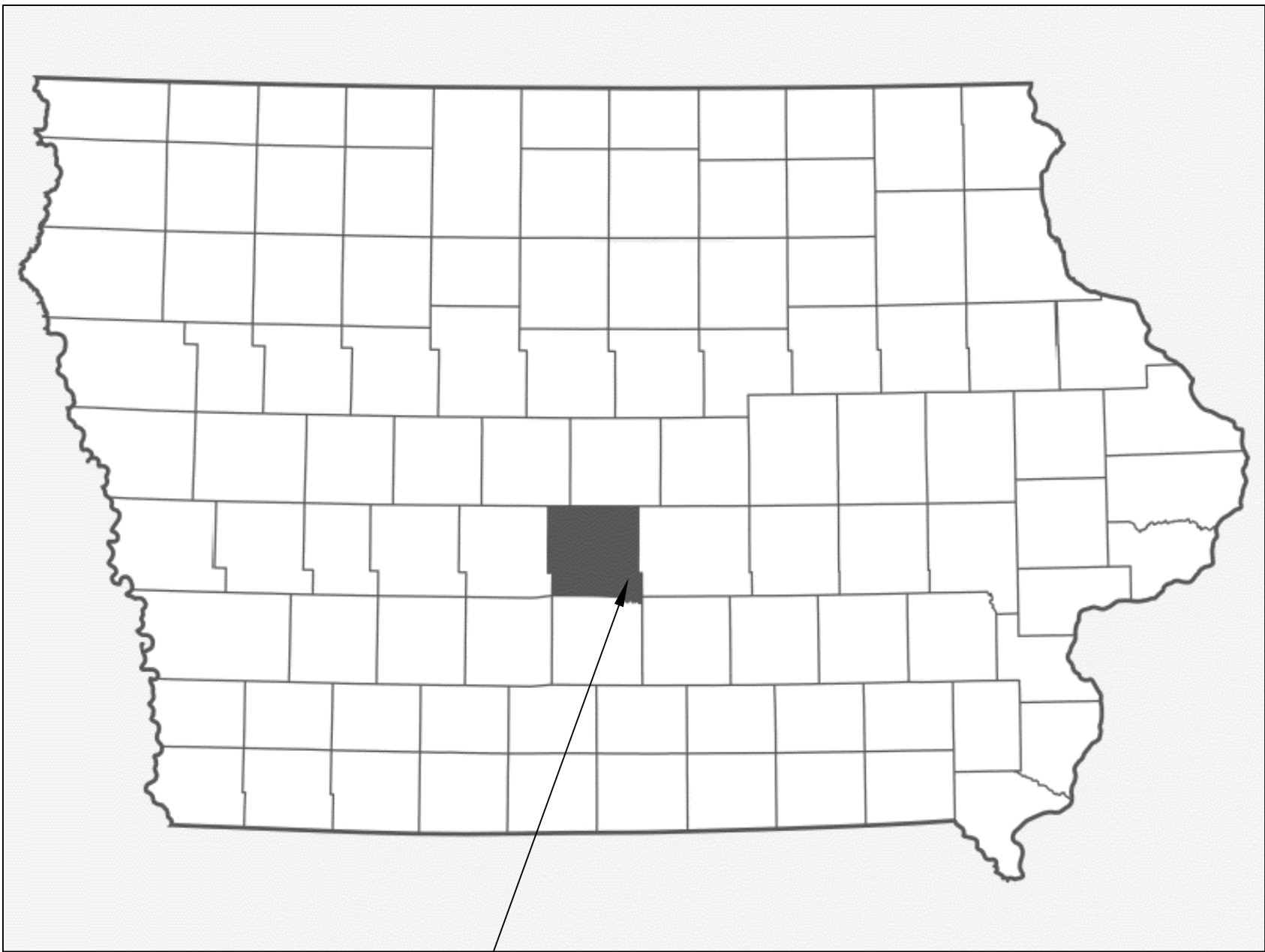




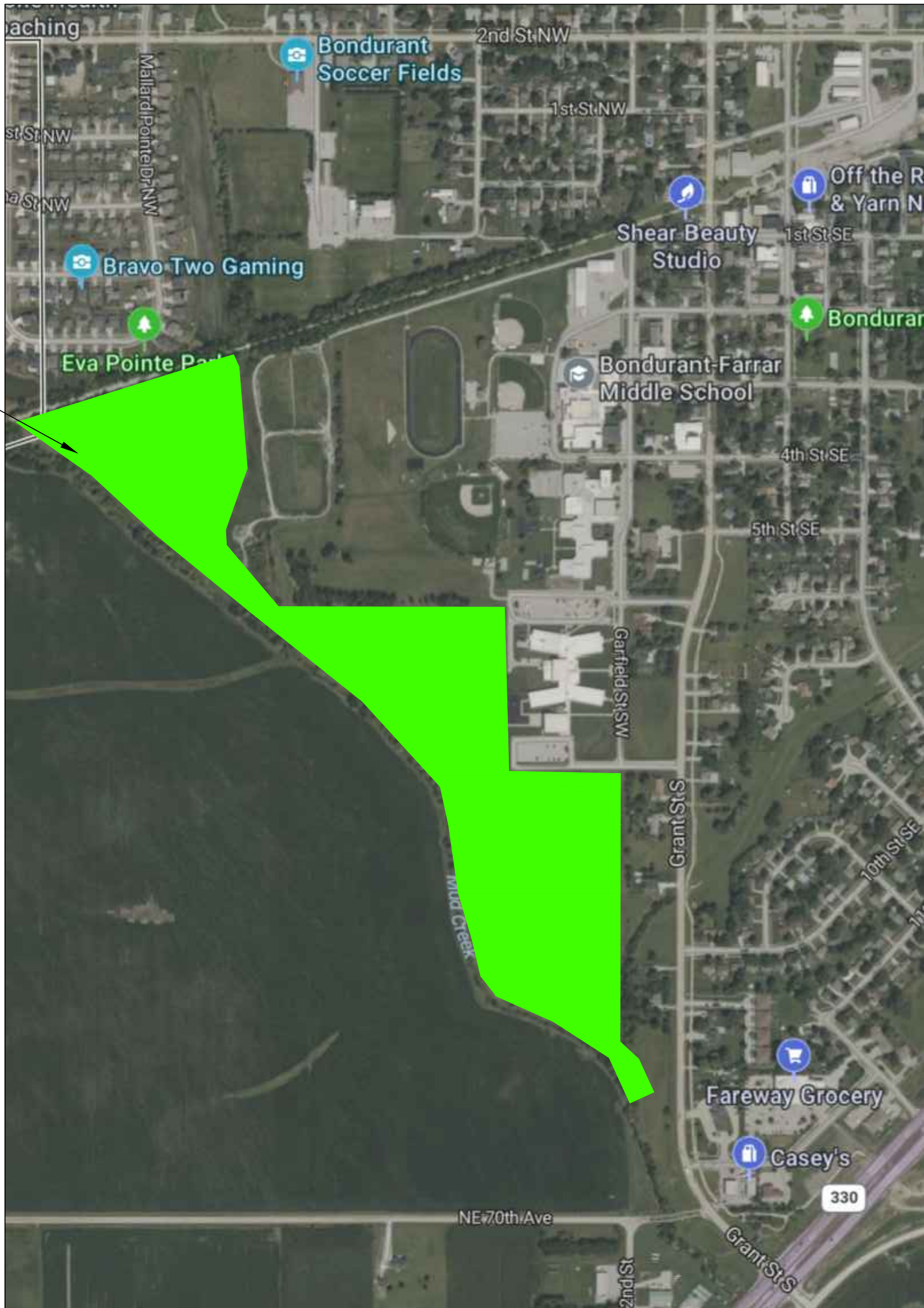
POLK COUNTY, IOWA

PROJECT LOCATION



# DITCH 2 SOUTH TRAIL DESIGN

## BONDURANT, IOWA



TOTAL PAGES: 35

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| A.2.             | OVERALL SITE PLAN AND REMOVALS            |
| <b>B. SHEETS</b> | <b>TYPICAL CROSS SECTIONS AND DETAILS</b> |
| B.1.             | TYPICAL SECTIONS                          |
| <b>C. SHEETS</b> | <b>QUANTITIES AND GENERAL INFORMATION</b> |
| C.1.             | ESTIMATED PROJECT QUANTITIES              |
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WHEN PUBLIC UTILITY FIXTURES ARE SHOWN AS EXISTING ON THE PLANS OR ENCOUNTERED WITHIN THE CONSTRUCTION AREA, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE OWNERS OF THOSE UTILITIES PRIOR TO THE BEGINNING OF ANY CONSTRUCTION, THE CONTRACTOR SHALL AFFORD ACCESS TO THESE FACILITIES FOR NECESSARY MODIFICATION OF SERVICES. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORD, AND THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THERE MAY BE OTHERS. THE EXISTENCE OF WHICH PRESENTLY NOT KNOWN OR SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND TO AVOID DAMAGE THERETO. NO CLAIMS FOR ADDITIONAL COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR ANY INTERFERENCE OR DELAY CAUSED BY SUCH WORK.



PROJECT: CEE: 4850

DATE : 5/8/2026

DRAWN BY: CDL

REVISION:

THE UNIVERSITY OF IOWA

CIVIL AND ENVIRONMENTAL ENGINEERING

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FAX: 319.335.5660  
EMAIL: civil-hawks@iowa.edu

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TRAIL DESIGN

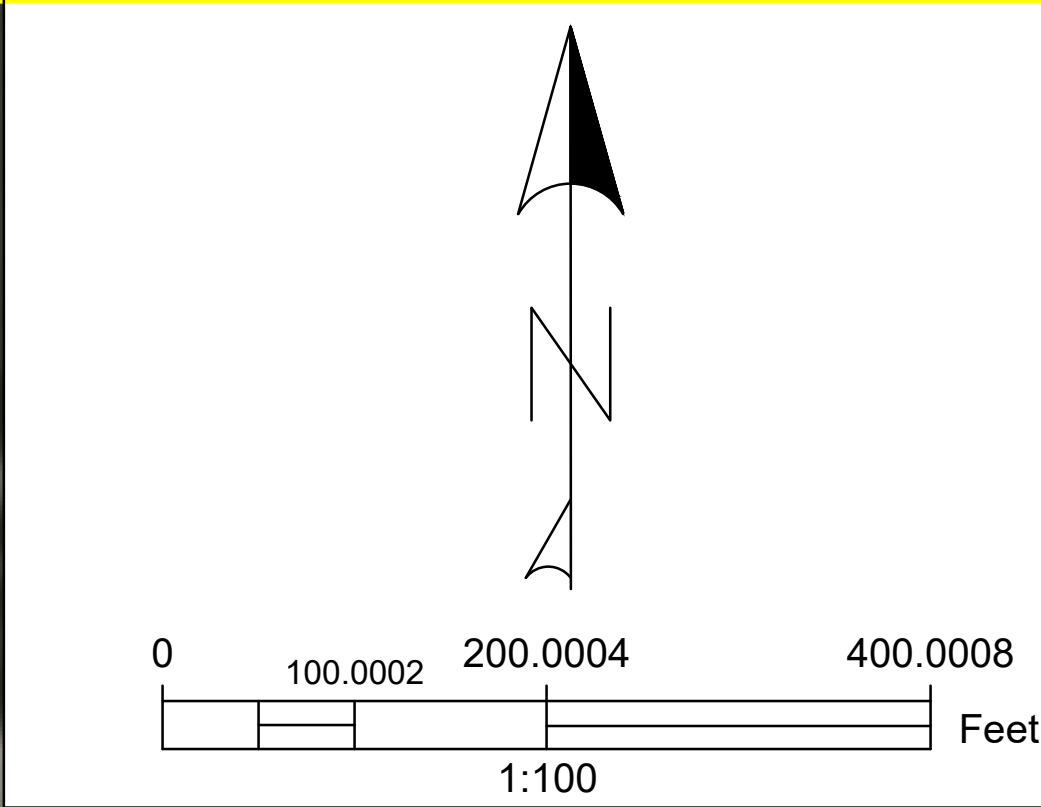
DITCH 2  
BONDURANT, IOWA

SHEET NAME

TITLE SHEET

SHEET NO.

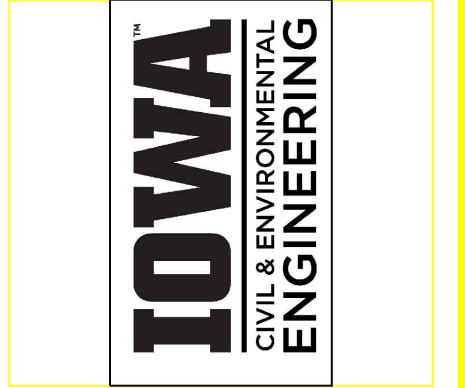
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|           |           |
|-----------|-----------|
| PROJECT:  | CEE: 4850 |
| DATE :    | 5/8/2026  |
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## TRAIL DESIGN

DITCH 2  
BOUNDURANT, IOWA

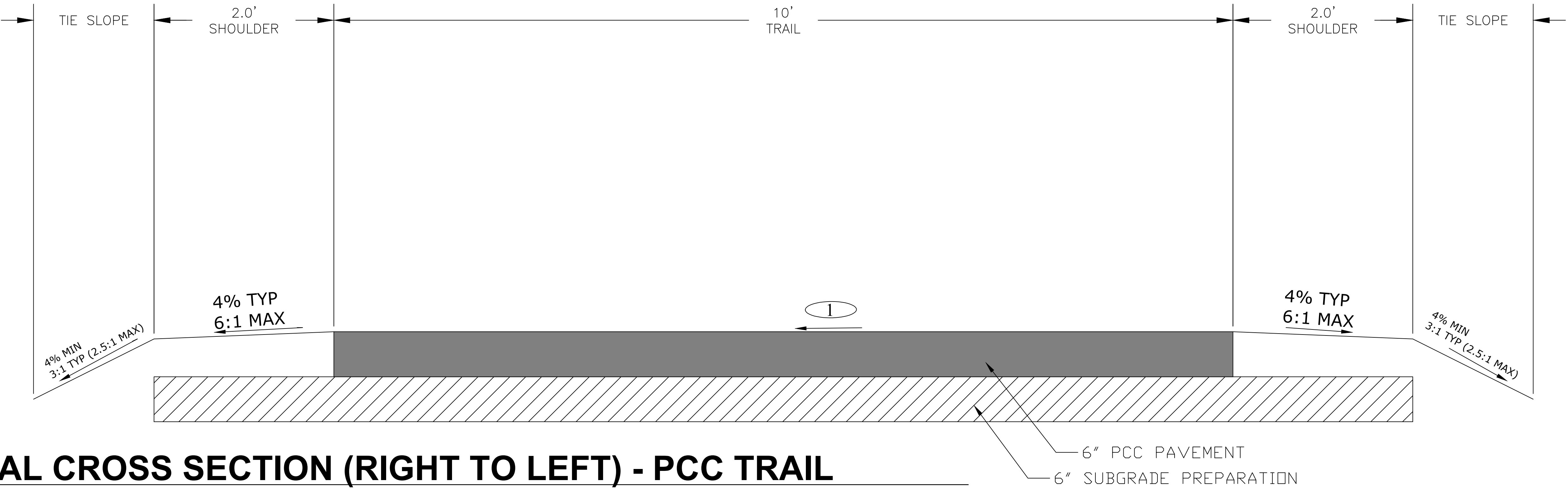
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SITE PLAN  
AND REMOVALS

SHEET NO.

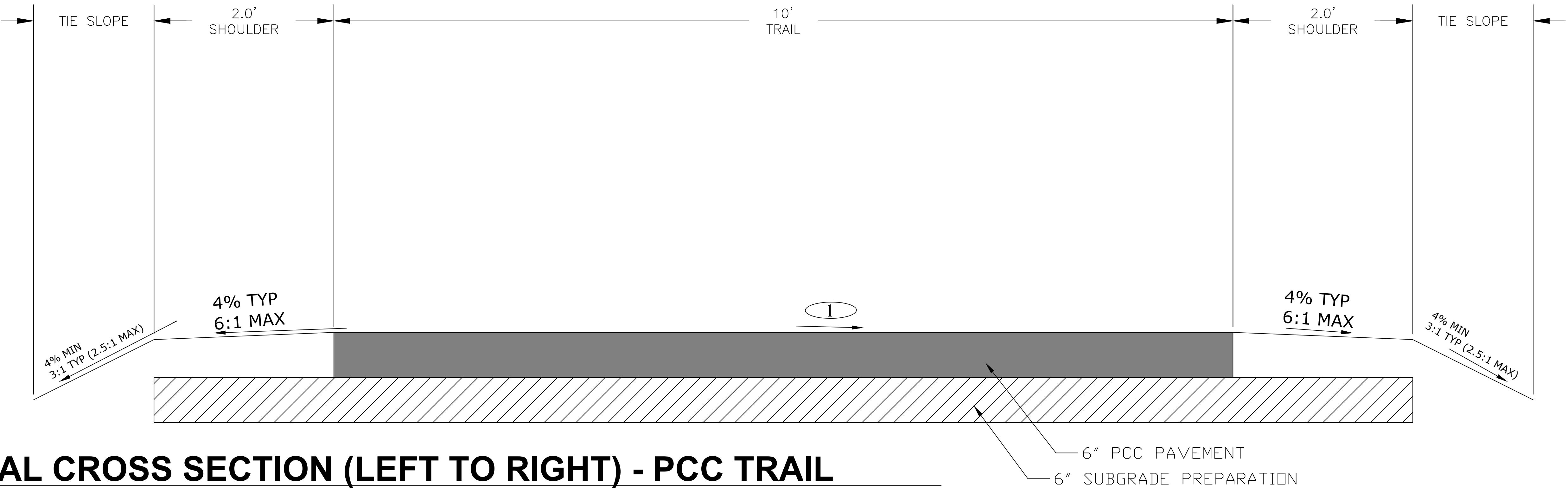
A.2

1 CROSS SLOPE SHALL BE 1.5% TARGET, 2% MAXIMUM.  
Direction indicates the lower side of the trail. Field adjustment can be made to provide proper drainage



TYPICAL CROSS SECTION (RIGHT TO LEFT) - PCC TRAIL

1 CROSS SLOPE SHALL BE 1.5% TARGET, 2% MAXIMUM.  
Direction indicates the lower side of the trail. Field adjustment can be made to provide proper drainage



TYPICAL CROSS SECTION (LEFT TO RIGHT) - PCC TRAIL

|           |            |
|-----------|------------|
| PROJECT:  | CEE: 4850  |
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TRAIL DESIGN

DITCH 2  
BOUNDURANT, IOWA

SHEET NAME  
TYPICAL  
CROSS SECTIONS

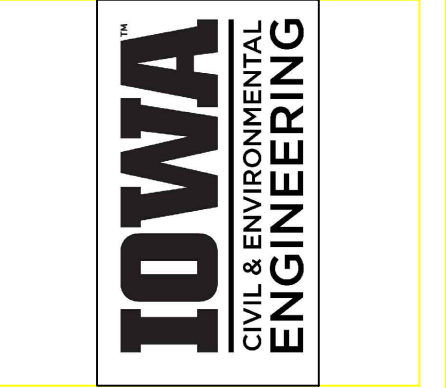
SHEET NO.  
B.1

# Estimated Project Quantities

| Item No. | Item Code | Item                        | Unit | Total |
|----------|-----------|-----------------------------|------|-------|
| 1        | 2010-B    | CLEARING AND GRUBBING       | AC   | 2.01  |
| 2        | 2010-E    | EXCAVATION - CLASS 10       | CY   | 5350  |
| 3        | 2010-J    | GRANULAR SUBBASE            | SY   | 5775  |
| 4        | 7030-C    | SHARED USE PATH, 6" PCC     | SY   | 5200  |
| 5        | 9040-A-1  | SWPPP PREPARATION           | LS   | 1     |
| 6        | 9040-A-2  | SWPPP MANAGEMENT            | LS   | 1     |
| 7        | 2010-D-1  | TOPOSOIL, ON-SITE           | CY   | 0.82  |
| 8        | 9010-B    | PRAIRIE SEEDING MIX         | AC   | 0.82  |
| 9        | SPECIAL   | OAK/LINDEN TREES            | EA   | 70    |
| 10       | 11020-A   | MOBILIZATION                | LS   | 1     |
| 11       | 11050-A   | CONCRETE WASHOUT            | LS   | 1     |
| 12       | SPECIAL   | ABUTMENTS                   | CY   | 39    |
| 13       | 9080-B    | APPROACH RAILING, STEEL     | LS   | 1     |
| 14       | SPECIAL   | PRE-FABRICATED STEEL BRIDGE | LS   | 1     |
| 15       | SPECIAL   | RIP RAP, CLASS E            | TON  | 180   |
| 16       | SPECIAL   | PILES, STEEL, HP 14X73      | LF   | 360   |

|           |           |
|-----------|-----------|
| PROJECT:  | CEE: 4850 |
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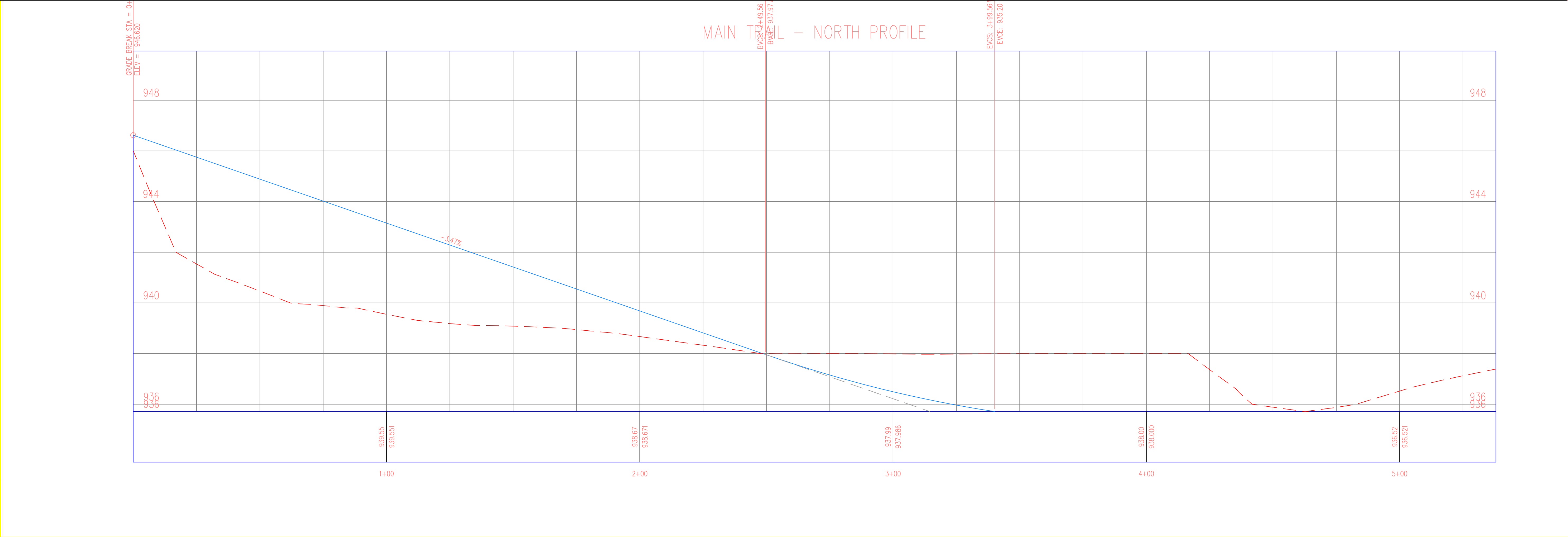


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DITCH 2  
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SHEET NAME  
PROJECT  
QUANTITIES

SHEET NO.  
C.1



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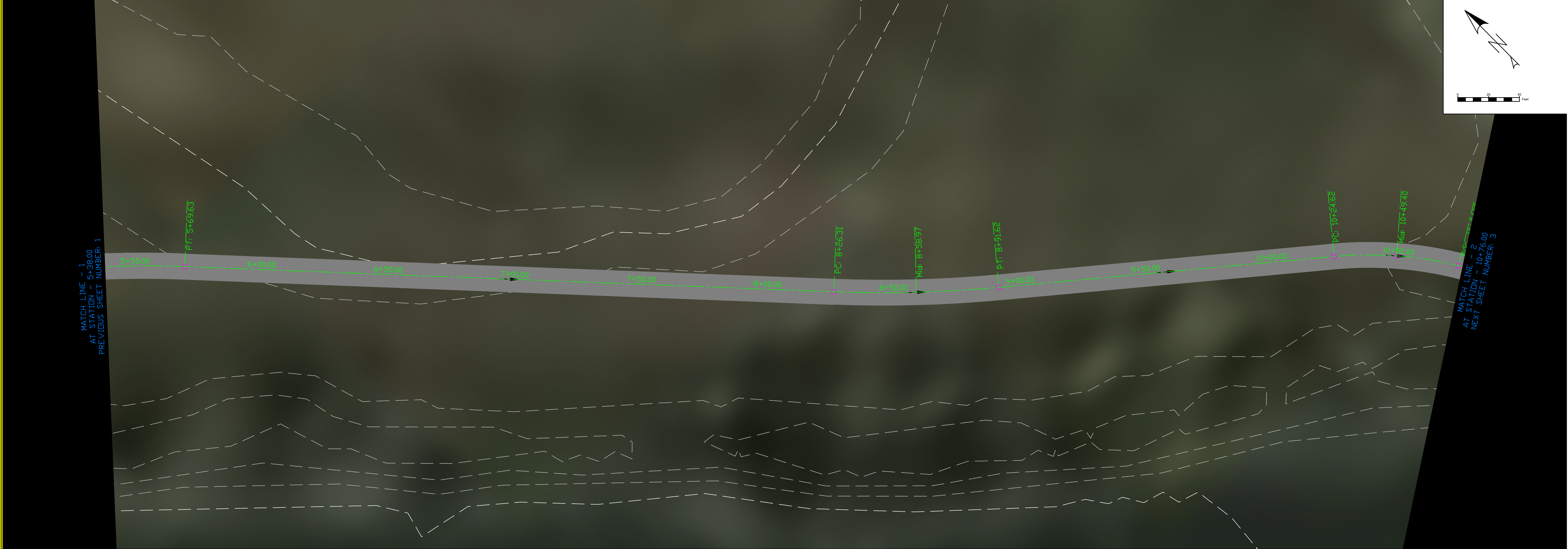
DITCH 2  
BONDURANT, IOWA

SHEET NAME

TRAIL PLAN AND PROFILE

SHEET NO.

D.1



|           |           |
|-----------|-----------|
| PROJECT:  | CEE: 4850 |
| DATE :    | 5/8/2026  |
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DITCH 2  
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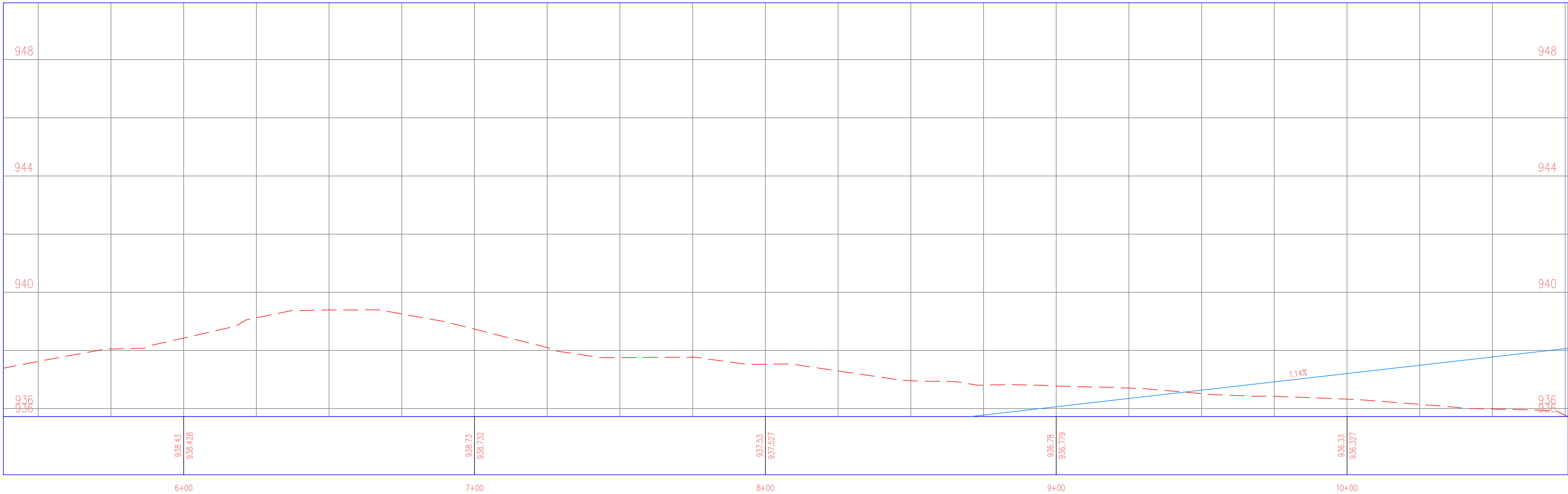
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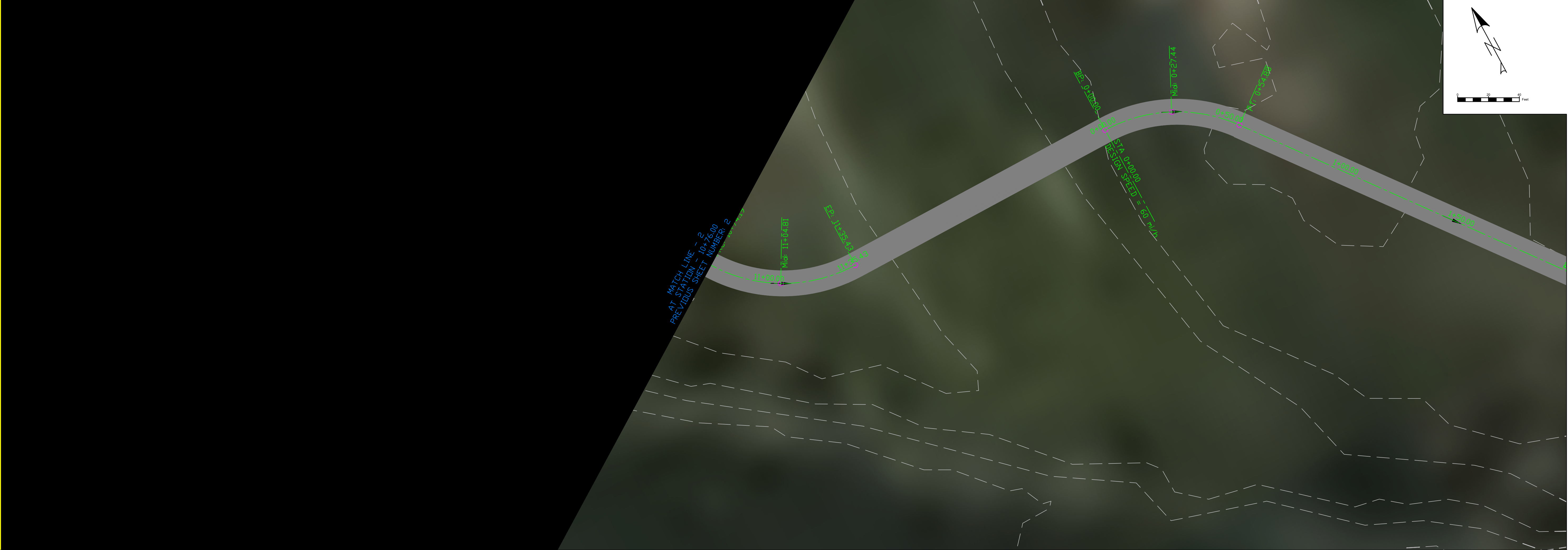
TRAIL PLAN  
AND PROFILE

SHEET NO.

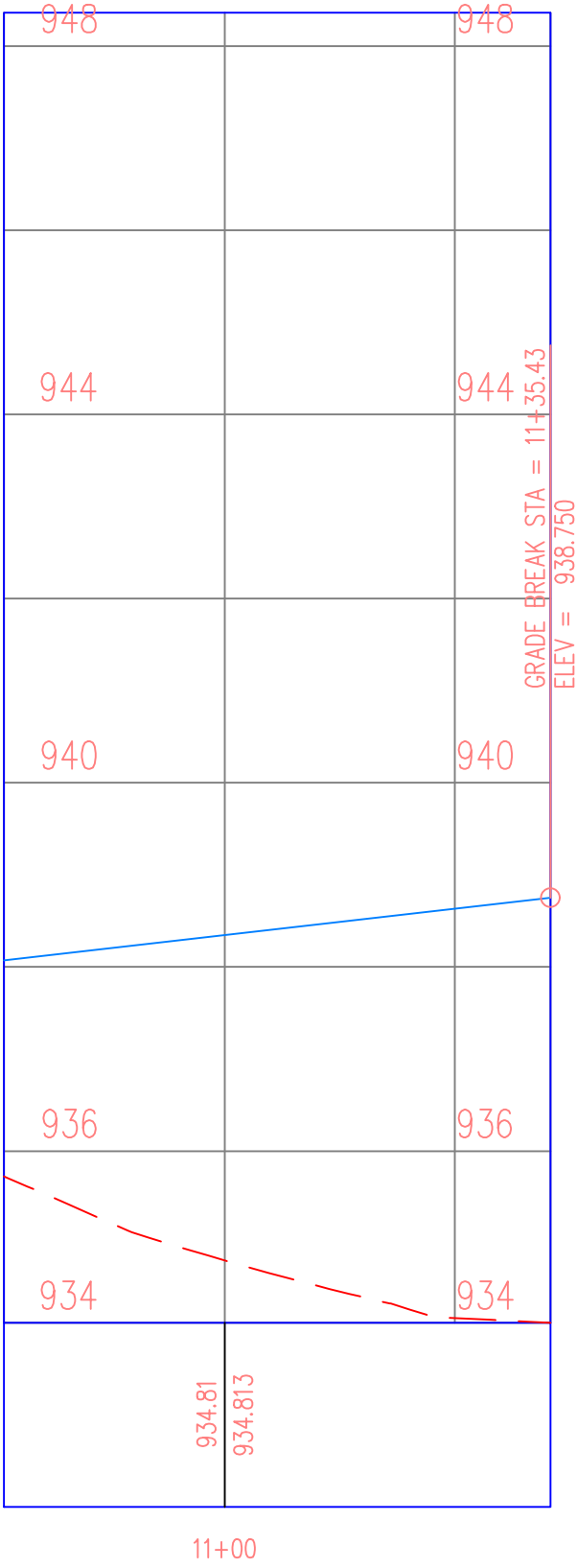
**D.2**

MAIN TRAIL – NORTH PROFILE





MAIN TRAIL – NORTH PROFILE



|           |           |
|-----------|-----------|
| PROJECT:  | CEE: 4850 |
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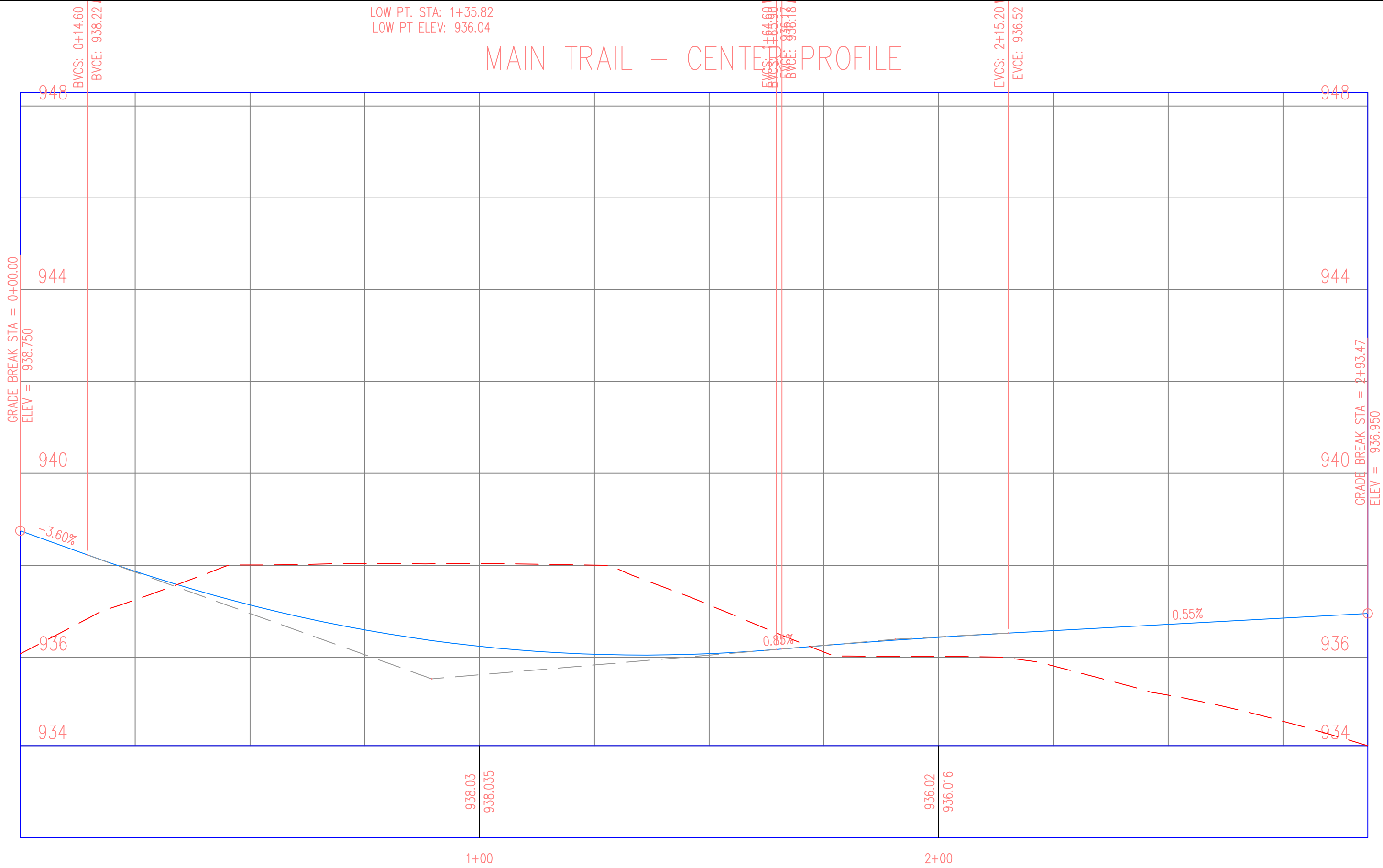
DITCH 2  
BONDURANT, IOWA

SHEET NAME

TRAIL PLAN  
AND PROFILE

SHEET NO.

D.3



|           |           |
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| PROJECT:  | CEE: 4850 |
| DATE :    | 5/8/2026  |
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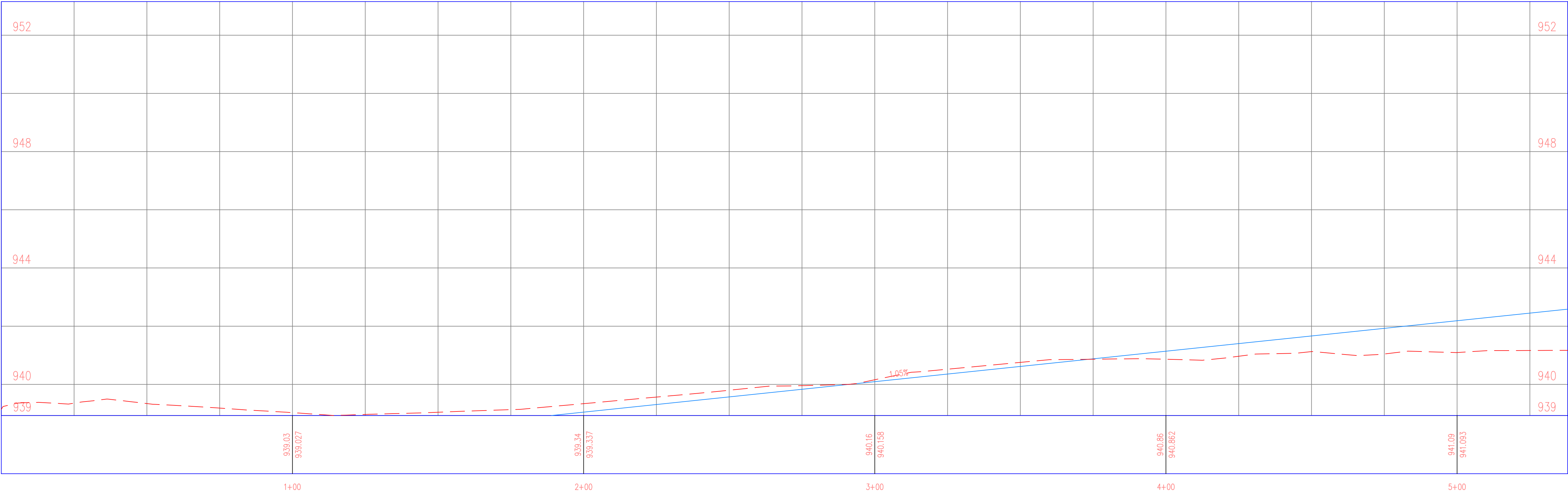
TRAIL DESIGN  
DITCH 2  
BONDURANT, IOWA

SHEET NAME  
TRAIL PLAN  
AND PROFILE

SHEET NO.  
D.4



MAIN TRAIL – SOUTH PROFILE



|           |           |
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| PROJECT:  | CEE: 4850 |
| DATE :    | 5/8/2026  |
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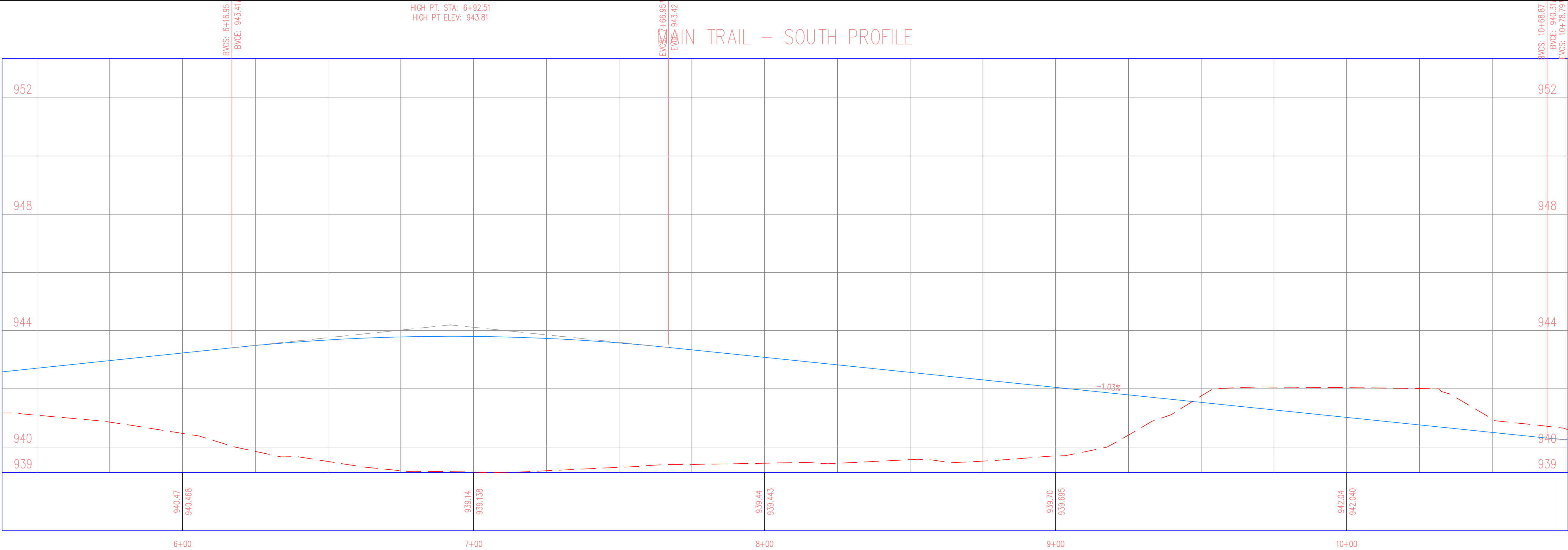
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**TRAIL DESIGN**  
DITCH 2  
BONDURANT, IOWA

SHEET NAME  
TRAIL PLAN  
AND PROFILE

SHEET NO.  
**D.5**



|           |           |
|-----------|-----------|
| PROJECT:  | CEE: 4850 |
| DATE :    | 5/8/2026  |
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| REVISION: |           |

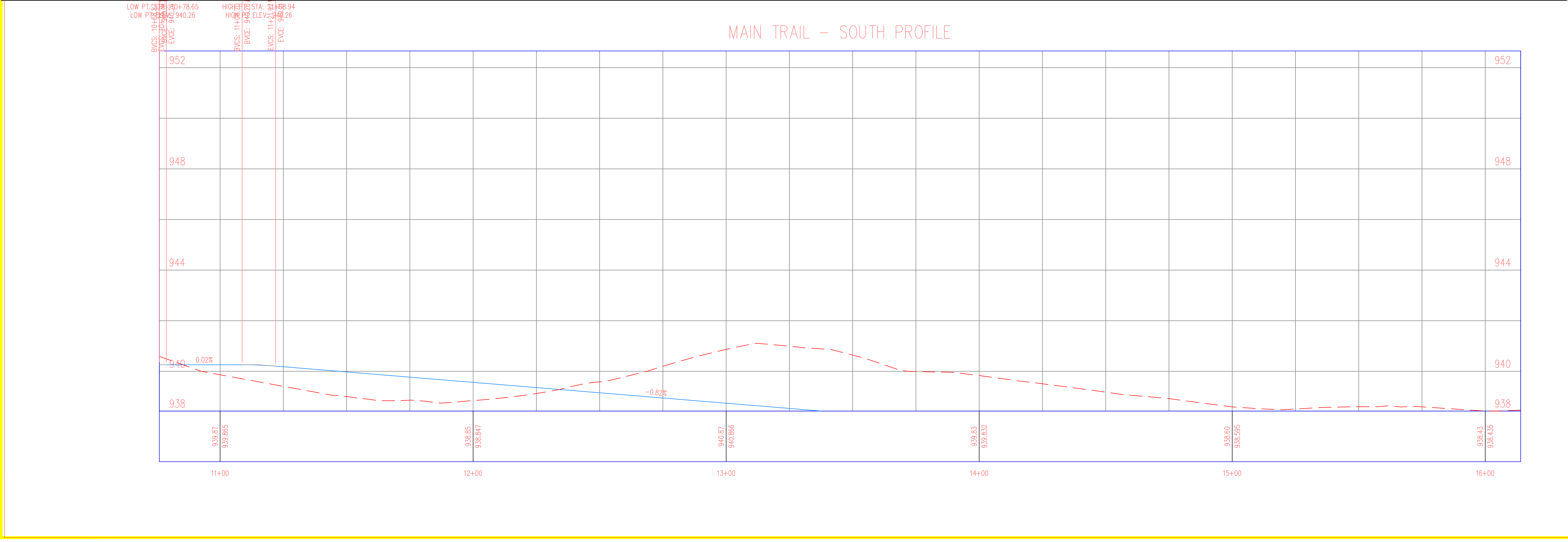
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**TRAIL DESIGN**  
  
DITCH 2  
BONDURANT, IOWA

SHEET NAME  
  
TRAIL PLAN  
AND PROFILE

SHEET NO.  
  
**D.6**



|           |           |
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| DATE :    | 5/8/2026  |
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| REVISION: |           |

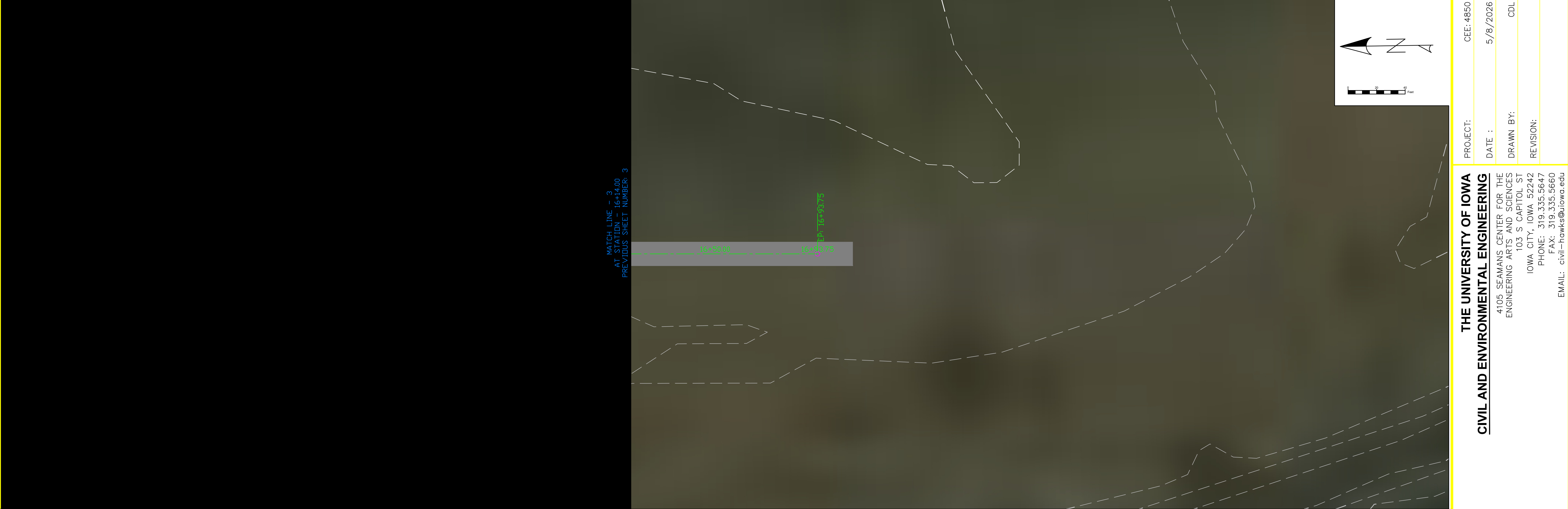
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**TRAIL DESIGN**  
  
DITCH 2  
BONDURANT, IOWA

SHEET NAME  
  
TRAIL PLAN  
AND PROFILE

SHEET NO.  
  
**D.7**



|           |           |
|-----------|-----------|
| PROJECT:  | CEE: 4850 |
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PHONE: 319.335.3647  
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EMAIL: civil-hawks@iowa.edu

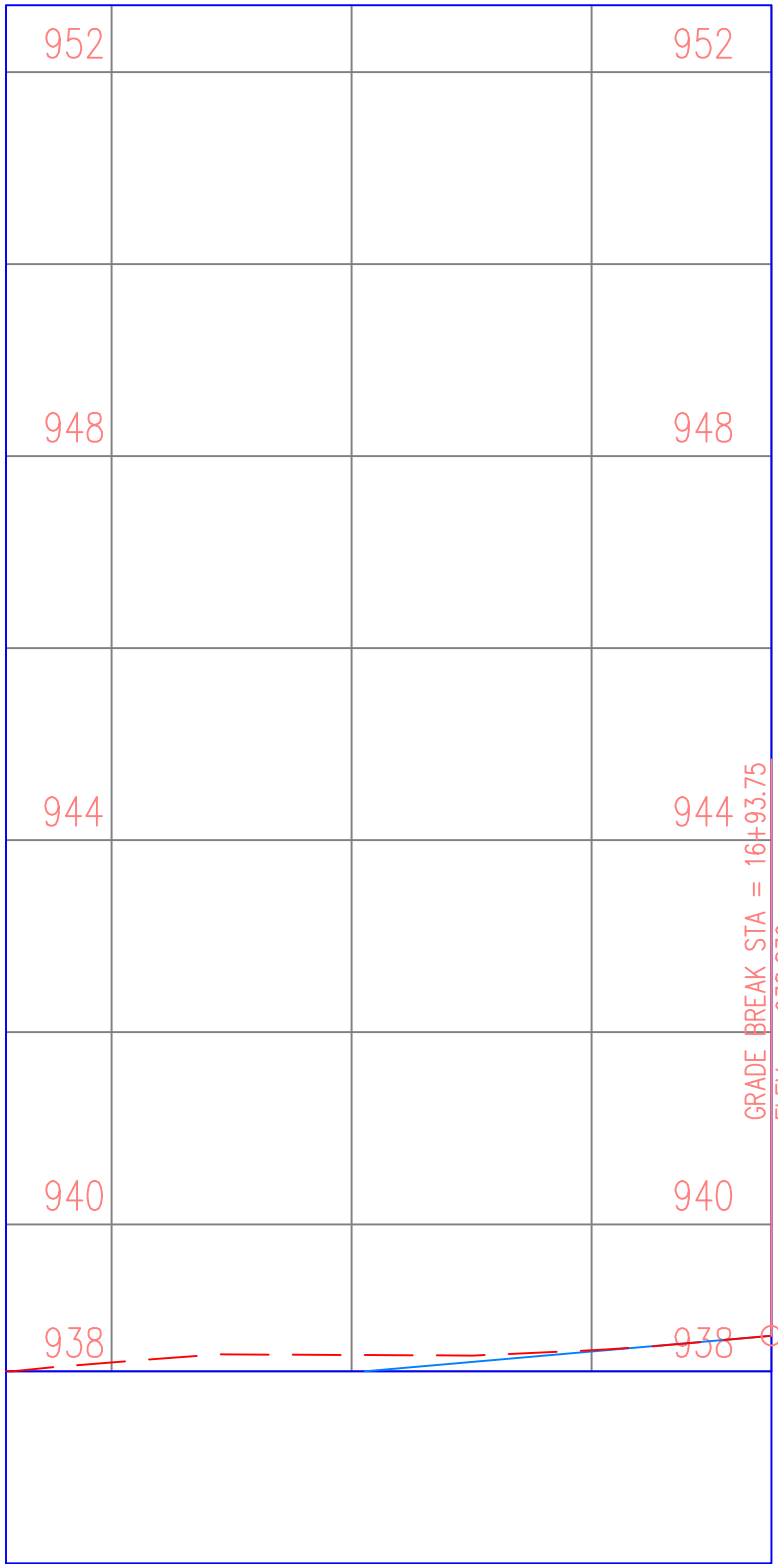
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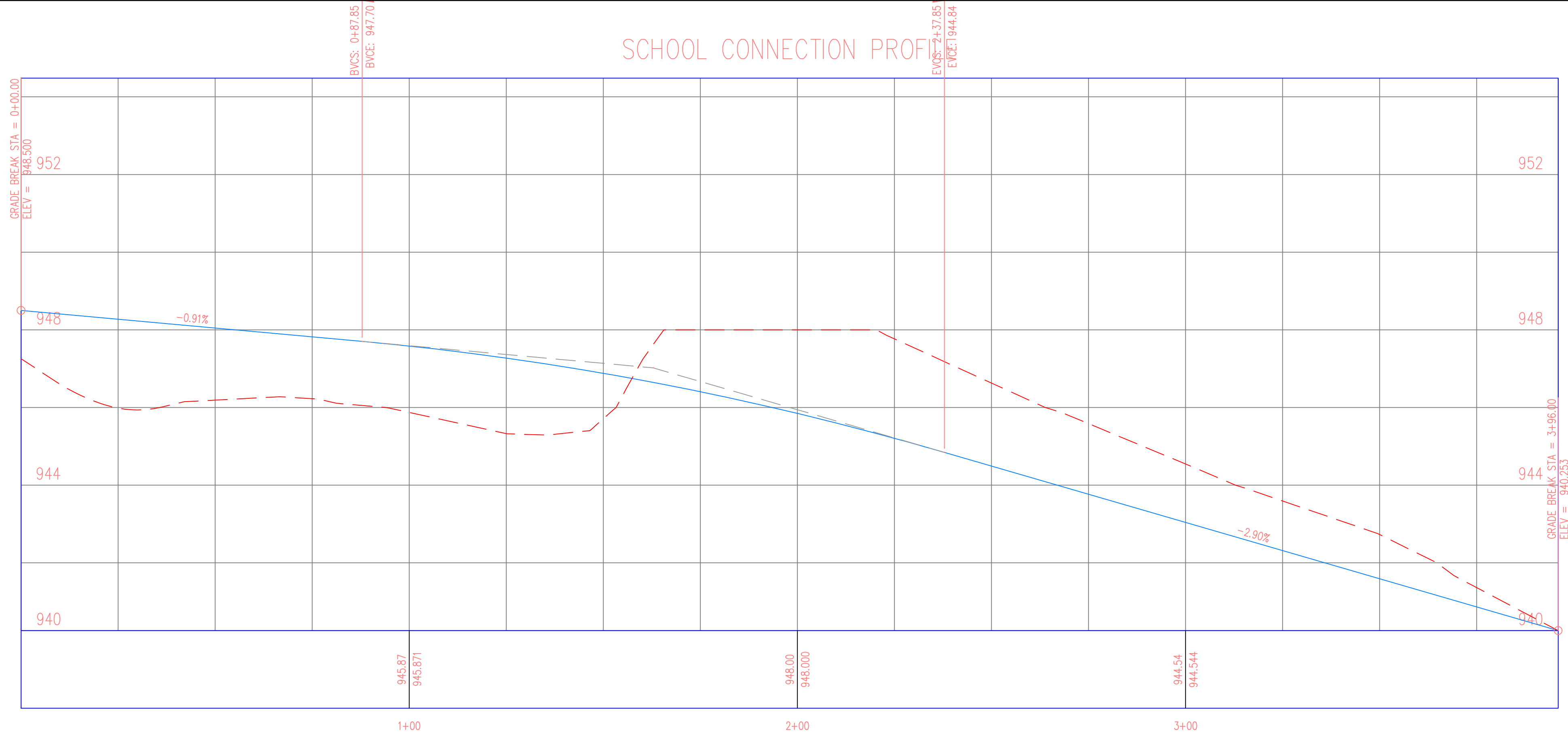
**TRAIL DESIGN**  
  
DITCH 2  
BONDURANT, IOWA

SHEET NAME  
  
TRAIL PLAN  
AND PROFILE

SHEET NO.  
  
**D.8**

MAIN TRAIL – SOUTH PROFILE





|           |           |
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| PROJECT:  | CEE: 4850 |
| DATE :    | 5/8/2026  |
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| REVISION: |           |

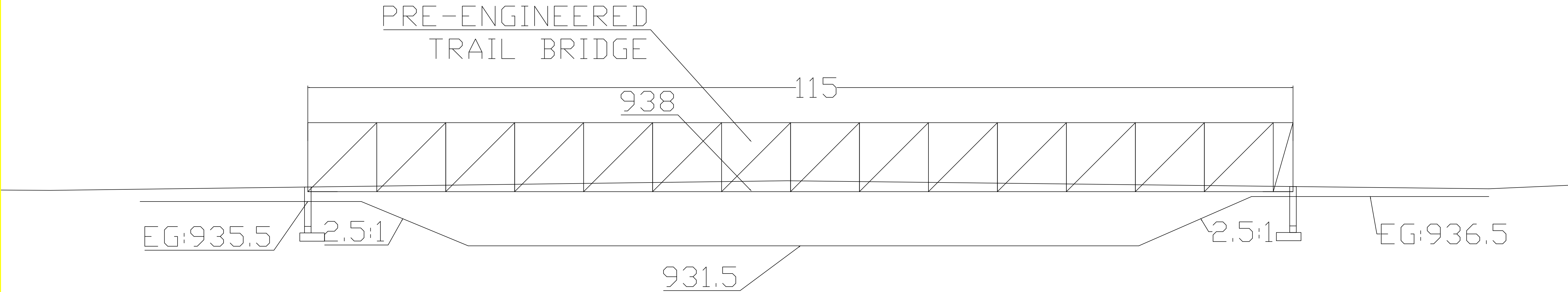
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BONDURANT, IOWA

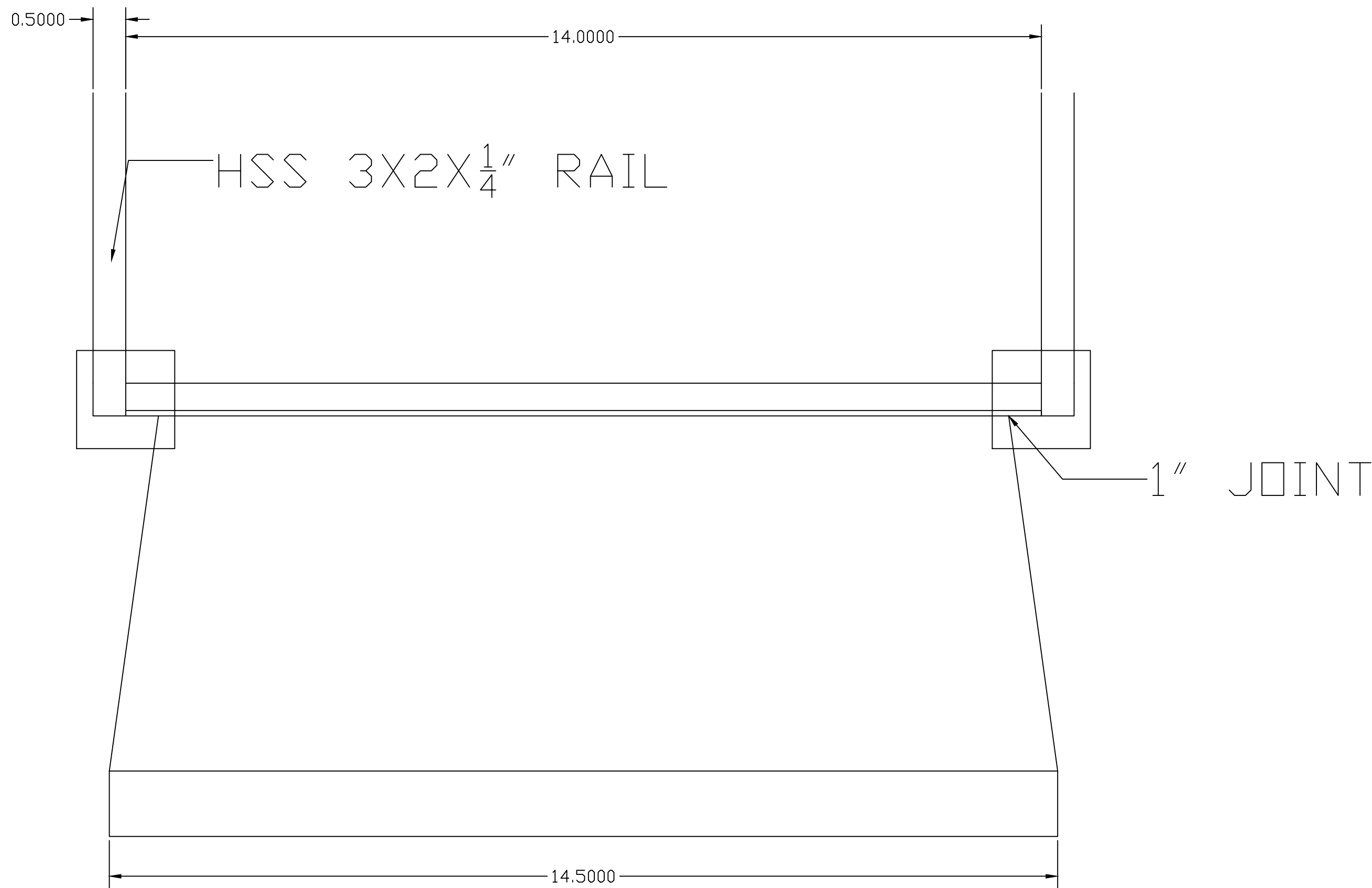
SHEET NAME  
TRAIL PLAN  
AND PROFILE

SHEET NO.  
**D.9**



## PREFABRICATED BRIDGE DESIGN

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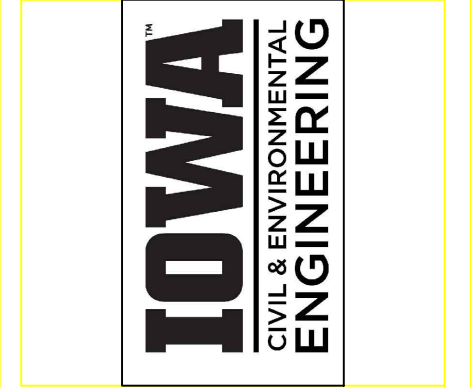


## BRIDGE CROSS SECTION

\*NOT TO SCALE\*

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|-----------|-----------|
| PROJECT:  | CEE: 4850 |
| DATE :    | 5/8/2026  |
| DRAWN BY: | NSN       |
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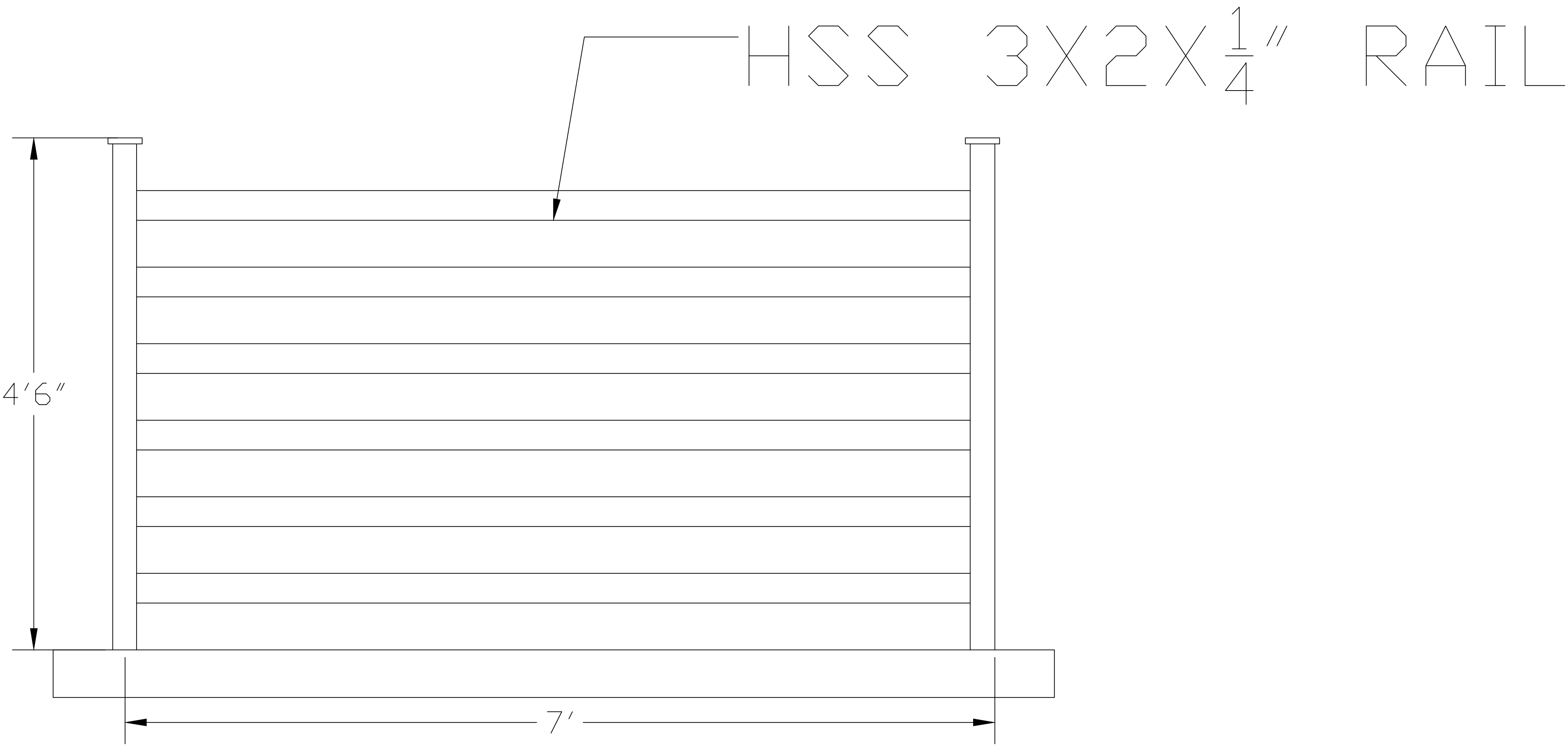
**TRAIL DESIGN**  
DITCH 2  
BOUNDURANT, IOWA

SHEET NAME  
SECTIONS  
AND DETAILS

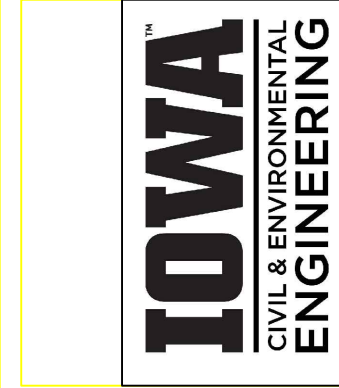
SHEET NO.  
**V.1**

RAILING DETAILS

\*NOT TO SCALE\*



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DITCH 2  
BOUNDURANT, IOWA

SHEET NAME

RAILING  
DETAILS

SHEET NO.

V.2

PROJECT: CEE: 4850

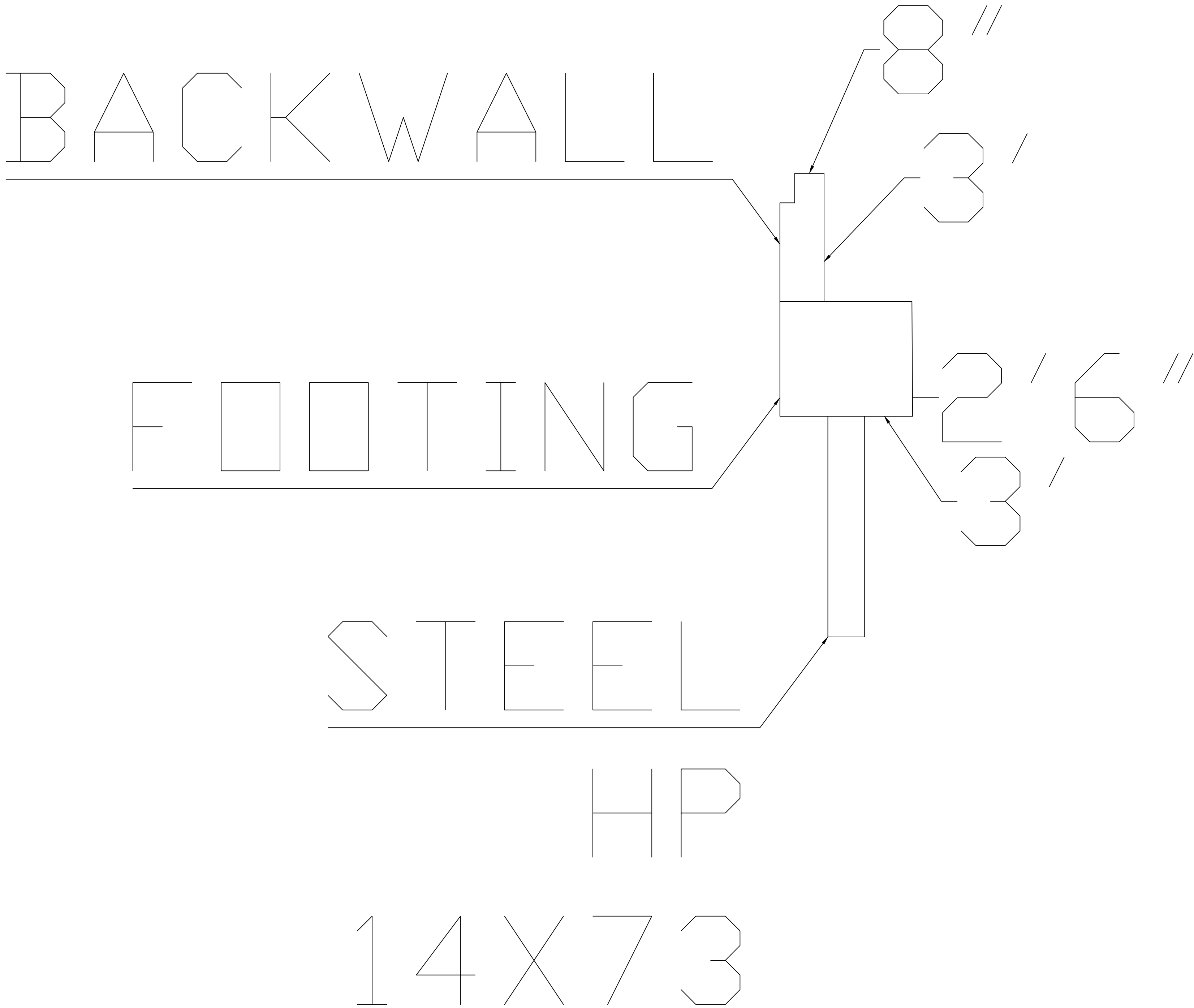
DATE : 5/8/2026

DRAWN BY: NSN

REVISION:

ABUTMENT DETAILS

\*NOT TO SCALE\*



PROJECT: CEE: 4850  
DATE : 5/8/2026  
DRAWN BY: NSN  
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TRAIL DESIGN

DITCH 2  
BOUNDURANT, IOWA

SHEET NAME

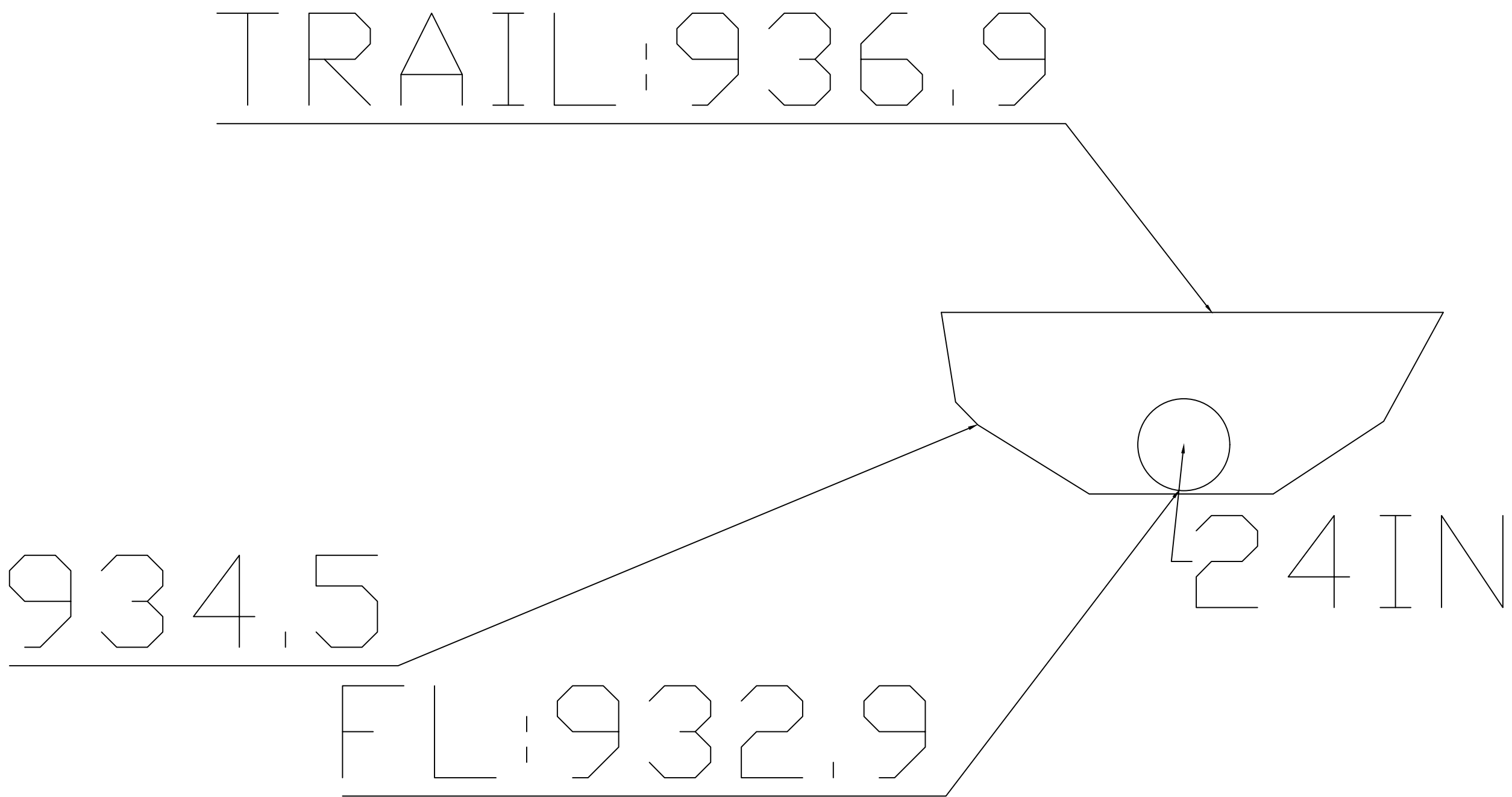
ABUTMENT  
DETAILS

SHEET NO.

V.3

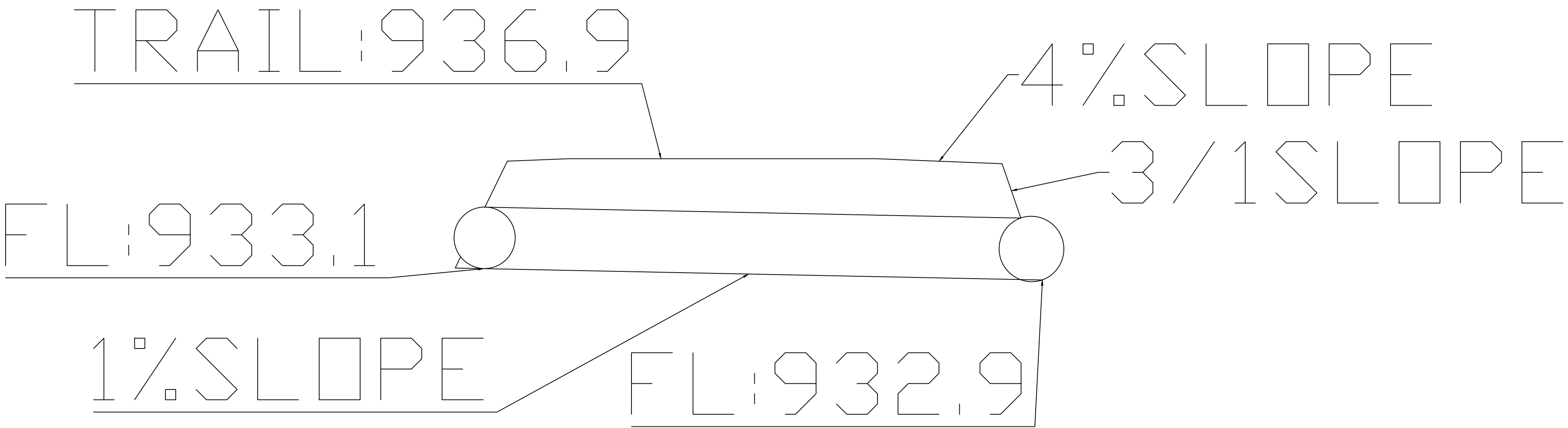
CULVERT DESIGN DETAILS

\*NOT TO SCALE\*



CULVERT/TRAIL CROSS SECTION

\*NOT TO SCALE\*



|           |           |
|-----------|-----------|
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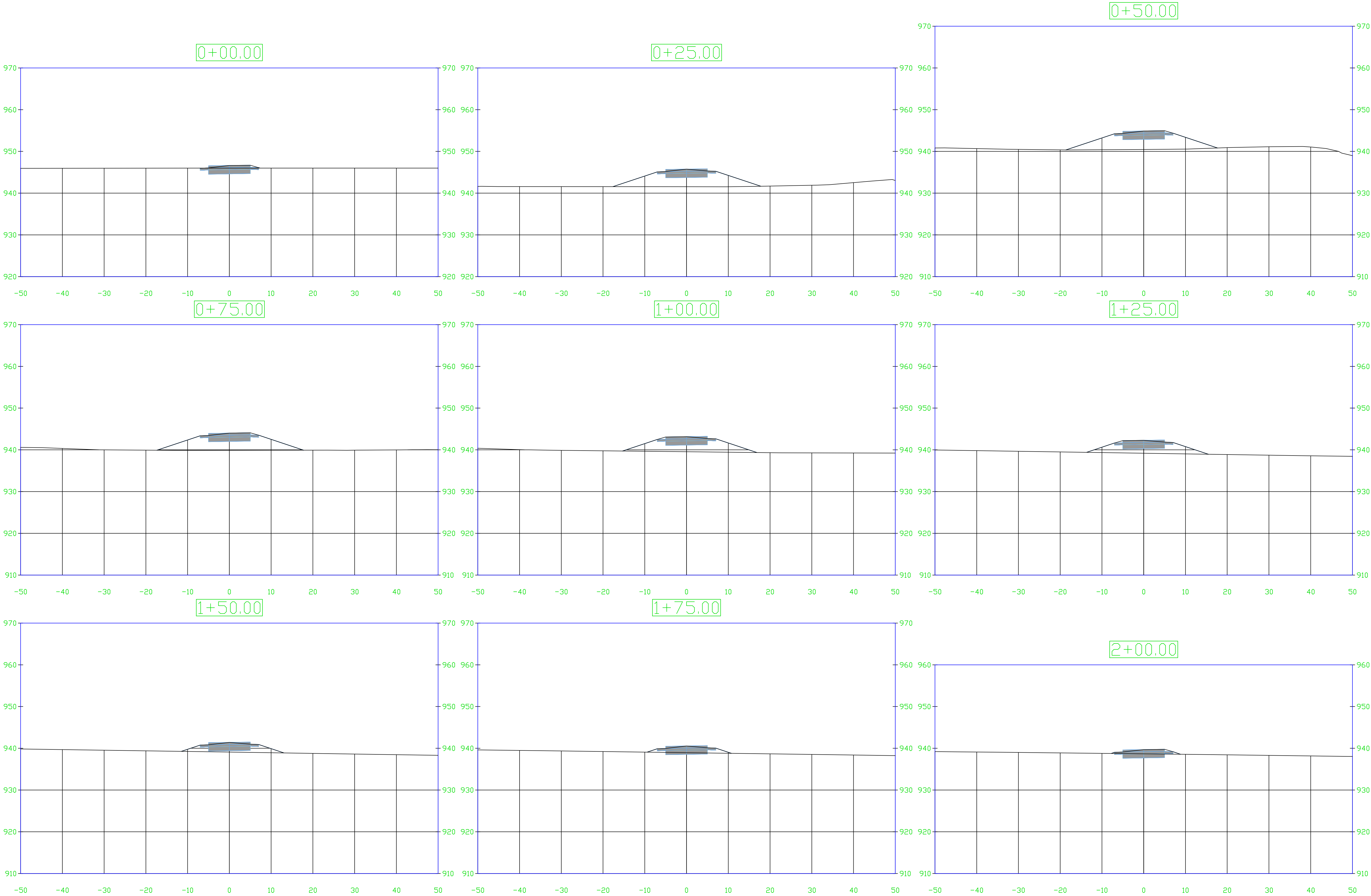
DITCH 2  
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SHEET NAME

CULVERT  
DETAILS

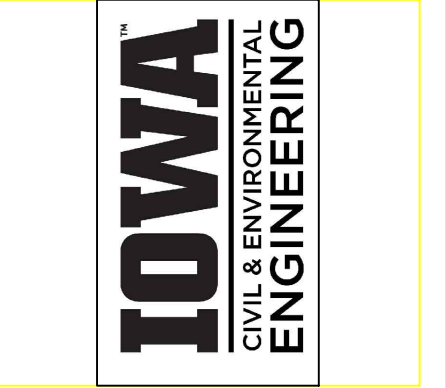
SHEET NO.

V.4



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| PROJECT:  | CEE: 4850 |
| DATE :    | 5/8/2026  |
| DRAWN BY: | CDL       |
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PHONE: 319.335.5647  
FAX: 319.335.5660  
EMAIL: civil-hawks@iowa.edu



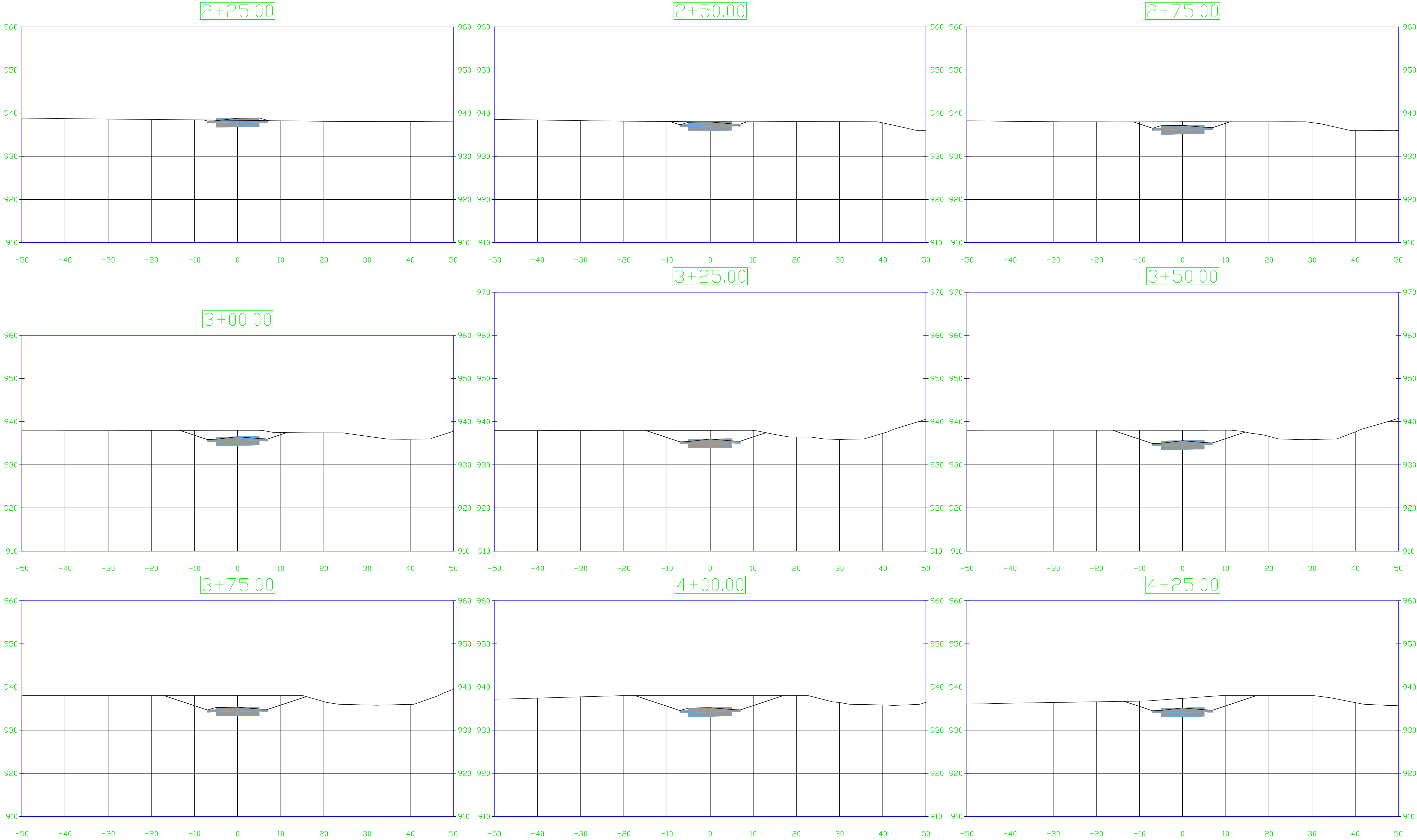
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TRAIL DESIGN

DITCH 2  
BONDURANT, IOWA

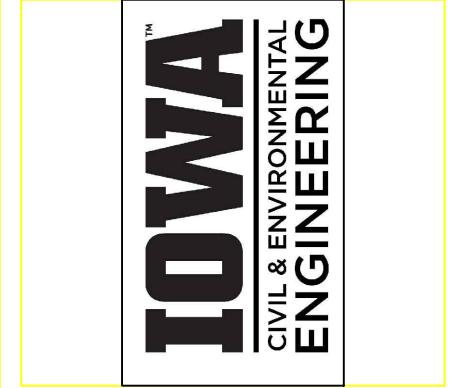
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TRAIL  
CROSS SECTIONS

SHEET NO.  
W.1



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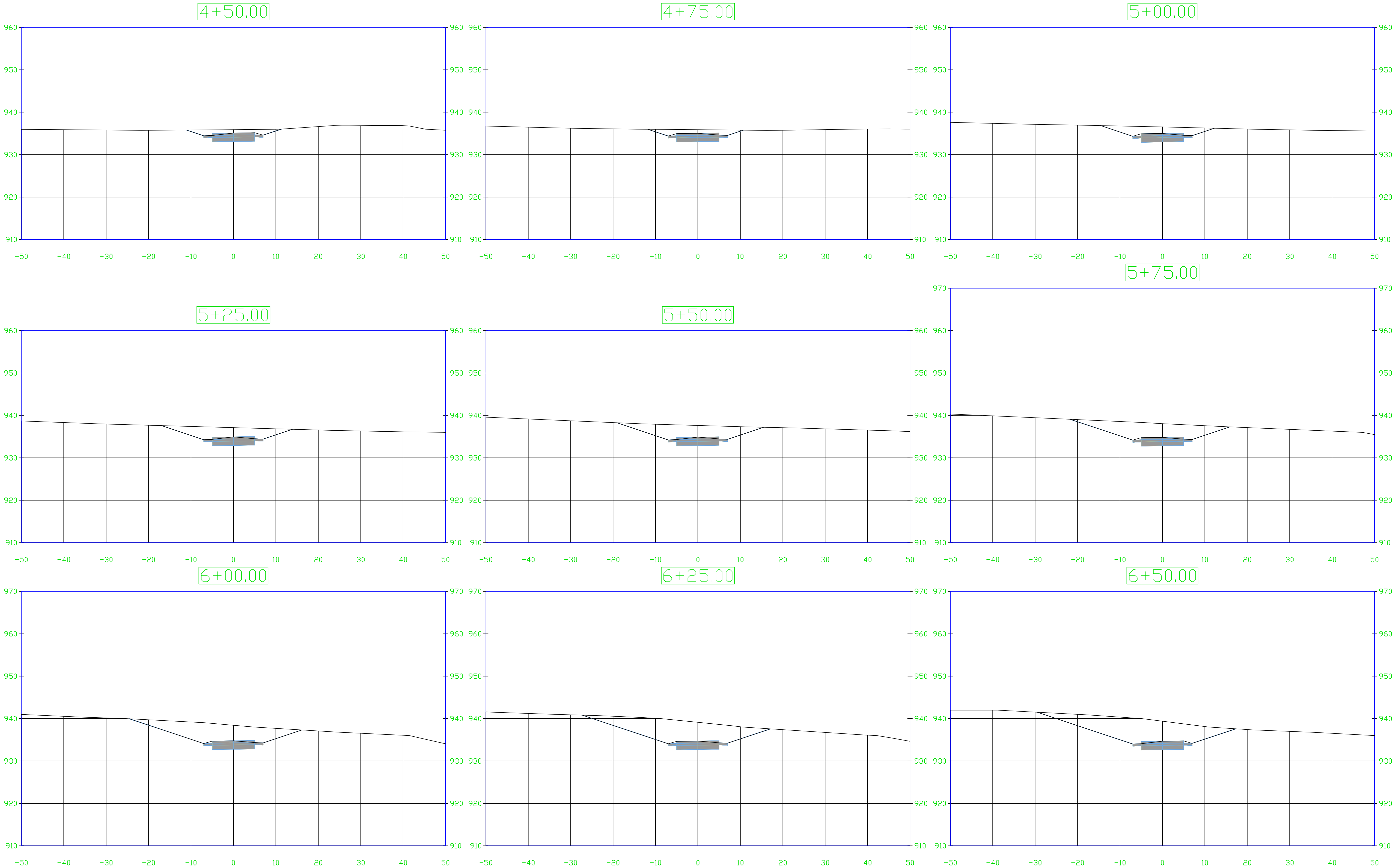


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TRAIL DESIGN  
DITCH 2  
BONDURANT, IOWA

SHEET NAME  
TRAIL  
CROSS SECTIONS

SHEET NO.  
W.2



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| PROJECT:  | CEE: 4850 |
| DATE :    | 5/8/2026  |
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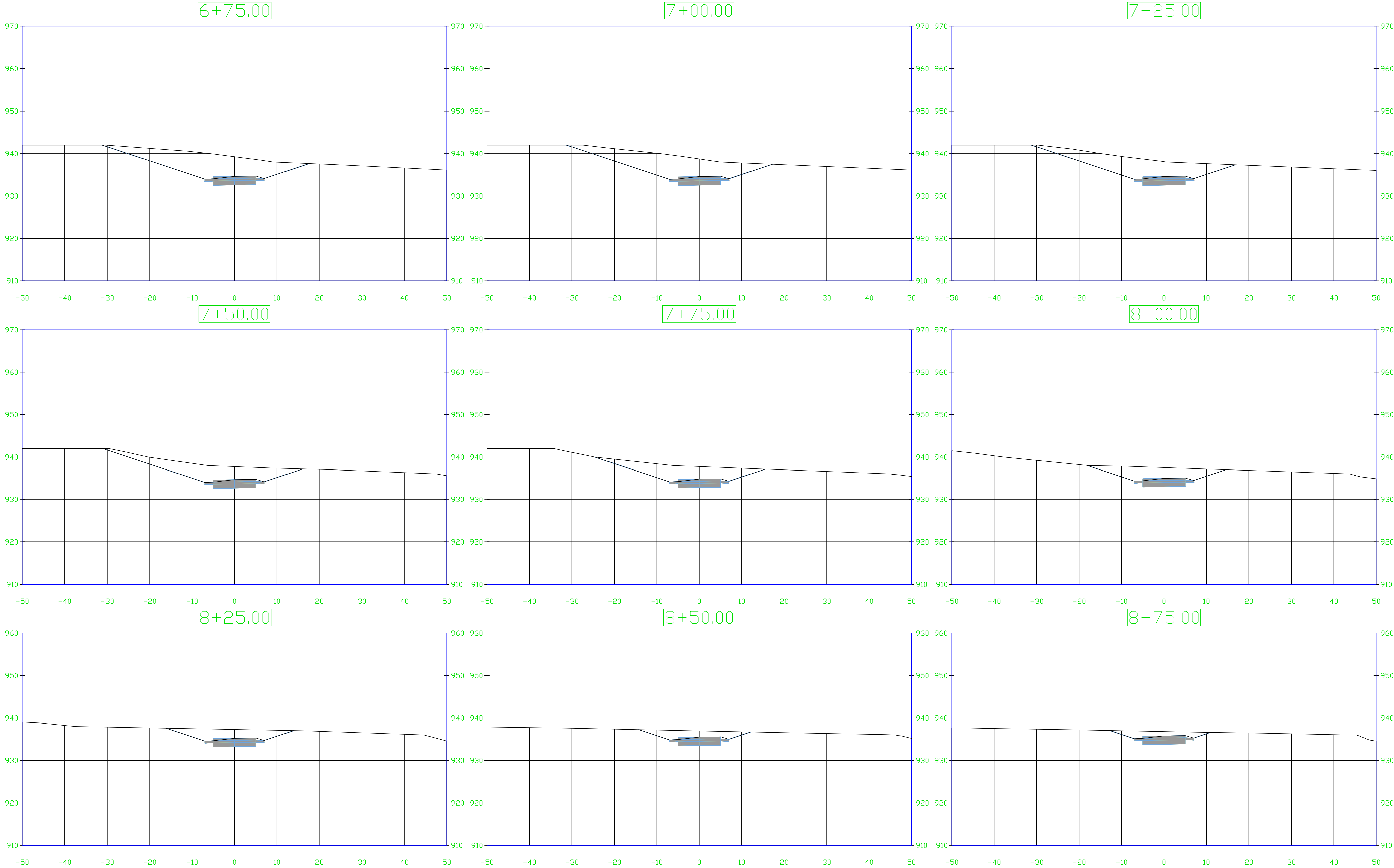
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## TRAIL DESIGN

DITCH 2  
BONDURANT, IOWA

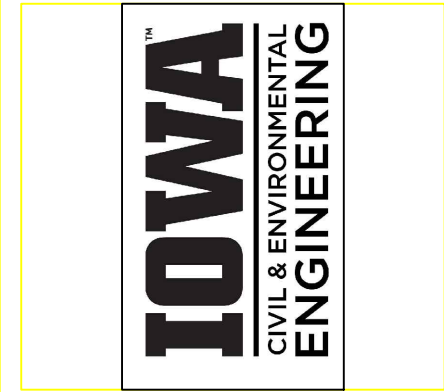
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CROSS SECTIONS

SHEET NO.  
W.3



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| DATE :    | 5/8/2026  |
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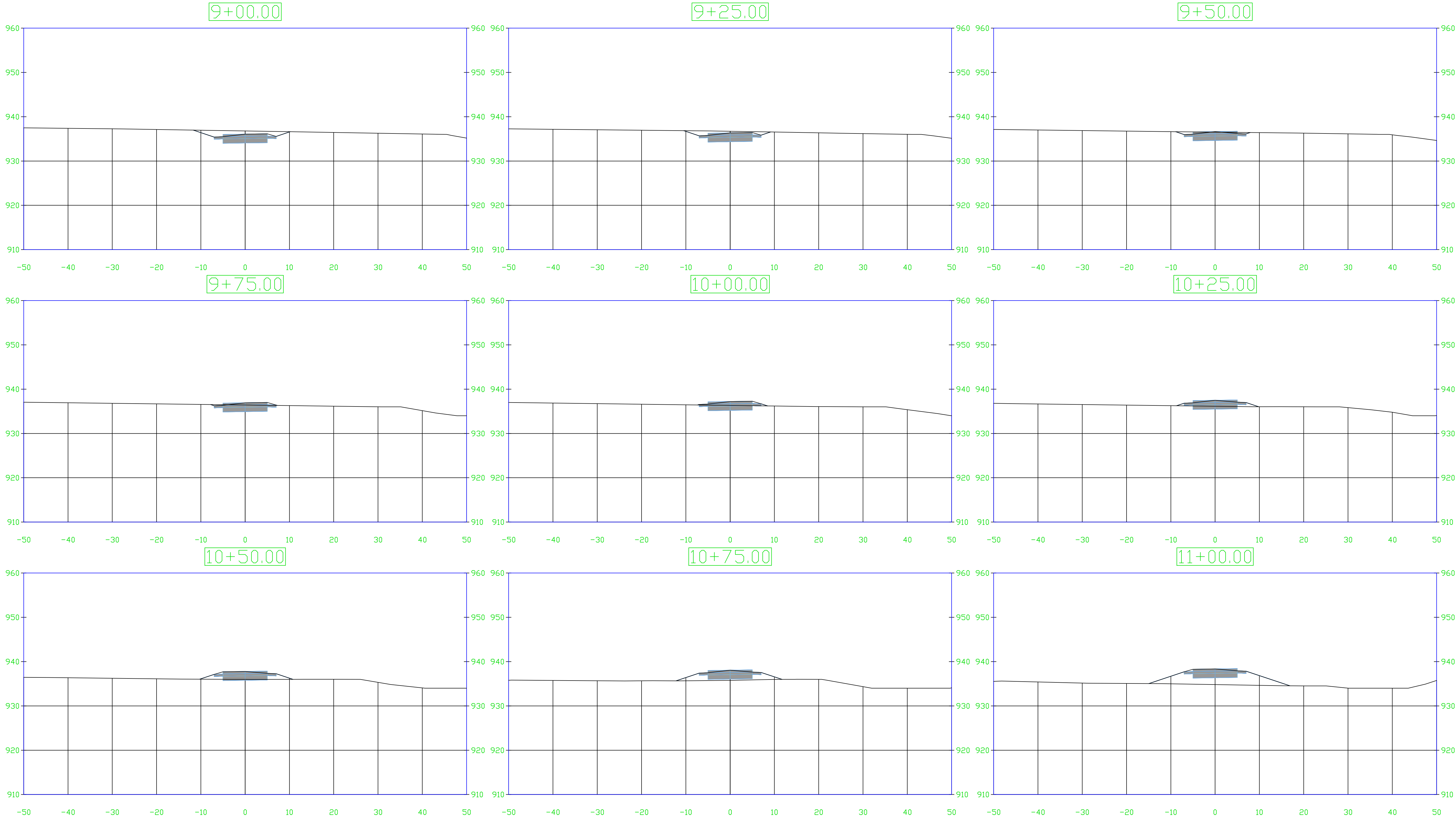


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BONDURANT, IOWA

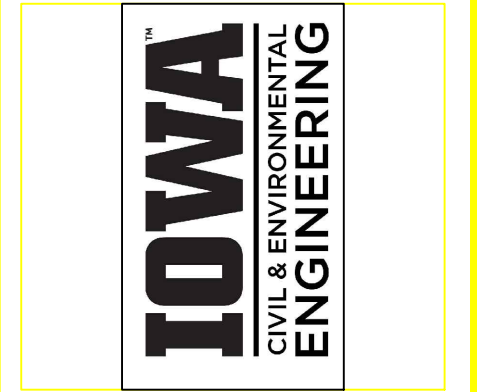
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W.4



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| DATE :    | 5/8/2026  |
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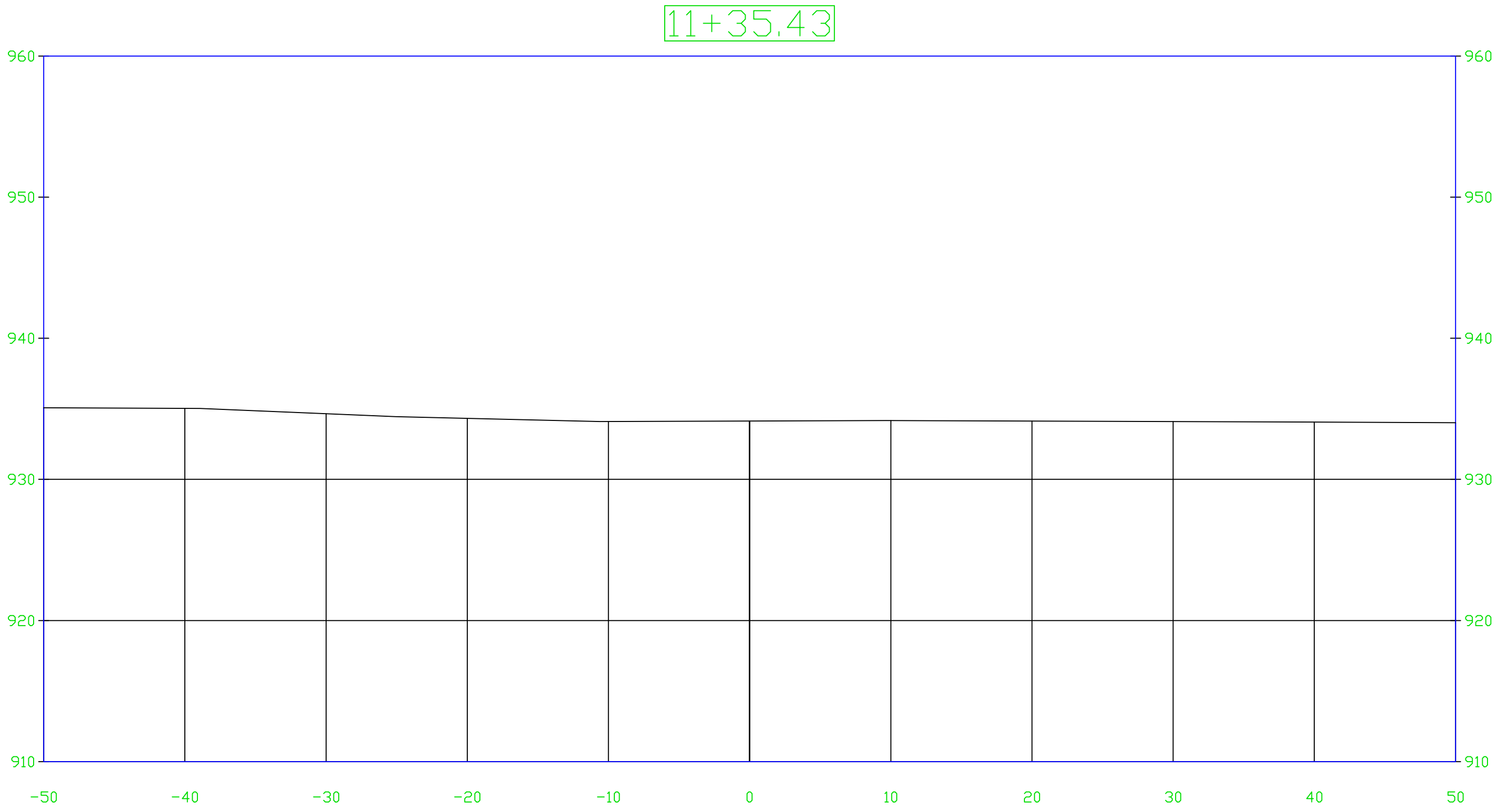
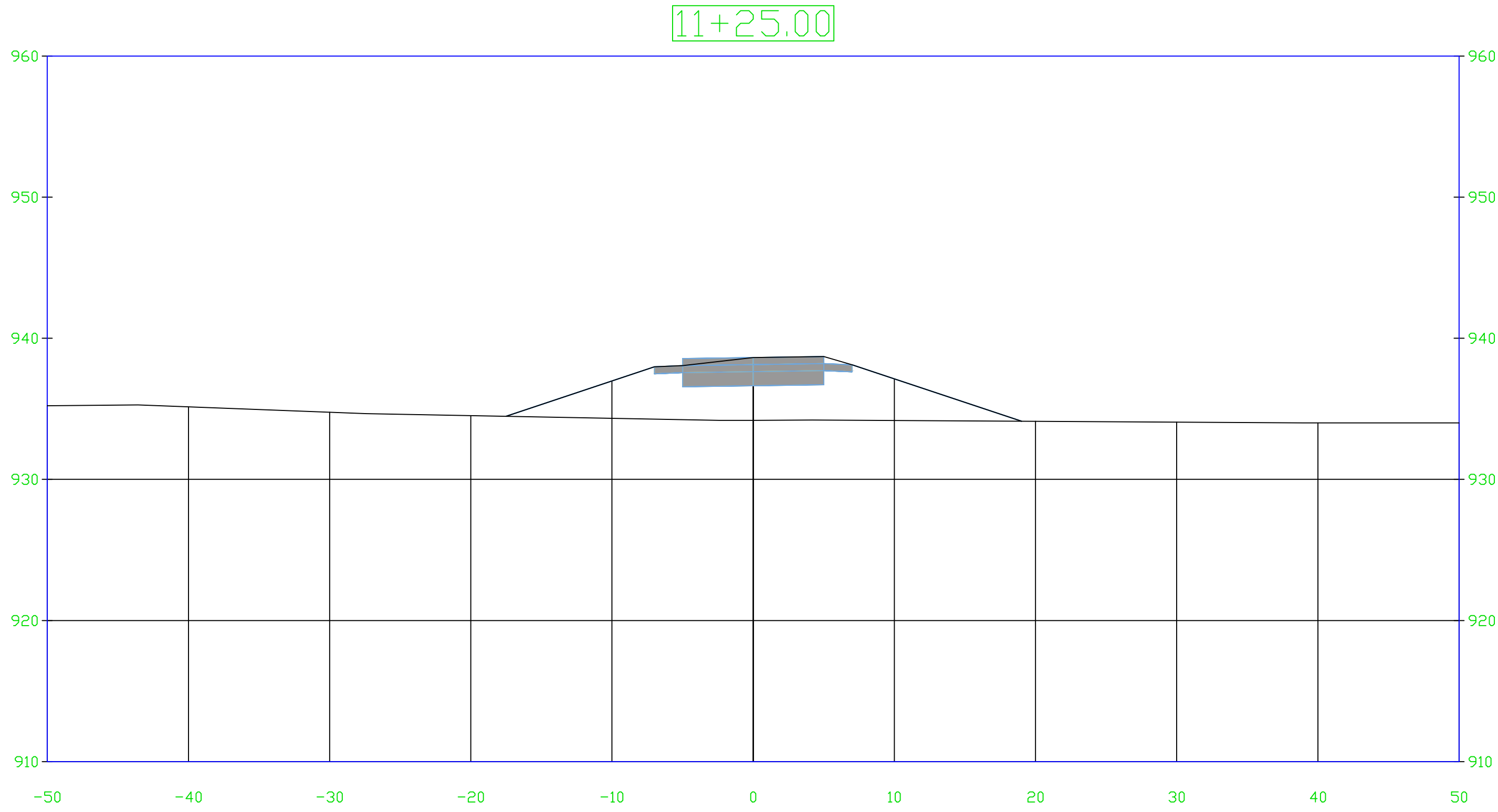


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DITCH 2  
BONDURANT, IOWA

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TRAIL  
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SHEET NO.  
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BONDURANT, IOWA

SHEET NAME

TRAIL  
CROSS SECTIONS

SHEET NO.

W.6

PROJECT:

CEE: 4850

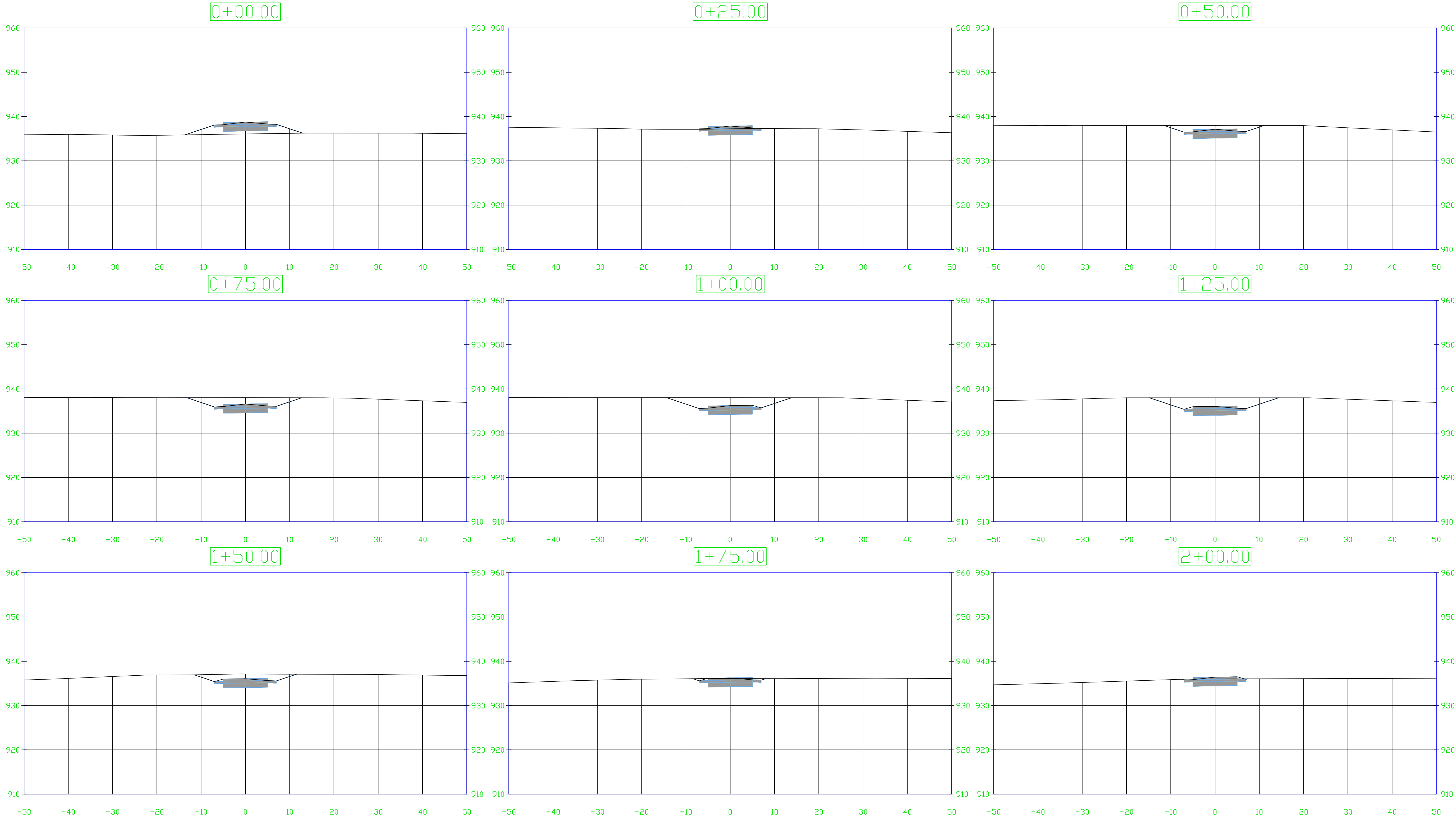
DATE :

5/8/2026

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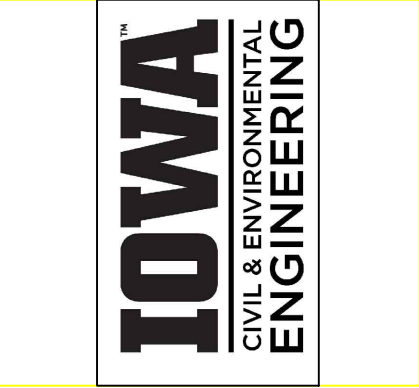
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| PROJECT:  | CEE: 4850 |
| DATE :    | 5/8/2026  |
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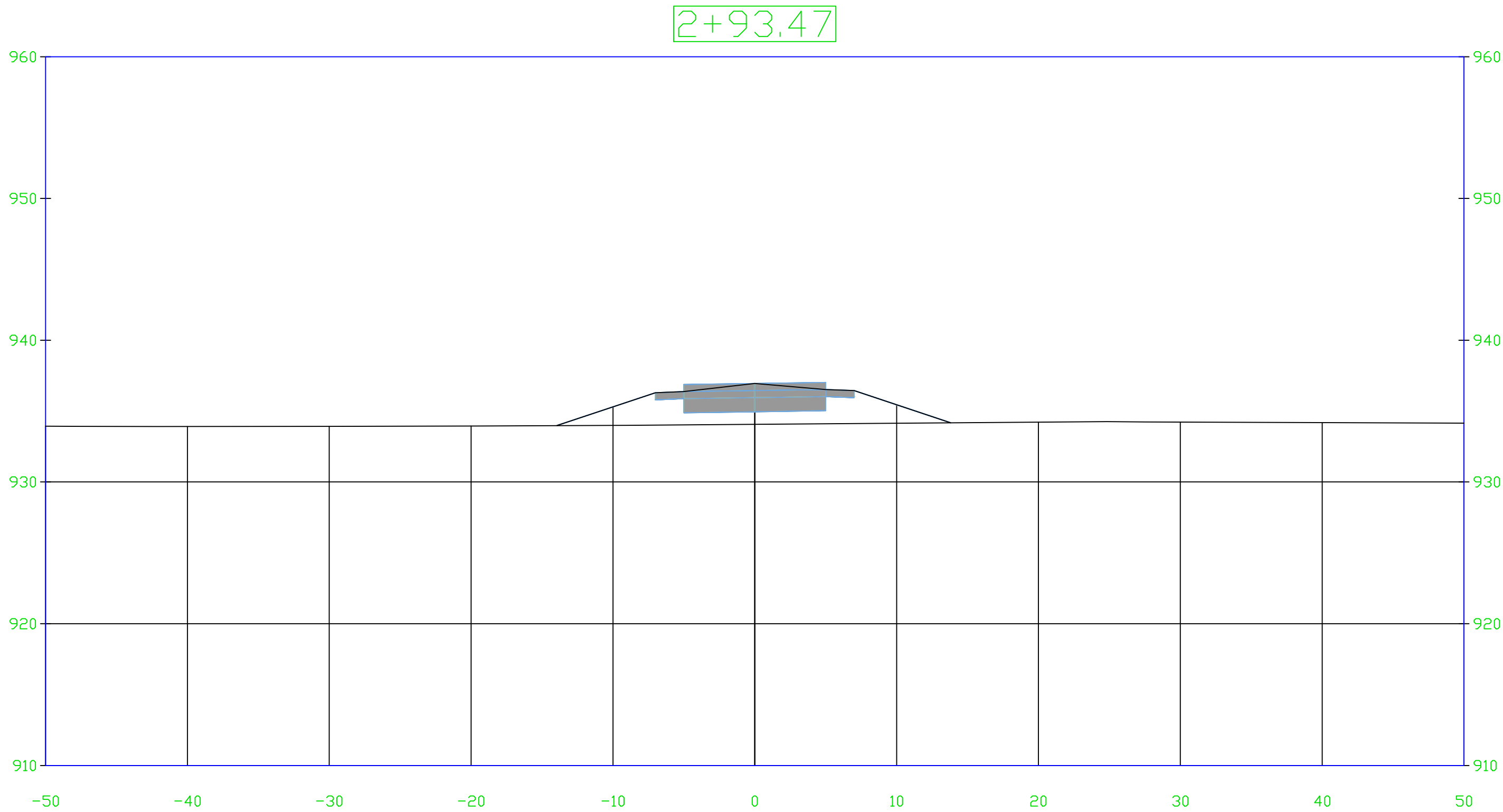
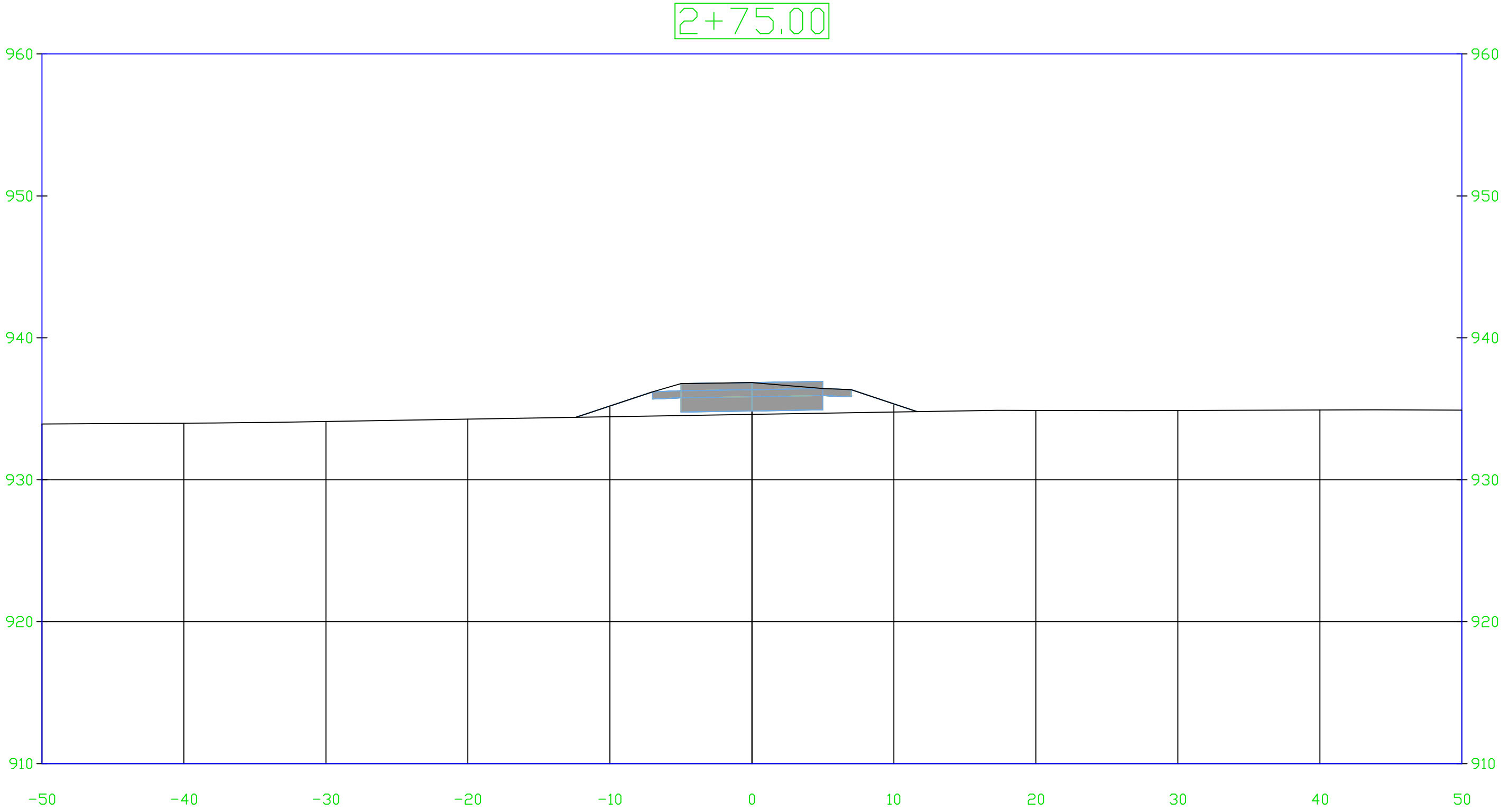
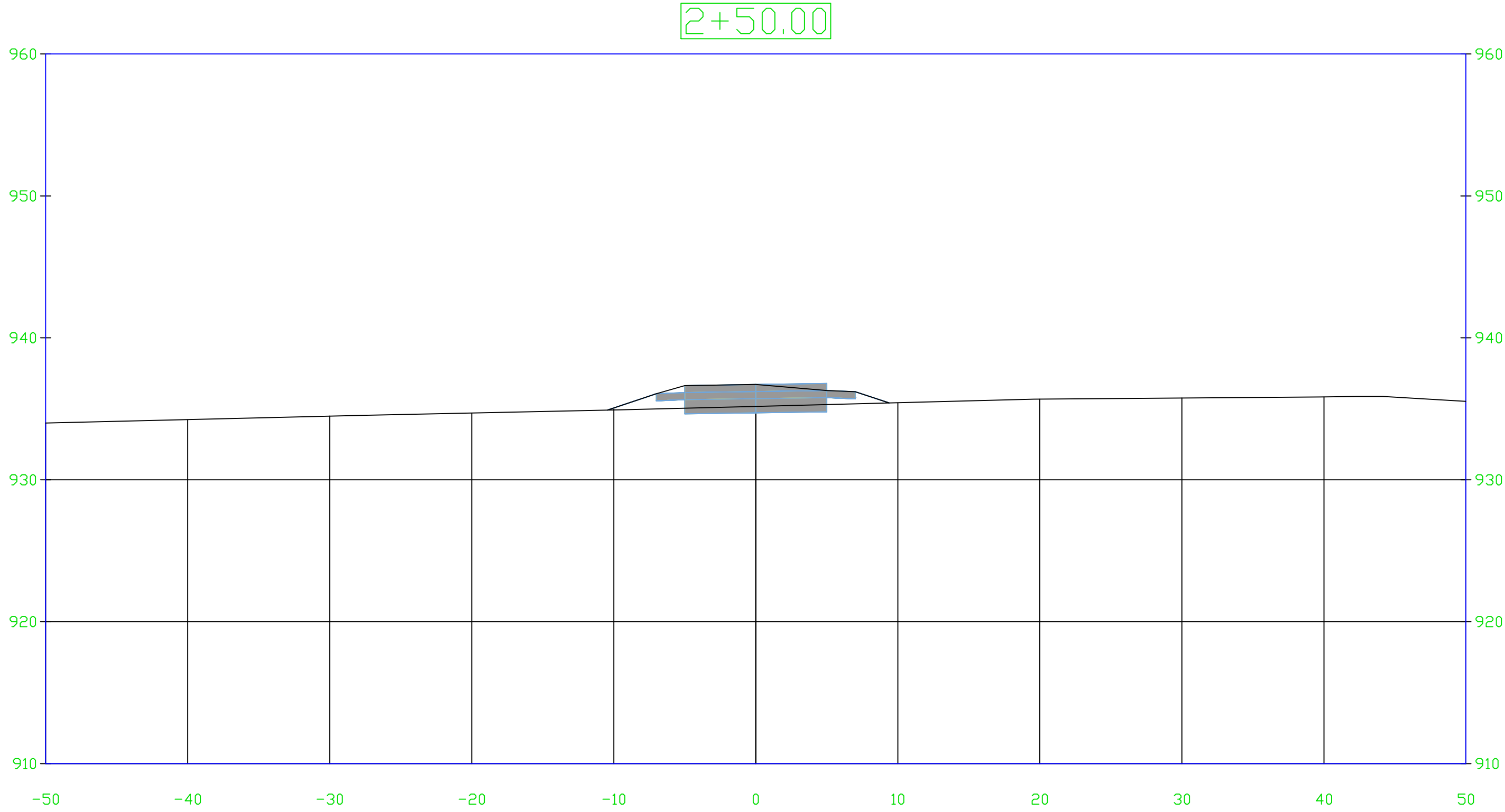
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DITCH 2  
BONDURANT, IOWA

SHEET NAME  
TRAIL  
CROSS SECTIONS

SHEET NO.  
W.7



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| PROJECT:  | CEE: 4850 |
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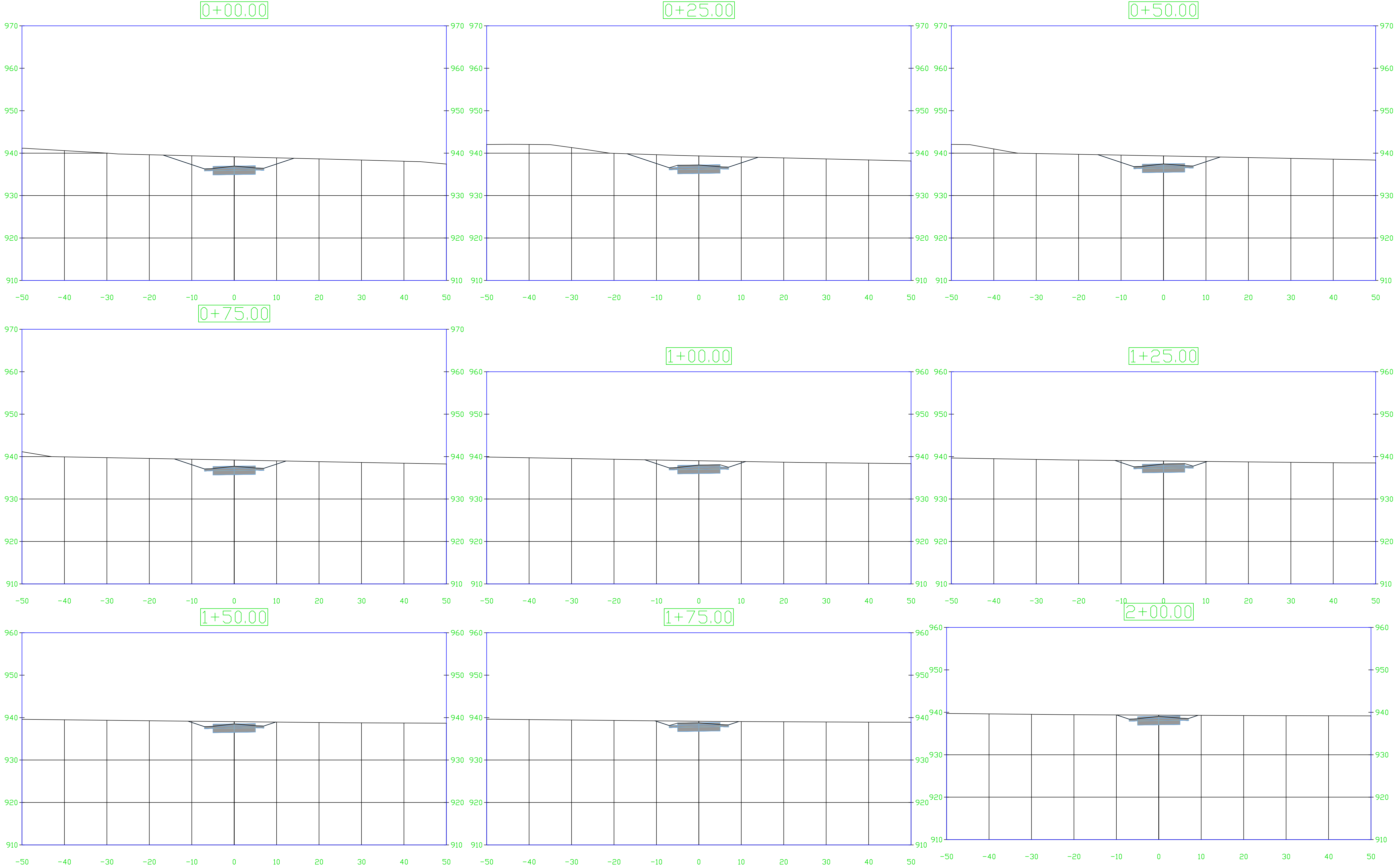
DITCH 2  
BONDURANT, IOWA

SHEET NAME

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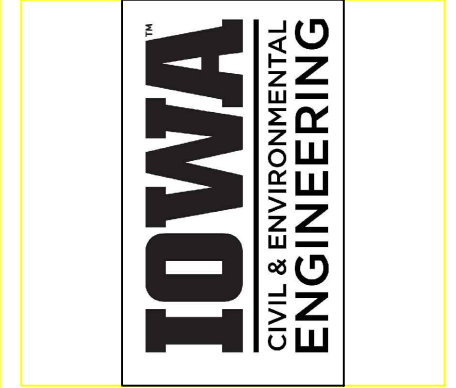
SHEET NO.

**W.8**



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| PROJECT:  | CEE: 4850 |
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| DRAWN BY: | CDL       |
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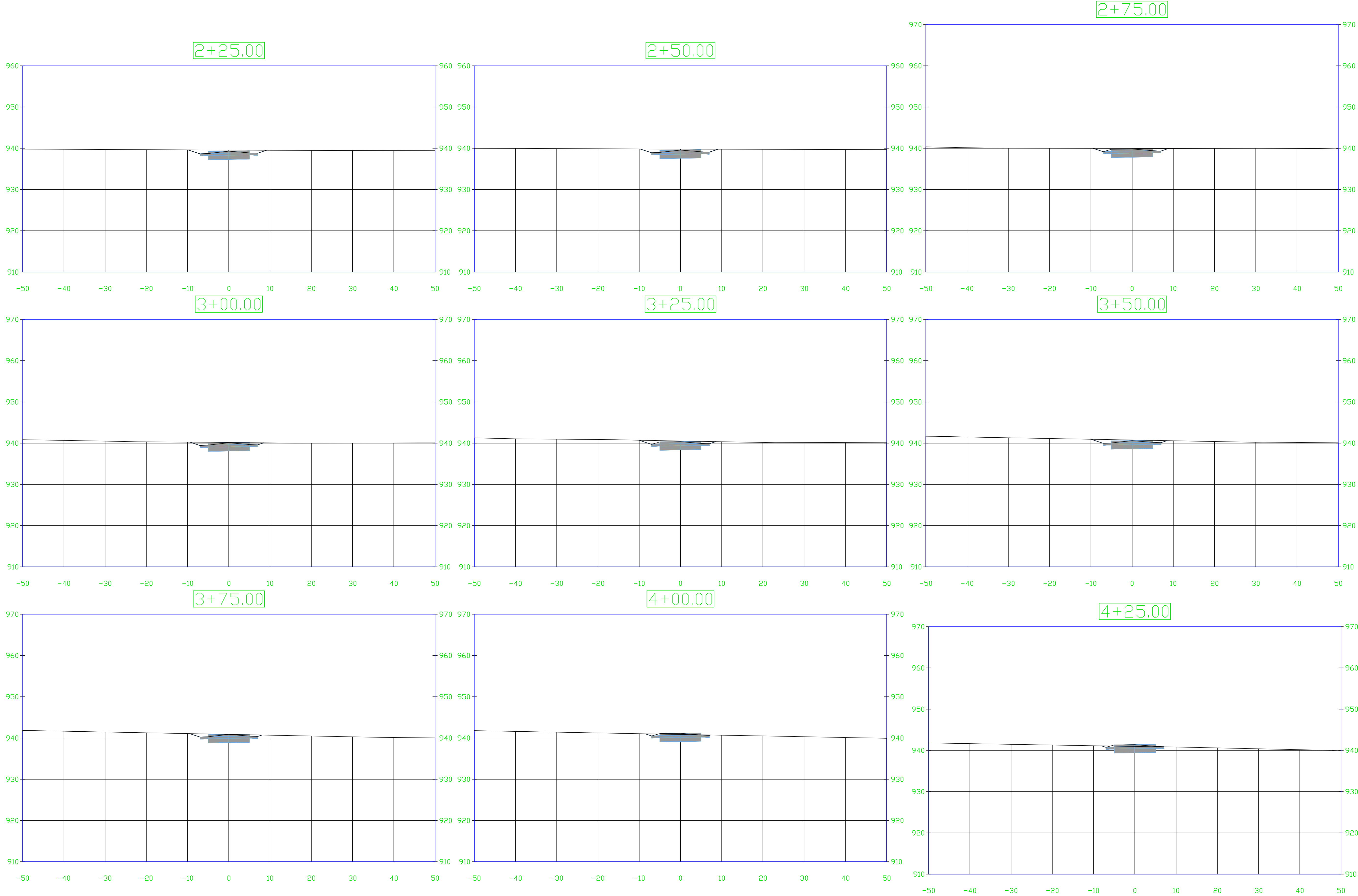


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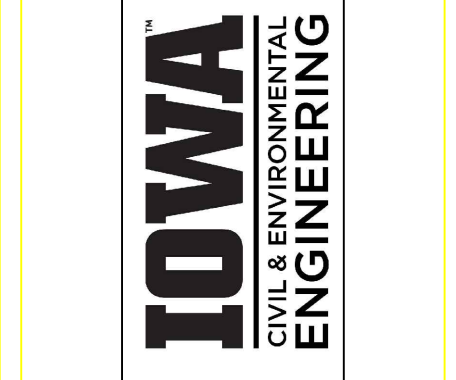
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SHEET NO.  
W.9



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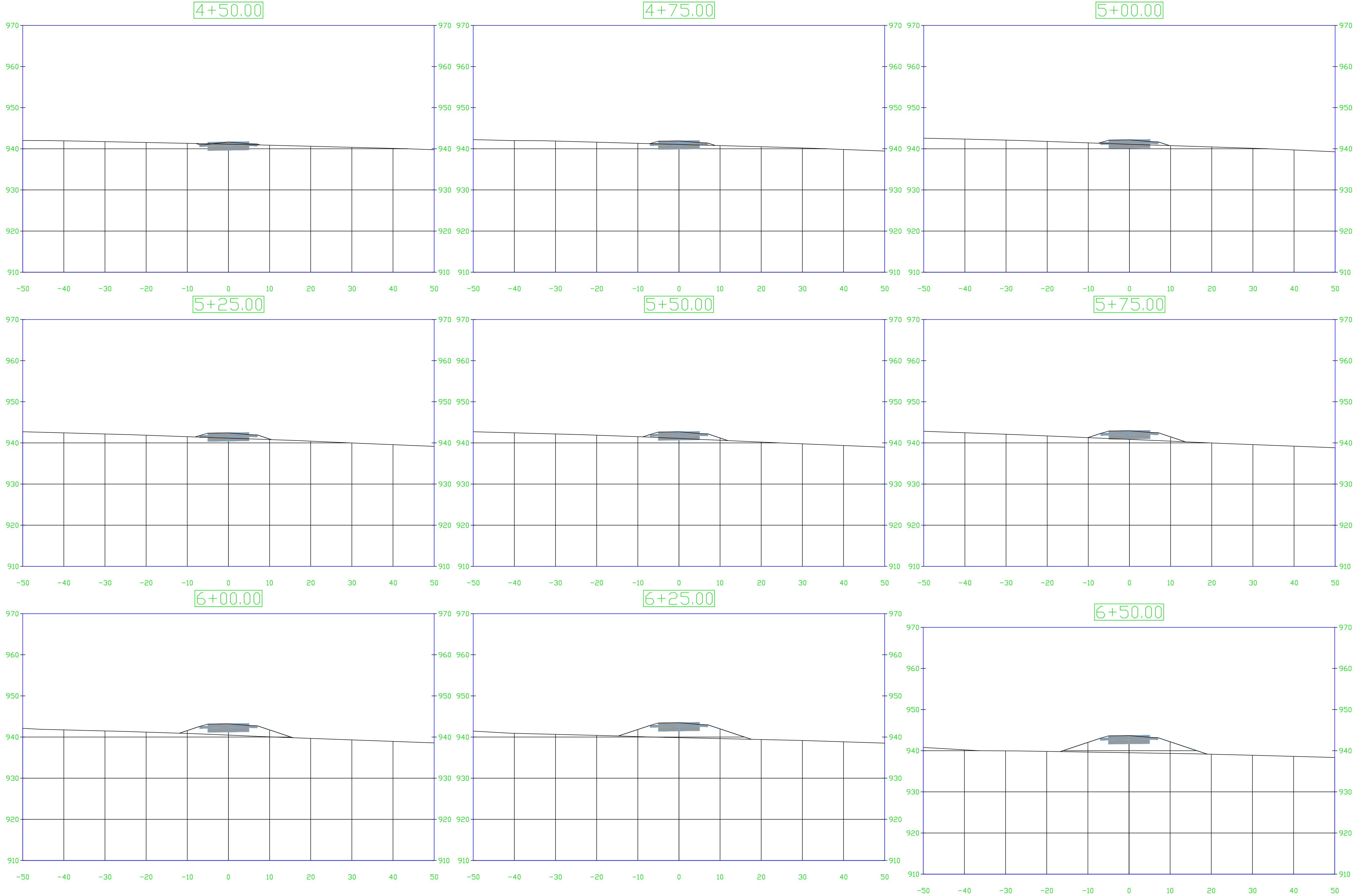


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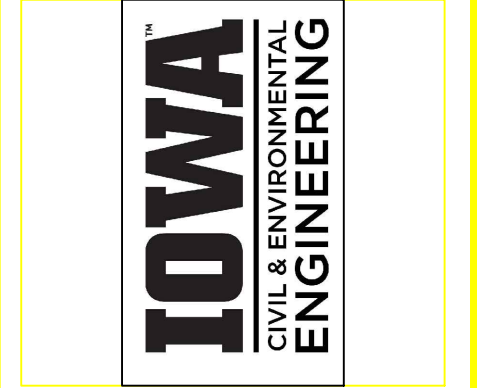
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SHEET NO.  
  
**W.10**



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| PROJECT:  | CEE: 4850 |
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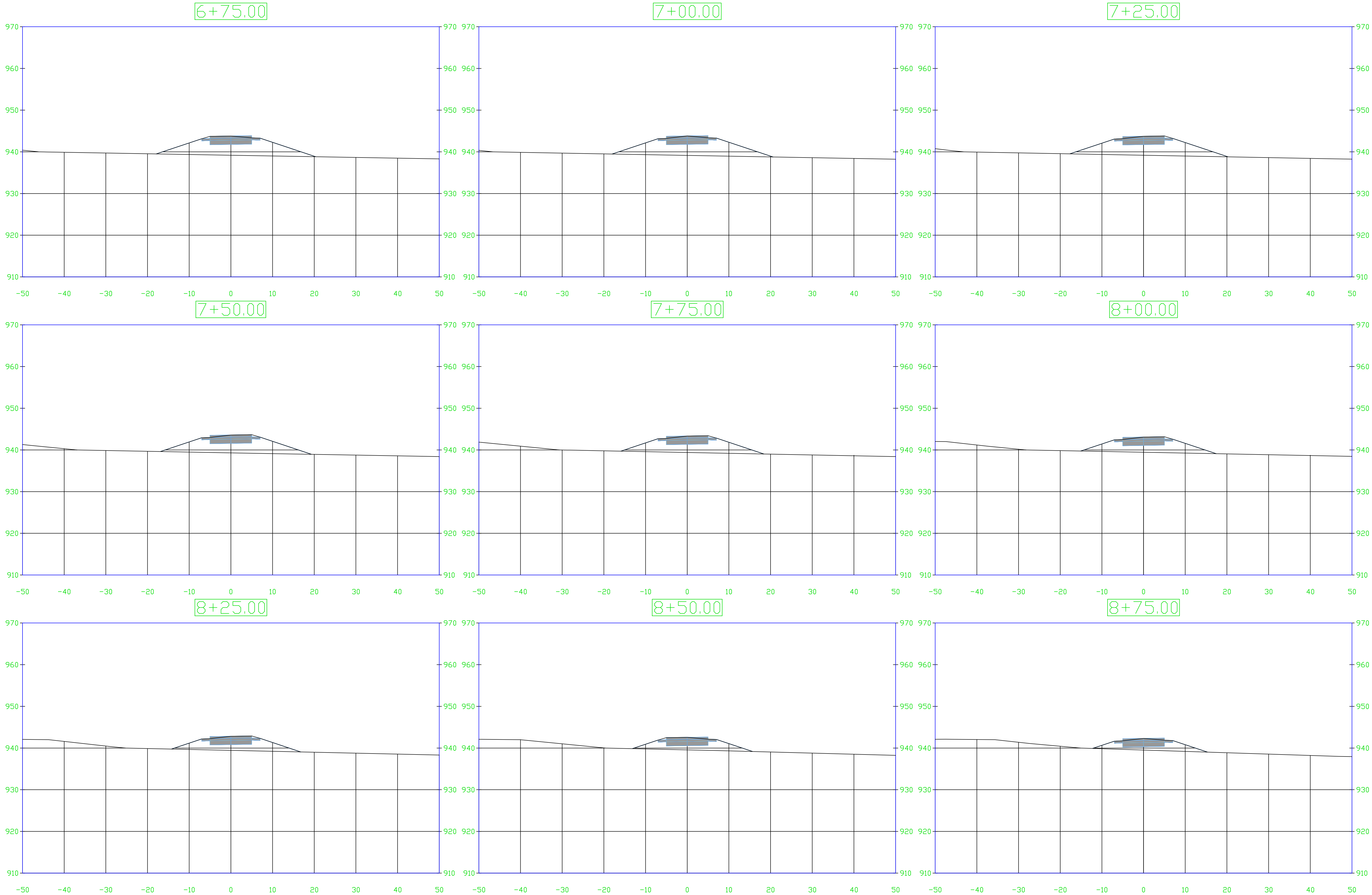


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DITCH 2  
BONDURANT, IOWA

SHEET NAME  
TRAIL  
CROSS SECTIONS

SHEET NO.  
W.11



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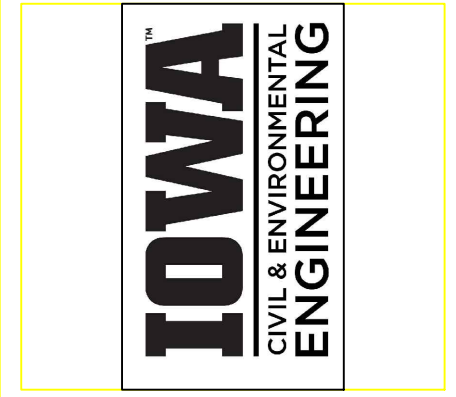
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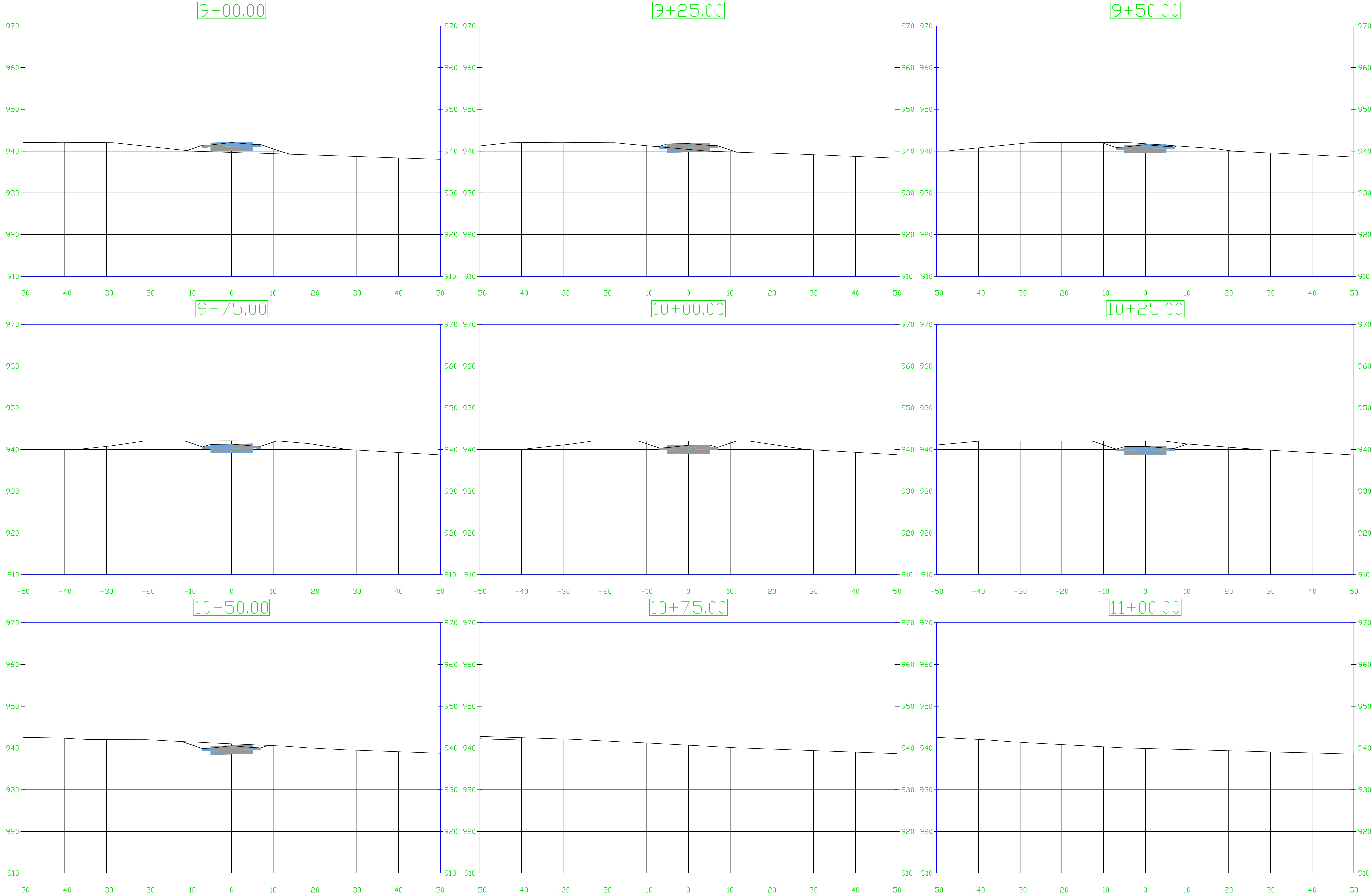
DITCH 2  
BONDURANT, IOWA

SHEET NAME

TRAIL  
CROSS SECTIONS

SHEET NO.

W.12

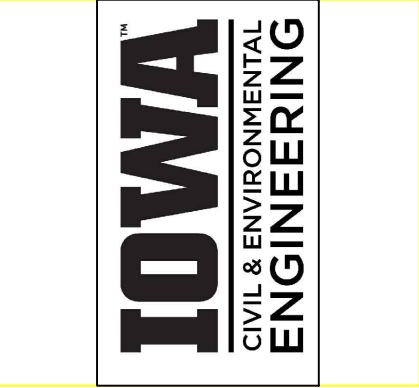


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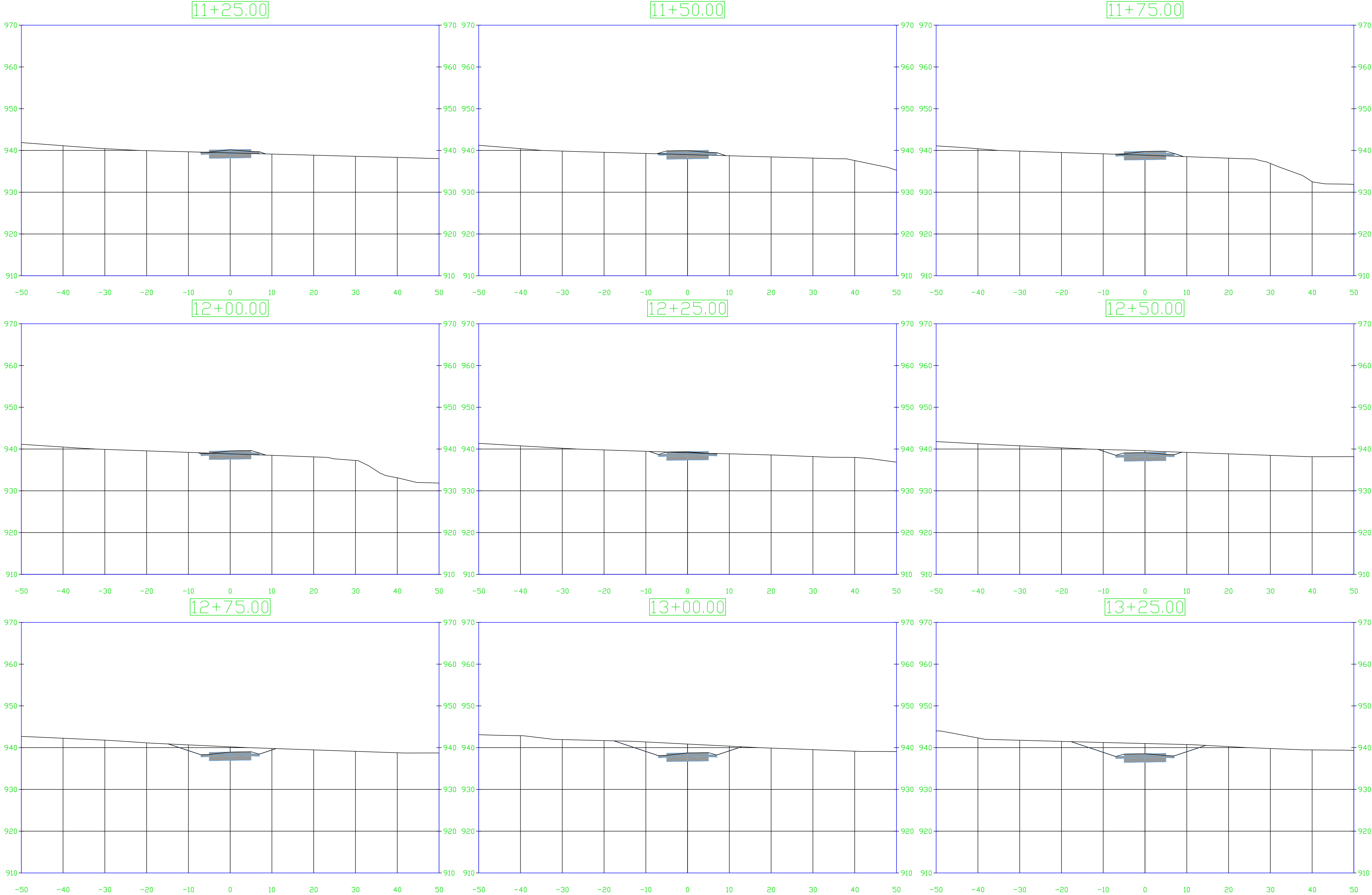
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SHEET NAME

TRAIL  
CROSS SECTIONS

SHEET NO.

W.13



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| PROJECT:  | CEE: 4850 |
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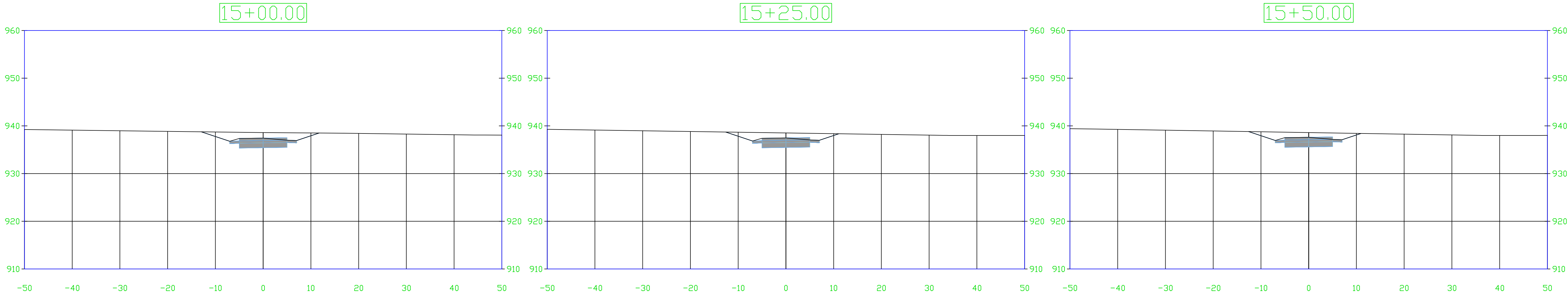
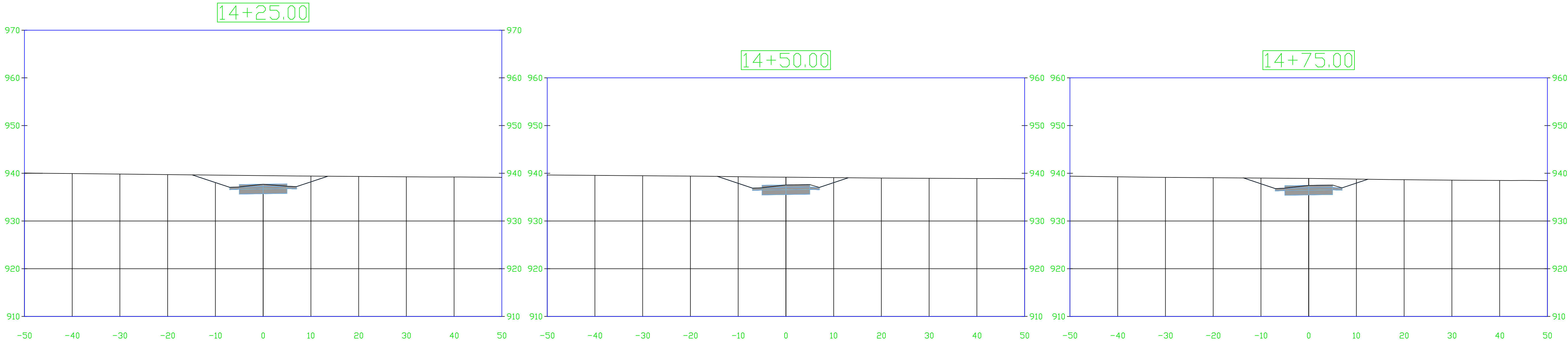
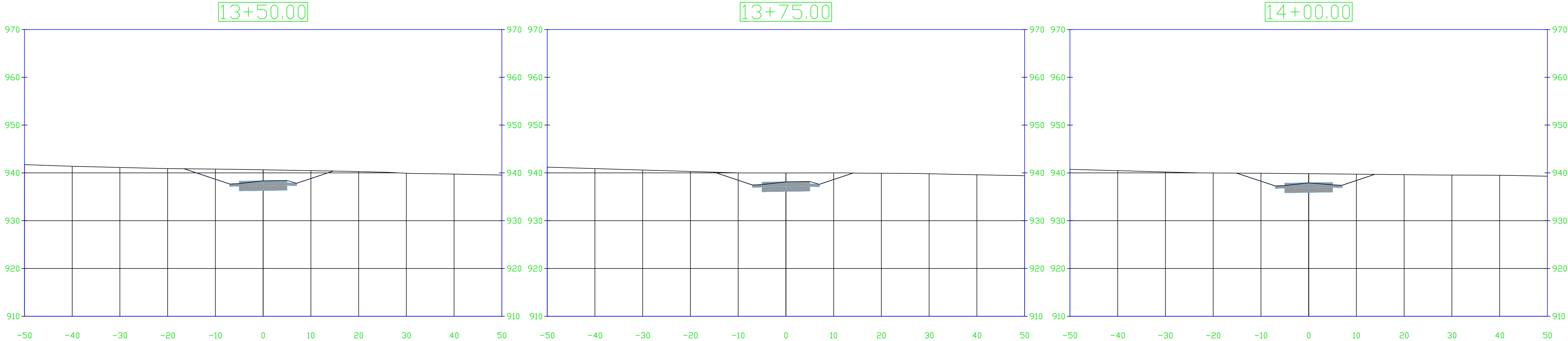
DITCH 2  
BONDURANT, IOWA

SHEET NAME

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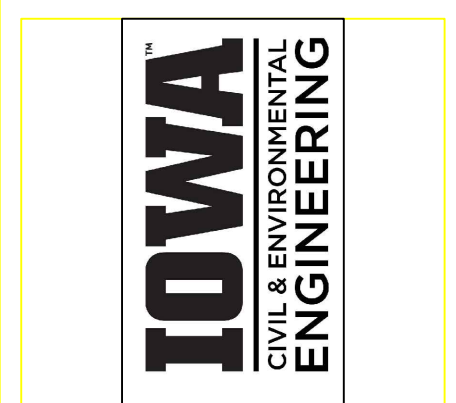
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W.14



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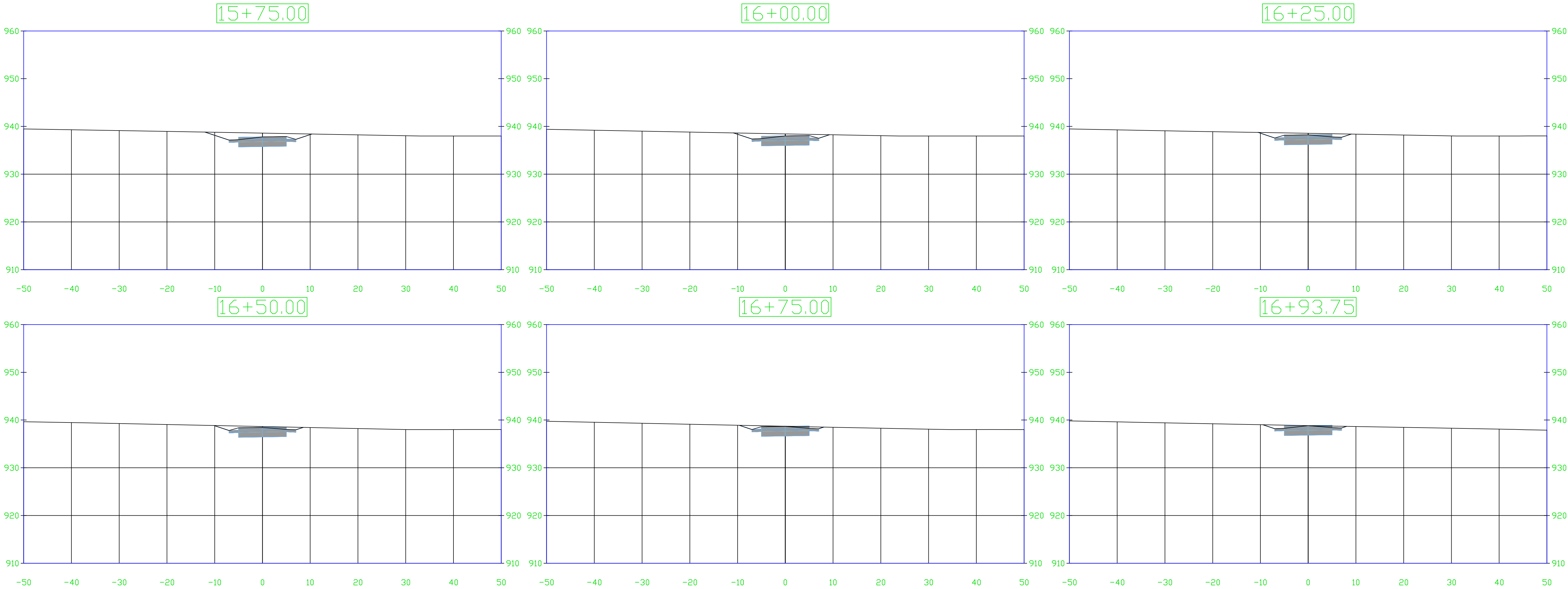


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DITCH 2  
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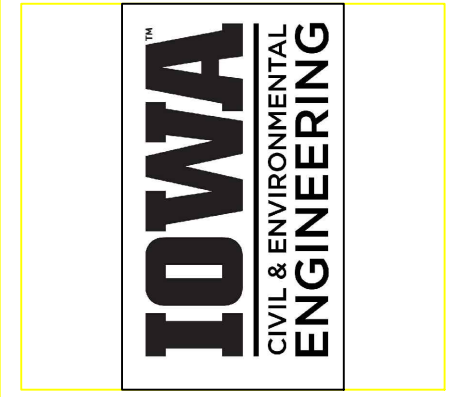
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SHEET NO.  
  
**W.15**



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| PROJECT:  | CEE: 4850 |
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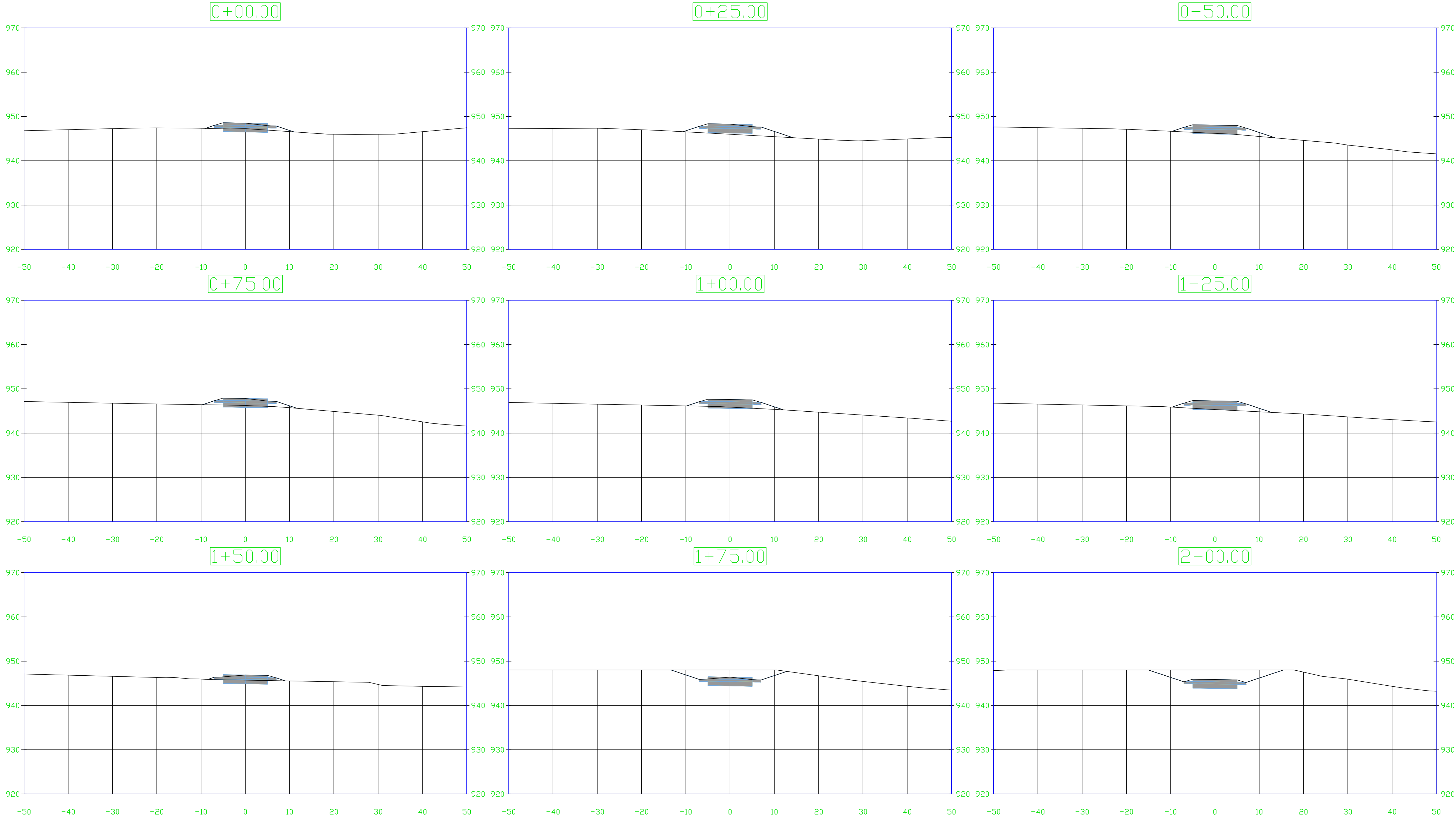


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TRAIL DESIGN  
DITCH 2  
BONDURANT, IOWA

SHEET NAME  
TRAIL  
CROSS SECTIONS

SHEET NO.  
W.16



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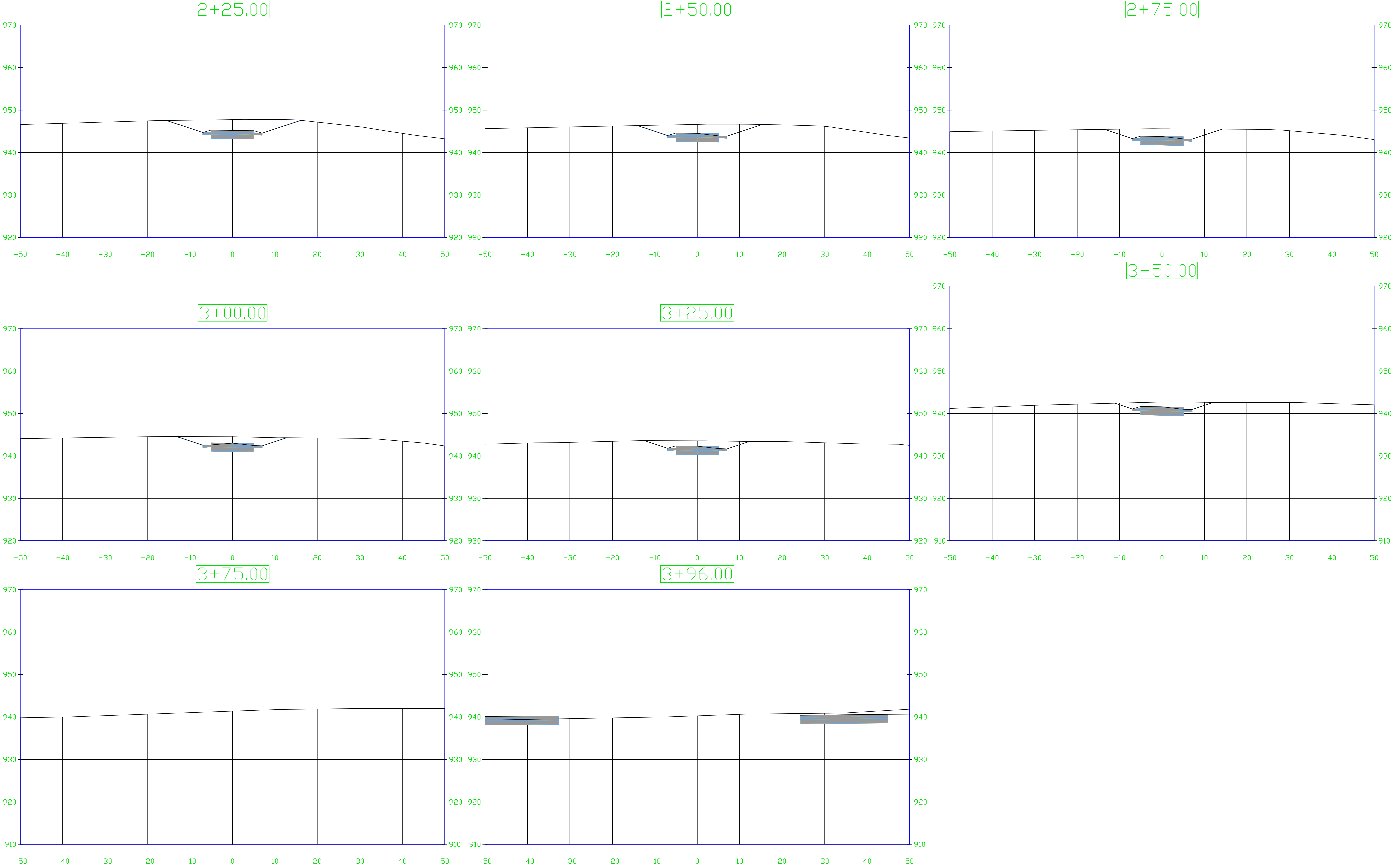
DITCH 2  
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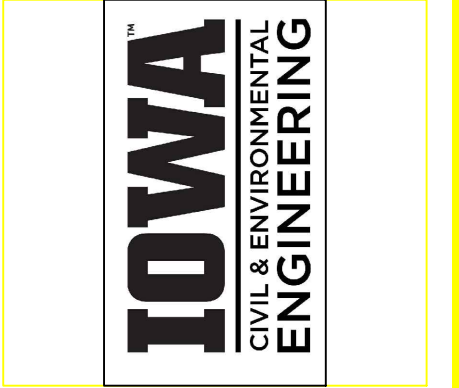
SHEET NO.

W.17



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TRAIL  
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W.18