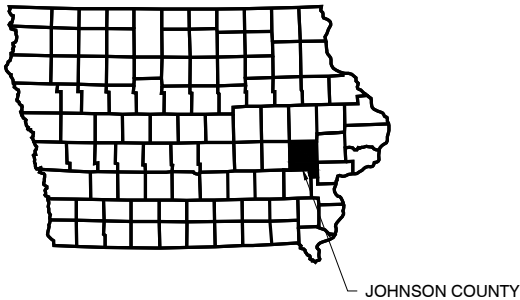
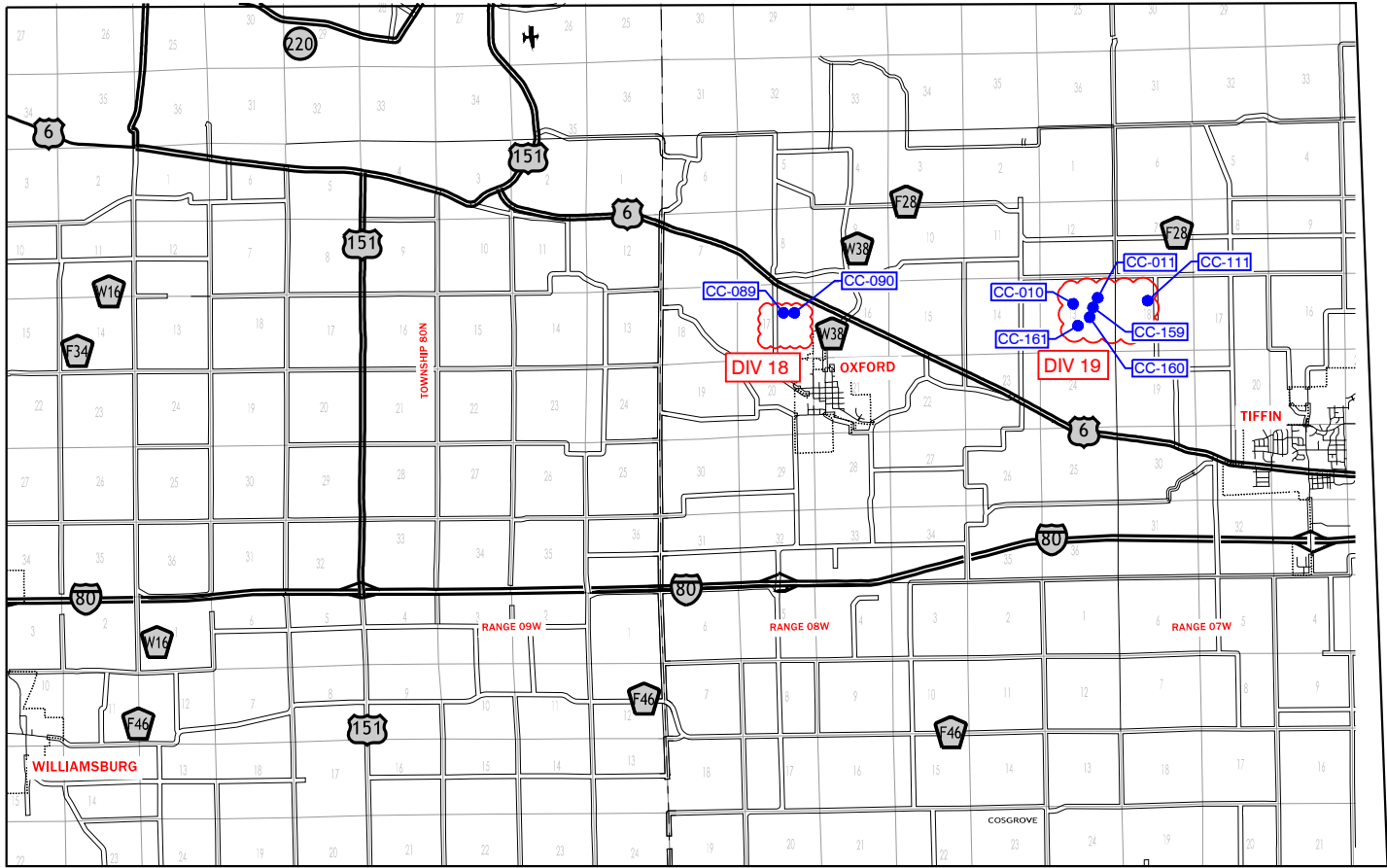


PROPOSED WATERSHED IMPROVEMENTS  
CLEAR CREEK WATERSHED IN  
IOWA & JOHNSON COUNTIES  
BID PACKAGE 4, JOHNSON COUNTY  
~2021~



**CLEAR CREEK WATERSHED:**  
JOHN RATHBUN, COORDINATOR  
51 ESCORT LANE  
IOWA CITY, IA 52240  
319-499-4835

**JOHNSON COUNTY BOARD OF SUPERVISORS:**  
913 S. DUBUQUE STREET, SUITE 201  
IOWA CITY, IA 52240



INDEX OF SHEETS

| SHEET NO.   |        | DESCRIPTION        |            |
|---|--------|--------------------|------------|
| 1   |        | COVER              |            |
| 2   |        | OWNER LOCATION MAP |            |
| <b><u>DIVISION 18 - CLEAR CREEK WATERSHED</u></b> |        |                    |            |
|   | CC-089 | YERIES             | WETLAND    |
| SHEETS 1-12                                       | CC-089 | YERIES             | DRY POND   |
|   | CC-090 | YERIES             | WASCOB     |
| <b><u>DIVISION 19 - CLEAR CREEK WATERSHED</u></b> |        |                    |            |
|   | CC-010 | ASMUSSEN           | POND       |
|   | CC-011 | ASMUSSEN           | ROCK CHUTE |
| SHEETS 1-14                                       | CC-159 | ASMUSSEN           | RIFFLE     |
|   | CC-160 | ASMUSSEN           | ROCK CHUTE |
|   | CC-161 | ASMUSSEN           | RIFFLE     |
| SHEETS 1-8  | CC-111 | EISTER             | POND       |

VICINITY MAP - JOHNSON COUNTY (All Bid  
Package #4 Sites are located in Johnson County)

NOT TO SCALE



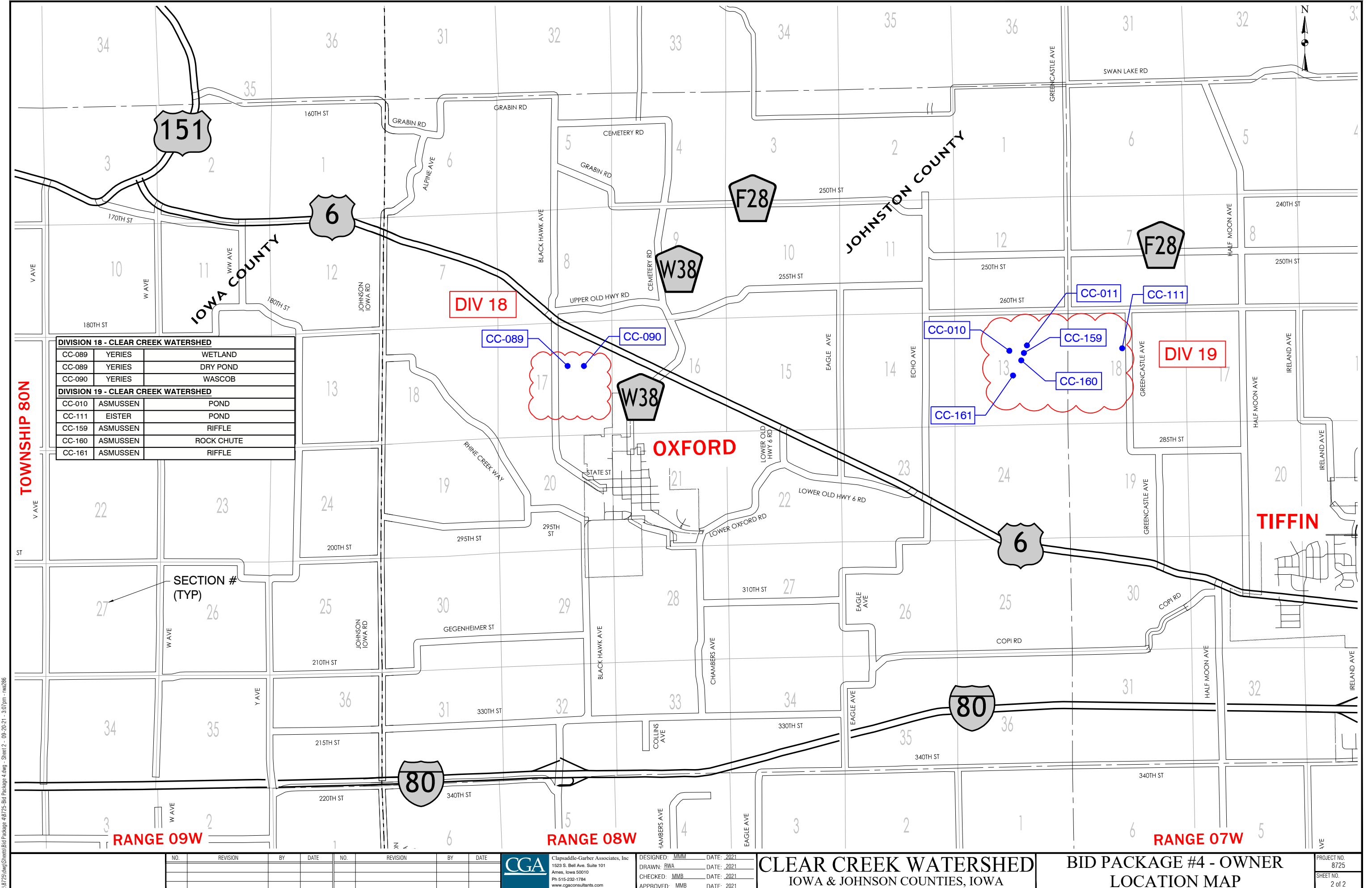
Clapsaddle-Garber Associates, Inc  
1523 S. Bell Ave. Suite 101  
Ames, Iowa 50010  
Phone 515-232-1784  
www.cgaconsultants.com

- NOTES:
1. THE CONTRACTOR SHALL CONTACT ONE-CALL, 800-292-8989, FOR UTILITY LOCATES AT LEAST 48 HOURS PRIOR TO STARTING CONSTRUCTION.
  2. IF CULTURAL RESOURCES ARE FOUND DURING CONSTRUCTION, WORK SHALL STOP IMMEDIATELY. CONTACT THE WATERSHED COORDINATOR, JOHN RATHBUN.
  3. SEE SEPARATELY BOUND SPECIFICATIONS.

TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, JUDGEMENT, AND BELIEF, THIS DESIGN, CONSTRUCTION DRAWINGS, AND SPECIFICATIONS MEET APPLICABLE NRCS STANDARDS AND SPECIFICATIONS.

*Mindy Bryngelson* 09/22/2021  
SIGNATURE DATE

|   |   |
|---|---|
|   | 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.<br><i>Mindy Bryngelson</i> 09/22/2021<br>Signature Date<br>Mindy M. Bryngelson, PE<br>Iowa License Number 17135<br>My license renewal date is December 31, 2021 |
| Pages or sheets covered by this seal: <b>ALL SHEETS</b> |   |



J:\8725\dwg\Sheets\Bid Package 4\8725-Bid Package 4.dwg - Sheet 2 - 09-20-21 - 3:07pm - rwa286

| NO. | REVISION | BY | DATE | NO. | REVISION | BY | DATE |
|-----|----------|----|------|-----|----------|----|------|
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |



Clapsaddle-Garber Associates, Inc.  
1523 S. Bell Ave. Suite 101  
Ames, Iowa 50010  
Ph 515-228-1794  
www.cgaconsultants.com

|               |            |
|---------------|------------|
| DESIGNED: MMM | DATE: 2021 |
| DRAWN: RWA    | DATE: 2021 |
| CHECKED: MMB  | DATE: 2021 |
| APPROVED: MMB | DATE: 2021 |

CLEAR CREEK WATERSHED

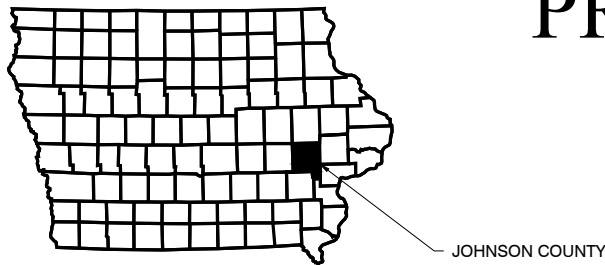
IOWA & JOHNSON COUNTIES, IOWA

BID PACKAGE #4 - OWNER  
LOCATION MAP

PROJECT NO.  
8725

SHEET NO.  
2 of 2

CC-089 TO CC-090 (YERIES)  
WETLAND CREATION (NRCS 658), GRADE STABILIZATION STRUCTURE  
(NRCS 410), & WASCOB (NRCS 638)  
PROPOSED WATERSHED IMPROVEMENTS  
CLEAR CREEK WATERSHED  
JOHNSON COUNTY, IOWA  
~2021~



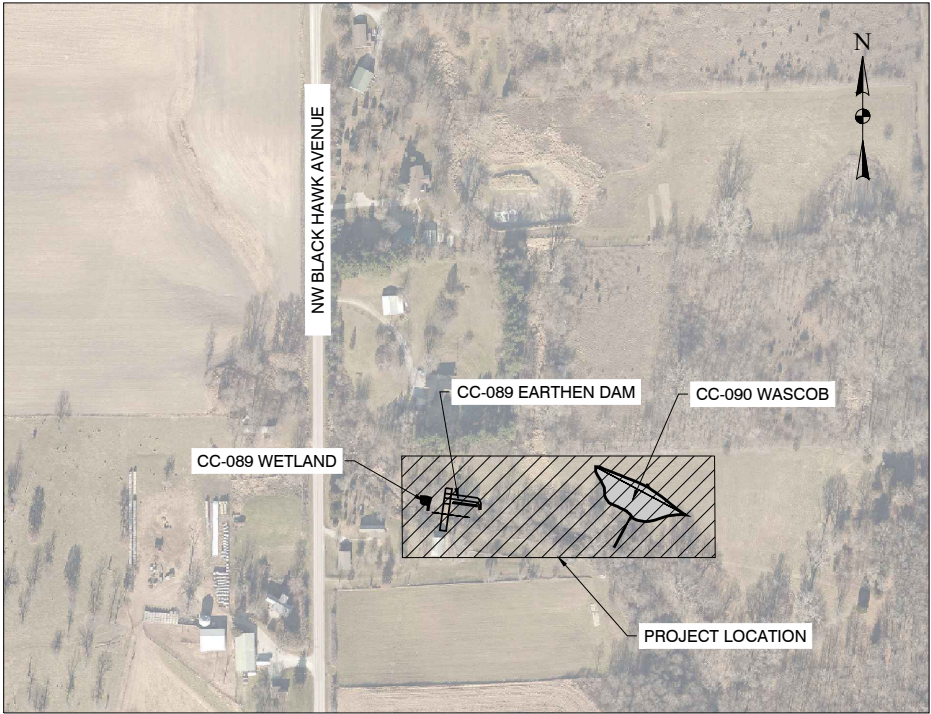
**CLEAR CREEK WATERSHED:**  
JOHN RATHBUN, COORDINATOR  
51 ESCORT LANE  
IOWA CITY, IA 52240  
319-499-4835

**JOHNSON COUNTY BOARD OF SUPERVISORS:**  
913 S. DUBUQUE STREET, SUITE 201  
IOWA CITY, IA 52240

**LANDOWNER:**  
MICHAEL A YERIES  
2710 BLACK HAWK AVE NW  
OXFORD, IOWA 52322



- NOTES:
1. THE CONTRACTOR SHALL CONTACT ONE-CALL, 800-292-8989, FOR UTILITY LOCATES AT LEAST 48 HOURS PRIOR TO STARTING CONSTRUCTION.
  2. IF CULTURAL RESOURCES ARE FOUND DURING CONSTRUCTION, WORK SHALL STOP IMMEDIATELY. CONTACT THE WATERSHED COORDINATOR, JOHN RATHBUN.
  3. SEE SEPARATELY BOUND SPECIFICATIONS.



LOCATION MAP  
SECTION 17 T80N R08W



Clapsaddle-Garber Associates, Inc  
1523 S. Bell Ave. Suite 101  
Ames, Iowa 50010  
Phone 515-232-1784  
www.cgaconsultants.com

| INDEX OF SHEETS |                                       |
|-----------------|---------------------------------------|
| SHEET NO.       | DESCRIPTION                           |
| 1               | COVER SHEET                           |
| 2               | OVERALL PROJECT SITE                  |
| 3               | CC-089 PLAN                           |
| 4               | CC-089 DAM PLAN AND PROFILE           |
| 5               | CC-089 DAM DETAILS                    |
| 6               | CC-089 STREAM PLAN & PROFILE          |
| 7               | CC-089 WETLAND PLAN                   |
| 8               | CC-089 QUANTITIES AND DESIGN DATA     |
| 9               | CC-090 WASCOB PLANS                   |
| 10              | CC-090 WASCOB PROFILE                 |
| 11              | CC-090 QUANTITIES AND DESIGN DATA     |
| 12              | STORM WATER POLLUTION PREVENTION PLAN |

PERMIT SUMMARY  
US ARMY CORPS OF ENGINEERS  
REGIONAL GENERAL PERMIT 33  
CEMVR - OD - P - 2020 - 1577

NPDES GENERAL PERMIT #2

TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, JUDGEMENT, AND BELIEF, THIS DESIGN, CONSTRUCTION DRAWINGS, AND SPECIFICATIONS MEET APPLICABLE NRCS STANDARDS AND SPECIFICATIONS.

*Mindy Bryngelson* 09/22/2021  
SIGNATURE DATE

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.

*Mindy Bryngelson* 09/22/2021  
Signature Date  
Mindy M. Bryngelson, PE  
Iowa License Number 17135  
My license renewal date is December 31, 2021

Pages or sheets covered by this seal: ALL SHEETS



J:\8725\_Yeries CC-089 to CC-090\Drawings\CC-089 to CC-090 (Yeries) - 2\_Overall Project Site.dwg - 2 - 09-09-21 - 6:05pm - JRA353

| CONTROL INFORMATION |           |           |            |
|---------------------|-----------|-----------|------------|
| POINT #             | ELEVATION | NORTHING  | EASTING    |
| 100                 | 824.59    | 637644.60 | 2103652.34 |
| 101                 | 827.86    | 637614.00 | 2103553.06 |
| 102                 | 829.55    | 637746.69 | 2103496.68 |
| 103                 | 829.50    | 637886.00 | 2103496.40 |
| 110                 | 818.76    | 637652.90 | 2103721.61 |
| 111                 | 820.87    | 637665.69 | 2103673.07 |
| 112                 | 824.73    | 637683.61 | 2103628.06 |
| 113                 | 823.99    | 637721.84 | 2103597.84 |
| 114                 | 824.60    | 637754.42 | 2103570.05 |
| 115                 | 822.65    | 637780.54 | 2103711.71 |
| 116                 | 814.74    | 637647.27 | 2103787.44 |
| 117                 | 812.75    | 637638.11 | 2103833.86 |
| 150                 | 814.85    | 637689.32 | 2103765.71 |
| 151                 | 821.73    | 637806.86 | 2103550.08 |

LEGEND

- EXISTING WETLAND- DO NOT DISTURB
- FILL BORROW AREA
- PROPOSED WETLAND



| NO. | REVISION | BY | DATE | NO. | REVISION | BY | DATE |
|-----|----------|----|------|-----|----------|----|------|
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |



Clapsaddle-Garber Associates, Inc.  
1523 S. Bell Ave. Suite 101  
Ames, Iowa 50010  
Ph 515-232-1794  
www.cgaconsultants.com

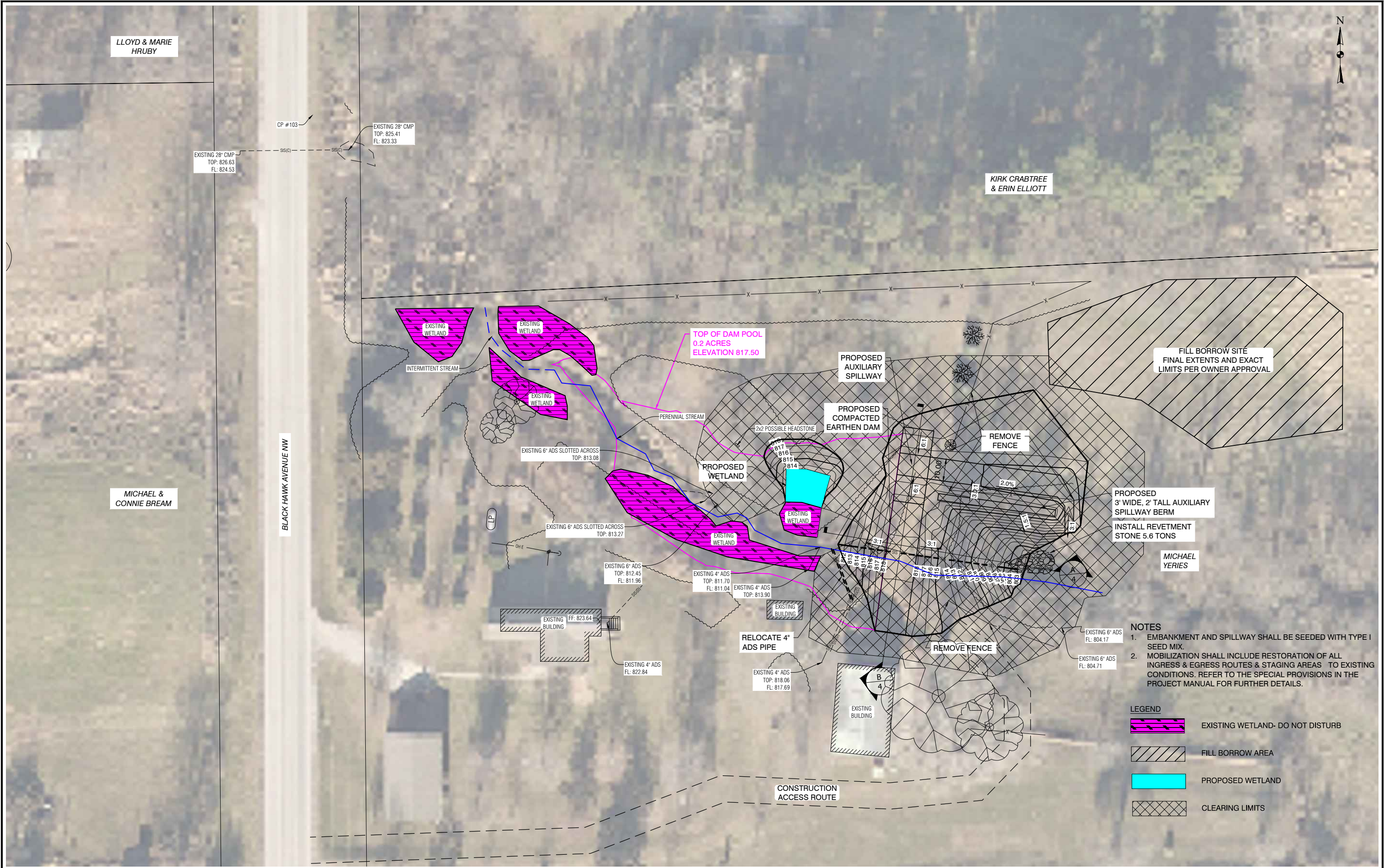
DESIGNED: RWA DATE: 05-15-2021  
DRAWN: RWA DATE: 05-15-2021  
CHECKED: MMB DATE: 08-18-2021  
APPROVED: MMB DATE: 08-19-2021

CC-089 TO CC-090 (YERIES)  
JOHNSON COUNTY, IOWA

OVERALL PROJECT SITE

PROJECT NO.  
8725  
SHEET NO.  
2





J:\8725\_Yeries to CC-092\dwg\Sheets\CC-089\8725\_CC-089\_Plan.dwg - 3 - 05-05-21 - 6:05pm - JAA353



| NO. | REVISION | BY | DATE | NO. | REVISION | BY | DATE |
|-----|----------|----|------|-----|----------|----|------|
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |



Clapsaddle-Garber Associates, Inc.  
1523 S. Bell Ave. Suite 101  
Ames, Iowa 50010  
Ph 515-282-1784  
www.cgaconsultants.com

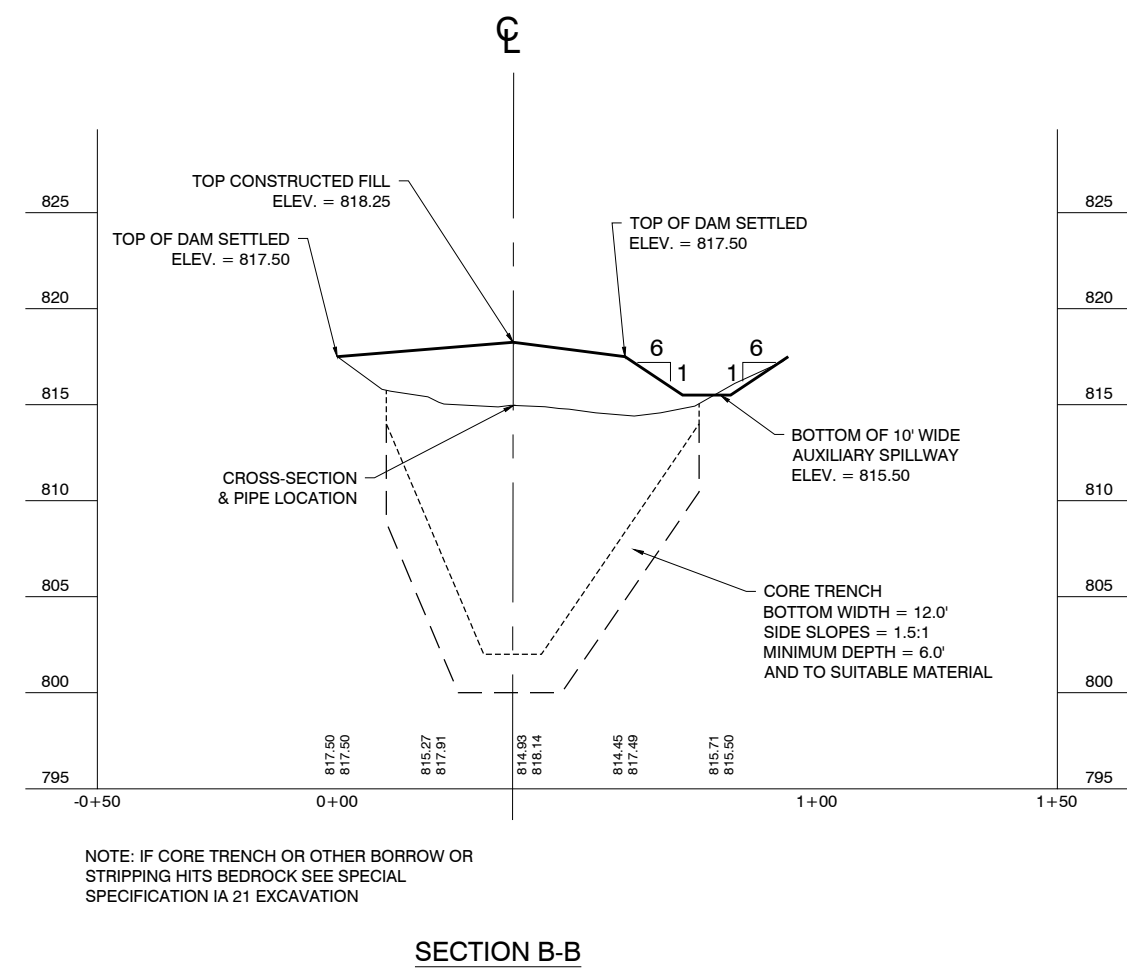
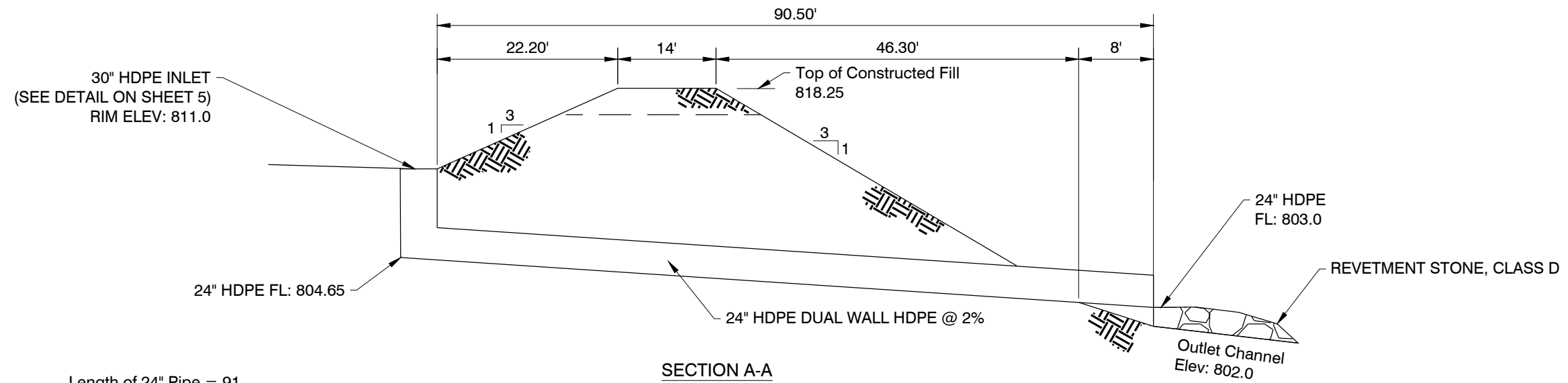
|               |                  |
|---------------|------------------|
| DESIGNED: RWA | DATE: 05-15-2021 |
| DRAWN: RWA    | DATE: 05-15-2021 |
| CHECKED: MMB  | DATE: 08-18-2021 |
| APPROVED: MMB | DATE: 08-19-2021 |

# CC-089 TO CC-090 (YERIES)

## JOHNSON COUNTY, IOWA

### CC-089 PLAN

|             |      |
|-------------|------|
| PROJECT NO. | 8725 |
| SHEET NO.   | 3    |



NOTE: IF CORE TRENCH OR OTHER BORROW OR STRIPPING HITS BEDROCK SEE SPECIAL SPECIFICATION IA 21 EXCAVATION

J:\8725\_Yeries CC-089 to CC-092.dwg(Sheets)\CC-089\8725\_CC-089 (Yeries) - 4x5 Dam P&P and Details.dwg - 4 - 09-09-21 - 6:05pm - JRA53

| NO. | REVISION | BY | DATE | NO. | REVISION | BY | DATE |
|-----|----------|----|------|-----|----------|----|------|
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |

**CGA**  
Clapsaddle-Garber Associates, Inc.  
1523 S. Bell Ave. Suite 101  
Ames, Iowa 50010  
Ph 515-282-1794  
www.cgaconsultants.com

DESIGNED: RWA DATE: 05-15-2021  
DRAWN: RWA DATE: 05-15-2021  
CHECKED: MMB DATE: 08-18-2021  
APPROVED: MMB DATE: 08-19-2021

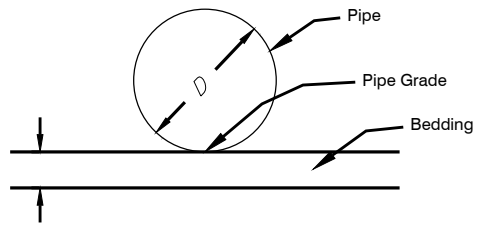
**CC-089 TO CC-090 (YERIES)**  
JOHNSON COUNTY, IOWA

**CC-089 DAM PLAN & PROFILE**

|                     |
|---------------------|
| PROJECT NO.<br>8725 |
| SHEET NO.<br>4      |

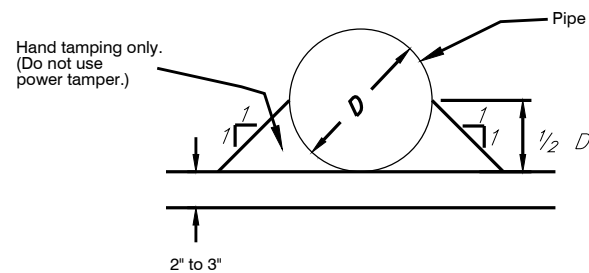


J:\8775\_Yeries CC-089 to CC-092\Drawings\Sheets\CC-089\8775\_CC-089 (Yeries) - 4x5 Dam P&P and Details.dwg - 5 - 09-09-21 - 6:05pm - JRA53

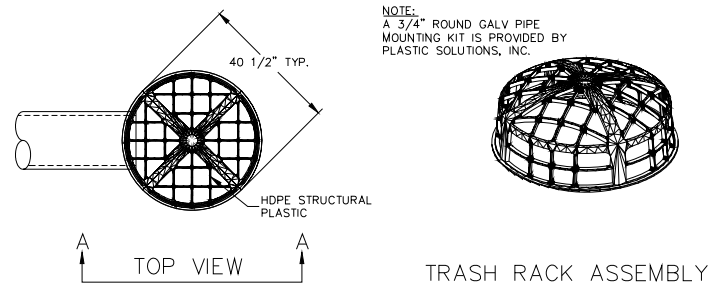


HDPE PIPE  
PRINCIPAL SPILLWAY  
BEDDING DETAIL

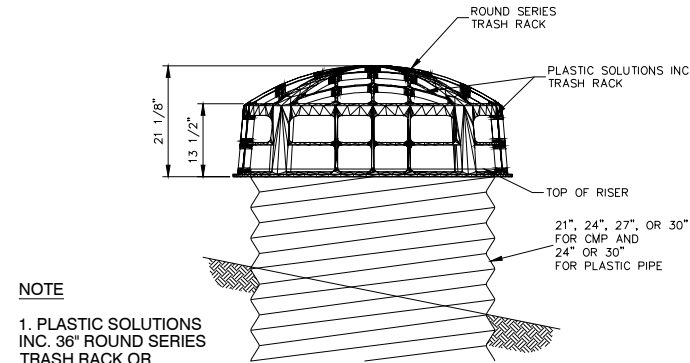
NOTE: Begin backfill immediately after pipe has been placed. See specifications for additional bedding & backfill requirements for the deep cover portion of the pipe.



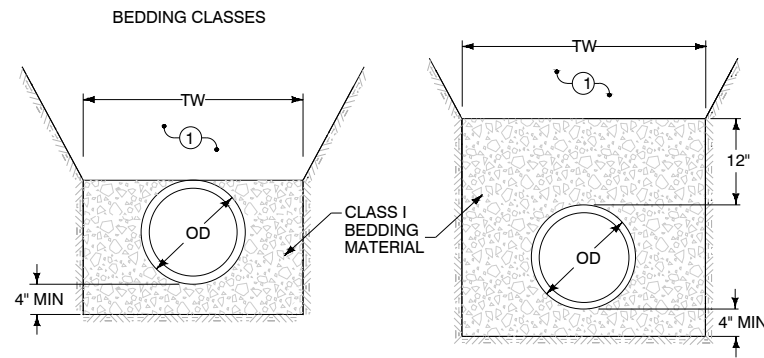
HDPE PIPE  
PRINCIPAL SPILLWAY  
BACKFILL DETAIL



TRASH RACK ASSEMBLY



ELEV. A-A  
TRASH RACK DETAIL



CLASS F-2

CLASS F-3

ALLOWABLE BURY DEPTH  
HDPE PIPE  
(BEDDING CLASS F-2 OR F-3)

| PIPE DIAMETER (INCHES) | AASHTO M 294 |
|------------------------|--------------|
| 12                     | 8'           |
| 15                     | 9'           |
| 18                     | 9'           |
| 24                     | 9'           |
| 30                     | 9'           |
| 36                     | 9'           |
| 42                     | 8'           |
| 48                     | 8'           |
| 54                     | 8'           |
| 60                     | 8'           |

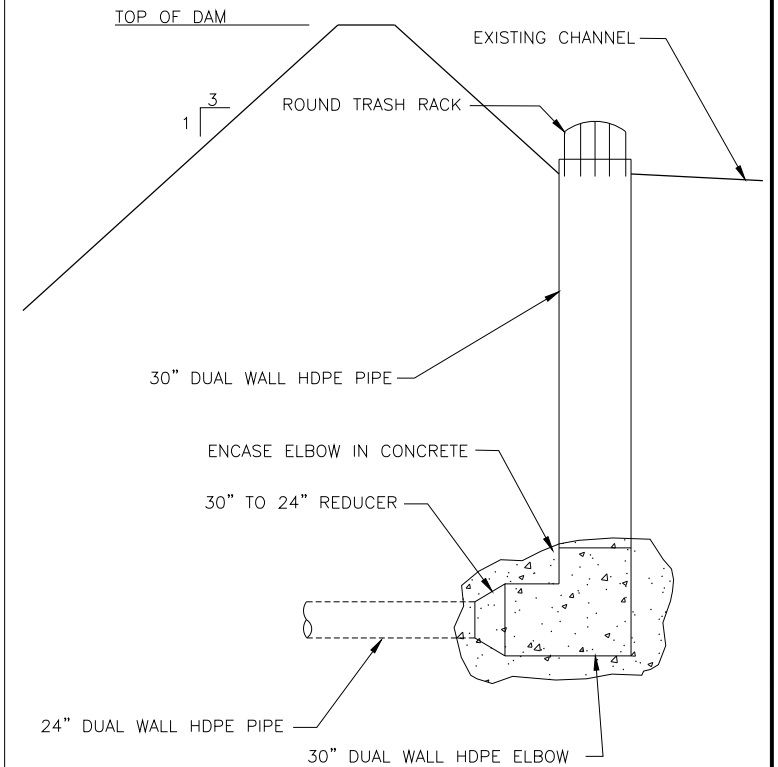
① PLACE REMAINDER OF BEDDING AND BACKFILL MATERIALS AS SPECIFIED IN THE CONTRACT DOCUMENTS.

Key

OD = OUTSIDE DIAMETER OF PIPE

TW = TRENCH WIDTH AT TOP OF PIPE:  
MIN. = OD + 18 INCHES OR 1.25XOD + 12 INCHES  
(WHICHEVER IS GREATER)

HDPE PIPE TRENCH BEDDING & BACKFILL



30" INLET DETAIL

| NO. | REVISION | BY | DATE | NO. | REVISION | BY | DATE |
|-----|----------|----|------|-----|----------|----|------|
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |

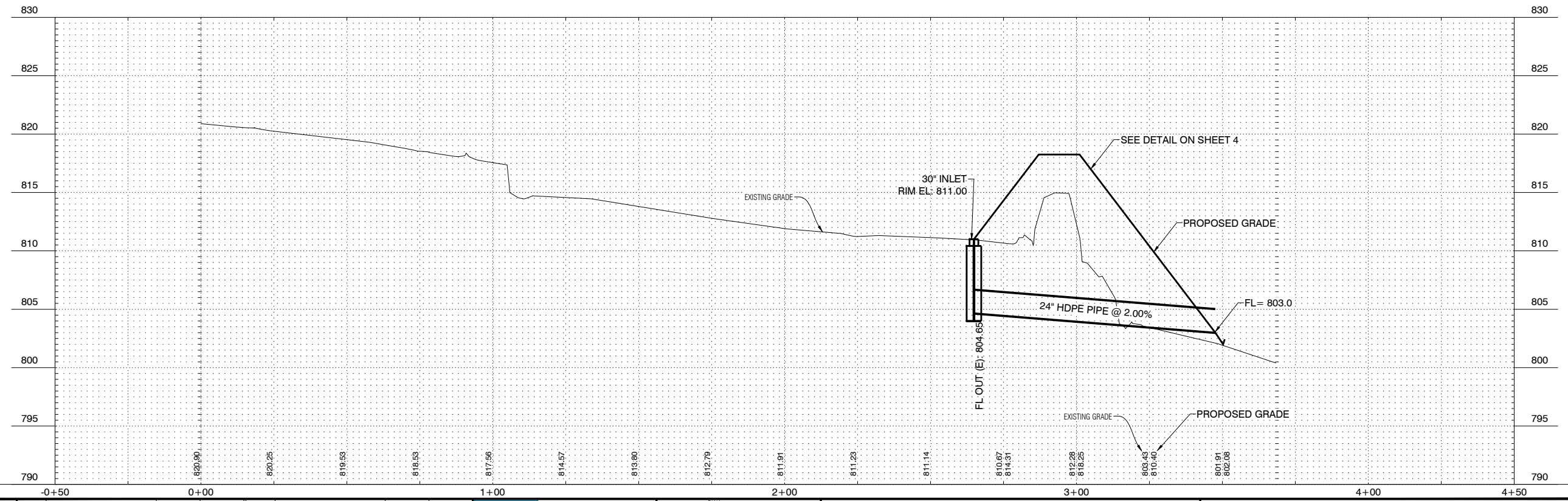
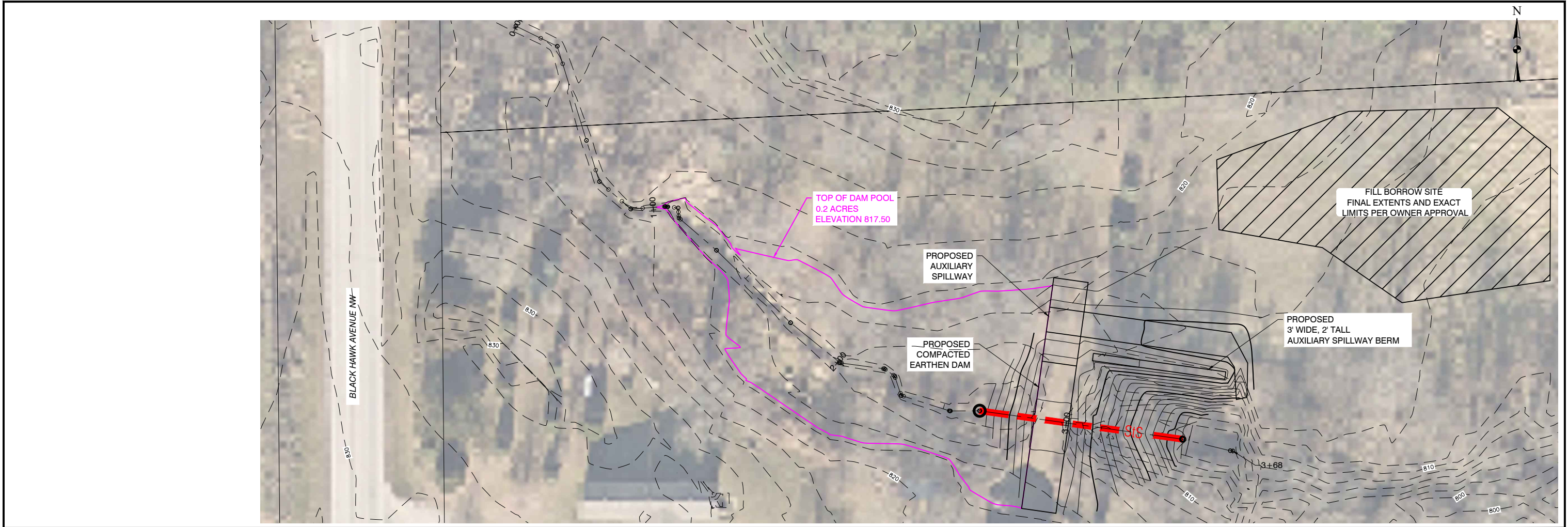


DESIGNED: RWA DATE: 05-15-2021  
DRAWN: RWA DATE: 05-15-2021  
CHECKED: MMB DATE: 08-18-2021  
APPROVED: MMB DATE: 08-19-2021

CC-089 TO CC-090 (YERIES)  
JOHNSON COUNTY, IOWA

CC-089 DAM DETAILS

PROJECT NO.  
8725  
SHEET NO.  
5



J:\8725\_Yeries CC-089 to CC-092\dwg\Sheets\CC-089.8725 CC-089 (Yeries) - 6 Stream Plan & Profile.dwg - 6 CC-089 STREAM PLAN & PROFILE - 09-09-21 - 6:06pm - JRA/SJS

1" = 5' VERTICAL SCALE  
GRAPHIC SCALE

| NO. | REVISION | BY | DATE |
|-----|----------|----|------|
|     |          |    |      |
|     |          |    |      |
|     |          |    |      |

CGA

Clapsaddle-Garber Associates, Inc  
1523 S. Bell Ave. Suite 101  
Ames, Iowa 50010  
Ph 515-232-1794  
www.cgaconsultants.com

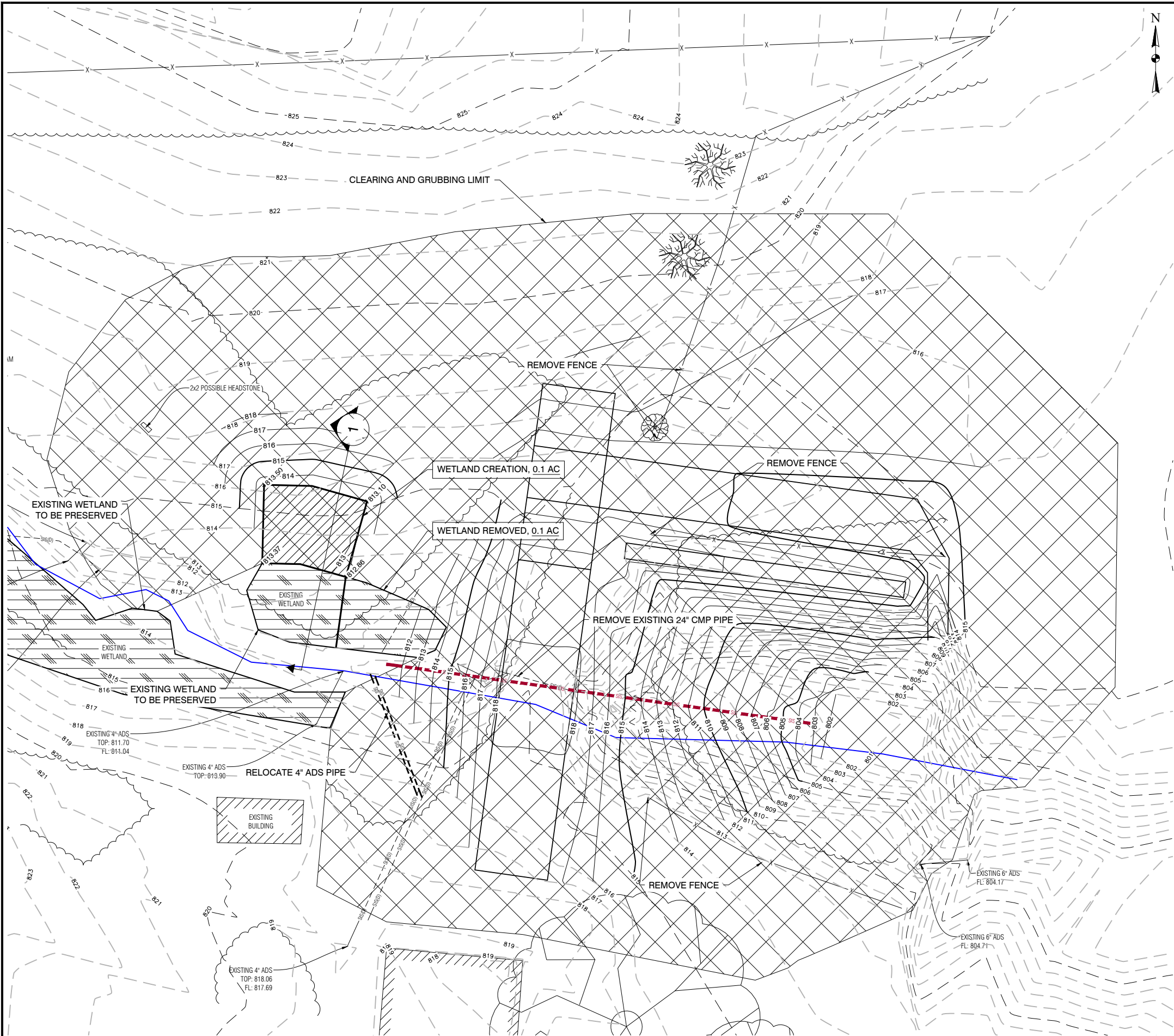
DESIGNED: RWA DATE: 05-15-2021  
DRAWN: RWA DATE: 05-15-2021  
CHECKED: MMB DATE: 08-18-2021  
APPROVED: MMB DATE: 08-19-2021

**CC-089 TO CC-090 (YERIES)**  
JOHNSON COUNTY, IOWA

**CC-089 STREAM PLAN & PROFILE**

PROJECT NO. 8725  
SHEET NO. 6



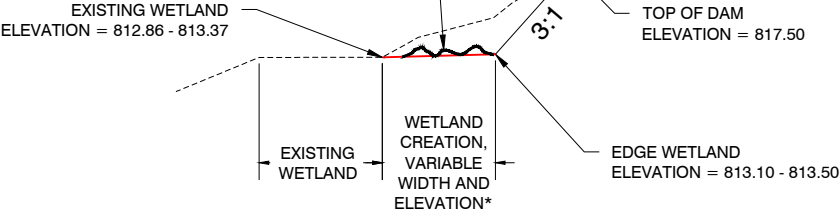


NOTE:  
1. ALL DISTURBED AREAS, EXCLUDING INGRESS AND EGRESS ROUTES AND STAGING AREAS, SHALL BE SEEDED AS FOLLOWS:  
WETLANDS SHALL BE SEEDED WITH TYPE III WETLAND SEED MIX PER SPECIFICATIONS.



CLEARING AND GRUBBING

\*CONTRACTOR SHALL GRADE A SHELF THAT VARIES IN ELEVATION FROM 812.86 AND 813.37 AT THE EDGE OF WATER LINE TO AN ELEVATION OF 813.10 AND 813.50 AT THE EDGE LOCATION (AS DETERMINED BY THE 3:1 SLOPE FROM THE TOP OF DAM ELEVATION). THE WIDTH OF THE WETLAND FRIDGE CREATION VARIES. THE CONTRACTOR SHALL VARY THE ELEVATION OF THIS SHELF FROM 813.10 TO 813.50 TO CREATE AREAS THAT WILL NORMALLY STAND WITH SHALLOW WATER AND AREAS THAT WILL BE MOUNDED TO BE TYPICALLY ABOVE THE WATER DURING NORMAL FLOW PERIODS



WETLAND CREATION TYPICAL

J:\8725\_Yeries CC-089 to CC-092.dwg(Sheets)CC-089.8725 CC-089 (Yeries) - 7 Wetland Plan.dwg - 7 - 09-05-21 - 6:06pm - JRA353



| NO. | REVISION | BY | DATE | NO. | REVISION | BY | DATE |
|-----|----------|----|------|-----|----------|----|------|
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |



Clapsaddle-Garber Associates, Inc.  
1523 S. Bell Ave. Suite 101  
Ames, Iowa 50010  
Ph 515-282-1794  
www.cgaconsultants.com

DESIGNED: RWA DATE: 05-15-2021  
DRAWN: RWA DATE: 05-15-2021  
CHECKED: MMB DATE: 08-18-2021  
APPROVED: MMB DATE: 08-19-2021

CC-089 TO CC-090 (YERIES)  
JOHNSON COUNTY, IOWA

CC-089 WETLAND PLAN

PROJECT NO.  
8725  
SHEET NO.  
7

J:\8725\_Yeries CC-089 to CC-092.dwg(Sheets)CC-089.8725 CC-089 (Yeries) - 8\_09-10-21 - 10:10am - JPA353

| DESIGN DATA                    |                 |                  |
|--------------------------------|-----------------|------------------|
| DRAINAGE AREA = 27.3 ACRES     |                 |                  |
| SOIL TYPES                     | MAP UNIT SYMBOL | HYDROLOGIC GROUP |
| Chelsea Loamy Fine Sand        | 63B             | A                |
| Chelsea Loamy Fine Sand        | 63C             | A                |
| Chelsea-Fayette-Lamont Complex | 293C2           | A                |
| Chelsea-Fayette-Lamont Complex | 293D            | A                |
| Chelsea-Fayette-Lamont Complex | 293E2           | A                |
| Whittier Silt Loam             | 352B            | C                |
| Nodaway-Arenzville Silt Loam   | 729B            | B                |
| Fayette Silt Loam              | M163B           | C                |
|                                |                 |                  |

| Land Use         | Area (Ac) | RCN           |    |
|------------------|-----------|---------------|----|
| Farmstead        | 5.4       | 59            |    |
| Farmstead        | 0.8       | 74            |    |
| Row Crop         | 11.4      | 64            |    |
| Row Crop         | 1.8       | 82            |    |
| Hay              | 1.3       | 30            |    |
| Brush/Weed/Grass | 3.8       | 48            |    |
| Brush/Weed/Grass | 1.3       | 64            |    |
| Gravel/Road      | 1.5       | 76            |    |
|                  |           | Weighted RCN: | 62 |
|                  |           |               |    |

| SOIL DELIVERY |          |
|---------------|----------|
| Design Life   | 50 YEARS |
| Below Crest   | 3.37     |
| Above Crest   | 0.63     |
|               |          |

| STAGE-STORAGE |           |               |                 |
|---------------|-----------|---------------|-----------------|
| ELEVATION     | AREA (SF) | INTERVAL (CF) | CUMULATIVE (CF) |
| 811.0         | 0         | 0             | 0               |
| 812.0         | 356       | 119           | 119             |
| 813.0         | 1,128     | 706           | 824             |
| 814.0         | 2,391     | 1,720         | 2,545           |
| 815.0         | 3,959     | 3,142         | 5,687           |
| 816.0         | 5,443     | 4,681         | 10,368          |
| 817.0         | 7,229     | 6,314         | 16,682          |
| 818.0         | 9,405     | 8,292         | 24,974          |
|               |           |               |                 |

| CC-089 QUANTITIES OF WORK                            |          |                   |
|--|----------|-------------------|
| DRAINAGE AREA = 27.3 ACRES                           |          |                   |
| DESCRIPTION  | QUANTITY | AS-BUILT QUANTITY |
| Clearing & Grubbing                                  | 0.50 AC  |                   |
| Topsoil, Strip, Salvage, & Spread                    | 270 CY   |                   |
| Excavation, Fringe Wetlands                          | 50 CY    |                   |
| Excavation, Core Trench                              | 200 CY   |                   |
| Earthfill  | 440 CY   |                   |
| HDPE Pipe, 24"                                       | 91 LF    |                   |
| HDPE Riser Inlet, 30", with Trash Rack               | 1 LS     |                   |
| Fertilizing, Seeding, and Mulching, Type I           | 1 LS     |                   |
| Fertilizing, Seeding and Mulching, Type III          | 1 LS     |                   |
| Erosion Control, Silt Fence                          | 120 LF   |                   |
| Erosion Control, Wattle                              | 100 LF   |                   |
| Revetment Stone, Class D                             | 6 Tons   |                   |
| Removal of Sediment and 24" Outlet Structure, CC-089 | 1 LS     |                   |
| 4" ADS Pipe Relocation                               | 25 LF    |                   |
| Mobilization   | 1 LS     |                   |
|  |          |                   |

| CLASS OF STRUCTURE             |                             |            |
|--------------------------------|-----------------------------|------------|
| PRINCIPAL SPILLWAY (PS) DESIGN |                             | Low Hazard |
|                                |                             | Unit       |
|                                | Rainfall Frequency          | 10         |
|                                | Rainfall / 24 Hours         | 4.42       |
|                                | Peak Inflow                 | 30.91      |
|                                | Normal Pool Elevation       | Dry Basin  |
|                                | Max Water Surface Elevation | 811.82     |
|                                | Max Outflow                 | 30.91      |
| AUXILIARY SPILLWAY (AS) DESIGN |                             | Low Hazard |
|                                |                             | Unit       |
|                                | Rainfall Frequency          | 50         |
|                                | Rainfall / 24 Hours         | 6.29       |
|                                | Peak Inflow                 | 70.19      |
|                                | Normal Pool Elevation       | Dry Basin  |
|                                | Max Water Surface Elevation | 816.10     |
|                                | Max Outflow                 | 63.38      |
|                                |                             |            |

| SURFACE AREA |               |
|--------------|---------------|
|              | At Top of Dam |
|              | 0.20          |
|              | Acres         |
|              |               |

| TOTAL CAPACITY |               |
|----------------|---------------|
|                | At Top of Dam |
|                | 0.48          |
|                | Ac-Ft         |
|                |               |

| ELEVATIONS |                             |
|------------|-----------------------------|
|            | At Top of Dam (Settled)     |
|            | 817.50                      |
|            | At Top of Dam (Constructed) |
|            | 818.25                      |
|            | At Auxiliary Spillway       |
|            | 815.50                      |
|            | At Riser Inlet              |
|            | 811.00                      |
|            | Feet                        |
|            |                             |

| NO. | REVISION | BY | DATE | NO. | REVISION | BY | DATE |
|-----|----------|----|------|-----|----------|----|------|
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |

CGA

Clapsaddle-Garber Associates, Inc  
1523 S. Bell Ave. Suite 101  
Ames, Iowa 50010  
Ph 515-232-1784  
www.cgaconsultants.com

DESIGNED: RWA DATE: 05-15-2021

DRAWN: RWA DATE: 05-15-2021

CHECKED: MMB DATE: 08-18-2021

APPROVED: MMB DATE: 08-19-2021

CC-089 TO CC-090 (YERIES)

JOHNSON COUNTY, IOWA

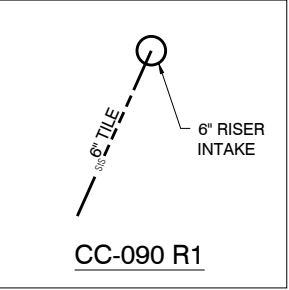
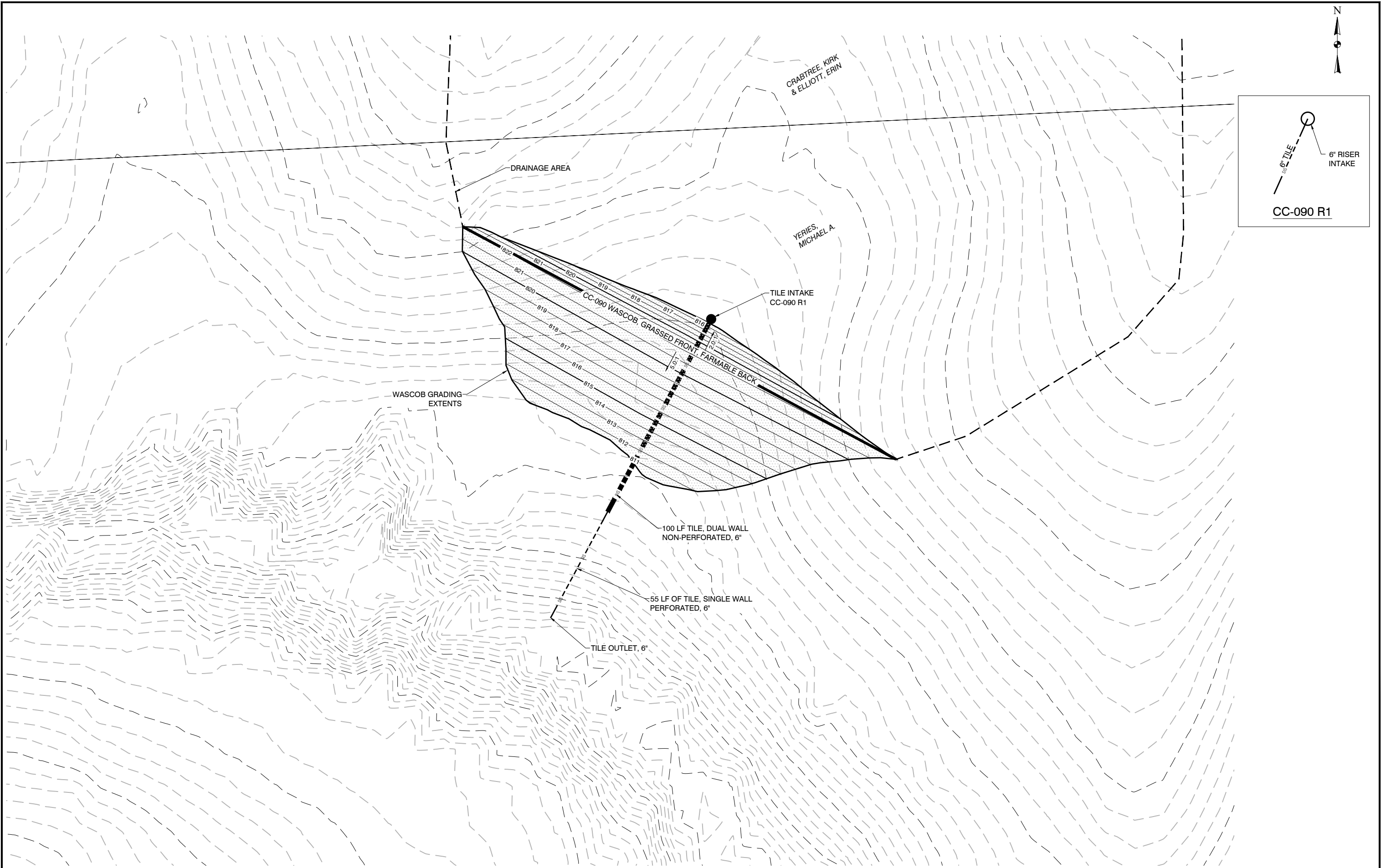
CC-089 QUANTITIES & DESIGN

DATA

PROJECT NO.  
8725

SHEET NO.  
8





| NO. | REVISION | BY | DATE | NO. | REVISION | BY | DATE |
|-----|----------|----|------|-----|----------|----|------|
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |



Clapsaddle-Garber Associates, Inc.  
1523 S. Bell Ave. Suite 101  
Ames, Iowa 50010  
Ph 515-282-1794  
www.cgaconsultants.com

|               |                  |
|---------------|------------------|
| DESIGNED: RWA | DATE: 05-15-2021 |
| DRAWN: RWA    | DATE: 05-15-2021 |
| CHECKED: MMB  | DATE: 08-18-2021 |
| APPROVED: MMB | DATE: 08-19-2021 |

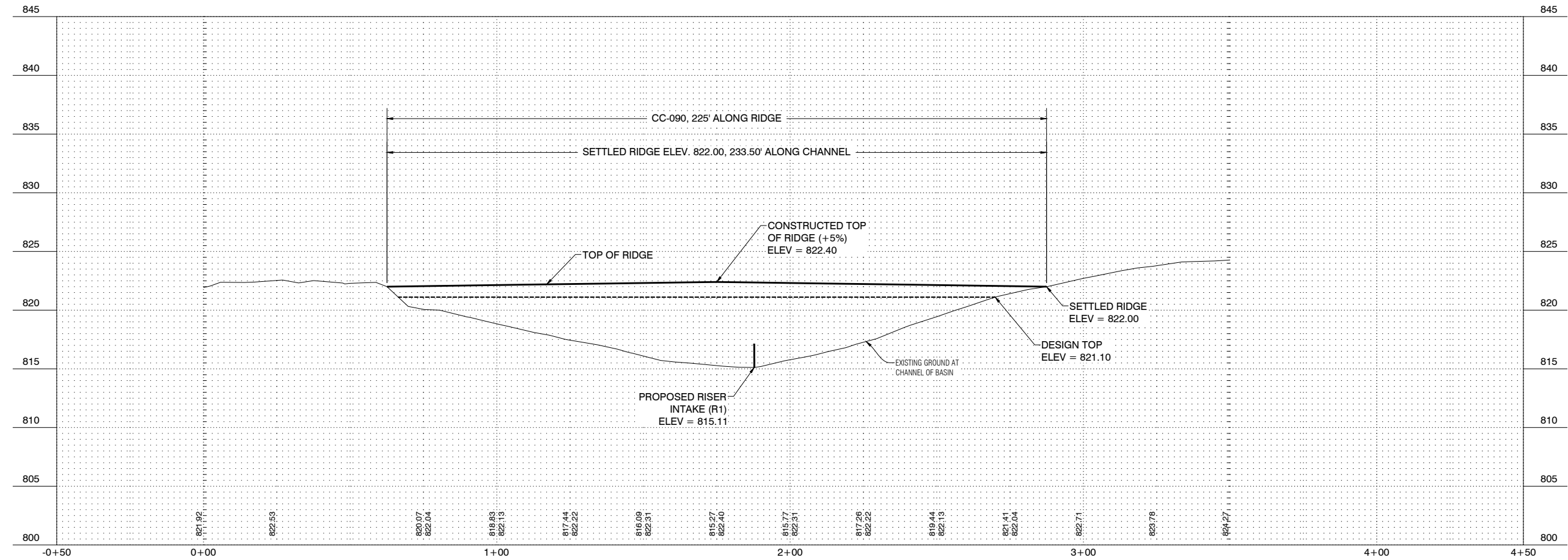
CC-089 TO CC-090 (YERIES)

JOHNSON COUNTY, IOWA

WASCOB CC-090 PLAN

|                     |
|---------------------|
| PROJECT NO.<br>8725 |
| SHEET NO.<br>9      |

J:\8725\_Yeries CC-089 to CC-090.dwg(Sheets)\CC-089.8725 CC-090 (Yeries) - 9 - 09-09-21 - 6:07pm - IP4353



PROFILE SECTION IS SHOWN LOOKING UPSTREAM (NE)



| NO. | REVISION | BY | DATE | NO. | REVISION | BY | DATE |
|-----|----------|----|------|-----|----------|----|------|
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |



Clapsaddle-Garber Associates, Inc.  
1523 S. Bell Ave. Suite 101  
Ames, Iowa 50010  
Ph 515-232-1794  
www.cgaconsultants.com

|               |                  |
|---------------|------------------|
| DESIGNED: RWA | DATE: 05-15-2021 |
| DRAWN: RWA    | DATE: 05-15-2021 |
| CHECKED: MMB  | DATE: 08-18-2021 |
| APPROVED: MMB | DATE: 08-19-2021 |

**CC-089 TO CC-090 (YERIES)**  
JOHNSON COUNTY, IOWA

**WASCOB CC-090 PROFILE**

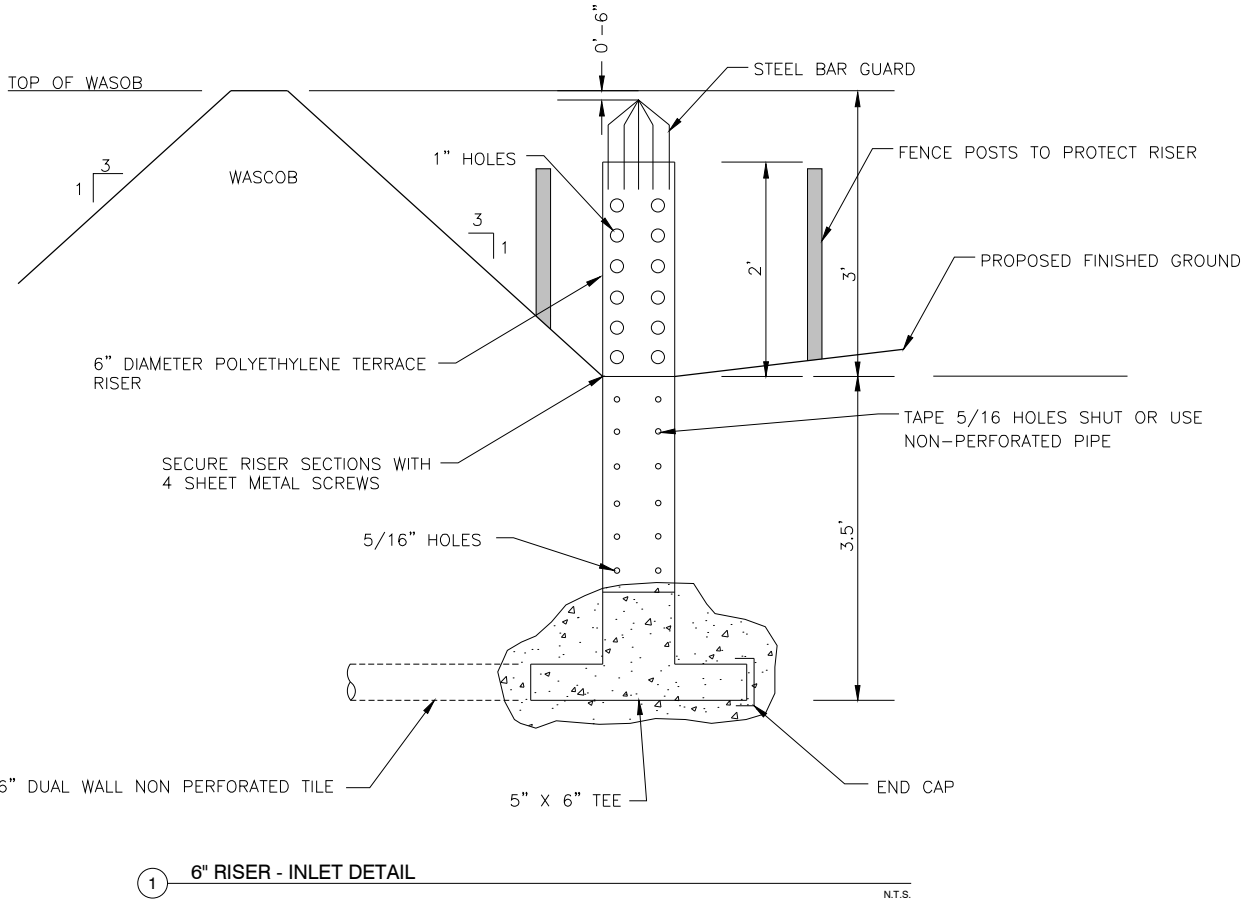
|                     |
|---------------------|
| PROJECT NO.<br>8725 |
| SHEET NO.<br>10     |

J:\8725\_Yeries CC-089 to CC-090.dwg(Sheets\CC-089\8725\_CC-090\_Yeries) - 10 - Basin Profile.dwg - 10 - 09-09-21 - 6:07pm - JRA353



J:\8725\_Yeries CC-089 to CC-092.dwg(Sheets)CC-089.8725 CC-090 (Yeries) - 11\_09-20-21 - 3:11pm - wa286

| DESIGN DATA   |   |            |       |           |       |                          |               |         |                                     |                         |                           |                      |                               |                    |                        |
|---------------|---|------------|-------|-----------|-------|--------------------------|---------------|---------|-------------------------------------|-------------------------|---------------------------|----------------------|-------------------------------|--------------------|------------------------|
| STRUCTURE NO. | STRUCTURE TYPE                                      | FRONTSLOPE |       | BACKSLOPE |       | LENGTH ALONG RIDGE (FT.) | DRAINAGE AREA |         | DESIGN TOP FILL HEIGHT @ CENTERLINE | LOWEST INTAKE ELEVATION | RIDGE (SETTLED) ELEVATION | DESIGN TOP ELEVATION | STORAGE CAPACITY (SEE NOTE 1) |                    |                        |
|               |   | LENGTH     | SLOPE | LENGTH    | SLOPE |                          | (SQ. FT.)     | (ACRES) |                                     |                         |                           |                      | INCHES OF RUNOFF              | REQ'D STORAGE (CF) | AVAILABLE STORAGE (CF) |
| CC-090        | GRASSED FRONT, FARMABLE BACK WASCOB (6' - 10' FILL) | VARIES     | 2:1   | VARIES    | 5:1   | 225                      | 224,946       | 5.2     | 7.75'                               | 815.11                  | 822.00                    | 821.10               | 2                             | 37,491             | 40,270                 |



NOTES:

- STRUCTURES HAVE BEEN DESIGNED TO ACCOUNT FOR A 10-YEAR, 24-HOUR RAINFALL EVENT (~ 2 INCHES STORAGE). LANDOWNER SHALL PERIODICALLY REMOVE SEDIMENT BUILD-UP WITHIN THE STORAGE AREA.

NOTES:

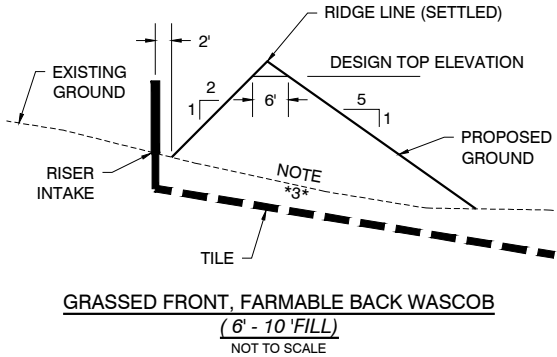
- TILE QUANTITIES SHOWN INCLUDE LENGTH OF TILE NEEDED TO OUTLET DOWNSTREAM.
- EARTHFILL QUANTITY IS SHOWN WITH FILL FACTOR (10% FOR NARROW BASE / 5% FOR OTHERS) TO ACCOUNT FOR THE CONSTRUCTED ELEVATION, WHICH WILL BE HIGHER TO ALLOW FOR SETTLEMENT.

| CC-090 QUANTITIES OF WORK           |          |                   |
|-------------------------------------|----------|-------------------|
| DRAINAGE AREA = 27.3 ACRES          |          |                   |
| DESCRIPTION                         | QUANTITY | AS-BUILT QUANTITY |
| Excavation, Foundation Cutoff       | 225 LF   |                   |
| Clearing & Grubbing                 | 0.1 AC   |                   |
| Earthfill                           | 1500 CY  |                   |
| Tile Intake, 6"                     | 1 LS     |                   |
| Tile, Dual Wall, Non-Perforated, 6" | 100 LF   |                   |
| Tile, Single Wall, Perforated, 6"   | 55 LF    |                   |
| Tile Outlet, 6"                     | 1 LS     |                   |
| Erosion Control, Silt Fence         | 190 LF   |                   |
| Erosion Control, Wattle             | 40 LF    |                   |
| Mobilization                        | 1 LS     |                   |
|                                     |          |                   |

| OVERALL QUANTITIES OF WORK                         |      |                              |                    |          |
|--|------|------------------------------|--------------------|----------|
|  |      | CC-089<br>(WETLAND/DRY POND) | CC-090<br>(WASCOB) | TOTAL    |
| Description  | Unit | Quantity                     | Quantity           | Quantity |
| Clearing & Grubbing                                | AC   | 0.50                         | 0.1                | 0.6      |
| Topsoil Strip, Salvage, & Spread                   | CY   | 270                          | -                  | 270      |
| Excavation, Fringe Wetlands                        | CY   | 50                           | -                  | 50       |
| Excavation, Core Trench                            | CY   | 200                          | -                  | 200      |
| Excavation, Foundation Cutoff                      | LF   | -                            | 225                | 225      |
| Earthfill  | CY   | 440                          | 1500               | 1940     |
| HDPE Pipe, 24"                                     | LF   | 91                           | -                  | 91       |
| Tile Intake, 6"                                    | LS   | -                            | 1                  | 1        |
| Tile, Dual Wall, Non-Perforated, 6"                | LF   | -                            | 100                | 100      |
| Tile, Single Wall, Perforated, 6"                  | LF   | -                            | 55                 | 55       |
| Tile Outlet, 6"                                    | LS   | -                            | 1                  | 1        |
| HDPE Riser Inlet, 30", with Trash Rack             | LS   | 1                            | -                  | 1        |
| Fertilizing, Seeding, & Mulching Type I            | LS   | 1                            | -                  | 1        |
| Fertilizing, Seeding, & Mulching Type III          | LS   | 1                            | -                  | 1        |
| Erosion Control, Silt Fence                        | LF   | 120                          | 190                | 310      |
| Erosion Control, Wattle                            | LF   | 100                          | 40                 | 140      |
| Revetment Stone, Class D                           | Tons | 6                            | -                  | 6        |
| Removal of Sediment & 24" Outlet Structure, CC-089 | LS   | 1                            | -                  | 1        |
| 4" ADS Pipe Relocation                             | LF   | 25                           | -                  | 25       |
| Mobilization                                       | LS   | 1                            | 1                  | 2        |

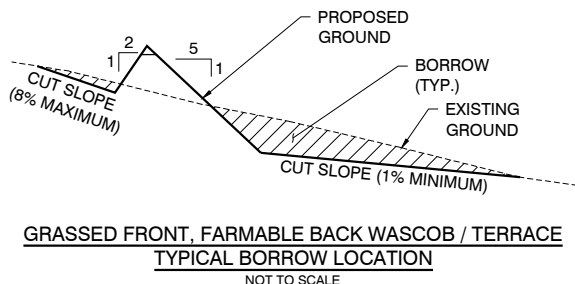
NOTES:

- THE TOP OF THE RISER INTAKE SHALL BE 6" MINIMUM BELOW THE DESIGN TOP ELEVATION.
- THE DIFFERENCE BETWEEN THE RIDGE LINE AND THE DESIGN TOP ELEVATION = 0.9'.
- WASCOB FOUNDATION CUTOFF REQUIRED (SEE DETAIL).



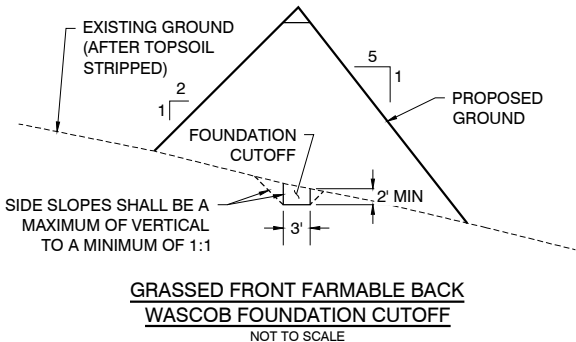
NOTES:

- TOPSOIL SHALL BE STRIPPED, SALVAGED, AND SPREAD FOR THE ENTIRE FOOTPRINT OF ALL AREAS OF THE BASIN / TERRACE EMBANKMENT AND BORROW AREA.
- CONTRACTOR SHALL CONFIRM BORROW LOCATION WITH LANDOWNER PRIOR TO CONSTRUCTION. TYPICAL LOCATION IS SHOWN BELOW.
- ALL BORROW SHALL BE TAKEN FROM ADJACENT LAND OWNED BY THE LANDOWNER OF THE BASIN / TERRACE.



NOTES:

- TOPSOIL SHALL BE STRIPPED PRIOR TO INSTALLATION OF THE FOUNDATION CUTOFF.
- FOUNDATION CUTOFF MATERIAL SHALL BE ON-SITE MATERIAL WITH HIGHER AMOUNTS OF IMPERMEABILITY. MATERIAL SHALL BE PLACED IN LIFTS NO GREATER THAN 8-INCHES AND COMPACTED EACH LIFT.



NOTES:

- FRONT OF WASCOB SHALL BE SEEDED WITH TYPE I SEED MIX
- BACK OF WASCOB SHALL BE SEEDED WITH TYPE II SEED MIX. COORDINATE WITH LANDOWNER FOR CROP SEEDING.

| NO. | REVISION | BY | DATE | NO. | REVISION | BY | DATE |
|-----|----------|----|------|-----|----------|----|------|
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |



Clapsaddle-Garber Associates, Inc.  
1523 S. Bell Ave. Suite 101  
Ames, Iowa 50010  
Ph 515-282-1784  
www.cgaconsultants.com

DESIGNED: RWA DATE: 05-15-2021  
DRAWN: RWA DATE: 05-15-2021  
CHECKED: MMB DATE: 08-18-2021  
APPROVED: MMB DATE: 08-19-2021

CC-089 TO CC-090 (YERIES)  
JOHNSON COUNTY, IOWA

CC-090 QUANTITIES & DESIGN  
DATA

PROJECT NO.  
8725  
SHEET NO.  
11





**POLLUTION PREVENTION PLAN NOTES**

1. A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) HAS BEEN DEVELOPED IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL GUIDELINES PER THE IA-DNR CONSTRUCTION PERMIT. ALL CONTRACTORS SHALL BE SUPPLIED A COPY OF THE SWPPP DOCUMENT AT THE BEGINNING OF CONSTRUCTION. A COPY OF THE SWPPP DOCUMENTS SHALL BE LOCATED WITH THE SWPPP MANAGER AT ALL TIMES. COPIES CAN ALSO BE FOUND AT 16 E MAIN STREET, MARSHALLTOWN, IA 50158. ALL CONTRACTORS/SUBCONTRACTORS SHALL CONDUCT THEIR OPERATIONS IN A MANNER THAT MINIMIZES EROSION AND PREVENTS SEDIMENTS AND NON EARTH DISTURBING POLLUTANTS FROM LEAVING THE SITE AS DESCRIBED IN THE SWPPP. THE PRIME CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE AND IMPLEMENTATION OF THE SWPPP FOR THEIR ENTIRE CONTRACT. THIS RESPONSIBILITY SHALL BE FURTHER SHARED WITH SUBCONTRACTORS WHOSE WORK IS A SOURCE OF POTENTIAL POLLUTION AS DEFINED IN THE SWPPP.
2. THIS SHEET IS NOT THE COMPLETE STORM WATER POLLUTION PREVENTION PLAN (SWPPP), BUT RATHER A PART OF THE SWPPP THAT IS TO BE UPDATED REGULARLY BY THE CONTRACTOR. IT IS THE PRIME CONTRACTORS RESPONSIBILITY TO UPDATE THE SWPPP PLAN AS NEEDED AS WELL AS CONDUCT ANY NECESSARY INSPECTIONS IN ACCORDANCE WITH THE IOWA DNR AND EPA GUIDELINES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING ANY DEFICIENCIES, CORRECTING THOSE DEFICIENCIES IMMEDIATELY AND DOCUMENTING SUCH WITH THE SWPPP. ALL EROSION CONTROL ITEMS SHALL BE REMOVED AT THE END OF THE PROJECT. THE SWPPP MANAGER SHALL UPDATE SITE PLAN WITH THE LOCATION OF THE "POLLUTION PREVENTION PLAN LEGEND" ITEMS ONCE THE LOCATION OF THOSE CONTROLS IS ESTABLISHED. ANY ADDITIONAL CONTROLS THAT ARE USED BUT ARE NOT LISTED IN THE LEGEND SHALL BE CLEARLY IDENTIFIED ON THE PLANS.

**LEGEND:**

- (A) INSTALL SILT FENCE (SEE SUDAS SPEC FIG. 940.119)
- (B) INSTALL 9" WATTLE 7" OFFSET OF CENTERLINE ALONG DISTURBED CREEK AREAS (SEE SUDAS SPEC. FIG 9040.105)

NOTE: ANY CONTROLS NOT SHOWN ON SWPPP SHALL BE LOCATED IN THE FIELD BY THE CONTRACTOR. ALL CHANGES AND ADDITIONAL CONTROLS INSTALLED SHALL BE UPDATED ON THE SWPPP SHEET.



| NO. | REVISION | BY | DATE | NO. | REVISION | BY | DATE |
|-----|----------|----|------|-----|----------|----|------|
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |



Clapsaddle-Garber Associates, Inc.  
1523 S. Bell Ave. Suite 101  
Ames, Iowa 50010  
Ph 515-232-1794  
www.cgaconsultants.com

DESIGNED: RWA DATE: 05-15-2021  
DRAWN: RWA DATE: 05-15-2021  
CHECKED: MMB DATE: 08-18-2021  
APPROVED: MMB DATE: 08-19-2021

**CC-089 TO CC-090 (YERIES)**  
JOHNSON COUNTY, IOWA

**STORM SEWER POLLUTION  
PREVENTION PLAN**

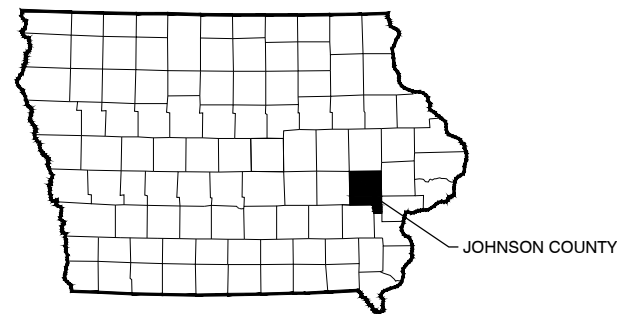
PROJECT NO.  
8725  
SHEET NO.  
12



# CC-010 TO CC-011 & CC-159 TO CC-161 ASMUSSEN POND STRUCTURE (NRCS 378), GRADE STABILIZATION STRUCTURE - ROCK CHUTE & RIFFLES (NCRS 410) PROPOSED WATERSHED IMPROVEMENTS

## CLEAR CREEK WATERSHED JOHNSON COUNTY, IOWA CDBG PROJECT NO.13-NDRI-007

~2021~



### CLEAR CREEK WATERSHED:

JOHN RATHBUN, COORDINATOR  
51 ESCORT LANE  
IOWA CITY, IA 52240  
319-499-4835

### JOHNSON COUNTY BOARD OF SUPERVISORS:

913 S. DUBUQUE STREET, SUITE 201  
IOWA CITY, IA 52240

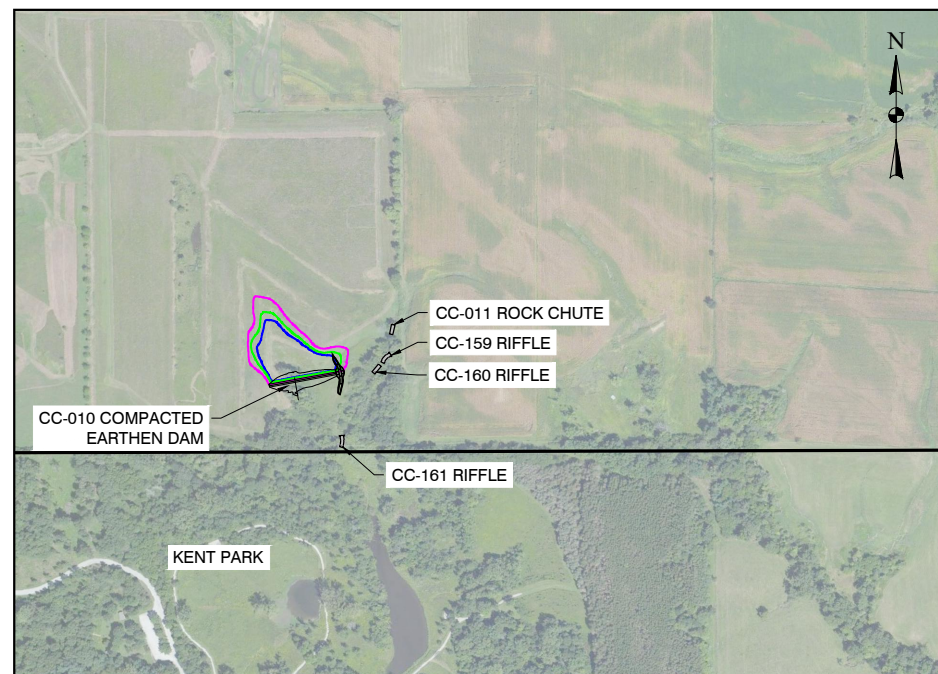
### LANDOWNER:

CYNTHIA M. ASMUSSEN & ALBERT E. DODEN  
4236 TURKEY CREEK RD NE  
IOWA CITY, IA 52240



### NOTES:

1. THE CONTRACTOR SHALL CONTACT ONE-CALL, 800-292-8989, FOR UTILITY LOCATES AT LEAST 48 HOURS PRIOR TO STARTING CONSTRUCTION.
2. IF CULTURAL RESOURCES ARE FOUND DURING CONSTRUCTION, WORK SHALL STOP IMMEDIATELY. CONTACT THE WATERSHED COORDINATOR, JOHN RATHBUN.
3. SEE SEPARATELY BOUND SPECIFICATIONS.



### LOCATION MAP SECTION 13 T80N R08W



Clapsaddle-Garber Associates, Inc.  
1523 S. Bell Ave. Suite 101  
Ames, Iowa 50010  
Phone 515-232-1784  
www.cgaconsultants.com

### INDEX OF SHEETS

| SHEET NO. | DESCRIPTION                              |
|-----------|--|
| 1         | COVER SHEET                              |
| 2         | OVERALL PROJECT SITE                     |
| 3         | CC-010 PROJECT SITE                      |
| 4         | CC-010 DAM PLAN & PROFILE                |
| 5         | CC-010 DETAILS                           |
| 6         | CC-010 QUANTITIES & DESIGN DATA          |
| 7         | CC-011 & CC-160 PROJECT SITE             |
| 8         | CC-011 ROCK CHUTE PLAN                   |
| 9         | CC-160 ROCK CHUTE PLAN                   |
| 10        | CC-011 & CC-160 DETAILS                  |
| 11        | CC-011 & CC-160 QUANTITIES & DESIGN DATA |
| 12        | CC-159 & CC-161 PLAN & PROFILE           |
| 13        | CC-159 & CC-161 QUANTITIES & DESIGN DATA |
| 14        | STORM WATER POLLUTION PREVENTION PLAN    |

PERMIT SUMMARY  
US ARMY CORPS OF ENGINEERS  
REGIONAL GENERAL PERMIT 33  
CEMVR - OD - P - 2020 - 1497  
CEMVR - OD - P - 2020 - 1582

NPDES GENERAL PERMIT #2

TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, JUDGEMENT, AND BELIEF, THIS DESIGN, CONSTRUCTION DRAWINGS, AND SPECIFICATIONS MEET APPLICABLE NRCS STANDARDS AND SPECIFICATIONS.

*Mindy Bryngelson* 09/22/2021

SIGNATURE

DATE

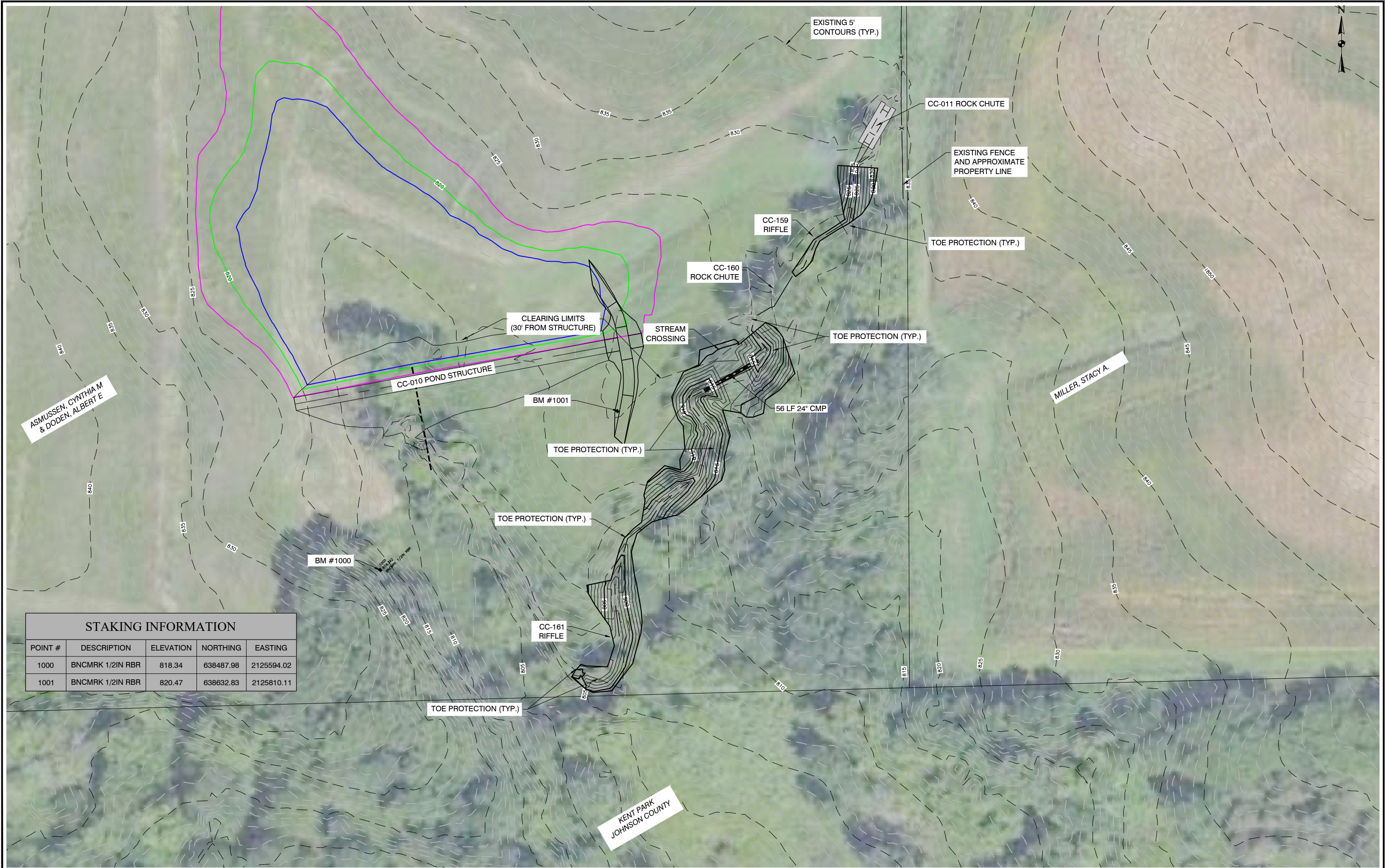


I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.  
*Mindy Bryngelson* 09/22/2021  
Signature Date  
Mindy M. Bryngelson, PE  
Iowa License Number 17135  
My license renewal date is December 31, 2021

Pages or sheets covered by this seal: ALL SHEETS



J:\8725 - Asmusen CC-010 & CC-012.dwg(Sheets\8725 - Asmusen) Overall Project Site.dwg - 2 - 09-09-21 - 6:17pm - JRA353



| STAKING INFORMATION |                  |           |           |            |
|---------------------|------------------|-----------|-----------|------------|
| POINT #             | DESCRIPTION      | ELEVATION | NORTHING  | EASTING    |
| 1000                | BNCMRK 1/2IN RBR | 818.34    | 638487.98 | 2125594.02 |
| 1001                | BNCMRK 1/2IN RBR | 820.47    | 638632.83 | 2125810.11 |



| NO. | REVISION | BY | DATE | NO. | REVISION | BY | DATE |
|-----|----------|----|------|-----|----------|----|------|
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |



Clapsaddle-Garber Associates, Inc  
1523 S. Bell Ave. Suite 101  
Ames, Iowa 50010  
Ph 515-282-1794  
www.cgaconsultants.com

|               |                 |
|---------------|-----------------|
| DESIGNED: MMM | DATE: 2/11/2020 |
| DRAWN: BMC    | DATE: 2/11/2020 |
| CHECKED: MMB  | DATE: 8/18/2021 |
| APPROVED: MMB | DATE: 8/19/2021 |

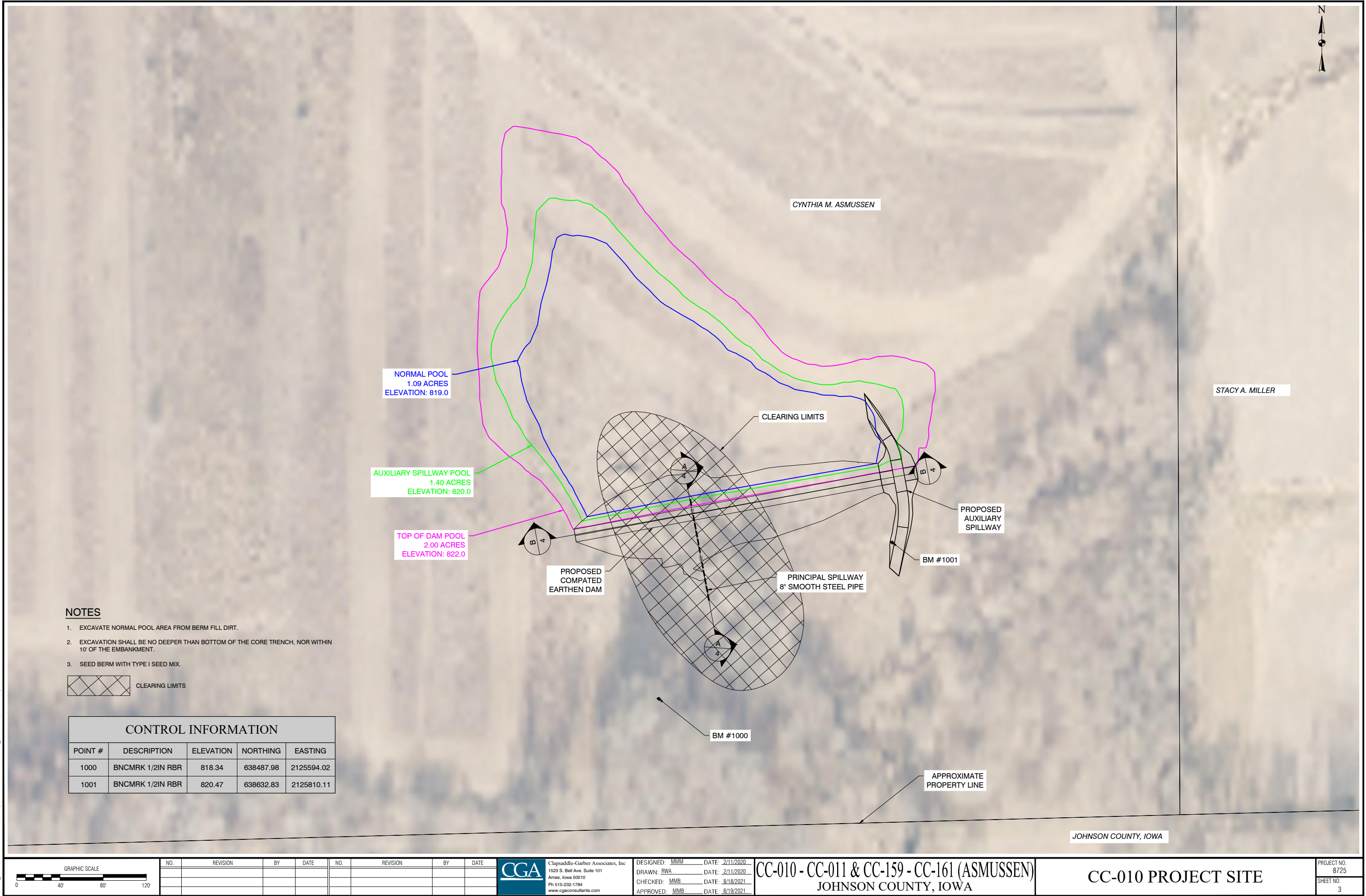
CC-010 - CC-011 & CC-159 - CC-161 (ASMUSSEN)  
JOHNSON COUNTY, IOWA

OVERALL PROJECT SITE

|                     |
|---------------------|
| PROJECT NO.<br>8725 |
| SHEET NO.<br>2      |



J:\8725\_Asmussen\CC-010 & CC-012.dwg(Sheets\CC-010 - Pond\8725\_CC-010 Project Site.dwg - 3 - 09-09-21 - 6:15pm - JRA\53



NOTES

- 1. EXCAVATE NORMAL POOL AREA FROM BERM FILL DIRT.
- 2. EXCAVATION SHALL BE NO DEEPER THAN BOTTOM OF THE CORE TRENCH, NOR WITHIN 10' OF THE EMBANKMENT.
- 3. SEED BERM WITH TYPE I SEED MIX.

 CLEARING LIMITS

CONTROL INFORMATION

| POINT # | DESCRIPTION      | ELEVATION | NORTHING  | EASTING    |
|---------|------------------|-----------|-----------|------------|
| 1000    | BNCMRK 1/2IN RBR | 818.34    | 638487.98 | 2125594.02 |
| 1001    | BNCMRK 1/2IN RBR | 820.47    | 638632.83 | 2125810.11 |



| NO. | REVISION | BY | DATE | NO. | REVISION | BY | DATE |
|-----|----------|----|------|-----|----------|----|------|
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |



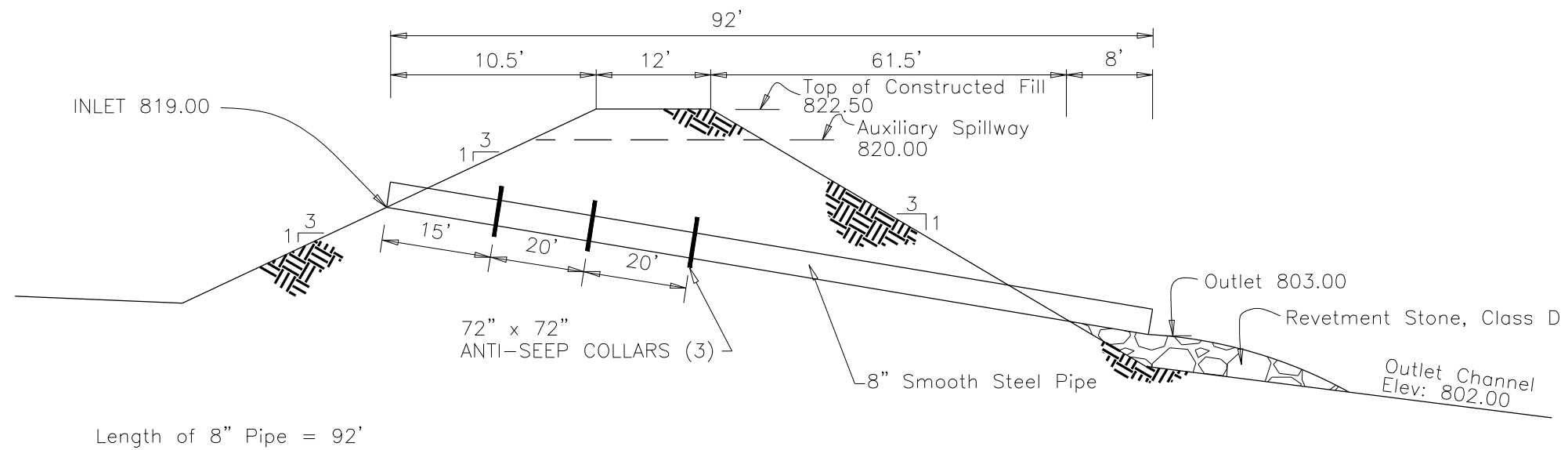
Clapsaddle-Garber Associates, Inc  
1523 S. Bell Ave. Suite 101  
Ames, Iowa 50010  
Ph 515-232-1794  
www.cgaconsultants.com

|               |                 |
|---------------|-----------------|
| DESIGNED: MMM | DATE: 2/11/2020 |
| DRAWN: RWA    | DATE: 2/11/2020 |
| CHECKED: MMB  | DATE: 8/18/2021 |
| APPROVED: MMB | DATE: 8/19/2021 |

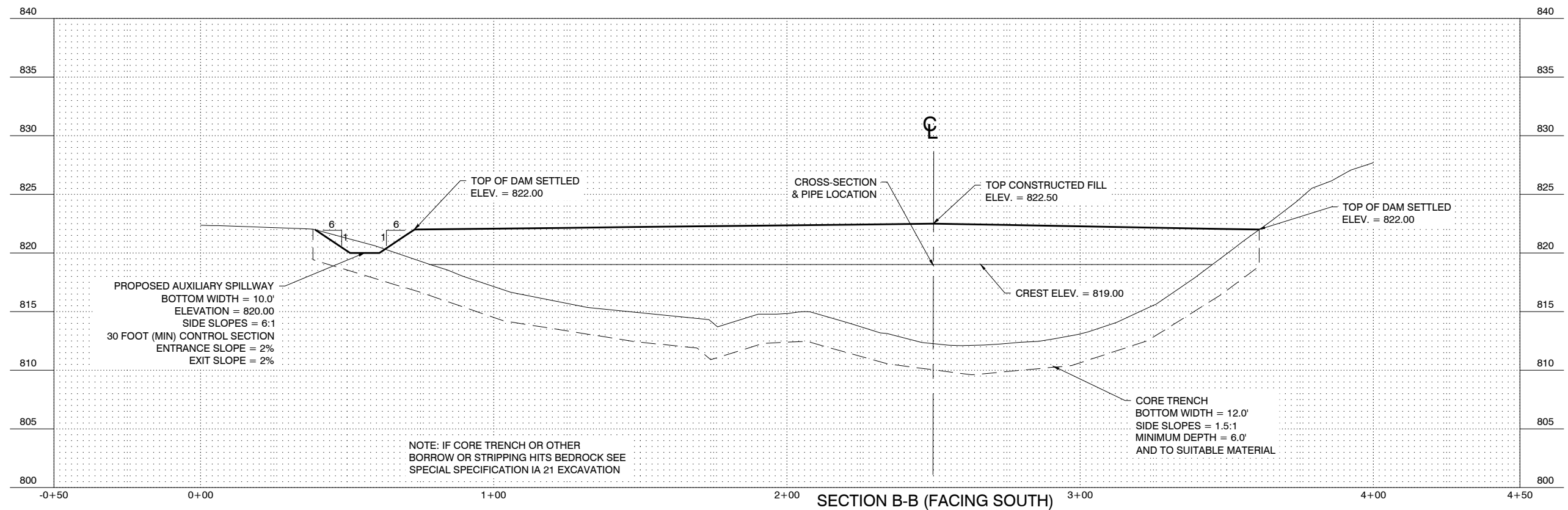
CC-010 - CC-011 & CC-159 - CC-161 (ASMUSSEN)  
JOHNSON COUNTY, IOWA

CC-010 PROJECT SITE

|                     |
|---------------------|
| PROJECT NO.<br>8725 |
| SHEET NO.<br>3      |



SECTION A-A



J:\8725 - Asmusen CC-010 & CC-012.dwg\Sheets\CC-010 - Pond\8725 - CC-010 Dam P&P.dwg - 4 - 09-09-21 - 6:19pm - JRA333

| NO. | REVISION | BY | DATE | NO. | REVISION | BY | DATE |
|-----|----------|----|------|-----|----------|----|------|
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |

**CGA**  
Clapsaddle-Garber Associates, Inc.  
1523 S. Bell Ave. Suite 101  
Ames, Iowa 50010  
Ph 515-282-1794  
www.cgaconsultants.com

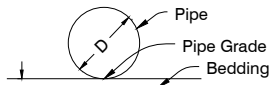
DESIGNED: MMM DATE: 2/11/2020  
DRAWN: RWA DATE: 2/11/2020  
CHECKED: MMB DATE: 8/18/2021  
APPROVED: MMB DATE: 8/19/2021

**CC-010 - CC-011 & CC-159 - CC-161 (ASMUSSEN)**  
**JOHNSON COUNTY, IOWA**

**CC-010 DAM PLAN & PROFILE**

PROJECT NO.  
8725  
SHEET NO.  
4

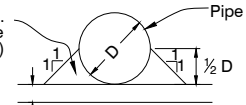




SMOOTH METAL PIPE  
PRINCIPAL SPILLWAY  
BEDDING DETAIL

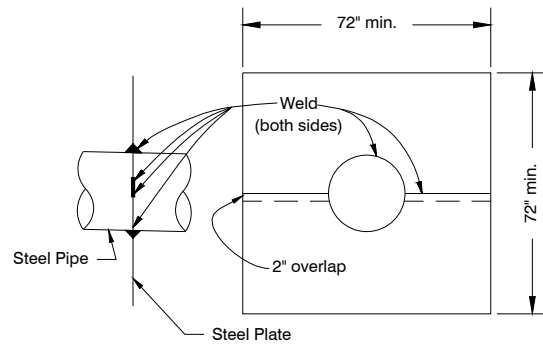
Note  
Begin backfill immediately after pipe has been placed.

Hand tamping only.  
(Do not use power tamper.)



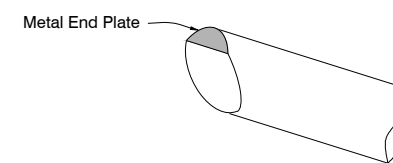
2" to 3"  
SMOOTH METAL PIPE  
PRINCIPAL SPILLWAY  
BACKFILL DETAIL

1 SMOOTH METAL PIPE



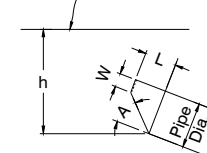
NOTES:  
1. All welds shall be watertight.  
2. All steel plates shall have a minimum thickness of 1/4" smooth metal.

2 STEEL PLATE ANTI-SEEP COLLAR DETAILS



PARTIAL ISOMETRIC VIEW

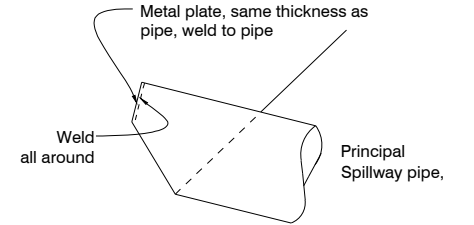
Water Surface



h=Minimum height for full pipe flow.

CANOPY INLET DIMENSIONS

NOTES:  
Materials and installation shall adhere to Iowa NRCS Construction Specification IA-52; "STEEL PIPE CONDUITS".



DETAIL OF CANOPY INLET WELD

| Pipe Diam. (In.) | Pipe Grade (%) | W (In.) | L (In.) | A (Deg.) | H (Ft.) |
|------------------|----------------|---------|---------|----------|---------|
| 8                | 0-5            | 1 1/2   | 4 3/8   | 56       | 1.2     |
|                  | 5.1-15         | 1 5/8   | 6 3/8   | 45       | 1.2     |
|                  | 15.1-25        | 2 1/8   | 8 3/4   | 33       | 1.2     |
|                  | 25.1-32        | 2 3/4   | 10 3/8  | 27       | 1.2     |

3 CANOPY INLET DETAIL

TABLE OF DIMENSIONS AND QUANTITIES

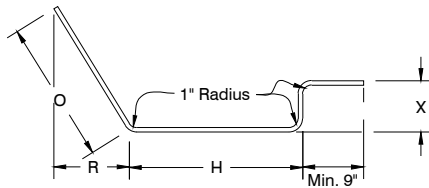
WELDED STEEL PIPE

| NPS | PIPE O.D. | APPROX. WEIGHT | @ROD SIZE | H   | R     | X   | O      | LENGTH | NUMBER REQUIRED | N     | @ROD SIZE | d      | LENGTH | NUMBER REQUIRED | @ROD SIZE | d   | LENGTH | NUMBER REQUIRED | @ROD SIZE | d     | LENGTH | NUMBER REQUIRED |
|-----|-----------|----------------|-----------|-----|-------|-----|--------|--------|-----------------|-------|-----------|--------|--------|-----------------|-----------|-----|--------|-----------------|-----------|-------|--------|-----------------|
| IN. | IN.       | LBS.           | IN.       | IN. | IN.   | IN. | IN.    | IN.    |                 | IN.   | IN.       | IN.    | IN.    |                 | IN.       | IN. | IN.    |                 | IN.       | IN.   | IN.    |                 |
| 8   | 8 9/16    | 22.3           | 3/8       | 11  | 4 1/2 | 6   | 10 1/2 | 36 1/2 | 10              | 6 1/2 | 3/8       | 19 1/8 | 60 1/8 | 3               | --        | --  | --     | 0               | 2 X 1 1/4 | 9 3/8 | 17 3/4 | 2               |

Note: NPS - Nominal Pipe Size.

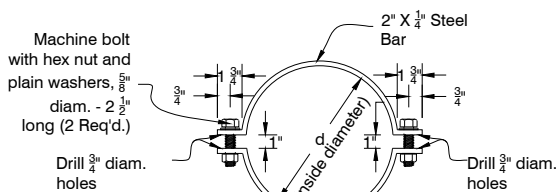
Weld @b and @c rods and @d strap to @a rods and weld @a rods to 3" diam. Steel Plate.

Rod and bar dimensions calculated from inside diameter and rounded to the nearest 1/8 inch.



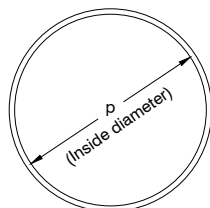
BENDING DIAGRAM FOR

@a RODS



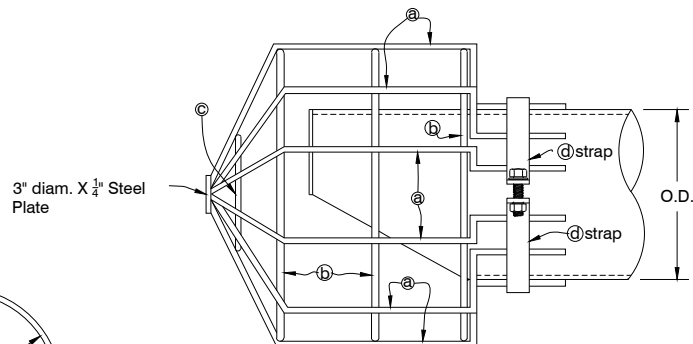
BENDING DIAGRAM FOR

@d STRAP

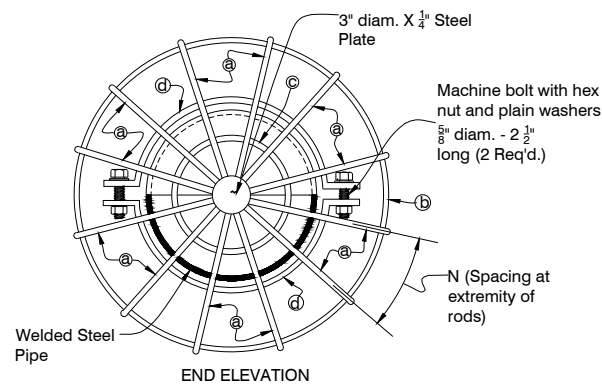


BENDING DIAGRAM FOR

@b AND @c RODS



ELEVATION



END ELEVATION

4 TRASH RACK FOR WELDED STEEL PIPE CANOPY INLET

| NO. | REVISION | BY | DATE | NO. | REVISION | BY | DATE |
|-----|----------|----|------|-----|----------|----|------|
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |



|               |                 |
|---------------|-----------------|
| DESIGNED: MMM | DATE: 2/11/2020 |
| DRAWN: JMG    | DATE: 8/26/2021 |
| CHECKED: MMB  | DATE: 8/18/2021 |
| APPROVED: MMB | DATE: 8/19/2021 |

CC-010 - CC-011 & CC-159 - CC-161 (ASMUSSEN)  
JOHNSON COUNTY, IOWA

CC-010 DETAILS

|                     |
|---------------------|
| PROJECT NO.<br>8725 |
| SHEET NO.<br>5      |

J:\8725\_Asmussen CC-010 & CC-012.dwg\Sheets\CC-010 - Pond\8725\_CC-010 Quantities.dwg - 6 - 09-20-21 - 3:49pm - rwa286

| CC-010 DESIGN DATA             |                 |                  |
|--------------------------------|-----------------|------------------|
| DRAINAGE AREA = 26.0 ACRES     |                 |                  |
| SOIL TYPES                     | MAP UNIT SYMBOL | HYDROLOGIC GROUP |
| Chelsea-Fayette-Lamont Complex | 293C2           | A                |
| Chelsea-Fayette-Lamont Complex | 293D2           | A                |
| Fayette Silt Loam              | M163B           | C                |
| Fayette Silt Loam              | M163C2          | C                |
| Atterberry Silt Loam           | 291             | B/D              |
|                                |                 |                  |

| Land Use    | Area (Ac) | RCN           |    |
|-------------|-----------|---------------|----|
| Row Crop    | 1.5       | 64            |    |
| Woods/Grass | 0.3       | 65            |    |
| CRP/Grass   | 23.9      | 58            |    |
| Woods/Grass | 0.3       | 43            |    |
|             |           | Weighted RCN: | 58 |
|             |           |               |    |

| SOIL DELIVERY |          |
|---------------|----------|
| Design Life   | 50 YEARS |
| Below Crest   | 2.01     |
| Above Crest   | 0.37     |
|               |          |

| STAGE-STORAGE |              |                  |                    |
|---------------|--------------|------------------|--------------------|
| ELEVATION     | AREA (ACRES) | INTERVAL (AC-FT) | CUMULATIVE (AC-FT) |
| 811.0         | 0.00         | 0.00             | 0.00               |
| 812.0         | 0.04         | 0.02             | 0.02               |
| 813.0         | 0.10         | 0.07             | 0.09               |
| 814.0         | 0.18         | 0.11             | 0.13               |
| 815.0         | 0.33         | 0.26             | 0.39               |
| 816.0         | 0.50         | 0.42             | 0.80               |
| 817.0         | 0.70         | 0.60             | 1.40               |
| 818.0         | 0.94         | 0.82             | 2.22               |
| 819.0         | 1.19         | 1.07             | 3.29               |
| 820.0         | 1.49         | 1.34             | 4.63               |
| 821.0         | 1.77         | 1.63             | 6.26               |
| 822.0         | 2.05         | 1.91             | 8.17               |
| 823.0         | 2.27         | 2.16             | 10.33              |
|               |              |                  |                    |

| CLASS OF STRUCTURE             |                             |            |
|--------------------------------|-----------------------------|------------|
| PRINCIPAL SPILLWAY (PS) DESIGN |                             | Low Hazard |
|                                | Rainfall Frequency          | 5          |
|                                | Rainfall / 24 Hours         | 4.00       |
|                                | Peak Inflow                 | 9.37       |
|                                | Normal Pool Elevation       | 8.19       |
|                                | Max Water Surface Elevation | 820.00     |
|                                | Max Outflow                 | 1.44       |
|                                |                             |            |

| CLASS OF STRUCTURE             |                              |            |
|--------------------------------|------------------------------|------------|
| AUXILIARY SPILLWAY (AS) DESIGN |                              | Low Hazard |
|                                | Rainfall Frequency           | 25         |
|                                | Rainfall / 24 Hours          | 5.30       |
|                                | Peak Inflow                  | 22.73      |
|                                | Auxiliary Spillway Elevation | 820.00     |
|                                | Max Water Surface Elevation  | 820.00     |
|                                | Max Outflow                  | 3.64       |
|                                |                              |            |

| SURFACE AREA |                       |      |
|--------------|-----------------------|------|
|              | At Normal Pool        | 1.09 |
|              | At Auxillary Spillway | 1.40 |
|              | At Top of Dam         | 2.00 |
|              |                       |      |

| TOTAL CAPACITY |                       |      |
|----------------|-----------------------|------|
|                | At Normal Pool        | 3.29 |
|                | At Auxillary Spillway | 4.63 |
|                | At Top of Dam         | 8.17 |
|                |                       |      |

| ELEVATIONS |                             |       |
|------------|-----------------------------|-------|
|            | At Normal Pool              | 819.0 |
|            | At Auxillary Spillway       | 820.0 |
|            | At Top of Dam (Settled)     | 822.0 |
|            | At Top of Dam (Constructed) | 822.5 |
|            |                             |       |

| CC-010 QUANTITIES OF WORK                |          |                   |
|--|----------|-------------------|
| DESCRIPTION                              | QUANTITY | AS-BUILT QUANTITY |
| Clearing & Grubbing                      | 0.73 AC  |                   |
| Topsoil Strip, Salvage, & Spread         | 400 CY   |                   |
| Excavation, Core Trench                  | 1,400 CY |                   |
| Earthfill,                               | 2,950 CY |                   |
| Smooth Steel Pipe, 8"                    | 92 LF    |                   |
| *Anti-Seep Collar, 72"x72"               | 3 EA     |                   |
| *Canopy Inlet Trash Rack                 | 1 EA     |                   |
| Fertilizing, Seeding, & Mulching, Type I | 1 LS     |                   |
| Erosion Control, Silt Fence              | 550 LF   |                   |
| Revetment Stone, Class D                 | 30 Tons  |                   |
| Mobilization                             | 1 LS     |                   |
| * = Not a Bid Item                       |          |                   |
|  |          |                   |

| NO. | REVISION | BY | DATE | NO. | REVISION | BY | DATE |
|-----|----------|----|------|-----|----------|----|------|
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |

Clapsaddle-Garber Associates, Inc  
1523 S. Bell Ave. Suite 101  
Ames, Iowa 50010  
Ph 515-232-1784  
www.cgaconsultants.com

|                      |                        |
|----------------------|------------------------|
| DESIGNED: <u>MMM</u> | DATE: <u>2/11/2020</u> |
| DRAWN: <u>RWA</u>    | DATE: <u>2/11/2020</u> |
| CHECKED: <u>MMB</u>  | DATE: <u>8/18/2021</u> |
| APPROVED: <u>MMB</u> | DATE: <u>8/19/2021</u> |

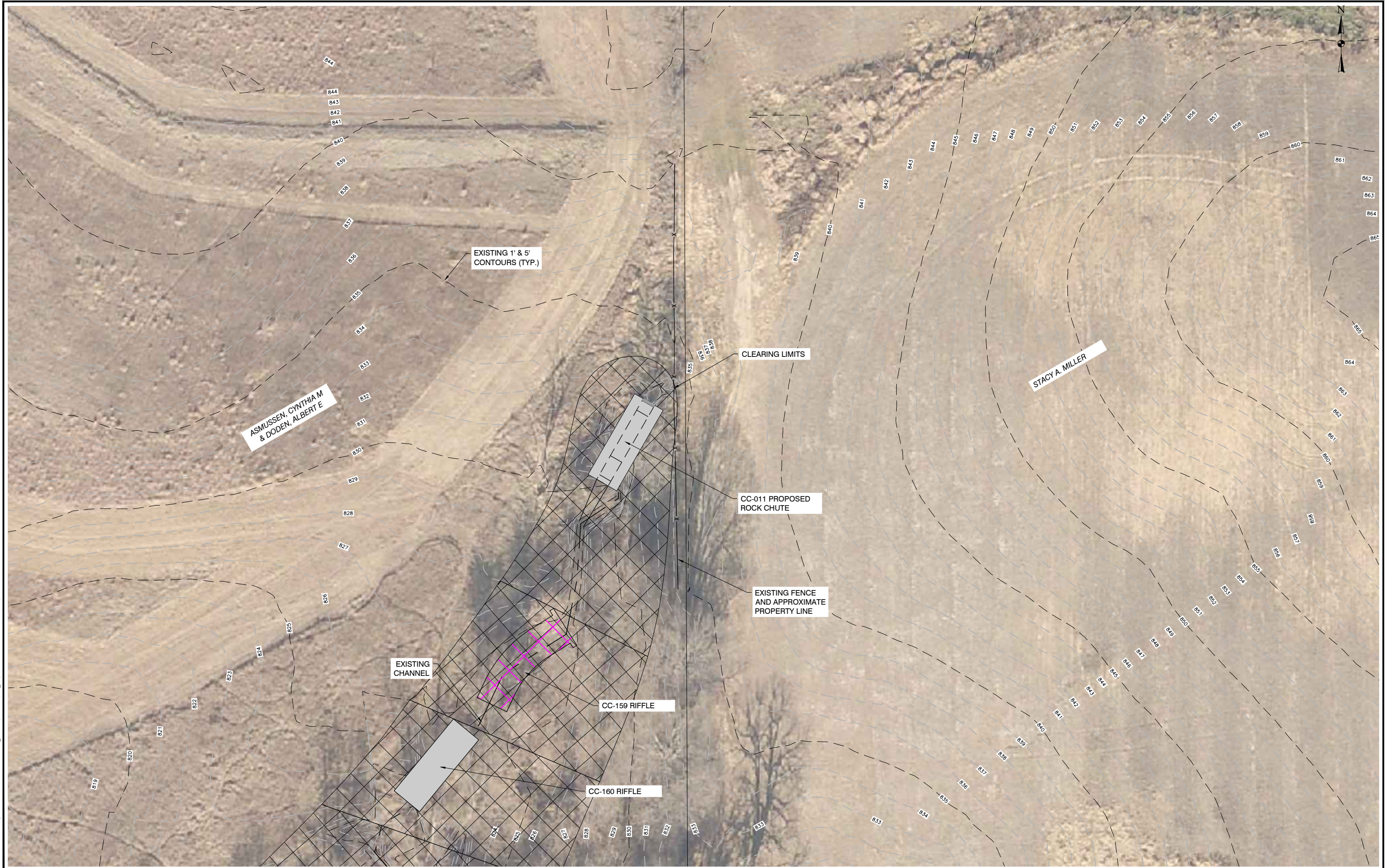
CC-010 - CC-011 & CC-159 - CC-161 (ASMUSSEN)  
JOHNSON COUNTY, IOWA

CC-010  
QUANTITIES & DESIGN DATA

|                     |
|---------------------|
| PROJECT NO.<br>8725 |
| SHEET NO.<br>6      |



J:\8725\_Asmussen\CC-010 & CC-012.dwg(Sheets\CC-011 - Rock Chute\8725\_CC-011 (Asmussen) - 2\_Project Site.DWG - 2 - 09-09-21 - 6:21pm -JF4353



| NO. | REVISION | BY | DATE | NO. | REVISION | BY | DATE |
|-----|----------|----|------|-----|----------|----|------|
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |



Clapsaddle-Garber Associates, Inc  
1523 S. Bell Ave. Suite 101  
Ames, Iowa 50010  
Ph 515-282-1794  
www.cgaconsultants.com

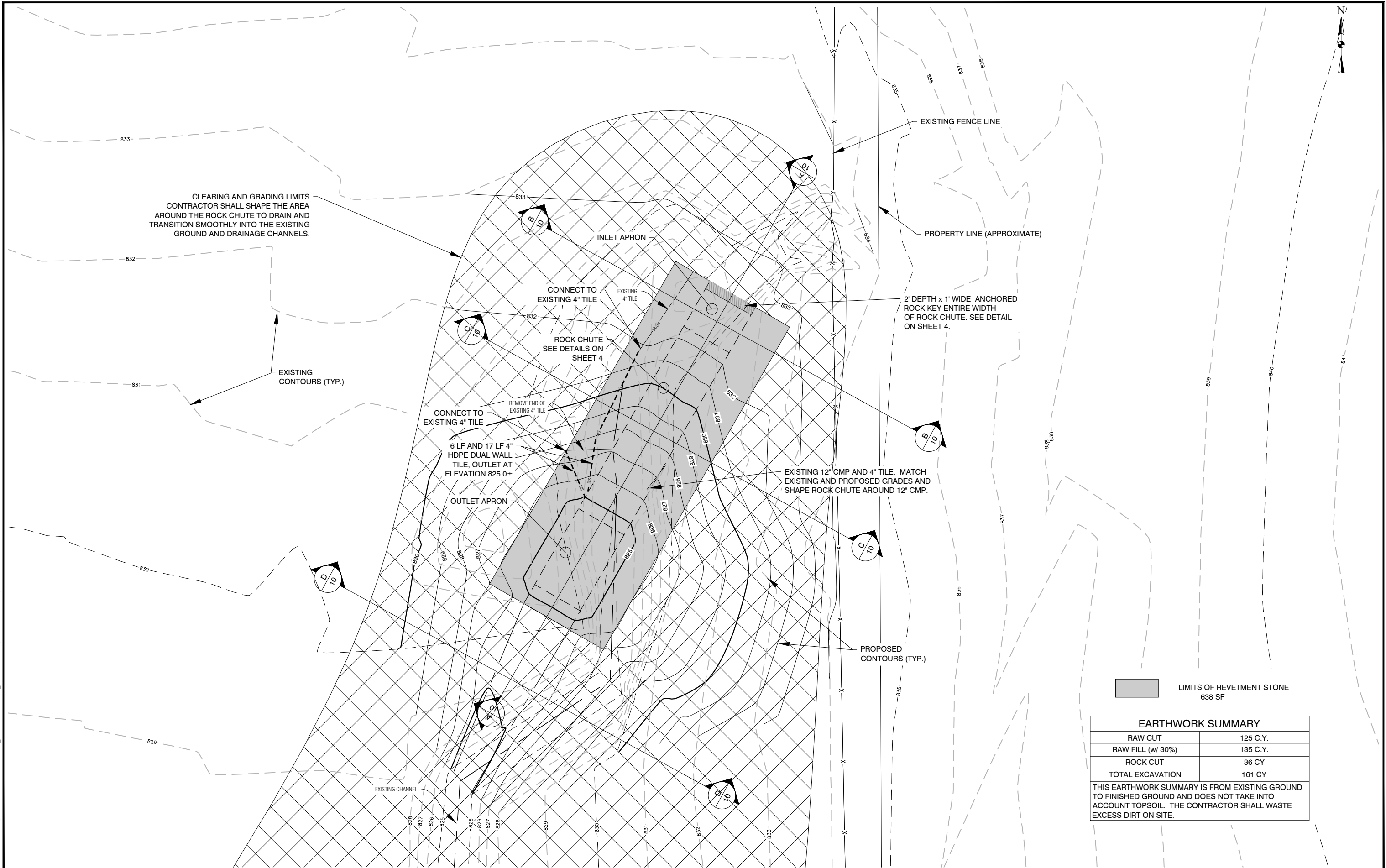
|               |                 |
|---------------|-----------------|
| DESIGNED: MMM | DATE: 2/11/2020 |
| DRAWN: RWA    | DATE: 2/11/2020 |
| CHECKED: MMB  | DATE: 8/18/2021 |
| APPROVED: MMB | DATE: 8/19/2021 |

CC-010 - CC-011 & CC-159 - CC-161 (ASMUSSEN)  
JOHNSON COUNTY, IOWA

|                     |
|---------------------|
| PROJECT NO.<br>8725 |
| SHEET NO.<br>7      |



J:\8725\_Asmussen\CC-010 & CC-012\dwg\Sheets\CC-011 - Rock Chute\8725\_CC-011 (Asmussen) - 3\_Rock Chute Plan.dwg - 8 - 09-09-21 - 6:22pm - JPA353



LIMITS OF REVETMENT STONE  
638 SF

EARTHWORK SUMMARY

|                   |          |
|-------------------|----------|
| RAW CUT           | 125 C.Y. |
| RAW FILL (w/ 30%) | 135 C.Y. |
| ROCK CUT          | 36 CY    |
| TOTAL EXCAVATION  | 161 CY   |

THIS EARTHWORK SUMMARY IS FROM EXISTING GROUND TO FINISHED GROUND AND DOES NOT TAKE INTO ACCOUNT TOPSOIL. THE CONTRACTOR SHALL WASTE EXCESS DIRT ON SITE.



| NO. | REVISION | BY | DATE | NO. | REVISION | BY | DATE |
|-----|----------|----|------|-----|----------|----|------|
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |



Clapsaddle-Garber Associates, Inc.  
1523 S. Bell Ave. Suite 101  
Ames, Iowa 50010  
Ph 515-282-1794  
www.cgaconsultants.com

DESIGNED: MMM DATE: 2/11/2020  
DRAWN: RWA DATE: 2/11/2020  
CHECKED: MMB DATE: 8/18/2021  
APPROVED: MMB DATE: 8/19/2021

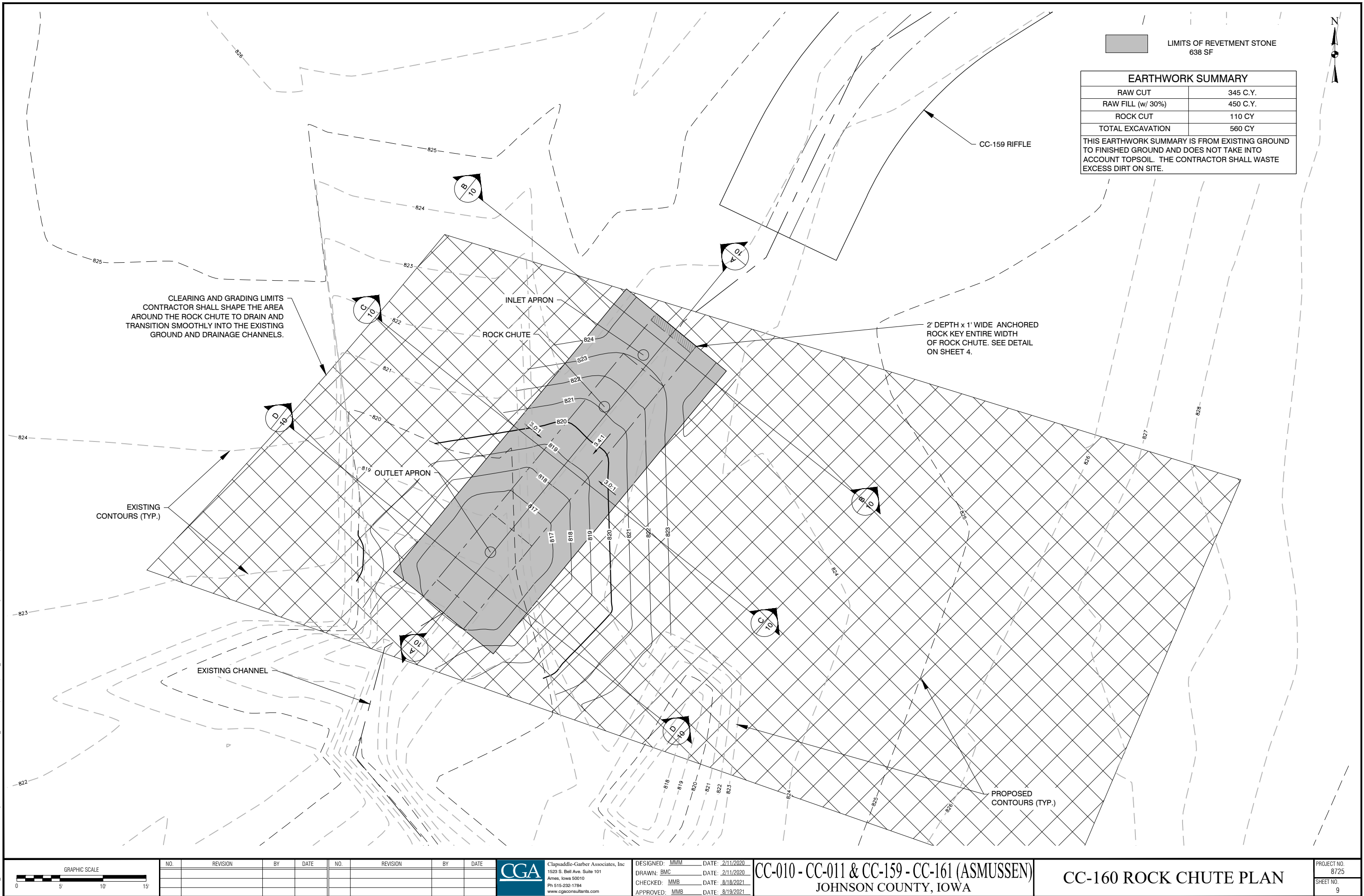
CC-010 - CC-011 & CC-159 - CC-161 (ASMUSSEN)  
JOHNSON COUNTY, IOWA

CC-011 ROCK CHUTE PLAN

PROJECT NO.  
8725  
SHEET NO.  
8



J:\8725\_Asmussen\CC-010 & CC-012.dwg(Sheets\CC-159-161 Stream\8725\_CC-159-161 (Asmusen) - 4-5\_Rock Chute Plan & Details.dwg - 9 - 09-19-21 - 6:23pm - JRA553



LIMITS OF REVETMENT STONE  
638 SF

| EARTHWORK SUMMARY   |          |
|---|----------|
| RAW CUT   | 345 C.Y. |
| RAW FILL (w/ 30%)   | 450 C.Y. |
| ROCK CUT  | 110 CY   |
| TOTAL EXCAVATION  | 560 CY   |
| THIS EARTHWORK SUMMARY IS FROM EXISTING GROUND TO FINISHED GROUND AND DOES NOT TAKE INTO ACCOUNT TOPSOIL. THE CONTRACTOR SHALL WASTE EXCESS DIRT ON SITE. |          |



| NO. | REVISION | BY | DATE | NO. | REVISION | BY | DATE |
|-----|----------|----|------|-----|----------|----|------|
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |



Clapsaddle-Garber Associates, Inc  
1523 S. Bell Ave. Suite 101  
Ames, Iowa 50010  
Ph 515-282-1794  
www.cgaconsultants.com

|               |                 |
|---------------|-----------------|
| DESIGNED: MMM | DATE: 2/11/2020 |
| DRAWN: BMC    | DATE: 2/11/2020 |
| CHECKED: MMB  | DATE: 8/18/2021 |
| APPROVED: MMB | DATE: 8/19/2021 |

CC-010 - CC-011 & CC-159 - CC-161 (ASMUSSEN)  
JOHNSON COUNTY, IOWA

CC-160 ROCK CHUTE PLAN

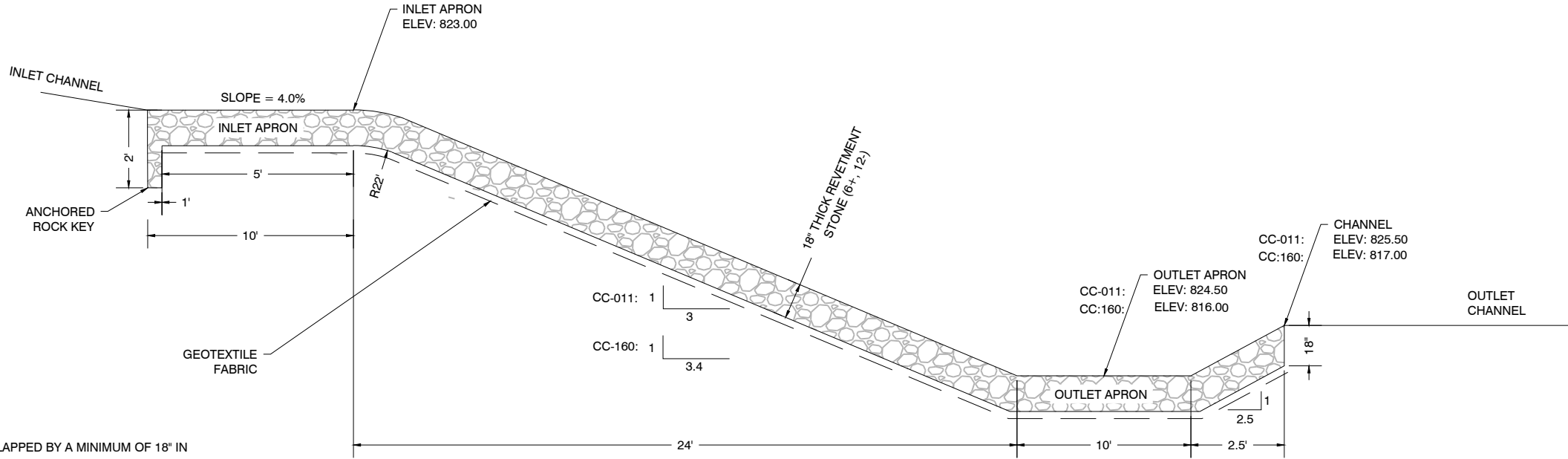
|                     |
|---------------------|
| PROJECT NO.<br>8725 |
| SHEET NO.<br>9      |

J:\8725\_Asmussen\CC-010 & CC-012.dwg(Sheets\CC-159-161 Stream\8725\_CC-159-161 (Asmusse) - 4-5\_Rock Chute Plan & Details.dwg - 10 - 09-09-21 - 6:25pm - JRA353

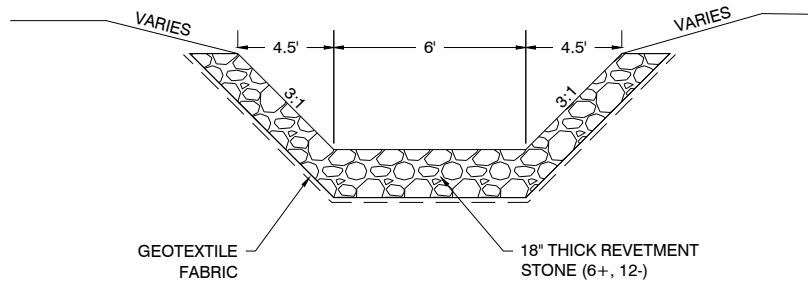
NOTES:

1. GEOTEXTILE SHALL BE OVERLAPPED BY A MINIMUM OF 18" IN THE DIRECTION OF FLOW.
2. GEOTEXTILE SHALL BE ANCHORED WITHIN 18" OF ALL SIDES AND 24" OF THE END.
3. REVETMENT SHALL BE REVETMENT STONE WITH THE FOLLOWING GRADATION (6+ 12-):

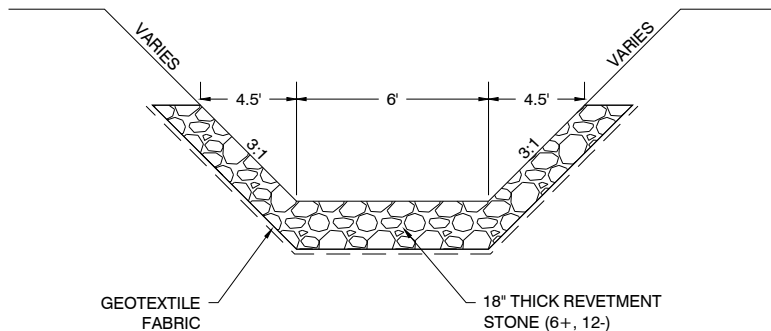
| GRADATION OF REVETMENT STONE (6+ , 12-) |               |
|---|---------------|
| Percent Passing                         | Size (Inches) |
| 100                                     | 12"           |
| 50-85                                   | 10.8"         |
| 20-60                                   | 9"            |
| 10-40                                   | 7.8"          |



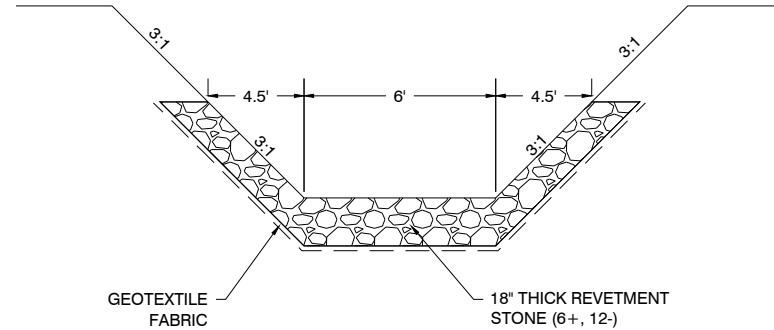
A PROFILE ALONG CENTERLINE OF CHUTE  
NOT TO SCALE



B INLET CHANNEL CROSS SECTION  
NOT TO SCALE



C ROCK CHUTE CROSS SECTION  
NOT TO SCALE



D OUTLET CHANNEL CROSS SECTION  
NOT TO SCALE

| NO. | REVISION | BY | DATE | NO. | REVISION | BY | DATE |
|-----|----------|----|------|-----|----------|----|------|
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |



DESIGNED: MMM DATE: 2/11/2020  
DRAWN: BMC DATE: 2/11/2020  
CHECKED: MMB DATE: 8/18/2021  
APPROVED: MMB DATE: 8/19/2021

CC-010 - CC-011 & CC-159 - CC-161 (ASMUSSEN)  
JOHNSON COUNTY, IOWA

CC-011 & CC-160 DETAILS

PROJECT NO.  
8725  
SHEET NO.  
10



J:\8725 - Asmusen CC-010 & CC-012.dwg\Sheets\CC-011 - Rock Chute\8725\_CC-011 (Asmusen) - 6\_01.dwg - 11 - 09-09-21 - 6:26pm - JPA353

| DESIGN DATA                |                         |
|----------------------------|-------------------------|
| Parameter                  | Value                   |
| Drainage Area              | 6.9 Acres               |
| Apron Inlet Elevation      | 832.50                  |
| Apron Outlet Elevation     | 824.50                  |
| Design Storm (50-Year)     | 6.29 Inches in 24 Hours |
| Maximum Flow Through Chute | 17.7 cfs                |
|                            |                         |

| HIGH STORM FLOW INFORMATION  |             |
|------------------------------|-------------|
| Equivalent Unit Discharge    | 2.52 cfs/ft |
| Factor of Safety             | 1.2         |
| Normal Flow Depth In Chute   | 0.33 ft     |
| Rock Chute Thickness         | 18in        |
| Tailwater Above Outlet Apron | 1.56 ft     |
| Hydraulic Jump Height        | 0.93 ft     |
|                              |             |

| CC-011 QUANTITIES OF WORK                 |          |                   |
|---|----------|-------------------|
| DESCRIPTION                               | QUANTITY | AS-BUILT QUANTITY |
| Clearing & Grubbing                       | 0.17 AC  |                   |
| Topsoil Strip, Salvage, & Spread          | 65 CY    |                   |
| Excavation, Class 13                      | 161 CY   |                   |
| Tile, Dual Wall, Non-Perforated, 4"       | 24 LF    |                   |
| Fertilizing, Seeding, & Mulching, Type IV | 1 LS     |                   |
| Revetment Stone (6+, 12-)                 | 70 TON   |                   |
| Mobilization                              | 1 LS     |                   |
|   |          |                   |

| CC-160 QUANTITIES OF WORK                 |          |                   |
|---|----------|-------------------|
| DESCRIPTION                               | QUANTITY | AS-BUILT QUANTITY |
| Clearing & Grubbing                       | 0.12 AC  |                   |
| Topsoil Strip, Salvage, & Spread          | 35 CY    |                   |
| Excavation, Class 13                      | 560 CY   |                   |
| Tile, Dual Wall, Non-Perforated, 4"       | 56 LF    |                   |
| 24" CMP Culvert                           | 56 LF    |                   |
| Fertilizing, Seeding, & Mulching, Type IV | 1 LS     |                   |
| Revetment Stone (6+, 12-)                 | 150 TON  |                   |
| Mobilization                              | 1 LS     |                   |
|   |          |                   |

| NO. | REVISION | BY | DATE | NO. | REVISION | BY | DATE |
|-----|----------|----|------|-----|----------|----|------|
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |

CGA

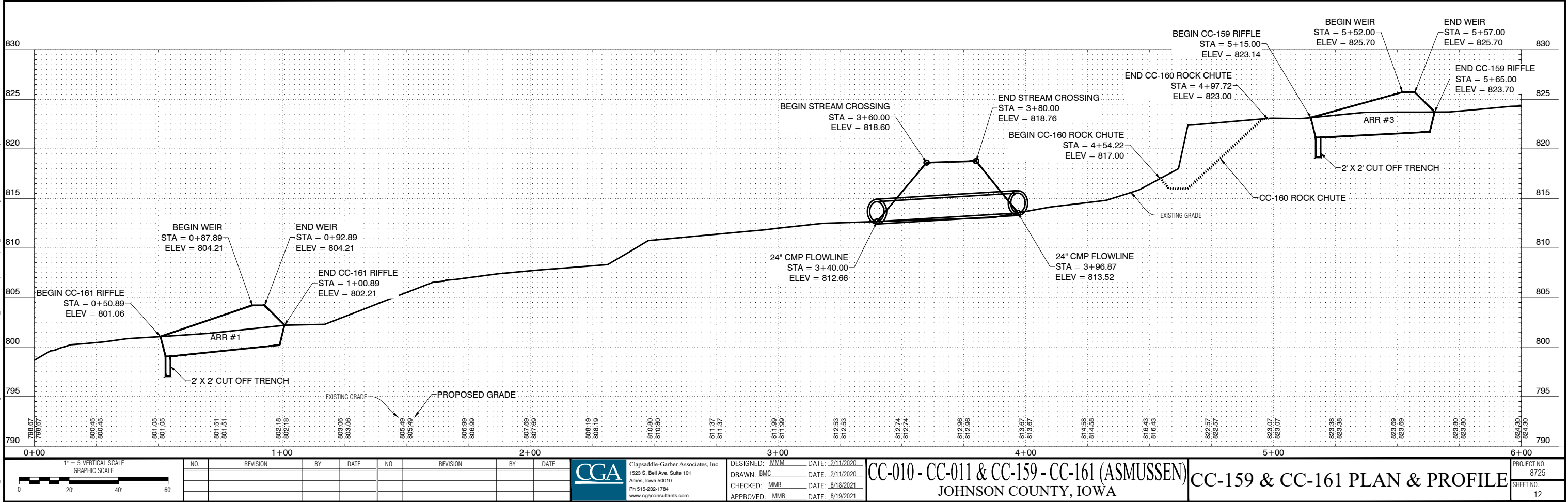
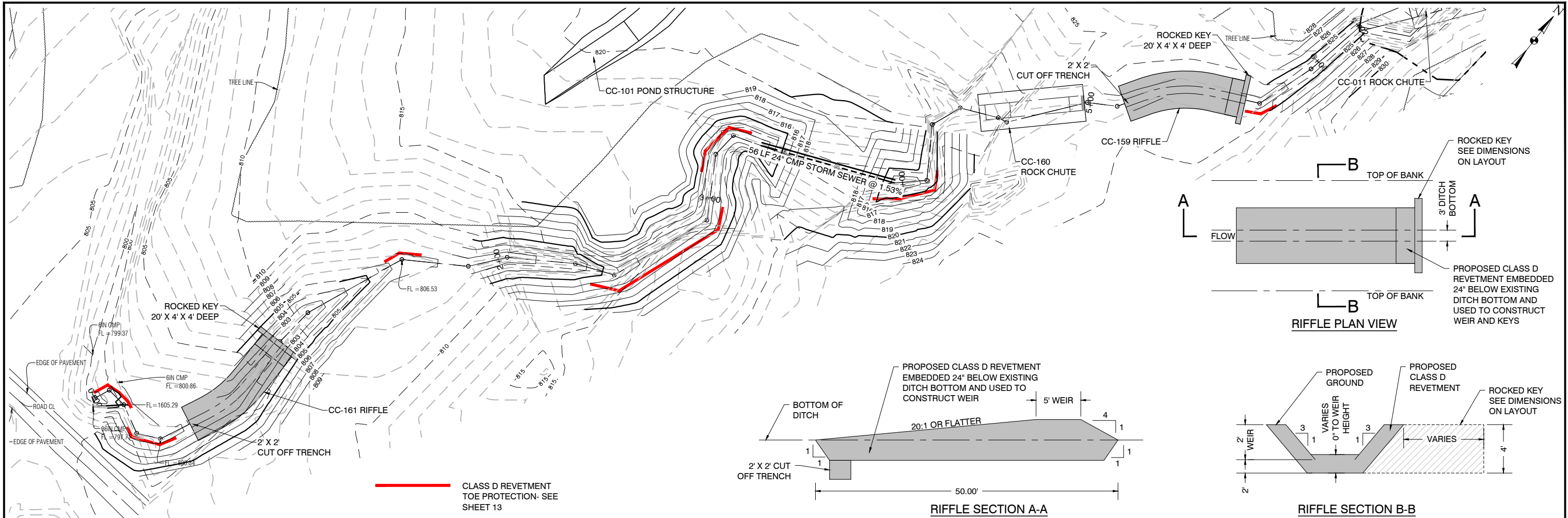
Clapsaddle-Garber Associates, Inc  
1523 S. Bell Ave. Suite 101  
Ames, Iowa 50010  
Ph 515-232-1784  
www.cgaconsultants.com

|               |                 |
|---------------|-----------------|
| DESIGNED: MMB | DATE: 2/11/2020 |
| DRAWN: RWA    | DATE: 2/11/2020 |
| CHECKED: MMB  | DATE: 8/18/2021 |
| APPROVED: MMB | DATE: 8/19/2021 |

CC-010 - CC-011 & CC-159 - CC-161 (ASMUSSEN)  
JOHNSON COUNTY, IOWA

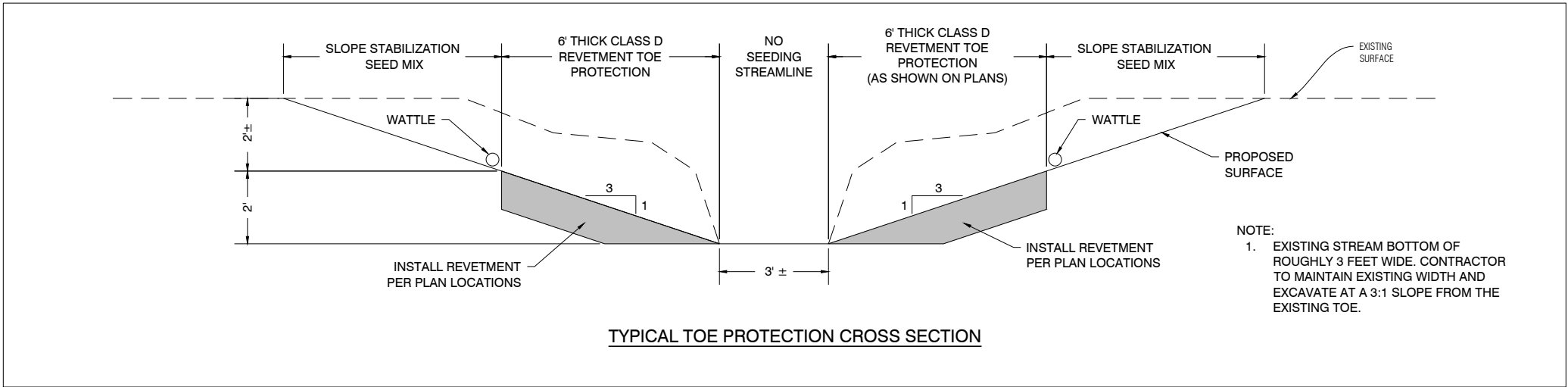
CC-011 & CC-160  
QUANTITIES & DESIGN DATA

|                     |
|---------------------|
| PROJECT NO.<br>8725 |
| SHEET NO.<br>11     |





J:\8725\_Asmussen\CC-010 & CC-012.dwg(Sheets\CC-159-161 Stream\8725\_CC-159-161 (Asmusse) - 7\_ Quantities.dwg - 6 - 09-20-21 - 3:51pm - wa286



| DESIGN DATA                |                         |
|----------------------------|-------------------------|
| Parameter                  | Value                   |
| Drainage Area              | 9.5 Acres               |
| Streamline Inlet Flowline  | 824.43                  |
| Streamline Outlet Flowline | 798.67                  |
| Design Storm (100-Year)    | 7.22 Inches in 24 Hours |
| Maximum Flow To Stream     | 25.99 cfs               |

| HIGH STORM FLOW INFORMATION |           |
|-----------------------------|-----------|
| Maximum Depth of Channel    | 0.98 ft   |
| Area of Channel             | 5.82 sf   |
| Velocity                    | 4.46 ft/s |
| Wetted Perimeter            | 9.20 ft   |
| Critical Depth              | 0.97 ft   |
| Top Width                   | 8.88 ft   |
| EGL                         | 1.29 ft   |

| CC-159 QUANTITIES OF WORK                        |          |                   |
|--|----------|-------------------|
| DESCRIPTION                                      | QUANTITY | AS-BUILT QUANTITY |
| Clearing & Grubbing                              | 0.12 AC  |                   |
| Topsoil Strip, Salvage, & Spread for Rock Chutes | 50 CY    |                   |
| Excavation, Class 13                             | 240 CY   |                   |
| Fertilizing, Seeding, & Mulching, Type IV        | 1 LS     |                   |
| Revetment Stone, Class D                         | 120 TON  |                   |
| Erosion Control, Wattle                          | 480 LF   |                   |
| Mobilization                                     | 1 LS     |                   |
| CC-161 QUANTITIES OF WORK                        |          |                   |
| DESCRIPTION                                      | QUANTITY | AS-BUILT QUANTITY |
| Clearing & Grubbing                              | 0.98 AC  |                   |
| Topsoil Strip, Salvage, & Spread for Rock Chutes | 50 CY    |                   |
| Excavation, Class 13                             | 350 CY   |                   |
| Fertilizing, Seeding, & Mulching, Type IV        | 1 LS     |                   |
| Revetment Stone, Class D                         | 140 TON  |                   |
| Erosion Control, Wattle                          | 480 LF   |                   |
| Mobilization                                     | 1 LS     |                   |

| OVERALL QUANTITIES OF WORK                |      |          |          |          |          |          |          |
|---|------|----------|----------|----------|----------|----------|----------|
|   |      | CC-010   | CC-011   | CC-159   | CC-160   | CC-161   | TOTAL    |
| Description                               | Unit | Quantity | Quantity | Quantity | Quantity | Quantity | Quantity |
| Clearing & Grubbing                       | AC   | 0.73     | 0.17     | 0.12     | 0.12     | 0.98     | 2.12     |
| Topsoil Strip, Salvage, and Spread        | CY   | 400      | 65       | 50       | 35       | 50       | 600.0    |
| Excavation, Class 13                      | CY   | -        | 161      | 240      | 560      | 350      | 1311.0   |
| Excavation, Core Trench                   | CY   | 1400     | -        | -        | -        | -        | 1400.0   |
| Earthfill                                 | CY   | 2950     | -        | -        | -        | -        | 2950.0   |
| Smooth Steel Pipe, 8"                     | LF   | 92       | -        | -        | -        | -        | 92.0     |
| Tile, Dual Wall, Non-Perforated, 4"       | LF   | -        | 24       | -        | 56       | -        | 80.0     |
| 24" CMP Culvert                           | LF   | -        | -        | -        | 56       | -        | 56       |
| *Anti-Seep Collar, 72"x72"                | EA   | 3        | -        | -        | -        | -        | 3.0      |
| *Canopy Inlet Trash Rack                  | EA   | 1        | -        | -        | -        | -        | 1.0      |
| Fertilizing, Seeding, & Mulching, Type I  | LS   | 1        | -        | -        | -        | -        | 1.0      |
| Fertilizing, Seeding, & Mulching, Type IV | LS   | -        | 1        | 1        | 1        | 1        | 4.0      |
| Erosion Control, Silt Fence               | LF   | 550      | -        | -        | -        | -        | 550.0    |
| Erosion Control, Wattle                   | LF   | -        | -        | 480      | -        | 480      | 960.0    |
| Revetment Stone (6+, 12-)                 | Tons | -        | 70       | -        | 150      | -        | 220.0    |
| Revetment Stone, Class D                  | Tons | 30       | -        | 120      | -        | 140      | 290.0    |
| Mobilization                              | LS   | 0.2      | 0.2      | 0.2      | 0.2      | .2       | 1.0      |
| * = Not a Bid Item                        |      |          |          |          |          |          |          |

- NOTE:
- MOBILIZATION SHALL INCLUDE RESTORATION OF ALL INGRESS & EGRESS ROUTES & STAGING AREAS TO EXISTING CONDITIONS. REFER TO THE SPECIAL PROVISIONS IN THE PROJECT MANUAL FOR FURTHER DETAILS.
  - SEED ALL DISTURBED AREAS ALONG CREEK OUTSIDE OF ROCK STRUCTURES WITH TYPE IV SEED MIX.

| NO. | REVISION | BY | DATE | NO. | REVISION | BY | DATE |
|-----|----------|----|------|-----|----------|----|------|
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |

CGA

Clapsaddle-Garber Associates, Inc  
1523 S. Bell Ave. Suite 101  
Ames, Iowa 50010  
Ph 515-232-1784  
www.cgaconsultants.com

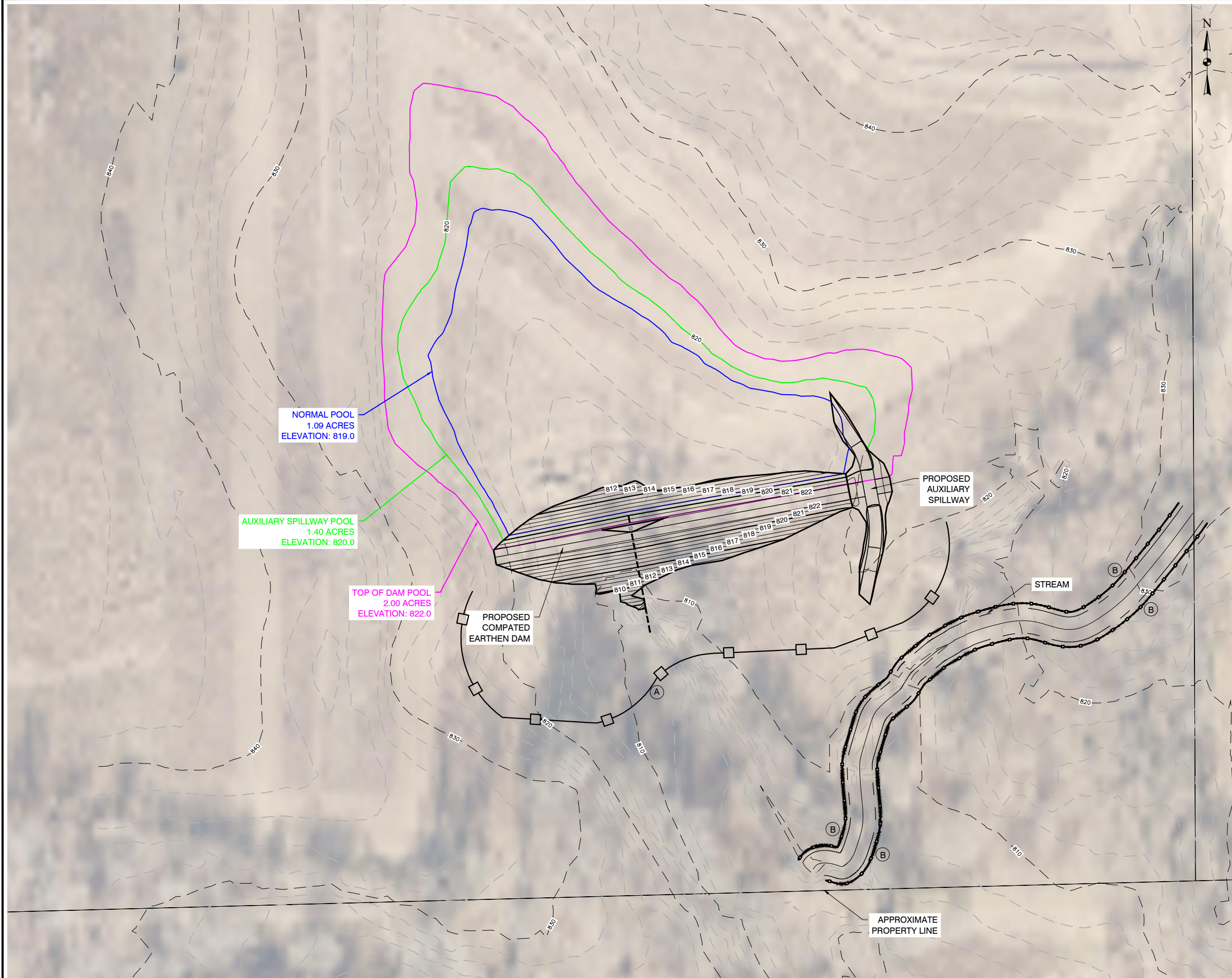
|               |                 |
|---------------|-----------------|
| DESIGNED: MMB | DATE: 2/11/2020 |
| DRAWN: BMC    | DATE: 2/11/2020 |
| CHECKED: MMB  | DATE: 8/18/2021 |
| APPROVED: MMB | DATE: 8/19/2021 |

CC-010 - CC-011 & CC-159 - CC-161 (ASMUSSEN)  
JOHNSON COUNTY, IOWA

CC-159 & CC-161  
QUANTITIES & DESIGN DATA

|                     |
|---------------------|
| PROJECT NO.<br>8725 |
| SHEET NO.<br>13     |

J:\8725 - Asmusen CC-010 & CC-012.dwg(Sheets\8725 - Storm Water Pollution Prevention Plan.dwg - 14 - 09-09-21 - 6:29pm - JRA53



#### POLLUTION PREVENTION PLAN NOTES

1. A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) HAS BEEN DEVELOPED IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL GUIDELINES PER THE IA-DNR CONSTRUCTION PERMIT. ALL CONTRACTORS SHALL BE SUPPLIED A COPY OF THE SWPPP DOCUMENT AT THE BEGINNING OF CONSTRUCTION. A COPY OF THE SWPPP DOCUMENTS SHALL BE LOCATED WITH THE SWPPP MANAGER AT ALL TIMES. COPIES CAN ALSO BE FOUND AT 16 E MAIN STREET, MARSHALLTOWN, IA 50158. ALL CONTRACTORS/SUBCONTRACTORS SHALL CONDUCT THEIR OPERATIONS IN A MANNER THAT MINIMIZES EROSION AND PREVENTS SEDIMENTS AND NON EARTH DISTURBING POLLUTANTS FROM LEAVING THE SITE AS DESCRIBED IN THE SWPPP. THE PRIME CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE AND IMPLEMENTATION OF THE SWPPP FOR THEIR ENTIRE CONTRACT. THIS RESPONSIBILITY SHALL BE FURTHER SHARED WITH SUBCONTRACTORS WHOSE WORK IS A SOURCE OF POTENTIAL POLLUTION AS DEFINED IN THE SWPPP.
2. THIS SHEET IS NOT THE COMPLETE STORM WATER POLLUTION PREVENTION PLAN (SWPPP), BUT RATHER A PART OF THE SWPPP THAT IS TO BE UPDATED REGULARLY BY THE CONTRACTOR. IT IS THE PRIME CONTRACTORS RESPONSIBILITY TO UPDATE THE SWPPP PLAN AS NEEDED AS WELL AS CONDUCT ANY NECESSARY INSPECTIONS IN ACCORDANCE WITH THE IOWA DNR AND EPA GUIDELINES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING ANY DEFICIENCIES, CORRECTING THOSE DEFICIENCIES IMMEDIATELY AND DOCUMENTING SUCH WITH THE SWPPP. ALL EROSION CONTROL ITEMS SHALL BE REMOVED AT THE END OF THE PROJECT. THE SWPPP MANAGER SHALL UPDATE SITE PLAN WITH THE LOCATION OF THE 'POLLUTION PREVENTION PLAN LEGEND' ITEMS ONCE THE LOCATION OF THOSE CONTROLS IS ESTABLISHED. ANY ADDITIONAL CONTROLS THAT ARE USED BUT ARE NOT LISTED IN THE LEGEND SHALL BE CLEARLY IDENTIFIED ON THE PLANS.

#### LEGEND:

- (A) INSTALL SILT FENCE (SEE SUDAS SPEC FIG. 940.119)
- (B) INSTALL 9" WATTLE 7" OFFSET OF CENTERLINE ALONG DISTURBED CREEK AREAS (SEE SUDAS SPEC. FIG 9040.105)

NOTE: ANY CONTROLS NOT SHOWN ON SWPPP SHALL BE LOCATED IN THE FIELD BY THE CONTRACTOR. ALL CHANGES AND ADDITIONAL CONTROLS INSTALLED SHALL BE UPDATED ON THE SWPPP SHEET.



| NO. | REVISION | BY | DATE | NO. | REVISION | BY | DATE |
|-----|----------|----|------|-----|----------|----|------|
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |



DESIGNED: MMM DATE: 2/11/2020  
DRAWN: RWA DATE: 2/11/2020  
CHECKED: MMB DATE: 8/18/2021  
APPROVED: MMB DATE: 8/19/2021

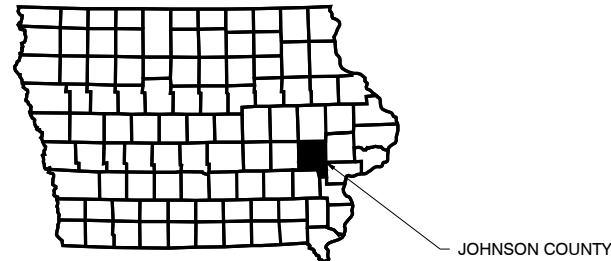
CC-010 - CC-011 & CC-159 - CC-161 (ASMUSSEN)  
JOHNSON COUNTY, IOWA

STORM WATER POLLUTION  
PREVENTION PLAN

PROJECT NO.  
8725  
SHEET NO.  
14



# CC-111 EISTER POND STRUCTURE (NRCS 378) PROPOSED WATERSHED IMPROVEMENTS CLEAR CREEK WATERSHED JOHNSON COUNTY, IOWA CDBG PROJECT NO.13-NDRI-007



## CLEAR CREEK WATERSHED:

JOHN RATHBUN, COORDINATOR  
51 ESCORT LANE  
IOWA CITY, IA 52240  
319-499-4835

## JOHNSON COUNTY BOARD OF SUPERVISORS:

913 S. DUBUQUE STREET, SUITE 201  
IOWA CITY, IA 52240

## LANDOWNER:

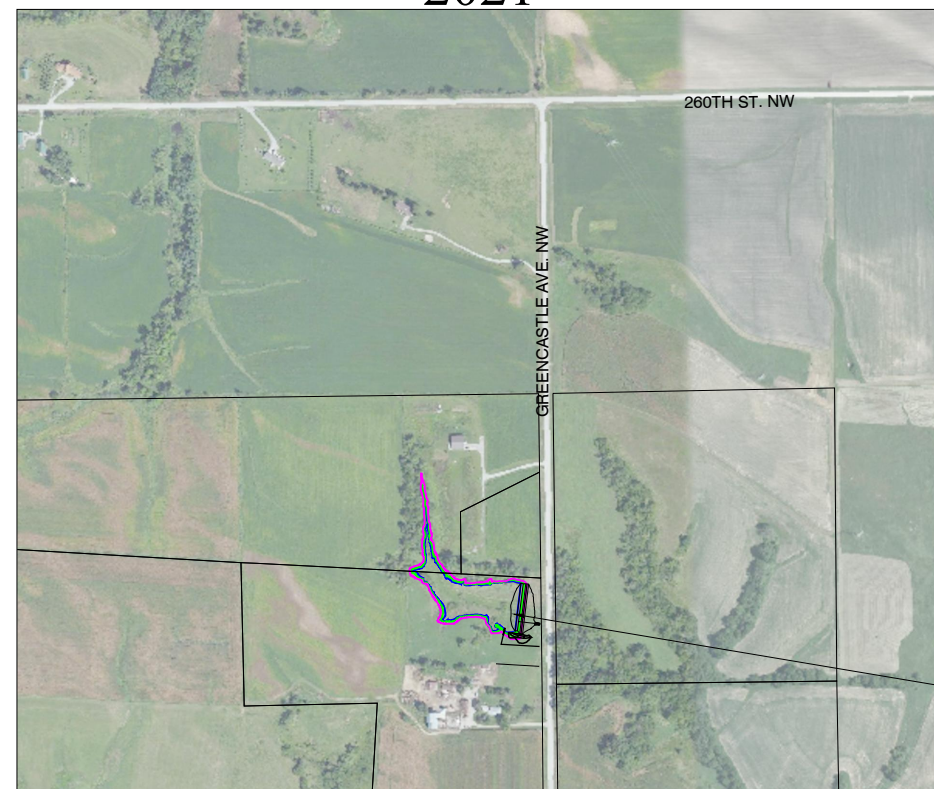
SHARON AND TERRY EISTER  
2701 GREENCASTLE AVE NW  
TIFFIN, IA 52340  
319-330-0935



## NOTES:

1. THE CONTRACTOR SHALL CONTACT ONE-CALL, 800-292-8989, FOR UTILITY LOCATES AT LEAST 48 HOURS PRIOR TO STARTING CONSTRUCTION.
2. IF CULTURAL RESOURCES ARE FOUND DURING CONSTRUCTION, WORK SHALL STOP IMMEDIATELY. CONTACT THE WATERSHED COORDINATOR, JOHN RATHBUN.
3. SEE SEPARATELY BOUND SPECIFICATIONS.

~2021~



LOCATION MAP  
SECTION 18 T80N R07W



Clapsaddle-Garber Associates, Inc  
1523 S. Bell Ave. Suite 101  
Ames, Iowa 50010  
Phone 515-232-1784  
www.cgaconsultants.com

## INDEX OF SHEETS

| SHEET NO. | DESCRIPTION                           |
|-----------|---------------------------------------|
| 1         | COVER SHEET                           |
| 2-3       | PROJECT SITE                          |
| 4         | DAM SECTIONS                          |
| 5-6       | DETAILS                               |
| 7         | STORM WATER POLLUTION PREVENTION PLAN |
| 8         | QUANTITIES AND DESIGN DATA            |

PERMIT SUMMARY  
US ARMY CORPS OF ENGINEERS  
REGIONAL GENERAL PERMIT 33  
CEMVR - OD - P - 2014 - 0871

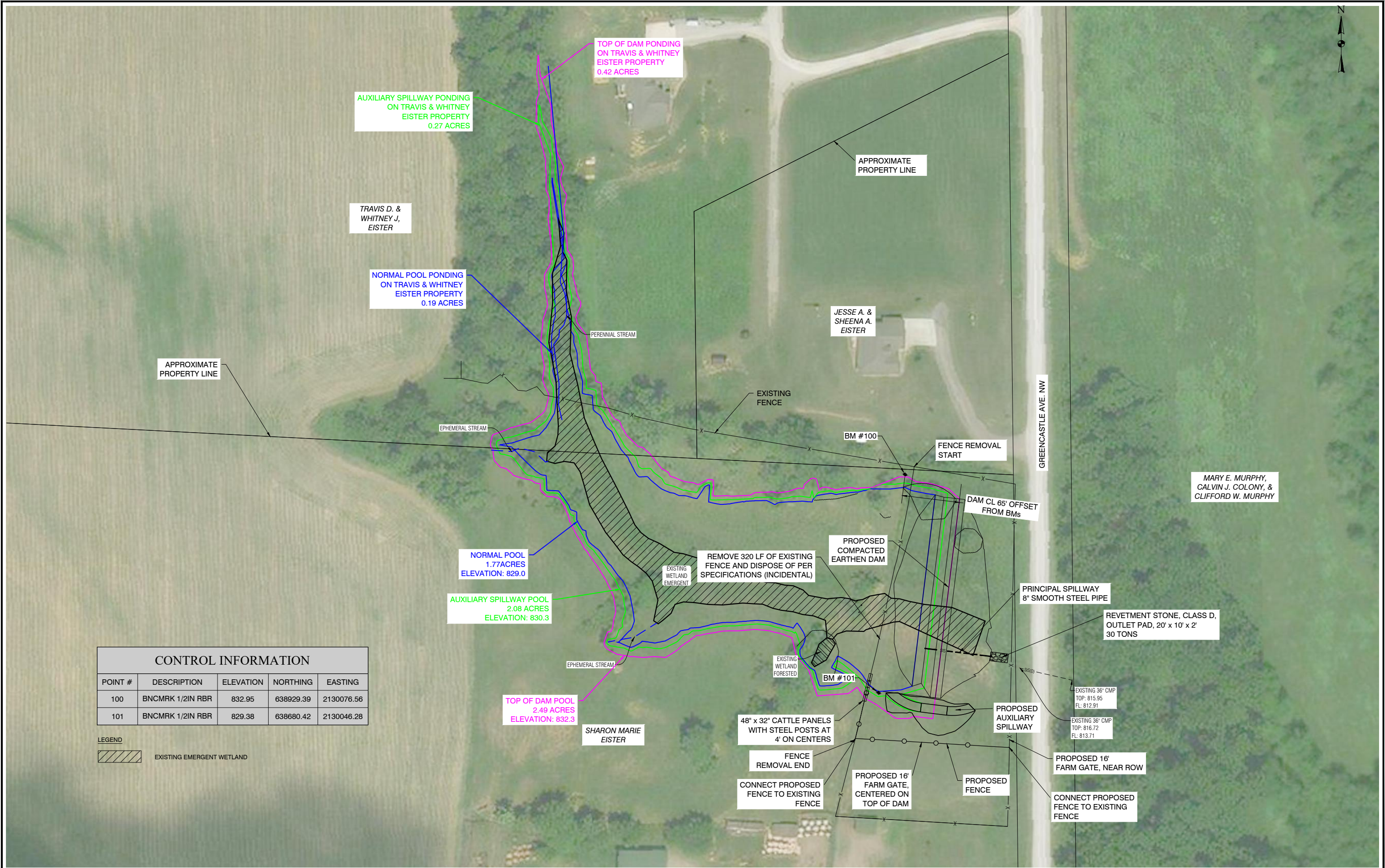
NPDES GENERAL PERMIT #2

TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, JUDGEMENT, AND BELIEF, THIS DESIGN, CONSTRUCTION DRAWINGS, AND SPECIFICATIONS MEET APPLICABLE NRCS STANDARDS AND SPECIFICATIONS.

*Mindy Bryngelson* 09/22/2021  
SIGNATURE DATE


|   |   |
|---|---|
|   | 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. |
|   | <i>Mindy Bryngelson</i> 09/22/2021<br>Signature Date<br>Mindy M. Bryngelson, PE<br>Iowa License Number 17135<br>My license renewal date is December 31, 2021  |
| Pages or sheets covered by this seal: <b>ALL SHEETS</b> |   |





| CONTROL INFORMATION |                  |           |           |            |
|---------------------|------------------|-----------|-----------|------------|
| POINT #             | DESCRIPTION      | ELEVATION | NORTHING  | EASTING    |
| 100                 | BNCMRK 1/2IN RBR | 832.95    | 638929.39 | 2130076.56 |
| 101                 | BNCMRK 1/2IN RBR | 829.38    | 638680.42 | 2130046.28 |

LEGEND

 EXISTING EMERGENT WETLAND



| NO. | REVISION | BY | DATE | NO. | REVISION | BY | DATE |
|-----|----------|----|------|-----|----------|----|------|
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |

**CGA**

Clapsaddle-Garber Associates, Inc.  
1523 S. Bell Ave. Suite 101  
Ames, Iowa 50010  
Ph 515-262-1794  
www.cgaconsultants.com

DESIGNED: MMM DATE: 8-18-2021  
DRAWN: RWA DATE: 8-19-2021  
CHECKED: MMB DATE: 2-11-2020  
APPROVED: MMB DATE: 2-11-2020

# CC-111 (EISTER)

JOHNSON COUNTY, IOWA

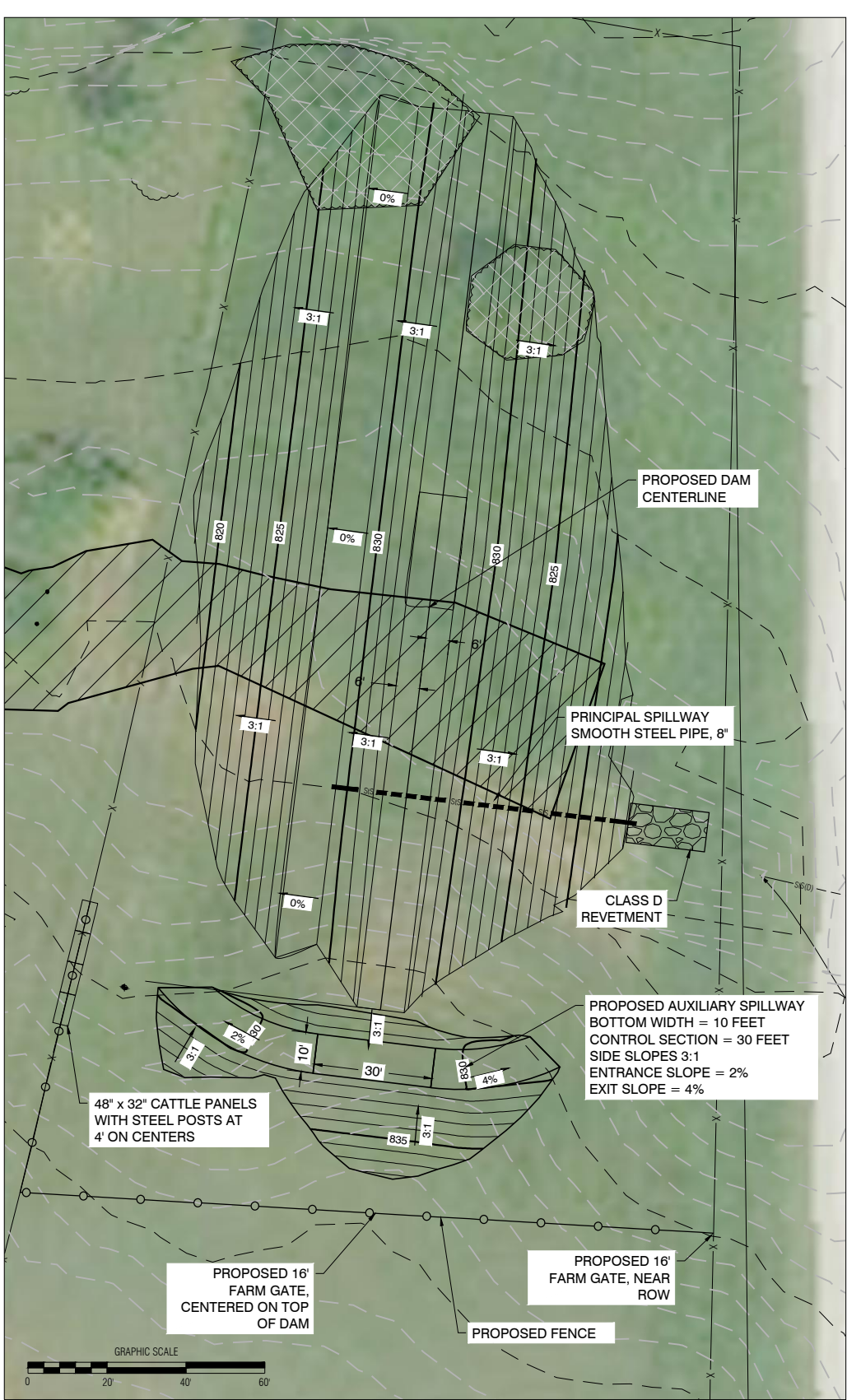
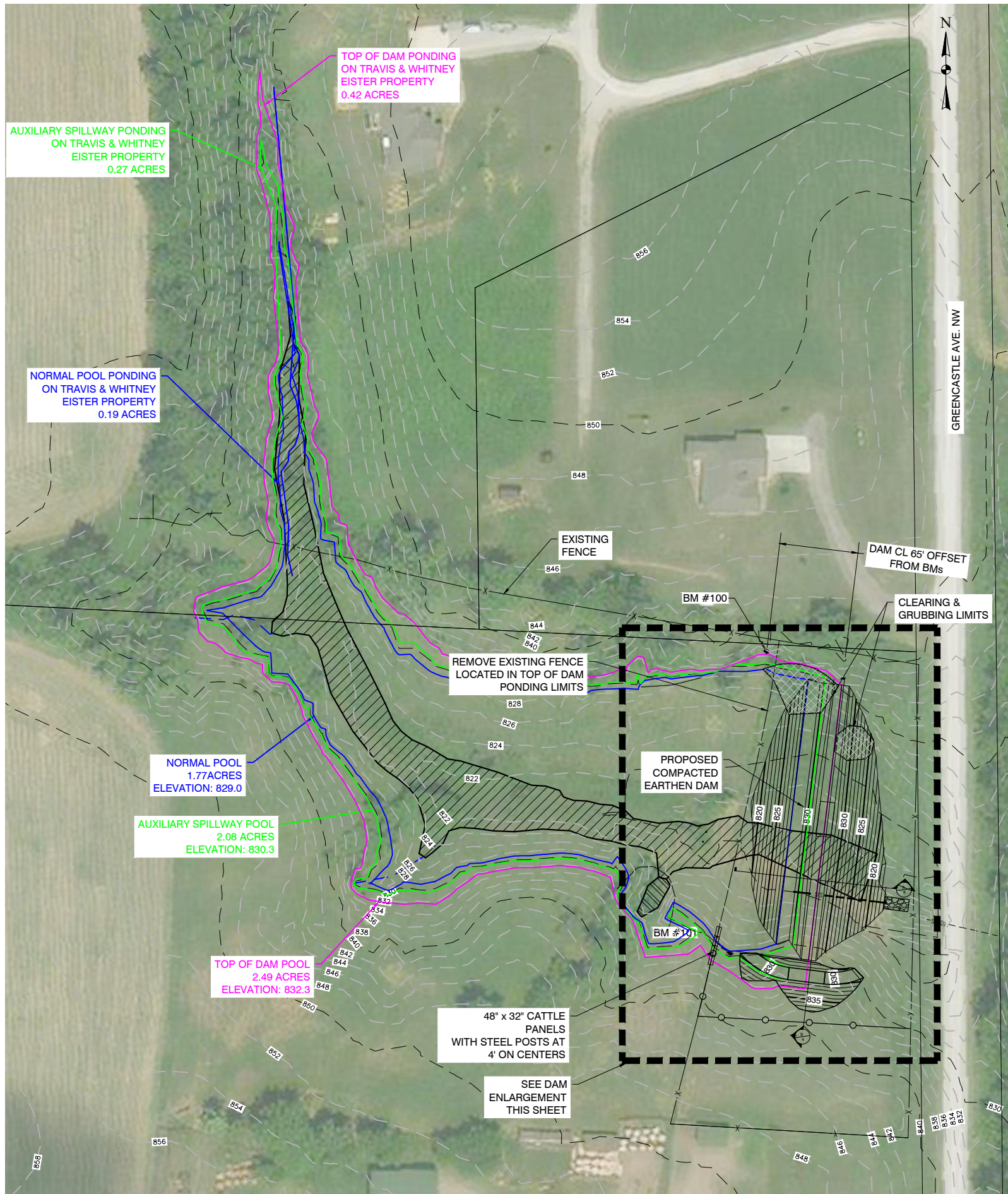
PROJECT SITE

PROJECT NO.  
8725  
SHEET NO.  
2

J:\8725\_Eister\dwg\Sheets\CC-111\8725\_CC-111 (Eister) - 2.dwg - 09-09-21 - 6:35pm - JRA593



J:\8725\_Eister\dwg\Sheets\CC-111\8725\_CC-111 (Eister) - 3 - 09-09-21 - 6:33pm - JRA593



DAM ENLARGEMENT



| NO. | REVISION | BY | DATE | NO. | REVISION | BY | DATE |
|-----|----------|----|------|-----|----------|----|------|
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |



Clapsaddle-Garber Associates, Inc.  
1523 S. Bell Ave. Suite 101  
Ames, Iowa 50010  
Ph 515-282-1794  
www.cgaconsultants.com

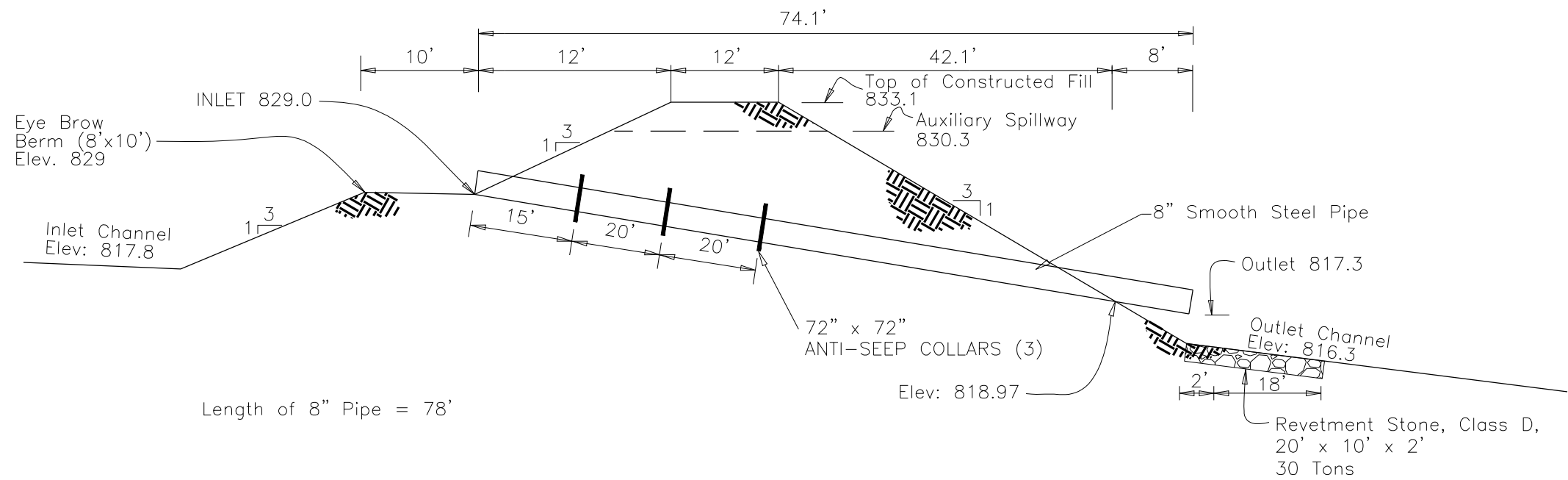
DESIGNED: MMM DATE: 2-11-2020  
DRAWN: RWA DATE: 2-11-2020  
CHECKED: MMB DATE: 8-18-2021  
APPROVED: MMB DATE: 8-19-2021

**CC-111 (EISTER)**  
JOHNSON COUNTY, IOWA

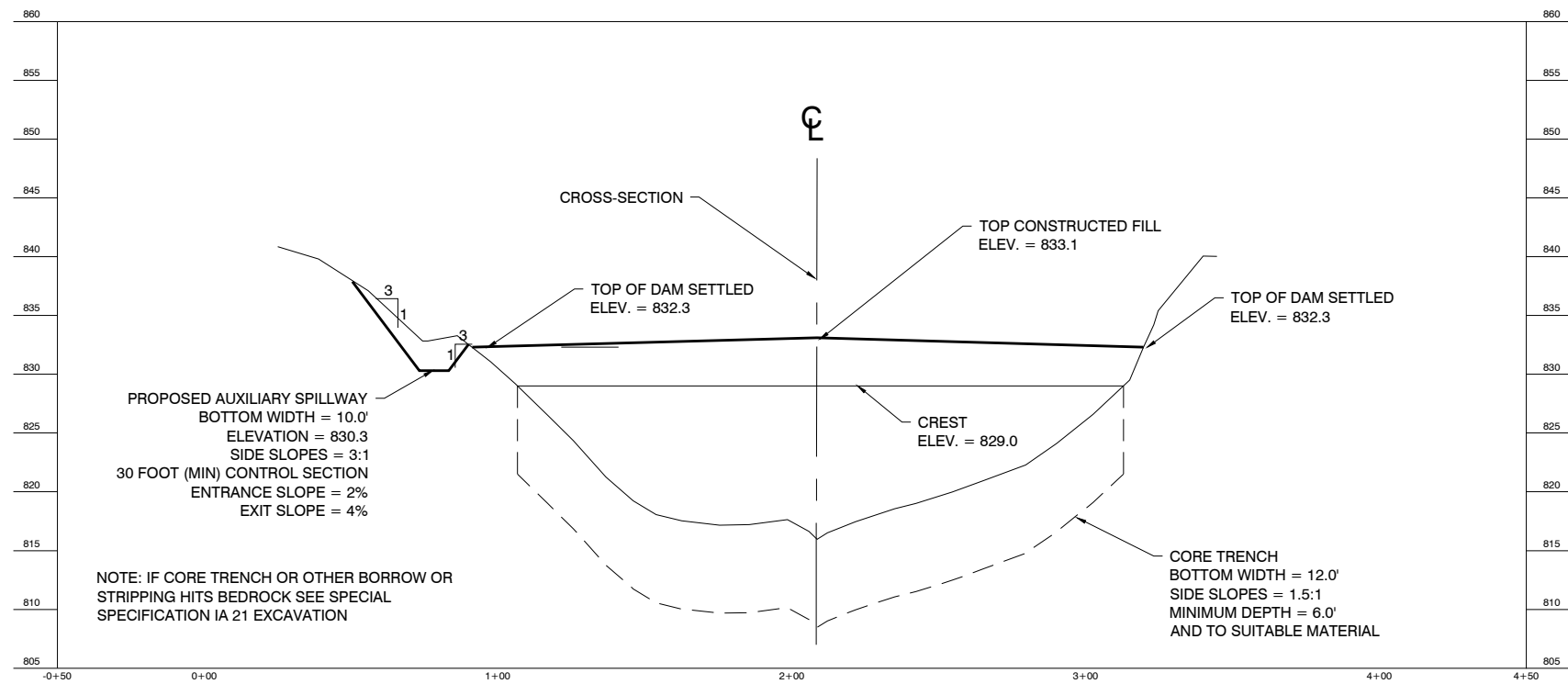
PROJECT SITE

PROJECT NO.  
8725  
SHEET NO.  
3





SECTION A-A



SECTION B-B

| NO. | REVISION | BY | DATE | NO. | REVISION | BY | DATE |
|-----|----------|----|------|-----|----------|----|------|
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |



DESIGNED: MMM DATE: 2-11-2020  
 DRAWN: RWA DATE: 2-11-2020  
 CHECKED: MMB DATE: 8-18-2021  
 APPROVED: MMB DATE: 8-19-2021

**CC-111 (EISTER)**  
 JOHNSON COUNTY, IOWA

DAM SECTIONS

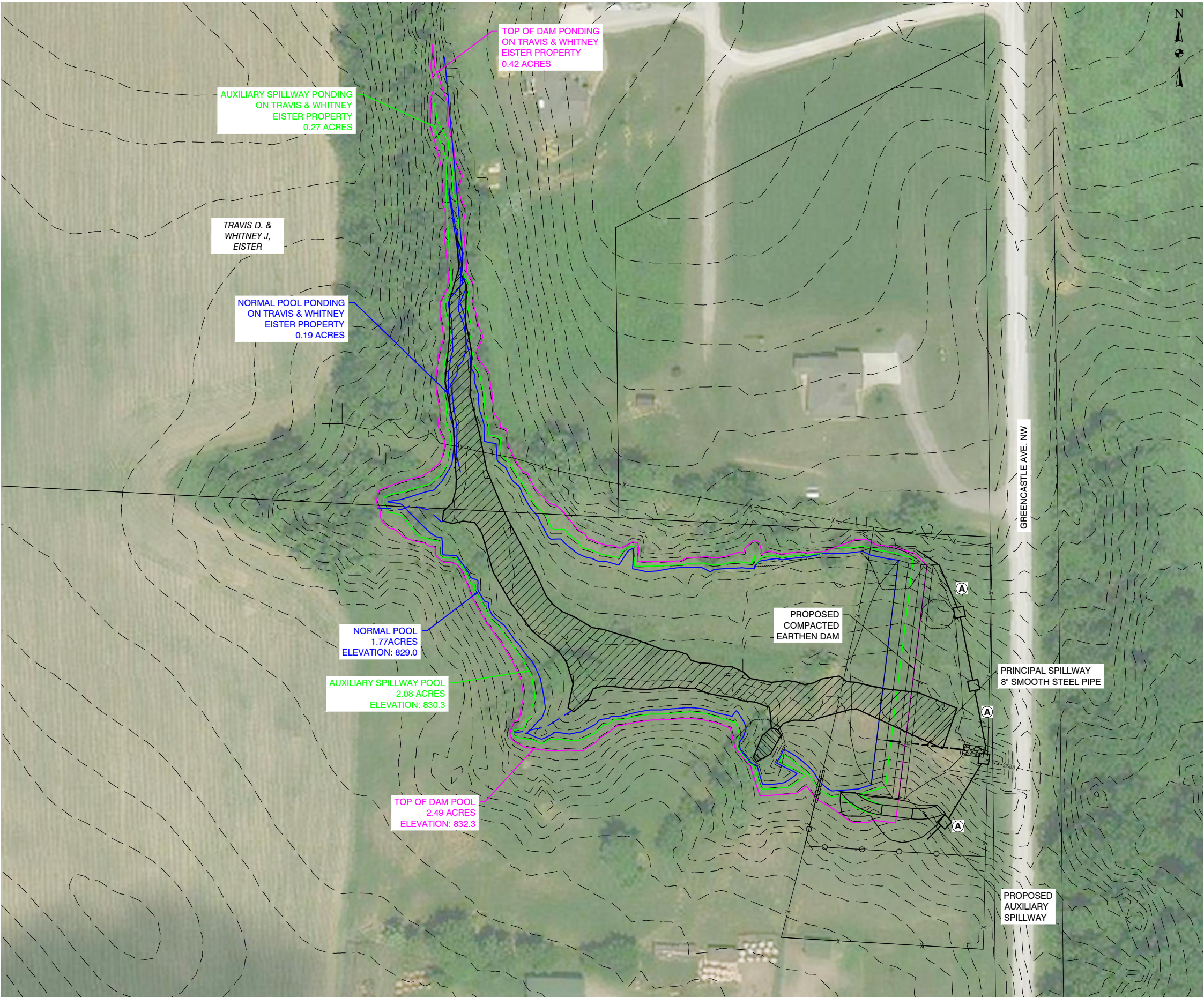
PROJECT NO.  
8725  
 SHEET NO.  
4











**POLLUTION PREVENTION PLAN NOTES**

1. A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) HAS BEEN DEVELOPED IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL GUIDELINES PER THE IA-DNR CONSTRUCTION PERMIT. ALL CONTRACTORS SHALL BE SUPPLIED A COPY OF THE SWPPP DOCUMENT AT THE BEGINNING OF CONSTRUCTION. A COPY OF THE SWPPP DOCUMENTS SHALL BE LOCATED WITH THE SWPPP MANAGER AT ALL TIMES. COPIES CAN ALSO BE FOUND AT 16 E MAIN STREET, MARSHALLTOWN, IA 50158. ALL CONTRACTORS/SUBCONTRACTORS SHALL CONDUCT THEIR OPERATIONS IN A MANNER THAT MINIMIZES EROSION AND PREVENTS SEDIMENTS AND NON EARTH DISTURBING POLLUTANTS FROM LEAVING THE SITE AS DESCRIBED IN THE SWPPP. THE PRIME CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE AND IMPLEMENTATION OF THE SWPPP FOR THEIR ENTIRE CONTRACT. THIS RESPONSIBILITY SHALL BE FURTHER SHARED WITH SUBCONTRACTORS WHOSE WORK IS A SOURCE OF POTENTIAL POLLUTION AS DEFINED IN THE SWPPP.
2. THIS SHEET IS NOT THE COMPLETE STORM WATER POLLUTION PREVENTION PLAN (SWPPP), BUT RATHER A PART OF THE SWPPP THAT IS TO BE UPDATED REGULARLY BY THE CONTRACTOR. IT IS THE PRIME CONTRACTORS RESPONSIBILITY TO UPDATE THE SWPPP PLAN AS NEEDED AS WELL AS CONDUCT ANY NECESSARY INSPECTIONS IN ACCORDANCE WITH THE IOWA DNR AND EPA GUIDELINES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING ANY DEFICIENCIES, CORRECTING THOSE DEFICIENCIES IMMEDIATELY AND DOCUMENTING SUCH WITH THE SWPPP. ALL EROSION CONTROL ITEMS SHALL BE REMOVED AT THE END OF THE PROJECT. THE SWPPP MANAGER SHALL UPDATE SITE PLAN WITH THE LOCATION OF THE 'POLLUTION PREVENTION PLAN LEGEND' ITEMS ONCE THE LOCATION OF THOSE CONTROLS IS ESTABLISHED. ANY ADDITIONAL CONTROLS THAT ARE USED BUT ARE NOT LISTED IN THE LEGEND SHALL BE CLEARLY IDENTIFIED ON THE PLANS.

**LEGEND:**

- Ⓐ INSTALL SILT FENCE (SEE IOWA SUDAS SPEC. FIG. 9040.119)

NOTE: ANY CONTROLS NOT SHOWN ON SWPPP SHALL BE LOCATED IN THE FIELD BY THE CONTRACTOR. ALL CHANGES AND ADDITIONAL CONTROLS INSTALLED SHALL BE UPDATED ON THE SWPPP SHEET.



| NO. | REVISION | BY | DATE | NO. | REVISION | BY | DATE |
|-----|----------|----|------|-----|----------|----|------|
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |



Clapsaddle-Garber Associates, Inc  
1523 S. Bell Ave. Suite 101  
Ames, Iowa 50010  
Ph 515-232-1794  
www.cgaconsultants.com

|               |                 |
|---------------|-----------------|
| DESIGNED: MMM | DATE: 2-11-2020 |
| DRAWN: RWA    | DATE: 2-11-2020 |
| CHECKED: MMB  | DATE: 8-18-2021 |
| APPROVED: MMB | DATE: 8-19-2021 |

CC-111 (EISTER)

JOHNSON COUNTY, IOWA

**STORM WATER POLLUTION PREVENTION PLAN**

|                     |
|---------------------|
| PROJECT NO.<br>8725 |
| SHEET NO.<br>7      |

J:\8725\_Eister\wpp\Sheets\CC-111\8725\_CC-111 (Eister) - 6.5-SWPPP.dwg - 7 - 09-09-21 - 6:35pm - JRA353



J:\8725\_Eister\WpsSheets\CC-111\8725\_CC-111 (Eister) - 7\_Obys.dwg - 8 - 09-10-21 - 10:22am - JRA353

| DESIGN DATA                    |                 |                  |
|--------------------------------|-----------------|------------------|
| DRAINAGE AREA = 28.3 ACRES     |                 |                  |
| SOIL TYPES                     | MAP UNIT SYMBOL | HYDROLOGIC GROUP |
| Fayette Silt Loam              | M163B           | C                |
| Chelsea-Fayette-Lamont Complex | 293E2           | A                |
| Downs Silt Loam                | M162B           | C                |
| Fayette Silt Loam              | M163C2          | C                |
| Chelsea-Fayette-Lamont Complex | 293C2           | A                |
| Nodaway-Arenzville Silt Loams  | M162B           | B                |

| Land Use    | Area (Ac) | RCN           |    |
|-------------|-----------|---------------|----|
| Row Crop    | 12.9      | 82            |    |
| Farmstead   | 2.6       | 74            |    |
| Pasture     | 2.0       | 61            |    |
| Woods/Grass | 5.3       | 54            |    |
| Farmstead   | 5.2       | 82            |    |
| Gravel Road | 0.2       | 89            |    |
|             |           | Weighted RCN: | 75 |

| SOIL DELIVERY |          |
|---------------|----------|
| Design Life   | 50 YEARS |
| Below Crest   | 2.41     |
| Above Crest   | 0.45     |

| STAGE-STORAGE |              |                  |                    |
|---------------|--------------|------------------|--------------------|
| ELEVATION     | AREA (ACRES) | INTERVAL (AC-FT) | CUMULATIVE (AC-FT) |
| 817.8         | 0.00         | 0.00             | 0.00               |
| 818.0         | 0.01         | 0.00             | 0.00               |
| 819.0         | 0.07         | 0.04             | 0.04               |
| 820.0         | 0.13         | 0.10             | 0.14               |
| 821.0         | 0.23         | 0.18             | 0.32               |
| 822.0         | 0.39         | 0.31             | 0.63               |
| 823.0         | 0.55         | 0.47             | 1.10               |
| 824.0         | 0.73         | 0.64             | 1.74               |
| 825.0         | 0.92         | 0.83             | 2.57               |
| 826.0         | 1.09         | 1.01             | 3.57               |
| 827.0         | 1.24         | 1.17             | 4.74               |
| 828.0         | 1.40         | 1.32             | 6.06               |
| 829.0         | 1.56         | 1.48             | 7.54               |
| 830.0         | 1.71         | 1.64             | 9.17               |
| 831.0         | 1.85         | 1.78             | 10.95              |
| 832.0         | 2.00         | 1.93             | 12.88              |
| 833.0         | 2.17         | 2.09             | 14.96              |
| 834.0         | 2.37         | 2.27             | 17.23              |
| 835.0         | 2.58         | 2.48             | 19.71              |

| CLASS OF STRUCTURE             |                             |                |
|--------------------------------|-----------------------------|----------------|
| PRINCIPAL SPILLWAY (PS) DESIGN |                             |                |
|                                | Low Hazard                  | Unit           |
|                                | Rainfall Frequency          | 10<br>Year     |
|                                | Rainfall / 24 Hours         | 3.75<br>Inches |
|                                | Peak Inflow                 | 44.62<br>CFS   |
|                                | Normal Pool Elevation       | 829.00<br>Feet |
|                                | Max Water Surface Elevation | 831.10<br>Feet |
|                                | Max Outflow                 | 3.89<br>CFS    |

| CLASS OF STRUCTURE             |                              |                                     |
|--------------------------------|------------------------------|-------------------------------------|
| AUXILIARY SPILLWAY (AS) DESIGN |                              |                                     |
|                                | Low Hazard                   | Unit                                |
|                                | Rainfall Frequency           | 50<br>Year                          |
|                                | Rainfall / 24 Hours          | 5.44<br>Inches                      |
|                                | Peak Inflow                  | 85.91<br>CFS                        |
|                                | Auxiliary Spillway Elevation | 830.30<br>Feet                      |
|                                | Max Water Surface Elevation  | 832.30<br>Feet                      |
|                                | Max Outflow                  | 4.02 (PS) + 2.98 (AS) = 7.00<br>CFS |

| SURFACE AREA |                       |               |
|--------------|-----------------------|---------------|
|              | At Normal Pool        | 1.77<br>Acres |
|              | At Auxillary Spillway | 2.08<br>Acres |
|              | At Top of Dam         | 2.49<br>Acres |

| TOTAL CAPACITY |                       |                |
|----------------|-----------------------|----------------|
|                | At Normal Pool        | 7.54<br>Ac-Ft  |
|                | At Auxillary Spillway | 9.69<br>Ac-Ft  |
|                | At Top of Dam         | 13.48<br>Ac-Ft |

| ELEVATIONS |                             |               |
|------------|-----------------------------|---------------|
|            | At Normal Pool              | 829.0<br>Feet |
|            | At Auxillary Spillway       | 830.3<br>Feet |
|            | At Top of Dam (Settled)     | 832.3<br>Feet |
|            | At Top of Dam (Constructed) | 833.0<br>Feet |

| CC-111 QUANTITIES OF WORK               |               |                   |
|---|---------------|-------------------|
| Description                             | Plan Quantity | As-Built Quantity |
| Clearing & Grubbing                     | 0.1 AC        |                   |
| Topsoil Strip, Salvage, & Spread        | 420 CY        |                   |
| Excavation, Core Trench                 | 960 CY        |                   |
| Earthfill                               | 5,250 CY      |                   |
| Smooth Steel Pipe, 8"                   | 78 LF         |                   |
| *Anti-Seep Collar, 72"x72"              | 3 EA          |                   |
| *Canopy Inlet Trash Rack                | 1 EA          |                   |
| Farm Field Fence, 3 Barb & 1 Hot Wire   | 252 LF        |                   |
| Farm Gate, 16'                          | 2 EA          |                   |
| Cattle Panel                            | 32 LF         |                   |
| Fertilizing, Seeding, & Mulching Type I | 1 LS          |                   |
| Revetment Stone, Class D                | 30 Tons       |                   |
| Mobilization                            | 1 LS          |                   |
| * = Not a Bid Item                      |               |                   |

NOTES:  
1. DAM STRUCTURE SHALL BE SEEDED WITH TYPE I SEED MIX.

| NO. | REVISION | BY | DATE | NO. | REVISION | BY | DATE |
|-----|----------|----|------|-----|----------|----|------|
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |
|     |          |    |      |     |          |    |      |



Clapsaddle-Garber Associates, Inc  
1523 S. Bell Ave. Suite 101  
Ames, Iowa 50010  
Ph 515-282-1784  
www.cgaconsultants.com

|                      |                        |
|----------------------|------------------------|
| DESIGNED: <u>MMM</u> | DATE: <u>2-11-2020</u> |
| DRAWN: <u>RWA</u>    | DATE: <u>2-11-2020</u> |
| CHECKED: <u>MMB</u>  | DATE: <u>8-18-2021</u> |
| APPROVED: <u>MMB</u> | DATE: <u>8-19-2021</u> |

CC-111 (EISTER)

JOHNSON COUNTY, IOWA

QUANTITIES & DESIGN DATA

|                     |
|---------------------|
| PROJECT NO.<br>8725 |
| SHEET NO.<br>8      |