR MANHOLE COVER ASSEMBLY |
| 146 | 2602-0000410 | MAINTENANCE OF TEMPORARY INTAKE OR MANHOLE COVER ASSEMBLY |
| 147 | 2602-0000420 | REMOVAL OF TEMPORARY INTAKE OR MANHOLE COVER ASSEMBLY |
| | | Refer to Tab. 100-11 and details on B Sheets. |
| 148 | 2602-0000500 | OPEN-THROAT CURB INTAKE SEDIMENT FILTER |
| 149 | 2602-0000510 | MAINTENANCE OF OPEN-THROAT CURB INTAKE SEDIMENT FILTER |
| 150 | 2602-0000520 | REMOVAL OF OPEN-THROAT CURB INTAKE SEDIMENT FILTER |
| | | Refer to Tab. 100-36 and details on B sheets. |
| 151 | 2602-0010010 | MOBILIZATIONS, EROSION CONTROL |
| 152 | 2602-0010020 | MOBILIZATIONS, EMERGENCY EROSION CONTROL |
| | | Includes erosion control mobilizations for all project divisions. |

111-25
10-18-11

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100-1D
10-18-05

## PROJECT DESCRIPTION

This project includes grading and paving of a U.S. Highway 151, a two lane roadway with turn lanes and a two-way left turn lane from south of Church Street, north approximately 0.5 mile to west of the U.S. Highway 151 intersection with 80th Street SW in Fairfax.

This project also includes pavement improvements associated with the structure replacement at Drainage Ditch No. 2, between Stoney Point Road and Dean Road.

Associated projects include replacement of bridges at UPRR, Prairie Creek, Drainage Ditch No. 1 and Drainage Ditch No. 2 and project signing.

100-26
10-15-13

## INCIDENTAL ITEMS

Special or unique items where method of measurement / basis of payment is not indicated in the specifications or other contract documents.

| No. | Incidental Item | Unit | Quantity | Incidental To | | Remarks |
|---|---|---|---|---|---|---|
| | | | | Item Code | Item | |
| 1 | Maintenance of Postal Service | LS | 1 | 2213-7100400 | Relocation of Mail Boxes | |
| 2 | Maintenance of Garbage Service | LS | 1 | 2528-8445110 | Traffic Control | |
| 3 | Maintain Property Access and Parking | LS | 1 | 2528-8445110 | Traffic Control | |

281-1
10-18-16

## SECTION 404 PERMIT AND CONDITIONS

Construct this project according to the requirements of U.S. Army Corps of Engineers Nationwide, Permit No. 2018-458. A copy of this permit is available from the Iowa DOT website (http://www.envpermits.iowadot.gov/). The U.S. Army Corps of Engineers reserves the right to visit the site without prior notice.

262-6
10-18-05

## UTILITIES
## (NOT A POINT 25 PROJECT)

This is NOT a POINT 25 project and is not subject to the provisions of IAC 761-115.25.

# STANDARD ROAD PLANS

The following Standard Road Plans apply to construction work on this project.

| Number | Date | Title |
|---|---|---|
| BA-200 | 10-18-16 | Steel Beam Guardrail Components |
| BA-201 | 04-18-17 | Steel Beam Guardrail Barrier Transition Section (MASH TL-3) |
| BA-202 | 10-20-15 | Steel Beam Guardrail Bolted End Anchor |
| BA-203 | 10-18-11 | Steel Beam Guardrail W-Beam End Anchor |
| BA-205 | 04-19-16 | Steel Beam Guardrail Tangent End Terminal (MASH TL-3) |
| BA-210 | 04-19-16 | Guardrail Post Adaptor Unit |
| BA-211 | 10-21-14 | Steel Beam Guardrail Long - Span System for Post Conflicts |
| BA-250 | 10-18-16 | Steel Beam Guardrail Installation at Concrete Barrier or Bridge End Post (MASH TL-3) |
| BA-252 | 04-19-16 | Steel Beam Guardrail Installation at Side Obstacle (One-Way Protection) |
| BA-401 | 04-16-13 | Temporary Barrier Rail (Precast Concrete) |
| BA-500 | 04-19-16 | Temporary Crash Cushions Sand Barrel |
| BR-101 | 04-21-15 | Bridge Approach Section (General Details) |
| BR-203 | 10-17-17 | Double Reinforced 12" Approach |
| BR-205 | 10-16-18 | Double Reinforced 12" Approach (Slab Bridge) |
| BR-211 | 10-17-17 | Bridge Approach (Abutting PCC or Composite Pavement) |
| BR-231 | 10-17-17 | Bridge Approach (Multi-Lane, Curbed Roadway) |
| DR-101 | 04-18-17 | Pipe Culvert (Bedding and Backfill) |
| DR-102 | 04-21-15 | Pipe Culvert (Cover and Camber) |
| DR-103 | 04-21-15 | Pipe Culvert (Installation Details) |
| DR-104 | 04-19-16 | Depth of Cover Tables for Concrete and Corrugated Pipe |
| DR-121 | 10-17-17 | Connected Pipe Joints |
| DR-122 | 10-18-16 | Construction of Type "C" Concrete Adaptors for Pipe Culvert Connections |
| DR-141 | 04-18-17 | Pipe Bends and Half Pipe |
| DR-201 | 10-16-18 | Concrete Aprons |
| DR-213 | 10-17-17 | Pipe Apron Guard |
| DR-303 | 10-17-17 | Subdrains (Longitudinal) |
| DR-305 | 04-17-18 | Subdrain Outlets (Standard Subdrain, Pressure Release and Special) |
| DR-306 | 10-16-18 | Precast Concrete Headwall for Subdrain Outlets |
| DR-401 | 04-17-18 | Scour Protection for Bridge End Drain |
| DR-601 | 04-18-17 | Reinforced Concrete Pipe Culvert |
| DR-621 | 04-18-17 | Pipe Extension |
| EC-101 | 04-19-16 | Wood Excelsior Mat for Ditch Protection |
| EC-103 | 04-21-15 | Wood Excelsior Mat for Slope Protection |
| EC-104 | 04-17-18 | Turf Reinforced Mat (TRM) |
| EC-105 | 04-17-18 | Transition Mat |
| EC-201 | 10-16-18 | Silt Fence |
| EC-204 | 04-18-17 | Perimeter and Slope Sediment Control Devices |
| EC-301 | 10-18-16 | Rock Erosion Control (REC) |
| EC-602 | 10-16-18 | Open-Throat Curb Intake Sediment Filter |
| EW-101 | 10-17-17 | Embankment and Rebuilding Embankments |
| EW-102 | 10-20-15 | Allowable Placement of Unsuitable Soil in Embankments |
| EW-103 | 10-20-15 | Embankment Subgrade Treatment, Moisture Density Control and Special Compaction |
| EW-201 | 04-19-16 | Bridge Berm Grading without Recoverable Slope (Barnroof Section) |
| EW-301 | 10-20-15 | Guardrail Grading |
| EW-401 | 10-20-15 | Temporary Stream Crossing, Causeway, or Equipment Pad |
| EW-402 | 04-18-17 | Temporary Stream Diversion |
| EW-501 | 10-20-15 | Rural Entrance |
| EW-503 | 10-20-15 | Side Road Grading |
| MI-101 | 10-20-15 | Fencing Layout |
| MI-102 | 10-20-15 | Chain Link Fence Construction |
| MI-103 | 10-20-15 | Deer Fence and Field Fence Construction |
| MI-210 | 10-20-15 | PCC Driveways and Alleys |
| MI-220 | 10-20-15 | Detectable Warnings and Pedestrian Ramp |
| PM-110 | 10-16-18 | Line Types |
| PM-111 | 04-21-15 | Symbols and Legends |
| PM-120 | 10-21-14 | Stop Lines and Islands |
| PM-210 | 10-18-11 | Separation in Two-Lane Roadway |
| PM-521 | 04-19-11 | Two-Lane Roadway with Right Turn Lanes |
| PM-522 | 10-16-12 | Two-Lane Roadway with Left Turn Lanes |
| PM-550 | 04-19-11 | Two-Lane Roadway with Two-Way Left Turn Lane |
| PR-103 | 10-21-14 | Full Depth PCC Patch with Dowels |
| PR-202 | 10-21-14 | Notches for Resurfacing (with or without Runout) |
| PV-101 | 10-16-18 | Joints |
| PV-102 | 10-18-16 | PCC Curb Details |
| PV-103 | 04-19-11 | Manhole Boxouts in PCC Pavement |
| PV-105 | 10-21-14 | PCC Pavement Widening |
| PV-121 | 04-21-15 | Jointing PCC Pavement Widening |
| PV-203 | 10-15-13 | HMA Base Widening |
| PV-301 | 04-19-11 | Superelevation Details Two Lane Roadway |
| SI-101 | 04-19-16 | Locations - Type 'A' Signs |
| SI-111 | 04-19-16 | Support Structures - Wood Posts |
| SI-131 | 10-18-16 | Installation - Type 'A' Signs |
| SI-171 | 04-18-17 | Reference Location Sign Posts |
| SI-172 | 04-19-16 | Delineators |
| SI-173 | 04-19-16 | Object Markers |
| SI-211 | 10-18-16 | Object Marker and Delineator Placement with Guardrail |
| SI-881 | 10-17-17 | Special Signs for Workzones |
| SI-882 | 10-18-16 | Special Signs for Restricted Width Traffic Control Zones |
| SW-101 | 04-17-18 | Trench Bedding and Backfill Zones |
| SW-102 | 04-18-17 | Rigid Gravity Pipe Trench Bedding |
| SW-301 | 04-17-18 | Circular Sanitary Sewer Manhole |
| SW-401 | 04-17-18 | Circular Storm Sewer Manhole |
| SW-507 | 04-17-18 | Single Open-Throat Intake, Small Box |
| SW-509 | 04-17-18 | Double Open-Throat Curb Intake, Small Box |

105-4
10-18-11

# STANDARD ROAD PLANS

The following Standard Road Plans apply to construction work on this project.

| Number | Date | Title |
|---|---|---|
| SW-510 | 04-17-18 | Double Open-Throat Curb Intake, Large Box |
| SW-511 | 04-17-18 | Rectangular Area Intake |
| SW-512 | 04-17-18 | Circular Area Intake |
| SW-513 | 04-17-18 | Open-Sided Area Intake |
| SW-601 | 04-21-15 | Castings for Sanitary Sewer Manholes |
| SW-602 | 04-21-15 | Castings for Storm Sewer Manholes |
| SW-603 | 10-16-18 | Castings for Grate Intakes |
| SW-604 | 04-17-18 | Castings for Area Intakes |
| TC-1 | 04-16-13 | Work Not Affecting Traffic (Two-Lane or Multi-Lane) |
| TC-81 | 04-20-10 | Restricted Width Signing (Less Than 14.5 Feet) |
| TC-202 | 04-21-15 | Work Within 15 ft of Traveled Way |
| TC-213 | 04-17-12 | Lane Closure with Flaggers |
| TC-214 | 10-17-17 | Lane Closure with Flaggers for use with Pilot Car |
| TC-216 | 10-18-16 | Lane Closure with Signals |
| TC-217 | 10-18-16 | Lane Closure with Signals and TBR |
| TC-252 | 04-19-16 | Routes Closed to Traffic |
| TC-253 | 10-18-16 | Paved On-Site Detour |
| WM-101 | 10-18-16 | Thrust Blocks |
| WM-102 | 10-18-16 | Tracer System |
| WM-201 | 04-18-17 | Fire Hydrant Assembly |

110-17
04-18-17

# CLEARING AND GRUBBING

| Location | | | Trees, Stumps, and Logs and Down Timber Material Diameters | | | | | | | | | | | | All Other Materials | | Estimated Quantities | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Station to Station or Ref. Loc. Sign to Ref. Loc. Sign or Description | Direction of Travel | Work and Material Type | 3"-6" | >6"-9" | >9"-12" | >12"-15" | >15"-18" | >18"-24" | >24"-30" | >30"-36" | >36"-42" | >42"-48" | >48"-60" | >60"-72" | >72" | Length | Width | Units | Area | Herbicide Application | Remarks |
| | | | | | | | | | | | | | | | | FT | FT | Units | Acres | Each | |
| Highway 151 | | | | | | | | | | | | | | | | | | | | | |
| 864+11 to 866+82 | SB | Trees - Clearing and Grubbing | | | | | | | | | | | | | | | | | 0.5 | | |
| 864+47 to 867+38 | NB | Trees - Clearing and Grubbing | | | | | | | | | | | | | | | | | 0.2 | | |
| 867+50 to 871+88 | SB | Trees - Clearing and Grubbing | | | | | | | | | | | | | | | | | 0.4 | | |
| 867+99 to 871+24 | NB | Trees - Clearing and Grubbing | | | | | | | | | | | | | | | | | 0.2 | | |
| 877+85 | SB | Trees - Clearing and Grubbing | | | | | | | 1 | | | | | | | | | 29.0 | 0.1 | | |
| 878+40 to 881+15 | SB | Trees - Clearing and Grubbing | | | | | | | | | | | | | | | | | 0.1 | | |
| 881+33 to 881+60 | SB | Trees - Clearing and Grubbing | | | | | | | | | | | | | | | | | 0.1 | | |
| 882+78 | SB | Trees - Clearing and Grubbing | | | | | 1 | | | | | | | | | | | 13.5 | 0.5 | | |
| 882+78 | SB | Trees - Clearing and Grubbing | | | | | | 1 | | | | | | | | | | 22.0 | | | |
| 882+85 | SB | Trees - Clearing and Grubbing | | | | 1 | | | | | | | | | | | | 9.4 | | | |
| 882+89 | SB | Trees - Clearing and Grubbing | | | | | | 1 | | | | | | | | | | 22.0 | | | |
| 979+60 to 982+14 | SB | Trees - Clearing and Grubbing | | | | | | | | | | | | | | | | | 0.5 | | |
| Church Street | | | | | | | | | | | | | | | | | | | | | |
| 1847+74 | EB | Trees - Clearing and Grubbing | | | | 1 | | | | | | | | | | | | 9.4 | | | |
| 1848+12 | WB | Trees - Clearing and Grubbing | | | | 1 | | | | | | | | | | | | 9.4 | | | |
| 1848+28 to 1848+45 | WB | Brush - Clearing | | | | | | | | | | | | | | 20.0 | 15.0 | 2.4 | | | |
| Losey Avenue | | | | | | | | | | | | | | | | | | | | | |
| 3864+45 | NB | Trees - Clearing and Grubbing | | | | | 1 | | | | | | | | | | | 13.5 | | | |
| | | | | | | | | | | | | | | | | | Total: | 131.0 | 2.8 | | |

100-08
04-17-18

# REMOVAL OF FENCE

Removal of Field Fence is incidental to Clearing and Grubbing.

| Location | | | | Type | Length | Remarks |
|---|---|---|---|---|---|---|
| From | | To | | | | |
| Station | Offset | Station | Offset | | LF | |
| 865+07.45 | 78.2' LT | 866+06.64 | 77.4' LT | Chain Link | 99.2 | |
| 870+54.67 | 89.6' LT | 873+54.10 | 84.1' LT | Field | 313.3 | |
| 880+48.18 | 72.7' LT | 880+55.72 | 123.1' LT | Wood | 55.9 | Salvage to Property Owner |
| 880+48.25 | 72.7' LT | 881+31.85 | 127.3' LT | Field | 110.1 | Electric Wire Fence, Salvage to Property Owner |
| | | | | Total: | 155.1 | |

232-10
04-18-17

# EMERALD ASH BORER

Any living, dead, cut or fallen material of the ash (Fraxinus spp.) including trees, nursery stock, logs, firewood, stumps, roots, branches, and composted or uncomposted ash chips can be freely moved within the yellow areas of the most recent Federal EAB Quarantine & Authorized Transit.

https://www.aphis.usda.gov/plant_health/plant_pest_info/emerald_ash_b/downloads/eab_quarantine_map.pdf.

Obtain appropriate Compliance Agreements from USDA APHIS PPQ prior to moving any of the above listed ash articles to areas outside the yellow zone on the map.

For questions, concerns, and general assistance, contact:

USDA APHIS PPQ, Iowa office, 515-414-3295

Or

Iowa Department of Agriculture & Land Stewardship
515-725-1470
Entomology@IowaAgriculture.gov

100-7
10-16-12

# FENCING

* Bid Item

Refer to MI-101, MI-102, MI-103, MI-104, 510-3, and 510-5

| Location | | | | Side | Chain Link | | | | Deer | | | | Field | | | | Channel Crossing | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| From | | To | | | Fence | | Gate | | | | Gate | | | | Gate | | | | |
| Station | Offset | Station | Offset | | Length* | Type | No.* | Type | Fence Length* | Brace Panels* | No.* | Type | Fence Length* | Brace Panels* | No.* | Type | Length* | Type | |
| | | | | | LF | | EACH | | LF | EACH | EACH | | LF | EACH | EACH | | LF | | |
| 849+79.84 | 46.5 | 856+74.00 | 40.5 | RT | 694.2 | 72 IN. | | | | | | | | | | | | | Install on MSE Wall No. 1 |
| 858+17.00 | 40.5 | 863+60.00 | 46.5 | RT | 543.1 | 72 IN. | | | | | | | | | | | | | Install on MSE Wall No. 2 |
| 858+05.00 | 37.1 | 863+50.00 | 46.5 | LT | 545.2 | 72 IN. | | | | | | | | | | | | | Install on MSE Wall No. 3 |
| | | Total: | | | 1782.5 | | | | | | | | | | | | | | |

# EXISTING PAVEMENT

| No. | Location | | | | | Year | Type | Project Number | Surface | | Base | | Subbase | | Removal | | Coarse Aggregate | | | Reinforcement | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | County | Route | Dir. of Travel | Begin Ref. Loc. Sign | End Ref. Loc. Sign | | | | Type | Depth IN | Type | Depth IN | Type | Depth IN | Type | Depth IN | Source | Type | Durability Class | Type | |
| | Linn | US 151 | Both | 2156 | 2494 | 2007 | HMA | STPN-151-3(120)--2J-57 | HMA | 2 | HMA | 2 | | | HMA | 2 | BEVERLY | C.LST. | | | Surface Treatment |
| | | | | | | 2007 | HMA | STPN-151-3(120)--2J-51 | HMA | 4 | HMA | 7.5 | Modified | 12 | HMA | 3.5 | BEVERLY | C.LST. | | | Widening Project |
| | | | | | | 1995 | PCC | NHS-151-2(3)--19-06 | PCC | 9 | | | | | | | | | | | Grade and Replace |
| | | | | | | 1985 | PCC | FN-149-4(16)--21-57 | PCC | 12 | | | | | | | | | | | Paved Shoulder Widening |
| | | | | | | 1983 | HMA | FR-151-1(3)--2G-48 | RAC | 1.5 | | | | | | | | | | | |
| | | | | | | 1966 | HMA | FN-255 | AAC | 1.5 | AAC | 1.5 | | | | | CEDAR RAPIDS | C.LST. | | | Surfacing |
| | | | | | | 1961 | PCC | FN-255 | PCC | 10 | | | | | | | | | | | Widening roadway from 18' to 24' |
| | | | | | | 1952 | HMA | P-10027 | HMA | 1.5 | HMA | 1.5 | | | | | OTIS QRY. | C.LST. | | | |
| | | | | | | 1934 | PCC | NRH-NRM-255 | PCC | 7 | | | | | | | GLORY | C.LST. | 1 | | C. Rapids St. = 1 |



# REMOVAL OF PAVEMENT

Refer to Tabulation 102-5

* Not a Bid Item

| Begin Station | End Station | Side | Pavement Type | Area SY | Saw Cut* LF | Remarks |
|---|---|---|---|---|---|---|
| U.S. 151 | | | | | | |
| 843+88.58 | 848+30.33 | RT | PCC | 147.8 | 444.7 | Remove Per Staging Plans |
| 845+05.45 | 848+30.33 | LT | PCC | 255.2 | 327.8 | Remove Per Staging Plans |
| 848+30.33 | 856+50.14 | BOTH | PCC/HMA | 3912.8 | 45.2 | Includes C&G and Bridge Approach Pavement |
| 857+96.21 | 866+58.37 | BOTH | PCC/HMA | 3528.2 | 253.9 | Includes C&G and Brg. Apch. Pvmt. Remove Per Staging. |
| 868+26.68 | 880+76.66 | BOTH | PCC/HMA | 4958.8 | 1310.9 | Includes Bridge Approach Pvmt. Remove Per Staging. |
| 881+03.15 | 898+00.00 | BOTH | PCC/HMA | 7108.4 | 1795.8 | Includes Bridge Approach Pvmt. Remove Per Staging. |
| 974+69.95 | 979+30.00 | LT | HMA | 394.4 | 472.1 | Remove per Staging Plans |
| 979+30.00 | 980+04.24 | BOTH | PCC/HMA | 309.5 | 44.7 | Includes Bridge Approach Pvmt. Remove Per Staging. |
| 908+33.64 | 981+40.00 | BOTH | PCC/HMA | 459.0 | 42.1 | Includes Bridge Approach Pvmt. Remove Per Staging. |
| 981+40.00 | 984+83.16 | LT | HMA | 316.9 | 355.2 | Remove Per Staging Plans |
| CHURCH ST | | | | | | |
| 1849+50.70 | 1851+25.00 | BOTH | HMA | 681.7 | 25.5 | Remove Per Staging Plans |
| PRAIRIE AVE | | | | | | |
| 2864+31.44 | 2866+56.00 | BOTH | HMA | 789.4 | 56.1 | Remove Per Staging Plans |
| LOSEY AVE | | | | | | |
| 3862+86.45 | 3864+78.80 | BOTH | HMA | 552.1 | 107.6 | Includes C&G Removal. Remove Per Staging Plans. |
| STALLMAN DR | | | | | | |
| 4874+25.00 | 4876+09.97 | BOTH | HMA | 1098.5 | 21.8 | Remove Per Staging Plans |
| CEMETERY RD | | | | | | |
| 5882+30.00 | 5884+06.32 | BOTH | HMA | 526.5 | 24.4 | Remove Per Staging Plans |
| 5884+13.31 | 5885+42.00 | BOTH | PCC | 640.1 | 25.0 | Remove Per Staging Plans |
| DETOUR PVMT. | | | | | | |
| 869+62.80 | 879+14.71 | RT | TEMP. PVMT. | 1859.8 | 0.0 | Stage 1C Detour Pavement, Remove Per Staging. |
| 882+63.44 | 883+99.64 | RT | TEMP. PVMT. | 46.6 | 0.0 | Stage 1C Detour Pavement, Remove Per Staging. |
| 884+99.85 | 890+92.91 | RT | TEMP. PVMT. | 1258.5 | 0.0 | Stage 1C Detour Pavement, Remove Per Staging. |
| 891+27.79 | 893+96.76 | RT | TEMP. PVMT. | 593.1 | 0.0 | Stage 1C Detour Pavement, Remove Per Staging. |
| 894+37.55 | 895+56.60 | RT | TEMP. PVMT. | 247.1 | 0.0 | Stage 1C Detour Pavement, Remove Per Staging. |
| 895+98.24 | 902+84.49 | RT | TEMP. PVMT. | 1102.8 | 0.0 | Stage 1C Detour Pavement, Remove Per Staging. |
| 860+76.91 | 865+98.61 | LT | TEMP. PVMT. | 720.4 | 0.0 | Stage 2A Detour Pavement, Remove Per Staging. |
| 868+76.20 | 872+09.69 | LT | TEMP. PVMT. | 439.2 | 0.0 | Stage 2A Detour Pavement, Remove Per Staging. |
| 876+23.77 | 879+68.00 | LT | TEMP. PVMT. | 325.4 | 0.0 | Stage 2A Detour Pavement, Remove Per Staging. |
| 882+04.00 | 883+46.75 | LT | TEMP. PVMT. | 175.7 | 0.0 | Stage 2A Detour Pavement, Remove Per Staging. |
| 898+00.00 | 901+97.45 | LT | TEMP. PVMT. | 203.1 | 0.0 | Stage 2B Detour Pavement, Remove Per Staging. |
| 977+97.82 | 982+28.46 | LT | TEMP. PVMT. | 1124.8 | 0.0 | DD No. 2 Stage 1 Detour Pavement, Remove Per Staging. |
| | | | Total: | 33775.8 | 5352.8 | |



# ADJUSTMENT OF FIXTURES

| No. | Location Station | Type of Fixture | Adjustment |
|---|---|---|---|
| 1 | 844+66.07 | Fire Hydrant | Minor Adjustment, Raise 0.06', Refer to Sheet D.2, Division 2 |
| 2 | 844+67.84 | Water Valve | Minor Adjustment (Incidental), Raise 0.11', Refer to Sheet D.2 |
| 3 | 875+18.26 | Gas Valve | Minor Adjustment (By Others), Raise 0.39', Refer to Sheet D.4, Contact Utility Company |
| 4 | 877+81.86 | Water Valve | Minor Adjustment, Adjust to Propsoed Grade, Refer to Sheet D.3 |
| 5 | 877+82.08 | Fire Hydrant | Minor Adjustment, Adjust to Proposed Grade, Refer to Sheet D.3, Division 2 |
| 6 | 879+46.82 | Gas Valve | Minor Adjustment (By Others), Raise 1.86', Refer to Sheet D.4, Contact Utility Company |
| 7 | 882+66.49 | Sanitary Sewer Manhole | Major Adjustment, Raise 0.41', Refer to Sheet D.5, Division 2 |
| 8 | 885+38.91 | Water Valve | Major Adjustment (Incidental), Lower 1.49', Refer to Sheet D.5 |
| 9 | 887+15.05 | Gas Valve | Minor Adjustment (By Others), Raise 1.43', Refer to Sheet D.5, Contact Utility Company |
| 10 | 888+23.42 | Water Valve | Major Adjustment (Incidental), Lower 1.58', Refer to Sheet D.5 |
| 11 | 888+23.46 | Fire Hydrant | Minor Adjustment (Incidental), Lower 0.74', Refer to Sheet D.5, Division 2 |
| 12 | 888+85.61 | Gas Valve | Minor Adjustment (By Others), Raise 1.48', Refer to Sheet D.5, Contact Utility Company |
| 13 | 890+58.90 | Gas Valve | Minor Adjustment (By Others), Lower 0.04', Refer to Sheet D.5, Contact Utility Company |
| 14 | 893+91.45 | Gas Valve | Minor Adjustment (By Others), Adj. to Grade, Refer to Sheet D.5, Contact Utility Company |
| 15 | 897+07.51 | Water Valve | Minor Adjustment (Incidental), Raise 0.70', Refer to Sheet D.6 |
| 16 | 897+07.66 | Fire Hydrant | Major Adjustment, Raise 1.48', Refer to Sheet D.6, Division 2 |
| 17 | 897+12.00 | Water Valve | Minor Adjustment (Incidental), Raise 0.65', Refer to Sheet D.6 |
| 18 | 899+40.71 | Gas Valve | Minor Adjustment (By Others), Raise 0.56', Refer to Sheet D.6, Contact Utility Company |
| 19 | 1848+95.23 | Sanitary Sewer Manhole | Major Adjustment, Raise 0.80', Refer to Sheet D.2, E.1, M.1 and M.8, Division 2 |
| 20 | 1850+41.44 | Sanitary Sewer Manhole | Major Adjustment, Lower 0.40', Refer to Sheet E.1, Division 2 |
| 21 | 2865+79.64 | Sanitary Sewer Manhole | Major Adjustment, Raise 0.98', Refer to Sheet E.2 Division 2 |
| 22 | 2864+84.91 | Water Valve | Major Adjustment (Incidental), Raise 2.93' to Proposed Grade, Refer to Sheet E.2 |
| 23 | 2864+87.18 | Water Valve | Major Adjustment (Incidental), Raise 2.47' to Proposed Grade, Refer to Sheet E.2 |
| 24 | 5884+86.59 | Water Valve | Minor Adjustment (Incidental), Raise 0.32', Refer to Sheet E.5 |
| 25 | 5884+92.92 | Water Valve | Minor Adjustment (Incidental), Raise 0.32', Refer to Sheet E.5 |
| 26 | 5885+20.44 | Water Valve | Minor Adjustment (Incidental), Raise 0.51', Refer to Sheet E.5 |
| 27 | 5885+19.57 | Fire Hydrant | Minor Adjustment, Raise 0.49', Refer to Sheet E.5, Division 2 |
| 28 | 5885+28.77 | Storm Sewer Manhole | Major Adjustment, Lower 0.19', Refer to Sheet E.5, Division 2 |
| | Totals: | 5 | MANHOLE ADJUSTMENT, MAJOR |
| | | 5 | FIRE HYDRANT ADJUSTMENT |



# SIDEWALK REMOVAL

* Not a bid item

| Begin Station | End Station | Area SY | Saw Cut* LF | Remarks |
|---|---|---|---|---|
| 845+60.00 | 845+80.00 | 9.4 | 24.0 | |
| 846+24.70 | 847+08.40 | 33.4 | 0.0 | |
| 1850+41.51 | 1850+57.84 | 7.0 | 3.8 | |
| | Total: | 49.8 | 27.8 | |



# REMOVAL OF CONCRETE DRIVES

* Not a Bid Item

| Location Station | Side | Area SY | Saw Cut* LF | Remarks |
|---|---|---|---|---|
| 846+44.00 | RT | 69.1 | 41.6 | |
| 846+93.00 | LT | 60.3 | 37.7 | |
| 847+60.50 | RT | 96.9 | 0.0 | |
| 849+21.00 | LT | 161.2 | 41.3 | Includes Asphalt Removal |
| 877+50.00 | RT | 239.5 | 34.2 | |
| 890+96.75 | LT | 195.8 | 36.7 | |
| 891+10.00 | RT | 298.7 | 23.9 | |
| 894+18.50 | RT | 241.8 | 47.8 | Includes C&G Removal |
| 894+21.00 | LT | 316.6 | 49.4 | |
| 895+76.54 | RT | 223.5 | 43.3 | Includes C&G Removal |
| 2866+42.33 | LT | 3.9 | 15.6 | |
| Total: | | 1907.3 | 371.5 | |

110-14
04-16-13

## SANITARY OR STORM SEWER ABANDONMENT OR REMOVAL

* Not a bid item

| Location/Description | Sanitary or Storm Sewer | Abandonment, Plug Only or Abandonment, Plug and Fill or Removal | Length of Pipe ≤ 36 inch diameter (LF) | Length of Pipe > 36 inch diameter (LF) | Fill Material* Flowable Mortar or CLSM (CY) | Remarks |
|---|---|---|---|---|---|---|
| 845+05 to 848+34, LT | Storm Sewer | Removal | 329 | | | |
| 845+68 to 848+35, RT | Storm Sewer | Removal | 266 | | | |
| 848+38.75, 29.2' LT to 15.8' RT | Storm Sewer | Removal | 45 | | | |
| 848+41 to 849+64, LT | Storm Sewer | Removal | 129 | | | |
| 849+82, 16.8' RT to 31.7' LT | Storm Sewer | Removal | 49 | | | |
| 849+82, 35.7' LT to 59.9' LT | Storm Sewer | Removal | 25 | | | |
| 852+52, 17.2' RT to 26.3' LT | Storm Sewer | Removal | 44 | | | |
| 852+55, 29.7' LT to 104.1' LT | Storm Sewer | Removal | 77 | | | |
| 863+54 to 865+24, RT | Storm Sewer | Removal | 175 | | | |
| 863+81 to 864+64, LT | Storm Sewer | Removal | 88 | | | |
| 866+39, 13.2' RT to 14.5' LT | Storm Sewer | Removal | 28 | | | |
| 866+39, 18.5' LT to 60.7' LT | Storm Sewer | Removal | 43 | | | |
| 3863+08, 11.2' LT to 18.8' RT | Storm Sewer | Removal | 33 | | | Losey Avenue |
| 979+67.8, 152.7' RT to 979+91.9, 107.5' RT | Sanitary Sewer | Removal | 50 | | | Refer to U Sheets |
| 980+70.6, 98.9' LT to 980+71.2, 148.9' LT | Sanitary Sewer | Removal | 50 | | | Refer to U Sheets |
| 980+71.2, 148.9' RT to 979+67.8, 152.7' RT | Sanitary Sewer | Abandonment, Plug and Fill | 246 | | 28.6 CY Flowable Mortar | Refer to U Sheets |
| Totals: | Storm Sewer | Removal | 1331 | | | |
| | Sanitary Sewer | Removal | 100 | | | |
| | Sanitary Sewer | Abandonment, Plug and Fill | 246 | | | |

110-2
04-16-13

## REMOVAL OF EXISTING STRUCTURES

| Location | Description | Remarks |
|---|---|---|
| 850+66 to 856+73, RT | Existing Block Retaining Wall | Refer to Sheet D.3 |
| 859+87 to 861+89, LT | Existing Block Retaining Wall | Refer to Sheet D.3 |
| 1850+18, 22' LT | Existing Block Retaining Wall | Refer to Sheet E.1 |
| 2865+65.30, 19.9' LT | Water Meter Pit | Existing Pit is Abandoned. Refer to Sheet E.2 |

110-15
04-16-13

## REMOVAL OF INTAKES AND UTILITY ACCESSES

| No. | Location/Description | Type | Remarks |
|---|---|---|---|
| 1 | 845+63, 17.2' RT | Intakes | |
| 2 | 848+39, 17.5' RT | Intakes | |
| 3 | 848+38, 31.2' LT | Intakes | |
| 4 | 849+82, 33.6' LT | Intakes | |
| 5 | 849+82, 18.8' RT | Intakes | |
| 6 | 851+14, 32' LT | Utilities | Utility Handhole, Coordinate with Utility Company |
| 7 | 852+52, 19.2' RT | Intakes | |
| 8 | 852+52, 28.1' LT | Intakes | |
| 9 | 863+49, 18.9' RT | Intakes | |
| 10 | 863+76, 27.3' LT | Intakes | |
| 11 | 866+39, 15.2' RT | Intakes | |
| 12 | 866+39, 16.5' LT | Intakes | |
| 13 | 979+91.50, 107.9' RT | Utilities | Sanitary Sewer Manhole, Refer to U Sheets |
| 14 | 980+67.30, 44.3' RT | Utilities | Sanitary Sewer Manhole, Refer to U Sheets |
| 15 | 980+70.60, 62.0' LT | Utilities | Sanitary Sewer Manhole, Refer to U Sheets |
| 16 | 3863+00, 13.2' LT | Intakes | |
| | Total: | 16 | |

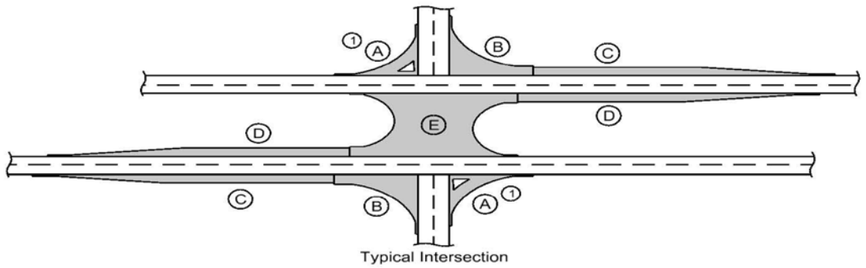
104-3
04-21-15

## DRAINAGE STRUCTURE BY ROAD CONTRACTOR

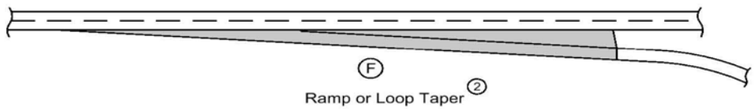
Length of unclassified pipe calculated is based on using Reinforced Concrete Pipe.
* Not a bid item
(1) Diameter or equivalent diameter
(2) UNCL = Unclassified Pipe CMP = Corrugated Metal Pipe RCP = Reinforced Concrete Pipe LCP = Arch or Elliptical Low Clearance Pipe SARC = Steel Arch Pipe

| Drainage Area (ACRE) | Location | Type | Size (1) (IN) | Kind Of Pipe (2) | Length New Const. (LF) | Bedding Class | Design Cover (H) (FT) | Camber* (DR-102) (FT) | Apron No. IN | Apron No. OUT | Apron Guard* (DR-213) No. | Elbow* (DR-141) No. | Diaphragm* (DR-501) No. | Tee Section* (DR-142) No. | "D" Section* (DR-141) No. | Reducer* No. | Type 'C' Connections* (DR-122) Type | Type 'C' Connections* (DR-122) No. | Connected Pipe Joint* (DR-121) Type | 4" Perforated Subdrain* FT | Flow Line Elevations Lt. | Flow Line Elevations Rt. | Flow Line Elevations Other | Flow Line Elevations Other | Dimensions Lin. Ft. Total Lt. | Dimensions Lin. Ft. Total Rt. | Dimensions Lin. Ft. Extensions Lt. | Dimensions Lin. Ft. Extensions Rt. | Skew Ahead Degrees Lt. | Skew Ahead Degrees Rt. | Dike Rt. / Lt. | Dike Location Station | Dike Top Elevation | Dike Type | Class 20 (CY) | Flowable Mortar (CY) | Floodable* Backfill (A) (CY) | Porous* Backfill (B) (CY) | Flooded Backfill (A+B) (CY) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12.0 | 852+26.00 | 3000D | 42 | RCP | 170 | B | 18.9 | 0.33 | 1 | 1 | 2 | | | | | | | | Type 2 | | 752.04 | 754.30 | | | 125.0 | 61.0 | | | | | | | | | 792.2 | | 148.2 | 9.0 | 157.2 | Sheet V.20 |
| 67.0 | 900+60.27 | 2000D | 48 | RCP | 2 | B | 0.5 | | | | | | | | | | | | Type 2 | | | 753.22 | 753.30 | | | 47.5 | | 2.0 | | | | | | | 6.9 | | | | | Sheet V.21 |
| 40.3 | 6957+40.00 | 2000D | 42 | RCP | 74 | B | 5.3 | 0.08 | 1 | 1 | 2 | | | | | | | | Type 2 | | 772.40 | 773.30 | | | 49.5 | 40.5 | | | | | | | | | 176.4 | | 121.1 | 6.9 | 128.0 | Sheet V.22 |
| | Totals: | | | | | | | | 4 | 42" | | | | | | | | | | | | | | | | | | | | | | Totals: | 975.5 | | 269.3 | 15.9 | 285.2 | |

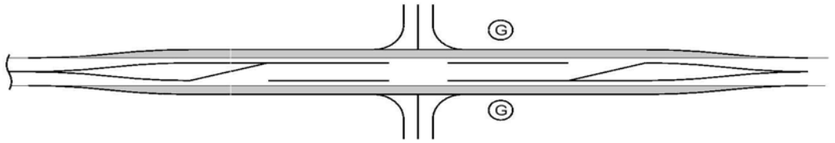
# PCC PAVEMENT



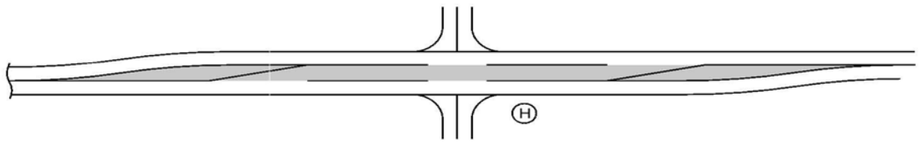

Typical Intersection




Ramp or Loop Taper (2)




Channelized Intersection
Widen Existing Roadway




Channelized Intersection
Reconstructed Roadway

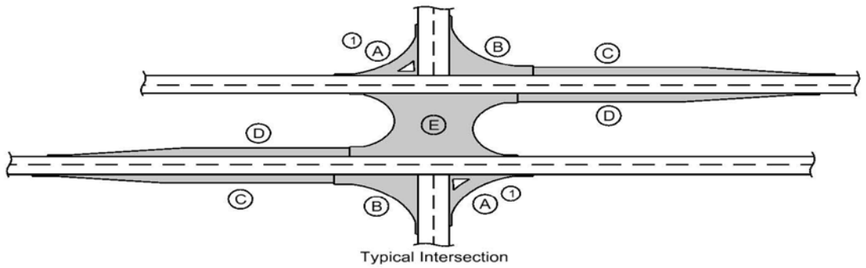
(1) Does not include raised island area or curb. Refer to tabulation 112-4 for quantities.

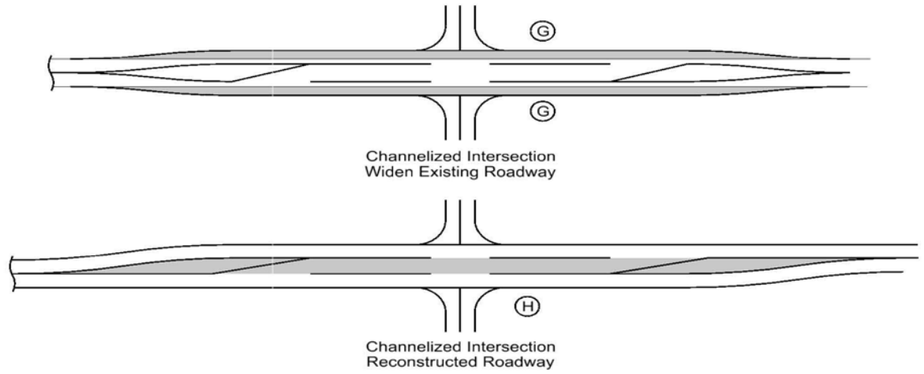
(2) Refer to PV-410, PV-411, PV-412, and PV-414.

(3) Quantity includes Pavement Header.

| Location | | | | Mainline | | | Area (3) | | | | | | | | Total Area By Pavement Thickness | | Special Backfill | Modified Subbase | Granular Subbase | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Road Identification | Direction of Travel | Station to Station | | Width | Length | Area | A (1) | B | C | D | E | F (2) | G | H | SY | | | | | |
| | | | | FT | FT | SY | SY | SY | SY | SY | SY | SY | SY | SY | 9.5 IN | 7 IN | TONS | CY | SY | |
| U.S. Highway 151 | NB | 843+88.58 | 846+17.11 | VARIES | 228.5 | | | | | | | | 138.7 | | 138.7 | | | 135.4 | | |
| U.S. Highway 151 | SB | 845+05.45 | 848+30.33 | 3.0 | 324.9 | | | | | | | | 108.3 | | 108.3 | | | 136.5 | | |
| U.S. Highway 151 | NB | 846+17.11 | 848+30.33 | 8.0 | 213.2 | | | | | | | | 189.6 | | 189.6 | | | 164.2 | | |
| U.S. Highway 151 | NB/SB | 848+30.33 | 848+69.80 | 42.0 | 39.5 | 184.2 | | | | | | | | | 184.2 | | | 132.6 | | |
| U.S. Highway 151 | NB/SB | 848+69.80 | 850+01.96 | 36.0 | 132.2 | 528.7 | | | | | | | | | 528.7 | | | 333.1 | | |
| U.S. Highway 151 | NB/SB | 850+01.96 | 855+14.27 | 39.0 | 512.3 | 2220.1 | | | | | | | | | 2220.1 | | | 1506.4 | | |
| U.S. Highway 151 | SB | 850+01.96 | 853+34.27 | 15.0 | 332.3 | | | | 553.9 | | | | | | 553.9 | | | 418.8 | | |
| U.S. Highway 151 | SB | 853+34.27 | 855+14.27 | VARIES | 180.0 | | | | 180.0 | | | | | | 180.0 | | | 151.3 | | |
| U.S. Highway 151 | NB/SB | 855+14.27 | 855+59.10 | 42.0 | 44.8 | 209.3 | | | | | | | | | 209.3 | | | 150.5 | | |
| | | | | | | | | | | | | | | | | | | | | UPRR Bridge and Approach Pavement |
| U.S. Highway 151 | NB/SB | 859+06.10 | 859+93.36 | 42.0 | 87.3 | 407.3 | | | | | | | | | 407.3 | | | 293.2 | | |
| U.S. Highway 151 | NB/SB | 859+93.36 | 863+87.58 | 39.0 | 394.2 | 1708.3 | | | | | | | | | 1708.3 | | | 1159.1 | | |
| U.S. Highway 151 | NB | 859+93.36 | 861+73.36 | VARIES | 180.0 | | | | 180.0 | | | | | | 180.0 | | | 151.3 | | |
| U.S. Highway 151 | NB | 861+73.36 | 863+58.36 | 15.0 | 185.0 | | | | 308.4 | | | | | | 308.4 | | | 233.1 | | |
| U.S. Highway 151 | NB/SB | 863+87.58 | 864+74.60 | 40.0 | 87.0 | 386.8 | | | | | | | | | 386.8 | | | 262.0 | | |
| U.S. Highway 151 | NB/SB | 864+74.60 | 865+48.61 | 44.0 | 74.0 | 361.9 | | | | | | | | | 361.9 | | | 259.1 | | |
| | | | | | | | | | | | | | | | | | | | | Prairie Creek Bridge and Approach Pavement |
| U.S. Highway 151 | NB/SB | 869+26.20 | 870+00.00 | 44.0 | 73.8 | 360.9 | | | | | | | | | 360.9 | | | 258.2 | | |
| U.S. Highway 151 | NB | 870+00.00 | 870+70.00 | VARIES | 70.0 | | | | 51.3 | | | | | | 51.3 | | | 46.9 | | Transition to Rural Section |
| U.S. Highway 151 | SB | 870+00.00 | 870+70.00 | VARIES | 70.0 | | | | 49.9 | | | | | | 49.9 | | | 46.4 | | Transition to Urban Section |
| U.S. Highway 151 | NB/SB | 870+00.00 | 879+38.00 | 38.0 | 938.0 | 3960.5 | | | | | | | | | 3960.5 | | | 2836.7 | | |
| | | | | | | | | | | | | | | | | | | | | Drainage Ditch No. 1 Bridge and Approach Pavement |
| U.S. Highway 151 | NB/SB | 882+34.00 | 898+00.00 | 38.0 | 1566.0 | 6612.0 | | | | | | | | | 6612.0 | | | 4614.3 | | |
| U.S. Highway 151 | NB | 882+34.00 | 882+78.46 | VARIES | 44.5 | | | | 50.4 | | | | | | 50.4 | | | 40.9 | | |
| U.S. Highway 151 | NB | 882+78.46 | 883+95.73 | 12.0 | 117.3 | | | | 154.4 | | | | | | 154.4 | | | 121.5 | | |
| U.S. Highway 151 | SB | 884+25.93 | 888+43.66 | 12.0 | 417.7 | | | | 564.3 | | | | | | 564.3 | | | 444.5 | | |
| U.S. Highway 151 | SB | 888+43.66 | 890+21.24 | VARIES | 177.6 | | | | 99.0 | | | | | | 99.0 | | | 100.6 | | |
| | | | | | | | | | | | | | | | | | | | | Project Gap |
| U.S. Highway 151 | SB | 974+69.95 | 979+30.00 | 12.0 | 460.1 | | | | | | | | 613.5 | | 613.5 | | | 483.1 | | |
| U.S. Highway 151 | NB/SB | 979+30.00 | 981+40.00 | 40.0 | 210.0 | 933.4 | | | | | | | | | 933.4 | | | 676.2 | | |
| U.S. Highway 151 | SB | 981+40.00 | 984+83.16 | 12.0 | 343.2 | | | | | | | | 457.6 | | 457.6 | | | 360.4 | | |
| | | | | | | | | | | | | | | | | | | | | |
| Church Street | EB/WB | 1847+69.25 | 1848+56.14 | 36.0 | 86.9 | 347.6 | | | | | | | | | | 347.6 | 81.1 | | | |
| Church Street | EB | 1848+56.14 | 1849+16.97 | VARIES | 60.8 | | 82.1 | | | | | | | | | 82.1 | 23.0 | | | |
| Church Street | WB | 1848+56.14 | 1849+16.97 | VARIES | 60.8 | | | 146.1 | | | | | | | | 146.1 | 35.5 | | | |
| Church Street | EB/WB | 1848+56.14 | 1849+16.97 | 36.0 | 60.8 | 243.4 | | | | | | | | | | 243.4 | 51.1 | | | |
| Church Street | EB/WB | 1849+52.97 | 1850+01.77 | 31.0 | 48.8 | 168.1 | | | | | | | | | | 168.1 | 35.3 | | | |
| Church Street | EB | 1849+52.97 | 1850+01.77 | VARIES | 48.8 | | | 81.4 | | | | | | | | 81.4 | 22.0 | | | |
| Church Street | WB | 1849+52.97 | 1850+01.77 | VARIES | 48.8 | | 79.5 | | | | | | | | | 79.5 | 21.9 | | | |
| Church Street | EB/WB | 1850+01.77 | 1850+11.77 | 37.0 | 10.0 | 41.2 | | | | | | | | | | 41.2 | 10.1 | | | |
| Church Street | EB/WB | 1850+11.77 | 1851+01.77 | VARIES | 90.0 | 310.0 | | | | | | | | | | 310.0 | 73.7 | | | |
| Church Street | EB/WB | 1851+01.77 | 1851+25.00 | 25.0 | 23.2 | 64.6 | | | | | | | | | | 64.6 | 15.7 | | | |
| | | | | | | | | | | | | | | | | | | | | |
| Prairie Avenue | EB/WB | 2864+37.80 | 2864+86.31 | 23.0 | 48.5 | 124.0 | | | | | | | | | | 124.0 | 26.1 | | | |
| Prairie Avenue | EB | 2864+37.80 | 2864+86.31 | VARIES | 48.5 | | | 162.1 | | | | | | | | 162.1 | 38.2 | | | |
| Prairie Avenue | WB | 2864+37.80 | 2864+86.31 | VARIES | 48.5 | | 70.9 | | | | | | | | | 70.9 | 19.5 | | | |
| Prairie Avenue | EB/WB | 2864+86.31 | 2865+30.81 | 25.5 | 44.5 | 126.1 | | | | | | | | | | 126.1 | 29.6 | | | |
| Prairie Avenue | EB/WB | 2865+30.81 | 2866+56.00 | 23.0 | 125.2 | 320.0 | | | | | | | | | | 320.0 | 78.9 | | | |

# PCC PAVEMENT




(1) Does not include raised island area or curb. Refer to tabulation 112-4 for quantities.

(2) Refer to PV-410, PV-411, PV-412, and PV-414.

(3) Quantity includes Pavement Header.

| Location | | | | Mainline | | | Area (3) | | | | | | | | Total Area By Pavement Thickness | | Special Backfill | Modified Subbase | Granular Subbase | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Road Identification | Direction of Travel | Station to Station | | Width | Length | Area | A (1) | B | C | D | E | F (2) | G | H | SY | | | | | |
| | | | | FT | FT | SY | SY | SY | SY | SY | SY | SY | SY | SY | 9.5 IN | 7 IN | TONS | CY | SY | |
| Losey Avenue | NB/SB | 3862+86.45 | 3864+56.28 | 23.0 | 169.8 | 434.1 | | | | | | | | | | 434.1 | 115.0 | | | |
| Losey Avenue | NB/SB | 3864+56.28 | 3864+83.31 | 17.0 | 27.0 | 51.1 | | | | | | | | | | 51.1 | 10.8 | | | |
| Losey Avenue | NB | 3864+56.28 | 3864+83.31 | VARIES | 27.0 | | | 30.4 | | | | | | | | 30.4 | 9.0 | | | |
| | | | | | | | | | | | | | | | | | | | | |
| Stallman Drive | NB/SB | 4874+25.00 | 4875+07.57 | 25.0 | 82.6 | 229.4 | | | | | | | | | | 229.4 | 55.9 | | | |
| Stallman Drive | NB/SB | 4875+07.57 | 4875+43.95 | 22.0 | 36.4 | 89.0 | | | | | | | | | | 89.0 | 21.3 | | | |
| Stallman Drive | NB | 4875+07.57 | 4875+81.00 | VARIES | 73.4 | | | 68.6 | | | | | | | | 68.6 | 18.1 | | | |
| Stallman Drive | NB/SB | 4875+43.95 | 4875+81.00 | 19.0 | 37.0 | 78.3 | | | | | | | | | | 78.3 | 16.5 | | | |
| Stallman Drive | SB | 4875+43.95 | 4875+81.00 | VARIES | 37.0 | | 62.0 | | | | | | | | | 62.0 | 16.1 | | | |
| | | | | | | | | | | | | | | | | | | | | |
| Cemetery Road | EB/WB | 5882+30.00 | 5883+88.70 | 25.0 | 158.7 | 440.9 | | | | | | | | | | 440.9 | 102.7 | | | |
| Cemetery Road | EB | 5883+15.59 | 5883+88.70 | VARIES | 73.1 | | | 96.8 | | | | | | | | 96.8 | 23.4 | | | |
| Cemetery Road | WB | 5883+60.60 | 5883+88.70 | VARIES | 28.1 | | 33.3 | | | | | | | | | 33.3 | 9.0 | | | |
| Cemetery Road | EB/WB | 5884+37.80 | 5885+42.00 | 25.0 | 104.2 | 289.5 | | | | | | | | | | 289.5 | | 98.3 | | |
| Cemetery Road | EB | 5884+37.80 | 5884+86.04 | VARIES | 48.2 | | | 46.8 | | | | | | | | 46.8 | | 21.1 | | |
| Cemetery Road | WB | 5884+37.80 | 5885+27.53 | VARIES | 89.7 | | 161.9 | | | | | | | | | 161.9 | | 57.2 | | |
| | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | Total: | 21572.7 | 4479.2 | 959.5 | 15692.9 | | |



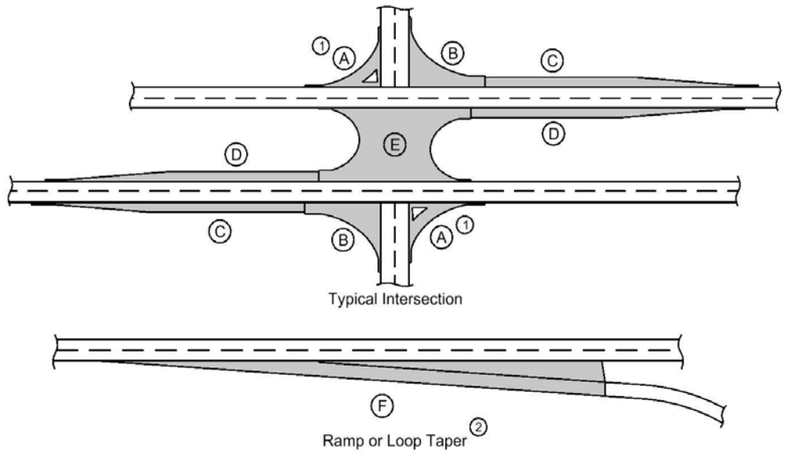
# BRIDGE APPROACH SECTION

Refer to the BR Series.

* Not a bid item

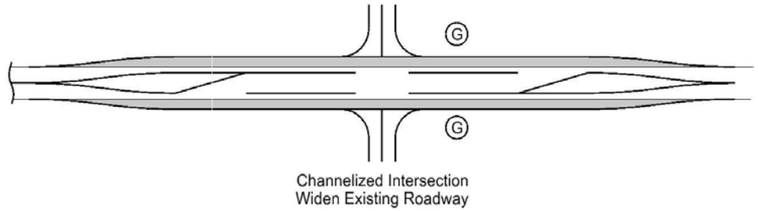
| Location | | | | Approach Pavement | | | | | Standard Road Plans BR Series | | | Subdrain | | | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bridge Station | End | Skew Ahead Degrees | | (T) Thickness | Pay Length | Non-Reinf. Pavement Area | Single-Reinf. Pavement Area | Double-Reinf. Pavement Area | Approach | Fixed or Movable Abutment | Abutting Pavement | * Perforated Subdrain 4" | * Subdrain Outlet | | * Porous Backfill | * Class 'A' Crushed Stone Backfill | * Modified Subbase | * Polymer Grid | * Special Backfill | |
| | | LEFT | RIGHT | Inches | FT | SY | SY | SY | | | | LF | STA | Side | CY | CY | TON | SY | TON | |
| | | | | | | | | | | | | | | | | | | | | |
| 857+32.60 | S | | 4 | 12.0 | 70.0 | 140.9 | 94.5 | 122.5 | BR-203 | Movable | BR-211 | 74.0 | 855+69.10 | LT | 2.3 | | 344.500 | 398.2 | | UPRR Bridge (BRF-151-3(141)--38-57) |
| | N | | 4 | 12.0 | 70.0 | 140.9 | 94.4 | 129.2 | BR-203 | Movable | BR-211 | 54.0 | 858+96.10 | LT | 1.7 | | 352.200 | 404.8 | | Connect Subdrain to Longitudinal Subdrain, Avoid GR Post |
| 867+41.69 | S | | 30 | 12.0 | 86.8 | 146.7 | 102.8 | 228.3 | BR-203 | Movable | BR-211 | 78.0 | 865+58.61 | LT | 2.4 | | 460.800 | 523.7 | | Prairie Creek Bridge (BRF-151-3(142)--38-57) |
| | N | | 30 | 12.0 | 78.3 | 146.7 | 102.8 | 228.9 | BR-203 | Movable | BR-211 | 78.0 | 869+16.20 | RT | 2.4 | | 461.500 | 521.4 | | Prairie Creek Bridge (BRF-151-3(142)--38-57) |
| 880+85.25 | S | 15 | | 12.0 | 76.9 | 126.7 | 169.6 | 296.8 | BR-205 | Movable | BR-211 | 80.0 | 879+48.00 | RT | 2.5 | | 601.500 | 635.7 | | Drainage Ditch No. 1 Bridge (BRF-151-3(152)--38-57) |
| | N | 15 | | 12.0 | 78.3 | 149.8 | | 445.9 | BR-205 | Movable | BR-211 | 82.0 | 882+24.00 | RT | 2.5 | | 590.900 | 638.7 | | Ext. Dbl. Reinf. Section to End of Sep. Rail. Sheet L.17 |
| | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | Total: | 1678.6 | BR-203 | | | | | | | | | | | |
| | | | | | | | | 1188.8 | BR-205 | | | | | | | | | | | |

# HMA PAVEMENT

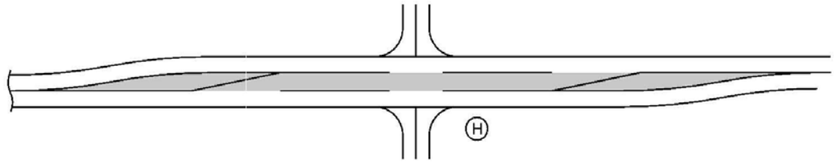



Typical Intersection

Ramp or Loop Taper (2)




Channelized Intersection
Widen Existing Roadway




Channelized Intersection
Reconstructed Roadway

(1) Does not include raised island area or curb. Refer to tabulation 112-4 for quantities.

(2) Refer to PV-410, PV-411, PV-412, and PV-414.

(3) Quantity includes Pavement Header.

Calculations assume a surface course unit weight (lbs/cf) of 155, an intermediate course unit weight (lbs/cf) of 150, a base course unit weight (lbs/cf) of 150, and a special backfill unit weight (lbs/cf) of 140.

| Location | | | | Mainline | | | Area (3) | | | | | | | | Bid Items | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | Hot Mix Asphalt Pavement | | | | | | Binder | | | | | | |
| Road Identification | Direction of Travel | Station to Station | | Width | Length | Area | A (1) | B | C | D | E | F (2) | G | H | Surface | | Intermediate | | Base | | Surface | Intermediate | Base | Special Backfill | Modified Subbase | Granular Subbase | Pavement Scarification | Remarks |
| | | | | FT | FT | SY | SY | SY | SY | SY | SY | SY | SY | SY | TONS | SY | TONS | SY | TONS | SY | TONS | TONS | TONS | TONS | CY | SY | SY | |
| U.S. Highway 151 | NB | 898+00.00 | 902+58.42 | Varies | 458.4 | | | | | | | | 298.3 | | | | 33.6 | 298.3 | 100.7 | 298.3 | | 2.0 | 6.0 | | 284.1 | | | |
| U.S. Highway 151 | SB | 898+00.00 | 900+09.70 | Varies | 209.7 | | | | | | | | 68.2 | | | | 7.7 | 68.2 | 23.0 | 68.2 | | 0.5 | 1.4 | | 139.2 | | | |
| U.S. Highway 151 | NB/SB | 898+00.00 | 902+58.42 | Varies | 458.4 | 2469.0 | | | | | | | | | 287.0 | 2469.0 | | | | | 17.2 | | | | | | | |
| U.S. Highway 151 | SB | 974+69.95 | 979+30.00 | 12.0 | 460.1 | 613.5 | | | | | | | | | 71.3 | 613.5 | | | | | 4.3 | | | | | | | |
| U.S. Highway 151 | NB/SB | 979+30.00 | 981+40.00 | 40.0 | 210.0 | 933.4 | | | | | | | | | 108.5 | 933.4 | | | | | 6.5 | | | | | | | |
| U.S. Highway 151 | SB | 981+40.00 | 984+83.16 | 12.0 | 343.2 | 457.6 | | | | | | | | | 53.2 | 457.6 | | | | | 3.2 | | | | | | | |
| | | | | | | | | | | | | | | Total: | 546.1 | 4473.5 | 43.3 | 366.5 | 129.9 | 366.5 | 32.8 | 2.6 | 7.8 | | 423.3 | | | |



## NOTCHES AND RUNOUTS FOR RESURFACING

Refer to PR-201 and PR-202.

(1) Bid item. Applies only to Types 'N1' and 'N3' on PR-202. Refer to 100-25 for remaining values.

| Location Station | Type of Notch or Runout | S | I | DI | L | M | Pavement Scarification (1) | Remarks |
|---|---|---|---|---|---|---|---|---|
| | | IN | IN | IN | FT | IN | SY | |
| 902+58.42 | Type 'N1' | 2.0 | | | 100.0 | 2.0 | 576.1 | |
| | Total: | | | | | | 576.1 | |

# SHOULDERS

(1) Lane(s) to which the shoulder is adjacent.
(2) Bid Item
(3) Applies only for Paved Shoulders constructed on project with existing granular shoulders.
(4) Does not include shrink.

Calculations assume a HMA unit weight (lbs/cf) of 155, a Special Backfill unit weight (lbs/cf) of 140, and a Granular Shoulder unit weight (lbs/cf) of 140.

| Location | | | | | Quantities | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Road Identification | (1) Direction Of Traffic | Station to Station | | Side | (P) Width | (G) Width | (L) Length | Class 13 Excavation (3) | Hot Mix Asphalt | | Binder | Paved Shoulder (2) | Reinforced Paved Shoulder (2) | Special Backfill | | | | Modified Subbase (2) | Granular Shoulder | | Earth Shoulder Construction Alternates | | | Remarks |
| | | | | | | | | | | | | | | HMA Alternate | | PCC Alternate | | | | | STA (2) | HMA | PCC | |
| | | | | | FT | FT | FT | CY (2) | TON | TON/STA | TONS | SY (2) | SY (2) | TON (2) | TON/STA | TON (2) | TON/STA | CY (2) | TON (2) | TON/STA | | CY (4) | CY (4) | |
| U.S. 151 | NB | 870+70.00 | 877+25.85 | RT | 10.0 | | 655.9 | | | | | 710.2 | | | | 416.858 | 63.560 | | | | 6.6 | 126.8 | 124.9 | 7" PCC |
| U.S. 151 | SB | 870+70.00 | 872+78.04 | LT | 10.0 | | 208.0 | | | | | 224.9 | | | | 132.230 | 63.560 | | | | 2.1 | 40.2 | 39.6 | 7" PCC |
| U.S. 151 | SB | 873+21.96 | 875+71.16 | LT | 10.0 | | 249.2 | | | | | 258.7 | | | | 158.392 | 63.560 | | | | 2.5 | 48.2 | 47.4 | 7" PCC |
| U.S. 151 | SB | 876+25.92 | 879+68.00 | LT | 10.0 | | 342.1 | | | | | 374.8 | | | | 217.426 | 63.560 | | | | 3.4 | 66.1 | 65.1 | 7" PCC |
| U.S. 151 | NB | 877+76.88 | 879+68.00 | RT | 10.0 | | 191.1 | | | | | 228.2 | | | | 121.476 | 63.560 | | | | 1.9 | 36.9 | 36.4 | 7" PCC |
| U.S. 151 | NB | 882+04.00 | 884+48.42 | RT | 6.0 | | 244.4 | | | | | 168.7 | | | | 86.231 | 35.280 | | | | 2.4 | 53.0 | 52.2 | 7" PCC |
| U.S. 151 | SB | 882+04.00 | 883+41.77 | LT | 6.0 | | 137.8 | | | | | 179.6 | | | | 48.605 | 35.280 | | | | 1.4 | 29.9 | 29.4 | 7" PCC |
| U.S. 151 | SB | 884+02.90 | 890+71.27 | LT | 6 to 10 | | 668.4 | | | | | 476.2 | | | | 330.308 | 49.420 | | | | 6.7 | 137.1 | 136.1 | 7" PCC |
| U.S. 151 | NB | 884+94.40 | 890+90.79 | RT | 6 to 10 | | 596.4 | | | | | 677.2 | | | | 294.736 | 49.420 | | | | 6.0 | 122.4 | 121.5 | 7" PCC |
| U.S. 151 | SB | 891+22.89 | 893+98.36 | LT | 10.0 | | 275.5 | | | | | 287.6 | | | | 175.089 | 63.560 | | | | 2.8 | 53.3 | 52.4 | 7" PCC |
| U.S. 151 | NB | 891+30.24 | 893+93.86 | RT | 10.0 | | 263.6 | | | | | 268.9 | | | | 167.557 | 63.560 | | | | 2.6 | 51.0 | 50.2 | 7" PCC |
| U.S. 151 | NB | 894+44.14 | 895+47.30 | RT | 10.0 | | 103.2 | | | | | 96.1 | | | | 65.568 | 63.560 | | | | 1.0 | 19.9 | 19.6 | 7" PCC |
| U.S. 151 | SB | 894+43.64 | 898+00.00 | LT | 10.0 | | 356.4 | | | | | 386.7 | | | | 226.502 | 63.560 | | | | 3.6 | 68.9 | 67.8 | 7" PCC |
| U.S. 151 | NB | 896+05.78 | 898+00.00 | RT | 10.0 | | 194.2 | | | | | 206.6 | | | | 123.446 | 63.560 | | | | 1.9 | 37.5 | 37.0 | 7" PCC |
| U.S. 151 | NB | 898+00.00 | 902+58.42 | RT | | 6.0 | 458.4 | | | | | | | | | | | | 216.283 | 47.180 | 4.6 | 99.5 | 98.0 | |
| U.S. 151 | SB | 898+00.00 | 902+58.42 | LT | | 6.0 | 458.4 | | | | | | | | | | | | 216.283 | 47.180 | 4.6 | 99.5 | 98.0 | |
| U.S. 151 | SB | 974+22.81 | 979+80.09 | LT | 4.0 | 6.0 | 557.3 | | 86.378 | 15.500 | 5.183 | 238.1 | | 173.983 | 31.220 | | | | 262.925 | 47.180 | 5.6 | 121.0 | 119.1 | 6" HMA |
| U.S. 151 | SB | 979+80.09 | 982+76.24 | LT | 13.3 to 15 | | 296.2 | | 162.383 | 54.831 | 9.743 | 446.0 | | 215.597 | 72.800 | | | | | | 3.0 | 64.3 | 63.3 | 6" HMA |
| U.S. 151 | SB | 982+76.24 | 984+83.16 | LT | 4.0 | 6.0 | 206.9 | | 32.073 | 15.500 | 1.924 | 92.0 | | 118.193 | 57.120 | | | | 97.625 | 47.180 | 2.1 | 40.0 | 39.4 | 6" HMA |
| U.S. 151 | SB | 984+83.16 | 985+76.46 | LT | | 6 to 0 | 93.3 | | | | | | | 29.128 | 31.220 | | | | 22.009 | 23.590 | 0.9 | 18.0 | 17.8 | |
| U.S. 151 | NB | 977+81.50 | 979+30.00 | RT | 3.2 to 6.9 | | 148.5 | | 39.130 | 26.350 | 2.348 | 64.5 | | 55.094 | 37.100 | | | | | | 1.5 | 32.2 | 31.7 | 8" HMA |
| U.S. 151 | NB | 979+30.00 | 980+65.15 | RT | 13.3 | | 135.1 | | 92.871 | 68.717 | 5.572 | 199.7 | | 98.389 | 72.800 | | | | | | 1.4 | 26.1 | 25.7 | 8" HMA |
| U.S. 151 | NB | 980+65.15 | 981+40.00 | RT | 10.0 | | 74.9 | | 38.673 | 51.667 | 2.320 | 83.2 | | 54.491 | 72.800 | | | | | | 0.7 | 15.4 | 15.2 | 8" HMA |
| Beverly Rd. | WB | 6957+24.62 | 6957+55.38 | LT | | 9.3 to 9 | 30.8 | | | | | | | | | | | | 16.149 | 52.500 | 0.3 | | | |
| Beverly Rd. | EB | 6957+25.37 | 6957+54.63 | RT | | 9.3 to 10 | 29.3 | | | | | | | | | | | | 15.362 | 52.500 | 0.3 | | | |
| | | | | | | | Totals: | | | | | 4544.4 | 7" PCC | 744.900 | | 2564.500 | | | 846.700 | | 69.8 | | | |
| | | | | | | | | | | | | 776.1 | 6" HMA | | | | | | | | | | | |
| | | | | | | | | | | | | 347.4 | 8" HMA | | | | | | | | | | | |



# FULL-DEPTH PATCHES

Possible Standards: PR-101, PR-102, PR-103, PR-104, PR-105 and PR-140.

| Location | | | | Dimension | | | PCC Patches | | | | HMA Patches | Composite HMA | Subbase Patches | Subbase Patch w/ 'EF' Joint | Patch Subdrain | 'CD' Joints | 'CT' Joints | 'EF' Joints | Anchor Lugs Removal | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Count | Station | Reference Location Sign | Lane | Length | Width | Patch Thickness | With Dowels | Without Dowels | C R C | Ramp with Dowels | | | | | | | | | | |
| | | | | | | | PR-103 | PR-102 | PR-104 | PR-105 | | | PR-140 | PR-101 | PR-101 or PR-140 | | | PR-101 | | |
| | | | L, R, or B | FT | FT | IN | SY | SY | SY | SY | SY | TON | SY | SY | No. | No. | No. | No. | No. | |
| 2 | 6957+40.00 | | B | 30.0 | 24.0 | 8.0 | 80.0 | | | | | | | | | 3 | | | | Beverly Road Culvert Installation |



# PROPOSED POSTED SPEED LIMIT

| Road Identification | Begin Station | End Station | Proposed Posted Speed Limit | | | Remarks |
|---|---|---|---|---|---|---|
| | | | 35 or less | 40 - 45 | over 45 | |
| U.S. Highway 151 | 843+47.28 | 887+00.00 | | 45 | | End Station is Approximate |
| U.S. Highway 151 | 887+00.00 | 897+00.00 | | | 50 | Approximate Location |
| U.S. Highway 151 | 897+00.00 | 903+15.44 | | | 55 | Begin Station is Approximate |
| U.S. Highway 151 | 971+42.45 | 987+43.71 | | | 55 | |
| Church Street | 1847+69.25 | 1849+00.00 | 25 | | | |
| Church Street | 1849+56.00 | 1851+25.00 | 25 | | | |
| Prairie Avenue | 2864+42.00 | 2866+56.00 | 25 | | | |
| Losey Avenue | 3862+86.45 | 3864+80.81 | 25 | | | |
| Stallman Drive | 4874+25.00 | 4875+81.00 | 25 | | | |
| Cemetery Road | 5882+30.00 | 5883+74.00 | 25 | | | |
| Cemetery Road | 5884+44.00 | 5885+42.00 | 25 | | | |
| 80th Street SW | 7906+60.00 | 7912+00.00 | | | 55 | Assumed Speed Limit |
| Beverly Road | 6955+00.00 | 6958+89.23 | | 45 | | |



# LONGITUDINAL GROOVING

| Location | Total SY | Remarks |
|---|---|---|
| UPRR | 278.0 | South Approach |
| UPRR | 847.0 | Bridge Deck |
| UPRR | 278.0 | North Approach |
| Prairie Creek | 409.0 | South Approach, Includes Sidewalk Area |
| Prairie Creek | 1274.0 | Bridge Deck, Includes Sidewalk Area |
| Prairie Creek | 402.0 | North Approach, Includes Sidewalk Area |
| Drain Ditch 1 | 482.0 | South Approach, Includes Sidewalk Area |
| Drain Ditch 1 | 1026.0 | Bridge Deck, Includes Sidewalk Area |
| Drain Ditch 1 | 489.0 | North Approach, Includes Sidewalk Area |
| Total | 5485.0 | |

# ACCESS POINTS AND SAFETY RAMPS

Refer to Cross-Sections

Length of unclassified pipe calculated is based on using Corrugated Metal Pipe.
(1) Refer to MI-210
(2) Refer to EW-501.
(3) Refer to EW-501 or EW-502.
*Predetermined for access point not constructed with this project.

| Location | | Type | Length of Opening (1) | | | W | (1) (2) PR | (2) SR | Pipe Culvert (3) | | | | | Aprons | Driveway Surface Area | | Driveway Surfacing Material | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Station | Side | A, B, C, Safety Ramp, or Predetermined* | Case | 1½" Dropped Curb | 3" Dropped Curb | | | | H | Size | Pipe Length | Lt. | Rt. | | HMA | PCC | | |
| | | | 1 or 2 | LF | LF | FT | FT | FT | FT | IN | LF | LF | LF | No. | SY | SY | TON | |
| U.S. Hwy 151 | | | | | | | | | | | | | | | | | | |
| 844+91.50 | R | C | 2 | 26.8 | | 20.0 | | | | | | | | | | 28.8 | | |
| 845+34.00 | L | C | 2 | 30.0 | | 20.0 | | | | | | | | | | 28.3 | | |
| 845+97.50 | R | B | 2 | 40.0 | | 35.0 | | | | | | | | | | 36.2 | | |
| 846+44.00 | R | C | 2 | 24.5 | | 20.0 | | | | | | | | | | 31.2 | | |
| 846+93.00 | L | B | 2 | 44.0 | | 34.0 | | | | | | | | | | 81.2 | | |
| 847+60.50 | R | B | 2 | 64.5 | | 60.0 | | | | | | | | | | 57.8 | | Ex. Entrance 65' wide |
| 864+19.80 | L | C | 1 | 71.2 | | 25.0 | VAR | | | | | | | | | 493.6 | | Refer to L Sheets |
| 864+19.80 | L | C | | | | 15.0 | | | | | | | | | | | 126.700 | Refer to L Sheets |
| 873+00.00 | L | B | 1 | | | 30.0 | 30.0 | 15.0 | | | | | | | | 142.7 | | |
| 877+50.00 | R | B | 1 | | | 34.2 | 30.0 | 15.0 | | | | | | | | 202.2 | | |
| 878+31.00 | L | C | | | | 20.0 | | 15.0 | | | | | | | | | 51.000 | Refer to M Sheets |
| 890+96.75 | L | B | 1 | | | 37.0 | 30.0 | | 1.2 | 18 | 56.0 | 29.7 | 31.7 | 2 | | 181.0 | | CMP Pipe |
| 891+10.00 | R | B | 1 | | | 24.0 | 30.0 | | 1.5 | 18 | 44.0 | 24.9 | 23.8 | 2 | | 238.5 | | CMP Pipe |
| 894+18.50 | R | B | 1 | | | 40.0 | 30.0 | | | | | | | | | 241.9 | | |
| 894+21.00 | L | B | 1 | | | 30.0 | 30.0 | | | | | | | | | 230.8 | | Includes Curb |
| 895+76.54 | R | B | 1 | | | 43.0 | 30.0 | | | | | | | | | 233.4 | | Incl. Curb, UAC Ex. Pipe |
| 897+64.90 | R | C | | | | 26.0 | | 15.0 | | | | | | | | | 35.100 | UAC Existing Pipe |
| 983+85.00 | L | C | | | | 15.0 | | 15.0 | 2.4 | 18 | 50.0 | 33.7 | 28.5 | 2 | | | 69.100 | Remove Existing Pipe |
| | | | | | | | | | | | | | | | | | | |
| Church St. | | | | | | | | | | | | | | | | | | |
| 1847+85.30 | R | B | 2 | | | 24.0 | | | | | | | | | | 169.9 | | |
| 1850+17.23 | R | B | 2 | | | 30.0 | | | | | | | | | | 83.2 | | |
| 1850+31.75 | L | C | 2 | | | 12.0 | | | | | | | | | | 21.2 | | |
| 1850+68.00 | R | C | 2 | | | 12.0 | | | 1.0 | 12 | 28.0 | 15.4 | 13.6 | 2 | | 35.7 | | CMP Pipe |
| 1851+11.39 | R | C | 2 | | | 16.0 | | | | | | | | | | 32.8 | | |
| | | | | | | | | | | | | | | | | | | |
| Prairie Ave. | | | | | | | | | | | | | | | | | | |
| 2865+51.90 | L | C | 2 | | | 10.0 | | | | | | | | | | 75.4 | | |
| 2866+00.00 | R | C | 2 | | | 16.0 | | | | | | | | | | 23.9 | | |
| 2866+42.33 | L | C | 2 | | | 16.0 | | | | | | | | | | 23.4 | | |
| | | | | | | | | | | | | | | | | | | |
| Losey Ave. | | | | | | | | | | | | | | | | | | |
| 3863+77.60 | R | C | 2 | 34.4 | | 24.0 | | | | | | | | | | 46.3 | | |
| | | | | | | | | | | | | | | | | | | |
| 80th St. SW | | | | | | | | | | | | | | | | | | |
| 7910+00.00 | L | C | | | | | | 20.0 | 1.2 | 30 | 56.0 | 31.6 | 36.0 | 2 | | | 132.100 | RCP Pipe |
| | | | | | | | | | | | | | | | | | | |
| | | | | | Totals: | | | | | 12 | 28.0 | CMP | Apron: | 2 | | 2739.4 | 414.000 | |
| | | | | | | | | | | 18 | 150.0 | CMP | Apron: | 6 | | | | |
| | | | | | | | | | | 30 | 56.0 | RCP | Apron: | 2 | | | | |



## SIDEWALK CONSTRAINTS

1. Widths:
   Widths listed in the S sheets are minimums.

2. Cross Slopes:
   Construct all sidewalks, curb ramps, and landings/turning spaces at a target cross slope of 1.5%. Cross slopes exceeding 2.0% will not be allowed, except for areas tying into existing pavement. In these areas, transition from existing pavement cross slope to a cross slope of less than 2.0% within one panel at a rate not to exceed 1.0% per foot.

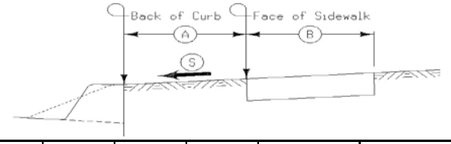
3. Longitudinal Slopes:
   a. Sidewalk:
      i. Roadway slope exceeds 5.0%: Sidewalk longitudinal slope exceeding the roadway slope by more than 2.0% will not be allowed.
      ii. Roadway slope 5.0% or less: Sidewalk longitudinal slope exceeding 5.0% will not be allowed.
   b. Ramps:
      i. Ramps 15.0’ in length or less: Longitudinal slope exceeding 8.3% will not be allowed.
      ii. Ramps greater than 15.0’ in length: Construct with the longitudinal slope necessary to conform to the design.

4. Landing/Turning Spaces:
   Longitudinal slopes exceeding 2.0% will not be allowed.



## SIDEWALKS

See MI-220 and S Sheets




| Intersection | Quadrant | Length | (A) | (B) | (S) | 4" PCC Sidewalk | 6" PCC Sidewalk | 8" PCC Sidewalk | 10" PCC Sidewalk | Detectable Warnings | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | FT | FT | % | SY | SY | SY | SY | SF | |
| 845+60.00 - 845+80.00 | | 20 | 5.30 | 4.00 | | 8.9 | | | | | U.S. Highway 151 |
| 846+15.00 - 846+34.00 | | 19 | 4.50 | 4.00 | | 8.5 | | | | | U.S. Highway 151 |
| 846+54.00 - 847+30.50 | | 76.5 | 4.50 | 4.00 | | 34.0 | | | | | U.S. Highway 151 |
| | | | | | | | | | | | |
| 1850+37.75 - 1850+57.84 | | 20 | 8.50 | 4.00 | | 8.9 | | | | | Church Street |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | Total: | 60.3 | | | | | |

# LONGITUDINAL SUBDRAIN SHOULDER AND BACKSLOPE

Refer to Soils Sheets

* Not a bid item. Bridge berm quantities assume a trench depth of 24 inches.

| Location | | | | | Longitudinal Subdrain (DR-303) | | | | | | | Subdrain Outlet | | Porous* Backfill | Class "A"* Crushed Stone | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Line No. | Road or Lane Identification | Station to Station | | Side | Depth D | Shoulder | | Backslope | | Bridge Berm (EW-203 or EW-204) | | | DR-303, DR-305 or DR-306 | | | |
| | | | | | | Size | Length | Size | Length | Standard Road Plan and Type | Size | Length | Station | Standard Road Plan and Type | | |
| | | | | | IN | IN | FT | IN | FT | | IN | FT | | | CY | CY | |
| 1 | US 151 | 843+88.65 | 845+64.97 | RT | 45.0 | 4.0 | 180.3 | | | | | | 843+88.65 | DR-303 | 18.1 | | Type 12, Cap End |
| | | | | | | | | | | | | | 845+64.97 | DR-303 | | | Type 12, Outlet into Intake ST-03 |
| 2 | US 151 | 845+64.97 | 847+21.58 | RT | 45.0 | 4.0 | 158.1 | | | | | | 845+64.97 | DR-303 | 15.9 | | Type 12, Outlet into Intake ST-03 |
| | | | | | | | | | | | | | 847+21.58 | DR-303 | | | Type 12, Outlet into Intake ST-05 |
| 3 | US 151 | 847+21.58 | 848+39.00 | RT | 45.0 | 4.0 | 119.0 | | | | | | 847+21.58 | DR-303 | 11.9 | | Type 12, Outlet into Intake ST-05 |
| | | | | | | | | | | | | | 848+39.00 | DR-303 | | | Type 12, Outlet into Intake ST-06 |
| 4 | US 151 | 848+39.00 | 849+89.38 | RT | 45.0 | 4.0 | 152.4 | | | | | | 848+39.00 | DR-303 | 15.3 | | Type 12, Outlet into Intake ST-06 |
| | | | | | | | | | | | | | 849+89.38 | DR-303 | | | Type 12, Outlet into Intake ST-11 |
| 5 | US 151 | 849+89.38 | 851+50.00 | RT | 45.0 | 4.0 | 162.3 | | | | | | 849+89.38 | DR-303 | 16.3 | | Type 12, Outlet into Intake ST-11 |
| | | | | | | | | | | | | | 851+50.00 | DR-303 | | | Type 12, Outlet into Intake ST-12 |
| 6 | US 151 | 851+50.00 | 853+25.60 | RT | 45.0 | 4.0 | 176.4 | | | | | | 851+50.00 | DR-303 | 17.7 | | Type 12, Outlet into Intake ST-12 |
| | | | | | | | | | | | | | 853+25.60 | DR-303 | | | Type 12, Outlet into Intake ST-18 |
| 7 | US 151 | 853+25.60 | 855+69.10 | RT | 45.0 | 4.0 | 316.3 | | | | | | 853+25.60 | DR-303 | 31.7 | | Type 12, Outlet into Intake ST-18 |
| | | | | | | | | | | | | | 855+69.10 | DR-305, Type A | | | Type 7A, Outlet to Left |
| 8 | US 151 | 858+96.10 | 861+82.03 | RT | 45.0 | 4.0 | 305.1 | | | | | | 858+96.10 | | 30.6 | | Connect to Approach Pavement Subdrain |
| | | | | | | | | | | | | | 861+82.03 | DR-303 | | | Type 12, Outlet into Intake ST-22 |
| 9 | US 151 | 861+82.03 | 863+51.70 | RT | 45.0 | 4.0 | 170.4 | | | | | | 861+82.03 | DR-303 | 17.1 | | Type 12, Outlet into Intake ST-22 |
| | | | | | | | | | | | | | 863+51.70 | DR-303 | | | Type 12, Outlet into Intake ST-24 |
| 10 | US 151 | 863+51.70 | 865+66.60 | RT | 45.0 | 4.0 | 239.3 | | | | | | 863+51.70 | DR-303 | 24.0 | | Type 12, Outlet into Intake ST-24 |
| | | | | | | | | | | | | | 865+66.60 | DR-305, Type A | | | Type 7A, Outlet to Left |
| 11 | US 151 | 869+26.20 | 870+70.00 | RT | 45.0 | 4.0 | 195.8 | | | | | | 869+26.20 | DR-305, Type A | 19.6 | | Type 7A |
| | | | | | | | | | | | | | 870+70.00 | DR-305, Type A | | | Type 12 |
| 12 | US 151 | 870+70.00 | 875+24.64 | RT | 45.0 | 4.0 | 507.1 | | | | | | 870+70.00 | DR-305, Type A | 50.9 | | Type 7A |
| | | | | | | | | | | | | | 875+24.64 | DR-305, Type A | | | Type 7A |
| 13 | US 151 | 875+24.64 | 879+37.99 | RT | 45.0 | 4.0 | 464.9 | | | | | | 875+24.64 | DR-305, Type A | 46.6 | | Type 7A |
| | | | | | | | | | | | | | 879+37.99 | DR-305, Type A | | | Type 7A |
| 14 | US 151 | 882+29.22 | 885+23.39 | RT | 45.0 | 4.0 | 330.2 | | | | | | 882+29.22 | DR-305, Type A | 33.1 | | Type 7A |
| | | | | | | | | | | | | | 885+23.39 | DR-305, Type A | | | Type 7A |
| 15 | US 151 | 885+23.39 | 888+50.00 | RT | 45.0 | 4.0 | 371.6 | | | | | | 885+23.39 | DR-305, Type A | 37.3 | | Type 7A |
| | | | | | 30.0 | | | | | | | | 888+50.00 | DR-305, Type A | | | Type 7A |
| 16 | US 151 | 888+50.00 | 893+00.00 | RT | 30.0 | 4.0 | 486.2 | | | | | | 888+50.00 | DR-305, Type A | 30.0 | | Type 7A |
| | | | | | 45.0 | | | | | | | | 893+00.00 | DR-305, Type A | | | Type 7A |
| 17 | US 151 | 893+00.00 | 898+00.00 | RT | 45.0 | 4.0 | 546.6 | | | | | | 893+00.00 | DR-305, Type A | 54.8 | | Type 7A |
| | | | | | | | | | | | | | 898+00.00 | DR-305, Type A | | | Type 7A |
| 18 | US 151 | 898+00.00 | 902+58.42 | RT | 45.0 | 4.0 | 507.8 | | | | | | 898+00.00 | DR-305, Type A | 50.9 | | Type 7A |
| | | | | | | | | | | | | | 902+58.42 | DR-305, Type A | | | Type 7A |
| 19 | US 151 | 845+05.46 | 846+64.33 | LT | 45.0 | 4.0 | 162.7 | | | | | | 845+05.46 | DR-303 | 16.3 | | Type 12, Outlet into Intake ST-02 |
| | | | | | | | | | | | | | 846+64.33 | DR-303 | | | Type 12, Outlet into Intake ST-04 |
| 20 | US 151 | 846+64.33 | 848+39.00 | LT | 45.0 | 4.0 | 176.3 | | | | | | 846+64.33 | DR-303 | 17.7 | | Type 12, Outlet into Intake ST-04 |
| | | | | | | | | | | | | | 848+39.00 | DR-303 | | | Type 12, Outlet into Intake ST-07 |
| 21 | US 151 | 848+39.00 | 849+89.28 | LT | 45.0 | 4.0 | 151.2 | | | | | | 848+39.00 | DR-303 | 15.2 | | Type 12, Outlet into Intake ST-07 |
| | | | | | | | | | | | | | 849+89.28 | DR-303 | | | Type 12, Outlet into Intake ST-14 |
| 22 | US 151 | 849+89.28 | 851+50.00 | LT | 45.0 | 4.0 | 162.3 | | | | | | 849+89.28 | DR-303 | 16.3 | | Type 12, Outlet into Intake ST-14 |
| | | | | | | | | | | | | | 851+50.00 | DR-303 | | | Type 12, Outlet into Intake ST-13 |
| 23 | US 151 | 851+50.00 | 853+25.60 | LT | 45.0 | 4.0 | 176.2 | | | | | | 851+50.00 | DR-303 | 17.7 | | Type 12, Outlet into Intake ST-13 |
| | | | | | | | | | | | | | 853+25.60 | DR-303 | | | Type 12, Outlet into Intake ST-18 |
| 24 | US 151 | 853+25.60 | 855+69.10 | LT | 45.0 | 4.0 | 278.2 | | | | | | 853+25.60 | DR-303 | 27.9 | | Type 12, Outlet into Intake ST-18 |
| | | | | | | | | | | | | | 855+69.10 | | | | Connect to Approach Pavement Subdrain |
| 25 | US 151 | 858+96.10 | 861+82.03 | LT | 45.0 | 4.0 | 304.8 | | | | | | 858+96.10 | DR-305, Type A | 30.6 | | Type 7A |
| | | | | | | | | | | | | | 861+82.03 | DR-303 | | | Type 12, Outlet into Intake ST-21 |
| 26 | US 151 | 861+82.03 | 863+51.69 | LT | 45.0 | 4.0 | 170.4 | | | | | | 861+82.03 | DR-303 | 17.1 | | Type 12, Outlet into Intake ST-21 |
| | | | | | | | | | | | | | 863+51.69 | DR-303 | | | Type 12, Outlet into Intake ST-23 |
| 27 | US 151 | 863+51.69 | 865+66.60 | LT | 45.0 | 4.0 | 255.8 | | | | | | 863+51.69 | DR-303 | 25.7 | | Type 12, Outlet into Intake ST-23 |
| | | | | | | | | | | | | | 865+66.60 | DR-305, Type A | | | Type 7A |
| 28 | US 151 | 869+16.20 | 870+70.00 | LT | 45.0 | 4.0 | 218.9 | | | | | | 869+16.20 | DR-305, Type A | 22.0 | | Type 7A |
| | | | | | | | | | | | | | 870+70.00 | DR-305, Type A | | | Type 12 |
| 29 | US 151 | 870+70.00 | 875+24.64 | LT | 45.0 | 4.0 | 565.9 | | | | | | 870+70.00 | DR-305, Type A | 56.8 | | Type 7A |
| | | | | | 30.0 | | | | | | | | 875+24.64 | DR-305, Type A | | | Type 7A |
| 30 | US 151 | 875+24.64 | 879+37.99 | LT | 30.0 | 4.0 | 511.0 | | | | | | 875+24.64 | DR-305, Type A | 31.5 | | Type 7A |
| | | | | | 30.0 | | | | | | | | 879+37.99 | DR-305, Type A | | | Type 7A |
| 31 | US 151 | 882+29.22 | 883+19.86 | LT | 45.0 | 4.0 | 164.1 | | | | | | 882+29.22 | DR-305, Type A | 16.5 | | Type 7A |
| | | | | | | | | | | | | | 883+19.86 | DR-305, Type A | | | Type 7A |
| 32 | US 151 | 883+19.86 | 888+11.75 | LT | 45.0 | 4.0 | 553.4 | | | | | | 883+19.86 | DR-305, Type A | 55.5 | | Type 7A |
| | | | | | | | | | | | | | 888+11.75 | DR-305, Type A | | | Type 7A |
| 33 | US 151 | 888+11.75 | 893+07.78 | LT | 24.0 | 4.0 | 538.0 | | | | | | 888+11.75 | DR-305, Type A | 24.9 | | Type 7A |
| | | | | | 24.0 | | | | | | | | 893+07.78 | DR-305, Type A | | | Type 7A |
| 34 | US 151 | 893+07.78 | 898+00.00 | LT | 24.0 | 4.0 | 541.7 | | | | | | 893+07.78 | DR-305, Type A | 25.1 | | Type 7A |
| | | | | | 45.0 | | | | | | | | 898+00.00 | DR-305, Type A | | | Type 7A |
| 35 | US 151 | 898+00.00 | 902+58.42 | LT | 45.0 | 4.0 | 504.5 | | | | | | 898+00.00 | DR-305, Type A | 50.6 | | Type 7A |
| | | | | | | | | | | | | | 902+58.42 | DR-305, Type A | | | Type 7A |
| | Totals: | | | | | | 10826.0 | | | | | | DR-303 | 32 | 989.2 | | |
| | | | | | | | | | | | | | DR-305 | 36 | | | |

107-23
10-18-11

# GRADING FOR GUARDRAIL INSTALLATIONS

(1) Lane(s) to which the installation is adjacent. Refer to EW-301

| Location | | | | Foreslope at Guardrail | Dimensions (Feet) | | | | | | | | | Earthwork | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No. | (1) Direction of Traffic | Station | Side | | X1 | Y1 | X2 | Y2 | X3 | Y3 | X4 | Y4 | Z | Excavation Class 10 | Embankment In Place | |
| | | | | | | | | | | | | | | CY | CY | |
| 1 | NB | 880+00.67 | R | 6:1 | | | | | 78.6 | 5.0 | 129.5 | 7.0 | 47.1 | | | Earthwork Included in Template Quantities |
| 2 | SB | 882+04.00 | L | 6:1 | | | | | 36.3 | 5.0 | 88.4 | 7.1 | 49.9 | | | Earthwork Included in Template Quantities |
| 3 | NB | 979+26.40 | R | 6:1 | | | | | 74.9 | 5.0 | 124.4 | 7.0 | 46.7 | | | Approach Side , Ewrk. Included in Template Qtys |
| 4 | NB | 979+26.40 | R | 6:1 | | | | | | | 118.8 | 4.0 | 46.1 | | | Departure Side, Ewrk. Included in Template Qtys |
| 5 | SB | 981+18.84 | L | 6:1 | | | | | 87.4 | 5.0 | 130.7 | 6.7 | 59.3 | | | Approach Side , Ewrk. Included in Template Qtys |
| 6 | SB | 981+18.84 | L | 6:1 | | | | | | | 118.8 | 4.0 | 46.1 | | | Departure Side, Ewrk. Included in Template Qtys |

110-7A
04-17-12

# REMOVAL OF STEEL BEAM GUARDRAIL

(1) Lane(s) to which the installation is adjacent.
(2) Includes length of End Terminals and End Anchors.

| Location | | | | | |
|---|---|---|---|---|---|
| No. | (1) Direction of Traffic | Station to Station | | Side | Removal of Guardrail (2) |
| | | | | | LF |
| 1 | NB | 849+74.84 | 856+50.00 | RT | 675.5 |
| 2 | SB | 855+61.06 | 856+51.59 | LT | 90.9 |
| 3 | NB | 857+94.75 | 858+84.84 | RT | 90.4 |
| 4 | SB | 857+94.97 | 862+96.35 | LT | 502.1 |
| 5 | NB | 865+77.61 | 866+60.69 | RT | 83.3 |
| 6 | SB | 865+78.29 | 866+61.42 | LT | 83.6 |
| 7 | NB | 868+27.45 | 869+48.28 | RT | 121.4 |
| 8 | SB | 868+27.61 | 869+48.29 | LT | 121.3 |
| 9 | NB | 879+15.90 | 880+63.70 | RT | 146.3 |
| 10 | SB | 880+03.84 | 880+61.94 | LT | 59.1 |
| 11 | NB | 881+15.77 | 881+75.06 | RT | 58.9 |
| 12 | SB | 881+17.73 | 882+62.14 | LT | 146.4 |
| 13 | NB | 978+35.42 | 979+83.13 | RT | 148.0 |
| 14 | SB | 979+46.38 | 980+06.71 | LT | 60.5 |
| 15 | NB | 980+31.32 | 980+91.56 | RT | 60.5 |
| 16 | SB | 980+54.10 | 982+02.06 | LT | 148.2 |
| | | | | Total: | 2596.4 |

108-8A
Modified

# STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE RAIL END SECTION

Possible Standards: BA-200, BA-201, BA-202, BA-205, BA-206, BA-210, BA-211, BA-221, BA-225, BA-250, BA-260, LS-625, LS-626, LS-630, LS-635, SI-172, SI-173 and SI-211.

(1) Lane(s) to which the obstacle is adjacent.
(2) Not a bid item. Incidental to guardrail installation.

| Location | | | | | Layout Lengths BA-250, BA-260, LS-630, or LS-635 | | | | Long-Span System | | Delineators and Object Markers (2) | | | | | Bid Items | | | | | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | Delineator | Object Marker | | | Bolted End Anchor | | Post Adapter | Steel Beam Guardrail | Barrier Transition Section | BA-250 or LS-630 End Terminal | | | | BA-260 or LS-635 Barrier Transition Section | BA-260 or LS-635 End Terminal | |
| No. | (1) Direction of Traffic | (1) Side O = Outside M = Median | Station | Offset | VT1 | VF | VT2 | ET | BA-211 STATION | BA-211 TYPE | SI-211 TYPE | SI-172 Type 1 White | SI-173 Type 2 OM2-2 | SI-173 Type 3 OM3-L | SI-173 Type 3 OM3-R | BA-202 TYPE | BA-202 EACH | BA-210 EACH | BA-200 LF | BA-201 EACH | BA-205 Tangent EACH | BA-206 Flared EACH | LS-625 Tangent EACH | LS-626 Flared EACH | BA-221 EACH | BA-225 EACH | |
| | | | | FT | LF | LF | LF | LF | | | | EACH | EACH | EACH | EACH | | | | | | | | | | | | |
| 1 | SB | O | 856+09.10 | 20.0 | 40.625 | | | 47.7 | | | 2 | | 2 | 1 | | B | 1 | | 0.0 | 1 | 1 | | | | | | |
| 2 | NB | O | 856+23.50 | 20.8 | 578.125 | | | 47.7 | 851+39.73 | 2 | 2 | | 24 | | 1 | A | 1 | | 537.5 | 1 | 1 | | | | | | Span Intake |
| | | | | | | | | | 853+14.73 | 2 | | | | | | | | | | | | | | | | | Span Intake |
| 3 | NB | O | 858+44.50 | 20.8 | 165.625 | | | 47.7 | | | 2 | | 7 | 1 | | A | 1 | | 125.0 | 1 | 1 | | | | | | |
| 4 | SB | O | 858+56.11 | 20.0 | 365.625 | 62.50 | 25.00 | 47.7 | 861+71.12 | 2 | 2 | | 19 | | 1 | B | 1 | | 412.5 | 1 | 1 | | | | | | Span Intake |
| 5 | NB | O | 866+41.74 | 23.6 | 78.125 | | | 47.7 | | | 2 | | 4 | | 1 | A | 1 | | 37.5 | 1 | 1 | | | | | | |
| 6 | SB | O | 868+76.20 | 23.0 | 65.625 | | | 47.7 | | | 2 | | 3 | | 1 | B | 1 | | 25.0 | 1 | 1 | | | | | | |
| 7 | NB | O | 880+00.67 | 29.6 | 78.125 | | | 47.7 | | | 3 | | | | 1 | A | 1 | | 37.5 | 1 | 1 | | | | | | |
| 8 | SB | O | 882+04.00 | 29.0 | 40.625 | | | 47.7 | | | 3 | | | | 1 | A | 1 | | 0.0 | 1 | 1 | | | | | | |
| | | | | | | | | | | | | | | | Total: | | 8 | | 1175.0 | 8 | 8 | | | | | | |

108-8C
04-19-16

# STEEL BEAM GUARDRAIL FOR SIDE OBSTACLE (ONE-WAY PROTECTION)

Possible Standards: BA-200, BA-203, BA-205, BA-206, BA-210, BA-211, BA-252, LS-625, LS 626, LS-632, SI-172, SI-173, and SI-211.

(1) Lane(s) to which the obstacle is adjacent.

| Location | | | | | | Layout Lengths BA-252 or LS-632 Approach Side (A) | | | | Trailing Side (T) | | Long-Span System | | Delineators and Object Markers | | | | | Bid Items | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | Delineator | Object Marker | | | | | End Terminal | | | |
| No. | (1) Direction of Traffic | (1) Side O= Outside M= Median | Station | $O_L$ | $D_O$ | ET | $VT2_A$ | $VF_A$ | $VT1_A$ | $VT1_T$ | EA | BA-211 STATION | BA-211 TYPE | SI-211 TYPE | SI-172 Type 1 White | SI-173 Type 2 OM2-2 | SI-173 Type 3 OM3-L | SI-173 Type 3 OM3-R | Steel Beam Guardrail BA-200 | W-Beam End Anchor BA-203 | Standard | Count | Post Adapter BA-210 | |
| | | | | FT | FT | LF | LF | LF | LF | LF | LF | | | | EACH | EACH | EACH | EACH | LF | EACH | | EACH | EACH | |
| 1 | NB | O | 979+26.40 | 99.63 | 12.00 | 47.7 | | | 75.00 | 118.75 | 9.375 | | | | | | | | 187.5 | 1 | BA-205 | 1 | 11 | |
| 2 | SB | O | 981+18.84 | 99.63 | 12.00 | 47.7 | | | 87.50 | 118.75 | 9.375 | | | | | | | | 200.0 | 1 | BA-205 | 1 | 11 | |
| | | | | | | | | | | | | | | | | | | Total: | 387.5 | 2 | | 2 | 22 | |

| FILE NO. | ENGLISH | DESIGN TEAM Snyder & Associates, Inc. | Linn COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER C.16 |
|---|---|---|---|---|---|

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108-33
04-19-16

# TEMPORARY BARRIER RAIL

Possible Standards: BA-400, BA-401

* Not a bid item. Anchorage requirements are based on TBR locations shown in the plans. TBR alignments that vary from what is shown in the plans may result in additional TBR sections requiring anchorage.

| No. | Station to Station | | Length LF | (Select One) Steel BA-400 | (Select One) Concrete BA-401 | Anchored* (Y/N) | Modular Glare Screen System (Y/N) | Remarks |
|---|---|---|---|---|---|---|---|---|
| 1 | 865+04.00 | 865+68.00 | 62.5 | | X | No | No | Stage 2A |
| 2 | 865+68.00 | 868+88.00 | 325.0 | | X | Yes | No | Prairie Creek Bridge, Stage 2A/2B |
| 3 | 868+88.00 | 873+37.00 | 450.0 | | X | No | No | Stage 2A |
| 4 | 875+69.00 | 880+06.00 | 437.5 | | X | No | No | Stage 2A |
| 5 | 880+06.00 | 881+97.00 | 187.5 | | X | Yes | No | Drainage Ditch No. 1, Stage 2A/2B |
| 6 | 881+97.00 | 890+08.00 | 812.5 | | X | No | No | Stage 2A |
| 7 | 891+88.00 | 903+13.00 | 1125.0 | | X | No | No | Stage 2A |
| 8 | 864+14.00 | 865+04.00 | 87.5 | | X | No | No | Additional for Stage 2B |
| 9 | 873+37.00 | 875+69.00 | 237.5 | | X | No | No | Relocate from Stage 2A for Stage 2B |
| 10 | 890+08.00 | 891+58.00 | 150.0 | | X | No | No | Relocate from Stage 2A for Stage 2B |
| 11 | 891+58.00 | 891+88.00 | 25.0 | | X | No | No | Additional for Stage 2B |
| 12 | 863+42.00 | 865+58.00 | 212.5 | | X | No | No | Stage 3A |
| 13 | 865+58.00 | 869+04.00 | 350.0 | | X | Yes | No | Prairie Creek Bridge Stage 3A/3B |
| 14 | 865+42.00 | 866+06.00 | 62.5 | | X | Yes | No | Prairie Creek Bridge Stage 3A/3B |
| 15 | 866+06.00 | 868+61.00 | 250.0 | | X | Yes | No | Prairie Creek Bridge Stage 3A/3B |
| 16 | 848+61.00 | 869+12.00 | 2050.0 | | X | No | No | Prairie Creek Bridge Stage 3A/3B |
| 17 | 868+69.00 | 869+33.00 | 62.5 | | X | Yes | No | Prairie Creek Bridge Stage 3A/3B |
| 18 | 869+04.00 | 876+57.00 | 750.0 | | X | No | No | Stage 3A |
| 19 | 878+35.00 | 879+49.00 | 112.5 | | X | No | No | Stage 3A |
| 20 | 879+49.00 | 882+29.00 | 275.0 | | X | Yes | No | Drainage Ditch No. 1 Stage 3A/3B |
| 21 | 879+34.00 | 879+97.00 | 62.5 | | X | Yes | No | Drainage Ditch No. 1 Stage 3A/3B |
| 22 | 881+97.00 | 882+60.00 | 62.5 | | X | Yes | No | Drainage Ditch No. 1 Stage 3A/3B |
| 23 | 880+22.00 | 882+10.00 | 187.5 | | X | Yes | No | Drainage Ditch No. 1 Stage 3A/3B |
| 24 | 882+10.00 | 882+59.00 | 50.0 | | X | Yes | No | Drainage Ditch No. 1 Stage 3A/3B |
| 25 | 882+29.00 | 893+37.00 | 1112.5 | | X | No | No | Stage 3A |
| 26 | 895+05.00 | 903+23.00 | 812.5 | | X | No | No | Stage 3A |
| 27 | 865+08.00 | 865+59.00 | 50.0 | | X | No | No | Relocate from Stage 3A for Stage 3B |
| 28 | 882+29.00 | 883+39.00 | 112.5 | | X | No | No | Relocate from Stage 3A for Stage 3B |
| 29 | 885+49.00 | 886+48.00 | 100.0 | | X | No | No | Relocate from Stage 3A for Stage 3B |
| 30 | 892+10.00 | 894+77.00 | 262.5 | | X | No | No | Relocate from Stage 3A for Stage 3B |
| 31 | 896+72.00 | 897+09.00 | 37.5 | | X | No | No | Relocate from Stage 3A for Stage 3B |
| 32 | 978+79.00 | 981+69.00 | 287.5 | | X | Yes | No | Drainage Ditch No. 2 Stage 1 |
| 33 | 978+96.00 | 981+47.00 | 250.0 | | X | Yes | No | Drainage Ditch No. 2 Stage 2 |
| 34 | 978+53.00 | 982+59.00 | 412.5 | | X | Yes | No | Drainage Ditch No. 2 Stage 2 |
| | | Total: | 11825.0 | | | | | |

252-1
10-16-12

# TEMPORARY CROSSINGS AND DETOURS

Blading, shaping, and other work in preparation for maintaining temporary crossings or detours is incidental to other work. Furnish and spread additional granular surfacing needed for temporary crossings or detours during construction at the contract price.

108-28
08-01-08

# TEMPORARY TRAFFIC SIGNALS

| No. | Location Station | Type: One Lane Traffic | Type: Haul Road | Type: Intersection | Remarks |
|---|---|---|---|---|---|
| 1 | 864+26.00 | YES | NO | US 151/Driveway | Stage 2A/2B |
| 2 | 864+32.00 | YES | NO | US 151/Prairie Ave. | Stage 2A/2B |
| 3 | 870+26.00 | YES | NO | Praire Creek Bridge | Stage 2A/2B |
| 4 | 976+80.00 | YES | NO | Drain. Ditch No. 2 | Stage 1 |
| 5 | 984+20.00 | YES | NO | Drain. Ditch No. 2 | Stage 1 |

108-13A
08-01-08

# SAFETY CLOSURES

Refer to Section 2518 of the Standard Specifications

| Station | Closure Type: Road Qty. | Closure Type: Hazard Qty. | Remarks |
|---|---|---|---|
| 848+09.00 | 1 | | Hwy 151 Stage 1A |
| 1848+00.00 | 1 | | Church Street Stage 1A |
| 1850+07.00 | 1 | | Church Street Stage 1A |
| 846+97.00 | 1 | | Hwy 151 Stage 1B |
| 849+81.00 | 1 | | Hwy 151 Stage 1B/1C/2A/2B |
| 1849+76.00 | 1 | | Church Street Stage 1B |
| 1851+36.00 | 1 | | Church Street Stage 1B |
| 863+67.00 | 1 | | Hwy 151 Stage 1C/2A/2B |
| 864+54.00 | 1 | | Hwy 151 Stage 2A |
| 873+76.00 | 1 | | Hwy 151 Stage 2A |
| 875+29.00 | 1 | | Hwy 151 Stage 2A |
| 5882+10.00 | 1 | | Cemetery Road Stage 2A |
| 894+17.00 | 1 | | Driveway Stage 2A |
| 890+43.00 | 1 | | Hwy 151 Stage 2A |
| 981+51.00 | 1 | | Hwy 151 Stage 2A |
| 902+74.00 | 1 | | Hwy 151 Stage 2A/2B |
| 864+94.00 | 1 | | Hwy 151 Stage 2B |
| 4874+17.00 | 1 | | Stallman Dr. Stage 2B |
| 883+06.00 | 1 | | Hwy 151 Stage 2B |
| 884+57.00 | 1 | | Hwy 151 Stage 2B |
| 890+96.00 | 1 | | Driveway Stage 2B |
| 893+81.00 | 1 | | Hwy 151 Stage 2B |
| 894+54.00 | 1 | | Hwy 151 Stage 2B |
| 3862+80.00 | 1 | | Losey Ave. Stage 3A |
| 863+44.00 | 1 | | Hwy 151 Stage 3A |
| 876+94.00 | 1 | | Hwy 151 Stage 3A |
| 878+14.00 | 1 | | Hwy 151 Stage 3A |
| 5885+53.00 | 1 | | Cemetery Road Stage 3A |
| 891+20.00 | 1 | | Driveway Stage 3A |
| 893+83.00 | 1 | | Hwy 151 Stage 3A |
| 894+53.00 | 1 | | Hwy 151 Stage 3A |
| 895+75.00 | 1 | | Hwy 151 Stage 3A |
| 902+66.00 | 1 | | Hwy 151 Stage 3A/3B |
| 865+24.00 | 1 | | Hwy 151 Stage 3B |
| 876+66.00 | 1 | | Hwy 151 Stage 3B |
| 876+35.00 | 1 | | Hwy 151 Stage 3B |
| 883+14.00 | 1 | | Hwy 151 Stage 3B |
| 885+83.00 | 1 | | Hwy 151 Stage 3B |
| 890+55.00 | 1 | | Hwy 151 Stage 3B |
| 891+62.00 | 1 | | Hwy 151 Stage 3B |
| 894+15.00 | 1 | | Driveway Stage 3B |
| 894+81.00 | 1 | | Hwy 151 Stage 3B |
| 896+70.00 | 1 | | Hwy 151 Stage 3B |
| 6956+19.00 | 1 | | Beverly Road |
| 6958+18.00 | 1 | | Beverly Road |
| 978+90.00 | 1 | | Hwy 151 At DD No. 1 Stage 2 |
| 981+55.00 | 1 | | Hwy 151 At DD No. 1 Stage 3 |
| Total: | 47 | | |

108-35
Modified

# TEMPORARY LANE SEPARATOR SYSTEM

| Station to Station | | Length LF | Remarks |
|---|---|---|---|
| 870+96.50 | 873+62.50 | 266 | Prairie Creek, Stage 2A/2B |
| 904+14.50 | 907+40.00 | 326 | Stage 2A/2B |
| 972+95.00 | 976+10.00 | 315 | DD No. 2, Stage 1 |
| 984+93.00 | 987+24.00 | 231 | DD No. 2, Stage 1 |
| 864+40.00 | 865+13.50 | 74 | Prairie Creek, Stage 3A/3B |
| 869+60.50 | 870+34.00 | 74 | Prairie Creek, Stage 3A/3B |
| 878+34.00 | 879+07.50 | 74 | DD No. 1, Stage 3A/3B |
| 882+85.00 | 883+41.00 | 56 | DD No. 1, Stage 3A/3B |
| 890+21.00 | 893+71.00 | 350 | Stage 4 |
| | Total: | 1764 | |

# CRASH CUSHIONS

* Bid Item
(1) Lane(s) to which the installation is adjacent.
(2) Complete this section when using the Temporary Crash Cushion bid item and Earthwork is needed for Sand Barrel placement. Refer to BA-500

| No. | (1) Direction of Traffic | Location Station | Side | Obstacle Width | Crash Cushion (Select One)* | | | | | Sand Barrel Details (2) | | | | | Earthwork* | | Spare Parts Kit (Select One)* | | Obstacle Description | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Temporary | Temporary Redirective | Temporary Severe Use | Permanent | Permanent Severe Use | V Length | W Length | X Length | Y Length | Z Length | Excavation Class 10 | Embankment in Place | Permanent | Permanent Severe Use | | |
| | | | | FT | | | | | | FT | FT | FT | FT | FT | CY | CY | EACH | EACH | | |
| 1 | SB | 865+04.00 | RT | 1.88 | | | 1 | | | | | | | | | | | | Temporary Barrier Rail | Stage 2A |
| 2 | SB | 873+37.00 | RT | 1.88 | | | 1 | | | | | | | | | | | | Temporary Barrier Rail | Stage 2A |
| 3 | SB | 875+69.00 | RT | 1.88 | | | 1 | | | | | | | | | | | | Temporary Barrier Rail | Stage 2A |
| 4 | SB | 890+08.00 | RT | 1.88 | | | 1 | | | | | | | | | | | | Temporary Barrier Rail | Stage 2A |
| 5 | SB | 891+88.00 | RT | 1.88 | | | 1 | | | | | | | | | | | | Temporary Barrier Rail | Stage 2A |
| 6 | SB | 903+13.00 | RT | 1.88 | 1 | | | | | | | | | | | | | | Temporary Barrier Rail | Stg 2A/2B |
| 7 | SB | 882+74.00 | RT | 1.88 | | | 1 | | | | | | | | | | | | Temporary Barrier Rail | Stage 2B |
| 8 | SB | 884+92.00 | RT | 1.88 | | | 1 | | | | | | | | | | | | Temporary Barrier Rail | Stage 2B |
| 9 | SB | 893+41.00 | RT | 1.88 | | | 1 | | | | | | | | | | | | Temporary Barrier Rail | Stage 2B |
| 10 | SB | 893+95.00 | RT | 1.88 | | | 1 | | | | | | | | | | | | Temporary Barrier Rail | Stage 2B |
| 11 | NB | 863+42.00 | RT | 1.88 | | | 1 | | | | | | | | | | | | Temporary Barrier Rail | Stage 3A |
| 12 | NB | 865+42.00 | LT | 1.88 | | | 1 | | | | | | | | | | | | Temporary Barrier Rail | Stg 3A/3B |
| 13 | SB | 869+12.00 | RT | 1.88 | | | 1 | | | | | | | | | | | | Temporary Barrier Rail | Stg 3A/3B |
| 14 | SB | 869+33.00 | LT | 1.88 | | | 1 | | | | | | | | | | | | Temporary Barrier Rail | Stg 3A/3B |
| 15 | NB | 876+57.00 | RT | 1.88 | | | 1 | | | | | | | | | | | | Temporary Barrier Rail | Stg 3A/3B |
| 16 | NB | 878+35.00 | RT | 1.88 | | | 1 | | | | | | | | | | | | Temporary Barrier Rail | Stg 3A/3B |
| 17 | NB | 879+34.00 | LT | 1.88 | | | 1 | | | | | | | | | | | | Temporary Barrier Rail | Stg 3A/3B |
| 18 | SB | 882+59.00 | RT | 1.88 | | | 1 | | | | | | | | | | | | Temporary Barrier Rail | Stg 3A/3B |
| 19 | SB | 882+60.00 | LT | 1.88 | | | 1 | | | | | | | | | | | | Temporary Barrier Rail | Stg 3A/3B |
| 20 | NB | 893+37.00 | RT | 1.88 | | | 1 | | | | | | | | | | | | Temporary Barrier Rail | Stage 3A |
| 21 | NB | 895+05.00 | RT | 1.88 | | | 1 | | | | | | | | | | | | Temporary Barrier Rail | Stage 3A |
| 22 | NB | 903+22.00 | RT | 1.88 | | | 1 | | | | | | | | | | | | Temporary Barrier Rail | Stg 3A/3B |
| 23 | NB | 883+39.00 | RT | 1.88 | | | 1 | | | | | | | | | | | | Temporary Barrier Rail | Stage 3B |
| 24 | NB | 885+49.44 | RT | 1.88 | | | 1 | | | | | | | | | | | | Temporary Barrier Rail | Stage 3B |
| 25 | NB | 890+05.00 | RT | 1.88 | | | 1 | | | | | | | | | | | | Temporary Barrier Rail | Stage 3B |
| 26 | NB | 892+10.00 | RT | 1.88 | | | 1 | | | | | | | | | | | | Temporary Barrier Rail | Stage 3B |
| 27 | NB | 894+77.00 | RT | 1.88 | | | 1 | | | | | | | | | | | | Temporary Barrier Rail | Stage 3B |
| 28 | NB | 896+72.00 | RT | 1.88 | | | 1 | | | | | | | | | | | | Temporary Barrier Rail | Stage 3B |
| 29 | SB | 978+79.00 | RT | 1.88 | 1 | | | | | | | | | | | | | | Temporary Barrier Rail | DD2 Stg. 1 |
| 30 | SB | 981+69.00 | RT | 1.88 | 1 | | | | | | | | | | | | | | Temporary Barrier Rail | DD2 Stg. 2 |
| 31 | SB | 978+53.00 | RT | 1.88 | | | 1 | | | | | | | | | | | | Temporary Barrier Rail | DD2 Stg. 2 |
| 32 | NB | 978+96.00 | RT | 1.88 | | | 1 | | | | | | | | | | | | Temporary Barrier Rail | DD2 Stg. 2 |
| 33 | NB | 981+47.00 | RT | 1.88 | | | 1 | | | | | | | | | | | | Temporary Barrier Rail | DD2 Stg. 2 |
| 34 | SB | 982+58.00 | RT | 1.88 | | | 1 | | | | | | | | | | | | Temporary Barrier Rail | DD2 Stg. 2 |
| | | | | Total: | 3 | | 31 | | | | | | | | | | | | | |

# PAVEMENT MARKING LINE TYPES

See PM-110

*BCY4 - Place on the same side of the roadway to match existing markings near the project.
**NPY4 - For estimating purposes only. No Passing Zone Lines will be located in the field.
***MNY4 - Factor of 1.00 as value includes number of 4-inch passes to cover median nose area.

BCY4: Broken Centerline (Yellow) @ 0.25
DCY4: Double Centerline (Yellow) @ 2.00
NPY4: No Passing Zone Line (Yellow) @ 1.25
BLW4: Broken Lane Line (White) @ 0.25
ELW4: Edge Line Right (White) @ 1.00
ELY4: Edge Line Left (Yellow) @ 1.00
SLW4: Solid Lane Line (White) @ 1.00
DLW4: Dotted Line (White) @ 0.33
CHY8: Channelizing Line (Yellow) @ 2.00
SLW2: Stop Line (White) @ 6.00
CHW8: Channelizing Line (White) @ 2.00

| Location | | | | | | | | Length by Line Type (Unfactored) | | | | | | | | | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Road ID | Station to Station | | Dir. of Travel | Marking Type | Side | | | BCY4* | DCY4 | NPY4** | BLW4 | ELW4 | ELY4 | SLW4 | DLW4 | CHY8 | SLW2 | CHW8 | | | | | |
| | | | | | L | C | R | STA | STA | STA | STA | STA | STA | STA | STA | STA | STA | STA | STA | STA | STA | |
| **STAGE 1A** | | | | | | | | | | | | | | | | | | | | | | |
| US 151 | 843+05.21 | 848+61.10 | NB | Removal of Paint | | | X | | | | | 5.56 | | | | | | | | | | |
| | 844+44.63 | 849+06.02 | SB | Removal of Paint | | | X | | | | | 4.61 | | | | | | | | | | |
| | 843+15.27 | 843+63.64 | BOTH | Removal of Paint | | X | | | 0.48 | | | | | | | | | | | | | |
| | 843+63.64 | 848+89.13 | BOTH | Removal of Paint | | X | | | | | | | | | | 5.25 | | | | | | |
| | 863+43.03 | 863+86.67 | NB | Removal of Paint | | | X | | | | | 0.44 | | | | | | | | | | |
| | 863+43.03 | 883+61.30 | BOTH | Removal of Paint | | X | | | 20.18 | | | | | | | | | | | | | |
| | 863+43.03 | 866+23.80 | SB | Removal of Paint | | | X | | | | | | | | 2.81 | | | | | | | |
| | 864+73.88 | 883+85.71 | NB | Removal of Paint | | | X | | | | | 19.12 | | | | | | | | | | |
| | 866+23.80 | 872+81.22 | SB | Removal of Paint | | | X | | | | | 6.57 | | | | | | | | | | |
| | 872+81.22 | 875+06.67 | SB | Removal of Paint | | | X | | | | | | | | 2.25 | | | | | | | |
| | 875+06.67 | 883+15.10 | SB | Removal of Paint | | | X | | | | | 8.08 | | | | | | | | | | |
| | 882+57.57 | 884+07.82 | NB | Removal of Paint | | | X | | | | | | | 1.50 | | | | | | | | |
| | 883+15.10 | 884+35.77 | SB | Removal of Paint | | | X | | | | | | | | 1.21 | | | | | | | |
| | 884+07.82 | 885+34.50 | NB | Removal of Paint | | | X | | | | | | | | 1.27 | | | | | | | |
| | 884+35.77 | 886+69.70 | SB | Removal of Paint | | | X | | | | | | | 2.34 | | | | | | | | |
| | 884+35.77 | 902+58.42 | SB | Removal of Paint | | | X | | | | | 18.23 | | | | | | | | | | |
| | 884+95.42 | 897+41.17 | BOTH | Removal of Paint | | X | | | 12.46 | | | | | | | | | | | | | |
| | 885+34.50 | 903+67.56 | NB | Removal of Paint | | | X | | | | | 18.33 | | | | | | | | | | |
| | 897+41.17 | 903+67.54 | BOTH | Removal of Paint | | X | | | | | | | | | | 6.26 | | | | | | |
| | 902+97.41 | 903+67.55 | NB | Removal of Paint | X | | | | | | | | | 0.70 | | | | | | | | |
| | 972+69.70 | 987+40.69 | SB | Removal of Paint | | | X | | | | | 14.71 | | | | | | | | | | |
| | 973+03.60 | 978+73.23 | BOTH | Removal of Paint | | X | | | | | | | | | | 5.70 | | | | | | |
| | 974+66.78 | 978+83.75 | NB | Removal of Paint | | | X | | | | | 4.17 | | | | | | | | | | |
| | 978+73.23 | 979+88.23 | BOTH | Removal of Paint | | X | | | 1.15 | | | | | | | | | | | | | |
| | 979+88.23 | 987+40.50 | BOTH | Removal of Paint | | X | | | | | | | | | | 7.52 | | | | | | |
| | 843+15.27 | 846+73.01 | BOTH | Wet Retroreflective Removable Tape | | X | | | 3.58 | | | | | | | | | | | | | |
| | 864+26.66 | 900+33.77 | BOTH | Wet Retroreflective Removable Tape | | X | | | 36.07 | | | | | | | | | | | | | |
| | 900+33.77 | 903+67.54 | BOTH | Wet Retroreflective Removable Tape | | X | | | | | | | | | | 3.34 | | | | | | |
| | 900+33.77 | 903+67.56 | NB | Wet Retroreflective Removable Tape | | | X | | | | | 3.34 | | | | | | | | | | |
| | 902+97.41 | 903+67.55 | NB | Wet Retroreflective Removable Tape | X | | | | | | | | | 0.70 | | | | | | | | |
| | 967+48.23 | 974+69.74 | BOTH | Wet Retroreflective Removable Tape | | X | | | | | | | | | | 7.22 | | | | | | |
| | 972+69.66 | 987+40.69 | SB | Wet Retroreflective Removable Tape | | | X | | | | | 14.71 | | | | | | | | | | |
| | 974+66.78 | 987+83.75 | NB | Wet Retroreflective Removable Tape | | | X | | | | | 13.17 | | | | | | | | | | |
| | 974+69.74 | 976+10.00 | BOTH | Wet Retroreflective Removable Tape | | X | | | 1.40 | | | | | | | | | | | | | |
| | 976+10.00 | | NB | Wet Retroreflective Removable Tape | | X | | | | | | | | | | | 0.11 | | | | | |
| | 984+92.67 | | SB | Wet Retroreflective Removable Tape | | X | | | | | | | | | | | 0.11 | | | | | |
| | 984+93.06 | 987+83.75 | BOTH | Wet Retroreflective Removable Tape | | X | | | | | | | | | | 2.91 | | | | | | |
| **STAGE 1B** | | | | | | | | | | | | | | | | | | | | | | |
| US 151 | 843+15.27 | 846+73.01 | BOTH | Removal of Removable Tape | | X | | | 3.58 | | | | | | | | | | | | | |
| | 843+15.27 | 848+85.83 | BOTH | Wet Retroreflective Removable Tape | | X | | | 5.71 | | | | | | | | | | | | | |
| **STAGE 2A** | | | | | | | | | | | | | | | | | | | | | | |
| US 151 | 843+15.27 | 848+85.83 | BOTH | Removal of Removable Tape | | X | | | 5.71 | | | | | | | | | | | | | |
| | 864+26.66 | 900+33.77 | BOTH | Removal of Removable Tape | | X | | | 36.07 | | | | | | | | | | | | | |
| | 900+33.77 | 903+67.54 | BOTH | Removal of Removable Tape | | X | | | | | | | | | | 3.34 | | | | | | |
| | 900+33.77 | 903+67.56 | NB | Removal of Removable Tape | | | X | | | | | 3.34 | | | | | | | | | | |
| | 902+58.42 | 907+90.11 | SB | Removal of Paint | | | X | | | | | 5.32 | | | | | | | | | | |
| | 902+97.41 | 903+67.55 | BOTH | Removal of Removable Tape | X | | | | | | | | | 0.70 | | | | | | | | |
| | 903+67.55 | 907+88.37 | BOTH | Removal of Paint | | X | | | | | | | | | | 4.21 | | | | | | |
| | 903+67.55 | 908+46.42 | NB | Removal of Paint | X | | | | | | | | | 4.79 | | | | | | | | |
| | 903+67.56 | 908+46.42 | NB | Removal of Paint | | | X | | | | | 4.79 | | | | | | | | | | |
| | 972+85.46 | 974+69.74 | BOTH | Removal of Removable Tape | | X | | | | | | | | | | 1.84 | | | | | | |
| | 974+69.74 | 976+10.00 | BOTH | Removal of Removable Tape | | X | | | 1.40 | | | | | | | | | | | | | |
| | 976+10.00 | | NB | Removal of Removable Tape | | X | | | | | | | | | | | 0.11 | | | | | |
| | 976+10.19 | 987+40.69 | SB | Removal of Removable Tape | | | X | | | | | 11.31 | | | | | | | | | | |
| | 976+78.36 | 984+07.88 | NB | Removal of Removable Tape | | | X | | | | | 7.30 | | | | | | | | | | |
| | 984+92.67 | | SB | Removal of Removable Tape | | X | | | | | | | | | | | 0.11 | | | | | |
| | 984+92.67 | 987+83.75 | BOTH | Removal of Removable Tape | | X | | | | | | | | | | 2.91 | | | | | | |
| | 987+40.66 | 988+78.46 | SB | Removal of Paint | | | X | | | | | 1.38 | | | | | | | | | | |
| | 987+83.75 | 922+16.81 | BOTH | Removal of Paint | | X | | | | | | | | | | 65.67 | | | | | | |
| | 870+96.50 | | SB | Wet Retroreflective Removable Tape | | X | | | | | | | | | | | 0.11 | | | | | |
| | 870+96.50 | 904+14.47 | BOTH | Wet Retroreflective Removable Tape | | X | | | 33.18 | | | | | | | | | | | | | |
| | 902+58.05 | 907+90.11 | SB | Wet Retroreflective Removable Tape | | | X | | | | | 5.32 | | | | | | | | | | |
| | 902+58.71 | 905+63.73 | NB | Wet Retroreflective Removable Tape | | | X | | | | | 3.05 | | | | | | | | | | |
| | 904+14.47 | 905+34.13 | BOTH | Wet Retroreflective Removable Tape | | X | | | | | | | | | | 1.20 | | | | | | |
| | 905+34.13 | 907+88.75 | BOTH | Wet Retroreflective Removable Tape | | X | | | | | | | | | | 2.55 | | | | | | |
| | 905+88.42 | 908+46.42 | NB | Wet Retroreflective Removable Tape | X | | | | | | | | | 2.58 | | | | | | | | |
| | 905+89.66 | 908+46.42 | NB | Wet Retroreflective Removable Tape | | | X | | | | | 2.57 | | | | | | | | | | |
| | 972+85.46 | 986+49.80 | BOTH | Wet Retroreflective Removable Tape | | X | | | 13.82 | | | | | | | | | | | | | |
| | 976+78.38 | 984+07.88 | NB | Wet Retroreflective Removable Tape | | | X | | | | | 7.41 | | | | | | | | | | |
| | 976+78.38 | 988+78.48 | SB | Wet Retroreflective Removable Tape | | | X | | | | | 12.72 | | | | | | | | | | |
| | 986+49.80 | 992+10.80 | BOTH | Wet Retroreflective Removable Tape | | X | | | | | | | | | | 5.61 | | | | | | |
| Prairie Ave | 2864+63.88 | | WB | Wet Retroreflective Removable Tape | | X | | | | | | | | | | | 0.11 | | | | | |

# PAVEMENT MARKING LINE TYPES

See PM-110

*BCY4 - Place on the same side of the roadway to match existing markings near the project.
**NPY4 - For estimating purposes only. No Passing Zone Lines will be located in the field.
***MNY4 - Factor of 1.00 as value includes number of 4-inch passes to cover median nose area.

BCY4: Broken Centerline (Yellow) @ 0.25
DCY4: Double Centerline (Yellow) @ 2.00
NPY4: No Passing Zone Line (Yellow) @ 1.25
BLW4: Broken Lane Line (White) @ 0.25
ELW4: Edge Line Right (White) @ 1.00
ELY4: Edge Line Left (Yellow) @ 1.00
SLW4: Solid Lane Line (White) @ 1.00
DLW4: Dotted Line (White) @ 0.33
CHY8: Channelizing Line (Yellow) @ 2.00
SLW2: Stop Line (White) @ 6.00
CHW8: Channelizing Line (White) @ 2.00

| Location | | | | | | | | Length by Line Type (Unfactored) | | | | | | | | | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Road ID | Station to Station | | Dir. of Travel | Marking Type | Side | | | BCY4* | DCY4 | NPY4** | BLW4 | ELW4 | ELY4 | SLW4 | DLW4 | CHY8 | SLW2 | CHW8 | | | | | |
| | | | | | L | C | R | STA | STA | STA | STA | STA | STA | STA | STA | STA | STA | STA | STA | STA | STA | STA | |
| | 2864+63.88 | 2865+30.81 | BOTH | Wet Retroreflective Removable Tape | | X | | | 0.67 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| **STAGE 3A** | | | | | | | | | | | | | | | | | | | | | | |
| US 151 | 870+96.50 | | | Removal of Removable Tape | | X | | | | | | | | | | | 0.11 | | | | | |
| | 870+96.50 | 904+14.47 | BOTH | Removal of Removable Tape | | X | | | 33.18 | | | | | | | | | | | | | |
| | 902+58.05 | 907+90.11 | SB | Removal of Removable Tape | | | X | | | | | 5.32 | | | | | | | | | | |
| | 902+58.71 | 905+63.73 | NB | Removal of Removable Tape | | | X | | | | | 3.05 | | | | | | | | | | |
| | 904+14.47 | 905+34.13 | BOTH | Removal of Removable Tape | | X | | | | | | | | | | 1.20 | | | | | | |
| | 905+88.42 | 908+46.42 | NB | Removal of Removable Tape | X | | | | | | | | | 2.58 | | | | | | | | |
| | 972+85.46 | 986+49.80 | BOTH | Removal of Removable Tape | | X | | | 13.82 | | | | | | | | | | | | | |
| | 976+78.38 | 984+07.88 | NB | Removal of Removable Tape | | | X | | | | | 7.41 | | | | | | | | | | |
| | 976+78.38 | 988+78.48 | SB | Removal of Removable Tape | | | X | | | | | 12.72 | | | | | | | | | | |
| | 986+49.80 | 992+10.80 | BOTH | Removal of Removable Tape | | X | | | | | | | | | | 5.61 | | | | | | |
| Praire Ave | 2864+63.88 | | WB | Removal of Removable Tape | | X | | | | | | | | | | | 0.11 | | | | | |
| | 2864+63.88 | 2865+30.81 | BOTH | Removal of Removable Tape | | X | | | 0.67 | | | | | | | | | | | | | |
| US 151 | 859+03.36 | 864+62.18 | BOTH | Wet Retroreflective Removable Tape | | X | | | 5.59 | | | | | | | | | | | | | |
| | 864+62.18 | 869+93.99 | BOTH | Wet Retroreflective Removable Tape | | X | | | | | | | | | | 5.32 | | | | | | |
| | 869+93.99 | 878+66.58 | BOTH | Wet Retroreflective Removable Tape | | X | | | 8.73 | | | | | | | | | | | | | |
| | 878+66.58 | 883+19.14 | BOTH | Wet Retroreflective Removable Tape | | X | | | | | | | | | | 4.53 | | | | | | |
| | 883+19.14 | 903+45.90 | BOTH | Wet Retroreflective Removable Tape | | X | | | 20.27 | | | | | | | | | | | | | |
| | 890+92.65 | 903+45.31 | NB | Wet Retroreflective Removable Tape | | | X | | | | | 12.53 | | | | | | | | | | |
| | 890+92.65 | 903+46.49 | SB | Wet Retroreflective Removable Tape | | | X | | | | | 12.54 | | | | | | | | | | |
| | 903+45.90 | 908+46.34 | BOTH | Wet Retroreflective Removable Tape | | X | | | | | | | | | | 5.00 | | | | | | |
| | 979+79.88 | 980+77.49 | BOTH | Wet Retroreflective Removable Tape | | X | | | 0.98 | | | | | | | | | | | | | |
| | 980+77.49 | 985+07.58 | BOTH | Wet Retroreflective Removable Tape | | X | | | | | | | | | | 4.30 | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| **STAGE 3B** | | | | | | | | | | | | | | | | | | | | | | |
| US 151 | 976+20.09 | 979+79.88 | BOTH | Removal of Removable Tape | | X | | | | | | | | | | 3.60 | | | | | | |
| | 979+79.88 | 980+77.49 | BOTH | Removal of Removable Tape | | X | | | 0.98 | | | | | | | | | | | | | |
| | 980+77.49 | 985+07.58 | BOTH | Removal of Removable Tape | | X | | | | | | | | | | 4.30 | | | | | | |
| | 882+91.42 | 890+92.65 | NB | Wet Retroreflective Removable Tape | | | X | | | | | 8.01 | | | | | | | | | | |
| | 883+43.68 | 890+92.65 | SB | Wet Retroreflective Removable Tape | | | X | | | | | 7.49 | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| **STAGE 4A** | | | | | | | | | | | | | | | | | | | | | | |
| US 151 | 859+03.36 | 864+62.18 | BOTH | Removal of Removable Tape | | X | | | 5.59 | | | | | | | | | | | | | |
| | 864+62.18 | 869+93.99 | BOTH | Removal of Removable Tape | | X | | | | | | | | | | 5.32 | | | | | | |
| | 869+93.99 | 878+66.58 | BOTH | Removal of Removable Tape | | X | | | 8.73 | | | | | | | | | | | | | |
| | 878+66.58 | 883+19.14 | BOTH | Removal of Removable Tape | | X | | | | | | | | | | 4.53 | | | | | | |
| | 882+91.42 | 890+92.65 | NB | Removal of Removable Tape | | | X | | | | | 8.01 | | | | | | | | | | |
| | 883+19.14 | 903+45.90 | BOTH | Removal of Removable Tape | | X | | | 20.27 | | | | | | | | | | | | | |
| | 883+43.68 | 890+92.65 | SB | Removal of Removable Tape | | | X | | | | | 7.49 | | | | | | | | | | |
| | 890+92.65 | 903+45.31 | NB | Removal of Removable Tape | | | X | | | | | 12.53 | | | | | | | | | | |
| | 890+92.65 | 903+46.49 | SB | Removal of Removable Tape | | | X | | | | | 12.54 | | | | | | | | | | |
| | 903+45.90 | 908+46.34 | BOTH | Removal of Removable Tape | | X | | | | | | | | | | 5.00 | | | | | | |
| | 859+03.36 | 890+21.29 | BOTH | Wet Retroreflective Removable Tape | | X | | | 31.18 | | | | | | | | | | | | | |
| | 861+73.36 | 863+59.65 | NB | Wet Retroreflective Removable Tape | | | X | | | | | | | 1.86 | | | | | | | | |
| | 882+78.25 | 883+95.73 | NB | Wet Retroreflective Removable Tape | | | X | | | | | | | 1.17 | | | | | | | | |
| | 884+25.93 | 888+42.90 | SB | Wet Retroreflective Removable Tape | | | X | | | | | | | 4.17 | | | | | | | | |
| | 888+42.90 | 890+21.31 | SB | Wet Retroreflective Removable Tape | | | X | | | | | | | | 1.78 | | | | | | | |
| | 890+21.24 | 892+66.28 | SB | Wet Retroreflective Removable Tape | | | X | | | | | | | | | | | 2.45 | | | | |
| | 890+21.24 | 893+71.50 | BOTH | Wet Retroreflective Removable Tape | | X | | | | | | | | | | 3.50 | | | | | | |
| | 890+21.24 | 893+71.50 | BOTH | Wet Retroreflective Removable Tape | | X | | | | | | | | | | | | 3.50 | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| **STAGE 4A** | | | | | | | | | | | | | | | | | | | | | | |
| US 151 | 859+03.36 | 890+21.29 | BOTH | Removal of Removable Tape | | X | | | 31.18 | | | | | | | | | | | | | |
| | 861+73.36 | 863+59.65 | NB | Removal of Removable Tape | | | X | | | | | | | 1.86 | | | | | | | | |
| | 882+78.25 | 883+95.73 | NB | Removal of Removable Tape | | | X | | | | | | | 1.17 | | | | | | | | |
| | 884+25.93 | 888+42.90 | SB | Removal of Removable Tape | | | X | | | | | | | 4.17 | | | | | | | | |
| | 888+42.90 | 890+21.31 | SB | Removal of Removable Tape | | | X | | | | | | | | 1.78 | | | | | | | |
| | 890+21.24 | 892+66.28 | SB | Removal of Removable Tape | | | X | | | | | | | | | | | 2.45 | | | | |
| | 890+21.24 | 893+71.50 | BOTH | Removal of Removable Tape | | X | | | | | | | | | | 3.50 | | | | | | |
| | 890+21.24 | 893+71.50 | BOTH | Removal of Removable Tape | | X | | | | | | | | | | | | 3.50 | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| **STAGE 5** | | | | | | | | | | | | | | | | | | | | | | |
| US 151 | 843+47.01 | 848+87.11 | SB | Waterborne/Solvent Paint | | | X | | | | | 5.40 | | | | | | | | | | |
| | 843+47.14 | 848+85.83 | NB | Waterborne/Solvent Paint | | | X | | | | | 5.39 | | | | | | | | | | |
| | 843+47.28 | 847+37.11 | BOTH | Waterborne/Solvent Paint | | X | | | | | | | | | | 3.90 | | | | | | |
| | 847+37.11 | 848+87.11 | BOTH | Waterborne/Solvent Paint | | X | | | 1.50 | | | | | | | | | | | | | |
| | 847+37.11 | 848+87.11 | NB | Waterborne/Solvent Paint | X | | | | | | | | | 1.50 | | | | | | | | |
| | 849+82.84 | 863+58.36 | NB | Waterborne/Solvent Paint | | | X | | | | | 13.76 | | | | | | | | | | |
| | 849+82.84 | 863+59.72 | BOTH | Waterborne/Solvent Paint | | X | | | 13.77 | | | | | | | | | | | | | |
| | 849+82.84 | 853+34.27 | SB | Waterborne/Solvent Paint | | | X | | | | | | | 3.51 | | | | | | | | |
| | 849+82.84 | 853+34.27 | SB | Waterborne/Solvent Paint | X | | | | | | | | | 3.51 | | | | | | | | |
| | 849+84.27 | 863+59.72 | SB | Waterborne/Solvent Paint | | | X | | | | | 13.75 | | | | | | | | | | |
| | 853+34.27 | 856+04.15 | SB | Waterborne/Solvent Paint | | | X | | | | | | | | 2.70 | | | | | | | |

# PAVEMENT MARKING LINE TYPES

See PM-110

*BCY4 - Place on the same side of the roadway to match existing markings near the project.
**NPY4 - For estimating purposes only. No Passing Zone Lines will be located in the field.
***MNY4 - Factor of 1.00 as value includes number of 4-inch passes to cover median nose area.

BCY4: Broken Centerline (Yellow) @ 0.25
DCY4: Double Centerline (Yellow) @ 2.00
NPY4: No Passing Zone Line (Yellow) @ 1.25
BLW4: Broken Lane Line (White) @ 0.25
ELW4: Edge Line Right (White) @ 1.00
ELY4: Edge Line Left (Yellow) @ 1.00
SLW4: Solid Lane Line (White) @ 1.00
DLW4: Dotted Line (White) @ 0.33
CHY8: Channelizing Line (Yellow) @ 2.00
SLW2: Stop Line (White) @ 6.00
CHW8: Channelizing Line (White) @ 2.00

| Location | | | | | | | | Length by Line Type (Unfactored) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Road ID | Station to Station | | Dir. of Travel | Marking Type | Side | | | BCY4* | DCY4 | NPY4** | BLW4 | ELW4 | ELY4 | SLW4 | DLW4 | CHY8 | SLW2 | CHW8 | | | | | Remarks |
| | | | | | L | C | R | STA | STA | STA | STA | STA | STA | STA | STA | STA | STA | STA | STA | STA | STA | STA | |
| | 853+34.26 | 856+04.27 | SB | Waterborne/Solvent Paint | X | | | | | | | | | | 2.70 | | | | | | | | |
| | 859+03.36 | 861+73.36 | NB | Waterborne/Solvent Paint | X | | | | | | | | | | 2.70 | | | | | | | | |
| | 859+03.48 | 861+73.36 | NB | Waterborne/Solvent Paint | | | X | | | | | | | | 2.70 | | | | | | | | |
| | 861+73.36 | 863+59.72 | NB | Waterborne/Solvent Paint | X | | | | | | | | | 1.86 | | | | | | | | | |
| | 861+73.36 | 863+59.72 | NB | Waterborne/Solvent Paint | | | X | | | | | | | 1.86 | | | | | | | | | |
| | 864+57.82 | 875+41.91 | SB | Waterborne/Solvent Paint | | | X | | | | | 10.84 | | | | | | | | | | | |
| | 864+57.82 | 865+28.73 | SB | Waterborne/Solvent Paint | X | | | | | | | | | 0.71 | | | | | | | | | |
| | 864+57.82 | 866+07.82 | BOTH | Waterborne/Solvent Paint | | X | | | 1.50 | | | | | | | | | | | | | | |
| | 864+73.10 | 883+95.73 | NB | Waterborne/Solvent Paint | | | X | | | | | 19.23 | | | | | | | | | | | |
| | 866+07.82 | 873+92.46 | BOTH | Waterborne/Solvent Paint | | X | | | | 7.85 | | | | | | | | | | | | | |
| | 866+07.82 | 873+92.46 | BOTH | Waterborne/Solvent Paint | | X | | | | 7.85 | | | | | | | | | | | | | |
| | 873+92.46 | 875+41.91 | BOTH | Waterborne/Solvent Paint | | X | | | 1.49 | | | | | | | | | | | | | | |
| | 874+71.65 | 875+41.91 | NB | Waterborne/Solvent Paint | X | | | | | | | | | 0.70 | | | | | | | | | |
| | 876+51.53 | 883+19.86 | SB | Waterborne/Solvent Paint | | | X | | | | | 6.68 | | | | | | | | | | | |
| | 876+51.53 | 881+81.40 | BOTH | Waterborne/Solvent Paint | | X | | | | 5.30 | | | | | | | | | | | | | |
| | 876+51.53 | 881+90.88 | BOTH | Waterborne/Solvent Paint | | X | | | | 5.39 | | | | | | | | | | | | | |
| | 881+58.25 | 883+19.31 | NB | Waterborne/Solvent Paint | | | X | | | | | | | | 1.61 | | | | | | | | |
| | 881+81.40 | 883+33.93 | BOTH | Waterborne/Solvent Paint | | X | | | 1.53 | | | | | | | | | | | | | | |
| | 882+74.38 | 883+56.04 | NB | Waterborne/Solvent Paint | X | | | | | | | | | 0.82 | | | | | | | | | |
| | 883+19.31 | 883+75.59 | NB | Waterborne/Solvent Paint | | | X | | | | | | | 0.56 | | | | | | | | | |
| | 884+25.93 | 902+58.42 | SB | Waterborne/Solvent Paint | | | X | | | | | 18.32 | | | | | | | | | | | |
| | 884+47.51 | 888+43.66 | SB | Waterborne/Solvent Paint | | | X | | | | | | | 3.96 | | | | | | | | | |
| | 884+70.51 | 886+48.98 | SB | Waterborne/Solvent Paint | X | | | | | | | | | 1.78 | | | | | | | | | |
| | 884+98.43 | 886+48.98 | BOTH | Waterborne/Solvent Paint | | X | | | 1.51 | | | | | | | | | | | | | | |
| | 885+23.39 | 903+15.00 | NB | Waterborne/Solvent Paint | | | X | | | | | 17.92 | | | | | | | | | | | |
| | 886+48.98 | 898+00.00 | BOTH | Waterborne/Solvent Paint | | X | | | | 11.51 | | | | | | | | | | | | | |
| | 887+48.62 | 898+00.00 | BOTH | Waterborne/Solvent Paint | | X | | | | 10.51 | | | | | | | | | | | | | |
| | 888+43.66 | 890+21.24 | SB | Waterborne/Solvent Paint | | | X | | | | | | | | 1.78 | | | | | | | | |
| | 898+00.00 | 903+15.00 | BOTH | Waterborne/Solvent Paint | | X | | | | | | | | | | 5.15 | | | | | | | |
| | 971+42.45 | 987+43.71 | BOTH | Waterborne/Solvent Paint | | X | | | | | | | | | | 16.01 | | | | | | | |
| | 974+24.12 | 987+43.71 | SB | Waterborne/Solvent Paint | | | X | | | | | 13.20 | | | | | | | | | | | |
| | 976+81.50 | 982+15.00 | NB | Waterborne/Solvent Paint | | | X | | | | | 5.34 | | | | | | | | | | | |
| Church St | 1848+69.25 | 1849+04.89 | BOTH | Waterborne/Solvent Paint | | X | | | | 0.36 | | | | | | | | | | | | | |
| | 1848+69.25 | 1849+05.04 | EB | Waterborne/Solvent Paint | | | X | | | | | | | 0.36 | | | | | | | | | |
| | 1849+52.90 | 1850+11.77 | WB | Waterborne/Solvent Paint | | | X | | | | | | | 0.59 | | | | | | | | | |
| | 1849+53.05 | 1851+25.00 | BOTH | Waterborne/Solvent Paint | | X | | | | 1.72 | | | | | | | | | | | | | |
| | | | | Factored Total: Waterborne/Solvent Paint | | | | - | 42.59 | 63.11 | - | 129.82 | - | 21.74 | 4.73 | 50.12 | - | - | - | - | - | - | |
| | | | | Factored Total: Wet Retroreflective Removable Tape | | | | - | 322.33 | - | - | 102.85 | - | 10.49 | 0.59 | 98.12 | 2.64 | 11.91 | - | - | - | - | |
| | | | | Factored Total: Removal of Paint | | | | - | 68.55 | - | - | 111.31 | - | 9.33 | 2.51 | 189.23 | - | - | - | - | - | - | |
| | | | | Factored Total: Removal of Removable Tape | | | | - | 322.33 | - | - | 91.01 | - | 10.49 | 0.59 | 82.29 | 2.64 | 11.91 | - | - | - | - | |
| | | | | Bid Quantity: Painted Pavement Markings, Waterborne or Solvent-Based | | | | | | | 312.10 | | | | | | | | | | | | |
| | | | | Bid Quantity: Wet Retroreflective Removable Tape Markings | | | | | | | 548.93 | | | | | | | | | | | | |
| | | | | Bid Quantity: Pavement Markings Removed | | | | | | | 380.93 | | | | | | | | | | | | |
| | | | | Incidental Removal of Removable Tape | | | | | | | 521.26 | | | | | | | | | | | | |

# PAVEMENT MARKING SYMBOLS AND LEGENDS

Refer to PM-111

| Road Identification | Location | | | | | | | | | | | | | | | | | | | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Station | Side | STAW | RTAW | LTAW | CSRW | CSLW | CSTW | CRLW | FERW | LLRW | RLRW | RRCW | BLSW | WCSW | WPSB | SCLW | XNGW | STPW | AHDW | ONLW | BIKW | LANW | XITW | EACH | |
| US 151 | 847+87.00 | RT | | | 1 | | | | | | | | | | | | | | | | | | | | |
| US 151 | 848+25.00 | RT | | | | | | | | | | | | | | | | | | | 1 | | | | |
| US 151 | 848+62.00 | RT | | | 1 | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| US 151 | 850+08.00 | LT | | 1 | 1 | | | | | | | | | | | | | | | | | | | | |
| US 151 | 850+45.00 | LT | | | | | | | | | | | | | | | | | | | 1 | | | | |
| US 151 | 851+58.00 | LT | | 1 | 1 | | | | | | | | | | | | | | | | | | | | |
| US 151 | 853+08.00 | LT | | 1 | 1 | | | | | | | | | | | | | | | | | | | | |
| US 151 | 862+60.00 | RT | | 1 | 1 | | | | | | | | | | | | | | | | | | | | |
| US 151 | 862+97.00 | RT | | | | | | | | | | | | | | | | | | | 1 | | | | |
| US 151 | 863+35.00 | RT | | 1 | 1 | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| US 151 | 864+83.00 | LT | | | 1 | | | | | | | | | | | | | | | | | | | | |
| US 151 | 865+20.00 | LT | | | | | | | | | | | | | | | | | | | 1 | | | | |
| US 151 | 865+58.00 | LT | | | 1 | | | | | | | | | | | | | | | | | | | | |
| US 151 | 870+10.00 | | | | 1 | | | | | | | | | | | | | | | | | | | | TWLT |
| US 151 | 870+25.00 | | | | 1 | | | | | | | | | | | | | | | | | | | | TWLT |
| US 151 | 874+52.00 | RT | | | 1 | | | | | | | | | | | | | | | | | | | | |
| US 151 | 874+89.00 | RT | | | | | | | | | | | | | | | | | | | 1 | | | | |
| US 151 | 875+27.00 | RT | | | 1 | | | | | | | | | | | | | | | | | | | | |
| US 151 | 878+61.00 | | | | 1 | | | | | | | | | | | | | | | | | | | | TWLT |
| US 151 | 878+77.00 | | | | 1 | | | | | | | | | | | | | | | | | | | | TWLT |
| US 151 | 882+41.00 | RT | | | 1 | | | | | | | | | | | | | | | | | | | | |
| US 151 | 882+78.00 | RT | | | | | | | | | | | | | | | | | | | 1 | | | | |
| US 151 | 882+97.00 | RT | | 1 | | | | | | | | | | | | | | | | | | | | | |
| US 151 | 883+16.00 | RT | | | 1 | | | | | | | | | | | | | | | | | | | | |
| US 151 | 883+55.00 | RT | | 1 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| US 151 | 884+81.00 | LT | | 1 | 1 | | | | | | | | | | | | | | | | | | | | |
| US 151 | 885+19.00 | LT | | | | | | | | | | | | | | | | | | | 1 | | | | |
| US 151 | 885+56.00 | LT | | 1 | 1 | | | | | | | | | | | | | | | | | | | | |
| US 151 | 888+34.00 | | | | 1 | | | | | | | | | | | | | | | | | | | | TWLT |
| US 151 | 888+50.00 | | | | 1 | | | | | | | | | | | | | | | | | | | | TWLT |
| US 151 | 894+28.00 | | | | 1 | | | | | | | | | | | | | | | | | | | | TWLT |
| US 151 | 894+44.00 | | | | 1 | | | | | | | | | | | | | | | | | | | | TWLT |
| US 151 | 897+73.00 | | | | 1 | | | | | | | | | | | | | | | | | | | | TWLT |
| US 151 | 897+89.00 | | | | 1 | | | | | | | | | | | | | | | | | | | | TWLT |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| Church St | 1848+95.00 | | | | 1 | | | | | | | | | | | | | | | | | | | | |
| Church St | 1849+68.00 | | | | 1 | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Total: | | | 9 | 27 | | | | | | | | | | | | | | | | 7 | | | | |

100-34
10-17-17

# STORMWATER DRAINAGE BASIN AND STORAGE

Refer to EC Standards and 570s Details.

| Drainage Basin Location | | | | | | Summary of Stormwater Storage | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Basin No. | Station to Station | | Side | Discharge Point Station | Discharge Point Side | Total Disturbed Area | Disturbed Area with Storage Provided | Disturbed Area without Storage Provided | Best Management Practice | Total Storage Volume Provided | Total Storage Volume Required | Storage Volume Met? | Remarks |
| | | | | | | Acres | Acres | Acres | | CF | CF | Yes/No | |
| 1 | 843+88.58 | 857+32.60 | B | 856+47.00 | L | 5.5 | 5.1 | 0.3 | Silt Fence for Ditch Check (EC-201) | 18500.1 | 19700.3 | No | BMP - Add Silt Fence and Perimeter Control in Urban Section |
| 2 | 857+19.65 | 863+87.05 | L | 857+95.00 | L | 1.0 | 1.5 | -0.6 | Silt Fence for Ditch Check (EC-201) | 5456.5 | 3447.4 | Yes | |
| 3 | 857+32.60 | 862+11.74 | R | 857+75.00 | R | 0.7 | 0.0 | 0.7 | Silt Fence Installation for Shallow or No Ditch (570-4) | 0.0 | 2376.7 | No | BMP - Silt Fence on toe and sides of Bridge Berm |
| 4 | 857+32.60 | 867+43.51 | R | 867+35.00 | R | 1.7 | 0.5 | 1.2 | Silt Fence for Ditch Check (EC-201) | 1628.8 | 6016.7 | No | BMP - Add Silt Fence and Perimeter Control in Urban Section |
| 5 | 863+26.51 | 877+50.00 | B | 869+15.00 | R | 2.9 | 1.7 | 1.2 | Silt Fence for Ditch Check (EC-201) | 6120.3 | 10282.7 | No | BMP - Silt Fence on toe and sides of Bridge Berm |
| 6 | 863+64.55 | 866+97.78 | L | 866+40.00 | L | 0.5 | 0.5 | 0.0 | Silt Fence for Ditch Check (EC-201) | 1736.3 | 1882.8 | No | BMP - Silt Fence on sides of Bridge Berm |
| 7 | 867+32.12 | 876+88.72 | L | 867+50.00 | L | 1.4 | 2.5 | -1.1 | Silt Fence for Ditch Check (EC-201) | 9115.4 | 4990.3 | Yes | |
| 8 | 876+00.00 | 881+42.33 | L | 880+94.00 | L | 0.6 | 1.5 | -0.8 | Silt Fence for Ditch Check (EC-201) | 5230.8 | 2333.2 | Yes | |
| 9 | 877+50.00 | 880+85.25 | R | 881+50.00 | R | 0.8 | 1.7 | -0.9 | Silt Fence for Ditch Check (EC-201) | 6076.9 | 2714.0 | Yes | |
| 10 | 880+85.25 | 894+18.50 | R | 880+90.00 | R | 2.9 | 3.5 | -0.6 | Silt Fence for Ditch Check (EC-201) | 12732.6 | 10473.1 | Yes | |
| 11 | 881+10.56 | 883+97.52 | L | 881+18.70 | L | 0.5 | 0.0 | 0.5 | Silt Fence Installation for Shallow or No Ditch (570-4) | 0.0 | 1713.6 | No | BMP - Silt Fence on toe and sides of Bridge Berm |
| 12 | 883+02.70 | 894+18.50 | L | 883+94.00 | L | 1.2 | 3.4 | -2.2 | Silt Fence for Ditch Check (EC-201) | 12153.9 | 4401.4 | Yes | |
| 13 | 894+18.50 | 902+58.42 | B | 900+65.00 | L | 2.0 | 2.0 | 0.0 | Silt Fence for Ditch Check (EC-201) | 7177.4 | 7056.4 | Yes | |
| 14 | 957+90.14 | 959+26.08 | L | 959+15.00 | L | 0.1 | 0.0 | 0.1 | Silt Fence Installation for Shallow or No Ditch (570-4) | 0.0 | 463.0 | No | BMP - Silt Fence on up and downstream ends of culvert |
| 15 | 974+69.95 | 980+87.89 | L | 980+66.77 | L | 1.1 | 1.5 | -0.4 | Silt Fence for Ditch Check (EC-201) | 5425.5 | 3842.3 | Yes | |
| 16 | 977+80.36 | 980+18.00 | R | 979+48.00 | R | 0.4 | 0.0 | 0.4 | Silt Fence Installation for Shallow or No Ditch (570-4) | 0.0 | 1305.0 | No | BMP - Silt Fence on toe of foreslope and edge of culvert |
| 17 | 979+54.70 | 981+15.00 | R | 979+61.25 | R | 0.4 | 0.2 | 0.1 | Silt Fence for Ditch Check (EC-201) | 842.5 | 1359.4 | No | BMP - Silt Fence on toe of foreslope and edge of culvert |
| 18 | 980+18.00 | 985+76.79 | L | 980+66.77 | L | 0.9 | 1.0 | -0.1 | Silt Fence for Ditch Check (EC-201) | 3760.6 | 3321.4 | Yes | |
| 19 | 2863+12.74 | 2863+63.66 | L | 2863+00.00 | L | 0.2 | 0.0 | 0.2 | Silt Fence Installation for Shallow or No Ditch (570-4) | 0.0 | 888.5 | No | BMP - Silt Fence on toe slope tie in |
| 20 | 2864+71.51 | 2866+50.03 | B | 2866+50.03 | B | 0.2 | 0.0 | 0.2 | Silt Fence Installation for Shallow or No Ditch (570-4) | 0.0 | 652.3 | No | BMP - Silt Fence on toe sbope tie in |

100-23
04-17-18

# ROCK EROSION CONTROL

Refer to EC-301 and Detail 570-8

| Location | | | | L | W | Rock Erosion Control (REC) | | | | | Material Bid Quantities | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Road Identification | Begin Station | End Station | Side | | | Type 1 Rock Ditch Check | Type 2 Rock Ditch | Type 3 Rock Flume | Type 4 Rock Splash Basin | Type 5 Rock Slope Protection | Eng. Fabric | Class E Revetment | Erosion Stone | |
| | | | Lt./Rt. | FT | FT | | | | | | SY | TON | TON | |
| U.S. Highway 151 | 849+84.00 | | RT | 8 | 4 | | | | X | | 3.6 | 4.5 | | |
| U.S. Highway 151 | 850+50.00 | | LT | 19 | 11 | | | | X | | 36.6 | 29.3 | | |
| U.S. Highway 151 | 852+26.00 | | LT | 40 | 12.5 | | | | X | | 76.6 | 70.0 | | |
| U.S. Highway 151 | 853+23.50 | | LT | 16 | 8.5 | | | | X | | 26.2 | 19.1 | | |
| U.S. Highway 151 | 856+70.00 | | RT | 8 | 4 | | | | X | | 3.6 | 4.5 | | |
| U.S. Highway 151 | 858+21.00 | | RT | 8 | 4 | | | | X | | 3.6 | 4.5 | | |
| U.S. Highway 151 | 863+46.00 | | LT | 8 | 4 | | | | X | | 3.6 | 4.5 | | |
| U.S. Highway 151 | 863+56.00 | | RT | 8 | 4 | | | | X | | 3.6 | 4.5 | | |
| U.S. Highway 151 | 890+65.73 | | LT | 15.6 | 9 | | | | X | | 26.8 | 19.7 | | |
| U.S. Highway 151 | 890+84.92 | | RT | 15.6 | 9 | | | | X | | 26.8 | 19.7 | | |
| U.S. Highway 151 | 983+56.50 | | LT | 19 | 9 | | | | X | | 31.3 | 24.0 | | |
| 80th Street SW | 7909+70.00 | | LT | 32 | 17.5 | | | | X | | 62.3 | 78.4 | | |
| Church Street | 1850+50.00 | | RT | 19 | 9 | | | | X | | 31.3 | 24.0 | | |
| Beverly Rd. | 6957+40.00 | | LT | 30 | 12.5 | | | | X | | 41.7 | 52.5 | | |
| Beverly Rd. | 6957+40.00 | | RT | 23 | 12.5 | | | | X | | 32.0 | 40.3 | | |
| | | | | | | | | | | Total: | 409.6 | 399.5 | | |

104-8A
10-17-17

# SCOUR PROTECTION OR ROCK FLUME FOR BRIDGE END DRAIN

Refer to Standard Road Plan DR-401 and DR-402

| Location | | | Bid Items | | PCC Paved Shoulder | | | Scour Protection (DR-401) | | | Rock Flume (DR-402) | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bridge Station | Bridge Corner | Distance DI-1 or DI-2 | PCC Paved Shoulder | Bridge End Drain | Panels Required | Polymer Grid | Modified Subbase | Special Ditch Control, Wood Excelsior Mat | Turf Reinforced Mat (TRM), Type 2 | Transition Mat | Macadam Stone Base | Engineering Fabric | Erosion Stone | |
| | | | | | | | | EC-101 | EC-104 | EC-105 | | | | |
| | | FT | SY | TYPE | A B C or D | SY | TONS | SQ | SQ | SF | TONS | SY | TONS | |
| 857+32.60 | SW | 14.7 | | DR-401 | | | | 12.8 | 13.2 | 32 | | | | |
| 867+41.69 | NW | 40.0 | | DR-401 | | | | 4.3 | 4.6 | 32 | | | | |
| 867+41.69 | NW | 248.8 | | DR-401 | | | | 4.9 | 5.2 | 32 | | | | |
| 867+41.69 | NE | 211.9 | | DR-401 | | | | 3.1 | 3.4 | 32 | | | | |
| 880+85.25 | SE | 27.2 | | DR-401 | | | | 1.5 | 1.8 | 32 | | | | |
| 880+85.25 | NE | 45.4 | | DR-401 | | | | 3.2 | 3.5 | 32 | | | | |
| Total: | | | | 6 | | | | 29.8 | 31.7 | 192 | | | | |

100-17
04-20-10

# TABULATION OF SILT FENCES

Refer to EC-201

| Location | | | Length | Remarks |
|---|---|---|---|---|
| Begin Station | End Station | Side | LF | |
| 856+50.00 | 856+72.74 | R | 40.0 | |
| 856+30.00 | 857+06.47 | R | 110.0 | |
| 857+61.74 | 862+11.90 | R | 525.0 | |
| 857+86.47 | 858+57.24 | R | 100.0 | |
| 868+13.66 | 870+60.23 | R | 300.0 | |
| 881+00.59 | 881+41.41 | R | 45.0 | |
| 897+87.39 | 900+57.87 | R | 300.0 | |
| 900+62.87 | 902+63.35 | R | 215.0 | |
| 980+05.18 | 980+81.26 | R | 100.0 | |
| 849+52.94 | 850+48.22 | L | 200.0 | |
| 849+71.92 | 856+47.40 | L | 735.0 | |
| 850+87.26 | 856+86.53 | L | 650.0 | |
| 853+17.90 | 856+68.52 | L | 385.0 | |
| 856+18.50 | 856+72.02 | L | 75.0 | |
| 856+26.96 | 856+67.90 | L | 45.0 | |
| 857+97.04 | 860+22.74 | L | 270.0 | |
| 862+75.00 | 864+55.00 | L | 310.0 | |
| 867+61.12 | 867+91.93 | L | 65.0 | |
| 881+39.12 | 882+79.31 | L | 220.0 | |
| 881+81.81 | 883+03.62 | L | 195.0 | |
| 897+87.24 | 902+62.55 | L | 505.0 | |
| 958+85.92 | 959+32.40 | L | 85.0 | |
| 975+50.00 | 980+35.62 | L | 510.0 | |
| 2866+37.26 | 2866+50.00 | R | 20.0 | |
| 2866+37.26 | 2866+50.00 | L | 20.0 | |
| | Total: | | 6025.0 | |
| | Bid Quantity: | | 7540.0 | plus 25% adjustment |
| | Maintenance: | | 760.0 | 10% of bid |
| | Removal: | | 3770.0 | 50% of bid |

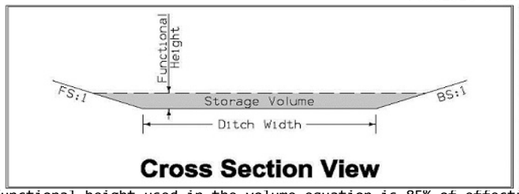
281-3
10-17-17

# STORM WATER BEST MANAGEMENT PRACTICES

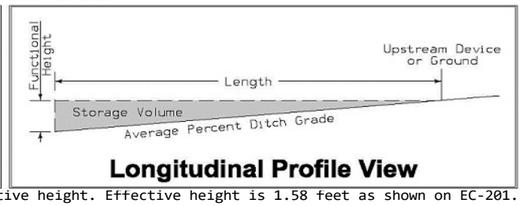
When the following best management practices are used, they are intended to account for disturbed areas where storage volume cannot be provided:

# SILT FENCES FOR DITCH CHECKS

Possible Standard: EC-201




**Cross Section View**




**Longitudinal Profile View**

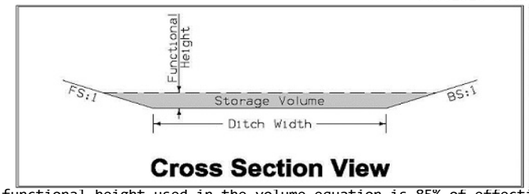
* The functional height used in the volume equation is 85% of effective height. Effective height is 1.58 feet as shown on EC-201.
* Volume equation: [0.5*Spacing*(0.5*H$^2$*FS+DW*H+0.5*H$^2$*BS)]

| Basin No. | Type | Location | | Bid Items | | | Stormwater Storage Volume Summary | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Station | Side | Installation | Maintenance | Removal | Foreslope | Backslope | Ditch Width | Avg.% Slope | Volume* | |
| | | | | LF | LF | LF | FS:1 | BS:1 | FT | Ditch Grade | CF | |
| 1 | 1 | 851+00.88 | L | 23.0 | 2.3 | 11.5 | 3.5 | 3.0 | 10.0 | 0.3% | 3038.5 | |
| 1 | 1 | 854+10.82 | L | 23.0 | 2.3 | 11.5 | 3.5 | 3.0 | 10.0 | 0.3% | 3038.5 | |
| 1 | 1 | 856+47.43 | L | 44.0 | 4.4 | 22.0 | 3.5 | 3.0 | 28.0 | 0.3% | 6845.9 | |
| 1 | 1 | 852+00.00 | R | 24.0 | 2.4 | 12.0 | 4.0 | 3.0 | 10.0 | 1.2% | 987.1 | |
| 1 | 1 | 852+50.00 | R | 24.0 | 2.4 | 12.0 | 4.0 | 3.0 | 10.0 | 1.1% | 1530.1 | |
| 1 | 1 | 854+00.00 | R | 24.0 | 2.4 | 12.0 | 4.0 | 3.0 | 10.0 | 1.1% | 1530.1 | |
| 1 | 1 | 855+50.00 | R | 24.0 | 2.4 | 12.0 | 4.0 | 3.0 | 10.0 | 1.1% | 1530.1 | |
| | | | | | | 0.0 | | | | | | |
| 2 | 1 | 857+60.88 | L | 23.0 | 2.3 | 11.5 | 4.0 | 3.0 | 10.0 | 0.3% | 3109.5 | |
| 2 | 1 | 858+31.97 | L | 26.0 | 2.6 | 13.0 | 4.0 | 3.0 | 10.0 | 0.3% | 3109.5 | |
| 2 | 1 | 860+01.80 | L | 21.0 | 2.1 | 10.5 | 4.0 | 3.0 | 7.0 | 3.0% | 392.8 | |
| 2 | 1 | 860+35.00 | L | 21.0 | 2.1 | 10.5 | 4.0 | 3.0 | 5.0 | 3.0% | 325.7 | |
| 2 | 1 | 860+73.46 | L | 19.0 | 1.9 | 9.5 | 4.0 | 3.0 | 5.0 | 3.0% | 325.7 | |
| 2 | 1 | 861+73.46 | L | 19.0 | 1.9 | 9.5 | 4.0 | 3.0 | 5.0 | 1.2% | 651.4 | |
| 2 | 1 | 862+73.46 | L | 19.0 | 1.9 | 9.5 | 4.0 | 3.0 | 5.0 | 1.2% | 651.4 | |
| | | | | | | 0.0 | | | | | | |
| 3 | 1 | 865+55.00 | R | 23.0 | 2.3 | 11.5 | 4.0 | 3.0 | 10.0 | 3.3% | 444.2 | |
| 3 | 1 | 866+00.00 | R | 23.0 | 2.3 | 11.5 | 4.0 | 3.0 | 10.0 | 3.3% | 444.2 | |
| 3 | 1 | 866+75.00 | R | 23.0 | 2.3 | 11.5 | 4.0 | 3.0 | 10.0 | 1.9% | 740.4 | |
| | | | | | | 0.0 | | | | | | |
| 5 | 1 | 871+00.00 | R | 24.0 | 2.4 | 12.0 | 4.0 | 3.0 | 10.0 | 0.8% | 1530.1 | |
| 5 | 1 | 872+50.00 | R | 30.0 | 3.0 | 15.0 | 4.0 | 3.0 | 10.0 | 0.8% | 1530.1 | |
| 5 | 1 | 874+00.00 | R | 30.0 | 3.0 | 15.0 | 4.0 | 3.0 | 10.0 | 0.8% | 1530.1 | |
| 5 | 1 | 875+50.00 | R | 30.0 | 3.0 | 15.0 | 4.0 | 3.0 | 10.0 | 0.8% | 1530.1 | |
| | | | | | | 0.0 | | | | | | |
| 6 | 1 | 864+95.00 | L | 24.0 | 2.4 | 12.0 | 3.5 | 3.0 | 10.0 | 3.5% | 434.1 | |
| 6 | 1 | 865+40.00 | L | 24.0 | 2.4 | 12.0 | 3.5 | 3.0 | 10.0 | 3.5% | 434.1 | |
| 6 | 1 | 865+85.00 | L | 24.0 | 2.4 | 12.0 | 3.5 | 3.0 | 10.0 | 3.5% | 434.1 | |
| 6 | 1 | 866+30.00 | L | 24.0 | 2.4 | 12.0 | 3.5 | 3.0 | 10.0 | 3.5% | 434.1 | |
| | | | | | | 0.0 | | | | | | |
| 7 | 1 | 868+50.00 | L | 24.0 | 2.4 | 12.0 | 3.5 | 3.0 | 10.0 | 0.3% | 3038.5 | |
| 7 | 1 | 871+50.00 | L | 24.0 | 2.4 | 12.0 | 3.5 | 3.0 | 10.0 | 0.3% | 3038.5 | |
| 7 | 1 | 874+50.00 | L | 24.0 | 2.4 | 12.0 | 3.5 | 3.0 | 10.0 | 0.3% | 3038.5 | |
| | | | | | | 0.0 | | | | | | |
| 8 | 1 | 877+90.00 | L | 19.0 | 1.9 | 9.5 | 3.5 | 3.0 | 6.0 | 0.2% | 2192.4 | |
| 8 | 1 | 879+50.00 | L | 24.0 | 2.4 | 12.0 | 3.5 | 3.0 | 10.0 | 0.2% | 3038.5 | |
| | | | | | | 0.0 | | | | | | |
| 9 | 1 | 878+00.00 | R | 24.0 | 2.4 | 12.0 | 3.5 | 3.0 | 10.0 | 0.2% | 3038.5 | |
| 9 | 1 | 879+50.00 | R | 24.0 | 2.4 | 12.0 | 3.5 | 3.0 | 10.0 | 0.2% | 3038.5 | |
| | | | | | | 0.0 | | | | | | |
| 10 | 1 | 881+64.00 | R | 24.0 | 2.4 | 12.0 | 3.5 | 3.0 | 10.0 | 1.0% | 1495.1 | |
| 10 | 1 | 882+50.00 | R | 24.0 | 2.4 | 12.0 | 3.5 | 3.0 | 10.0 | 1.0% | 1495.1 | |
| 10 | 1 | 883+50.00 | R | 24.0 | 2.4 | 12.0 | 3.5 | 3.0 | 10.0 | 1.0% | 1495.1 | |
| 10 | 1 | 885+35.00 | R | 24.0 | 2.4 | 12.0 | 3.5 | 3.0 | 10.0 | 1.6% | 723.4 | |
| 10 | 1 | 886+10.00 | R | 24.0 | 2.4 | 12.0 | 3.5 | 3.0 | 10.0 | 1.6% | 723.4 | |
| 10 | 1 | 886+85.00 | R | 24.0 | 2.4 | 12.0 | 3.5 | 3.0 | 10.0 | 1.6% | 723.4 | |
| 10 | 1 | 890+00.00 | R | 24.0 | 2.4 | 12.0 | 3.5 | 3.0 | 10.0 | 0.4% | 3038.5 | |
| 10 | 1 | 891+50.00 | R | 24.0 | 2.4 | 12.0 | 3.5 | 3.0 | 10.0 | 0.3% | 3038.5 | |
| | | | | | | 0.0 | | | | | | |
| 12 | 1 | 883+68.00 | L | 18.0 | 1.8 | 9.0 | 3.5 | 3.0 | 10.0 | 0.6% | 1495.1 | |
| 12 | 1 | 884+22.00 | L | 28.0 | 2.8 | 14.0 | 3.5 | 3.0 | 10.0 | 0.6% | 1495.1 | |
| 12 | 1 | 885+00.00 | L | 24.0 | 2.4 | 12.0 | 3.5 | 3.0 | 10.0 | 0.6% | 3038.5 | |
| 12 | 1 | 886+50.00 | L | 19.0 | 1.9 | 9.5 | 3.5 | 3.0 | 10.0 | 0.3% | 3038.5 | |
| 12 | 1 | 889+50.00 | L | 18.0 | 1.8 | 9.0 | 3.5 | 3.0 | 10.0 | 0.3% | 3038.5 | |
| 12 | 1 | 891+50.00 | L | 18.0 | 1.8 | 9.0 | 3.5 | 3.0 | 10.0 | 0.3% | 3038.5 | |
| | | | | | | 0.0 | | | | | | |
| 13 | 1 | 895+40.00 | R | 18.0 | 1.8 | 9.0 | 3.5 | 3.0 | 5.0 | 1.5% | 628.8 | |
| 13 | 1 | 895+50.00 | L | 24.0 | 2.4 | 12.0 | 3.5 | 3.0 | 10.0 | 0.3% | 3038.5 | |
| 13 | 1 | 897+30.00 | R | 19.0 | 1.9 | 9.5 | 3.5 | 3.0 | 5.0 | 1.9% | 471.6 | |
| 13 | 1 | 898+00.00 | L | 24.0 | 2.4 | 12.0 | 3.5 | 3.0 | 10.0 | 0.3% | 3038.5 | |
| | | | | | | 0.0 | | | | | | |
| 15 | 1 | 975+50.00 | L | 22.0 | 2.2 | 11.0 | 6.0 | 3.0 | 4.0 | 1.1% | 674.4 | |
| 15 | 1 | 976+00.00 | L | 24.0 | 2.4 | 12.0 | 6.0 | 3.0 | 6.0 | 2.0% | 606.5 | |
| 15 | 1 | 976+50.00 | L | 24.0 | 2.4 | 12.0 | 6.0 | 3.0 | 6.0 | 2.0% | 606.5 | |
| 15 | 1 | 977+00.00 | L | 6.0 | 0.6 | 3.0 | 6.0 | 3.0 | 6.0 | 3.0% | 404.4 | |
| 15 | 1 | 977+50.00 | L | 24.0 | 2.4 | 12.0 | 6.0 | 3.0 | 6.0 | 3.0% | 404.4 | |
| 15 | 1 | 978+00.00 | L | 24.0 | 2.4 | 12.0 | 6.0 | 3.0 | 6.0 | 2.0% | 606.5 | |

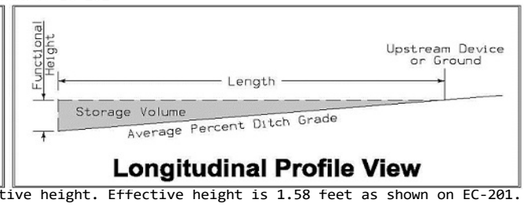
100-18
10-16-18

# SILT FENCES FOR DITCH CHECKS

Possible Standard: EC-201




**Cross Section View**




**Longitudinal Profile View**

* The functional height used in the volume equation is 85% of effective height. Effective height is 1.58 feet as shown on EC-201.
* Volume equation: [0.5*Spacing*(0.5*H$^2$*FS+DW*H+0.5*H$^2$*BS)]

| Basin No. | Type | Location | | Bid Items | | | Stormwater Storage Volume Summary | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Station | Side | Installation | Maintenance | Removal | Foreslope | Backslope | Ditch Width | Avg.% Slope | Volume* | |
| | | | | LF | LF | LF | FS:1 | BS:1 | FT | Ditch Grade | CF | |
| 15 | 1 | 978+50.00 | L | 19.0 | 1.9 | 9.5 | 3.5 | 3.0 | 6.0 | 2.0% | 522.0 | |
| 15 | 1 | 979+58.00 | L | 19.0 | 1.9 | 9.5 | 3.5 | 3.0 | 6.0 | 1.0% | 1078.8 | |
| 15 | 1 | 980+35.62 | L | 19.0 | 1.9 | 9.5 | 3.5 | 3.0 | 6.0 | 1.6% | 522.0 | |
| | | | | | | 0.0 | | | | | | |
| 17 | 1 | 980+05.18 | R | 16.0 | 1.6 | 8.0 | 3.5 | 3.0 | 3.0 | 5.9% | 123.6 | |
| 17 | 1 | 980+23.67 | R | 16.0 | 1.6 | 8.0 | 3.5 | 3.0 | 3.0 | 5.9% | 123.6 | |
| 17 | 1 | 980+44.66 | R | 16.0 | 1.6 | 8.0 | 3.5 | 3.0 | 3.0 | 2.8% | 247.3 | |
| 17 | 1 | 980+81.26 | R | 19.0 | 1.9 | 9.5 | 3.5 | 3.0 | 6.0 | 2.8% | 348.0 | |
| | | | | | | 0.0 | | | | | | |
| 18 | 1 | 981+75.00 | L | 24.0 | 2.4 | 12.0 | 6.0 | 3.0 | 6.0 | 0.7% | 1253.5 | |
| 18 | 1 | 983+25.00 | L | 24.0 | 2.4 | 12.0 | 6.0 | 3.0 | 6.0 | 0.7% | 1253.5 | |
| 18 | 1 | 984+55.00 | L | 24.0 | 2.4 | 12.0 | 6.0 | 3.0 | 6.0 | 0.7% | 1253.5 | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | Totals: | | 1880.0 | 150.0 | 749.0 | | | | | | |

232-3A
10-20-15

## EROSION CONTROL (RURAL SEEDING)

Following the completion of work in a disturbed area, place seed, fertilizer, and mulch on the disturbed area lying 8 feet adjacent to shoulder and median as follows:

Use seed mix and fertilizer meeting the requirements of Article 2601.03,C,3 and Section 4169 of the Standard Specifications.

Use mulch meeting the requirements of Articles 2601.03,E,2,a and 4169.07,A of the Standard Specifications.

Preparing the seedbed and furnishing and applying seed, fertilizer, and mulch is incidental to mobilization and will not be paid for separately.

232-3B
10-20-15

## EROSION CONTROL (URBAN SEEDING)

Following the completion of work in a disturbed area, place seed, fertilizer, and mulch on the disturbed area as follows:

Use seed mix and fertilizer meeting the requirements of Article 2601.03,C,4 and Section 4169 of the Standard Specifications.

Use mulch meeting the requirements of Articles 2601.03,E,2,a and 4169.07,A of the Standard Specifications.

Preparing the seedbed and furnishing and applying seed, fertilizer, and mulch is incidental to mobilization and will not be paid for separately.

232-11
10-20-15

## EROSION CONTROL (STABILIZING CROP SEEDING)

Following the completion of work in a disturbed area, place stabilizing crop, fertilizer, and mulch on the disturbed area as follows:

Use seed mix and fertilizer meeting the requirements of Article 2601.03,C,1 and Section 4169 of the Standard Specifications.

Use mulch meeting the requirements of Articles 2601.03,E,2,a and 4169.07,A of the Standard Specifications.

Preparing the seedbed and furnishing and applying seed, fertilizer, and mulch is incidental to mobilization and will not be paid for separately.

100-11
04-18-17

## EROSION CONTROL FOR INTAKE OR MANHOLE WELL

Possible Detail: 570-5

| Location Station | Side | Cover Assembly | | | Remarks |
|---|---|---|---|---|---|
| | | Installation | Maintenance | Removal | |
| | | EACH | EACH | EACH | |
| 845+64.97 | R | 1 | 1 | 1 | |
| 846+64.33 | L | 1 | 1 | 1 | |
| 847+21.58 | R | 1 | 1 | 1 | |
| 848+39.00 | R | 1 | 1 | 1 | |
| 848+39.00 | L | 1 | 1 | 1 | |
| 849+89.12 | R | 1 | 1 | 1 | |
| 849+89.35 | L | 1 | 1 | 1 | |
| 851+48.00 | R | 1 | 1 | 1 | |
| 851+50.00 | R | 1 | 1 | 1 | |
| 851+50.00 | L | 1 | 1 | 1 | |
| 853+25.60 | R | 1 | 1 | 1 | |
| 853+25.60 | L | 1 | 1 | 1 | |
| 861+82.03 | R | 1 | 1 | 1 | |
| 861+82.03 | L | 1 | 1 | 1 | |
| 861+84.00 | L | 1 | 1 | 1 | |
| 861+84.00 | R | 1 | 1 | 1 | |
| 863+51.69 | L | 1 | 1 | 1 | |
| 863+51.70 | R | 1 | 1 | 1 | |
| 1848+52.82 | R | 1 | 1 | 1 | |
| 1848+59.16 | L | 1 | 1 | 1 | |
| 1849+85.00 | L | 1 | 1 | 1 | |
| 1850+50.00 | L | 1 | 1 | 1 | |
| 2864+80.06 | L | 1 | 1 | 1 | |
| 3864+00.00 | R | 1 | 1 | 1 | |
| 3864+00.00 | L | 1 | 1 | 1 | |
| Totals: | | 25 | 25 | 25 | |

100-36
10-16-18

## OPEN-THROAT CURB INTAKE SEDIMENT FILTER

Possible Standard: EC-602

| Location Station | Side | Installation | Maintenance | Removal | Remarks |
|---|---|---|---|---|---|
| | | LF | EACH | EACH | |
| 845+65.00 | R | 8.0 | 1 | 1 | |
| 846+64.33 | L | 8.0 | 1 | 1 | |
| 847+21.58 | R | 8.0 | 1 | 1 | |
| 848+39.00 | R | 8.0 | 1 | 1 | |
| 848+39.00 | L | 8.0 | 1 | 1 | |
| 849+89.12 | R | 8.0 | 1 | 1 | |
| 849+89.35 | L | 8.0 | 1 | 1 | |
| 851+50.00 | R | 8.0 | 1 | 1 | |
| 851+50.00 | L | 8.0 | 1 | 1 | |
| 853+25.60 | R | 8.0 | 1 | 1 | |
| 853+25.60 | L | 8.0 | 1 | 1 | |
| 861+82.03 | R | 8.0 | 1 | 1 | |
| 861+82.03 | L | 8.0 | 1 | 1 | |
| 863+51.70 | R | 8.0 | 1 | 1 | |
| 863+51.70 | L | 8.0 | 1 | 1 | |
| 2864+80.06 | L | 8.0 | 1 | 1 | |
| 3864+00.00 | R | 4.0 | 1 | 1 | |
| 3864+00.00 | L | 4.0 | 1 | 1 | |
| Totals: | | 136.0 | 18 | 18 | |

100-19
04-19-16

## PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE

Possible Standards: EC-204

| Location | | | Length of Installation | | | Remarks |
|---|---|---|---|---|---|---|
| Begin Station | End Station | Side | 9 inch Dia | 12 inch Dia | 20 inch Dia | |
| | | | LF | LF | LF | |
| 843+82.80 | 844+80.61 | R | | | 105.0 | |
| 845+02.39 | 845+60.29 | R | | | 62.0 | |
| 845+53.50 | 845+74.49 | R | | | 23.0 | PLACE DEVICE AROUND ST-03 |
| 845+70.14 | 845+78.87 | R | | | 12.0 | |
| 846+16.12 | 847+16.92 | R | | | 103.0 | |
| 847+08.92 | 847+32.25 | R | | | 27.0 | PLACE DEVICE AROUND ST-05 |
| 847+26.64 | 847+29.38 | R | | | 5.0 | |
| 847+91.50 | 848+34.33 | R | | | 49.0 | |
| 848+26.33 | 848+51.67 | R | | | 29.0 | PLACE DEVICE AROUND ST-06 |
| 848+43.67 | 849+14.43 | R | | | 115.0 | |
| 849+52.80 | 849+85.25 | R | | | 89.0 | |
| 849+78.87 | 850+01.85 | R | | | 27.0 | PLACE DEVICE AROUND ST-11 |
| 849+93.65 | 851+45.33 | R | | | 154.0 | |
| 851+39.33 | 851+62.67 | R | | | 27.0 | PLACE DEVICE AROUND ST-12 |
| 851+54.67 | 853+20.93 | R | | | 168.0 | |
| 853+14.93 | 853+38.27 | R | | | 27.0 | PLACE DEVICE AROUND ST-18 |
| 853+30.27 | 856+27.50 | R | | | 299.0 | |
| 858+40.50 | 861+77.30 | R | | | 338.0 | |
| 861+69.36 | 861+92.70 | R | | | 27.0 | PLACE DEVICE AROUND ST-22 |
| 861+86.70 | 863+47.03 | R | | | 162.0 | |
| 863+39.03 | 863+62.37 | R | | | 27.0 | PLACE DEVICE AROUND ST-24 |
| 863+56.36 | 863+94.37 | R | | | 235.0 | |
| 864+38.58 | 866+45.74 | R | | | 227.0 | |
| 868+68.20 | 870+69.91 | R | | | 202.0 | |
| 891+34.27 | | R | | | 20.0 | PLACE DEVICE AROUND FLARED END SECTION INLET |
| | | | | | | |
| 845+01.31 | 845+23.11 | L | | | 29.0 | |
| 845+44.89 | 846+59.66 | L | | | 121.0 | |
| 846+51.66 | 846+75.00 | L | | | 27.0 | PLACE DEVICE AROUND ST-04 |
| 846+70.10 | 846+75.00 | L | | | 21.0 | |
| 847+11.00 | 848+34.33 | L | | | 140.0 | |
| 848+26.33 | 848+51.67 | L | | | 29.0 | PLACE DEVICE AROUND ST-07 |
| 848+43.67 | 849+13.96 | L | | | 110.0 | |
| 849+57.96 | 849+86.40 | L | | | 54.0 | |
| 849+79.55 | 850+01.91 | L | | | 27.0 | PLACE DEVICE AROUND ST-14 |
| 849+95.31 | 851+45.33 | L | | | 152.0 | |
| 851+39.33 | 851+62.67 | L | | | 27.0 | PLACE DEVICE AROUND ST-13 |
| 851+54.67 | 853+20.93 | L | | | 168.0 | |
| 852+26.00 | | R | | | 50.0 | PLACE DEVICE AROUND FLARED END SECTION INLET |
| 853+14.93 | 853+38.27 | L | | | 27.0 | PLACE DEVICE AROUND ST-19 |
| 853+30.30 | 856+09.10 | L | | | 280.0 | |
| 858+56.11 | 861+77.36 | L | | | 322.0 | |
| 861+69.36 | 861+92.70 | L | | | 27.0 | PLACE DEVICE AROUND ST-21 |
| 861+86.70 | 863+47.02 | L | | | 162.0 | |
| 863+39.03 | 863+62.37 | L | | | 27.0 | PLACE DEVICE AROUND ST-23 |
| 863+56.35 | 864+01.57 | L | | | 187.0 | |
| 864+64.13 | 866+19.58 | L | | | 156.0 | |
| 868+34.07 | 870+70.00 | L | | | 237.0 | |
| 878+00.00 | | L | | | 20.0 | PLACE DEVICE AROUND FLARED END SECTION INLET |
| 891+26.45 | | L | | | 20.0 | PLACE DEVICE AROUND FLARED END SECTION INLET |
| | | | | | | |
| 1847+58.76 | 1847+69.25 | R | | | 12.0 | |
| 1847+99.25 | 1848+04.15 | R | | | 45.0 | |
| 1848+03.25 | 1848+56.14 | R | | | 53.0 | |
| 1848+52.82 | | R | | | 20.0 | PLACE DEVICE AROUND ST-16 |
| 1850+50.00 | | R | | | 20.0 | PLACE DEVICE AROUND ST-08 |
| 1850+75.00 | 1850+79.96 | R | | | 24.0 | |
| 1850+83.37 | | R | | | 20.0 | PLACE DEVICE AROUND FLARED END SECTION INLET |
| 1851+20.06 | 1851+25.17 | R | | | 16.0 | |
| | | | | | | |
| 1850+38.75 | 1851+20.00 | L | | | 90.0 | |
| | | | | | | |
| 2865+30.81 | 2865+91.27 | R | | | 67.0 | |
| 2866+07.73 | 2866+50.00 | R | | | 48.0 | |
| | | | | | | |
| 2863+13.40 | 2863+35.85 | L | | | 102.0 | |
| 2863+47.68 | 2863+97.37 | L | | | 78.0 | |
| 2864+69.49 | 2864+90.74 | L | | | 26.0 | PLACE DEVICE AROUND ST-24 |
| 2864+84.75 | 2865+30.81 | L | | | 47.0 | |
| 2865+30.81 | 2865+46.05 | L | | | 18.0 | |
| 2865+57.76 | 2866+49.96 | L | | | 94.0 | |
| 3863+35.85 | | R | | | 20.0 | PLACE DEVICE AROUND FLARED END SECTION INLET |
| 3864+20.00 | | R | | | 20.0 | PLACE DEVICE AROUND FLARED END SECTION INLET |
| | | | | | | |
| | | | | Total: | 5799.0 | |

# POLLUTION PREVENTION PLAN

This project is regulated by the requirements of the Iowa Department of Natural Resources (DNR) National Pollutant Discharge Elimination System (NPDES) General Permit No. 2 OR an Iowa Department of Natural Resources (DNR) National Pollutant Discharge Elimination System (NPDES) individual storm water permit. The Contractor shall carry out the terms and conditions of this permit and the Pollution Prevention Plan (PPP).

This Base PPP includes information on Roles and Responsibilities, Project Site Description, Controls, Maintenance Procedures, Inspection Requirements, Non-Storm Water Controls, Potential Sources of Off Right-of-Way Pollution, and Definitions. This plan references other documents rather than repeating the information contained in the documents. A copy of this Base Pollution Prevention Plan, amended as needed per plan revisions or by contract modification, will be readily available for review.

All contractors shall conduct their operations in a manner that controls pollutants, minimizes erosion, and prevents sediments from entering waters of the state and leaving the highway right-of-way. The prime contractor shall be responsible for compliance and implementation of the PPP for their entire contract. This responsibility shall be further shared with subcontractors whose work is a source of potential pollution as defined in this PPP.

I. ROLES AND RESPONSIBILITES

A. Designer:
1. Prepares Base PPP included in the project plan.
2. Prepares Notice of Intent (NOI) submitted to Iowa DNR.
3. Is signature authority on the Base PPP.

B. Contractor:
1. Signs a co-permittee certification statement adhering to the requirements of the NPDES permit and this PPP. All co-permittees are legally required under the Clean Water Act and the Iowa Administrative Code to ensure compliance with the terms and conditions of this PPP.
2. Designates a Water Pollution Control Manager (WPCM), who has the duties and responsibilities as defined in Specifications Section 2602.
3. Submits an Erosion Control Implementation Plan (ECIP) and ECIP updates according to Specifications Section 2602.
4. Installs and maintains appropriate controls. This work may be subcontracted.
5. Supervises and implements good housekeeping practices.
6. Conducts joint required inspections of the site with inspection staff. When Contractor is not mobilized on site, Contractor may delegate this responsibility to a trained or certified subcontractor. Contracting Authority also may waive joint inspection requirement durning winter shutdown. In both circumstances, WPCM (or trained or certified delegate from the Contractor) is still responsible to review and sign inspection reports.
7. Complies with training and certification requirements of Specifications Section 2602.

C. Subcontractors:
1. Sign a co-permittee certification statement adhering to the requirements of the NPDES permit and this PPP if responsible for sediment or erosion controls or involved in land disturbing activities. All co-permittees are legally required under the Clean Water Act and the Iowa Administrative Code to ensure compliance with the terms and conditions of this PPP.
2. Implement good housekeeping practices.

D. RCE/Project Engineer:
1. Is Project Storm Water Manager.
2. On projects where DOT is the Contracting Authority, is currrent with erosion control training or certification.
3. Takes actions necessary to ensure compliance with storm water requirements including, where appropriate, issuing stop work orders, and directing additional inspections at construction project sites that are experiencing problems with achieving permit compliance.
4. Orders the taking of measures to cease, correct, prevent, or minimize the consequences of non-compliance with the storm water requirements of the Applicable Permit.
5. Supervises all work necessary to meet storm water requirements at the Project, including work performed by contractors and subcontractors.
6. Requires employees, contractors, and subcontractors to take appropriate responsive action to comply with storm water requirements, including requiring any such person to cease or correct a violation of storm water requirements, and to order or recommend such other actions as necessary to meet storm water requirments.
7. Is familiar with the Project PPP and storm water site map.
8. On projects where DOT is Contracting Authority, is responsible for monitoring inspection reports on a monthly basis, to determine whether deficiencies identified in inspection reports were adequately and timely addressed, and if not, has the authority and responsibility to direct immediate actions to correct the deficiencies.
9. Is the point of contact for the Project for regulatory officials, Inspector, contractors, and subcontractors regarding storm water requirements.
10. Is signature authority on Notice of Discontinuation.

E. Inspector:
1. Updates PPP whenever there is a change in design, construction, operation, or maintenance which has a significant effect on the discharge of pollutants from the project.
2. Maintains an up-to-date record that identifies contractors and subcontractors as co-permittees.
3. Makes these plans available to the DNR upon their request.
4. Conducts joint required inspections of the site with the contractor/subcontractor.
5. Completes an inspection report after each inspection.
6. Is signature authority on storm water inspection reports.

II. PROJECT SITE DESCRIPTION

A. This Pollution Prevention Plan (PPP) is for the construction of U.S. 151 through Fairfax, including associated bridges.

B. This PPP covers approximately 28.1 acres with an estimated 25.1 acres being disturbed. The portion of the PPP covered by this contract has 25.1 acres disturbed.

C. The PPP is located in an area of one soil association Dinsdale-Klinger). The estimated weighted average runoff coefficient number for this PPP after completion will be 0.48.

D. Storm Water Site Map - Multiple sources of information comprise the base storm water site map including:
1. Drainage patterns – Plan and Profile sheets and Situation plans.
2. Proposed Slopes – Cross Sections.
3. Areas of Soil Disturbance – construction limits shown on Plan and Profile sheets.
4. Location of Structural Controls – Tabulations on C sheets.
5. Locations of Non-structural Controls – Tabulations on C sheets.
6. Locations of Stabilization Practices – generally within construction limits shown on Plan and Profile sheets.
7. Surface Waters (including wetlands) – Project Location Map and Plan and Profile sheets.
8. Locations where storm water is discharged – Plan and Profile sheets.

E. The base storm water site map is amended by contract modifications and progress payments (fieldbook entries) of completed erosion control work. Also, due to project phasing, erosion and sediment controls shown on project plans may not be installed until needed, based on site conditions. For example, silt fence ditch checks will typically not be installed until the ditch has been installed. Installed locations may also be modified from tabulation locations by field staff. Installed locations will be documented by fieldbook entries.

F. Runoff from this work will flow into Prairie Creek and two separate unnamed drainage ditches, Drainage Ditch No. 1 and Drainage Ditch No. 2. The unnamed drainage ditches discharge to Prairie Creek which discharges to the Cedar River.

III. CONTROLS

A. The contractor's ECIP specified in Article 2602.03 for accomplishment of storm water controls should clearly describe the intended sequence of major activities and for each activity define the control measure and the timing during the construction process that the measure will be implemented.

B. Preserve vegetation in areas not needed for construction.

C. Sections 2601 and 2602 of the Standard Specifications define requirements to implement erosion and sediment control measures. Actual quantities used and installed locations may vary from the Base PPP and amendment of the plan will be documented via fieldbook entries or by contract modification. Additional erosion and sediment control items may be required as determined by the inspector and/or contractor during storm water monitoring inspections. If the work involved is not applicable to any contract items, the work will be paid for according to Article 1109.03 paragraph B.

1. EROSION AND SEDIMENT CONTROLS

a. Stabilization Practices
1) Site plans will ensure that existing vegetation or natural buffers are preserved where attainable and disturbed portions of the site will be stabilized.
2) Initialize stabilization of disturbed areas immediately after clearing, grading, excavating, or other earth disturbing activities have:
a) Permanently ceased on any portion of the site, or
b) Temporarily ceased on any portion of the site and will not resume for a period exceeding 14 calendar days.
3) Staged permanent and/or temporary stabilizing seeding and mulching shall be completed as the disturbed areas are completed. Incomplete areas shall be stabilized according to paragraph III, C, 1, a, 2, b above.
4) Permanent and Temporary Stabilization practices to be used for this project are located in the Estimated Project Quantities (100-0A, 100-1A, or 100-1C) and Estimate Reference Information (100-4A) located on the C sheets of the plan. Typical drawings detailing construction of the practices to be used on this project are referenced in the Standard Road Plans Tabulation (105-4).
5) Preservation of existing vegetation within right-of-way or easements will act as vegetative buffer strips.
6) Preservation of topsoil: Bid items to be used for this project are located in the Estimated Project Quantities (100-0A, 100-1A, or 100-1C) and Estimate Reference Information (100-4A) located on the C sheets of the plan. Additional information may be found in Tabulations in the C or T sheets of the plans or is referenced in Standard Specifications Section 2105.

b. Structural Practices
1) Structural practices will be implemented to divert flows from exposed soils and detain or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Additionally, structural practices may include: silt basins that provide 3600 cubic feet of storage per acre drained or equivalent sediment controls, outlet structures that withdraw water from surface when discharging basins, and controls to direct storm water to vegetated areas.
2) Structural practices to be used for this project are located in the Estimated Project Quantities (100-0A, 100-1A, or 100-1C) and Estimate Reference Information (100-4A) located on the C sheets of the plan, as well as all other item specific Tabulations. Typical drawings detailing construction of the devices to be used on this project can be found on the B sheets of the plans or are referenced in the Standard Road Plans Tabulation (105-4).

c. Storm Water Management
1) Measures shall be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed. This may include velocity dissipation devices at discharge locations and along length of outfall channel as necessary to provide a non-erosion velocity flow from structure to water course. If included with this project, these items are located in the Estimated Project Quantities (100-0A, 100-1A, or 100-1C) and Estimate Reference Information (100-4A) located on the C sheets of the plan, as well as all other item specific Tabulations. Typical drawings detailing construction of the practices to be used on this project are referenced in the Standard Road Plans Tabulation. The installation of these devices may be subject to Section 404 of the Clean Water Act.

2. OTHER CONTROLS

a. Contractor disposal of unused construction materials and construction material wastes shall comply with applicable state and local waste disposal, sanitary sewer, or septic system regulations. In the event of a conflict with other governmental laws, rules and regulations, the more restrictive laws, rules or regulations shall apply.
1) Vehicle Entrances and Exits - Construct and maintain entrances and exits to prevent tracking of sediments onto roadways.
2) Material Delivery, Storage and Use - Implement practices to prevent discharge of construction materials during delivery, storage, and use.
3) Stockpile Management - Install controls to reduce or eliminate pollution of storm water from stockpiles of soil and paving.
4) Waste Disposal - Do not discharge any materials, including building materials, into waters of the state, except as authorized by a Section 404 permit.
5) Spill Prevention and Control - Implement chemical spill and leak prevention and response procedures to contain and clean-up spills and prevent material discharges to the storm drain system and waters of the state.
6) Concrete Residuals and Washout Wastes - Waste shall not be discharged to a surface water and is not allowed to adversely affect a water of the state. Designate temporary concrete washout facilities for rinsing out concrete trucks. Provide directions to truck drivers where designated washout facilities are located. Designated washout areas should be located at least 50 feet away from storm drains, streams or other water bodies. Care should be taken to ensure these facilities do not overflow during storm events.
7) Concrete Grooving/Grinding Slurry – Do not discharge slurry to a waterbody or storm drain. Slurry may be applied on foreslopes or removed from the project.
8) Vehicle and Equipment Storage and Maintenance Areas - Perform on site fueling and maintenance in accordance with all environment laws such as proper storage of onside fuels and proper disposal of used engine oil or other fluids on site. Employ washing practices that prevent contamination of surface and ground water from wash water. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge.
9) Litter Management - Ensure employees properly dispose of litter. Minimuze exposure of trash if exposure to precipitation or storm water would result in a discharge of pollutants.
10) Dewatering – Properly treat water to remove suspended sediment before it re-enters a waterbody or discharges off-site. Measures are also to be taken to prevent scour erosion at dewatering discharge point.

3. APPROVED STATE OR LOCAL PLANS
During the course of this construction, it is possible that situations will arise where unknown materials will be encountered. When such situations are encountered, they will be handled according to all federal, state, and local regulations in effect at the time.

# POLLUTION PREVENTION PLAN

IV. MAINTENANCE PROCEDURES

The contractor is required to maintain all temporary erosion and sediment control measures in proper working order, including cleaning, repairing, or replacing them throughout the contract period. This shall begin when the features have lost 50% of their capacity.

V. INSPECTION REQUIREMENTS

A. Inspections shall be made jointly by the contractor and the contracting authority at least once every seven calendar days. Storm water monitoring inspections will include:
   1. Date of the inspection.
   2. Summary of the scope of the inspection.
   3. Name and qualifications of the personnel making the inspection.
   5. Review of erosion and sediment control measures within disturbed areas for the effectiveness in preventing impacts to receiving waters.
   6. Major observations related to the implementation of the PPP.
   7. Identification of corrective actions required to maintain or modify erosion and sediment control measures.

B. Include storm water monitoring inspection reports in the Amended PPP. Incorporate any additional erosion and sediment control measures determined as a result of the inspection. Immediately begin corrective actions on all deficiencies found within 3 calendar days of the inspection and complete within 7 calendar days following the inspection. If it is determined that making the corrections less than 72 hours after the inspection is impracticable, it should be documented why it is imparacticable and indicate an estimated date by which the corrections will be made.

VI. NON-STORM WATER DISCHARGES

This includes subsurface drains (i.e. longitudinal and standard subdrains) and slope drains. The velocity of the discharge from these features may be controlled by the use of headwalls or blocks, Class A stone, erosion stone or other appropriate materials. This also includes uncontaminated groundwater from dewatering operations, which will be controlled as discussed in Section III of the PPP.

VII. POTENTIAL SOURCES OF OFF RIGHT-OF-WAY (ROW) POLLUTION

Silts, sediment, and other forms of pollution may be transported onto highway right-of-way (ROW) as a result of a storm event. Potential sources of pollution located outside highway ROW are beyond the control of this PPP. Pollution within highway ROW will be conveyed and controlled per this PPP.

VIII. DEFINITIONS

A. Base PPP - Initial Pollution Prevention Plan.
B. Amended PPP - May include Plan Revisions or Contract Modifications for new items, storm water monitoring inspection reports, and fieldbook entries made by the inspector.
C. IDR - Inspector's Daily Report – this contains the inspector's daily diary and bid item postings.
D. Controls - Methods, practices, or measures to minimize or prevent erosion, control sedimentation, control storm water, or minimize contaminants from other types of waste or materials. Also called Best Management Practices (BMPs).
E. Signature Authority - Representative authorized to sign various storm water documents.

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CERTIFICATION STATEMENT

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Nathan Carhoff
Signature

Nathan Carhoff
Printed or Typed Name

Tom Storey
Signature

Tom Storey
Printed or Typed Name

100-22
04-21-15

# ROLLED EROSION CONTROL

Refer to EC-101, EC-103 and EC-104

| Location | | | | (L) | (W) | Turf Reinforcement Mat (TRM) (EC-104) | | | | Slope Protection (EC-103) | Special Ditch Control (EC-101) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Road Identification | Begin Station | End Station | Side | FT | FT | Type 1 Squares | Type 2 Squares | Type 3 Squares | Type 4 Squares | Squares | Squares | |
| U.S. Highway 151 | 850+50.30 | 856+20.00 | LT | 570 | 120 | | | | | 594 | | |
| U.S. Highway 151 | 858+07.00 | 860+50.00 | LT | 243 | 75 | | | | | 152 | | |
| U.S. Highway 151 | 858+44.00 | 862+00.00 | RT | 356 | 40 | | | | | 109 | | |
| U.S. Highway 151 | 864+65.00 | 866+05.00 | LT | 140 | 60 | | | | | 85 | | |
| U.S. Highway 151 | 868+33.00 | 874+00.00 | LT | 567 | 50 | | | | | 253 | | |
| U.S. Highway 151 | 974+75.00 | 984+80.00 | LT | 1005 | 30 | | | | | 252 | | |
| U.S. Highway 151 | 977+80.00 | 981+40.00 | RT | 360 | 30 | | | | | 94 | | |
| | | Totals: | | | | | | | | 1539 | | |

STA 845+05.45
BEGIN PCC WIDENING LT.

STA 848+30.33
END PCC WIDENING LT. AND RT.
BEGIN PCC PAVING

STA 843+88.58
BEGIN PCC WIDENING RT.

STA 843+47.28
BEGIN PROJECT

U.S. Hwy. 151

Bridge End Drain DR-401

STA 850+01.96
Construct 100 LF of Stabilized
Construction Entrance
Stage 2

845 850 855

1850

Church Street

STA 850+01.96
Construct 100 LF of Stabilized
Construction Entrance
Stage 2

**EROSION CONTROL LEGEND**

- Proposed Silt Fence
- Proposed Ditch Check
- Proposed Inlet Protection

0 FEET 50

Prairie Creek

STA 863+92.13
Construct 100 LF of Stabilized
Construction Entrance
Stage 2

STA 864+64.13
Construct 100 LF of Stabilized
Construction Entrance
Stage 2

Bridge End Drain DR-401

Bridge End Drain DR-401

860 865 870

U.S. Hwy. 151

Losey Avenue

Prairie Avenue

PC Sta 870+28.38

Bridge End Drain DR-401

STA 863+92.13
Construct 100 LF of Stabilized
Construction Entrance
Stage 2 and 3

0 FEET 50

**POLLUTION PREVENTION PLAN**

| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN | COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | C.28 |
|---|---|---|---|---|---|---|---|---|---|

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STA 875+41.91
Construct 100 LF of Stabilized
Construction Entrance
Stage 2

STA 873+67.87
Construct 100 LF of Stabilized
Construction Entrance
Stage 2

Stallman Drive

875

880

Drainage Ditch #1

U.S. Hwy. 151

885

Cemetery Road

STA 876+75.00
Construct 100 LF of Stabilized
Construction Entrance
Stage 3

STA 878+25.00
Construct 100 LF of Stabilized
Construction Entrance
Stage 3

## EROSION CONTROL LEGEND

- Proposed Silt Fence
- Proposed Ditch Check
- Proposed Inlet Protection

0 FEET 50

STA 890+30.00
Construct 100 LF of Stabilized
Construction Entrance
Stage 2

860

895

STA 898+00.00
END PCC PAVING
BEGIN HMA BASE
WIDENING AND OVERLAY

900

STA 902+58.42
END HMA OVERLAY
Sta 900+59.26
4'x3' RCB w/48" RCP Extension
Total Length = 91.3'
Miscellaneous Milling

STA 903+15.44
STOP PROJECT

U.S. Hwy. 151

PT Sta 890+92.65

STA 893+71.50
Construct 100 LF of Stabilized
Construction Entrance
Stage 3

0 FEET 50

# POLLUTION PREVENTION PLAN

| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | C.29 |
|---|---|---|---|---|---|---|---|---|

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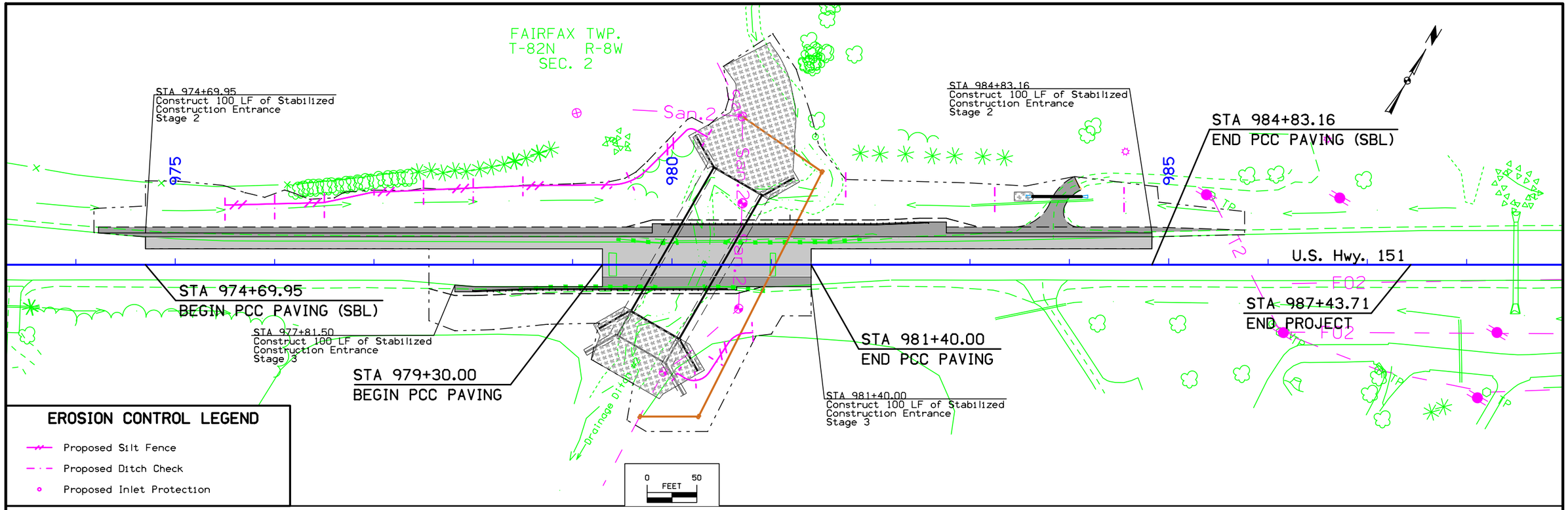


**POLLUTION PREVENTION PLAN**

| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | C.30 |
|---|---|---|---|---|---|---|---|---|

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104-5C
10-17-17

# LIST OF SUBDRAIN WORK

Possible Standards: DR-121, DR-201, DR-203, DR-301, DR-302, DR-303, DR-305 and DR-306. Possible Detail: 500-10.

* Not a bid item

| Location | | | Pipe | | | Aprons | | Outlets | | | | Connected Pipe Joints* | | Trench Drain | Granular Material | Porous Backfill* | Class "A" Crushed Stone* | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No. | Station to Station | | Type of Installation DR-301, DR-302, DR-303 | Concrete, C.M.P., or Plastic | Dia. IN | Length LF | DR-201 No. | DR-203 No. | 500-10 No. | DR-305 Type | DR-305 No. | DR-306 No. | DR-121 Type | DR-121 No. | LF | Blanket CY | CY | CY | |
| US 151 | | | | | | | | | | | | | | | | | | | |
| 1 | 850+00.00 | 856+06.00 | | | | | | | | | | | | | | 708.0 | | | Working blanket in the left existing ditch |
| 2 | 864+35.00 | 866+76.00 | | | | | | | | | | | | | | 320.0 | | | Working blanket in the left existing ditch |
| 3 | 868+93.00 | 873+00.00 | | | | | | | | | | | | | | 975.0 | | | Working blanket in the left existing ditch |
| 4 | 868+80.00 | 873+30.00 | | | | | | | | | | | | | | 358.0 | | | Working blanket in the right existing ditch |
| | | | | | | | | | | | | | | | Total | 2361.0 | | | |

Note:
1. The Working Blankets shown on the Q sheets and Tab 104-5C may be deleted if determined not to be necessary at the time of construction.
2. The Working Blanket design thickness is 1 foot.

103-6
10-17-17

## EMBANKMENT WITH MOISTURE CONTROL

Moisture Control is required for all Class 10 fill placed in all locations and depths. Stability berms placed outside the normal foreslope template and topsoil will not require Moisture Control.

103-7
08-01-08

## SHRINKAGE DATA

| Material | % | Remarks |
|---|---|---|
| Barrow & Template Cut | 30% | |
| Topsoil | 40% | |
| Estimated Boulder Quantity | | 50 CY |

103-10
04-18-17

## TOPSOIL STRIPPING AND PLACEMENT

| Location | | | | Topsoil Stripping Thickness | Topsoil Placement Thickness | Remarks |
|---|---|---|---|---|---|---|
| Road Identification | Dir. of Traffic | Begin Station | End Station | IN | IN | |
| US 151 | NB/SB | 850+00.00 | 856+00.00 | 4.0 | | |
| US 151 | NB/SB | 858+50.00 | 866+50.00 | 4.0 | | |
| US 151 | NB/SB | 869+00.00 | 879+50.00 | 4.0 | | |
| US 151 | NB/SB | 882+00.00 | 903+00.00 | 4.0 | | |

107-31
04-19-11

## PLOWING AND SHAPING

Refer to Standard Road Plan EW-101

| Station to Station | | D FT | Remarks |
|---|---|---|---|
| US 151 | | | |
| 861+00.00 | 863+50.00 | 5.0 | Refer to W Sheets |
| 980+00.00 | 981+00.00 | 5.0 | Refer to W Sheets |

## GEOTECHNICAL DESIGN

LICENSED PROFESSIONAL ENGINEER
MATTHEW D. CUSHMAN
20478
IOWA

I hereby certify that this engineering document was prepared under my supervision and that engineering decisions with regard to the design were made by me or by other duly licensed Professional Engineers under the laws of the State of Iowa.

Matthew D. Cushman 08/21/18
Signature Date

MATTHEW D. CUSHMAN
Printed or Typed Name

My license renewal date is December 31, 2018

Pages or sheets covered by this seal: CS.1 & Q.1-Q.24

## 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 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 |
|---|---|---|---|---|---|---|---|---|

2:17:43 PM 9/20/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158LGD.sht

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

835

STA 845+05.45
BEGIN PCC WIDENING LT.

STA 843+88.58
BEGIN PCC WIDENING RT.

STA 843+47.28
BEGIN PROJECT

STA 848+30.33
END PCC WIDENING LT. AND RT.
BEGIN PCC PAVING

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

840
PT Sta 840+20.65

845

850

U.S. Hwy. 151

45:1 Taper

42'

+34.00 Prop. Type "C" Ent.

+93.00 Prop. Type "B" Ent.

+91.50 Prop. Type "C" Ent.

+97.50 Prop. Type "B" Ent.

+44.00 Prop. Type "C" Ent.

+60.50 Prop. Type "B" Ent.

Do Not Disturb Sign, Protect Fence

Relocate Monument (By Others)

Church Street

Curve Data
Δ = 66° 14' 42.26" (LT)
T = 623.05
L = 1,104.08
R = 954.93
E = 185.28

0 50 FEET

Keyed Notes
① Adjust Water Valve to Grade
② Adjust Manhole to Grade
③ Adjust Hydrant to Grade
④ Protect Existing Intake
⑤ Relocate Utility Pole (By Others)
⑥ Water Main Casing pipe, Refer to M Sheets
⑦ Sanitary Sewer, Refer to M Sheets

Existing Ground

846+93.00
Prop. Type "B"
Ent. Lt.

+1.164%
2" Drop Curb
-2.000%

-2.000%
+6.676%
2" Drop Curb
845+34.00
Prop. Type "C"
Ent. Lt.

-2.000%
+2.000%
+9.318%
2" Drop Curb
846+44.00
Prop. Type "C"
Ent. Rt.

STA 848+30.33
ELEV = 760.54
MATCH EXISTING

Profile Grade

762.62

-2.752%

+6.000%
+80
757.80

4.50% RT Ditch Grade

VPI +95.000 +00
Elv 755.74 756.90
Len 500.00 ft
K = 57

+1.500%
2" Drop Curb
+4.516%
844+91.50
Prop. Type "C"
Ent. Rt.

-2.000%
+1.500%
+8.296%
2" Drop Curb
845+97.50
Prop. Type "B"
Ent. Rt.

2" Drop Curb
-2.000%
+1.500%
+11.482%
847+60.50
Prop. Type "B"
Ent. Rt.

No Ditch | Ent. | No Ditch | Ent. | No Ditch | Ent. | No Ditch | Side Rd. | No Ditch

Ditch Grade

| 838 | 839 | 840 | 841 | 842 | 843 | 844 | 845 | 846 | 847 | 848 | 849 | 850 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 788.09 787.25 786.39 785.50 784.61 783.74 782.90 782.09 781.24 780.34 779.47 778.60 777.78 777.02 776.29 775.58 774.87 774.17 773.48 772.79 772.12 771.45 770.75 770.05 769.37 768.69 768.01 767.32 766.64 765.95 765.26 764.56 763.84 763.11 762.39 761.86 761.32 760.95 760.70 760.49 760.51 760.53 760.66 760.79 760.92 761.11 761.30 761.52 761.78 762.05 762.37 762.81 763.07 763.61 763.88 764.56 | | | | | | | | | | | | |

| 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
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

Keyed Notes
① Adjust Water Valves to Grade

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

+19.80 Prop. Type "C" Granular Ent.

Remove Existing Retaining Wall

Proposed MSE Wall No. 3

+19.80 Prop. Type "C" Paved Ent.

U.S. Hwy. 151

15:1 Taper

Proposed MSE Wall No. 1

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

Proposed MSE Wall No. 2

Losey Avenue

Protect Fence

Remove Existing Retaining Wall

Sta 852+26.00
3'x2' RCB w/36" RCP Extension
Total Length = 169.8'
DA = 11.97 Acres, Rolling
(Remove)

Prairie Avenue

0 FEET 50

VPI +32.600
Elv 806.00
Len 750.00 ft
K = 62
SSD = 367'

+1.700% 10' V.C. +5.390% 10' V.C. +0.500% +1.955%
+6.000% -6.000%
+2.000% +15.000% 10' V.C. +0.500% +1.955%
-0.500%

Profile Grade

Existing Ground

VPI +50.000
Elv 762.96
Len 450.00 ft
K = 82

+00 756.90 -1.15% RT Ditch Grade +26 754.30 +1.07% RT Ditch Grade +00 758.30 +2.40% Ditch Grade +50 759.50
+50 752.50 -0.26% LT Ditch Grade +25 751.01
+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 +2.72% +25 762.83
+50 748.30 -3.50% LT Ditch Grade

Lt: No Ditch | Ditch Grade | Bridge | Ditch Grade | Entrance | Ditch Grade
Rt: Ditch Grade | Bridge | U.A.C. Ex. Ditch | No Ditch | Side Road

| 850 | 851 | 852 | 853 | 854 | 855 | 856 | 857 | 858 | 859 | 860 | 861 | 862 | 863 | 864 | 865 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 763.88 / 764.56 | 764.80 / 765.55 | 765.83 / 766.64 | 766.97 / 767.90 | 768.22 / 769.21 | 769.58 / 770.62 | 771.04 / 772.02 | 772.54 / 773.47 | 774.04 / 774.92 | 775.54 / 776.32 | 777.04 / 777.70 | 778.54 / 779.09 | 780.04 / 780.47 | 781.54 / 781.85 | 783.04 / 783.10 | 784.52 / 784.35 | 785.90 / 785.41 | 787.18 / 786.42 | 788.36 / 787.28 | 789.44 / 788.11 | 790.42 / 788.86 | 791.30 / 789.55 | 792.08 / 790.19 | 792.76 / 790.65 | 793.34 / 791.10 | 793.82 / 791.36 | 794.20 / 791.31 | 794.48 / 791.62 | 794.66 / 791.68 | 794.75 / 791.72 | 794.73 / 792.02 | 794.61 / 791.31 | 794.39 / 790.78 | 794.07 / 790.21 | 793.65 / 789.64 | 793.13 / 788.95 | 792.51 / 788.09 | 791.79 / 787.23 | 790.97 / 786.29 | 790.05 / 785.34 | 789.03 / 784.27 | 787.91 / 783.19 | 786.69 / 782.06 | 785.37 / 780.90 | 783.95 / 779.75 | 782.46 / 778.61 | 780.96 / 777.39 | 779.46 / 776.18 | 777.96 / 775.01 | 776.46 / 773.85 | 774.99 / 772.69 | 773.61 / 771.54 | 772.30 / 770.37 | 771.07 / 769.19 | 769.91 / 768.01 | 768.83 / 766.83 | 767.83 / 765.64 | 766.90 / 764.44 | 766.05 / 763.31 | 765.28 / 762.28 | 764.58 / 761.30 |

| 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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Prairie Creek

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

865 870 875 880

U.A.C.

+00.00 Prop. Type "B" Ent.

+31.00 Prop. Type "C" Ent.

+50.00 Prop. Type "B" Ent.

Stallman Drive

U.S. Hwy. 151

44'

48'

PC Sta 870+29.88

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

Proposed Cast-in-Place
Concrete Wall. Refer
to U Sheets.

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

Keyed Notes

① Adjust Water Valve to Grade
② Adjust Gas Valve to Grade
③ Adjust Hydrant to Grade

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

Curve Data
Δ = 61° 52' 59.64" (RT)
T = 1,144.91
L = 2,062.78
R = 1,909.86
E = 316.88
e = 4.2%
I = 120'
x = 57'

0 FEET 50

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

-0.500%

+25 750.66 -3.30% RT Ditch Grade LT Ditch Grade
+00 748.19 -1.87% RT Ditch Grade
+90 746.50
+30 742.00

+25 745.92 +1.50% RT Ditch Grade
+00 748.25 +1.00% RT Ditch Grade
+50 748.75 +0.30% LT Ditch Grade
+50 746.00

Existing Ground

Profile Grade

-0.500%

+50 747.50

3.800%
1.500%
760
Unpaved Section
13.000%
750
873+00.00
Prop. Type "B"
Ent. Lt.

VPI +50.000
Elv 757.46
Len 150.00 ft
K = 100

-3.800% +4.200% 760 750
+0.566%
878+31.00
Prop. Type "C"
Ent. Lt.

+50 756.60 -0.20% LT Ditch Grade
+00 756.30 +5.40% LT Ditch Grade
+50 759.00 +1.50% LT Ditch Grade
+50 757.50 -7.00% LT Ditch Grade
+00 754.00
+1.000%

-4.200%
-4.200%
-5.593%
760
750
877+50.00
Prop. Type "B"
Ent. Rt.

Lt: Ditch Grade | Bridge | Ditch Grade | Entrance | U.A.C. Existing Ditch | Side Road | Ditch Grade | Entrance | Ditch Grade

Rt: No Ditch | Ditch Grade | Bridge | Ditch Grade | U.A.C. Existing Ditch | Entrance | No Ditch

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 | 761.83 747.38 | 761.71 737.18 | 761.58 736.80 | 761.46 737.34 | 761.33 738.20 | 761.21 741.19 | 761.08 756.66 | 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 | 758.71 758.85 | 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 | 757.74 759.26 | 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

865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880

| 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
e = 4.2%
I = 120′
x = 57

Keyed Notes
① Adjust Water Valve to Grade
② Adjust Gas Valve to Grade
③ Adjust Manhole to Grade
④ Adjust Hydrant to Grade
⑤ Water Main Casing Pipe, Refer to M Sheets

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

STA 884+13.63 (HWY 151) =
STA 5884+13.63 (CEMETERY ROAD)

Construct PCC Trail Under Bridge

Protect Well

Remove Pipe

Remove Pipe

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.

Pl Sta 890+92.65

15:1 Taper

U.S. Hwy. 151

Cemetery Road

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

0 FEET 50

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

VPI +85.250
Elv 762.81
Len 150.00 ft
K = 94
SSD = 490′

+1.000% -0.600% -0.600% +0.200%

-3.75% LT Ditch Grade
+80 751.00
+00 754.00
+00 750.50
+1.00% RT Ditch Grade
+00 754.34
+75 753.25
+25 751.66
+1.60% RT Ditch Grade
+0.20% LT Ditch Grade
+00 754.46
+0.25% RT Ditch Grade
VPI +50.000
Elv 758.22
Len 150.00 ft
K = 187
+65 755.38
+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
-1.85% RT D.G.
+50 758.24

Profile Grade
Existing Ground

890+96.75 Prop. Type "B" Ent. Lt.
-2.797%
+4.000%
+3.000%
-0.853%

894+21.00 Prop. Type "B" Joint 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 | Bridge | U.A.C. Existing Ditch | Side Road | Ditch Grade | Ent. | Ditch Grade | Entrance
Rt: No Ditch | Bridge | Ditch Grade | Side Road | Ditch Grade | Ent. | Ditch Grade | Ent. | D.G.

| 880 | 881 | 882 | 883 | 884 | 885 | 886 | 887 | 888 | 889 | 890 | 891 | 892 | 893 | 894 | 895 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 761.96 / 759.89 | 762.19 / 759.85 | 762.37 / 759.83 | 762.48 / 759.85 | 762.53 / 760.76 | 762.50 / 759.91 | 762.41 / 759.98 | 762.27 / 760.03 | 762.12 / 760.10 | 761.97 / 760.18 | 761.82 / 760.27 | 761.67 / 760.34 | 761.52 / 760.39 | 761.37 / 760.45 | 761.22 / 760.50 | 761.07 / 760.53 | 760.92 / 760.56 | 760.77 / 760.56 | 760.62 / 760.61 | 760.47 / 760.67 | 760.32 / 760.73 | 760.17 / 760.77 | 760.02 / 760.79 | 759.87 / 760.80 | 759.72 / 760.78 | 759.57 / 760.75 | 759.42 / 760.71 | 759.27 / 760.70 | 759.12 / 760.67 | 758.97 / 760.64 | 758.82 / 760.59 | 758.67 / 760.58 | 758.54 / 760.57 | 758.44 / 760.54 | 758.37 / 760.51 | 758.34 / 760.46 | 758.34 / 760.40 | 758.37 / 760.35 | 758.42 / 760.28 | 758.47 / 760.28 | 758.52 / 760.27 | 758.57 / 760.25 | 758.62 / 760.21 | 758.67 / 760.15 | 758.72 / 760.08 | 758.77 / 760.01 | 758.82 / 759.94 | 758.87 / 759.89 | 758.92 / 759.84 | 758.97 / 759.80 | 759.02 / 759.77 | 759.07 / 759.74 | 759.12 / 759.72 | 759.17 / 759.73 | 759.22 / 759.74 | 759.27 / 759.75 | 759.32 / 759.73 | 759.37 / 759.74 | 759.42 / 759.74 | 759.47 / 759.72 | 759.52 / 759.71 |

| 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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Keyed Notes
① Adjust Water Valve to Grade
② Adjust Gas Valve to Grade
③ Adjust Hydrant to Grade

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

Sta 900+59.26
4'x3' RCB w/48" RCP Extension
Total Length = 91.3'
DA = 67 Acres, Rolling
(Extend)

STA 898+00.00
END PCC PAVING
BEGIN HMA BASE
WIDENING AND OVERLAY

STA 902+58.42
END HMA BASE WIDENING
AND OVERLAY

STA 903+15.44
SUSPEND PROJECT

U.S. Hwy. 151

80th Street

38'

+76.54 Prop. Type "B" Ent.

+64.90 Prop. Type "C" Ent.

U.A.C.

U.A.C.

Do Not Disturb Sign
Protect Gas Shut-off Valve

Sta. 900+60.27 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
Len 150.00 ft
K = 257
SSD = 1213'

STA 900+00.00
ELEV = 759.79
MATCH EXISTING

Profile Grade

-1.85%
-0.88%
-0.384%
-0.384%
-0.30% LT Ditch Grade

+45 756.48 RT D.G.
+29 757.70
+86 757.20
+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
U.A.C. Ex. Ditch D.G. Ent. Ditch Grade U.A.C. Ex. Ditch Ent. U.A.C. Ex. Ditch

759.52 759.57 759.62 759.67 759.72 759.77 759.82 759.87 759.92 759.97 760.02 760.07 760.12 760.16 760.17 760.16 760.13 760.07 759.98 759.89 759.79 759.75 759.72 759.70 759.70 759.72 759.73 759.76 759.80 759.81 759.83 759.87 759.96 760.07 760.29 760.53 760.78 761.10 761.46 761.85 762.25 762.68 763.09 763.47 763.89 764.30 764.71 765.11 765.51 766.00 766.45 766.86 767.25 767.65 768.07 768.48 768.88 769.27 769.67 770.10 770.57

759.71 759.71 759.86 759.81 759.82 759.83 759.83 759.82 759.83 759.83 759.83 759.83 759.85 759.87 759.90 759.87 759.88 759.87 759.85 759.83 759.79 759.75 759.72 759.70 759.72 759.73 759.76 759.80 759.81 759.83 759.87 759.96 760.07 760.29 760.53 760.78 761.10 761.46 761.85 762.25 762.68 763.09 763.47 763.89 764.30 764.71 765.11 765.51 766.00 766.45 766.86 767.25 767.65 768.07 768.48 768.88 769.27 769.67 770.10 770.57

| 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 980+18.65
36'-0"x44'-0" I-Beam and
PPC Beam Bridge with
30° skew (L.A.) (Remove)

Protect Tile Outlet

Protect Trees and Fence

Remove Pipe

+85.00 Prop. Type "C" Ent.

STA 984+83.16
END PCC PAVING (SBL)

U.S. Hwy. 151

STA 971+42.45
RESUME PROJECT

STA 974+69.95
BEGIN PCC PAVING (SBL)

STA 979+30.00
BEGIN PCC PAVING

STA 981+40.00
END PCC PAVING

STA 987+43.71
END PROJECT

U.A.C.

+75.00 U.A.C. Type "C" Ent.

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

0 FEET 50

STA 979+30.00
ELEV = 779.40
MATCH EXISTING

VPI +50.000
Elv 778.56
ex = 0.29'
K = 139
Len 180.00 ft

Profile Grade

STA 981+40.00
ELEV = 779.10
MATCH EXISTING

983+85.00
Prop. Type "C"
Ent. Lt.

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

-1.00% LT Ditch Grade

+00 770.50

-0.700%

-1.63% LT Ditch Grade

+05.65 766.95

-6.87% RT Ditch Grade

+50 770.00

+30.60 770.00

+0.598%

+2.36% RT Ditch Grade

+92.38 771.00

+23.12 771.22

+0.67% LT Ditch Grade

+00 772.40

+6.25% LT Ditch Grade

+56.52 775.93

-4.000%

-1.983%

+2.7% LT Ditch Grade

+18.68 777.19

+88.53 779.10

Existing Ground

STA 987+43.71
END PROJECT

Ditch Grade | Culvert | Ditch Grade | Entrance | D.G.

U.A.C. Existing Ditch | Culvert | Ditch Grade | U.A.C. Existing Ditch

788.03 787.73 787.42 787.08 786.73 786.38 786.02 785.65 785.28 784.91 784.55 784.17 783.77 783.39 783.02 782.65 782.28 781.91 781.57 781.22 780.90 780.58 780.33 780.08 779.89 779.72 779.57 779.43 779.26 779.33 779.09 779.30 778.97 775.32 778.89 764.19 778.85 778.90 778.86 779.07 778.92 779.33 779.01 779.17 779.17 779.34 779.53 780.10 780.34 780.58 780.91 781.24 781.70 782.20 782.75 783.29 783.83 784.34 784.84 785.34 785.84 786.33 786.83 787.33 787.84 788.35 788.85 789.35

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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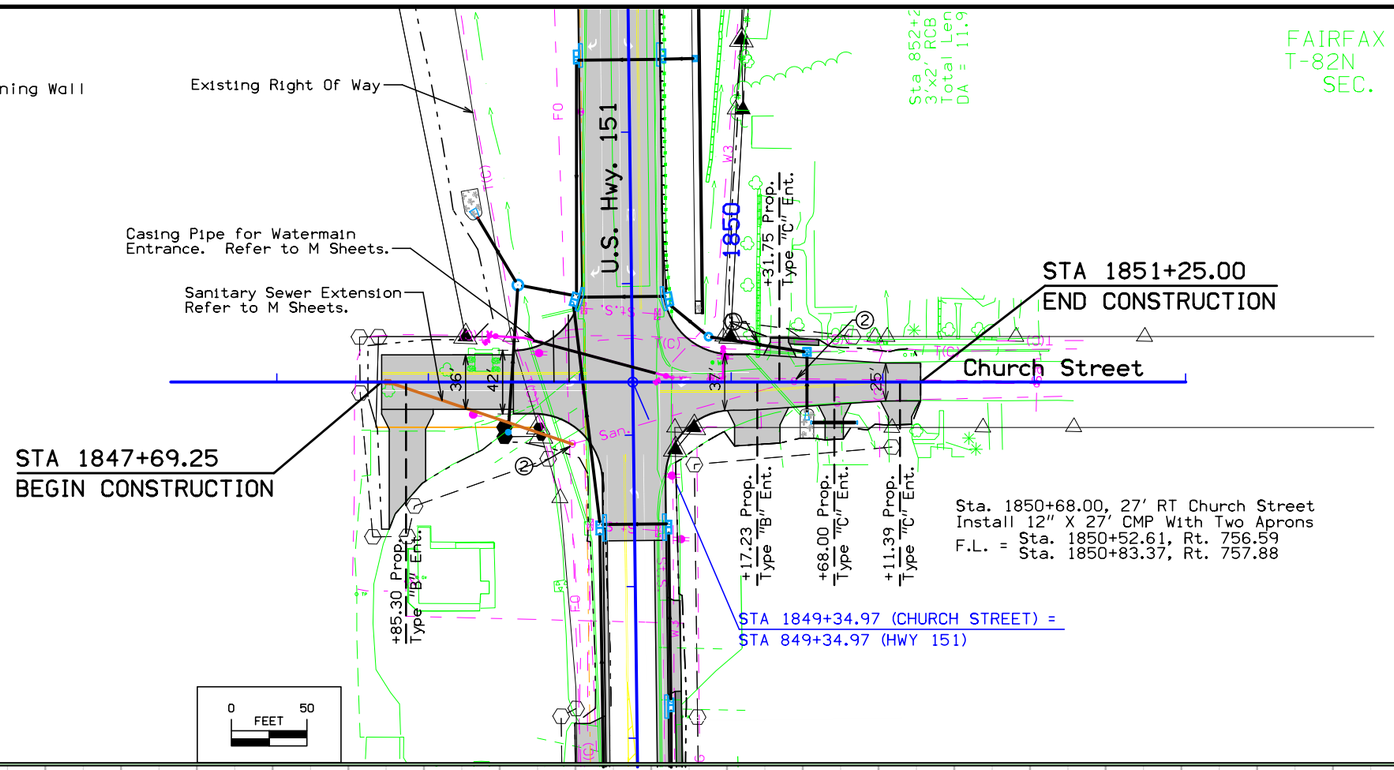
Keyed Notes

① Remove 15 LF Existing BLock Retaining Wall

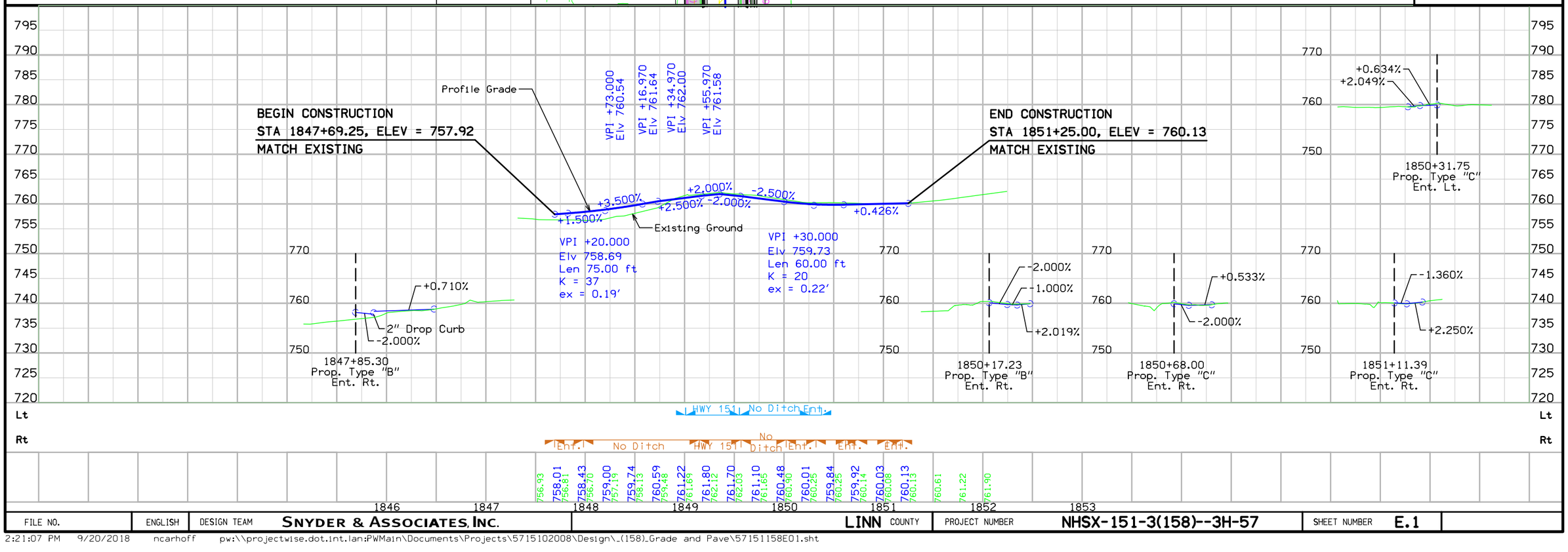
② Adjust Manhole to Grade




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

N

CHURCH STREET

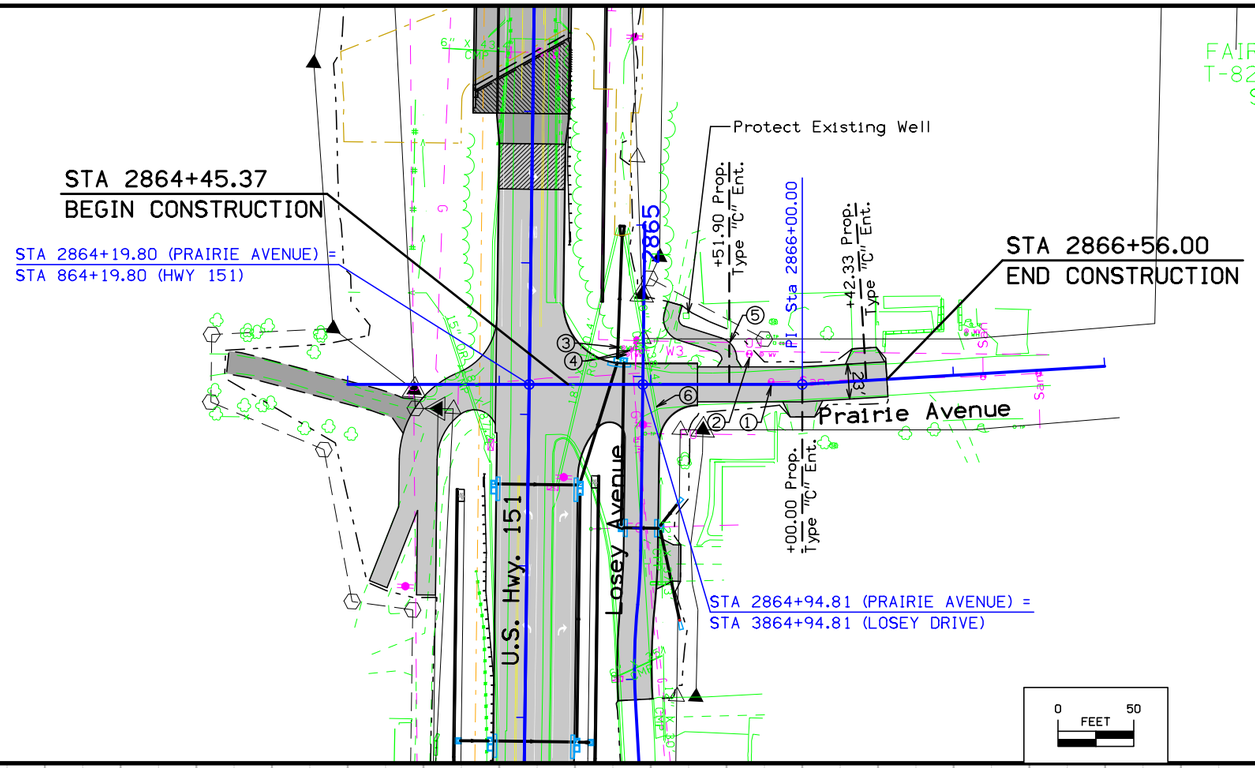



| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | E.1 |
|---|---|---|---|---|---|---|---|---|

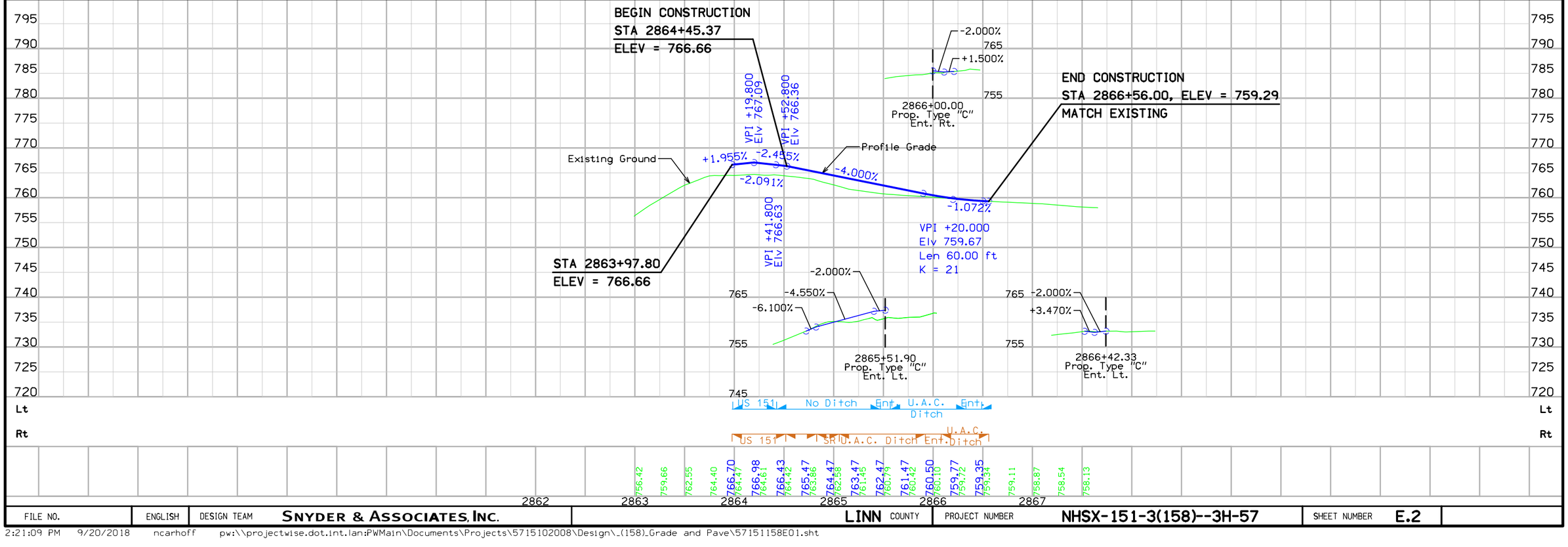
2:21:07 PM 9/20/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158E01.sht

Keyed Notes

① Adjust Manhole to Grade.
② Remove Abandoned Meter Pit.
③ Relocate Hydrant.
④ Adjust Valve to Grade.
⑤ Refer to Sheet L.7 for Geometric Details of Driveway.
⑥ Remove Pipe




## 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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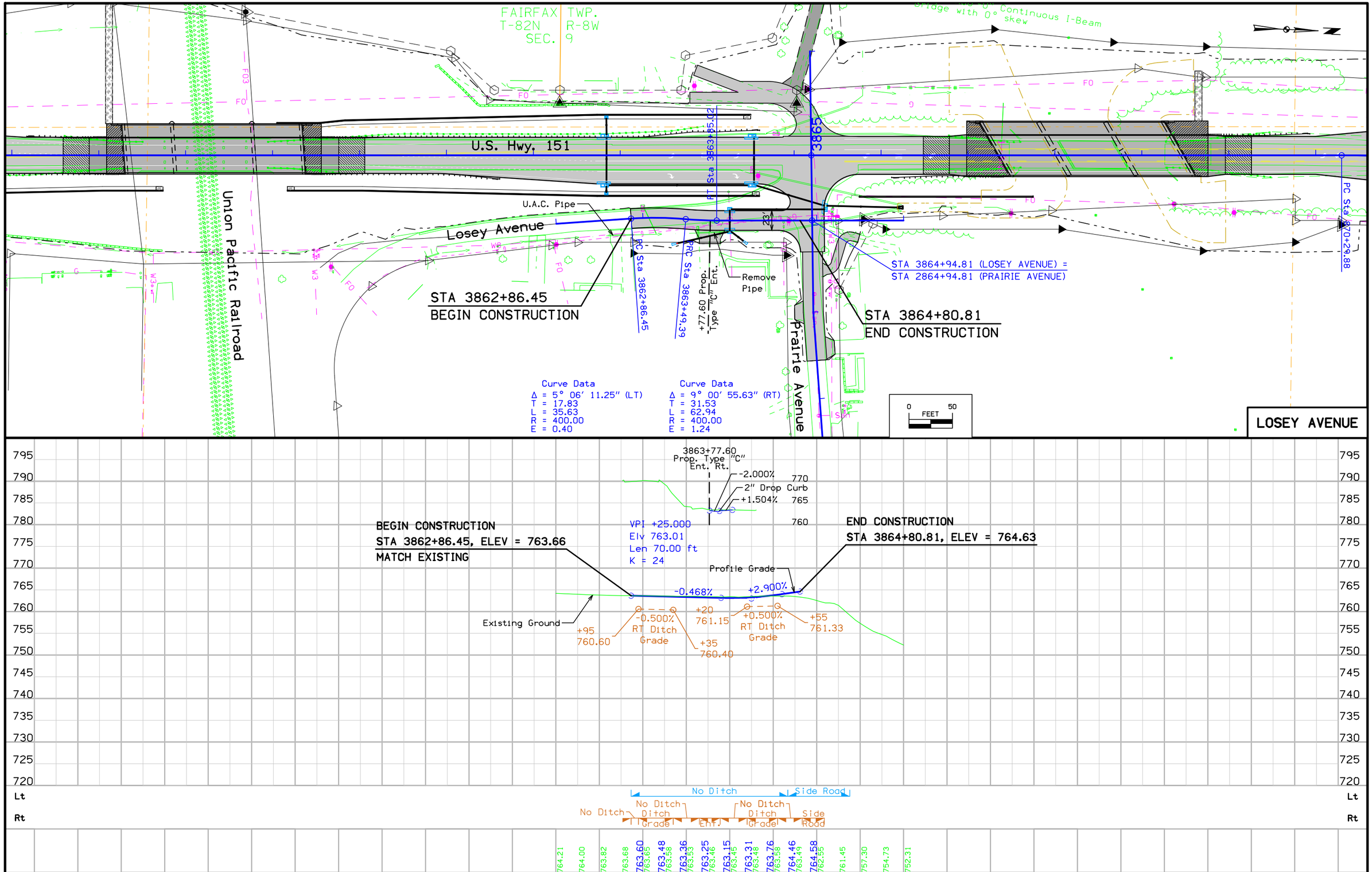


| FILE NO. | ENGLISH | DESIGN TEAM SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER E.3 |
|---|---|---|---|---|---|

2:21:12 PM 9/20/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158E01.sht

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

Stallman Drive

U.S. Hwy. 151

STA 4874+25.00
BEGIN CONSTRUCTION

U.A.C.

+49.94 Exist. Ent. (U.A.C.) (Protect)

PC Sta 4874+79.34

PT Sta 4875+23.63

Curve Data
Δ = 72° 52' 18.32" (LT)
T = 44.29
L = 76.31
R = 60.00
E = 14.58

875

Remove

4875

PT Sta 4875+55.65

STA 4875+81.00
END CONSTRUCTION

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

0 FEET 50

STALLMAN DRIVE

BEGIN CONSTRUCTION
STA 4874+25.00, ELEV = 759.79
MATCH EXISTING

END CONSTRUCTION
STA 4875+81.00, ELEV = 758.79

Profile Grade

Existing Ground

1.500% +0.626% -2.200% -4.200%

VPI +90.000
Elv 758.81
Len 100.00 ft
K = 47

VPI +60.000
Elv 759.25
Len 40.00 ft
K = 14
SSD = 255'

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

Lt

Rt

U.A.C.

Ent.

U.A.C. U.A.C. U.A.C. U.S. HWY. 151

760.74 760.69 760.43 760.24 760.05 759.79 759.79 759.42 759.45 759.17 759.11 759.04 758.65 759.05 757.87 759.15 757.09 758.91 759.15 757.99 759.43 757.81 754.06 752.82 752.84

4873 4874 4875 4876 4877 4879

| 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

Keyed Notes
① Adjust Water Valve to Grade
② Adjust Hydrant to Grade
③ Protect Storm Sewer Structure
④ Adjust Manhole to Grade

Casing Pipe for Water Main Extension, Refer to M Sheets

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

U.A.C.

Existing Right Of Way

5880

5885

5890

U.S. Hwy. 151

PI Sta 5884+32.27

PC Sta 5884+77.29

PT Sta 5885+77.84

PI Sta 5886+39.38

PI Sta 5885+27.69

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

Cemetery Road

26'

32'

STA 5882+30.00
BEGIN CONSTRUCTION

STA 5885+42.00
END CONSTRUCTION

STA 5884+13.63 (CEMETERY ROAD) =
STA 884+13.63 (HWY 151)

0 FEET 50

CEMETERY ROAD

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

VPI +40.000
Elv 761.27
Len 30.00 ft
K = 12

VPI +70.40
Elv 761.76
VPI +86.06
Elv 761.75
VPI +11.00
Elv 760.85
VPI +32.12
Elv 759.95
VPI +51.34
Elv 759.40

BEGIN CONSTRUCTION
STA 5882+30.00, ELEV = 758.62
MATCH EXISTING

Profile Grade

END CONSTRUCTION
STA 5885+42.00, ELEV = 756.90
MATCH EXISTING

+1.10% +3.500% +1.000% -3.609% -2.862% +1.149% -4.261% -2.761%

Existing Ground

VPI +80.000
Elv 759.17
Len 90.00 ft
K = 38

Lt
Rt

Ent. U.A.C. | No Ditch | U.S. HWY. 51 | No Ditch

No Ditch | U.S. HWY. 151 | No Ditch

759.08 758.64 758.29 757.99 746.97 757.75 757.70 758.01 758.30 758.58 758.87 758.81 759.32 758.99 759.95 759.29 760.74 759.69 761.36 760.15 761.62 760.60 761.25 761.01 760.25 760.21 759.44 759.46 758.75 758.74 758.06 758.10 757.37 757.58 757.08 756.68 756.40 756.20 756.13 756.15 756.44 756.30 756.36 756.45

5880 5881 5882 5883 5884 5885 5886 5887 5888 5889

| 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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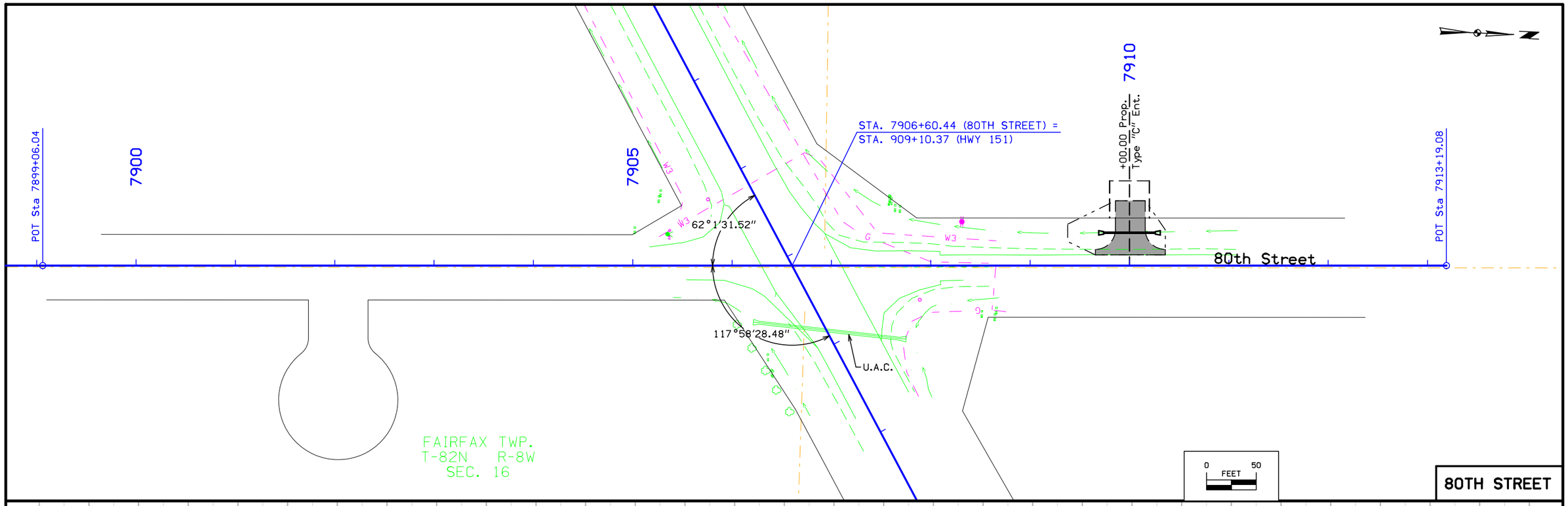


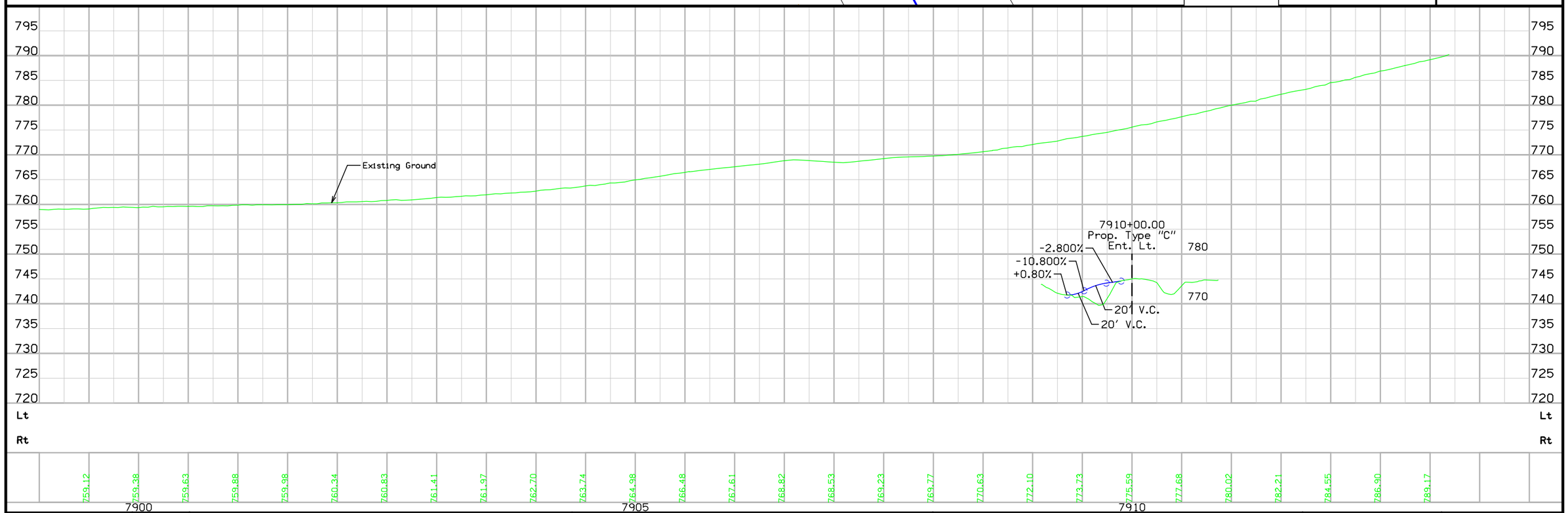


| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | E.6 |
|---|---|---|---|---|---|---|---|---|

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FAIRFAX TWP.
T-82N R-8W
SEC. 3

Sta. 6957+40.00
Install 42"x74' 2000D RCP
F.L. = Lt. 772.40
Rt. 773.30

STA 6957+25.00
BEGIN CONSTRUCTION

Existing Right Of Way

PI Sta 6956+71.71

6955

Beverly Road

PC Sta 6954+49.20

STA 6957+55.00
END CONSTRUCTION

U.S. Hwy. 151

PT Sta 6958+65.65

100°0'0.01"

79°59'59.99"

30'

24.11

U.A.C.

STA 6958+89.23 (BEVERLY ROAD) =
STA 958+89.23 (HWY 151)

Prairie View Drive

St.S.

F02(B)

Curve Data
Δ = 49° 58' 30.00" (RT)
T = 222.52
L = 416.45
R = 477.46
E = 49.31

0 50
FEET

BEVERLY ROAD

END CONSTRUCTION
STA 6957+55.00, ELEV = 781.89
MATCH EXISTING

781.21

781.89

+2.300%

Existing Ground

Profile Grade

BEGIN CONSTRUCTION
STA 6957+25.00, ELEV = 781.21
MATCH EXISTING

U.A.C. Ex. Ditch

Lt

Rt

U.A.C. Ex. Ditch

781.21

781.78

6951 6952 6953 6954 6955 6956 6957 6958 6959

| 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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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+50.00
END STREAM
REALIGNMENT

STA 8977+75.00
BEGIN STREAM
REALIGNMENT

Drainage Ditch #2

8975

120°00"

U.S. Hwy. 151

Curve Data
Δ = 67° 47' 47.16" (RT)
T = 43.68
L = 76.91
R = 65.00
E = 13.31
e = Normal Crown

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

0 50
FEET

## DRAINAGE DITCH #2

STA 8977+75.00, ELEV = 764.42
MATCH EXISTING

STA 8981+50.00, ELEV = 762.61
MATCH EXISTING

VPI +20.460
Elv 763.60

VPI +88.460
Elv 762.92

Existing Ground

Profile Grade

-0.564%

-0.405%

-0.500%

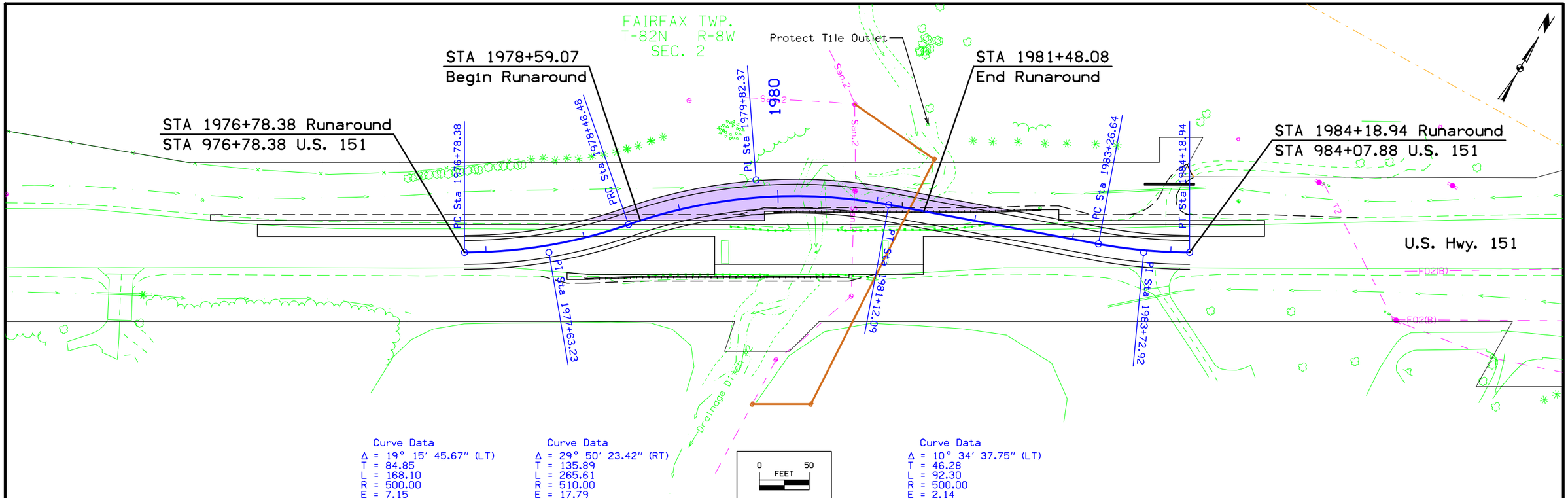
815 810 805 800 795 790 785 780 775 770 765 760 755 750 745 740 735 730

| 8977 | 8978 | 8979 | 8980 | 8981 | 8982 | 8983 |
|---|---|---|---|---|---|---|
| 764.75 | 764.42 | 764.28 | 764.14 | 764.00 | 763.86 | 763.72 |
| | 764.42 | 764.07 | 765.88 | 766.85 | 769.01 | 765.40 |

| 763.58 | 763.48 | 763.38 | 763.28 | 763.18 | 763.08 | 762.97 | 762.86 | 762.74 | 762.61 |
|---|---|---|---|---|---|---|---|---|---|
| 763.33 | 769.61 | 765.65 | 764.49 | 764.75 | 765.70 | 764.16 | 765.12 | 764.47 | 763.06 |

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

2:21:24 PM 9/20/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158E01.sht




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

2:26:27 PM 9/20/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158F01.sht

# 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)

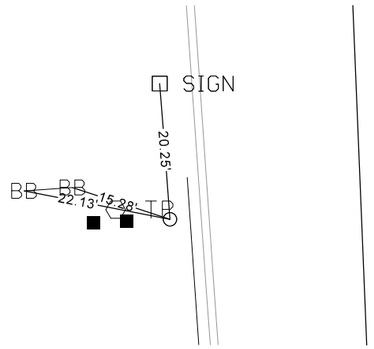
# VERTICAL CONTROL

| 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 |

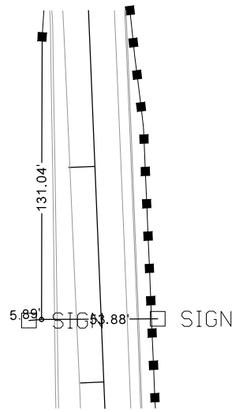
## CP STA 837+45.84, 38.77 FT RT
CP 118, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=702310.552, E=2107568.859, ELEV. 790.030

MONUMENT MAY BE LOCATED BY
STAKING OUT COORDINATE

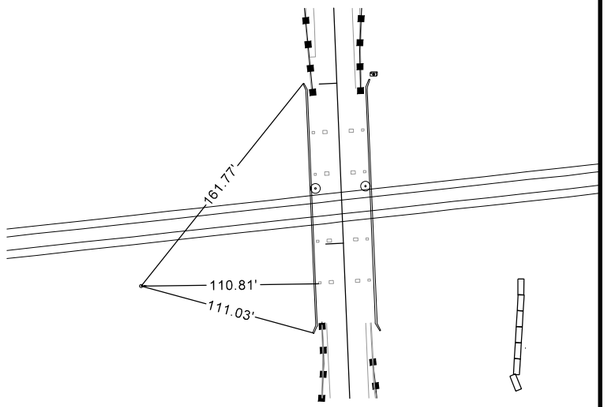
## CP STA 846+36.12, 28.47 FT LT
CP 100, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=703206.207, E=2107505.596, ELEV. 763.43



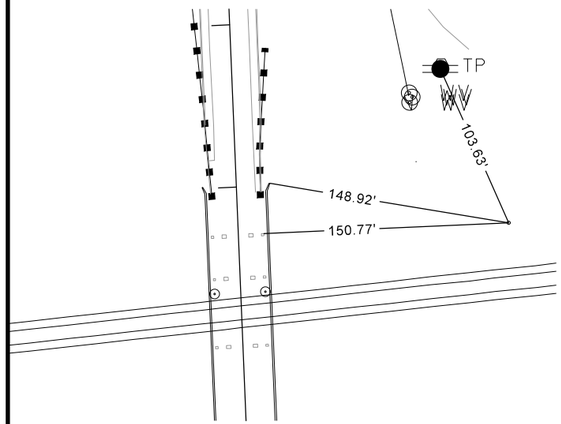

## CP STA 854+30.14, 27.69 FT LT
CP 101, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=703999.594, E=2107473.736, ELEV. 786.630



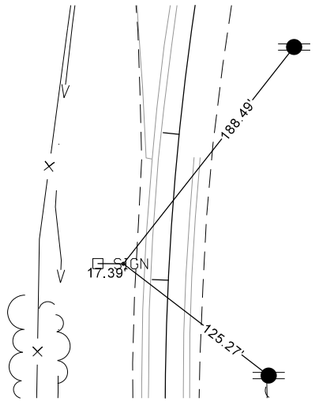

## CP STA 856+78.46, 127.36 FT LT
CP 201, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=704243.606, E=2107363.943, ELEV. 758.070



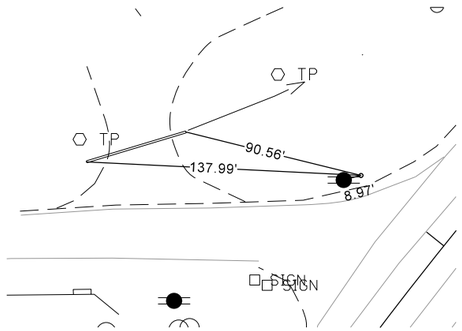

## CP STA 857+71.20, 166.58 FT RT
CP 200, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=704348.351, E=2107653.822, ELEV. 763.240




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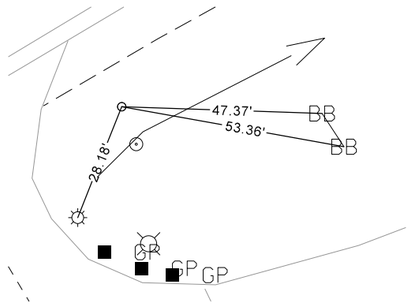
CP STA 894+61.29, 36.19 FT RT
CP 105, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=707479.442, E=2108711.388, ELEV. 757.700




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

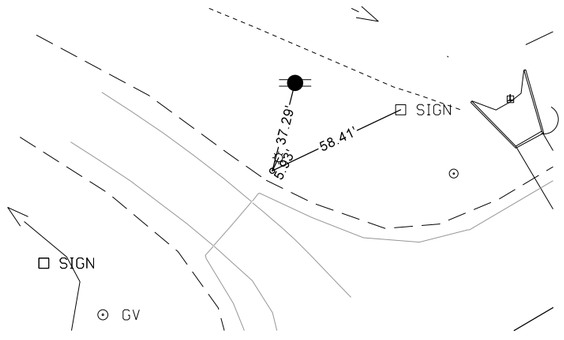
CP STA 948+82.87, 40.35 FT RT
CP 111, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=710225.327, E=2113386.176, ELEV. 800.680

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

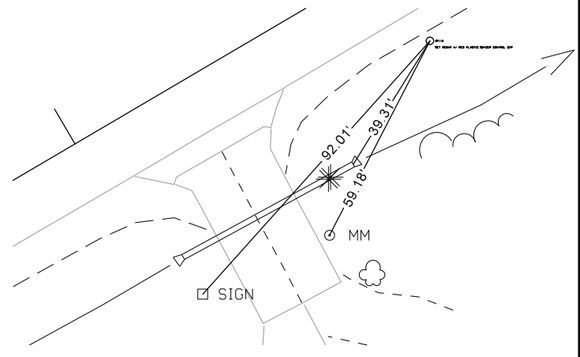
CP STA 958+91.52, 106.92 FT LT
CP 113, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=710863.774, E=2114180.813, ELEV. 781.940




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

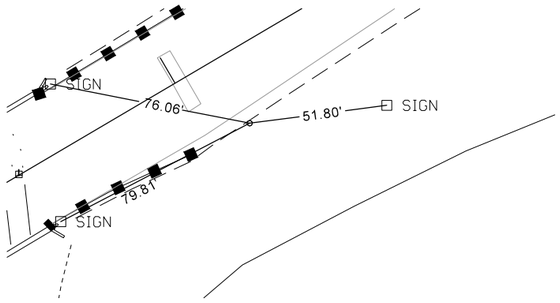
MONUMENT MAY BE LOCATED BY
STAKING OUT COORDINATE

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

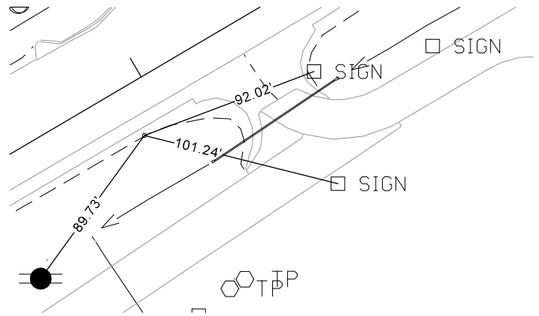



| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | G.3 |
|---|---|---|---|---|---|---|---|---|

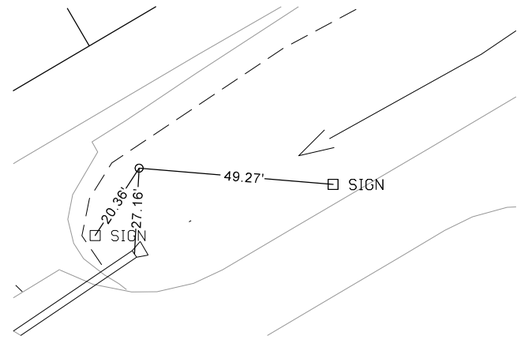
## CP STA 981+16.48, 27.08 FT RT
CP 116, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=711876.636, E=2116166.395, ELEV. 778.680




## 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



# DESCRIBE CHAIN ML151 (US HIGHWAY 151)

Chain ML151 contains:
1 2 CUR CUR1 CUR CUR2 CUR CUR3 CUR CUR4 CUR CUR5 CUR CUR6 CUR CUR7 CUR CUR8 CU-R CUR9 CUR CUR10 33

Beginning chain ML151 description

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

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. = 24.84
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

Ending chain ML151 description

## DESCRIBE CHAIN SRCHURCH (CHURCH STREET)

Chain SRCHURCH contains:
SRCHURCH102 SRCHURCH103

Beginning chain SRCHURCH description

Point SRCHURCH102 N 703,497.26 E 2,107,216.91 Sta 1846+30.00

Course from SRCHURCH102 to SRCHURCH103 N 88° 21′ 40.74″ E Dist 670.00

Point SRCHURCH103 N 703,516.42 E 2,107,886.64 Sta 1853+00.00

Ending chain SRCHURCH description

## DESCRIBE CHAIN SRPRAIRIE (PRAIRIE AVENUE)

Chain SRPRAIRIE contains:
2863 2864 2865

Beginning chain SRPRAIRIE description

Point 2863 N 704,983.08 E 2,107,341.09 Sta 2863+00.00

Course from 2863 to 2864 N 86° 54′ 11.73″ E Dist 300.00

Point 2864 N 704,999.28 E 2,107,640.65 Sta 2866+00.00

Course from 2864 to 2865 N 83° 28′ 37.57″ E Dist 200.00

Point 2865 N 705,022.00 E 2,107,839.35 Sta 2868+00.00

Ending chain SRPRAIRIE description

## DESCRIBE CHAIN SRLOSEY (LOSEY AVENUE)

Chain SRLOSEY contains:
3862 CUR SRLOSEY-1 CUR SRLOSEY-2 3863

Beginning chain SRLOSEY description

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

Ending chain SRLOSEY description

## DESCRIBE CHAIN SRSTALLMAN (STALLMAN DRIVE)

Chain SRSTALLMAN contains:
4873 CUR SRSTALLMAN-1 4874

Beginning chain SRSTALLMAN description

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

Ending chain SRSTALLMAN description

## DESCRIBE CHAIN SRCEMETERY (CEMETERY ROAD)

Chain SRCEMETERY contains:
5880 5881 CUR SRCEMETERY-1 5882 5883

Beginning chain SRCEMETERY description

Point 5880 N 706,872.56 E 2,107,449.44 Sta 5880+00.00

Course from 5880 to 5881 N 88° 28′ 15.30″ E Dist 432.27

Point 5881 N 706,884.09 E 2,107,881.55 Sta 5884+32.27

Course from 5881 to PC SRCEMETERY-1 S 83° 10′ 44.90″ E Dist 45.02

Curve Data

Curve SRCEMETERY-1
P.I. Station 5885+27.68 N 706,872.76 E 2,107,976.29
Delta = 9° 36′ 05.14″ (LT)
Degree = 9° 32′ 57.47″
Tangent = 50.39
Length = 100.55
Radius = 600.00
External = 2.11
Long Chord = 100.43
Mid. Ord. = 2.10
P.C. Station 5884+77.29 N 706,878.75 E 2,107,926.26
P.T. Station 5885+77.84 N 706,875.21 E 2,108,026.62
C.C. N 707,474.50 E 2,107,997.52
Back = S 83° 10′ 44.90″ E
Ahead = N 87° 13′ 09.96″ E
Chord Bear = S 87° 58′ 47.47″ E

Course from PT SRCEMETERY-1 to 5882 N 87° 13′ 09.96″ E Dist 61.46

Point 5882 N 706,878.19 E 2,108,088.01 Sta 5886+39.30

Course from 5882 to 5883 N 88° 27′ 55.32″ E Dist 361.76

Point 5883 N 706,887.88 E 2,108,449.64 Sta 5890+01.06

Ending chain SRCEMETERY description

## DESCRIBE CHAIN SR80TH (80TH STREET)

Chain SR80TH contains:

SR801 SR802 SR803
Beginning chain SR80TH description

Point SR801 N 707,360.26 E 2,109,980.58 Sta 7897+74.35

Course from SR801 to SR802 N 2° 29′ 54.80″ W Dist 131.69

Point SR802 N 707,491.82 E 2,109,974.84 Sta 7899+06.04

Course from SR802 to SR803 N 2° 29′ 54.80″ W Dist 1,413.05

Point SR803 N 708,903.53 E 2,109,913.24 Sta 7913+19.08

Ending chain SR80TH description

## DESCRIBE CHAIN SRBEVERLY (BEVERLY ROAD)

Chain SRBEVERLY contains:
6952 CUR SRBEVERLY-1 6953

Beginning chain SRBEVERLY description

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

Ending chain SRBEVERLY description

## DESCRIBE CHAIN DD2 (DRAINAGE DITCH #2)

DESCRIBE CHAIN DD2

Chain DD2 contains:
DD2-9 CUR DD2-10 8974

Beginning chain DD2 description

Curve Data

Curve DD2-9
P.I. Station 8977+51.45 N 712,093.14 E 2,115,952.05
Delta = 101° 12′ 47.17″ (LT)
Degree = 88° 08′ 50.47″
Tangent = 79.15
Length = 114.82
Radius = 65.00
External = 37.42
Long Chord = 100.46
Mid. Ord. = 23.75
P.C. Station 8976+72.30 N 712,159.56 E 2,115,995.10
P.T. Station 8977+87.13 N 712,063.83 E 2,116,025.58
C.C. N 712,124.21 E 2,116,049.65
Back = S 32° 56′ 36.72″ W
Ahead = S 68° 16′ 10.44″ E
Chord Bear = S 17° 39′ 46.86″ E

Curve Data

Curve DD2-10
P.I. Station 8978+30.80 N 712,047.66 E 2,116,066.15
Delta = 67° 47′ 47.16″ (RT)
Degree = 88° 08′ 50.47″
Tangent = 43.68
Length = 76.91
Radius = 65.00
External = 13.31
Long Chord = 72.50
Mid. Ord. = 11.05
P.C. Station 8977+87.13 N 712,063.83 E 2,116,025.58
P.T. Station 8978+64.04 N 712,003.99 E 2,116,066.51
C.C. N 712,003.45 E 2,116,001.51
Back = S 68° 16′ 10.44″ E
Ahead = S 0° 28′ 23.28″ E
Chord Bear = S 34° 22′ 16.86″ E

Course from PT DD2-10 to 8974 S 0° 28′ 23.28″ E Dist 424.42

Point 8974 N 711,579.58 E 2,116,070.02 Sta 8982+88.46

Ending chain DD2 description

# 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 |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |

Keyed Notes
① Adjust Water Valve to Grade
② Adjust Gas Valve to Grade
③ Adjust Manhole to Grade
④ Adjust Hydrant to Grade

STA 845+05.45
BEGIN PCC WIDENING LT.

STA 843+88.58
BEGIN PCC WIDENING RT.

STA 843+47.28
BEGIN PROJECT

STA 848+30.33
END PCC WIDENING LT. AND RT.
BEGIN PCC PAVING

TEMPORARY EASEMENT TO CONSTRUCT ENTRANCE

TEMPORARY EASEMENT TO CONSTRUCT ENTRANCE

TEMPORARY EASEMENT TO SHAPE

TEMPORARY EASEMENT TO EXTEND CHURCH ST.

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

848+35 ℄150′

848+35 ℄173′±P Relocate Monument (By Others)

849+30 ℄180′

CITY OF FAIRFAX

849+06±P ℄85′ 849- ℄180

JOHN & KANDICE DENNIS

SELZER ENTERPRISES, INC.

SANKOT PARTNERSHIP

JAY HOPKINS

MATTHEW HOPKINS

DAVID C. & KATHLEEN M. BULLOCK

COLLINGW

Church Street

U.S. Hwy. 151

45:1 Taper

Do Not Disturb Sign

TEMPORARY EASEMENT TO CONSTRUCT ENTRANCE

TEMPORARY EASEMENT TO SHAPE

TEMPORARY EASEMENT TO SHAPE & CONST. ENTRANCE

TEMPORARY EASEMENT TO SHAPE & CONST. ENTRANCE

835 840 845 850

+34.00 Prop. Type "C" Ent.
+93.00 Prop. Type "B" Ent.
+91.50 Prop. Type "C" Ent.
+97.50 Prop. Type "B" Ent.
+44.00 Prop. Type "C" Ent.
+60.50 Prop. Type "B" Ent.

845+20 ℄40′
845+15 ℄34′±Ex.R/W
846+65 ℄40′±Ex.R/W
845+45 ℄40′
845+55 ℄34′±Ex.R/W
846+70 ℄50′
847+15 ℄50′
848+85 ℄56′±Ex.R/W
847+20 ℄40′±Ex.R/W
848+55 ℄145′
849+00 ℄85′
844+80±P ℄40′
845+10 ℄40′
845+55 ℄32′±Ex.R/W
845+65 ℄35′
845+65 ℄40′
846+31±P ℄35′
847+13±P ℄40′
845+31 ℄40′
848+80 ℄40′
848+90 ℄28′±Ex.R/W
848+90 ℄170′±P
849+04± ℄40′
849+64 ℄65′

0 50 FEET

| | | | |
|---|---|---|---|
| REVISED | 08-21-18 | PAR | 2 & 3 |
| REVISED | 05-09-18 | PAR | 5 |
| REVISED | 04-30-18 | PAR | 3 |
| REVISED | 04-24-18 | PAR | 2 |
| 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: 08-21-18**
**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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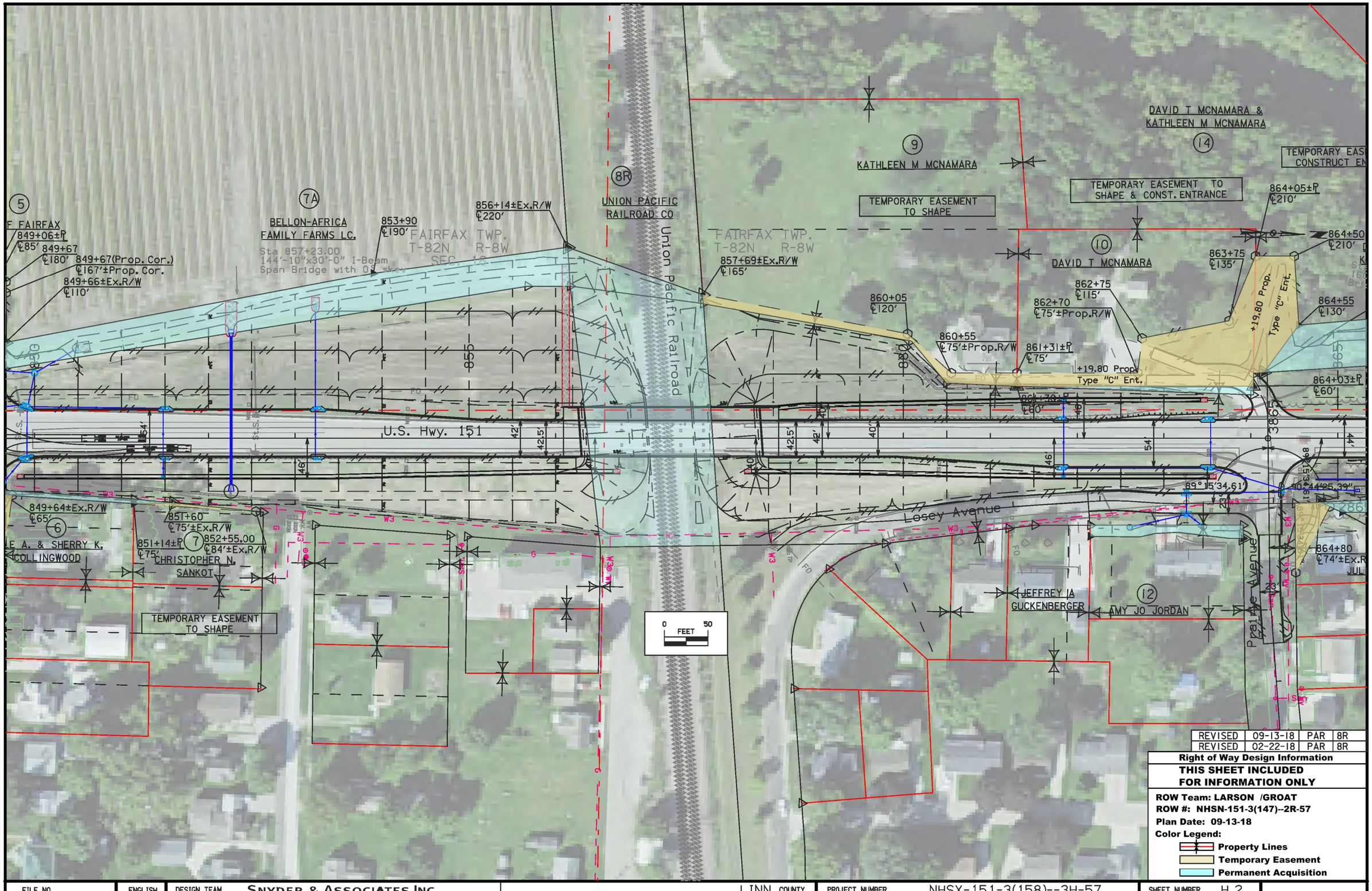


| | | | |
|---|---|---|---|
| REVISED | 09-13-18 | PAR | 8R |
| REVISED | 02-22-18 | PAR | 8R |

**Right of Way Design Information**

**THIS SHEET INCLUDED FOR INFORMATION ONLY**

**ROW Team: LARSON /GROAT**
**ROW #: NHSN-151-3(147)--2R-57**
**Plan Date: 09-13-18**
**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.2 |
|---|---|---|---|---|---|---|---|---|

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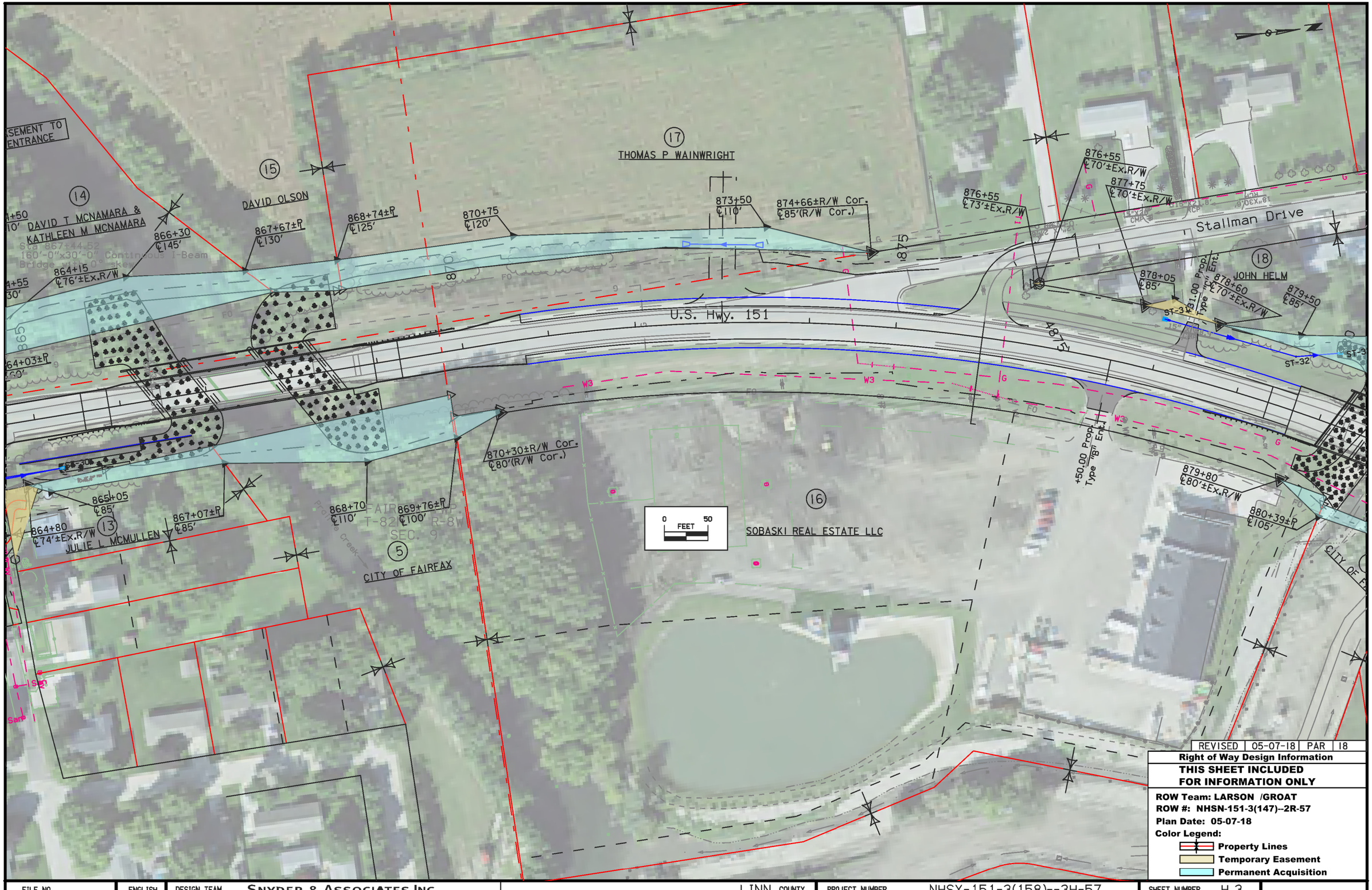


| REVISED | 05-07-18 | PAR | 18 |
|---|---|---|---|

**Right of Way Design Information**

**THIS SHEET INCLUDED FOR INFORMATION ONLY**

**ROW Team: LARSON /GROAT**
**ROW #: NHSN-151-3(147)--2R-57**
**Plan Date: 05-07-18**
**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.3 |
|---|---|---|---|---|---|---|---|---|

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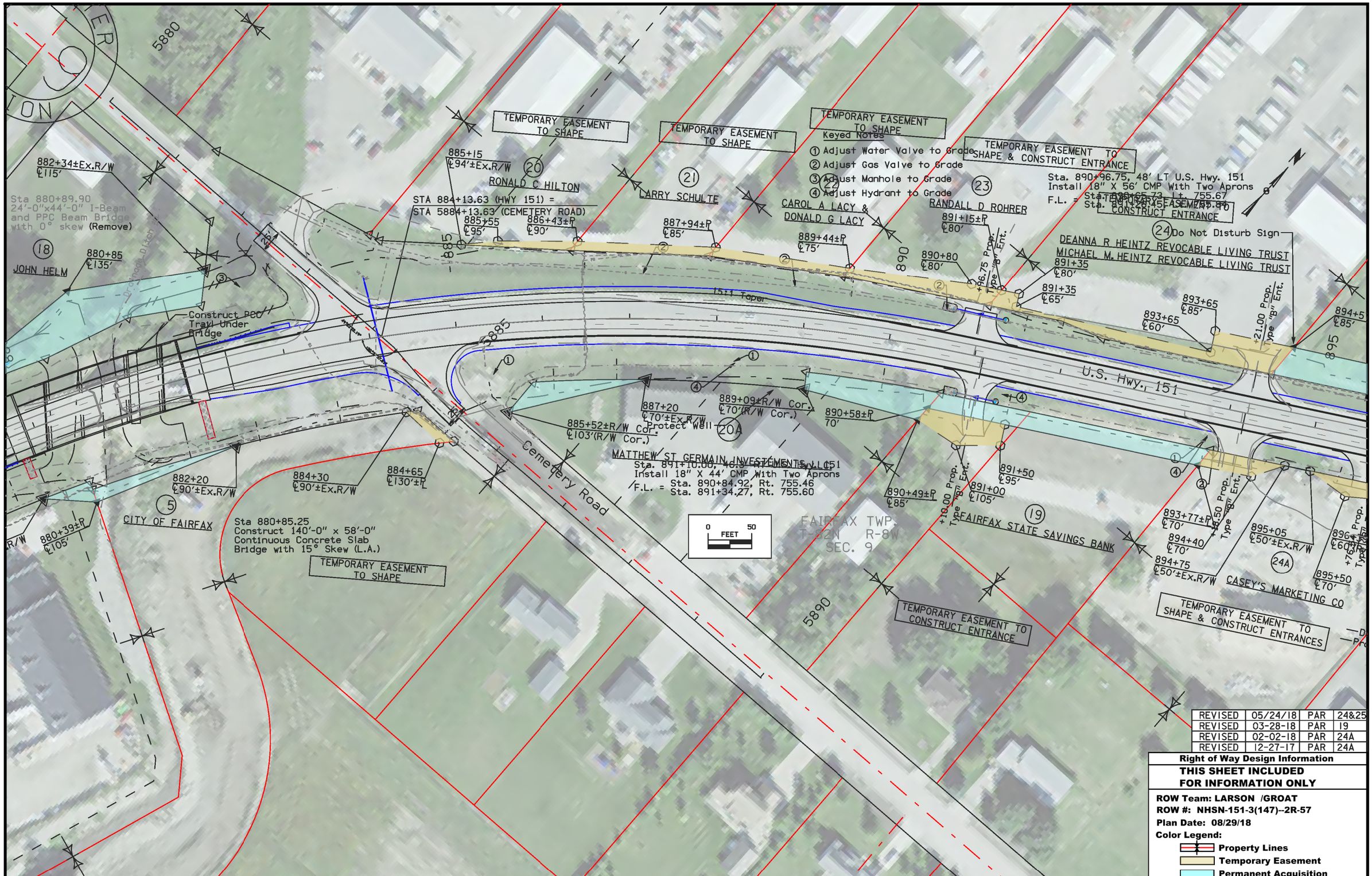


| | | | |
|---|---|---|---|
| REVISED | 05/24/18 | PAR | 24&25 |
| REVISED | 03-28-18 | PAR | 19 |
| REVISED | 02-02-18 | PAR | 24A |
| REVISED | 12-27-17 | PAR | 24A |

**Right of Way Design Information**

**THIS SHEET INCLUDED FOR INFORMATION ONLY**

**ROW Team: LARSON /GROAT**
**ROW #: NHSN-151-3(147)--2R-57**
**Plan Date: 08/29/18**
**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.4 |
|---|---|---|---|---|---|---|---|---|

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Keyed Notes
① Adjust Water Valve to Grade
② Adjust Gas Valve to Grade
③ Adjust Hydrant to Grade

25
VERNA BOLAND &
WILLIAM E BOLAND JR

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

STA 898+00.00
END PCC PAVING
BEGIN HMA PAVING

STA 900+00.00
END HMA PAVING
BEGIN HMA OVERLAY

STA 902+58.42
END HMA OVERLAY

STA 903+15.44
STOP PROJECT

894+57±R
℄85'

900+36±R/W Cor.
℄80'(R/W Cor.)

Sta. 7910+00
Install 30" x
F.L. = Sta.
Sta.

7910 +00.00 Prop. Type "C" Ent.

895
900
905
910

38'

U.S. Hwy. 151

W3

896+39±R/W Cor.
℄60'R/W Cor.)

+76.90 Prop. Type "C" Ent.

+64.90 Prop. Type "C" Ent.

Ex.R/W

24A

895+50
℄ TO

MARKETING CO

MENT TO
ENTRANCES

Do Not Disturb Sign
Protect Gas Shut-off Valve

MELODY R VANCE

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 50
FEET

7905

90th Street

| | | | |
|---|---|---|---|
| REVISED | 08-29-18 | PAR | 25 |
| 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: 08-29-18**
**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.5 | |
|---|---|---|---|---|---|---|---|---|

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STA 974+70.00
RESUME PROJECT

975

980

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

(28)
HAWKS RIDGE
HOMEOWNERS ASSOC.

979+45
℄90'±Ex.R/W

980+30
℄165'

980+60
℄150'±Prop. R/W

980+40
℄215'

980+70
℄165'

980+95
℄245'

981+15±P
℄135'

981+27±P
℄200'

981+14±P
℄125'

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

TEMPORARY EASEMENT TO
SHAPE & CONSTRUCT ENT.

STA 984+83.16
END PROJECT

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

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'

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

981+05
℄70'±Ex.R/W

980+80
℄70'±Ex.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: 04-26-18**
**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.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 HE.1 |
|---|---|---|---|---|---|

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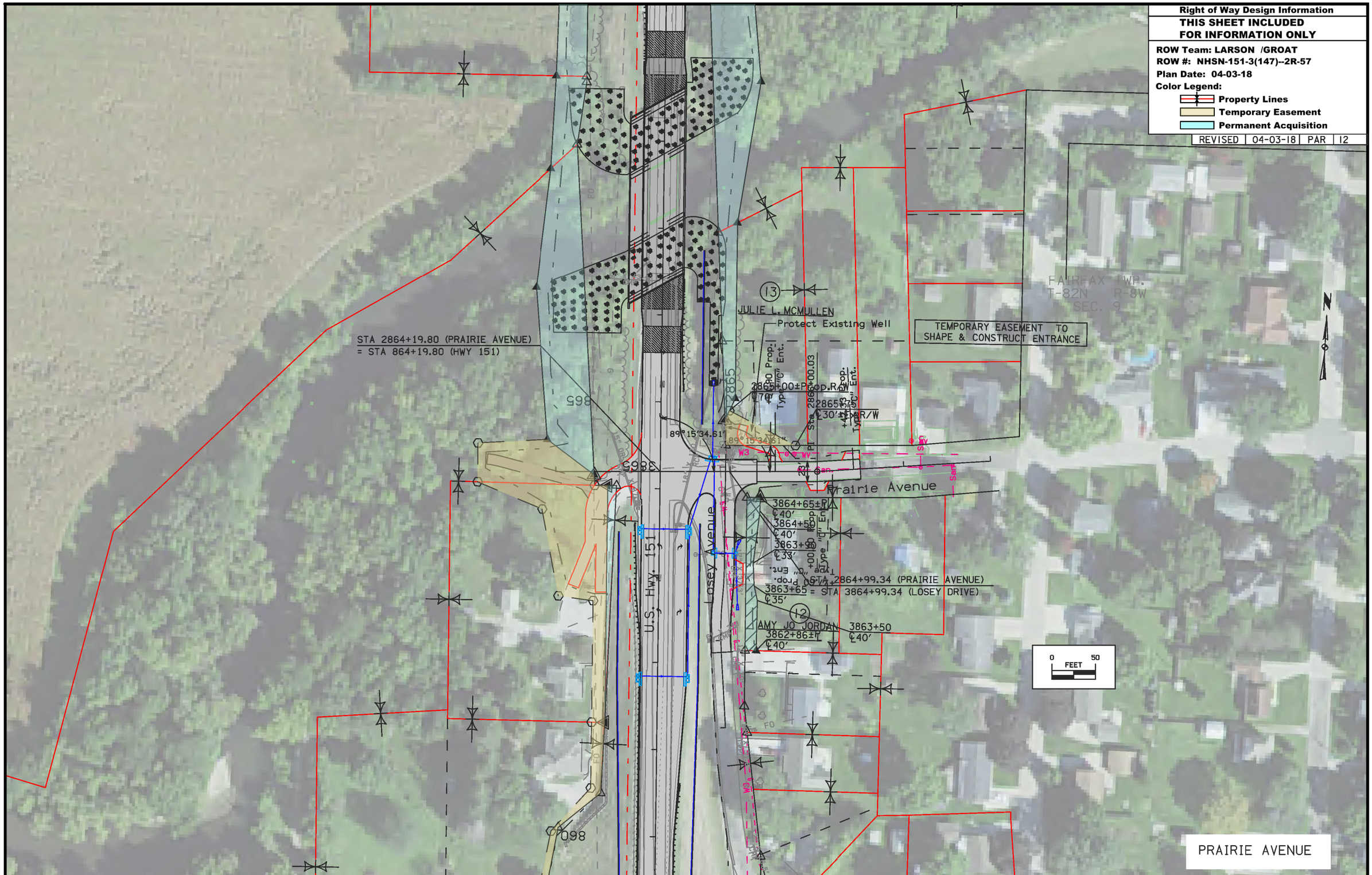


| FILE NO. | ENGLISH | DESIGN TEAM SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER HE.2 |
|---|---|---|---|---|---|

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108-23A
08-01-08

## TRAFFIC CONTROL PLAN

U.S. 151 will be closed to through traffic throughout the project area for the duration of the project. Through traffic will use the detour route details on Sheets J.3-J.7. 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. All conflicting route markers along detour route shall be covered or removed. Detour signing and traffic control devices shall be in place prior to start of work. At the direction of the Engineer, remove, cover relocate or adjust existing signs for temporary traffic control, this shall be considered incidental to the project.

**Church Street**
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. Road closure per Standard Road Plan TC-252.

**Prairie Avenue**
Acccess to Prairie Avenue from U.S. 151 shall be maintained through Stage 2. Following completion and opening of U.S. Highway 151 bridge at UPRR, access will be closed to complete intersection reconstruction.

**Stallman Drive**
Stallman Drive will be closed at U.S. 151 during intersection construction. Access to Stallman Drive via West Cemetery Road and access to West Cemetery Road intersection at U.S. 151 shall be maintained during Stallman Drive intersection closure.

**Cemetery Road**
Cemetery Road will be closed at U.S. 151 during intersection reconstruction. West Cemetery Road and East Cemetery Road intesections shall not be closed at the same time. West Cemetery Road and Stallman Drive intersetions with U.S. 151 shall not be closed at the same time.

**Beverly Road**
Beverly Road will be closed at U.S. 151 during culvert installation. Road closure par Standard Road Plan TC-252.

Access to properties within the project area shall be maintained at all times. Provide access to emergency vehicles at all times during construction. Maintain garbage and mail service to properties as necessary throughout construciton, this shall be considered

111-01
04-17-12

## COORDINATED OPERATIONS

Other work in progress during the same period of time will include the construction of the projects listed. Coordinate operations with those of other contractors working within the same area.

| Project | Type of Work |
|---|---|
| BRF-151-3(141)--38-57 | UPRR Bridge |
| BRF-151-3(142)--38-57 | Prairie Creek Bridge |
| BRF-151-3(152)--38-57 | Drainage Ditch No. 1 Bridge |
| NHSX-151-3(134)--3H-57 | Drainage Ditch No. 2 Structure |
| NHSX-151-3(169)--3H-57 | Traffic Signs |
| | |
| | |
| | |
| | |

108-26A
08-01-08

## STAGING NOTES

Staging designations may not match designations shown in structural plans.

**U.S. HIGHWAY 151, SOUTH OF CHURCH STREET**

Stage 1A:
Close U.S. 151 from north of Church Street to south of Prairie Avenue for bridge and wall construction. Traffic utilizes existing pavement, U.S. 151 south of Church Street shall remain open to maintain access to properties located adjacent to construction area. Shift traffic to westen half of existing pavement. Construct U.S. 151 improvements on east side. Construct Church Street intersection from western limit to eastern end of radius. Sub-stage driveway replacement to maintain property access.

Stage 1B:
U.S. 151 remains closed from north of Church Street to south of Prairie Avenue. Shift traffic to east half of existing pavement utilizing previously constructed pavement. Construct U.S. Highway 151 improvements on west side. Construct remaining portion of Church Street east of U.S. Highway 151. Sub-stage driveway replacement as much as practical to maintain property access. Upon completion, open Church Street intersection to local traffic.

**U.S. HIGHWAY 151, CHURCH STREET TO PRAIRIE AVENUE (UPRR BRIDGE CONSTRUCTION)**

Stage 1A-2B:
U.S. 151 remains closed from north of Church Street to south of Prairie Avenue. Construct walls, bridge, pavement and temporary pavement. Perform longitudinal grooving on the bridge deck and approach pavement prior to opening to traffic.

**U.S. HIGHWAY 151, UPRR TO 80TH STREET**

Stage 1C:
Traffic utilizes existing roadway. Construct temporary pavement along east side of U.S. 151 between Prairie Creek and STA 902+85.

Stage 2A:
Shift traffic to east side of U.S. Highway 151. Install temporary traffic signal at Prairie Avenue and north of Prairie Creek Bridge, install per these plans and TC-216. Traffic will utilize a single lane across the existing Prairie Creek Bridge. North of Prairie Creek Bridge, two lanes of traffic will utilize existing pavement and previously constructed temporary pavement. Maintain access to Stallman Drive, close West Cemetery Road at U.S. Highway 151 to complete intersection improvements. Construct proposed improvements on west half of U.S. Highway 151 and install temporary pavement at the Prairie Creek and Drainage Ditch #1 Bridge. Close and reconstruct entrance at STA 894+21 (LT), maintain access to entrance at STA 890+96.75 (LT).

Stage 2B:
Maintain traffic as described in Stage 2A. Reopen U.S. Highway 151 intersection at West Cemetery Road. Close and reconstruct Stallman Drive intersection. Reopen driveway at STA 894+21 (LT), close and reconstruct entrance at STA 890+96.75 (LT). Construct improvements on west half of U.S. Highway 151 from STA 898+00 to STA 903+15. Construct temporary pavement to maintain a minimum of 29’ from centerline. Perform longitudinal grooving on the bridge deck and approach pavement prior to opening to traffic.

Stage 3A:
Open U.S. Highway 151 bridge at UPRR. Shift traffic to the west side of U.S. Highway 151. Two lanes of traffic will utilize previously constructed pavement and temporary pavement. Close access to U.S. Highway 151 at Prairie Avenue intersection, construct Prairie Avenue and Losey Avenue. Construct proposed improvements on east half of U.S. Highway 151. Maintain access at STA 877+50 (RT). Close East Cemetery Road intersection at U.S. Highway 151. Close and reconstruct entrance at STA 891+10 (RT) and STA 895+76.54, maintain access to entrance at STA 894+18.50 (Casey's General Store). Close and reconstruct entrance at STA 897+94.90 (RT).

Stage 3B:
Maintain traffic as described in Stage 3A. Reopen U.S. Highway 151 access to East Cemetery Road and driveways constructed in Stage 3A. Reconstruct entrance at STA 877+50 (RT), sub-stage to maintain access. Close and reconstruct entrance at STA. 894+18.50 (RT). Construct improvements on east half of U.S. Highway 151 from STA 898+00 to STA 903+15. Perform longitudinal grooving on the bridge deck and approach pavement prior to opening to traffic.

Stage 4:
Shift traffic to east side of previously constructed pavement. Remove temporary pavement and construct remaining improvements on west side.

**BEVERLY ROAD**

Stage 1: Close Beverly Road at U.S. Highway 151 intersection, utilize Standard Road Plan TC-252. Complete proposed improvements.

**U.S. HIGHWAY 151, DRAINAGE DITCH #2**

Stage 1:
Traffic utilizes existing roadway. Traffic will utilize a single lane across the existing Drainage Ditch #2 Bridge. Install temporary signals on east and west side of bridge per these plans and TC-216. Construct portion of structure and U.S. highway 151 improvements left of centerline and construct temporary detour pavement to accommodate two-way traffic in Stage 2.

Stage 2:
Shift traffic to temporary detour pavement constructed in previous stage. Construct remaining portion of structure and U.S. Highway 151 improvements right of centerline.

Stage 3:
Shift traffic to previously constructed pavement. Remove temporary pavement. Construct shoulder and grade foreslope left of centerline.

## 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

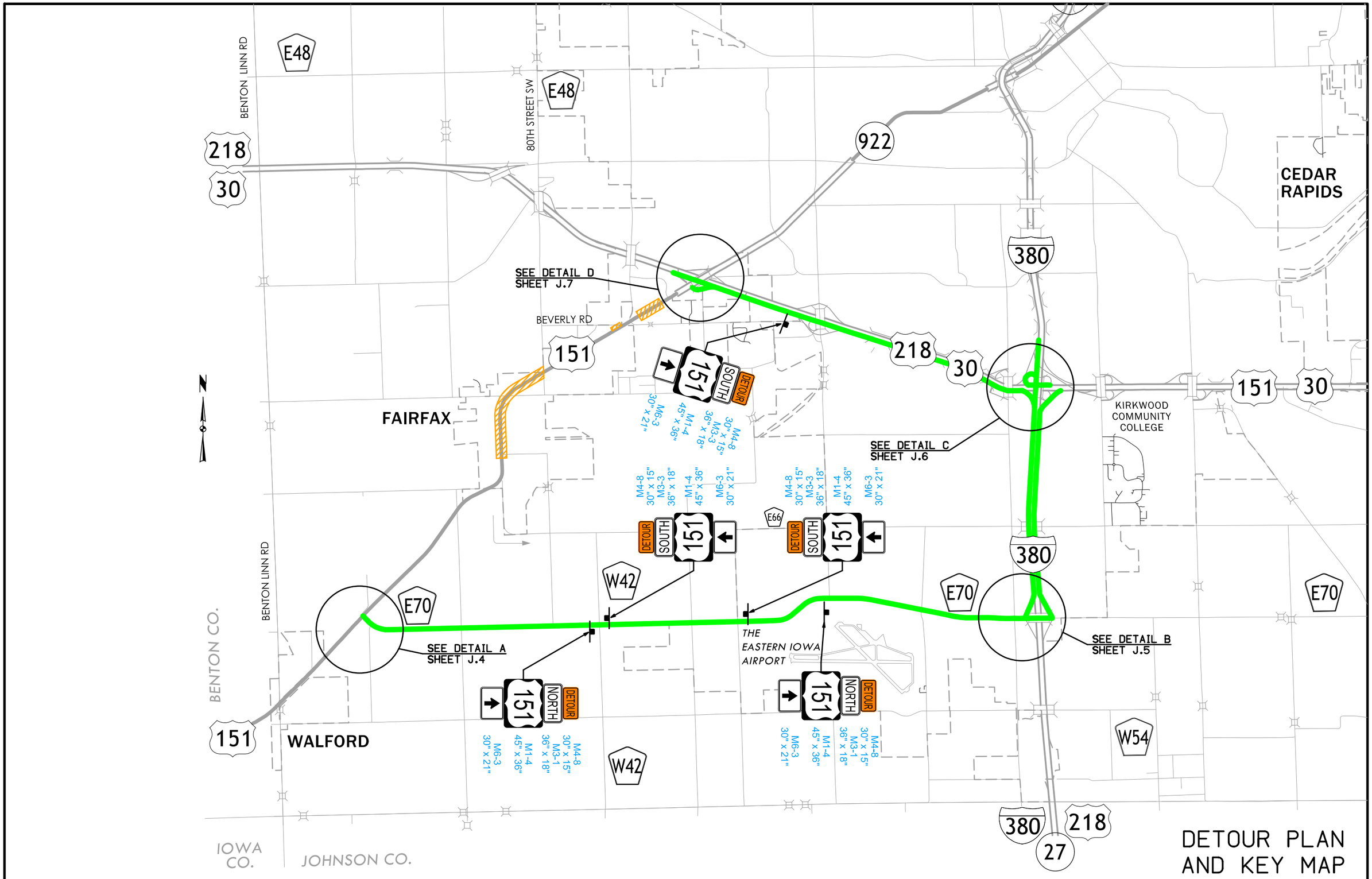
- Channelizing Device
- Drum
- Temporary Lane Separator
- Tubular Marker
- Channelizer Marker
- Concrete Barrier Marker
- Delineator
- Temporary Barrier Rail
- Pavement Removal
- Sand Barrel Layout
- Portable Changeable Message Sign
- Work Area
- Detour Route
- Crash Cushion (Temp or Perm)
- Traffic Signal
- Flagger
- Temporary Floodlighting
- Existing Traffic Sign
- Proposed Traffic Sign
- Type III Barricade
- Type A Warning Light
- Type B High Intensity Flashing Warning Light
- Direction of Traffic
- Safety Closure
- Lane Identification (1)

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

# TRAFFIC CONTROL AND STAGING LEGEND AND SYMBOL INFORMATION SHEET

**(COVERS SHEET SERIES J)**

# DETOUR PLAN AND KEY MAP

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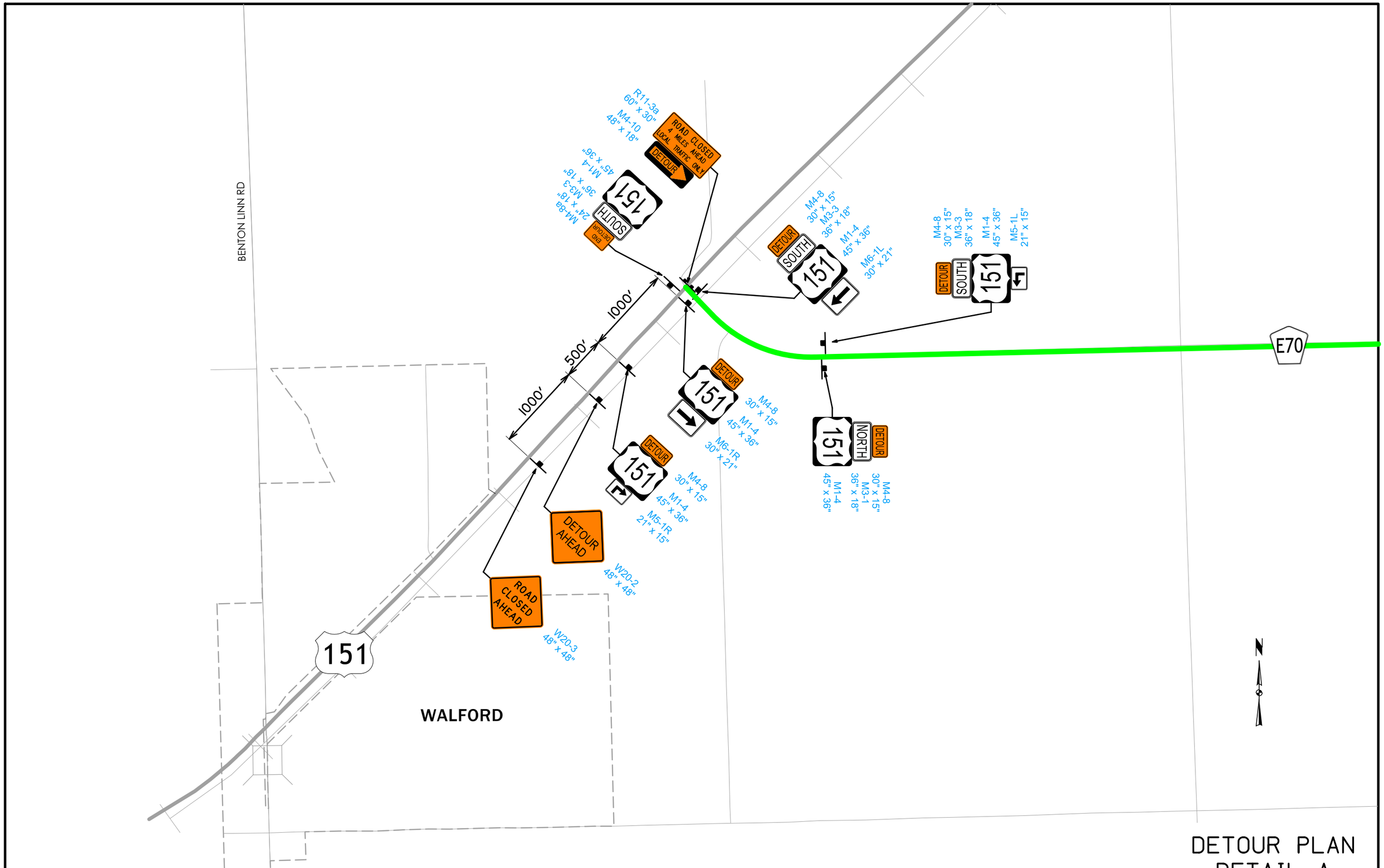


# DETOUR PLAN
# DETAIL A

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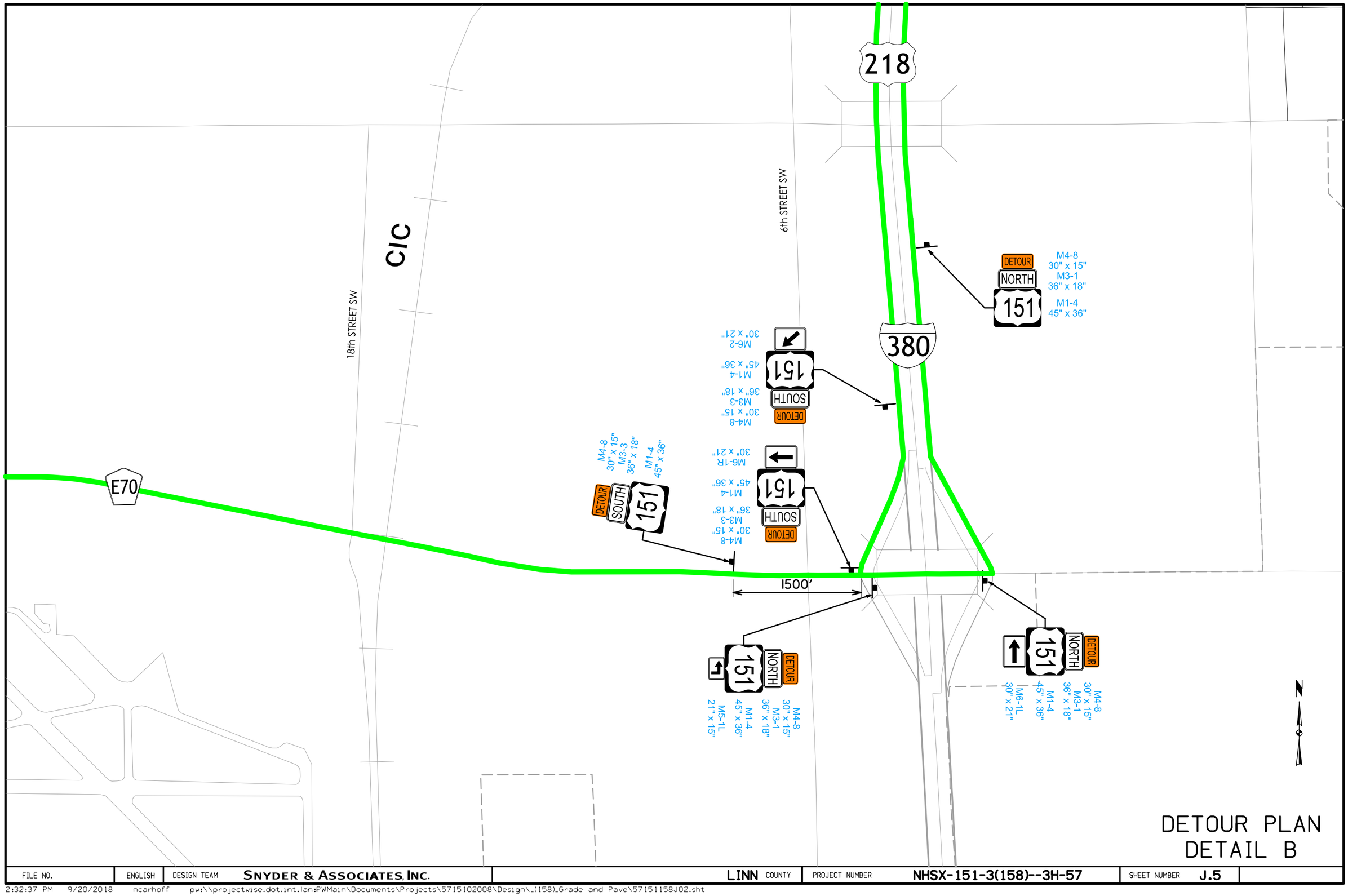


# DETOUR PLAN
# DETAIL B

| 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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Cover Conflicting Route Signing on Existing Overhead Truss Sign

UP

380

CIC

BOWLING STREET SW

C STREET SW

218

30

151

KIRKWOOD COMMUNITY COLLEGE

SPECIAL SIGN 120" x 84"

151 CLOSED SOUTH OF 30 FOLLOW DETOUR

SPECIAL SIGN 120" x 84"

151 CLOSED SOUTH OF 30 FOLLOW DETOUR

M6-3 30" x 21"
M1-4 45" x 36"
M3-3 36" x 18"
M4-8 30" x 15"
151 SOUTH DETOUR

M4-8 30" x 15"
M3-3 36" x 18"
M1-4 45" x 36"
M6-2 30" x 21"
DETOUR SOUTH 151

M6-2 30" x 21"
M1-4 45" x 36"
M3-3 36" x 18"
M4-8 30" x 15"
151 SOUTH DETOUR

M4-8 30" x 15"
M3-1 36" x 18"
M1-4 45" x 36"
M6-2 30" x 21"
DETOUR NORTH 151

M1-4 45" x 36"
M3-3 36" x 18"
M4-8 30" x 15"
151 SOUTH DETOUR

M4-8a 24" x 18"
M3-1 36" x 18"
M1-4 45" x 36"
151 NORTH END DETOUR

# DETOUR PLAN DETAIL C

| 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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218

30

922

151

Cover Conflicting Route Signing on Existing Sign

SPECIAL SIGN 120" x 84"

151 CLOSED SOUTH OF 30 FOLLOW DETOUR

SPECIAL SIGN 120" x 84"

151 CLOSED SOUTH OF 30 FOLLOW DETOUR

Cover Conflicting Route Signing on Existing Sign

R11-3a 60" x 30"
M4-10 48" x 18"
ROAD CLOSED 1/2 MILES AHEAD
LOCAL TRAFFIC ONLY
DETOUR

M6-1L 30" x 21"
M1-4 45" x 36"
M4-8 30" x 15"
M3-3 36" x 18"
151 SOUTH DETOUR

M6-3 30" x 21"
M1-4 45" x 36"
M3-3 36" x 18"
M4-8 30" x 15"
151 SOUTH DETOUR

Cover Conflicting Route Signing on Existing Sign

Cover Conflicting Route Signing on Existing Sign

M6-1L 21" x 15"
M1-4 45" x 36"
M3-3 36" x 18"
M4-8 30" x 15"
151 SOUTH DETOUR

M1-4 45" x 36"
M3-3 36" x 18"
M4-8 30" x 15"
151 SOUTH DETOUR

STONEY POINT ROAD NW

BEVERLY ROAD

BEVERLY ROAD

151

N

# DETOUR PLAN DETAIL D

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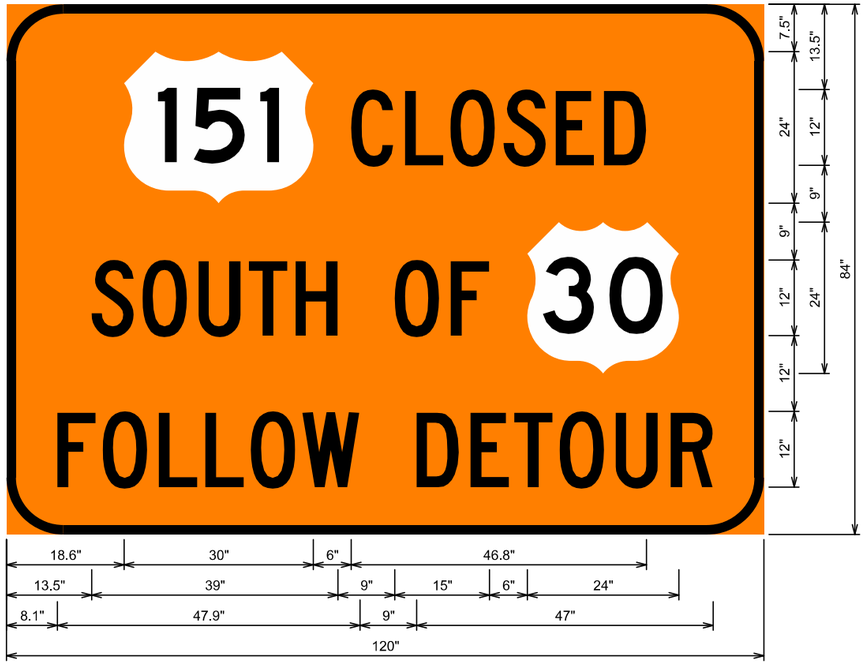
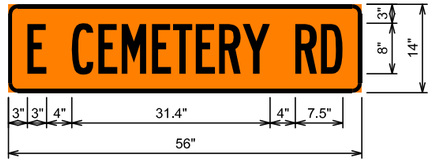
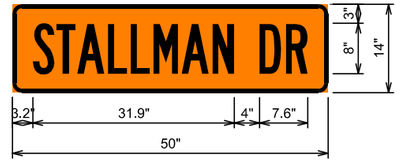


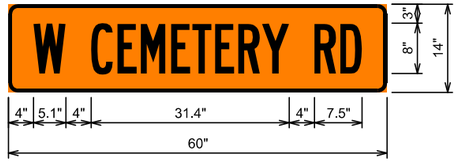

9.0" Radius, 1.5" Border, Black on Orange:
[CLOSED] C 2K 75 Spacing; [SOUTH OF] C 2K 75 Spacing; [FOLLOW DETOUR] C 2K 75 Spacing




1.5" Radius, 0.6" Border, Black on Orange:
[E CEMETERY RD] B 2K 50 Spacing

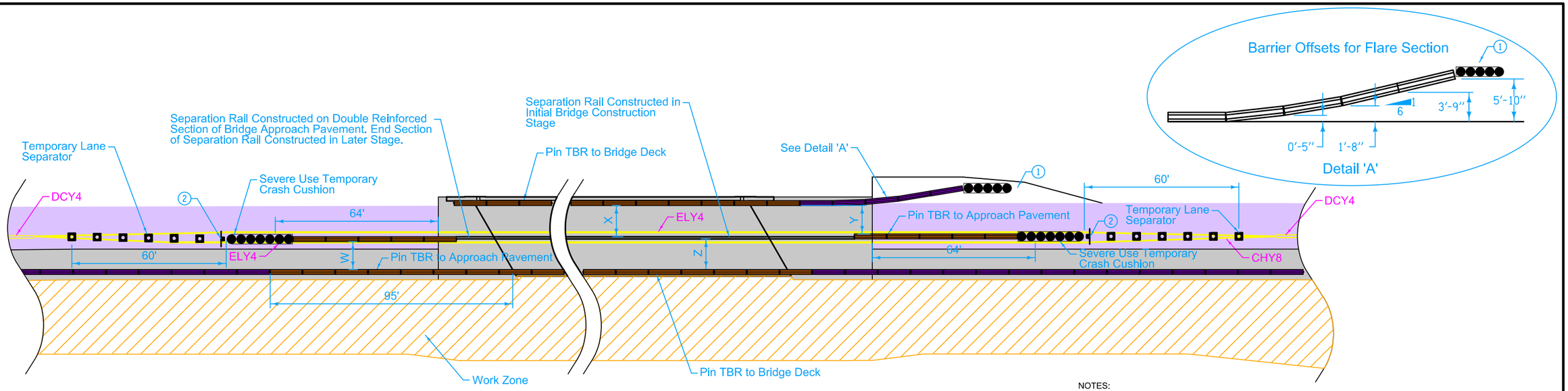



1.5" Radius, 0.6" Border, Black on Orange:
[STALLMAN DR] B 2K 50 Spacing




1.5" Radius, 0.6" Border, Black on Orange:
[W CEMETERY RD] B 2K 50 Spacing

# SPECIAL DETOUR SIGN DETAILS




| Construction Stage | Location | W | X | Y | Z | Remarks |
|---|---|---|---|---|---|---|
| Stage 3A/3B | Prairie Creek | 10'-10" | 12'-3" | 11'-2" | 12'-0" | Refer to Structual Drawings for Bridge Staging Details |
| | Drainage Ditch No. 1 | 11'-4" | 12'-4" | 11'-5" | 12'-4" | Refer to Structual Drawings for Bridge Staging Details |
| | | | | | | |

NOTES:
1. Refer to Standard Road Plan BA-500 For GradingDetails.
2. R4-7C Sign.

# TEMPORARY BARRIER RAIL AT BRIDGE

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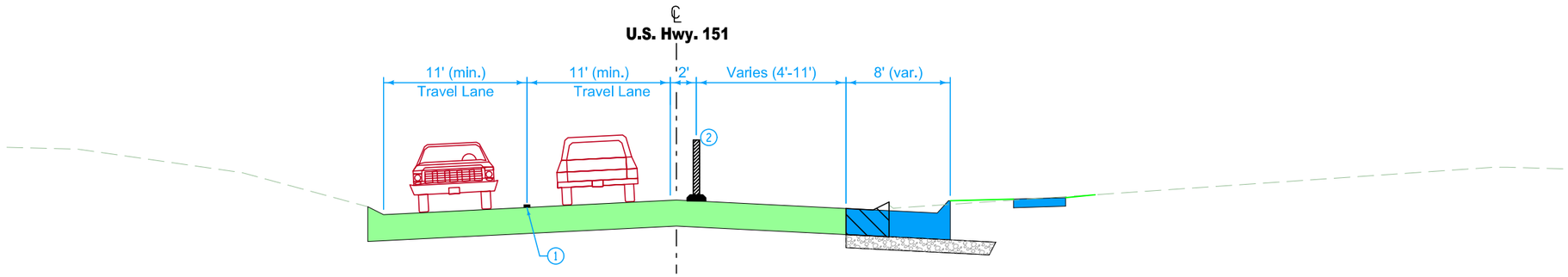
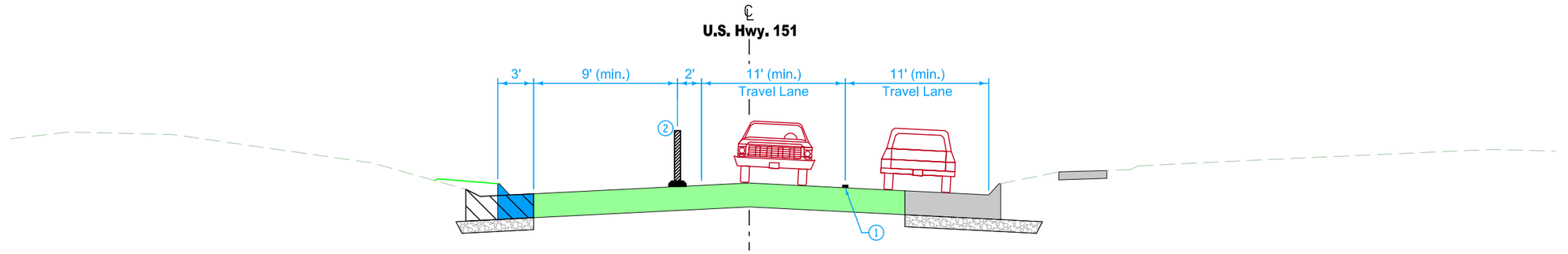



**TRAFFIC CONTROL TYPICAL SECTION**
**HIGHWAY 151 - STAGE 1A**
**STA 843+88 TO 848+30**
**SHOWN IN DIRECTION OF STATIONING**




**TRAFFIC CONTROL TYPICAL SECTION**
**HIGHWAY 151 - STAGE 1B**
**STA 845+05 TO 848+30**
**SHOWN IN DIRECTION OF STATIONING**

NOTES:
1. Temporary Pavement Markings
2. 42" Channelizer

# STAGING AT CHURCH STREET

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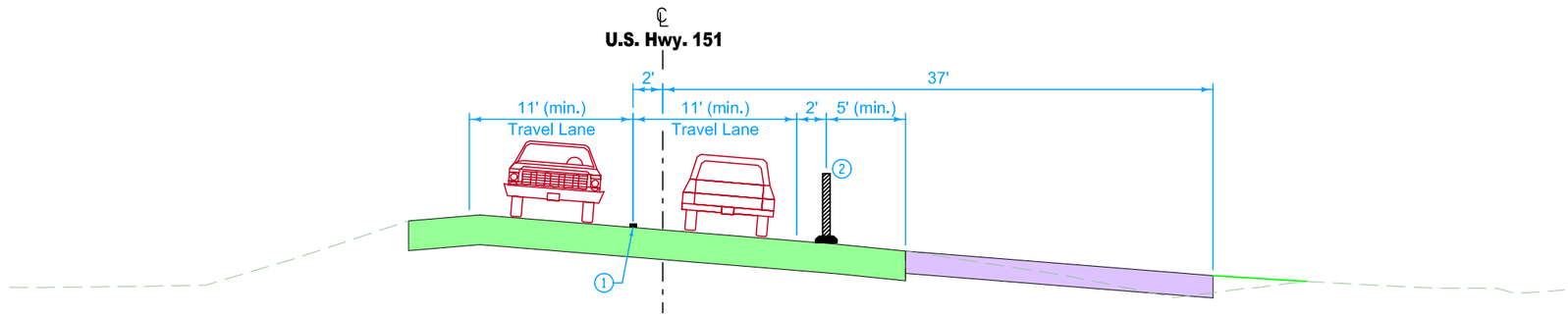
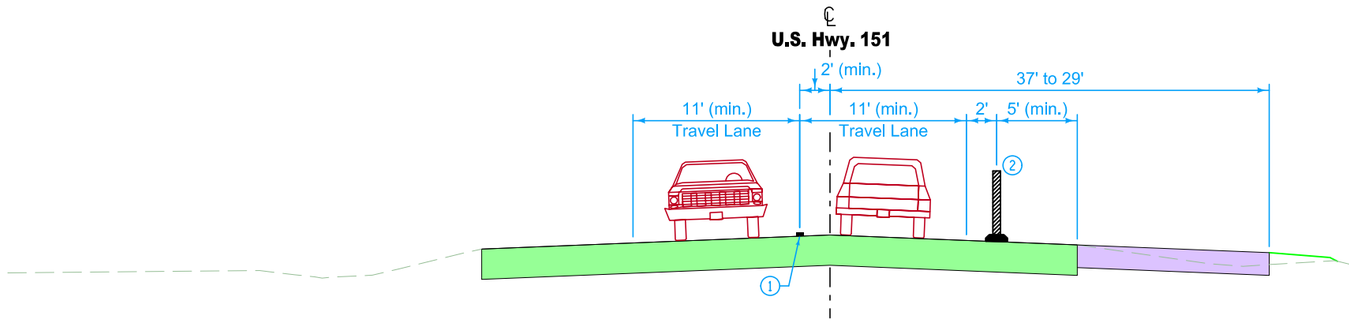
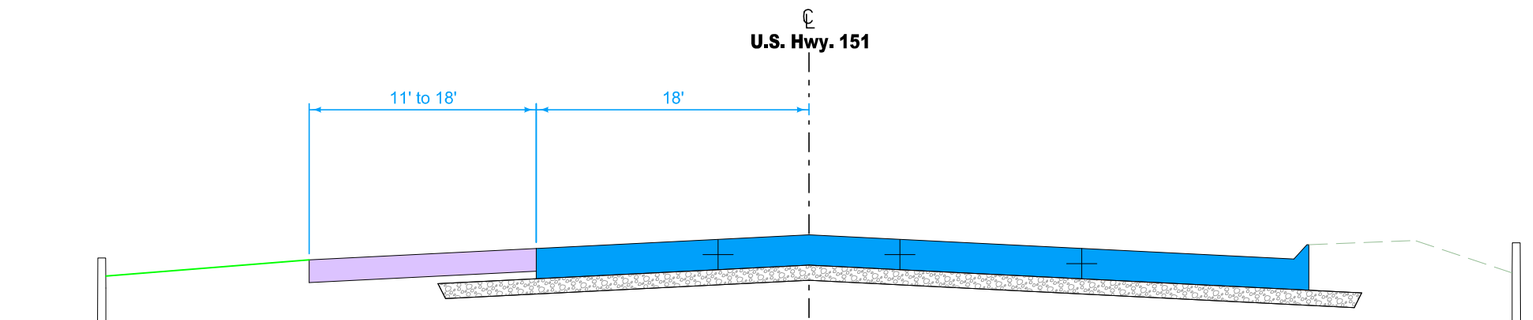



**TRAFFIC CONTROL TYPICAL SECTION**
**HIGHWAY 151 - STAGE 1C**
**STA 864+70 TO 898+00**




**TRAFFIC CONTROL TYPICAL SECTION**
**HIGHWAY 151 - STAGE 1C**
**STA 898+00 TO 902+85**

NOTES:
1. Temporary Pavement Markings
2. 42" Channelizer
3. Section of roadway to be closed while under construction, no temporary pavement markings needed




**TRAFFIC CONTROL TYPICAL SECTION**
**HIGHWAY 151 - STAGE 2A**
**STA 860+20 TO 863+92**

# STAGING
# PRAIRIE AVE. TO 80TH STREET

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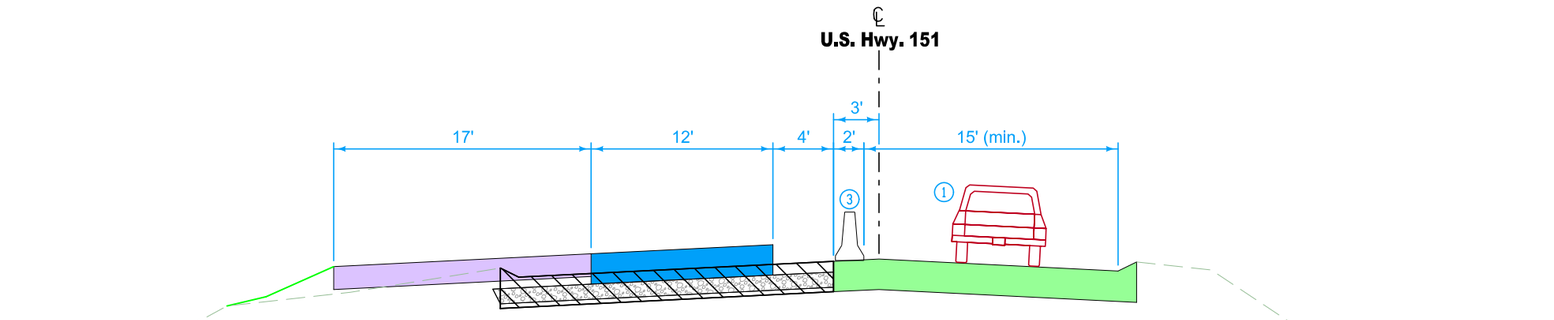
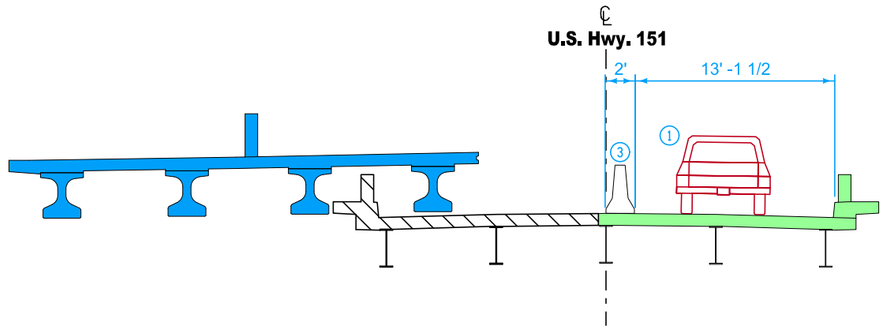



**TRAFFIC CONTROL TYPICAL SECTION**
**HIGHWAY 151 - STAGE 2A**
**STA 863+92 TO 870+70**



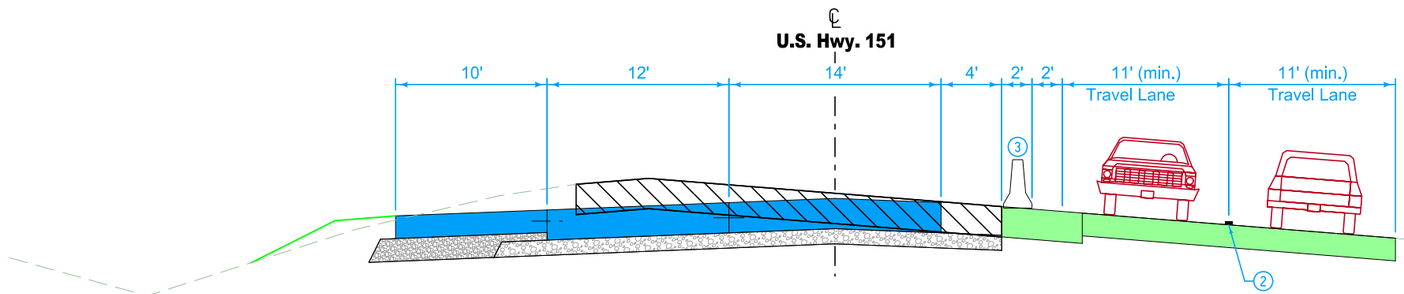

**TRAFFIC CONTROL TYPICAL SECTION**
**HIGHWAY 151 - STAGE 2A**
**PRAIRIE CREEK BRIDGE**
**BRF-151-3(142)–38-57**

STAGE 2A:

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 and separation rail.

NOTES:

1. Traffic Lane to be Alternating Traffic by use of Temporary Traffic Signals
2. Temporary Pavement Markings
3. Temporary Barrier Rail, Anchored Across Bridge




**TRAFFIC CONTROL TYPICAL SECTION**
**HIGHWAY 151 - STAGE 2A**
**STA 870+70 TO 876+99**

# STAGING PRAIRIE AVE. TO 80TH STREET

| 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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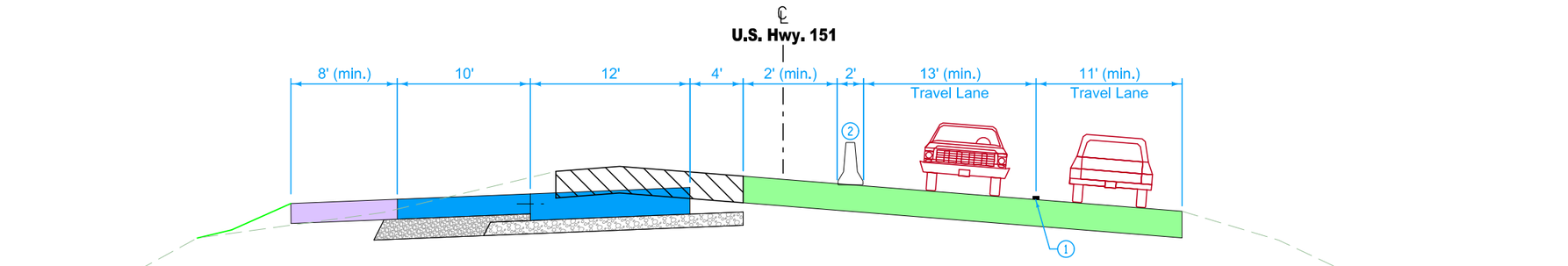
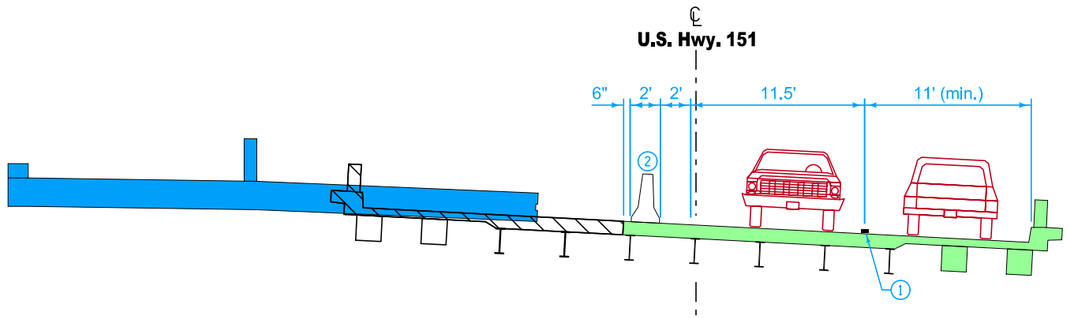



**TRAFFIC CONTROL TYPICAL SECTION**
**HIGHWAY 151 - STAGE 2A**
**STA 876+99 TO 884+26**



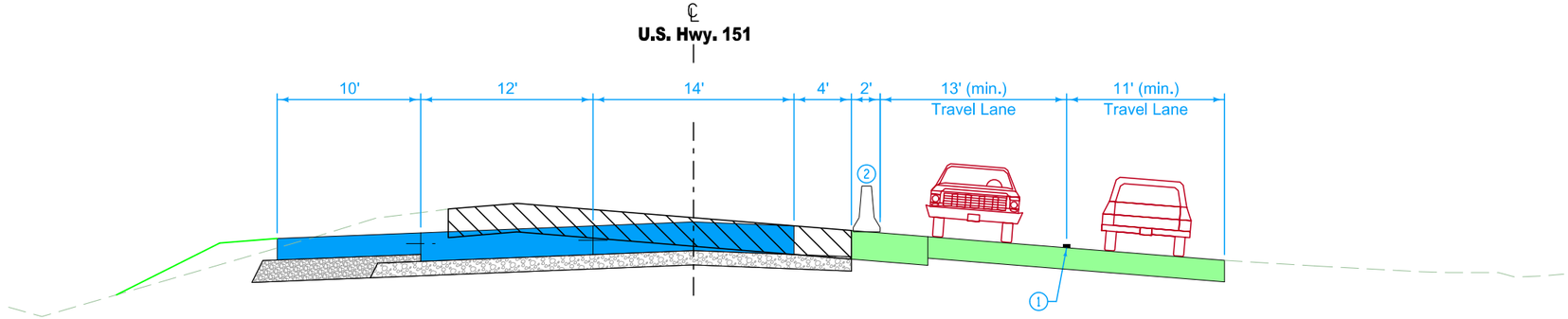

**TRAFFIC CONTROL TYPICAL SECTION**
**HIGHWAY 151 - STAGE 2A**
**DRAINAGE DITCH NO. 1 BRIDGE**
**BRF-151-3(152)–38-57**

STAGE 2A:

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 and separation rail.

NOTES:

1. Temporary Pavement Markings
2. Temporary Barrier Rail, Anchored Across Bridge




**TRAFFIC CONTROL TYPICAL SECTION**
**HIGHWAY 151 - STAGE 2A**
**STA 884+26 TO 898+00**

# STAGING
# PRAIRIE AVE. TO 80TH STREET

| 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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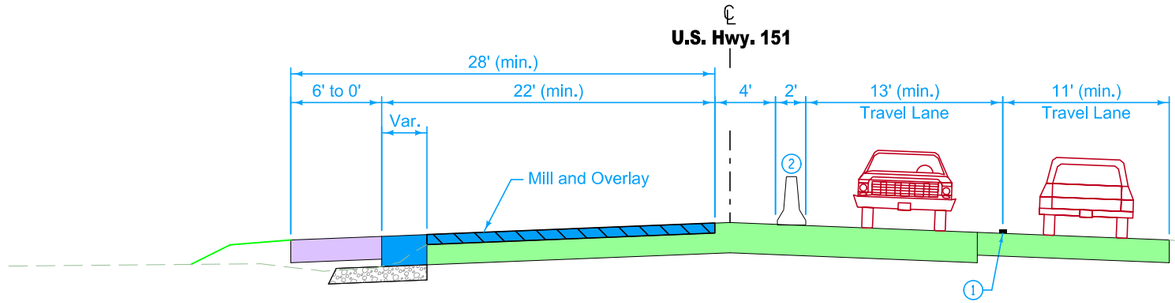
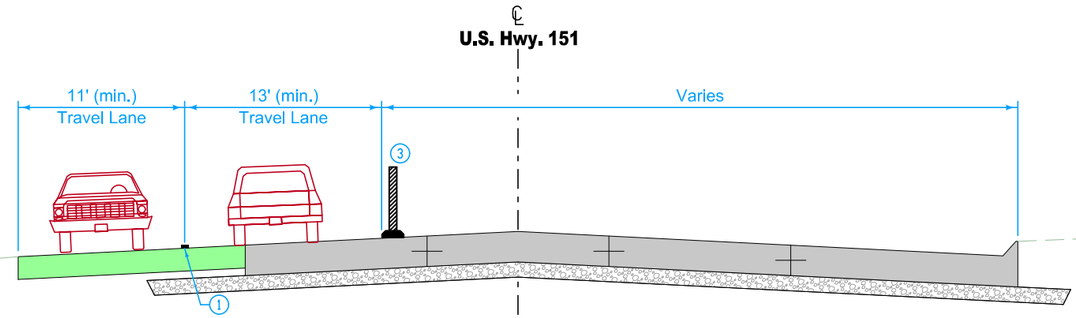
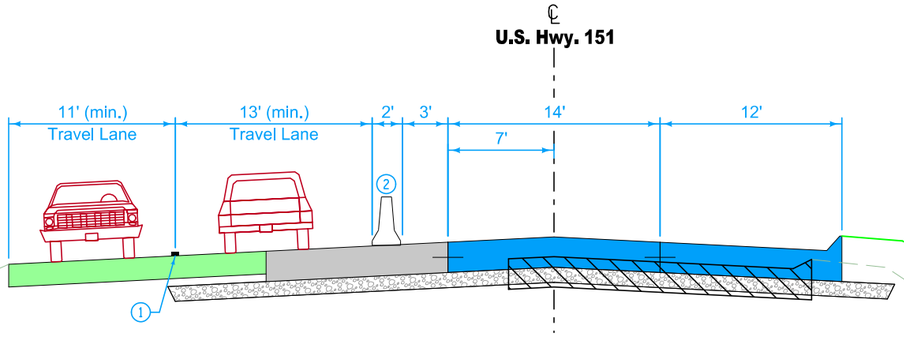



**TRAFFIC CONTROL TYPICAL SECTION**
**HIGHWAY 151 - STAGE 2B**
**STA 898+00 TO 902+58**




**TRAFFIC CONTROL TYPICAL SECTION**
**HIGHWAY 151 - STAGE 3A**
**STA 860+20 TO 863+92**




**TRAFFIC CONTROL TYPICAL SECTION**
**HIGHWAY 151 - STAGE 3A**
**STA 863+92 TO 870+70**

NOTES:
1. Temporary Pavement Markings
2. Temporary Barrier Rail
3. 42" Channelizer

# STAGING PRAIRIE AVE. TO 80TH STREET

| 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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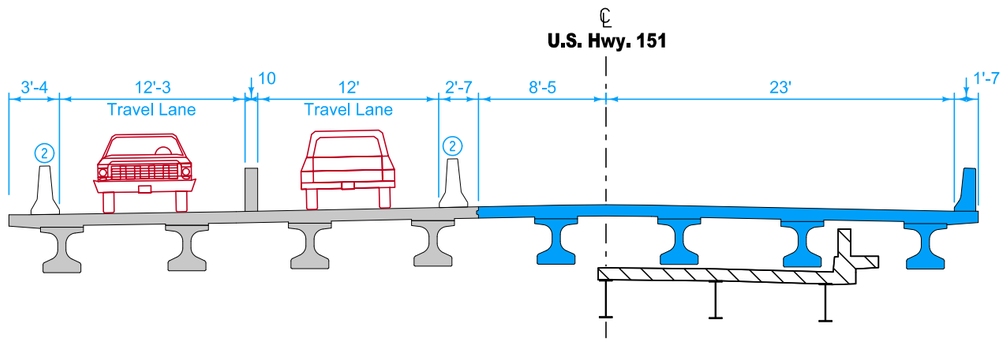
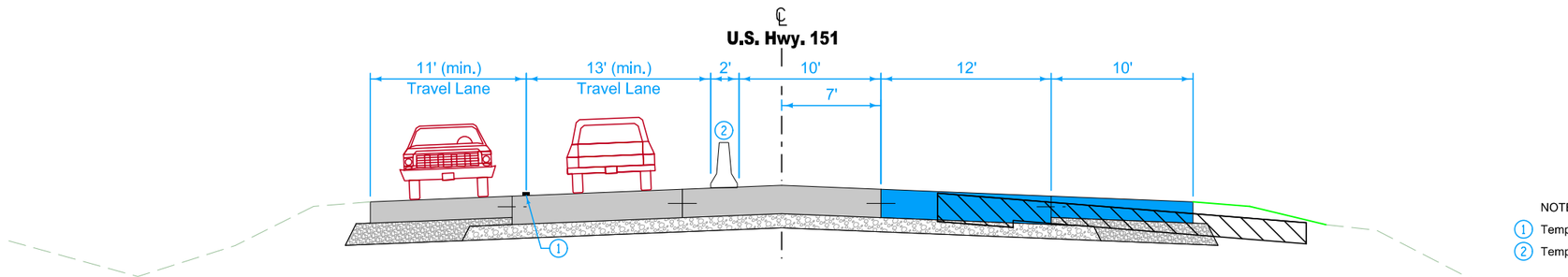
STAGE 3A:

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.

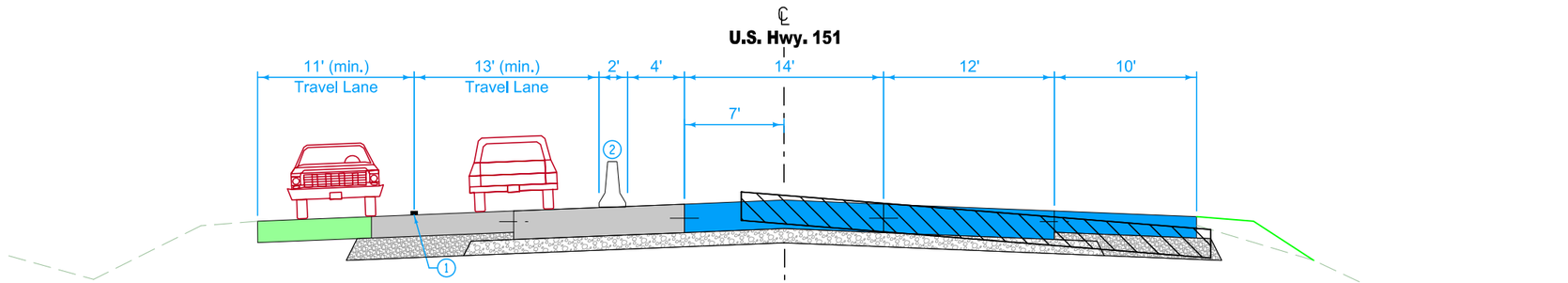



**TRAFFIC CONTROL TYPICAL SECTION**
**HIGHWAY 151 - STAGE 3A**
**PRAIRIE CREEK BRIDGE**
**BRF-151-3(142)–38-57**




NOTES:
1. Temporary Pavement Markings
2. Temporary Barrier Rail, Anchored Across Bridge

**TRAFFIC CONTROL TYPICAL SECTION**
**HIGHWAY 151 - STAGE 3a**
**STA 870+70 TO 876+99**




**TRAFFIC CONTROL TYPICAL SECTION**
**HIGHWAY 151 - STAGE 3A**
**STA 876+99 TO 884+26**

# STAGING
# PRAIRIE AVE. TO 80TH STREET

| 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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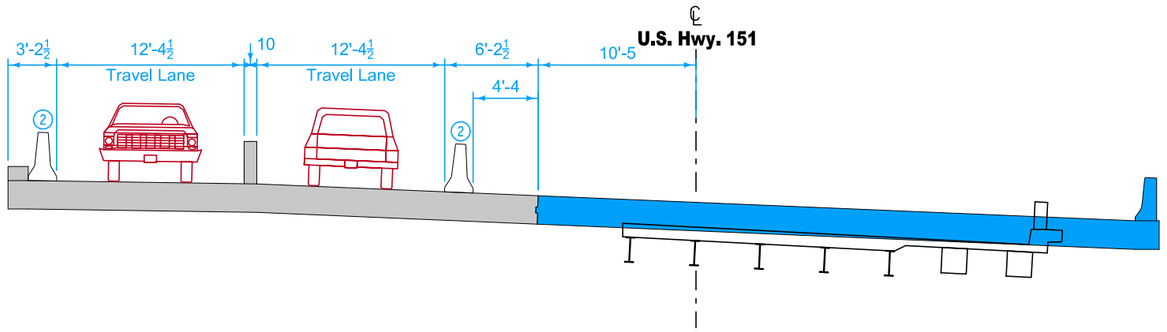
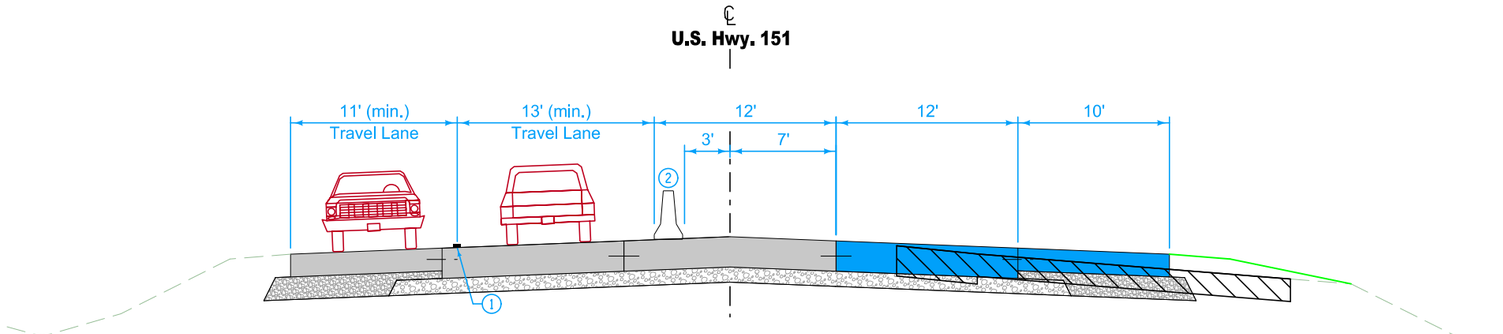
STAGE 3A:

Shift traffic to two lane traffic on the west side of bridge. Remove east half of existing bridge and construct east portion of bridge, place temporary barrier rail.

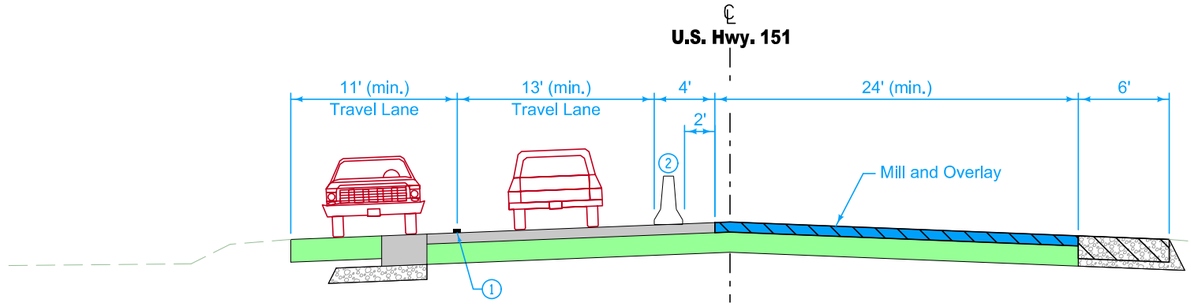



**TRAFFIC CONTROL TYPICAL SECTION**
**HIGHWAY 151 - STAGE 3A**
**DRAINAGE DITCH NO. 1 BRIDGE**
**BRF-151-3(152)–38-57**




**TRAFFIC CONTROL TYPICAL SECTION**
**HIGHWAY 151 - STAGE 3A**
**STA 884+26 TO 898+00**

NOTES:
1. Temporary Pavement Markings
2. Temporary Barrier Rail, Anchored Across Bridge




**TRAFFIC CONTROL TYPICAL SECTION**
**HIGHWAY 151 - STAGE 3B**
**STA 898+00 TO 902+58**

# STAGING PRAIRIE AVE. TO 80TH STREET

| 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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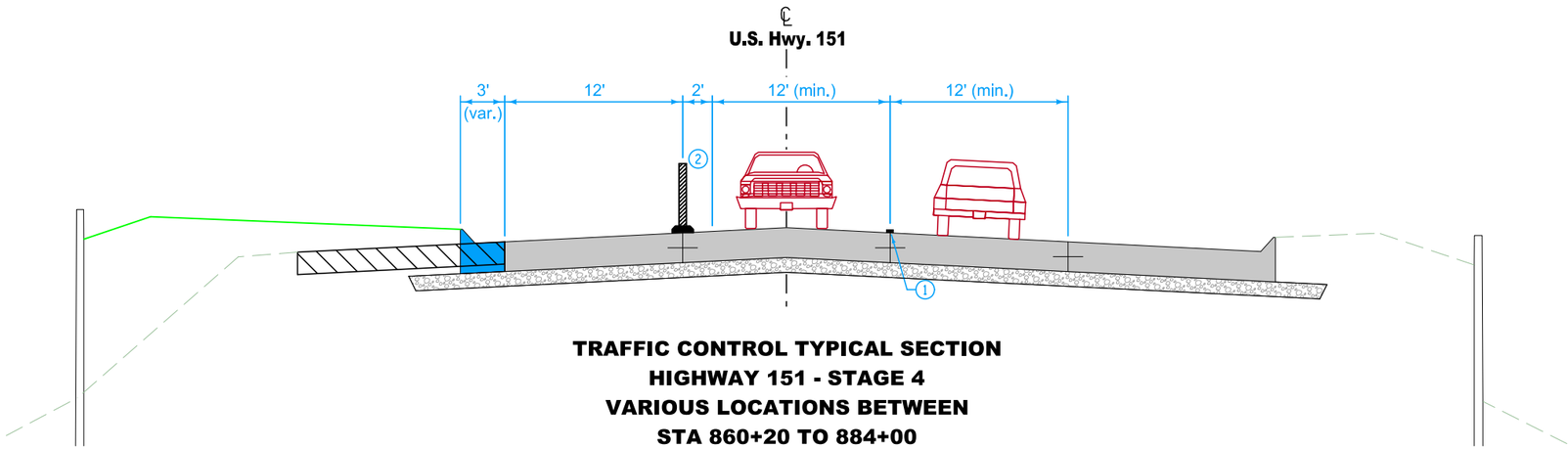
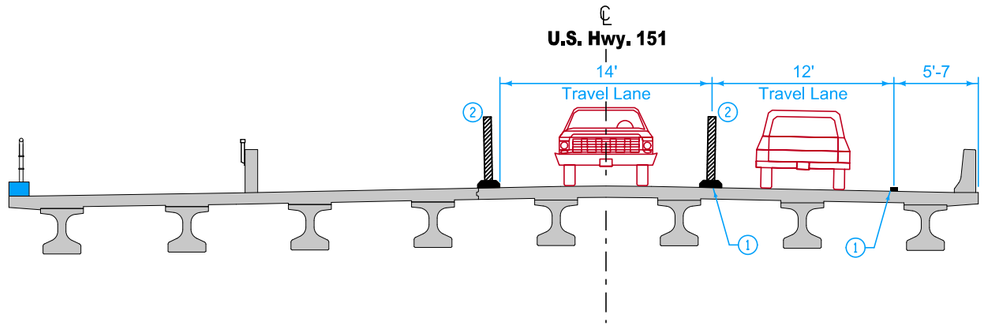



**TRAFFIC CONTROL TYPICAL SECTION**
**HIGHWAY 151 - STAGE 4**
**VARIOUS LOCATIONS BETWEEN**
**STA 860+20 TO 884+00**

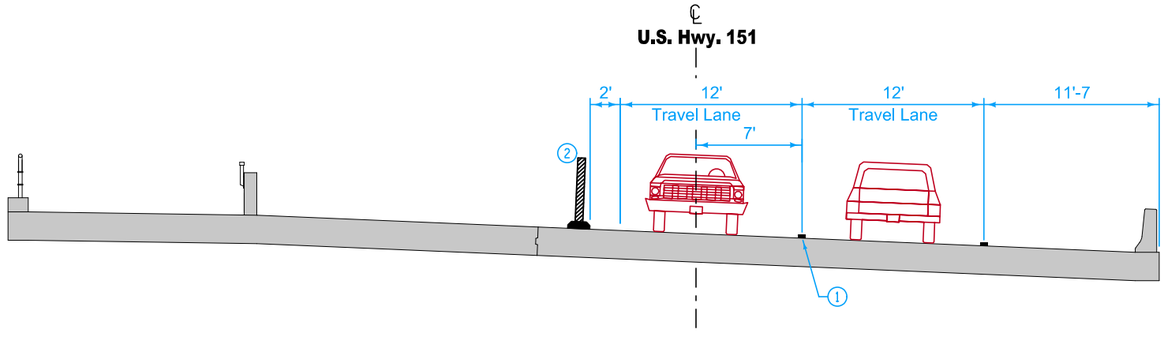



**TRAFFIC CONTROL TYPICAL SECTION**
**HIGHWAY 151 - STAGE 4**
**PRAIRIE CREEK BRIDGE**
**BRF-151-3(142)–38-57**

NOTES:
1. Temporary pavement markings
2. 42" Channelizer

STAGE 4:

Shift traffic to east portion of bridge. Remove temporary barrier rail. Place aluminum pedestrian and bicycle railings.




**TRAFFIC CONTROL TYPICAL SECTION**
**HIGHWAY 151 - STAGE 4**
**DRAINAGE DITCH NO. 1 BRIDGE**
**BRF-151-3(152)–38-57**

# STAGING
# PRAIRIE AVE. TO 80TH STREET

| 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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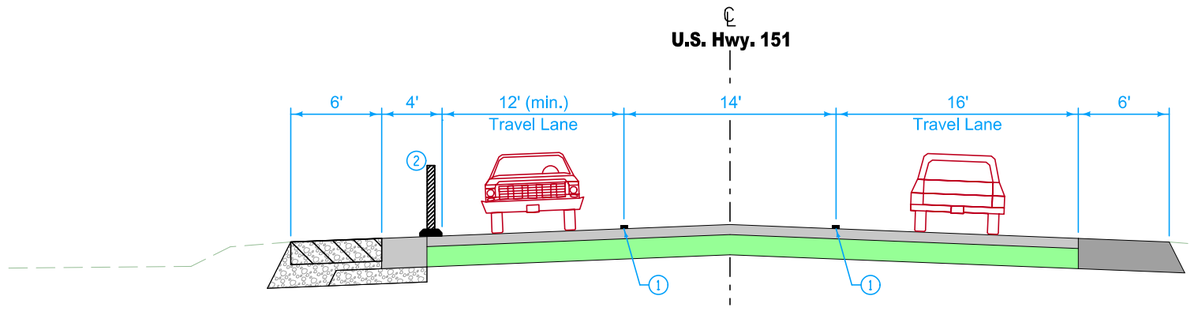


**TRAFFIC CONTROL TYPICAL SECTION**
**HIGHWAY 151 - STAGE 4**
**STA 898+00 TO 902+58**

NOTES:
1. Temporary pavement markings
2. 42" Channelizer

STAGING
PRAIRIE AVE. TO
80TH STREET

| 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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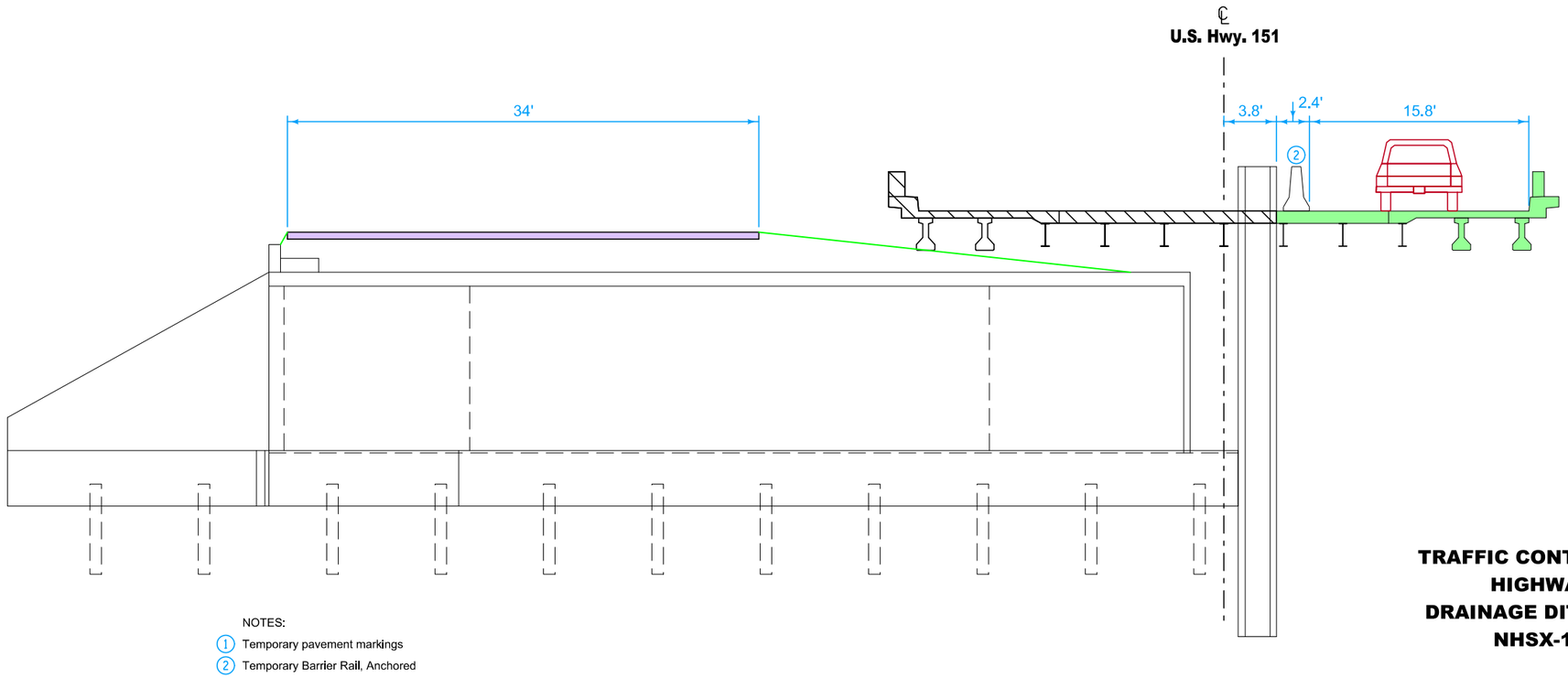
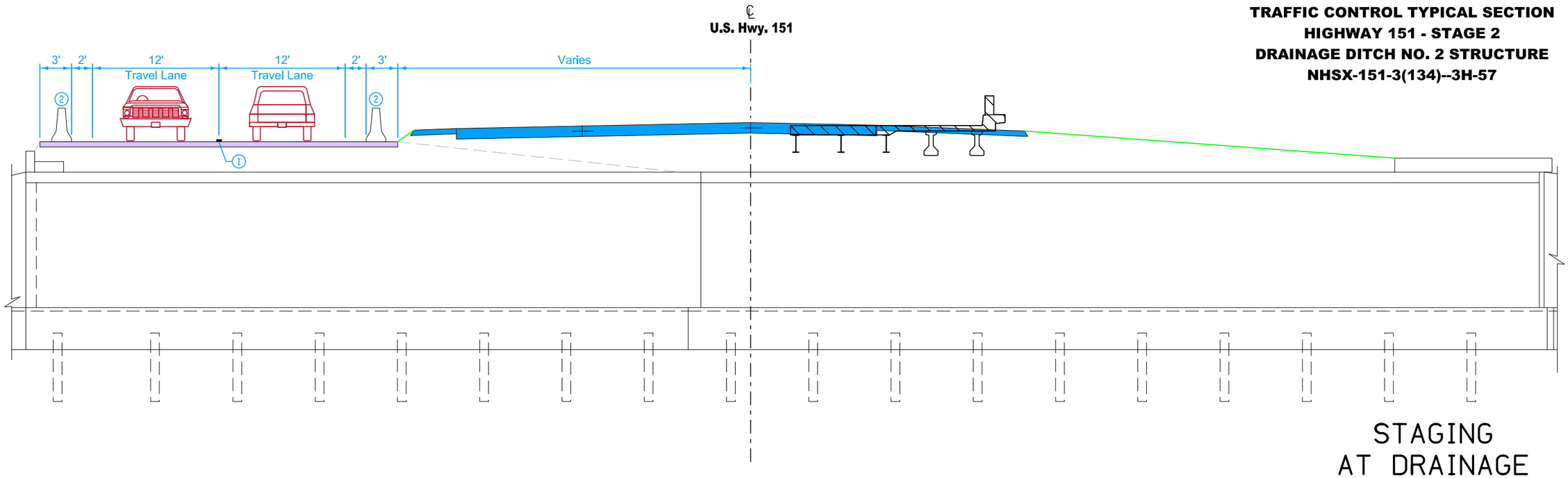



NOTES:

1. Temporary pavement markings
2. Temporary Barrier Rail, Anchored

**TRAFFIC CONTROL TYPICAL SECTION**
**HIGHWAY 151 - STAGE 1**
**DRAINAGE DITCH NO. 2 STRUCTURE**
**NHSX-151-3(134)--3H-57**




**TRAFFIC CONTROL TYPICAL SECTION**
**HIGHWAY 151 - STAGE 2**
**DRAINAGE DITCH NO. 2 STRUCTURE**
**NHSX-151-3(134)--3H-57**

STAGING
AT DRAINAGE
DITCH NO. 2

| 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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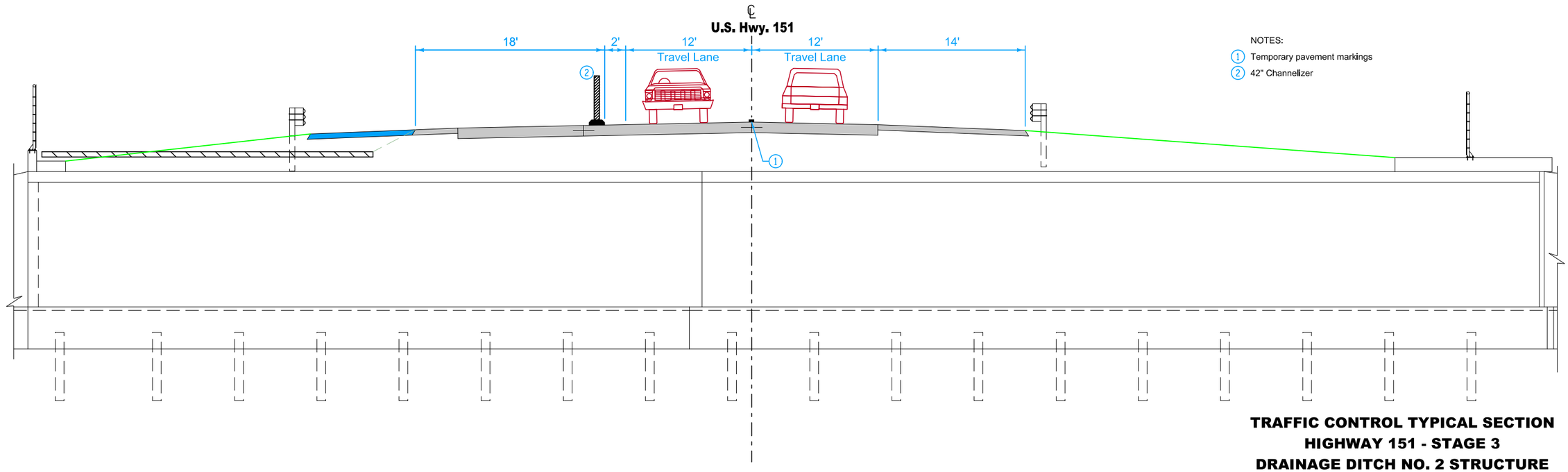


**TRAFFIC CONTROL TYPICAL SECTION**
**HIGHWAY 151 - STAGE 3**
**DRAINAGE DITCH NO. 2 STRUCTURE**
**NHSX-151-3(134)--3H-57**

STAGING
AT DRAINAGE
DITCH NO. 2

| 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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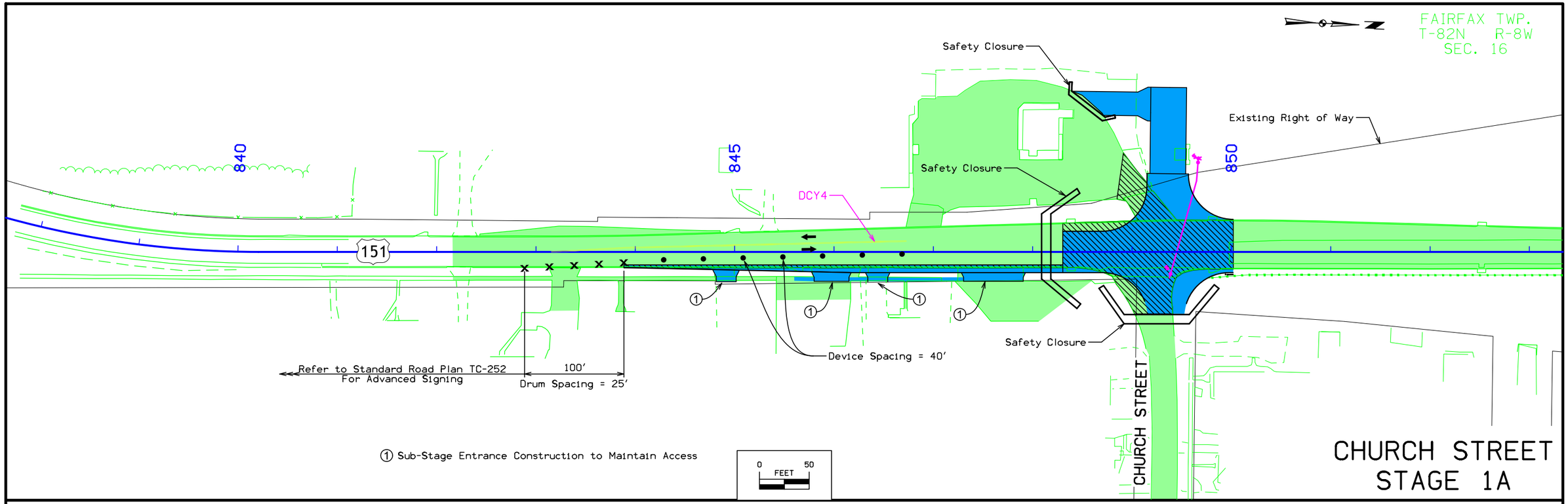


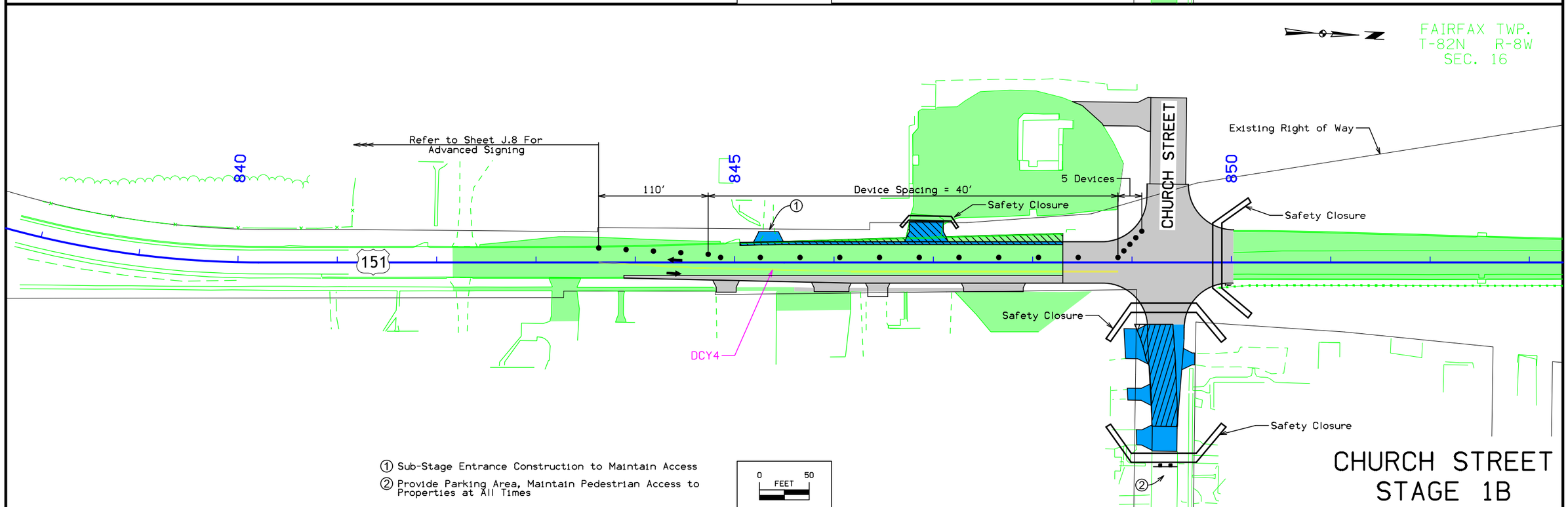


| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER J.20 |
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FAIRFAX TWP.
T-82N R-8W
SEC. 16

Existing Right of Way

Safety Closure

865

870

875

ROAD WORK AHEAD
W20-1
48" x 48"

DCY4

151

STALLMAN DRIVE

LOSEY AVENUE

Taper 10:1

21'

20'

Device Spacing = 40'

SPEED LIMIT 35
R2-1
30" x 36"

STA 869+08.50
BEGIN TEMPORARY PAVEMENT

PRAIRIE AVENUE

ROAD WORK AHEAD
W20-1
48" x 48"

Prairie Creek

Device Spacing = 40'

0 50
FEET

PRAIRIE AVE
TO 80TH STREET
STAGE 1C

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

STALLMAN DRIVE

SPEED LIMIT 35
R2-1
30" x 36"

880

Drainage Structure #1

W20-1
48" x 48"

ROAD WORK AHEAD

885

Device Spacing = 40'

5 Devices

151

Sta 882+63.44
Resume Temp. Pvmt.

Sta 883+99.64
Stop Temp. Pvmt.

Sta 879+14.71
Stop Temp. Pvmt.

DCY4

21'

Existing Right of Way

CEMETERY ROAD

5 Devices

Sta 883+99.85
Resume Temp. Pvmt.

890

Device Spacing = 40'

ROAD WORK AHEAD
W20-1
48" x 48"

SPEED LIMIT 35
R2-1
30" x 36"

151

0 50
FEET

PRAIRIE AVE
TO 80TH STREET
STAGE 1C

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

890 895 900 905

DCY4 CHY8

Existing Right of Way

151

21′ 21′ 20′

Taper 20:1

Sta 891+27.79
Resume Temp. Pvmt.

Device Spacing = 40′

Sta 890+92.18
Stop Temp. Pvmt.

Sta 893+96.76
Stop Temp. Pvmt.
Remove Ex. Curb

Sta 894+37.55
Resume Temp. Pvmt.
Remove Ex. Curb

Sta 895+56.49
Stop Temp. Pvmt.
Remove Ex. Curb

Device Spacing = 40′

Sta 895+98.24
Resume Temp. Pvmt.
Remove Ex. Curb

STA 902+84.49
END TEMPORARY PAVEMENT

0 FEET 50

# PRAIRIE AVE TO 80TH STREET STAGE 1C

80TH STREET SW

910

300′

500′ 500′ 500′

W1-4L
48" x 48"

SPEED LIMIT 35
R2-1
30" x 36"

SPEED LIMIT 35
W3-5
48" x 48"

925

ROAD WORK AHEAD
W20-1
48" x 48"

151

Existing Right of Way

Note:
Signs North/East of 80TH Street to Remain in Place Through Stage 3B. Following Stage 2B, W1-4L Sign Can be Removed.

0 FEET 50

# PRAIRIE AVE TO 80TH STREET STAGE 1C

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

Refer to TC-252 For Advanced Signing

CHURCH STREET

Existing Right of Way

Safety Closure

850

855

UNION PACIFIC RAILROAD

860

Safety Closure

Sta 860+81.21
Begin Temp. Pvmt.

151

LOSEY AVENUE

0 50 FEET

# CHURCH STREET TO 80TH STREET STAGE 2A

# PRAIRIE AVE TO 80TH STREET STAGE 2A

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

① Mount On/Near Temporary Signal Visible to Drivers
② Mount On Temporary Signal
③ Maintain Access
④ Temporary Traffic Signal, Refer to TC-216 for Additional Details
⑤ Permissive

R10-5
24" x 36"
STOP HERE ON RED

ONE LANE ROAD AHEAD
W20-4
48" x 48"

NO TURN ON RED
R10-11
24" x 36"

865

Prairie Creek

Sta 865+98.61
Stop Temp. Pvmt.

Existing Right of Way

Sta 868+76.20
Resume Temp. Pvmt.

870

Sta 872+09.69
Stop Temp. Pvmt.

W3-3
48" x 48"

R1-1
48" x 48"
STOP

Safety Closure

Maintain Access to Stallman Drive

875

ROAD WORK AHEAD
W20-1
48" x 48"

STALLMAN DRIVE

SPECIAL SIGN
60" x 14"

SLW2

Temporary Crash Cushion

R2-1
30" x 36"
SPEED LIMIT 35

370′

80′

170′

Device Spacing = 20′

SLW2

Safety Closure

M4-8
30" x 15"
DETOUR
W CEMETERY RD

M6-1R
30" x 21"

Sta 876+23.77
Resume Temp. Pvmt.

DCY4

STOP HERE ON RED
R10-6
24" x 36"

PRAIRIE AVENUE

W1-4R
48" x 48"

M6-1L
30" x 21"

M4-8
30" x 15"
DETOUR
W CEMETERY RD

SPECIAL SIGN
60" x 14"

Temporary Crash Cushion

Temporary Crash Cushion

DCY4

Maintain Access

265′

Drum Spacing = 40′

ONE LANE ROAD AHEAD
W20-4
48" x 48"

W3-3
48" x 48"

TEMPORARY TRAFFIC SIGNAL PHASING

⑤

0 50 FEET

| 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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# CHURCH STREET TO 80TH STREET STAGE 2A

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

Refer to TC-252 For Advanced Signing

Safety Closure

Sta 883+46.75
End Temp. Pvmt.

Sta 882+04.00
Resume Temp. Pvmt.

Sta 879+68.00
Stop Temp. Pvmt.

Drainage Ditch #1

880 885 890

SPECIAL SIGN 60" x 14"
M4-8 30" x 15"
DETOUR W CEMETERY RD
M6-3 30" x 21"

SPEED LIMIT 35
R2-1 30" x 36"

Existing Right of Way

151

Maintain Access

Safety Closure

Safety Closure

Safety Closure

210′
Device Spacing = 40′

280′

DCY4

ROAD WORK AHEAD
W20-1 48" x 48"

SPEED LIMIT 35
R2-1 30" x 36"

Temporary Crash Cushion

Temporary Crash Cushion

CEMETERY ROAD

M4-8 30" x 15"
DETOUR W CEMETERY RD
M6-1L 30" x 21"
SPECIAL SIGN 60" x 14"

0 50 FEET

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

530′
Drum Spacing = 40′

Refer to Stage 1C For Signs North/East of 80th Street

895 900 905 910

Existing Right of Way

Safety Closure

Sand Barrels

DCY4

CHY8

ELW4

Device Spacing = 40′

80TH STREET SW

R4-7C 36" x 48"

151

DCY4

ELW4

160′

305′
Drum Spacing = 40′

50′
5 Devices

0 50 FEET

CHURCH STREET TO 80TH STREET STAGE 2A

| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | J.24 |
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FAIRFAX TWP.
T-82N R-8W
SEC. 16

Refer to TC-252 For Advanced Signing

CHURCH STREET

Existing Right of Way

Safety Closure

850

855

UNION PACIFIC RAILROAD

860

Safety Closure

151

LOSEY AVENUE

0 FEET 50

# CHURCH STREET TO 80TH STREET STAGE 2B

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

1. Mount On/Near Temporary Signal Visible to Drivers.
2. Mount On Temporary Signal.
3. Maintain Access. Provide Temporary Pavement Wedge Between Existing and Proposed Pavement Elevations.
4. Temporary Traffic Signal, Refer to TC-216 for Additional Details.
5. Permissive

R10-5 24" x 36"
STOP HERE ON RED

① ONE LANE ROAD AHEAD

② NO TURN ON RED
R10-11 24" x 36"

W20-4 48" x 48"

865

Prairie Creek

870

W3-3 48" x 48"

Existing Right of Way

Refer to TC-252 For Advanced Signing

Maintain Access

875

STALLMAN DRIVE

Safety Closure

Safety Closure

③ ④

70'

STOP HERE ON RED
R10-6 24" x 36"

151

SLW2

30" x 36"
R2-1
SPEED LIMIT 35

370'

80'

170'

Device Spacing = 20'

SLW2

DCY4

STOP HERE ON RED
R10-6 24" x 36"

DCY4

PRAIRIE AVENUE

W1-4R 48" x 48"

W3-3 48" x 48"

TEMPORARY TRAFFIC SIGNAL PHASING

⑤

M6-3 30" x 21"

STALLMAN DR DETOUR

M4-8 30" x 15"

SPECIAL SIGN 50" x 14"

0 FEET 50

ONE LANE ROAD AHEAD
W20-4 48" x 48"

Drum Spacing = 40'

265'

Maintain Access

| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | J.25 |
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# CHURCH STREET TO 80TH STREET STAGE 2B

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

W20-1 48" x 48"
ROAD WORK AHEAD
Maintain Access to Cemetery Rd
R1-1 48" x 48"
STOP
Safety Closure
Drainage Ditch #1
SPECIAL SIGN 50" x 14"
M4-8 30" x 15"
DETOUR
STALLMAN DR
M6-1R 30" x 21"
Existing Right of Way
SPEED LIMIT 35
R2-1 30" x 36"
880
885
890
151
Temporary Crash Cushion
DCY4
210'
Device Spacing = 40'
280'
M6-1L 30" x 21"
M4-8 30" x 15"
SPECIAL SIGN 50" x 14"
CEMETERY ROAD
M6-3 30" x 21"
W20-1 48" x 48"
R2-1 30" x 36"
SPEED LIMIT 35
Maintain Access
0 FEET 50

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

530'
Drum Spacing = 40'
Refer to Stage 1C For Signs North/East of 80th Street
R4-7C 36" x 48"
895
900
905
910
Existing Right of Way
Sta 898+00.00
Begin Temp. Pvmt.
Sta 901+97.45
End Temp. Pvmt.
Safety Closure
Sand Barrels
DCY4
ELW4
CHY8
Device Spacing = 40'
50'
5 Devices
140'
305'
Drum Spacing = 40'
80TH STREET SW
0 FEET 50

# CHURCH STREET TO 80TH STREET STAGE 2B

| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | J.26 |
|---|---|---|---|---|---|---|---|---|

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

Refer to TC-228 For Advanced Signing

W1-4L 48" x 48"

315′ 680′ 140′

860 865 870

Maintain Driveway Access

Existing Right of Way

Temporary Crash Cushion

Temporary ① Crash Cushion

CHY8 DCY4

151

Temporary Crash Cushion

Safety Closure

Device Spacing = 40′

R2-1 30" x 36"

SPEED LIMIT 35

LOSEY AVENUE

R4-7C 36" x 48"

PRAIRIE AVENUE

Prairie Creek

① Refer to Sheet J.8 for Additional Detail.

② Provide Parking Area, Maintain Pedestrian Access to Properties at All Times

0 FEET 50

UPRR TO 80TH STREET STAGE 3A

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

140′ 145′ 100′ 315′ 100′

STALLMAN DRIVE

SPEED LIMIT 35 R2-1 30" x 36"

875 880 885

Drainage Ditch #1

Temporary Crash Cushion

Temporary Crash Cushion ①

Temporary Crash Cushion

Temporary Crash Cushion ①

CHY8 DCY4

W20-1 48" x 48"

ROAD WORK AHEAD

151

Safety Closure

Maintain Access

R4-7C 36" x 48"

R4-7C 36" x 48"

E CEMETERY RD DETOUR

M6-3 30" x 21"

M4-8 30" x 15"

SPECIAL SIGN 56" x 14"

Refer to TC-252 For Advanced Signing

CEMETERY ROAD

Safety Closure

Temporary Crash Cushion

Existing Right of Way

① Refer to Sheet J.8 for Additional Detail.

0 FEET 50

UPRR TO 80TH STREET STAGE 3A

| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER J.27 |
|---|---|---|---|---|---|---|---|

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

140'
Drum Spacing = 35'

890

Temporary
Crash Cushion

895

Temporary
Crash Cushion

DCY4

Existing Right of Way

900

DCY4

151

Safety Closure
Maintain Access

Safety Closure

Safety Closure

Safety Closure

SPEED LIMIT 35
R2-1
30" x 36"

W1-4R
48" x 48"

0 FEET 50

# UPRR TO 80TH STREET STAGE 3A

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

80TH STREET SW

SPECIAL SIGN
56" x 14"

M4-8
30" x 15"

DETOUR

E CEMETERY RD

M6-1L
30" x 21"

905

910

915

DCY4

Temporary
Crash Cushion

CHY8

151

Safety
Closure

240'
Device Spacing = 40'

5 Devices

W1-4R
48" x 48"

M6-1R
30" x 21"

E CEMETERY RD

DETOUR

M4-8
30" x 15"

SPECIAL SIGN
56" x 14"

Note:
Refer to Stage 1C for Signs North/East of 80TH Street.
Remove W1-4L Sign.

0 FEET 50

# UPRR TO 80TH STREET STAGE 3A

| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER J.28 |
|---|---|---|---|---|---|---|---|

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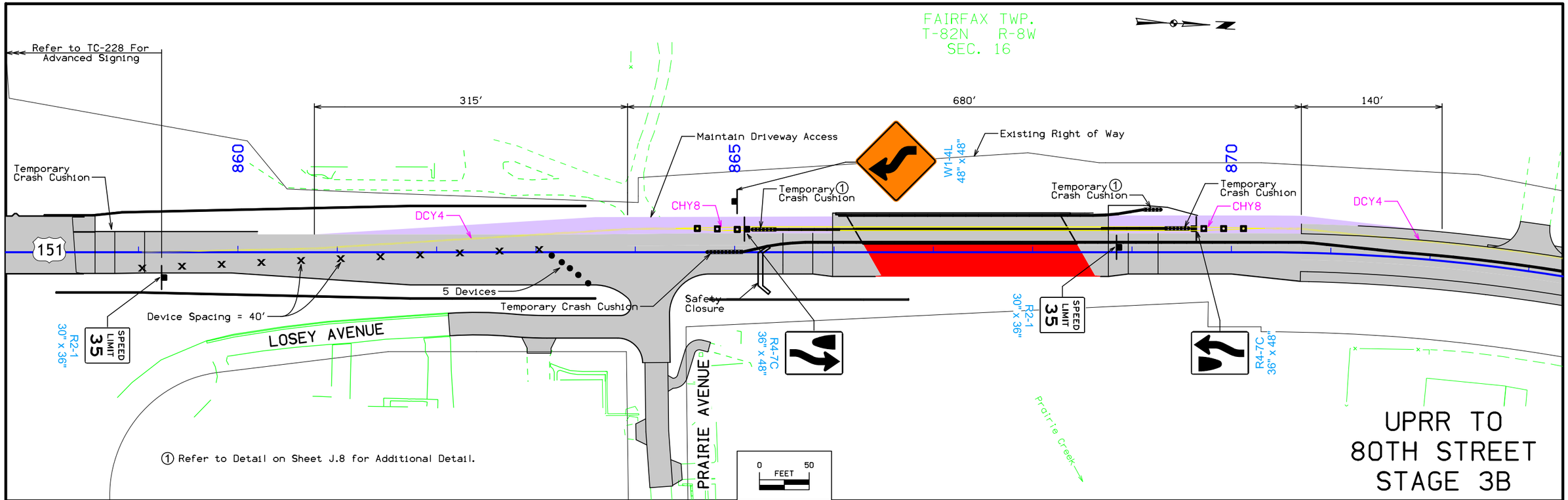


| FILE NO. | ENGLISH | DESIGN TEAM SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER J.29 |
|---|---|---|---|---|---|

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

890 895 900

Existing Right of Way

Temporary Crash Cushion

Temporary Crash Cushion

Temporary Crash Cushion

DCY4

DCY4

151

Safety Closure

Safety Closure

Safety Closure

Safety Closure

Safety Closure

SPEED LIMIT 35

R2-1
30" x 36"

0 FEET 50

# UPRR TO 80TH STREET STAGE 3B

W1-4R
48" x 48"

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

80TH STREET SW

905 910 915

DCY4

Temporary Crash Cushion

CHY8

151

Safety Closure

240'
Device Spacing = 40'

5 Devices

Refer to Stage 1C For Signs North/East of 80th Street, Remove W1-4L Sign.

0 FEET 50

# UPRR TO 80TH STREET STAGE 3B

| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER J.30 |
|---|---|---|---|---|---|---|---|

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

Refer to TC-228 For Advanced Signing

280′
Device Spacing = 40′

Existing Right of Way

860

865

870

Device Spacing = 40′

5 Devices

151

Device Spacing = 40′

Device Spacing = 20′

5 Devices

Device Spacing = 20′

SPEED LIMIT 35
R2-1
30" x 36"

LOSEY AVENUE

ROAD WORK AHEAD
W20-1
48" x 48"

PRAIRIE AVENUE

Prairie Creek

SPEED LIMIT 35
R2-1
30" x 36"

① Sub-Stage Entrance Construction to Maintain Access
② Construct Separation Barrier End Section

0 FEET 50

# UPRR TO 80TH STREET STAGE 4

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

ROAD WORK AHEAD
W20-1
48" x 48"

STALLMAN DRIVE

Existing Right of Way

SPEED LIMIT 35
R2-1
30" x 36"

880

ROAD WORK AHEAD
W20-1
48" x 48"

① Device Spacing = 40′

5 Devices

875

5 Devices

Device Spacing = 20′

5 Devices

151

100′
5 Devices

885

Device Spacing = 40′

Device Spacing = 20′

CEMETERY ROAD

SPEED LIMIT 35
R2-1
30" x 36"

ROAD WORK AHEAD
W20-1
48" x 48"

① Construct Separation Barrier End Section

0 FEET 50

# UPRR TO 80TH STREET STAGE 4

| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER J.31 |
|---|---|---|---|---|---|---|---|

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

Device Spacing = 40′
240′
Drum Spacing = 40′
100′
5 Devices
Device Spacing = 40′
Device Spacing = 20′
890
895
900
Existing Right of Way
151
440′
Device Spacing = 40′
W1-4L
48" x 48"
R2-1
30" x 36"
SPEED LIMIT 35

0 FEET 50

# UPRR TO 80TH STREET STAGE 4

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

440′
Device Spacing = 40′
100′
5 Devices
250′
Existing Right of Way
905
SHOULDER DROP OFF
W8-9A
48" x 48"
SPEED LIMIT 35
R2-1
30" x 36"
500′
500′
80TH STREET SW
910
151
SPEED LIMIT 35
W3-5
48" x 48"
ROAD WORK AHEAD
W20-1
48" x 48"
END ROAD WORK
G20-2A
48" x 24"

0 FEET 50

# UPRR TO 80TH STREET STAGE 4

| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER J.32 |
|---|---|---|---|---|---|---|---|

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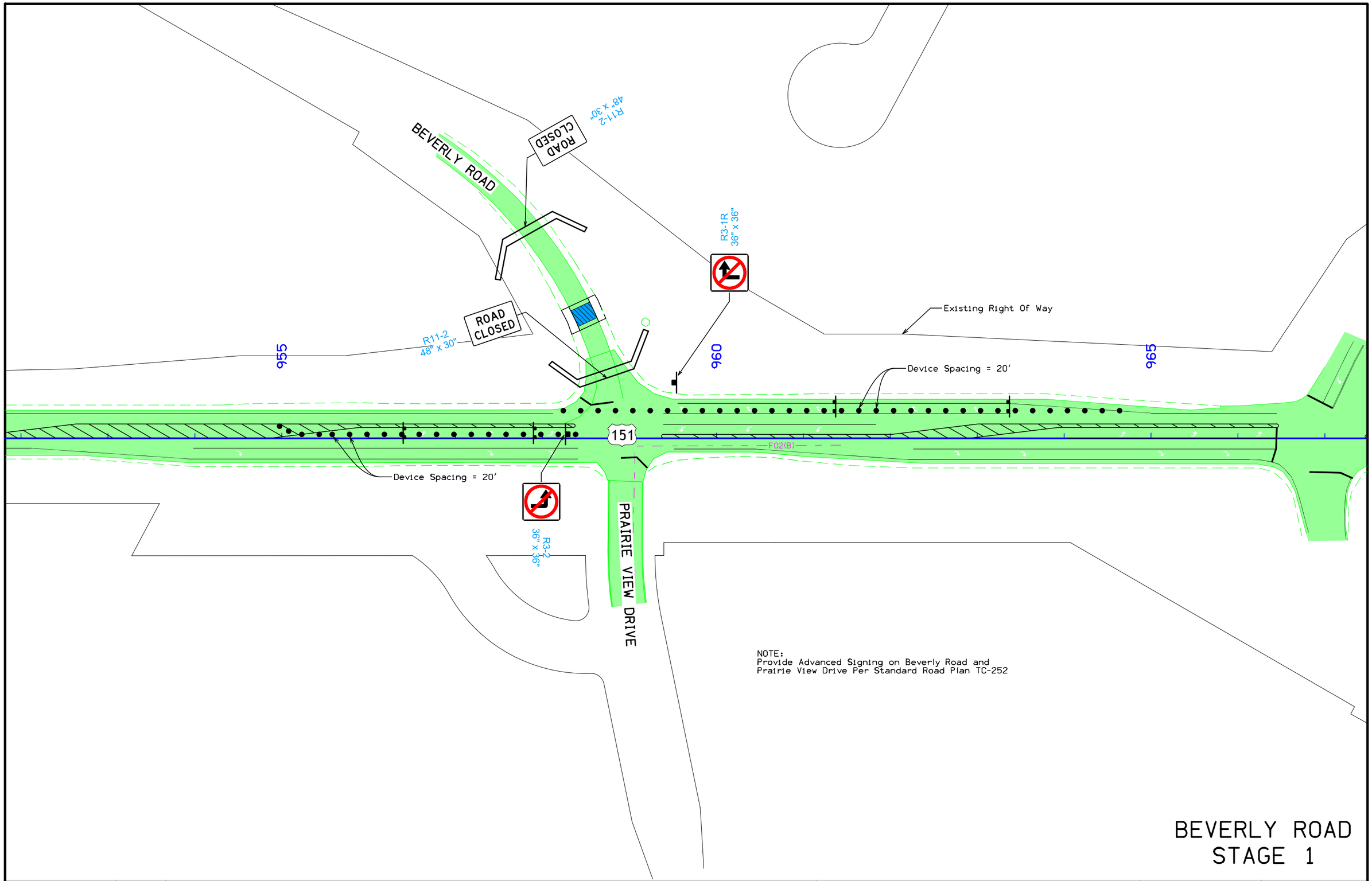


| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | J.33 |
|---|---|---|---|---|---|---|---|---|

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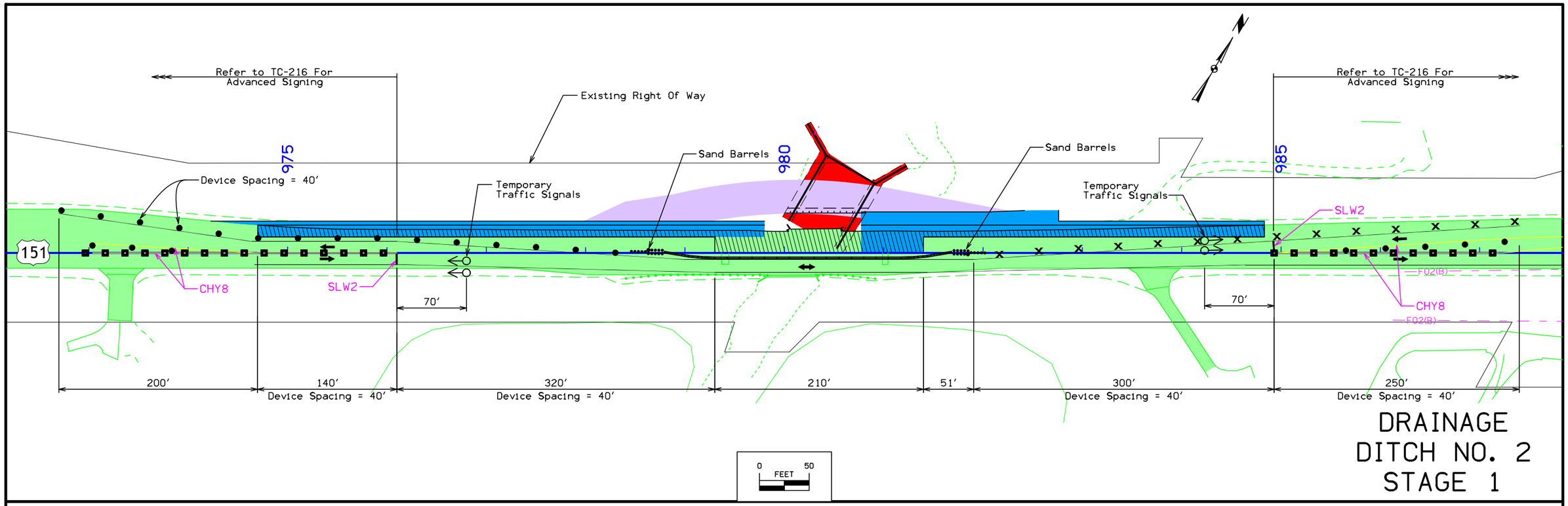
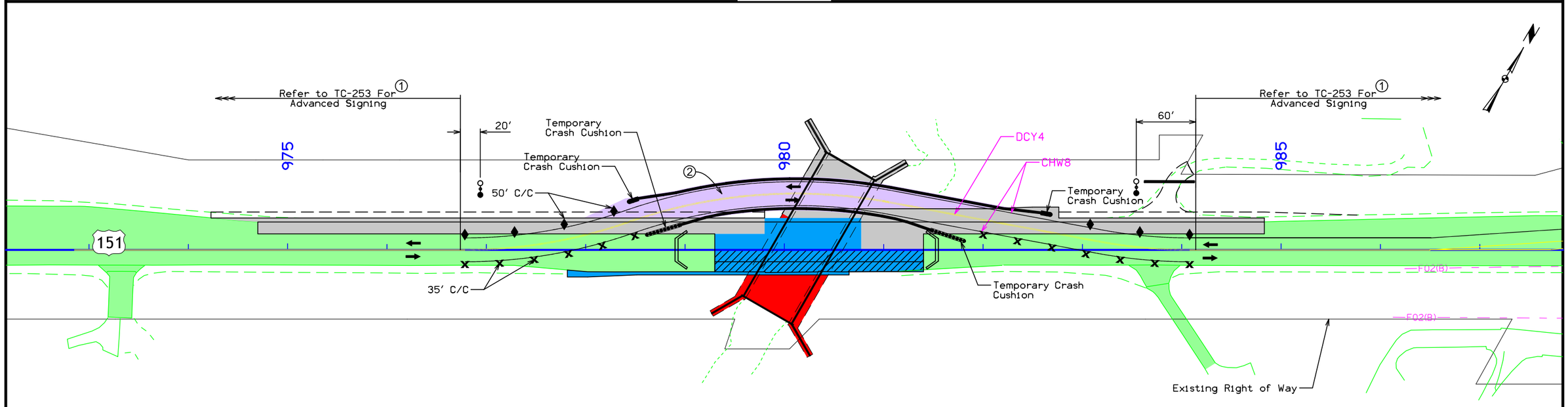



# DRAINAGE DITCH NO. 2 STAGE 1




① Replace W1-4L Sign Shown in TC-253 with W24-1 Sign (48" x 48").
② Refer to Sheet F.1 for Additional Details of Temporary Pavement.

# DRAINAGE DITCH NO. 2 STAGE 2

| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | J.34 |
|---|---|---|---|---|---|---|---|---|

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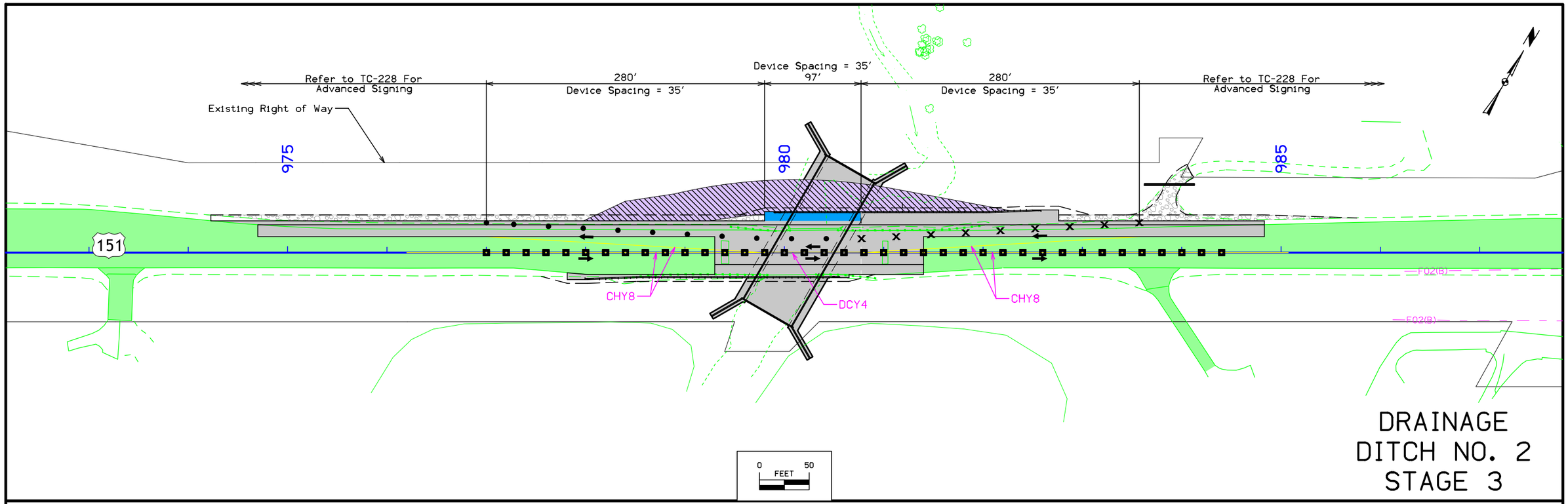


# DRAINAGE DITCH NO. 2 STAGE 3

| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | J.35 |
|---|---|---|---|---|---|---|---|---|

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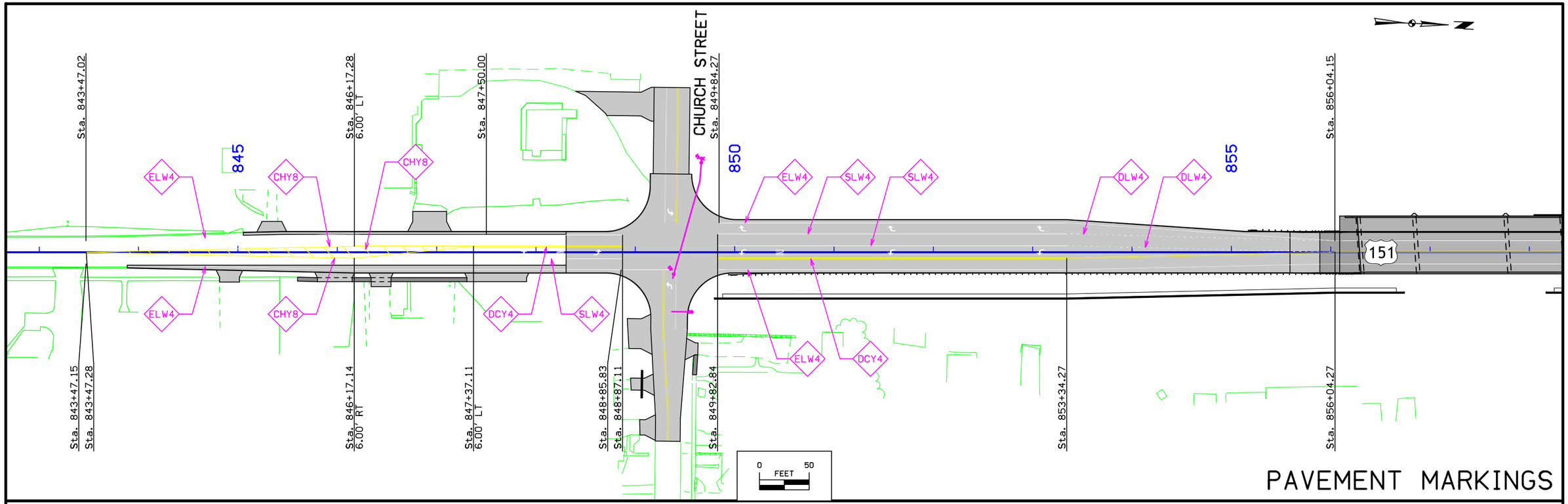


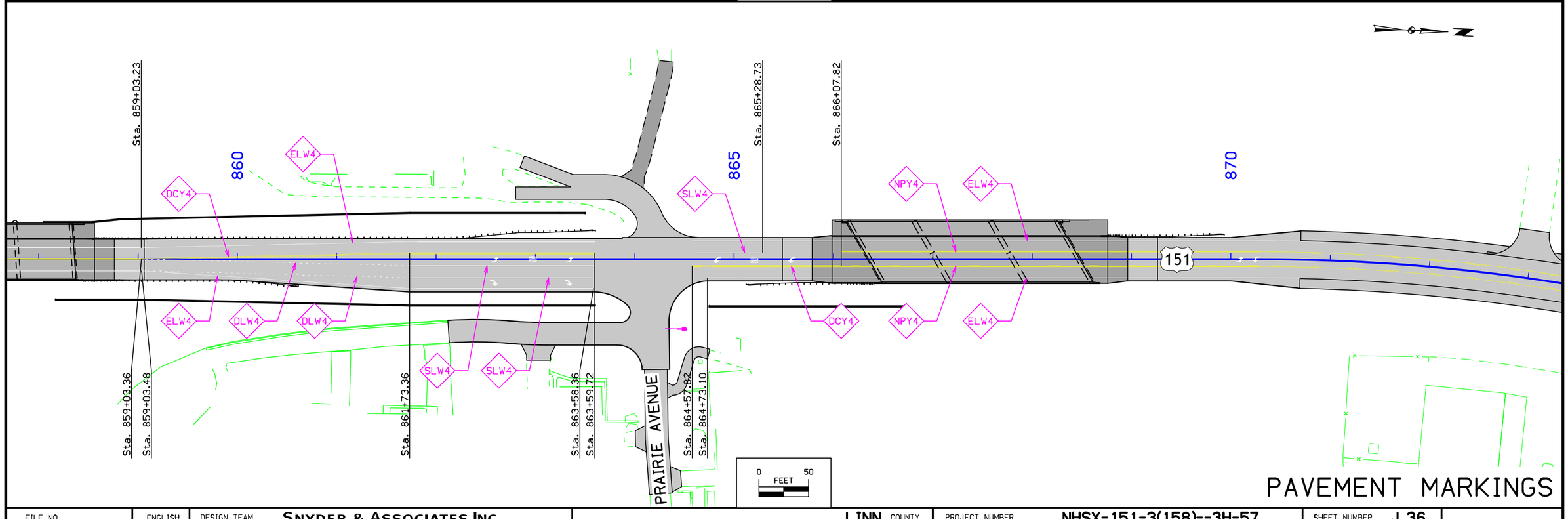


| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER J.36 |
|---|---|---|---|---|---|---|---|

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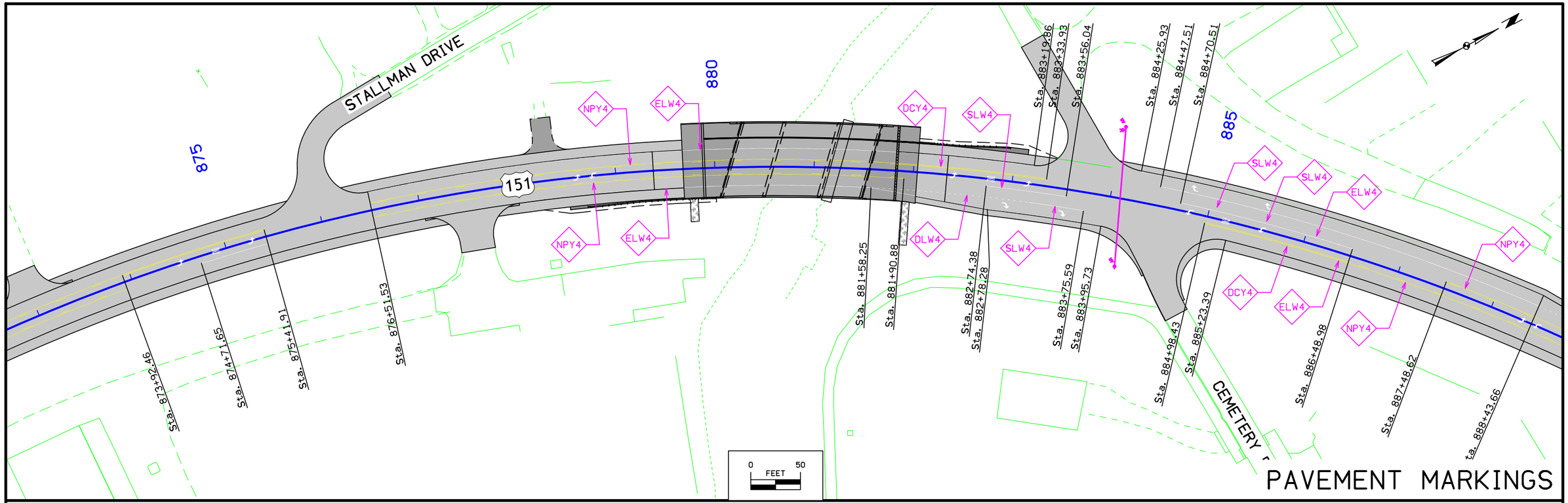


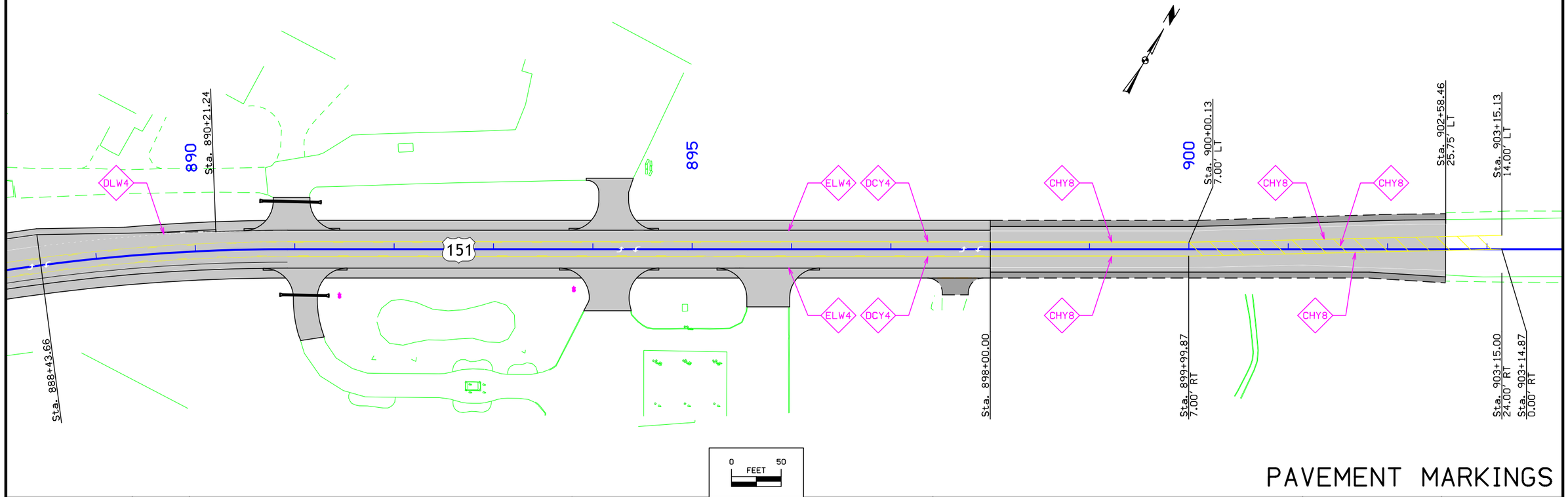


| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | J.37 |
|---|---|---|---|---|---|---|---|---|

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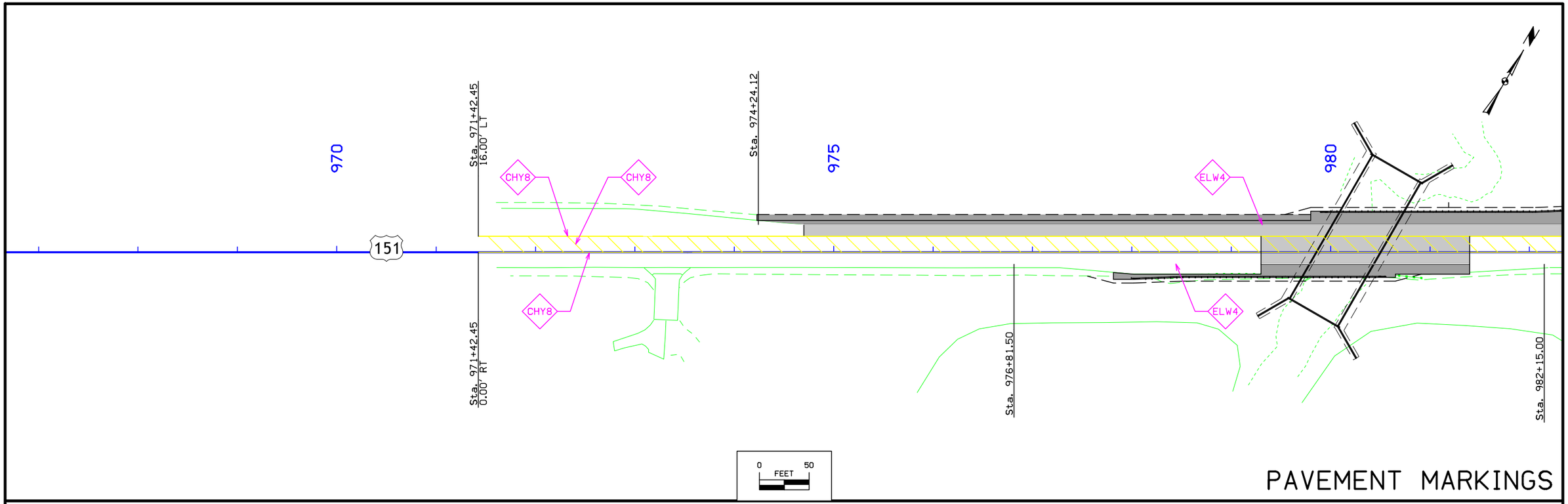
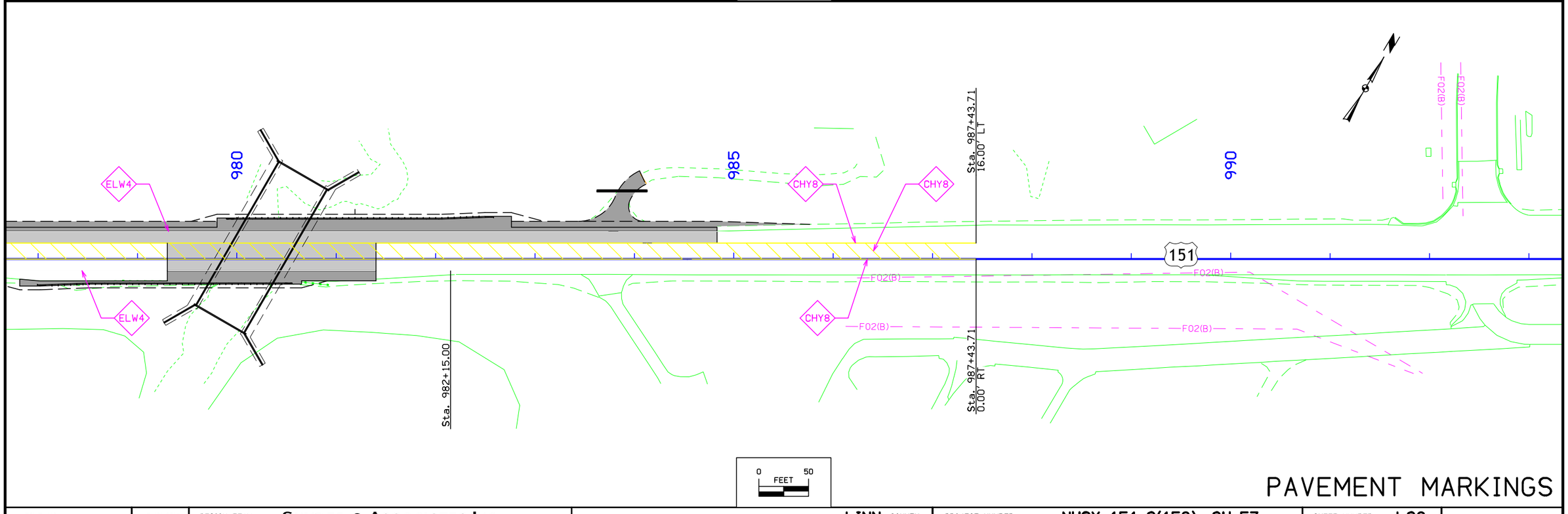



PAVEMENT MARKINGS




PAVEMENT MARKINGS

| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | J.38 |
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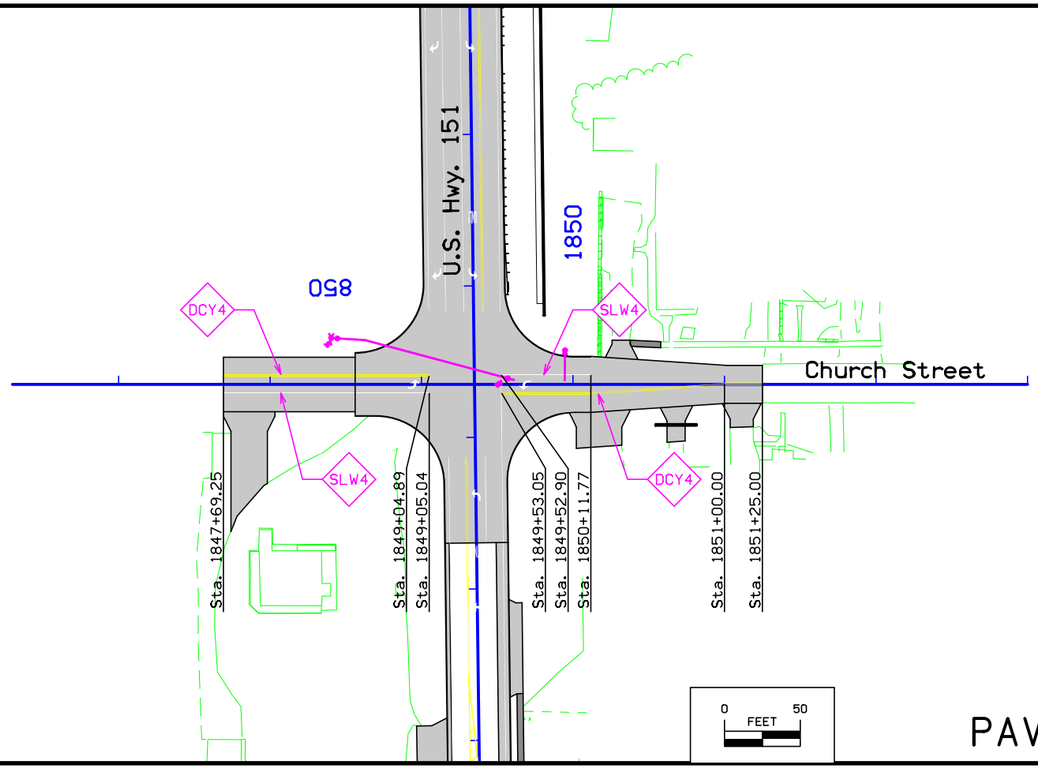


# PAVEMENT MARKINGS - Church Street

| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | J.39 |
|---|---|---|---|---|---|---|---|---|

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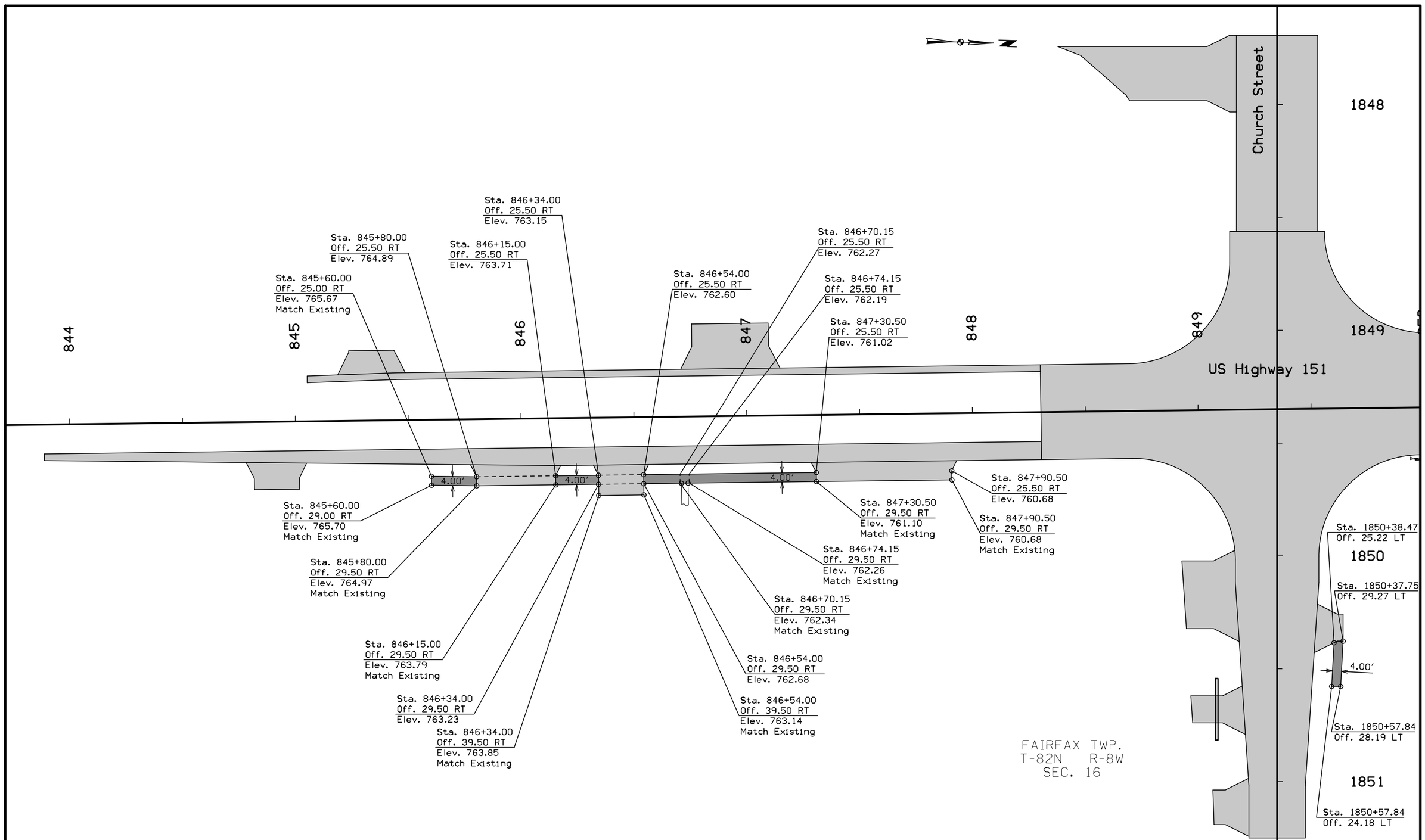


NOTES:

Refer to G sheets for horizontal alignment information.

Refer to appropriate Standard Road Plans for additional information.

0 FEET 20

**Geometric Details**
**Sidewalk Southeast of Intersection**
**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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## CIRCULAR CURVE DATA

| Name | Δ | D | T | L | E | R |
|---|---|---|---|---|---|---|
| CURVE SRCHRCH_RET_1-2 | 90° 43′ 03.62″ | 127° 19′ 26.24″ | 45.57′ | 71.25′ | 19.04′ | 45′ |
| CURVE SRCHRCH_RET_2-1 | 89° 16′ 56.38″ | 127° 19′ 26.24″ | 44.44′ | 70.12′ | 18.24′ | 45′ |
| CURVE SRCHRCH_RET_3-1 | 90° 43′ 03.62″ | 127° 19′ 26.24″ | 45.57′ | 71.25′ | 19.04′ | 45′ |
| CURVE SRCHRCH_RET_4-1 | 89° 16′ 56.38″ | 127° 19′ 26.24″ | 44.44′ | 70.12′ | 18.24′ | 45′ |

End Church Street Construction
Sta 1847+69.25 18.00′ RT

End Church Street Construction
Sta 1847+69.25 18.00′ LT

SRCHRCH_RET_2

Church Street

1848

SRCHRCH_RET_1

Sta 1848+56.14 21.00′ RT
Sta 1+90.12 SRCHRCH_RET_2

PT Sta 1848+69.79 21.00′ RT
Sta 1+80.12 SRCHRCH_RET_2

30′ Radius Point
Curve SRCHRCH_RET_2-1
Sta 848+69.80 66.00′ LT

18.00′ 18.00′

PC Sta 1848+56.14 21.00′ LT
Sta 1+00.00 SRCHRCH_RET_1

30′ Radius Point
Curve SRCHRCH_RET_1-2
Sta 850+01.96 78.00′ LT

CURVE SRCHRCH_RET_2-1

CURVE SRCHRCH_RET_1-2

PC Sta 848+69.80 21.00′ LT
Sta 1+10.00 SRCHRCH_RET_2

PT Sta 850+01.96 33.00′ LT
Sta 1+71.25 SRCHRCH_RET_1

Begin Taper
Sta 853+34.27 33.00′ LT

848 849 850 851 852 853

1849

15:1 Taper

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

US Highway 151

21.00′ 3.00′ 33.00′ 21.00′ 8.00′

89°16′56.38″ 90°43′3.62″

PT Sta 849+97.65 21.00 RT
Sta 1+80.12 SRCHRCH_RET_4

CURVE SRCHRCH_RET_4-1

PC Sta 848+70.64 21.00′ RT
Sta 1+10.00 SRCHRCH_RET_3

1850

30′ Radius Point
Curve SRCHRCH_RET_3
Sta 849+97.65 66.00′ RT

CURVE SRCHRCH_RET_3-1

18.50′ 18.50′

PC Sta 1850+00.18 18.50′ LT
Sta 1+10.00 CHRCH_RET_4

30′ Radius Point
Curve SRCHRCH_RET_3
Sta 848+70.64 66.00′ RT

End Taper
Sta 1850+11.77 18.50′ LT

PT Sta 1850+01.77 18.50′ RT
Sta 1+81.25 SRCHRCH_RET_3

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

SRCHRCH_RET_4

SRCHRCH_RET_3

End Taper
Sta 1850+11.77 18.50′ RT

15:1 Taper

15:1 Taper

Begin Taper
Sta 1851+01.77 12.50′ RT

Begin Taper
Sta 1851+01.77 12.50′ LT

Begin Church Street Construction
Sta 1851+25.00 12.50′ RT

1851

12.50′ 12.50′

Begin Church Street Construction
Sta 1851+25.00 12.50′ LT

NOTES:

Dimensions shown are to the back of curb.

Refer to G sheets for horizontal alignment information.

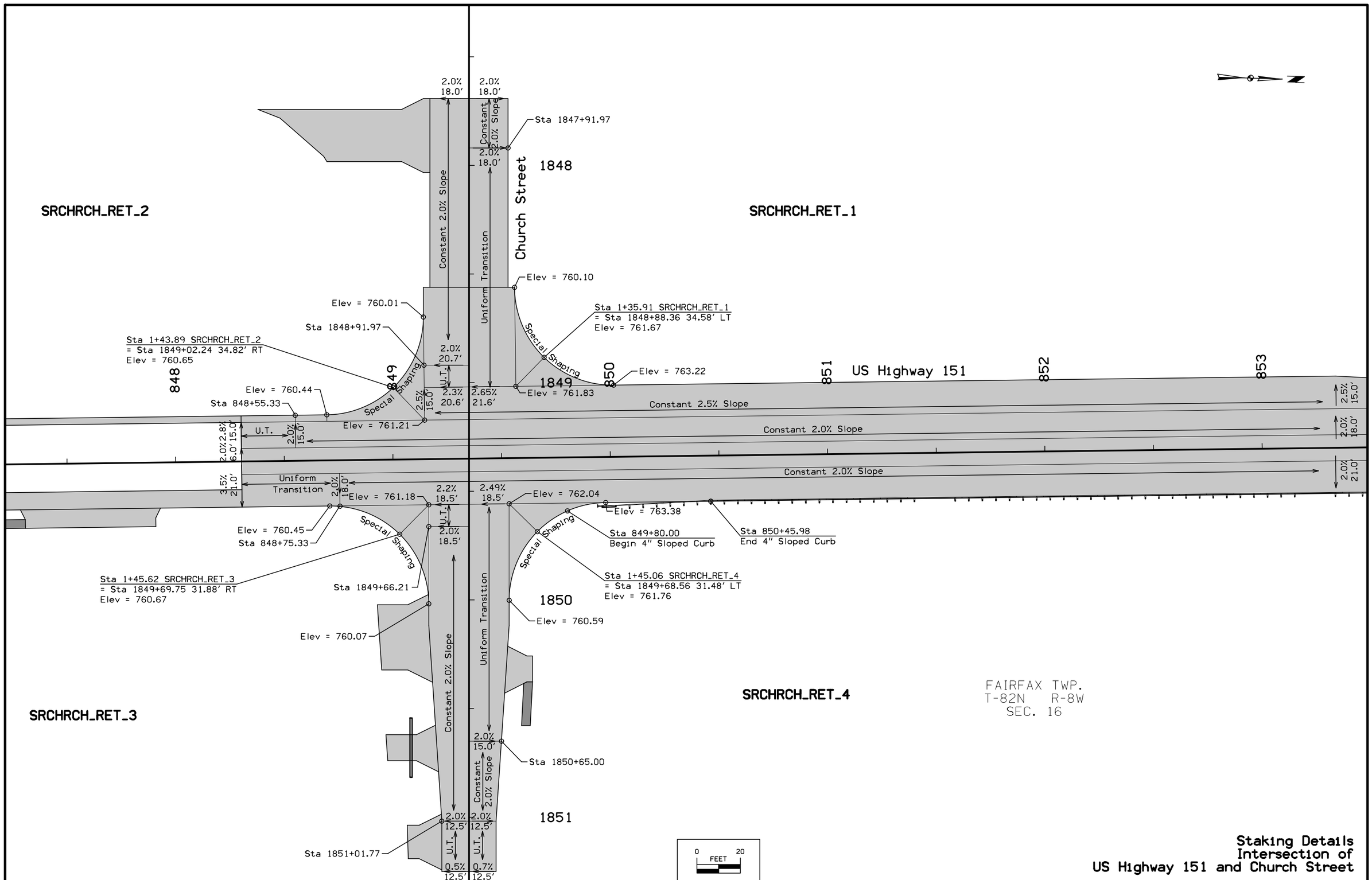
Refer to appropriate Standard Road Plans for additional information.

0 20
FEET

**Geometric Details**
**Intersection of**
**US Highway 151 and Church Street**

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

9:57:00 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158L01.sht

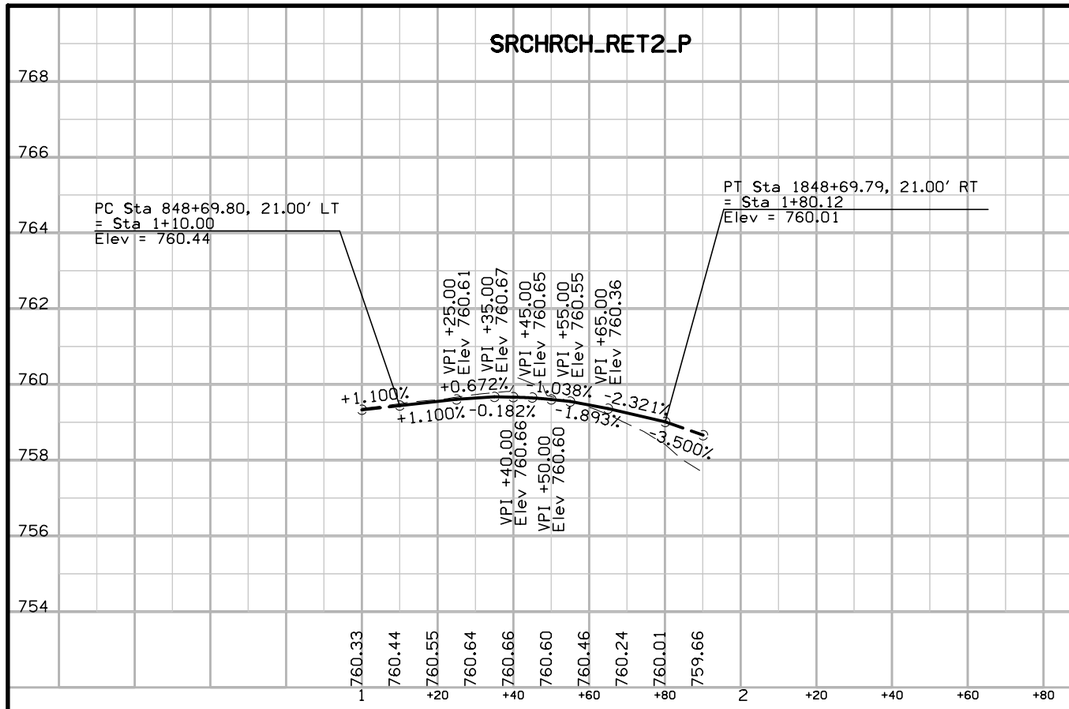



**Staking Details**
**Intersection of**
**US Highway 151 and Church Street**

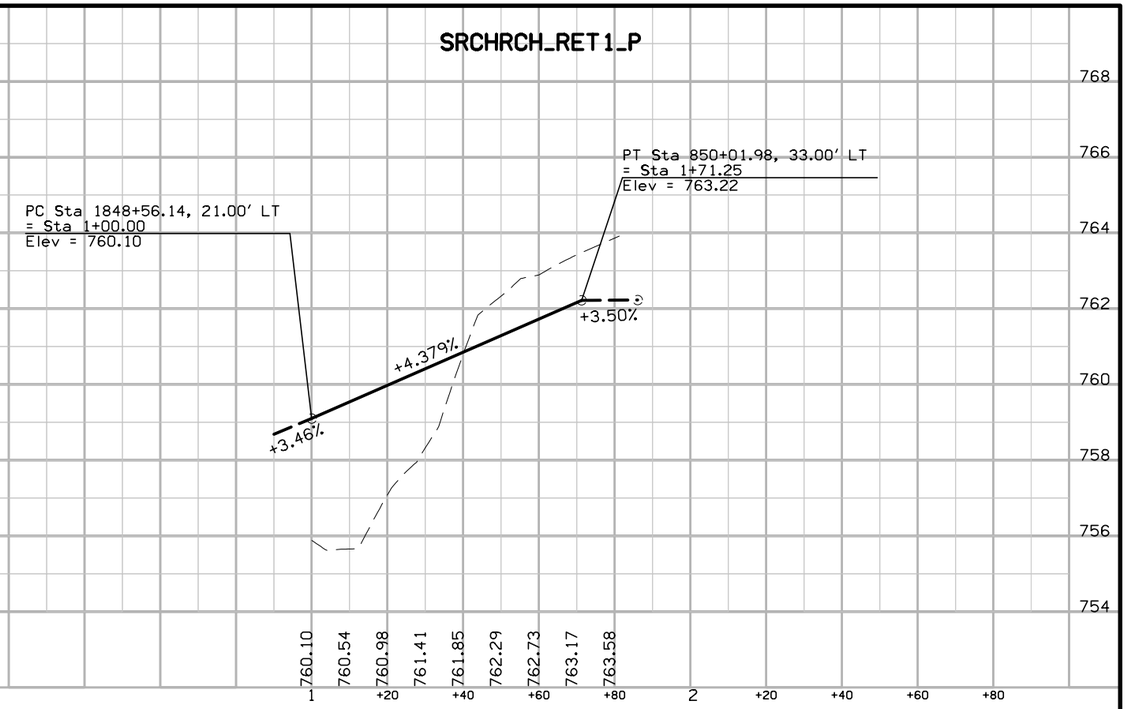
| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | L.3 |
|---|---|---|---|---|---|---|---|---|

9:57:01 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158L01.sht

## SRCHRCH_RET2_P




## SRCHRCH_RET1_P

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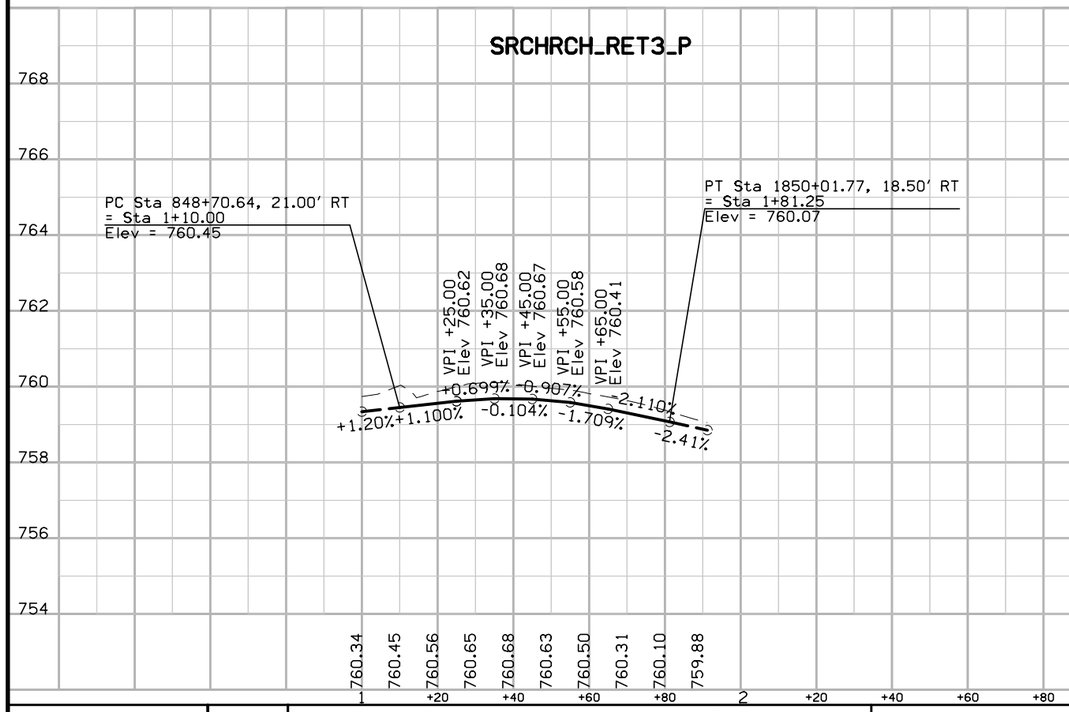
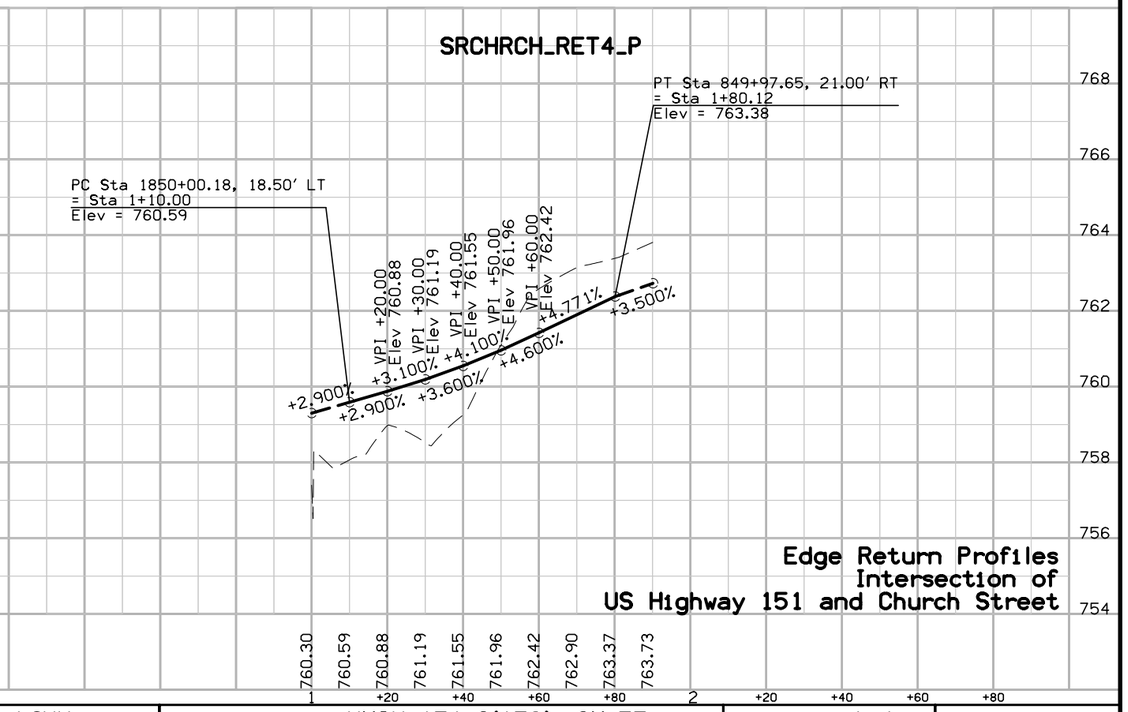



## SRCHRCH_RET4_P




**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.4 |
|---|---|---|---|---|---|---|---|---|

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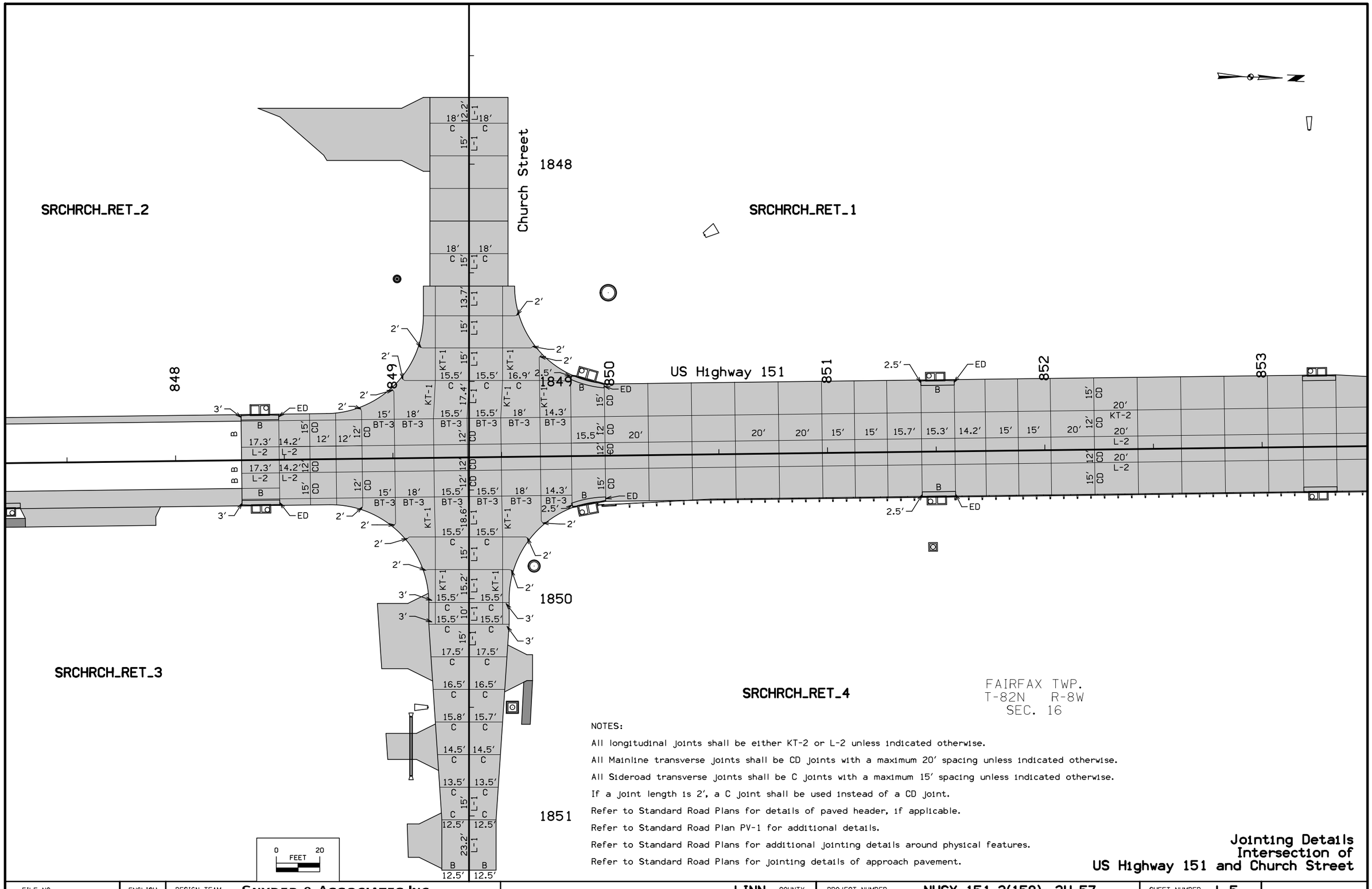


FAIRFAX TWP.
T-82N R-8W
SEC. 16

NOTES:

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

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

All Sideroad transverse joints shall be C joints with a maximum 15′ 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 Church Street

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

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

Union Pacific Railroad

855 856 857 858 859 860

US Highway 151

Sta 856+14.67, 36.42' LT
Elev = 792.99

Sta 856+09.10, 36.42' LT
Elev = 792.88

Sta 856+09.10, 21.00' LT
Elev = 793.11

Sta 855+89.10, 21.00' LT
Elev = 793.18

Sta 855+59.10, 21.00' LT
Elev = 792.42

End Taper
Sta 855+14.27, 21.00' LT
Elev = 791.00

Sta 858+45.67, 36.42' LT
Elev = 793.08

Sta 858+56.11, 36.42' LT
Elev = 792.88

Sta 858+56.11, 21.00' LT
Elev = 793.11

Sta 858+76.10, 21.00' LT
Elev = 793.18

Sta 859+06.10, 21.00' LT
Elev = 792.42

15:1 Taper

21.00'

21.00'

21.00'

21.00'

15:1 Taper

Sta 855+59.10, 21.00' RT
Elev = 792.42

Sta 855+89.10, 21.50' RT
Elev = 793.17

Sta 856+09.10, 21.50' RT
Elev = 793.60

Sta 856+23.50, 21.50' RT
Elev = 793.87

Sta 856+29.10
Begin Bridge Abutment

Sta 858+36.11
End Bridge Berm

Sta 858+44.50, 21.50' RT
Elev = 793.82

Sta 858+56.11, 21.50' RT
Elev = 793.60

Sta 858+76.10, 21.50' RT
Elev = 793.17

Sta 859+06.10, 21.00' RT
Elev = 792.42

Begin Taper
Sta 859+93.36, 21.00' RT
Elev = 789.39

Notes:
Follow Standard Road Plan BR-203 For
Bridge Approach Pavement

Refer to G sheets for horizontal alignment
information.

Legend

Unreinforced Section

Single Reinforced Section

Double Reinforced Section

0 20
FEET

# Geometric Details
# Union Pacific Railroad Bridge

| 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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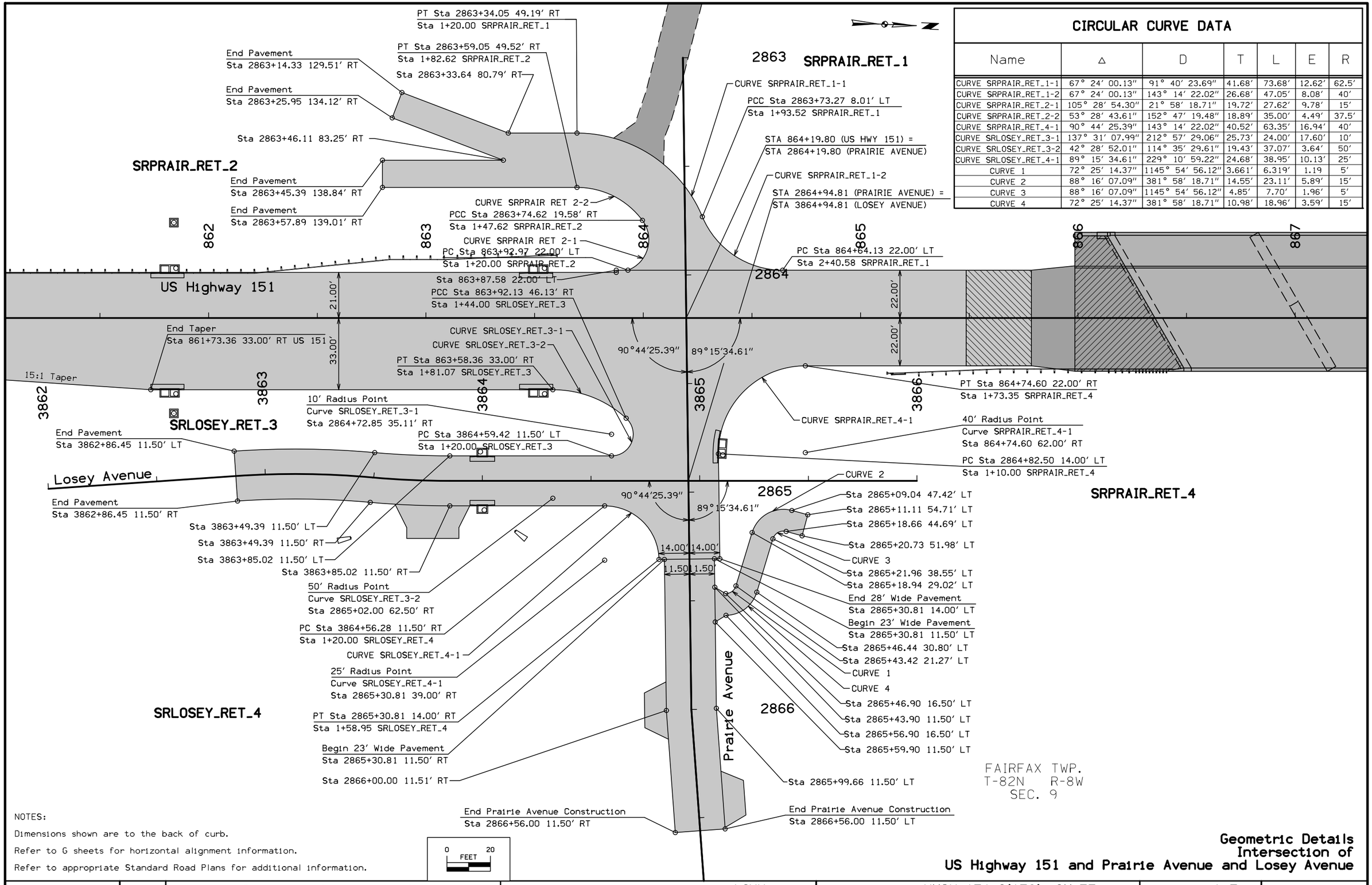


## CIRCULAR CURVE DATA

| 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" | 21° 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" | 212° 57' 29.06" | 25.73' | 24.00' | 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' |
| CURVE 1 | 72° 25' 14.37" | 1145° 54' 56.12" | 3.661' | 6.319' | 1.19 | 5' |
| CURVE 2 | 88° 16' 07.09" | 381° 58' 18.71" | 14.55' | 23.11' | 5.89' | 15' |
| CURVE 3 | 88° 16' 07.09" | 1145° 54' 56.12" | 4.85' | 7.70' | 1.96' | 5' |
| CURVE 4 | 72° 25' 14.37" | 381° 58' 18.71" | 10.98' | 18.96' | 3.59' | 15' |

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 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.7 |
|---|---|---|---|---|---|---|---|---|

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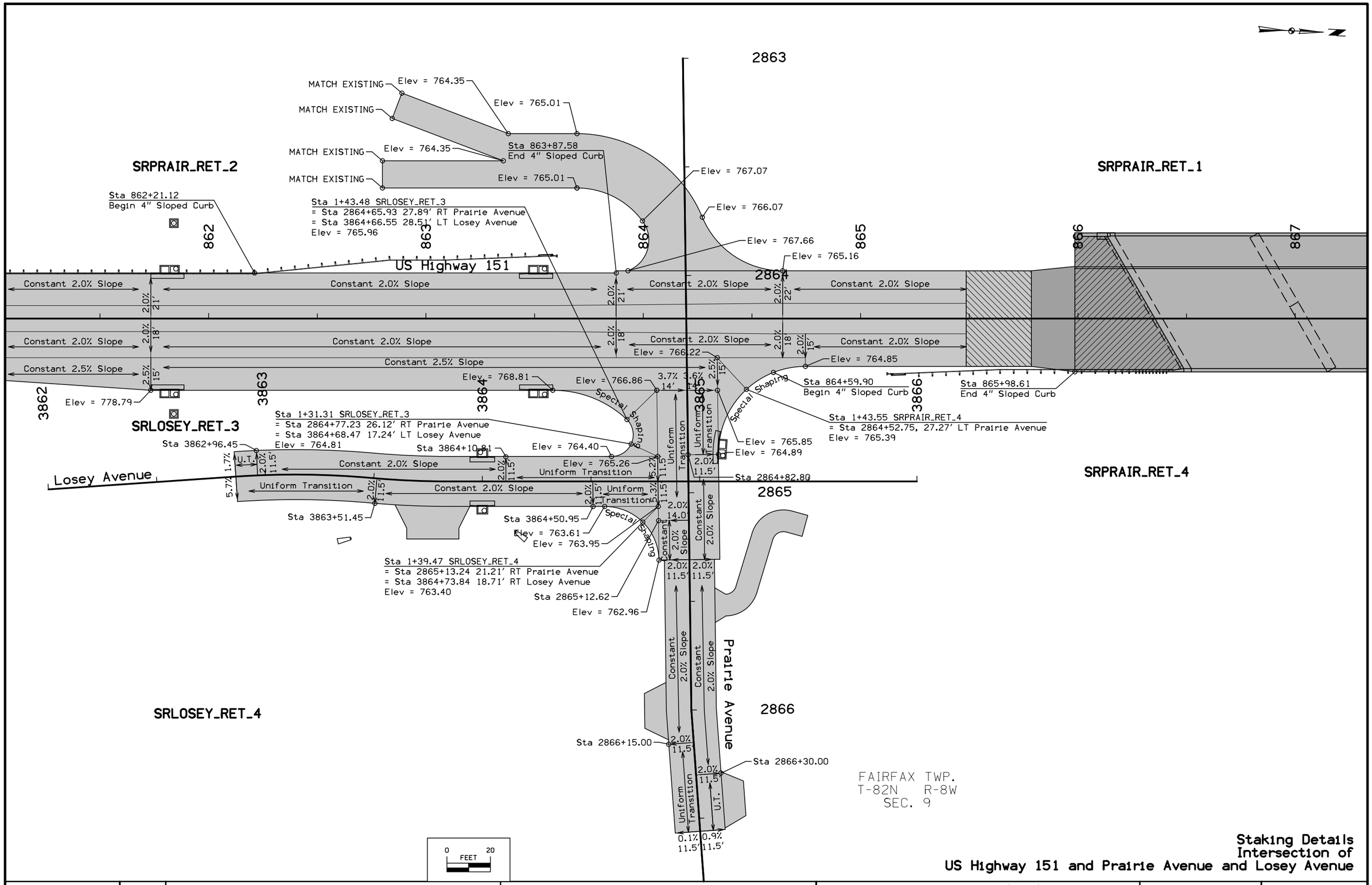


**Staking Details**
**Intersection of**
**US Highway 151 and Prairie Avenue and Losey Avenue**

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

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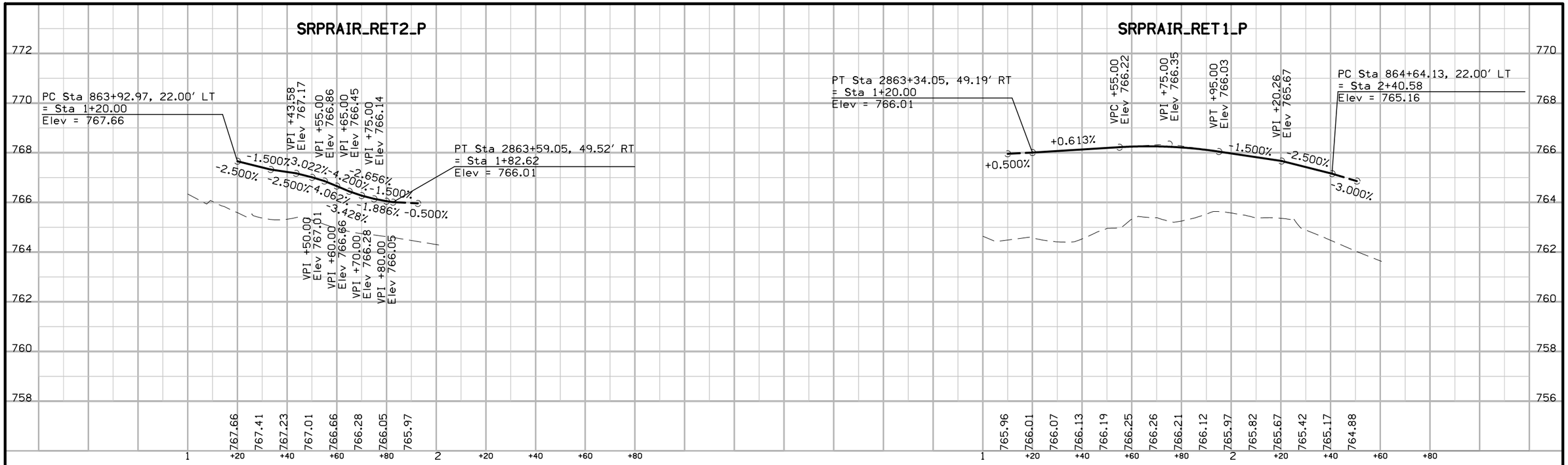


| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | L.9 |
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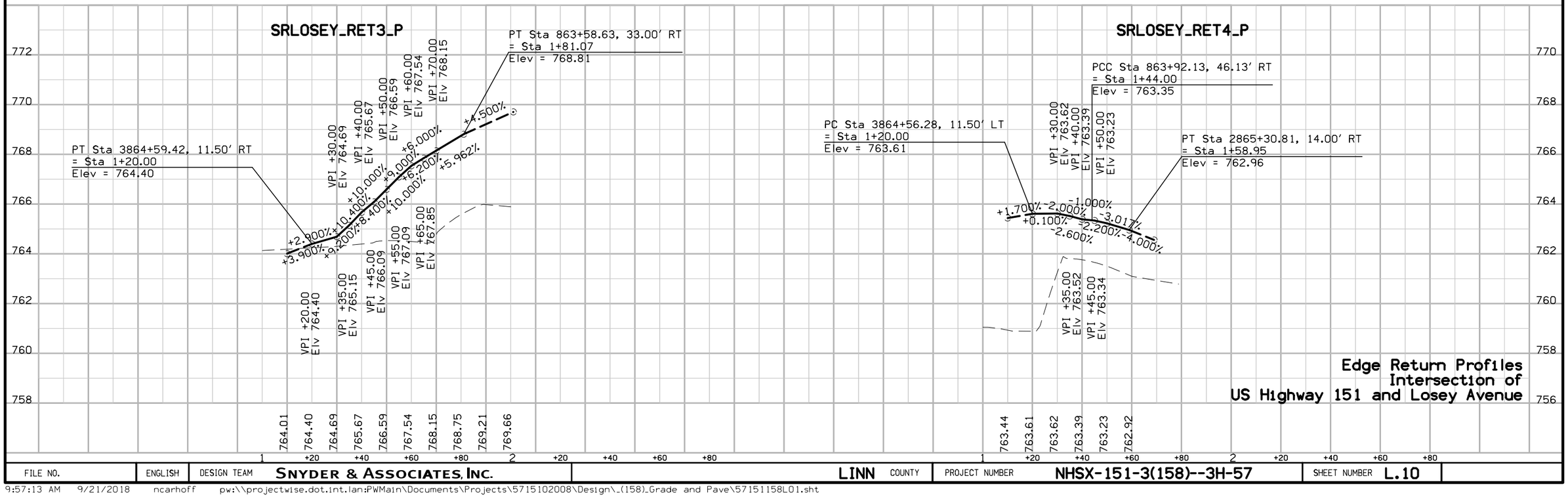


| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | L.10 |
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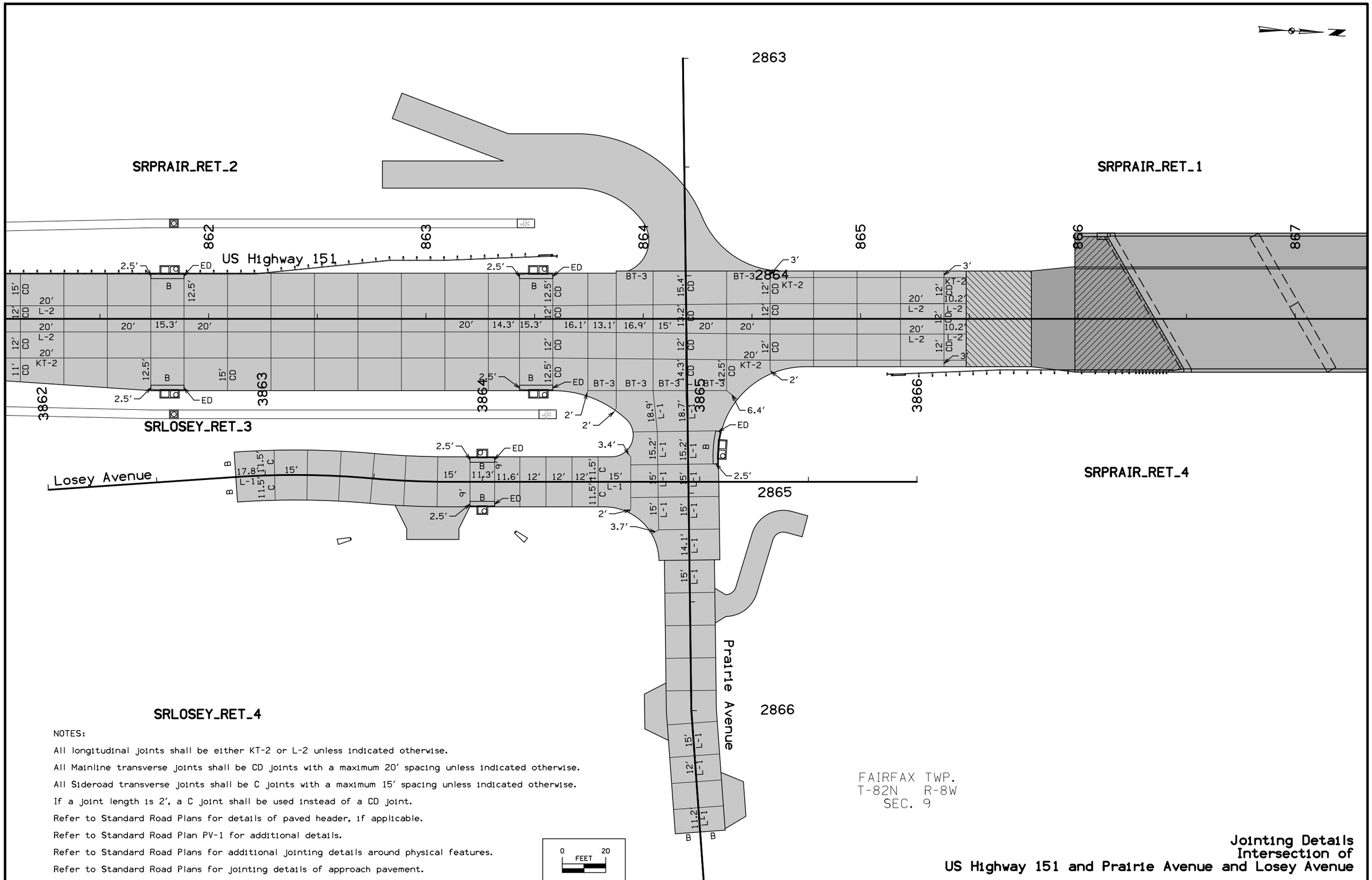


NOTES:

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

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

All Sideroad transverse joints shall be C joints with a maximum 15′ 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 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.11 |
|---|---|---|---|---|---|---|---|

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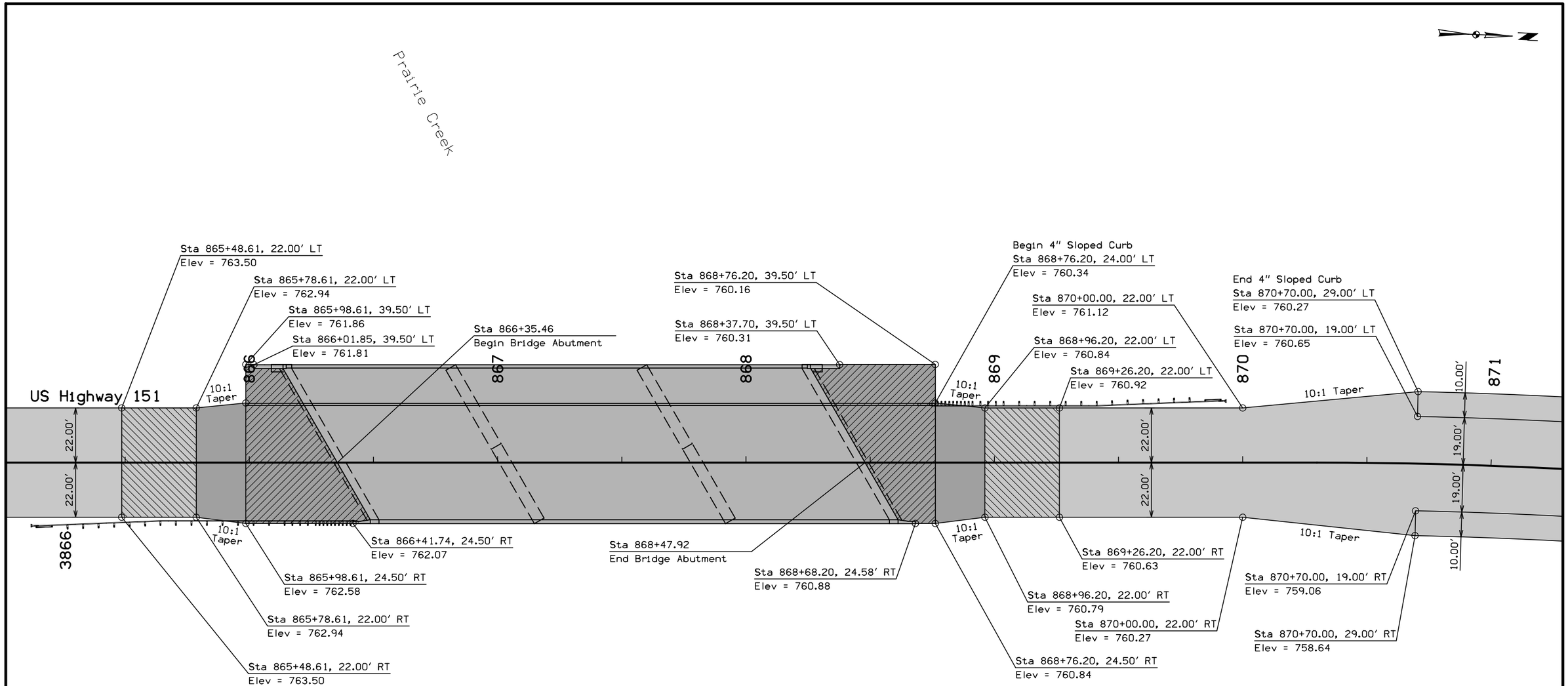


Notes:
Follow Standard Road Plan BR-203 For
Bridge Approach Pavement.

Refer to G sheets for horizontal alignment
information.

Legend

Unreinforced Section

Single Reinforced Section

Double Reinforced Section

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

0 FEET 20

**Geometric Details**
**Prairie Creek Bridge**

| 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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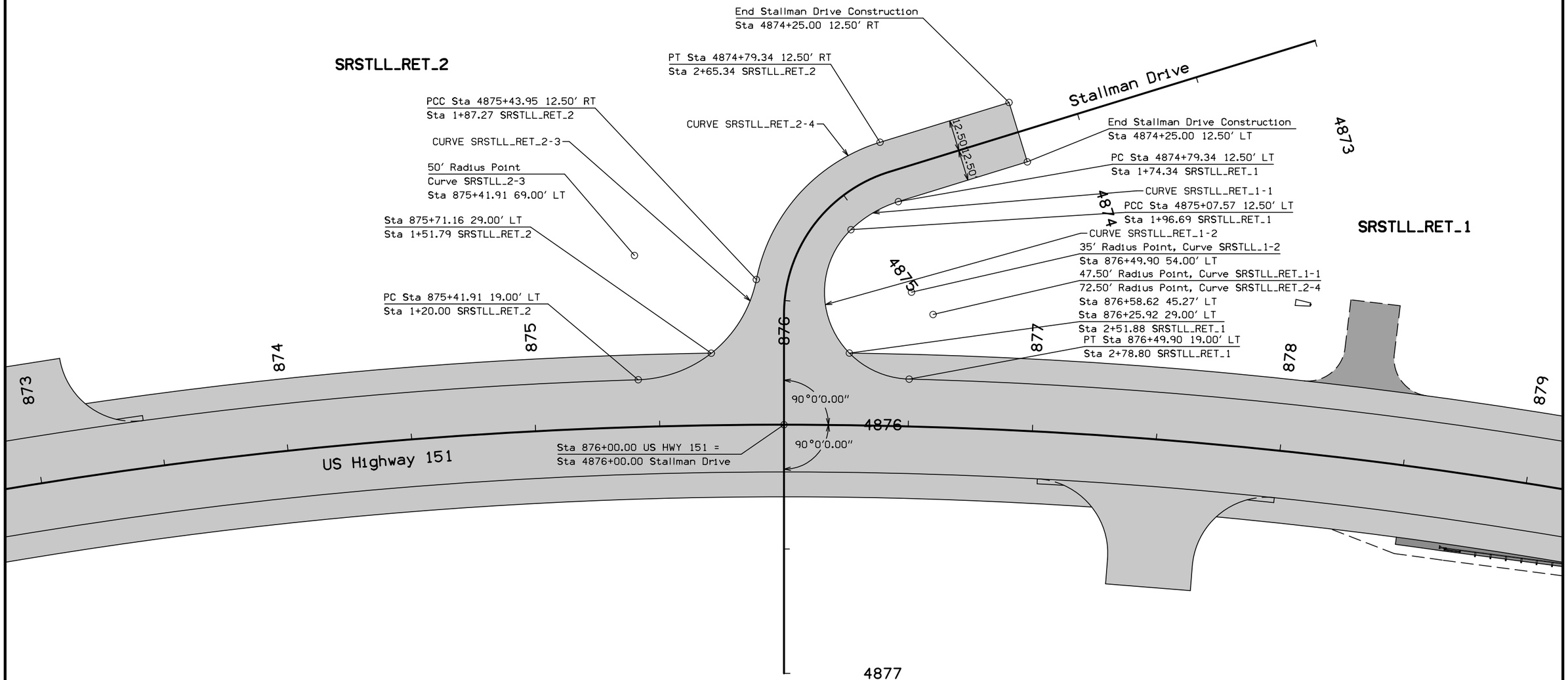
## CIRCULAR CURVE DATA

| Name | Δ | D | T | L | E | R |
|---|---|---|---|---|---|---|
| CURVE SRSTLL_RET_1-1 | 26° 57′ 38.81″ | 120° 37′ 21.70″ | 11.39′ | 22.35′ | 1.35′ | 47.50′ |
| CURVE SRSTLL_RET_1-2 | 134° 24′ 50.55″ | 163° 42′ 08.02″ | 83.29′ | 82.11′ | 55.35′ | 35.00′ |
| CURVE SRSTLL_RET_2-3 | 77° 05′ 10.18″ | 114° 35′ 29.61″ | 39.83′ | 67.27′ | 13.93′ | 50.00′ |
| CURVE SRSTLL_RET_2-4 | 61° 42′ 02.18″ | 79° 01′ 43.18″ | 43.31′ | 78.07′ | 11.95′ | 72.50′ |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |




NOTES:

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 FEET 20

**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.13 |
|---|---|---|---|---|---|---|---|

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SRSTLL_RET_2

SRSTLL_RET_1

Stallman Drive

Elev = 758.89

CONSTANT 2.0% SLOPE

2.0% 12.5'

2.0% 12.5'

CONSTANT 2.0% SLOPE

Elev = 758.89

Elev = 758.78

Sta 4875+46.00

Elev = 758.89

Sta 1+57.00 SRSTLL_RET_2
= Sta 4875+67.79 25.36' RT Stallman Drive
Elev = 758.72

Special Shaping

2.0% 12.5'

Sta 4875+56.00

2.0% 12.5'

Special Shaping

Sta 2+50.11 SRSTLL_RET_1
= Sta 4875+69.88 25.10' LT Stallman Drive
Elev = 759.09

US Highway 151

Uniform Transition

Uniform Transition

873 874 875 876 877 878 879

4873 4874 4875 4876 4877

CONSTANT 3.8% SLOPE

3.8% 10'

Elev = 758.70

Elev = 758.52

0.72% 12.5'

0.80% 12.5'

Elev = 758.89

Elev = 759.26

3.8% 10'

CONSTANT 3.8% SLOPE

3.8% 10'

UNIFORM TRANSITION

CONSTANT 4.2% SLOPE

4.2% 38'

CONSTANT 4.2% SLOPE

4.2% 10'

4.2% 10'

4.2% 10'

CONSTANT 4.2% SLOPE

4.2% 10'

4.2% 38'

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.14 |
|---|---|---|---|---|---|---|---|

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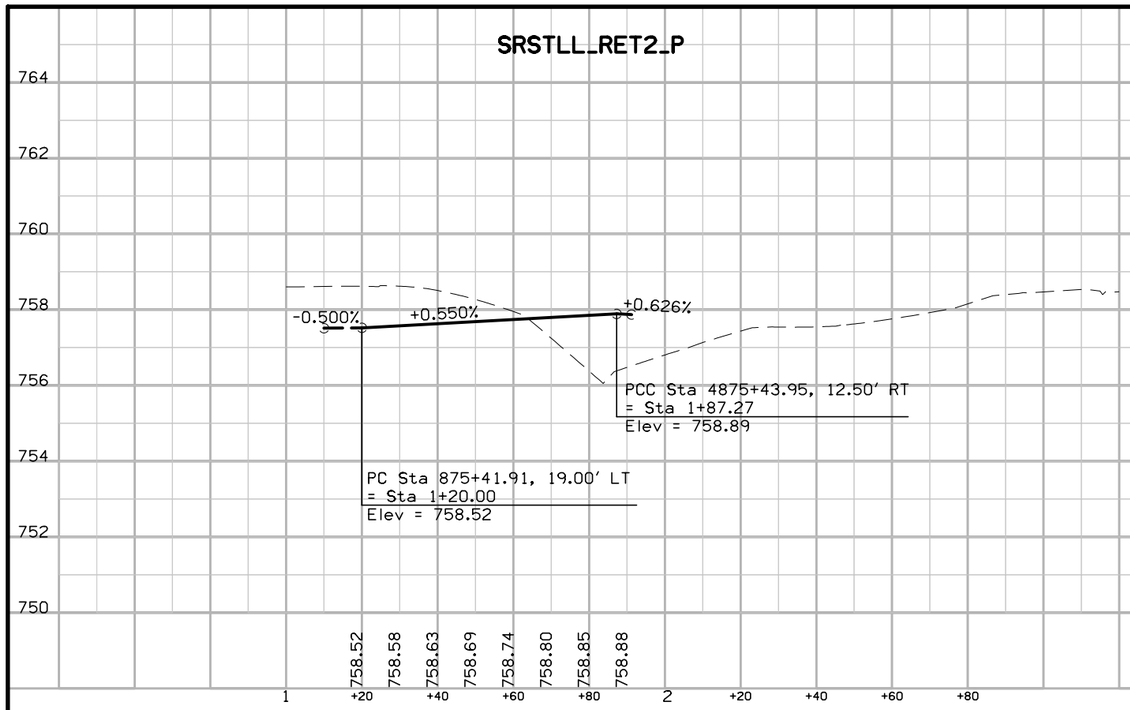


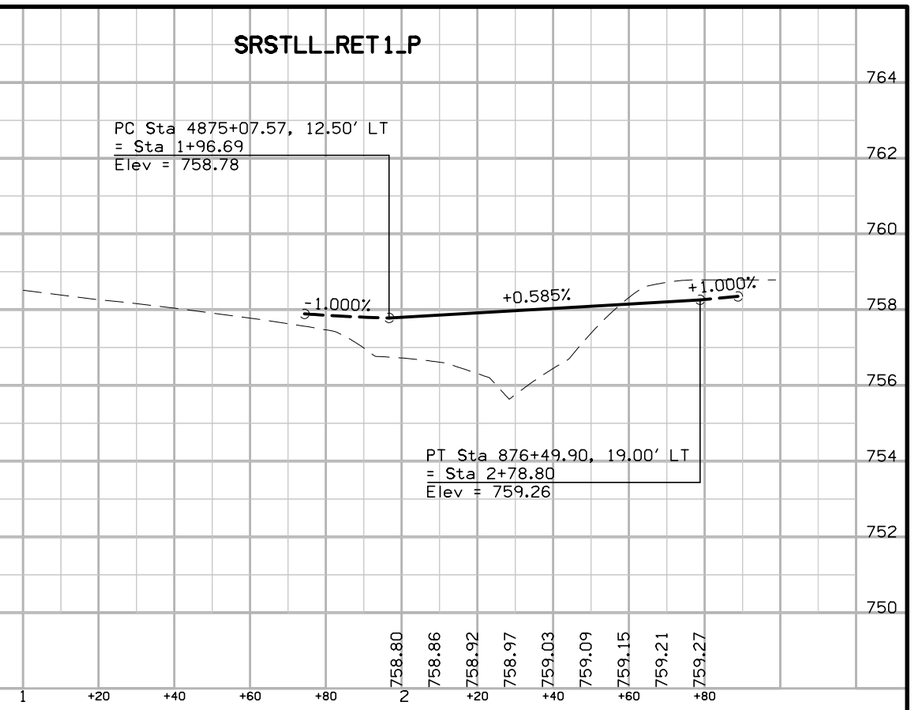


Edge Return Profiles
Intersection of
US Highway 151 and Stallman Drive

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

9:57:21 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158L01.sht

SRSTLL_RET_2

SRSTLL_RET_1

Stallman Drive

US Highway 151

873 874 875 876 877 878 879

4873 4874 4875 4876 4877

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

0 20
FEET

NOTES:

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

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

All Sideroad transverse joints shall be C joints with a maximum 15′ 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.16 |
|---|---|---|---|---|---|---|---|---|

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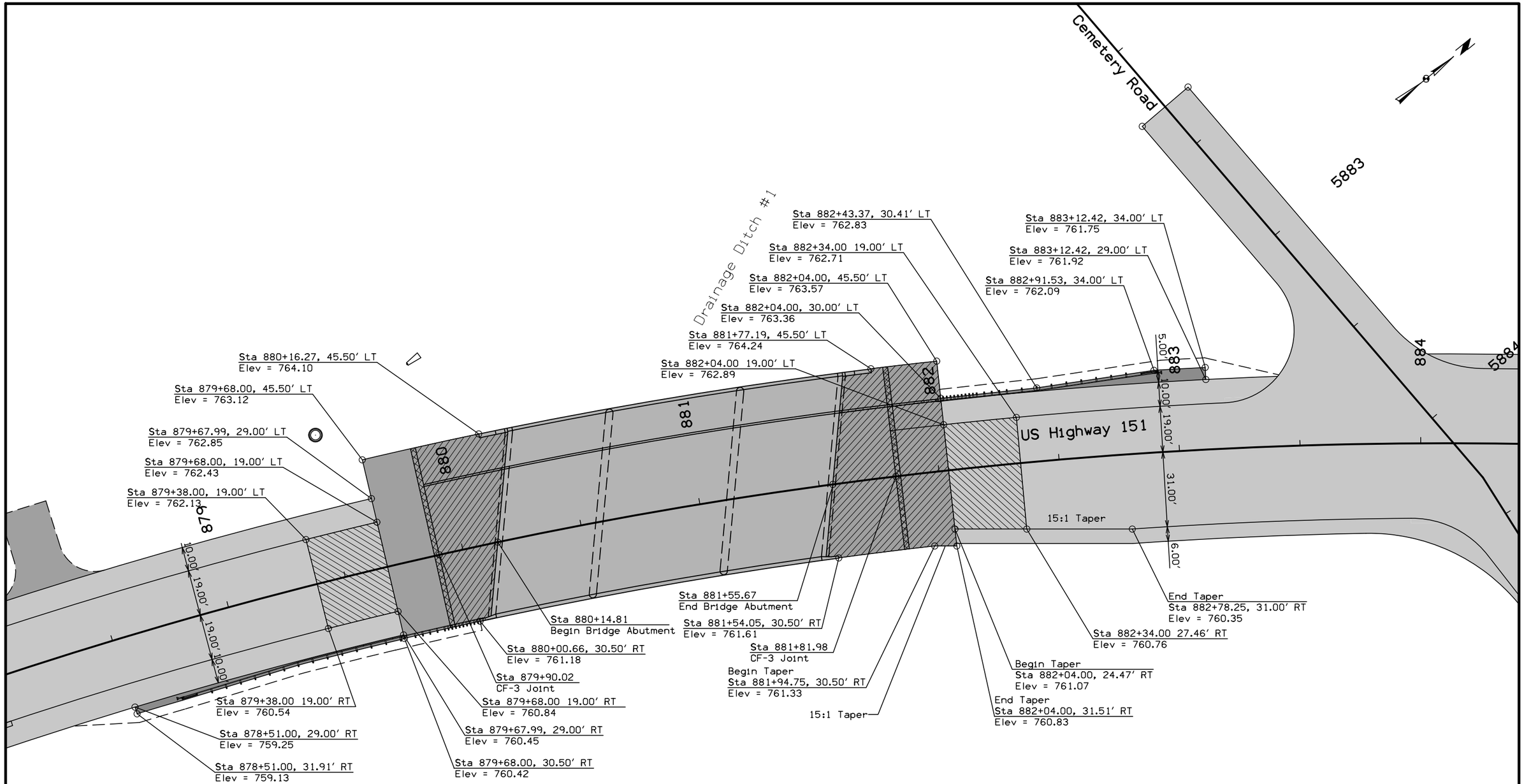


Note:
Follow Standard Road Plan BR-205 for Bridge Approach Pavement. For North Abutment Extend Double Reinforced Section to End of Separation Rail, No Single Reinforced Section.

Legend

- Unreinforced Section
- Single Reinforced Section
- Double Reinforced Section

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

0 20
FEET

# Geometric Details
# Drainage Ditch #1 Bridge

| 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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## CIRCULAR CURVE DATA

| Name | Δ | D | T | L | E | R |
|---|---|---|---|---|---|---|
| SRCEMET_RET_1-1 | 48° 56′ 43.89″ | 114° 35′ 29.61″ | 22.76′ | 42.71′ | 4.95′ | 50′ |
| SRCEMET_RET_2-2 | 127° 52′ 20.06″ | 190° 59′ 09.35″ | 61.33′ | 66.95′ | 38.28′ | 30′ |
| SRCEMET_RET_3-2 | 52° 29′ 27.50″ | 143° 14′ 22.02″ | 19.72′ | 36.65′ | 4.59′ | 40′ |
| SRCEMET_RET_4-2 | 130° 25′ 29.97″ | 143° 14′ 22.02″ | 86.62′ | 91.05′ | 55.41′ | 40′ |

5882

Begin Cemetery Road Construction
Sta 5882+30.00 12.50′ LT

Begin Cemetery Road Construction
Sta 5882+30.00 12.50′ RT

SRCEMET_RET_2

12.50′

12.50′

5883

PC Sta 5883+60.60 12.50′ LT
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

PT Sta 5883+15.59 12.50′ RT
Sta 1+86.95 SRCEMET_RET_2

CURVE SRCEMET_RET_2-3

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

CURVE SRCEMET_RET_1-1

PT Sta 884+25.93 31.00′ LT
Sta 1+62.71 SRCEMET_RET_1

PC Sta 883+19.86 19.00′ LT
Sta 1+20.00 SRCEMET_RET_2

882 883 884 5884 885 886 887

10.00′

6.00′

US Highway 151

19.00′

31.00′

49°23′26.74″

Sta 884+13.63 US HWY 151
= Sta 5884+13.63 Cemetery Road

122°15′33.46″

15:1 Taper

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

PC Sta 883+95.73 31.00′ RT
Sta 1+20.00 SRCEMET_RET_3

5885

PT Sta 885+23.39 19.00′ RT
Sta 2+26.28 SRCEMET_RET_4

40′ Radius Point
Curve SRCEMET_RET_4-2
Sta 885+23.39 59.00′ RT

CURVE SRCEMET_RET_3-2

40′ Radius Point
Curve SRCEMET_RET_3-2
Sta 883+95.73 71.00′ RT

13.00′

12.00′

CURVE SRCEMET_RET_4-2

PC Sta 5885+27.53 12.00′ LT
Sta 1+35.22 SRCEMET_RET_4

SRCEMET_RET_3

PT Sta 5884+60.69 15.49′ RT
Sta 1+56.65 SRCEMET_RET_3

5886

SRCEMET_RET_4

Sta 5884+86.04 13.00′ RT
Sta 1+82.32 SRCEMET_RET_3

End Cemetery Road Construction
Sta 5885+42.00 12.00′ LT
Sta 1+21.04 SRCEMET_RET_4

Sta 5884+92.07 13.00′ RT
Sta 1+88.48 SRCEMET_RET_3

End Cemetery Road Construction
Sta 5885+42.00 13.00′ RT

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.18 |
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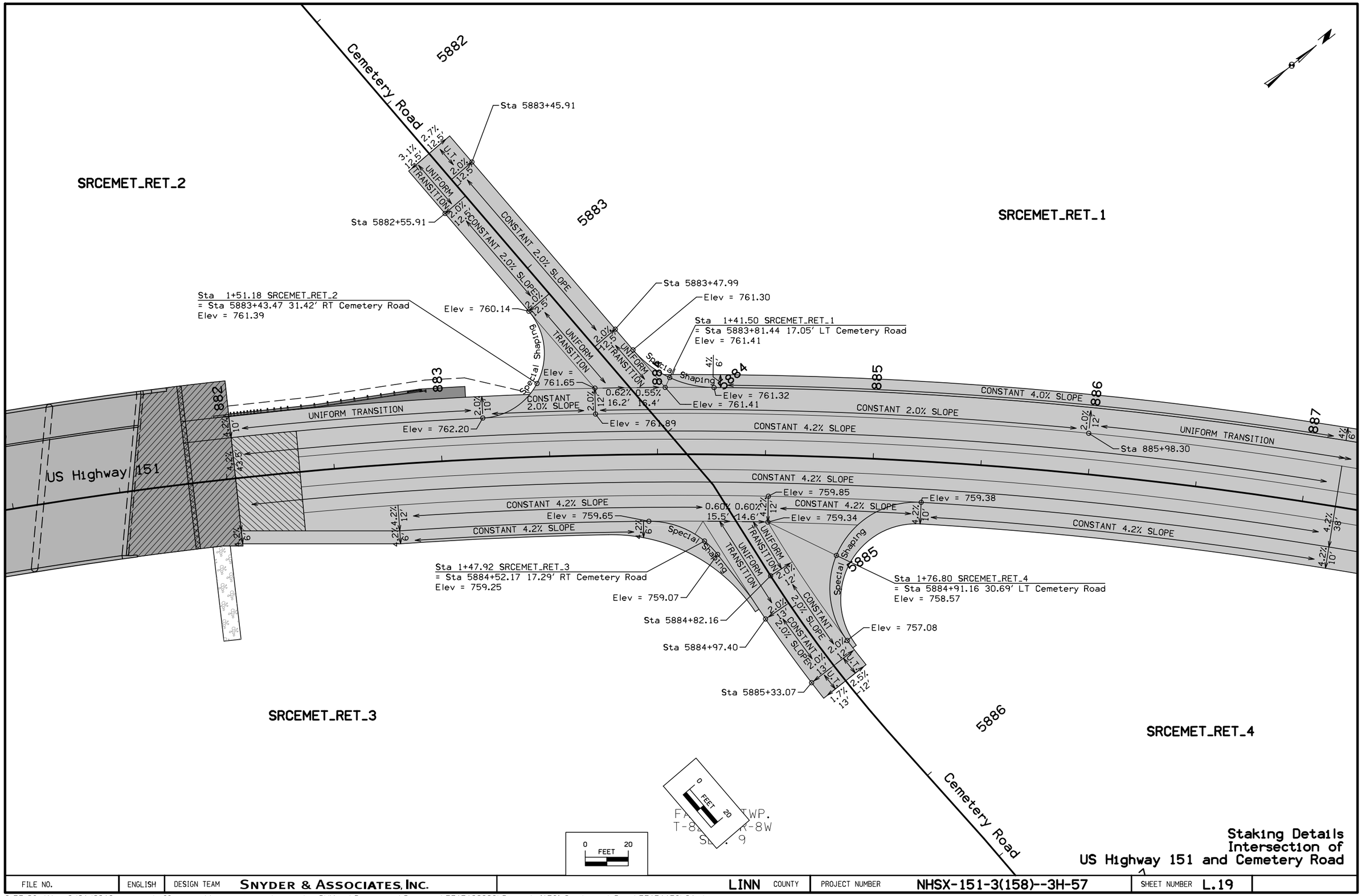


Staking Details
Intersection of
US Highway 151 and Cemetery Road

| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER L.19 |
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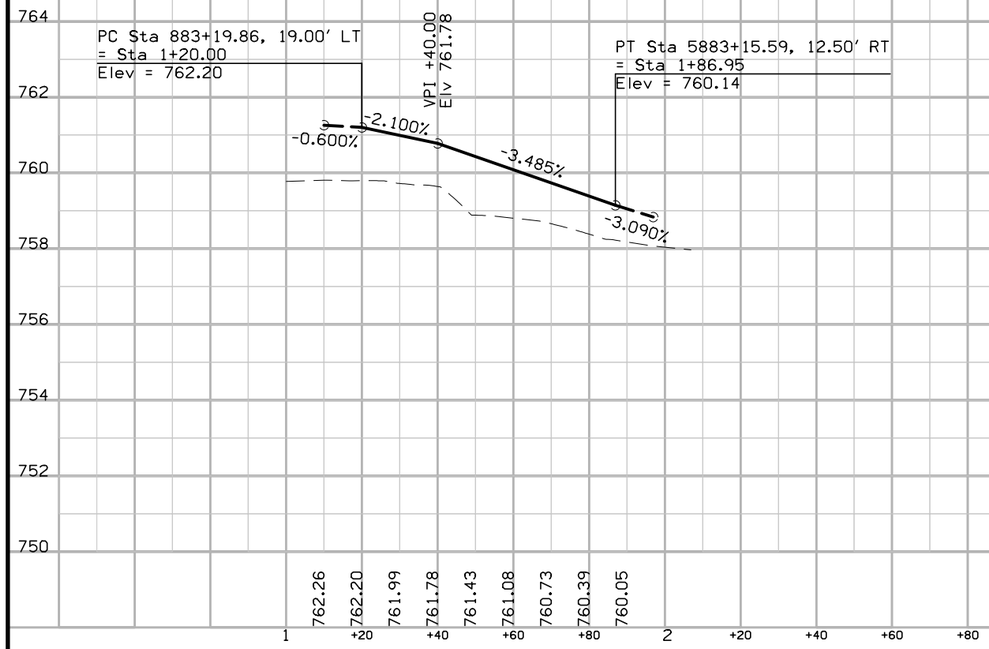
## SRCEMET_RET2_P

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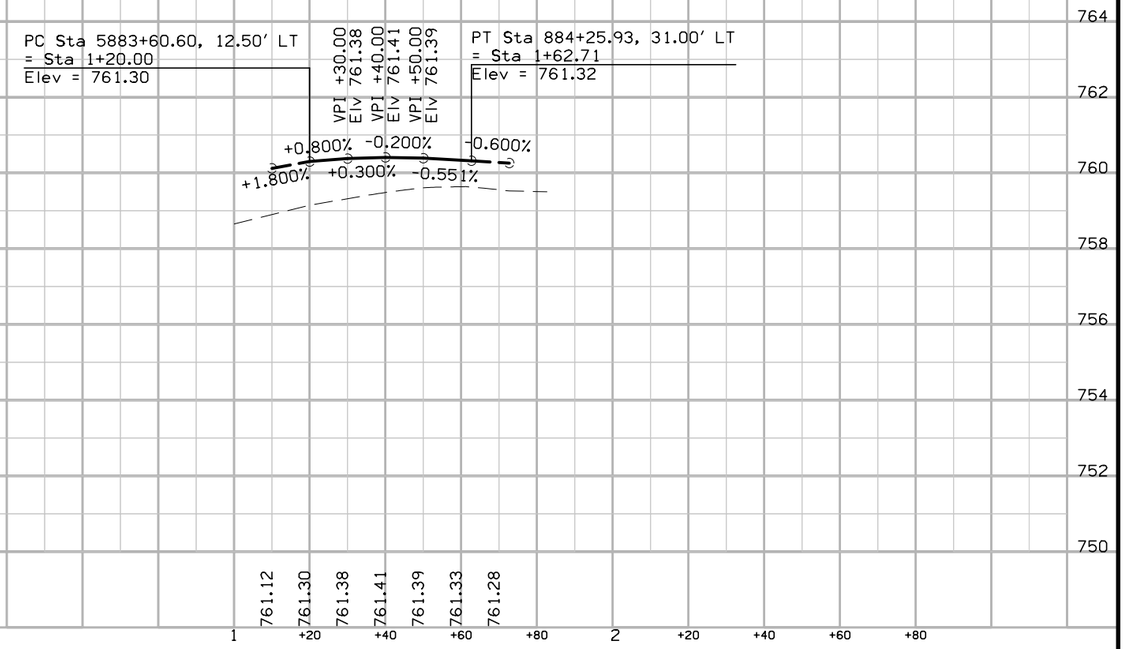


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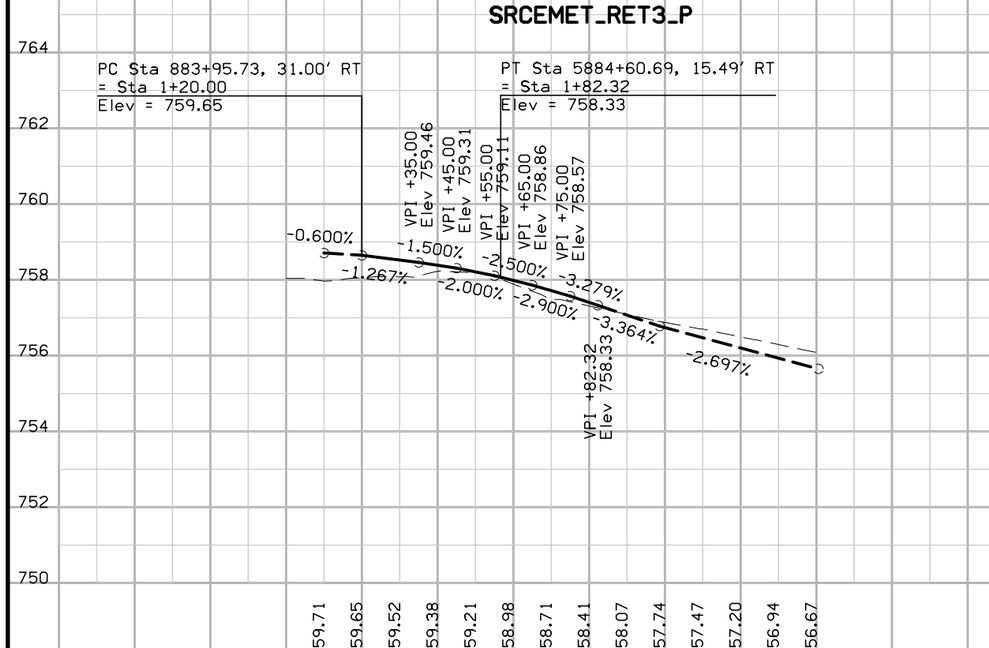


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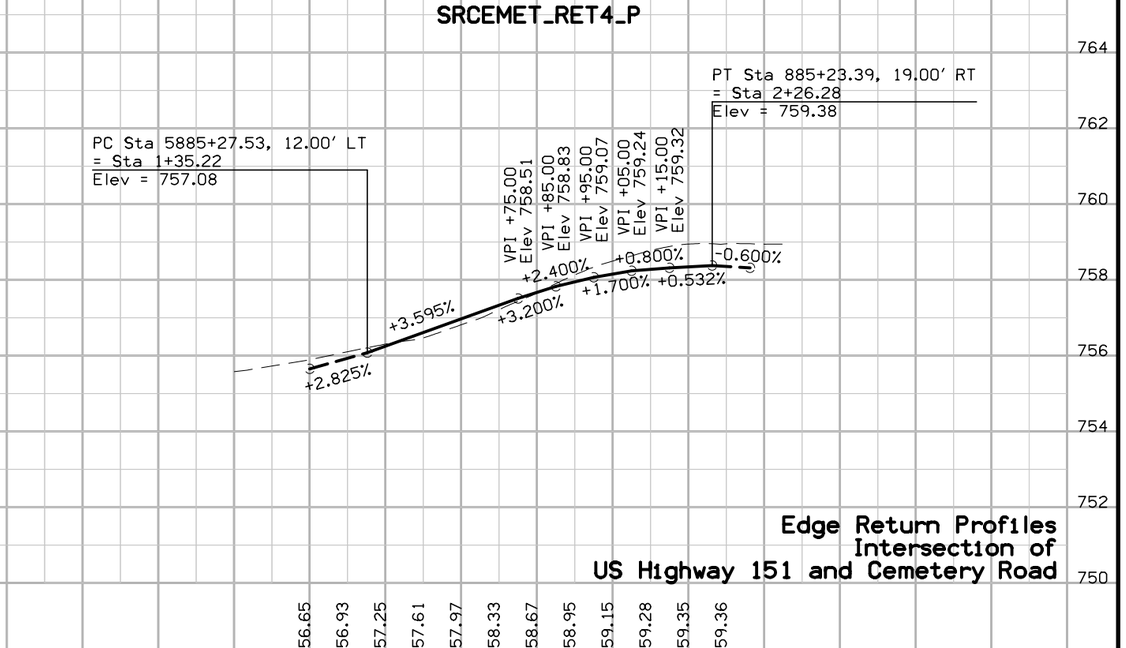


**Edge Return Profiles**
**Intersection of**
**US Highway 151 and Cemetery Road**

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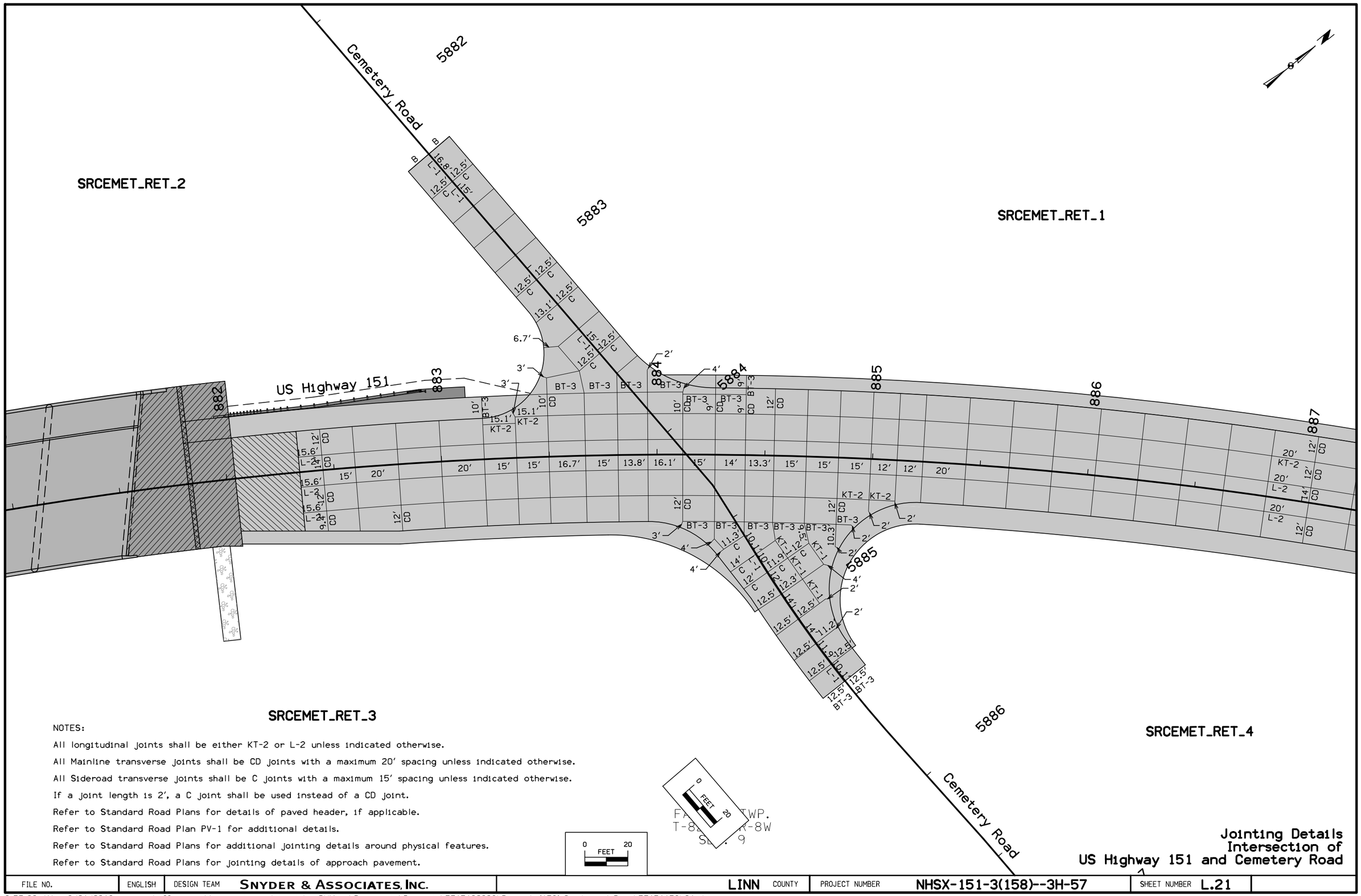


NOTES:

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

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

All Sideroad transverse joints shall be C joints with a maximum 15′ 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 Cemetery Road**

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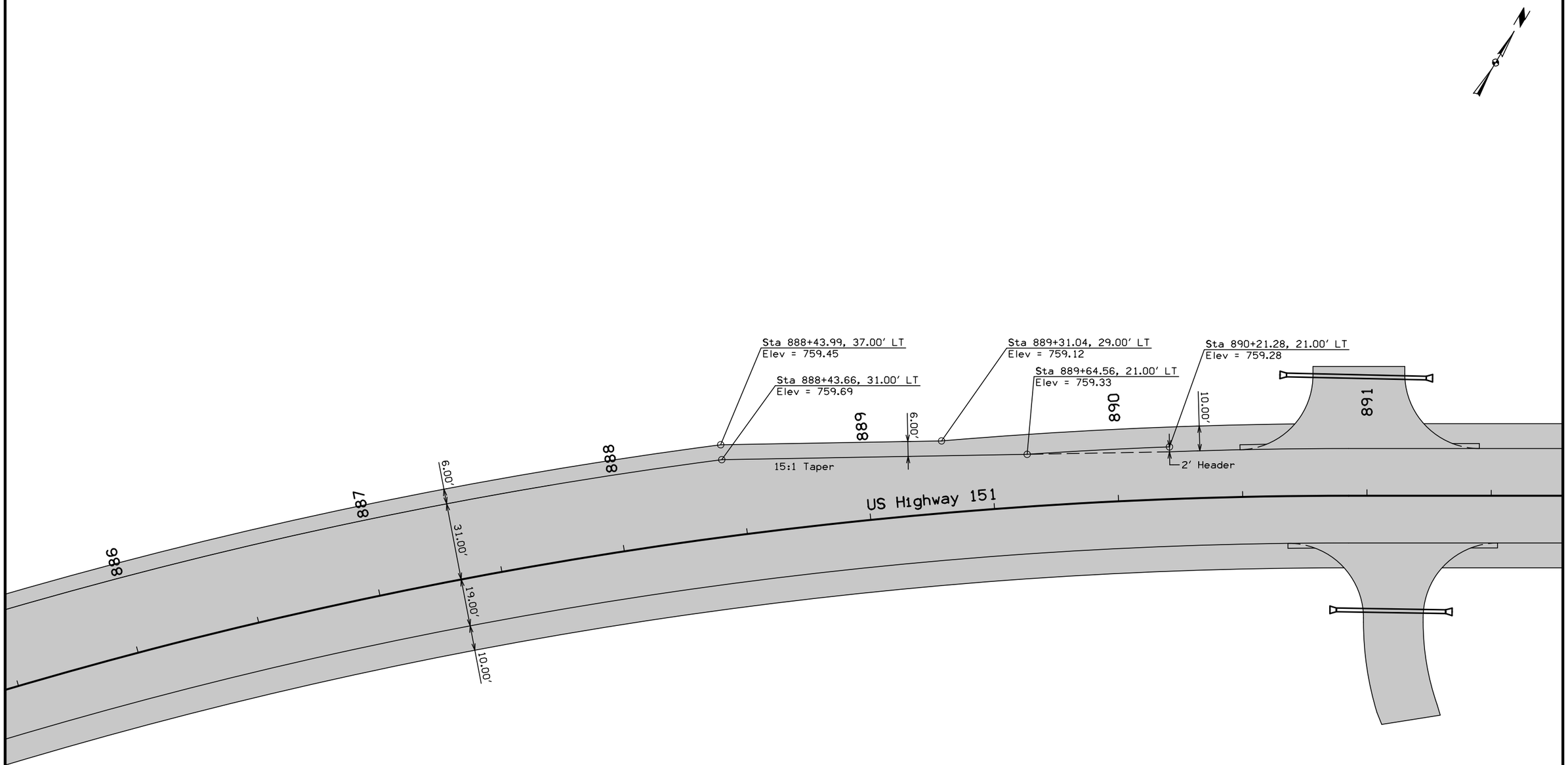


FAIRFAX TWP.
T-82N R-8W
SEC. 9

NOTES:

Refer to G sheets for horizontal alignment information.

Refer to appropriate Standard Road Plans for additional information.

0 20
FEET

**Geometric Details**
**Right Turn Lane**

| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER L.22 |
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# STORM AND SANITARY SEWER

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

## 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 | 757.18 | | |
| 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 (15-Inch) | 756.56 | | | Division 2 |
| ST-09 | 1850+50.00, 20.00 LT | SW-513 (4'x 4') | 758.23 | 754.48 | | Note 1 & Div.2 |
| ST-10 | 1849+85.00, 30.00 LT | SW-401 (48-Inch) | 761.83 | 754.10 | | Division 2 |
| ST-11 | 849+89.12, 22.51 RT | SW-510 | 762.96 | 753.70 | | |
| ST-12 | 851+48.00, 43.90 RT | SW-513 (3'x 3') | 768.83 | 765.88 | | Note 2 |
| ST-13 | 851+50.00, 21.00 RT | SW-509 | 770.62 | 765.60 | | |
| ST-14 | 851+50.00, 33.00 LT | SW-509 | 770.31 | 764.69 | | |
| ST-15 | 849+89.35, 35.68 LT | SW-510 | 762.65 | 753.00 | | |
| ST-16 | 1848+30.00, 30.00 RT | SW-512 (30-Inch) | 758.75 | 754.26 | | Type 5 Cstg, Div. 3 |
| ST-17 | 850+00.00, 75.00 LT | SW-401 (72-Inch) | 758.25 | 752.55 | | Division 3 |
| ST-18 | 850+50.00, 104.06 LT | DR-201 (30-Inch) | 752.50 | | | Apron Ftg, Div. 3 |
| ST-19 | 853+25.60, 21.00 RT | SW-509 | 781.16 | 776.45 | | |
| ST-20 | 853+25.60, 33.00 LT | SW-509 | 780.85 | 775.64 | | |
| ST-21 | 853+23.50, 152.00 LT | DR-201 (15-Inch) | 751.79 | | | |
| ST-22 | 861+84.00, 43.90 LT | SW-513 (3'x 3') | 778.50 | 775.50 | | Note 2 |
| ST-23 | 861+84.00, 43.90 RT | SW-513 (3'x 3') | 778.20 | 775.20 | | Note 2 |
| ST-24 | 861+82.03, 21.00 LT | SW-509 | 778.61 | 773.61 | | |
| ST-25 | 861+82.03, 33.00 RT | SW-509 | 778.30 | 772.70 | | |
| ST-26 | 863+51.70, 21.00 LT | SW-509 | 769.42 | 764.35 | | |
| ST-27 | 863+51.70, 33.00 RT | SW-509 | 769.10 | 759.10 | | |
| ST-28 | 3863+35.00, 30.20 RT | DR-201 (12-Inch) | 760.40 | | | Division 2 |
| ST-29 | 3864+20.00, 26.80 RT | DR-201 (12-Inch) | 761.15 | | | Division 2 |
| ST-30 | 3864+00.00, 11.50 RT | SW-507 | 762.92 | 758.00 | | Division 2 |
| ST-31 | 3864+00.00, 11.50 LT | SW-507 | 762.92 | 757.67 | | Division 3 |
| ST-32 | 2864+80.00, 14.00 LT | SW-509 | 764.95 | 754.95 | | Division 3 |
| ST-33 | 865+25.00, 60.00 RT | DR-201 (18-Inch) | 750.66 | | | Division 3 |
| ST-34 | 878+00.00, 60.00 LT | DR-201 (18-Inch) | 756.30 | | | |
| ST-35 | 879+52.00, 60.00 LT | SW-401 (48-Inch) | 758.38 | 753.78 | | |
| ST-36 | 879+99.50, 81.36 LT | DR-201 (18-Inch) | 754.00 | | | |
| | | | | | | |
| SN-01 | 1848+95.23, 40.95 RT | Existing Sanitary Manhole | 761.33 | | | Adjust +0.80' |
| SN-02 | 1847+73.25 | SW-301 | 757.98 | | | Division 2 |

Note 1: Form Grade Elev. = Inlet Elev.
Note 2: Provide Precast Base, Form Grade Elev. = Inlet Elev.

## PIPES

Design Length, Slope, and Flowlines are calculated from inside wall to inside wall along CL of pipe. Additional length is added to each side of the Design Length to account for estimated length to center of structures, rounded to nearest 2-feet.

| Line Number | Intake/ Utility Access No. From | To | Class 'D' | (1) Pipe Size 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 | 12 | | | | | 771.69 | 762.18 | | | Existing Pipe |
| P-02 | ST-02 | ST-04 | 2000 | 15 | 164 | 155.4 | 2.64 | | 761.98 | 757.88 | | M.3 | Division 3 |
| P-03 | ST-03 | ST-05 | 2000 | 15 | 158 | 148.6 | 2.42 | | 760.50 | 756.90 | | M.3 | Division 3 |
| P-04 | ST-04 | ST-07 | 2000 | 18 | 176 | 166.7 | 1.13 | | 757.68 | 755.80 | | M.3 | Division 3 |
| P-05 | ST-05 | ST-06 | 2000 | 30 | 118 | 109.4 | 0.40 | | 755.64 | 755.20 | | M.3 | Division 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-15 | 2000 | 30 | 152 | 143.9 | 0.49 | | 754.80 | 754.10 | | M.3 | Gasket Pipe, Div. 3 |
| P-08 | ST-08 | ST-09 | 2000 | 15 | 40 | 36.9 | 2.05 | | 756.44 | 755.58 | 756.56 | M.5 | Apron Inlet, Div. 2 |
| P-09 | ST-09 | ST-10 | 2000 | 24 | 68 | 62.8 | 0.45 | | 754.98 | 754.70 | | M.5 | Division 2 |
| P-10 | ST-10 | ST-11 | 2000 | 24 | 38 | 30.9 | 0.97 | | 754.60 | 754.30 | | M.5 | Division 2 |
| P-11 | ST-11 | ST-15 | 2000 | 24 | 62 | 57.2 | 0.88 | | 754.20 | 753.70 | | M.5 | |
| P-12 | ST-12 | ST-13 | 2000 | 15 | 22 | 18.4 | 1.00 | | 766.38 | 766.20 | | M.4 | |
| P-13 | ST-13 | ST-14 | 2000 | 15 | 58 | 54.0 | 1.50 | | 766.10 | 765.29 | | M.4 | |
| P-14 | ST-14 | ST-15 | 2000 | 15 | 160 | 152.3 | 6.46 | | 765.19 | 755.35 | | M.4 | |
| P-15 | ST-15 | ST-17 | 2000 | 30 | 40 | 33.9 | 1.03 | | 753.50 | 753.15 | | M.5 | Division 3 |
| P-16 | ST-16 | ST-17 | 2000 | 15 | 98 | 93.1 | 0.76 | | 754.76 | 754.05 | | M.4 | Division 3 |
| P-17 | ST-17 | ST-18 | 2000 | 30 | 52 | 48.7 | 1.00 | Type 3 | 753.05 | 752.56 | 752.50 | M.5 | Aprn Outlet, Div. 3 |
| | | | | | | | | | | | | | |
| P-19 | ST-19 | ST-20 | 2000 | 15 | 58 | 54.0 | 1.50 | | 776.95 | 776.14 | | M.4 | |
| P-20 | ST-20 | ST-21 | 2000 | 15 | 114 | 109.9 | Var. | Type 3 | 776.04 | 751.85 | 751.79 | M.4 | Let Down Pipe |
| | | | | | | | | | | | | | |
| P-22 | ST-22 | ST-24 | 2000 | 15 | 22 | 18.4 | 5.50 | | 776.00 | 774.96 | | M.6 | |
| P-23 | ST-23 | ST-25 | 2000 | 15 | 10 | 6.4 | 15.20 | | 775.70 | 774.65 | | M.6 | |
| P-24 | ST-24 | ST-25 | 2000 | 15 | 58 | 54.0 | 1.50 | | 774.11 | 773.30 | | M.6 | |
| P-25 | ST-25 | ST-27 | 2000 | 15 | 170 | 161.7 | 5.66 | | 773.20 | 764.05 | | M.6 | |
| P-26 | ST-26 | ST-27 | 2000 | 15 | 58 | 54.0 | 1.50 | | 764.85 | 764.04 | | M.6 | |
| P-27 | ST-27 | ST-32 | 2000 | 15 | 90 | 82.2 | 4.38 | | 759.60 | 756.00 | | M.6 | |
| P-28 | ST-28 | ST-30 | 2000 | 12 | 64 | 60.1 | 2.71 | | 760.25 | 758.7 | 760.4 | M.6 | Apron Inlet, Div. 2 |
| P-29 | ST-29 | ST-30 | 2000 | 12 | 18 | 16.6 | 12.24 | | 760.55 | 758.7 | 761.15 | M.6 | Apron Inlet, Div. 2 |
| P-30 | ST-30 | ST-31 | 2000 | 15 | 26 | 23.0 | 1.00 | | 758.5 | 758.27 | | M.6 | Division 2 |
| P-31 | ST-31 | ST-32 | 2000 | 15 | 108 | 104.6 | 2.07 | | 758.17 | 756 | | M.6 | Division 3 |
| P-32 | ST-32 | ST-33 | 2000 | 18 | 86 | 81.4 | Var. | Type 3 | 755.45 | 750.78 | 750.66 | M.6 | Aprn Outlet, Div. 3 |
| | | | | | | | | | | | | | |
| P-34 | ST-34 | ST-35 | 2000 | 18 | 152 | 148.7 | 1.24 | | 756.23 | 754.38 | 756.3 | M.7 | Apron Inlet |
| P-35 | ST-35 | ST-36 | 2000 | 18 | 48 | 46.1 | 0.54 | | 754.28 | 754.03 | 754 | M.7 | Apron Outlet |
| | | | | | | | | | | | | | |
| P-S01 | | SN-02 | PVC | 10 | 14 | 12.0 | 0.30 | | 752.42 | 752.38 | | M.8 | Stub Pipe, Div. 2 |
| P-S02 | SN-02 | SN-01 | PVC | 10 | 132 | 126.7 | 0.30 | | 752.38 | 752 | | M.8 | Division 2 |

## 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
- Survey Line
- Station
- 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 |
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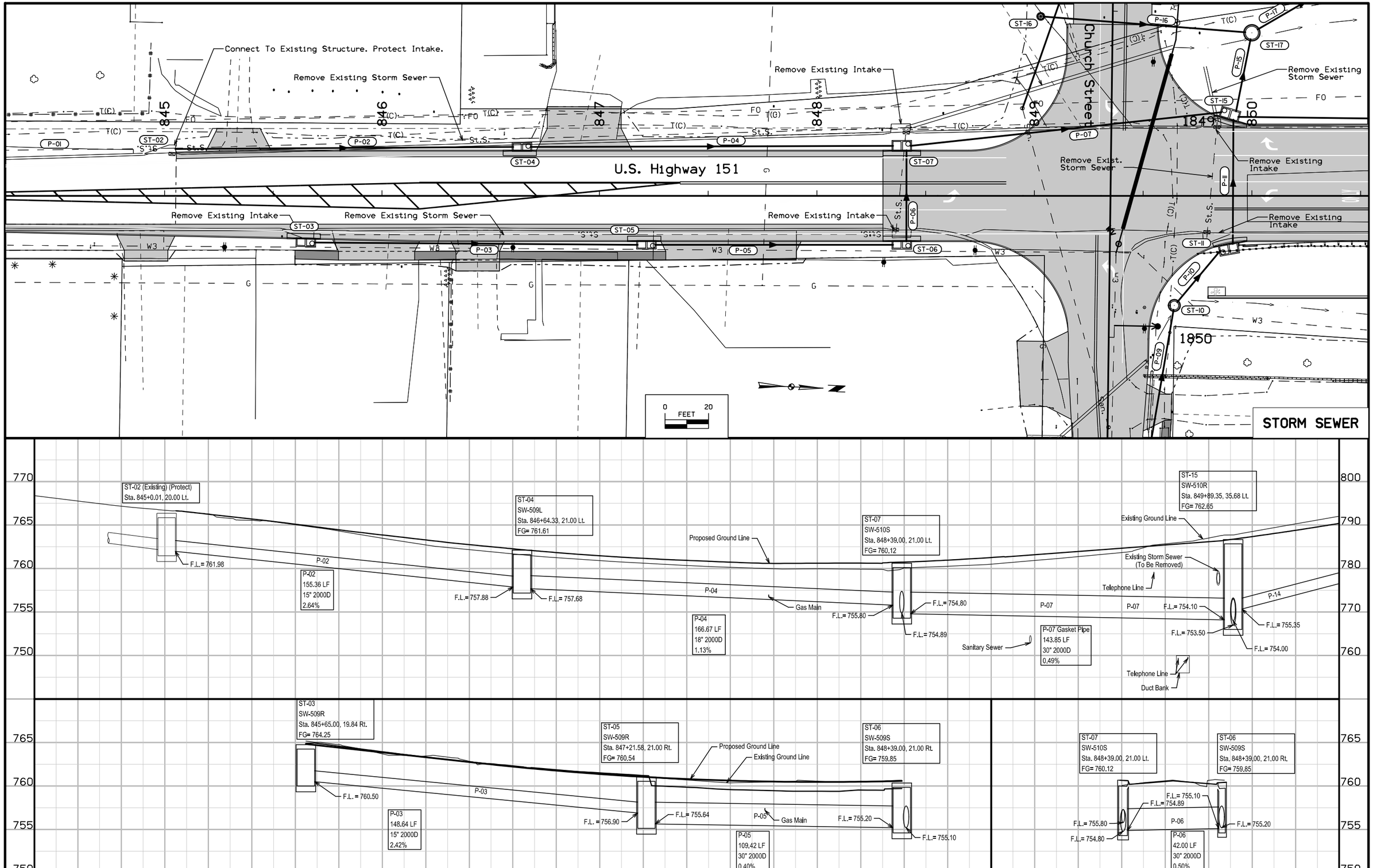


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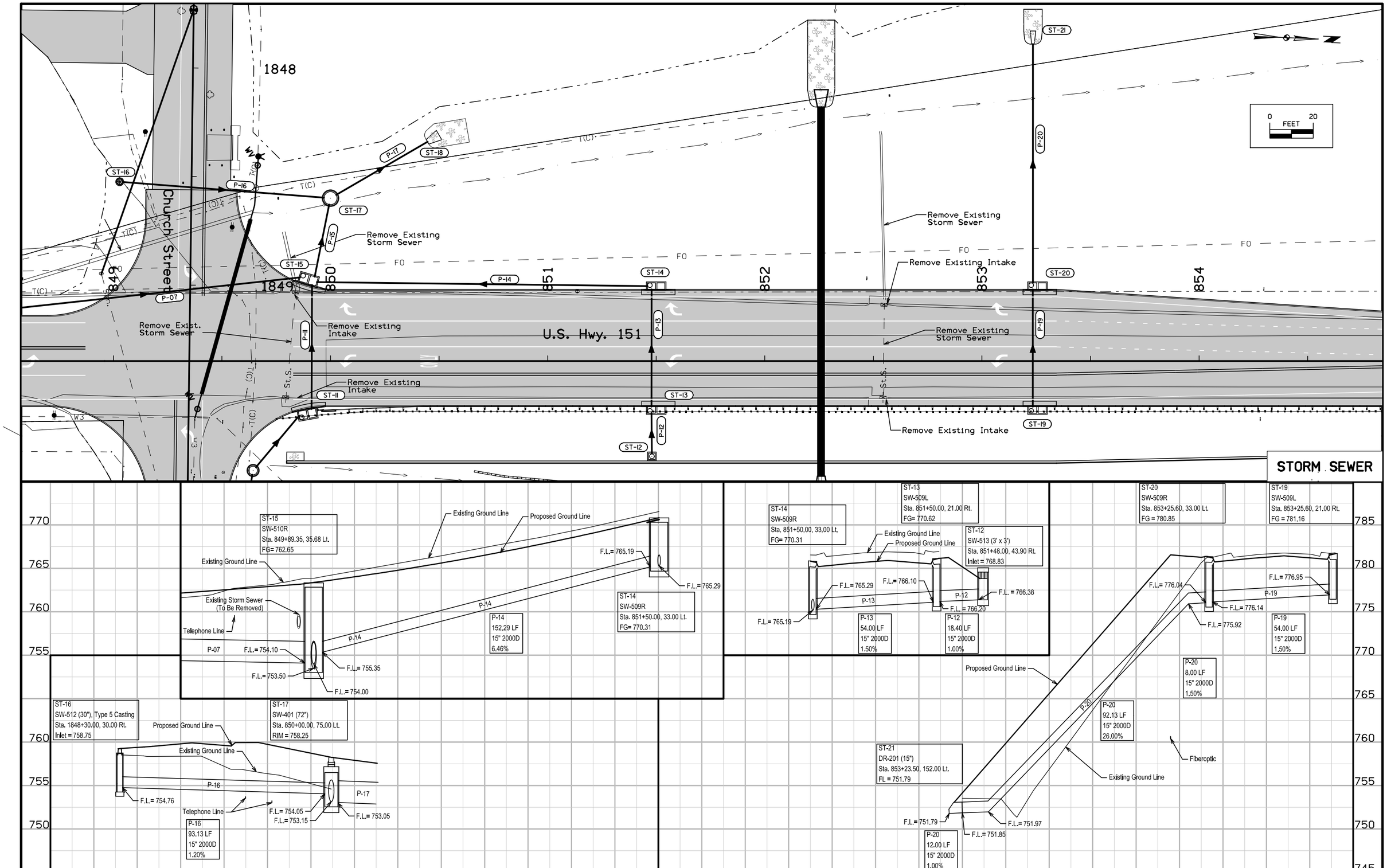


| FILE NO. | ENGLISH | DESIGN TEAM SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER M.4 |
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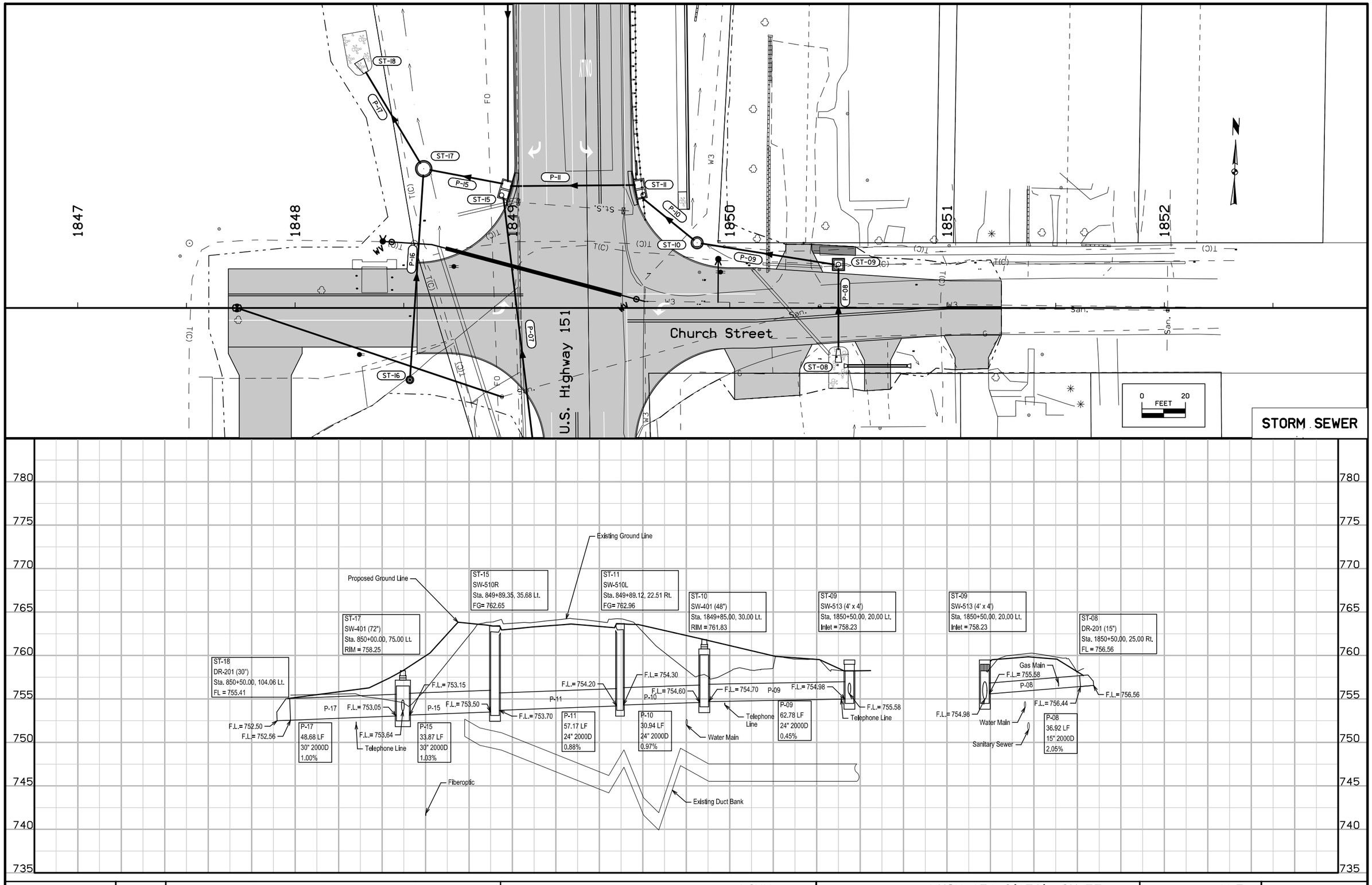


| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | M.5 |
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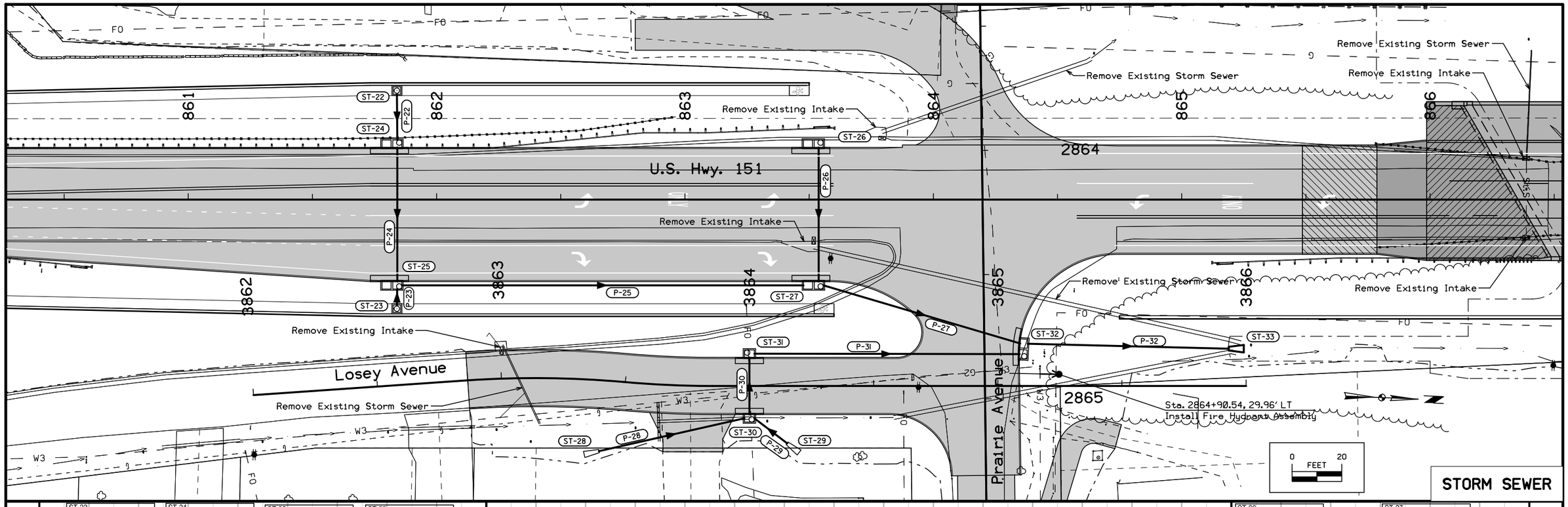
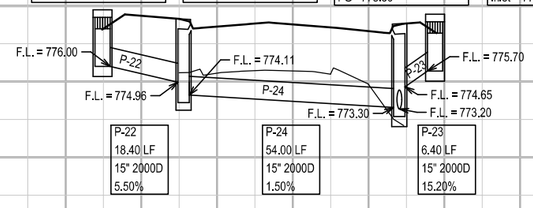



ST-22
SW-513 (3' x 3')
Sta. 861+84.00, 43.90 Lt.
Inlet = 778.50

ST-24
SW-509L
Sta. 861+82.03, 21.00 Lt.
FG= 778.61

ST-25
SW-509R
Sta. 861+82.03, 33.00 Rt.
FG= 778.30

ST-23
SW-513 (3' x 3')
Sta. 861+84.00, 43.90 Rt.
Inlet = 778.20

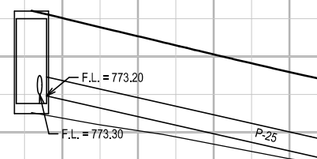



P-22
18.40 LF
15" 2000D
5.50%

P-24
54.00 LF
15" 2000D
1.50%

P-23
6.40 LF
15" 2000D
15.20%

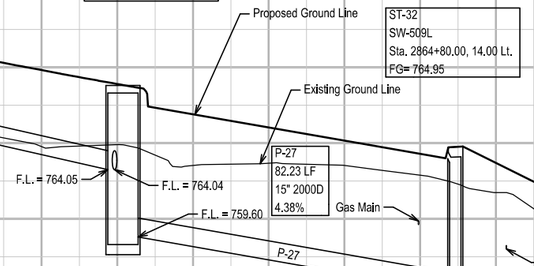
ST-25
SW-509R
Sta. 861+82.03, 33.00 Rt.
FG= 778.30




P-25
161.67 LF
15" 2000D
5.66%

ST-27
SW-509R
Sta. 863+51.70, 33.00 Rt.
FG= 769.10

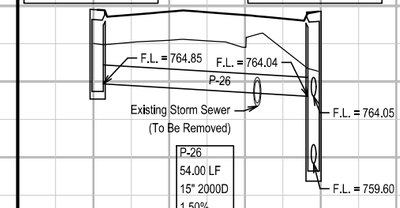
ST-32
SW-509L
Sta. 2864+80.00, 14.00 Lt.
FG= 764.95




P-27
82.23 LF
15" 2000D
4.38%

ST-26
SW-509L
Sta. 863+51.70, 21.00 Lt.
FG= 769.42

ST-27
SW-509R
Sta. 863+51.70, 33.00 Rt.
FG= 769.10




P-26
54.00 LF
15" 2000D
1.50%

ST-33
DR-201 (18")
Sta. 865+25.00, 60.00 Rt.
FL = 750.66

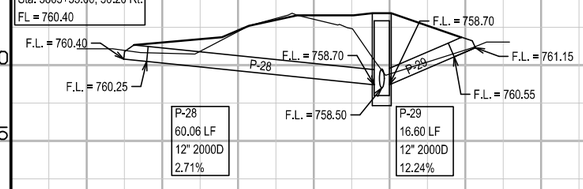
P-32
75.64 LF
18" 2000D
6.12%

P-32
8.00 LF
18" 2000D
0.50%

ST-28
DR-201 (12")
Sta. 3863+35.00, 30.20 Rt.
FL = 760.40

ST-30
SW-507S
Sta. 3864+00.00, 11.50 Rt.
FG= 762.92

ST-29
DR-201 (12")
Sta. 3864+20.00, 26.80 Rt.
FL = 761.15

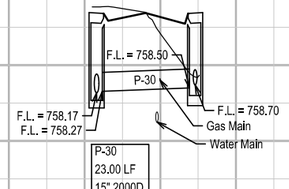



P-28
60.06 LF
12" 2000D
2.71%

P-29
16.60 LF
12" 2000D
12.24%

ST-31
SW-507S
Sta. 3864+00.00, 11.50 Lt.
FG= 762.92

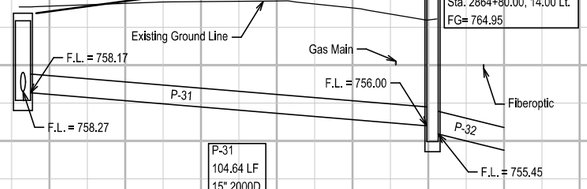
ST-30
SW-507S
Sta. 3864+00.00, 11.50 Rt.
FG= 762.92




P-30
23.00 LF
15" 2000D
1.00%

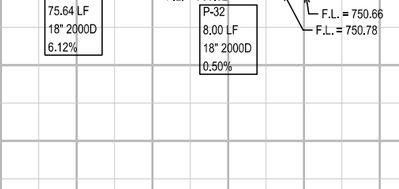
ST-31
SW-507S
Sta. 3864+00.00, 11.50 Lt.
FG= 762.92

ST-32
SW-509L
Sta. 2864+80.00, 14.00 Lt.
FG= 764.95




P-31
104.64 LF
15" 2000D
2.07%

ST-33
DR-201 (18")
Sta. 865+25.00, 60.00 Rt.
FL = 750.66




P-32
8.00 LF
18" 2000D
0.50%

| 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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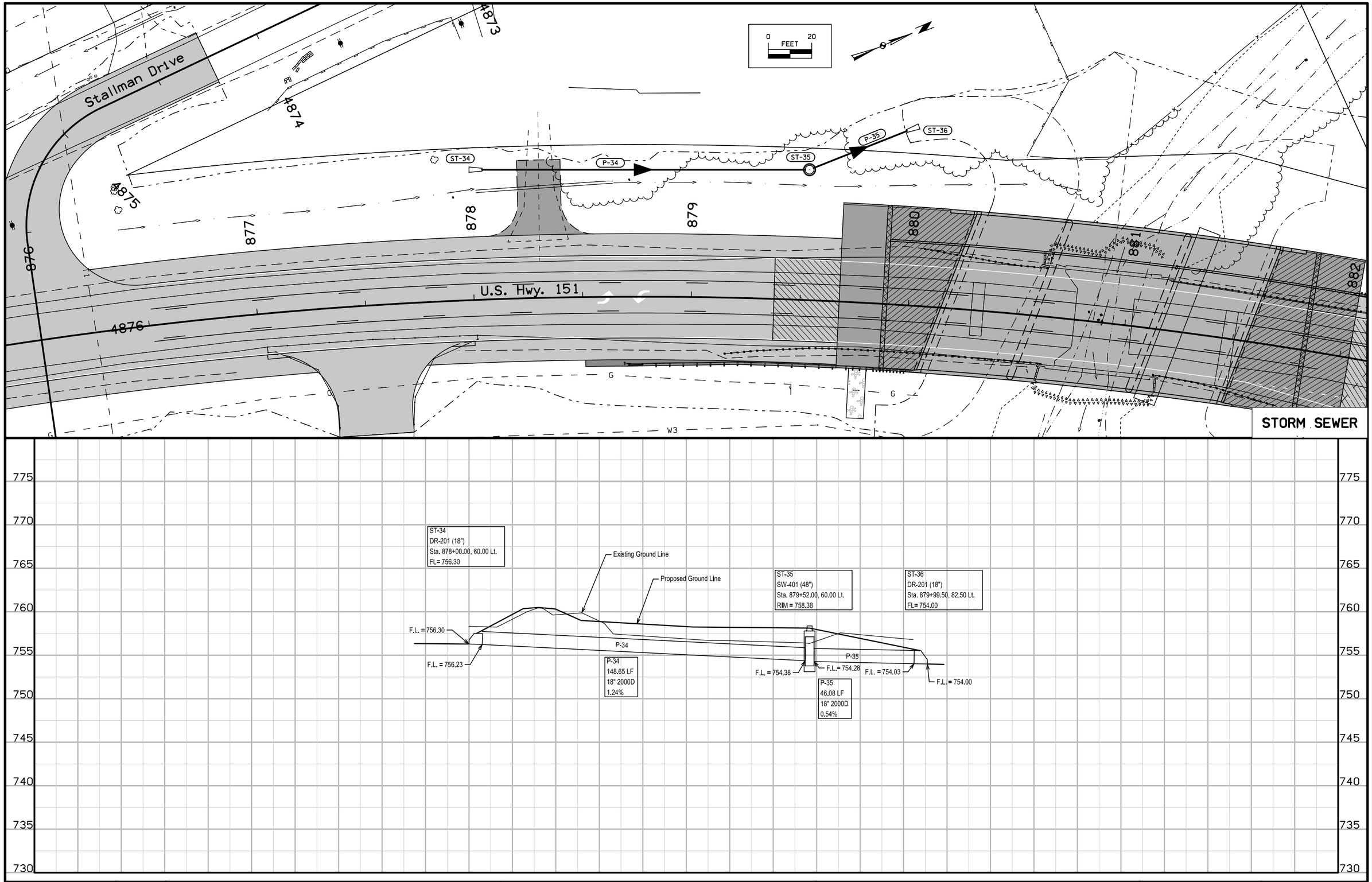


| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | M.7 |
|---|---|---|---|---|---|---|---|---|

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Sta. 1847+73.25
Install SW-301 (48") Manhole

1847 1848 1849 1850 1851 1852

U.S. Highway 151

Church Street

Connect to Existing Manhole,
Protect Existng Structure

Sta. 1848+95.23, 40.95' RT
Existing Manhole, Adjust +0.80'

0 FEET 20

SANITARY SEWER

SN-02
SW-301
Sta. 1847+73.25
FG= 757.98

SN-01
Existing MH, Adjust +0.80'
Sta. 1848+95.23, 40.95' Rt.
FG= 761.33

Proposed Ground Line
Existing Ground Line
Fiber optic
Existing Storm Sewer
(To Be Removed)
Proposed Storm Sewer

Cap End of Pipe
F.L.= 752.42
F.L.= 752.38
F.L.= 752.38
F.L.= 752.00
F.L.= 751.94 (Ex.)

P-S01
4.00 LF
10" PVC
0.30%

P-S02
126.67 LF
10" PVC
0.30%

770 765 760 755 750 745 740 735 730 725

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

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Sta. 1848+69.26, 27.45' LT
End of Casing Pipe

Sta. 1848+40.35, 30.63' LT
Install Fire Hydrant Assembly

Sta. 1849+50.13, 5.88' LT
End of Casing Pipe

Connect to Existing Water Main

Sta. 1849+94.74, 22.52' LT
Install Fire Hydrant Assembly

Sta. 1849+56.09, 4.29' LT
Install 8" Gate Valve

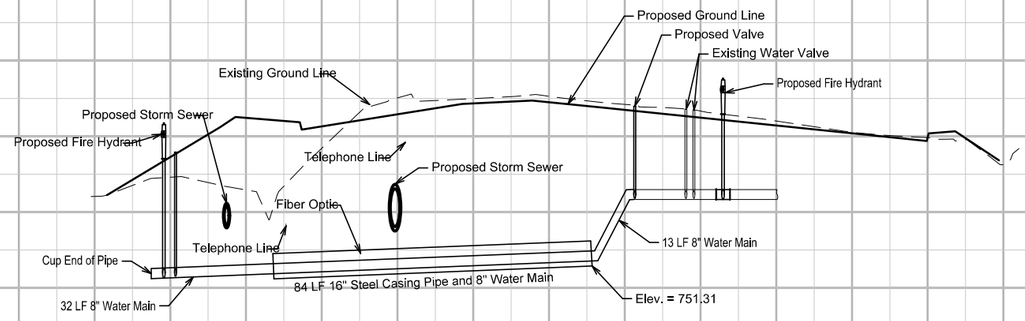
1847 1848 1849 1850 1851 1852

U.S. Highway 151

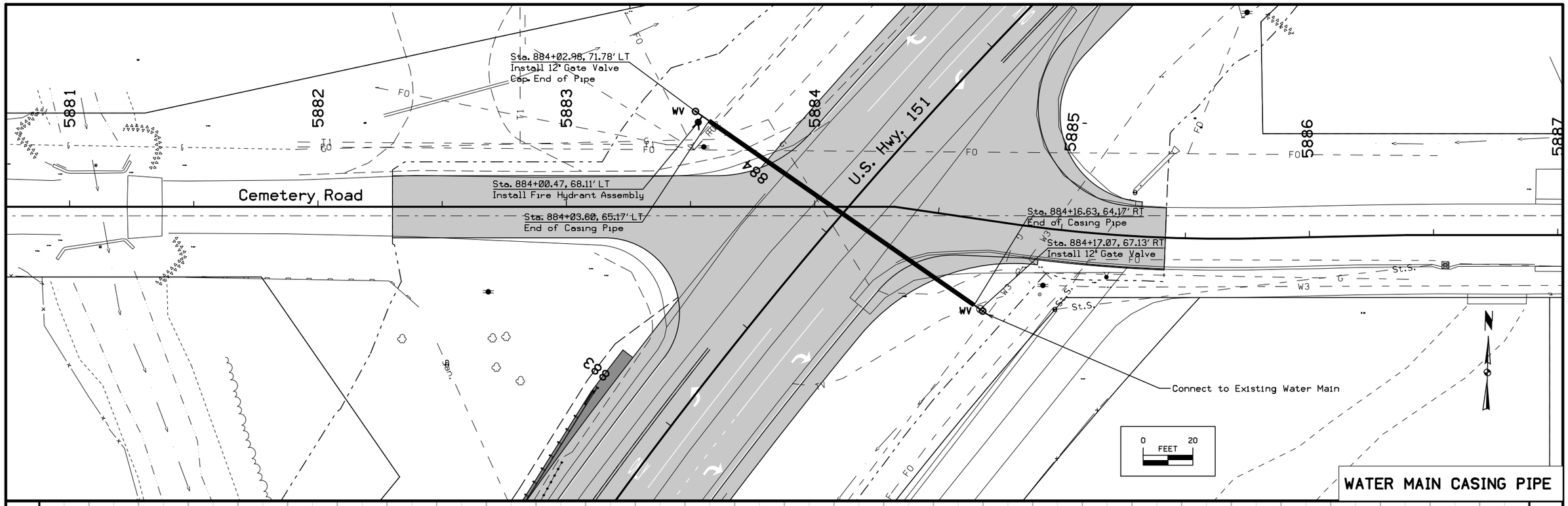
Church Street

0 FEET 20

## WATER MAIN CASING PIPE




| | | |




| 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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- 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

- PPA Alliant Energy
- TPD Telephone Pedestal
- WV Water Valve
- WHD Water Hydrant
- PR Electric 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 SOILS SHEETS

| LINEWORK | Design Color No. | |
|---|---|---|
| Green | (2) | Existing Topographic Features and Labels |
| Purple (Halo) | (15) | Backslope Drains |
| Blue | (1) | Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation |
| **SHADING** | **Design Color No.** | |
| Brown, Light | (236) | Core Out |

## PROFILE VIEW COLOR LEGEND OF SOILS SHEETS

| LINEWORK | Design Color No. | |
|---|---|---|
| Blue | (1) | Proposed Alignment, Stationing, and Alignment Annotation |
| Green | (2) | Existing Ground Line Profile |
| Green, Med | (227) | Topsoil |
| Green, Med | (227) | Slope Dressing Only |
| Orange | (6) | Loam |
| Brown, Dark | (238) | Class 10 |
| Brown, Med | (237) | Sand |
| Red | (3) | Unsuitable A |
| Pink, Dark | (13) | Unsuitable B |
| Pink | (11) | Unsuitable C |
| Red | (3) | Shale |
| Red | (3) | Waste |
| Gray, Light | (48) | Broken and Weathered Rock |
| Gray, Med | (80) | Rock |
| Gray, V.Dark | (128) | Boulders |

## PATTERN AND SYMBOL LEGEND OF SOILS SHEETS

- Drill
- Dig/Core
- Date(s) Drilled_____
- $-H_2O-$ Water
- Treatment
- Sandstone
- DRY Dry
- Sand Blanket
- Unsuitable A
- S Sample
- Soil Remediation Area
- Unsuitable B
- Plugged
- Select Soil
- Unsuitable C
- M Moisture
- Select Sand
- Sandy Soil
- Shelby
- Slope Dressing Only
- Boulders
- Blow Count
- Broken and Weathered Rock
- Shale
- Dens. Core
- Rock

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

NOTE: Sounding and test boring data shown in the plans were accumulated for designing and estimating purposes. Their appearance on the plans does not constitute a guarantee that conditions other than those indicated will be encountered. Details and notes shown elsewhere shall be used for roadway and structure construction.

# SOILS

(COVERS SHEET SERIES Q)

Keyed Notes

① Adjust Water Valve to Grade
② Adjust Gas Valve to Grade
③ Adjust Manhole to Grade
④ Adjust Hydrant to Grade

Curve Data
Δ = 66° 14′ 42.26″ (LT)
T = 623.05
L = 1,104.08
R = 954.93
E = 185.28

0 FEET 50

STA 845+05.45
BEGIN PCC WIDENING LT.

STA 843+88.58
BEGIN PCC WIDENING RT.

STA 843+47.28
BEGIN PROJECT

STA 848+30.33
END PCC WIDENING LT. AND RT.
BEGIN PCC PAVING

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

Relocate Monument (By Others)

WORKING BLANKET 1

835 840 845 850

PT Sta 840+20.65

U.S. Hwy. 151

45:1 Taper

+34.00 Prop. Type "C" Ent.
+93.00 Prop. Type "B" Ent.
+91.50 Prop. Type "C" Ent.
+97.50 Prop. Type "B" Ent.
+44.00 Prop. Type "C" Ent.
+60.50 Prop. Type "B" Ent.

Do Not Disturb Sign

Church Street

20 21 30 101 18

W3 G F.O. San.

SPECIAL ATTENTION (SLIVER FILL)
Special attention should be given to Article 2107.03.C,
of the current Standard Specification Series, on this project.

| ENGLISH | IOWA DOT | DESIGN TEAM Snyder & Associates\Terracon | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER Q.2 |
|---|---|---|---|---|---|

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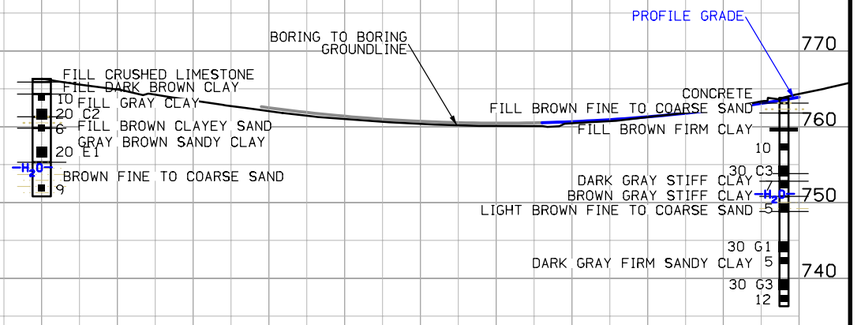
CUT MOISTURE
CUT DENSITY (PCF)
PLASTIC LIMIT

30 | 20, 106, ,




**SHELBY TUBE CORE DATA**

| CORE NO. | 20 C2 | 20 E1 | 30 C3 | 30 G1 | 30 G3 |
|---|---|---|---|---|---|
| DEPTH IN FEET | 4 | 9 | 9 | 19 | 24 |
| CLASSIFICATION (AASHTO) | A-2-6(1) | A-6(12) | - | - | - |
| COEFF.CONSOL.(SQ. FT /DAY) | - | - | - | - | - |
| TRIAXIAL COMPRESSION | UC | UC | UC | UC | UC |
| COHESION - PSF | 2460 | 540 | 2010 | 1100 | 2350 |
| FRICTION COEFF. | - | - | - | - | - |
| MOISTURE CONTENT % | 9 | 21 | 28 | 18 | 17 |
| DRY DENSITY - PCF | 110 | 106 | 87 | 110 | 115 |

CU-CONSOLIDATED UNDRAINED
UU-UNCONSOLIDATED UNDRAINED
UC-UNCONFINED COMPRESSION (c=1/2 Qu)

US HWY 151 NB

20
RT.15

30
RT.12

| ENGLISH | IOWA DOT | DESIGN TEAM Snyder & Associates\Terracon | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER Q.3 |
|---|---|---|---|---|---|

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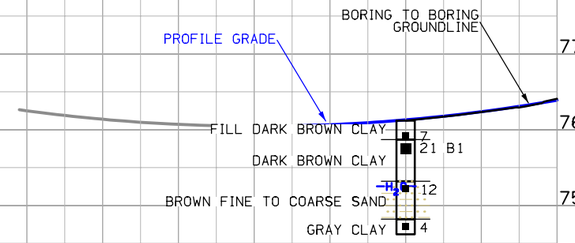


| SHELBY TUBE CORE DATA | |
|---|---|
| CORE NO. | 21 B1 |
| DEPTH IN FEET | 3 |
| CLASSIFICATION (AASHTO) | - |
| COEFF.CONSOL.(SQ. FT /DAY) | - |
| TRIAXIAL COMPRESSION | UC |
| COHESION - PSF | 1690 |
| FRICTION COEFF. | - |
| MOISTURE CONTENT % | 28 |
| DRY DENSITY - PCF | 86 |
| CU-CONSOLIDATED UNDRAINED | |
| UU-UNCONSOLIDATED UNDRAINED | |
| UC-UNCONFINED COMPRESSION (c=1/2 Qu) | |

US HWY 151 SB

21
LT.15

| ENGLISH | IOWA DOT | DESIGN TEAM | Snyder & Associates\Terracon | LINN | COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | Q.4 |
|---|---|---|---|---|---|---|---|---|---|

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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

Keyed Notes
① Adjust Water Valve to Grade
② Adjust Gas Valve to Grade
③ Adjust Manhole to Grade
④ Adjust Hydrant to Grade

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

WORKING BLANKET 1

WORKING BLANKET 2

IFI REMEDIATION 2
SEE Q.21-Q.22

Proposed MSE Wall

Proposed MSE Wall

Proposed MSE Wall

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

+19.80 Prop.
Type "C" Paved Ent.

+19.80 Prop.
Type "C" Granular Ent.

U.S. Hwy. 151

15:1 Taper

45:1 Taper

5:1 Taper

Losey Avenue

Prairie Avenue

IFI REMEDIATION 1
SEE Q.17-Q.18

CORE-OUT REMEDIATION 1
SEE Q.19-Q.20

CORE-OUT REMEDIATION 2
SEE Q.23

0 50
FEET

Install a working blanket (design thickness is 1-foot) Consisting of Special Backfill in embankment fill areas as tabulated on CS.1 and shown on Q sheets. Working blankets may be deleted if determined not to be necessary at the time of construction.

| ENGLISH | IOWA DOT | DESIGN TEAM Snyder & Associates\Terracon | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER Q.5 |
|---|---|---|---|---|---|

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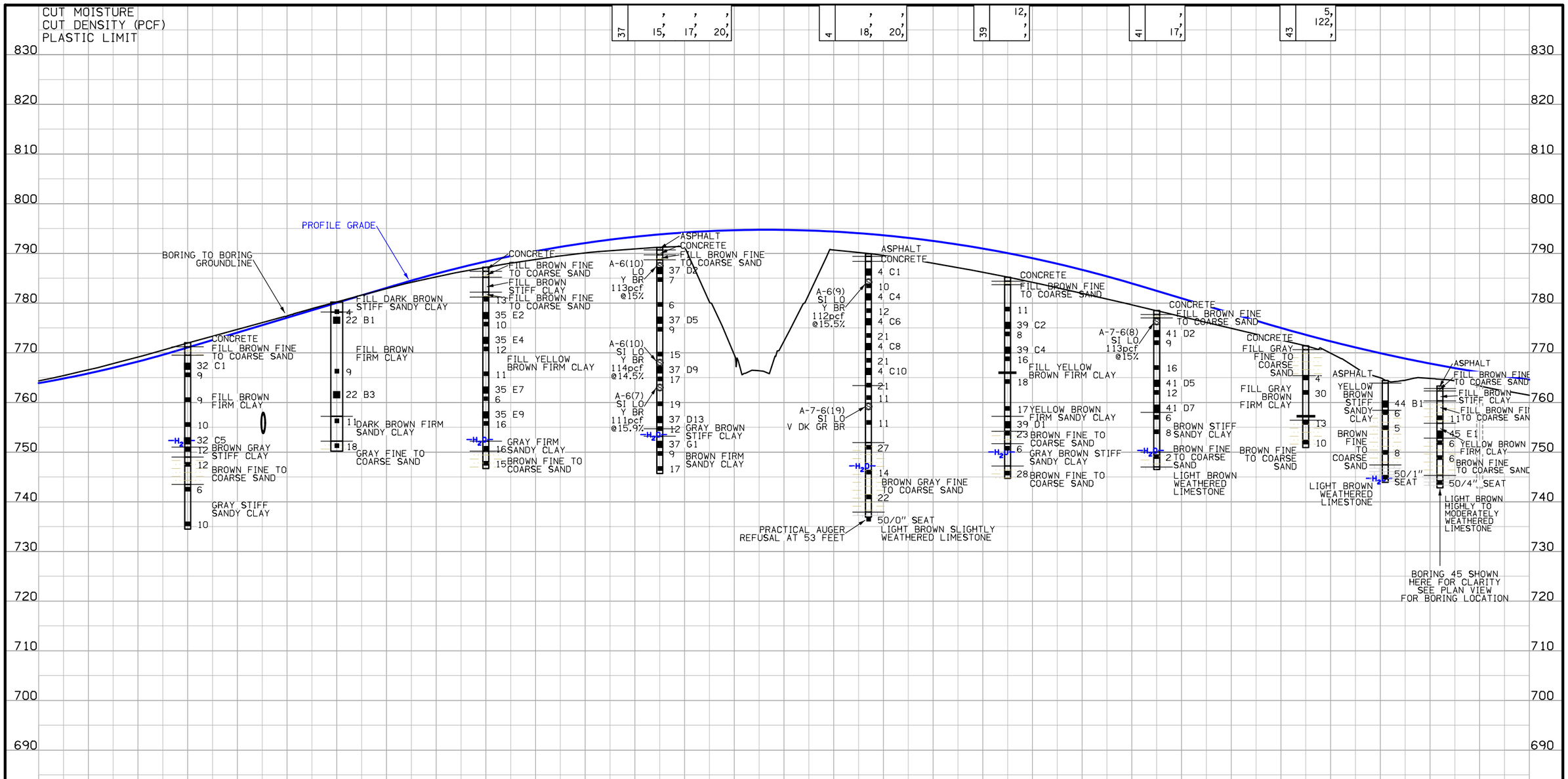


**SHELBY TUBE CORE DATA**

| CORE NO. | 32 C1 | 32 C5 | 22 B1 | 22 B3 | 35 E2 | 35 E4 | 35 E7 | 35 E9 | 37 D2 | 37 D5 | 37 D9 | 37 D13 | 4 C1 | 4 C4 | 4 C6 | 4 C8 | 4 C10 | 39 C2 | 39 C4 | 39 D1 | 41 D2 | 41 D5 | 41 D7 | 44 B1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH IN FEET | 4 | 19 | 3 | 18 | 9 | 14 | 24 | 29 | 4 | 14 | 24 | 34 | 3 | 8 | 13 | 18 | 23 | 9 | 14 | 29 | 4 | 14 | 19 | 4 |
| CLASSIFICATION (AASHTO) | - | - | A-6(10) | - | - | - | - | - | - | - | - | - | - | A-4(5) | - | A-6(9) | - | - | - | - | - | - | - | - |
| COEFF.CONSOL.(SQ. FT /DAY) | - | - | - | - | - | - | - | - | - | - | - | - | - | 0.43 | - | - | - | - | - | - | - | - | - | - |
| TRIAXIAL COMPRESSION | UC | UC | UC | UC | UC | UC | UC | UC | UC | UC | UC | UC | UC | - | UC | CU | UC | UC | UC | UC | UC | UC | UC | UC |
| COHESION - PSF | 660 | 1940 | 790 | 1200 | 620 | 500 | 610 | 1790 | 650 | 780 | 820 | 3690 | 720 | - | 1370 | 420 | 920 | 1410 | 1040 | 1830 | 970 | 1120 | 1100 | 1300 |
| FRICTION COEFF. | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MOISTURE CONTENT % | 19 | 31 | 19 | 19 | 20 | 17 | 22 | 29 | 17 | 17 | 21 | 20 | 16 | 18 | 14 | 15 | 15 | 22 | 15 | 16 | 18 | 19 | 22 | 16 |
| DRY DENSITY - PCF | 98 | 92 | 108 | 104 | 104 | 105 | 97 | 83 | 109 | 108 | 103 | 104 | 112 | 109 | 115 | 112 | 108 | 107 | 113 | 109 | 108 | 104 | 96 | 107 |

CU-CONSOLIDATED UNDRAINED
UU-UNCONSOLIDATED UNDRAINED
UC-UNCONFINED COMPRESSION (c=1/2 Qu)

US HWY 151 NB

32 RT.12 | 22 RT.15 | 35 RT.12 | 37 RT.12 | 4 RT.12 | 39 RT.12 | 41 RT.12 | 43 RT.12 | 44 RT.40 | 45 RT.20

850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865

| ENGLISH | IOWA DOT | DESIGN TEAM Snyder & Associates\Terracon | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER Q.6 |
|---|---|---|---|---|---|

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CUT MOISTURE
CUT DENSITY (PCF)
PLASTIC LIMIT

| 54 | 16, 22, , 14, |
|---|---|
| | , 111, 103, , , |
| | 19, , , 17, , |

| 56 | 13, 19, |
|---|---|
| | 116, 102, |
| | , , |

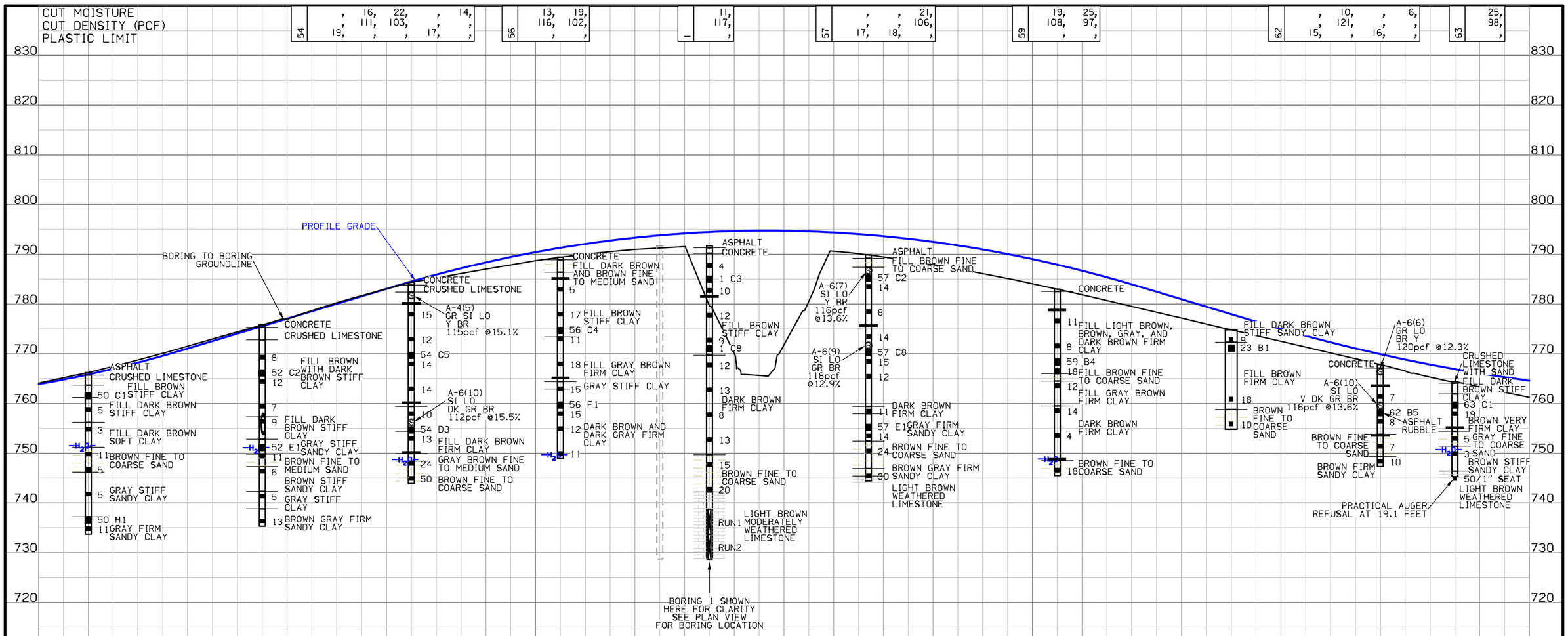
| — | 11, |
|---|---|
| | 117, |
| | , |

| 57 | , , 21, |
|---|---|
| | , , 106, |
| | 17, 18, , |

| 59 | 19, 25, |
|---|---|
| | 108, 97, |
| | , , |

| 62 | , 10, , 6, |
|---|---|
| | , 121, , , |
| | 15, , 16, , |

| 63 | 25, |
|---|---|
| | 98, |
| | , |




| SHELBY TUBE CORE DATA | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CORE NO. | 50 C1 | 50 H1 | 52 C2 | 52 E1 | 54 C5 | 54 D3 | 56 C4 | 56 F1 | 1 C3 | 1 C8 | 57 C2 | 57 C8 | 57 E1 | 59 B4 | 23 B1 | 62 B5 | 63 C1 |
| DEPTH IN FEET | 4 | 29 | 9 | 24 | 14 | 29 | 14 | 29 | 6 | 20 | 4 | 19 | 34 | 14 | 3 | 9 | 4 |
| CLASSIFICATION (AASHTO) | - | - | - | - | - | - | - | - | A-6(15) | A-4(6) | - | - | - | - | - | - | - |
| COEFF.CONSOL.(SQ. FT /DAY) | - | - | - | - | - | - | - | - | - | 0.17 | - | - | - | - | - | - | - |
| TRIAXIAL COMPRESSION | UC | UC | UC | UC | UC | UC | UC | UC | CU | - | UC | UC | UC | UC | UC | UC | UC |
| COHESION - PSF | 1370 | 2370 | 970 | 1100 | 580 | 1840 | 1060 | 1550 | 260 | - | 980 | 1070 | 1430 | 2050 | 1080 | 1120 | 1480 |
| FRICTION COEFF. | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MOISTURE CONTENT % | 16 | 17 | 20 | 12 | 19 | 31 | 18 | 29 | 18 | 18 | 18 | 14 | 18 | 14 | 27 | 13 | 17 |
| DRY DENSITY - PCF | 112 | 112 | 104 | 114 | 102 | 84 | 107 | 89 | 107 | 109 | 104 | 115 | 102 | 112 | 84 | 110 | 107 |

CU-CONSOLIDATED UNDRAINED
UU-UNCONSOLIDATED UNDRAINED
UC-UNCONFINED COMPRESSION (c=1/2 Qu)

US HWY 151 SB

| 50 LT.30 | 52 LT.26 | 54 LT.23 | 56 LT.12 | 1 LT.12 | 57 LT.12 | 59 LT.12 | 23 LT.15 | 62 LT.14 | 63 LT.25 |
|---|---|---|---|---|---|---|---|---|---|

850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865

| ENGLISH | IOWA DOT | DESIGN TEAM Snyder & Associates\Terracon | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER Q.7 |
|---|---|---|---|---|---|

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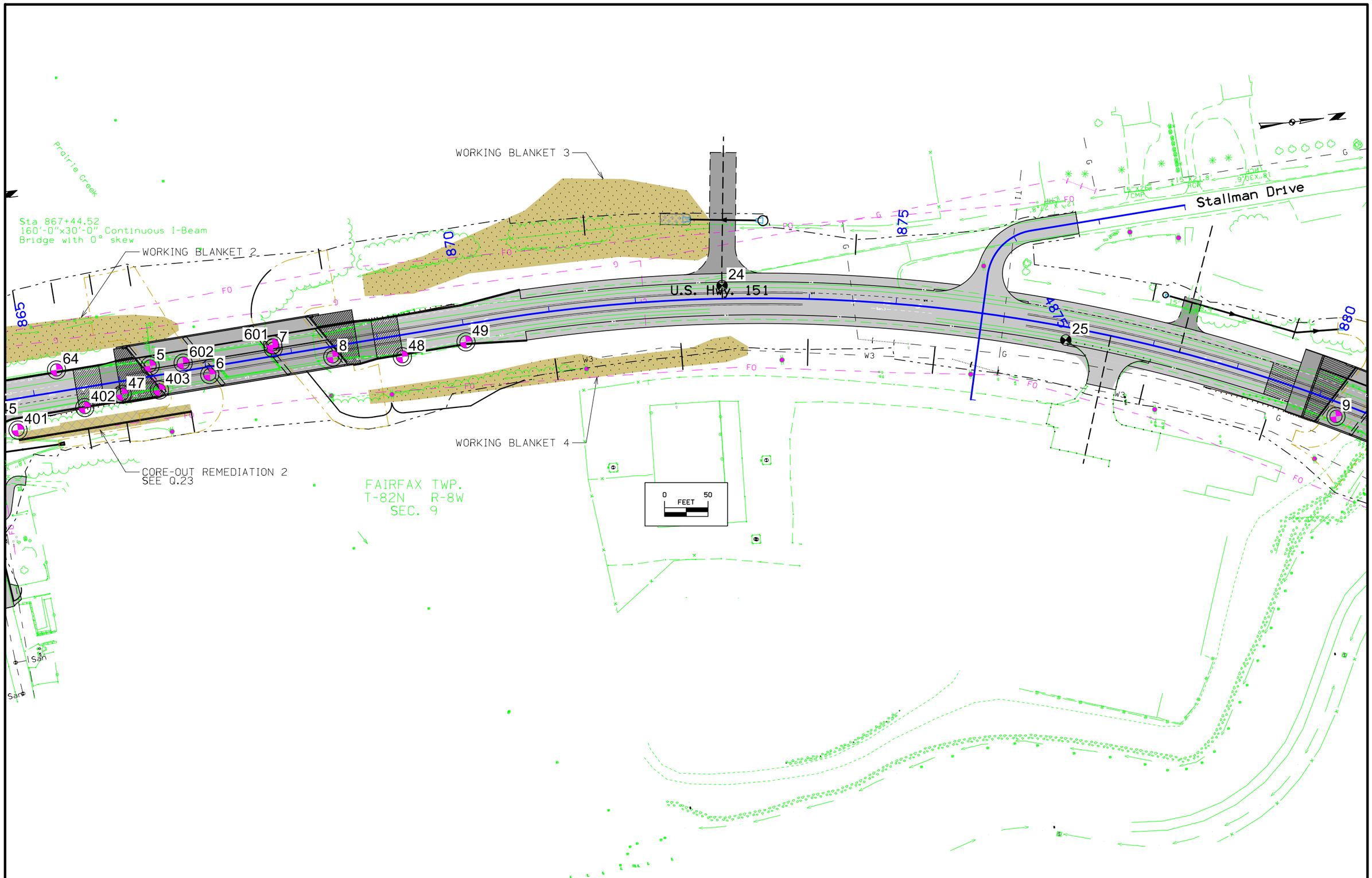


| ENGLISH | IOWA DOT | DESIGN TEAM Snyder & Associates\Terracon | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER Q.8 |
|---|---|---|---|---|---|

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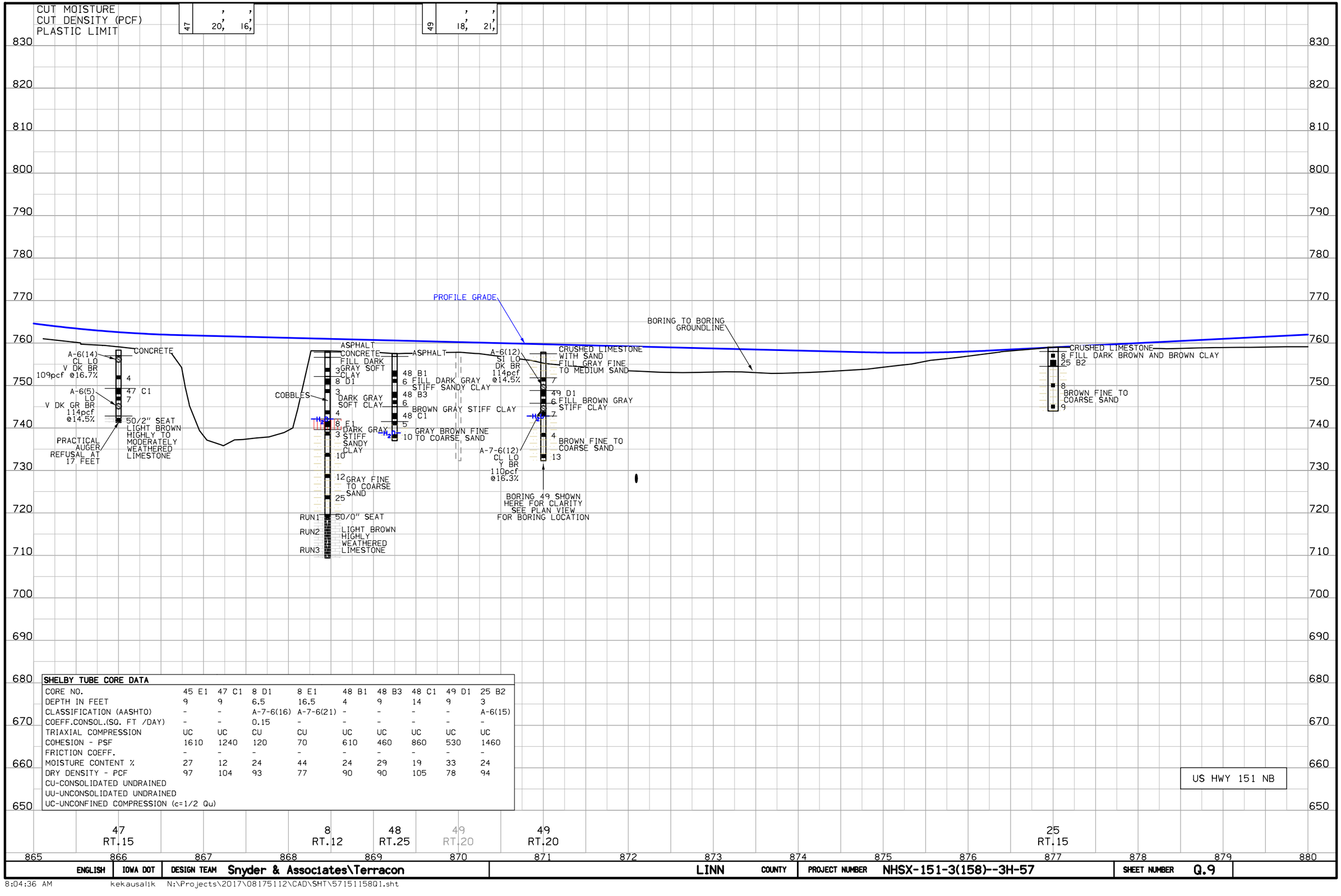


**SHELBY TUBE CORE DATA**

| CORE NO. | 45 E1 | 47 C1 | 8 D1 | 8 E1 | 48 B1 | 48 B3 | 48 C1 | 49 D1 | 25 B2 |
|---|---|---|---|---|---|---|---|---|---|
| DEPTH IN FEET | 9 | 9 | 6.5 | 16.5 | 4 | 9 | 14 | 9 | 3 |
| CLASSIFICATION (AASHTO) | - | - | A-7-6(16) | A-7-6(21) | - | - | - | - | A-6(15) |
| COEFF.CONSOL.(SQ. FT /DAY) | - | - | 0.15 | - | - | - | - | - | - |
| TRIAXIAL COMPRESSION | UC | UC | CU | CU | UC | UC | UC | UC | UC |
| COHESION - PSF | 1610 | 1240 | 120 | 70 | 610 | 460 | 860 | 530 | 1460 |
| FRICTION COEFF. | - | - | - | - | - | - | - | - | - |
| MOISTURE CONTENT % | 27 | 12 | 24 | 44 | 24 | 29 | 19 | 33 | 24 |
| DRY DENSITY - PCF | 97 | 104 | 93 | 77 | 90 | 90 | 105 | 78 | 94 |

CU-CONSOLIDATED UNDRAINED
UU-UNCONSOLIDATED UNDRAINED
UC-UNCONFINED COMPRESSION (c=1/2 Qu)

US HWY 151 NB

47 RT.15 | 8 RT.12 | 48 RT.25 | 49 RT.20 | 49 RT.20 | 25 RT.15

865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880

| ENGLISH | IOWA DOT | DESIGN TEAM Snyder & Associates\Terracon | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER Q.9 |
|---|---|---|---|---|---|

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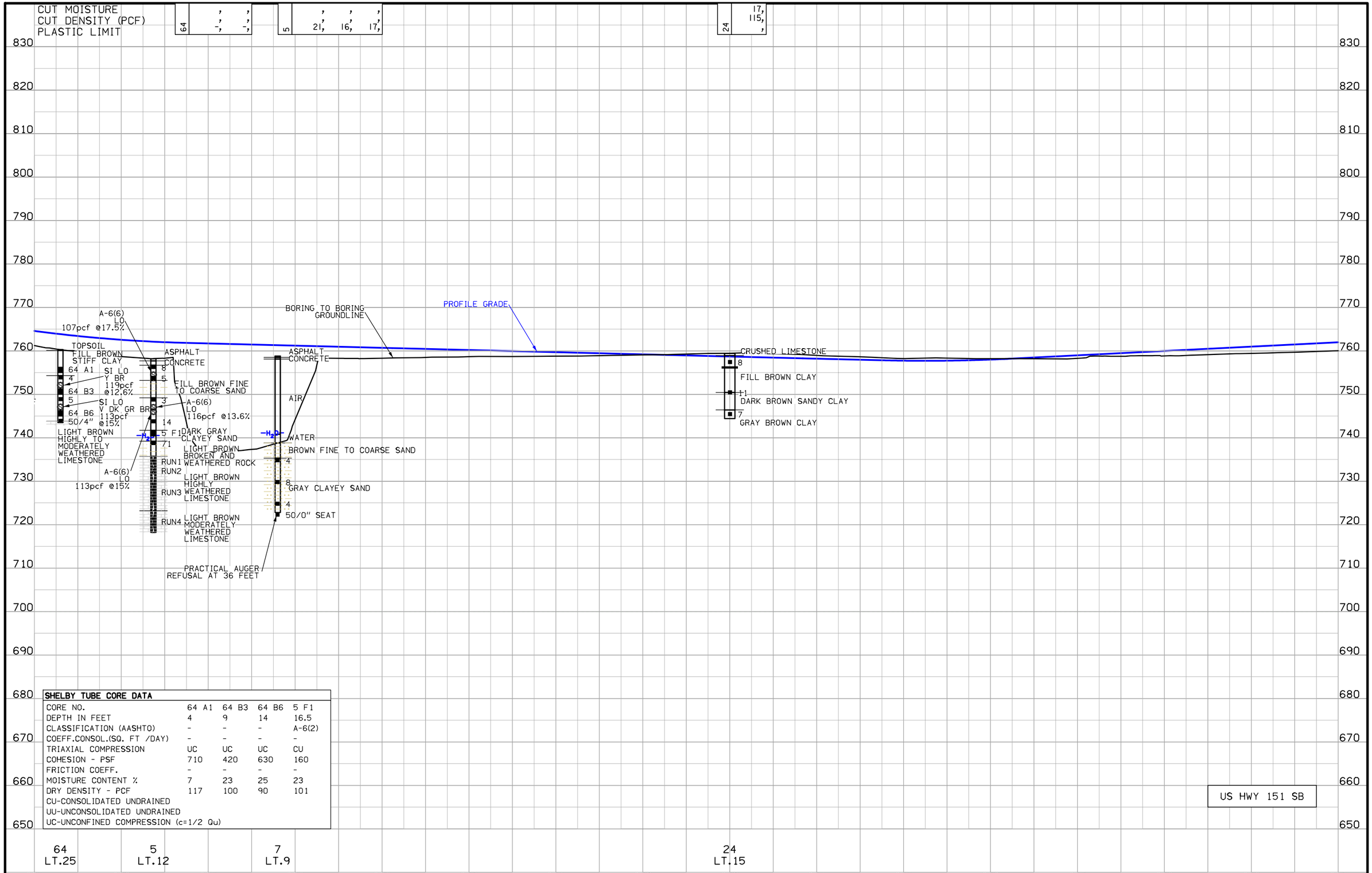


**SHELBY TUBE CORE DATA**

| CORE NO. | 64 A1 | 64 B3 | 64 B6 | 5 F1 |
|---|---|---|---|---|
| DEPTH IN FEET | 4 | 9 | 14 | 16.5 |
| CLASSIFICATION (AASHTO) | - | - | - | A-6(2) |
| COEFF.CONSOL.(SQ. FT /DAY) | - | - | - | - |
| TRIAXIAL COMPRESSION | UC | UC | UC | CU |
| COHESION - PSF | 710 | 420 | 630 | 160 |
| FRICTION COEFF. | - | - | - | - |
| MOISTURE CONTENT % | 7 | 23 | 25 | 23 |
| DRY DENSITY - PCF | 117 | 100 | 90 | 101 |

CU-CONSOLIDATED UNDRAINED
UU-UNCONSOLIDATED UNDRAINED
UC-UNCONFINED COMPRESSION (c=1/2 Qu)

| ENGLISH | IOWA DOT | DESIGN TEAM Snyder & Associates\Terracon | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER Q.10 |
|---|---|---|---|---|---|

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Keyed Notes

① Adjust Water Valve to Grade
② Adjust Gas Valve to Grade
③ Adjust Manhole to Grade
④ Adjust Hydrant to Grade

Sta 880+89.90
24'-0"x44'-0" I-Beam
and PPC Beam Bridge
with 0° skew

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

STA 884+13.63 (HWY 151) =
STA 5884+13.63 (CEMETERY ROAD)

Construct PCC Trail Under Bridge

15:1 Taper

Protect Well

Cemetery Road

U.S. Hwy. 151

+96.75 Prop. Type "B" Ent.

+21.00 Prop. Type "B" Joint Ent.

+10.00 Prop. Type "B" Ent.

+18.50 Prop. Type "B" Ent.

+76.54 Prop. Type "B"

Do Not Disturb Sign

0 FEET 50

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

5880 5885 5890 885 890 895

9 10 11 12 26 27 28

| ENGLISH | IOWA DOT | DESIGN TEAM Snyder & Associates\Terracon | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER Q.11 |
|---|---|---|---|---|---|

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CUT MOISTURE
CUT DENSITY (PCF)
PLASTIC LIMIT

| | | | |
|---|---|---|---|
| 9 | , | 10, | |
| | , | , | |
| | 16, | , | |

PROFILE GRADE

BORING TO BORING GROUNDLINE

ASPHALT
FILL BROWN FINE TO COARSE SAND
9 C2
8
A-6(5)
GR LO
DK BR
6 115pcf @14.1%
12
6 BROWN FINE TO COARSE SAND
4
18 GRAY STIFF SANDY CLAY
15
6
GRAY FINE TO COARSE SAND
4
48
RUN1
LIGHT BROWN SLIGHTLY TO MODERATELY WEATHERED LIMESTONE
RUN2

ASPHALT
CONCRETE
FILL DARK BROWN STIFF SANDY CLAY
ASPHALT RUBBLE
11 C1
4
4
LIGHT BROWN STIFF CLAY
0
GRAY VERY SOFT CLAY
2
17
DARK GRAY FINE TO COARSE SAND
6
6
GRAY STIFF CLAY
8
10
7
LIGHT BROWN SLIGHTLY WEATHERED LIMESTONE

BORING 11 SHOWN HERE FOR CLARITY
SEE PLAN VIEW FOR BORING LOCATION

CRUSHED LIMESTONE
10 FILL BROWN CLAY
26 B2
20
BROWN FINE TO COARSE SAND
20

CRUSHED LIMESTONE
10 FILL DARK BROWN CLAY
28 C1
DARK BROWN CLAY
21
BROWN FINE TO COARSE SAND
26

**SHELBY TUBE CORE DATA**

| CORE NO. | 9 C2 | 11 C1 | 26 B2 | 28 C1 |
|---|---|---|---|---|
| DEPTH IN FEET | 4 | 4 | 3 | 3 |
| CLASSIFICATION (AASHTO) | A-7-6(12) | - | - | A-6(6) |
| COEFF.CONSOL.(SQ. FT /DAY) | 0.003 | - | - | - |
| TRIAXIAL COMPRESSION | CU | UC | UC | UC |
| COHESION - PSF | 170 | 550 | 780 | 1090 |
| FRICTION COEFF. | - | - | - | - |
| MOISTURE CONTENT % | 27 | 8 | 21 | 21 |
| DRY DENSITY - PCF | 92 | 114 | 107 | 107 |

CU-CONSOLIDATED UNDRAINED
UU-UNCONSOLIDATED UNDRAINED
UC-UNCONFINED COMPRESSION (c=1/2 Qu)

US HWY 151 NB

9 RT.16 | 11 RT.13 | 11 RT.13 | 26 RT.15 | 28 RT.15

| ENGLISH | IOWA DOT | DESIGN TEAM Snyder & Associates\Terracon | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER Q.12 |
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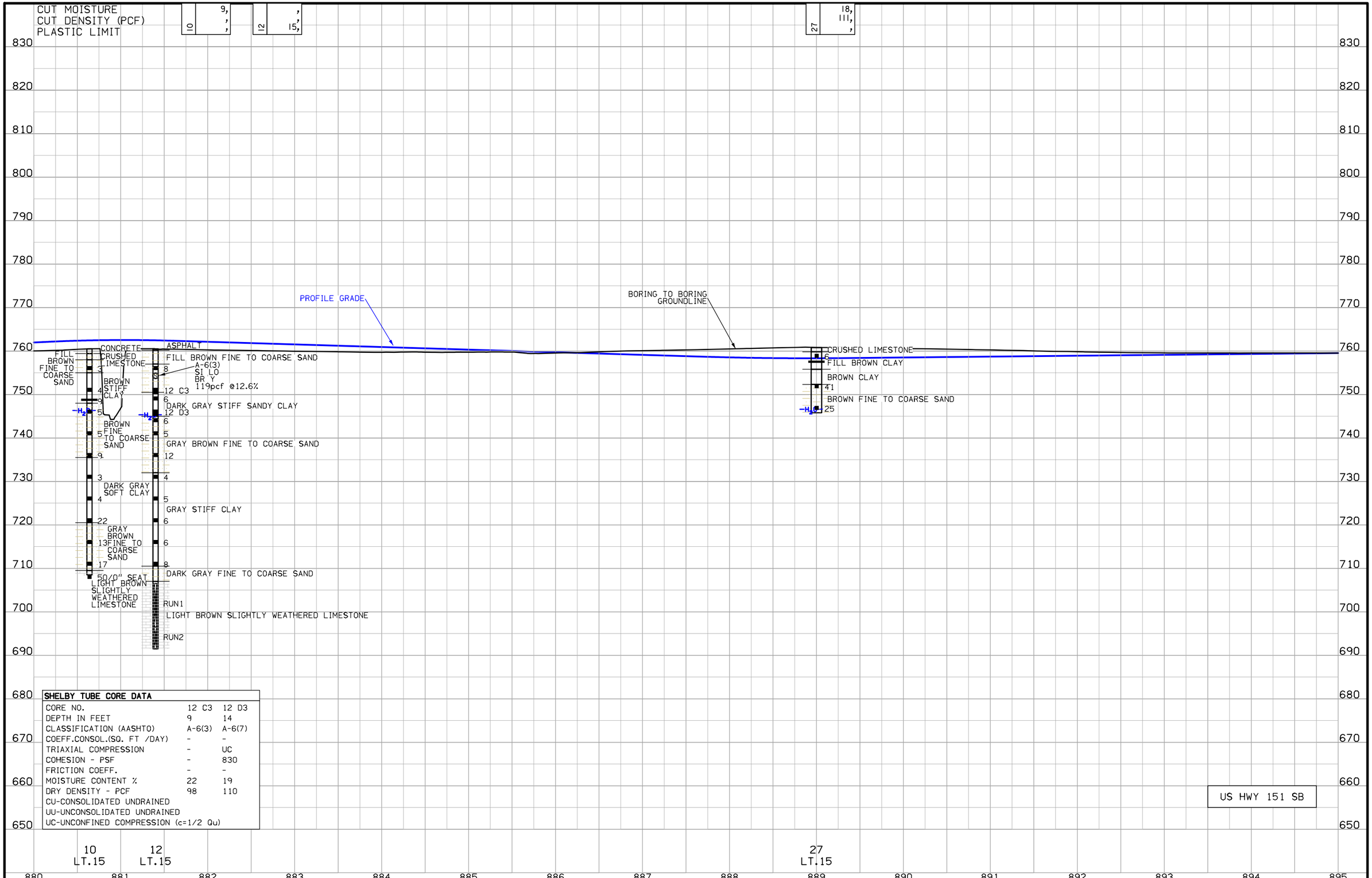



| SHELBY TUBE CORE DATA | | |
|---|---|---|
| CORE NO. | 12 C3 | 12 D3 |
| DEPTH IN FEET | 9 | 14 |
| CLASSIFICATION (AASHTO) | A-6(3) | A-6(7) |
| COEFF.CONSOL.(SQ. FT /DAY) | - | - |
| TRIAXIAL COMPRESSION | - | UC |
| COHESION - PSF | - | 830 |
| FRICTION COEFF. | - | - |
| MOISTURE CONTENT % | 22 | 19 |
| DRY DENSITY - PCF | 98 | 110 |

CU-CONSOLIDATED UNDRAINED
UU-UNCONSOLIDATED UNDRAINED
UC-UNCONFINED COMPRESSION (c=1/2 Qu)

US HWY 151 SB

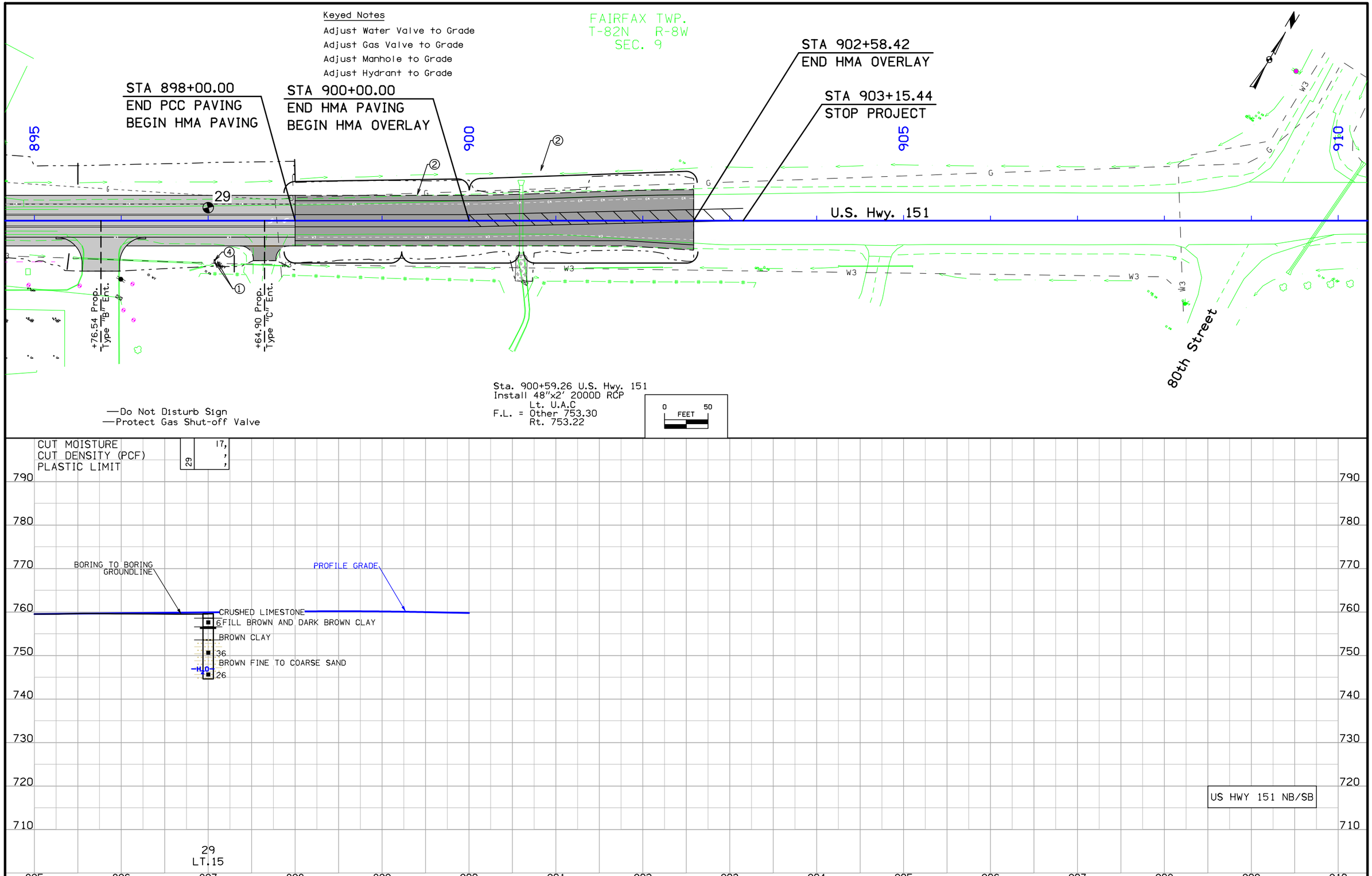
10 LT.15

12 LT.15

27 LT.15

880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895

| ENGLISH | IOWA DOT | DESIGN TEAM Snyder & Associates\Terracon | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER Q.13 |
|---|---|---|---|---|---|




| ENGLISH | IOWA DOT | DESIGN TEAM Snyder & Associates\Terracon | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER Q.14 |
|---|---|---|---|---|---|

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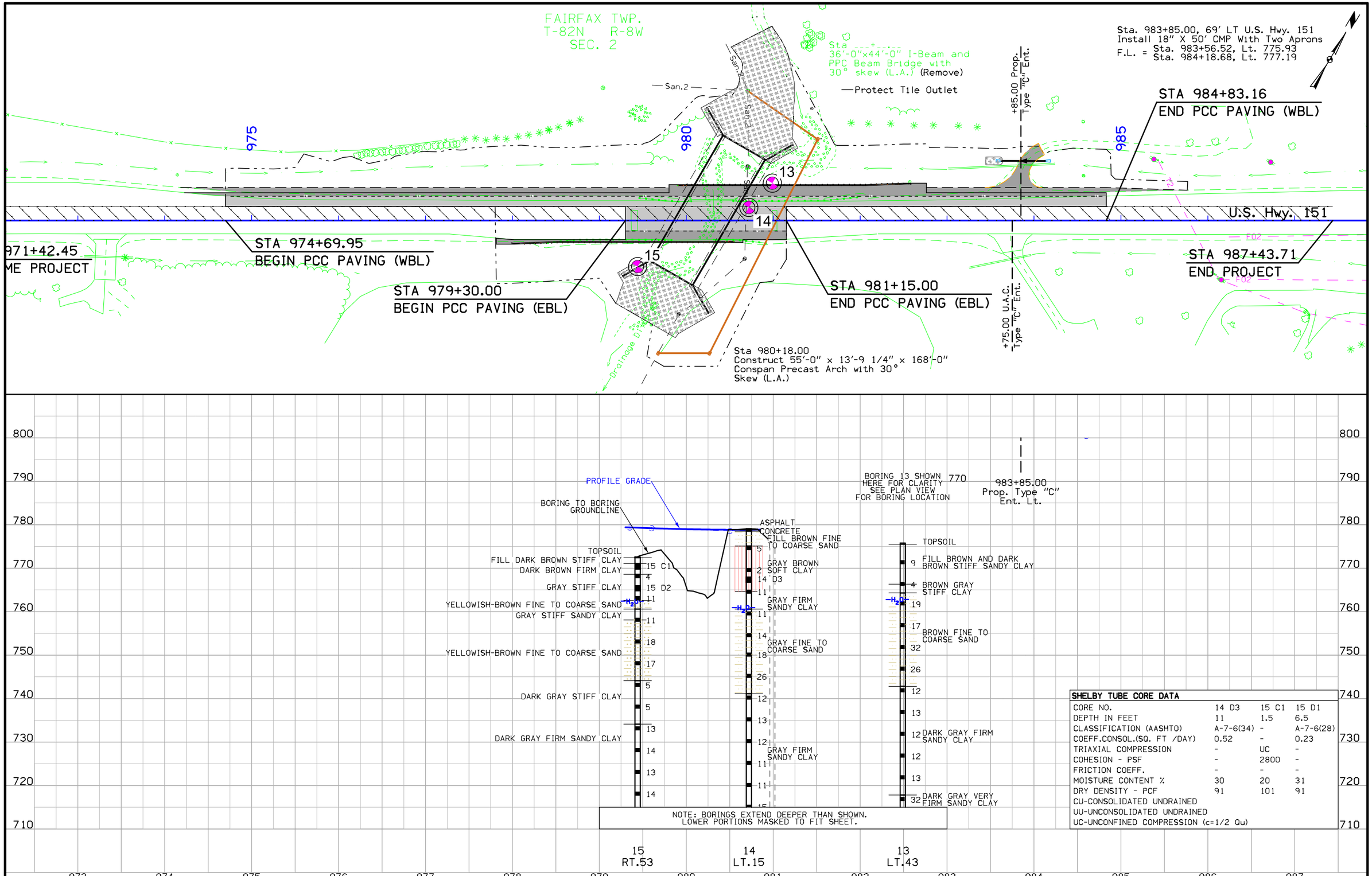


**SHELBY TUBE CORE DATA**

| CORE NO. | 14 D3 | 15 C1 | 15 D1 |
|---|---|---|---|
| DEPTH IN FEET | 11 | 1.5 | 6.5 |
| CLASSIFICATION (AASHTO) | A-7-6(34) | - | A-7-6(28) |
| COEFF.CONSOL.(SQ. FT /DAY) | 0.52 | - | 0.23 |
| TRIAXIAL COMPRESSION | - | UC | - |
| COHESION - PSF | - | 2800 | - |
| FRICTION COEFF. | - | - | - |
| MOISTURE CONTENT % | 30 | 20 | 31 |
| DRY DENSITY - PCF | 91 | 101 | 91 |

CU-CONSOLIDATED UNDRAINED
UU-UNCONSOLIDATED UNDRAINED
UC-UNCONFINED COMPRESSION (c=1/2 Qu)

| ENGLISH | IOWA DOT | DESIGN TEAM Snyder & Associates\Terracon | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER Q.15 |
|---|---|---|---|---|---|

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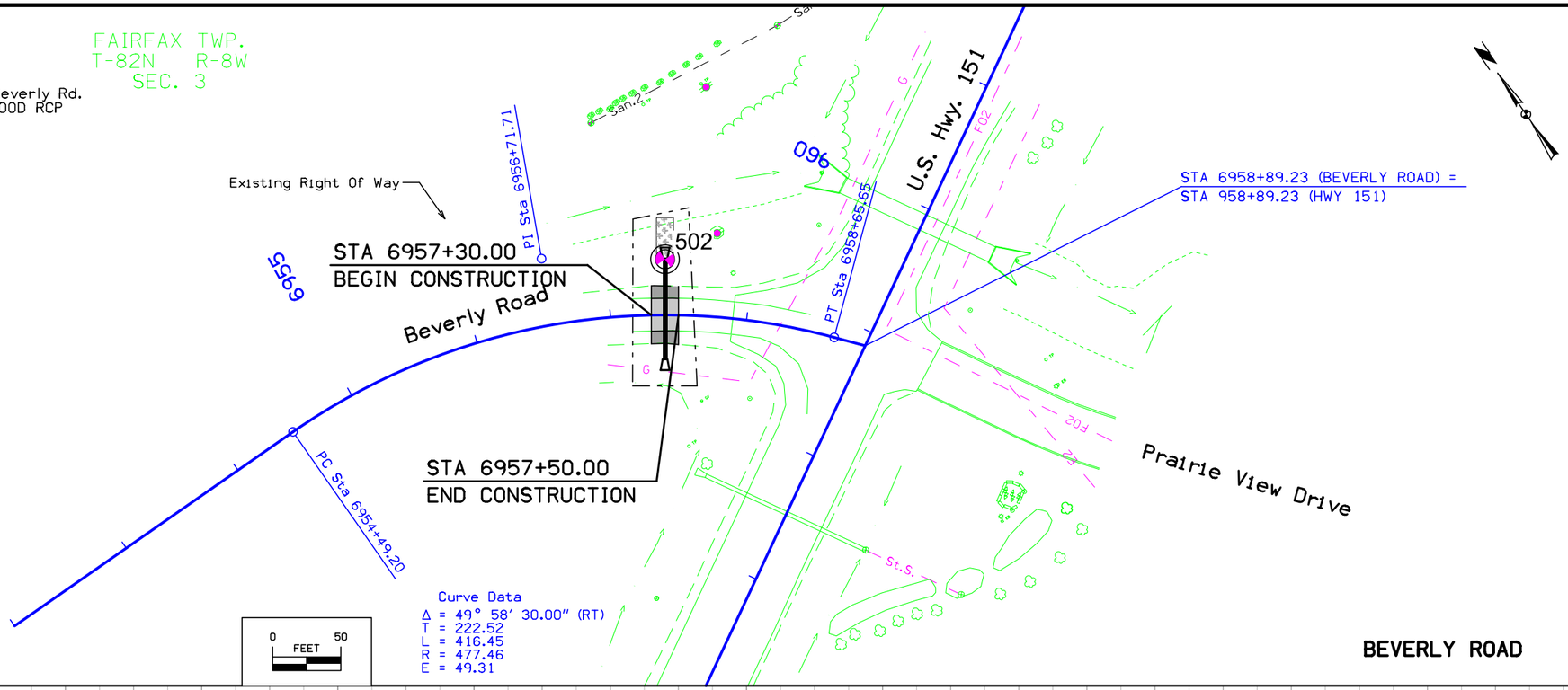
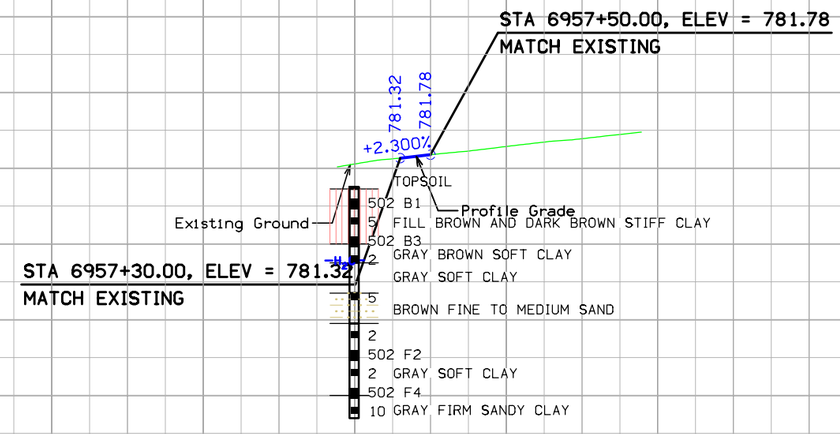
FAIRFAX TWP.
T-82N R-8W
SEC. 3

Sta. 6957+40.00 Beverly Rd.
Install 42"x74' 2000D RCP
F.L. = Lt. 772.40
Rt. 773.30




| SHELBY TUBE CORE DATA | | | | |
|---|---|---|---|---|
| CORE NO. | 502 B1 | 502 B3 | 502 F2 | 502 F4 |
| DEPTH IN FEET | 1.5 | 6.5 | 21.5 | 26.5 |
| CLASSIFICATION (AASHTO) | - | A-7-6(31) | A-6(12) | - |
| COEFF.CONSOL.(SQ. FT /DAY) | - | - | - | - |
| TRIAXIAL COMPRESSION | UC | CU | CU | UC |
| COHESION - PSF | 770 | 90 | 560 | 280 |
| FRICTION COEFF. | - | - | - | - |
| MOISTURE CONTENT % | 22 | 31 | 31 | 19 |
| DRY DENSITY - PCF | 89 | 90 | 96 | 117 |
| CU-CONSOLIDATED UNDRAINED | | | | |
| UU-UNCONSOLIDATED UNDRAINED | | | | |
| UC-UNCONFINED COMPRESSION (c=1/2 Qu) | | | | |

| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER |
|---|---|---|---|---|---|
| | | Snyder & Associates\Terracon | LINN | NHSX-151-3(158)--3H-57 | Q.16 |

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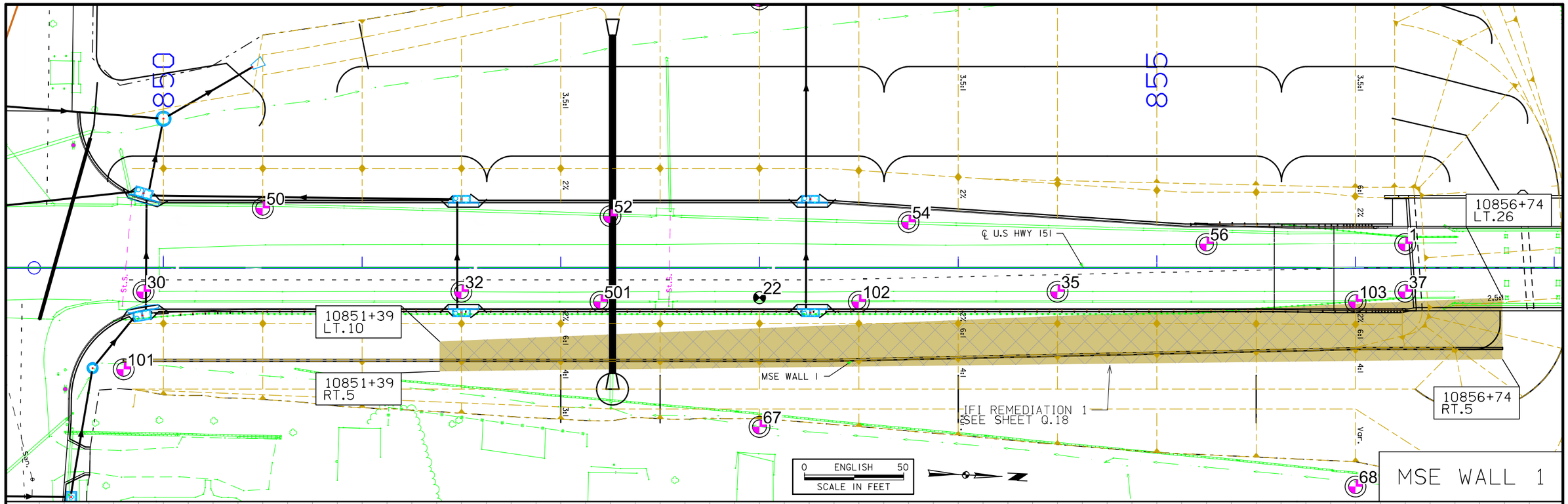


For Soil Profile Information Refer to Sheet Q.18

| 850 | 851 | 852 | 853 | 854 | 855 | 856 |
|---|---|---|---|---|---|---|
| ENGLISH | IOWA DOT | DESIGN TEAM Snyder & Associates\Terracon | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER Q.17 | |

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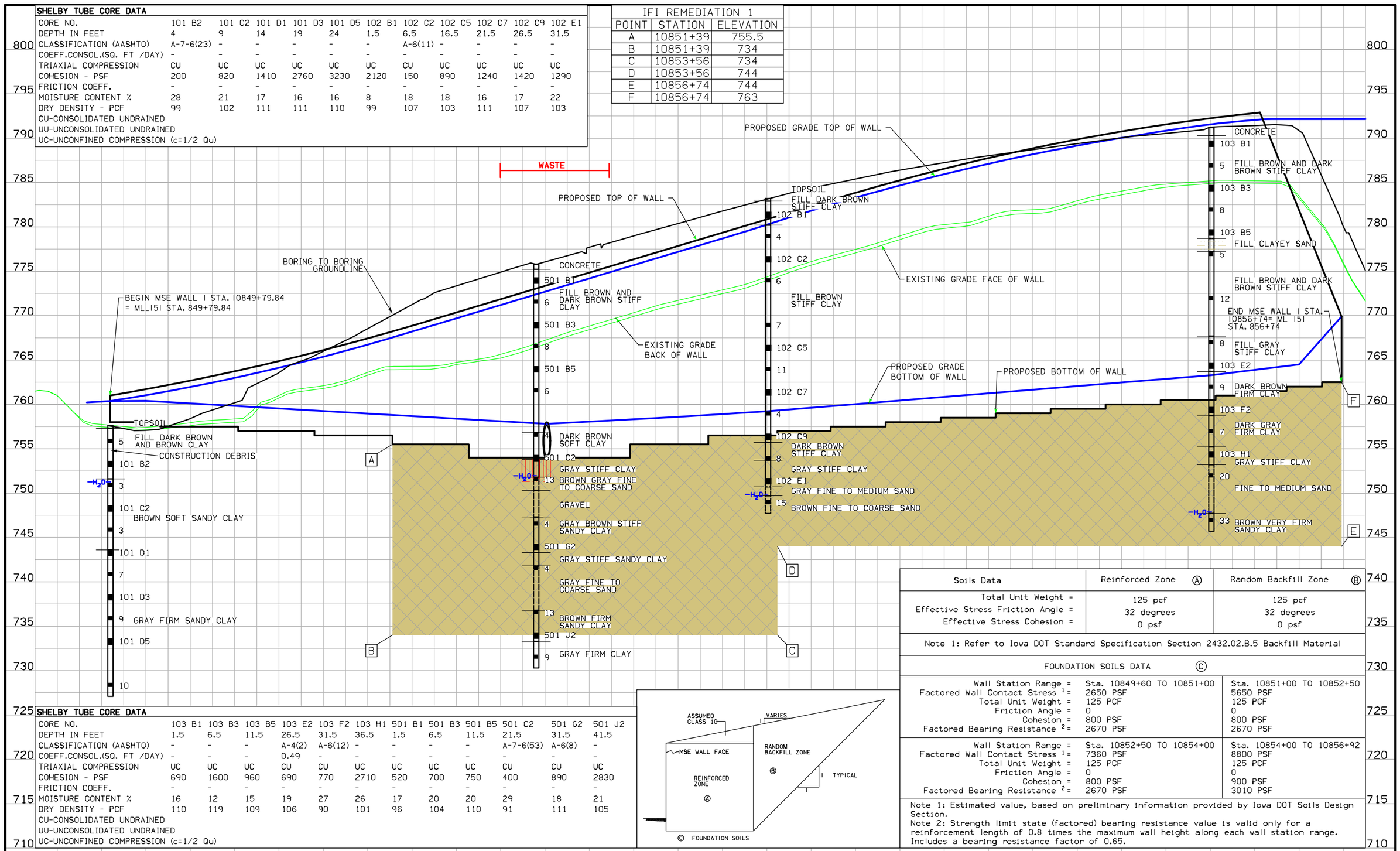
**SHELBY TUBE CORE DATA**

| CORE NO. | 101 B2 | 101 C2 | 101 D1 | 101 D3 | 101 D5 | 102 B1 | 102 C2 | 102 C5 | 102 C7 | 102 C9 | 102 E1 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH IN FEET | 4 | 9 | 14 | 19 | 24 | 1.5 | 6.5 | 16.5 | 21.5 | 26.5 | 31.5 |
| CLASSIFICATION (AASHTO) | A-7-6(23) | - | - | - | - | - | A-6(11) | - | - | - | - |
| COEFF.CONSOL.(SQ. FT /DAY) | - | - | - | - | - | - | - | - | - | - | - |
| TRIAXIAL COMPRESSION | CU | UC | UC | UC | UC | UC | CU | UC | UC | UC | UC |
| COHESION - PSF | 200 | 820 | 1410 | 2760 | 3230 | 2120 | 150 | 890 | 1240 | 1420 | 1290 |
| FRICTION COEFF. | - | - | - | - | - | - | - | - | - | - | - |
| MOISTURE CONTENT % | 28 | 21 | 17 | 16 | 16 | 8 | 18 | 18 | 16 | 17 | 22 |
| DRY DENSITY - PCF | 99 | 102 | 111 | 111 | 110 | 99 | 107 | 103 | 111 | 107 | 103 |

CU-CONSOLIDATED UNDRAINED
UU-UNCONSOLIDATED UNDRAINED
UC-UNCONFINED COMPRESSION (c=1/2 Qu)

| IFI REMEDIATION 1 | | |
|---|---|---|
| POINT | STATION | ELEVATION |
| A | 10851+39 | 755.5 |
| B | 10851+39 | 734 |
| C | 10853+56 | 734 |
| D | 10853+56 | 744 |
| E | 10856+74 | 744 |
| F | 10856+74 | 763 |




**SHELBY TUBE CORE DATA**

| CORE NO. | 103 B1 | 103 B3 | 103 B5 | 103 E2 | 103 F2 | 103 H1 | 501 B1 | 501 B3 | 501 B5 | 501 C2 | 501 G2 | 501 J2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH IN FEET | 1.5 | 6.5 | 11.5 | 26.5 | 31.5 | 36.5 | 1.5 | 6.5 | 11.5 | 21.5 | 31.5 | 41.5 |
| CLASSIFICATION (AASHTO) | - | - | - | A-4(2) | A-6(12) | - | - | - | - | A-7-6(53) | A-6(8) | - |
| COEFF.CONSOL.(SQ. FT /DAY) | - | - | - | 0.49 | - | - | - | - | - | - | - | - |
| TRIAXIAL COMPRESSION | UC | UC | UC | CU | CU | UC | UC | UC | UC | CU | CU | UC |
| COHESION - PSF | 690 | 1600 | 960 | 690 | 770 | 2710 | 520 | 700 | 750 | 400 | 890 | 2830 |
| FRICTION COEFF. | - | - | - | - | - | - | - | - | - | - | - | - |
| MOISTURE CONTENT % | 16 | 12 | 15 | 19 | 27 | 26 | 17 | 20 | 20 | 29 | 18 | 21 |
| DRY DENSITY - PCF | 110 | 119 | 109 | 106 | 90 | 101 | 96 | 104 | 110 | 91 | 111 | 105 |

CU-CONSOLIDATED UNDRAINED
UU-UNCONSOLIDATED UNDRAINED
UC-UNCONFINED COMPRESSION (c=1/2 Qu)




| Soils Data | Reinforced Zone Ⓐ | Random Backfill Zone Ⓑ |
|---|---|---|
| Total Unit Weight = | 125 pcf | 125 pcf |
| Effective Stress Friction Angle = | 32 degrees | 32 degrees |
| Effective Stress Cohesion = | 0 psf | 0 psf |

Note 1: Refer to Iowa DOT Standard Specification Section 2432.02.B.5 Backfill Material

FOUNDATION SOILS DATA Ⓒ

| | | |
|---|---|---|
| Wall Station Range = | Sta. 10849+60 TO 10851+00 | Sta. 10851+00 TO 10852+50 |
| Factored Wall Contact Stress [1] = | 2650 PSF | 5650 PSF |
| Total Unit Weight = | 125 PCF | 125 PCF |
| Friction Angle = | 0 | 0 |
| Cohesion = | 800 PSF | 800 PSF |
| Factored Bearing Resistance [2] = | 2670 PSF | 2670 PSF |
| Wall Station Range = | Sta. 10852+50 TO 10854+00 | Sta. 10854+00 TO 10856+92 |
| Factored Wall Contact Stress [1] = | 7360 PSF | 8800 PSF |
| Total Unit Weight = | 125 PCF | 125 PCF |
| Friction Angle = | 0 | 0 |
| Cohesion = | 800 PSF | 900 PSF |
| Factored Bearing Resistance [2] = | 2670 PSF | 3010 PSF |

Note 1: Estimated value, based on preliminary information provided by Iowa DOT Soils Design Section.
Note 2: Strength limit state (factored) bearing resistance value is valid only for a reinforcement length of 0.8 times the maximum wall height along each wall station range. Includes a bearing resistance factor of 0.65.

101 RT.4 | 501 LT.30 | 102 LT.30 | 103 LT.25

ENGLISH | IOWA DOT | DESIGN TEAM Snyder & Associates\Terracon | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER Q.18

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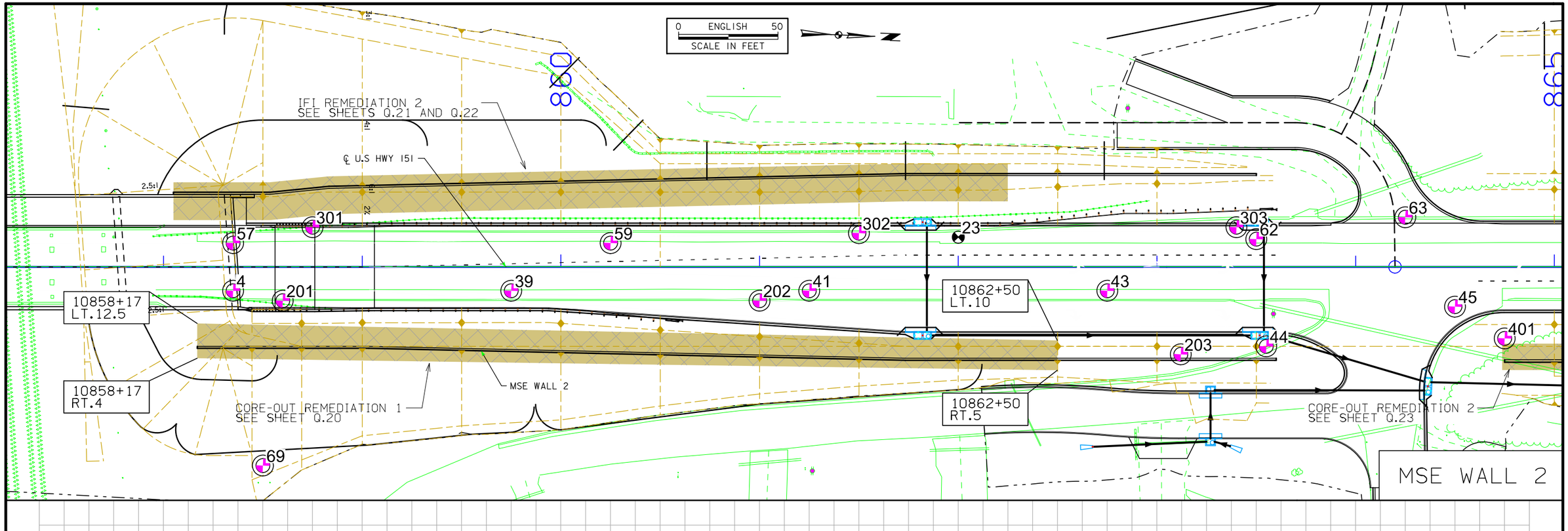


For Soil Profile Information Refer to Sheet Q.20

858 859 860 861 862 863 864

| ENGLISH | IOWA DOT | DESIGN TEAM Snyder & Associates\Terracon | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER Q.19 |
|---|---|---|---|---|---|

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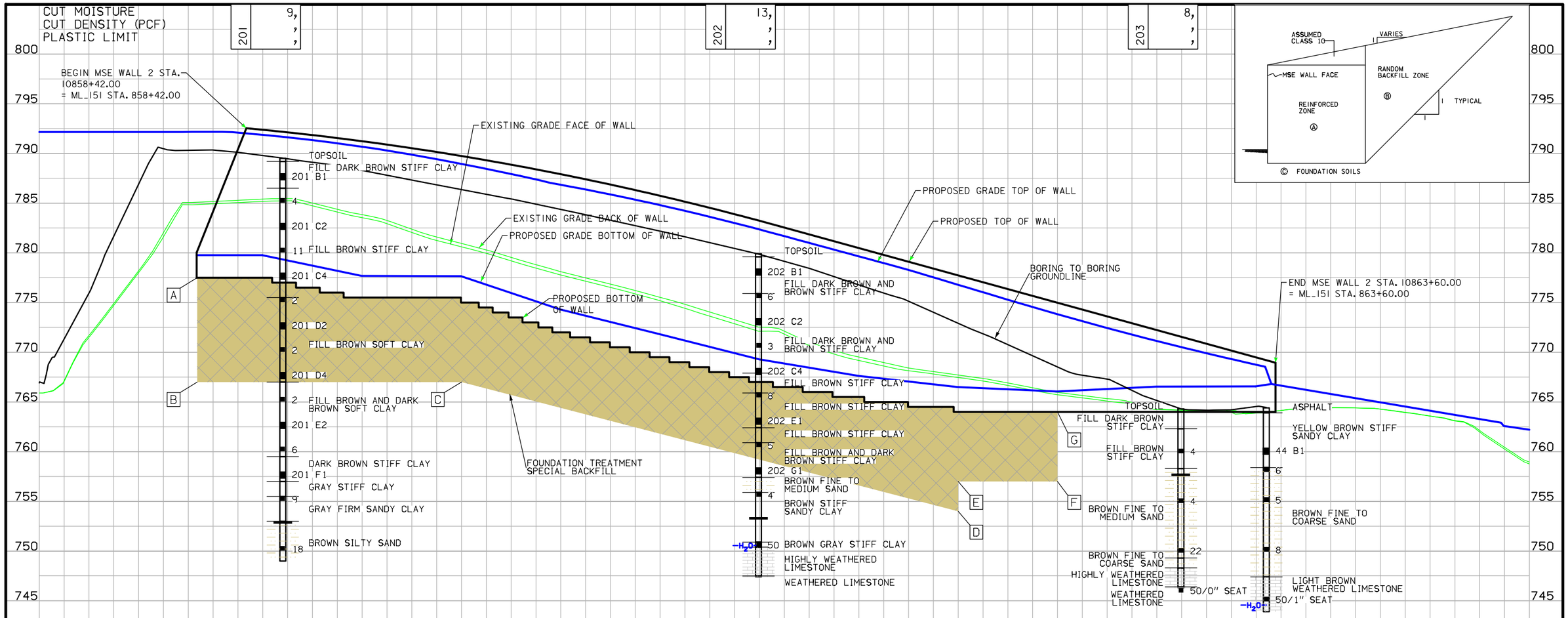



| Soils Data | Reinforced Zone Ⓐ | Random Backfill Zone Ⓑ |
|---|---|---|
| Total Unit Weight = | 125 pcf | 125 pcf |
| Effective Stress Friction Angle = | 32 degrees | 32 degrees |
| Effective Stress Cohesion = | 0 psf | 0 psf |

Note 1: Refer to Iowa DOT Standard Specification Section 2432.02.B.5 Backfill Material

FOUNDATION SOILS DATA Ⓒ

| | Sta. 10858+44 TO 10862+00 | Sta. 10862+00 TO 10863+60 |
|---|---|---|
| Wall Station Range = | | |
| Factored Wall Contact Stress [1] = | 4360 PSF | 3500 PSF |
| Total Unit Weight = | 125 PCF | 120 PCF |
| Friction Angle = | 0 | 0 |
| Cohesion = | 800 PSF | 800 PSF |
| Factored Bearing Resistance [2] = | 2670 PSF | 2670 PSF |

Note 1: Estimated value, based on preliminary information provided by Iowa DOT Soils Design Section.
Note 2: Strength limit state (factored) bearing resistance value is valid only for a reinforcement length of 0.8 times the maximum wall height along each wall station range. Includes a bearing resistance factor of 0.65.

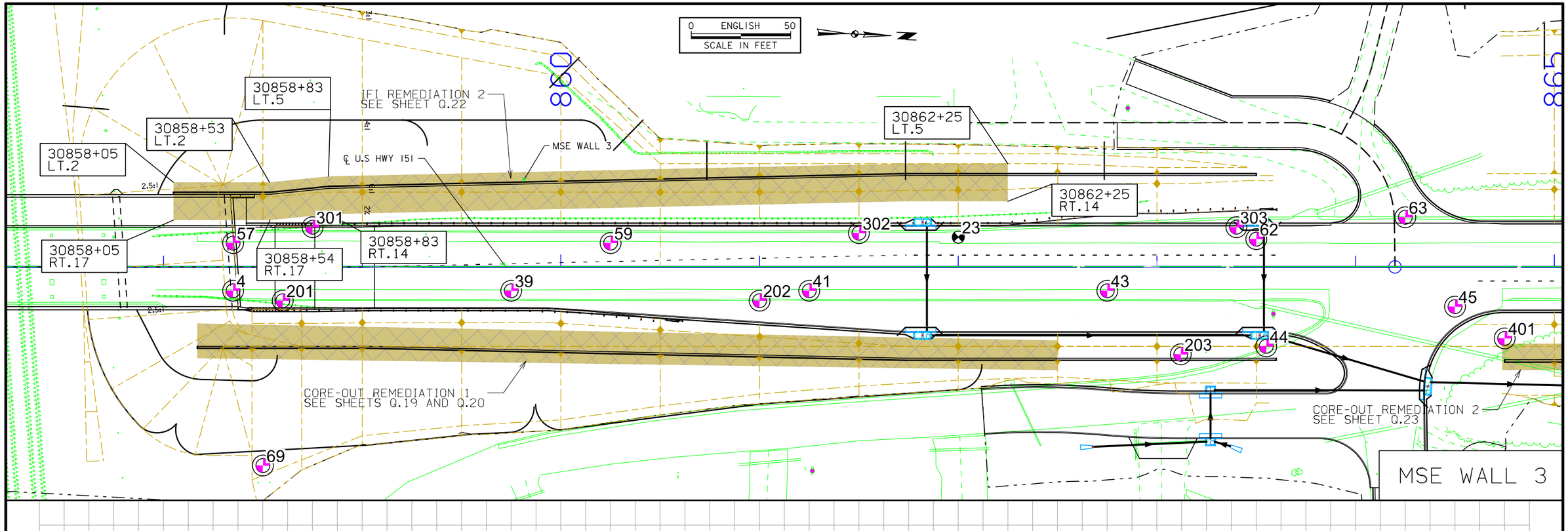
| CORE-OUT REMEDIATION 1 | | |
|---|---|---|
| POINT | STATION | ELEVATION |
| A | 10858+17 | 777.5 |
| B | 10858+17 | 767 |
| C | 10859+50 | 767 |
| D | 10862+00 | 754 |
| E | 10862+00 | 757 |
| F | 10862+50 | 757 |
| G | 10862+50 | 764 |

**SHELBY TUBE CORE DATA**

| CORE NO. | 201 B1 | 201 C2 | 201 C4 | 201 D2 | 201 D4 | 201 E2 | 201 F1 | 202 B1 | 202 C2 | 202 C4 | 202 E1 | 202 G1 | 44 B1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH IN FEET | 1.5 | 6.5 | 11.5 | 16.5 | 21.5 | 26.5 | 31.5 | 1.5 | 6.5 | 11.5 | 16.5 | 21.5 | 4 |
| CLASSIFICATION (AASHTO) | - | - | - | A-4(3) | - | - | A-7-6(28) | - | - | - | A-4(7) | - | - |
| COEFF.CONSOL.(SQ. FT /DAY) | - | - | - | - | - | - | 0.43 | - | - | - | - | - | - |
| TRIAXIAL COMPRESSION | UC | UC | UC | CU | UC | UC | CU | UC | UC | UC | CU | UC | UC |
| COHESION - PSF | 5230 | 2510 | 1580 | 140 | 460 | 340 | 500 | 6420 | 1190 | 1830 | 270 | 880 | 1300 |
| FRICTION COEFF. | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MOISTURE CONTENT % | 11 | 14 | 18 | 22 | 24 | 27 | 29 | 7 | 19 | 16 | 21 | 23 | 16 |
| DRY DENSITY - PCF | 117 | 106 | 114 | 97 | 93 | 85 | 92 | 123 | 104 | 112 | 102 | 104 | 107 |

CU-CONSOLIDATED UNDRAINED
UU-UNCONSOLIDATED UNDRAINED
UC-UNCONFINED COMPRESSION (c=1/2 Qu)

| ENGLISH | IOWA DOT | DESIGN TEAM | Snyder & Associates\Terracon | LINN | COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | Q.20 |
|---|---|---|---|---|---|---|---|---|---|




For Soil Profile Information Refer to Sheet Q.22

858 859 860 861 862 863 864

| ENGLISH | IOWA DOT | DESIGN TEAM Snyder & Associates\Terracon | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER Q.21 |
|---|---|---|---|---|---|

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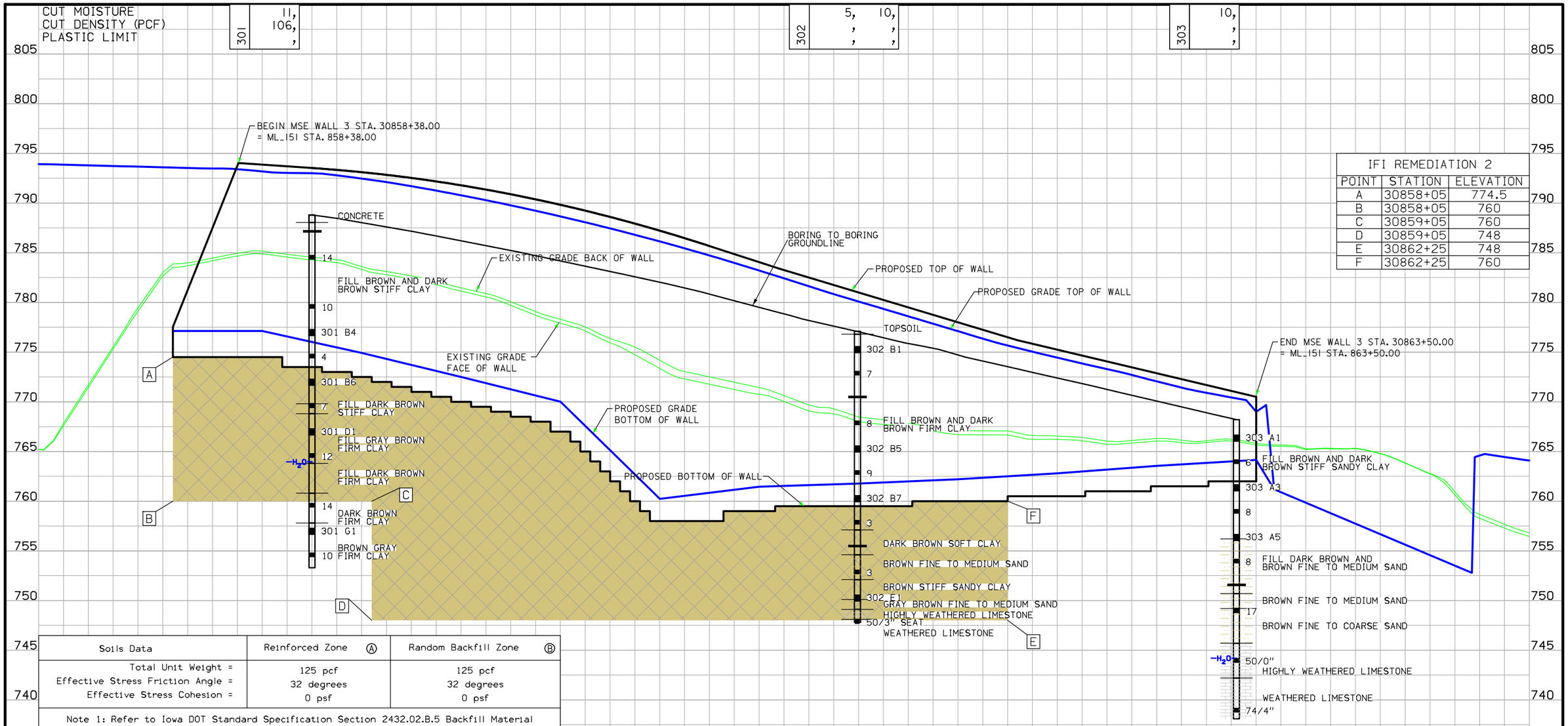
| | 301 | 302 | 303 |
|---|---|---|---|
| CUT MOISTURE | 11, | 5, 10, | 10, |
| CUT DENSITY (PCF) | 106, | , , | , |
| PLASTIC LIMIT | , | , , | , |




| IFI REMEDIATION 2 | | |
|---|---|---|
| POINT | STATION | ELEVATION |
| A | 30858+05 | 774.5 |
| B | 30858+05 | 760 |
| C | 30859+05 | 760 |
| D | 30859+05 | 748 |
| E | 30862+25 | 748 |
| F | 30862+25 | 760 |

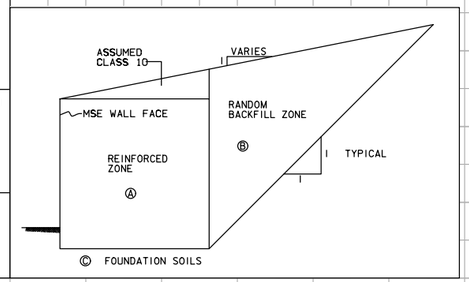
| Soils Data | Reinforced Zone Ⓐ | Random Backfill Zone Ⓑ |
|---|---|---|
| Total Unit Weight = | 125 pcf | 125 pcf |
| Effective Stress Friction Angle = | 32 degrees | 32 degrees |
| Effective Stress Cohesion = | 0 psf | 0 psf |

Note 1: Refer to Iowa DOT Standard Specification Section 2432.02.B.5 Backfill Material

FOUNDATION SOILS DATA Ⓒ

| | | |
|---|---|---|
| Wall Station Range = | Sta. 30858+40 TO 30859+50 | Sta. 30859+50 TO 30861+00 |
| Factored Wall Contact Stress [1] = | 4010 PSF | 7800 PSF |
| Total Unit Weight = | 125 PCF | 125 PCF |
| Friction Angle = | 0 | 0 |
| Cohesion = | 900 PSF | 900 PSF |
| Factored Bearing Resistance [2] = | 3010 PSF | 3010 PSF |
| Wall Station Range = | Sta. 30861+00 TO 30862+00 | Sta. 30862+00 TO 30863+50 |
| Factored Wall Contact Stress [1] = | 6510 PSF | 4510 PSF |
| Total Unit Weight = | 125 PCF | 125 PCF |
| Friction Angle = | 0 | 0 |
| Cohesion = | 800 PSF | 800 PSF |
| Factored Bearing Resistance [2] = | 2670 PSF | 2670 PSF |

Note 1: Estimated value, based on preliminary information provided by Iowa DOT Soils Design Section.
Note 2: Strength limit state (factored) bearing resistance value is valid only for a reinforcement length of 0.8 times the maximum wall height along each wall station range. Includes a bearing resistance factor of 0.65.




**SHELBY TUBE CORE DATA**

| CORE NO. | 301 B4 | 301 B6 | 301 D1 | 301 G1 | 302 B1 | 302 B5 | 302 B7 | 302 E1 | 303 A1 | 303 A3 | 303 A5 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH IN FEET | 11.5 | 16.5 | 21.5 | 31.5 | 1.5 | 11.5 | 16.5 | 26.5 | 1.5 | 6.5 | 11.5 |
| CLASSIFICATION (AASHTO) | - | A-6(6) | - | A-6(19) | - | - | A-7(7) | - | - | A-4(1) | - |
| COEFF.CONSOL.(SQ. FT /DAY) | - | 0.67 | - | 0.48 | - | - | - | - | - | 0.31 | - |
| TRIAXIAL COMPRESSION | UC | CU | UC | CU | UC | CU | UC | UC | UC | CU | UC |
| COHESION - PSF | 1460 | 360 | 1620 | 940 | 2160 | 2160 | 180 | 310 | 1930 | 270 | 350 |
| FRICTION COEFF. | - | - | - | - | - | - | - | - | - | - | - |
| MOISTURE CONTENT % | 16 | 18 | 16 | 24 | 11 | 20 | 15 | 15 | 13 | 16 | 18 |
| DRY DENSITY - PCF | 115 | 116 | 107 | 94 | 115 | 111 | 117 | 103 | 119 | 116 | 103 |

CU-CONSOLIDATED UNDRAINED
UU-UNCONSOLIDATED UNDRAINED
UC-UNCONFINED COMPRESSION (c=1/2 Qu)

301 RT.21 | 302 RT.29 | 303 RT.27

858 859 860 861 862 863 864

| ENGLISH | IOWA DOT | DESIGN TEAM Snyder & Associates\Terracon | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER Q.22 |
|---|---|---|---|---|---|

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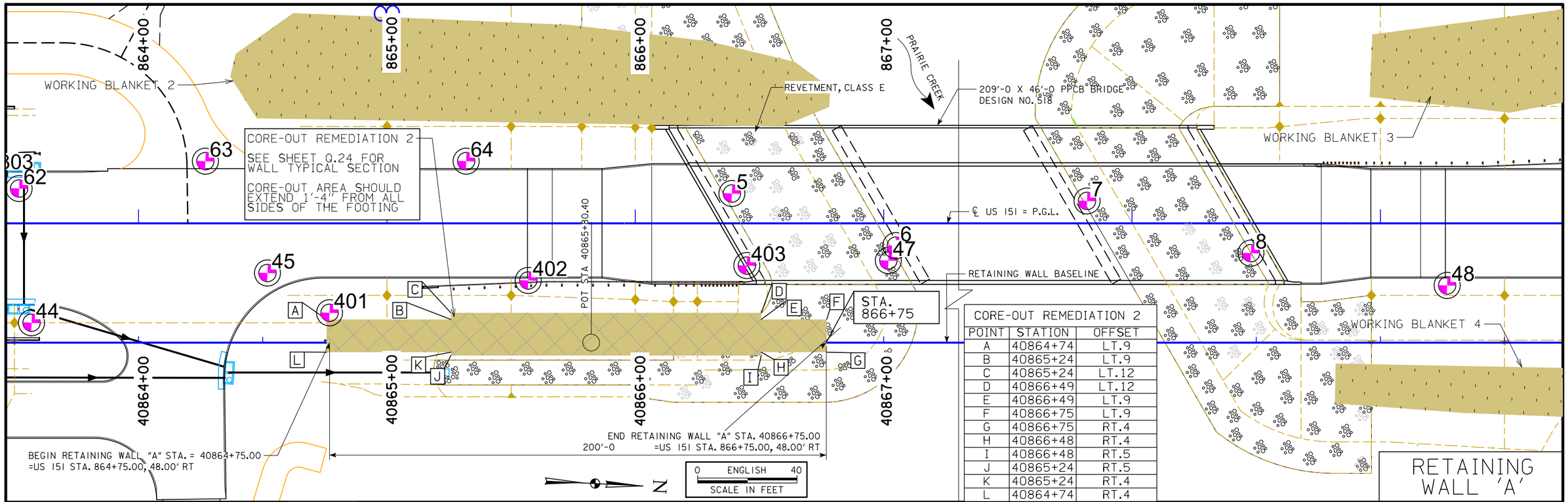
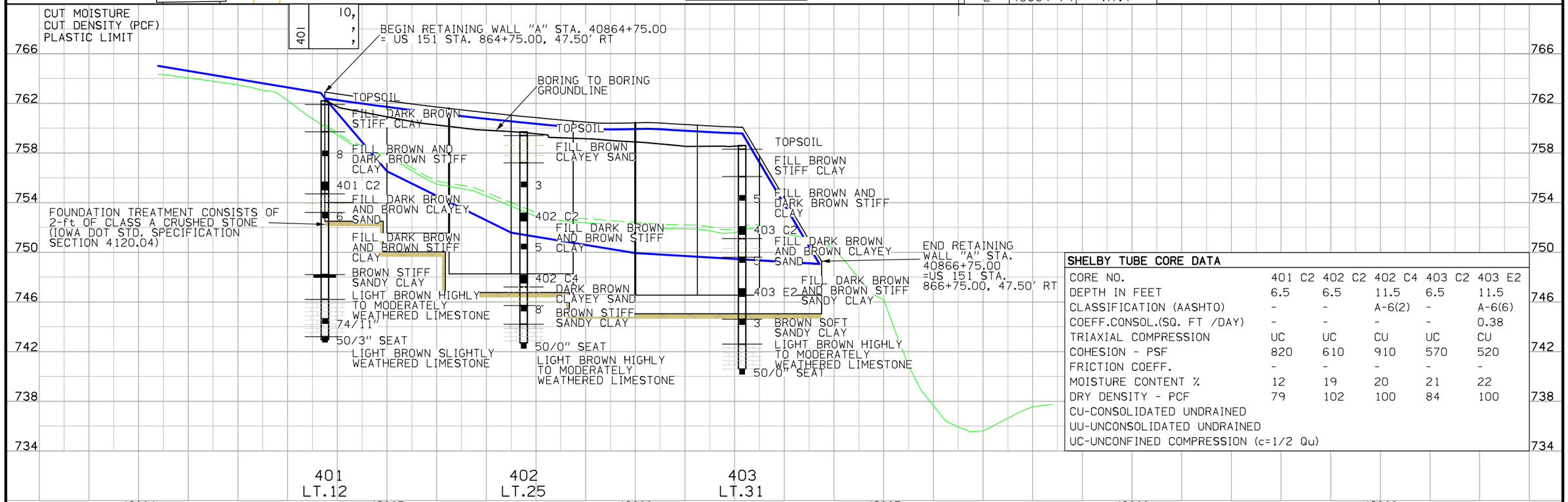



| CORE-OUT REMEDIATION 2 | | |
|---|---|---|
| POINT | STATION | OFFSET |
| A | 40864+74 | LT.9 |
| B | 40865+24 | LT.9 |
| C | 40865+24 | LT.12 |
| D | 40866+49 | LT.12 |
| E | 40866+49 | LT.9 |
| F | 40866+75 | LT.9 |
| G | 40866+75 | RT.4 |
| H | 40866+48 | RT.4 |
| I | 40866+48 | RT.5 |
| J | 40865+24 | RT.5 |
| K | 40865+24 | RT.4 |
| L | 40864+74 | RT.4 |

# RETAINING WALL 'A'

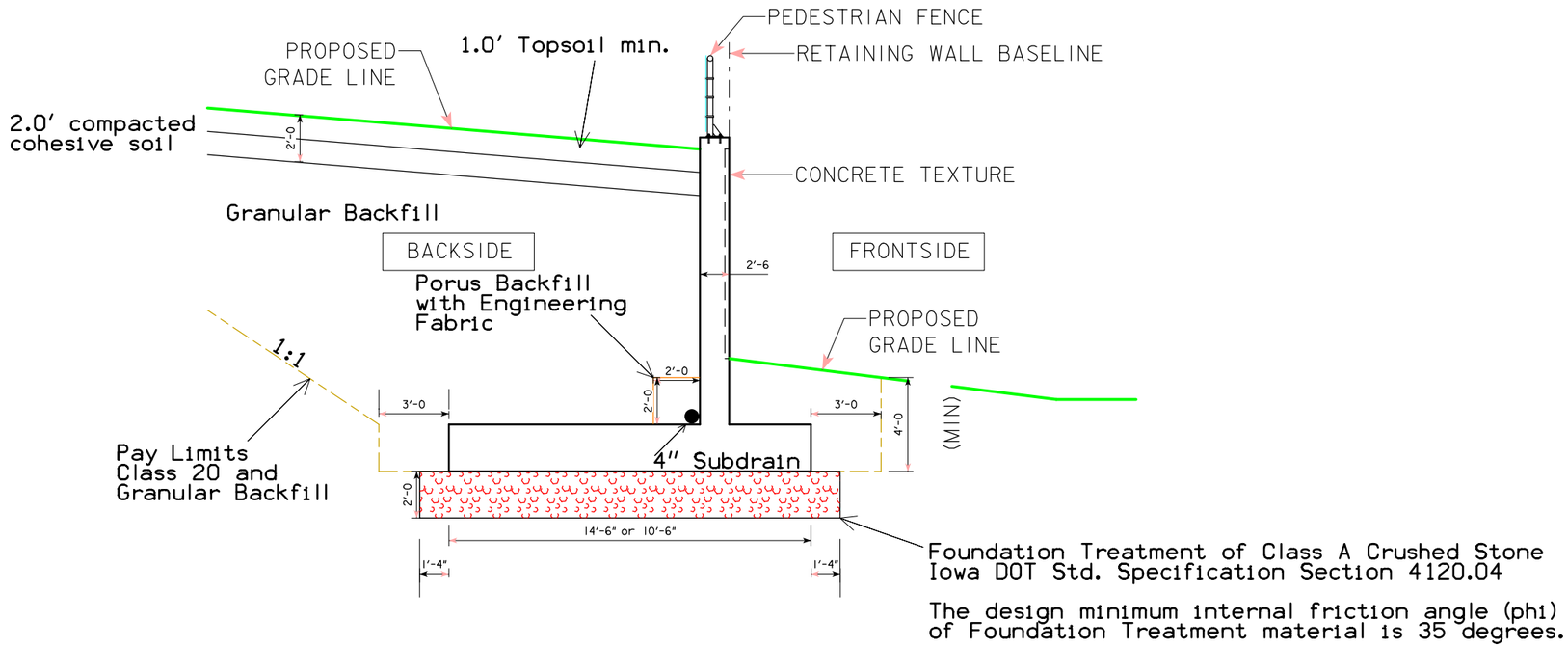



| SHELBY TUBE CORE DATA | | | | | |
|---|---|---|---|---|---|
| CORE NO. | 401 C2 | 402 C2 | 402 C4 | 403 C2 | 403 E2 |
| DEPTH IN FEET | 6.5 | 6.5 | 11.5 | 6.5 | 11.5 |
| CLASSIFICATION (AASHTO) | - | - | A-6(2) | - | A-6(6) |
| COEFF.CONSOL.(SQ. FT /DAY) | - | - | - | - | 0.38 |
| TRIAXIAL COMPRESSION | UC | UC | CU | UC | CU |
| COHESION - PSF | 820 | 610 | 910 | 570 | 520 |
| FRICTION COEFF. | - | - | - | - | - |
| MOISTURE CONTENT % | 12 | 19 | 20 | 21 | 22 |
| DRY DENSITY - PCF | 79 | 102 | 100 | 84 | 100 |

CU-CONSOLIDATED UNDRAINED
UU-UNCONSOLIDATED UNDRAINED
UC-UNCONFINED COMPRESSION (c=1/2 Qu)

| ENGLISH | IOWA DOT | DESIGN TEAM | Snyder & Associates\Terracon | LINN | COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | Q.23 |
|---|---|---|---|---|---|---|---|---|---|

# RETAINING WALL 'A'




## WALL TYPICAL SECTION

Showing Excavation and Backfill Limits
(See also SITE PLAN on sheet V.04)

Refer to Standard Road Plans EW-101 and EW-102.

# TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

| Station | Cut | | | | Fill | | | | | | Checks (EW-102) | | Topsoil | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | [1] | [2] | [3] | [4] | [5] | [6] | [7] | [8] | [9] | [10] | [11] | [12] | [13] | [14] | [15] | [16] | [17] | [18] | [19] | [20] | [21] | [22] |
| | Total Cut Unadjusted Volume | Total Class 10 Unadjusted Volume | Topsoil Cut Volume | Total Cut Adjusted | Total Fill Unadjusted Volume | Existing Topsoil Stripping Undercut (+ Fill) | Existing Pavement Undercut (+Fill) | Total Fill Adjusted | Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor | Total Cut Adjusted Minus Fill w/ Shrink | Approx. Fill Vol. Below 5' & Above 20' w/ Shrink | Approx. Fill Volume Below 3' w/ Shrink | Topsoil Stripping Undercut Volume | Topsoil Placement Undercut Volume | Topsoil Placement With 1.4 Shrink Factor | Topsoil Stripping Minus Topsoil Placement w/Shrink | | | | | | |
| CEMETERY | | | | | | | | | | | | | | | | | | | | | | |
| 5882+50.00 | 53 | 51 | 2 | 51 | 0 | 2 | 44 | 46 | 60 | -9 | 0 | 0 | 2 | 2 | 3 | -1 | | | | | | |
| 5883+00.00 | 32 | 29 | 3 | 29 | 52 | 3 | 109 | 164 | 213 | -184 | 0 | 0 | 3 | 17 | 24 | -21 | | | | | | |
| 5883+50.00 | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 5884+00.00 | 210 | 173 | 37 | 173 | 11 | 37 | 86 | 134 | 174 | -1 | 0 | 0 | 37 | 33 | 46 | -9 | | | | | | |
| 5884+50.00 | 288 | 256 | 32 | 256 | 6 | 32 | 128 | 166 | 216 | 40 | 0 | 0 | 32 | 24 | 34 | -2 | | | | | | |
| 5885+00.00 | | | | | | | | | | | | | | | | | | | | | | |
| CEMETERY | | | | | | | | | | | | | | | | | | | | | | |
| Totals: | 583 | 509 | 74 | 509 | 69 | 74 | 367 | 510 | 663 | -154 | 0 | 0 | 74 | 76 | 107 | -33 | | | | | | |

| FILE NO. | ENGLISH | DESIGN TEAM | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)-3H-57 | SHEET NUMBER T.1 |
|---|---|---|---|---|---|

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Refer to Standard Road Plans EW-101 and EW-102.

# TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

| Station | Cut | | | | Fill | | | | | | Checks (EW-102) | | Topsoil | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | [1] | [2] | [3] | [4] | [5] | [6] | [7] | [8] | [9] | [10] | [11] | [12] | [13] | [14] | [15] | [16] | [17] | [18] | [19] | [20] | [21] | [22] |
| | Total Cut Unadjusted Volume | Total Class 10 Unadjusted Volume | Topsoil Cut Volume | Total Cut Adjusted | Total Fill Unadjusted Volume | Existing Topsoil Stripping Undercut (+ Fill) | Existing Pavement Undercut (+Fill) | Total Fill Adjusted | Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor | Total Cut Adjusted Minus Fill w/ Shrink | Approx. Fill Vol. Below 5' & Above 20' w/ Shrink | Approx. Fill Volume Below 3' w/ Shrink | Topsoil Stripping Undercut Volume | Topsoil Placement Undercut Volume | Topsoil Placement With 1.4 Shrink Factor | Topsoil Stripping Minus Topsoil Placement w/Shrink | | | | | | |
| CHURCH | | | | | | | | | | | | | | | | | | | | | | |
| 1847+69.25 | | | | | | | | | | | | | | | | | | | | | | |
| 1848+00.00 | 19 | 10 | 9 | 10 | 7 | 9 | | 16 | 21 | -11 | 0 | 0 | 9 | 2 | 3 | 6 | | | | | | |
| 1848+50.00 | 37 | 5 | 32 | 5 | 58 | 32 | | 90 | 117 | -112 | 0 | 0 | 32 | 16 | 22 | 10 | | | | | | |
| 1848+56.14 | 7 | 1 | 6 | 1 | 18 | 6 | | 24 | 31 | -30 | 0 | 0 | 6 | 2 | 3 | 3 | | | | | | |
| 1848+69.79 | 10 | 2 | 8 | 2 | 72 | 8 | 6 | 86 | 112 | -110 | 0 | 0 | 8 | 4 | 6 | 2 | | | | | | |
| 1849+00.00 | 33 | 29 | 4 | 29 | 102 | 4 | 29 | 135 | 176 | -147 | 0 | 0 | 4 | 8 | 11 | -7 | | | | | | |
| 1850+00.00 | 224 | 206 | 18 | 206 | 27 | 18 | 74 | 119 | 155 | 51 | 0 | 0 | 18 | 19 | 27 | -9 | | | | | | |
| 1850+01.77 | 5 | 4 | 1 | 4 | 2 | 1 | 2 | 5 | 7 | -3 | 0 | 0 | 1 | 1 | 1 | 0 | | | | | | |
| 1850+11.77 | 21 | 17 | 4 | 17 | 7 | 4 | 12 | 23 | 30 | -13 | 0 | 0 | 4 | 3 | 4 | 0 | | | | | | |
| 1850+50.00 | 84 | 71 | 13 | 71 | 13 | 13 | 39 | 65 | 85 | -14 | 0 | 0 | 13 | 11 | 15 | -2 | | | | | | |
| 1851+00.00 | 105 | 92 | 13 | 92 | 6 | 13 | 44 | 63 | 82 | 10 | 0 | 0 | 13 | 15 | 21 | -8 | | | | | | |
| 1851+01.77 | 2 | 2 | 0 | 2 | 0 | | 2 | 2 | 3 | -1 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| CHURCH | | | | | | | | | | | | | | | | | | | | | | |
| Totals: | 547 | 439 | 108 | 439 | 312 | 108 | 208 | 628 | 817 | -378 | 0 | 0 | 108 | 81 | 114 | -6 | | | | | | |

| FILE NO. | ENGLISH | DESIGN TEAM | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)-3H-57 | SHEET NUMBER T.2 |
|---|---|---|---|---|---|

Refer to Standard Road Plans EW-101 and EW-102.

# TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

| Station | Cut | | | | Fill | | | | | | Checks (EW-102) | | Topsoil | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | [1] | [2] | [3] | [4] | [5] | [6] | [7] | [8] | [9] | [10] | [11] | [12] | [13] | [14] | [15] | [16] | [17] | [18] | [19] | [20] | [21] | [22] |
| | Total Cut Unadjusted Volume | Total Class 10 Unadjusted Volume | Topsoil Cut Volume | Total Cut Adjusted | Total Fill Unadjusted Volume | Existing Topsoil Stripping Undercut (+ Fill) | Existing Pavement Undercut (+Fill) | Total Fill Adjusted | Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor | Total Cut Adjusted Minus Fill w/ Shrink | Approx. Fill Vol. Below 5' & Above 20' w/ Shrink | Approx. Fill Volume Below 3' w/ Shrink | Topsoil Stripping Undercut Volume | Topsoil Placement Undercut Volume | Topsoil Placement With 1.4 Shrink Factor | Topsoil Stripping Minus Topsoil Placement w/Shrink | | | | | | |
| LOSEY | | | | | | | | | | | | | | | | | | | | | | |
| 3863+00.00 | | | | | | | | | | | | | | | | | | | | | | |
| 3863+49.39 | 73 | 73 | 0 | 73 | 32 | | 38 | 70 | 91 | -18 | 0 | 0 | 0 | 13 | 18 | -18 | | | | | | |
| 3863+50.00 | 14 | 1 | 13 | 1 | 1 | 13 | | 14 | 18 | -17 | 0 | 0 | 13 | 0 | 0 | 13 | | | | | | |
| 3863+85.02 | 50 | 50 | 0 | 50 | 15 | | 24 | 39 | 51 | -1 | 0 | 0 | 0 | 4 | 6 | -6 | | | | | | |
| 3864+00.00 | 27 | 21 | 6 | 21 | 7 | 6 | 9 | 22 | 29 | -8 | 0 | 0 | 6 | 2 | 3 | 3 | | | | | | |
| 3864+50.00 | 65 | 62 | 3 | 62 | 58 | 3 | 29 | 90 | 117 | -55 | 0 | 0 | 3 | 14 | 20 | -17 | | | | | | |
| 3864+56.28 | 24 | 6 | 18 | 6 | 11 | 18 | | 29 | 38 | -32 | 0 | 0 | 18 | 2 | 3 | 15 | | | | | | |
| 3864+59.42 | 5 | 2 | 3 | 2 | 7 | 3 | | 10 | 13 | -11 | 0 | 0 | 3 | 1 | 1 | 2 | | | | | | |
| LOSEY | | | | | | | | | | | | | | | | | | | | | | |
| Totals: | 258 | 215 | 43 | 215 | 131 | 43 | 100 | 274 | 357 | -142 | 0 | 0 | 43 | 36 | 51 | -8 | | | | | | |

| FILE NO. | ENGLISH | DESIGN TEAM | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)-3H-57 | SHEET NUMBER T.3 |
|---|---|---|---|---|---|

Refer to Standard Road Plans EW-101 and EW-102.

# TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

| Station | Cut | | | | Fill | | | | | | Checks (EW-102) | | Topsoil | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | [1] | [2] | [3] | [4] | [5] | [6] | [7] | [8] | [9] | [10] | [11] | [12] | [13] | [14] | [15] | [16] | [17] | [18] | [19] | [20] | [21] | [22] |
| | Total Cut Unadjusted Volume | Total Class 10 Unadjusted Volume | Topsoil Cut Volume | Total Cut Adjusted | Total Fill Unadjusted Volume | Existing Topsoil Stripping Undercut (+ Fill) | Existing Pavement Undercut (+Fill) | Total Fill Adjusted | Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor | Total Cut Adjusted Minus Fill w/ Shrink | Approx. Fill Vol. Below 5' & Above 20' w/ Shrink | Approx. Fill Volume Below 3' w/ Shrink | Topsoil Stripping Undercut Volume | Topsoil Placement Undercut Volume | Topsoil Placement With 1.4 Shrink Factor | Topsoil Stripping Minus Topsoil Placement w/Shrink | | | | | | |
| PRAIRIE | | | | | | | | | | | | | | | | | | | | | | |
| 2864+82.50 | | | | | | | | | | | | | | | | | | | | | | |
| 2865+00.00 | 1 | 0 | 1 | 0 | 22 | 1 | | 23 | 30 | -30 | 0 | 0 | 1 | 6 | 8 | -7 | | | | | | |
| 2865+30.81 | 6 | 1 | 5 | 1 | 40 | 5 | 16 | 61 | 79 | -78 | 0 | 0 | 5 | 10 | 14 | -9 | | | | | | |
| 2865+50.00 | 10 | 1 | 9 | 1 | 11 | 9 | 24 | 44 | 57 | -56 | 0 | 0 | 9 | 2 | 3 | 6 | | | | | | |
| 2866+00.69 | 24 | 22 | 2 | 22 | 8 | 2 | 14 | 24 | 31 | -9 | 0 | 0 | 2 | 2 | 3 | -1 | | | | | | |
| 2866+50.00 | 51 | 48 | 3 | 48 | 0 | 3 | 36 | 39 | 51 | -3 | 0 | 0 | 3 | 0 | 0 | 3 | | | | | | |
| PRAIRIE | | | | | | | | | | | | | | | | | | | | | | |
| Totals: | 92 | 72 | 20 | 72 | 81 | 20 | 90 | 191 | 249 | -177 | 0 | 0 | 20 | 20 | 28 | -8 | | | | | | |

| FILE NO. | ENGLISH | DESIGN TEAM | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)-3H-57 | SHEET NUMBER T.4 |
|---|---|---|---|---|---|

Refer to Standard Road Plans EW-101 and EW-102.

# TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

| Station | Cut | | | | Fill | | | | | | Checks (EW-102) | | Topsoil | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | [1] | [2] | [3] | [4] | [5] | [6] | [7] | [8] | [9] | [10] | [11] | [12] | [13] | [14] | [15] | [16] | [17] | [18] | [19] | [20] | [21] | [22] |
| | Total Cut Unadjusted Volume | Total Class 10 Unadjusted Volume | Topsoil Cut Volume | Total Cut Adjusted | Total Fill Unadjusted Volume | Existing Topsoil Stripping Undercut (+ Fill) | Existing Pavement Undercut (+Fill) | Total Fill Adjusted | Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor | Total Cut Adjusted Minus Fill w/ Shrink | Approx. Fill Vol. Below 5' & Above 20' w/ Shrink | Approx. Fill Volume Below 3' w/ Shrink | Topsoil Stripping Undercut Volume | Topsoil Placement Undercut Volume | Topsoil Placement With 1.4 Shrink Factor | Topsoil Stripping Minus Topsoil Placement w/Shrink | | | | | | |
| STAGE1C | | | | | | | | | | | | | | | | | | | | | | |
| 870+00.00 | 72 | 72 | 0 | 72 | 94 | | | 94 | 122 | -50 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 870+50.00 | 65 | 65 | 0 | 65 | 74 | | | 74 | 96 | -31 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 871+00.00 | 60 | 60 | 0 | 60 | 87 | | | 87 | 113 | -53 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 871+50.00 | 58 | 58 | 0 | 58 | 117 | | | 117 | 152 | -94 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 872+00.00 | 58 | 58 | 0 | 58 | 121 | | | 121 | 157 | -99 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 872+50.00 | 66 | 66 | 0 | 66 | 98 | | | 98 | 127 | -61 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 873+00.00 | 80 | 80 | 0 | 80 | 97 | | | 97 | 126 | -46 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 873+50.00 | 95 | 95 | 0 | 95 | 116 | | | 116 | 151 | -56 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 874+00.00 | 113 | 113 | 0 | 113 | 123 | | | 123 | 160 | -47 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 874+50.00 | 100 | 100 | 0 | 100 | 117 | | | 117 | 152 | -52 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 875+00.00 | 68 | 68 | 0 | 68 | 89 | | | 89 | 116 | -48 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 875+50.00 | 61 | 61 | 0 | 61 | 59 | | | 59 | 77 | -16 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 876+00.00 | 61 | 61 | 0 | 61 | 39 | | | 39 | 51 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 876+50.00 | 61 | 61 | 0 | 61 | 28 | | | 28 | 36 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 877+00.00 | 68 | 68 | 0 | 68 | 15 | | | 15 | 20 | 49 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 877+50.00 | 71 | 71 | 0 | 71 | 1 | | | 1 | 1 | 70 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 878+00.00 | 67 | 67 | 0 | 67 | 7 | | | 7 | 9 | 58 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 878+50.00 | 68 | 68 | 0 | 68 | 19 | | | 19 | 25 | 43 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 879+00.00 | 21 | 21 | 0 | 21 | 7 | | | 7 | 9 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 879+50.00 | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 880+00.00 | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 882+00.00 | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 882+50.00 | 67 | 67 | 0 | 67 | 54 | | | 54 | 70 | -3 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 883+00.00 | 102 | 102 | 0 | 102 | 47 | | | 47 | 61 | 41 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 883+50.00 | 112 | 112 | 0 | 112 | 23 | | | 23 | 30 | 82 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 884+00.00 | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 884+50.00 | 109 | 109 | 0 | 109 | 11 | | | 11 | 14 | 95 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 885+50.00 | 83 | 83 | 0 | 83 | 31 | | | 31 | 40 | 43 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 886+00.00 | 79 | 79 | 0 | 79 | 40 | | | 40 | 52 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 886+50.00 | 78 | 78 | 0 | 78 | 36 | | | 36 | 47 | 31 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 887+00.00 | 72 | 72 | 0 | 72 | 34 | | | 34 | 44 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 887+50.00 | 64 | 64 | 0 | 64 | 34 | | | 34 | 44 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 888+00.00 | 60 | 60 | 0 | 60 | 34 | | | 34 | 44 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 888+50.00 | 59 | 59 | 0 | 59 | 33 | | | 33 | 43 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 889+00.00 | 59 | 59 | 0 | 59 | 28 | | | 28 | 36 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 889+50.00 | 59 | 59 | 0 | 59 | 26 | | | 26 | 34 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 890+00.00 | 76 | 76 | 0 | 76 | 15 | | | 15 | 20 | 57 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 890+50.00 | 80 | 80 | 0 | 80 | 0 | | | 0 | 0 | 80 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 891+00.00 | 35 | 35 | 0 | 35 | 9 | | | 9 | 12 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 891+50.00 | 59 | 59 | 0 | 59 | 46 | | | 46 | 60 | -1 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 892+00.00 | 58 | 58 | 0 | 58 | 51 | | | 51 | 66 | -8 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 892+50.00 | 59 | 59 | 0 | 59 | 40 | | | 40 | 52 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 893+00.00 | 60 | 60 | 0 | 60 | 28 | | | 28 | 36 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 893+50.00 | 78 | 78 | 0 | 78 | 11 | | | 11 | 14 | 64 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 894+00.00 | 25 | 25 | 0 | 25 | 0 | | | 0 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 894+50.00 | 82 | 82 | 0 | 82 | 1 | | | 1 | 1 | 81 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 895+00.00 | 73 | 73 | 0 | 73 | 1 | | | 1 | 1 | 72 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 895+50.00 | 14 | 14 | 0 | 14 | 0 | | | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 896+00.00 | 75 | 75 | 0 | 75 | 1 | | | 1 | 1 | 74 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 896+50.00 | 60 | 60 | 0 | 60 | 35 | | | 35 | 46 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 897+00.00 | 59 | 59 | 0 | 59 | 43 | | | 43 | 56 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 897+50.00 | 61 | 61 | 0 | 61 | 53 | | | 53 | 69 | -8 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 898+00.00 | 61 | 61 | 0 | 61 | 84 | | | 84 | 109 | -48 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 898+50.00 | 62 | 62 | 0 | 62 | 80 | | | 80 | 104 | -42 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 899+00.00 | 64 | 64 | 0 | 64 | 79 | | | 79 | 103 | -39 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 899+50.00 | 66 | 66 | 0 | 66 | 75 | | | 75 | 98 | -32 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 900+00.00 | 69 | 69 | 0 | 69 | 75 | | | 75 | 98 | -29 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 900+50.00 | 72 | 72 | 0 | 72 | 71 | | | 71 | 92 | -20 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 901+00.00 | 77 | 77 | 0 | 77 | 44 | | | 44 | 57 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 901+50.00 | 85 | 85 | 0 | 85 | 23 | | | 23 | 30 | 55 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 902+00.00 | 92 | 92 | 0 | 92 | 58 | | | 58 | 75 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 902+50.00 | | | | | | | | | | | | | | | | | | | | | | |
| STAGE1C | | | | | | | | | | | | | | | | | | | | | | |
| Totals: | 3,918 | 3,918 | 0 | 3,918 | 2,662 | 0 | 0 | 2,662 | 3,461 | 458 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |

| FILE NO. | ENGLISH | DESIGN TEAM | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)-3H-57 | SHEET NUMBER T.5 |
|---|---|---|---|---|---|

Refer to Standard Road Plans EW-101 and EW-102.

# TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

| Station | Cut | | | | Fill | | | | | | Checks (EW-102) | | Topsoil | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | [1] | [2] | [3] | [4] | [5] | [6] | [7] | [8] | [9] | [10] | [11] | [12] | [13] | [14] | [15] | [16] | [17] | [18] | [19] | [20] | [21] | [22] |
| | Total Cut Unadjusted Volume | Total Class 10 Unadjusted Volume | Topsoil Cut Volume | Total Cut Adjusted | Total Fill Unadjusted Volume | Existing Topsoil Stripping Undercut (+ Fill) | Existing Pavement Undercut (+Fill) | Total Fill Adjusted | Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor | Total Cut Adjusted Minus Fill w/ Shrink | Approx. Fill Vol. Below 5' & Above 20' w/ Shrink | Approx. Fill Volume Below 3' w/ Shrink | Topsoil Stripping Undercut Volume | Topsoil Placement Undercut Volume | Topsoil Placement With 1.4 Shrink Factor | Topsoil Stripping Minus Topsoil Placement w/Shrink | | | | | | |
| STALLMAN | | | | | | | | | | | | | | | | | | | | | | |
| 4874+50.00 | 49 | 44 | 5 | 44 | 0 | 5 | 21 | 26 | 34 | 10 | 0 | 0 | 5 | 4 | 6 | -1 | | | | | | |
| 4874+79.34 | 27 | 24 | 3 | 24 | 0 | 3 | 15 | 18 | 23 | 1 | 0 | 0 | 3 | 2 | 3 | 0 | | | | | | |
| 4875+00.00 | 8 | 7 | 1 | 7 | 0 | 1 | 6 | 7 | 9 | -2 | 0 | 0 | 1 | 1 | 1 | 0 | | | | | | |
| 4875+07.57 | 4 | 3 | 1 | 3 | 0 | 1 | 3 | 4 | 5 | -2 | 0 | 0 | 1 | 0 | 0 | 1 | | | | | | |
| 4875+11.36 | 27 | 13 | 14 | 13 | 16 | 14 | | 30 | 39 | -26 | 0 | 0 | 14 | 6 | 8 | 6 | | | | | | |
| 4875+43.95 | 4 | 0 | 4 | 0 | 8 | 4 | | 12 | 16 | -16 | 0 | 0 | 4 | 1 | 1 | 3 | | | | | | |
| 4875+50.00 | 5 | 1 | 4 | 1 | 7 | 4 | | 11 | 14 | -13 | 0 | 0 | 4 | 0 | 0 | 4 | | | | | | |
| 4875+55.65 | | | | | | | | | | | | | | | | | | | | | | |
| STALLMAN | | | | | | | | | | | | | | | | | | | | | | |
| Totals: | 124 | 92 | 32 | 92 | 31 | 32 | 45 | 108 | 141 | -49 | 0 | 0 | 32 | 14 | 20 | 13 | | | | | | |

| FILE NO. | ENGLISH | DESIGN TEAM | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)-3H-57 | SHEET NUMBER T.6 |
|---|---|---|---|---|---|

Refer to Standard Road Plans EW-101 and EW-102.

# TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

| Station | Cut | | | | Fill | | | | | | Checks (EW-102) | | Topsoil | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | [1] | [2] | [3] | [4] | [5] | [6] | [7] | [8] | [9] | [10] | [11] | [12] | [13] | [14] | [15] | [16] | [17] | [18] | [19] | [20] | [21] | [22] |
| | Total Cut Unadjusted Volume | Total Class 10 Unadjusted Volume | Topsoil Cut Volume | Total Cut Adjusted | Total Fill Unadjusted Volume | Existing Topsoil Stripping Undercut (+ Fill) | Existing Pavement Undercut (+Fill) | Total Fill Adjusted | Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor | Total Cut Adjusted Minus Fill w/ Shrink | Approx. Fill Vol. Below 5' & Above 20' w/ Shrink | Approx. Fill Volume Below 3' w/ Shrink | Topsoil Stripping Undercut Volume | Topsoil Placement Undercut Volume | Topsoil Placement With 1.4 Shrink Factor | Topsoil Stripping Minus Topsoil Placement w/Shrink | | | | | | |
| ML151 | | | | | | | | | | | | | | | | | | | | | | |
| 844+00.00 | | | | | | | | | | | | | | | | | | | | | | |
| 844+50.00 | 32 | 26 | 6 | 26 | 0 | 6 | | 6 | 8 | 18 | 0 | 0 | 6 | 4 | 6 | 0 | | | | | | |
| 845+00.00 | 35 | 21 | 14 | 21 | 0 | 14 | 57 | 14 | 18 | 3 | 0 | 0 | 14 | 2 | 3 | 11 | | | | | | |
| 845+50.00 | 35 | 35 | 0 | 35 | 0 | | 60 | 0 | 0 | 35 | 0 | 0 | 0 | 2 | 3 | -3 | | | | | | |
| 846+00.00 | 54 | 48 | 6 | 48 | 0 | 6 | 62 | 6 | 8 | 40 | 0 | 0 | 6 | 3 | 4 | 2 | | | | | | |
| 846+50.00 | 40 | 38 | 2 | 38 | 0 | 2 | 65 | 2 | 3 | 35 | 0 | 0 | 2 | 2 | 3 | -1 | | | | | | |
| 847+00.00 | 47 | 41 | 6 | 41 | 1 | 6 | 67 | 7 | 9 | 32 | 0 | 0 | 6 | 2 | 3 | 3 | | | | | | |
| 847+50.00 | 46 | 41 | 5 | 41 | 2 | 5 | 69 | 7 | 9 | 32 | 0 | 0 | 5 | 3 | 4 | 1 | | | | | | |
| 848+00.00 | 49 | 45 | 4 | 45 | 1 | 4 | 72 | 5 | 7 | 39 | 0 | 0 | 4 | 5 | 7 | -3 | | | | | | |
| 848+50.00 | 101 | 93 | 8 | 93 | 2 | 8 | 74 | 10 | 13 | 80 | 0 | 0 | 8 | 8 | 11 | -3 | | | | | | |
| 849+00.00 | 120 | 66 | 54 | 66 | 1 | 54 | 77 | 55 | 72 | -6 | 0 | 0 | 54 | 4 | 6 | 48 | | | | | | |
| 850+00.00 | 143 | 143 | 0 | 143 | 99 | | 81 | 99 | 129 | 14 | 0 | 0 | 0 | 37 | 52 | -52 | | | | | | |
| 850+50.00 | 332 | 276 | 56 | 276 | 204 | 56 | 83 | 260 | 338 | -62 | 0 | 0 | 56 | 75 | 105 | -49 | | | | | | |
| 851+00.00 | 521 | 435 | 86 | 435 | 309 | 86 | 83 | 395 | 514 | -79 | 0 | 0 | 86 | 118 | 165 | -79 | | | | | | |
| 851+50.00 | 590 | 496 | 94 | 496 | 378 | 94 | 84 | 472 | 614 | -118 | 0 | 0 | 94 | 128 | 179 | -85 | | | | | | |
| 852+00.00 | 671 | 569 | 102 | 569 | 560 | 102 | 83 | 662 | 861 | -292 | 0 | 0 | 102 | 139 | 195 | -93 | | | | | | |
| 852+50.00 | 763 | 653 | 110 | 653 | 787 | 110 | 81 | 897 | 1,166 | -513 | 0 | 0 | 110 | 150 | 210 | -100 | | | | | | |
| 853+00.00 | 900 | 782 | 118 | 782 | 1,027 | 118 | 78 | 1,145 | 1,489 | -707 | 0 | 0 | 118 | 160 | 224 | -106 | | | | | | |
| 853+50.00 | 1,054 | 926 | 128 | 926 | 1,287 | 128 | 76 | 1,415 | 1,840 | -914 | 0 | 0 | 128 | 175 | 245 | -117 | | | | | | |
| 854+00.00 | 1,199 | 1,061 | 138 | 1,061 | 1,501 | 138 | 73 | 1,639 | 2,131 | -1,070 | 0 | 0 | 138 | 191 | 267 | -129 | | | | | | |
| 854+50.00 | 1,362 | 1,217 | 145 | 1,217 | 1,648 | 145 | 71 | 1,793 | 2,331 | -1,114 | 0 | 0 | 145 | 204 | 286 | -141 | | | | | | |
| 855+00.00 | 1,504 | 1,352 | 152 | 1,352 | 1,816 | 152 | 68 | 1,968 | 2,558 | -1,206 | 0 | 0 | 152 | 216 | 302 | -150 | | | | | | |
| 855+50.00 | 1,649 | 1,490 | 159 | 1,490 | 2,010 | 159 | 66 | 2,169 | 2,820 | -1,330 | 0 | 0 | 159 | 227 | 318 | -159 | | | | | | |
| 856+00.00 | 1,788 | 1,621 | 167 | 1,621 | 2,225 | 167 | 64 | 2,392 | 3,110 | -1,489 | 0 | 0 | 167 | 238 | 333 | -166 | | | | | | |
| 858+50.00 | 1,323 | 1,202 | 121 | 1,202 | 1,145 | 121 | 62 | 1,266 | 1,646 | -444 | 0 | 0 | 121 | 167 | 234 | -113 | | | | | | |
| 859+00.00 | 1,394 | 1,273 | 121 | 1,273 | 550 | 121 | 60 | 671 | 872 | 401 | 0 | 0 | 121 | 161 | 225 | -104 | | | | | | |
| 859+50.00 | 1,217 | 1,109 | 108 | 1,109 | 671 | 108 | 48 | 779 | 1,013 | 96 | 0 | 0 | 108 | 147 | 206 | -98 | | | | | | |
| 860+00.00 | 968 | 868 | 100 | 868 | 762 | 100 | 60 | 862 | 1,121 | -253 | 0 | 0 | 100 | 136 | 190 | -90 | | | | | | |
| 860+50.00 | 651 | 571 | 80 | 571 | 823 | 80 | 60 | 903 | 1,174 | -603 | 0 | 0 | 80 | 105 | 147 | -67 | | | | | | |
| 861+00.00 | 372 | 311 | 61 | 311 | 836 | 61 | 60 | 897 | 1,166 | -855 | 0 | 0 | 61 | 72 | 101 | -40 | | | | | | |
| 861+50.00 | 263 | 206 | 57 | 206 | 796 | 57 | 60 | 853 | 1,109 | -903 | 0 | 0 | 57 | 63 | 88 | -31 | | | | | | |
| 862+00.00 | 197 | 142 | 55 | 142 | 697 | 55 | 60 | 752 | 978 | -836 | 0 | 0 | 55 | 58 | 81 | -26 | | | | | | |
| 862+50.00 | 143 | 93 | 50 | 93 | 549 | 50 | 63 | 599 | 779 | -686 | 0 | 0 | 50 | 52 | 73 | -23 | | | | | | |
| 863+00.00 | 111 | 63 | 48 | 63 | 423 | 48 | 67 | 471 | 612 | -549 | 0 | 0 | 48 | 50 | 70 | -22 | | | | | | |
| 863+50.00 | 78 | 30 | 48 | 30 | 345 | 48 | 70 | 393 | 511 | -481 | 0 | 0 | 48 | 53 | 74 | -26 | | | | | | |
| 864+50.00 | 206 | 82 | 124 | 82 | 926 | 124 | 83 | 1,050 | 1,365 | -1,283 | 0 | 0 | 124 | 169 | 237 | -113 | | | | | | |
| 865+00.00 | 171 | 88 | 83 | 88 | 804 | 83 | 94 | 887 | 1,153 | -1,065 | 0 | 0 | 83 | 120 | 168 | -85 | | | | | | |
| 865+50.00 | 201 | 110 | 91 | 110 | 1,087 | 91 | 83 | 1,178 | 1,531 | -1,421 | 0 | 0 | 91 | 126 | 176 | -85 | | | | | | |
| 866+00.00 | 209 | 115 | 94 | 115 | 1,181 | 94 | 69 | 1,275 | 1,658 | -1,543 | 0 | 0 | 94 | 119 | 167 | -73 | | | | | | |
| 868+50.00 | 141 | 86 | 55 | 86 | 410 | 55 | 64 | 465 | 605 | -519 | 0 | 0 | 55 | 62 | 87 | -32 | | | | | | |
| 869+00.00 | 188 | 101 | 87 | 101 | 487 | 87 | 39 | 574 | 746 | -645 | 0 | 0 | 87 | 113 | 158 | -71 | | | | | | |
| 869+50.00 | 172 | 62 | 110 | 62 | 959 | 110 | 60 | 1,069 | 1,390 | -1,328 | 0 | 0 | 110 | 157 | 220 | -110 | | | | | | |
| 870+00.00 | 169 | 59 | 110 | 59 | 916 | 110 | 72 | 1,026 | 1,334 | -1,275 | 0 | 0 | 110 | 157 | 220 | -110 | | | | | | |
| 870+50.00 | 178 | 66 | 112 | 66 | 916 | 112 | 73 | 1,028 | 1,336 | -1,270 | 0 | 0 | 112 | 152 | 213 | -101 | | | | | | |
| 871+00.00 | 164 | 64 | 100 | 64 | 727 | 100 | 66 | 827 | 1,075 | -1,011 | 0 | 0 | 100 | 125 | 175 | -75 | | | | | | |
| 871+50.00 | 152 | 65 | 87 | 65 | 464 | 87 | 59 | 551 | 716 | -651 | 0 | 0 | 87 | 102 | 143 | -56 | | | | | | |
| 872+00.00 | 179 | 94 | 85 | 94 | 378 | 85 | 56 | 463 | 602 | -508 | 0 | 0 | 85 | 99 | 139 | -54 | | | | | | |
| 872+50.00 | 205 | 122 | 83 | 122 | 314 | 83 | 55 | 397 | 516 | -394 | 0 | 0 | 83 | 96 | 134 | -51 | | | | | | |
| 873+00.00 | 195 | 141 | 54 | 141 | 156 | 54 | 55 | 210 | 273 | -132 | 0 | 0 | 54 | 61 | 85 | -31 | | | | | | |
| 873+50.00 | 219 | 173 | 46 | 173 | 18 | 46 | 61 | 64 | 83 | 90 | 0 | 0 | 46 | 27 | 38 | 8 | | | | | | |
| 874+00.00 | 282 | 235 | 47 | 235 | 14 | 47 | 75 | 61 | 79 | 156 | 0 | 0 | 47 | 33 | 46 | 1 | | | | | | |
| 874+50.00 | 344 | 316 | 28 | 316 | 8 | 28 | 91 | 36 | 47 | 269 | 0 | 0 | 28 | 44 | 62 | -34 | | | | | | |
| 875+00.00 | 427 | 388 | 39 | 388 | 1 | 39 | 110 | 40 | 52 | 336 | 0 | 0 | 39 | 54 | 76 | -37 | | | | | | |
| 875+50.00 | 314 | 278 | 36 | 278 | 0 | 36 | 97 | 36 | 47 | 231 | 0 | 0 | 36 | 39 | 55 | -19 | | | | | | |
| 876+00.00 | 161 | 141 | 20 | 141 | 0 | 20 | 65 | 20 | 26 | 115 | 0 | 0 | 20 | 19 | 27 | -7 | | | | | | |
| 876+50.00 | 239 | 206 | 33 | 206 | 11 | 33 | 57 | 44 | 57 | 149 | 0 | 0 | 33 | 28 | 39 | -6 | | | | | | |
| 877+00.00 | 287 | 240 | 47 | 240 | 31 | 47 | 57 | 78 | 101 | 139 | 0 | 0 | 47 | 34 | 48 | -1 | | | | | | |
| 877+50.00 | 223 | 184 | 39 | 184 | 50 | 39 | 57 | 89 | 116 | 68 | 0 | 0 | 39 | 31 | 43 | -4 | | | | | | |
| 878+00.00 | 193 | 154 | 39 | 154 | 60 | 39 | 57 | 99 | 129 | 25 | 0 | 0 | 39 | 35 | 49 | -10 | | | | | | |
| 878+50.00 | 151 | 105 | 46 | 105 | 55 | 46 | 59 | 101 | 131 | -26 | 0 | 0 | 46 | 40 | 56 | -10 | | | | | | |
| 879+00.00 | 89 | 41 | 48 | 41 | 148 | 48 | 63 | 196 | 255 | -214 | 0 | 0 | 48 | 46 | 64 | -16 | | | | | | |
| 879+50.00 | 64 | 15 | 49 | 15 | 272 | 49 | 67 | 321 | 417 | -402 | 0 | 0 | 49 | 51 | 71 | -22 | | | | | | |
| 880+00.00 | 109 | 50 | 59 | 50 | 420 | 59 | 71 | 479 | 623 | -573 | 0 | 0 | 59 | 60 | 84 | -25 | | | | | | |
| 882+00.00 | 156 | 72 | 84 | 72 | 726 | 84 | 88 | 810 | 1,053 | -981 | 0 | 0 | 84 | 88 | 123 | -39 | | | | | | |
| 882+50.00 | 98 | 28 | 70 | 28 | 484 | 70 | 82 | 554 | 720 | -692 | 0 | 0 | 70 | 75 | 105 | -35 | | | | | | |
| 883+00.00 | 84 | 27 | 57 | 27 | 169 | 57 | 85 | 226 | 294 | -267 | 0 | 0 | 57 | 56 | 78 | -21 | | | | | | |
| 883+50.00 | 99 | 58 | 41 | 58 | 63 | 41 | 94 | 104 | 135 | -77 | 0 | 0 | 41 | 43 | 60 | -19 | | | | | | |
| 884+00.00 | 147 | 87 | 60 | 87 | 9 | 60 | 101 | 69 | 90 | -3 | 0 | 0 | 60 | 19 | 27 | 33 | | | | | | |
| Subtotals: | 25,968 | 21,396 | 4,572 | 21,396 | 33,719 | 4,572 | 4,629 | 38,291 | 49,778 | -28,382 | 0 | 0 | 4,572 | 5,637 | 7,892 | -3,320 | | | | | | |

Refer to Standard Road Plans EW-101 and EW-102.

# TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

| Station | Cut | | | | Fill | | | | | | Checks (EW-102) | | Topsoil | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | [1] | [2] | [3] | [4] | [5] | [6] | [7] | [8] | [9] | [10] | [11] | [12] | [13] | [14] | [15] | [16] | [17] | [18] | [19] | [20] | [21] | [22] |
| | Total Cut Unadjusted Volume | Total Class 10 Unadjusted Volume | Topsoil Cut Volume | Total Cut Adjusted | Total Fill Unadjusted Volume | Existing Topsoil Stripping Undercut (+ Fill) | Existing Pavement Undercut (+Fill) | Total Fill Adjusted | Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor | Total Cut Adjusted Minus Fill w/ Shrink | Approx. Fill Vol. Below 5' & Above 20' w/ Shrink | Approx. Fill Volume Below 3' w/ Shrink | Topsoil Stripping Undercut Volume | Topsoil Placement Undercut Volume | Topsoil Placement With 1.4 Shrink Factor | Topsoil Stripping Minus Topsoil Placement w/Shrink | | | | | | |
| 884+00.00 | 173 | 173 | 0 | 173 | 0 | | | 0 | 0 | 173 | 0 | 0 | 0 | 19 | 27 | -27 | | | | | | |
| 884+50.00 | 244 | 216 | 28 | 216 | 0 | 28 | 100 | 28 | 36 | 180 | 0 | 0 | 28 | 33 | 46 | -18 | | | | | | |
| 885+00.00 | 319 | 277 | 42 | 277 | 0 | 42 | 95 | 42 | 55 | 222 | 0 | 0 | 42 | 48 | 67 | -25 | | | | | | |
| 885+50.00 | 441 | 380 | 61 | 380 | 7 | 61 | 83 | 68 | 88 | 292 | 0 | 0 | 61 | 72 | 101 | -40 | | | | | | |
| 886+00.00 | 461 | 399 | 62 | 399 | 19 | 62 | 75 | 81 | 105 | 294 | 0 | 0 | 62 | 73 | 102 | -40 | | | | | | |
| 886+50.00 | 480 | 422 | 58 | 422 | 25 | 58 | 75 | 83 | 108 | 314 | 0 | 0 | 58 | 67 | 94 | -36 | | | | | | |
| 887+00.00 | 495 | 437 | 58 | 437 | 28 | 58 | 73 | 86 | 112 | 325 | 0 | 0 | 58 | 63 | 88 | -30 | | | | | | |
| 887+50.00 | 508 | 449 | 59 | 449 | 28 | 59 | 68 | 87 | 113 | 336 | 0 | 0 | 59 | 61 | 85 | -26 | | | | | | |
| 888+00.00 | 520 | 461 | 59 | 461 | 27 | 59 | 61 | 86 | 112 | 349 | 0 | 0 | 59 | 59 | 83 | -24 | | | | | | |
| 888+50.00 | 519 | 462 | 57 | 462 | 23 | 57 | 56 | 80 | 104 | 358 | 0 | 0 | 57 | 58 | 81 | -24 | | | | | | |
| 889+00.00 | 510 | 455 | 55 | 455 | 13 | 55 | 55 | 68 | 88 | 367 | 0 | 0 | 55 | 58 | 81 | -26 | | | | | | |
| 889+50.00 | 492 | 437 | 55 | 437 | 9 | 55 | 55 | 64 | 83 | 354 | 0 | 0 | 55 | 60 | 84 | -29 | | | | | | |
| 890+00.00 | 451 | 411 | 40 | 411 | 7 | 40 | 55 | 47 | 61 | 350 | 0 | 0 | 40 | 51 | 71 | -31 | | | | | | |
| 890+50.00 | 753 | 686 | 67 | 686 | 4 | 67 | 55 | 71 | 92 | 594 | 0 | 0 | 67 | 73 | 102 | -35 | | | | | | |
| 891+50.00 | 313 | 271 | 42 | 271 | 0 | 42 | 55 | 42 | 55 | 216 | 0 | 0 | 42 | 36 | 50 | -8 | | | | | | |
| 892+00.00 | 303 | 260 | 43 | 260 | 0 | 43 | 55 | 43 | 56 | 204 | 0 | 0 | 43 | 34 | 48 | -5 | | | | | | |
| 892+50.00 | 292 | 250 | 42 | 250 | 0 | 42 | 55 | 42 | 55 | 195 | 0 | 0 | 42 | 26 | 36 | 6 | | | | | | |
| 893+00.00 | 277 | 235 | 42 | 235 | 0 | 42 | 55 | 42 | 55 | 180 | 0 | 0 | 42 | 25 | 35 | 7 | | | | | | |
| 893+50.00 | 792 | 658 | 134 | 658 | 10 | 134 | 55 | 144 | 187 | 471 | 0 | 0 | 134 | 87 | 122 | 12 | | | | | | |
| 895+00.00 | 226 | 188 | 38 | 188 | 10 | 38 | 54 | 48 | 62 | 126 | 0 | 0 | 38 | 29 | 41 | -3 | | | | | | |
| 895+50.00 | 193 | 164 | 29 | 164 | 13 | 29 | 54 | 42 | 55 | 109 | 0 | 0 | 29 | 25 | 35 | -6 | | | | | | |
| 896+00.00 | 229 | 189 | 40 | 189 | 18 | 40 | 55 | 58 | 75 | 114 | 0 | 0 | 40 | 32 | 45 | -5 | | | | | | |
| 896+50.00 | 243 | 191 | 52 | 191 | 29 | 52 | 55 | 81 | 105 | 86 | 0 | 0 | 52 | 40 | 56 | -4 | | | | | | |
| 897+00.00 | 213 | 164 | 49 | 164 | 30 | 49 | 56 | 79 | 103 | 61 | 0 | 0 | 49 | 36 | 50 | -1 | | | | | | |
| 897+50.00 | 176 | 126 | 50 | 126 | 48 | 50 | 56 | 98 | 127 | -2 | 0 | 0 | 50 | 37 | 52 | -2 | | | | | | |
| 898+00.00 | 135 | 81 | 54 | 81 | 70 | 54 | 57 | 124 | 161 | -80 | 0 | 0 | 54 | 42 | 59 | -5 | | | | | | |
| 898+50.00 | 127 | 73 | 54 | 73 | 66 | 54 | 58 | 120 | 156 | -83 | 0 | 0 | 54 | 43 | 60 | -6 | | | | | | |
| 899+00.00 | 129 | 76 | 53 | 76 | 60 | 53 | 59 | 113 | 147 | -71 | 0 | 0 | 53 | 42 | 59 | -6 | | | | | | |
| 899+50.00 | 119 | 72 | 47 | 72 | 48 | 47 | 61 | 95 | 124 | -52 | 0 | 0 | 47 | 35 | 49 | -2 | | | | | | |
| 900+00.00 | 111 | 69 | 42 | 69 | 43 | 42 | 64 | 85 | 111 | -42 | 0 | 0 | 42 | 29 | 41 | 1 | | | | | | |
| 900+50.00 | 116 | 74 | 42 | 74 | 32 | 42 | 66 | 74 | 96 | -22 | 0 | 0 | 42 | 28 | 39 | 3 | | | | | | |
| 901+00.00 | 104 | 69 | 35 | 69 | 24 | 35 | 69 | 59 | 77 | -8 | 0 | 0 | 35 | 25 | 35 | 0 | | | | | | |
| 901+50.00 | 94 | 66 | 28 | 66 | 30 | 28 | 75 | 58 | 75 | -10 | 0 | 0 | 28 | 21 | 29 | -1 | | | | | | |
| 902+00.00 | 101 | 69 | 32 | 69 | 36 | 32 | 83 | 68 | 88 | -19 | 0 | 0 | 32 | 22 | 31 | 1 | | | | | | |
| 902+50.00 | 100 | 72 | 28 | 72 | 25 | 28 | 90 | 53 | 69 | 3 | 0 | 0 | 28 | 23 | 32 | -4 | | | | | | |
| 975+00.00 | 127 | 92 | 35 | 92 | 25 | 35 | 63 | 60 | 78 | 14 | 0 | 0 | 35 | 33 | 46 | -11 | | | | | | |
| 975+50.00 | 90 | 58 | 32 | 58 | 35 | 32 | 69 | 67 | 87 | -29 | 0 | 0 | 32 | 27 | 38 | -6 | | | | | | |
| 976+00.00 | 71 | 43 | 28 | 43 | 47 | 28 | 67 | 75 | 98 | -55 | 0 | 0 | 28 | 22 | 31 | -3 | | | | | | |
| 976+50.00 | 73 | 44 | 29 | 44 | 54 | 29 | 67 | 83 | 108 | -64 | 0 | 0 | 29 | 24 | 34 | -5 | | | | | | |
| 977+00.00 | 78 | 46 | 32 | 46 | 73 | 32 | 67 | 105 | 137 | -91 | 0 | 0 | 32 | 28 | 39 | -7 | | | | | | |
| 977+50.00 | 94 | 47 | 47 | 47 | 141 | 47 | 68 | 188 | 244 | -197 | 0 | 0 | 47 | 29 | 41 | 6 | | | | | | |
| 978+00.00 | 118 | 58 | 60 | 58 | 166 | 60 | 73 | 226 | 294 | -236 | 0 | 0 | 60 | 43 | 60 | 0 | | | | | | |
| 978+50.00 | 126 | 66 | 60 | 66 | 135 | 60 | 76 | 195 | 254 | -188 | 0 | 0 | 60 | 57 | 80 | -20 | | | | | | |
| 979+00.00 | 182 | 124 | 58 | 124 | 144 | 58 | 76 | 202 | 263 | -139 | 0 | 0 | 58 | 60 | 84 | -26 | | | | | | |
| 979+50.00 | 261 | 178 | 83 | 178 | 1,009 | 83 | 76 | 1,092 | 1,420 | -1,242 | 0 | 0 | 83 | 87 | 122 | -39 | | | | | | |
| 980+00.00 | 259 | 160 | 99 | 160 | 1,563 | 99 | 59 | 1,662 | 2,161 | -2,001 | 0 | 0 | 99 | 104 | 146 | -47 | | | | | | |
| 980+50.00 | 246 | 176 | 70 | 176 | 792 | 70 | 47 | 862 | 1,121 | -945 | 0 | 0 | 70 | 62 | 87 | -17 | | | | | | |
| 981+00.00 | 174 | 120 | 54 | 120 | 526 | 54 | 63 | 580 | 754 | -634 | 0 | 0 | 54 | 45 | 63 | -9 | | | | | | |
| 981+50.00 | 102 | 53 | 49 | 53 | 429 | 49 | 73 | 478 | 621 | -568 | 0 | 0 | 49 | 48 | 67 | -18 | | | | | | |
| 982+00.00 | 101 | 63 | 38 | 63 | 148 | 38 | 68 | 186 | 242 | -179 | 0 | 0 | 38 | 35 | 49 | -11 | | | | | | |
| 982+50.00 | 91 | 54 | 37 | 54 | 148 | 37 | 66 | 185 | 241 | -187 | 0 | 0 | 37 | 35 | 49 | -12 | | | | | | |
| 983+00.00 | 155 | 120 | 35 | 120 | 64 | 35 | 66 | 99 | 129 | -9 | 0 | 0 | 35 | 33 | 46 | -11 | | | | | | |
| 983+50.00 | 230 | 196 | 34 | 196 | 0 | 34 | 67 | 34 | 44 | 152 | 0 | 0 | 34 | 33 | 46 | -12 | | | | | | |
| 984+00.00 | 170 | 136 | 34 | 136 | 25 | 34 | 70 | 59 | 77 | 59 | 0 | 0 | 34 | 33 | 46 | -12 | | | | | | |
| 984+50.00 | | | | | | | | | | | | | | | | | | | | | | |
| ML151 | | | | | | | | | | | | | | | | | | | | | | |
| Totals: | 39,475 | 32,312 | 7,163 | 32,312 | 40,025 | 7,163 | 8,103 | 47,188 | 61,345 | -29,033 | 0 | 0 | 7,163 | 7,987 | 11,182 | -4,019 | | | | | | |

Refer to Standard Road Plans EW-101 and EW-102.

# TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

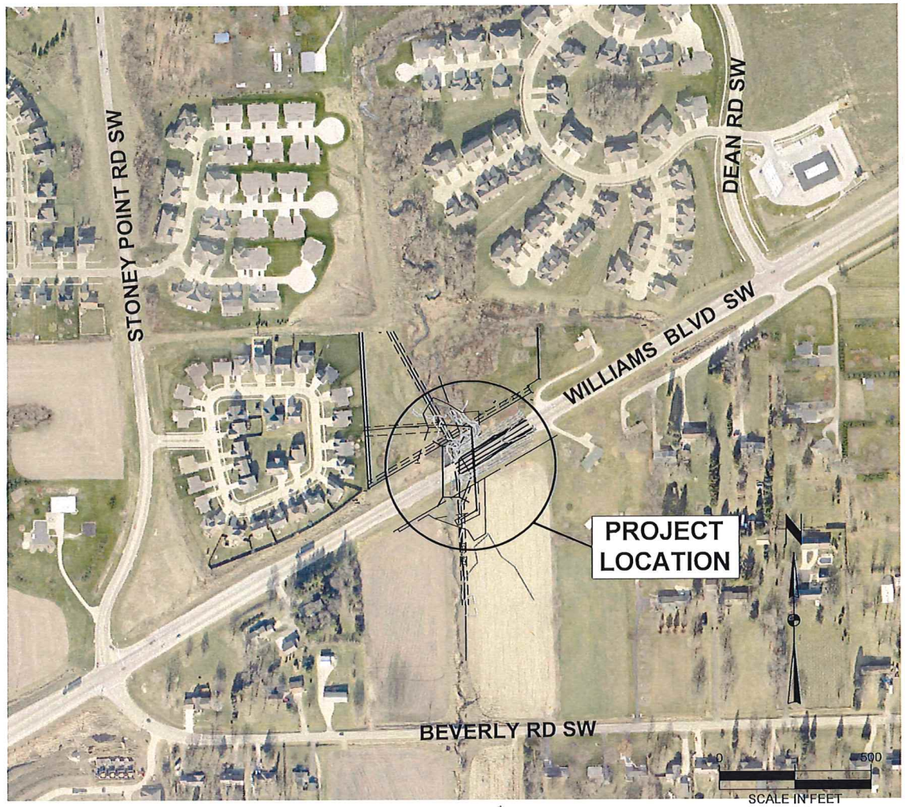
| Station | Cut | | | | Fill | | | | | | Checks (EW-102) | | Topsoil | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | [1] | [2] | [3] | [4] | [5] | [6] | [7] | [8] | [9] | [10] | [11] | [12] | [13] | [14] | [15] | [16] | [17] | [18] | [19] | [20] | [21] | [22] |
| | Total Cut Unadjusted Volume | Total Class 10 Unadjusted Volume | Topsoil Cut Volume | Total Cut Adjusted | Total Fill Unadjusted Volume | Existing Topsoil Stripping Undercut (+ Fill) | Existing Pavement Undercut (+Fill) | Total Fill Adjusted | Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor | Total Cut Adjusted Minus Fill w/ Shrink | Approx. Fill Vol. Below 5' & Above 20' w/ Shrink | Approx. Fill Volume Below 3' w/ Shrink | Topsoil Stripping Undercut Volume | Topsoil Placement Undercut Volume | Topsoil Placement With 1.4 Shrink Factor | Topsoil Stripping Minus Topsoil Placement w/Shrink | | | | | | |
| Summary: | | | | | | | | | | | | | | | | | | | | | | |
| CEMETERY | 583 | 509 | 74 | 509 | 69 | 74 | 367 | 510 | 663 | -154 | 0 | 0 | 74 | 76 | 107 | -33 | | | | | | |
| CHURCH | 547 | 439 | 108 | 439 | 312 | 108 | 208 | 628 | 817 | -378 | 0 | 0 | 108 | 81 | 114 | -6 | | | | | | |
| LOSEY | 258 | 215 | 43 | 215 | 131 | 43 | 100 | 274 | 357 | -142 | 0 | 0 | 43 | 36 | 51 | -8 | | | | | | |
| PRAIRIE | 92 | 72 | 20 | 72 | 81 | 20 | 90 | 191 | 249 | -177 | 0 | 0 | 20 | 20 | 28 | -8 | | | | | | |
| STAGE1C | 3,918 | 3,918 | 0 | 3,918 | 2,662 | 0 | 0 | 2,662 | 3,461 | 458 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| STALLMAN | 124 | 92 | 32 | 92 | 31 | 32 | 45 | 108 | 141 | -49 | 0 | 0 | 32 | 14 | 20 | 13 | | | | | | |
| ML151 | 39,475 | 32,312 | 7,163 | 32,312 | 40,025 | 7,163 | 8,103 | 47,188 | 61,345 | -29,033 | 0 | 0 | 7,163 | 7,987 | 11,182 | -4,019 | | | | | | |
| MSE WALL 1 | 15,482 | 0 | 0 | 15,482 | 0 | 0 | 0 | 0 | 0 | 15,482 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| MSE WALL 2 | 2,470 | 0 | 0 | 2,470 | 0 | 0 | 0 | 0 | 0 | 2,470 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| MSE WALL 3 | 6,845 | 0 | 0 | 6,845 | 0 | 0 | 0 | 0 | 0 | 6,845 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| STAGE 2B | 590 | 0 | 0 | 590 | 574 | 0 | 0 | 0 | 746 | -156 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| UPRR S. ABUT. | 3,386 | 0 | 0 | 3,386 | 1,797 | 0 | 0 | 0 | 2,336 | 1,050 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| UPRR N. ABUT. | 3,629 | 0 | 0 | 3,629 | 257 | 0 | 0 | 0 | 334 | 3,295 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| P. CREEK S. ABUT. | 1,867 | 0 | 0 | 1,867 | 656 | 0 | 0 | 0 | 853 | 1,014 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| P. CREEK N. ABUT. | 2,526 | 0 | 0 | 2,526 | 634 | 0 | 0 | 0 | 824 | 1,702 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| DD1 S. ABUT. | 2,654 | 0 | 0 | 2,654 | 346 | 0 | 0 | 0 | 450 | 2,204 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| DD1 N. ABUT. | 1,787 | 0 | 0 | 1,787 | 695 | 0 | 0 | 0 | 904 | 883 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| Project Totals: | 86,233 | 37,557 | 7,440 | 78,793 | 48,270 | 7,440 | 8,913 | 51,561 | 73,480 | 5,314 | 0 | 0 | 7,440 | 8,214 | 11,502 | -4,061 | | | | | | |

| FILE NO. | ENGLISH | DESIGN TEAM | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)-3H-57 | SHEET NUMBER T.9 |
|---|---|---|---|---|---|

## LEGEND

| EXISTING | | PROPOSED (AS-BUILT) |
|---|---|---|
| (SS) | SANITARY SEWER | SS |
| (ST) | STORM SEWER | ST |
| | SUBDRAIN | |
| (FM) | FORCE MAIN | FM |
| (W) | WATER | W |
| (G) | GAS | G |
| (S) | STEAM | S |
| OHE | ELECTRICAL - OVERHEAD | OHE |
| (E) | ELECTRICAL - UNDERGROUND | E |
| OHT | TELEPHONE - OVERHEAD | OHT |
| (T) | TELEPHONE - UNDERGROUND | T |
| OHC | CATV - OVERHEAD | OHC |
| (C) | CATV - UNDERGROUND | C |
| OHF | FIBER OPTIC - OVERHEAD | OHF |
| (FO) | FIBER OPTIC - UNDERGROUND | FO |
| | 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 U.1-U.5 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. PROTECT ALL EXISTING UTILITIES AND PAVED AREAS, INCLUDING ANY NOT SHOWN ON THESE DRAWINGS. 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.
2. ALL DEBRIS RESULTING FROM CONSTRUCTION OPERATIONS SHALL BE PROPERLY DISPOSED OF OFF-SITE.
3. ALL WORK TO BE COMPLETED WITHIN EASEMENTS AND PUBLIC R.O.W.
4. WORK ITEMS NOT SPECIFICALLY CALLED OUT FOR PAYMENT SHALL BE INCIDENTAL TO CONTRACT ITEMS.
5. REFER TO G-SHEETS FOR CONTROL POINT INFORMATION.
6. 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.
7. 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.
8. TRAFFIC CONTROL SHALL CONFORM TO OTHER PROJECT STAGING PLANS AND SHALL NOT CONFLICT WITH SAID PLAN.
9. 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 STATEWIDE URBAN DESIGN AND SPECIFICATIONS (SUDAS) (LATEST EDITION) WITH NO DESIGN EXCEPTIONS.

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 Feuerhelm 9/4/18

MATTHEW J. FEUERHELM, P.E. DATE
LICENSE NUMBER: 21301
MY LICENSE RENEWAL DATE IS: DECEMBER 31, 2019

PAGES OR SHEETS COVERED BY THIS SEAL: U.1-U.5

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

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# 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, A-Lok Flexible Pipe Connections |
| SMH-02 | 980+26.8, 152.7' Rt. | SW-301 (60") | 770.33 | 758.52 | Bolt-down lid, connected manhole joints, A-Lok Flexible Pipe Connections |
| SMH-03 | 981+51.2, 93.4' Lt. | SW-301 (60") | 769.45 | 759.47 | Bolt-down lid, connected manhole joints, A-Lok Flexible Pipe Connections |
| SMH-04 | 980+71.2, 148.9' Lt. | SW-301 (60") | 769.77 | 759.86 | Replace Ex. Structure, bolt-down lid, connected manhole joints, A-Lok Flexible Pipe Connections |

## 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 | U.3 | Restrained Joint DIP w/ Ceramic Epoxy interior lining |
| P-2 | SMH-02 | SMH-03 | DIP | 24" | 275.7 | 0.35 | 759.47 | 758.52 | U.3 | 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 | U.3 | Restrained Joint DIP w/ Ceramic Epoxy interior lining, PC Concrete Arch |
| | | | | | | | | | | |

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

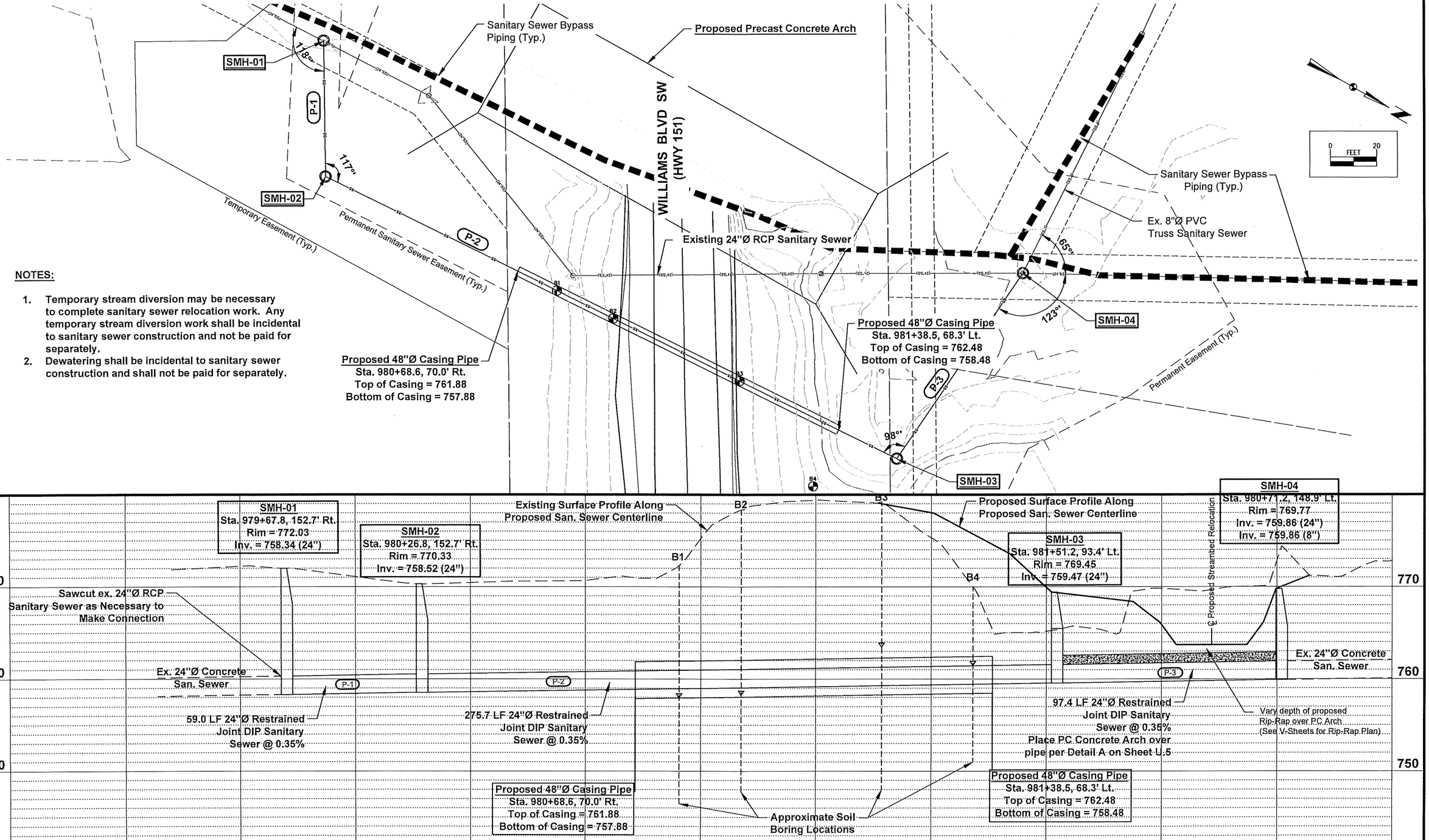
| Location | Length (LF) | Remarks |
|---|---|---|
| Sta. 979+91.9, 107.5' Rt. to Sta. 980+70.6, 98.9' Lt. | 246 | Plug upstream and downsteam ends, remove and dispose of existing cone sections. Fill pipe with flowable mortar. |

### 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. |

NOTES:

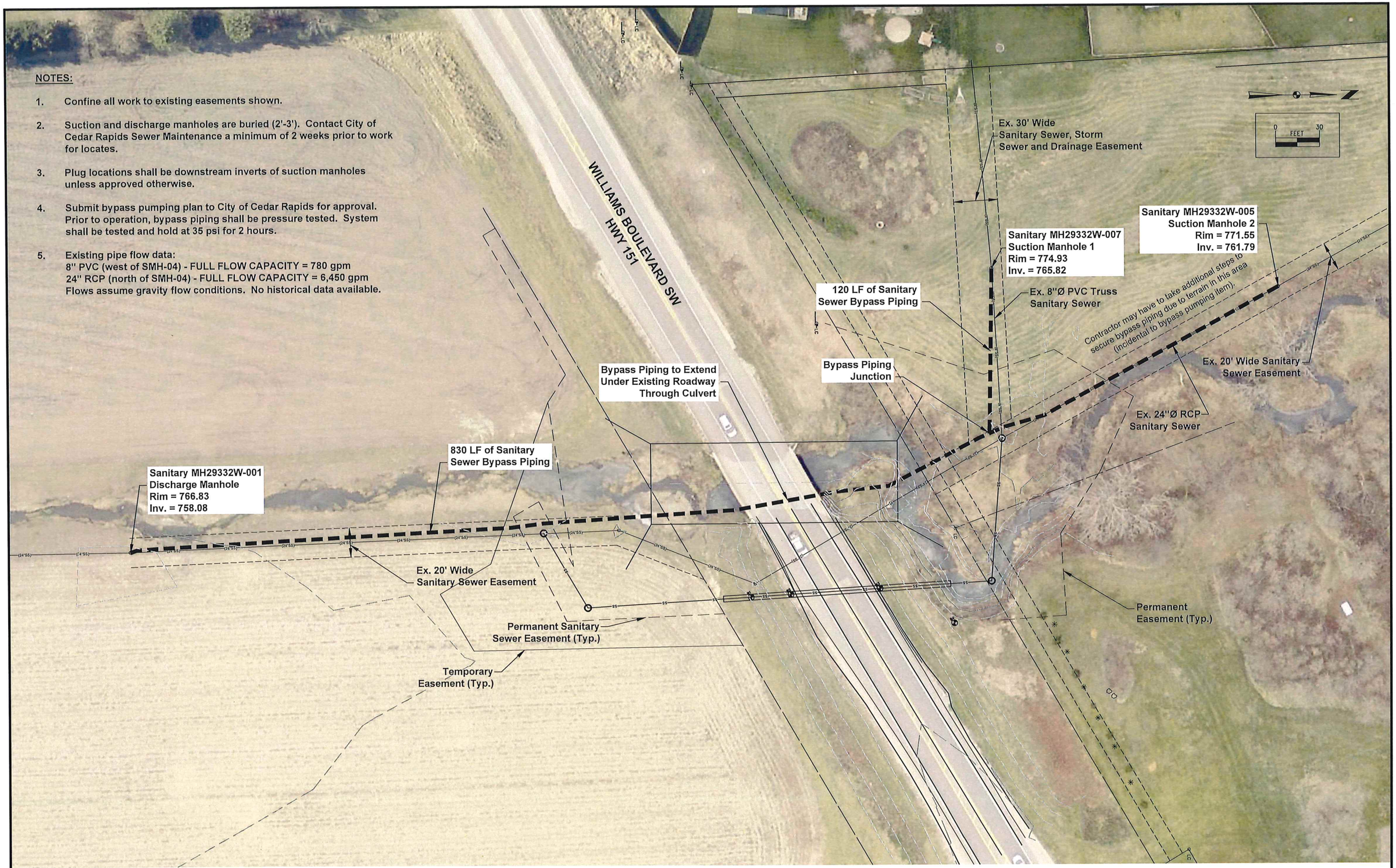
1. Temporary stream diversion may be necessary to complete sanitary sewer relocation work. Any temporary stream diversion work shall be incidental to sanitary sewer construction and not be paid for separately.
2. Dewatering shall be incidental to sanitary sewer construction and shall not be paid for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




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

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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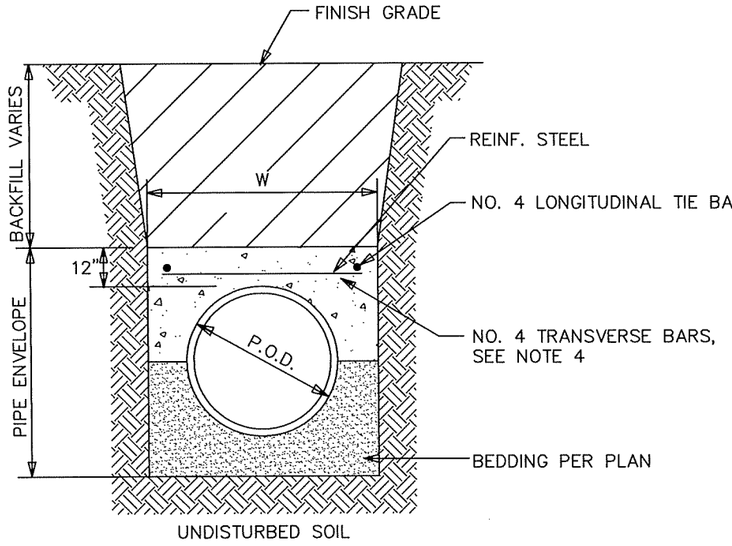
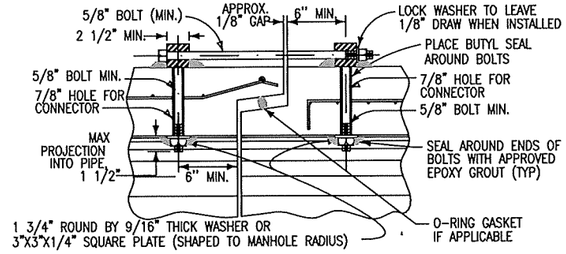
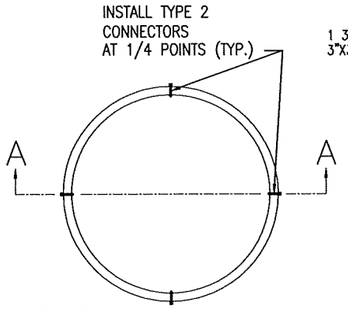
DETAIL A



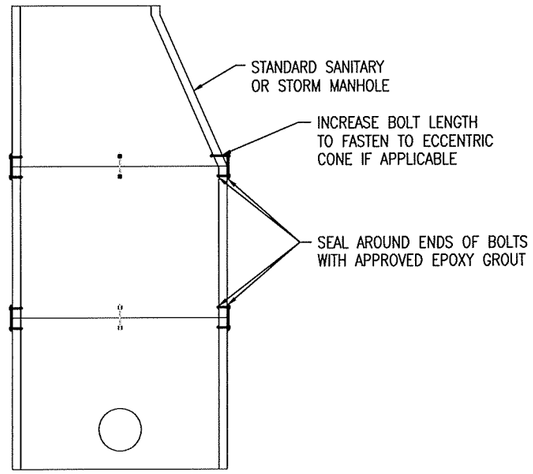

NOTES:
1. CONCRETE SHALL BE CLASS "C" UNLESS OTHERWISE NOTED.
2. BACKFILL ABOVE PIPE ENVELOPE SHALL BE ACCORDING TO SW-101 AND SW-103.
3. PIPE ENVELOPE (W) SHALL BE ACCORDING TO SW-103.
4. SPACING OF TRANSVERSE BARS SHALL BE 12-INCHES.




SECTION OF TYPICAL MANHOLE CONNECTOR




TYPICAL PLAN

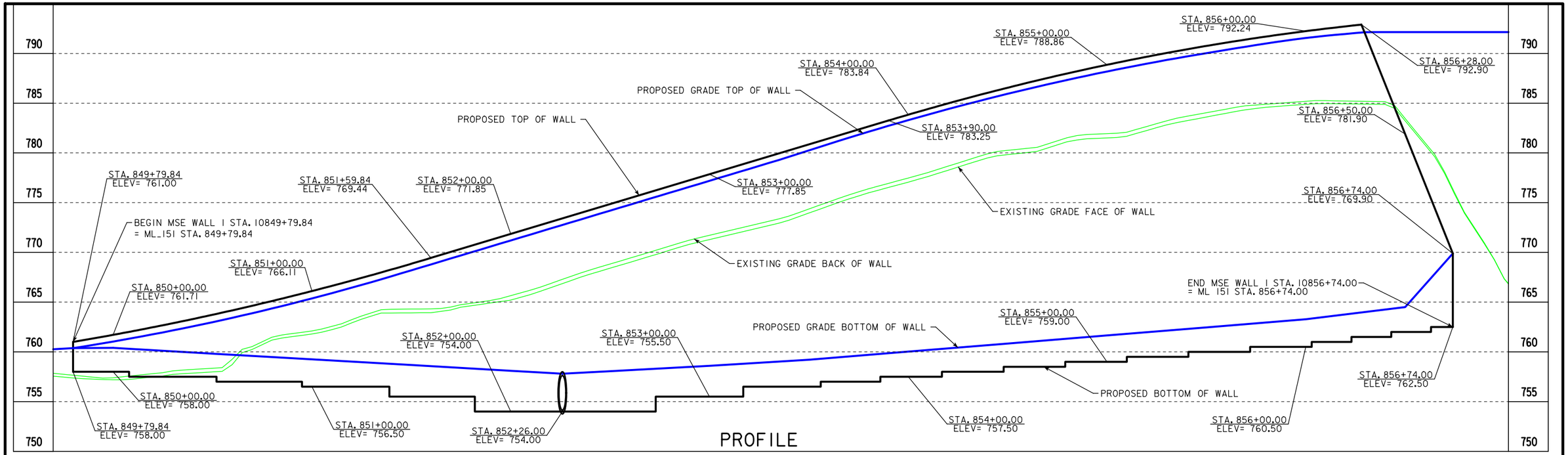



SECTION A-A

CEDAR RAPIDS METROPOLITAN AREA
STANDARD DETAILS FOR PUBLIC IMPROVEMENTS

INSTALLATION OF CONNECTED MANHOLE JOINTS

DETAIL B




PROFILE

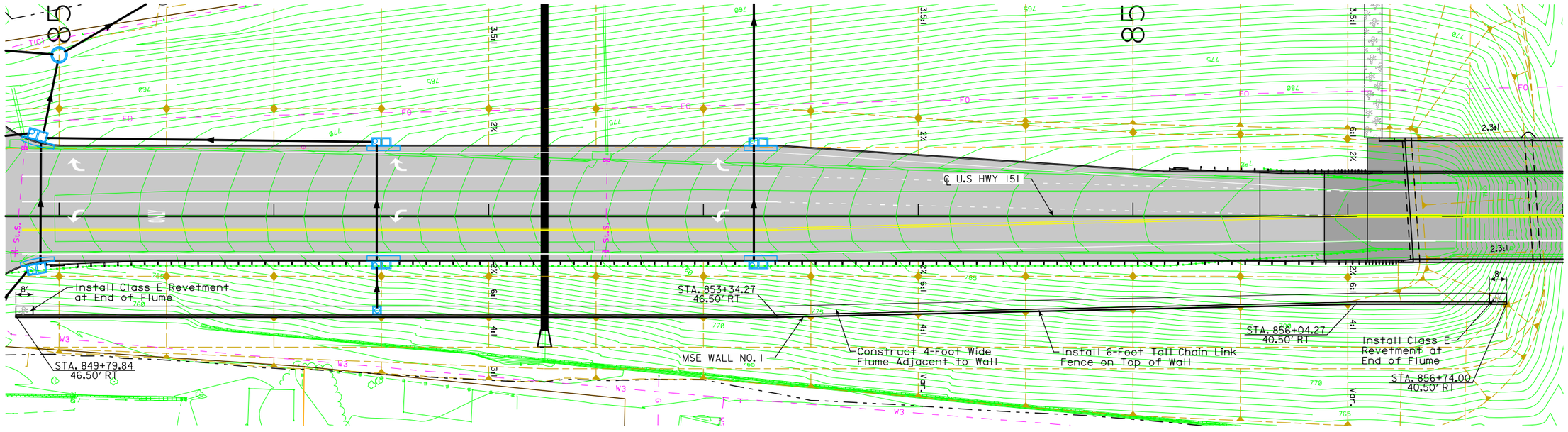
BENCH MARK: BM1
DESCRIPTION: GIN SPIKE IN POWER POLE, EAST SIDE HWY 151, ACROSS FROM "PIT STOP"
STA. 846+60.91, 23.069' RT.
ELEV. = 763.60

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

MSE WALL NO. 1
SITUATION PLAN

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

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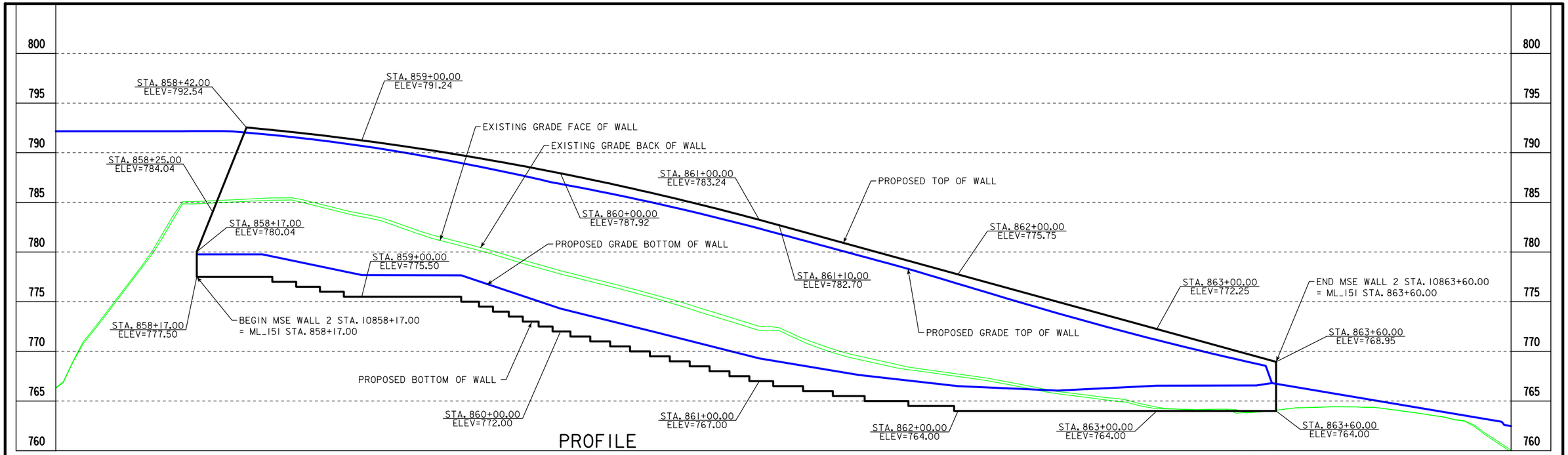



PROFILE

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

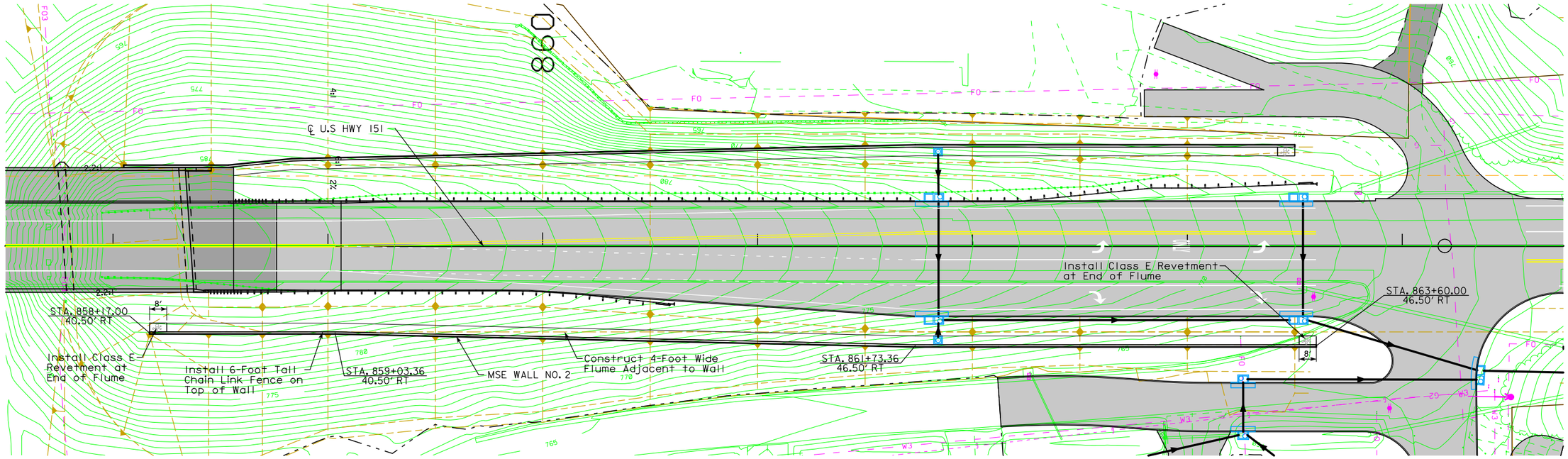
## UTILITIES LEGEND:

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

**MSE WALL NO. 2 SITUATION PLAN**

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

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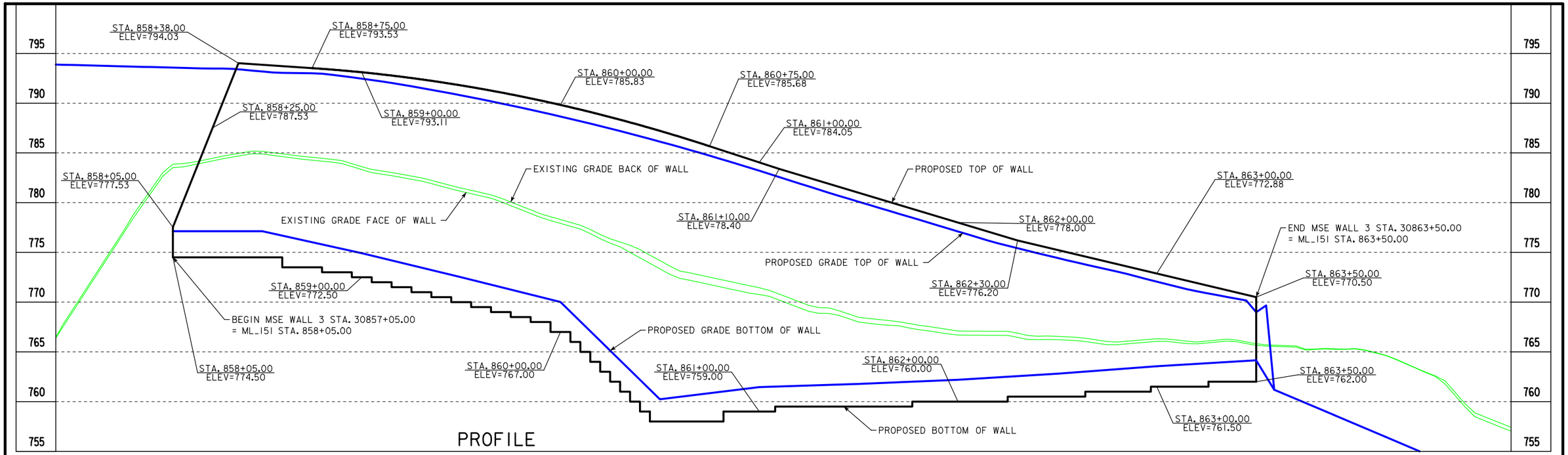



PROFILE

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

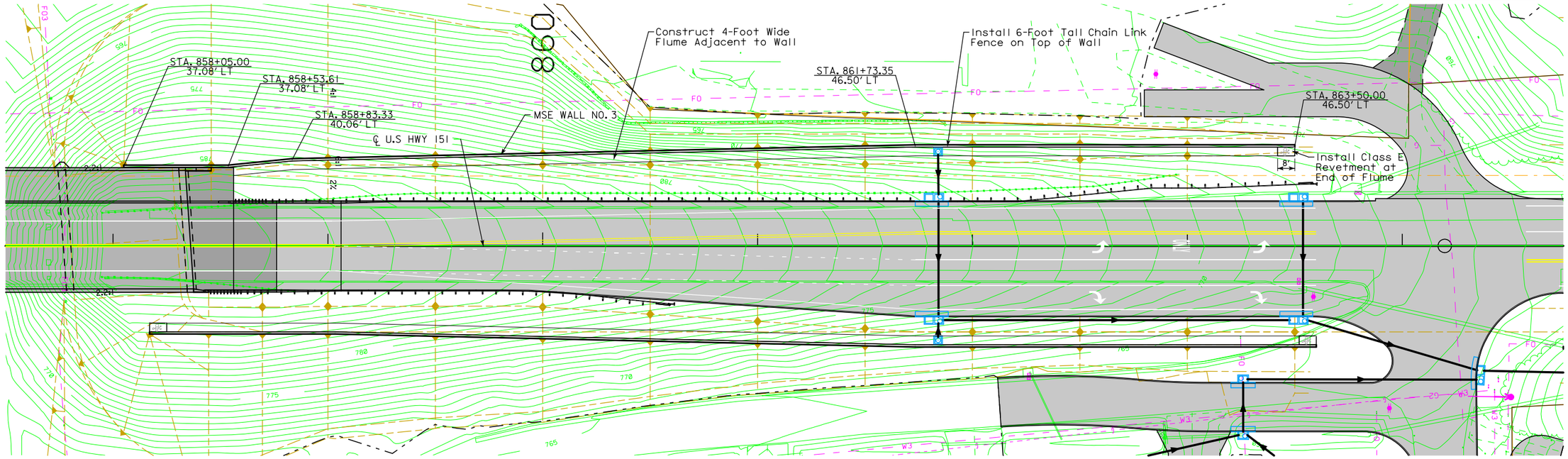
## UTILITIES LEGEND:

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

MSE WALL NO. 3
SITUATION PLAN

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

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## ESTIMATED RETAINING WALL QUANTITIES

| ITEM NO. | ITEM CODE | ITEM | UNIT | TOTAL | AS BUILT QUAN. |
|---|---|---|---|---|---|
| 1 | 2403-0100000 | STRUCTURAL CONCRETE (MISCELLANEOUS) | CY | 300.5 | |
| 2 | 2404-7775000 | REINFORCING STEEL | LB | 21,790 | |
| 3 | 2404-7775005 | REINFORCING STEEL, EPOXY COATED | LB | 18,095 | |
| 4 | 2519-1001000 | FENCE, CHAIN LINK, VINYL COATED | LF | 199.2 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

## ESTIMATE REFERENCE INFORMATION

| ITEM NO. | ITEM CODE | DESCRIPTION |
|---|---|---|
| 1 | 2403-0100000 | STRUCTURAL CONCRETE (MISCELLANEOUS)<br>INCLUDES MATERIAL AND LABOR ASSOCIATED WITH FURNISHING AND INSTALLING EXPANSION AND CONSTRUCTION JOINT.<br><br>INCLUDES MATERIAL AND LABOR ASSOCIATED WITH FURNISHING AND INSTALLING CONCRETE TEXTURING AND CONCRETE RUSTIFICATION.<br><br>INCLUDES MATERIAL AND LABOR ASSOCIATED WITH FURNISHING AND INSTALLING 4 INCH DIAMETER SUBDRAIN. |
| 2 | 2404-7775000 | REINFORCING STEEL<br>- - |
| 3 | 2404-7775005 | REINFORCING STEEL, EPOXY COATED<br>- - |
| 4 | 2519-1001000 | FENCE, CHAIN LINK, VINYL COATED<br>- - |
| | | |

## STRUCTURAL DESIGN

LICENSED PROFESSIONAL ENGINEER
Haiping Chen 17377
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.

Haiping Chen 09/04/2018
Signature Date

Haiping Chen
Printed or Typed Name

My license renewal date is December 31, 2018

Pages or sheets covered by this seal: SHEETS V.1 THRU V.19

DESIGN FOR

# 200'-0 x VARIABLE HEIGHT REINFORCED CONC. RETAINING WALL

BEGIN STATION 40864+75.00 NOVEMBER 2018
END STATION 40866+75.00

# ESTIMATED QUANTITIES
# LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 19 FILE NO. 31286 DESIGN NO. 918

DESIGN TEAM HC / TWE / SHUCK-BRITSON INC | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER V.1

## GENERAL NOTES:

THIS DESIGN IS FOR A NEW 200'-0 x VARIABLE HEIGHT CAST-IN-PLACE CANTILEVER RETAINING WALL LOCATED ON US 151, SOUTH OF PRAIRIE CREEK BRIDGE IN LINN COUNTY, IA.

U.S. 151 WILL BE OPEN TO TRAFFIC DURING CONSTRUCTION. REFER TO THE TRAFFIC CONTROL PLAN INCLUDED ELSEWHERE IN THESE PLANS.

THE CITY AND UTILITY COMPANIES WHOSE FACILITIES ARE SHOWN ON THE PLANS OR KNOWN TO BE WITHIN THE CONSTRUCTION LIMITS SHALL BE NOTIFIED BY THE CONTRACTOR OF THE CONSTRUCTION STARTING DATE.

STRUCTURAL CONCRETE FOR THE FOOTING AND WALL SHALL BE CLASS 'C'.

BACKFILLING OPERATIONS SHALL BE IN ACCORDANCE WITH SECTION 2402.03.H OF THE STANDARD SPECIFICATIONS. SECTION 2403.03.N SHALL BE FOLLOWED WITH RESPECT TO SUBJECTING WALLS AND FOOTINGS TO EXTERIOR LOADS.

THE FRONTSIDE AND BACKSIDE OF THE WALL SHALL BE BACKFILLED SIMULTANEOUSLY. UNTIL THE FRONT OF THE WALL IS BACKFILLED TO GRADE, THERE SHALL NEVER BE GREATER THAN A FOOT DIFFERENCE IN HEIGHT BETWEEN THE FRONT SIDE AND BACK SIDE BACKFILL ELEVATIONS.

ALL REINFORCING BARS AND BARS NOTED AS DOWELS SUPPLIED FOR THIS STRUCTURE SHALL BE DEFORMED REINFORCEMENT UNLESS OTHERWISE NOTED OR SHOWN.

KEYWAY DIMENSIONS SHOWN ON THE PLANS ARE BASED ON NOMINAL DIMENSIONS UNLESS STATED OTHERWISE. IN ADDITION, THE BEVEL USED ON THE KEYWAY SHALL BE LIMITED TO A MAXIMUM OF 10 DEGREES FROM VERTICAL.

ALL COSTS ASSOCIATED WITH EXPANSION AND CONSTRUCTION JOINTS, INCLUDING ALL RESILANT JOINT FILLER, WATERSTOPS AND EXPANSION DOWEL ASSEMBLIES SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "STRUCTURAL CONCRETE ('MISCELLANEOUS')".

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

SURCHARGE LOADING IS NOT INCLUDED IN THE DESIGN.

THE DESIGN NOMINAL BEARING RESISTANCE FOR THE FOOTING IS 5,000 PSF. THE CONTRACTOR SHALL VERIFY THE SOIL AT THE SITE MEETS THE DESIGN BEARING PRESSURE PRIOR TO PLACING ANY RETAINING WALL FOOTING CONCRETE.

THE EXCAVATION AND BACKFILLING QUANTITIES ARE INCLUDED IN THE ROADWAY PLANS.

## SHOP DRAWING SUBMITTALS

SHOP DRAWINGS SHALL BE SUBMITTED FOR THE FOLLOWING ITEMS SHOWN IN THE TABLE BELOW. (NOTE ADDITIONAL SHOP DRAWINGS MAY BE REQUIRED IN ACCORDANCE WITH ARTICLE 1105.03 OF THE STANDARD SPECIFICATIONS.)

SUBMITTAL REQUIREMENTS FOR SHOP DRAWINGS SHOULD BE IN ACCORDANCE WITH ARTICLE 1105.03, OF THE STANDARD SPECIFICATIONS, FOR HIGHWAY AND BRIDGE CONSTRUCTION OF THE IOWA DEPARTMENT OF TRANSPORTATION.

SHOP DRAWINGS SHALL BE SUBMITTED WITH THE FOLLOWING NAMING CONVENTION:
(Paren)_County_DesignNumber_SubmittalDescription.pdf
Example: (090)_BlackHawk_Design915_DeckDrains.pdf

| | |
|---|---|
| 1 | CHAIN LINK FENCE |
| | |
| | |

## SPECIFICATIONS:

DESIGN: AASHTO LRFD 7th Ed, SERIES OF 2014, EXCEPT AS NOTED IN THE CURRENT IOWA BRIDGE DESIGN MANUAL.
CONSTRUCTION: IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2015, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

## DESIGN STRESSES:

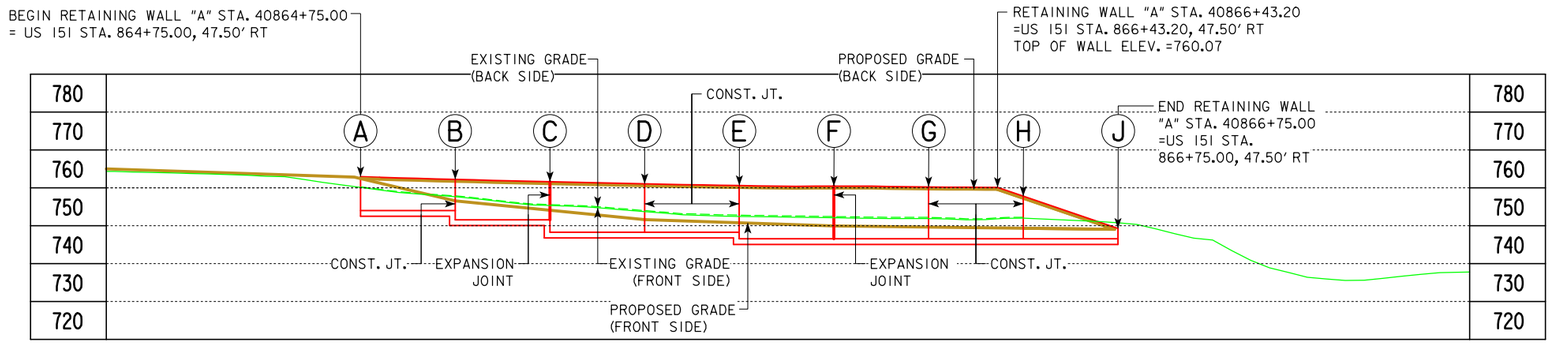
DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 7th Ed, SERIES OF 2014, EXCEPT AS NOTED IN THE CURRENT IOWA BRIDGE DESIGN MANUAL.
REINFORCING STEEL IN ACCORDANCE WITH AASHTO LRFD SECTION 5, GRADE 60.
CONCRETE IN ACCORDANCE WITH AASHTO SECTION 5, f'c= 4.0 KSI
STRUCTURAL STEEL IN ACCORDANCE WITH AASHTO LRFD SECTION 6. ASTM A709 GRADE 36, GRADE 50, AND GRADE 50W ( AASHTO M270 GRADE 36, GRADE 50, AND GRADE 50W ).

POLLUTION PREVENTION PLAN SHOWN ELSEWHERE IN THESE PLANS.

ROADWAY QUANTITIES SHOWN ELSEWHERE IN THESE PLANS.

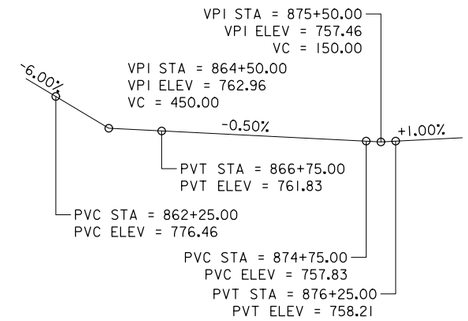
TRAFFIC CONTROL PLAN SHOWN ELSEWHERE IN THESE PLANS.

DESIGN FOR
# 200'-0 x VARIABLE HEIGHT REINFORCED CONC. RETAINING WALL
BEGIN STATION 40864+75.00
END STATION 40866+75.00
NOVEMBER 2018
## GENERAL NOTES
## LINN COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

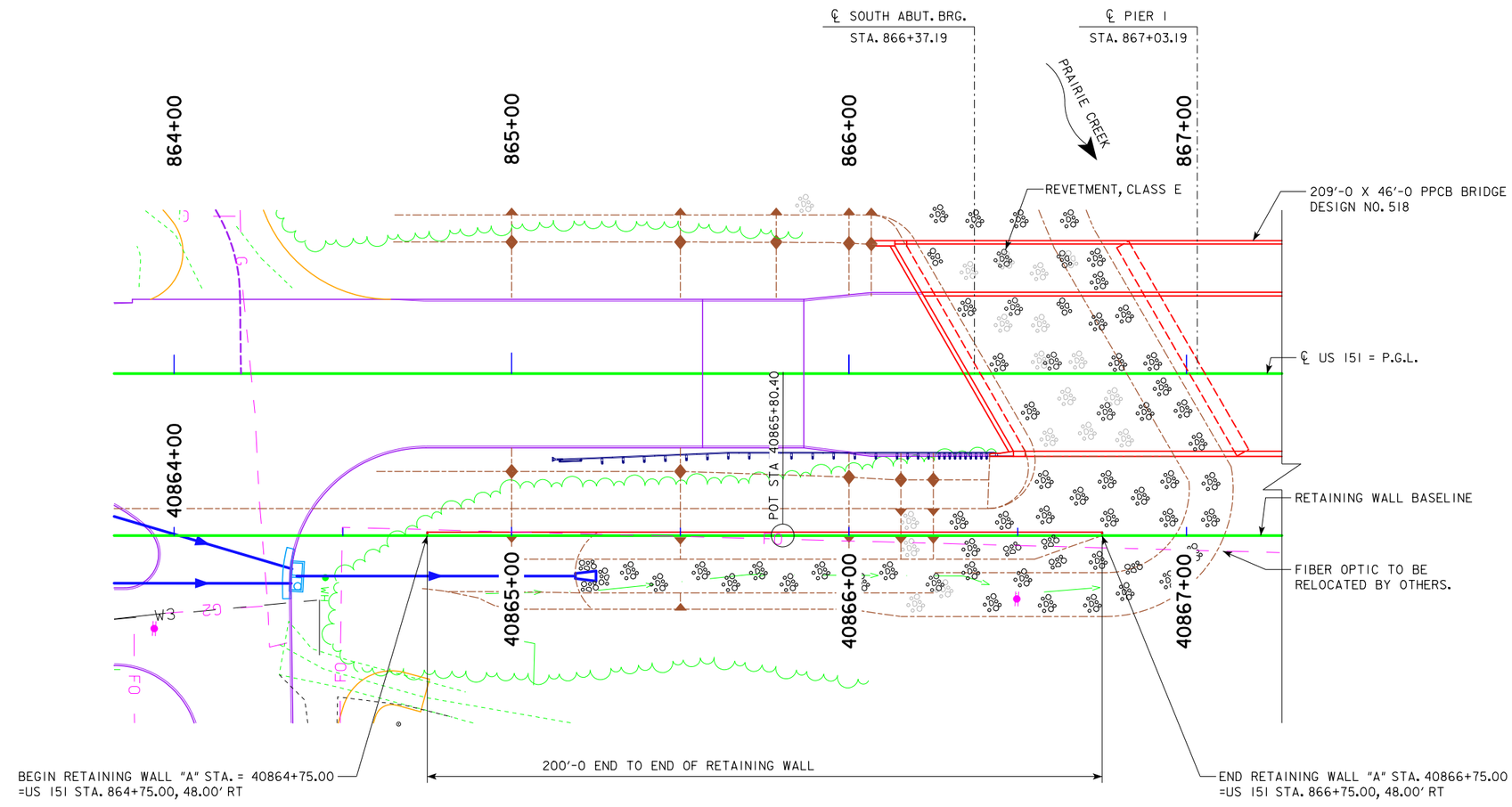



## RETAINING WALL "A" ELEVATION

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 BEGINNING OF CLEARING.
ELEV. =750.420, N = 705704.166 E = 2107504.303




## PROPOSED PROFILE GRADE (US 151)




N

## SITUATION PLAN

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.

SEE DESIGN NO. 518 FOR LIMITS OF REVETMENT, CLASS E.

## WALL ELEVATIONS

| LOCATION | STATION (US 151) | TOP OF WALL ELEVATION | BOTTOM OF FOOTING ELEVATION | WALL HEIGHT (FT.) | WALL LENGTH (FT.) |
|---|---|---|---|---|---|
| A | 864+75.00 | 762.91 | 752.50 | 10.41 | 25.0 |
| B | 865+00.00 | 762.21 | 750.03 | 12.18 | 25.0 |
| C | 865+25.00 | 761.59 | 746.76 | 14.83 | 25.0 |
| D | 865+50.00 | 761.04 | 746.76 | 14.28 | 25.0 |
| E | 865+75.00 | 760.57 | 745.04 | 15.53 | 25.0 |
| F | 866+00.00 | 760.42 | 745.04 | 15.38 | 25.0 |
| G | 866+25.00 | 760.23 | 745.04 | 15.19 | 25.0 |
| START OF WALL SLOPE | 866+43.20 | 760.07 | 745.04 | 15.03 | 18.2 |
| H | 866+50.00 | 757.76 | 745.04 | 12.72 | 6.8 |
| J | 866+75.00 | 749.28 | 745.04 | 4.24 | 25.0 |

## 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. |
| TRUCKS | 6 | % |
| TOTAL DESIGN ESALs | 2,104,152 | |

DESIGN FOR

# 200'-0 x VARIABLE HEIGHT REINFORCED CONC. RETAINING WALL

BEGIN STATION 40864+75.00
END STATION 40866+75.00

NOVEMBER 2018

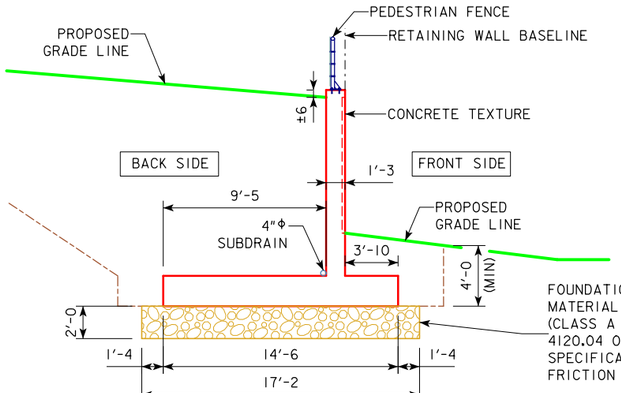
## SITUATION PLAN
## LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 3 OF 19 FILE NO. 31286 DESIGN NO. 918

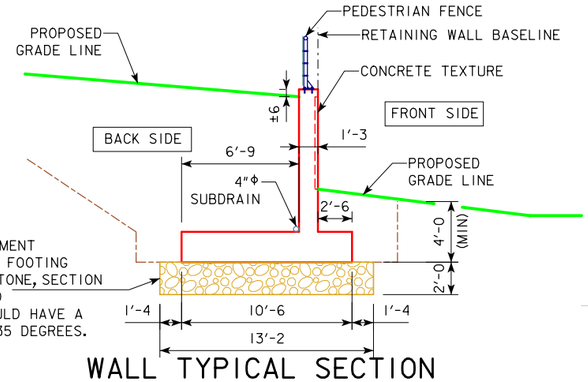
DESIGN TEAM HC / TWE / SHUCK-BRITSON INC | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER V.3

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 BEGINNING OF CLEARING.
ELEV. 750.420, N = 705704.166 E = 2107504.303

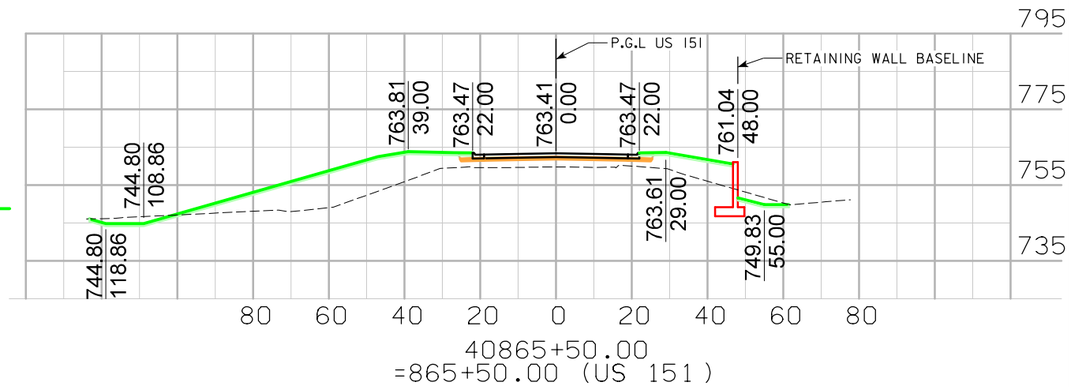



WALL TYPICAL SECTION
(LOOKING NORTH, BETWEEN C & H)

FOUNDATION IMPROVEMENT MATERIAL UNDER THE FOOTING (CLASS A CRUSHED STONE, SECTION 4120.04 OF STANDARD SPECIFICATIONS) SHOULD HAVE A FRICTION ANGLE OF 35 DEGREES.




WALL TYPICAL SECTION
(LOOKING NORTH, BETWEEN A & C, H & J)



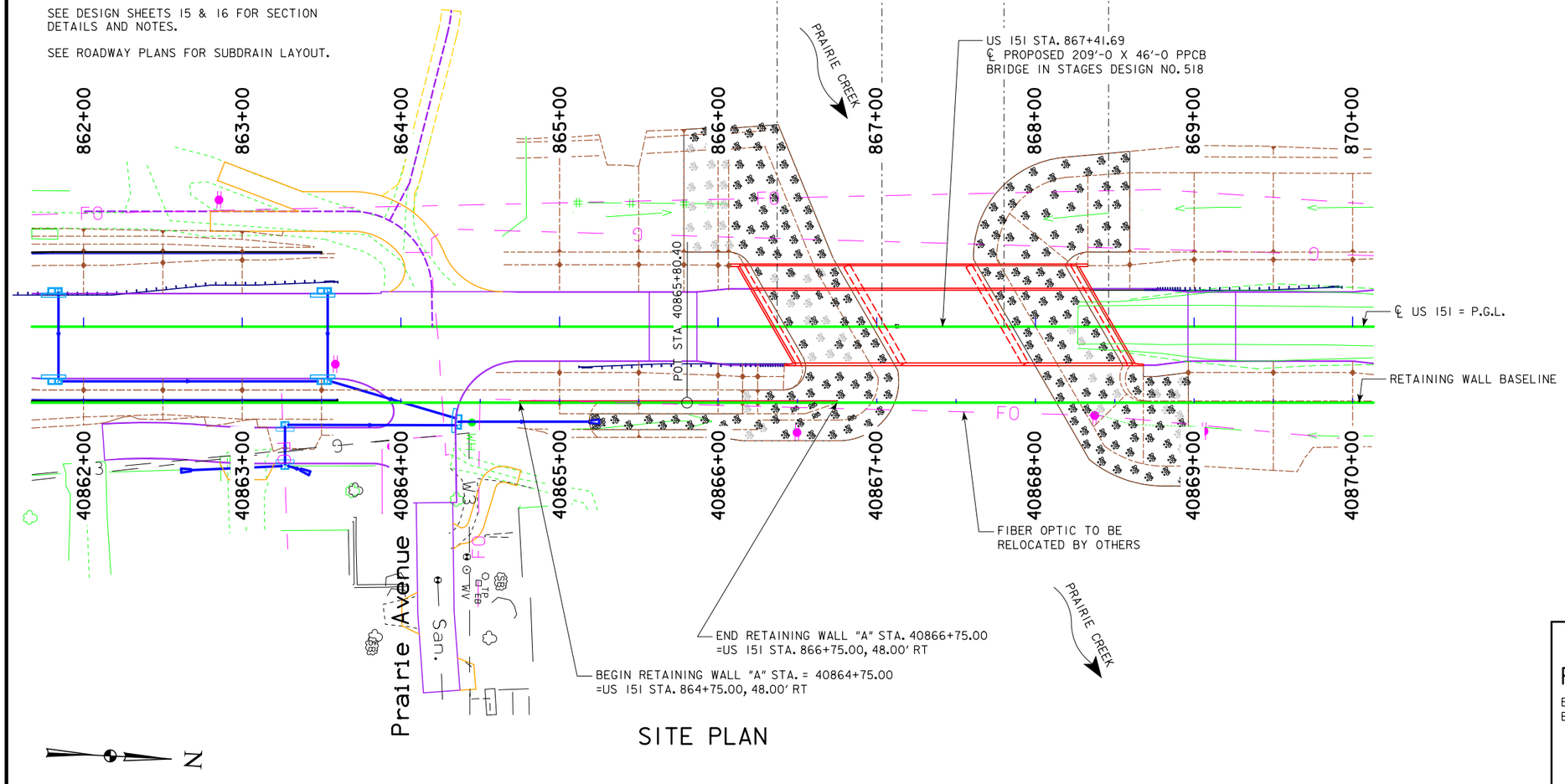

40865+50.00
=865+50.00 (US 151)

SECTION THRU US 151 WITH WALL SECTION
(LOOKING NORTH)

NOTE:
SEE "SITUATION PLAN" SHEET FOR RETAINING WALL STATIONS AND ELEVATIONS.

SEE DESIGN SHEETS 15 & 16 FOR SECTION DETAILS AND NOTES.

SEE ROADWAY PLANS FOR SUBDRAIN LAYOUT.




SITE PLAN

UTILITIES LEGEND:
FO - FIBER OPTIC - SOUTH SLOPE
G - GAS - MIDAMERICAN ENERGY

DESIGN FOR
# 200'-0 x VARIABLE HEIGHT REINFORCED CONC. RETAINING WALL

BEGIN STATION 40864+75.00
END STATION 40866+75.00
NOVEMBER 2018

## SITE PLAN
## LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 4 OF 19 FILE NO. 31286 DESIGN NO. 918

DESIGN TEAM HC / TWE / SHUCK-BRITSON | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER V.4

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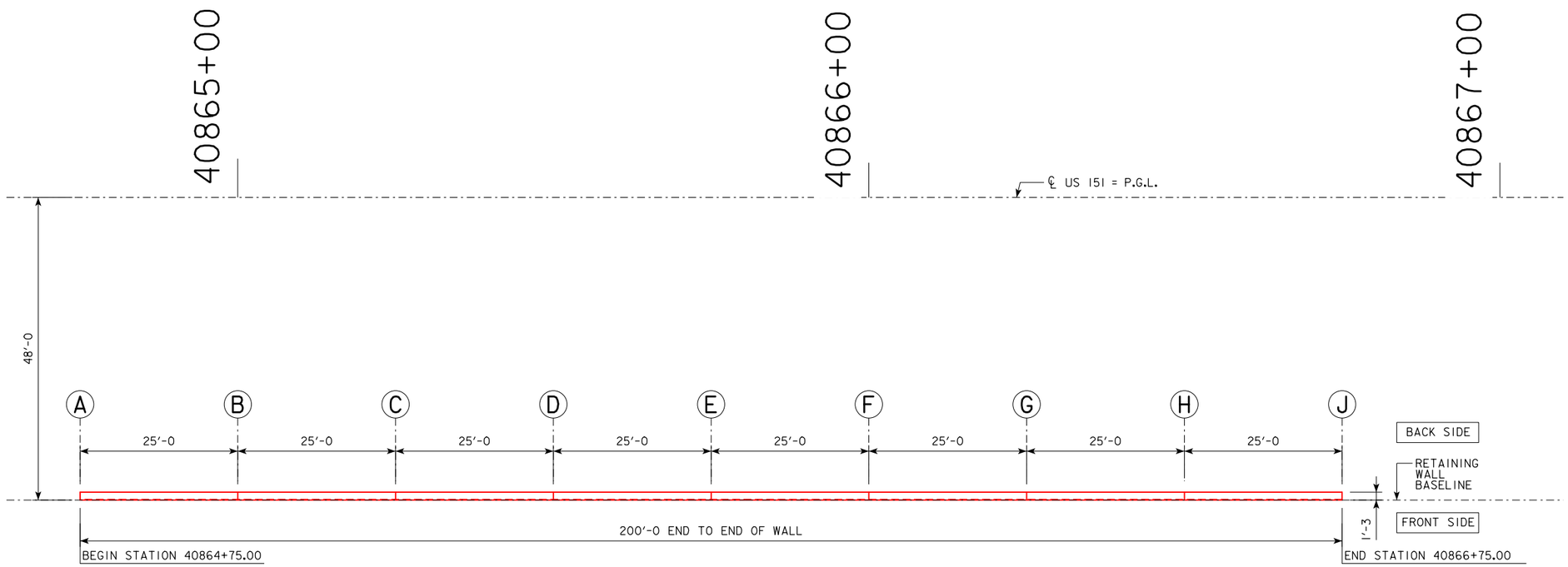


N

STAKING DIAGRAM

NOTE:
SEE "SITUATION PLAN" SHEET FOR RETAINING WALL STATIONS AND ELEVATIONS.

SEE DESIGN SHEETS 15 & 16 FOR SECTION DETAILS AND NOTES.

DESIGN FOR
# 200'-0 x VARIABLE HEIGHT REINFORCED CONC. RETAINING WALL
BEGIN STATION 40864+75.00
END STATION 40866+75.00
NOVEMBER 2018
## STAKING DIAGRAM
## LINN COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 5 OF 19 FILE NO. 31286 DESIGN NO. 918




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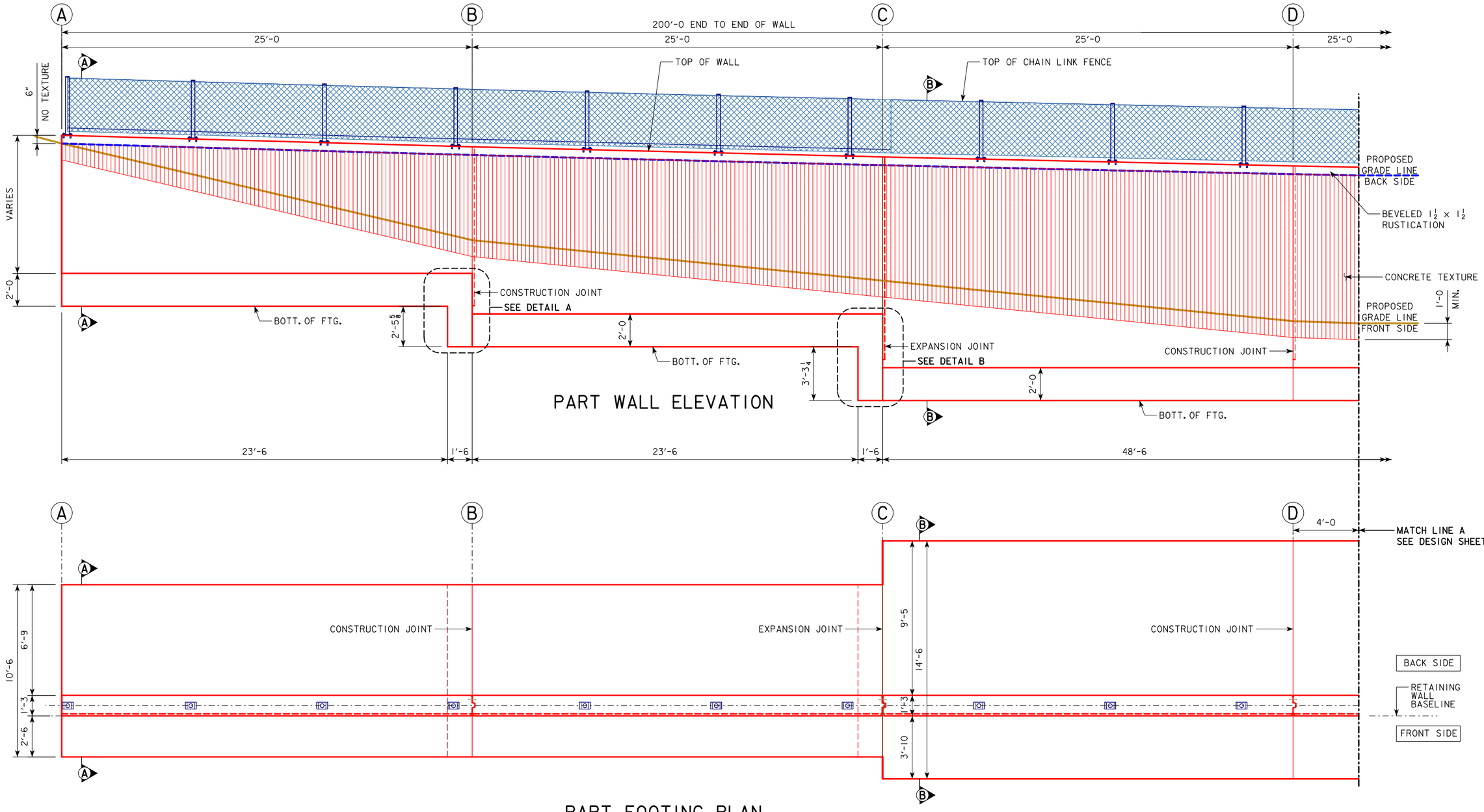



NOTE:
SEE "SITUATION PLAN" SHEET FOR RETAINING WALL STATIONS AND ELEVATIONS.

SEE DESIGN SHEETS 15 & 16 FOR SECTION DETAILS AND NOTES.

DESIGN FOR

# 200'-0 x VARIABLE HEIGHT REINFORCED CONC. RETAINING WALL

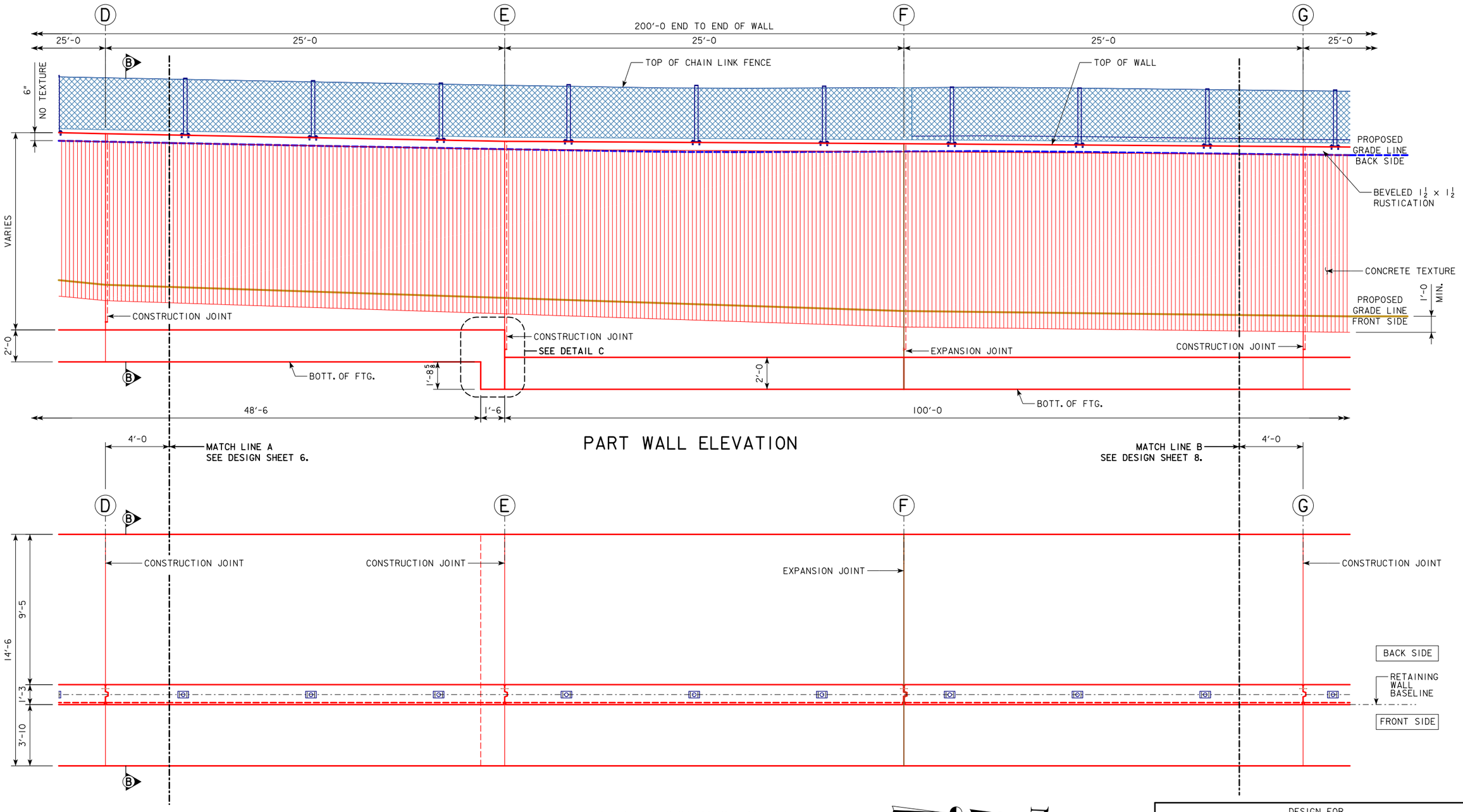
BEGIN STATION 40864+75.00
END STATION 40866+75.00

NOVEMBER 2018

## WALL DETAILS
## LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 6 OF 19 FILE NO. 31286 DESIGN NO. 918




PART WALL ELEVATION

PART FOOTING PLAN

N

NOTE:
SEE "SITUATION PLAN" SHEET FOR RETAINING WALL STATIONS AND ELEVATIONS.

SEE DESIGN SHEETS 15 & 16 FOR SECTION DETAILS AND NOTES.

DESIGN FOR

# 200'-0 x VARIABLE HEIGHT REINFORCED CONC. RETAINING WALL

BEGIN STATION 40864+75.00
END STATION 40866+75.00

NOVEMBER 2018

## WALL DETAILS
## LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 7 OF 19 FILE NO. 31286 DESIGN NO. 918

DESIGN TEAM HC / TWE / SHUCK-BRITSON

LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER V.7

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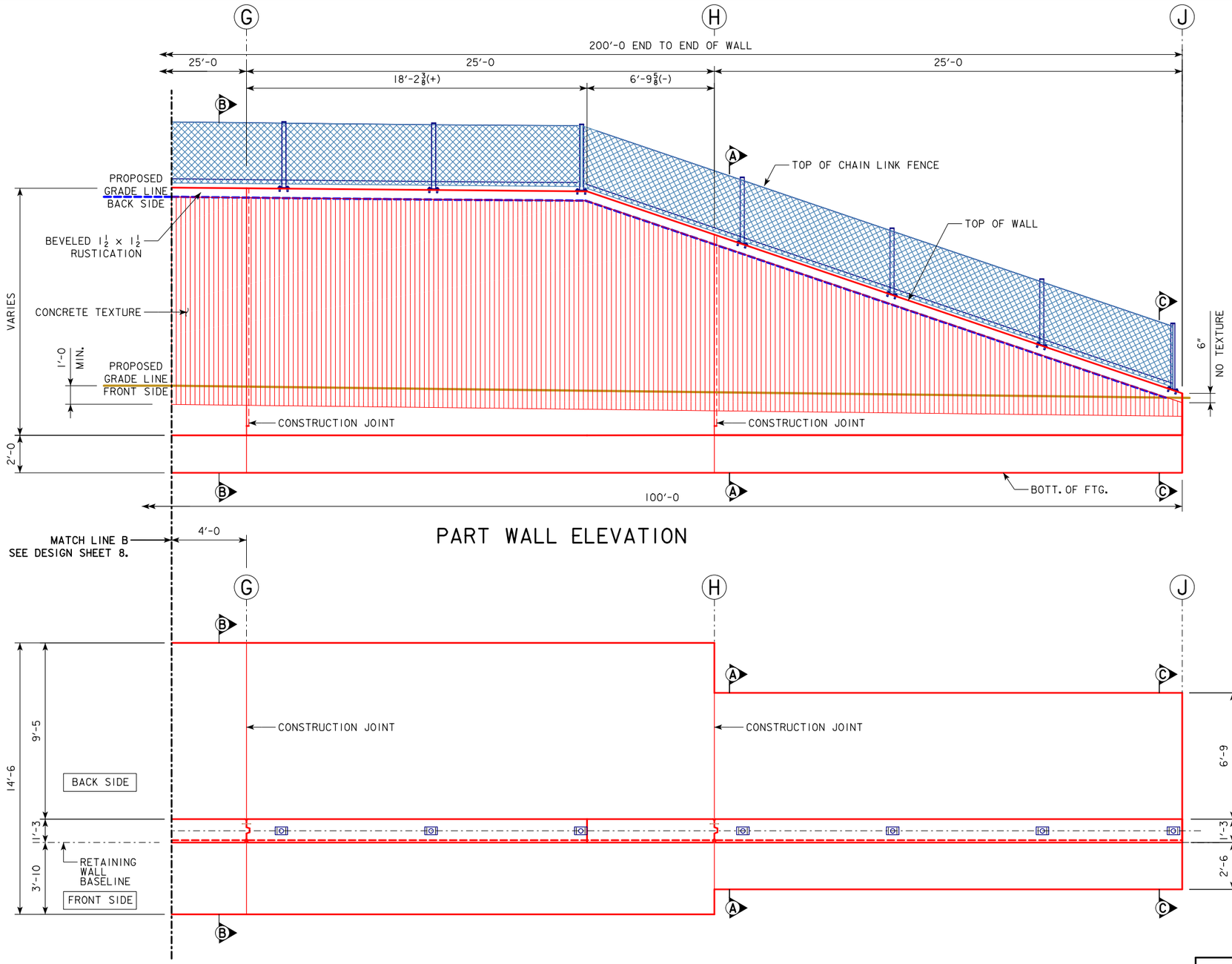


NOTE:
SEE "SITUATION PLAN" SHEET FOR RETAINING WALL STATIONS AND ELEVATIONS.

SEE DESIGN SHEETS 15 & 16 FOR SECTION DETAILS AND NOTES.

DESIGN FOR

# 200'-0 x VARIABLE HEIGHT REINFORCED CONC. RETAINING WALL

BEGIN STATION 40864+75.00
END STATION 40866+75.00

NOVEMBER 2018

## WALL DETAILS
## LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 8 OF 19 FILE NO. 31286 DESIGN NO. 918

DESIGN TEAM HC / TWE / SHUCK-BRITSON

LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER V.8

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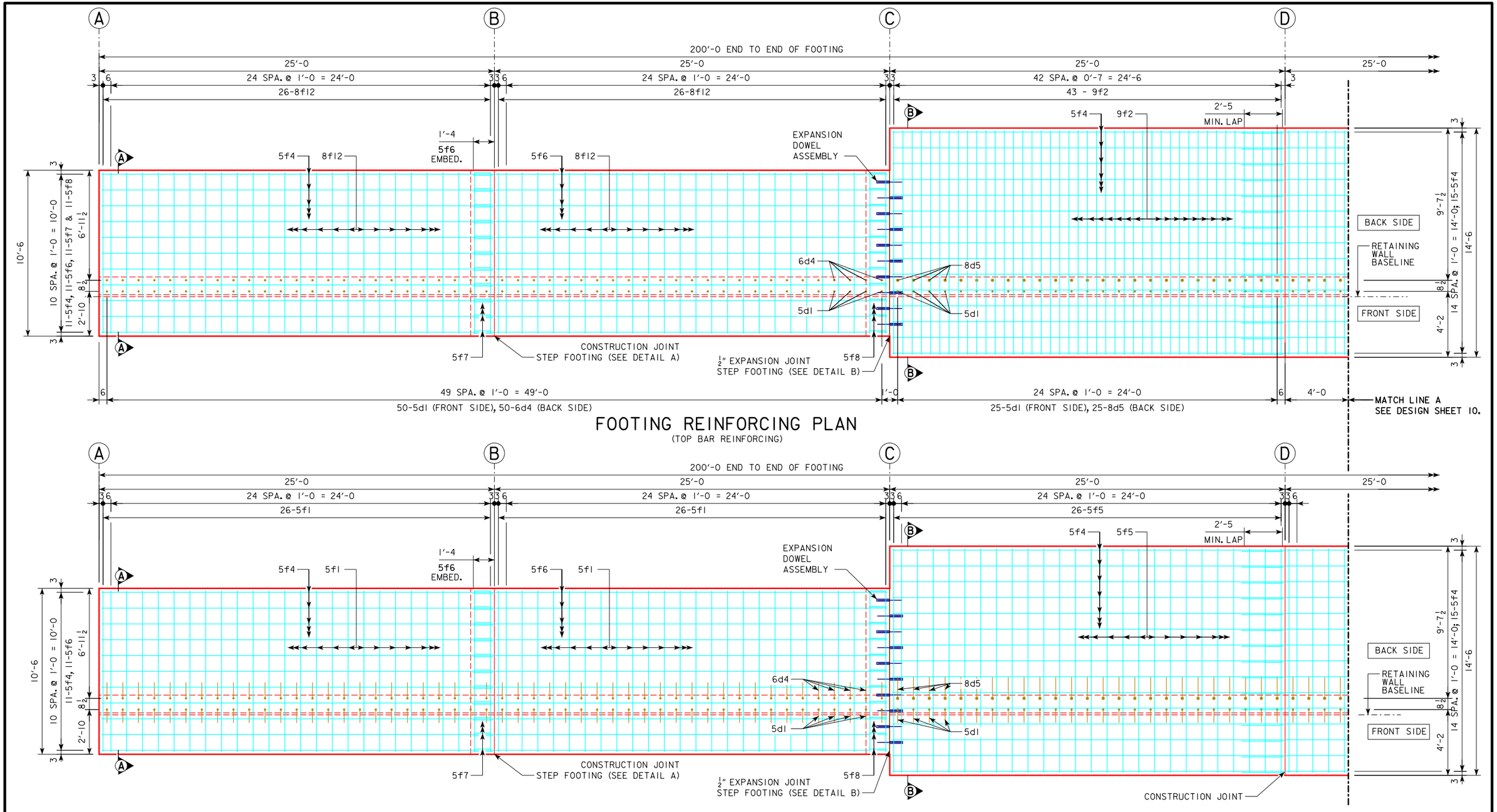


## FOOTING REINFORCING PLAN
(TOP BAR REINFORCING)




## FOOTING REINFORCING PLAN
(BOTTOM BAR REINFORCING)

N

NOTE:
SEE "SITUATION PLAN" SHEET FOR RETAINING WALL STATIONS AND ELEVATIONS.

SEE DESIGN SHEETS 15 & 16 FOR SECTION DETAILS AND NOTES.

RETAINING WALL NOT SHOWN FOR CLARITY.

DESIGN FOR
# 200'-0 x VARIABLE HEIGHT REINFORCED CONC. RETAINING WALL
BEGIN STATION 40864+75.00
END STATION 40866+75.00
NOVEMBER 2018
# FOOTING REINFORCING
# LINN COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 9 OF 19 FILE NO. 31286 DESIGN NO. 918

DESIGN TEAM HC / TWE / SHUCK-BRITSON

LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER V.9

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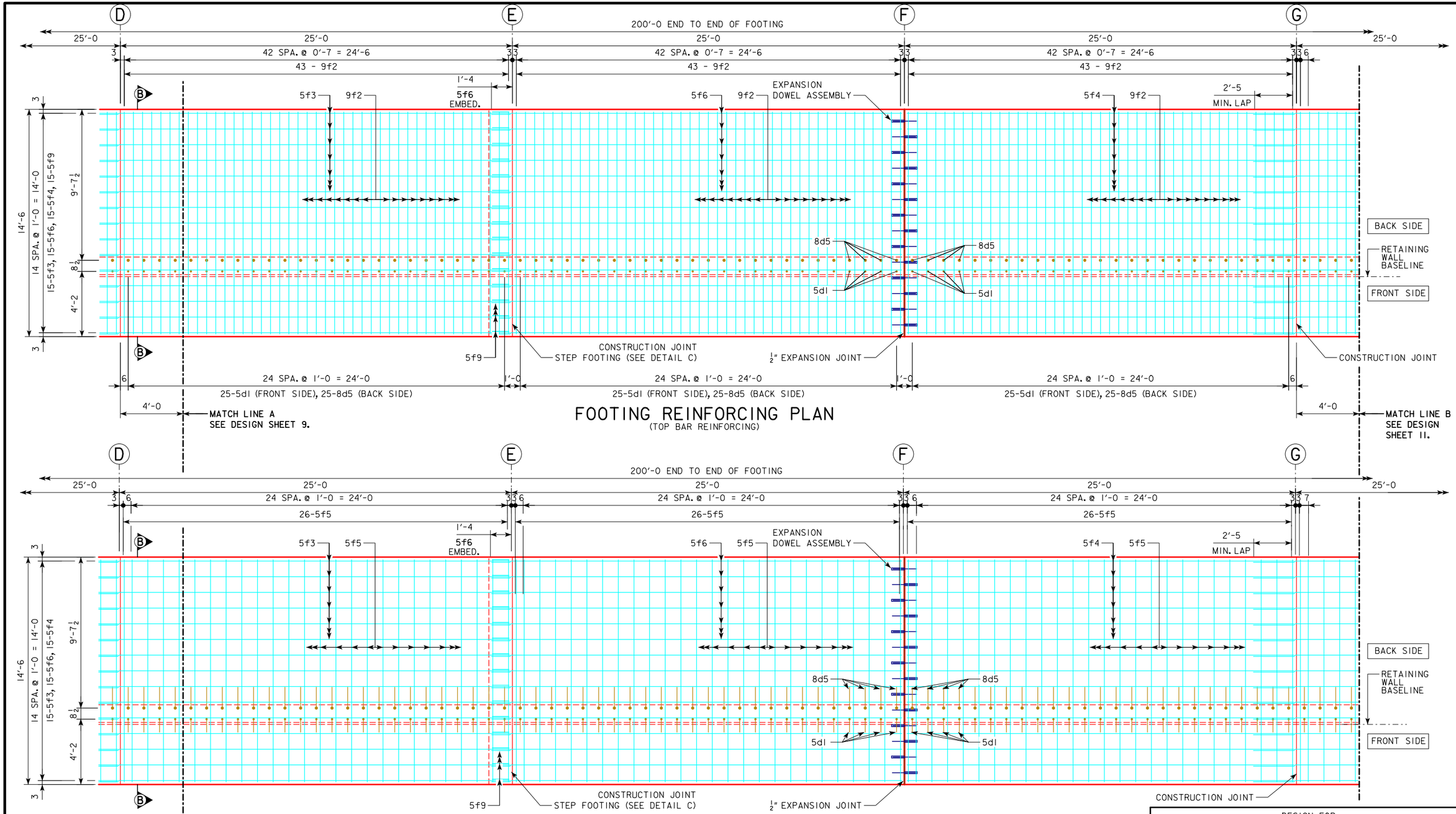


## FOOTING REINFORCING PLAN
(TOP BAR REINFORCING)




## FOOTING REINFORCING PLAN
(BOTTOM BAR REINFORCING)

N

NOTE:
SEE "SITUATION PLAN" SHEET FOR RETAINING WALL STATIONS AND ELEVATIONS.

SEE DESIGN SHEETS 15 & 16 FOR SECTION DETAILS AND NOTES.

RETAINING WALL NOT SHOWN FOR CLARITY.

DESIGN FOR
# 200'-0 x VARIABLE HEIGHT REINFORCED CONC. RETAINING WALL

BEGIN STATION 40864+75.00
END STATION 40866+75.00
NOVEMBER 2018

## FOOTING REINFORCING
## LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 10 OF 19 FILE NO. 31286 DESIGN NO. 918

DESIGN TEAM HC / TWE / SHUCK-BRITSON

LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER V.10

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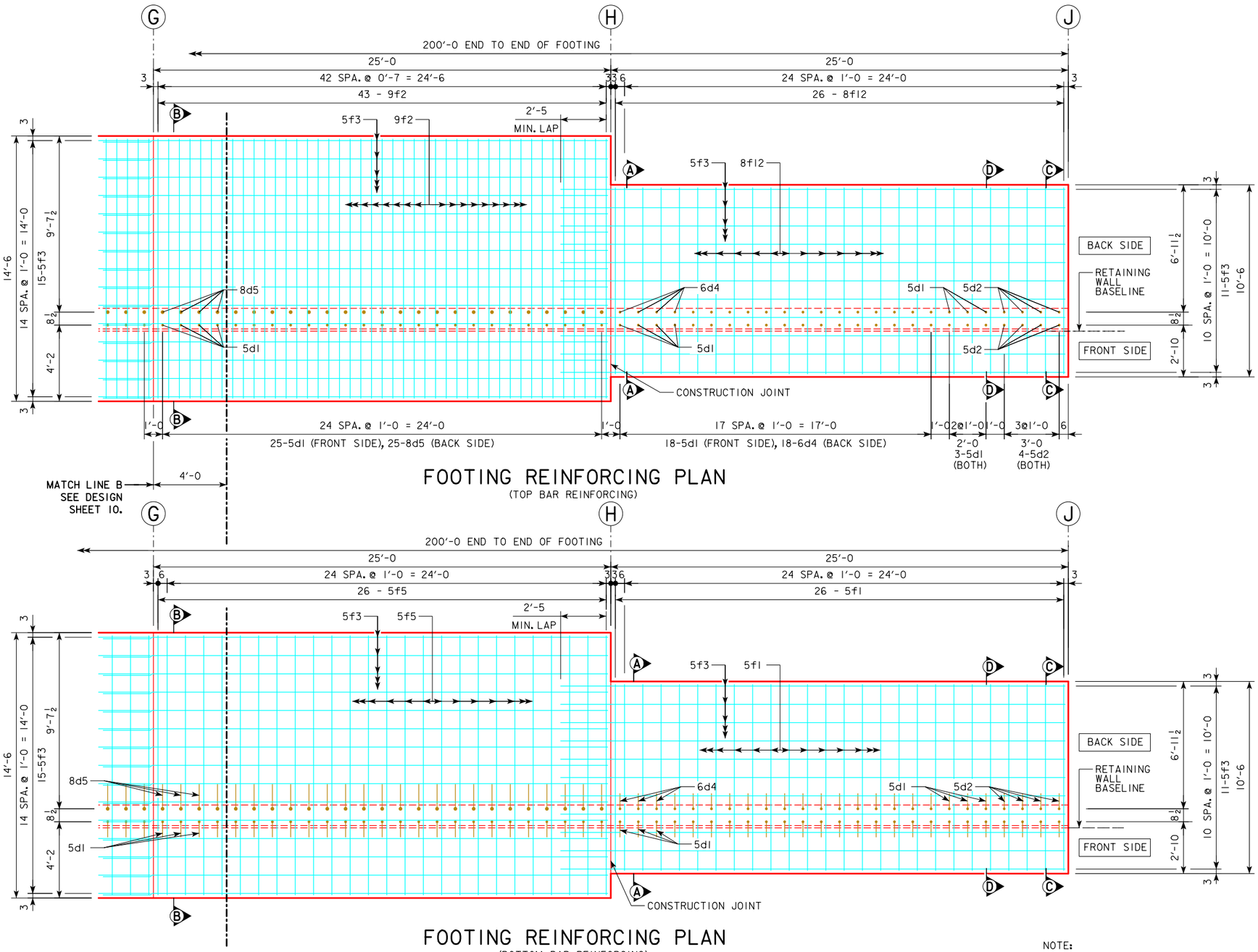



## FOOTING REINFORCING PLAN
(TOP BAR REINFORCING)




## FOOTING REINFORCING PLAN
(BOTTOM BAR REINFORCING)

N

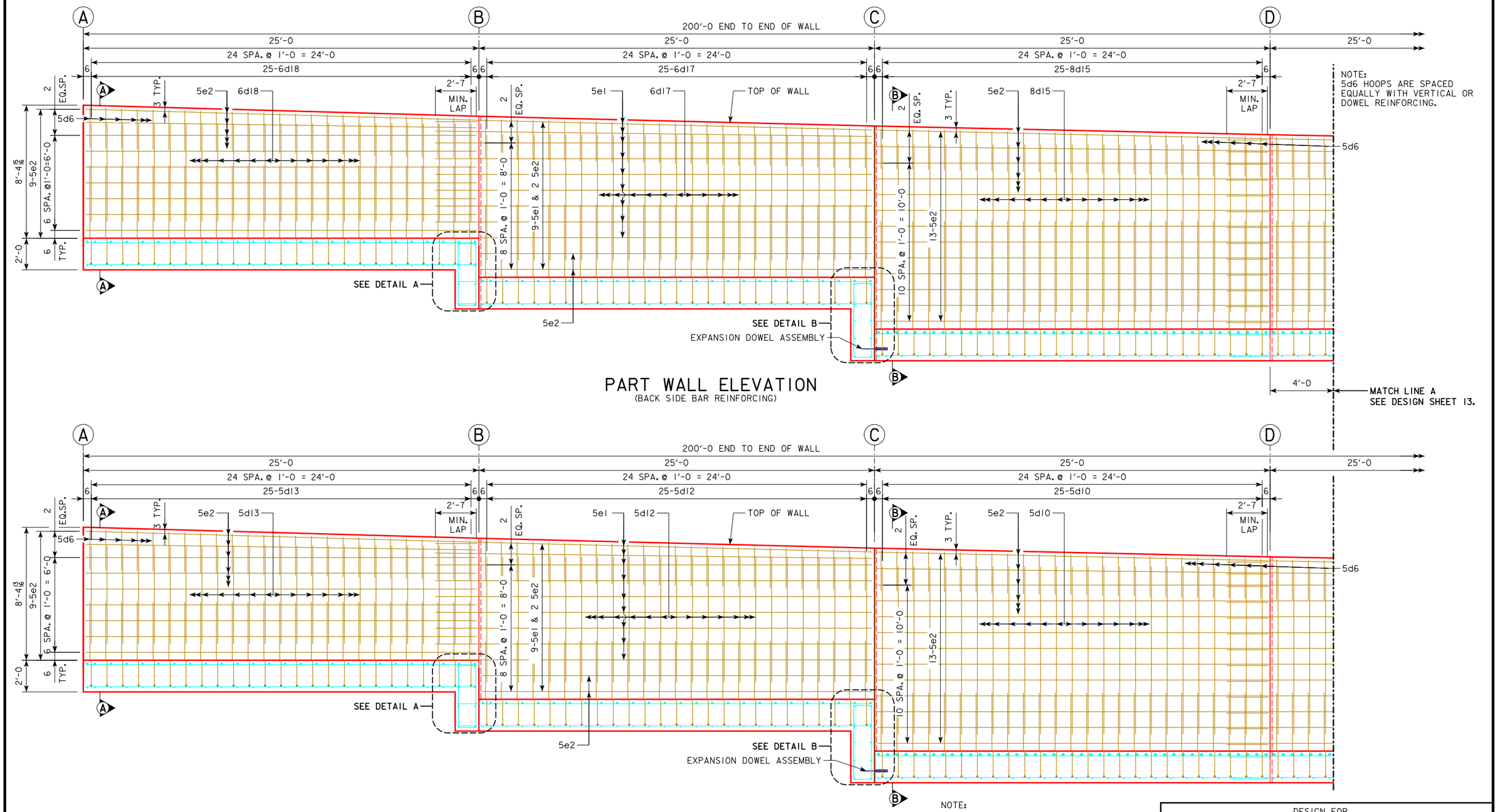
NOTE:
SEE "SITUATION PLAN" SHEET FOR RETAINING WALL STATIONS AND ELEVATIONS.

SEE DESIGN SHEETS 15 & 16 FOR SECTION DETAILS AND NOTES.

RETAINING WALL NOT SHOWN FOR CLARITY.

DESIGN FOR
# 200'-0 × VARIABLE HEIGHT REINFORCED CONC. RETAINING WALL
BEGIN STATION 40864+75.00
END STATION 40866+75.00
NOVEMBER 2018
## FOOTING REINFORCING
## LINN COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 11 OF 19 FILE NO. 31286 DESIGN NO. 918

DESIGN TEAM HC / TWE / SHUCK-BRITSON | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER V.11




## PART WALL ELEVATION
(BACK SIDE BAR REINFORCING)




## PART WALL ELEVATION
(FRONT SIDE BAR REINFORCING)

NOTE:
SEE "SITUATION PLAN" SHEET FOR RETAINING WALL STATIONS AND ELEVATIONS.

SEE DESIGN SHEETS 15 & 16 FOR SECTION DETAILS AND NOTES.

CHAIN LINK FENCE NOT SHOWN FOR CLARITY SEE DESIGN SHEETS 18 & 19 FOR DETAILS.

SEE DESIGN SHEETS 9 THRU 11 FOR FOOTING REINFORCING.

DESIGN FOR
# 200'-0 x VARIABLE HEIGHT REINFORCED CONC. RETAINING WALL

BEGIN STATION 40864+75.00 NOVEMBER 2018
END STATION 40866+75.00

## WALL REINFORCING
## LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 12 OF 19 FILE NO. 31286 DESIGN NO. 918

DESIGN TEAM HC / TWE / SHUCK-BRITSON

LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER V.12

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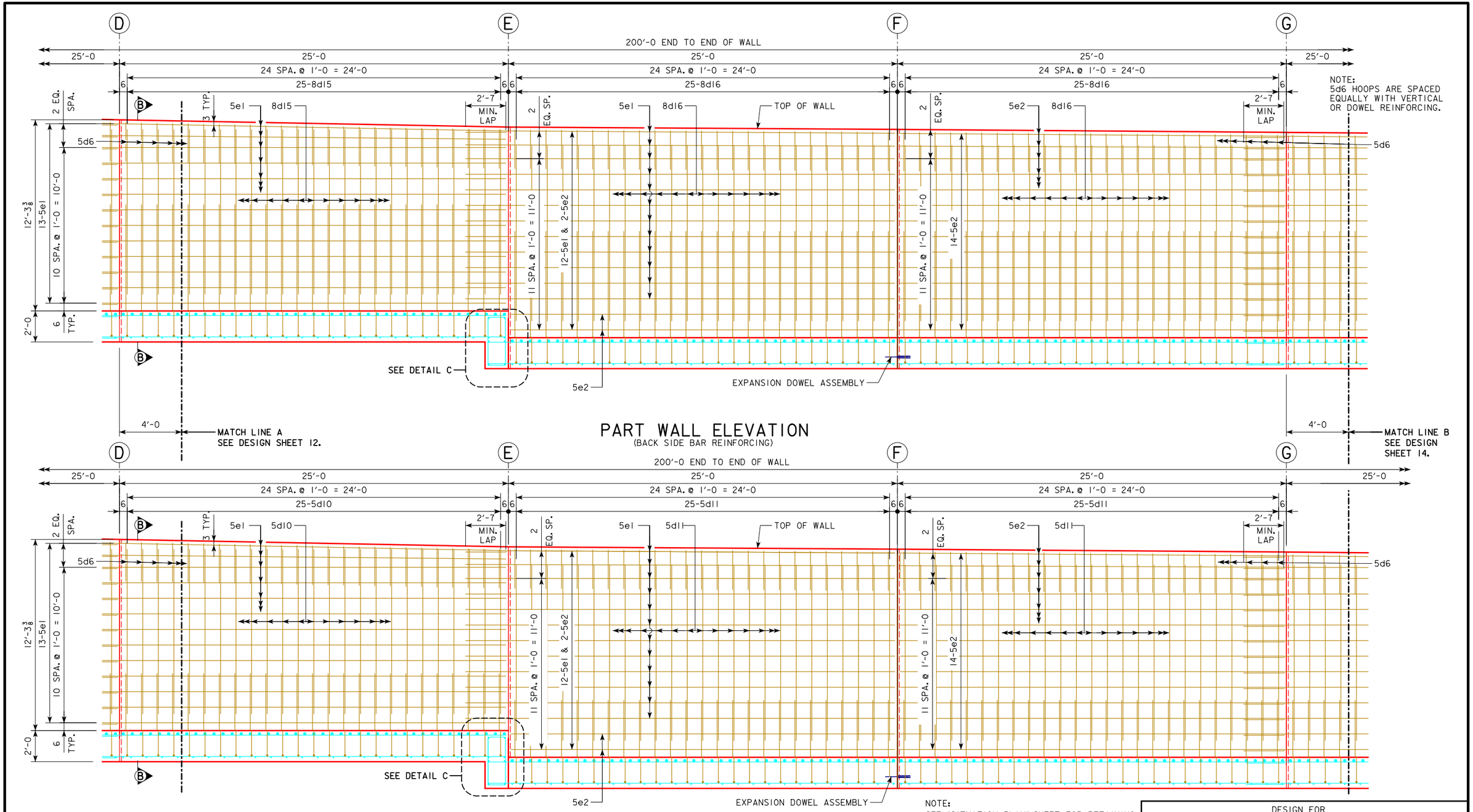



## PART WALL ELEVATION
(BACK SIDE BAR REINFORCING)




## PART WALL ELEVATION
(FRONT SIDE BAR REINFORCING)

NOTE:
SEE "SITUATION PLAN" SHEET FOR RETAINING WALL STATIONS AND ELEVATIONS.

SEE DESIGN SHEETS 15 & 16 FOR SECTION DETAILS AND NOTES.

CHAIN LINK FENCE NOT SHOWN FOR CLARITY SEE DESIGN SHEETS 18 & 19 FOR DETAILS.

SEE DESIGN SHEETS 9 THRU 11 FOR FOOTING REINFORCING.

DESIGN FOR

# 200'-0 x VARIABLE HEIGHT REINFORCED CONC. RETAINING WALL

BEGIN STATION 40864+75.00
END STATION 40866+75.00

NOVEMBER 2018

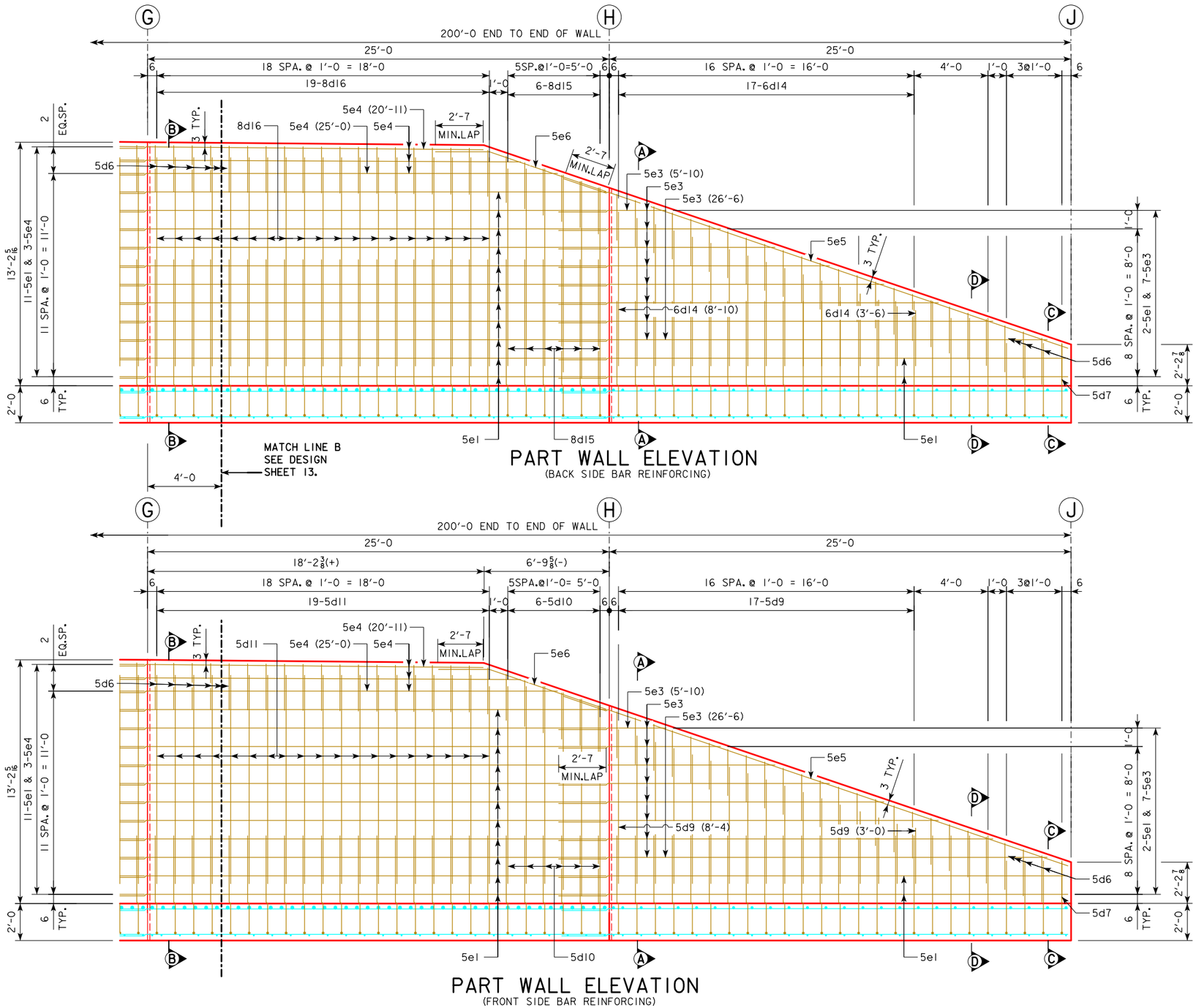
## WALL REINFORCING
## LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 13 OF 19 FILE NO. 31286 DESIGN NO. 918

DESIGN TEAM HC / TWE / SHUCK-BRITSON

LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER V.13




## PART WALL ELEVATION
(BACK SIDE BAR REINFORCING)

NOTE:
5d6 & 5d7 HOOPS ARE SPACED EQUALLY WITH VERTICAL OR DOWEL REINFORCING.




## PART WALL ELEVATION
(FRONT SIDE BAR REINFORCING)

NOTE:
SEE "SITUATION PLAN" SHEET FOR RETAINING WALL STATIONS AND ELEVATIONS.

SEE DESIGN SHEETS 15 & 16 FOR SECTION DETAILS AND NOTES.

CHAIN LINK FENCE NOT SHOWN FOR CLARITY SEE DESIGN SHEETS 18 & 19 FOR DETAILS.

SEE DESIGN SHEETS 9 THRU 11 FOR FOOTING REINFORCING.

DESIGN FOR

# 200'-0 × VARIABLE HEIGHT REINFORCED CONC. RETAINING WALL

BEGIN STATION 40864+75.00
END STATION 40866+75.00

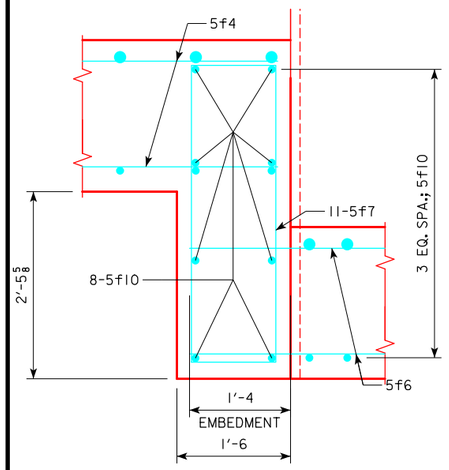
NOVEMBER 2018

# WALL REINFORCING
# LINN COUNTY

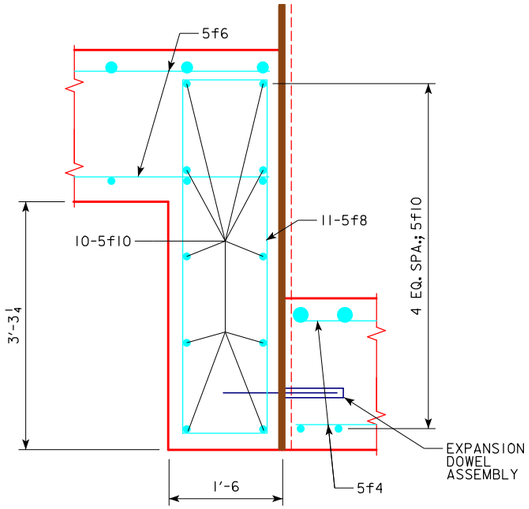
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 14 OF 19 FILE NO. 31286 DESIGN NO. 918

DESIGN TEAM HC / TWE / SHUCK-BRITSON INC | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER V.14




DETAIL A

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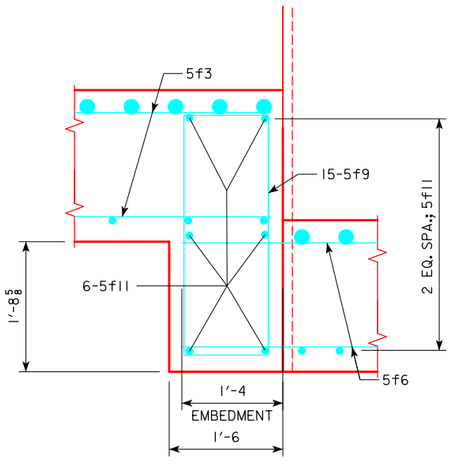
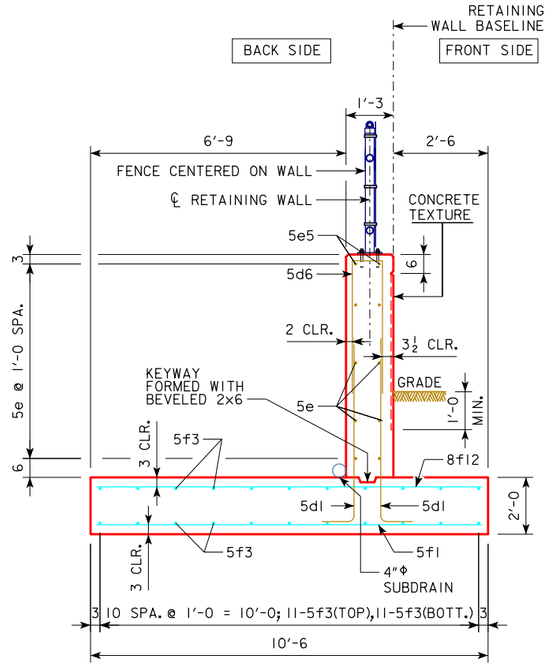
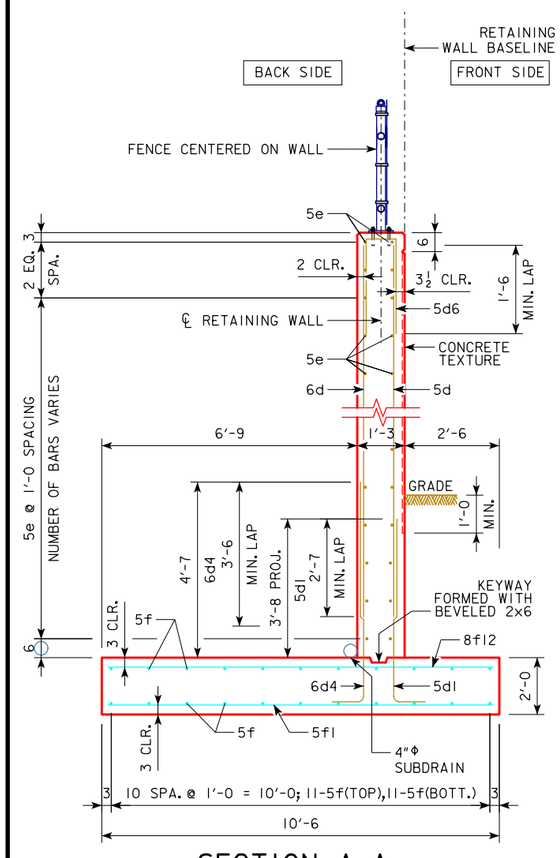



DETAIL C

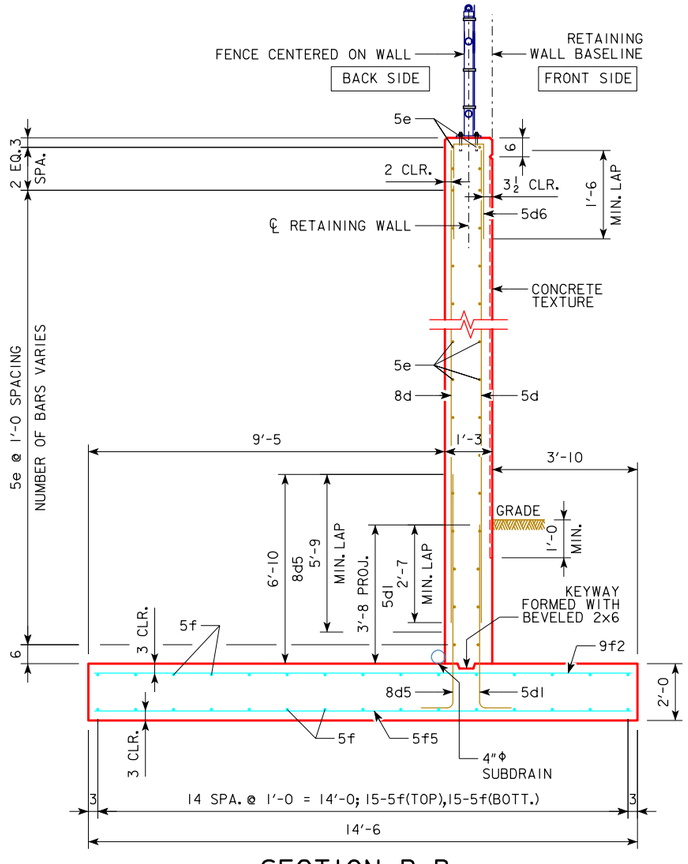



SECTION D-D



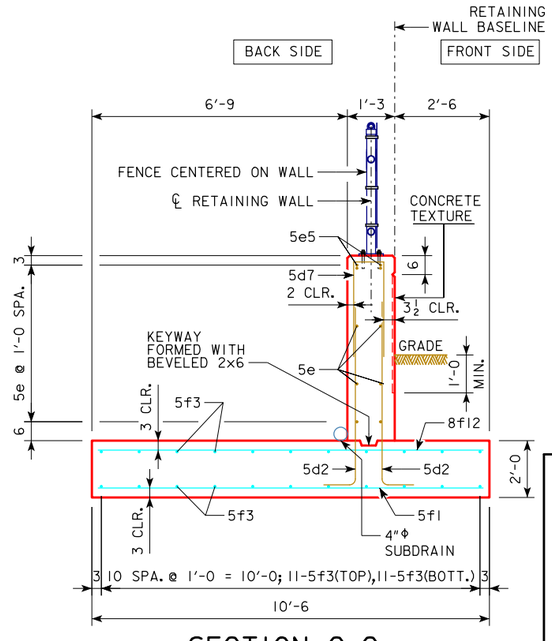

SECTION A-A

(LOOKING NORTH, BETWEEN A-C & H-J)




SECTION B-B

(LOOKING NORTH, BETWEEN C-H)




SECTION C-C

(LOOKING NORTH, BETWEEN H-J)

**KEYWAY NOTE:**

NOTE: KEYWAYS SHALL BE FORMED IN THE FOOTING BETWEEN THE PROTRUDING WALL REINFORCING BARS. KEYWAYS SHALL BE CONTINUOS BETWEEN WALL JOINTS AND SHALL TERMINATE WITH APPROXIMATELY 6 INCHES CLEARANCE FROM WALL JOINTS OR WALL ENDS. KEYWAYS FOR WALL SECTIONS SHALL BE FORMED WITH BEVELED 2"x6" LUMBER.

NOTE:

SEE "SITUATION PLAN" SHEET FOR RETAINING WALL STATIONS AND ELEVATIONS.

SEE DESIGN SHEETS 16 FOR ADDITIONAL SECTION DETAILS AND NOTES.

SEE ROADWAY PLANS FOR SUBDRAIN LAYOUT.

DESIGN FOR

# 200'-0 x VARIABLE HEIGHT REINFORCED CONC. RETAINING WALL

BEGIN STATION 40864+75.00

END STATION 40866+75.00

NOVEMBER 2018

# RETAINING WALL DETAILS LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 15 OF 19 FILE NO. 31286 DESIGN NO. 918

DESIGN TEAM HC / TWE / SHUCK-BRITSON

LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER V.15

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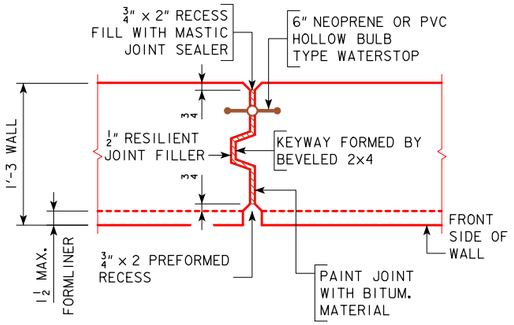
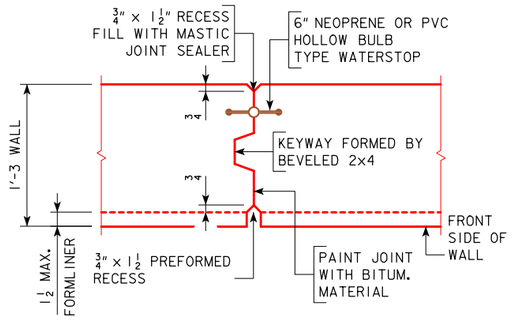
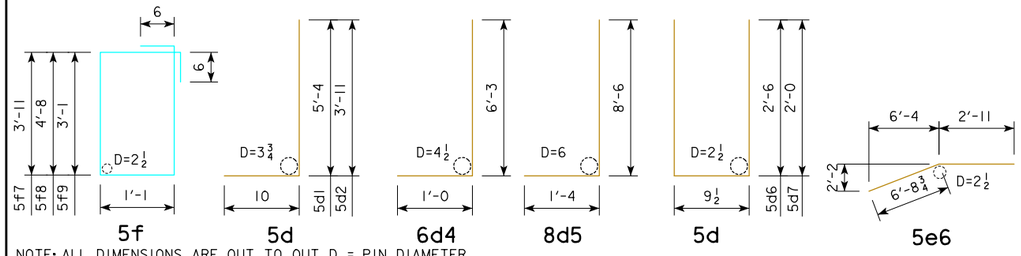



## WALL EXPANSION JOINT DETAIL




## WALL CONSTRUCTION JOINT DETAIL

## BENT BAR DETAILS




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

## NON-COATED REINFORCING STEEL - FOOTING

| BAR | LOCATION | SHAPE | NO. | LENGTH | WEIGHT |
|---|---|---|---|---|---|
| 5f1 | FOOTING TRANSV. BOTT. (SECT. A-A & C-C) | — | 78 | 10'-2 | 827 |
| 9f2 | FOOTING TRANSV. TOP (SECT. B-B) | — | 215 | 14'-2 | 10,356 |
| 5f3 | FOOTING LONGIT. TOP & BOTT. (SECT. B-B & C-C) | — | 82 | 27'-5 | 2345 |
| 5f4 | FOOTING LONGIT. TOP & BOTT. (SECT. A-A & B-B) | — | 82 | 24'-8 | 2110 |
| 5f5 | FOOTING TRANSV. BOTT. (SECT. B-B) | — | 130 | 14'-2 | 1921 |
| 5f6 | FOOTING LONGIT. TOP & BOTT. (SECT. A-A & B-B) | — | 52 | 26'-2 | 1419 |
| 5f7 | STEP HOOP (DETAIL A) | ▭ | 11 | 11'-0 | 126 |
| 5f8 | STEP HOOP (DETAIL B) | ▭ | 11 | 12'-6 | 143 |
| 5f9 | STEP HOOP (DETAIL C) | ▭ | 15 | 9'-4 | 146 |
| 5f10 | STEP TRANSV. (DETAIL A & B) | — | 18 | 10'-2 | 191 |
| 5f11 | STEP TRANSV. (DETAIL C) | — | 6 | 14'-2 | 89 |
| 8f12 | FOOTING TRANSV. TOP (SECT. A-A & C-C) | — | 78 | 10'-2 | 2117 |
| | NON-COATED REINFORCING STEEL - TOTAL (LBS) | | | | 21,790 |

## EPOXY-COATED REINFORCING STEEL

| BAR | LOCATION | SHAPE | NO. | LENGTH | WEIGHT |
|---|---|---|---|---|---|
| 5d1 | FOOTING TO WALL DOWELS (ALL SECTIONS) | ⌊ | 199 | 6'-2 | 1280 |
| 5d2 | FOOTING TO WALL DOWELS (SECT. C-C) | ⌊ | 8 | 4'-9 | 40 |
| 6d4 | FOOTING TO WALL DOWELS (SECT. A-A) | ⌊ | 68 | 7'-3 | 740 |
| 8d5 | FOOTING TO WALL DOWELS (SECT. B-B) | ⌊ | 125 | 9'-10 | 3282 |
| 5d6 | WALL, TOP, HOOPS | ⌐ | 199 | 5'-10 | 1211 |
| 5d7 | WALL, TOP, HOOPS (SECT. C-C) | ⌐ | 1 | 4'-10 | 5 |
| 5d9 | WALL, VERTICAL (SECT. C-C) | — | 17 | VARIES | 100 |
| 5d10 | WALL, VERTICAL (SECT. B-B) | — | 56 | 10'-8 | 623 |
| 5d11 | WALL, VERTICAL (SECT. B-B) | — | 69 | 11'-4 | 816 |
| 5d12 | WALL, VERTICAL (SECT. A-A) | — | 25 | 8'-0 | 209 |
| 5d13 | WALL, VERTICAL (SECT. A-A) | — | 25 | 6'-2 | 161 |
| 6d14 | WALL, VERTICAL (SECT. A-A) | — | 17 | VARIES | 157 |
| 8d15 | WALL, VERTICAL (SECT. B-B) | — | 56 | 10'-8 | 1595 |
| 8d16 | WALL, VERTICAL (SECT. B-B) | — | 69 | 11'-4 | 2088 |
| 6d17 | WALL, VERTICAL (SECT. B-B) | — | 25 | 8'-0 | 300 |
| 6d18 | WALL, VERTICAL (SECT. A-A) | — | 25 | 6'-2 | 232 |
| | | | | | |
| 5e1 | WALL, HORIZONAL (ALL SECTIONS) | — | 94 | 27'-7 | 2704 |
| 5e2 | WALL, HORIZONAL (SECT. A-A & B-B) | — | 80 | 24'-8 | 2058 |
| 5e3 | WALL, HORIZONAL (SECT. A-A) | — | 16 | VARIES | 270 |
| 5e4 | WALL, HORIZONAL (SECT. B-B) | — | 6 | VARIES | 144 |
| 5e5 | WALL, HORIZONAL (SECT. A-A, C-C & D-D) | — | 2 | 29'-0 | 60 |
| 5e6 | WALL, HORIZONAL (SECT. B-B) | ◡ | 2 | 9'-8 | 20 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | EPOXY-COATED REINFORCING STEEL - TOTAL (LBS) | | | | 18,095 |

## CONCRETE PLACEMENT SUMMARY

| LOCATION | WALL | FOOTING | TOTAL |
|---|---|---|---|
| BETWEEN A & C | 20.8 | 42.4 | 63.2 |
| BETWEEN C & F | 44.1 | 82.2 | 126.3 |
| BETWEEN F & H | 30.2 | 53.7 | 83.9 |
| BETWEEN H & J | 7.5 | 19.6 | 27.1 |
| TOTAL - CU. YDS. | 102.6 | 197.9 | 300.5 |

### EXPANSION DOWEL NOTES:

EXPANSION DOWELS ARE REQUIRED AT THE FOOTING EXPANSION JOINT.

ALL COSTS ASSOCIATED WITH EXPANSION DOWELS AND DOWEL SUPPORT ASSEMBLIES SHALL BE INCIDENTAL TO THE PRICE BID FOR "STRUCTURAL CONCRETE (MISCELLANEOUS)".

EXPANSION DOWEL BARS SHALL BE 1 1/2" DIAMETER, 18" LONG. CENTER TO CENTER SPACING OF DOWELS SHALL BE 12". CENTERLINES OF INDIVIDUAL DOWELS SHALL BE PARALLEL TO THE OTHER DOWELS IN THE ASSEMBLY WITHIN 1/8".

EACH DOWEL BAR SHALL BE FITTED WITH APPROVED 6" LONG EXPANSION TUBE AT ONE END. EXPANSION TUBE SHALL BE POSITIONED TO PROVIDE 1" CLEAR SPACE FOR DOWEL MOVEMENT. THE EXPANSION SIDE OF THE DOWEL SHALL BE COATED TO PREVENT BOND WITH THE FOOTING. THE OPPOSITE SIDE OF THE DOWEL SHALL BE WELDED TO THE WIRE DOWEL SUPPORT ASSEMBLY. DOWEL BARS SHALL BE PLACED TO ALTERNATE FIXED ENDS AND EXPANSION TUBE ENDS ALONG THE LENGTH OF THE SUPPORT ASSEMBLY.

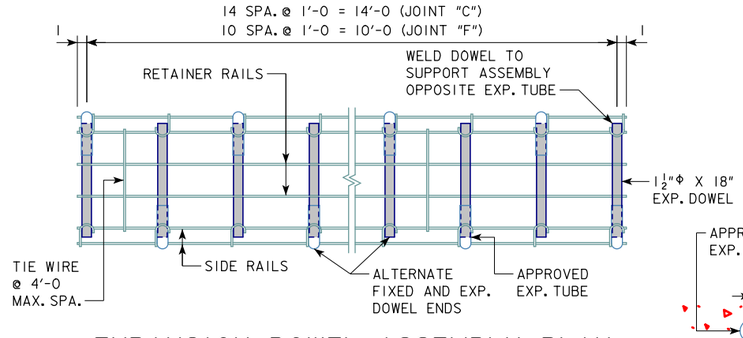
WIRES FOR THE DOWEL SUPPORT ASSEMBLY SHALL HAVE A MINIMUM TENSILE STRENGTH OF 50 KSI. MINIMUM WIRE DIAMETER SHALL BE AS FOLLOWS:

| LOCATION | MIN. WIRE DIAMETER |
|---|---|
| LEGS | 0.306" DIAMETER |
| SIDE RAILS | 0.306" DIAMETER |
| RETAINER RAILS | 0.250" DIAMETER WIRE |
| TIE WIRES | 0.135" DIAMETER |
| ANCHOR PINS | 0.306" DIAMETER |

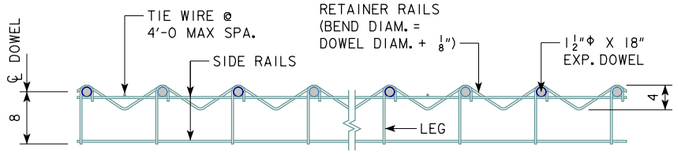
CLIP AND REMOVE CENTER PORTION OF TIE WIRE DURING FIELD ASSEMBLY.

A MINIMUM OF 8 ANCHOR PINS (4 PER SIDE, EVENLY SPACED) ARE REQUIRED AT EACH EXPANSION JOINT TO PREVENT MOVEMENT OF EXPANSION DOWEL ASSEMBLY. SEE ROAD STANDARD PV-101 FOR TYPICAL ANCHOR PIN DETAIL.

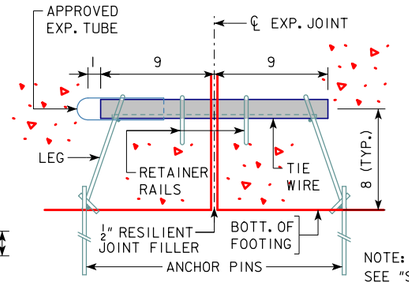
**WATERSTOP NOTE:**
NOTE: WATERSTOP TO BE CENTER BULB TYPE. WATERSTOPS ARE TO EXTEND FROM TOP OF FOOTINGS TO 6" BELOW TOP OF WALLS.




## EXPANSION DOWEL ASSEMBLY PLAN




## EXPANSION DOWEL ASSEMBLY ELEVATION




## SECTION THROUGH EXPANSION JOINT

NOTE:
SEE "SITUATION PLAN" SHEET FOR RETAINING WALL STATIONS AND ELEVATIONS.

SEE DESIGN SHEET 15 FOR ADDITIONAL SECTION DETAILS AND NOTES.

DESIGN FOR
# 200'-0 x VARIABLE HEIGHT REINFORCED CONC. RETAINING WALL

BEGIN STATION 40864+75.00
END STATION 40866+75.00
NOVEMBER 2018

# REINFORCING BAR LIST
# LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 16 OF 19 FILE NO. 31286 DESIGN NO. 918

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## CONCRETE RUSTICATION NOTES

STRIPS AND PANELS USED AS INSERTS WITHIN CONCRETE FORMS TO CREATE THE RUSTICATION FEATURES MAY BE MADE OF WOOD, STEEL, PLASTIC OR OTHER NONPOROUS MATERIAL CAPABLE OF WITHSTANDING ANTICIPATED CONCRETE POUR PRESSURES WITHOUT PHYSICAL DEFECTS. WOOD INSERTS, IF USED, SHALL BE FREE OF WARP, TWIST, CHECKS OR CRACKS, AND SHALL BE PRESOAKED PRIOR TO PLACEMENT OF CONCRETE IN THE FORMS.

RUSTICATION INSERTS SHALL EASILY ATTACH TO FORMS AND SHALL NOT ALLOW LEAKAGE OF CONCRETE BETWEEN THE FORM AND THE INSERT. WHEN STEEL FORMS ARE USED, RUSTICATION STRIPS MAY BE RIGIDLY ATTACHED TO THE INSIDE SURFACES OF THE FORMS. WHEN STEEL FORMS ARE NOT USED, RUSTICATION STRIPS AND OTHER INSERTS FOR SMALL RECESSES ON EXPOSED CONCRETE SURFACES SHALL BE FASTENED TO THE FORMS IN A MANNER THAT WILL PERMIT THEM TO REMAIN IN PLACE WHEN THE FORMS ARE REMOVED. LEAVE INSERTS IN PLACE UNTIL THEY CAN BE REMOVED WITHOUT DAMAGE TO THE SURROUNDING CONCRETE.

THE INSERTS SHALL BE DESIGNED TO FORM SURFACES AND FEATURES CONFORMING TO THE DESIGN INTENT INCLUDING THE SHAPE, LINES, DEPTHS AND DIMENSIONS SHOWN IN THE PLANS. CREATE INSERTS USING A MINIMUM NUMBER OF SPLICE JOINTS IN THEIR LENGTH. SPLICES, IF USED, SHALL BE TIGHTLY JOINED SO AS NOT TO ALLOW GAPS OR LEAKS, AND SHALL NOT CREATE ANY CHANGE IN ALIGNMENT OR SHAPE OF THE RUSTICATION FEATURE.

FOR RUSTICATION FEATURES FOLLOWING THE PERIMETER OF ROUNDED SURFACES, IT MAY BE NECESSARY TO USE MULTIPLE LAYERS OF INSERT MATERIAL IN ORDER TO ACHIEVE THE RADIUS CURVE. THIS IS ACCEPTABLE, PROVIDED THAT THE FINAL SHAPE, LINE, DEPTH, AND DIMENSION OF THE FEATURES ARE MAINTAINED IN THE FINAL RESULT.

DURING LOADING OF FORMS WITH CONCRETE, TAKE EXTRA CARE TO ENSURE PROPER CONSOLIDATION OF CONCRETE AROUND ALL RUSTICATION INSERTS TO PRESERVE THE SHAPE, LINE AND DEPTH OF ALL INTENDED FEATURES IN THE FINAL CONCRETE SURFACE. FOLLOWING REMOVAL OF FORMS, REPAIR ALL DEFECTS TO ACHIEVE THE RUSTICATION FEATURES AS SPECIFIED IN THE PLANS. PATCH VOIDS, HONEYCOMB AREAS, ETC., IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. IF SURFACES WILL NOT RECEIVE A COLORED SEALER COATING, ADD WHITE CEMENT TO THE PATCHING MORTAR TO LIGHTEN IT IN ORDER TO MATCH SURROUNDING CONCRETE WHEN DRY. COMPLETED SURFACE SHALL BE FREE FROM BLEMISHES, SURFACE VOIDS AND CONSPICUOUS FORM MARKS TO THE SATISFACTION OF THE ENGINEER. THE CONTRACTOR SHALL CORRECT ANY SURFACE DEFECTS AT NO ADDITIONAL COST TO THE PROJECT.

ALL COSTS ASSOCIATED WITH CONCRETE RUSTICATION ARE TO BE INCLUDED IN THE BID ITEM, "STRUCTURAL CONCRETE (MISCELLANEOUS)".

## WALL CONCRETE TEXTURE NOTES

THE EXPOSED RETAINING WALL SURFACE AS DESIGNATED IN THE PLANS SHALL HAVE A SURFACE TEXTURE. WORK PERFORMED TO CREATE THE SURFACE TEXTURE SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND THE FOLLOWING:

THE TEXTURED CONCRETE SURFACE SHALL BE FORMED USING A FORM LINING SYSTEM MADE OF HIGH-STRENGTH URETHANE ELASTOMER, PLASTIC, FLEXIBLE FOAM, OR OTHER SUITABLE MATERIALS CAPABLE OF WITHSTANDING ANTICIPATED CONCRETE POUR PRESSURES WITHOUT LEAKAGE OR CAUSING PHYSICAL DEFECTS. FORM LINERS SHALL ALLOW EASY REMOVAL FROM FORMED CONCRETE WITHOUT CAUSING CONCRETE SURFACE DAMAGE. IF RECOMMENDED BY THE FORM LINER MANUFACTURER, STRUCTURAL BACKERS SHALL BE USED TO PREVENT DEFORMATION OF THE LINER DURING LOADING OF THE FORMS. THE LINERS SHALL BE DESIGNED TO AVOID VISIBLE PATTERN REPEATS.

THE FORM LINER USED SHALL PRODUCE A TEXTURED EFFECT OF VERTICAL, FRACTURED-FACE RIBS ON APPROXIMATELY 2-INCH CENTERS. MAXIMUM TEXTURE DEPTH SHALL BE 1-1/2 INCHES, AND MINIMUM TEXTURE DEPTH SHALL BE 1-3/8 INCHES. THE CONTRACTOR SHALL SUBMIT MANUFACTURER'S CUT SHEETS FOR THE FORM LINER INTENDED FOR USE ON THE PROJECT TO THE ENGINEER FOR APPROVAL. FORM LINER APPROVAL MUST BE RECEIVED PRIOR TO PURCHASING FORM LINER MATERIALS OR BUILDING WALL FORMS. OBTAIN FORM LINER MATERIALS FROM ONE OF THE FOLLOWING MANUFACTURERS:

1. ARCHITECTURAL POLYMERS (PATTERN NO. 204)
2. FITZGERALD FORMLINERS (PATTERN NO. 16959)
3. GREENSTREAK (PATTERN NO. 367)
4. SCOTT SYSTEM, INC. (PATTERN NO. 129A)
5. CUSTOM ROCK INTERNATIONAL (PATTERN NO. 206)
6. SUBMIT ALL OTHER UNLISTED MANUFACTURERS AND PATTERNS INCLUDING A 1 FOOT BY 1 FOOT SAMPLE OF PROPOSED FORM LINER TO THE IOWA DEPARTMENT OF TRANSPORTATION, OFFICE OF BRIDGES AND STRUCTURES, AMES, IOWA. SAMPLE MAY BE EITHER ACTUAL FORM LINER MATERIALS OR FOAM CASTINGS. NO SAMPLES ARE REQUIRED TO BE SUBMITTED FOR MANUFACTURERS AND PATTERNS LISTED ABOVE.

DURING LOADING OF FORMS WITH CONCRETE, CARE SHOULD BE TAKEN TO ADEQUATELY VIBRATE CONCRETE IN ORDER TO MAINTAIN ALL INTENDED FEATURES OF THE FORM LINER IN THE FINAL SURFACE AND TO PREVENT VOIDS. FOLLOWING REMOVAL OF FORMS, FINISH MINOR DEFECTS TO BLEND WITH THE BALANCE OF THE SURFACE TEXTURE. THE COMPLETED SURFACE SHALL BE FREE OF BLEMISHES, DISCOLORATIONS, SURFACE VOIDS AND CONSPICUOUS FORM MARKS TO THE SATISFACTION OF THE ENGINEER. THE CONTRACTOR SHALL CORRECT ANY SURFACE DEFECTS AT NO EXTRA COST TO THE PROJECT.

RELEASE AGENTS USED SHALL BE VERIFIED TO BE COMPATIBLE WITH FORM LINER MATERIAL AND WITH THE CONCRETE MIX, AND SHALL BE NON-STAINING. RELEASE AGENT SHALL BE APPLIED IN ACCORDANCE WITH THE FORM LINER MANUFACTURER'S RECOMMENDATIONS.

STRIP FORMWORK USING TECHNIQUES IN ACCORDANCE WITH LINER MANUFACTURER'S RECOMMENDATIONS AFTER THE CONCRETE HAS ACHIEVED THE STRENGTHS AND CURE TIMES REQUIRED BY THE PLANS AND APPLICABLE SPECIFICATIONS AND AFTER THE CONCRETE HAS SUFFICIENT STRENGTH TO AVOID SURFACE DAMAGE. CLEAN AND REPAIR FORM LINER SURFACES PRIOR TO RE-USE. SPLIT, FRAYED, DELAMINATED OR OTHERWISE DAMAGED FORM LINERS SHALL NOT BE USED.

ALL COSTS ASSOCIATED WITH CONCRETE TEXTURING AND FORM LINERS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM, "STRUCTURAL CONCRETE (MISCELLANEOUS)".

DESIGN FOR

# 200'-0 × VARIABLE HEIGHT REINFORCED CONC. RETAINING WALL

BEGIN STATION 40864+75.00
END STATION 40866+75.00

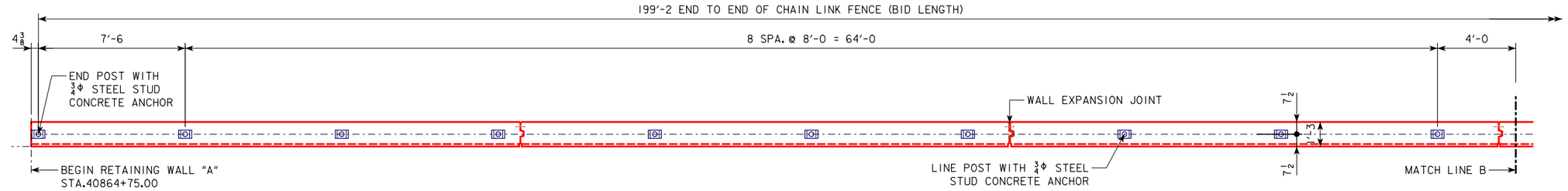
NOVEMBER 2018

## RUSTICATION AND TEXTURED CONCRETE NOTES

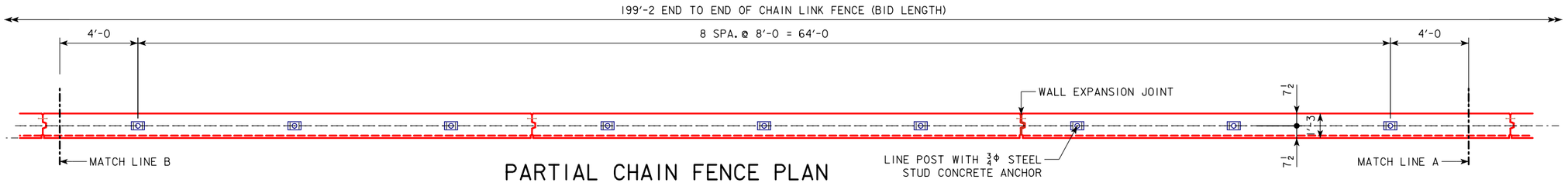
LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

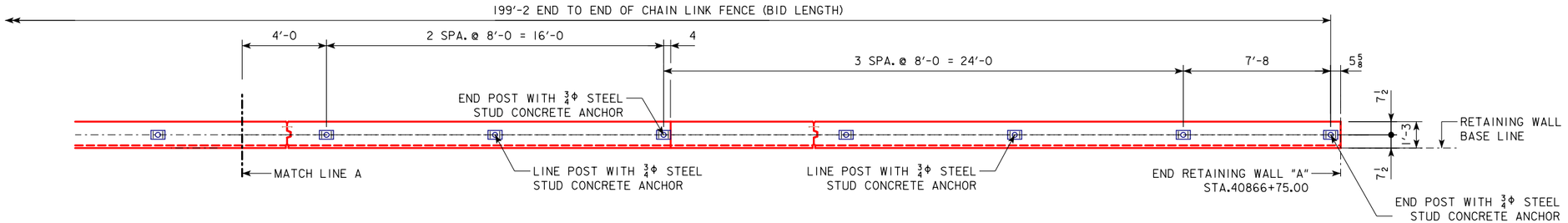
DESIGN SHEET NO. 17 OF 19 FILE NO. 31286 DESIGN NO. 918




## PARTIAL CHAIN FENCE PLAN




## PARTIAL CHAIN FENCE PLAN




## PARTIAL CHAIN FENCE PLAN

N

### STEEL CHAIN LINK FENCE NOTES:

THE CHAIN LINK FENCE IS TO BE BID ON A LINEAR FOOT BASIS MEASURED FROM ℄ TO ℄ OF END POSTS. THE PRICE BID FOR "FENCE, CHAIN LINK, VINYL COATED" SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, INCLUDING CONCRETE ANCHORS AND SHIMS, AND ALL OF THE EQUIPMENT AND LABOR REQUIRED TO ERECT THE FENCE IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS.

THE STUD CONCRETE ANCHORS SHALL BE GALVANIZED AND HAVE A MINIMUM PULLOUT STRENGTH OF 8000 POUNDS BASED ON 4000 PSI CONCRETE.

THE MATERIAL FOR POSTS, BRACES AND RAILS SHALL BE STEEL PIPE IN ACCORDANCE WITH ARTICLE 4154.10, A, OF THE STANDARDS SPECIFICATIONS. BASE PLATES AND SHIMS SHALL MEET THE REQUIREMENTS OF ASTM A36. POSTS AND BASE PLATES SHALL BE GALVANIZED, AFTER FABRICATION, IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A123. SPECIAL FITTINGS SHALL BE IN ACCORDANCE WITH ARTICLE 4154.11, OF THE STANDARD SPECIFICATIONS, UNLESS OTHERWISE NOTED.

THE FENCE SHALL BE TRUE TO LINE, TAUT, AND COMPLY WITH THE BEST PRACTICE FOR FENCE CONSTRUCTION OF THIS TYPE. ALL ENDS OF WIRES SHALL BE TURNED SO THAT THEY EXTEND AWAY FROM THE FILL SIDE OF THE FENCE.

CHAIN LINK FABRIC, RAILS, AND FENCE ACCESSORIES ARE TO BE PVC COATED IN ACCORDANCE WITH ASTM F 668, CLASS 2B. COLOR SHALL BE BLACK IN ACCORDANCE WITH ASTM F 934. THE COST OF PVC COATING IS TO BE INCLUDED IN THE PRICE BID FOR "FENCE, CHAIN LINK, VINYL COATED".

AFTER GALVANIZING, THE FENCE POST AND BASE PLATE ASSEMBLIES SHALL BE CLEANED AND PREPARED FOR POWDER COATING IN ACCORDANCE WITH ASTM D 6386, THEN POWDER COATED BY AN APPROVED POWDER COATING SHOP MEETING THE REQUIREMENTS LISTED IN IOWA DOT MATERIALS I.M. 568. PREPARATION FOR POWDER COATING SHALL INCLUDE ZINC PHOSPHATE PRETREATMENT AND PREHEATING OF RAILING COMPONENTS. PREHEATING TEMPERATURE SHALL NOT EXCEED 400° F. POWDER COATING MATERIALS SHALL BE COMPATIBLE WITH THE GALVANIZED COATING. POWDER COATING SHALL INCLUDE THE USE OF DEGASSING GRADE POLYESTER POWDER AND AN ANTI-BLISTERING AGENT. MINIMUM COATING COVERAGE SHALL BE 3 MILS WHEN MEASURED IN ACCORDANCE WITH ASTM D 2967. SUBMIT PROPOSED PREPARATION METHODS AND PRODUCT DATA FOR ALL COATINGS PROPOSED FOR USE TO THE IOWA DOT, OFFICE OF MATERIALS, FOR REVIEW AND APPROVAL PRIOR TO POWDER COATING. COLOR SHALL MATCH FEDERAL STANDARD 595C COLOR NUMBER 27038, SEMI-GLOSS BLACK. PROTECT ALL POWDER COATED RAILING SURFACES FROM DAMAGE DURING SHIPPING, HANDLING, AND INSTALLATION. FOLLOWING FENCE INSTALLATION, REPAIR ANY DAMAGE TO THE POWDER COATED FINISH IN ACCORDANCE WITH THE COATING MANUFACTURER'S RECOMMENDATIONS. ALL COSTS ASSOCIATED WITH POWDER COATING SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM, "CHAIN LINK FENCE, VINYL COATED".

IF AVAILABLE, VINYL COATED FENCE POST ASSEMBLIES MAY BE SUBSTITUTED FOR POWDER COATED COMPONENTS PROVIDED THE MATERIAL IS IN COMPLIANCE WITH ALL OTHER REQUIREMENTS LISTED IN THESE PLANS AND THE STANDARD SPECIFICATIONS. PVC COATING SHALL COMPLY WITH ASTM F 668, CLASS 2B AND SHALL BE BLACK IN ACCORDANCE WITH ASTM F 934. THE COST OF PVC COATED FENCE POST ASSEMBLIES SHALL BE INCLUDED IN THE PRICE BID FOR "FENCE, CHAIN LINK, VINYL COATED".

### QUANTITIES

| ITEM | UNITS | AMOUNT |
|---|---|---|
| FENCE, CHAIN LINK, VINYL COATED | LIN. FT. | 199.2 |
| | | |

NOTE:
FOR FENCE DETAILS SEE DESIGN SHEET 15.

DESIGN FOR

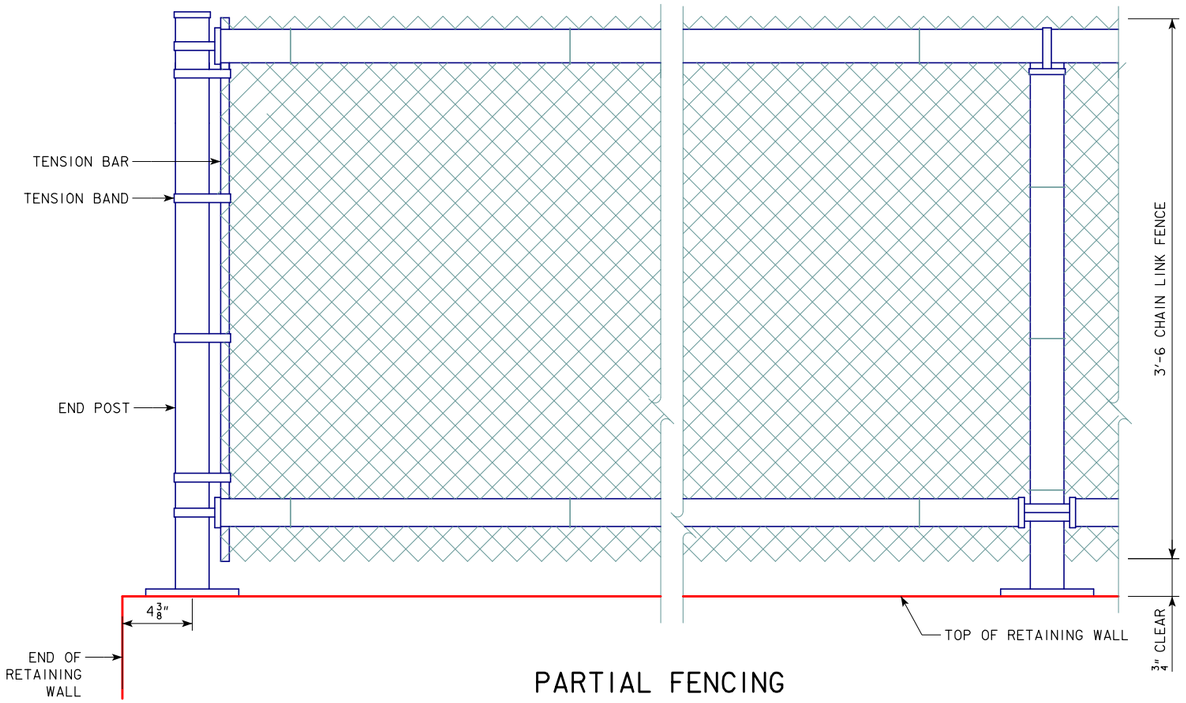
# 200'-0 × VARIABLE HEIGHT REINFORCED CONC. RETAINING WALL

BEGIN STATION 40864+75.00
END STATION 40866+75.00
NOVEMBER 2018

## CHAIN FENCE PLAN
## LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 18 OF 19 FILE NO. 31286 DESIGN NO. 918

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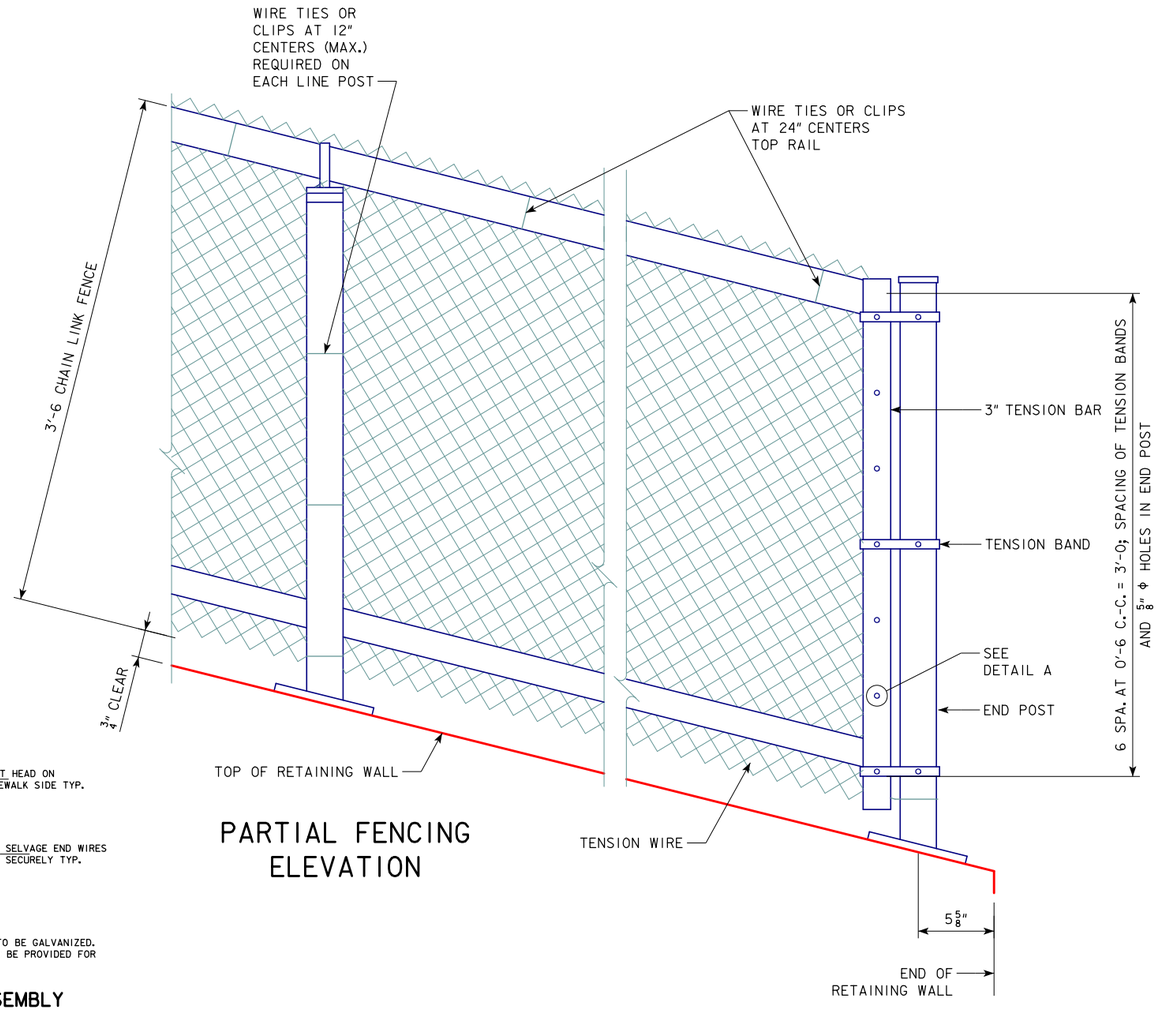


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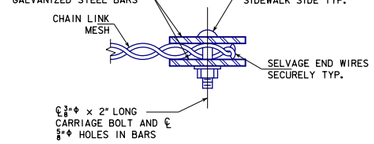
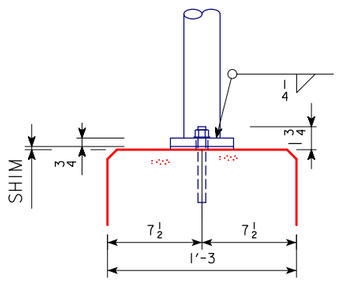
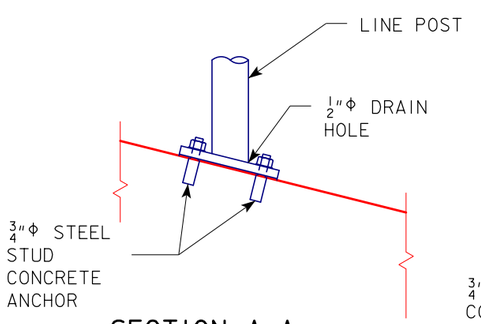



NOTE: CARRIAGE BOLTS, NUTS AND WASHERS ARE TO BE GALVANIZED. ONE LOCKNUT AND ONE STANDARD WASHER ARE TO BE PROVIDED FOR EACH BOLT.

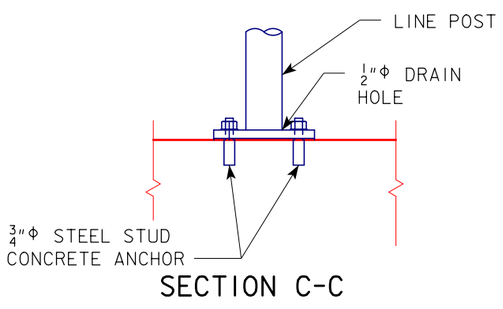
## DETAIL 'A' TENSION BAR ASSEMBLY



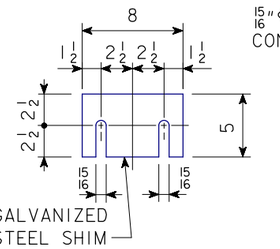

## SECTION B-B



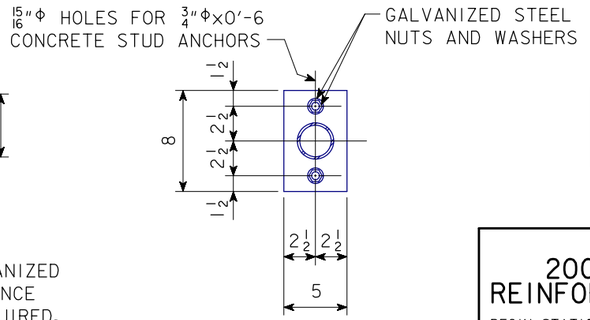

## SECTION A-A




## SECTION C-C




NOTE: PROVIDE 2-1/16" GALVANIZED STEEL SHIMS FOR EACH FENCE POST, TO BE USED AS REQUIRED.




## BASE PLATE DETAILS FOR END POST AND LINE POSTS

NOTE : POSTS AND BASE PLATES SHALL BE GALVANIZED, AFTER FABRICATION, IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A123.

NOTE: USE NO ADDITIONAL BRACE RAILS OR DIAGONAL TENSION RODS IN FENCE CONSTRUCTION.

DESIGN FOR

# 200'-0 x VARIABLE HEIGHT REINFORCED CONC. RETAINING WALL

BEGIN STATION 40864+75.00 NOVEMBER 2018
END STATION 40866+75.00

# CHAIN FENCE DETAILS LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 19 OF 19 FILE NO. 31286 DESIGN NO. 918



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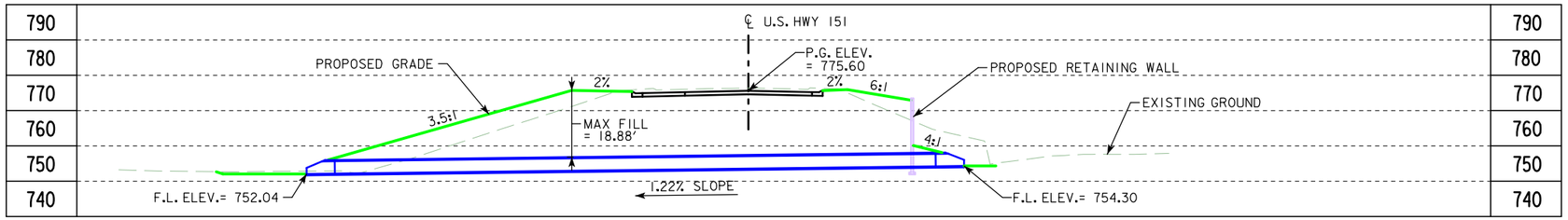
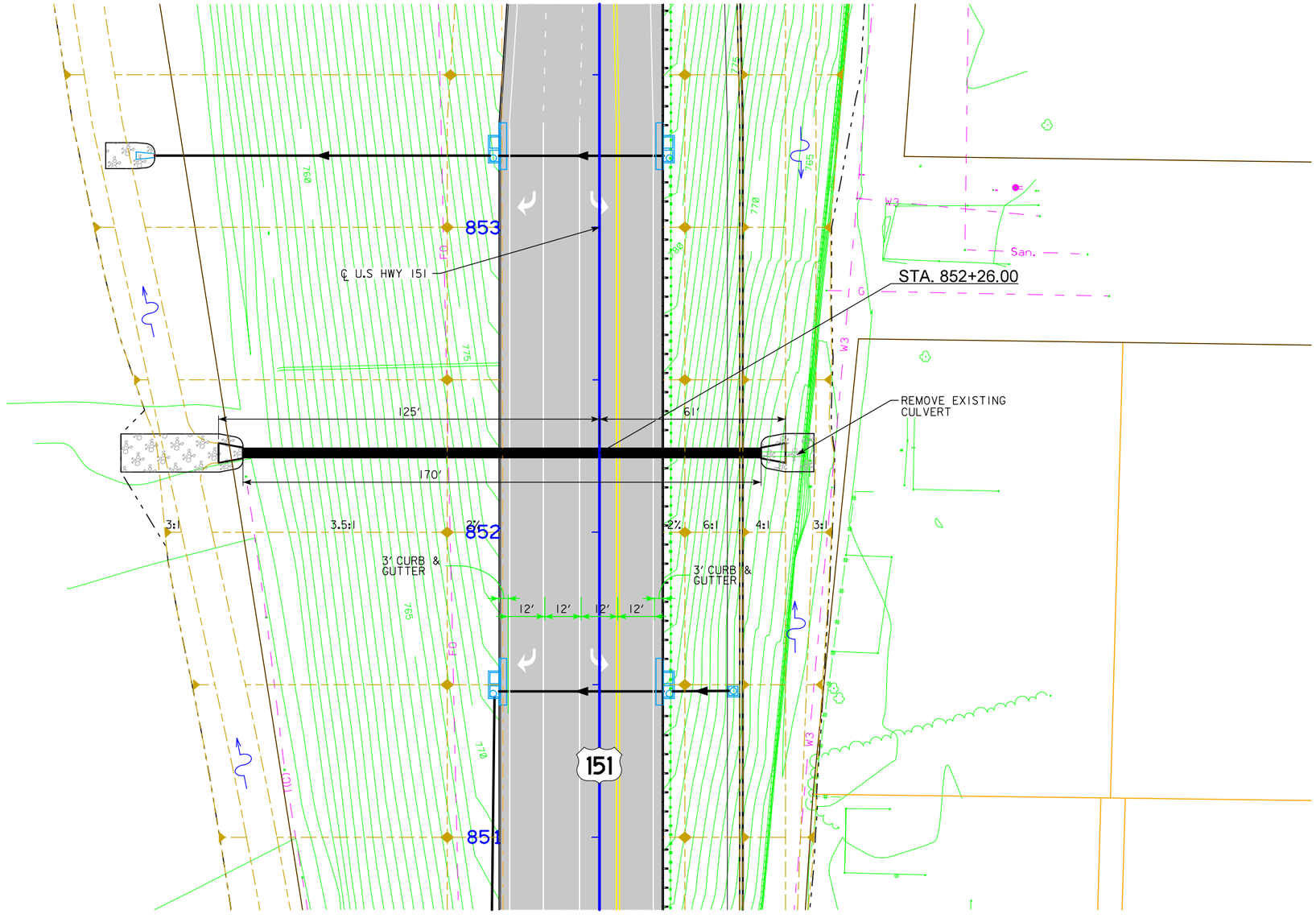



LONGITUDINAL SECTION ALONG ℄ CULVERT




PLAT PLAN




0 ENGLISH 40
SCALE IN FEET

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

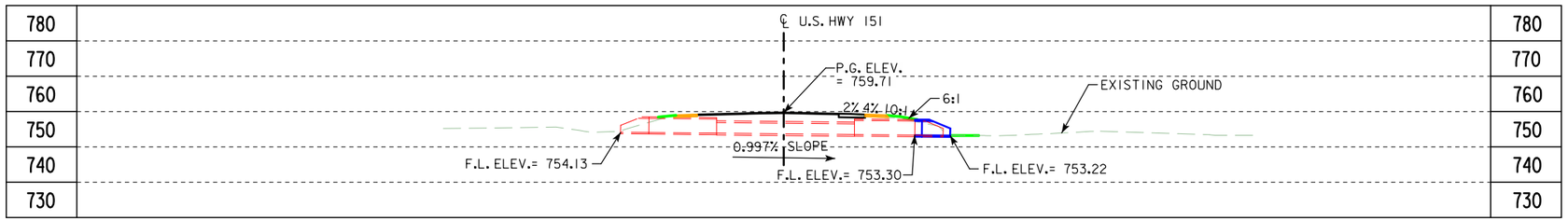
## PLAT PLAN

STA. 852+26.00 ℄ U.S. HWY. 151 NOVEMBER 2018

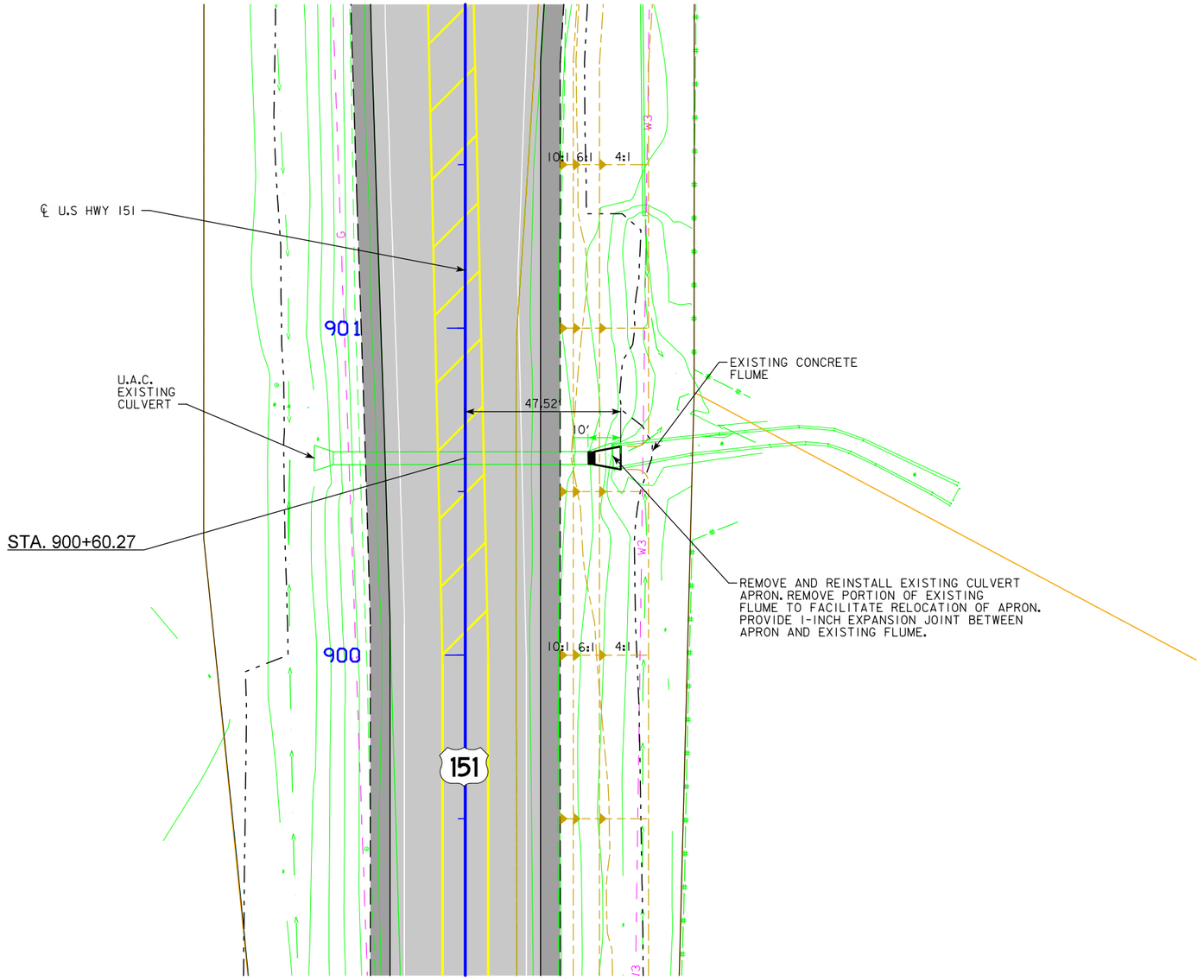
## LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

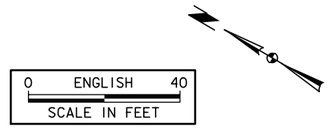
DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____




## 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 EXTENSION PLAT PLAN

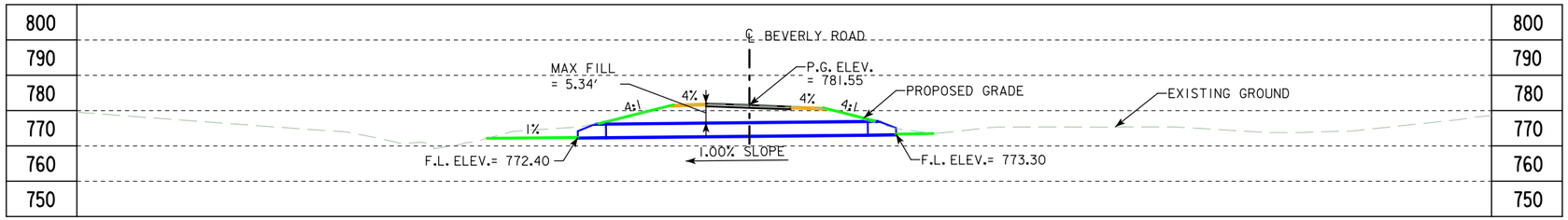
STA. 900+60.27 ℄ U.S. HWY. 151 NOVEMBER 2018

LINN COUNTY

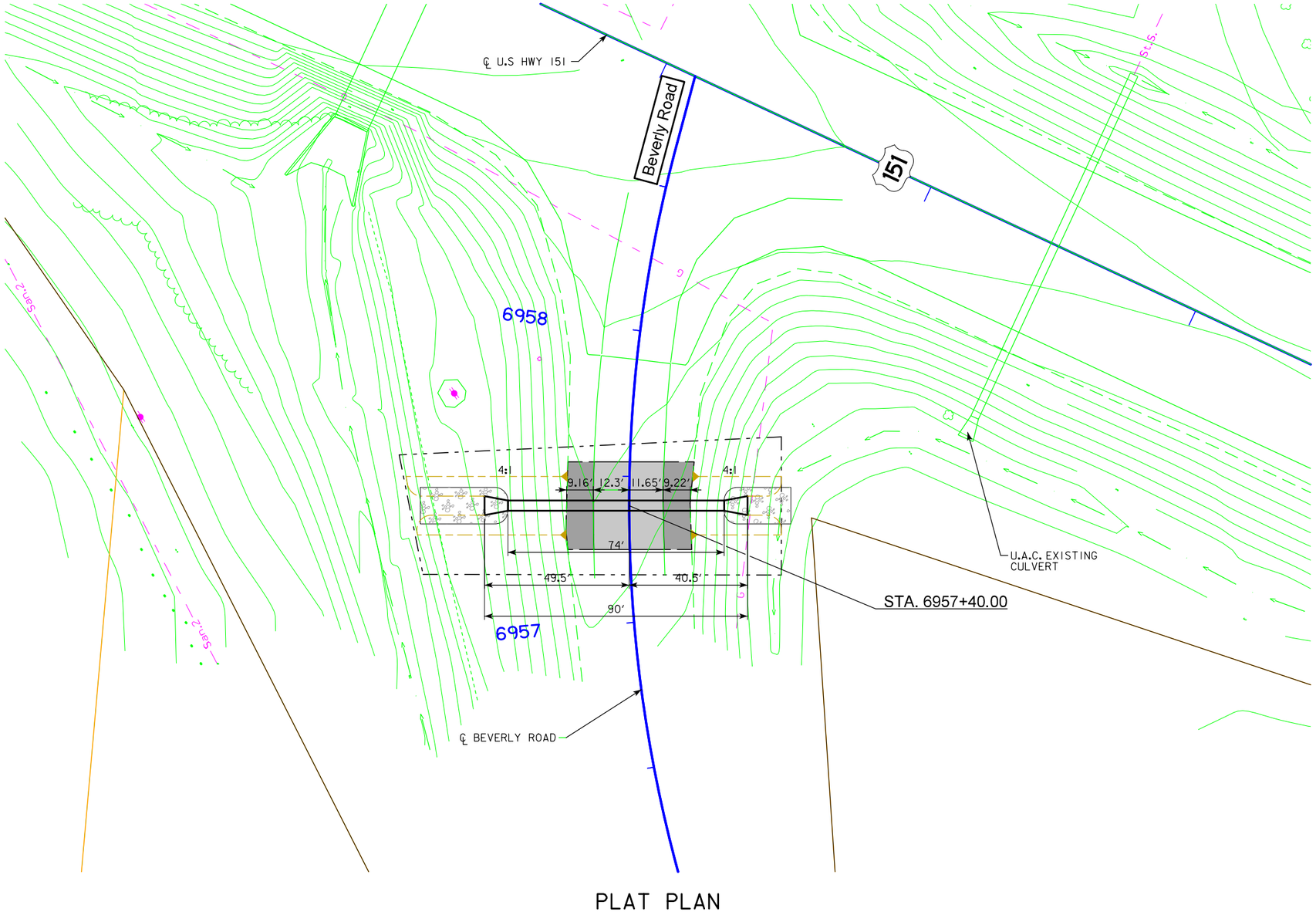
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____

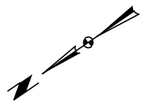
| DESIGN TEAM | SNYDER AND ASSOCIATES, INC. | LINN | COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER V.21 |
|---|---|---|---|---|---|




LONGITUDINAL SECTION ALONG ℄ CULVERT




PLAT PLAN




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.22 |
|---|---|---|---|---|

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## LINE STYLE LEGEND OF CROSS SECTION SHEETS (ROAD)

- Existing Ground Line
- Proposed Template
- Proposed Topsoil Placement
- Additional Topsoil Removal
- Subgrade 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

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

Ex Tele
Ex FO
Ex ROW
Ex Tele
Ex Storm
766.34
13.00
766.73
18.44
Ex Water
Ex ROW
844+91.50
Prop. Type "C"
Ent. Rt.
Ex Gas
845+00.00

Ex Tele
Ex FO
Ex ROW
Ex Tele
Ex Storm
766.56
13.00
766.96
18.25
4.516%
Ex Water
Ex ROW
Prop. Type "C"
Ent. Rt.
Ex Gas
844+91.50

Ex Tele
Ex FO
Ex ROW
Ex Tele
Ex Storm
767.66
13.00
768.07
17.34
Ex Water
768.89
25.02
Ex ROW
Ex Gas
844+50.00

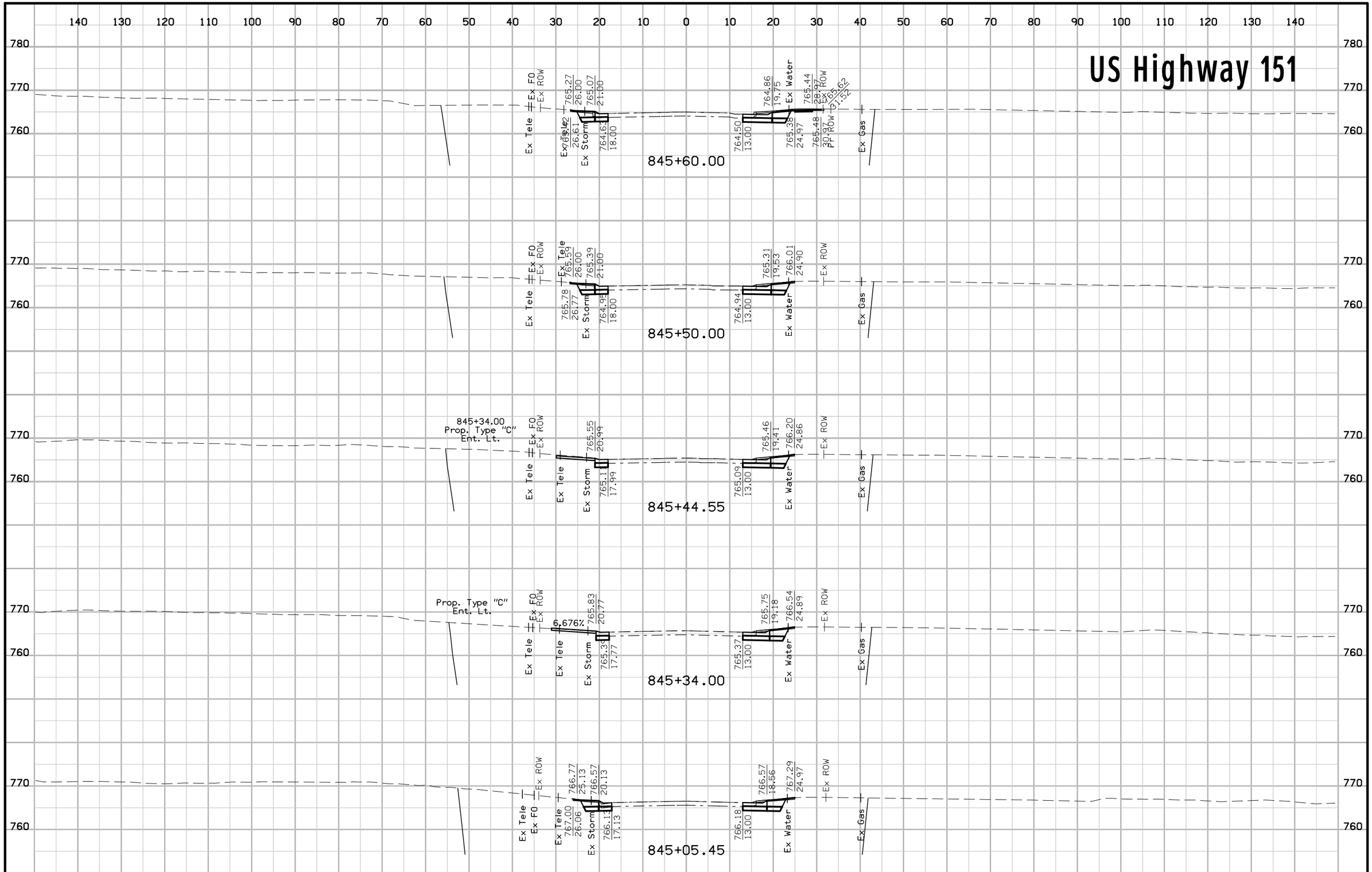
Ex Tele
Ex FO
Ex ROW
Ex Tele
Ex Storm
769.05
13.00
769.49
16.25
Ex Water
770.05
25.15
Ex ROW
Ex Gas
844+00.00

Ex Tele
Ex FO
Ex ROW
Ex Tele
Ex Storm
769.37
13.00
769.81
16.00
Ex Water
770.34
25.19
Ex ROW
Ex Gas
843+88.58

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

10:16:59 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151




| 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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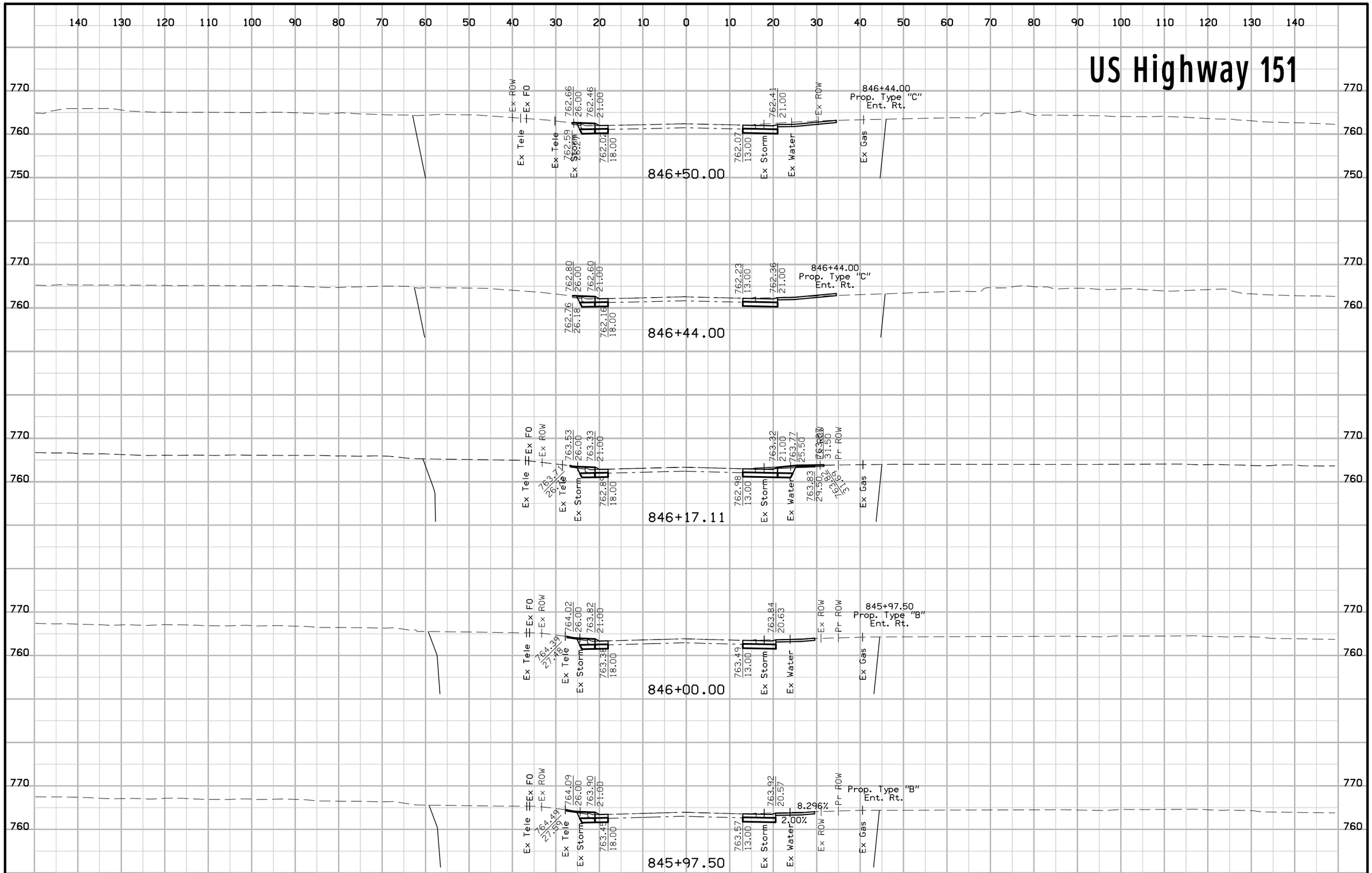
# US Highway 151




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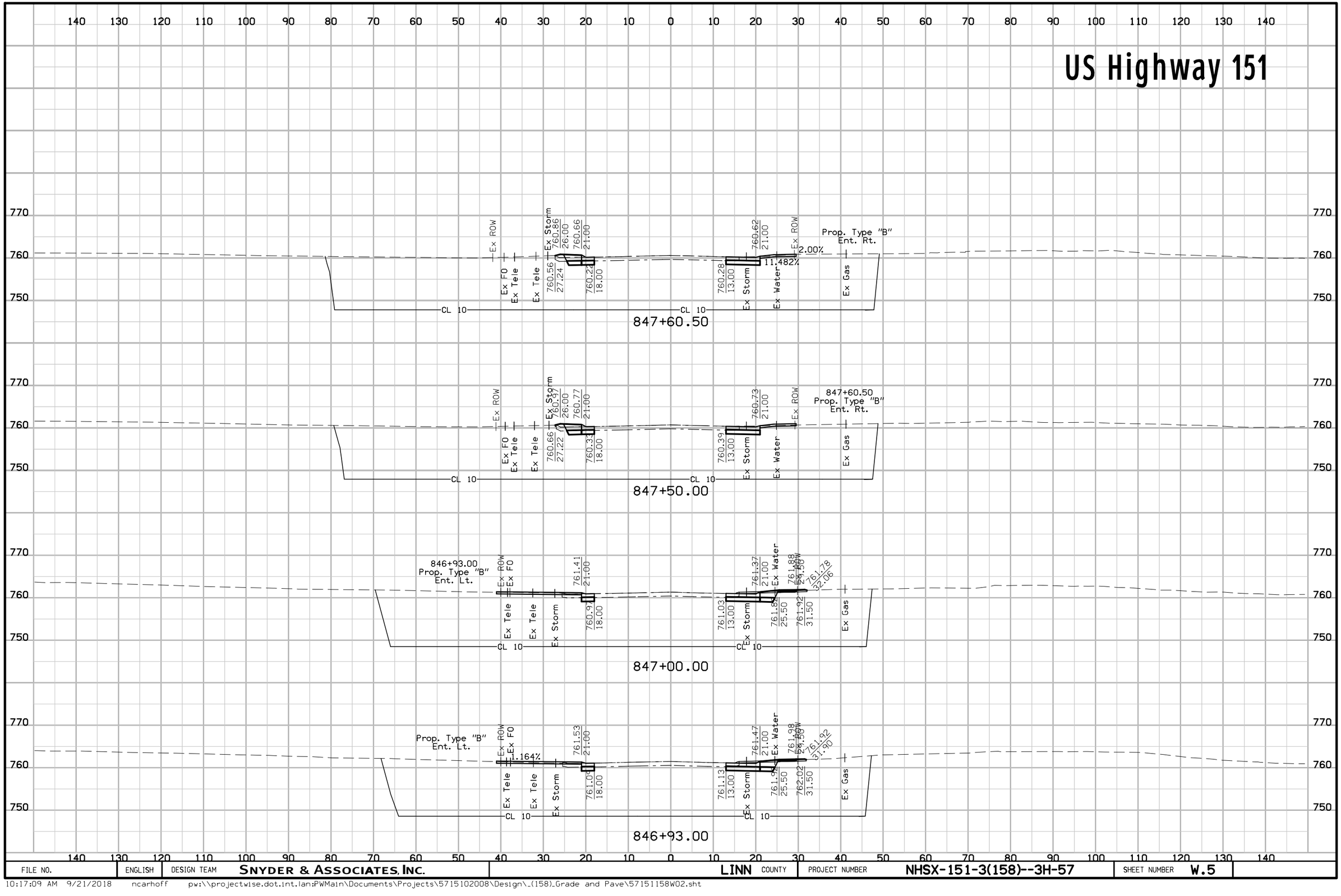
# US Highway 151




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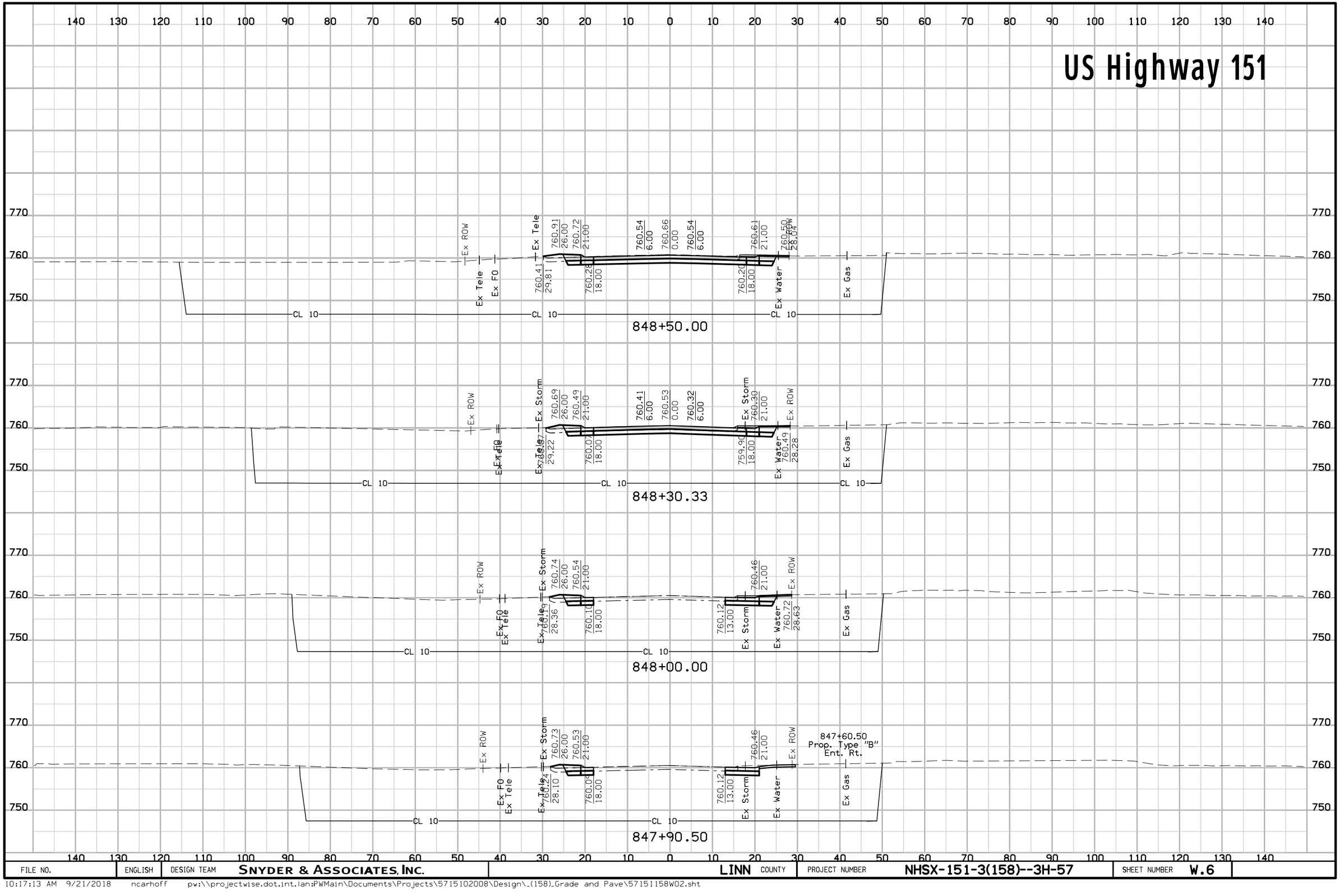
# US Highway 151




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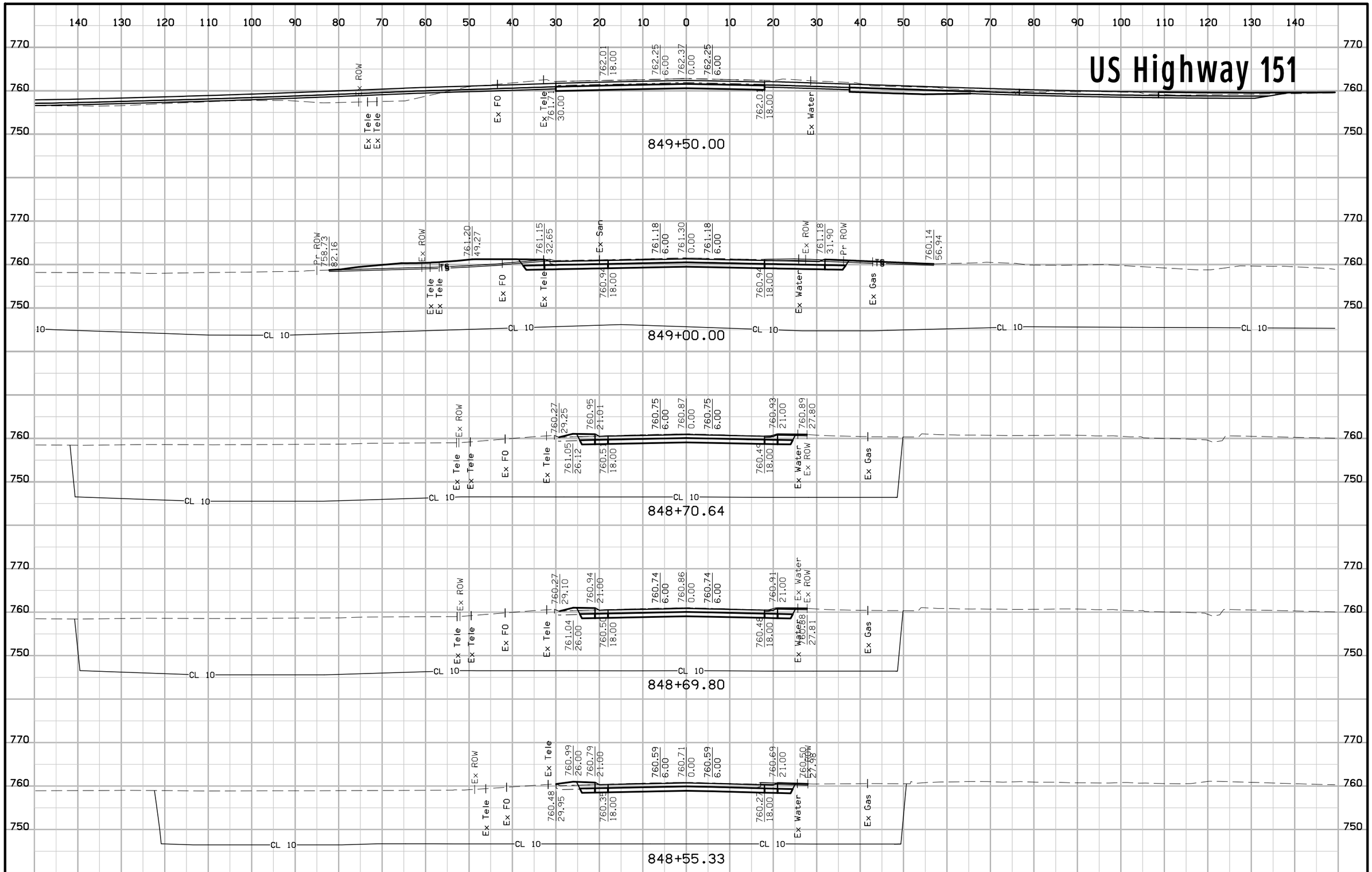
# US Highway 151




| 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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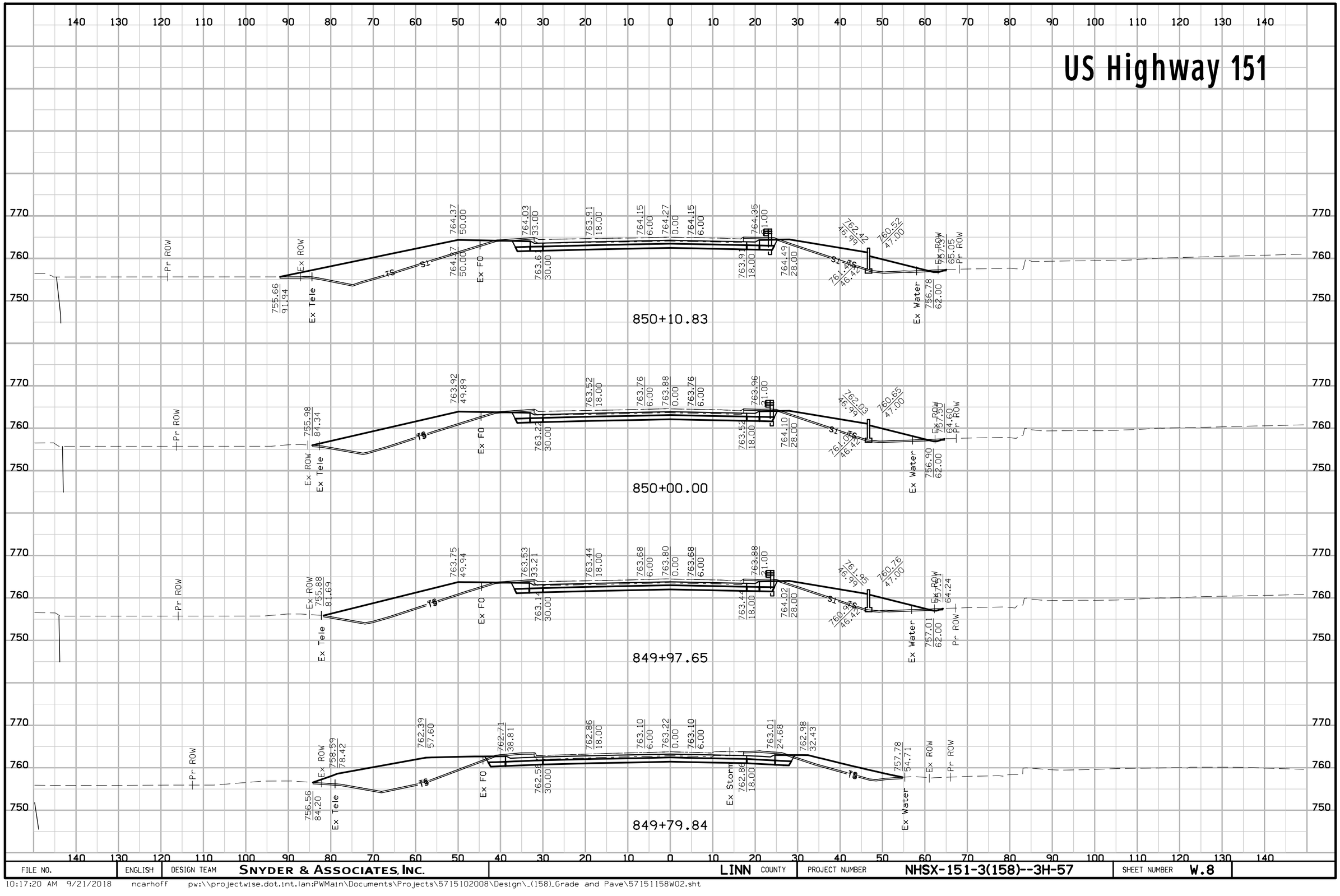
10:17:16 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151




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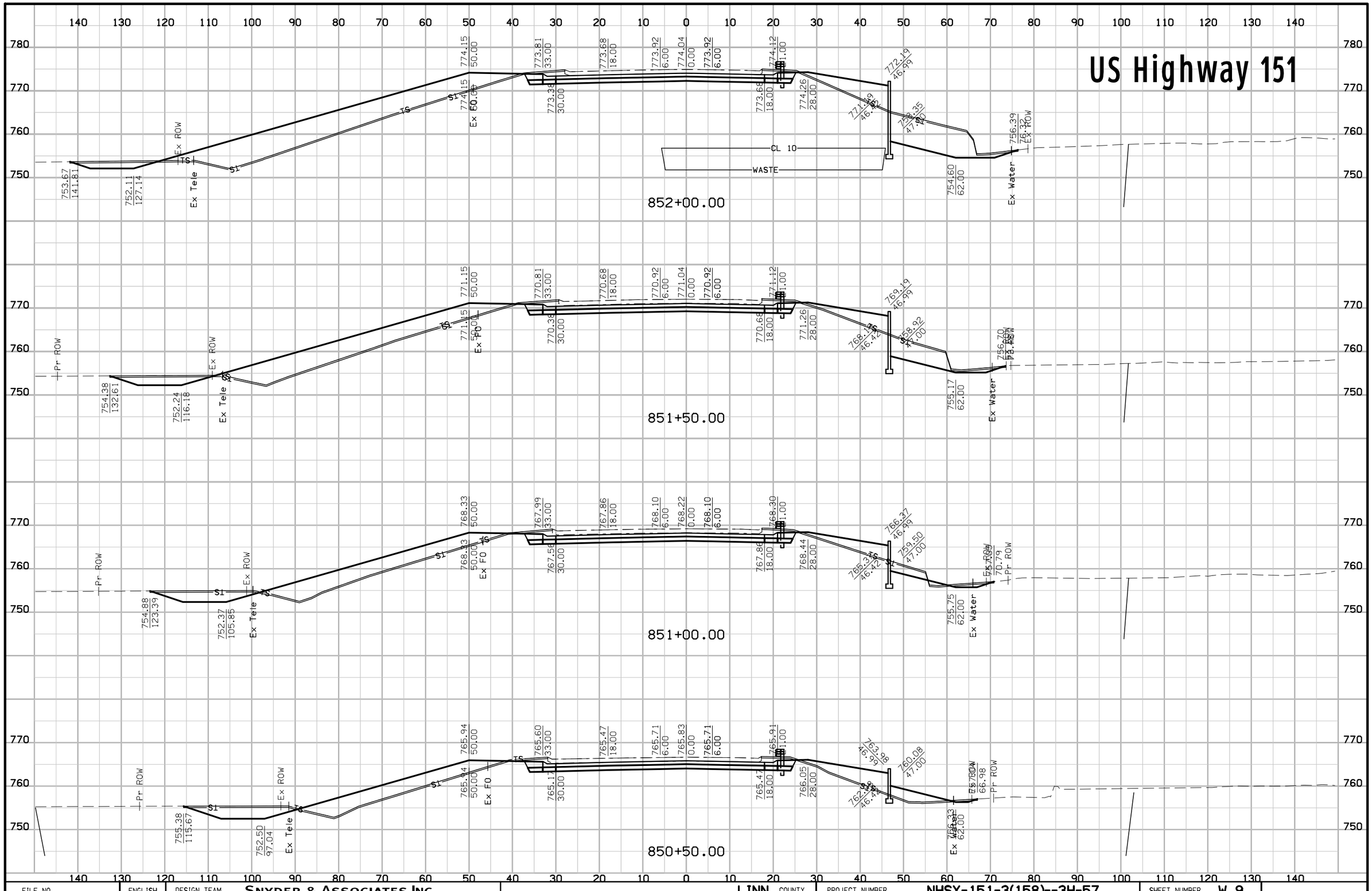
# US Highway 151




| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | W.9 |
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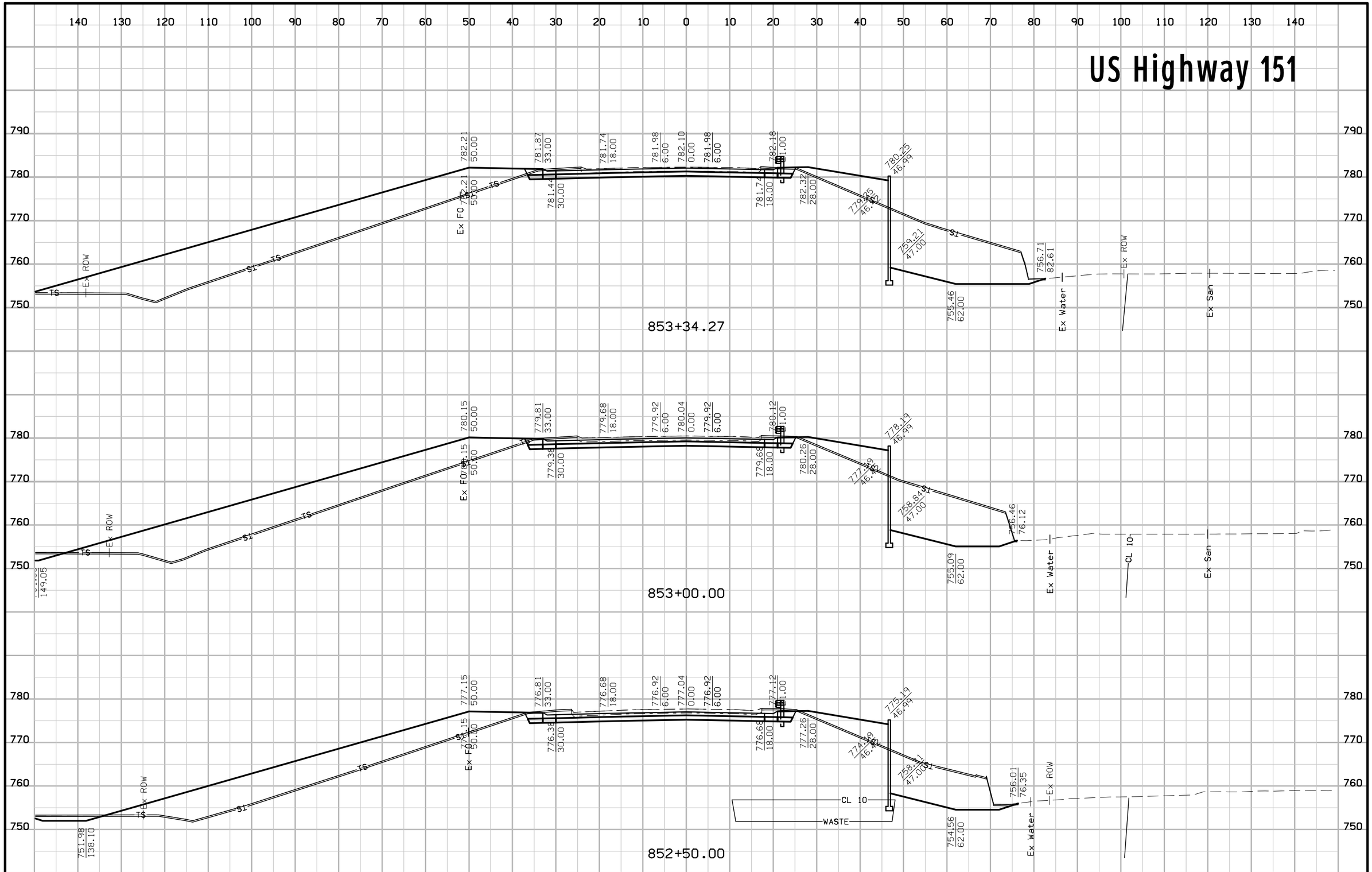
10:17:23 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151




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

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

788.66 42.28 | 788.32 25.28 | 788.00 18.00 | 788.24 6.00 | 788.36 0.00 | 788.24 6.00 | 788.44 1.00 | 786.94 44.42

788.45 43.64 | 787.89 22.28 | 788.00 18.00 | 788.58 28.00 | 785.94 43.42

761.09 44.43 | 757.27 91.40 | 756.70 62.00

S1 TS S1 TS S1 S1 S1

Ex FO | Ex ROW | Ex Water | Ex San

CL 10 CL 10 CL 10 CL 10

854+50.00

786.11 45.62 | 785.77 28.62 | 785.54 18.00 | 785.78 6.00 | 785.90 0.00 | 785.78 6.00 | 785.98 1.00 | 784.29 45.53

786.11 45.62 | 785.38 25.62 | 785.54 18.00 | 786.12 28.00 | 783.79 44.53

760.28 45.54 | 757.00 88.36 | 756.16 62.00

TS S1 TS S1 S1 S1 S1

Ex FO | Ex ROW | Ex Water | Ex San

CL 10 CL 10 CL 10 CL 10

854+00.00

783.18 48.95 | 782.84 31.95 | 782.68 18.00 | 782.92 6.00 | 783.04 0.00 | 782.92 6.00 | 783.12 1.00 | 781.25 46.64

783.18 48.95 | 782.45 28.95 | 782.68 18.00 | 783.26 28.00 | 780.25 46.53

759.46 46.65 | 756.88 85.76 | 755.63 62.00

TS S1 TS S1 S1 S1 S1

Ex FO | Ex ROW | Ex Water | Ex San

853+50.00

| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER W.11 |
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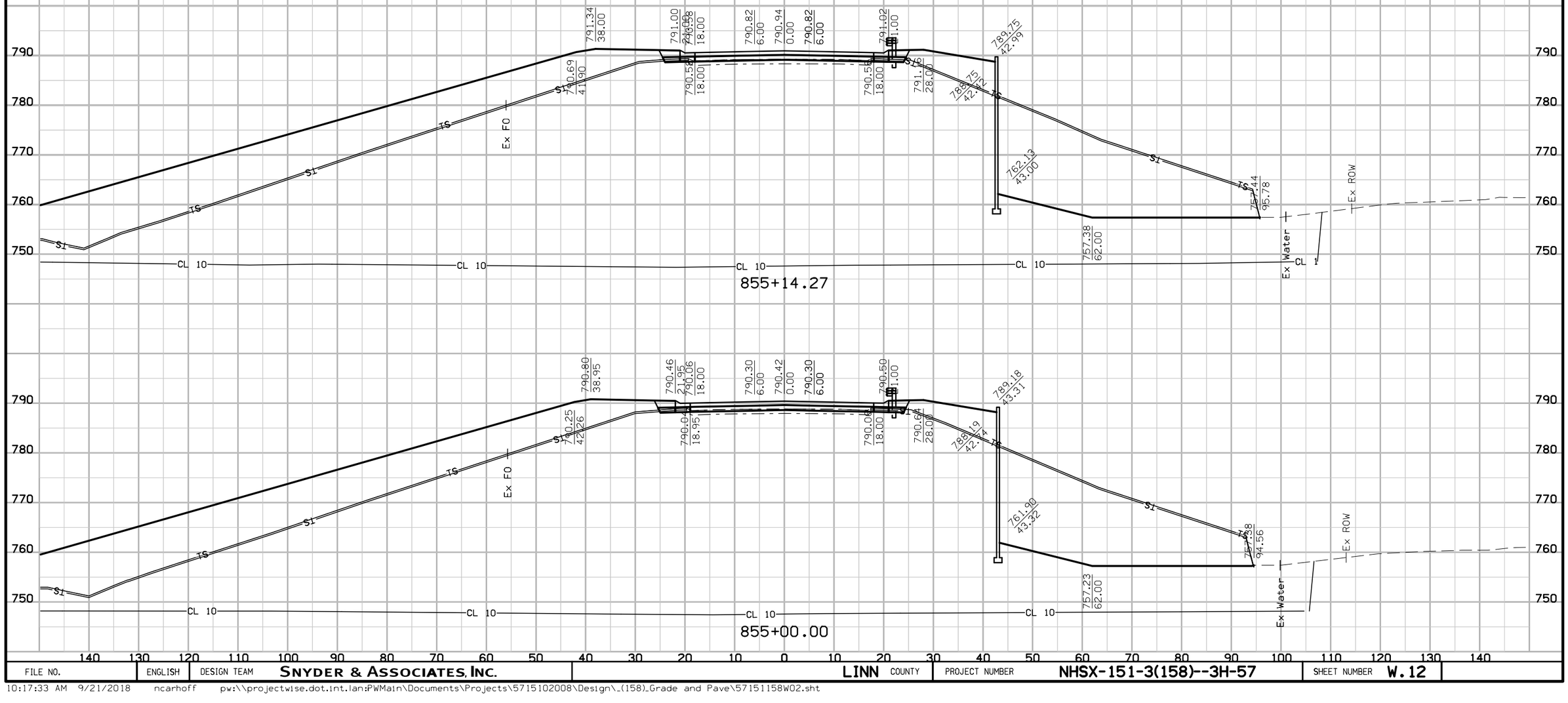
10:17:30 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151




| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER W.12 |
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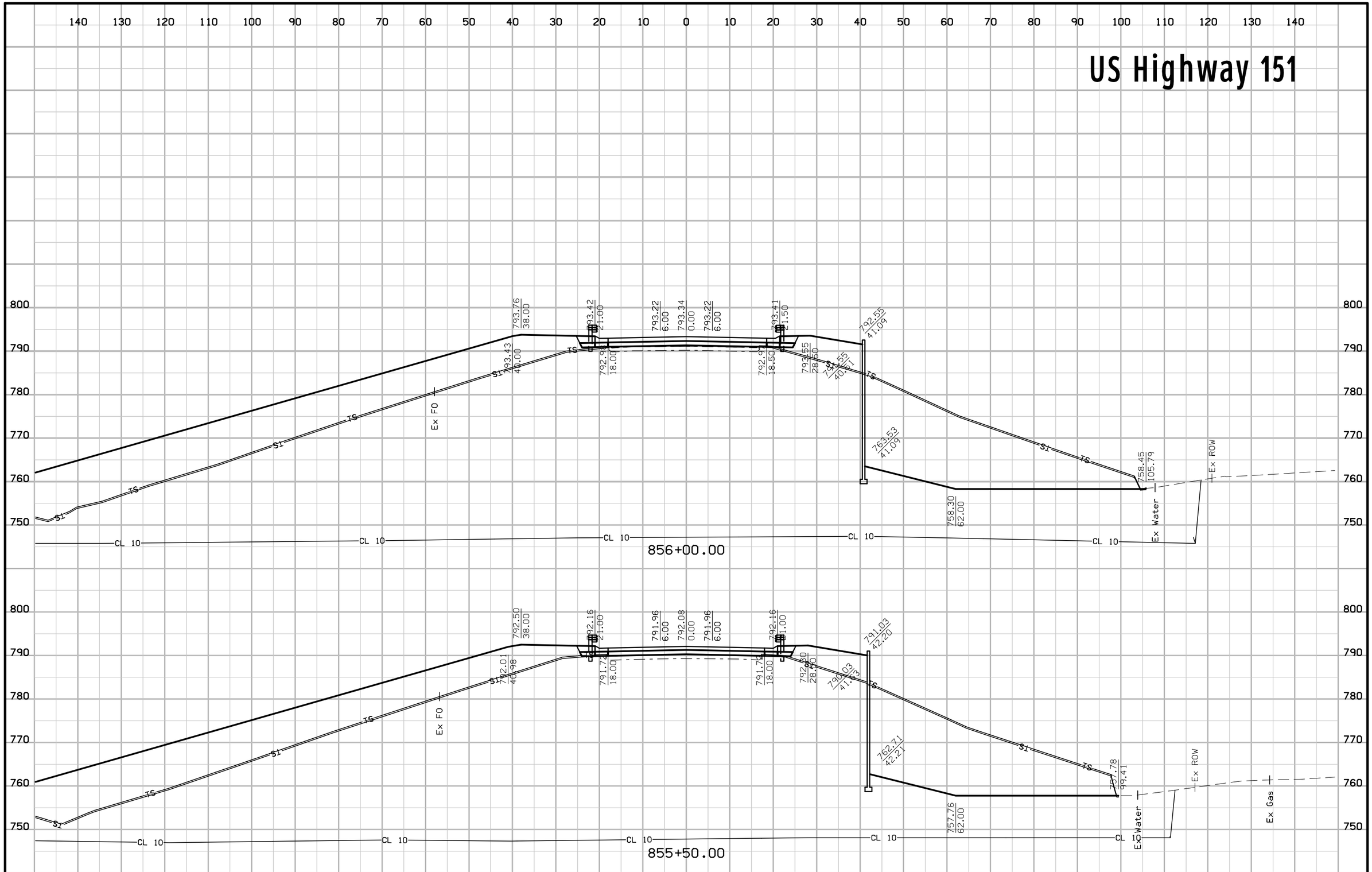
10:17:33 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151




| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | W.13 |
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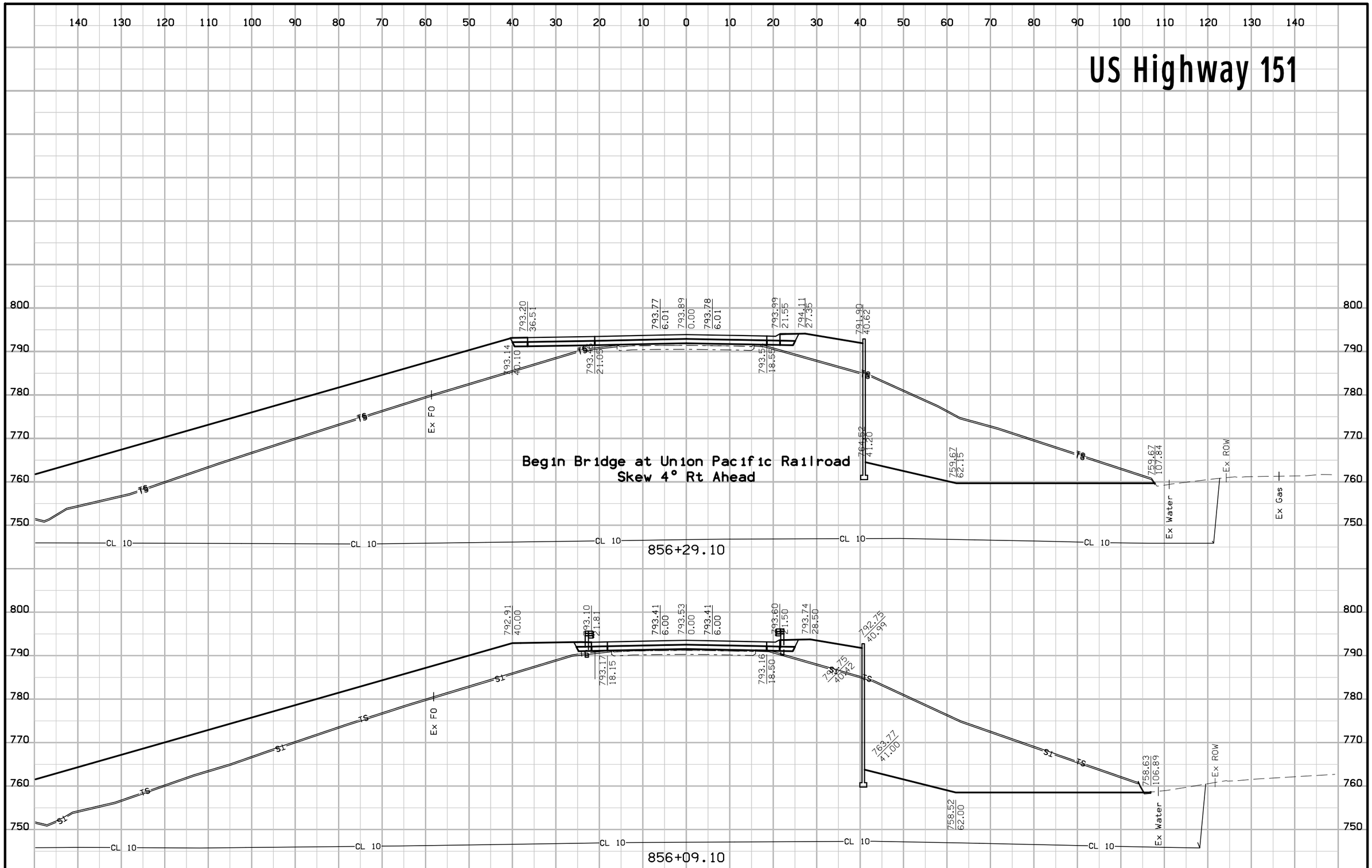
10:17:36 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151




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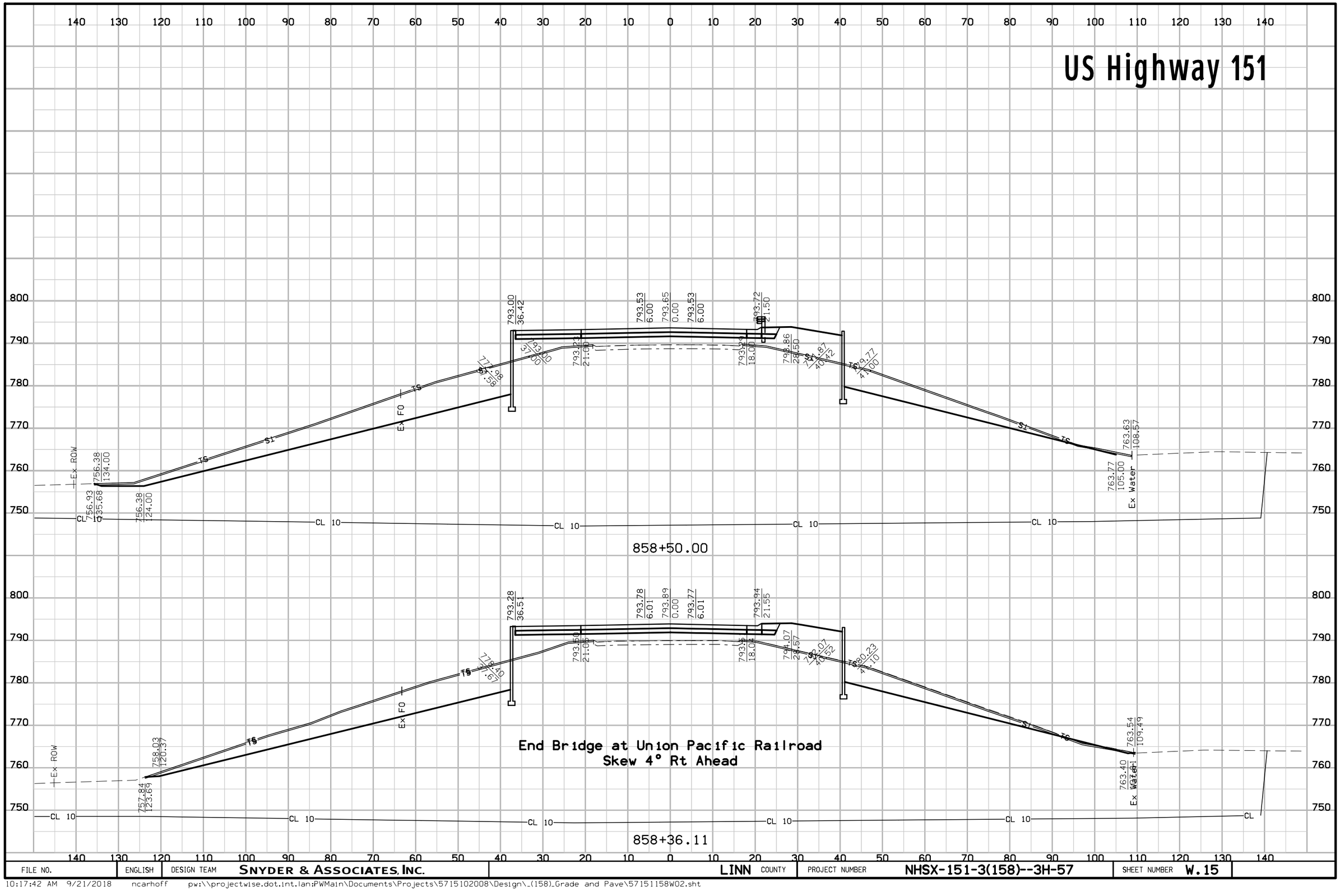
# US Highway 151




| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | W.15 |
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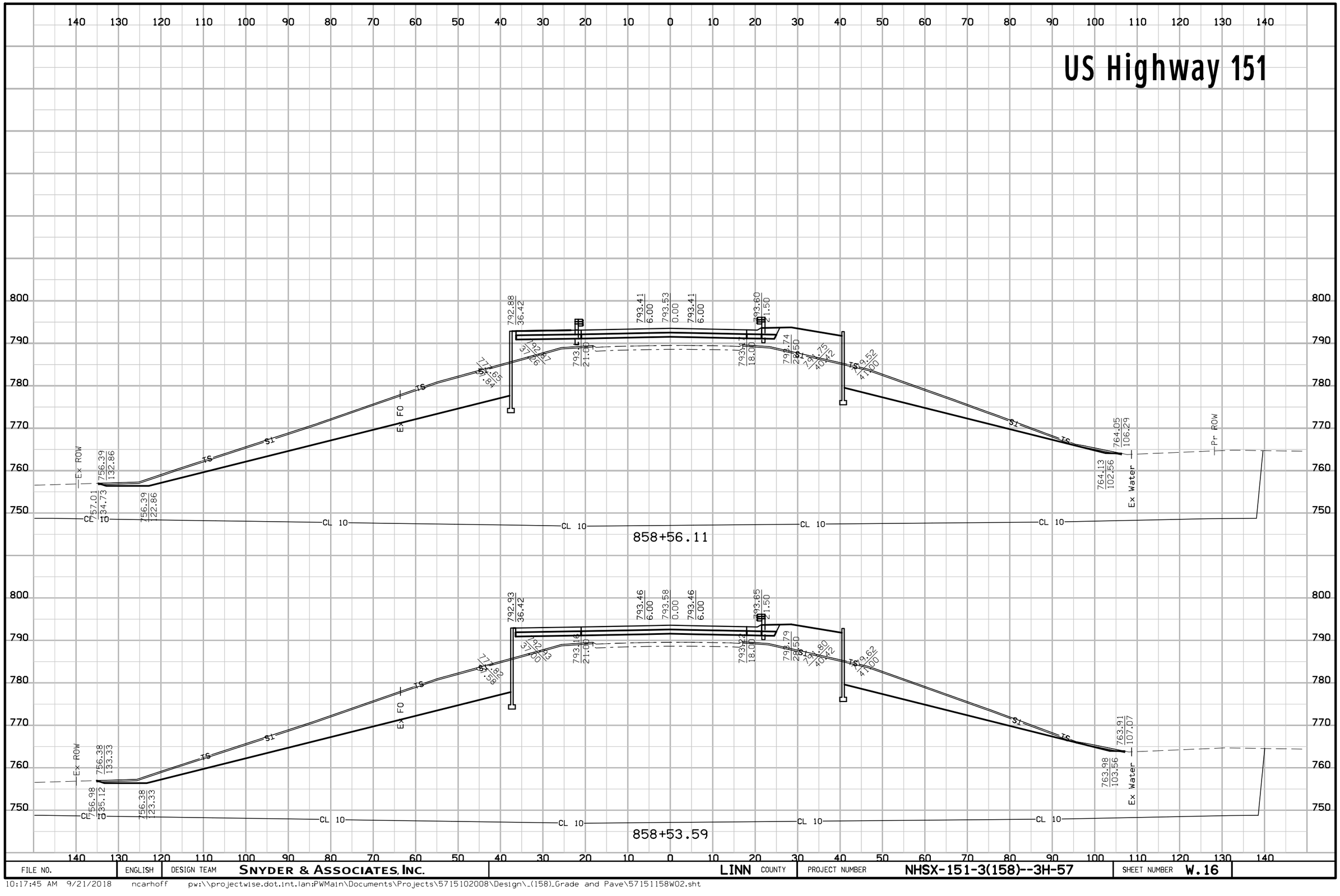
10:17:42 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151




| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER W.16 |
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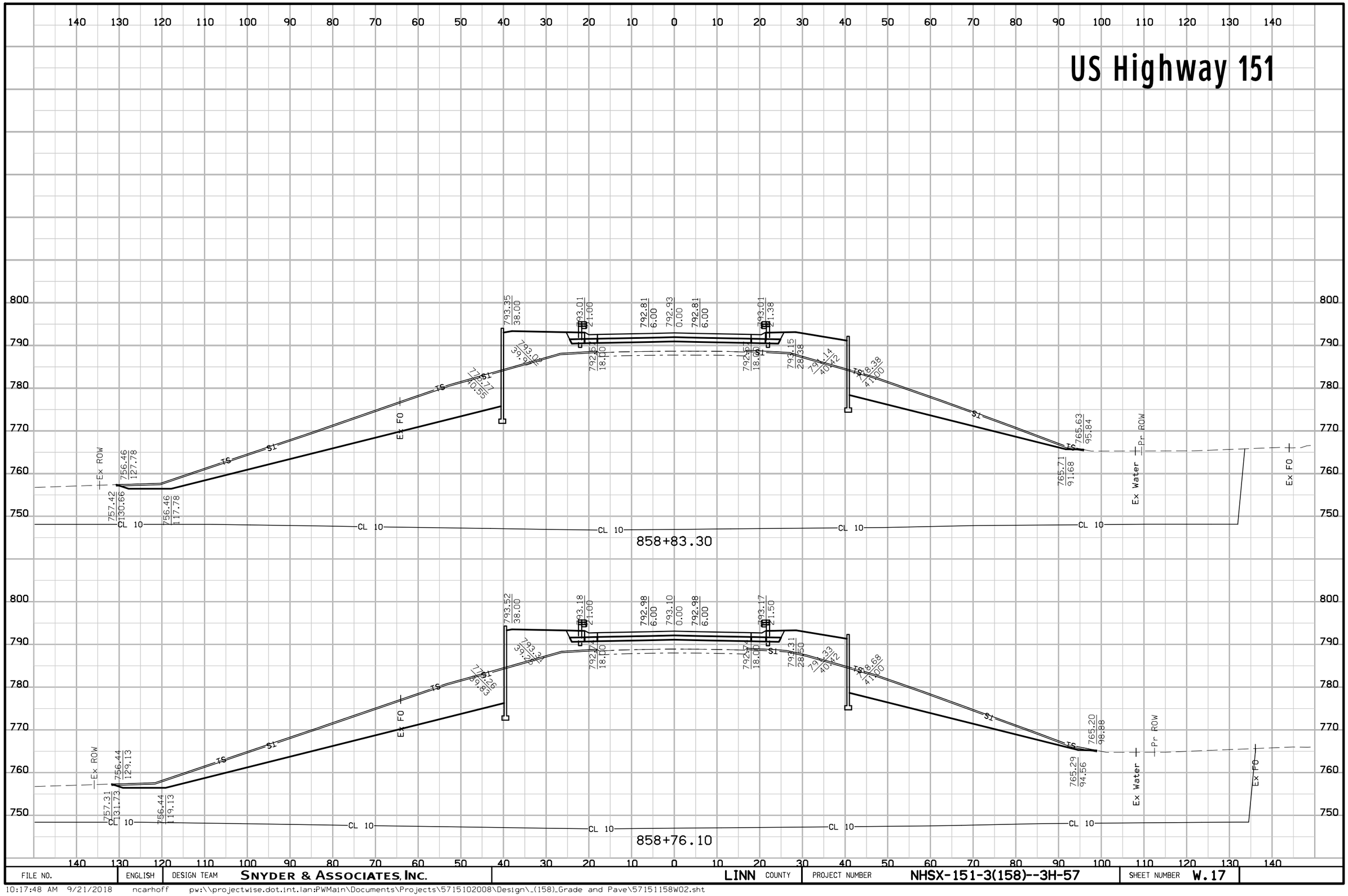
10:17:45 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151




| 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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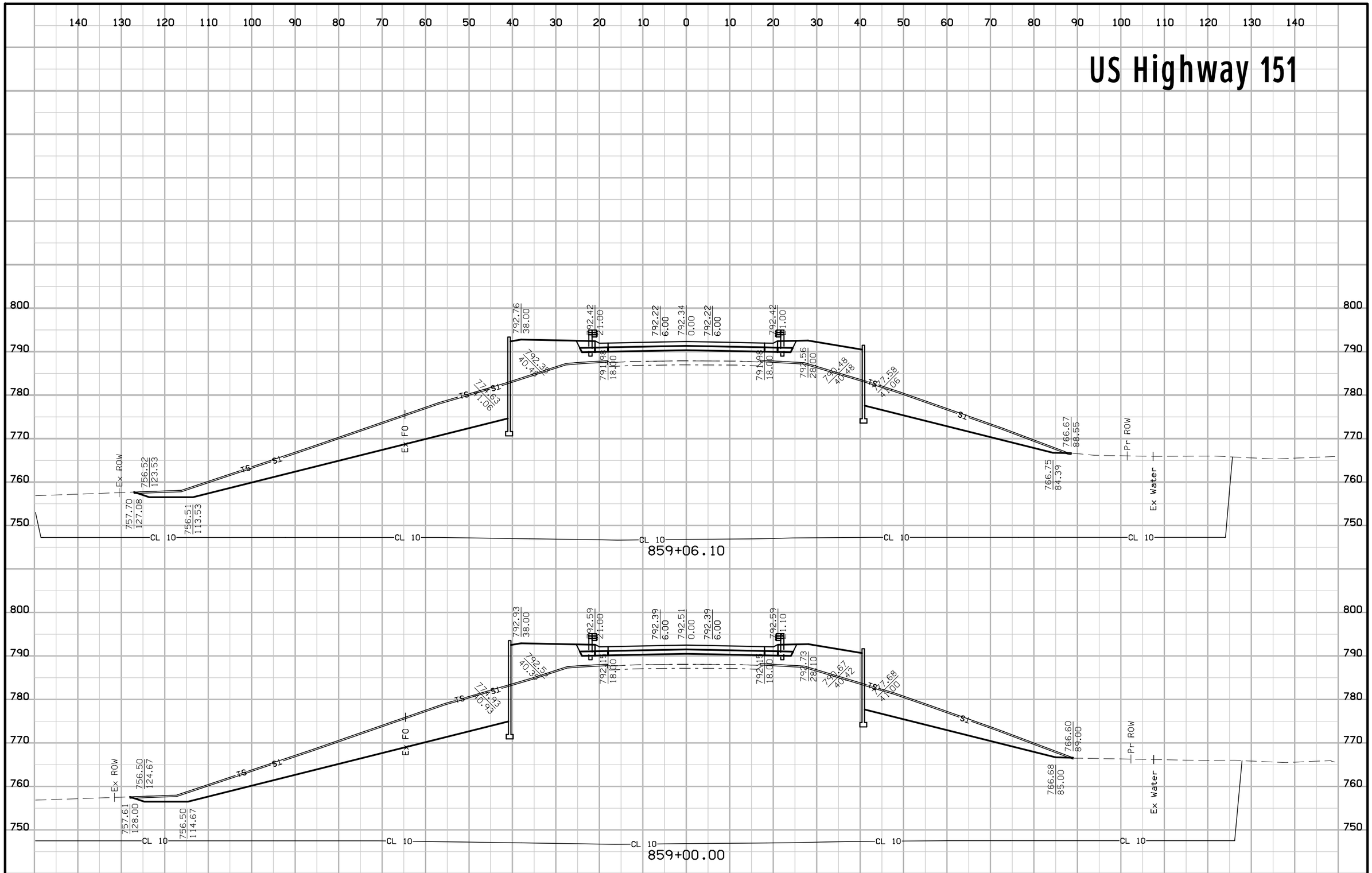
10:17:48 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151




| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | W.18 |
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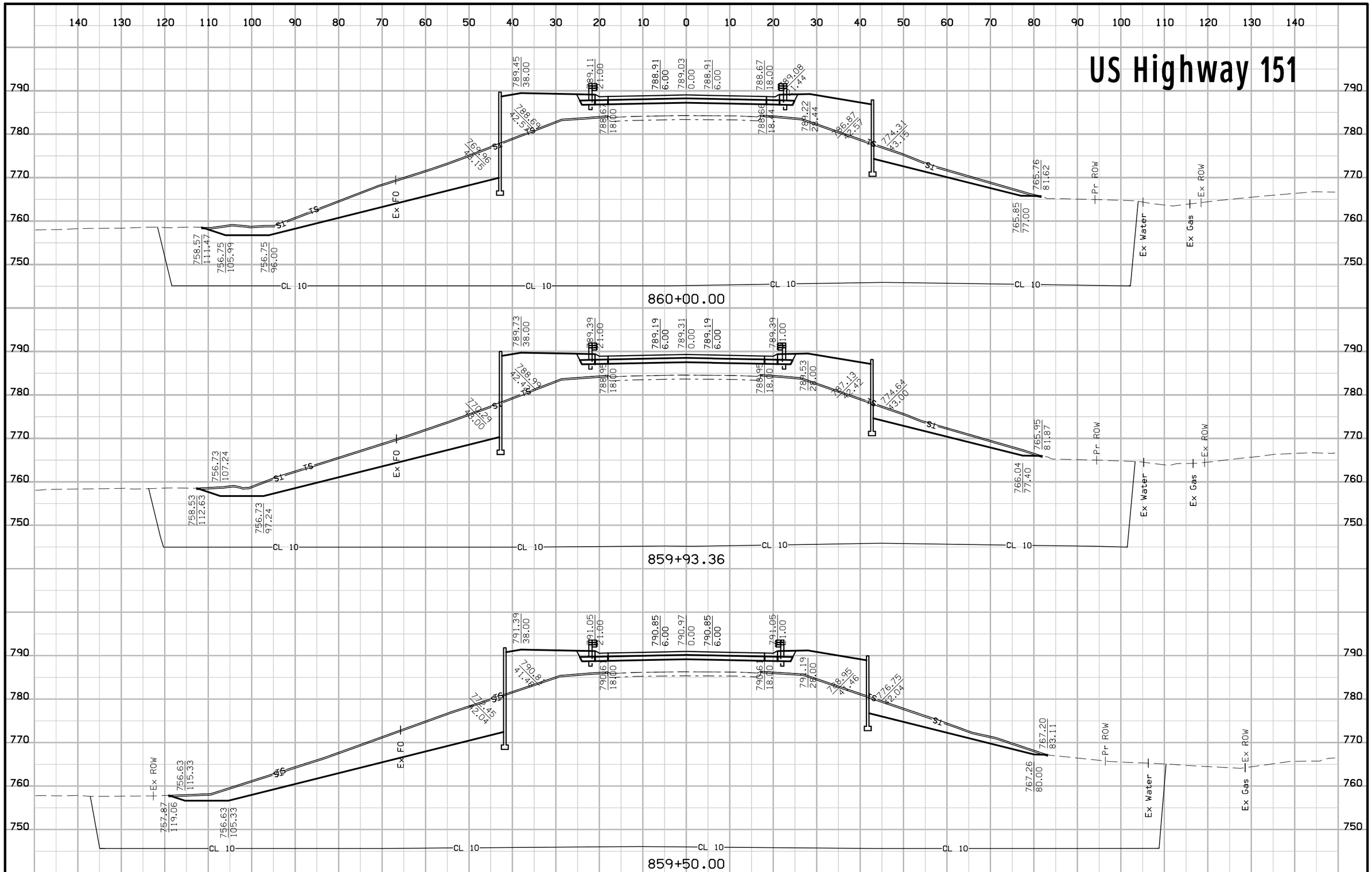
10:17:51 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151




| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | W.19 |
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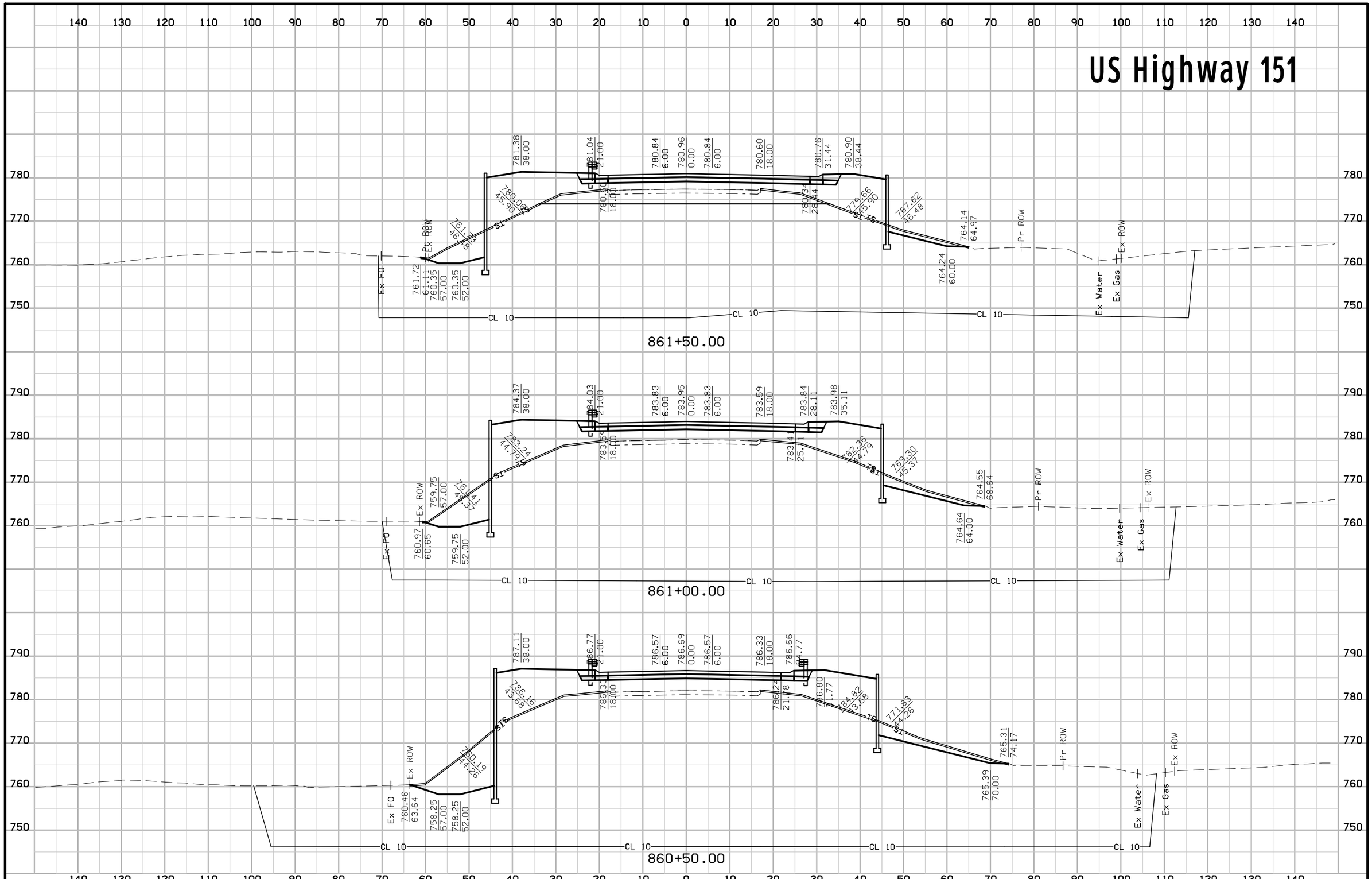
10:17:54 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151




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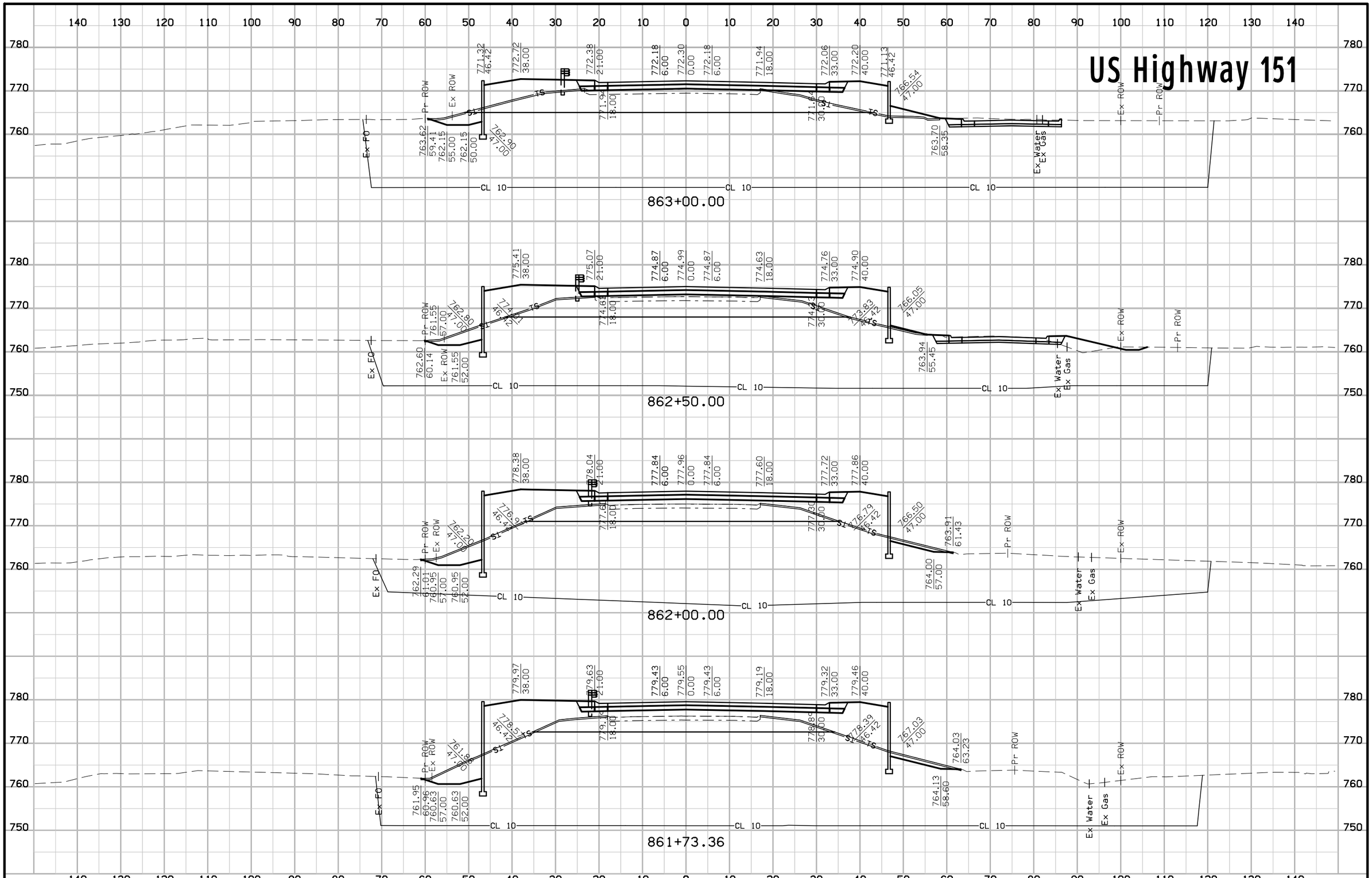
# US Highway 151




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

# US Highway 151

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

Prop. Type "C" Paved Ent. Lt.
5.390%
2.00%
0.50%
15.0%
Prop. Type "C" Granular Ent. Lt.
Pr ROW
Ex ROW
Ex FO
Ex Gas
Ex Gas
766.66 21.46
766.95 6.61
767.09 0.00
766.95 6.61
766.73 18.00
766.43 30.00
Ex Gas
Ex Water

864+19.80

864+19.80
Prop. Type "C" Paved Ent. Lt.
Pr ROW
Ex ROW
Ex FO
767.40 21.18
767.70 6.41
767.83 0.00
767.70 6.41
767.47 18.00
767.17 30.00
Ex Water

864+00.00

Pr ROW
Ex ROW
Ex FO
764.90 54.75
767.40 46.00
768.74 38.00
768.40 21.00
767.96 18.08
768.19 6.28
768.32 0.00
768.19 6.28
767.96 18.00
767.66 30.00
767.08 42.43
766.74 49.13
765.08 57.54
Ex Water
Ex ROW
Pr ROW

863+87.58

Pr ROW
Ex ROW
Ex FO
764.40 60.80
768.63 46.00
769.96 38.00
769.62 21.00
769.18 18.00
769.42 6.00
769.54 0.00
769.42 6.00
769.18 18.00
768.88 30.00
769.31 33.00
769.45 40.00
768.45 46.00
763.70 58.53
Ex Water
Ex ROW
Pr ROW

863+58.36

Pr ROW
Ex ROW
Ex FO
764.25 62.63
769.00 46.00
770.33 38.00
769.99 21.00
769.55 18.00
769.79 6.00
769.91 0.00
769.79 6.00
769.55 18.00
769.25 30.00
769.68 33.00
769.82 40.00
766.58 47.00
763.70 58.50
Ex Water
Ex ROW
Pr ROW

863+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.22 |
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10:18:04 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151

865+00.00

864+74.60

864+64.12

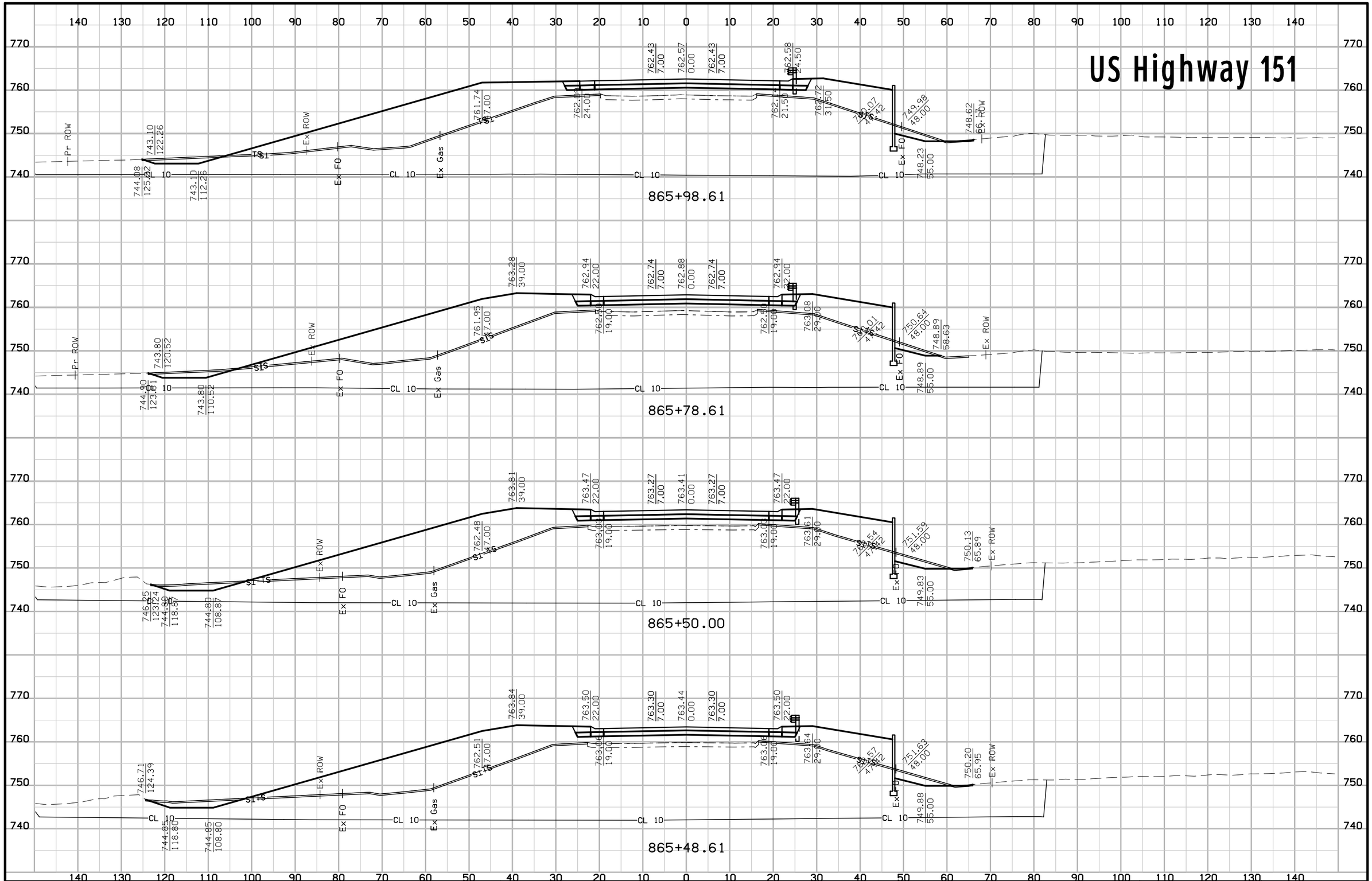
864+19.80
Prop. Type "C"
Paved Ent. Lt.

864+50.00

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

10:18:07 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151




| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | W.24 |
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10:18:11 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151

868+50.00

End Bridge at Prairie Creek
Skew 30° Rt Ahead
868+47.92

Begin Bridge at Prairie Creek
Skew 30° Rt Ahead
866+35.46

866+00.00

| 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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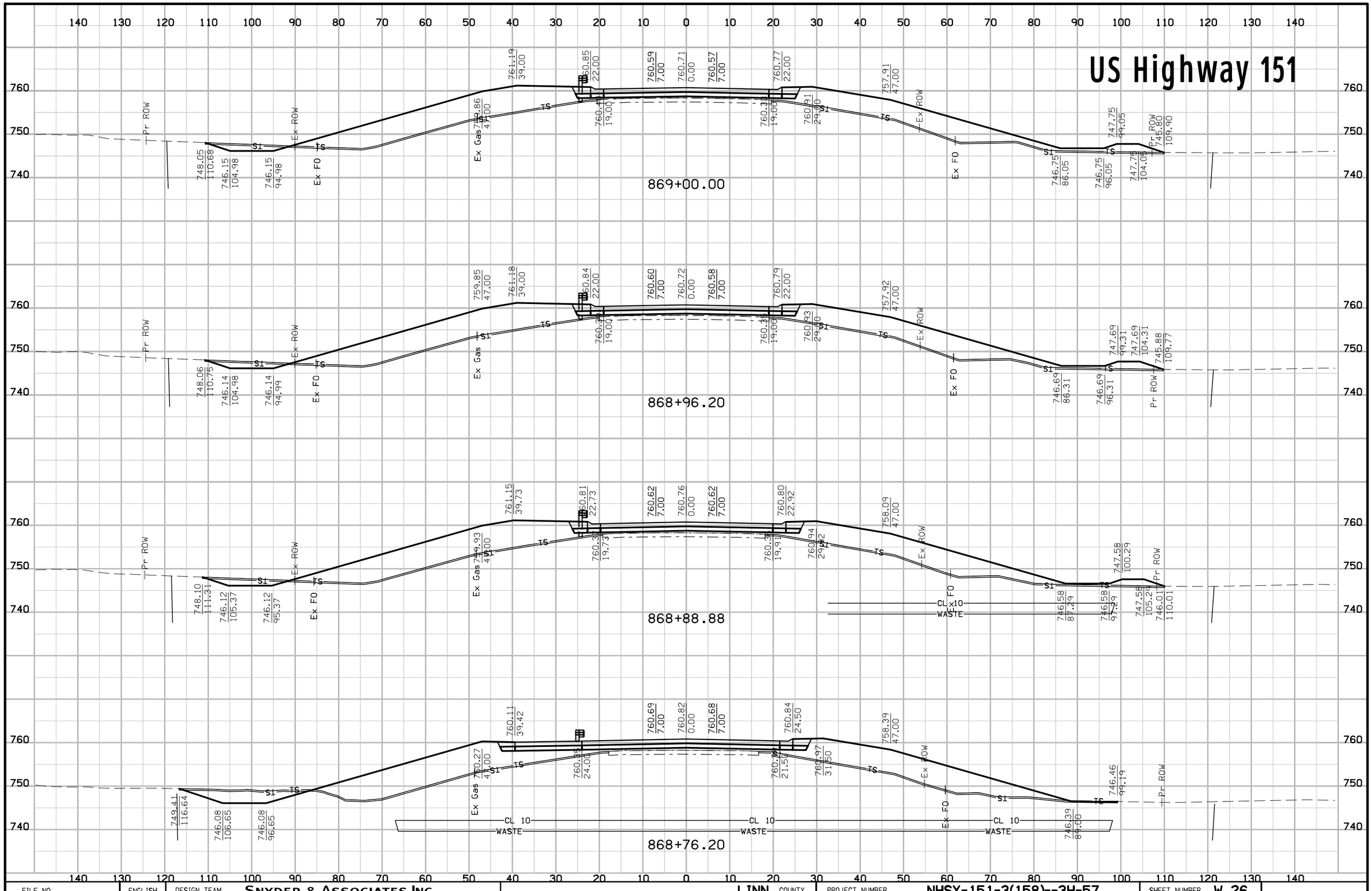
10:18:14 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151




| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | W.26 |
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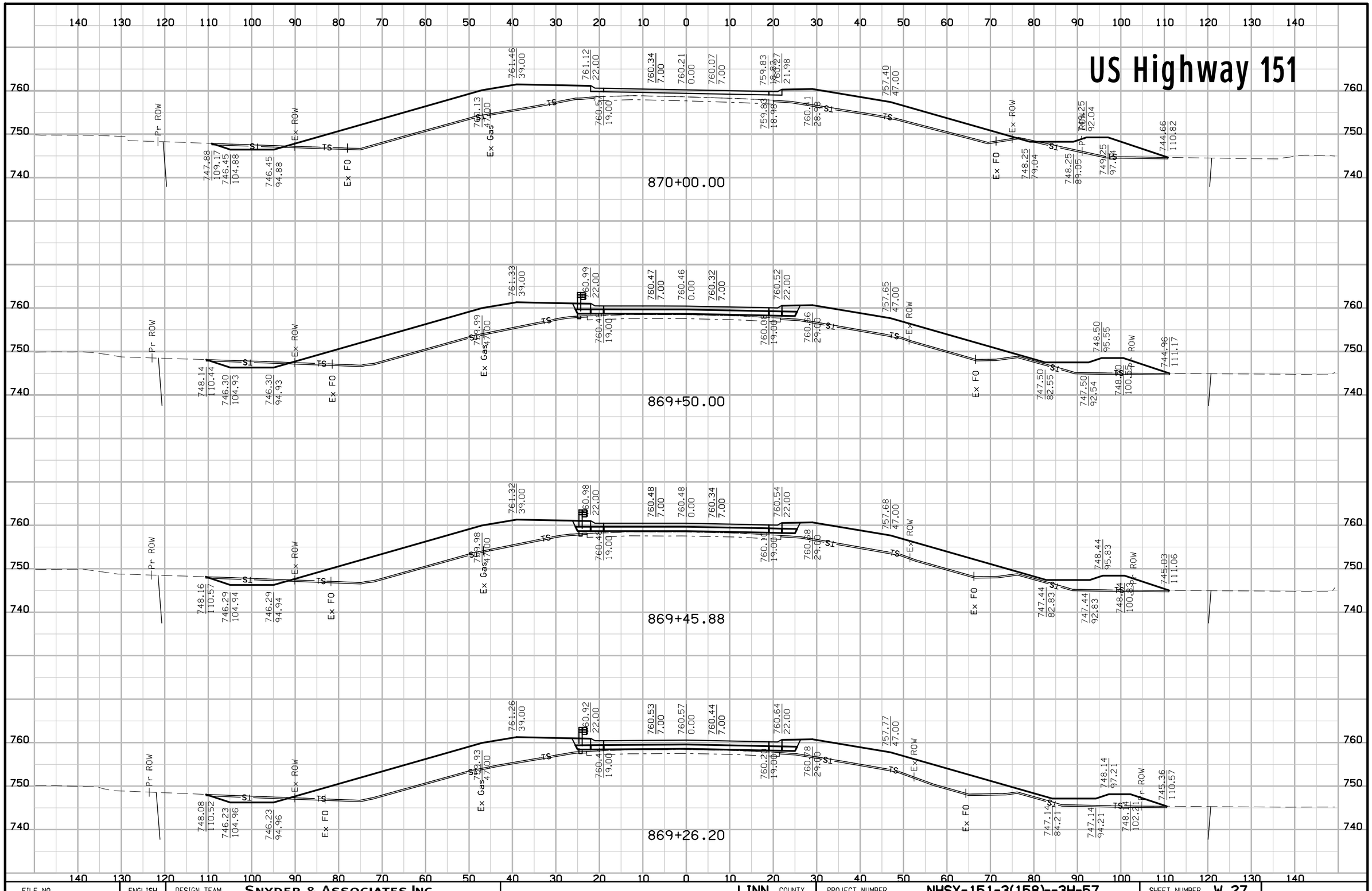
10:18:17 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151




| 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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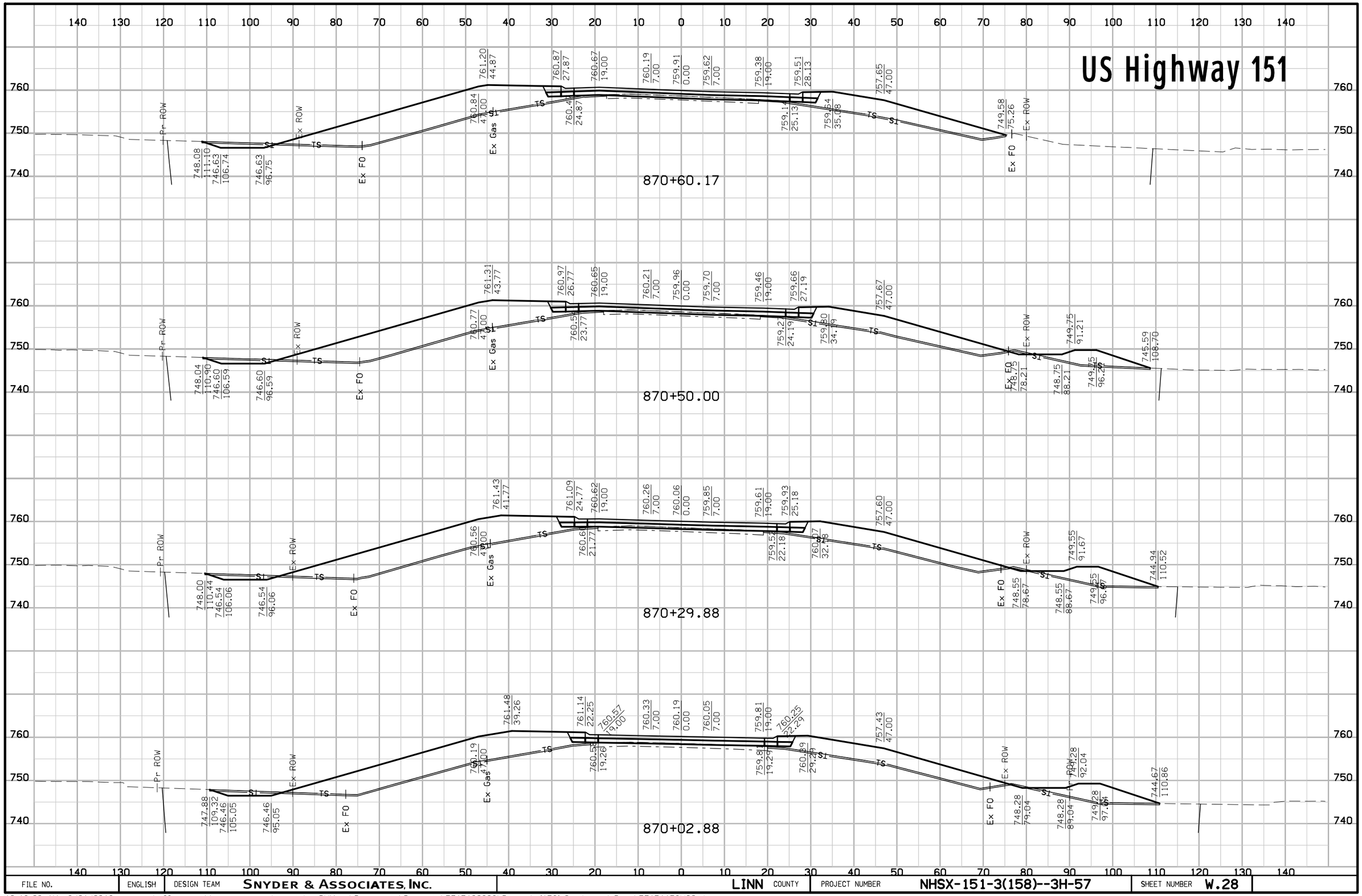
10:18:20 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151




| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | W.28 |
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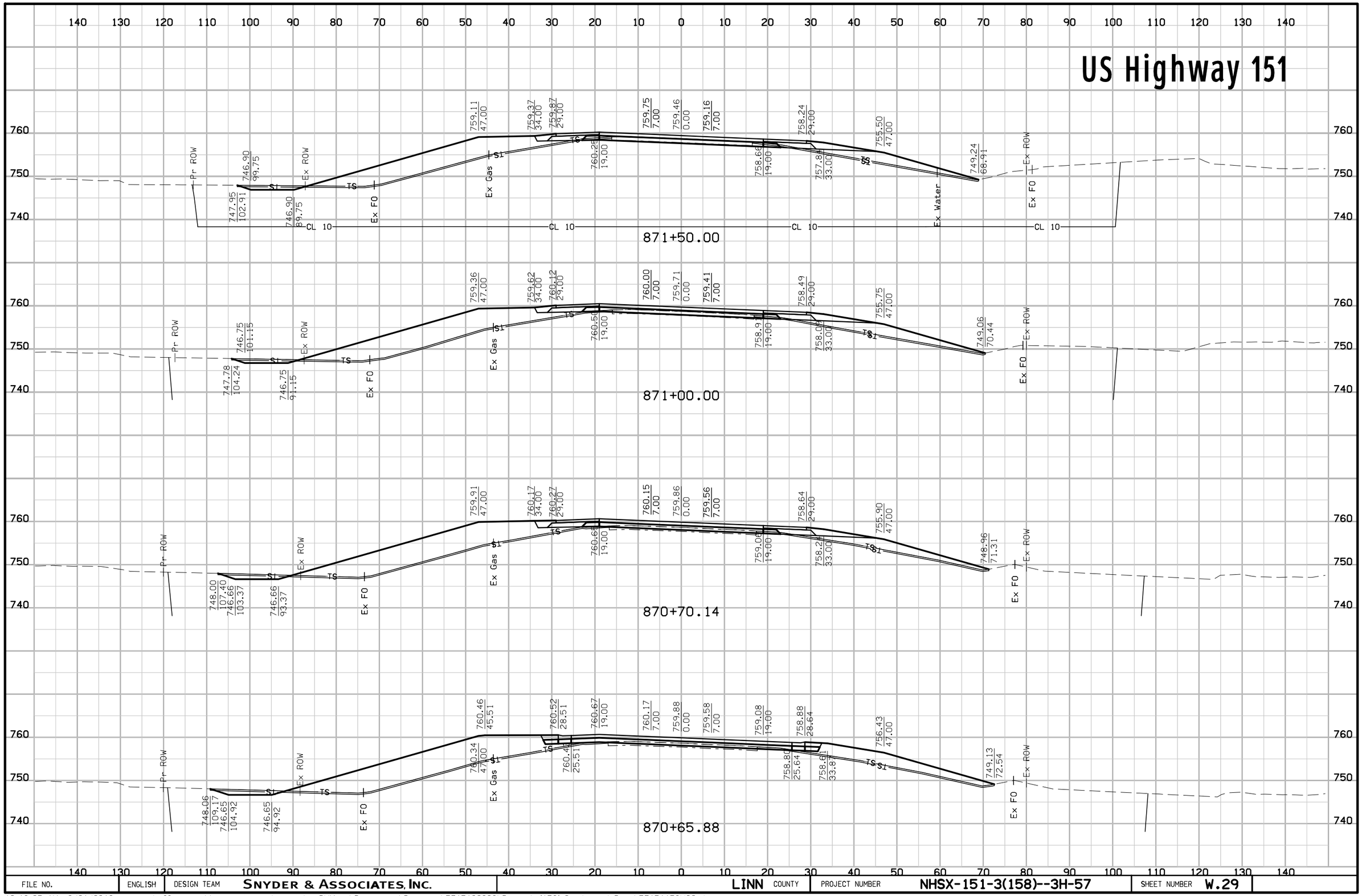
10:18:23 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151




| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | W.29 |
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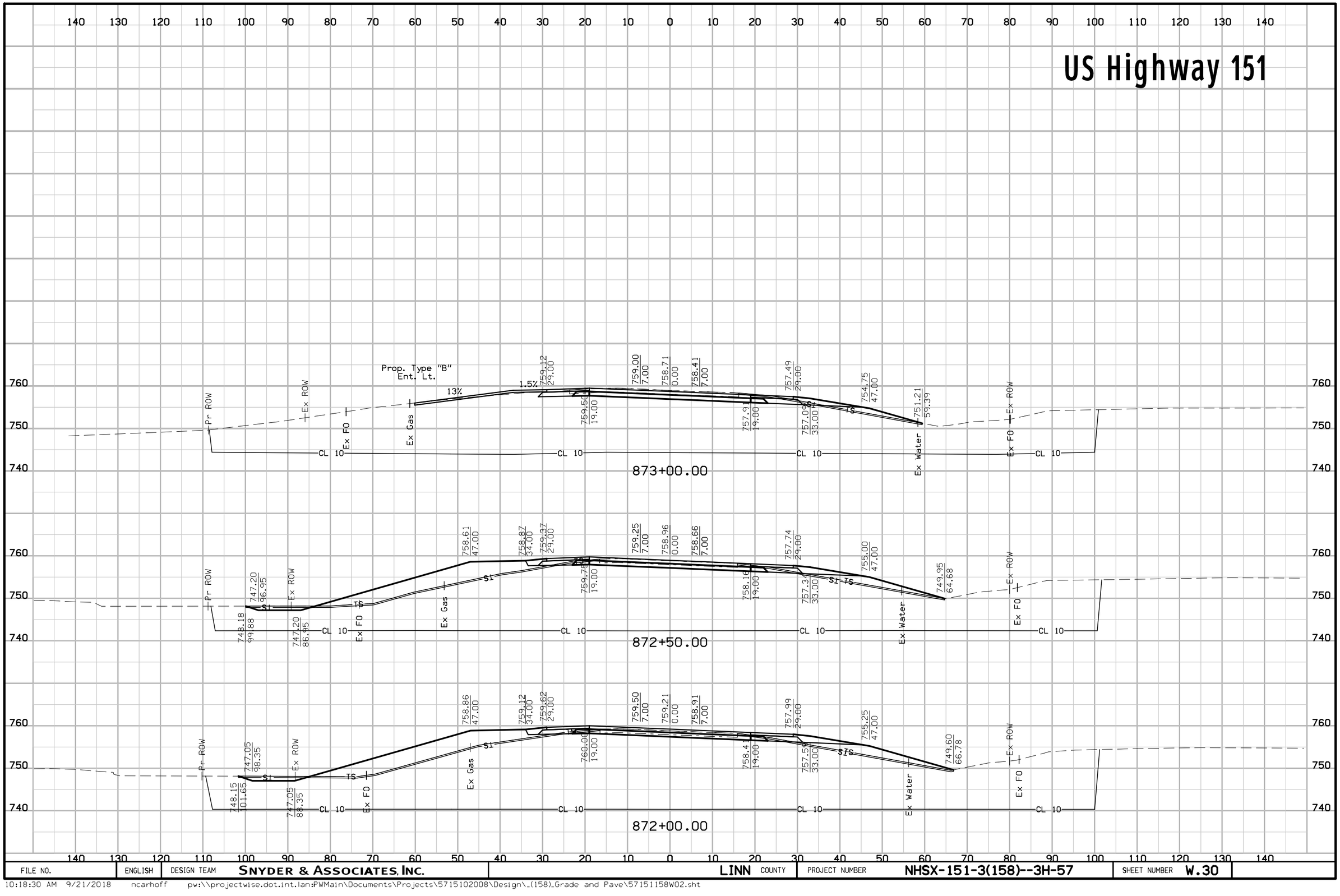
10:18:27 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151




| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER W.30 |
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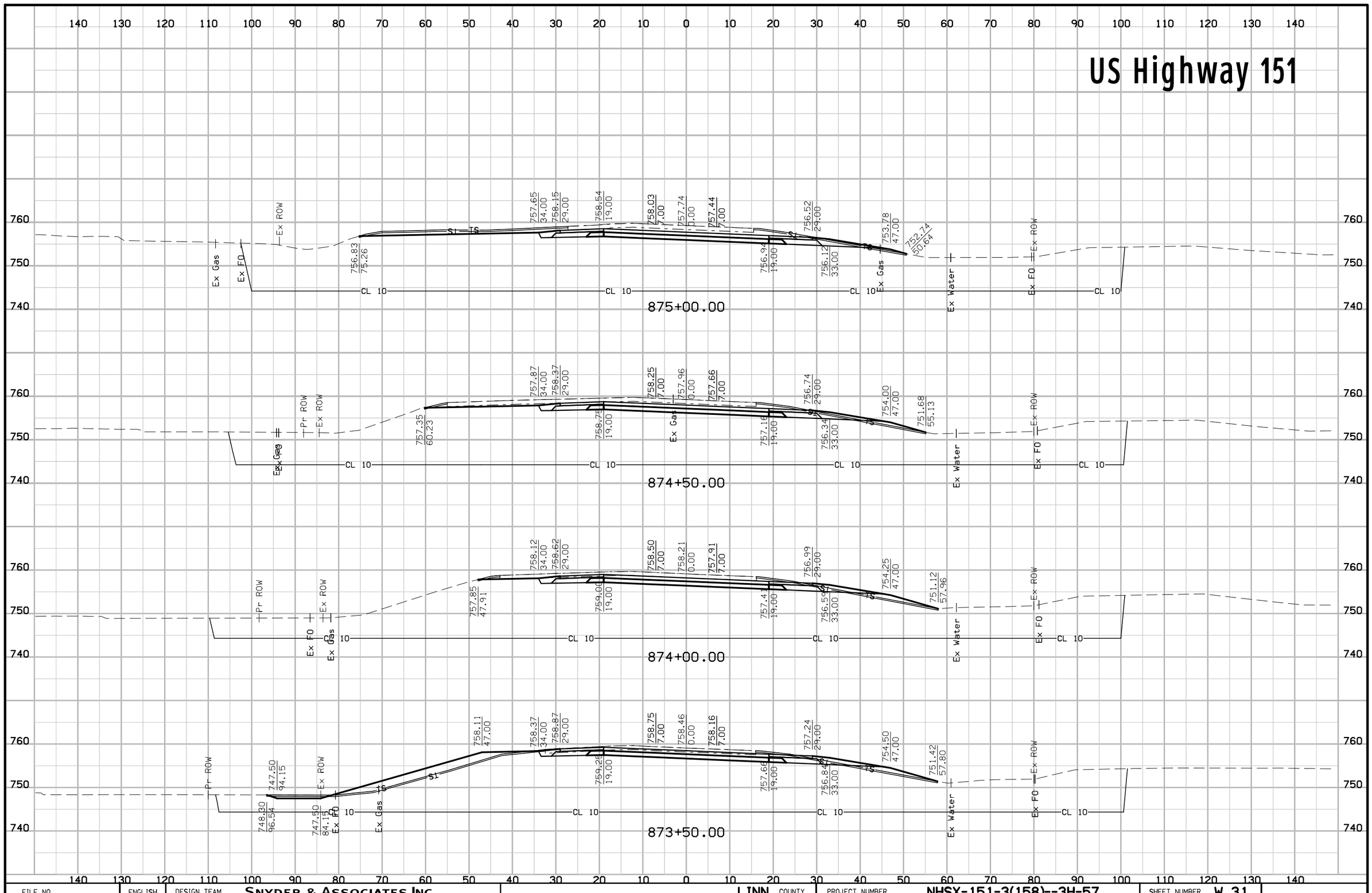
10:18:30 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151




| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | W.31 |
|---|---|---|---|---|---|---|---|---|

10:18:35 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151

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

Ex ROW | Ex FO | 756.60 62.30 | 757.15 63.94 | 758.11 47.00 | 756.60 52.30 | 758.37 34.00 | 758.87 29.00 | 759.25 19.00 | 758.75 7.00 | 758.46 0.00 | 758.16 7.00 | 757.66 19.00 | FS | 757.24 29.00 | 756.94 36.00 | 755.57 44.24 | Ex Gas | Ex Water | Ex FO | Ex ROW

CL 10 — CL 10 — CL 10 — CL 10

**876+50.00**

Ex ROW | Ex FO | 756.97 51.69 | 758.11 47.00 | 758.37 34.00 | 758.87 29.00 | TS | 759.25 19.00 | 758.75 7.00 | 758.46 0.00 | 758.16 7.00 | FS | 757.66 19.00 | 757.24 29.00 | 756.94 36.00 | 755.56 44.32 | Ex Gas | Ex Water | Ex FO | Ex ROW

CL 10 — CL 10 — CL 10 — CL 10

**876+49.90**

Ex Gas | Ex FO | Ex ROW | 758.44 90.83 | 758.79 85.05 | 758.79 19.00 | 758.28 7.00 | 757.99 0.00 | 757.69 7.00 | SI | 757.19 19.00 | 756.77 29.00 | 756.48 36.00 | 754.37 47.96 | Ex Gas | 754.64 47.00 | Ex Water | Ex FO | Ex ROW

CL 10 — CL 10 — CL 10 — CL 10

**876+00.00**

Ex Gas | Ex FO | Ex ROW | 756.58 91.43 | TS | 758.23 29.00 | 757.74 33.83 | 758.54 19.00 | 758.03 7.00 | 757.74 0.00 | 757.44 7.00 | SI | 756.94 19.00 | 756.52 29.00 | 756.22 36.00 | 753.59 49.82 | Ex Gas | 753.59 47.00 | Ex Water | Ex FO | Ex ROW

CL 10 — CL 10 — CL 10 — CL 10

**875+50.00**

Ex Gas | Ex FO | Ex ROW | 756.54 88.81 | TS | 757.64 34.00 | 758.14 29.00 | 758.52 19.00 | 758.01 7.00 | 757.72 0.00 | 757.43 7.00 | SI | 756.92 19.00 | 756.50 29.00 | 756.08 34.79 | 753.65 48.38 | Ex Gas | 753.65 47.00 | Ex Water | Ex FO | Ex ROW

CL 10 — CL 10 — CL 10 — CL 10

**875+41.91**

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.32 |
|---|---|---|---|---|---|---|---|

10:18:39 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151

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

Ex ROW | Ex ROW | Prop. Type "C" Ent. Lt. | 0.56% | Ex ROW | Ex Water | Ex FO | CL 10

760.75 29.00 | 760.56 7.00 | 760.27 0.00 | 759.97 7.00 | 759.05 29.00 | 757.98 37.00 | 757.08 42.38

761.00 19.00 | 759.47 19.00 | 758.65 33.00 | Ex Gas

878+31.00

Ex ROW | Ex ROW | Ex Water | Ex ROW | Ex FO | CL 10

759.89 47.00 | 760.15 34.00 | 760.65 29.00 | 760.49 7.00 | 760.20 0.00 | 759.90 7.00 | 758.98 29.00 | 757.91 37.00 | 757.29 40.74

SIS

759.84 68.36 | 757.60 61.61 | 757.60 56.61 | 760.94 19.00 | 759.40 19.00 | 758.58 33.00 | Ex Gas

878+24.00

Ex ROW | Ex ROW | Ex Water | Ex ROW | Ex FO | CL 10

759.61 47.00 | 759.87 34.00 | 760.37 29.00 | 760.25 7.00 | 759.96 0.00 | 759.66 7.00 | 758.74 29.00 | 757.60 37.42

SIS

758.51 70.24 | 756.30 63.60 | 756.30 58.60 | 760.75 19.00 | 759.16 19.00 | 758.34 33.00 | Ex Gas

878+00.00

Ex ROW | Ex ROW | Ex Water | Ex ROW | Ex FO | CL 10

759.11 47.00 | 759.37 34.00 | 759.87 29.00 | 759.75 7.00 | 759.46 0.00 | 759.16 7.00 | 758.24 29.00

877+50.00 Prop. Type "B" Ent. Rt. | -5.593%

SIS

757.60 67.60 | 756.40 64.00 | 756.40 56.50 | 760.25 19.00 | 758.66 19.00 | Ex Gas

877+50.00

Ex ROW | Ex ROW | Ex Water | Ex ROW | Ex FO | CL 10

758.61 47.00 | 758.87 34.00 | 759.37 29.00 | 759.25 7.00 | 758.96 0.00 | 758.66 7.00 | 757.74 29.00 | 757.44 36.00 | 756.09 44.14

SIS

757.22 66.55 | 756.50 64.40 | 756.50 54.40 | 759.75 19.00 | 758.16 19.00 | Ex Gas

CL 10 | CL 10 | 877+00.00 | CL 10 | Ex Water | Ex FO | CL 10

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.33 |
|---|---|---|---|---|---|---|---|

10:18:43 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151

879+22.03

879+00.00

878+71.15

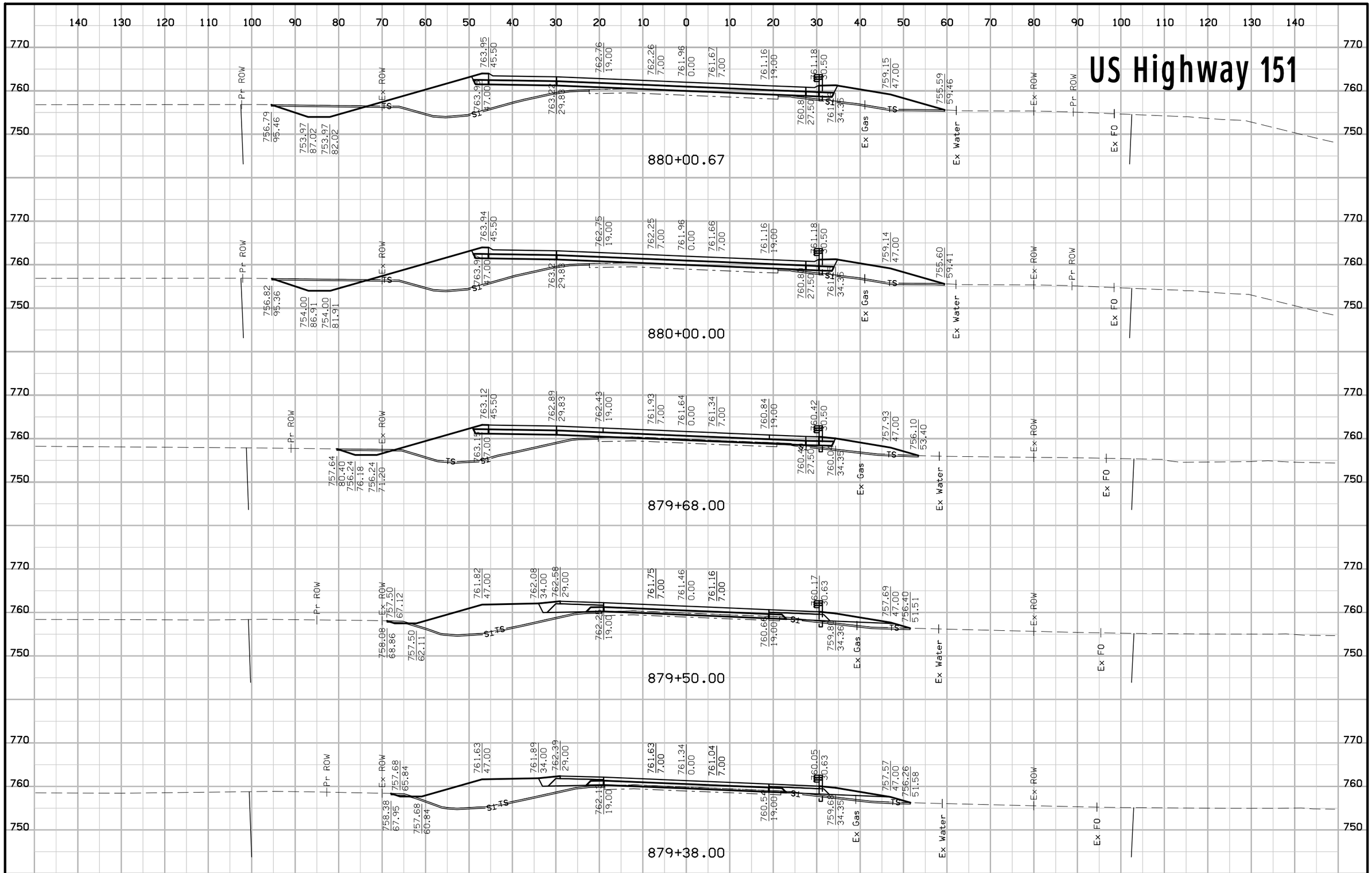
878+51.00

878+50.00

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER W.34 |

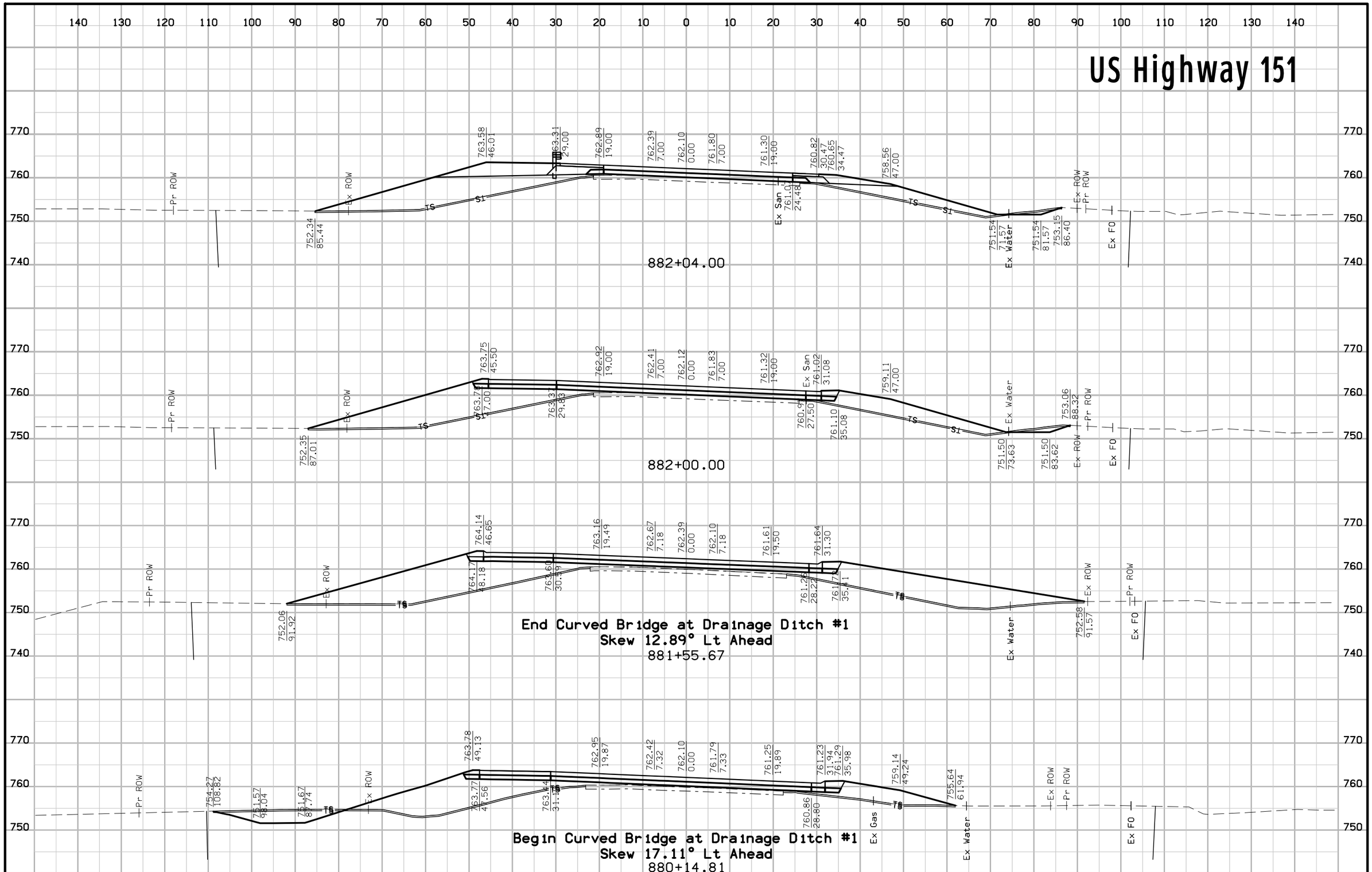
10:18:46 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151




| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER W.35 |
|---|---|---|---|---|---|---|---|

# US Highway 151




| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | W.36 |
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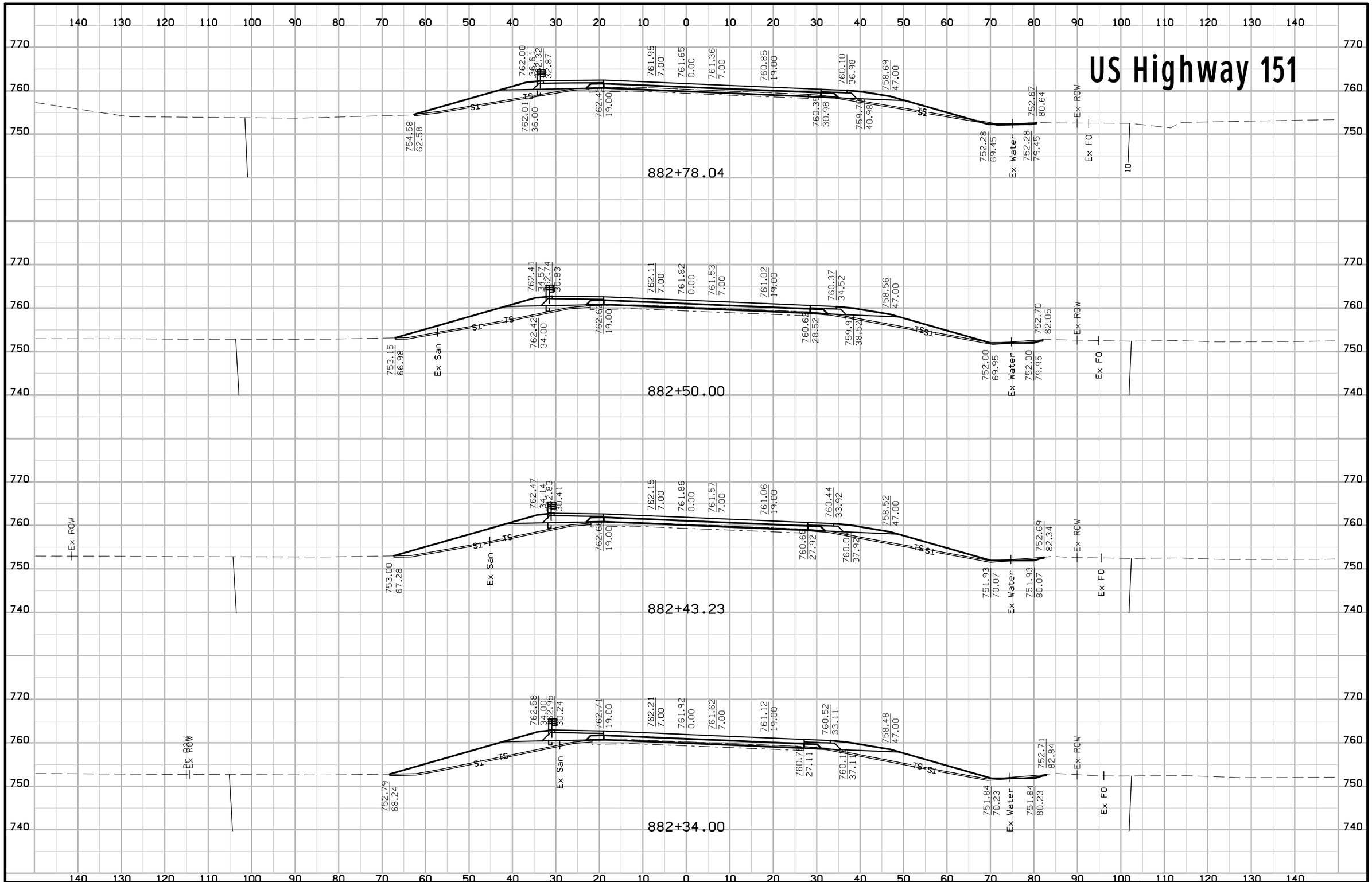
10:18:54 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151




| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | W.37 |
|---|---|---|---|---|---|---|---|---|

# US Highway 151

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

759.71 40.79 | 761.57 29.63 | 762.06 19.00 | 761.56 7.00 | 761.27 0.00 | 760.97 7.00 | 760.47 19.00 | 759.71 37.00 | 758.31 47.00 | 759.96 31.00 | 759.31 41.00 | 752.92 65.86 | 752.92 75.86 | Ex Water 753.23 76.97 | Ex FO | Ex ROW | CL 10

Ex Tel
Ex Gas
Ex FO

S1 TS

883+42.30

770 760 750

759.00 43.32 | 761.13 35.86 | 761.82 29.00 | 762.20 19.00 | 761.70 7.00 | 761.40 0.00 | 761.11 7.00 | 760.60 19.00 | 759.85 37.00 | 758.45 47.00 | 760.10 31.00 | 759.45 41.00 | 752.70 67.12 | 752.70 77.12 | Ex Water 752.84 77.54 | Ex FO | Ex ROW | CL 10

S1 TS

883+19.86

770 760 750

757.66 51.47 | 761.51 38.00 | 761.75 33.99 | 761.55 36.00 | 762.20 19.00 | 761.74 7.00 | 761.45 0.00 | 761.15 7.00 | 760.65 19.00 | 759.89 37.00 | 758.49 47.00 | 760.14 31.00 | 759.49 41.00 | 752.62 67.54 | 752.78 78.02 | Ex Water 752.62 77.54 | Ex FO | Ex ROW | CL 10

S1 TS

883+12.42

770 760 750

756.42 56.53 | 761.71 38.00 | 761.95 34.00 | 761.75 36.00 | 762.32 19.00 | 761.81 7.00 | 761.52 0.00 | 761.23 7.00 | 760.72 19.00 | 759.97 37.00 | 758.57 47.00 | 760.22 31.00 | 759.57 41.00 | 752.50 68.23 | 752.72 78.88 | Ex Water 752.50 78.23 | Ex FO | Ex ROW | CL 10

S1 TS

883+00.00

770 760 750

755.87 58.77 | 761.80 38.00 | 762.04 34.00 | 761.84 36.00 | 762.32 19.00 | 761.85 7.00 | 761.55 0.00 | 761.26 7.00 | 760.76 19.00 | 760.00 37.00 | 758.60 47.00 | 760.29 31.00 | 759.60 41.00 | 752.44 68.54 | 752.69 79.27 | Ex Water 752.45 78.54 | Ex FO | Ex ROW | CL 10

S1 TS

882+94.45

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.38 |
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10:19:01 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151

884+50.00

884+25.93

884+00.00

883+95.73

883+50.00

| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | W.39 |
|---|---|---|---|---|---|---|---|---|

10:19:04 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151

886+00.00

885+98.30

885+50.00

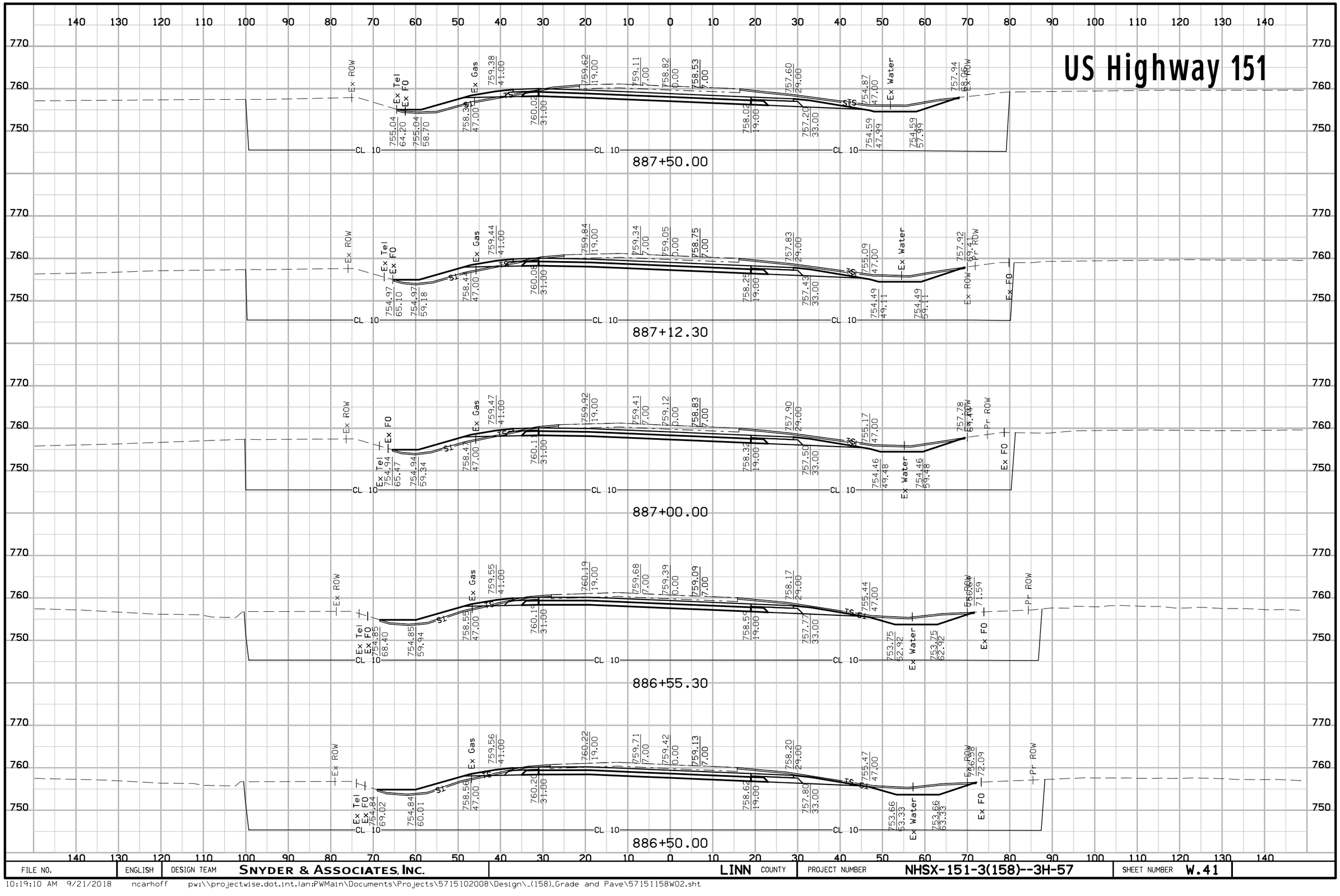
885+23.39

885+00.00

| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER W.40 |
|---|---|---|---|---|---|---|---|

10:19:07 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151




| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | W.41 |
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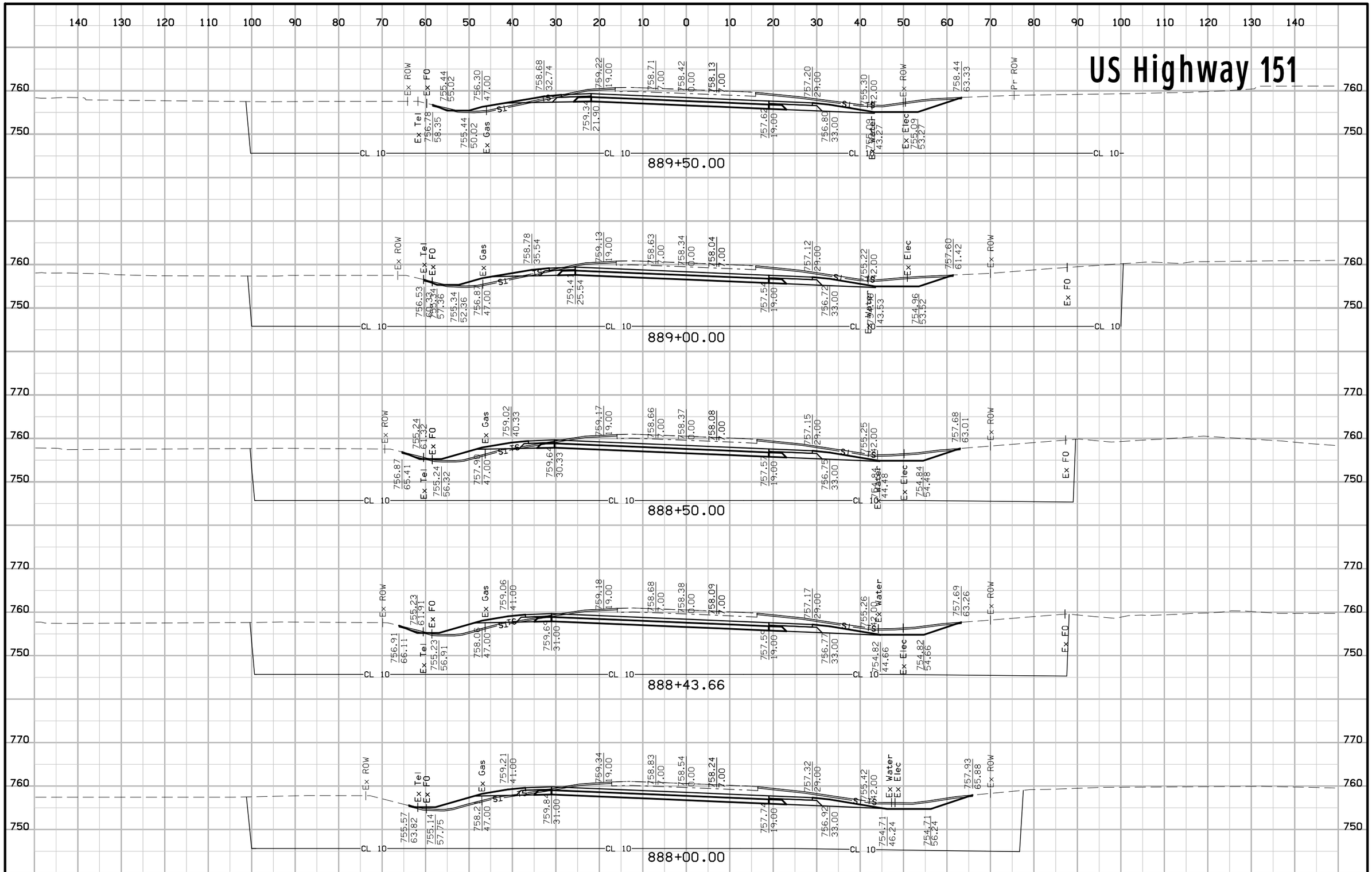
10:19:10 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151




| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER W.42 |
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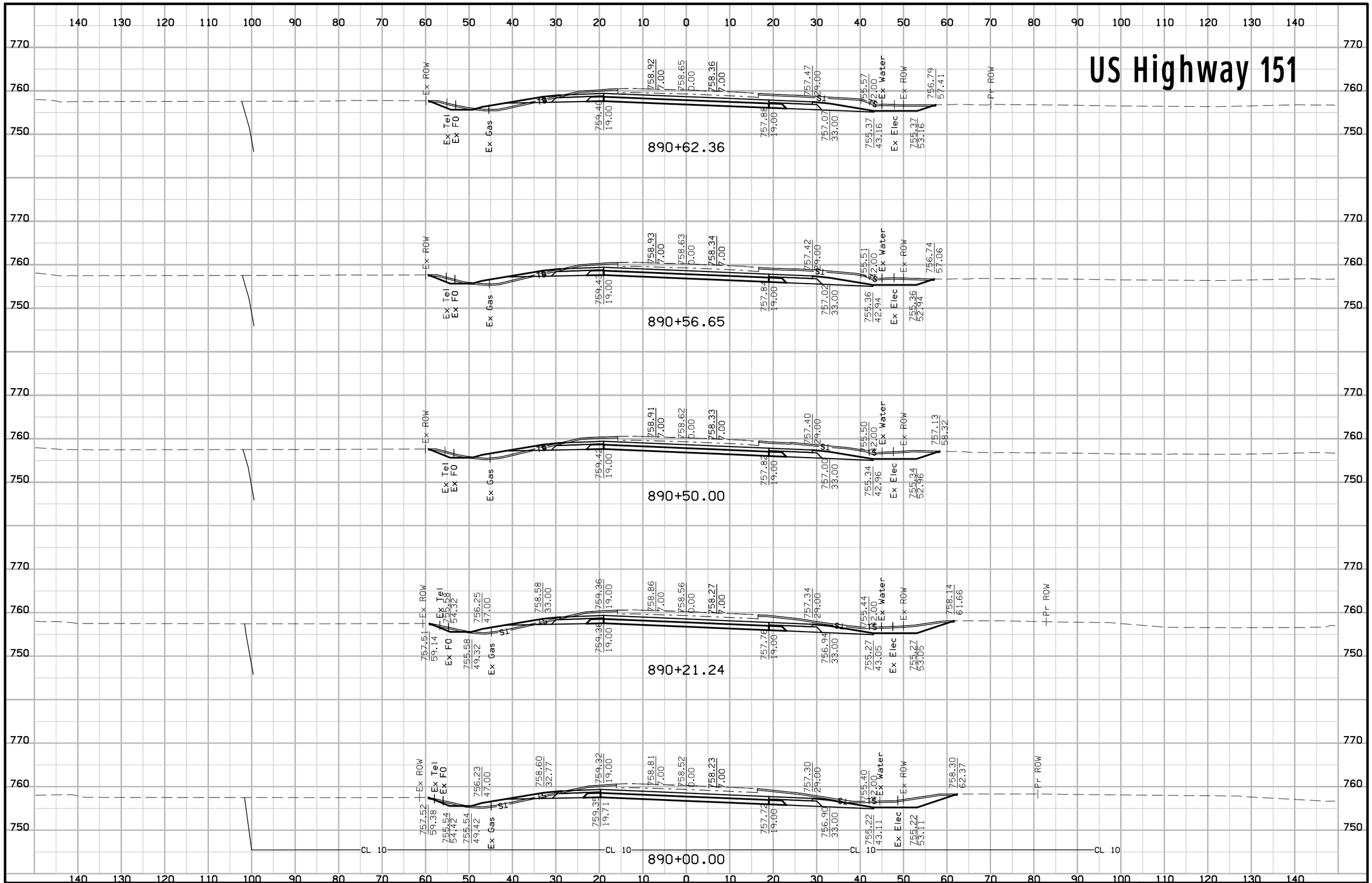
10:19:14 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151




| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | W.43 |
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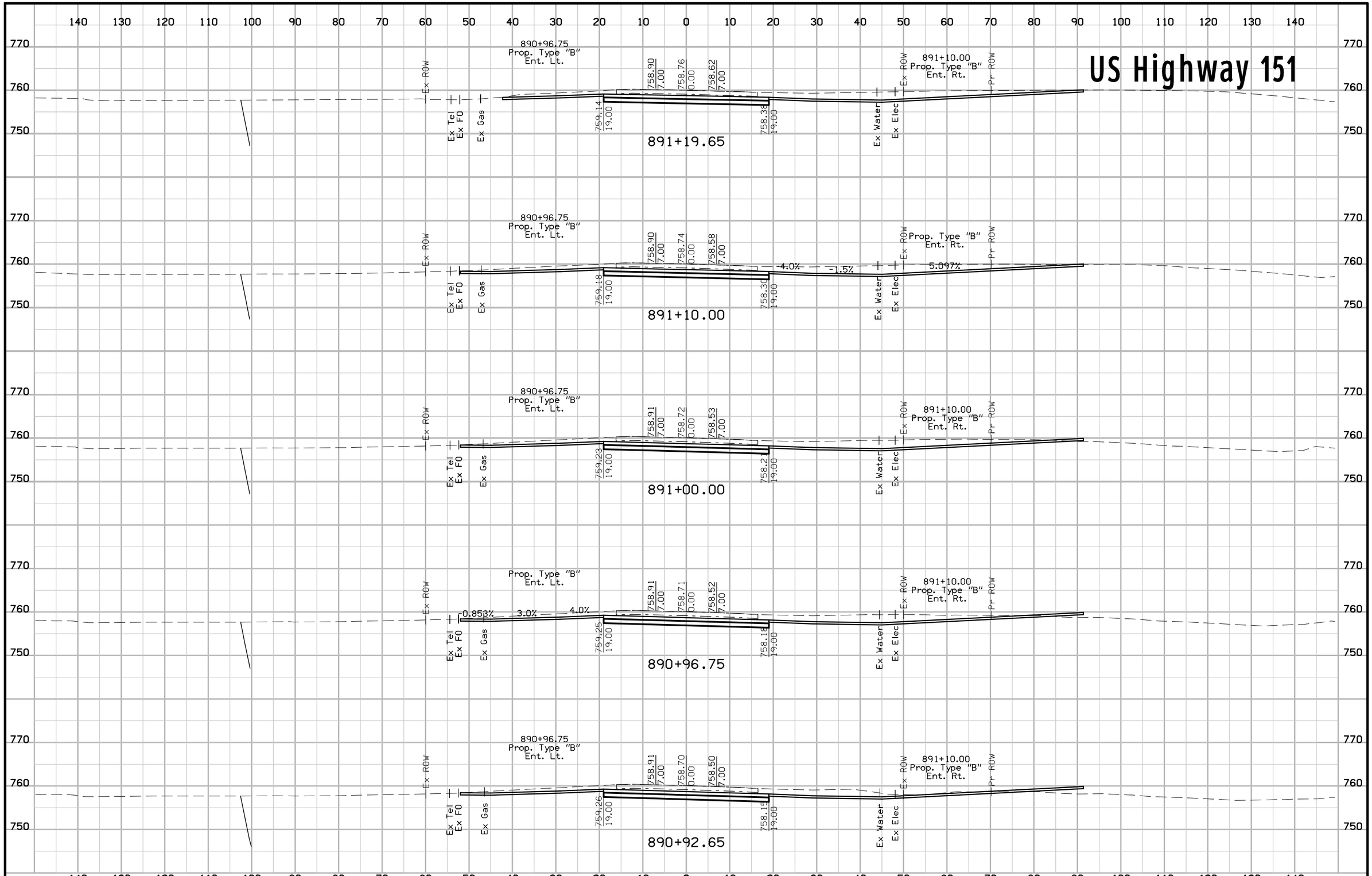
10:19:17 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151




| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER W.44 |
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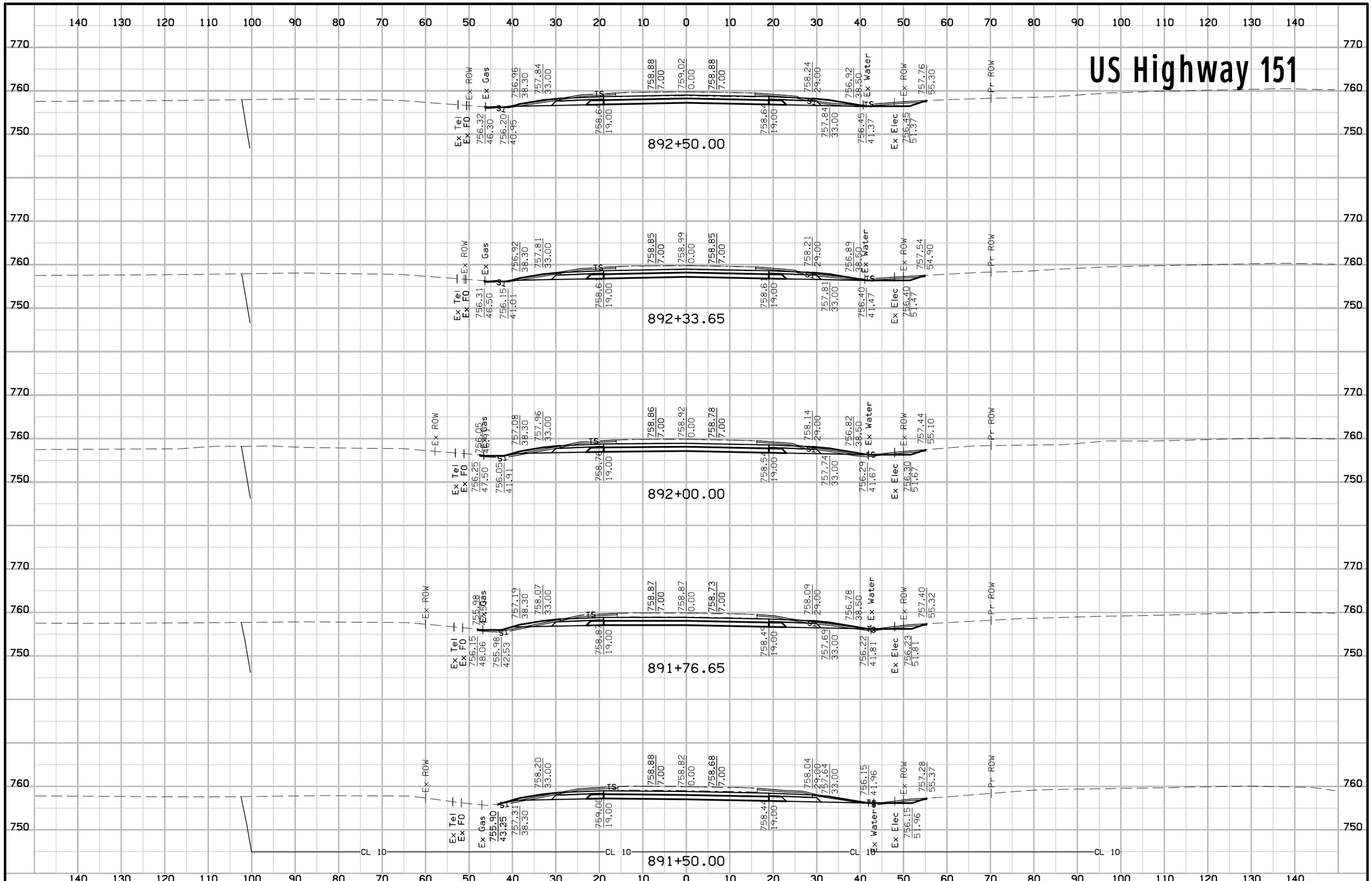
10:19:20 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151




| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | W.45 |
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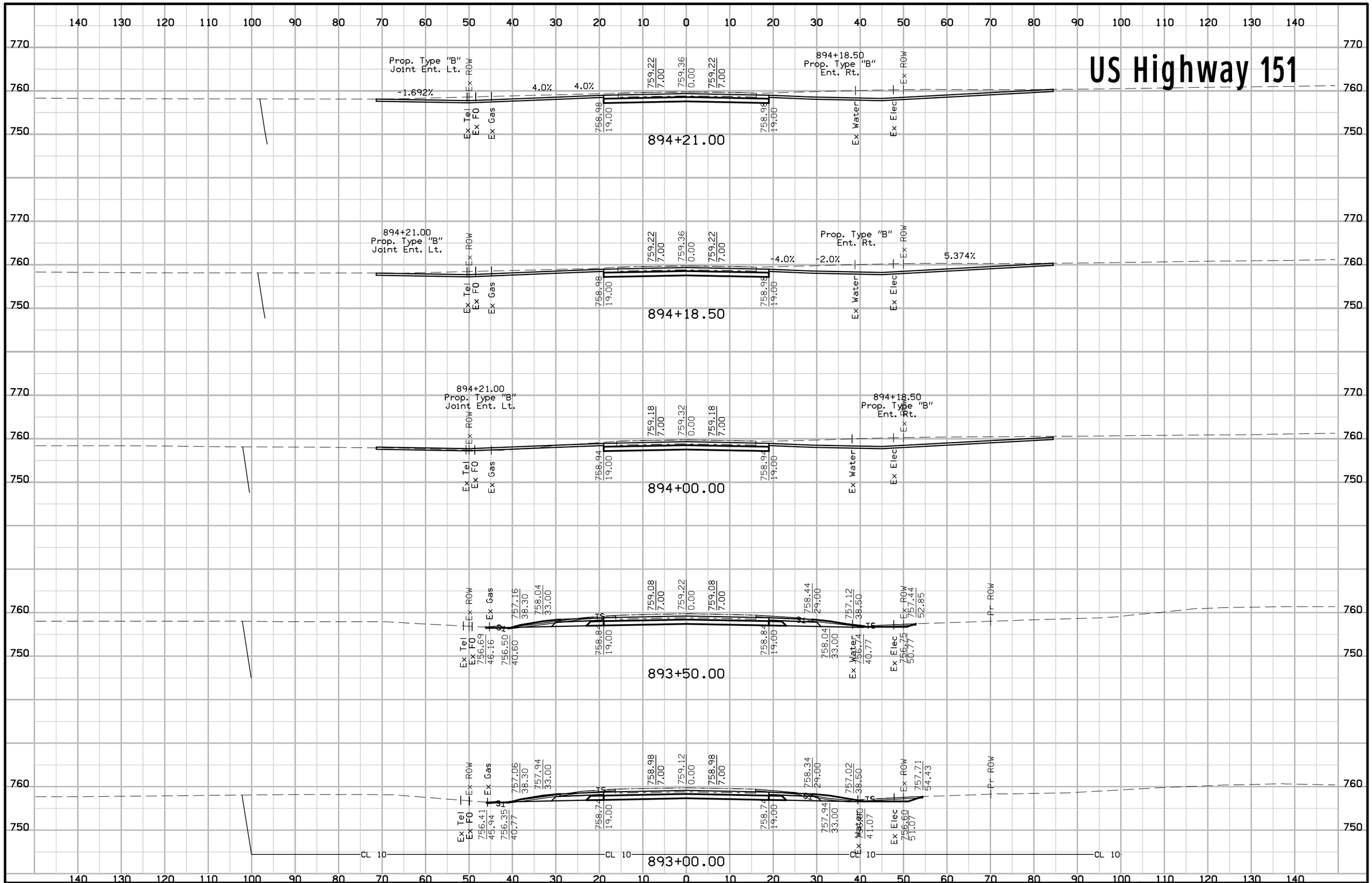
10:19:23 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

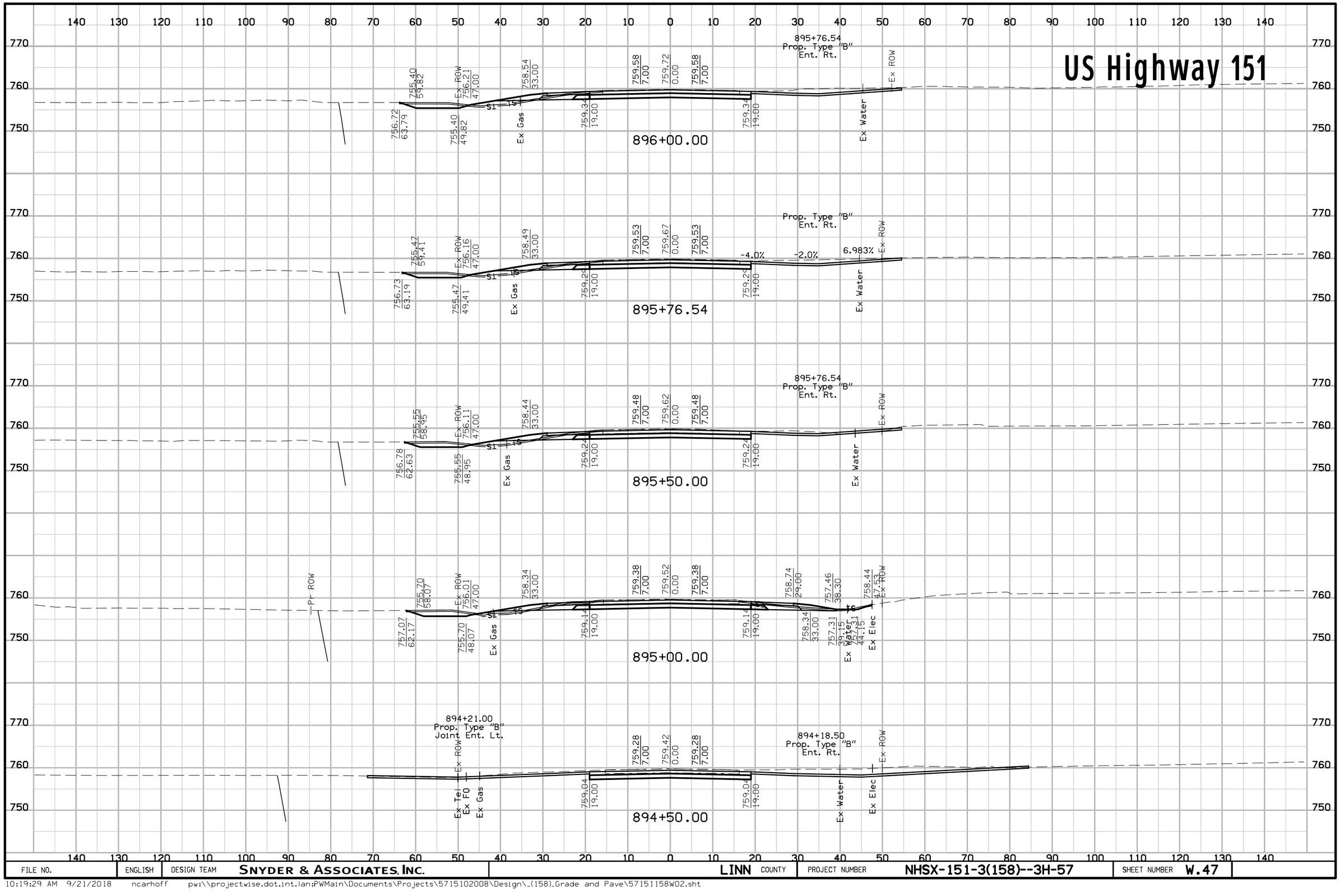
# US Highway 151




| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | W.46 |
|---|---|---|---|---|---|---|---|---|

10:19:26 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151




| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | W.47 |
|---|---|---|---|---|---|---|---|---|

10:19:29 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151

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

Pr ROW | Ex ROW | Ex Gas | Ex Water | CL 10 | S1 | TS

**898+00.00**

| | | |

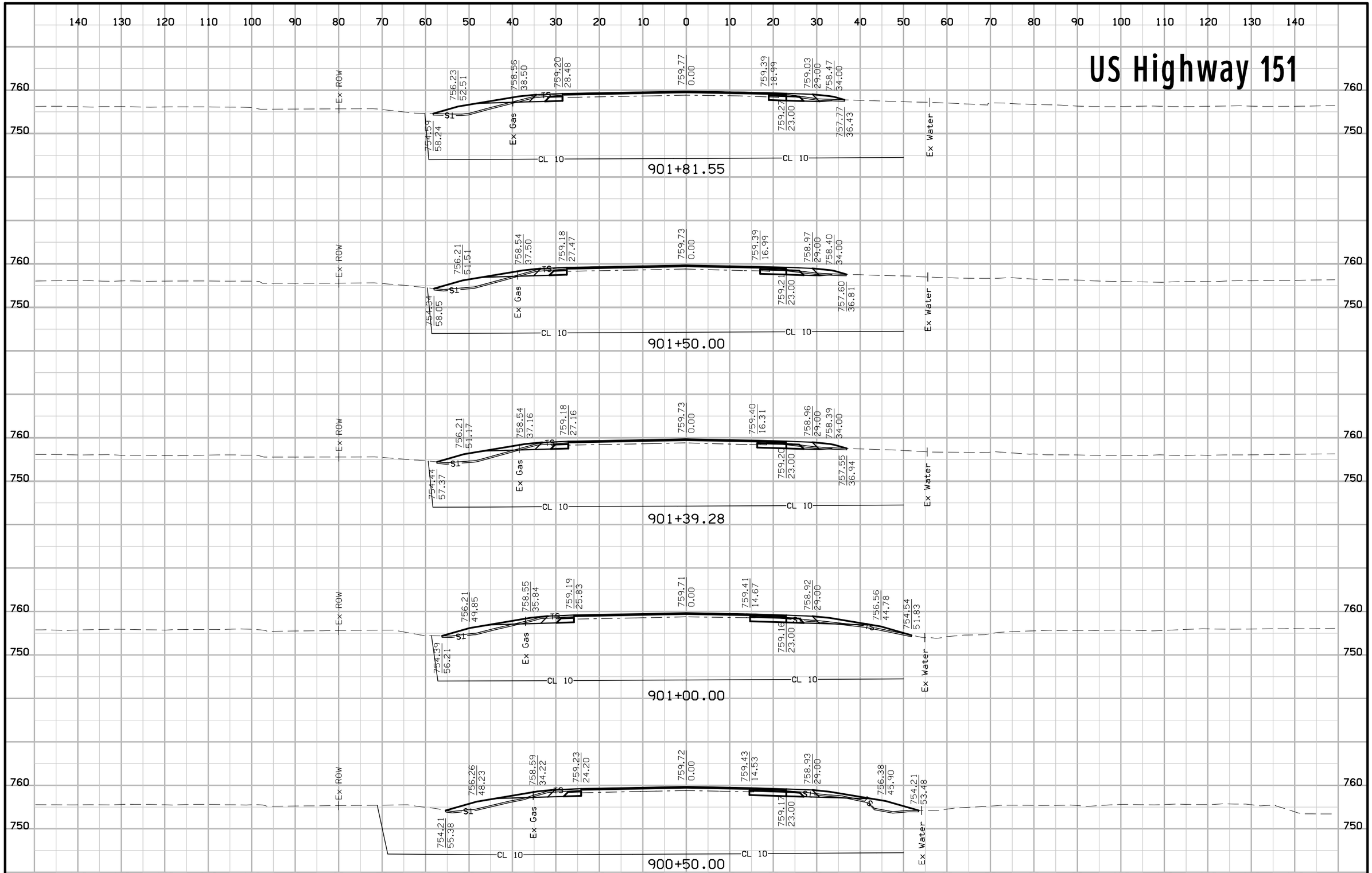
# US Highway 151

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

Pr ROW | Ex ROW | Ex Gas | Ex Water | CL 10 | S1 | TS | AS

| | | |




| FILE NO. | ENGLISH | DESIGN TEAM SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER W.50 |
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10:19:38 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151

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

781.91
56.65

784.35
42.00

784.75
38.00

784.99
32.00

974+22.81

790
780

781.99
56.64

784.43
42.00

784.83
38.00

785.05
32.43

974+18.24

760
750

Ex ROW

754.81
58.80

756.28
53.66

758.61
39.66

759.01
35.66

759.25
29.67

759.84
0.00

759.38
23.33

759.02
33.34

758.62
37.34

756.58
49.56

754.83
55.70

Ex Gas

759.26
27.34

Ex Water

CL 10

902+58.42

CL 10

760
750

Ex ROW

754.84
58.63

756.26
53.66

758.60
39.66

759.24
29.67

759.83
0.00

759.36
23.33

759.00
33.34

756.56
49.56

754.81
55.71

Ex Gas

759.24
27.34

Ex Water

CL 10

902+50.00

CL 10

760
750

Ex ROW

754.79
58.07

756.24
52.97

758.58
38.97

759.22
29.02

759.80
0.00

759.39
20.16

759.03
30.17

758.47
35.17

Ex Gas

759.27
24.17

757.83
37.39

Ex Water

CL 10

902+00.00

CL 10

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.51 |
|---|---|---|---|---|---|---|---|---|

10:19:41 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151

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

780.94 / 42.00
781.34 / 38.00
781.58 / 32.00
781.98 / 16.00
781.74 / 28.00
778.00 / 66.86
778.00 / 59.63
TS
S1

976+50.00

781.69 / 42.00
782.09 / 38.00
782.33 / 32.00
782.73 / 16.00
782.49 / 28.00
781.24 / 70.87
779.00 / 64.14
779.00 / 58.14
TS
S1

976+00.00

782.46 / 42.00
782.86 / 38.00
783.10 / 32.00
783.50 / 16.00
783.26 / 28.00
785.41 / 79.02
780.00 / 62.77
780.00 / 56.77
TS
S1

975+50.00

783.23 / 42.00
783.87 / 32.00
784.27 / 16.00
784.03 / 28.00
786.95 / 83.29
780.55 / 64.10
780.55 / 58.10
TS
S1

975+00.00

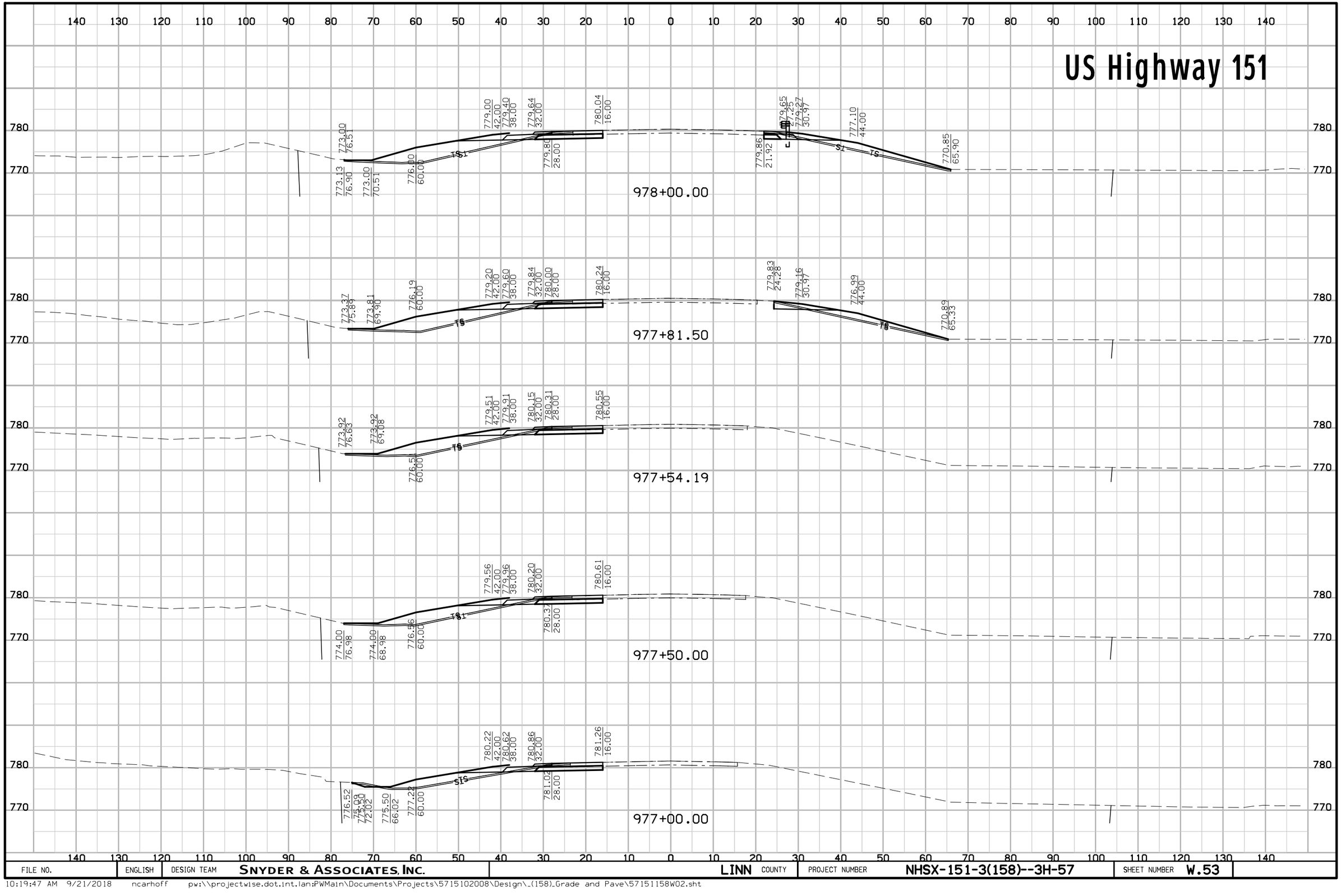
783.59 / 42.00
783.99 / 38.00
784.39 / 27.96
787.45 / 84.03
780.88 / 64.27
780.88 / 58.27

974+69.95

| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | W.52 |
|---|---|---|---|---|---|---|---|---|

10:19:44 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151




| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | W.53 |
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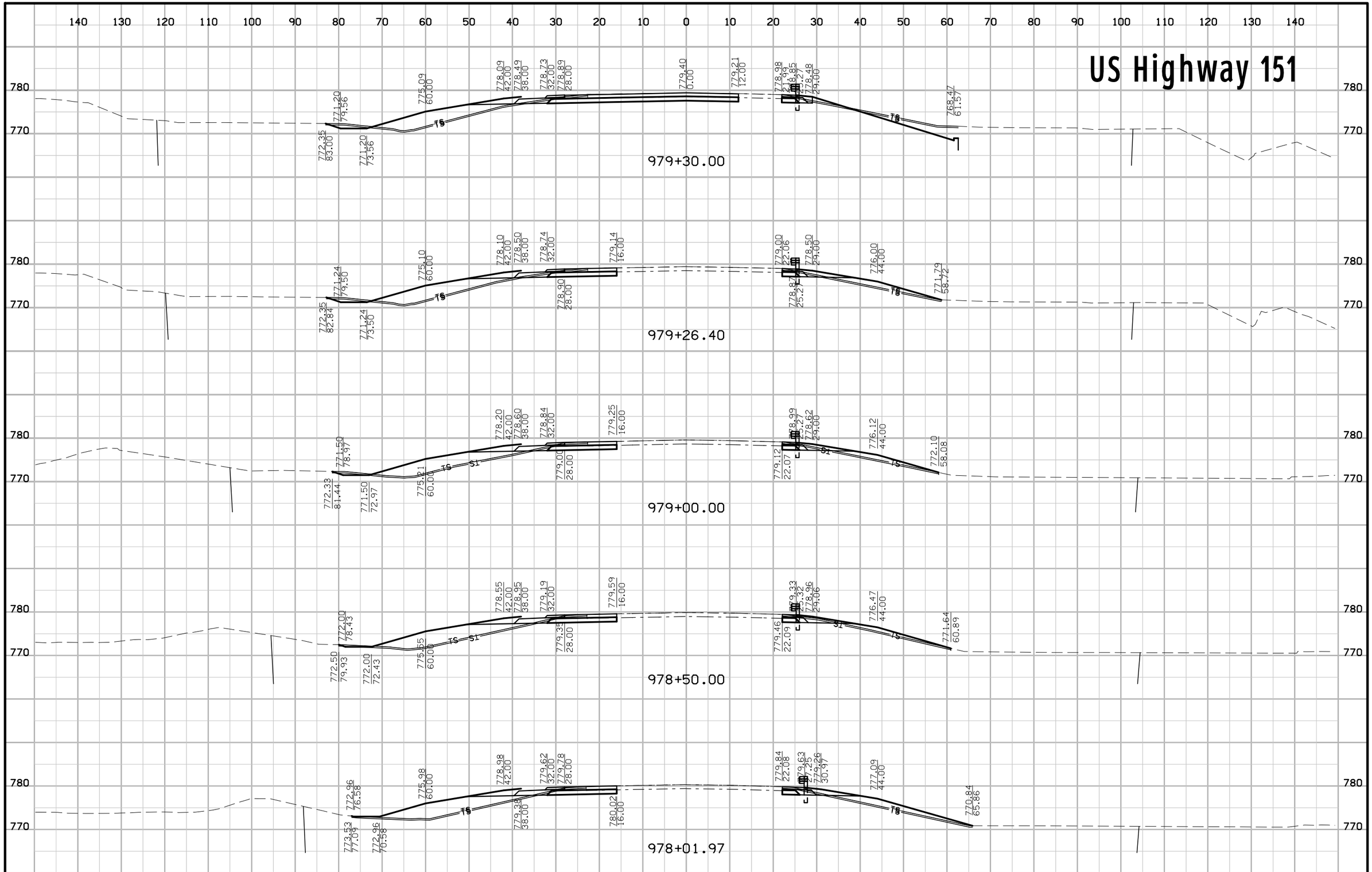
10:19:47 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

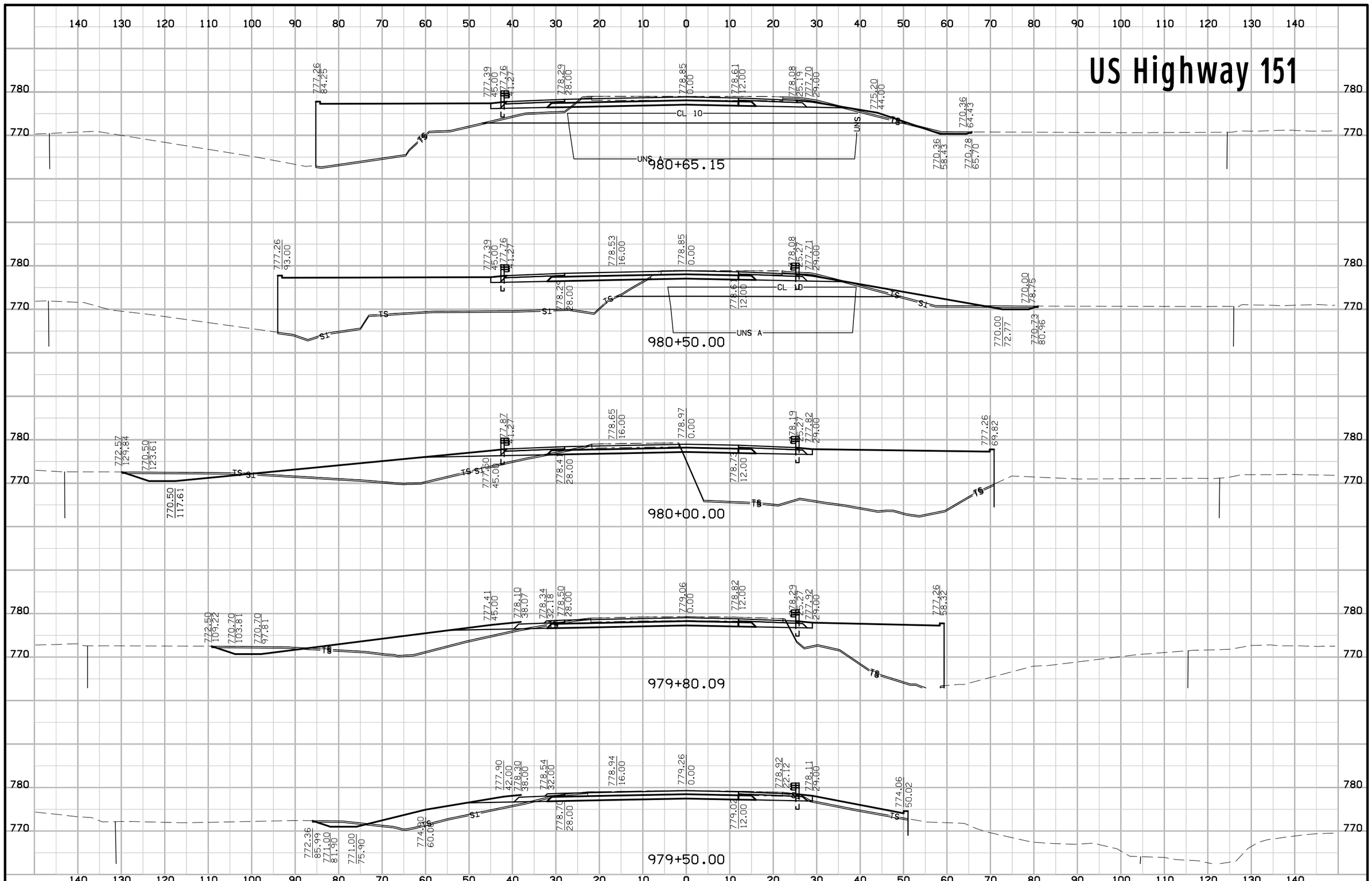
# US Highway 151




| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER W.54 |
|---|---|---|---|---|---|---|---|

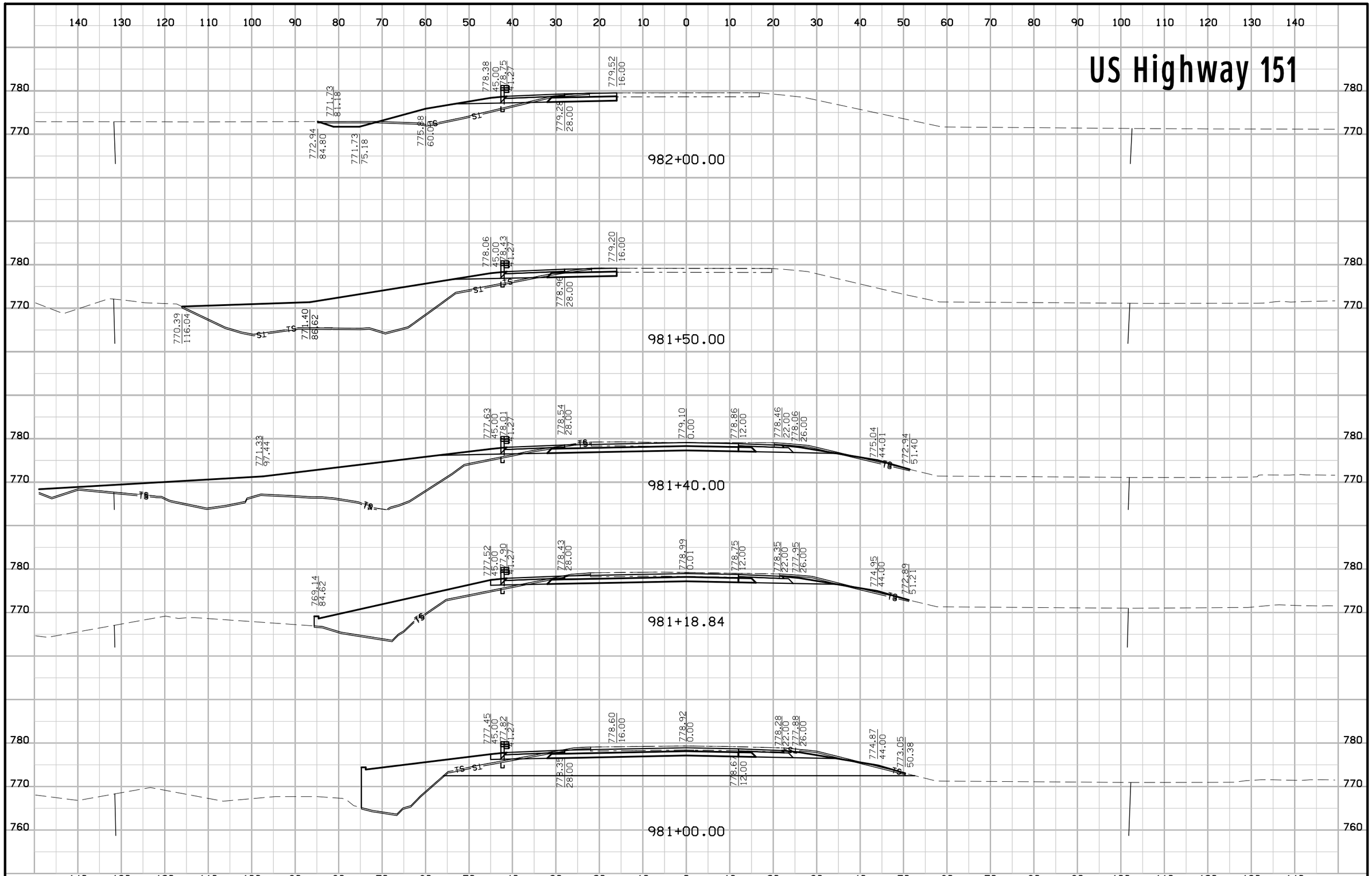
10:19:50 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151




| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER W.55 |
|---|---|---|---|---|---|---|---|

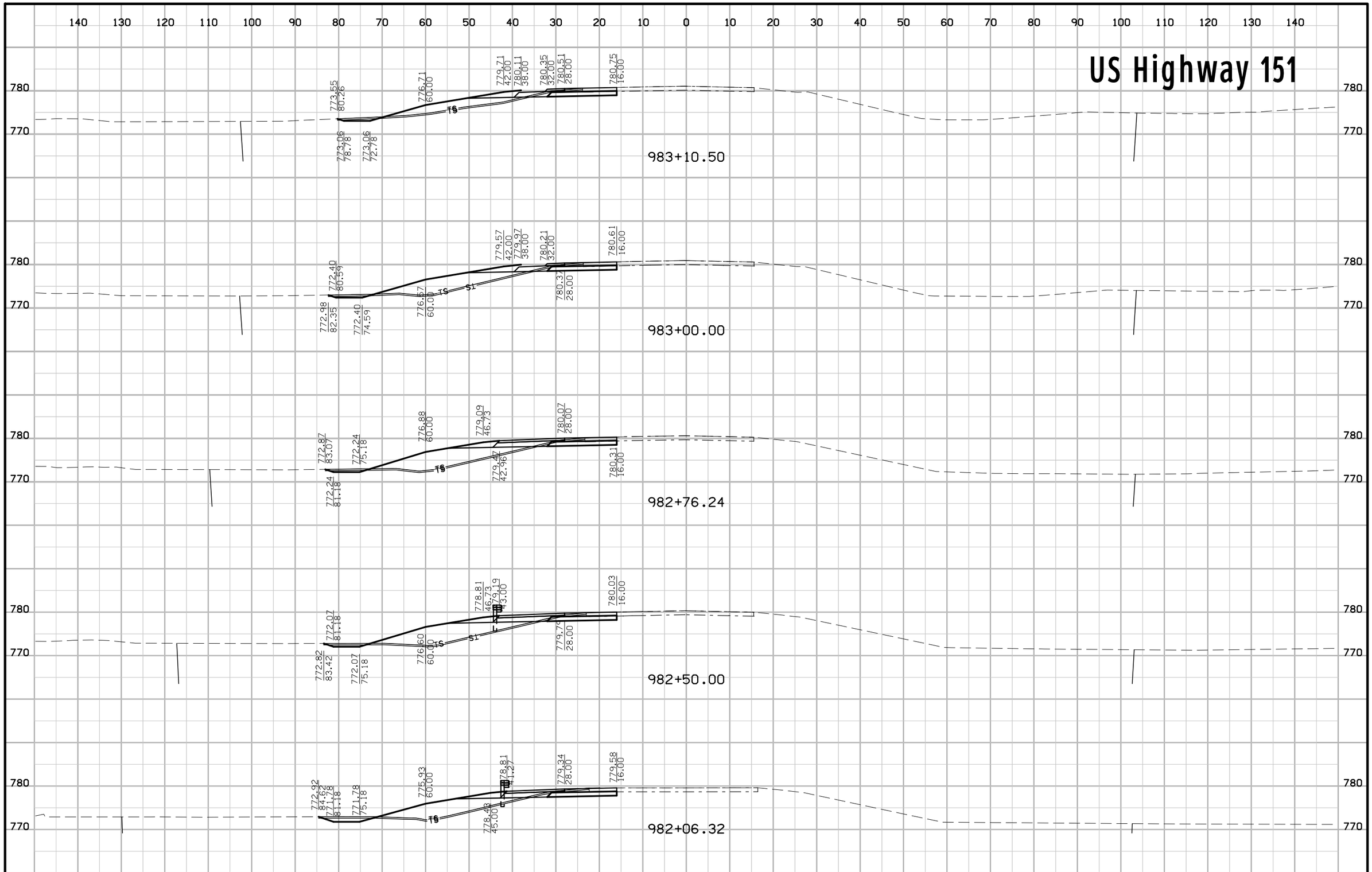
# US Highway 151




| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | W.56 |
|---|---|---|---|---|---|---|---|---|

10:19:56 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151




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

10:19:59 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# US Highway 151

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

781.78
78.71
778.95
70.22
778.95
64.22
783.16
42.00
783.56
38.00
783.80
32.00
783.96
28.00
780.16
60.00
784.19
16.09
TS
984+83.16

790
780
770

781.17
80.33
778.05
70.95
778.05
64.95
779.46
60.00
782.46
42.00
782.86
38.00
783.10
32.00
783.26
28.00
783.50
16.00
TS1
984+50.00

790
780
770

780.25
82.01
776.78
71.60
776.78
65.60
778.38
60.00
781.38
42.00
781.78
38.00
782.02
32.00
782.18
28.00
782.42
16.00
TS1
984+00.00

790
780

Prop. Type "C"
Ent. Lt.
-1.983%
781.69
32.00
781.85
28.00
782.09
16.00
983+85.00

780
770

777.77
79.19
775.52
72.45
775.52
66.45
777.37
60.00
780.37
42.00
780.77
38.00
781.01
32.00
781.17
28.00
781.41
16.00
TS1
983+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.58 |
|---|---|---|---|---|---|---|---|

10:20:02 AM 9/21/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

# Church Street

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

759.00
0.00
758.51
24.47
757.04
25.35
758.88
18.00
758.64
18.00
757.94
26.85
Ex Tel
CL 10

**1848+25.00**

Sta. 1847+85.30
Prop. Type "B"
Ent. Rt.

758.43
0.00
TS
756.23
25.57
758.12
18.00
758.07
18.00
Ex Tel
CL 10
CL 10

**1848+00.00**

Sta. 1847+85.30
Prop. Type "B"
Ent. Rt.

758.17
0.00
0.71%
TS
757.06
21.00
756.32
23.93
757.81
18.00
757.81
18.00
Ex Tel
CL 10
Ex Gas

**1847+85.30**

Sta. 1847+85.30
Prop. Type "B"
Ent. Rt.

758.01
0.00
756.90
21.00
756.35
23.19
757.65
18.00
757.65
18.00
Ex Tel
CL 10

**1847+75.00**

Sta. 1847+85.30
Prop. Type "B"
Ent. Rt.

757.92
0.00
756.81
21.00
756.37
22.77
757.56
18.00
757.56
18.00
Ex Tel
CL 10
CL 10
CL 10

**1847+69.25**

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

4:51:58 PM 9/20/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158X01.sht

# Church Street

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

770 760 780

763.25 / 55.95 — TS — TS — TS — 761.22 / 0.00 — 761.13 / 32.64 — 761.33 / 44.77 — 760.56 / 49.36

Ex Tel — Ex Tel — 761.62 / 18.00 — 760.84 / 18.00 — Ex San

**1849+00.00**

760 750

762.04 / 66.24 — 762.22 / 42.28 — 761.45 / 25.15 — 760.59 / 0.00 — 760.63 / 21.30 — 760.92 / 33.60 — Ex ROW — 759.00 / 41.33

TS — TS — TS

Ex Tel — 760.82 / 18.00 — 760.23 / 18.00 — Ex Tel — Ex Tel

**1848+75.00**

770 760 750

760.92 / 66.17 — 761.79 / 38.35 — 761.21 / 23.12 — 760.43 / 0.00 — Ex ROW — 760.50 / 37.00 — 760.16 / 34.00 — Pr ROW

TS — TS — TS

Ex Tel — 760.62 / 18.00 — Ex Tel — Ex Tel — 760.07 / 18.00 — 758.85 / 41.63

**1848+69.79**

CL 10 — CL 10 — CL 10

770 760 750

757.93 / 66.00 — 760.82 / 34.00 — Ex ROW — 760.56 / 21.00 — 759.95 / 0.00 — 759.53 / 21.00 — 759.41 / 34.00 — Pr ROW

TS — TS — TS — TS — TS

Ex Tel — Ex Tel — 760.04 / 18.00 — 759.59 / 18.00 — 758.80 / 36.47

**1848+56.14**

CL 10 — CL 10

770 760 750

Ex ROW — 759.44 / 30.74 — 759.80 / 20.39 — 759.74 / 0.00 — 759.34 / 20.39 — 759.18 / 33.39

S1 — S1 — TS — TS

Ex Tel — 756.58 / 43.36 — Ex Tel — 759.79 / 18.00 — 759.38 / 18.00 — 758.65 / 35.52

**1848+50.00**

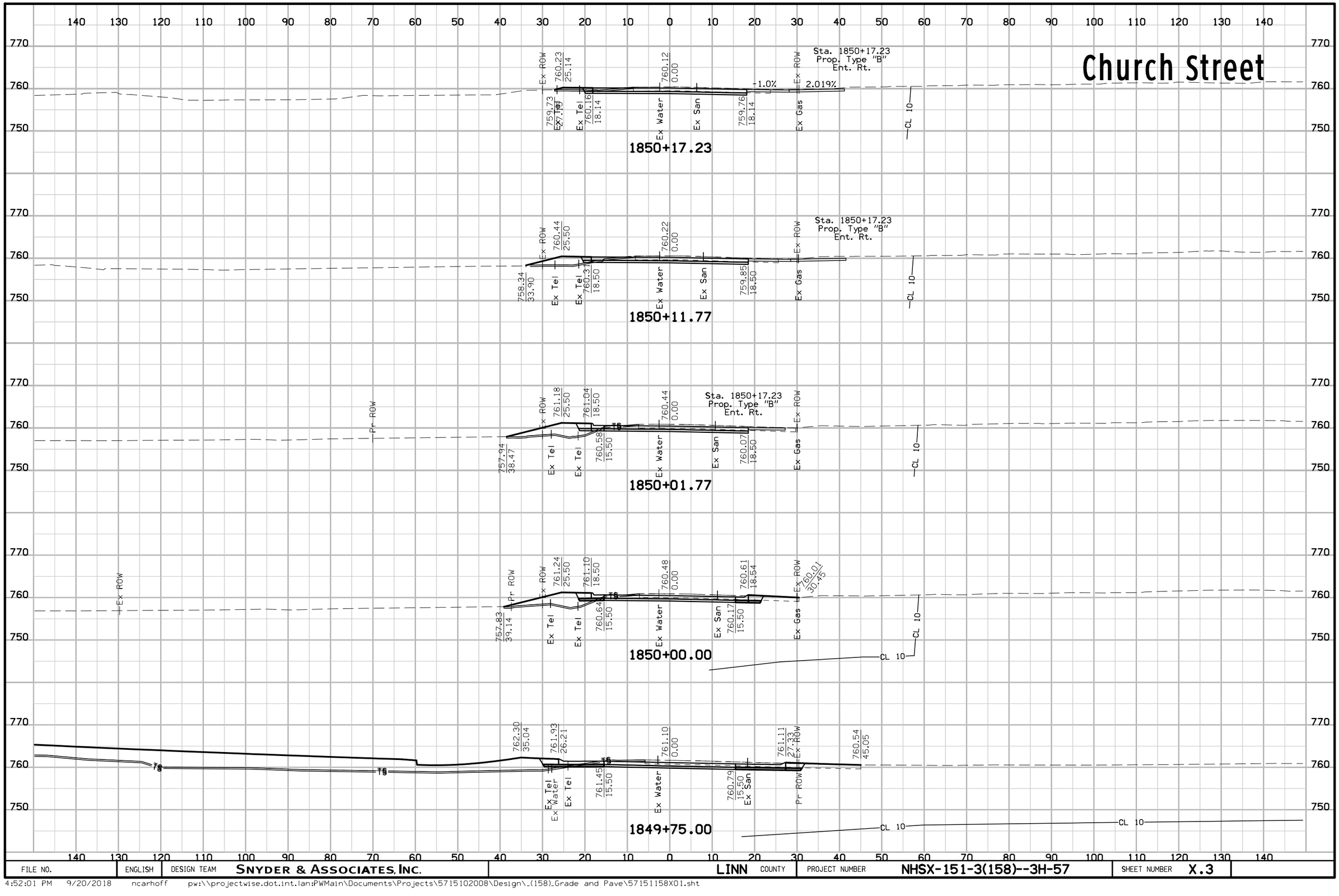
CL 10 — CL 10

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.2 |
|---|---|---|---|---|---|---|---|---|

4:52:00 PM 9/20/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158X01.sht

# Church Street




| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | X.3 |
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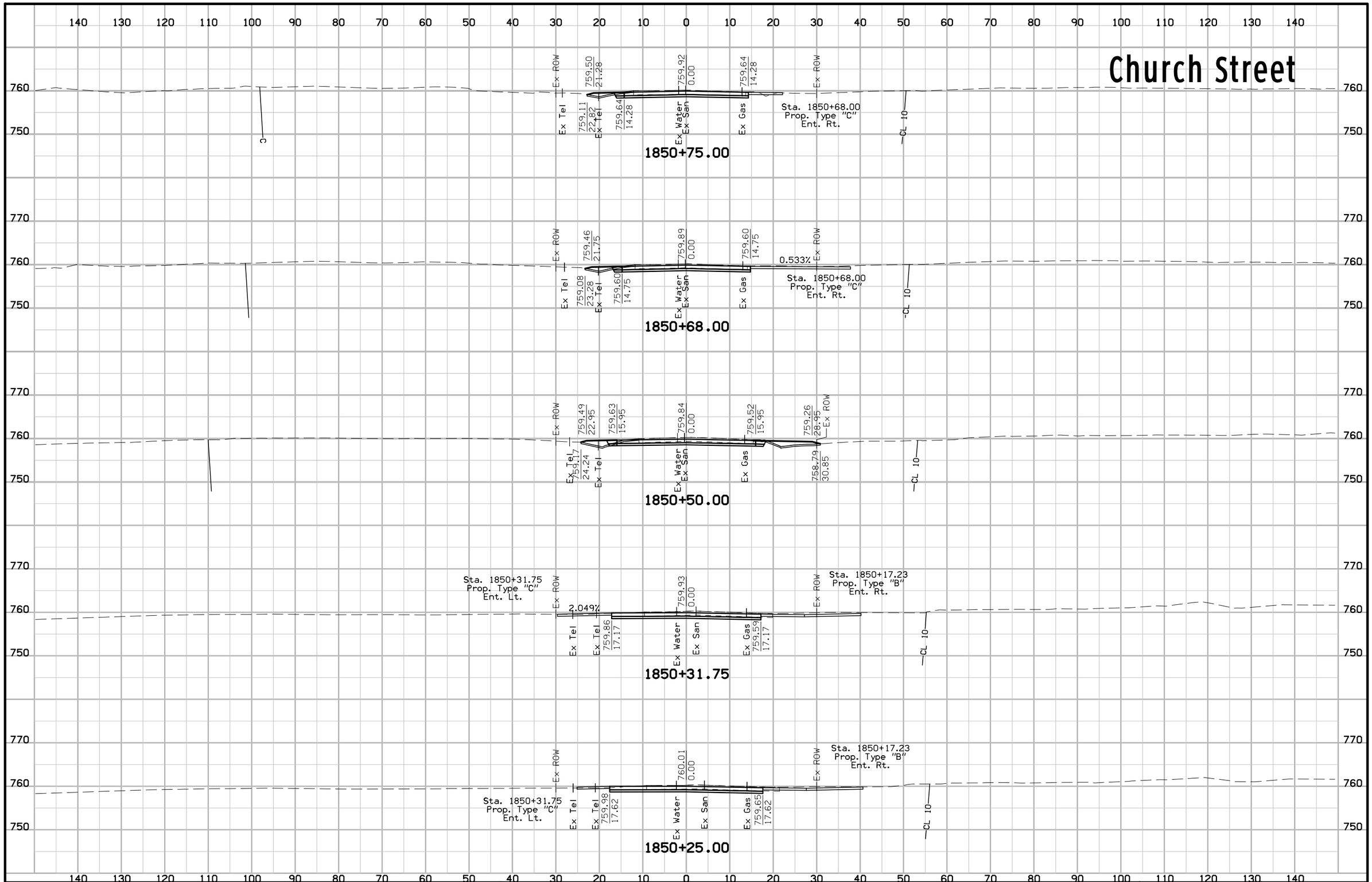
4:52:01 PM 9/20/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158X01.sht

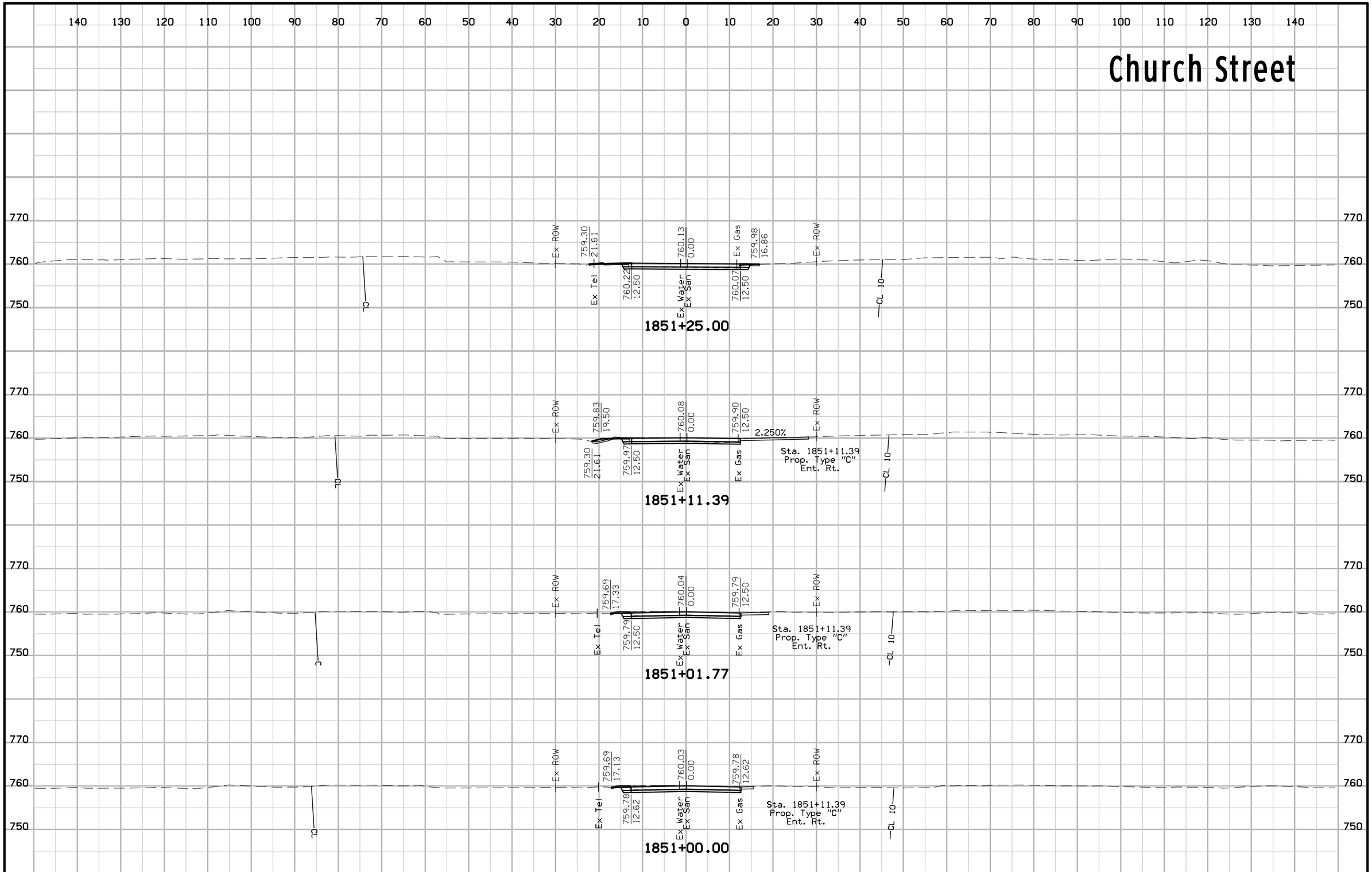
# Church Street




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

4:52:03 PM 9/20/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158X01.sht

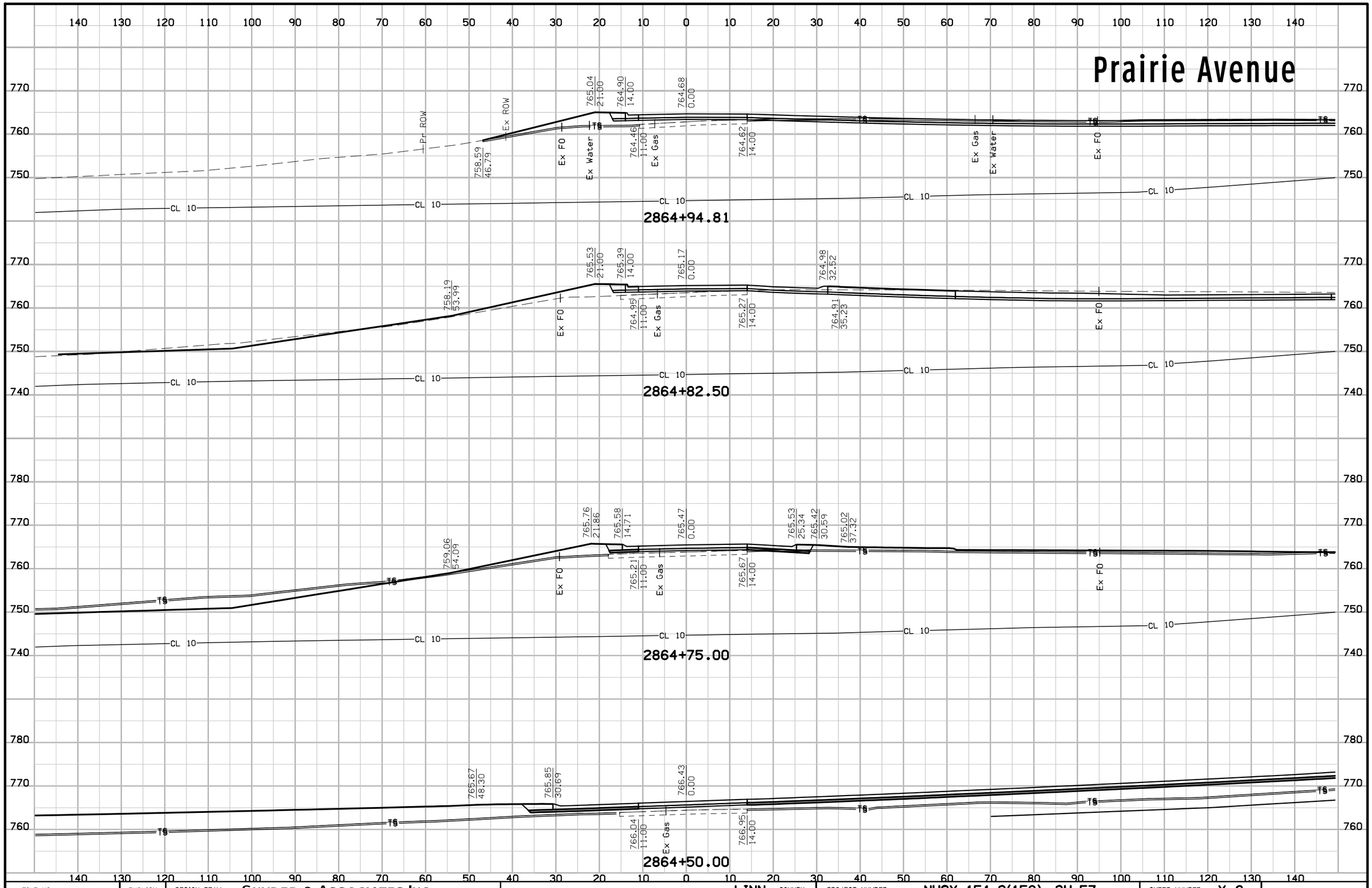
# Church Street




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

4:52:05 PM 9/20/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158X01.sht

# Prairie Avenue




| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | X.6 |
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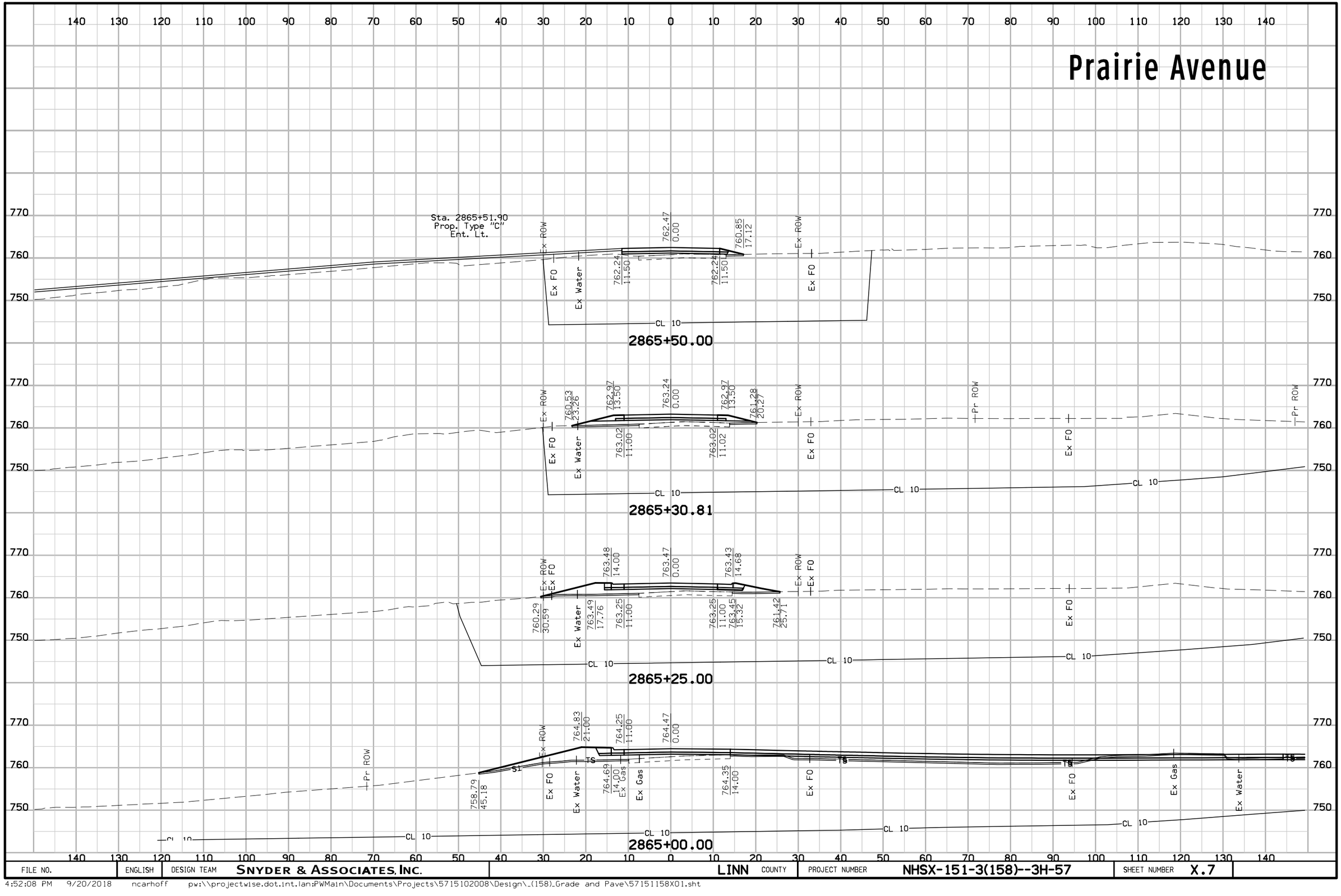
4:52:06 PM 9/20/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158X01.sht

# Prairie Avenue




| 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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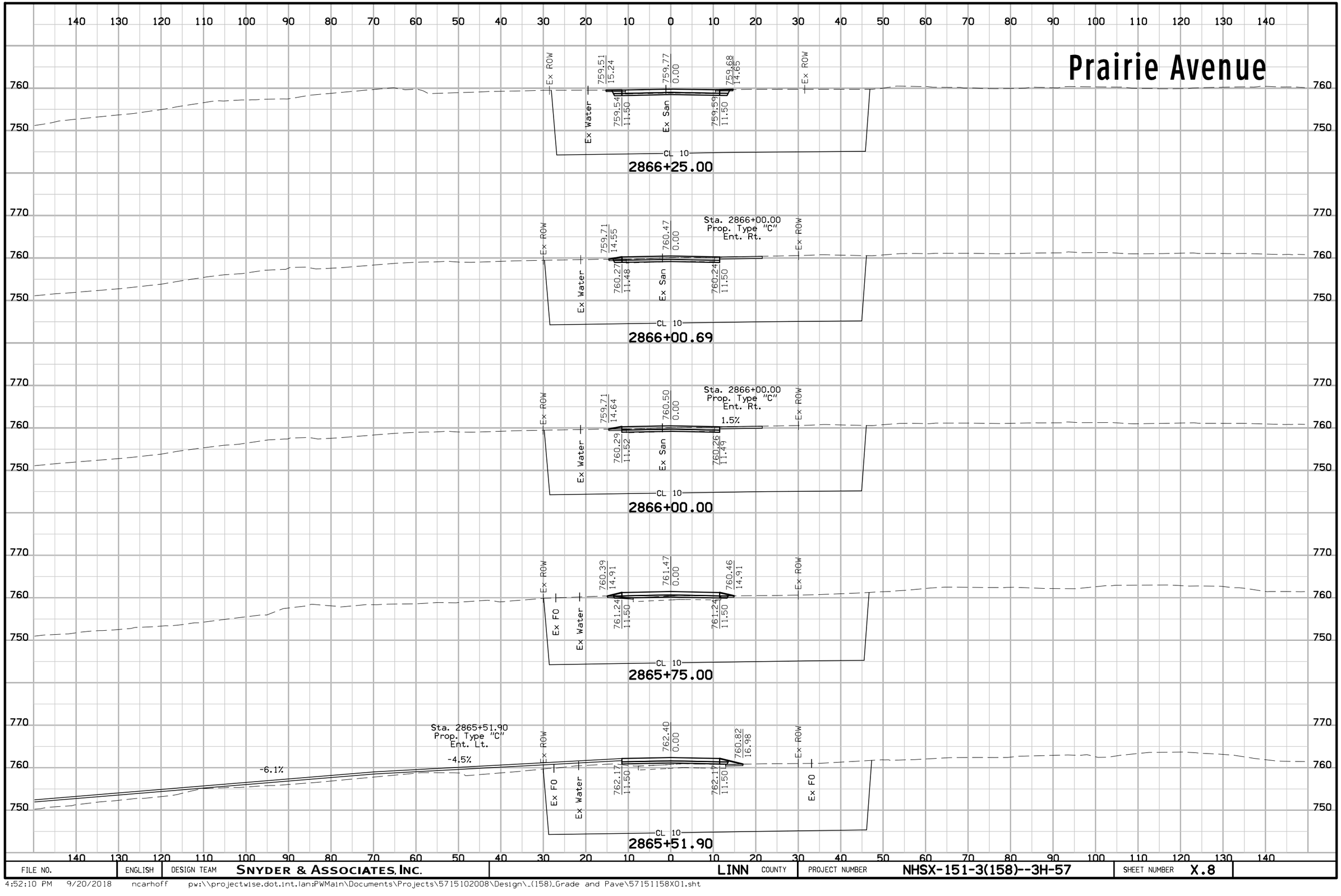
4:52:08 PM 9/20/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158X01.sht

# Prairie Avenue




| FILE NO. | ENGLISH | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER | NHSX-151-3(158)--3H-57 | SHEET NUMBER | X.8 |
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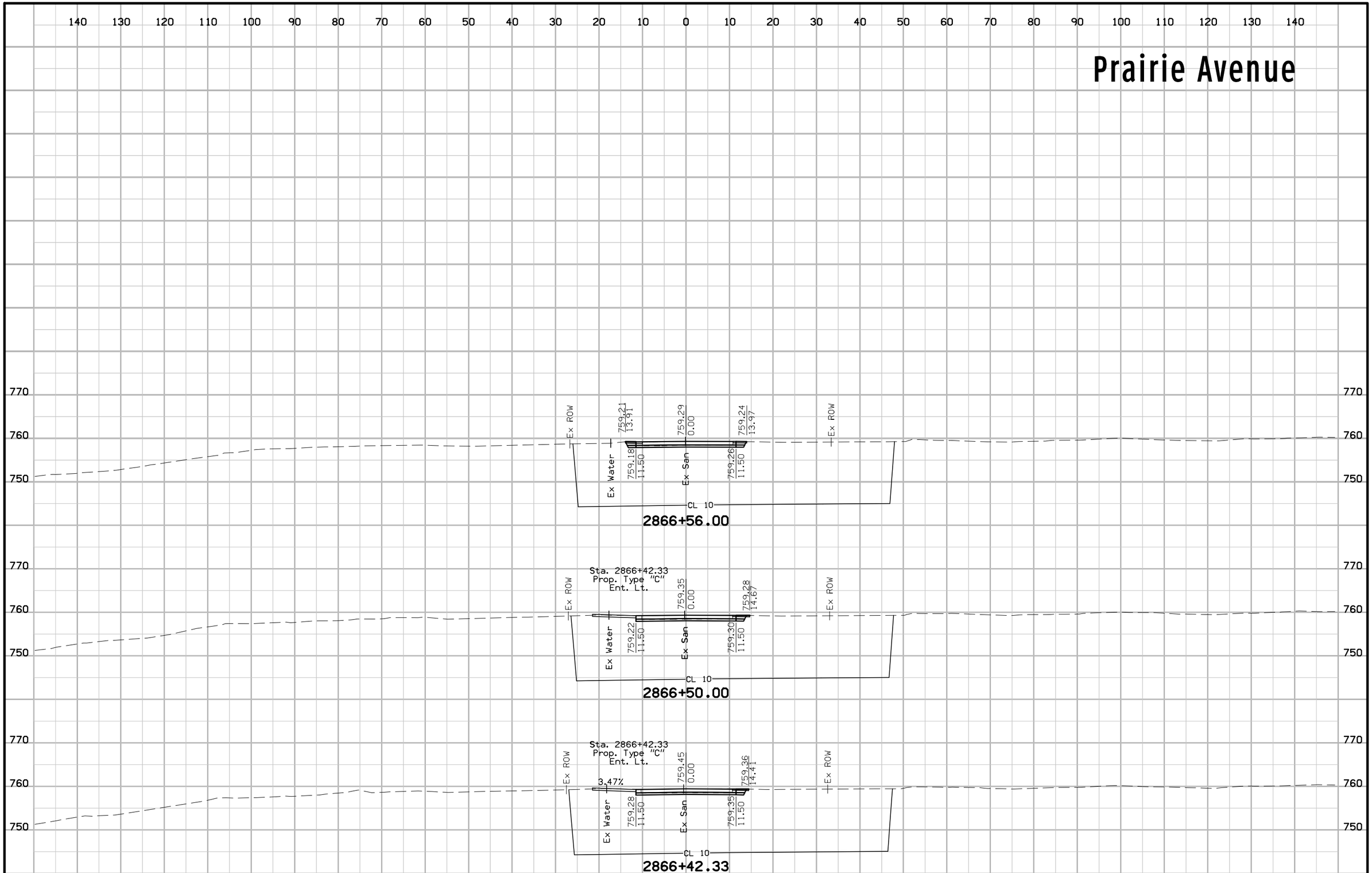
4:52:10 PM 9/20/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158X01.sht

# Prairie Avenue




| 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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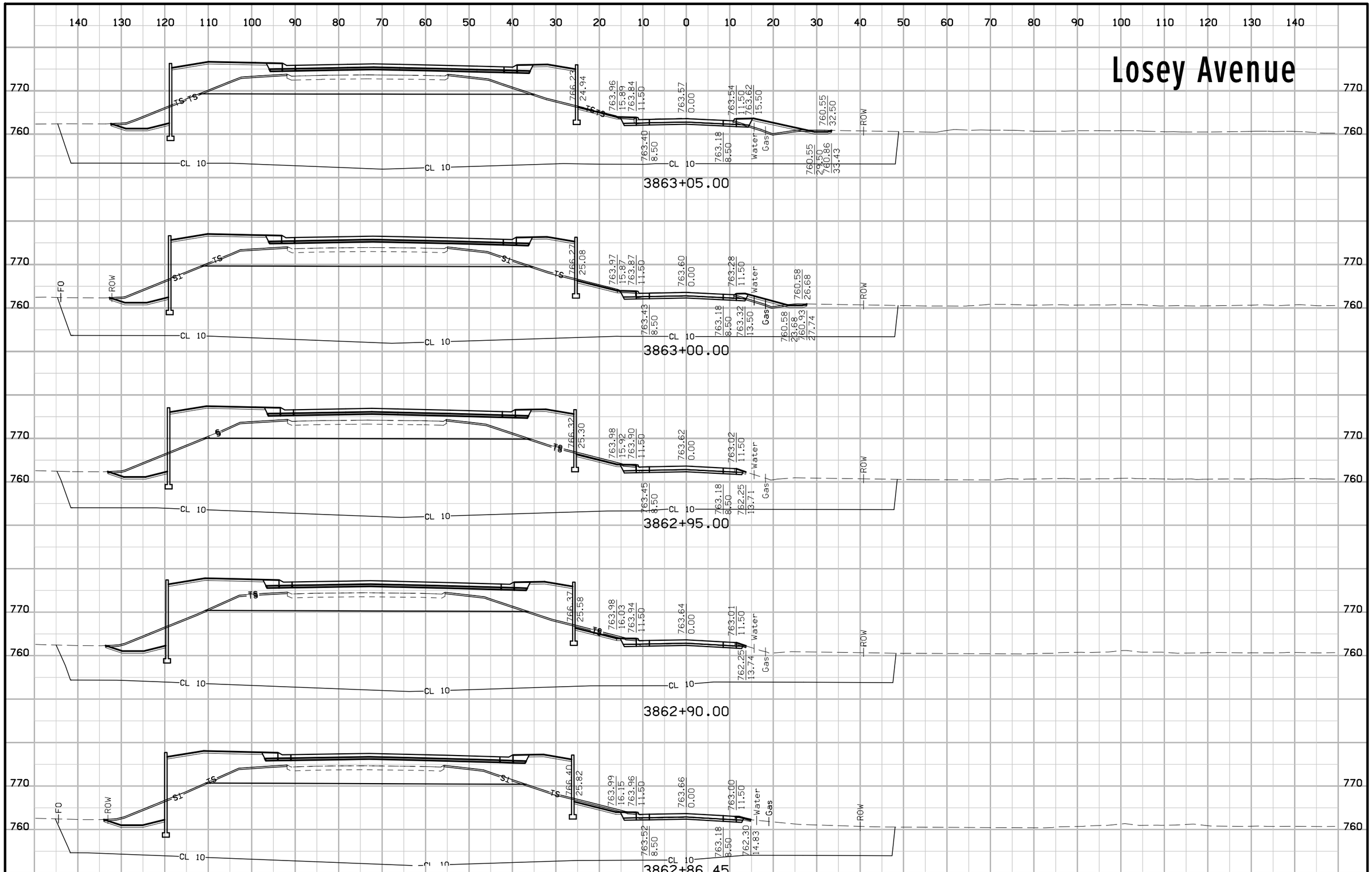
4:52:11 PM 9/20/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158X01.sht

# Losey Avenue




| 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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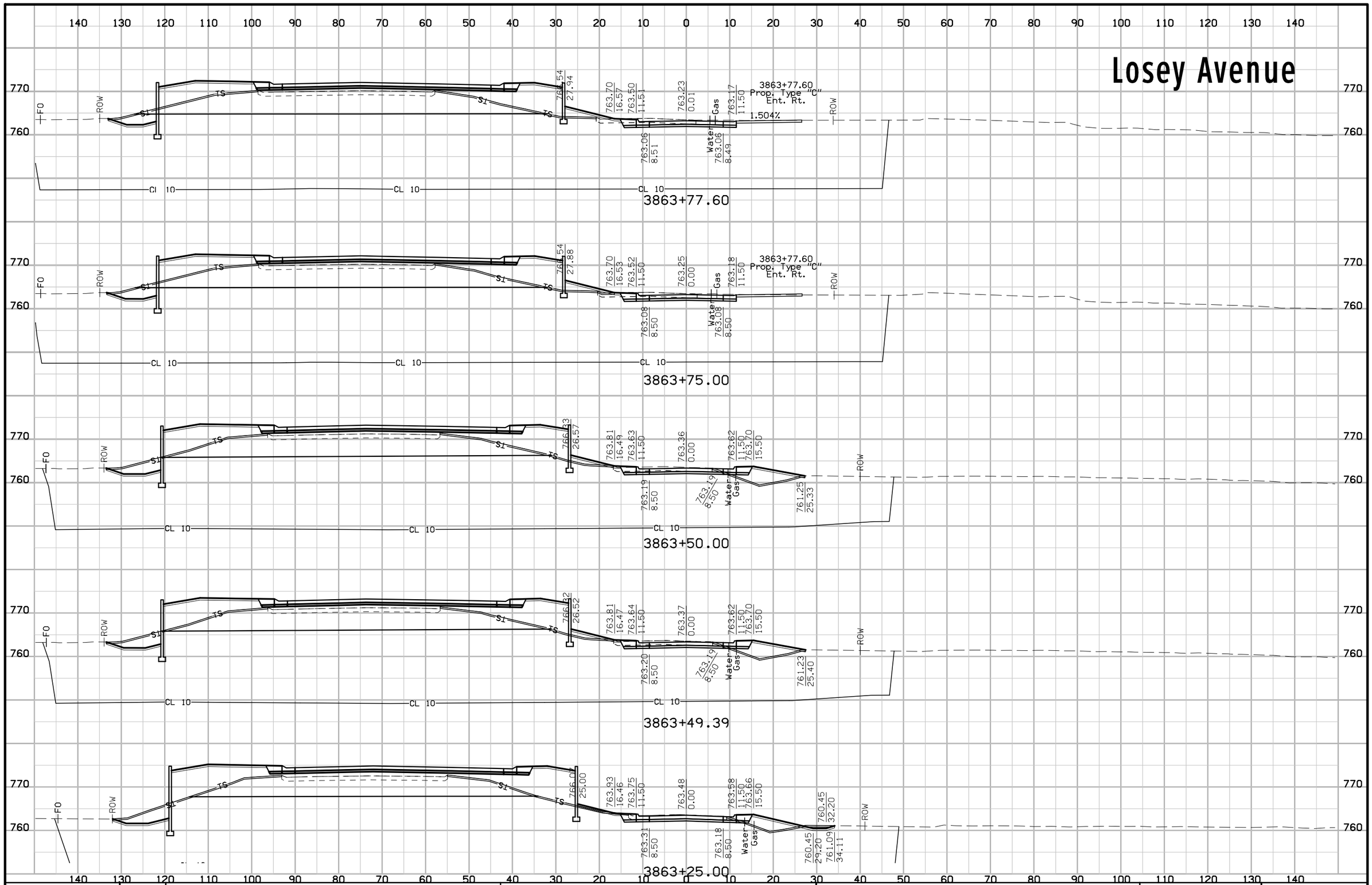
4:52:12 PM 9/20/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158X01.sht

# Losey Avenue




| 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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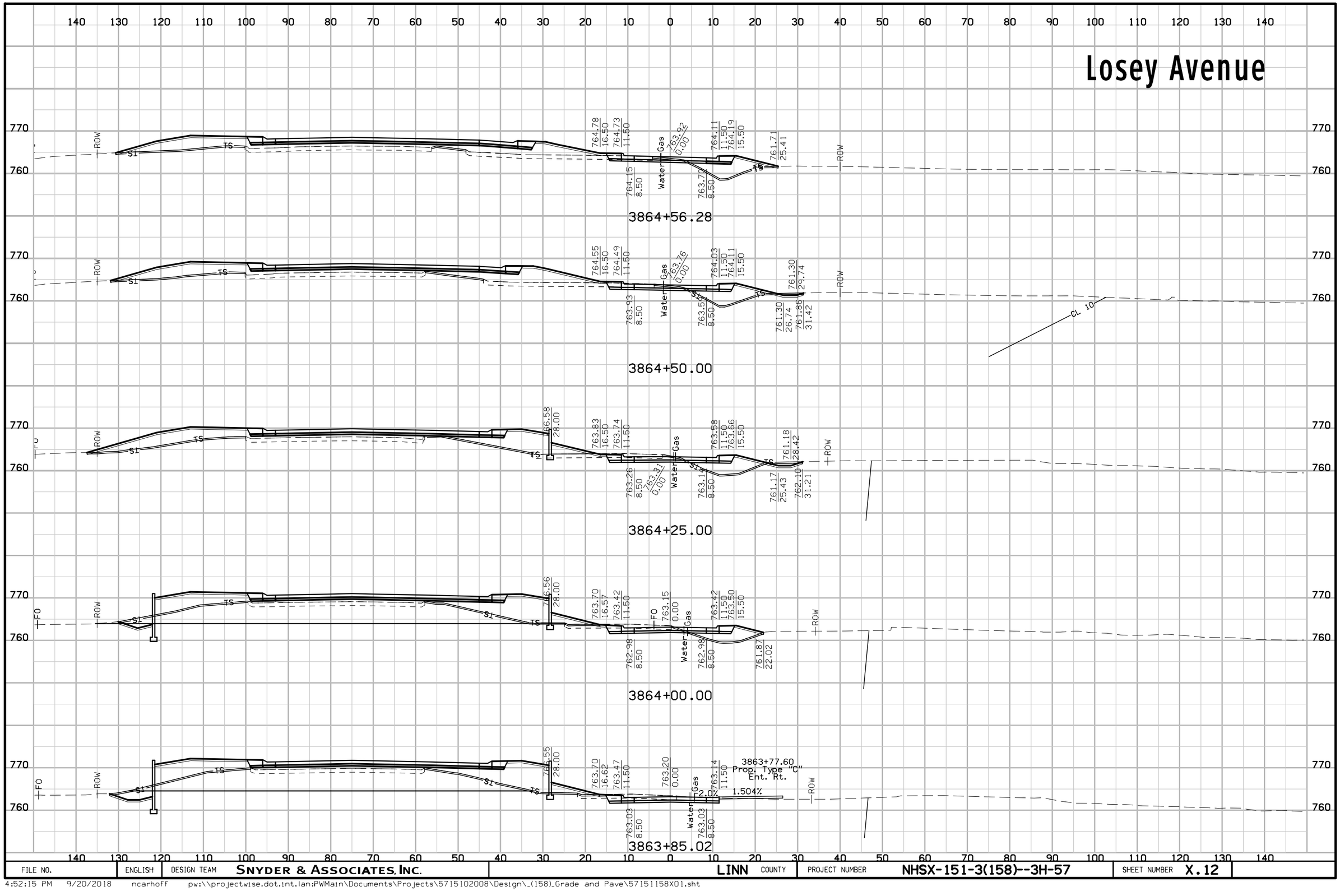
4:52:14 PM 9/20/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158X01.sht

# Losey Avenue




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

4:52:15 PM 9/20/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158X01.sht

# Losey Avenue

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

764.63
0.00
Water
Gas
765.07
8.50
764.18
8.50
763.32
31.71
TS

3864+80.81

770
760

ROW
764.46
0.00
Water
Gas
764.85
8.50
764.07
8.50
763.88
19.94
763.88
22.53
761.28
36.28
TS

3864+75.00

770
760

ROW
S1
TS
764.94
16.50
764.85
11.50
764.88
19.51
764.26
8.50
Water
Gas
764.01
0.00
763.76
8.50
764.11
11.70
764.19
15.36
761.67
25.30
TS
ROW

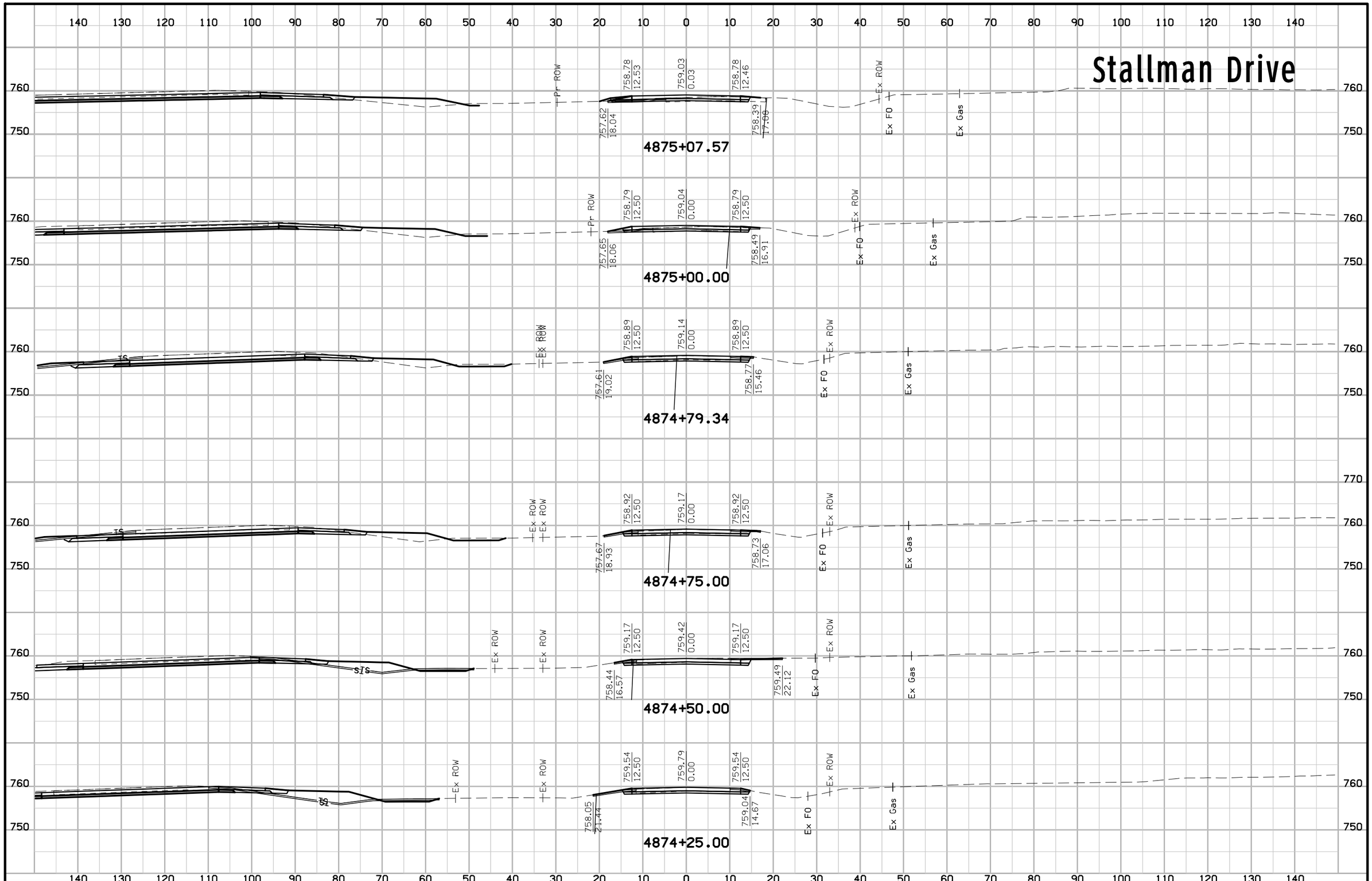
3864+59.42

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.13 |
|---|---|---|---|---|---|---|---|---|

4:52:17 PM 9/20/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158X01.sht

# Stallman Drive




| 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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# Stallman Drive

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

758.95 / 12.50
758.91 / 0.00
758.79 / 12.50
759.14 / 30.75
758.66 / 34.81

**4875+75.00**

758.51 / 22.68
758.98 / 12.50
759.14 / 0.00
758.89 / 12.50
758.36 / 81.91
759.00 / 17.47
758.81 / 16.17
758.25 / 22.71

**4875+55.65**

758.48 / 21.62
758.94 / 12.50
759.15 / 0.00
758.90 / 12.50
758.22 / 42.77
758.97 / 16.46
758.85 / 13.42
757.57 / 21.63

**4875+50.00**

758.45 / 20.59
758.89 / 12.50
759.14 / 0.00
758.89 / 12.50
756.74 / 31.59
758.40 / 23.86
758.95 / 15.46
757.45 / 20.42
Ex ROW

**4875+43.95**

757.44 / 21.51
758.81 / 12.50
759.05 / 0.00
758.81 / 12.50
758.36 / 18.24
758.86 / 13.21
758.19 / 17.54
Ex ROW
Ex FO
Ex Gas

**4875+25.00**

Pr ROW
757.56 / 20.13
758.78 / 12.50
759.03 / 0.00
758.78 / 12.50
758.30 / 17.54
758.42 / 16.38
Ex ROW
Ex FO
Ex Gas

**4875+11.36**

| 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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# Cemetery Road

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

Ex ROW
Ex FO
Ex FO
Ex Gas
Ex Tel
Ex FO
760.17 12.50
760.42 0.00
760.17 12.50
758.90 17.59
759.16 16.45

**5883+15.59**

Ex ROW
Ex FO
Ex FO
Ex Tel
Ex Gas
Ex FO
759.70 12.50
759.95 0.00
759.70 12.50
758.54 17.15
758.92 15.61

**5883+00.00**

Ex ROW
Ex FO
Ex Tel
Ex FO
Ex Gas
759.07 12.50
759.32 0.00
759.07 12.50
758.18 16.09
758.70 13.98
Ex San

**5882+75.00**

Ex ROW
Ex FO
Ex Tel
Ex FO
Ex Gas
758.62 12.50
758.87 0.00
758.58 12.50
758.41 13.31
758.46 13.00
Ex San
S1
TS

**5882+50.00**

Ex ROW
Ex FO
Ex Tel
Ex Gas
Ex FO
758.28 12.50
758.62 0.00
758.23 12.50
758.25 13.70
758.22 12.83
Ex ROW
Ex ROW

**5882+30.00**

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

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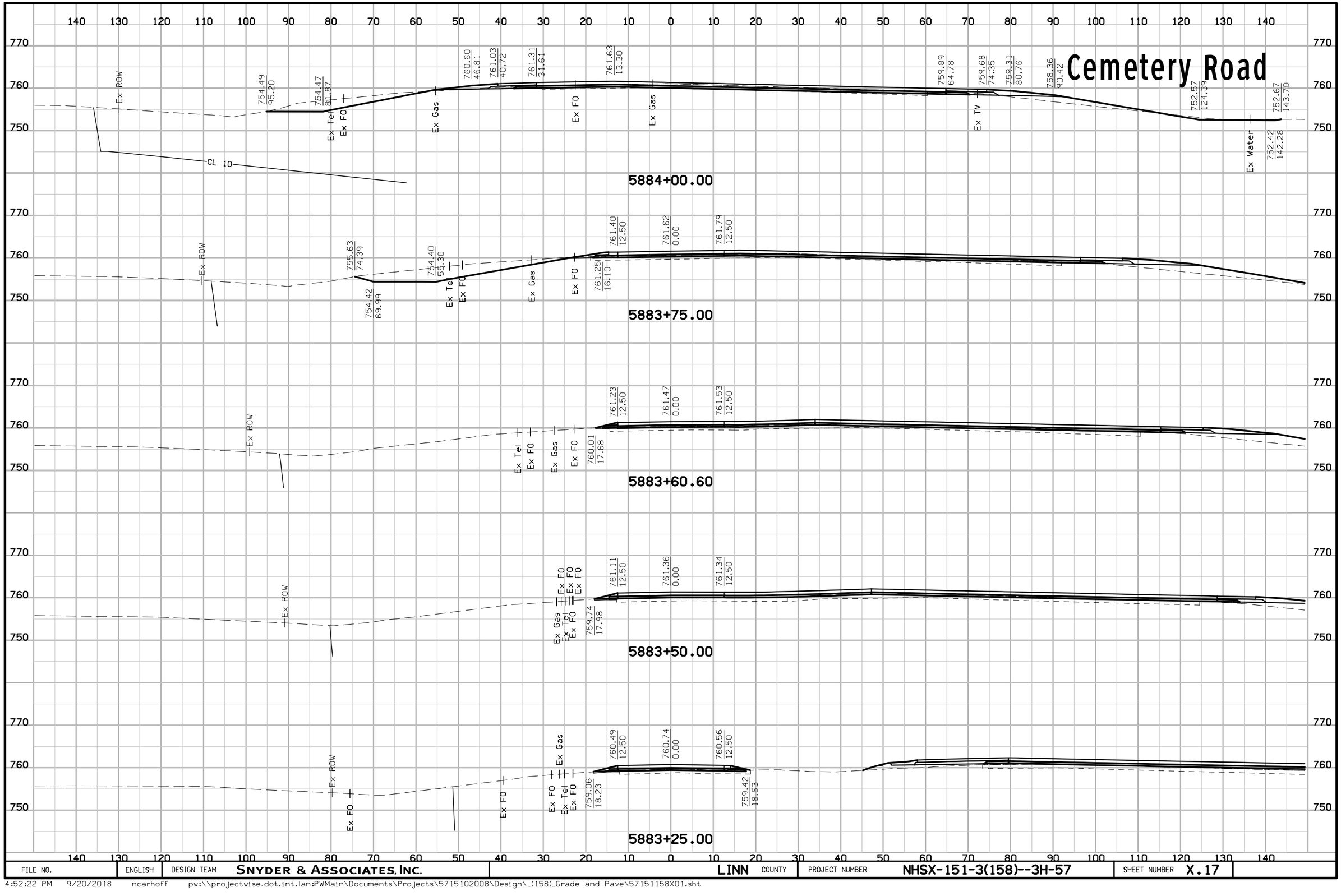
# Cemetery Road




| 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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# Cemetery Road

5884+92.07

5884+86.04

5884+75.00

5884+50.00

5884+25.00

| 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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# Cemetery Road

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

CL 10

Ex Water

Ex FO

Ex Gas

Ex Water

Ex Storm

Ex ROW

**5885+42.00**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 756.60 | 756.90 | 756.71 | 757.26 | 756.41 | 757.09 | 757.68 | |
| 12.00 | 0.00 | 11.00 | 17.00 | 21.35 | | | |

**5885+31.91**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 756.94 | 757.18 | 756.96 | 757.50 | 756.71 | 757.30 | 757.78 | |
| 12.00 | 0.00 | 11.00 | 17.00 | 23.16 | | | |

**5885+27.53**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 757.06 | 757.30 | 757.08 | 757.62 | 756.78 | 757.36 | 758.02 | |
| 12.00 | 0.00 | 11.00 | 17.00 | 25.81 | | | |

**5885+25.00**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 756.92 | 757.13 | 757.37 | 757.15 | 757.69 | 757.39 | 758.17 | |
| 26.84 | 12.00 | 0.00 | 11.00 | 17.00 | | | |

757.12 14.62 Ex Storm

**5885+00.00**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 760.63 | 759.32 | 758.95 | 758.18 | 758.12 | 757.82 | 758.06 | 757.84 | 758.12 | |
| 146.00 | 85.40 | 68.95 | 30.62 | 21.46 | 12.00 | 0.00 | 11.00 | 17.00 | |

Ex Gas 757.89 18.74

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