

Iowa Department of Natural Resources
Construction Document

Stair Fabrication and Installation

for

Maquoketa Caves State Park

Jackson County, IA
Project #21-06-49-03

Plans prepared by
Land and Waters Bureau
Conservation and Recreation Division

| | | | |
|--------------------------------|-------|--|-------|
| AUTHORIZATION TO BID | | | |
| | | | |
| _____ | _____ | _____ | _____ |
| BUREAU CHIEF - LAND AND WATERS | DATE | PARKS WILDLIFE FISHERIES LAW ENFORCEMENT | DATE |

| | | | |
|----------------|--------------------------------------|----------------|--------------------------------------|
| DIRECTORY | | | |
| Architect | | DNR Inspector | |
| COMPANY | Iowa Department of Natural Resources | COMPANY | Iowa Department of Natural Resources |
| ADDRESS | 502 E 9th Street | ADDRESS | - |
| CITY,STATE,ZIP | Des Moines, IA 50319 | CITY,STATE,ZIP | Cedar Rapids, IA |
| CONTACT | Ryan Richey | CONTACT | Mike Dufoe |
| TELEPHONE | 515-979-0107 | TELEPHONE | 515-985-9196 |
| FAX | - | FAX | - |
| EMAIL | ryan.richey@dnr.iowa.gov | EMAIL | michael.dufoe@dnr.iowa.gov |

THE STAIRS AT MIDDLE DANCE HALL CAVE HAVE BEEN DETERIORATING FOR SOME TIME AND IN NEED OF REPLACEMENT. IOWA PRISON INDUSTRIES FABRICATED A NEW SET OF STAIRS FOR THIS AREA AND THE CONTRACTOR SHALL DEMOLISH THE EXISTING STAIRS AND INSTALL THESE NEW STAIRS. AT TWIN ARCHES TRAIL, THE STAIRS WERE DAMAGE BY A TREE IN 2019 AND WILL BE DEMOLISHED AND A NEW SET OF STAIRS FABRICATED AND INSTALLED BY THE CONTRACTOR.



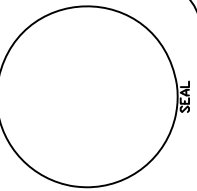
I hereby certify that this architectural document was prepared by me or under my direct personal supervision and that I am a duly Registered Professional Architect under the laws of the State of Iowa.

RYAN E. RICHEY _____ DATE _____

My license renewal date is June 30, 2023.

Pages or sheets covered by this seal:

A-001 - A-105



IOWA DEPARTMENT OF
NATURAL RESOURCES
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034
P: 515.725.8200
F: 515.725.8202



| SHEET INDEX | |
|-------------|-----------------------------------|
| SHEET. NO. | SHEET TITLE |
| | ARCHITECTURAL |
| A-001 | COVER SHEET |
| A-002 | PROJECT LOCATION |
| A-003 | PROJECT NARRATIVE & NOTES |
| A-050 | PHOTO - EXISTING STAIR CONDITIONS |
| A-051 | PHOTO - EXISTING STAIR CONDITIONS |
| A-052 | PHOTO - EXISTING STAIR CONDITIONS |
| A-100 | DRAWINGS - STAIR FABRICATION |
| A-101 | DRAWINGS - STAIR FABRICATION |
| A-102 | DRAWINGS - STAIR FABRICATION |
| A-103 | DRAWINGS - STAIR FABRICATION |
| A-104 | DRAWINGS - STAIR FABRICATION |
| A-105 | DRAWINGS - STAIR FABRICATION |

| BID ITEMS | | |
|-----------|--|-------------|
| ITEM # | ITEM DESCRIPTION | ITEM NUMBER |
| 1 | Stair Demolition, Cleaning, and Painting | 2 Each |
| 2 | Middle Dance Hall Stair Install | Lump Sum |
| 3 | Twin Arches Stair Fabrication | Lump Sum |
| 4 | Twin Arches Stair Installation | Lump Sum |
| 5 | Treated Posts, Rails, Treads, and Risers | Lump Sum |
| 6 | Hardware and Accessory Items | Lump Sum |
| 7 | Mobilization | Lump Sum |

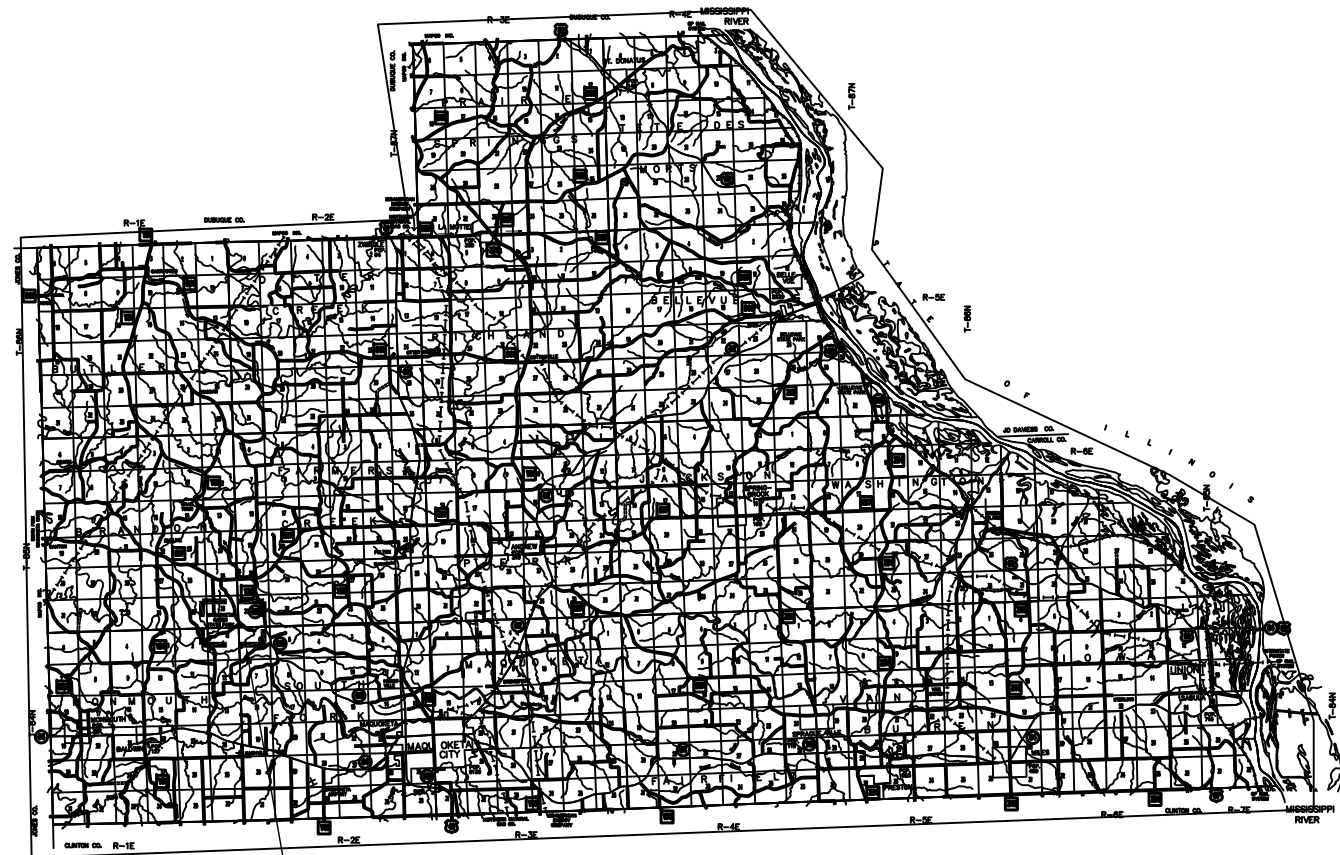
Stair Fabrication and Install for:
Maquoketa Caves State Park
 9688 Caves Road
 Maquoketa, IA 52060

DRAWN BY: PROJECT NUMBER:
21-06-49-03

DATE: 03.02.2022

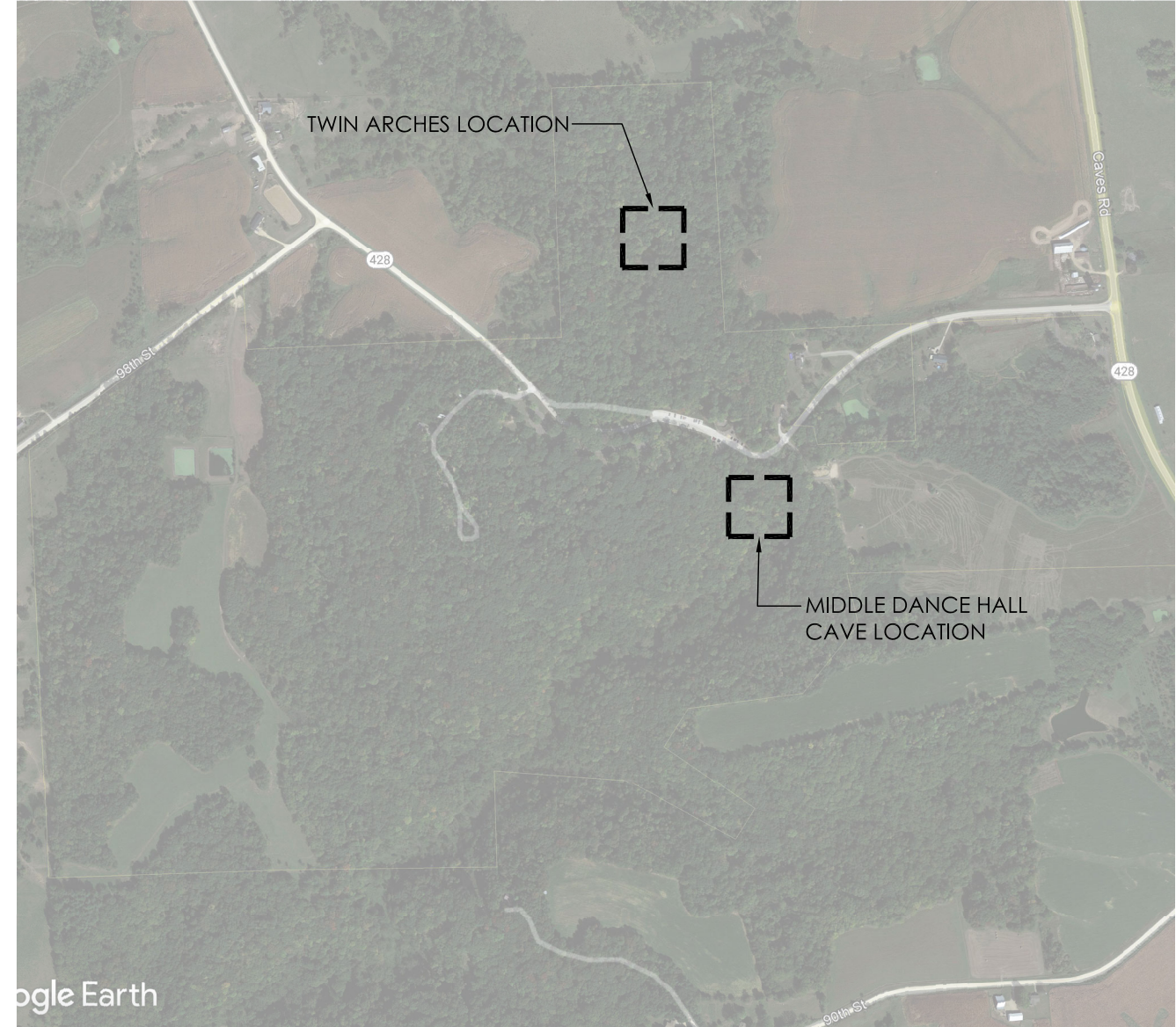
SHEET No:

A-001



PROJECT LOCATION

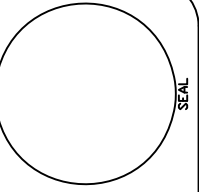
02 JACKSON COUNTY – MAQUOKETA CAVES STATE PARK
SCALE: NTS



Google Earth

STAGING AREA TO BE DETERMINED BY DNR STAFF, INSPECTOR, AND CONTRACTOR AT PRE-CONSTRUCTION MEETING. ALL WORK ZONE AREAS TO BE CORDONED OFF WITH SNOW-FENCE TO PROTECT PARK PATRONS. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THEIR EQUIPMENT AND MATERIALS AND SHALL SECURE THE AREA FROM VANDALISM AND THEFT.

01 MAQUOKETA CAVES STATE PARK – PROJECT LOCATIONS
SCALE: NTS



**IOWA DEPARTMENT OF
NATURAL RESOURCES**
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034
P: 515.725.8200
F: 515.725.8202



Stair Fabrication and Install for:
Maquoketa Caves State Park

9688 Caves Road Maquoketa, IA 52060

| | |
|-----------|-----------------|
| DRAWN BY: | PROJECT NUMBER: |
| CHK'D BY: | DATE: |
| SHEET No: | |

A-002

GENERAL CONSTRUCTION NOTES

VERIFY ACTUAL LOCATIONS AND ELEVATIONS WITH DNR ENGINEER.

ALL WORK SHALL CONFORM TO AND BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE CODES AND ORDINANCES.

THE CONTRACTOR SHALL VISIT THE SITE AND INSPECT THE PROJECT AREA AND THOROUGHLY FAMILIARIZE THEMSELVES WITH THE ACTUAL JOB CONDITIONS PRIOR TO BIDDING AND THE START OF WORK. FAILURE TO VISIT THE PROJECT SITE SHALL NOT RELIEVE THE CONTRACTOR FROM PERFORMING THE WORK IN ACCORDANCE TO THE PLANS, SPECIFICATION, SPECIAL PROVISIONS AND CONTRACT.

THE CONTRACTOR SHALL VERIFY, AT THE SITE, ALL DIMENSIONS AND CONDITIONS SHOWN ON THE PLANS AND SHALL NOTIFY THE DNR ENGINEER OF ANY DISCREPANCIES, OMISSIONS, AND/OR CONFLICTS PRIOR TO PROCEEDING WITH THE WORK.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE WASTE AREAS OR DISPOSAL SITES FOR EXCESS MATERIAL (EXCAVATED MATERIAL OR BROKEN CONCRETE) WHICH IS NOT DESIRABLE TO BE INCORPORATED INTO THE WORK INVOLVED ON THIS PROJECT. NO PAYMENT FOR OVERHAUL WILL BE ALLOWED FOR MATERIAL HAULED TO THESE SITES. NO MATERIAL SHALL BE PLACED WITHIN THE RIGHT-OF-WAY, UNLESS SPECIFICALLY STATED IN THE PLANS OR APPROVED BY THE DNR ENGINEER.

THE CONTRACTOR SHALL NOT DISTURB DESIRABLE GRASS AREAS AND DESIRABLE TREES OUTSIDE THE CONSTRUCTION LIMITS. THE CONTRACTOR WILL NOT BE PERMITTED TO PARK OR SERVICE VEHICLES AND EQUIPMENT OR USE THESE AREAS FOR STORAGE OF MATERIALS. STORAGE, PARKING AND SERVICE AREAS WILL BE SUBJECT TO THE APPROVAL OF THE DNR ENGINEER.

WHERE UTILITIES AND FIXTURES ARE SHOWN AS EXISTING ON THE PLANS OR ENCOUNTERED WITHIN THE CONSTRUCTION AREA, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE DNR ENGINEER OF THOSE UTILITIES PRIOR TO THE BEGINNING OF ANY CONSTRUCTION. THE CONTRACTOR SHALL BE AFFORDED ACCESS TO THESE FACILITIES FOR NECESSARY MODIFICATION OF SERVICES. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS AND THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS PRESENTLY NOT KNOWN OR SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND TO AVOID DAMAGE THERETO. NO CLAIMS FOR ADDITIONAL COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR ANY INTERFERENCE OR DELAY CAUSED BY SUCH WORK.

THE CONTRACTOR SHALL SHAPE GRADED AREA TO MAINTAIN SURFACE DRAINAGE. ALL ELEVATIONS ARE TO FINISH GRADE.

THE CONTRACTOR IS EXPECTED TO HAVE MATERIALS, EQUIPMENT, AND LABOR AVAILABLE ON A DAILY BASIS TO INSTALL AND MAINTAIN EROSION CONTROL FEATURES ON THE PROJECT. THIS MAY INVOLVE SEEDING, SILT FENCE, ROCK DITCH CHECKS, SILT BASINS OR SILT DIKES.

KEYNOTES

- EXISTING 2X6 TREAD AND RISER LUMBER. CAREFULLY REMOVE ALL LUMBER AND STOCKPILE IN AREA DESIGNATED BY DNR INSPECTOR.
- EXISTING 4X4 AND 2X HANDRAIL LUMBER. CAREFULLY REMOVE ALL LUMBER AND STOCKPILE IN AREA DESIGNATED BY DNR INSPECTOR.
- EXISTING STEEL REBAR TO REMAIN IN PLACE. CLEAN AND PREP FOR INSTALL OF NEW WELDABLE BAR COUPLERS AND INSTALL OF NEW STEEL BOX STAIRS.
- NEW STEEL BOX STAIRS. INSTALL PER INSTRUCTIONS IN PROJECT NARRATIVE. TWIN ARCHES STAIR TO BE DESIGNED AND FABRICATED BY CONTRACTOR, SUBMIT SHOP DRAWINGS TO DNR ARCHITECT FOR APPROVAL.
- NEW STEEL BOX LANDING. INSTALL PER INSTRUCTIONS IN PROJECT NARRATIVE. TWIN ARCHES STAIR LANDINGS, WHERE REQUIRED, TO BE DESIGNED AND FABRICATED BY CONTRACTOR, SUBMIT SHOP DRAWINGS TO DNR ARCHITECT FOR APPROVAL.

PROJECT NARRATIVE

THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL ITEMS WITHIN THIS NARRATIVE, THE DRAWINGS, AND PROJECT MANUAL UNLESS SPECIFICALLY NOTED OTHERWISE. THIS NARRATIVE IS NOT MEANT TO BE A COMPREHENSIVE ACCOUNT OF ALL ITEMS TO BE COVERED BY THE CONTRACT, REVIEW ALL DOCUMENTS. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL DIMENSIONS AND ESTABLISHING ALL QUANTITIES THAT ARE DICTATED AS "LUMP SUM".

THIS PROJECT, FOR MAQUOKETA CAVES STATE PARK – STAIR FABRICATION AND INSTALLATION, SHALL COMMENCE WHEN ALL CONTRACTS ARE EXECUTED AND IN PLACE. STAIR FABRICATION AND INSTALLATION FOR BOTH STAIRS SHALL BE COMPLETED NO LATER THAN SEPTEMBER 30, 2022.

THE CONTRACTOR SHALL DEMOLISH THE EXISTING STAIR SYSTEMS, AT BOTH LOCATIONS (MIDDLE DANCE HALL CAVE AND TWIN ARCHES TRAIL). THIS SHALL BE ACCOMPLISHED BY DECONSTRUCTING EACH PART OF THE STRUCTURE. THE OLD METAL SUB FRAME OF THESE STAIRS IS COMPRISED OF 3" CHANNEL IRON AND OTHER LATERAL SUPPORT ANGLE IRON, WHICH HAS BEEN CUSTOM FIT TO EACH STEP AND WELDED TOGETHER. THESE METAL SUB FRAMES WILL NEED TO BE REMOVED WITHOUT CAUSING EXTENSIVE DAMAGE TO THE REBAR SUPPORTS. EACH STEP IS SUPPORTED BY MULTIPLE REBAR SUPPORTS WHICH HAVE BEEN DRIVEN DOWN TO AND INTO BEDROCK AND SHALL REMAIN IN PLACE AND PREPARED FOR INSTALLATION OF NEW STAIR STRUCTURES. CONTRACTOR SHALL WIRE-BRUSH REBAR TO REMOVE CORROSION AND PAINT WITH EXTERIOR EPOXY PAINT. ALL WOOD HAND RAILS, NEWEL POSTS, WOOD TREADS, AND RISER BOARDS SHALL BE SALVAGED AND REMAIN PROPERTY OF IOWA DNR. ALL DEMOLISHED METAL MATERIALS WILL BECOME PROPERTY OF THE CONTRACTOR.

THE CONTRACTOR SHALL FIRST INSTALL THE IPI FABRICATED SECTION OF STAIRS AT MIDDLE DANCE HALL CAVE CONSISTING OF 32 STEPS AND 1 LANDING WITHIN THE SAME FOOTPRINT. MATERIALS HAVE BEEN MANUFACTURED SPECIFICALLY FOR THIS PROJECT AND MUST BE INSTALLED ON SITE.

THE CONTRACTOR SHALL PREP THE AREA AND INSTALL THE STAIR SECTIONS IN THE FOLLOWING MANNER, INSTALLATION OF A WELDABLE BAR LOCK COUPLERS, OF THE SAME SIZE AS THE REBAR, TO EACH SUPPORT ROD, PREFABRICATED METAL SUB FRAMES BE ASSEMBLED FOR EACH INDIVIDUAL STEP USING PROVIDED STAINLESS STEEL HARDWARE, INDIVIDUAL STEP MOUNTED TO COUPLER AND THEN WELDED BY CERTIFIED WELDER, AND WELDS AND DRILL HOLES SHALL BE TREATED WITH EXTERIOR GRADE METAL PROTECTIVE PAINT. THIS PROCESS WILL BE REPEATED FOR ALL 32 STEPS, THEN REPEATED FOR THE 56 STEPS AT TWIN ARCHES.

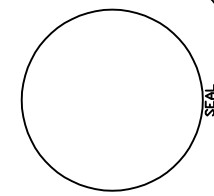
THE TWIN ARCHES STAIR WHICH WAS DAMAGED BY A TREE WILL HAVE A NEW STEEL STRUCTURE IN THE ORIGINAL LOCATION FOR A NEW STAIR. THIS NEW STAIR WILL FOLLOW THE EXISTING STAIR PATH AND SHALL MATCH THE DESIGN OF THE MIDDLE DANCE HALL CAVE STAIR WHICH WAS FABRICATED BY IOWA PRISON INDUSTRIES. SEE ATTACHED DESIGN OF MIDDLE DANCE HALL CAVE STAIR FOR MORE INFORMATION, SHEETS A-100 – A-105.

THE EXISTING STAIRWAY HAS 56 STAIRS AND THE NEW STAIR SECTIONS SHALL BE DESIGNED AND BUILT TO MATCH THE EXISTING CONFIGURATION. THESE STAIR SECTIONS SHALL BE MADE OF 7GA STEEL CHANNELS WITH SLOTTED HOLES FOR EASE OF INSTALLATION, AND ANGLES, AND 14GA STEEL TUBES, AS SHOWN ON THE ORIGINAL DESIGN DOCUMENTS FOR MIDDLE DANCE HALL CAVE. THE LENGTH AND SIZES OF CHANNELS, TUBES, AND ANGLES SHALL VARY BASED ON EACH TREAD AND LANDING REQUIREMENT, AND SHALL BE DESIGNED AND DETERMINED BY CONTRACTOR. CONTRACTOR SHALL POWDER COAT ALL STEEL STAIR PIECES SATIN BLACK. CONTRACTOR SHALL PROVIDE 316 STAINLESS COLLAR CLAMPS, ANGLES, BOLTS, NUTS, WASHERS, AND ALL ASSOCIATED HARDWARE AT EACH REBAR LOCATION FOR INSTALLATION WELDING, ALL HARDWARE TO MATCH THE PROVIDED MIDDLE DANCE HALL CAVE HARDWARE. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL BY THE IOWA DNR PRIOR TO COMMENCING FABRICATION. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DESIGN AND FABRICATION AND SHALL USE EXISTING PHOTOS AND SURVEY FOR REFERENCE. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING ALL MEASUREMENTS AND QUANTITIES.

ALL RISERS AND TREADS ON BOTH SETS OF STAIRS SHALL BE #1, GROUND CONTACT TREATED, 2X6 WOODEN BOARDS. THESE RISERS AND TREADS SHALL BE PRE-DRILLED AND COUNTERSUNK FOR INSTALL WITH #10 SELF-TAPPING 3" 316 STAINLESS STEEL DECK SCREWS, SIX (6) PER BOARD, TWO (2) ON EACH END AND TWO (2) MID-SPAN AT SUPPORT STEEL LOCATION, LEAVING $\frac{3}{16}$ " GAP BETWEEN EACH BOARD. THE NEW HAND RAILS AND NEWEL POSTS, SHALL BE REINSTALLED IN A SIMILAR CONFIGURATION TO THE ORIGINAL STAIR. CONTRACTOR SHALL PROVIDE #1 GROUND CONTACT TREATED WOOD POSTS OF SIMILAR LENGTH AND DIMENSION. ALL HARDWARE SHALL BE REPLACED WITH 316 STAINLESS BOLTS, NUTS, AND WASHERS (NOT PROVIDED) OF THE SAME SIZE AND LENGTH AS THE ORIGINAL BOLTS.

A SURVEY WAS CONDUCTED, FOR TWIN ARCHES, ON JUNE 17TH, 2021 AND SHALL BE PROVIDED TO ALL INTERESTED PARTIES IN A .DWG, .DXF, AND .DGN FILE FORMAT. THIS FILE SHOWS EXISTING STAIR TREAD LOCATIONS, DEPTH, RISER LOCATION, HEIGHT, AND REBAR SUPPORT LOCATIONS AND CAN BE USED BY THE CONTRACTOR FOR ASSISTANCE DURING FABRICATION.

THE LOCATION OF THE STAIRS ARE IN VERY DIFFICULT TERRAIN. SMALL OFF-ROAD VEHICLES CAN ACCESS TWIN ARCHES BUT MIDDLE DANCE HALL CAVE IS ONLY ACCESSIBLE BY FOOT. CONTRACTOR WILL NEED PORTABLE TOOLS FOR INSTALL.



IOWA DEPARTMENT OF
NATURAL RESOURCES
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034
P: 515.725.8200
F: 515.725.8202



Stair Fabrication and Install for:
Maquoketa Caves State Park
9688 Caves Road
Maquoketa, IA 52060

| | |
|-----------|-----------------|
| DRAWN BY: | PROJECT NUMBER: |
| CHK'D BY: | DATE: |
| | 03.02.2022 |

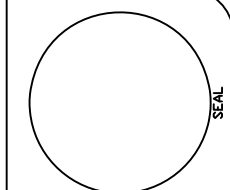
SHEET No
A-003



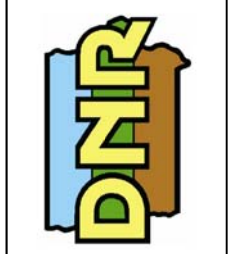
02 PHOTO – OVERALL MIDDLE DANCE HALL STAIR
SCALE: NTS



01 PHOTO – CLOSE-UP MIDDLE DANCE HALL STAIR
SCALE: NTS



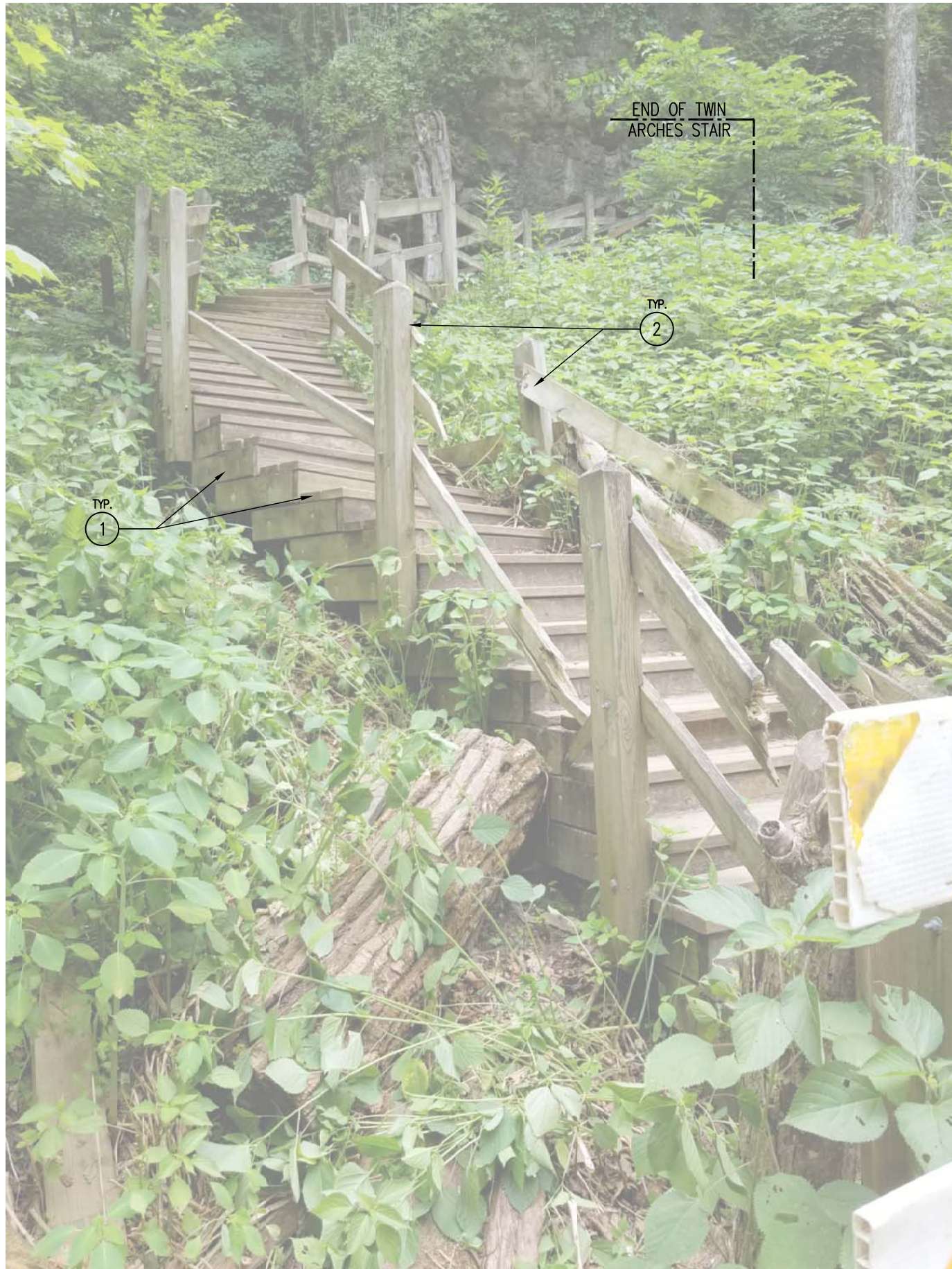
IOWA DEPARTMENT OF
NATURAL RESOURCES
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034
P: 515.725.8200
F: 515.725.8202



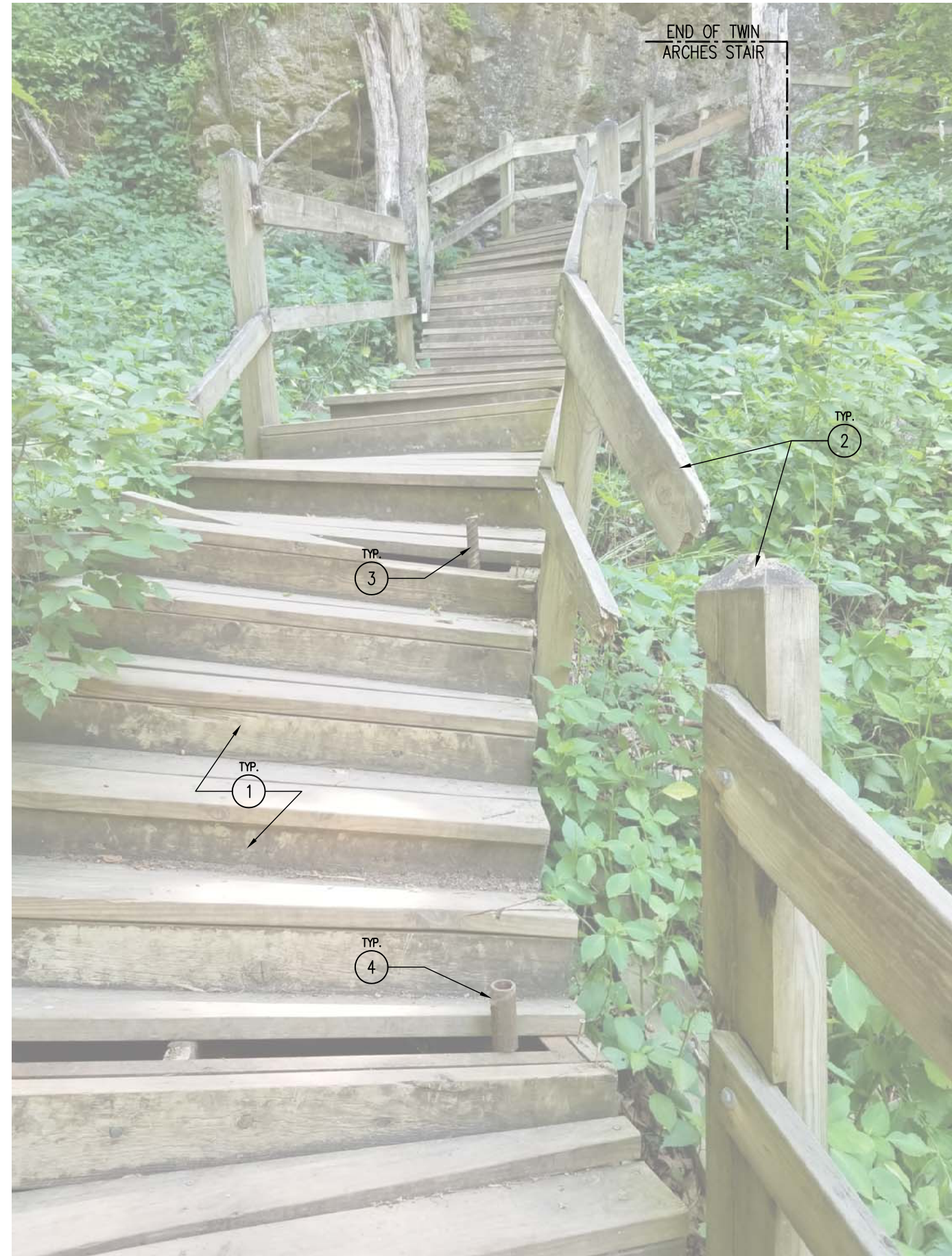
Stair Fabrication and Install for:
Maquoketa Caves State Park
9688 Caves Road
Maquoketa, IA 52060

| | |
|-----------|-----------------|
| DRAWN BY: | PROJECT NUMBER: |
| DATE: | 21-06-49-03 |
| DATE: | 03.02.2022 |

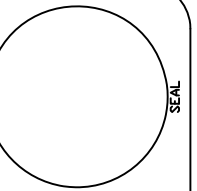
SHEET No. **A-050**



02 PHOTO – OVERALL TWIN ARCHES STAIR
SCALE: NTS



01 PHOTO – DAMAGE TO TWIN ARCHES STAIR
SCALE: NTS



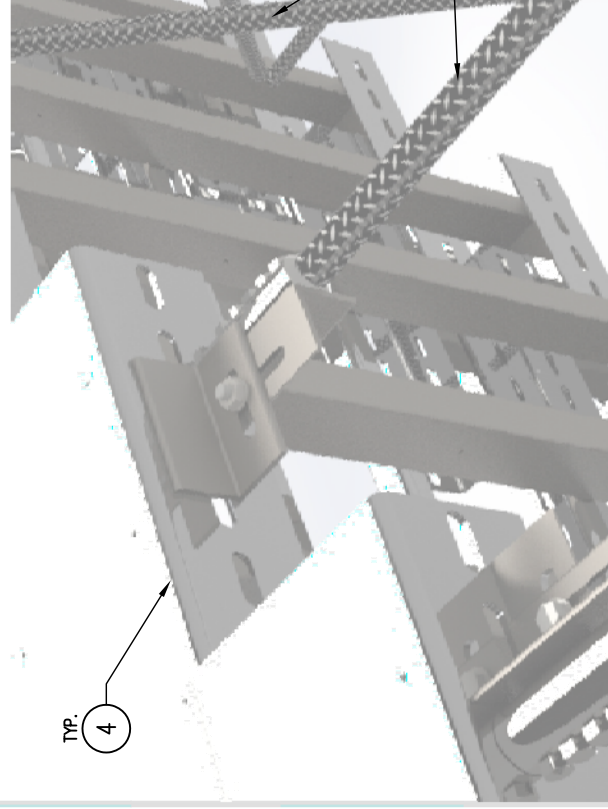
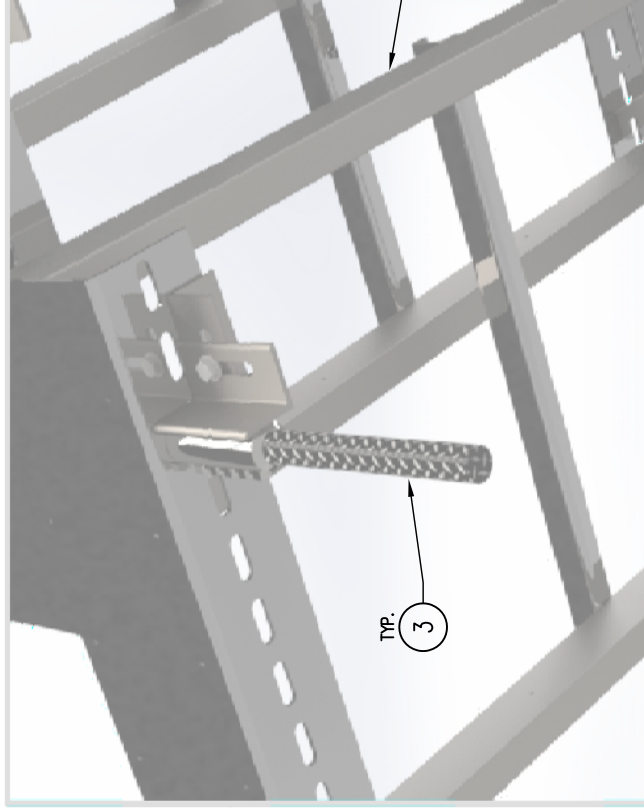
IOWA DEPARTMENT OF
NATURAL RESOURCES
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034
P: 515.725.8200
F: 515.725.8202



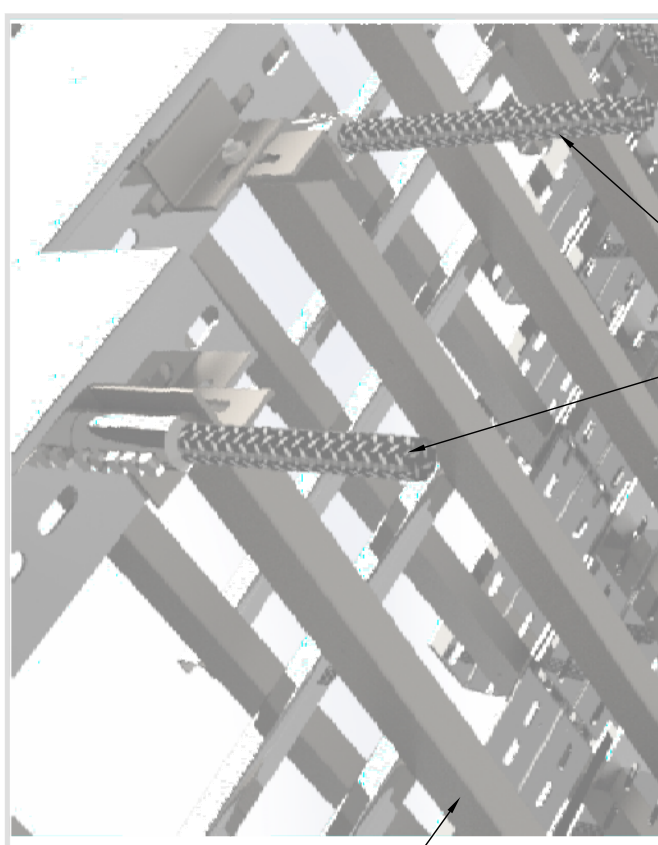
Stair Fabrication and Install for:
Maquoketa Caves State Park
9688 Caves Road
Maquoketa, IA 52060

| | |
|-----------|-----------------|
| DRAWN BY: | PROJECT NUMBER: |
| DATE: | 21-06-49-03 |
| DATE: | 03.02.2022 |

SHEET No: **A-051**

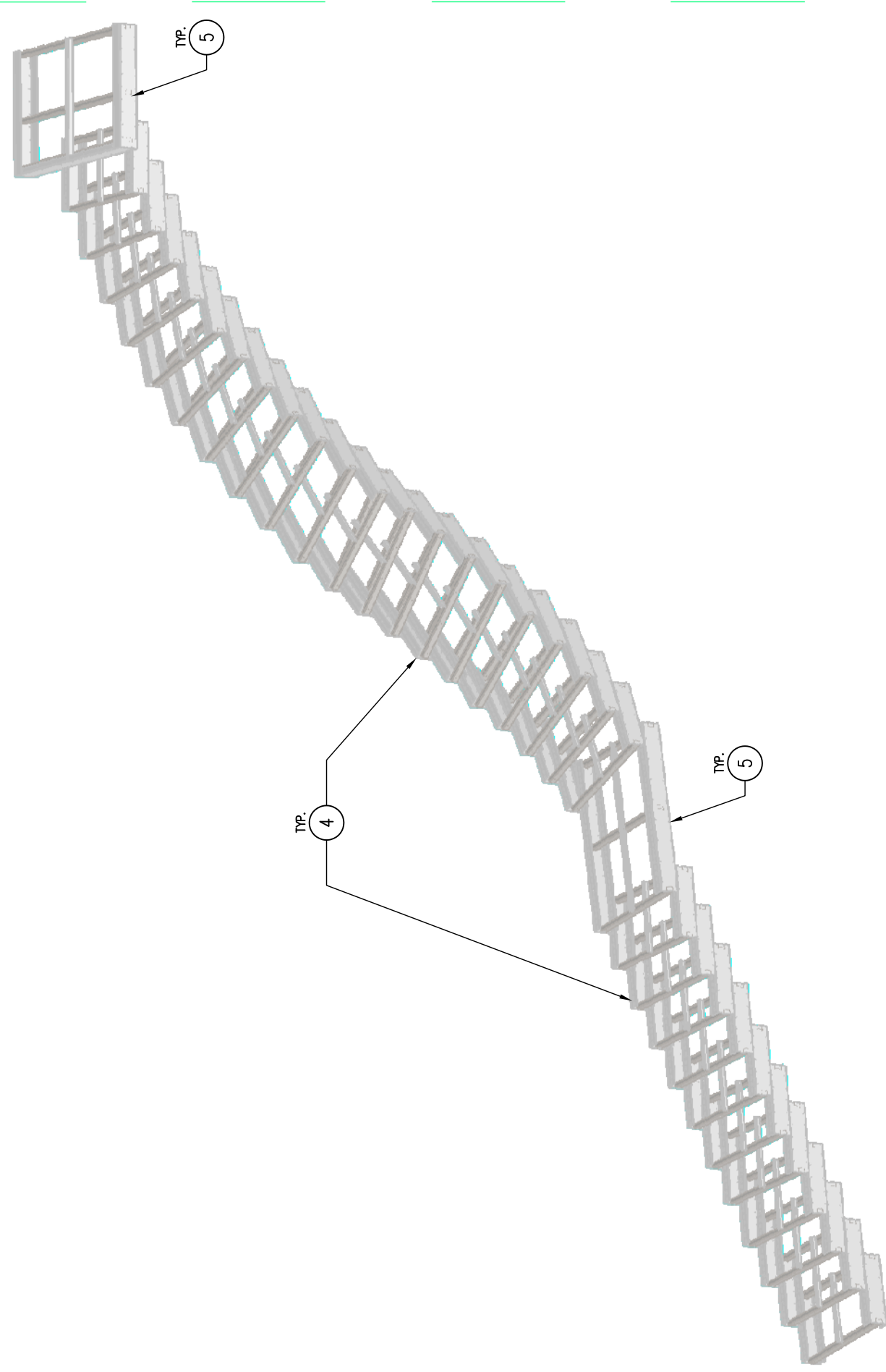


Detailed rendering showing coupler attach plate being welded to stair frame assembly



02 DETAIL DRAWINGS – MIDDLE DANCE HALL STAIR

SCALE: NTS



01 OVERALL DRAWINGS – MIDDLE DANCE HALL STAIR

SCALE: NTS

Stair Fabrication and Install for:
Maquoketa Caves State Park

9688 Caves Road

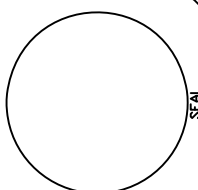
Maquoketa, IA 52060

| | |
|-----------|-----------------|
| DRAWN BY: | PROJECT NUMBER: |
| CHK'D BY: | DATE: |
| SHEET No: | |

A-100



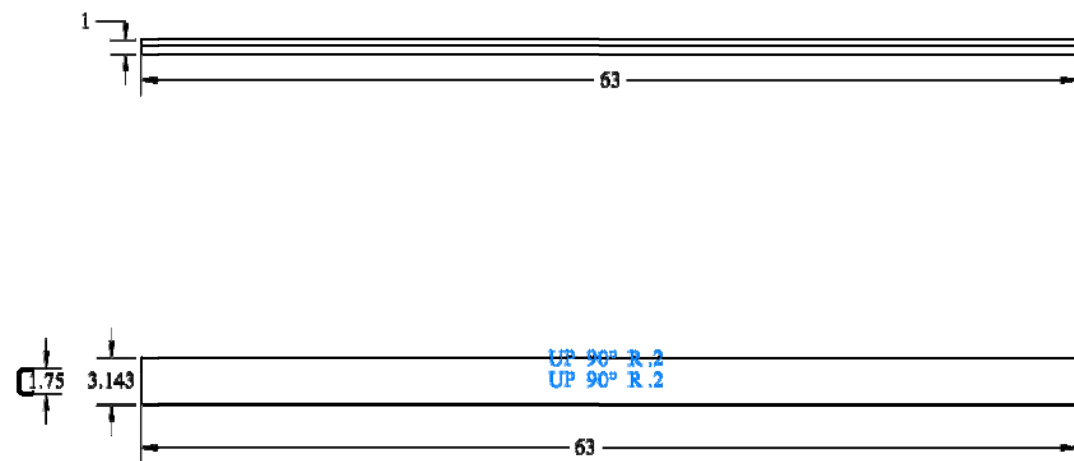
IOWA DEPARTMENT OF
NATURAL RESOURCES
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034
P: 515.725.8200
F: 515.725.8202



SEAL

| ITEM NO. | QTY. | PART NUMBER | GID | DESCRIPTION | Dim1 | Dim2 | Initials |
|----------|------|-------------------------------|------------|---------------------|------|---------|----------|
| 1 | 1 | treadCenterRailChannelLanding | RHSHEET7GA | SHEET 7 GAUGE STEEL | 63 | 3.14278 | |

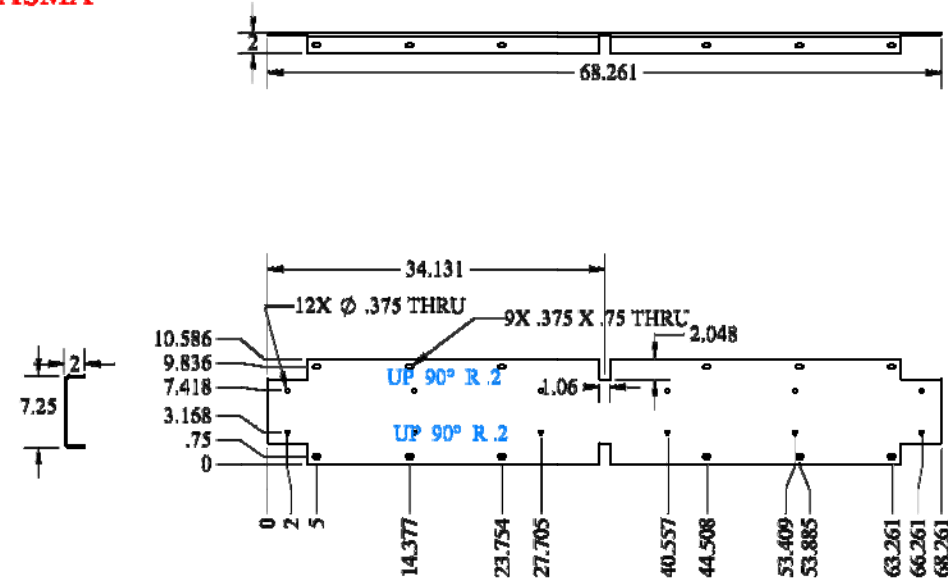
PLASMA



04 DRAWING – STAIR FABRICATION
SCALE: NTS

| ITEM NO. | QTY. | PART NUMBER | GID | DESCRIPTION | Dim1 | Dim2 | Initials |
|----------|------|------------------------------|------------|---------------------|--------|---------|----------|
| 1 | 1 | treadRailChannelLandingFront | RHSHEET7GA | SHEET 7 GAUGE STEEL | 68.261 | 10.3884 | |

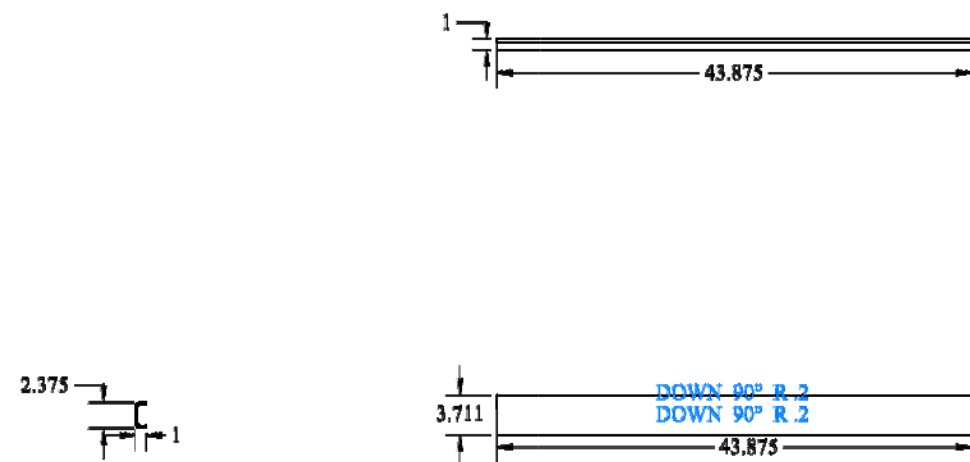
PLASMA



03 DRAWING – STAIR FABRICATION
SCALE: NTS

| ITEM NO. | QTY. | PART NUMBER | GID | DESCRIPTION | Dim1 | Dim2 | Initials |
|----------|------|-------------------------------|------------|---------------------|--------|------|----------|
| 1 | 1 | treadCenterRailChannelLanding | RHSHEET7GA | SHEET 7 GAUGE STEEL | 43.875 | 1.8 | |

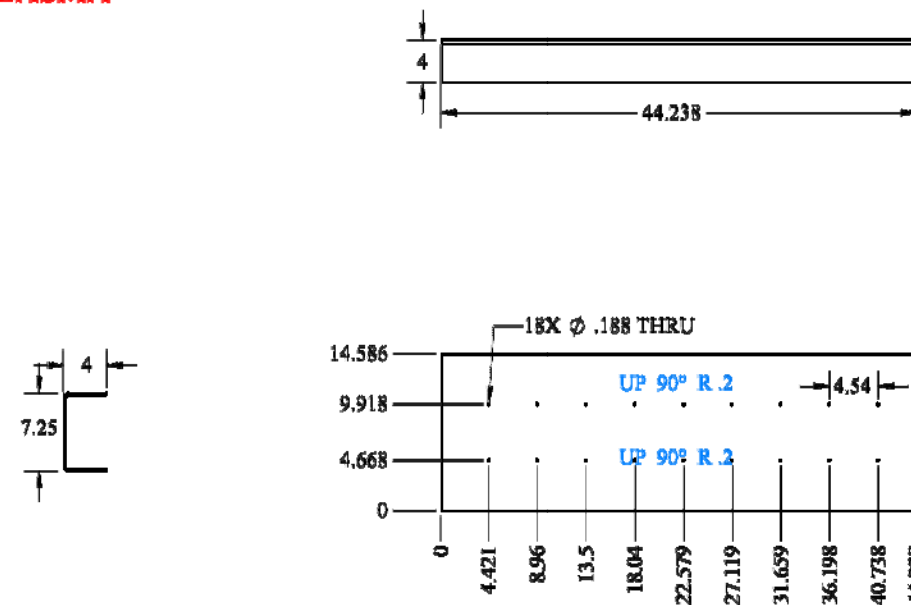
PLASMA



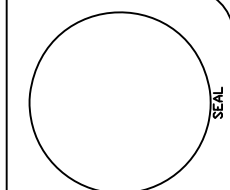
02 DRAWING – STAIR FABRICATION
SCALE: NTS

| ITEM NO. | QTY. | PART NUMBER | GID | DESCRIPTION | Dim1 | Dim2 | Initials |
|----------|------|-------------------------|------------|---------------------|--------|---------|----------|
| 1 | 2 | treadRailChannelLanding | RHSHEET7GA | SHEET 7 GAUGE STEEL | 44.238 | 14.8884 | |

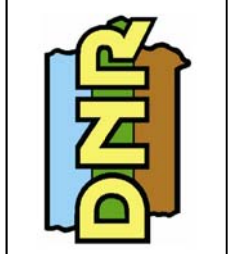
PLASMA



01 DRAWING – STAIR FABRICATION
SCALE: NTS



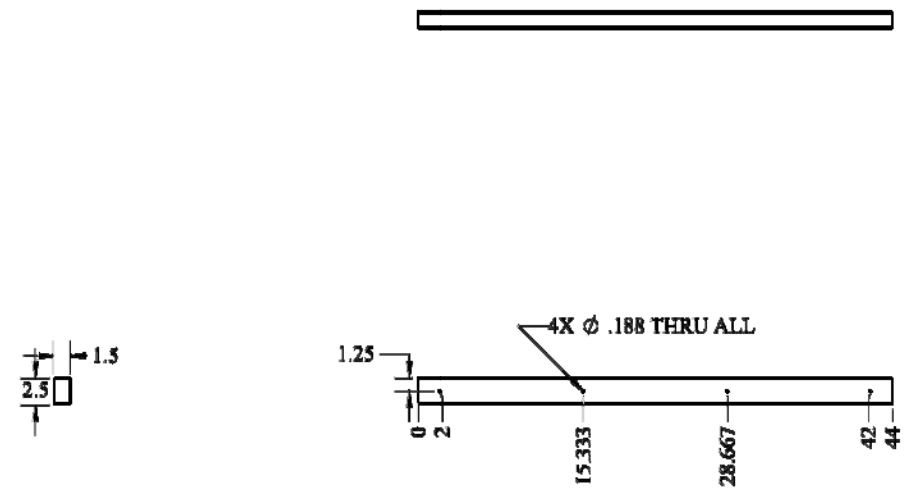
IOWA DEPARTMENT OF
NATURAL RESOURCES
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034
P: 515.725.8200
F: 515.725.8202



Stair Fabrication and Install for:
Maquoketa Caves State Park
9688 Caves Road
Maquoketa, IA 52060

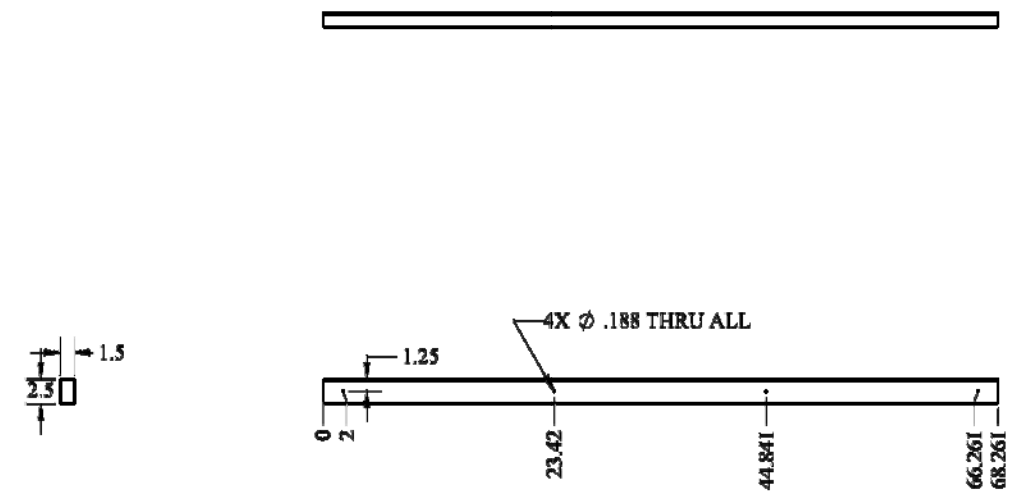
| | |
|-----------|-----------------|
| DRAWN BY: | PROJECT NUMBER: |
| CHKD BY: | 21-06-49-03 |
| DATE: | 03.02.2022 |
| SHEET No: | A-101 |

| ITEM NO. | QTY. | PART NUMBER | QID | DESCRIPTION | Dim1 | Dim2 | Initials |
|----------|------|----------------------|-------------------|-----------------------------------|------|------|----------|
| 1 | 3 | crossRectTubLanding3 | RTUBEREOT182514GA | RECTANGULAR TUBING 1.5" X 2.5" | 44 | 2.5 | |



04 DRAWING – STAIR FABRICATION
SCALE: NTS

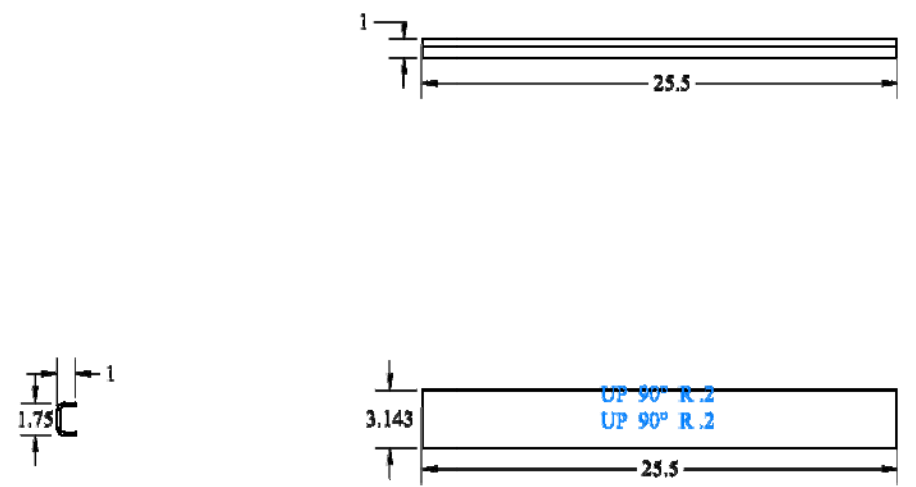
| ITEM NO. | QTY. | PART NUMBER | QID | DESCRIPTION | Dim1 | Dim2 | Initials |
|----------|------|---------------------|-------------------|-----------------------------------|--------|------|----------|
| 1 | 2 | crossRectTubLanding | RTUBEREOT182514GA | RECTANGULAR TUBING 1.5" X 2.5" | 88.261 | 2.5 | |



03 DRAWING – STAIR FABRICATION
SCALE: NTS

| ITEM NO. | QTY. | PART NUMBER | QID | DESCRIPTION | Dim1 | Dim2 | Initials |
|----------|------|-------------------------------|-----------|---------------------|------|---------|----------|
| 1 | 31 | LeadCenterRailChannelLanding2 | RBHEET7GA | SHEET 7 GAUGE STEEL | 25.5 | 3.14276 | |

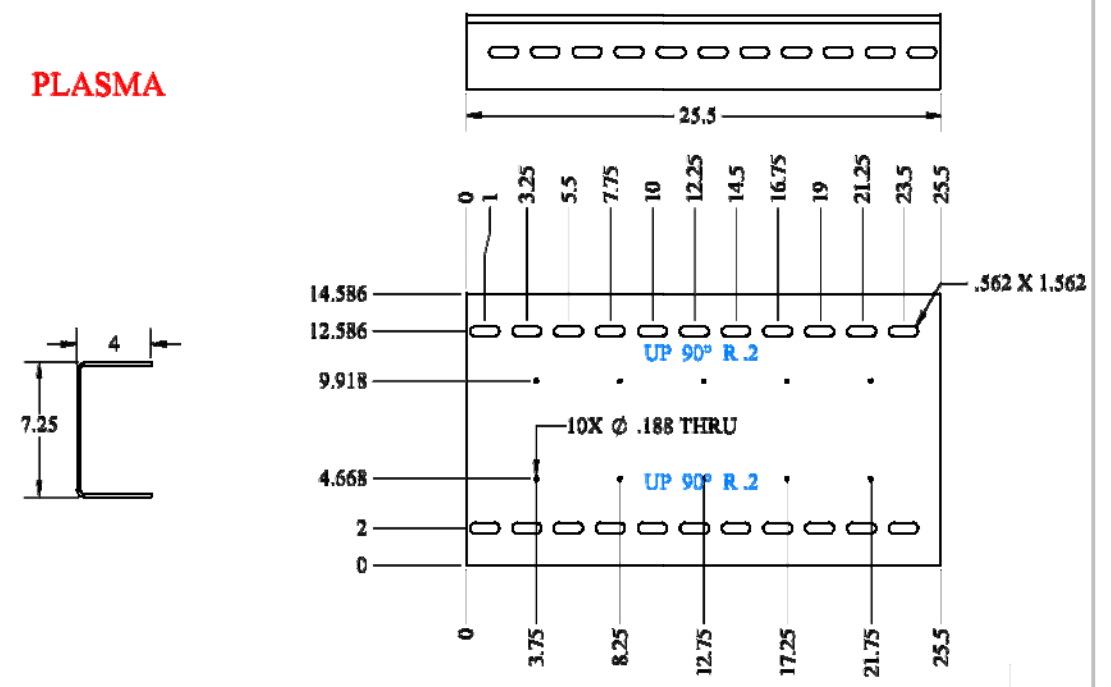
PLASMA



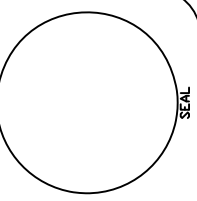
02 DRAWING – STAIR FABRICATION
SCALE: NTS

| ITEM NO. | QTY. | PART NUMBER | QID | DESCRIPTION | Dim1 | Dim2 | Initials |
|----------|------|-------------------------|-----------|---------------------|------|---------|----------|
| 1 | 82 | LeadRailChannelLanding2 | RBHEET7GA | SHEET 7 GAUGE STEEL | 25.5 | 14.8864 | |

PLASMA



01 DRAWING – STAIR FABRICATION
SCALE: NTS



IOWA DEPARTMENT OF
NATURAL RESOURCES
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034
P: 515.725.8200
F: 515.725.8202



Stair Fabrication and Install for:
Maquoketa Caves State Park
9688 Caves Road
Maquoketa, IA 52060

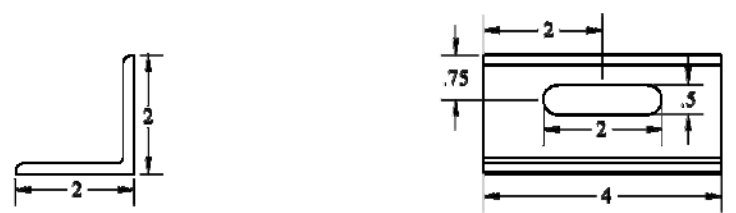
DRAWN BY: PROJECT NUMBER
21-06-49-03

CHKD BY: DATE
03.02.2022

SHEET No
A-102

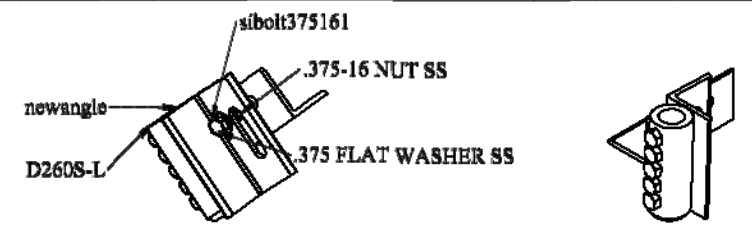
04 NOT USED
SCALE: NTS

| ITEM NO. | QTY. | PART NUMBER | GID | DESCRIPTION | Dim1 | Dim2 | Inch/ft |
|----------|------|-------------|------------|------------------------|------|------|---------|
| 1 | 100 | nwangle | RANGLE187E | 2" X .1875" ANGLE IRON | 4 | 2 | |



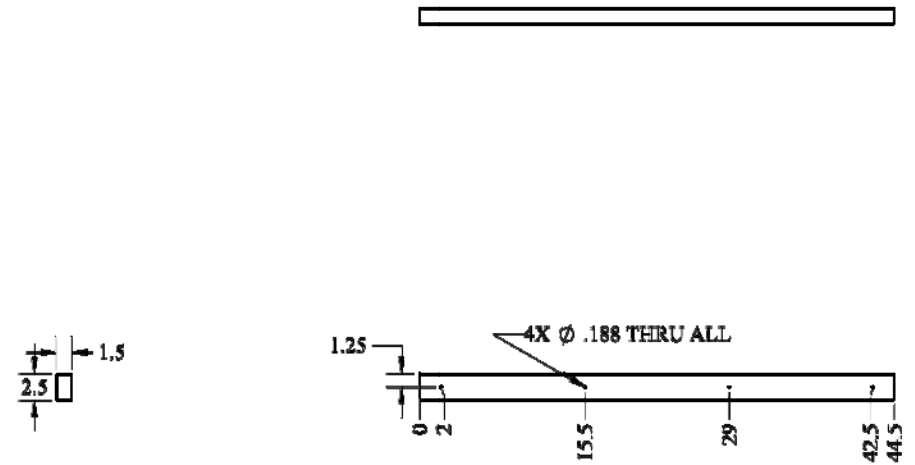
02 DRAWING – STAIR FABRICATION
SCALE: NTS

| ITEM NO. | QTY. | PART NUMBER | GID | DESCRIPTION | Dim1 | Dim2 | USAGE | PAGE |
|----------|------|-------------------------------|-------------------|--------------------------------|---------|---------|-----------|------|
| 1 | 2 | IronRailChannelLanding | RSHEET7GA | SHEET 7 GAUGE STEEL | 44.235 | 14.8864 | 8.98214 | |
| 2 | 2 | crossRectTubeLanding | RTUBEREOT182514GA | RECTANGULAR TUBING 1.5" X 2.5" | 88.281 | 2.5 | 11.37884 | |
| 3 | 1 | IronCenterRailChannelLanding | RSHEET7GA | SHEET 7 GAUGE STEEL | 43.875 | 1.5 | 0.457031 | |
| 4 | 1 | InnerCrossRectTubeLanding | RTUBEREOT182514GA | RECTANGULAR TUBING 1.5" X 2.5" | 88.281 | 2.5 | 8.88842 | |
| 5 | 1 | IronRailChannelLandingFront | RSHEET7GA | SHEET 7 GAUGE STEEL | 88.2814 | 10.8864 | 8.01837 | |
| 6 | 2 | IronRailChannelLanding | RSHEET7GA | RSHEET7GA | 83 | 14.8864 | 12.76314 | |
| 7 | 2 | crossRectTubeLanding | RTUBEREOT182514GA | RECTANGULAR TUBING 1.5" X 2.5" | 44 | 2.5 | 11.00001 | |
| 8 | 1 | IronCenterRailChannelLanding | RSHEET7GA | SHEET 7 GAUGE STEEL | 83 | 3.14278 | 1.37488 | |
| 9 | 82 | IronRailChannelLanding2 | RSHEET7GA | SHEET 7 GAUGE STEEL | 25.5 | 14.8864 | 180.14882 | |
| 10 | 82 | crossRectTubeLanding2 | RTUBEREOT182514GA | RECTANGULAR TUBING 1.5" X 2.5" | 44.5 | 2.5 | 229.91848 | |
| 11 | 31 | IronCenterRailChannelLanding2 | RSHEET7GA | SHEET 7 GAUGE STEEL | 25.5 | 3.14278 | 17.882481 | |

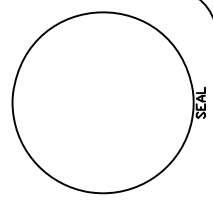


03 DRAWING – STAIR FABRICATION
SCALE: NTS

| ITEM NO. | QTY. | PART NUMBER | GID | DESCRIPTION | Dim1 | Dim2 | Inch/ft |
|----------|------|-----------------------|-------------------|--------------------------------|------|------|---------|
| 1 | 82 | crossRectTubeLanding2 | RTUBEREOT182514GA | RECTANGULAR TUBING 1.5" X 2.5" | 44.5 | 2.5 | |



01 DRAWING – STAIR FABRICATION
SCALE: NTS



IOWA DEPARTMENT OF
NATURAL RESOURCES
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034
P: 515.725.8200
F: 515.725.8202

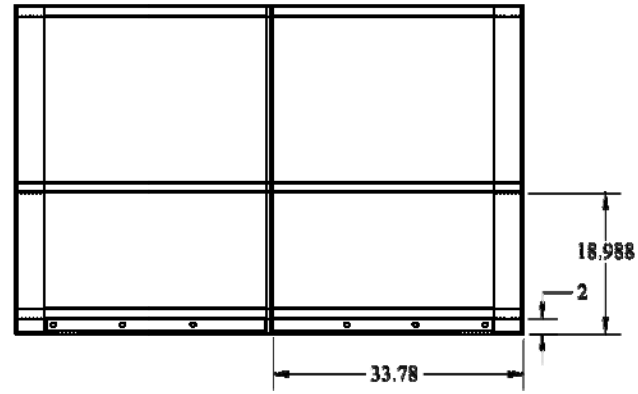


Stair Fabrication and Install for:
Maquoketa Caves State Park
9688 Caves Road
Maquoketa, IA 52060

| | |
|-----------|-----------------|
| DRAWN BY: | PROJECT NUMBER: |
| CHKD BY: | 21-06-49-03 |
| DATE: | 03.02.2022 |

SHEET No: **A-103**

LandingFrameAssy

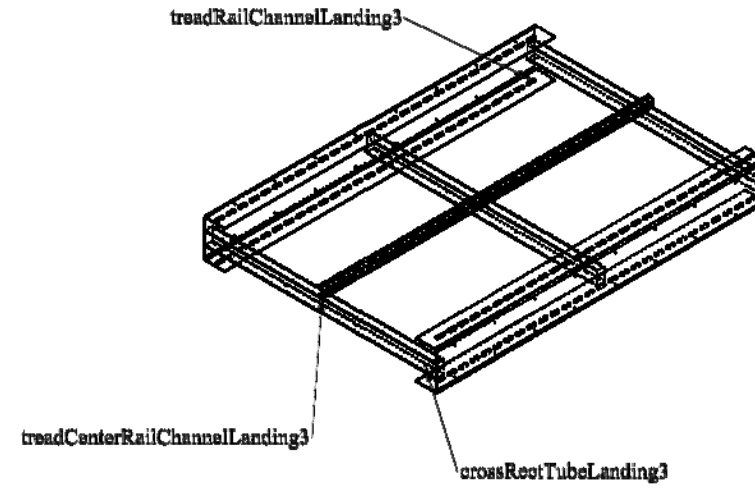


04

DRAWING – STAIR FABRICATION

SCALE: NTS

LandingFrameAssy3

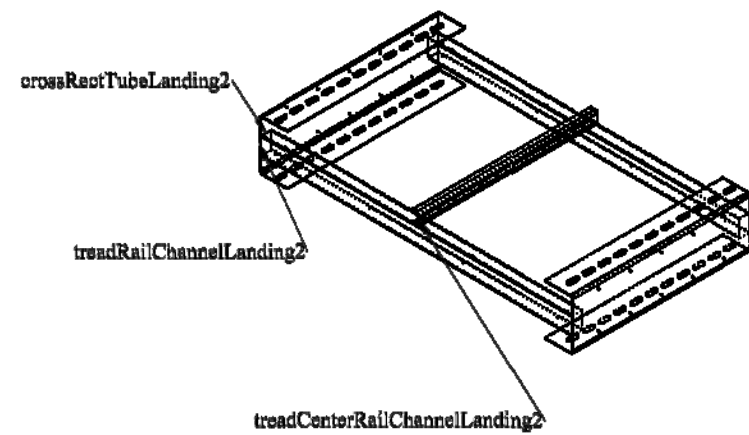


03

DRAWING – STAIR FABRICATION

SCALE: NTS

LandingFrameAssy2

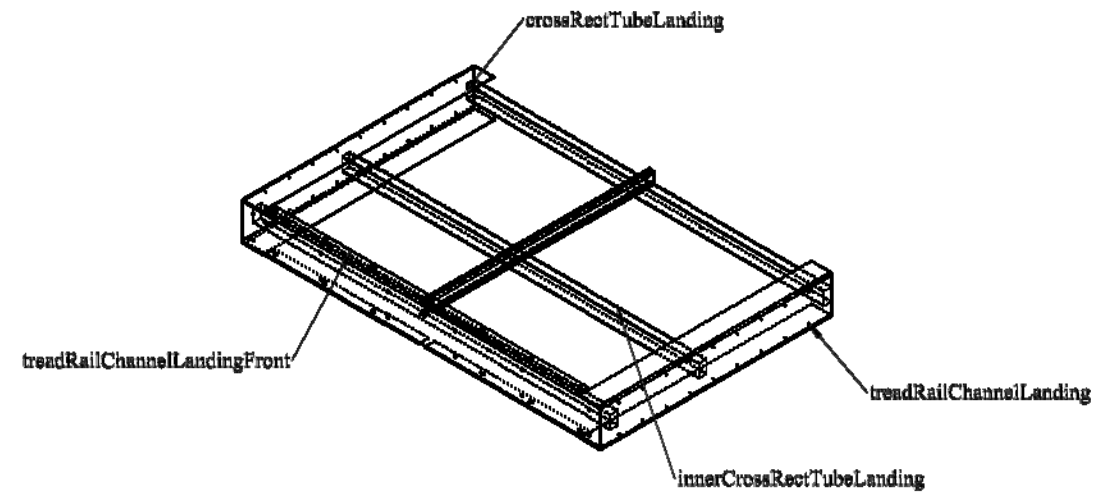


02

DRAWING – STAIR FABRICATION

SCALE: NTS

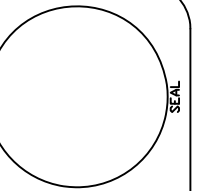
LandingFrameAssy



01

DRAWING – STAIR FABRICATION

SCALE: NTS



IOWA DEPARTMENT OF
NATURAL RESOURCES
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034
P: 515.725.8200
F: 515.725.8202



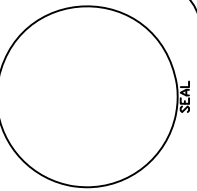
Stair Fabrication and Install for:
Maquoketa Caves State Park

Maquoketa, IA 52060

9688 Caves Road

| | |
|-----------|-----------------|
| DRAWN BY: | PROJECT NUMBER: |
| DATE: | 20-06-49-04 |
| DATE: | 03.02.2022 |
| SHEET No: | |

A-104



**IOWA DEPARTMENT OF
NATURAL RESOURCES**
ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034
P: 515.725.8200
F: 515.725.8202



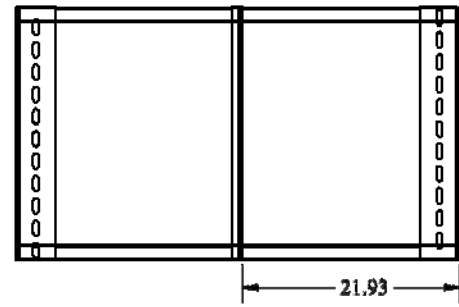
Stair Fabrication and Install for:
Maquoketa Caves State Park
9688 Caves Road
Maquoketa, IA 52060

| | |
|-----------|-----------------|
| DRAWN BY: | PROJECT NUMBER: |
| CHK'D BY: | DATE: |
| SHEET No: | |

A-105

03 NOT USED
SCALE: NTS

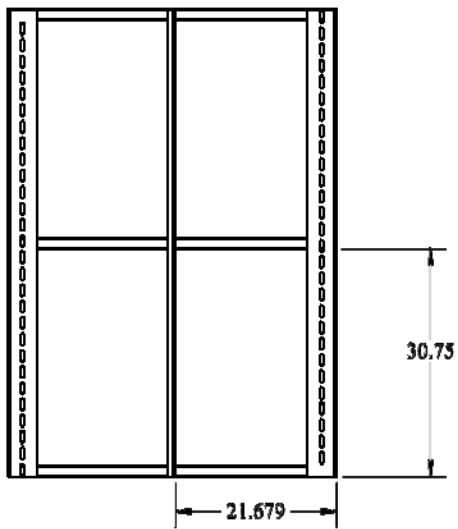
LandingFrameAssy2



01 DRAWING – STAIR FABRICATION
SCALE: NTS

04 NOT USED
SCALE: NTS

LandingFrameAssy3



02 DRAWING – STAIR FABRICATION
SCALE: NTS