UPPER MISSISSIPPI RIVER RESTORATION
FEASIBILITY REPORT
WITH INTEGRATED ENVIRONMENTAL ASSESSMENT

BEAVER ISLAND
HABITAT REHABILITATION AND ENHANCEMENT PROJECT

POOL 14, UPPER MISSISSIPPI RIVER MILES 513.0-517.0
CLINTON COUNTY, IOWA

APPENDIX O

PLATES

US Army Corps
of Engineers®

MISSISSIPPI RIVER

RIVER MILES 513.0-517.0

CLINTON COUNTY, IA

BEAVER ISLAND COMPLEX HREP

FEASIBILITY REPORT

THIS PROJECT WAS DESIGNED BY THE ROCK ISLAND DISTRICTCORPS OF ENGINEERS. THE INITIALS OR SIGNATURES AND REGISTRATION DESIGNATIONS OF INDIVIDUALS APPEAR ON THESE PROJECT DOCUMENTS WITHIN THE SCOPE OF THEIR EMPLOYMENT AS REQUIRED BY ER 1110-1-8152. SIGNATURES INDICATE OFFICIAL RECOMMENDATION OF ALL DRAWINGS IN THIS SET.

APPROVED BY:

DISTRICT COMMANDER DATE

APPROVAL RECOMMENDED BY:

CHIEF, DESIGN BRANCH DATE

CHIEF, HYDROLOGY & HYDRAULICS BRANCH DATE

CHIEF, GEOTECHNICAL BRANCH DATE

CHIEF, TECHNICAL SERVICES BRANCH DATE

CHIEF, ENGINEERING & CONSTRUCTION DIVISION DATE

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE	APPR.

U.S. ARMY CORPS OF ENGINEERS
ROCK ISLAND DISTRICT
ROCK ISLAND, ILLINOIS

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CKD BY:
SUBMITTED BY:
PLOT SCALE: AS SHOWN
PLOT DATE:
SIZE: ANSI D
FILE NAME: EP109_G-001xxx.dgn
DATE:
SOLICITATION NO.:
CONTRACT NO.:
PROJECT CODE: EP109

MISSISSIPPI RIVER
RIVER MILES 513.0-517.0
CLINTON COUNTY, IA
BEAVER ISLAND COMPLEX HREP
FEASIBILITY REPORT
COVER SHEET

Sheet ID
G-001

INDEX

Plate Number	Sheet Id	Sheet Title
		GENERAL
	G-001	COVER SHEET
PLATE 1	G-002	INDEX AND GENERAL NOTES
PLATE 2	G-003	LEGEND AND ABBREVIATIONS
		SURVEY
PLATE 3	V-101	SURVEY CONTROL DIAGRAM
		GEOTECHNICAL
PLATE 4	B-101	BORING PLAN
PLATE 5	B-301	BORING LOGS
		CIVIL
PLATE 6	C-101	SITE PLAN
PLATE 7	C-102	RECOMMENDED PLAN
PLATE 8	C-103	PROJECT ENHANCEMENT FEATURES EVALUATED
PLATE 9	C-104	PROJECT ENHANCEMENT FEATURES NOT EVALUATED
PLATE 10	C-105	LOWER CUT PLAN AND PROFILE STA. 0+00 TO STA. 19+00
PLATE 11	C-106	LOWER CUT PLAN AND PROFILE STA. 19+00 TO STA. 38+00
PLATE 12	C-107	STEWART LAKE PLAN AND PROFILE
PLATE 13	C-108	BLUE BELL PLAN AND PROFILE
PLATE 14	C-109	BLUE BELL TO SAND BURR CONNECTION PLAN AND PROFILE
PLATE 15	C-110	SAND BURR PLAN AND PROFILE
PLATE 16	C-111	SAND BURR TO HULZINGER CONNECTION PLAN AND PROFILE
PLATE 17	C-112	ALBANY ISLAND CHEVRON PLAN AND PROFILE
PLATE 18	C-113	BEAVER ISLAND CLOSURE STRUCTURE PLAN AND PROFILE
PLATE 19	C-301	TYPICAL DREDGE CUTS
PLATE 20	C-302	BEAVER ISLAND CLOSURE STRUCTURE SECTIONS
PLATE 21	C-303	BANKLINE PROTECTION TYPICAL SECTIONS
PLATE 22	C-304	ALBANY ISLAND CHEVRON TYPICAL SECTION
		LANDSCAPE
PLATE 23	L-101	CLEARING PLAN
PLATE 24	L-102	PLANTING PLAN
PLATE 25	L-103	TREE AND SHRUB PLANTING PLANS
PLATE 26	L-301	REFORESTATION TYPICAL SECTION
PLATE 27	L-501	TREE PLANTING DETAILS
PLATE 28	L-601	FORESTED WETLAND TREE SCHEDULE
PLATE 29	L-602	SHRUB AND SCRUB/SHRUB SCHEDULE
PLATE 30	L-603	SEEDING SCHEDULE
		OPERATIONS
PLATE 31	O-101	PRE-CONSTRUCTION MONITORING PLAN
PLATE 32	O-102	POST-CONSTRUCTION MONITORING PLAN

A1 INDEX
SCALE : NO SCALE

GENERAL NOTES

1. THE BEAVER ISLAND COMPLEX AREA IS LOCATED IN POOL 14 OF THE UPPER MISSISSIPPI RIVER (RM 513.0 TO 517.0) IN CLINTON COUNTY, IA.
2. THE PROJECT LANDS ARE FEDERALLY OWNED BY THE US ARMY CORPS OF ENGINEERS AND MANAGED BY THE US FISH AND WILDLIFE SERVICE AS PART OF THE UPPER MISSISSIPPI RIVER NATIONAL WILDLIFE AND FISH REFUGE.
3. HORIZONTAL DATUM IS STATE PLANE COORDINATE SYSTEM, IL WEST STATE PLANE, NAD 1983, US SURVEY FEET. VERTICAL DATUM IS NAVD 88.
4. ORTHO PHOTOGRAPHY FROM 2013.

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U.S. ARMY CORPS OF ENGINEERS
ROCK ISLAND DISTRICT
ROCK ISLAND, ILLINOIS

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DATE: 2017/04/11
SOLICITATION NO.:
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PROJECT CODE: EP109

MISSISSIPPI RIVER
RIVER MILES 513.0-517.0
CLINTON COUNTY, IA
BEAVER ISLAND COMPLEX HREP
FEASIBILITY REPORT
INDEX AND GENERAL NOTES

PLATE 1

Sheet ID
G-002

EXISTING GROUND

CENTERLINE

BREAKLINE

N

NORTH INDICATOR

BORING LOCATION

CONTROL POINT

PLACEMENT

RIPRAP

CLEAR

TIMBER STAND IMPROVEMENT

WETLAND/HERP SITE

TREE

SHRUB

SLOPE

FLOW

FLOW ARROW

RIVERMILE

571.2

WATER LEVEL

123

INTERSTATE HIGHWAY

123

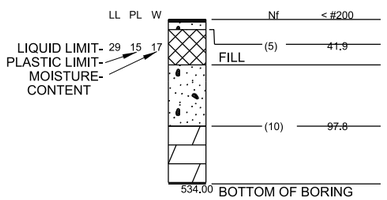
STATE HIGHWAY

123

US HIGHWAY

RAILROAD

BOR. CC-13-02
NORTHING: 1786545
EASTING: 1053996
DATE: 10/04/2013
GROUND ELEV. EXISTING



-BORING NUMBER
-COORDINATE LOCATION
-DATE DRILLED
-EXISTING GROUND SURFACE ELEVATION

-NUMBER OF BLOWS TO DRIVE STANDARD SPLIT SPOON ONE FOOT WITH 140 LB HAMMER AND 30-INCH DROP

-PERCENT PASSING #200 SIEVE

CH - USCS FAT CLAY

CL - USCS LEAN CLAY

SC - CLAYEY SAND

SP - SAND, POORLY GRADED

A1 LEGEND

SCALE : NO SCALE

A	
APPROX	APPROXIMATE
AVE	AVENUE
B	
BM	BENCHMARK
C	
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
COR	CONTRACTING OFFICER REPRESENTATIVE
CY	CUBIC YARDS
D	
DIA	DIAMETER
DNR	DEPARTMENT OF NATURAL RESOURCES
E	
EL.	ELEVATION
F	
FT	FEET
H	
H	HORIZONTAL
HTRW	HAZARDOUS TOXIC RADIOACTIVE WASTE
I	
INV.	INVERT
M	
MAX	MAXIMUM
MSL	MEAN SEA LEVEL
MIN	MINIMUM
N	
NAD	NATIONAL GEODETIC SURVEY
NGVD	NATIONAL GEODETIC VERTICAL DATUM
NAVD	NORTH AMERICAN VERTICAL DATUM
P	
PI	POINT OF INTERCEPTION
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
R	
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RM	RIVERMILE
RR	RAILROAD
S	
ST	STREET
STA	STATION
T	
TYP.	TYPICAL
V	
V	VERTICAL

A4 ABBREVIATIONS

SCALE : NO SCALE

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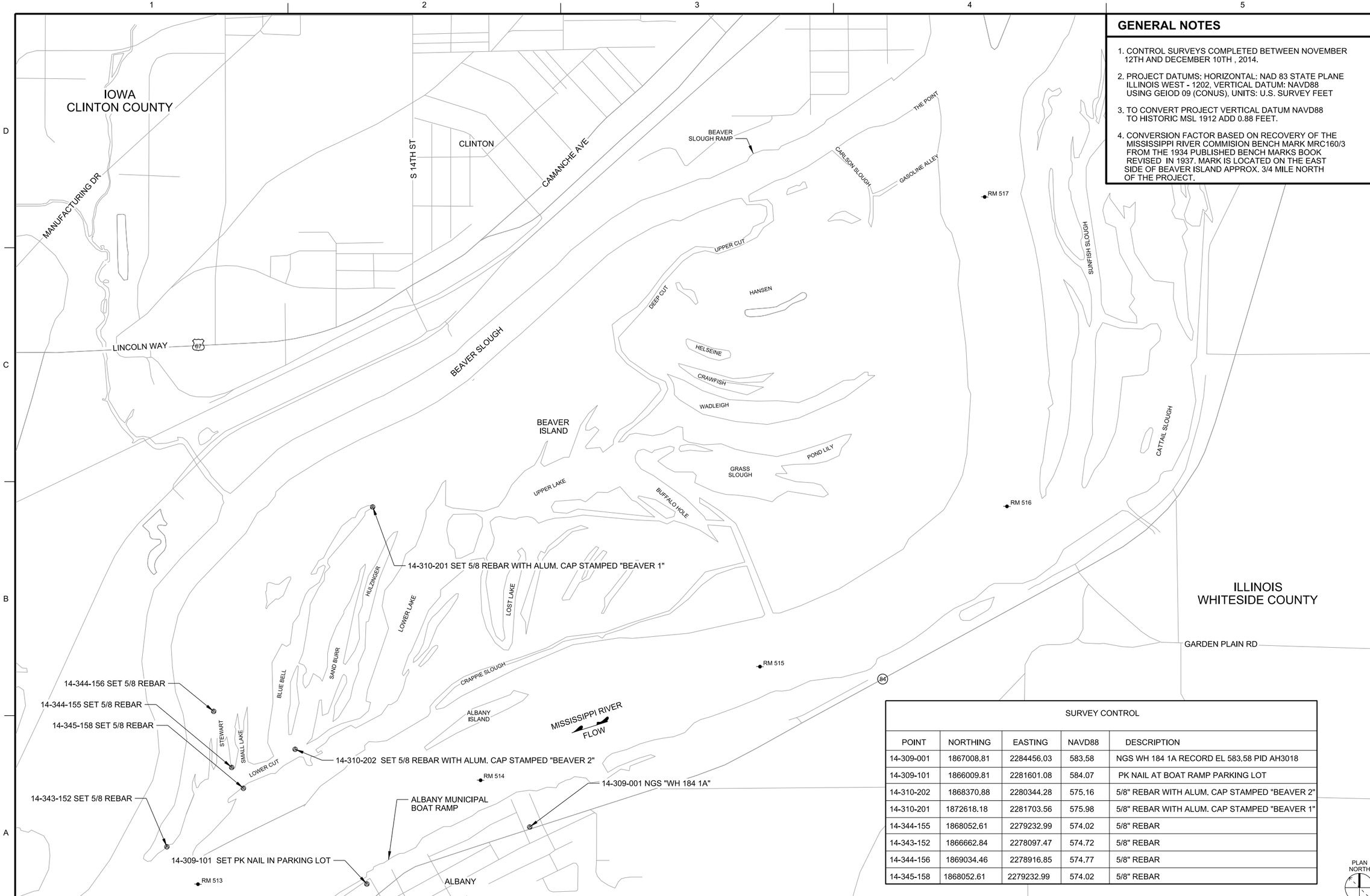
FILE NAME: EP109_G-003xxx.dgn

MISSISSIPPI RIVER
RIVER MILES 513.0-517.0
CLINTON COUNTY, IA
BEAVER ISLAND COMPLEX HREP
FEASIBILITY REPORT

LEGEND AND ABBREVIATIONS

PLATE 2

Sheet ID
G-003



GENERAL NOTES

1. CONTROL SURVEYS COMPLETED BETWEEN NOVEMBER 12TH AND DECEMBER 10TH , 2014.
2. PROJECT DATUMS: HORIZONTAL: NAD 83 STATE PLANE ILLINOIS WEST - 1202, VERTICAL DATUM: NAVD88 USING GEIOD 09 (CONUS), UNITS: U.S. SURVEY FEET
3. TO CONVERT PROJECT VERTICAL DATUM NAVD88 TO HISTORIC MSL 1912 ADD 0.88 FEET.
4. CONVERSION FACTOR BASED ON RECOVERY OF THE MISSISSIPPI RIVER COMMISION BENCH MARK MRC160/3 FROM THE 1934 PUBLISHED BENCH MARKS BOOK REVISED IN 1937. MARK IS LOCATED ON THE EAST SIDE OF BEAVER ISLAND APPROX. 3/4 MILE NORTH OF THE PROJECT.

SURVEY CONTROL

POINT	NORTHING	EASTING	NAVD88	DESCRIPTION
14-309-001	1867008.81	2284456.03	583.58	NGS WH 184 1A RECORD EL 583.58 PID AH3018
14-309-101	1866009.81	2281601.08	584.07	PK NAIL AT BOAT RAMP PARKING LOT
14-310-202	1868370.88	2280344.28	575.16	5/8" REBAR WITH ALUM. CAP STAMPED "BEAVER 2"
14-310-201	1872618.18	2281703.56	575.98	5/8" REBAR WITH ALUM. CAP STAMPED "BEAVER 1"
14-344-155	1868052.61	2279232.99	574.02	5/8" REBAR
14-343-152	1866662.84	2278097.47	574.72	5/8" REBAR
14-344-156	1869034.46	2278916.85	574.77	5/8" REBAR
14-345-158	1868052.61	2279232.99	574.02	5/8" REBAR

A1 SURVEY CONTROL

SCALE : 1"=800'-0" 0 800' 1600'

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U.S. ARMY CORPS OF ENGINEERS
ROCK ISLAND DISTRICT
ROCK ISLAND, ILLINOIS

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MISSISSIPPI RIVER
RIVER MILES 513.0-517.0
CLINTON COUNTY, IA
BEAVER ISLAND COMPLEX HREP
FEASIBILITY REPORT
SURVEY CONTROL

PLATE 3

Sheet ID
V-101

A1 BORING PLAN

SCALE : 1"=1000'-0"

0 1000' 2000'

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ROCK ISLAND DISTRICT
ROCK ISLAND, ILLINOIS

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DWN BY: WTT
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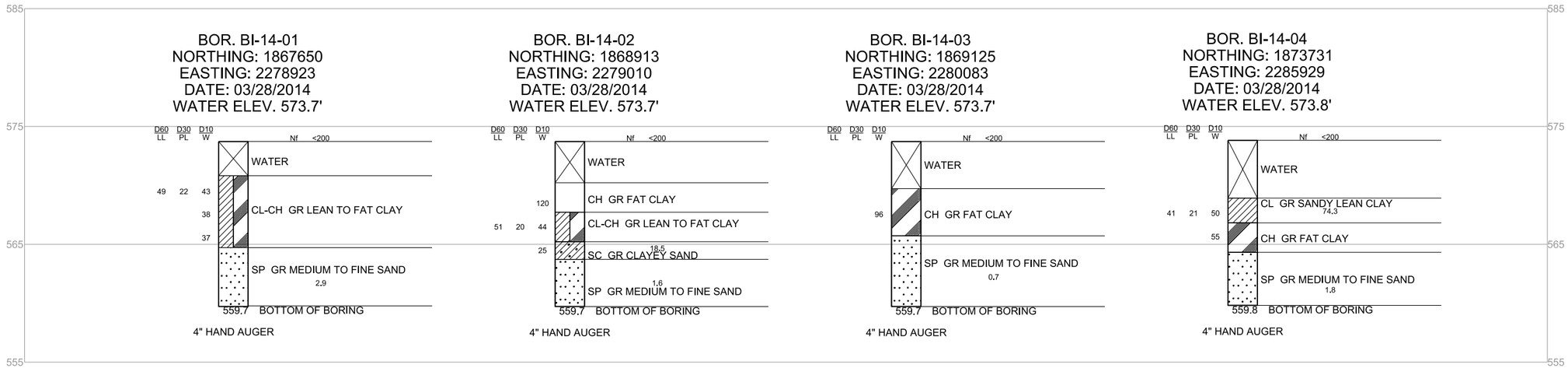
SUBMITTED BY:
PLOT SCALE: AS SHOWN
PLOT DATE:
SIZE: ANSI D
FILE NAME: EP1(9) B-101xxx.dgn
DATE:
SOLICITATION NO.:
CONTRACT NO.:
PROJECT CODE: EP1(9)

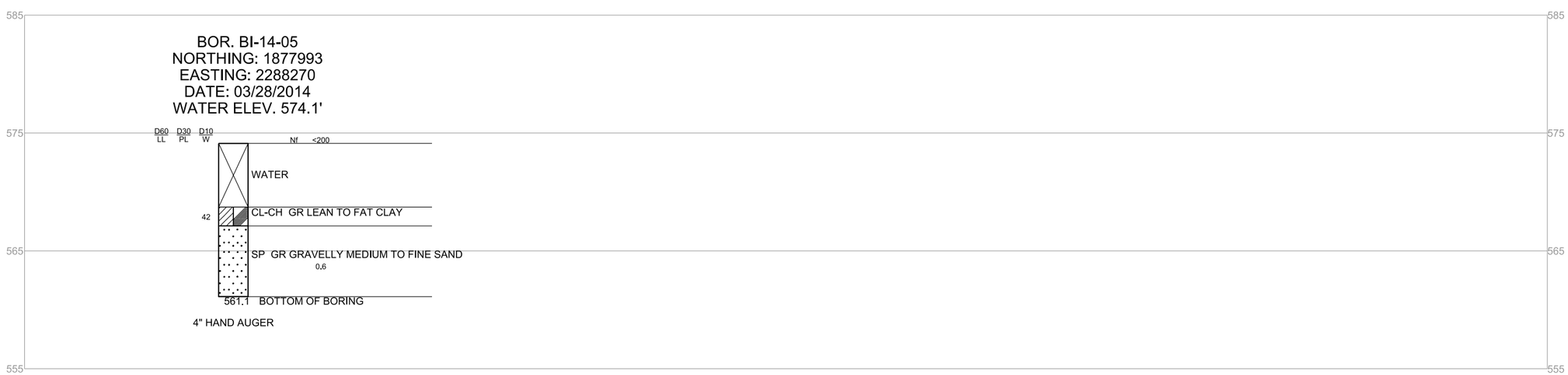
MISSISSIPPI RIVER
RIVER MILES 513.0-517.0
CLINTON COUNTY, IA
BEAVER ISLAND COMPLEX HREP
FEASIBILITY REPORT
BORING PLAN

PLATE 4

Sheet ID
B-101

ELEVATIONS IN FEET NAVD 88





STATE PLANE: NAD 83 ILLINOIS WEST 1202, US SURVEY FEET

DWG REF(s) : _____

A1 BORING LOGS

SCALE : 1"=5'-0" 0 5' 10'

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U.S. ARMY CORPS OF ENGINEERS
ROCK ISLAND DISTRICT
ROCK ISLAND, ILLINOIS

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CONTRACT NO.:
PLOT SCALE: AS SHOWN
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PROJECT CODE: EP109
SIZE: ANSI D
FILE NAME: EP109_B-301xx.dgn

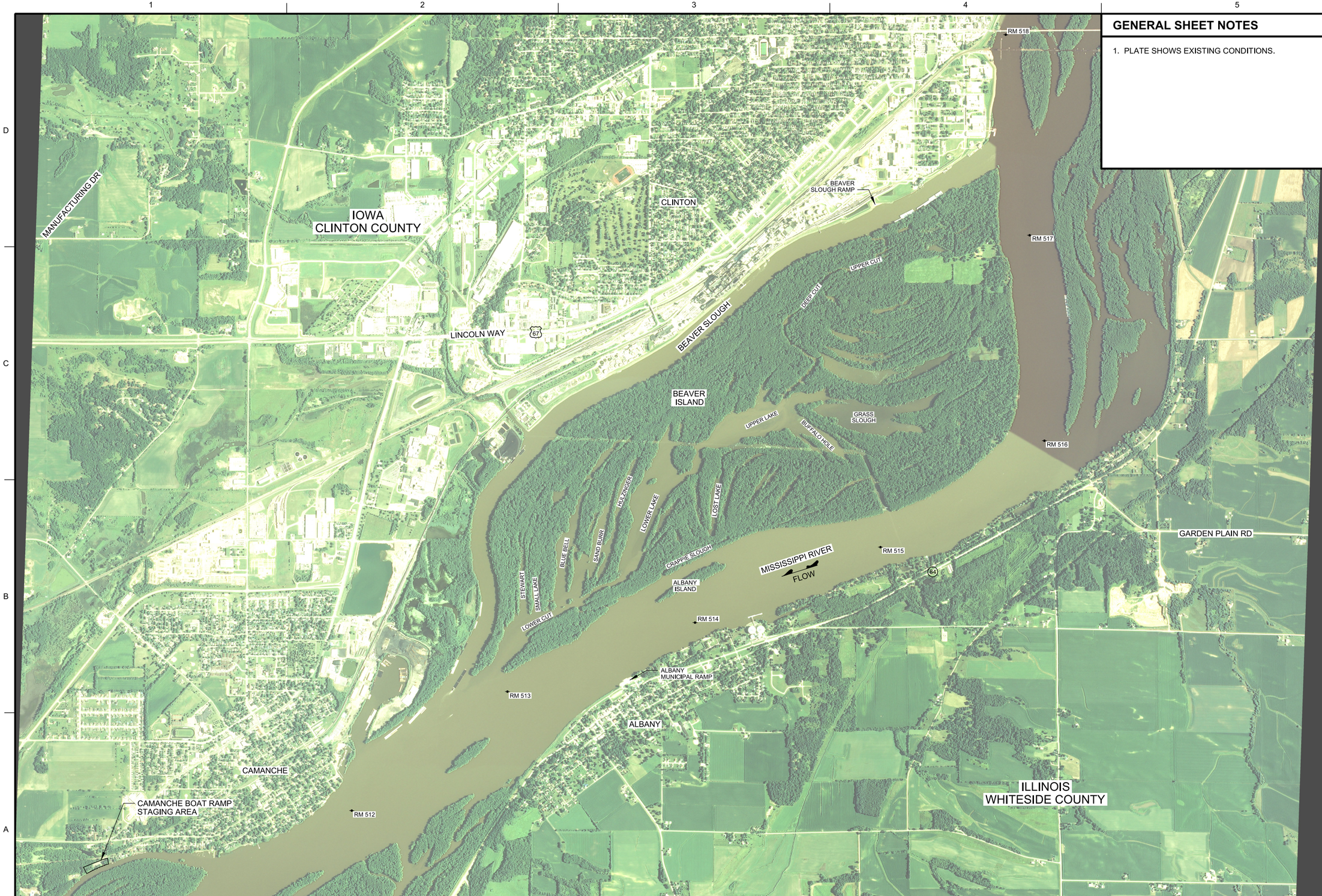
MISSISSIPPI RIVER
RIVER MILES 513.0-517.0
CLINTON COUNTY, IA
BEAVER ISLAND COMPLEX HREP
FEASIBILITY REPORT
BORING LOGS

PLATE 5

Sheet ID
B-301

GENERAL SHEET NOTES

1. PLATE SHOWS EXISTING CONDITIONS.



A1 SITE PLAN

SCALE : 1"=1200'-0"

0 1200' 2400'

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U.S. ARMY CORPS OF ENGINEERS
ROCK ISLAND DISTRICT
ROCK ISLAND, ILLINOIS

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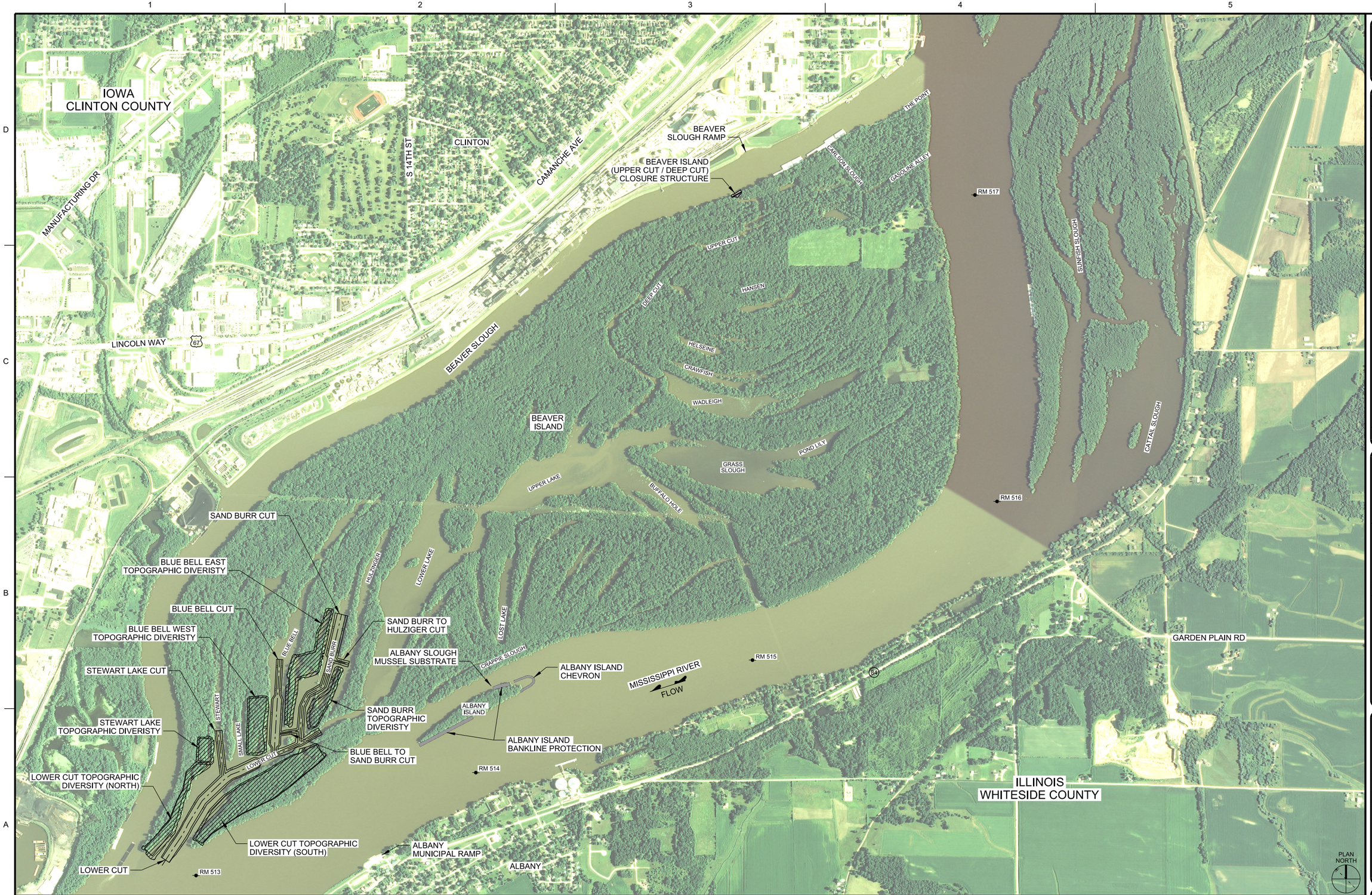
CONTRACT NO.:
PLOT SCALE: AS SHOWN
PLOT DATE:
PROJECT CODE: EP109
SIZE: ANSI D
FILE NAME: EP109_C-101xxx.dgn

MISSISSIPPI RIVER
RIVER MILES 513.0-517.0
CLINTON COUNTY, IA
BEAVER ISLAND COMPLEX HREP
FEASIBILITY REPORT
SITE PLAN

PLATE 6

Sheet ID
C-101



A1 RECOMMENDED PLAN

SCALE : 1"=800'-0"

0 800' 1600'

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U.S. ARMY CORPS OF ENGINEERS
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ROCK ISLAND, ILLINOIS

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FILE NAME: EP109_C-102xxx.dgn
DATE: 2017/04/11
SOLICITATION NO.:
CONTRACT NO.:
PROJECT CODE: EP109

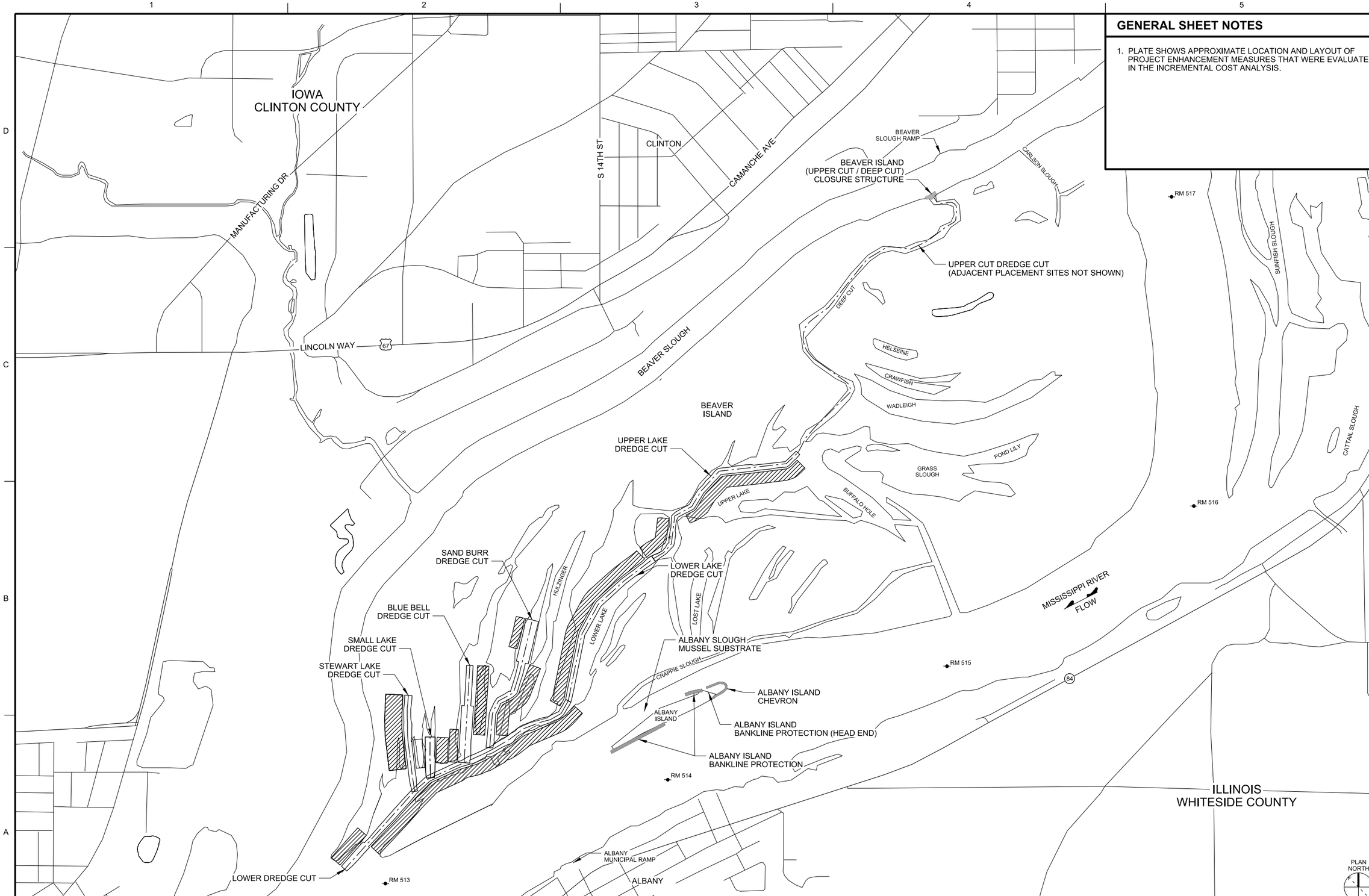
MISSISSIPPI RIVER
RIVER MILES 513.0-517.0
CLINTON COUNTY, IA
BEAVER ISLAND COMPLEX HREP
FEASIBILITY REPORT
RECOMMENDED PLAN

PLATE 7

Sheet ID
C-102

GENERAL SHEET NOTES

1. PLATE SHOWS APPROXIMATE LOCATION AND LAYOUT OF PROJECT ENHANCEMENT MEASURES THAT WERE EVALUATED IN THE INCREMENTAL COST ANALYSIS.



A1 PROJECT ENHANCEMENTS MEASURES EVALUATED

SCALE : 1"=800'-0"

0 800' 1600'

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ROCK ISLAND DISTRICT
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PLOT DATE:
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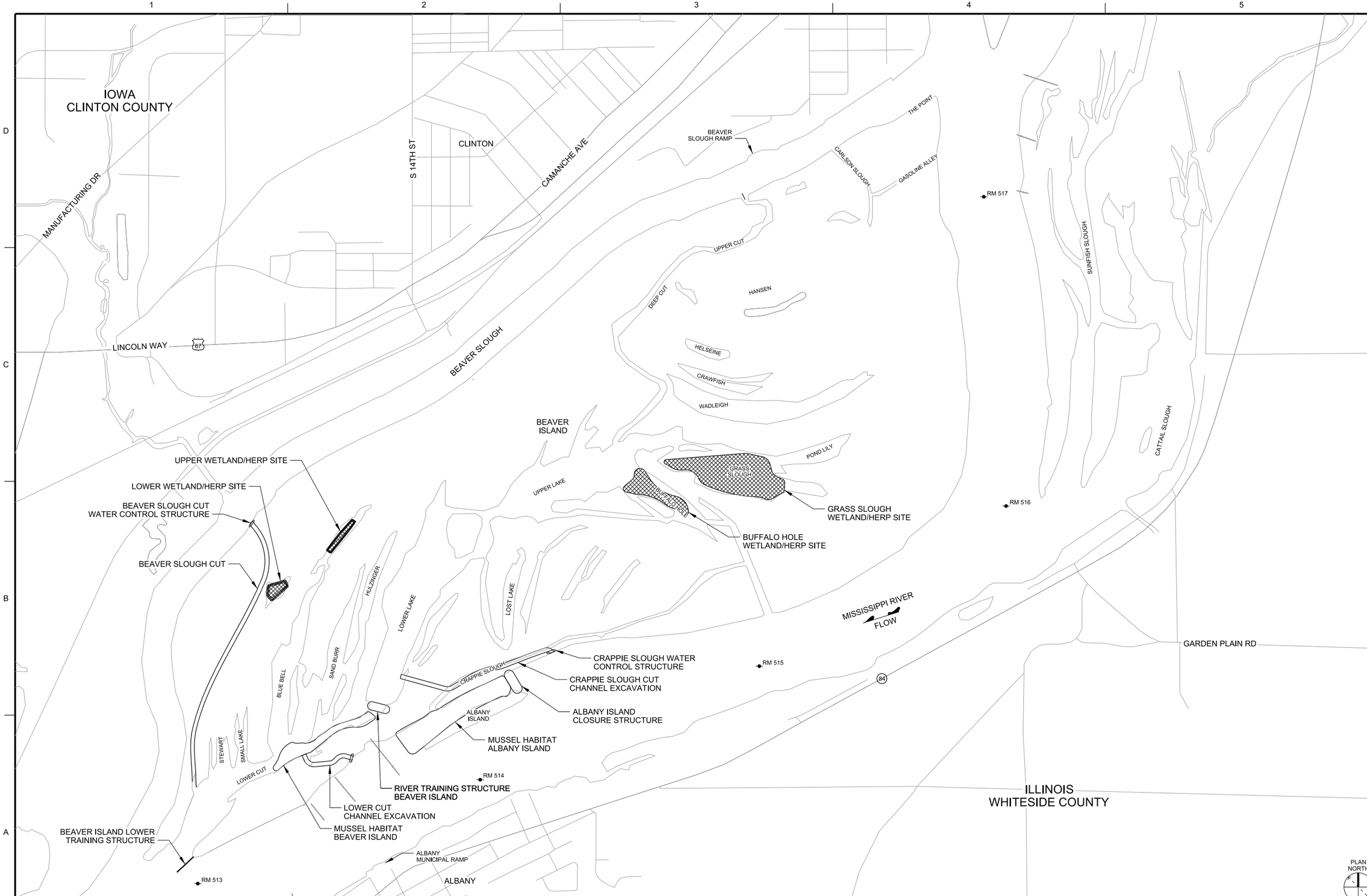
FILE NAME: EP109_C-103xxx.dgn

MISSISSIPPI RIVER
RIVER MILES 513.0-517.0
CLINTON COUNTY, IA
BEAVER ISLAND COMPLEX HREP
FEASIBILITY REPORT

PROJECT ENHANCEMENTS MEASURES EVALUATED

PLATE 8

Sheet ID
C-103



A1 PROJECT ENHANCEMENTS MEASURES NOT EVALUATED

SCALE : 1"=800'-0"

0 800' 1600'

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MISSISSIPPI RIVER
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CLINTON COUNTY, IA
BEAVER ISLAND COMPLEX HREP
FEASIBILITY REPORT

PROJECT ENHANCEMENTS MEASURES NOT EVALUATED

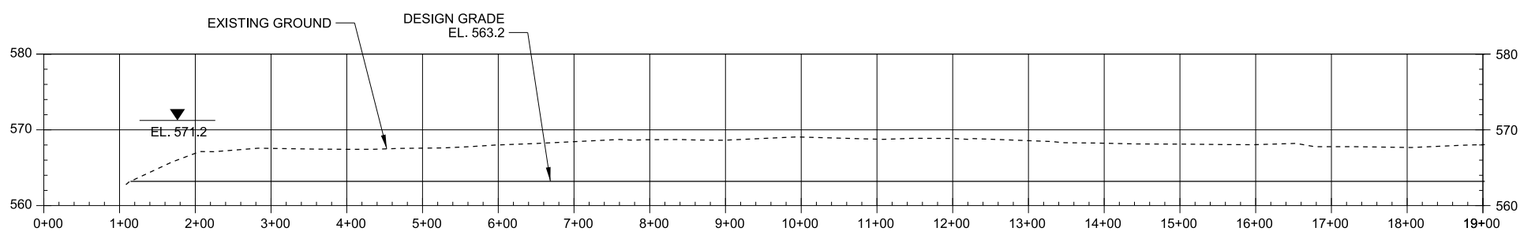
PLATE 9

Sheet ID
C-104

C1 LOWER CUT PLAN STA. 0+00 TO STA. 19+00

SCALE : 1"=100'-0"

0 100' 200'



A1 LOWER CUT PLAN STA. 0+00 TO STA. 19+00

HORIZONTAL SCALE : 1"=100'-0" 0 100' 200' VERTICAL SCALE : 1"=10'-0" 0 10' 20'

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PROJECT CODE: EP109
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FILE NAME: EP109_C-105xxx.dgn

MISSISSIPPI RIVER
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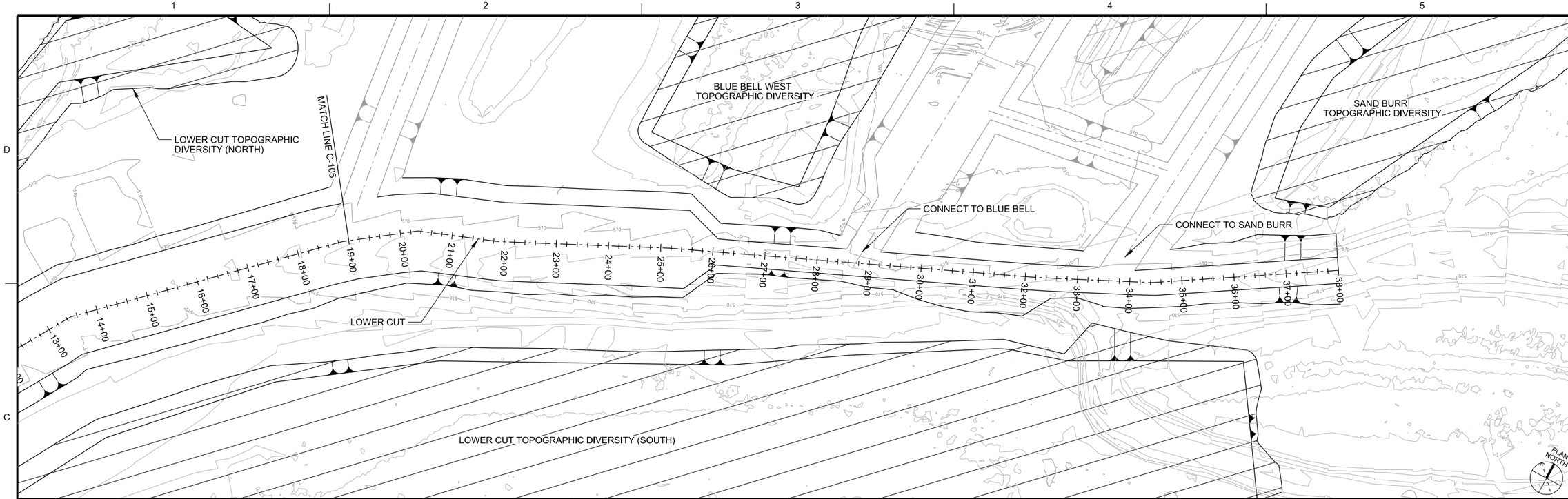
CLINTON COUNTY, IA
BEAVER ISLAND COMPLEX HREP
FEASIBILITY REPORT

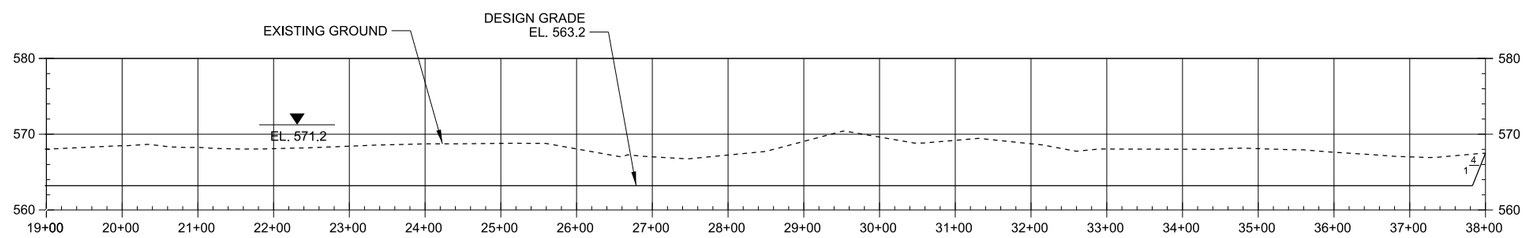
LOWER CUT
PLAN AND PROFILE
STA. 0+00 TO STA. 19+00
PLATE 10

Sheet ID
C-105



C1 LOWER CUT PLAN STA. 19+00 TO STA. 38+00

SCALE : 1"=100'-0" 0 100' 200'



A1 LOWER CUT PROFILE STA. 19+00 TO STA. 38+00

HORIZONTAL SCALE : 1"=100'-0" 0 100' 200' VERTICAL SCALE : 1"=10'-0" 0 10' 20'

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MISSISSIPPI RIVER
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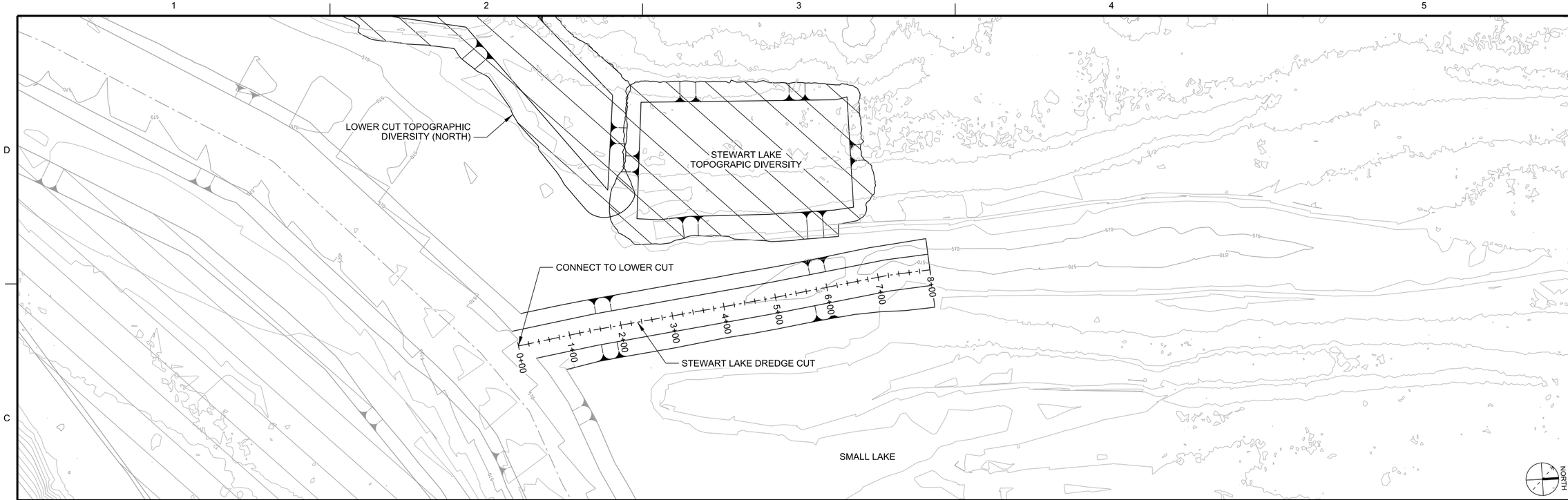
BEAVER ISLAND COMPLEX HREP
FEASIBILITY REPORT

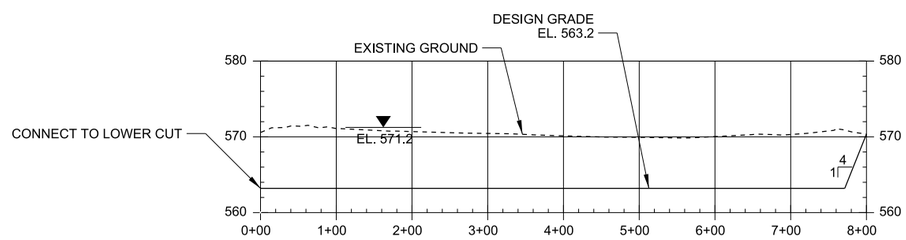
LOWER CUT
PLAN AND PROFILE
STA. 19+00 TO STA. 38+00
PLATE 11

Sheet ID
C-106



C1 STEWART LAKE PLAN

SCALE : 1"=100'-0" 0 100' 200'



A1 STEWART LAKE PROFILE

HORIZONTAL SCALE : 1"=100'-0" 0 100' 200' VERTICAL SCALE : 1"=10'-0" 0 10' 20'

US Army Corps of Engineers®

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MISSISSIPPI RIVER
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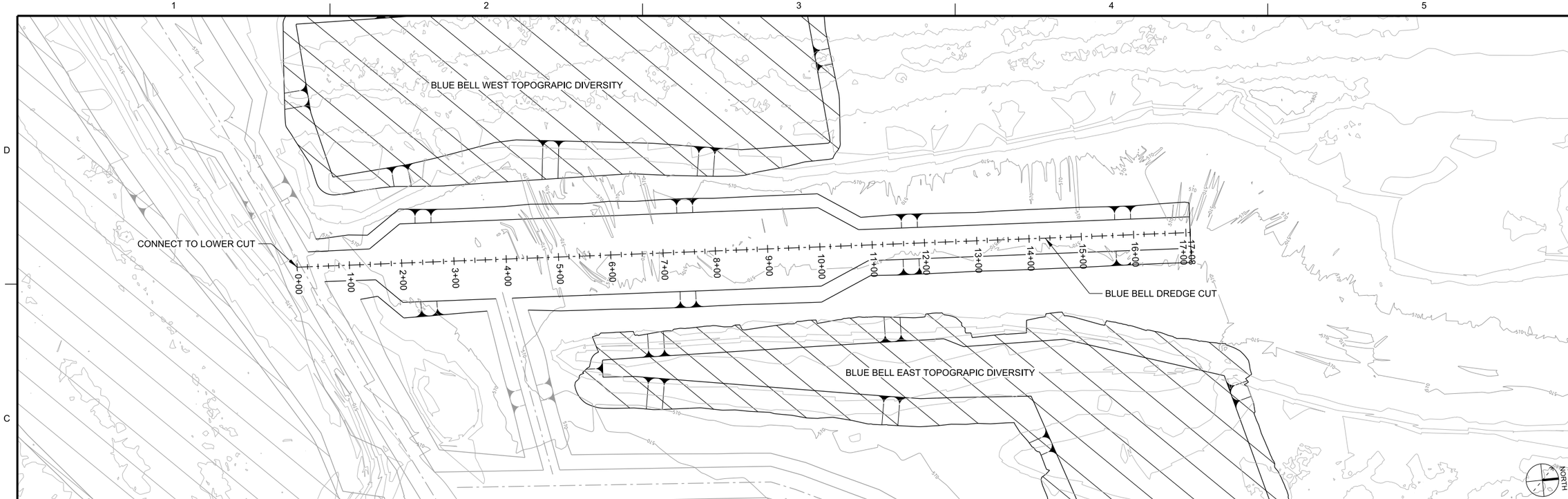
CLINTON COUNTY, IA
BEAVER ISLAND COMPLEX HREP
FEASIBILITY REPORT
STEWART LAKE
PLAN AND PROFILE

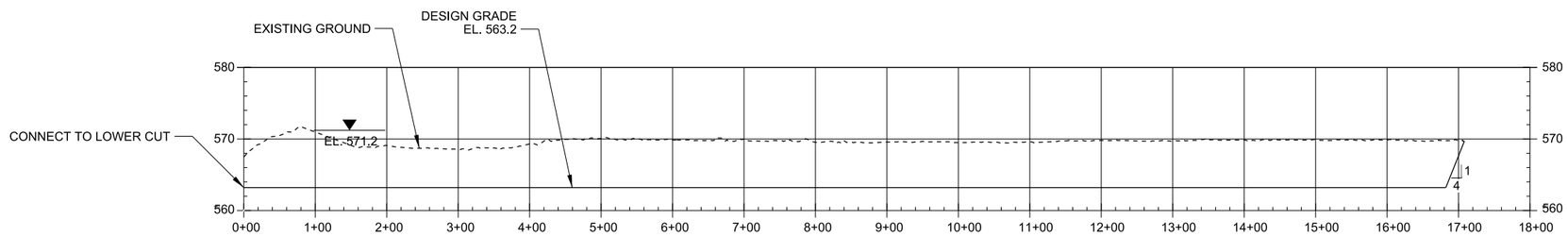
PLATE 12

Sheet ID
C-107



C1 BLUE BELL PLAN

SCALE : 1"=100'-0" 0 100' 200'



A1 BLUE BELL PROFILE

HORIZONTAL SCALE : 1"=100'-0" 0 100' 200' VERTICAL SCALE : 1"=10'-0" 0 10' 20'

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U.S. ARMY CORPS OF ENGINEERS
ROCK ISLAND DISTRICT
ROCK ISLAND, ILLINOIS

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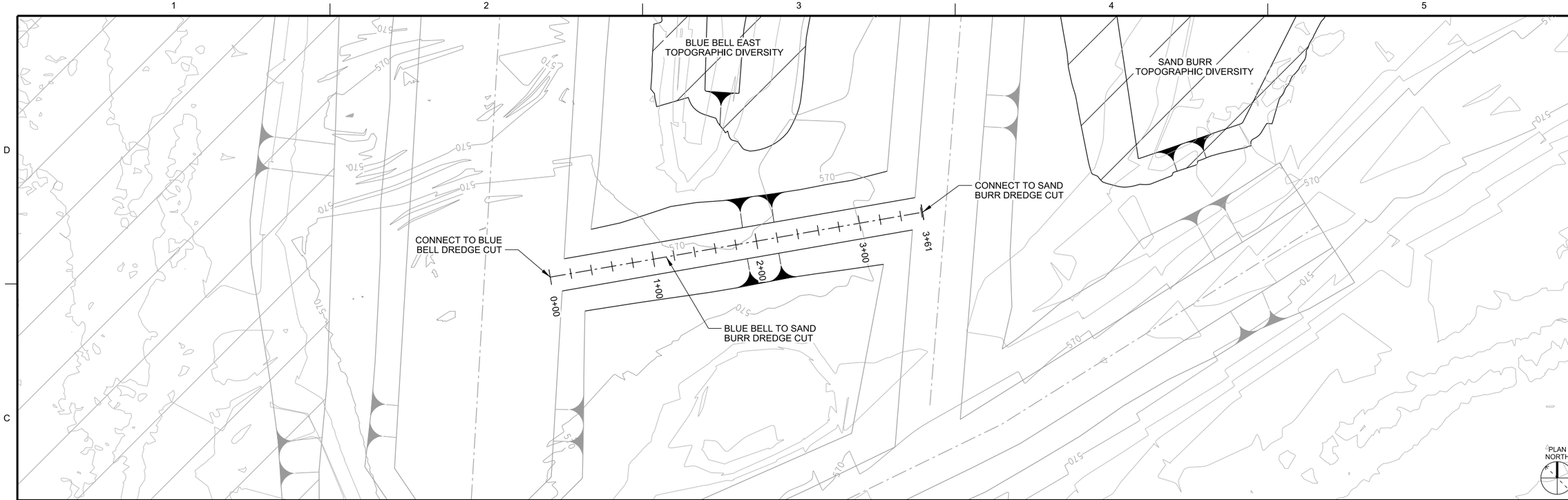
SUBMITTED BY: | CONTRACT NO.:
PLOT SCALE: AS SHOWN | PLOT DATE: | PROJECT CODE: EP109
SIZE: ANSI D | FILE NAME: EP109_C-108xxx.dgn

MISSISSIPPI RIVER
RIVER MILES 513.0-517.0
CLINTON COUNTY, IA
BEAVER ISLAND COMPLEX HREP
FEASIBILITY REPORT

BLUE BELL
PLAN AND PROFILE

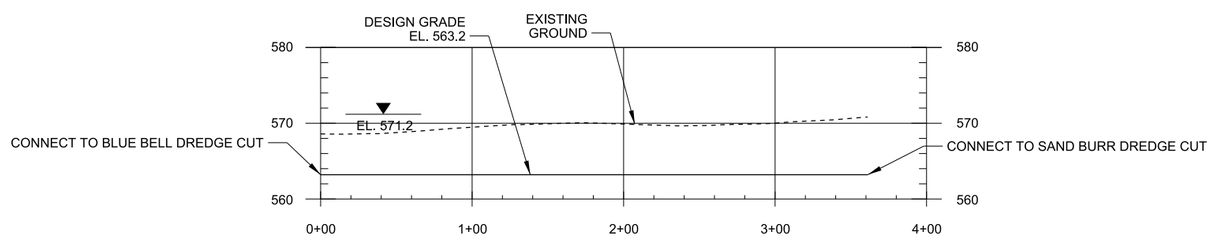
PLATE 13

Sheet ID
C-108



C1 BLUE BELL TO SAND BURR CONNECTION PLAN

SCALE : 1"=50'-0" 0 50' 100'



A1 BLUE BELL TO SAND BURR CONNECTION PROFILE

HORIZONTAL SCALE : 1"=50'-0" 0 50' 100' VERTICAL SCALE : 1"=10'-0" 0 10' 20'

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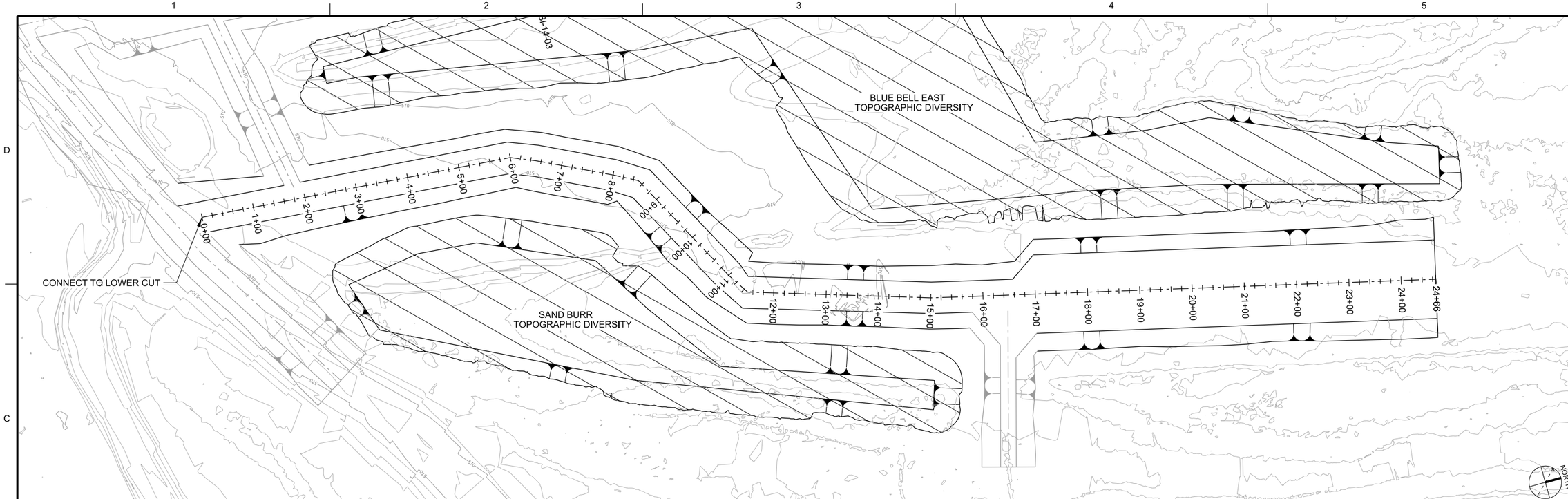
PLOT DATE:
DATE:
SOLICITATION NO.:
CONTRACT NO.:
PROJECT CODE: EP109
SIZE: ANSI D
FILE NAME: EP109_C-109xxx.dgn

MISSISSIPPI RIVER
RIVER MILES 513.0-517.0
CLINTON COUNTY, IA
BEAVER ISLAND COMPLEX HREP
FEASIBILITY REPORT
BLUE BELL TO SAND BURR CONNECTION
PLAN AND PROFILE

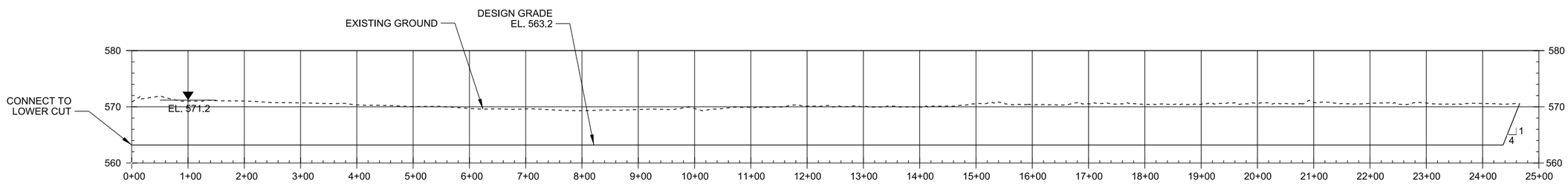
PLATE 14

Sheet ID
C-109



C1 SAND BURR PLAN

SCALE : 1"=100'-0" 0 100' 200'



A1 SAND BURR PROFILE

HORIZONTAL SCALE : 1"=100'-0" 0 100' 200' VERTICAL SCALE : 1"=10'-0" 0 10' 20'

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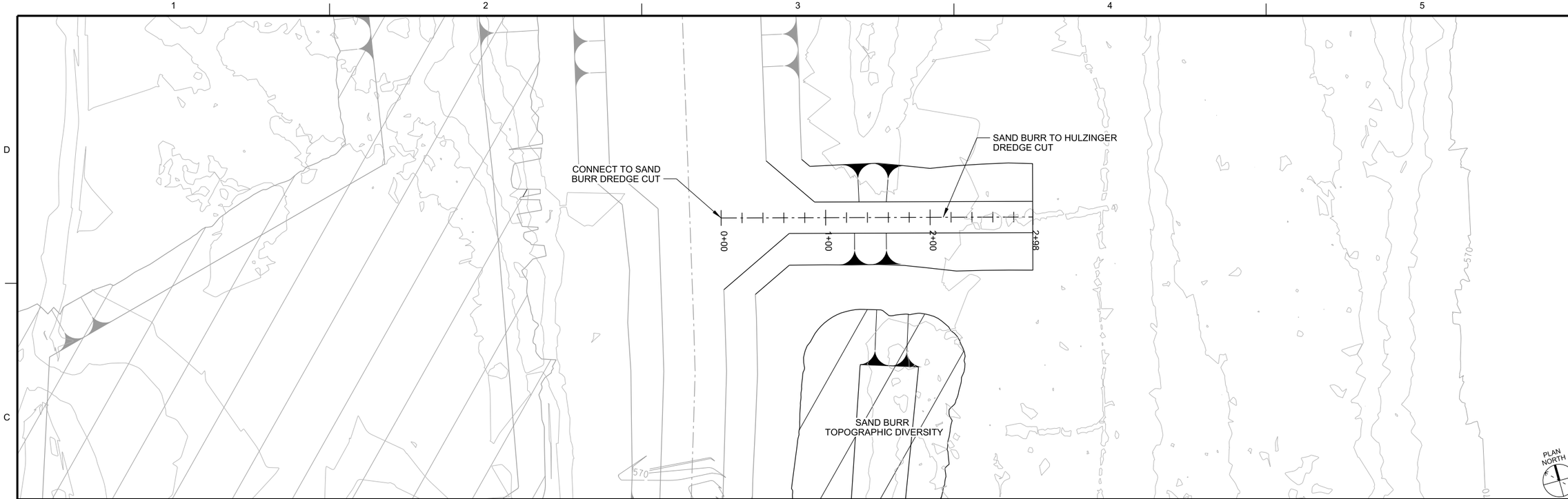
SIZE: ANSI D | FILE NAME: EP109_C-110xx.dgn

MISSISSIPPI RIVER
RIVER MILES 513.0-517.0
CLINTON COUNTY, IA
BEAVER ISLAND COMPLEX HREP
FEASIBILITY REPORT
SAND BURR
PLAN AND PROFILE

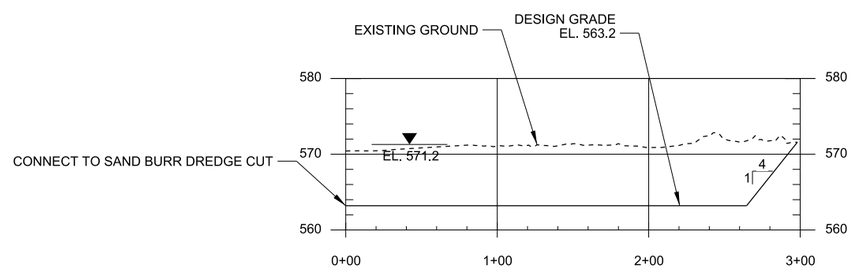
PLATE 15

Sheet ID
C-110



C1 SAND BURR TO HULZINGER CONNECTION PLAN

SCALE : 1"=50'-0" 0 50' 100'



A1 SAND BURR TO HULZINGER CONNECTION PROFILE

HORIZONTAL SCALE : 1"=50'-0" 0 50' 100' VERTICAL SCALE : 1"=10'-0" 0 10' 20'

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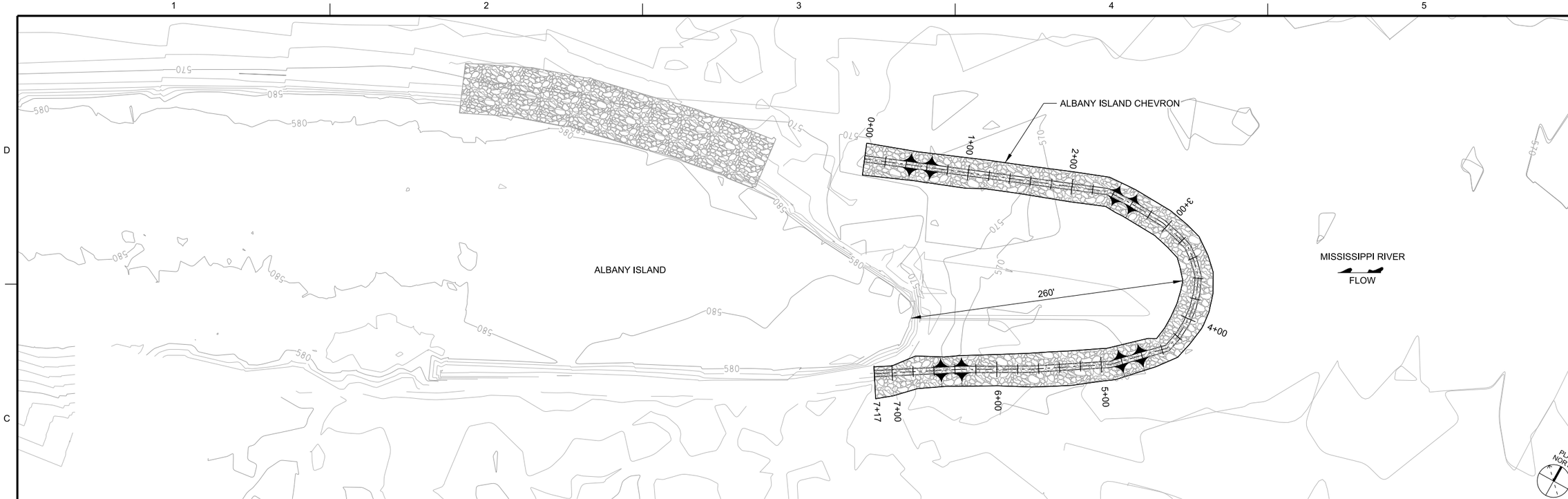
SIZE: ANSI D | FILE NAME: EP109_C-111xxx.dgn

MISSISSIPPI RIVER
RIVER MILES 513.0-517.0
CLINTON COUNTY, IA
BEAVER ISLAND COMPLEX HREP
FEASIBILITY REPORT
SAND BURR TO HULZINGER CONNECTION
PLAN AND PROFILE

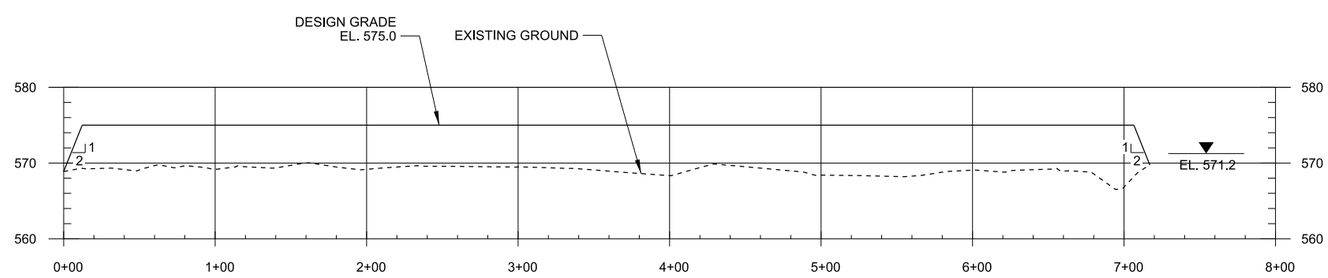
PLATE 16

Sheet ID
C-111



C1 ALBANY ISLAND CHEVRON PLAN

SCALE : 1"=50'-0" 0 50' 100'



A1 ALBANY ISLAND CHEVRON PROFILE

HORIZONTAL SCALE : 1"=50'-0" 0 50' 100' VERTICAL SCALE : 1"=10'-0" 0 10' 20'

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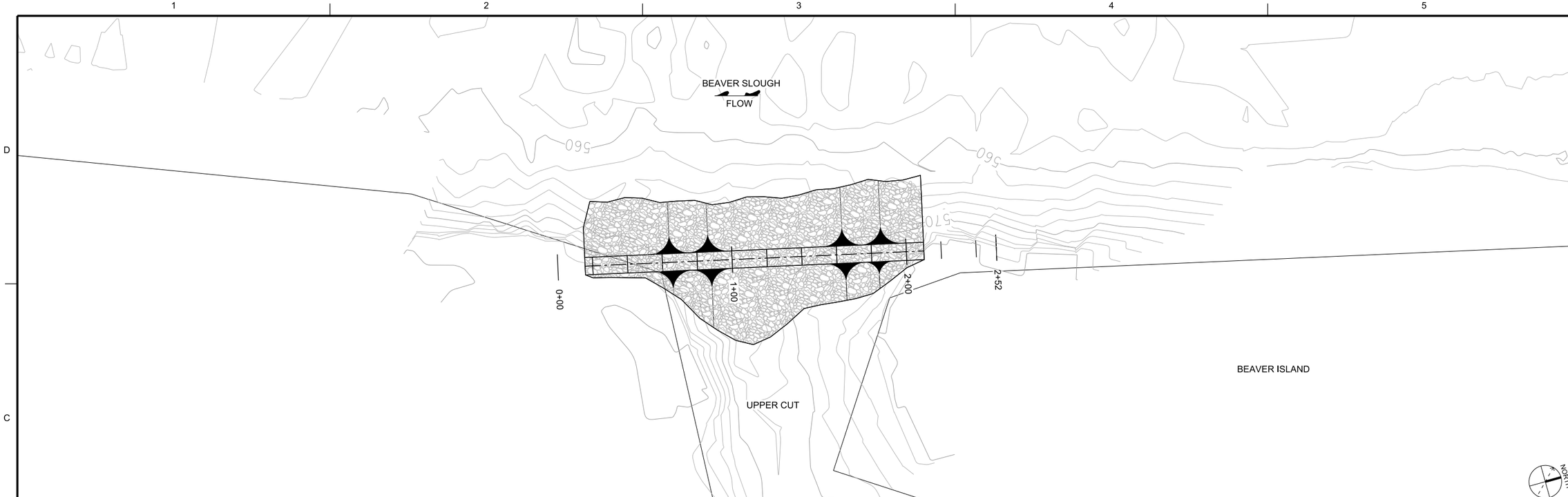
SIZE: ANSI D

MISSISSIPPI RIVER
RIVER MILES 513.0-517.0
CLINTON COUNTY, IA
BEAVER ISLAND COMPLEX HREP
FEASIBILITY REPORT
ALBANY ISLAND CHEVRON
PLAN AND PROFILE

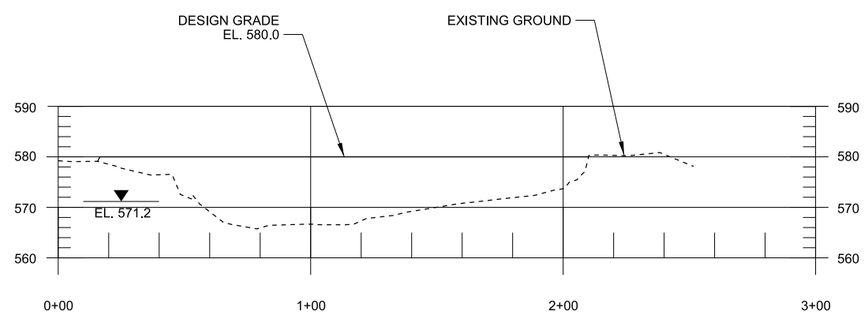
PLATE 17

Sheet ID
C-112



C1 BEAVER ISLAND CLOSURE STRUCTURE PLAN

SCALE : 1"=30'-0" 0 30' 60'



A1 BEAVER ISLAND CLOSURE STRUCTURE PROFILE

HORIZONTAL SCALE : 1"=30'-0" 0 30' 60' VERTICAL SCALE : 1"=15'-0" 0 15' 30'

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MISSISSIPPI RIVER
RIVER MILES 513.0-517.0
CLINTON COUNTY, IA
BEAVER ISLAND COMPLEX HREP
FEASIBILITY REPORT
BEAVER ISLAND CLOSURE STRUCTURE
PLAN AND PROFILE

PLATE 18

Sheet ID
C-113

GENERAL SHEET NOTES

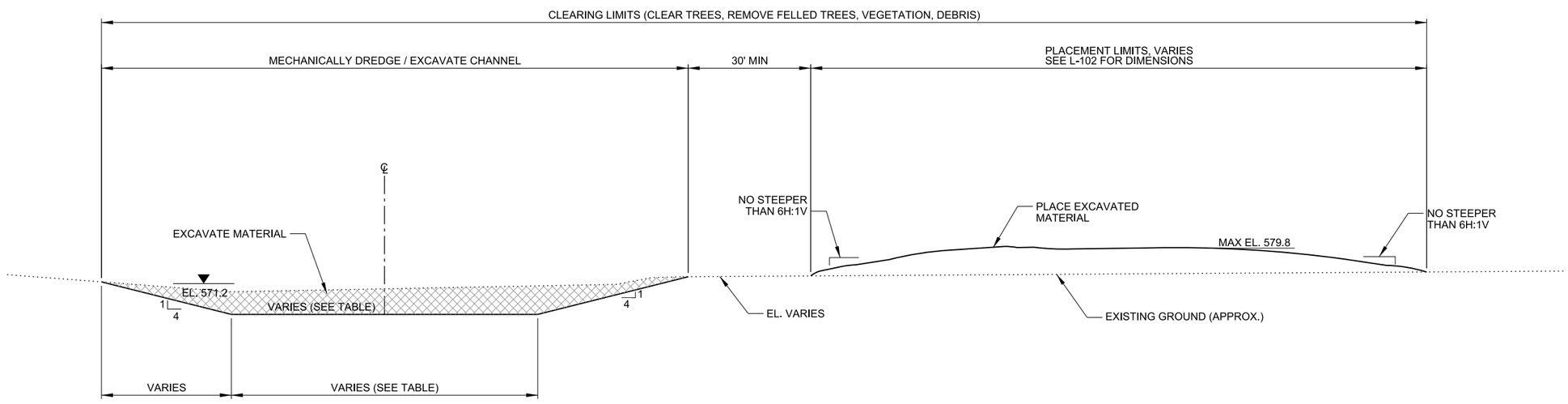
1. CLEARING SHALL BE PERFORMED.
2. CHANNELS ARE TO BE MECHANICALLY EXCAVATED/DREDGED.
3. DEEP HOLE LOCATIONS WILL BE IDENTIFIED DURING THE DESIGN PHASE.
4. PLACEMENT CANNOT EXCEED THE ELEVATION AND WIDTHS SHOWN. OPTIMIZING THE TOP ELEVATION OF THE PLACEMENT SITE WILL OCCUR TO IMPROVE TREE SURVIVABILITY DURING THE DESIGN PHASE.
5. AREAS WITHOUT ADJACENT PLACEMENT SITES SHALL HAVE THE MATERIAL TRANSPORTED TO A TOPOGRAPHIC DIVERSITY SITE.

Dredge Cut Location	Length (LF)	Depth Below Flat Pool (FT)	Width (FT)
Lower Dredge Entrance	3,800.00	8	
(Area 1)	0+00 to 25+50	8	150.00
(Area 2)	25+50 to end	8	50.00
(Deep Hole)	100.00	12	60.00
Stewart Lake Dredge Cut	800.00	8	60.00
Blue Bell Dredge Cut	1,708.00	8	
(Area 1)	Width station 0+00 to 2+00 and 10+00 to end	8	60.00
(Area 2)	Width at station 2+00 to 10+00	8	150.00
(Deep Hole)	100.00	12	60.00
Sand Burr Dredge Cut	2,466.00	8	
(Area 1)	Width station 0+00 to 17+00	8	60.00
(Area 2)	Statio 17+00 to end	8	150.00
(Deep Hole)	100.00	12	60.00
Blue Bell to Sand Burr	361.00	8	30.00
Sand Burr to Hulziger	298.00	8	30.00

DWG REF(s) : _____

C1 DREDGE CUT TABLE

SCALE : 1"=15'-0" 0 15' 30'



DWG REF(s) : _____

A1 DREDGE CUT SHAPING

SCALE : 1"=15'-0" 0 15' 30'

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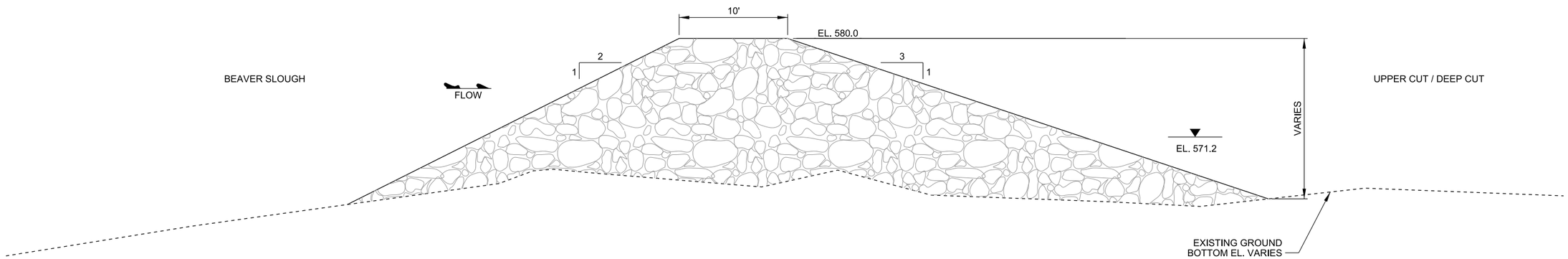
MISSISSIPPI RIVER
RIVER MILES 513.0-517.0
CLINTON COUNTY, IA
BEAVER ISLAND COMPLEX HREP
FEASIBILITY REPORT
TYPICAL DREDGE CUTS

PLATE 19

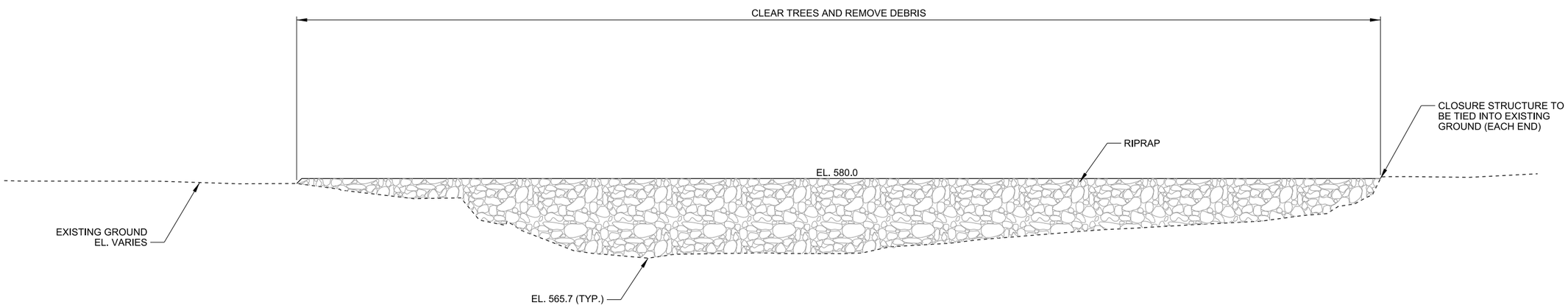
Sheet ID
C-301



C1 BEAVER ISLAND CLOSURE STRUCTURE TYPICAL SECTION

SCALE : 1"=5'-0"

0 5' 10'



A1 BEAVER ISLAND CLOSURE STRUCTURE PROFILE

SCALE : 1"=10'-0"

0 10' 20'

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ROCK ISLAND DISTRICT
ROCK ISLAND, ILLINOIS

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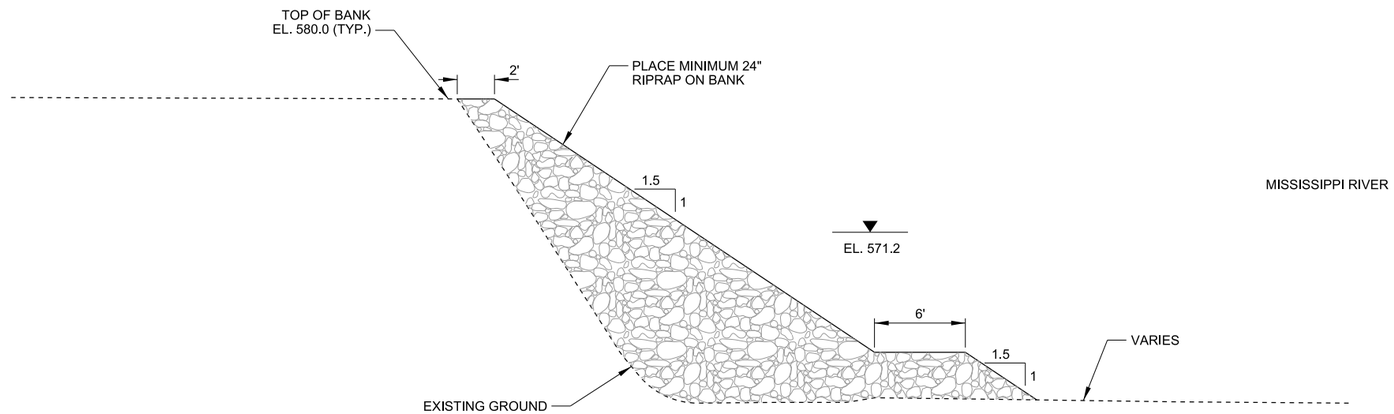
CONTRACT NO.:
PROJECT CODE: EP109
PLOT SCALE: AS SHOWN
PLOT DATE:
SIZE: ANSI D
FILE NAME: EP109_C-302xxx.dgn

MISSISSIPPI RIVER
RIVER MILES 513.0-517.0
CLINTON COUNTY, IA
BEAVER ISLAND COMPLEX HREP
FEASIBILITY REPORT
BEAVER ISLAND CLOSURE STRUCTURE
SECTIONS

PLATE 20

Sheet ID
C-302

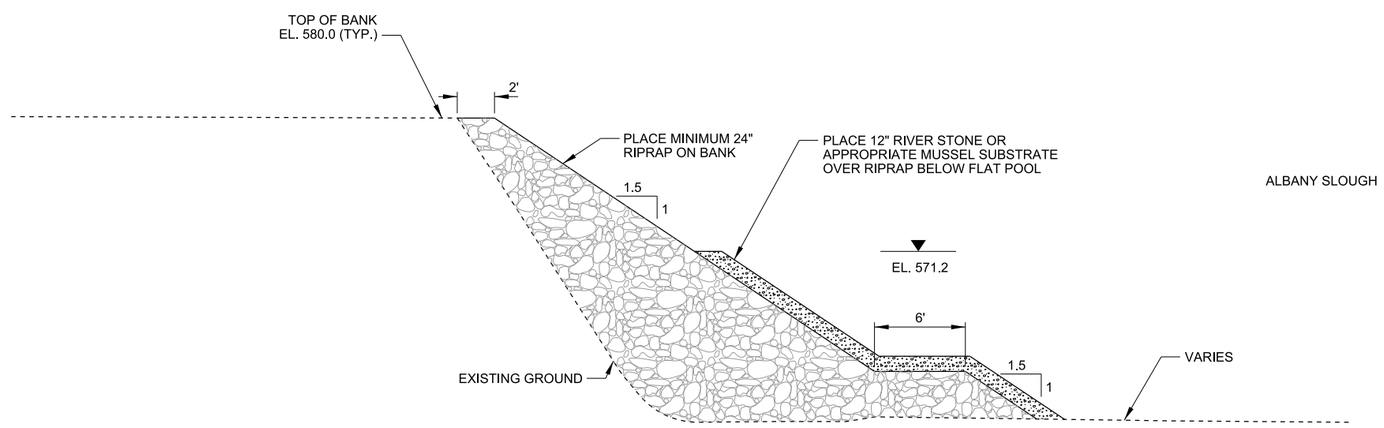


RIVER SIDE

C1 ALBANY ISLAND BANKLINE PROTECTION TYPICAL SECTION

SCALE : 1"=5'-0"

0 5' 10'



ALBANY SLOUGH SIDE

A1 ALBANY ISLAND PROTECTION AND MUSSEL SUBSTRATE TYPICAL SECTION

SCALE : 1"=10'-0"

0 10' 20'

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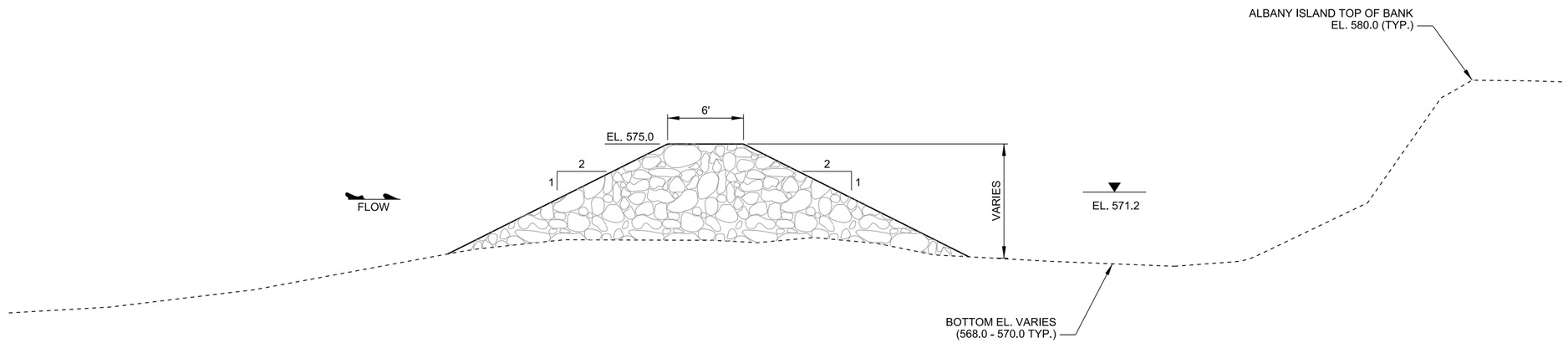
SIZE: ANSI D | FILE NAME: EP109_C-303xxx.dgn

MISSISSIPPI RIVER
RIVER MILES 513.0-517.0
CLINTON COUNTY, IA
BEAVER ISLAND COMPLEX HREP
FEASIBILITY REPORT

BANKLINE PROTECTION
TYPICAL SECTIONS

PLATE 21

Sheet ID
C-303



A1 ALBANY ISLAND CHEVRON TYPICAL SECTION

SCALE : 1"=5'-0"

0 5' 10'

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FILE NAME: EP109_C-304xxx.dgn

MISSISSIPPI RIVER
RIVER MILES 513.0-517.0
CLINTON COUNTY, IA
BEAVER ISLAND COMPLEX HREP
FEASIBILITY REPORT

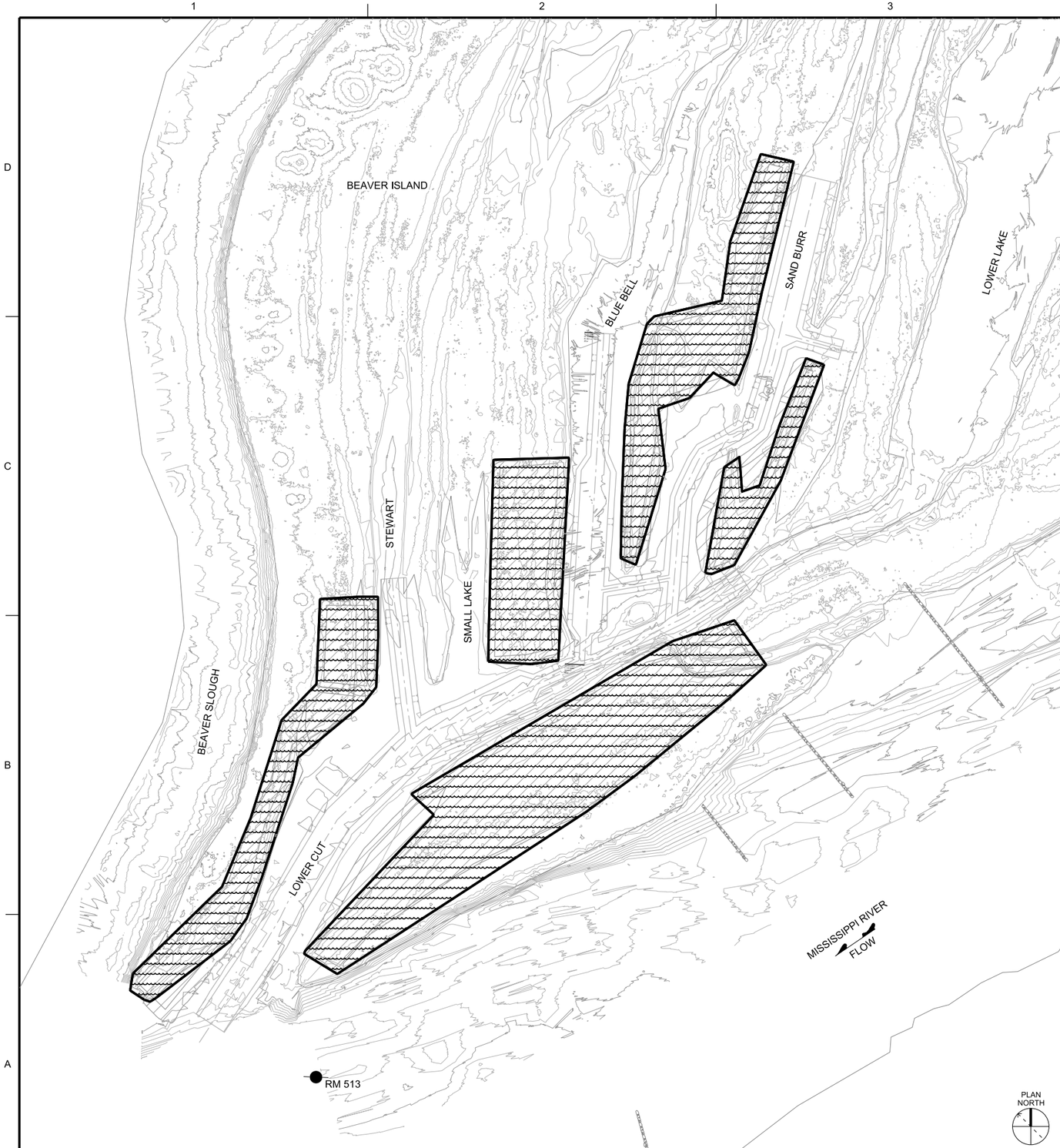
ALBANY ISLAND CHEVRON
TYPICAL SECTION

PLATE 22

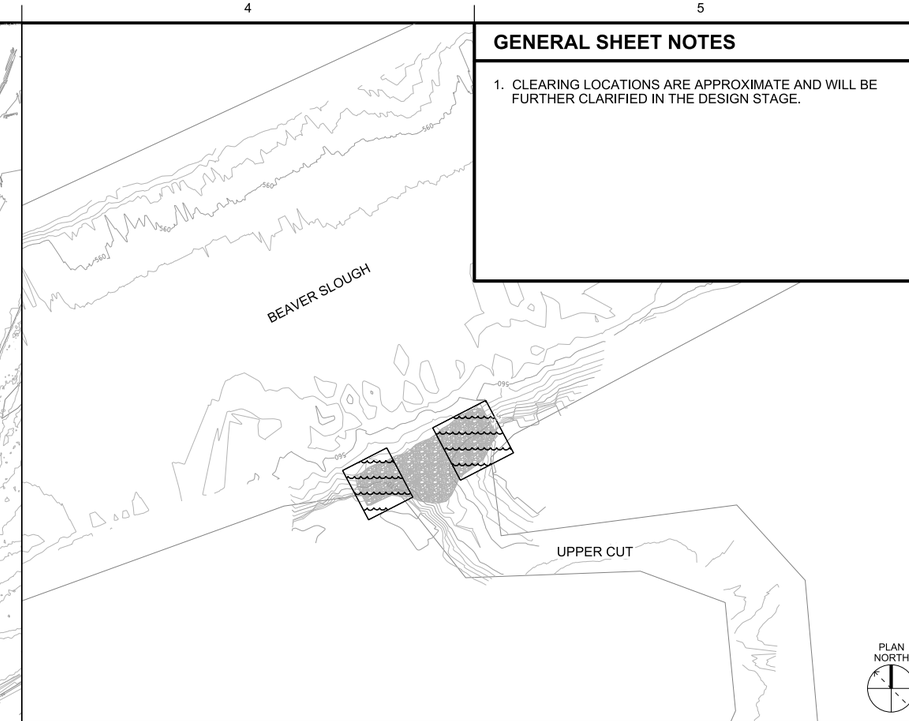
Sheet ID
C-304

GENERAL SHEET NOTES

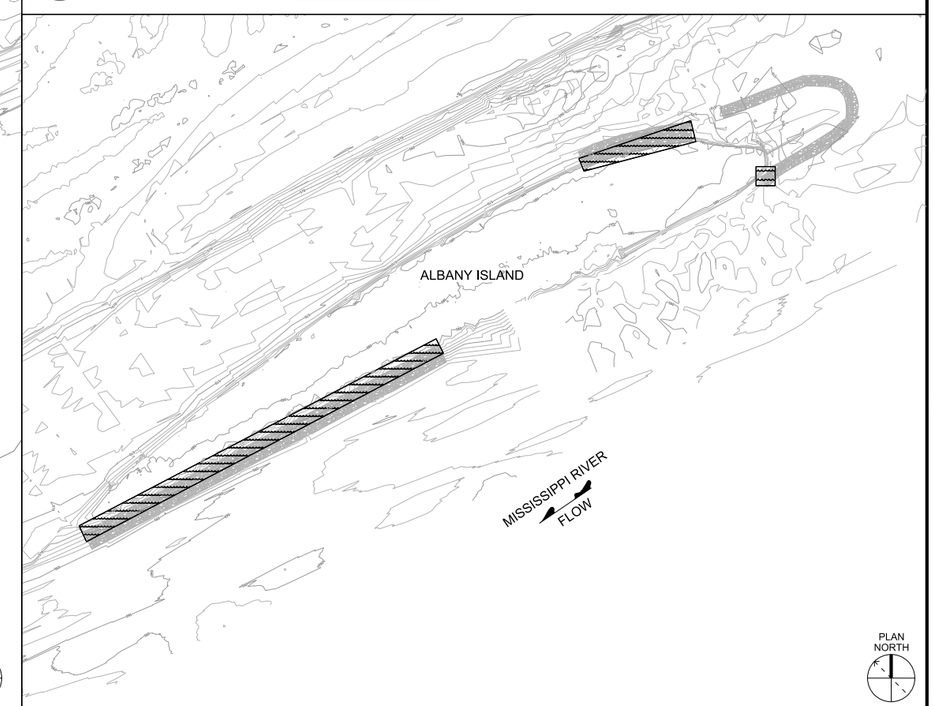
1. CLEARING LOCATIONS ARE APPROXIMATE AND WILL BE FURTHER CLARIFIED IN THE DESIGN STAGE.



A1 CLEARING PLAN
SCALE : 1"=300'-0"
0 300' 600'



C4 CLEARING PLAN
SCALE : 1"=100'-0"
0 100' 200'



A4 CLEARING PLAN
SCALE : 1"=200'-0"
0 200' 400'

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DATE:
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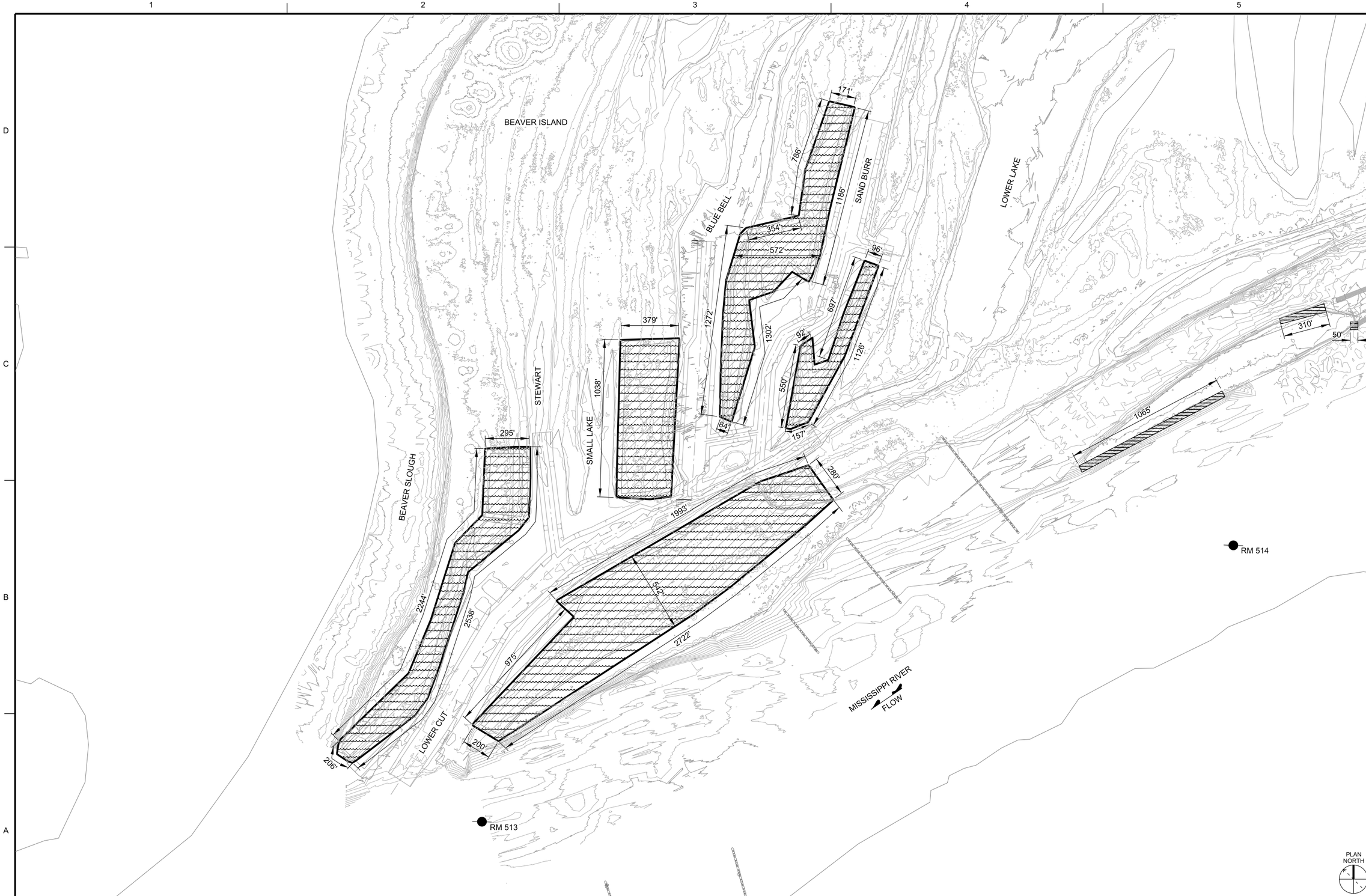
CONTRACT NO.:
PROJECT CODE: EP109
SIZE: ANSI D
FILE NAME: EP109_L-101xx.dgn

MISSISSIPPI RIVER
RIVER MILES 513.0-517.0
CLINTON COUNTY, IA
BEAVER ISLAND COMPLEX HREP
FEASIBILITY REPORT
CLEARING PLAN

PLATE 23

Sheet ID
L-101



A1 PLANTING PLAN

SCALE : 1"=300'-0"

0 300' 600'

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ROCK ISLAND DISTRICT
ROCK ISLAND, ILLINOIS

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CONTRACT NO.:
PROJECT CODE: EP109

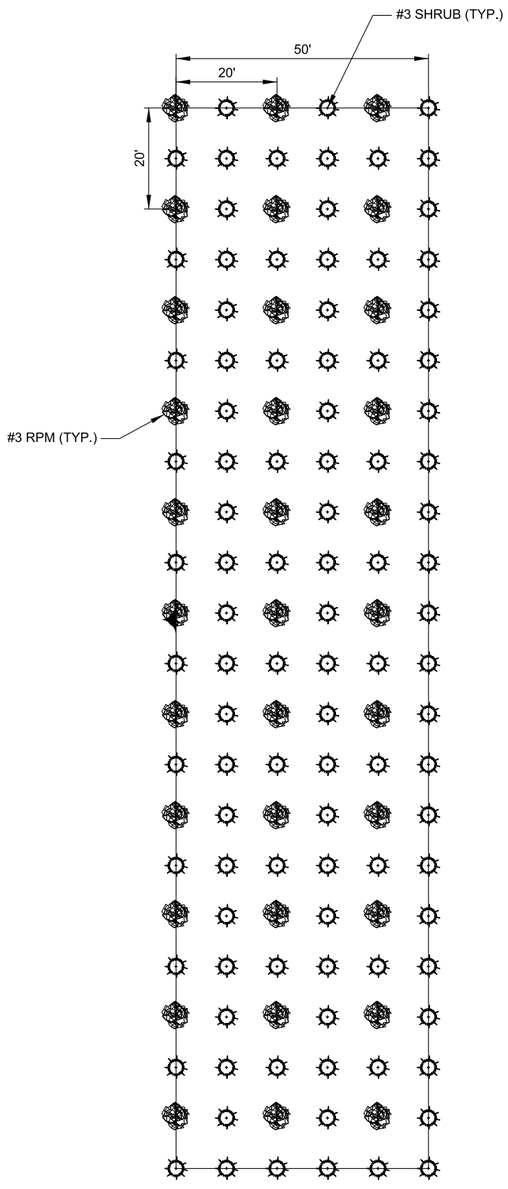
MISSISSIPPI RIVER
RIVER MILES 513.0-517.0
CLINTON COUNTY, IA
BEAVER ISLAND COMPLEX HREP
FEASIBILITY REPORT
PLANTING PLAN

PLATE 24

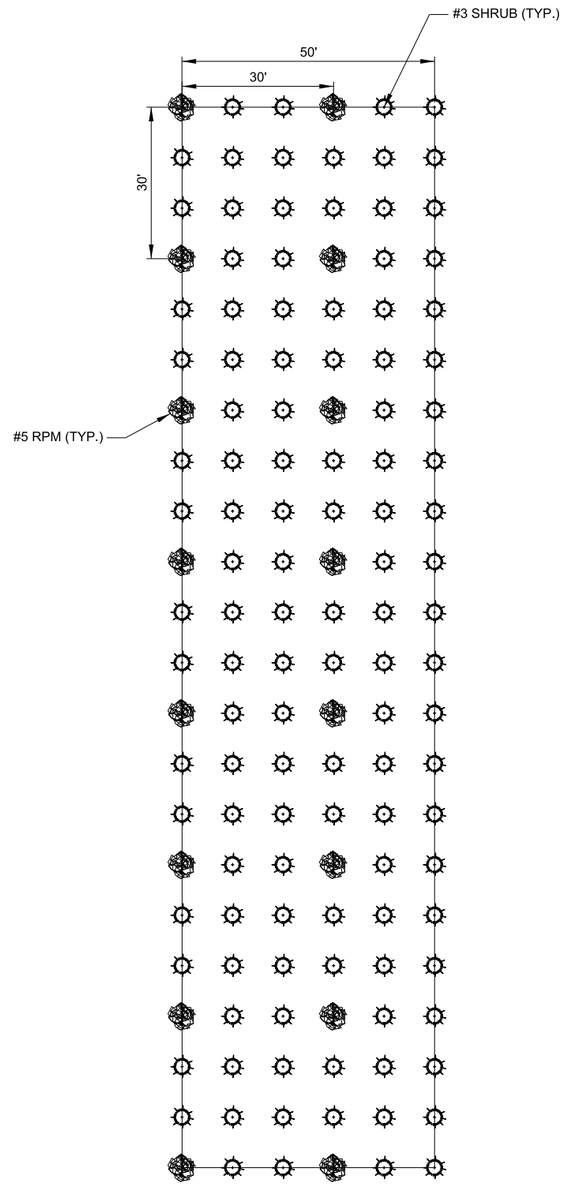
Sheet ID
L-102

GENERAL SHEET NOTES

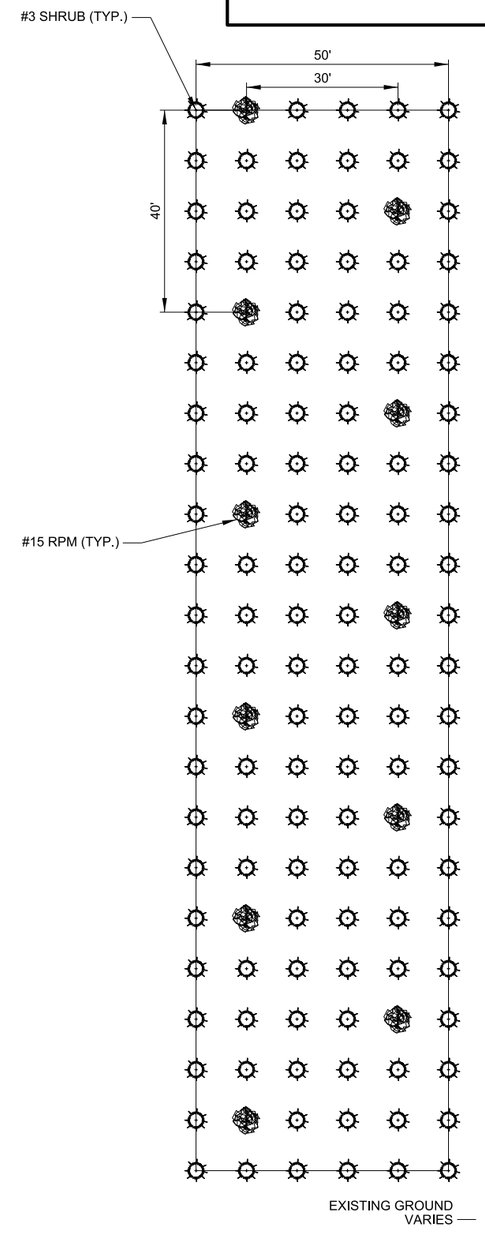
1. TREES SHALL BE PLANTED TO ENSURE THAT THE SPECIES ARE INTERMIXED WITHIN EACH PLOT.
2. EACH TREE PLANTING AREA WILL BE PLANTED WITH UNDERSTORY SEED MIX.
3. FORESTED WETLAND SHRUBS SHALL BE INTERPLANTED INTO EACH TREE PLOT TO PROVIDE SHADE COVERAGE/WEED COMPETITION WHILE THE LARGE GROWTH TREES MATURE.
4. PLOT WIDTHS SHOWN AS 50'. THIS MAY VARY DURING FINAL DESIGN.



A1 TREE AND SHRUB PLANTING PLAN - #3 RPM
SCALE : 1"=15'-0"
0 15' 30'



A2 TREE AND SHRUB PLANTING PLAN - #5 RPM
SCALE : 1"=15'-0"
0 15' 30'



A4 TREE AND SHRUB PLANTING PLAN - #15 RPM
SCALE : 1"=15'-0"
0 15' 30'

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ROCK ISLAND DISTRICT
ROCK ISLAND, ILLINOIS

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PLOT SCALE: AS SHOWN
PLOT DATE:
SIZE: ANSI D
FILE NAME: EP1/09_L-103xxx.dgn
DATE:
SOLICITATION NO.:
CONTRACT NO.:
PROJECT CODE: EP1/09

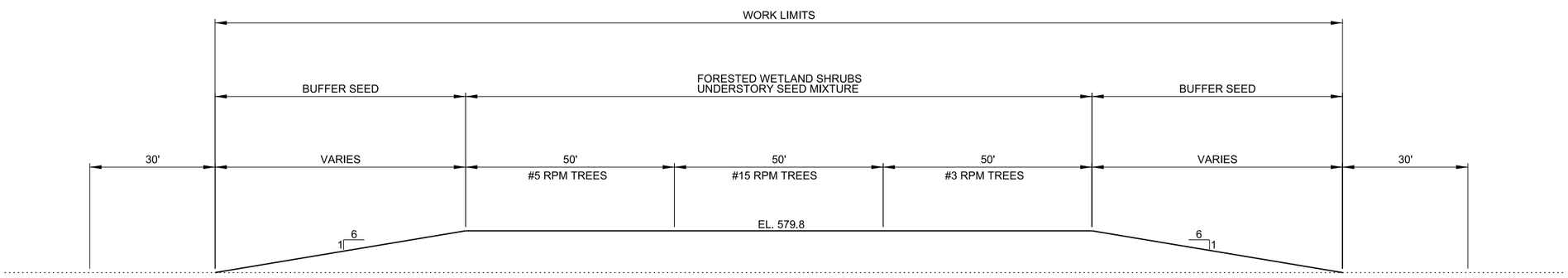
MISSISSIPPI RIVER
RIVER MILES 513.0-517.0
CLINTON COUNTY, IA
BEAVER ISLAND COMPLEX HREP
FEASIBILITY REPORT
TREE AND SHRUB PLANTING PLANS

PLATE 25

Sheet ID
L-103

GENERAL SHEET NOTES

1. 150 FOOT PLACEMENT SITE IS SHOWN. FINAL WIDTHS WILL VARY BASED ON REFORESTATION LOCATION.
2. FINAL DESIGN WILL SHOW PLOTS OF #3, #5, AND #15 RPM TREES IN THEIR FINAL LOCATIONS.
3. PLOT WIDTHS SHOWN AS 50'. THIS MAY VARY DURING FINAL DESIGN.



DWG REF(s) : _____

A1 REFORESTATION TYPICAL SECTION

SCALE : 1"=15'-0"

0 15' 30'

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ROCK ISLAND DISTRICT
ROCK ISLAND, ILLINOIS

DESIGNED BY: KNM
DWN BY: EJJ
CKD BY:
SUBMITTED BY:
DATE:
SOLICITATION NO.:
CONTRACT NO.:
PLOT SCALE: AS SHOWN
PLOT DATE:
PROJECT CODE: EP109
SIZE: ANSI D
FILE NAME: EP109_L-301xxx.dgn

MISSISSIPPI RIVER
RIVER MILES 513.0-517.0
CLINTON COUNTY, IA
BEAVER ISLAND COMPLEX HREP
FEASIBILITY REPORT

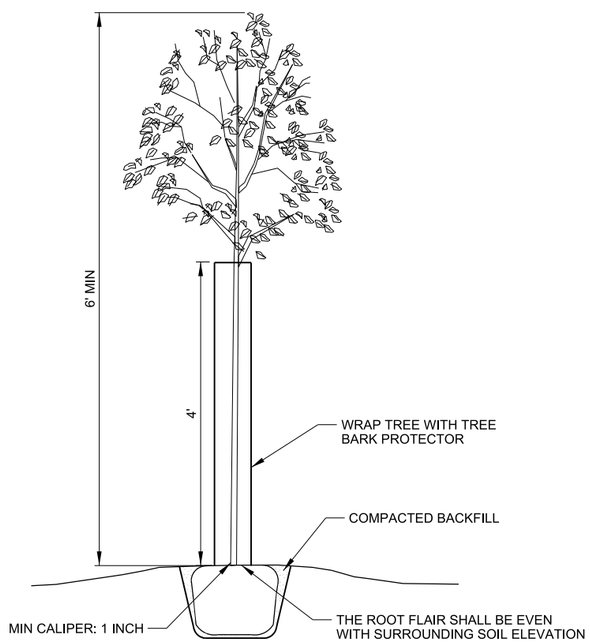
REFORESTATION TYPICAL SECTION

PLATE 26

Sheet ID
L-301

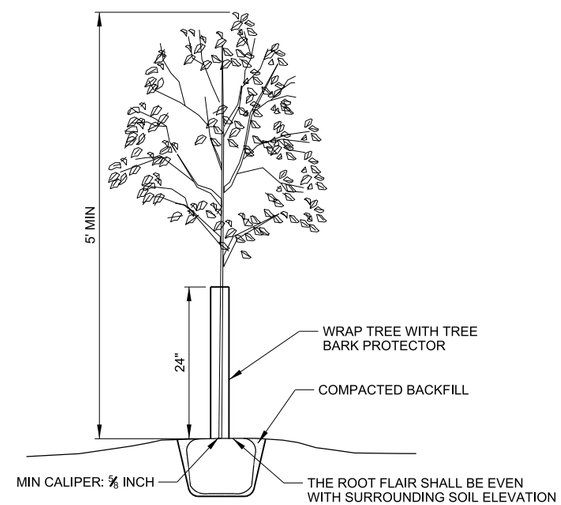
GENERAL SHEET NOTES

1. TREE SPECIES AND PLANTING RATES ARE PROVIDED ON SHEET L-601.
2. TREES SHALL BE PLANTED TO ENSURE THAT THE SPECIES ARE EVENLY DISPERSED WITHIN THE PLACEMENT AREA.



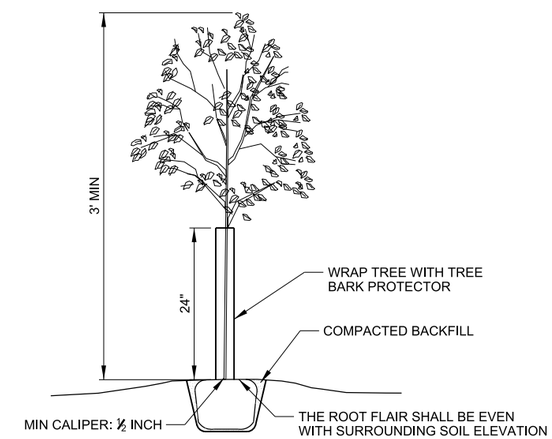
A1 TYPICAL CONTAINER TREE PLANTING DETAIL #15 TREE

SCALE : 1"=1'-0"



A3 TYPICAL CONTAINER TREE PLANTING DETAIL #5 TREE

SCALE : 1"=1'-0"



A4 TYPICAL CONTAINER TREE PLANTING DETAIL #3 TREE

SCALE : 1"=1'-0"

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PLOT SCALE: AS SHOWN
PLOT DATE:
PROJECT CODE: EP109
SIZE: ANSI D
FILE NAME: EP109_L-501xxx.dgn

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BEAVER ISLAND COMPLEX HREP
FEASIBILITY REPORT
TREE PLANTING DETAILS

PLATE 27

Sheet ID
L-501

Forested Wetland Trees	
Common Name	**Scientific Name**
#3 RPM (108 trees per acre)	
River Birch	*Betula* nigra
Northern Pecan	*Carya illinoinensis*
Shellbark Hickory	*Carya laciniosa*
Common Hackberry	*Celtis occidentalis*
Common Persimmon	*Diospyros virginiana*
Honey Locust	*Gleditsia triacanthos*
Kentucky Coffeetree	*Gymnocladus dioicus*
American Sycamore	*Platanus occidentalis*
Swamp White Oak	*Quercus bicolor*
Bur Oak	*Quercus macrocarpa*
Pin Oak	*Quercus palustris*
Overcup Oak	*Quercus lyrata*
#5 RPM (48 trees per acre)	
River Birch	*Betula* nigra
Northern Pecan	*Carya illinoinensis*
Shellbark Hickory	*Carya laciniosa*
Common Hackberry	*Celtis occidentalis*
Common Persimmon	*Diospyros virginiana*
Honey Locust	*Gleditsia triacanthos*
Kentucky Coffeetree	*Gymnocladus dioicus*
American Sycamore	*Platanus occidentalis*
Swamp White Oak	*Quercus bicolor*
Bur Oak	*Quercus macrocarpa*
Pin Oak	*Quercus palustris*
Overcup Oak	*Quercus lyrata*
#15 RPM (27 trees per acre)	
River Birch	*Betula* nigra
Northern Pecan	*Carya illinoinensis*
Shellbark Hickory	*Carya laciniosa*
Common Hackberry	*Celtis occidentalis*
Common Persimmon	*Diospyros virginiana*
Honey Locust	*Gleditsia triacanthos*
Kentucky Coffeetree	*Gymnocladus dioicus*
American Sycamore	*Platanus occidentalis*
Swamp White Oak	*Quercus bicolor*
Bur Oak	*Quercus macrocarpa*
Pin Oak	*Quercus palustris*
Overcup Oak	*Quercus lyrata*
MISCELLANEOUS	
TREE WRAPS (#3/#5 Trees)	
TREE WRAPS (#15 Trees)	

A1 FORESTED WETLAND TREE SCHEDULE

SCALE : NO SCALE

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SIZE: ANSI D
FILE NAME: EP109_L-601xxx.dgn

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RIVER MILES 513.0-517.0
CLINTON COUNTY, IA
BEAVER ISLAND COMPLEX HREP
FEASIBILITY REPORT

FORESTED WETLAND TREE SCHEDULE

PLATE 28

Sheet ID
L-601

Forested Wetland Shrubs	
#3 RPM (60 plants per acre)	
Common Name	**Scientific Name**
Common Buttonbush	*Cephalanthus occidentalis*
Red-Osier Dogwood	*Cornus stolonifera*
Silky Dogwood	*Cornus amomum*
American Elderberry	*Sambucus canadensis*
Northern Spicebush	*Lindera benzoin*
American Bladdernut	*Staphylea trifolia*

A1 SHRUB AND SCRUB/SHRUB SCHEDULE

SCALE : NO SCALE

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ROCK ISLAND DISTRICT
ROCK ISLAND, ILLINOIS

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SIZE: ANSI D
FILE NAME: EP109_L-602xxx.dgn
PLOT DATE:
DATE:
SOLICITATION NO.:
CONTRACT NO.:
PROJECT CODE: EP109

MISSISSIPPI RIVER
RIVER MILES 513.0-517.0
CLINTON COUNTY, IA
BEAVER ISLAND COMPLEX HREP
FEASIBILITY REPORT
SHRUB AND SCRUB/SHRUB SCHEDULE

PLATE 29

Sheet ID
L-602

Buffer Seed and Cutting		
Common Name	**Scientific Name**	**Application Rate**
Black Willow	*Salix nigra*	500 cuttings per acre
Cottonwood	*Populus deltoids*	500 cuttings per acre
River Birch	*Betula nigra*	60,000 seeds per acre
Common Buttonbush	*Cephalanthus occidentalis*	60,000 seeds per acre

Understory Seed 125,000 seeds per acre		
Common Name	**Scientific Name**	**Percentage of Mixture**
Virginia Wild Rye	*Elymus virginicus*	12.5%
Canada Wild Rye	*Elymus canadensis*	12.5%
Partridge Pea	*Chamaechrista fasciculata*	12.5%
Common Buttonbush	*Cephalanthus occidentalis*	12.5%
Rice Cut Grass	*Leersia oryzoides*	12.5%
Cardinal Flower	*Lobelia cardinalis*	12.5%
Sneezeweed	*Helenium autumnale*	12.5%
Swamp Milkweed	*Asclepias incarnata*	12.5%

A1 SEEDING SCHEDULE
SCALE : NO SCALE

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ROCK ISLAND DISTRICT
ROCK ISLAND, ILLINOIS

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PLOT DATE:
PROJECT CODE: EP109
SIZE: ANSI D
FILE NAME: EP109_L-603xxx.dgn

MISSISSIPPI RIVER
RIVER MILES 513.0-517.0
CLINTON COUNTY, IA
BEAVER ISLAND COMPLEX HREP
FEASIBILITY REPORT
SEEDING SCHEDULE

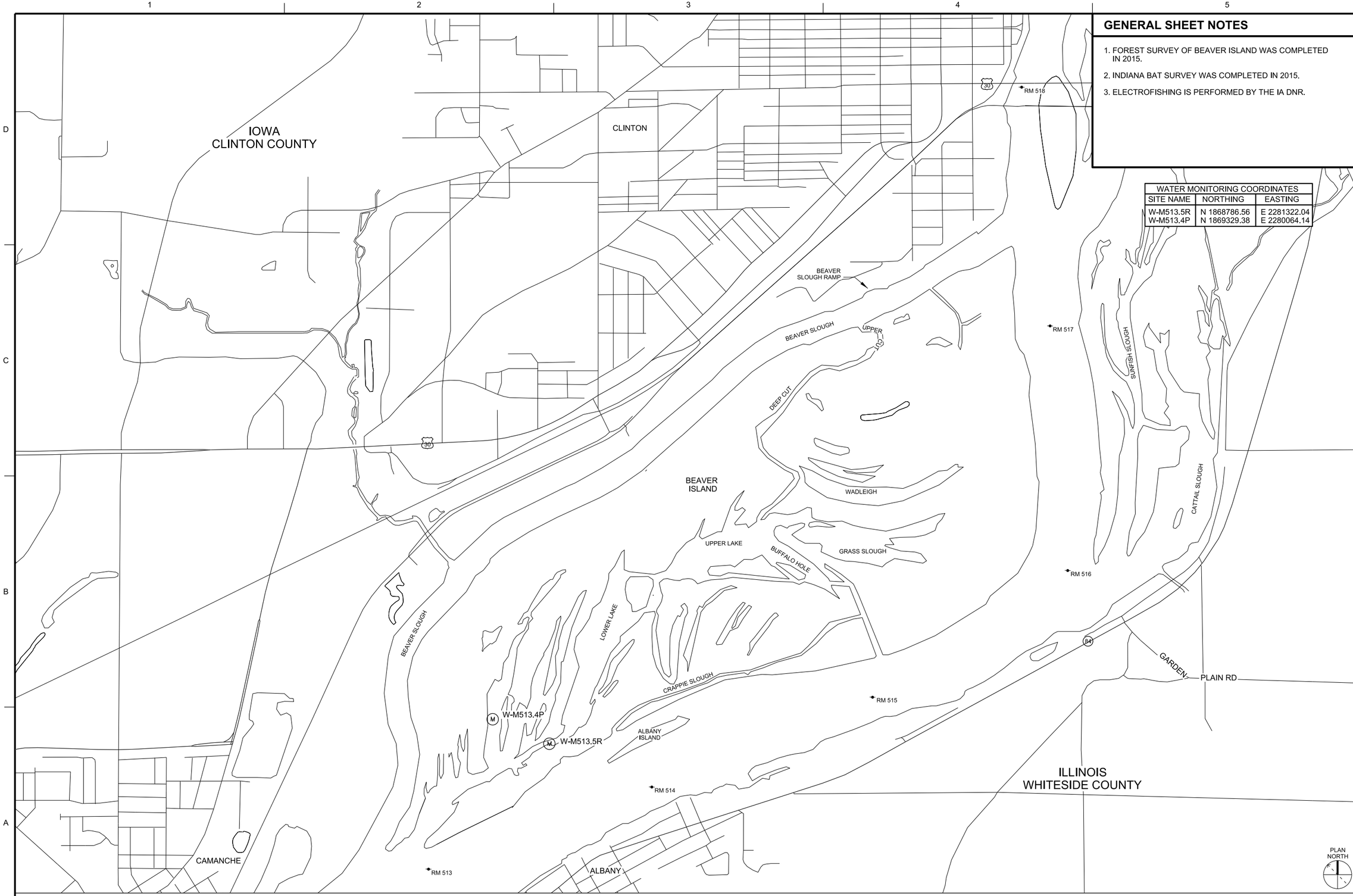
PLATE 30

Sheet ID
L-603

GENERAL SHEET NOTES

1. FOREST SURVEY OF BEAVER ISLAND WAS COMPLETED IN 2015.
2. INDIANA BAT SURVEY WAS COMPLETED IN 2015.
3. ELECTROFISHING IS PERFORMED BY THE IA DNR.

WATER MONITORING COORDINATES		
SITE NAME	NORTHING	EASTING
W-M513.5R	N 1868786.56	E 2281322.04
W-M513.4P	N 1869329.38	E 2280064.14



A1 PRE-CONSTRUCTION MONITORING PLAN

SCALE : 1"=1000'-0"

0 1000' 2000'

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MARK	DESCRIPTION	DATE	APPR.

U.S. ARMY CORPS OF ENGINEERS
ROCK ISLAND DISTRICT
ROCK ISLAND, ILLINOIS

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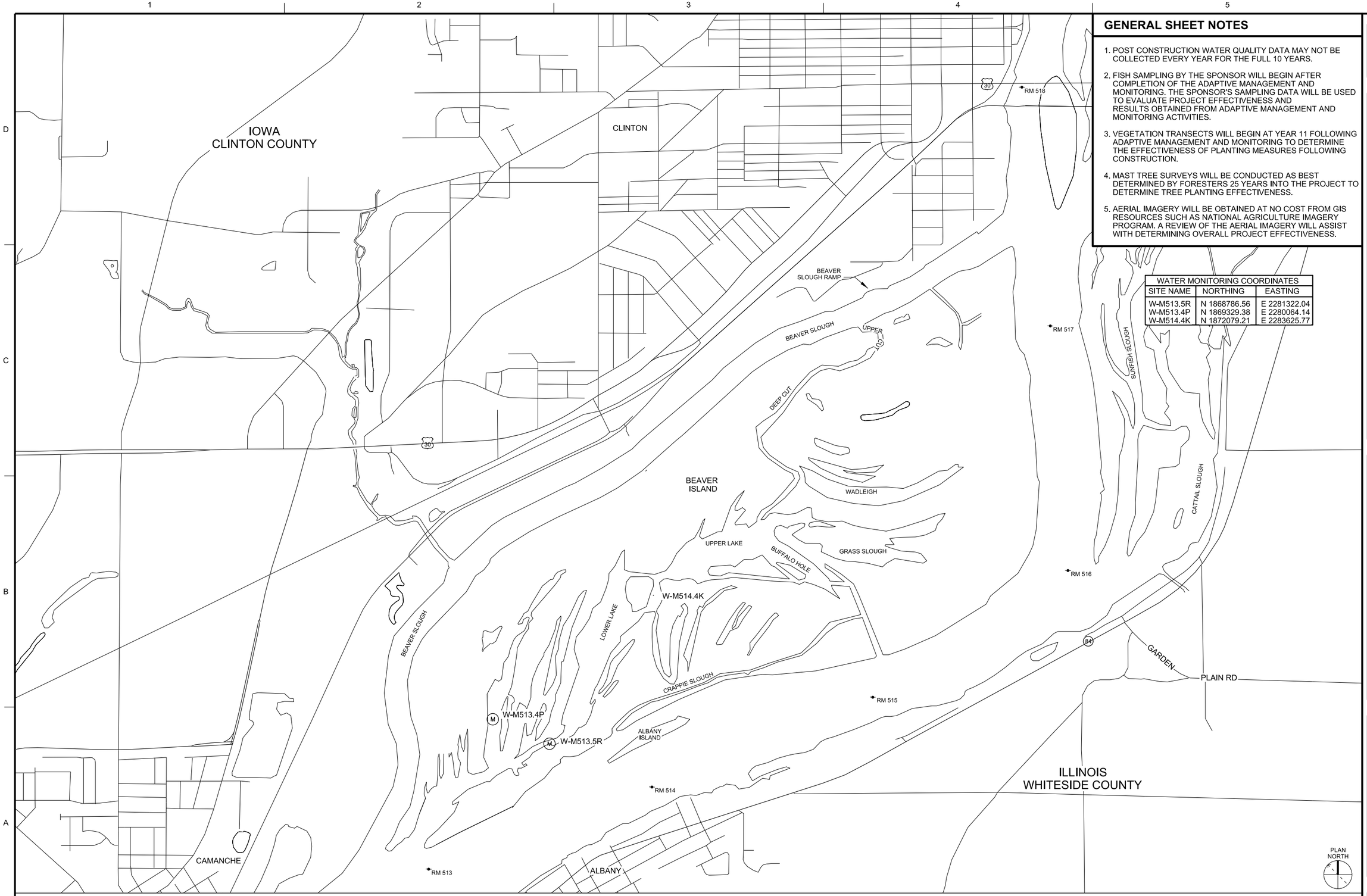
PLOT SCALE: AS SHOWN
PLOT DATE:
SIZE: ANSI D
FILE NAME: EP109_O-101xxx.dgn
DATE:
SOLICITATION NO.:
CONTRACT NO.:
PROJECT CODE: EP109

MISSISSIPPI RIVER
RIVER MILES 513.0-517.0
CLINTON COUNTY, IA
BEAVER ISLAND COMPLEX HREP
FEASIBILITY REPORT
PRE-CONSTRUCTION MONITORING PLAN

PLATE 31

Sheet ID
O-101



GENERAL SHEET NOTES

1. POST CONSTRUCTION WATER QUALITY DATA MAY NOT BE COLLECTED EVERY YEAR FOR THE FULL 10 YEARS.
2. FISH SAMPLING BY THE SPONSOR WILL BEGIN AFTER COMPLETION OF THE ADAPTIVE MANAGEMENT AND MONITORING. THE SPONSOR'S SAMPLING DATA WILL BE USED TO EVALUATE PROJECT EFFECTIVENESS AND RESULTS OBTAINED FROM ADAPTIVE MANAGEMENT AND MONITORING ACTIVITIES.
3. VEGETATION TRANSECTS WILL BEGIN AT YEAR 11 FOLLOWING ADAPTIVE MANAGEMENT AND MONITORING TO DETERMINE THE EFFECTIVENESS OF PLANTING MEASURES FOLLOWING CONSTRUCTION.
4. MAST TREE SURVEYS WILL BE CONDUCTED AS BEST DETERMINED BY FORESTERS 25 YEARS INTO THE PROJECT TO DETERMINE TREE PLANTING EFFECTIVENESS.
5. AERIAL IMAGERY WILL BE OBTAINED AT NO COST FROM GIS RESOURCES SUCH AS NATIONAL AGRICULTURE IMAGERY PROGRAM. A REVIEW OF THE AERIAL IMAGERY WILL ASSIST WITH DETERMINING OVERALL PROJECT EFFECTIVENESS.

WATER MONITORING COORDINATES

SITE NAME	NORTHING	EASTING
W-M513.5R	N 1868786.56	E 2281322.04
W-M513.4P	N 1869329.38	E 2280064.14
W-M514.4K	N 1872079.21	E 2283625.77

A1 POST-CONSTRUCTION MONITORING PLAN

SCALE : 1"=1000'-0"

0 1000' 2000'

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE	APPR.

U.S. ARMY CORPS OF ENGINEERS
ROCK ISLAND DISTRICT
ROCK ISLAND, ILLINOIS

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PLOT DATE:
PROJECT CODE: EP109
SIZE: ANSI D
FILE NAME: EP109_O-102xx.dgn

MISSISSIPPI RIVER
RIVER MILES 513.0-517.0
CLINTON COUNTY, IA
BEAVER ISLAND COMPLEX HREP
FEASIBILITY REPORT
POST-CONSTRUCTION MONITORING PLAN

PLATE 32

Sheet ID
O-102