DRAFT FEASIBILITY REPORT
FLOOD DAMAGE REDUCTION
FOR
DES MOINES AND RACCOON RIVERS PROJECT
DES MOINES, IOWA

WITH INTEGRATED
ENVIRONMENTAL ASSESSMENT

5 May 2005

VOLUME 3

Volume 3

FLOOD DAMAGE REDUCTION DES MOINES AND RACCOON RIVERS PROJECT

FEASIBILITY REPORT

DES MOINES, IOWA WITH INTEGRATED ENVIRONMENTAL ASSESSMENT

11"X 17" FIGURES, EXHIBITS, AND PLATES

Prepared by
U.S. Army Corps of Engineers
Rock Island District
July 28 2004

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Volume 3

Des Moines & Raccoon Rivers Feasibility Study
Reach 1 - Birdland Park

General Criteria
- Existing Levee: Non-Federal
- Year Built: 1950
- Existing Levee Elevation City Datum: 32

Economic Criteria
- 500-Year Event Damage: $27,700,000
- Residential Parcels: 49
- Commercial/Industrial Parcels: 30
- Public Parcels: 1

Infrastructure
- Bridges: 2
- Gatewells: 5
- Pump Stations: 2

Legend

- 100 Year Flood Zone (Source: USACE 2004)
- 100 Year Flood Zone (Source: FEMA 1988)
- 500 Year Flood Zone (Source: FEMA 1988)
- Parcels
- Neal Smith Trail
- Levees
- Roads
- Proposed Bike Trail
- Bridge
- Gatewells
- Pump Stations
- Closures
- Gated Culvert

500 250 0 500 Feet

N W E S

Alignment 3
Alignment 2
Recommended Alignment 1
Birdland Park Levee
DM 63
DM 65
DM 67
DM 71
McHenry Park
Riverview Park
Des Moines River
Crocker Woods Park
Union Park
Birdland Park
Parking Lot
6th St.
Sheridan
Holcomb Ave.
Saylor Road
Hickman Ave.

PLATE 1

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Des Moines & Raccoon Rivers Feasibility Study
Reach 2 - Central Place

General Criteria

Existing Levee: Non-Federal
Year Built: 1950
Existing Levee Elevation City Datum: 33.98

Economic Criteria

500-Year Event Damage: $47,000,000
Residential Parcels: 1
Commercial/Industrial Parcels: 109

Infrastructure

Bridges: 1
Gatewells: 8
Pump Stations: 4
Public Parcels: 2

Legend

- 100 Year Flood Zone (Source: USACE 2004)
- 100 Year Flood Zone (Source: FEMA 1988)
- 500 Year Flood Zone (Source: FEMA 1988)
- Parcels
- Gatewells
- Levees
- Interstate Hwys.
- Roads
- Pump Stations

500 250 0 500 Feet

N W E S

Central Place Levee
Des Moines River
Washington
College
Forest
6th Ave.
2nd Ave.
Ohio
Illinois
Vermont
Michigan
Forest Ave.
University Ave
7th St.
3rd St.
Penn Ave.
E. 6th St.
235
69

PLATE 2

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Des Moines & Raccoon Rivers Feasibility Study
Reach 3 - Downton East

General Criteria
- Existing Levee: Federal
- Year Built: 1965-1972
- Existing Levee Elevation City Datum: 33.7

Economic Criteria
- 500-Year Event Damage: $143,000,000
- Residential Parcels: 227
- Commercial/Industrial Parcels: 272
- Public Parcels: 9

Infrastructure
- Bridges: 10
- Gatewells: 27
- Pump Stations: 5
- Utility Crossings: 3

Legend

- 100 Year Flood Zone (Source: USACE 2004)
- 100 Year Flood Zone (Source: FEMA 1988)
- 500 Year Flood Zone (Source: FEMA 1988)
- Parcels
- Gatewells
- Pump Stations
- Levees
- Interstate Hwys.
- Roads
- Closures

N W E S

1,000 0 1,000 2,000 Feet

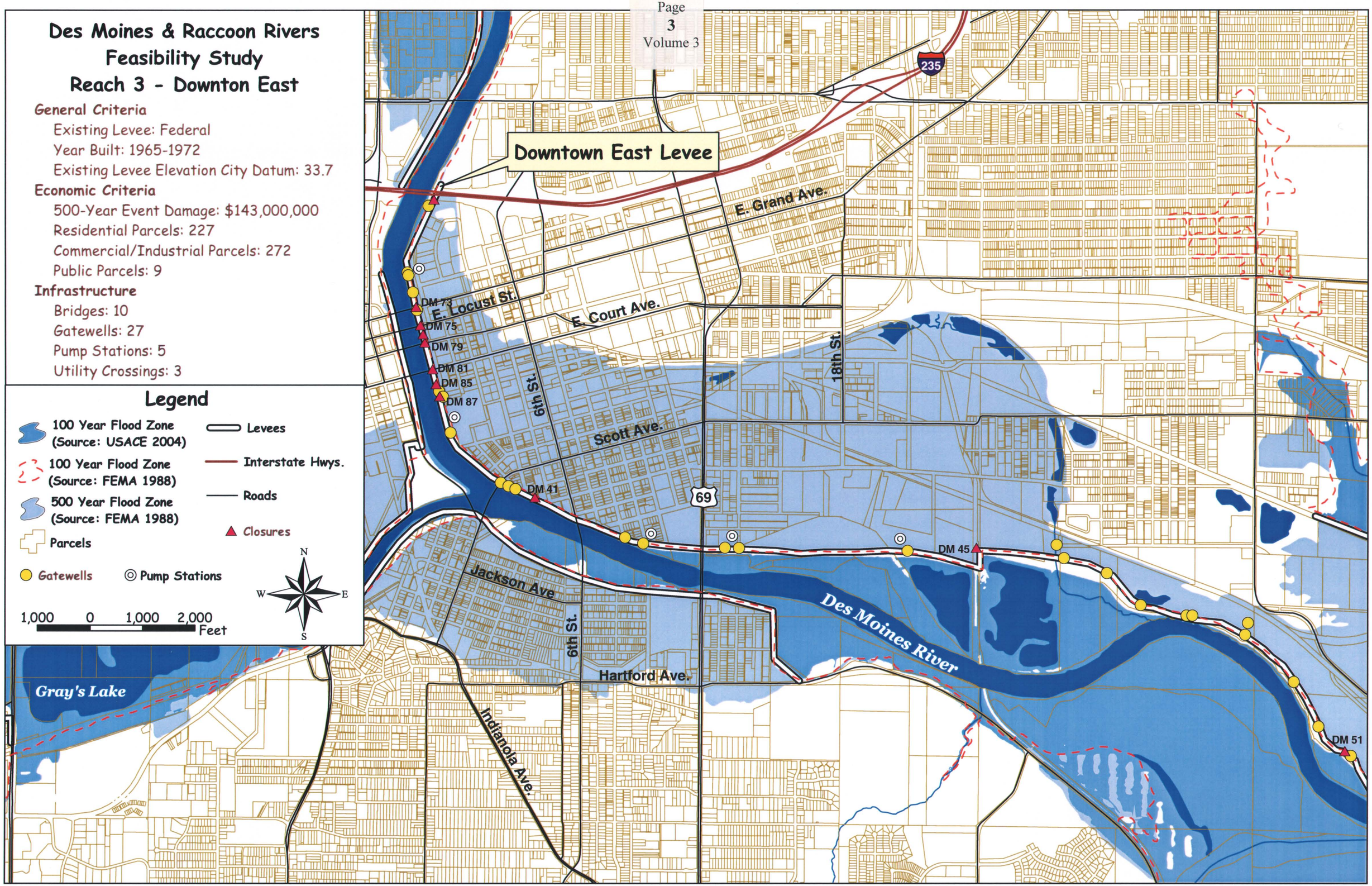

PLATE 3

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Des Moines & Raccoon Rivers Feasibility Study
Reach 4 - Downtown West

General Criteria

Existing Levee: Federal
Year Built: 1965-1972
Existing Levee Elevation City Datum: 33.7

Economic Criteria

500-Year Event Damage: $68,800,000
Residential Parcels:
Commercial/Industrial Parcels: 182
Public Parcels: 3

Infrastructure

Gatewells: 22
Pump Stations: 2
Bridges: 11
Utility Crossings: 6

Legend

- 100 Year Flood Zone (Source: USACE 2004)
- 100 Year Flood Zone (Source: FEMA 1988)
- 500 Year Flood Zone (Source: FEMA 1988)
- Parcels
- Gatewells
- Pump Stations
- Levees
- Interstate Hwys.
- Roads
- Closures

1,000 500 0 1,000 Feet

N W E S

Downtown West Levee

DM 76
DM 78
DM 80
DM 82
DM 86
DM 88

235
69

E. Grand Ave.
E. Court Ave.
Scott Ave.
Grand Ave.
Locust St.
Jackson Ave
Indianola Ave
Hartford Ave.
6th St.
7th St.
9th St.

Des Moines River
Raccoon River
Gray's Lake

PLATE 4

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Des Moines & Raccoon Rivers Feasibility Study
Reach 5 - Downtown South

General Criteria

Existing Levee: Federal
Year Built: 1965-1972
Existing Levee Elevation City Datum: 33.7

Economic Criteria

500-Year Event Damage: $39,200,000
Residential Parcels: 579
Commercial/Industrial Parcels: 58
Public Parcels: 8

Infrastructure

Gatewells: 13
Bridges: 8
Utility Crossings: 7
Pump Stations: 2

Legend

- 100 Year Flood Zone (Source: USACE 2004)
- 100 Year Flood Zone (Source: FEMA 1988)
- 500 Year Flood Zone (Source: FEMA 1988)
- Parcels
- Gatewells
- Pump Stations
- Levees
- Interstate Hwys.
- Roads
- Closures

1,000 500 0 1,000 Feet

N W E S

E. Grand Ave.
E. Court Ave.
6th St.
7th St.
18th St.
Scott Ave.
69
DM 42
DM 38
Des Moines River
Wingstrom Ave.
Jackson Ave
1st St.
6th St.
Indianola Ave.
Hartford Ave.
Raccoon River
Gray's Lake
Downtown South Levee

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Des Moines & Raccoon Rivers Feasibility Study
Reach 6 - Raccoon River 205

General Criteria

Existing Levee: Federal
Year Built: 1995-2000
Existing Levee Elevation City Datum: 34.1

Economic Criteria

500-Year Event Damage: $24,000,000
Residential Parcels: 0
Commercial/Industrial Parcels: 33
Public Parcels: 2

Legend

- 100 Year Flood Zone (Source: USACE 2004)
- 100 Year Flood Zone (Source: FEMA 1988)
- 500 Year Flood Zone (Source: FEMA 1988)
- Parcels
- Levees
- Roads

1,000 500 0 1,000 Feet

N W E S

Ingersoll Ave.
Grand Ave.
Gray's Lake
Raccoon River
George Flagg PKWY
Fleur Dr.
SW 9th St.
Park Ave.
Raccoon River 205 Levee

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Des Moines & Raccoon Rivers Feasibility Study
Reach 7 - Des Moines Water Works

General Criteria
- Existing Levee: Non-Federal
- Year Built: 1994
- Existing Levee Elevation City Datum: 34.2

Economic Criteria
- 500-Year Event Damage: $17,000,000
- Residential Parcels: 0
- Commercial/Industrial Parcels: 0
- Public Parcels: 1

Legend

- 100 Year Flood Zone (Source: USACE 2004)
- 100 Year Flood Zone (Source: FEMA 1988)
- 500 Year Flood Zone (Source: FEMA 1988)
- Levees
- Roads
- Parcels

1,000 500 0 1,000 Feet

N W E S

Des Moines Water Works Levee

Woodland Ave.
Ingersoll Ave.
Grand Ave.
Grand Ave.
Locust St.
Raccoon River
Gray's Lake
George Flagg PKWY
Fleur Dr.
SW 9th St.
South Union St.

PLATE 7

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Des Moines & Raccoon Rivers Feasibility Study
Reach 8 - West Des Moines

General Criteria

Existing Levee: Federal
Year Built: 1995-1999
Existing Levee Elevation City Datum: 34.5

Economic Criteria

500-Year Event Damage: $63,000,000
Residential Parcels: 904
Commercial/Industrial Parcels: 227
Public Parcels: 11

Legend

- 100 Year Flood Zone (Source: USACE 2004)
- 100 Year Flood Zone (Source: FEMA 1988)
- 500 Year Flood Zone (Source: FEMA 1988)
- Parcels
- Levees
- Roads
- Closures
- Gatewells
- Pump Stations

1,000 500 0 1,000 Feet

N W E S

Ashworth Rd.
Grand Ave.
Vine St.
8th St.
59th St.
56th St.
Ingersoll Ave.
Grand Ave.
Des Moines-West Des Moines Levee
28
Railroad Ave.
Walnut Creek
Raccoon River

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Des Moines & Raccoon Rivers Feasibility Study
Reach 9 - Walnut Creek at Grand Avenue

General Criteria
- Existing Levee: No protection

Economic Criteria
- 500-Year Event Damage: $87,000
- Residential Parcels: 12
- Commercial/Industrial Parcels: 7
- Public Parcels: 0

Infrastructure
- Gatewells: 6
- Pump Stations: 3
- Closures: 5

Legend

- 100 Year Flood Zone (Source: USACE 2004)
- 100 Year Flood Zone (Source: FEMA 1988)
- 500 Year Flood Zone (Source: FEMA 1988)
- Parcels
- Levees
- Proposed Levee
- Interstate Hwys.
- Roads

1,000 500 0 1,000 Feet

N W E S

Walnut Creek Levee: Proposed Levee Eliminated from Further Analysis

235
56th St.
59th St.
Ingersoll Ave.
Grand Ave.
Ashworth Rd.
8th St.
Vine St.
28
Railroad Ave.
Walnut Creek
Raccoon River

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Des Moines & Raccoon Rivers Feasibility Study
Reach 10 - Fourmile Creek

General Criteria

Existing Levee: No Protection

Economic Criteria

500-Year Event Damage: $150,000
Residential Parcels: 225
Commercial/Industrial Parcels: 3
Public Parcels:

Legend

- 100 Year Flood Zone (Source: USACE 2004)
- 100 Year Flood Zone (Source: FEMA 1988)
- 500 Year Flood Zone (Source: FEMA 1988)
- Parcels
- Levees
- Proposed Levees
- Interstate Hwys.
- Roads

2,000 1,000 0 2,000 Feet

N E S W

Fourmile Creek
Ave. Frederick M. Hubbell
E. 42nd St.
Easton Blvd.
E. Euclid Ave.
E. 29th St.
6
65
University Ave.
E. Oakwood Dr.
Fairview Dr.
Parkridge Ave.
Quarry
Dean Ave.
University Ave.
Scott Ave.
Leetown Creekway
Vandalia Dr.
46
235
Red Rock Remedial Works Levee

gis on 'mvrdfs' (V:)\PM\PM_GIS_Team\GIS_Projects\Des_Moines_Flood_Study\Current_Maps\Site_Specific_Maps\Four_Mile_Levee\Fourmile_Creek_v2.mxd 10/14/04 raw

Des Moines & Raccoon Rivers Feasibility Study
Reach 11 - Leetown Creekway

General Criteria

Existing Levee: No Protection

Economic Criteria

500-Year Event Damage: $47,000,000
Residential Parcels: 86
Commercial/Industrial Parcels: 16
Public Parcels: 7

Infrastructure

Gatewells: 1
Closures: 2

Legend

- 100 Year Flood Zone (Source: USACE 2004)
- 100 Year Flood Zone (Source: FEMA 1988)
- 500 Year Flood Zone (Source: FEMA 1988)
- Parcels
- Levees
- Roads
- Gatewells
- Closures

1,000 500 0 1,000 Feet

N W E S

Dean Ave.
Williams Ave.
Scott Ave.
E. 30th St.
E. Oakwood Dr.
Parkridge Ave
Fourmile Creek
Leetown Creekway
Leetown Creekway
Red Rock Remedial Works Levee
Des Moines River
Vandalia Rd.
65
Des Moines
Pleasant Hill

PLATE 11

gis on 'mvrdfs' (V:)\PM\PM_GIS_Team\GIS_Projects\Des_Moines_Flood_Study\Current_Maps\Site_Specific_Maps\Leetown_CreekLeetown_Creek_v3.mxd 10/12/04 raw

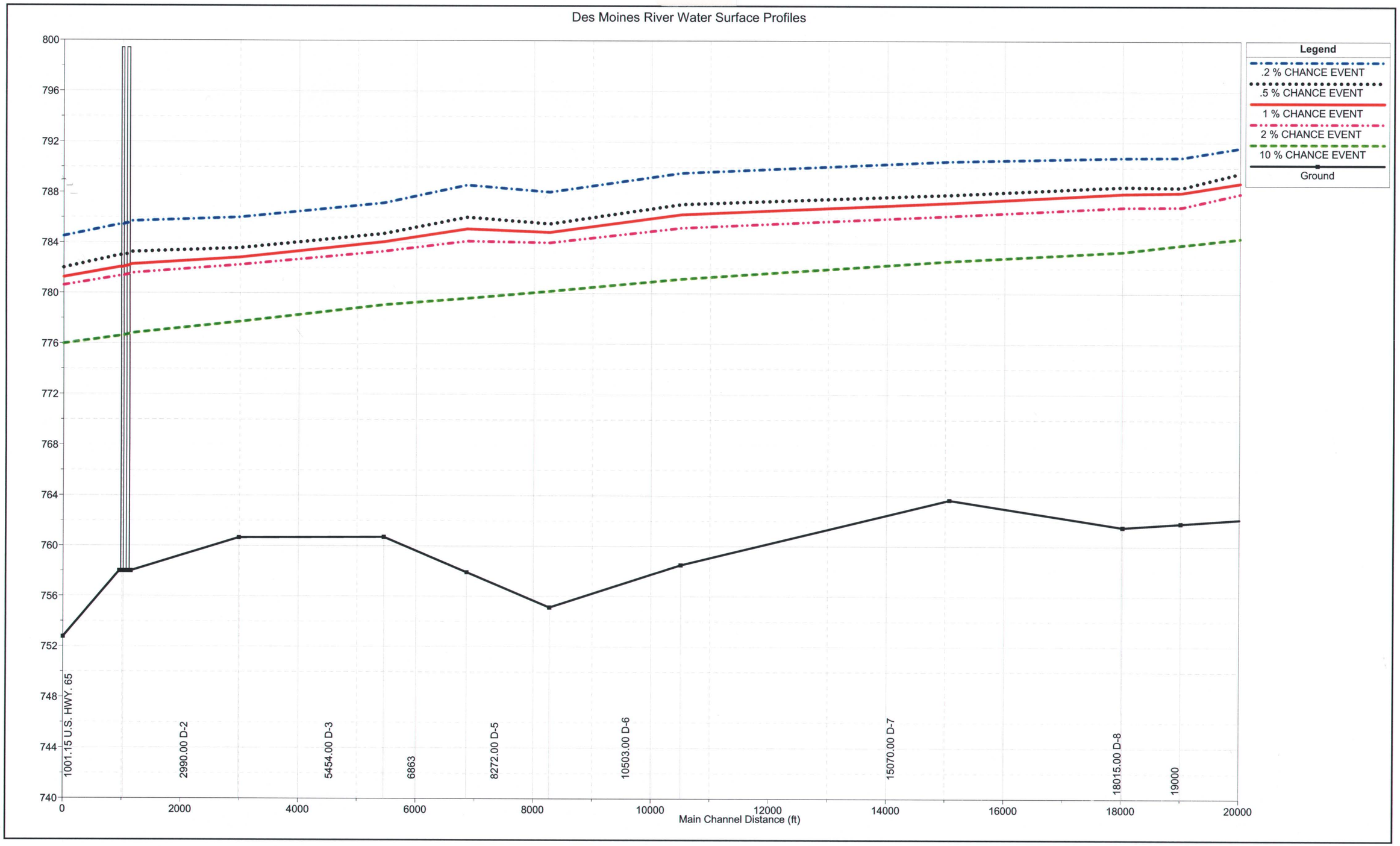
Des Moines River Water Surface Profiles
Elevation NGVD (ft)
800
796
792
788
784
780
776
772
768
764
760
756
752
748
744
740
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
20000
Main Channel Distance (ft)
1001.15 U.S. HWY. 65
2990.00 D-2
5454.00 D-3
6863
8272.00 D-5
10503.00 D-6
15070.00 D-7
18015.00 D-8
19000
Legend
.2 % CHANCE EVENT
.5 % CHANCE EVENT
1 % CHANCE EVENT
2 % CHANCE EVENT
10 % CHANCE EVENT
Ground

Plate A-4

Des Moines River Water Surface Profiles

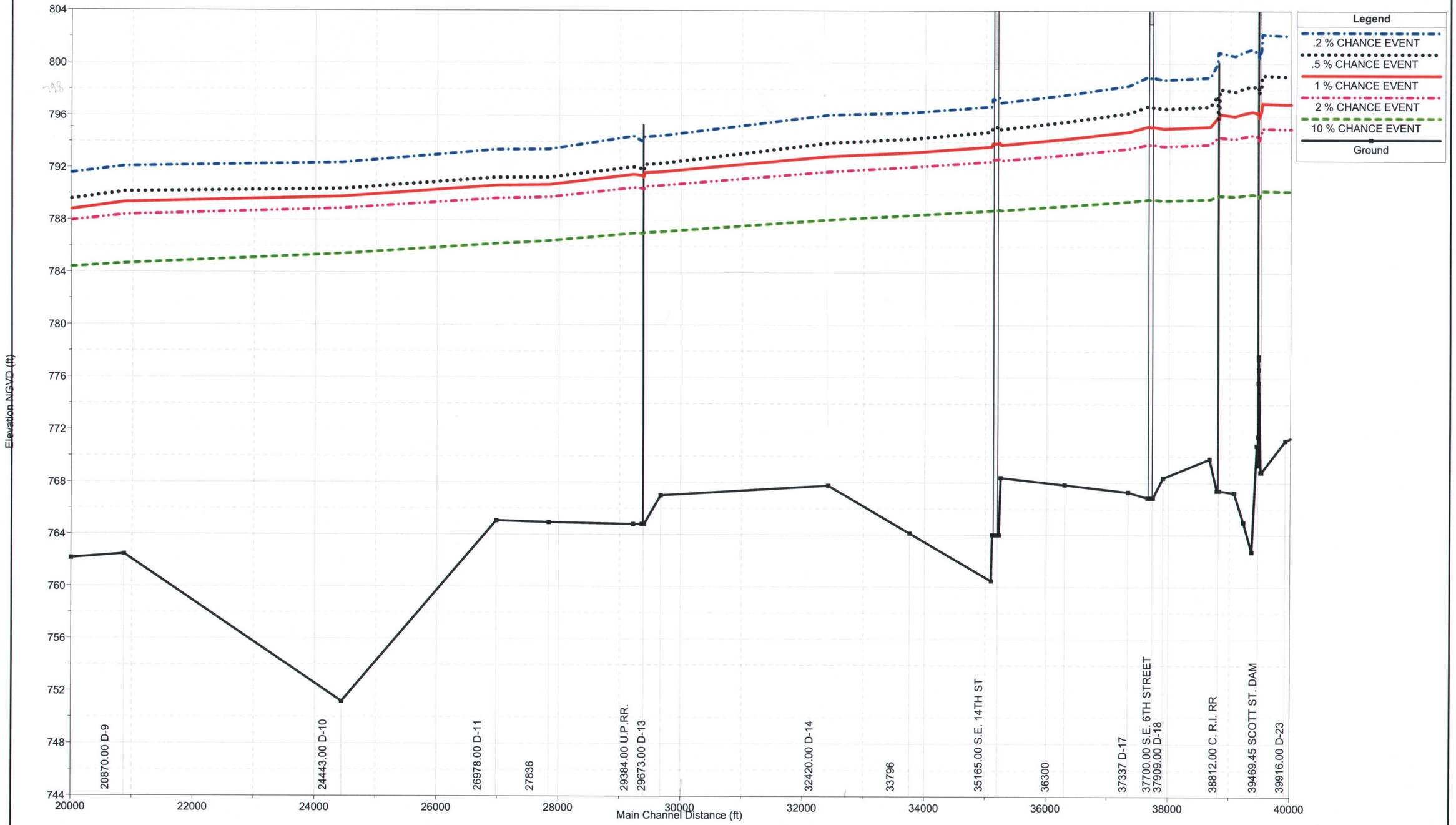

Plate A-5

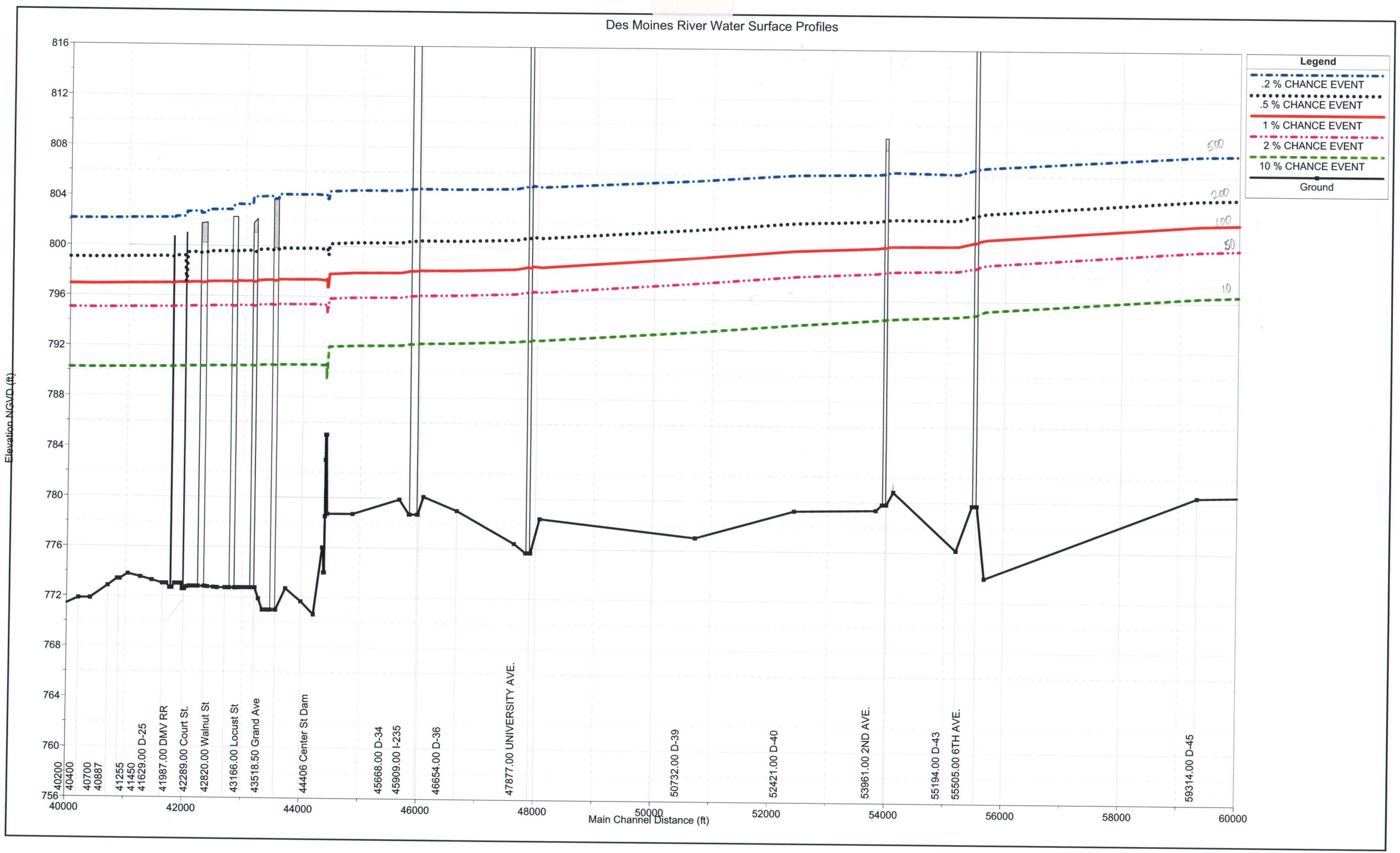
Des Moines River Water Surface Profiles
Elevation NGVD (ft)
816
812
808
804
800
796
792
788
784
780
776
772
768
764
760
756
40000
42000
44000
46000
48000
50000
52000
54000
56000
58000
60000
Main Channel Distance (ft)
Legend
.2 % CHANCE EVENT
.5 % CHANCE EVENT
1 % CHANCE EVENT
2 % CHANCE EVENT
10 % CHANCE EVENT
Ground
500
200
100
50
10
40200
40400
40700
40887
41255
41450
41629.00 D-25
41987.00 DMV RR
42289.00 Court St.
42820.00 Walnut St
43166.00 Locust St
43518.50 Grand Ave
44406 Center St Dam
45668.00 D-34
45909.00 I-235
46654.00 D-36
47877.00 UNIVERSITY AVE.
50732.00 D-39
52421.00 D-40
53961.00 2ND AVE.
55194.00 D-43
55505.00 6TH AVE.
59314.00 D-45

Plate A-6

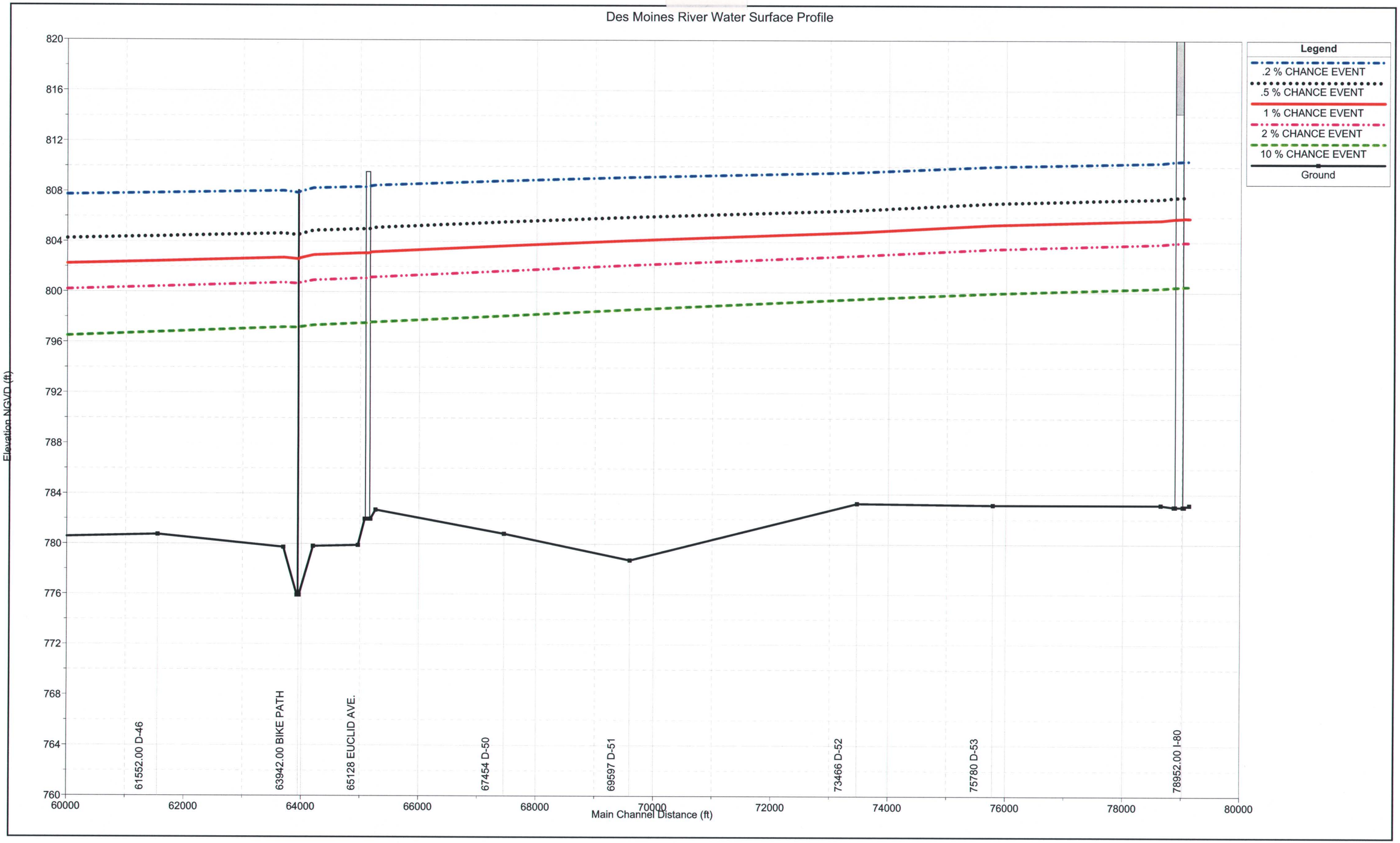
Des Moines River Water Surface Profile
Elevation NGVD (ft)
820
816
812
808
804
800
796
792
788
784
780
776
772
768
764
760
60000
62000
64000
66000
68000
70000
72000
74000
76000
78000
80000
Main Channel Distance (ft)
61552.00 D-46
63942.00 BIKE PATH
65128 EUCLID AVE.
67454 D-50
69597 D-51
73466 D-52
75780 D-53
78952.00 I-80
Legend
.2 % CHANCE EVENT
.5 % CHANCE EVENT
1 % CHANCE EVENT
2 % CHANCE EVENT
10 % CHANCE EVENT
Ground

Plate A-7

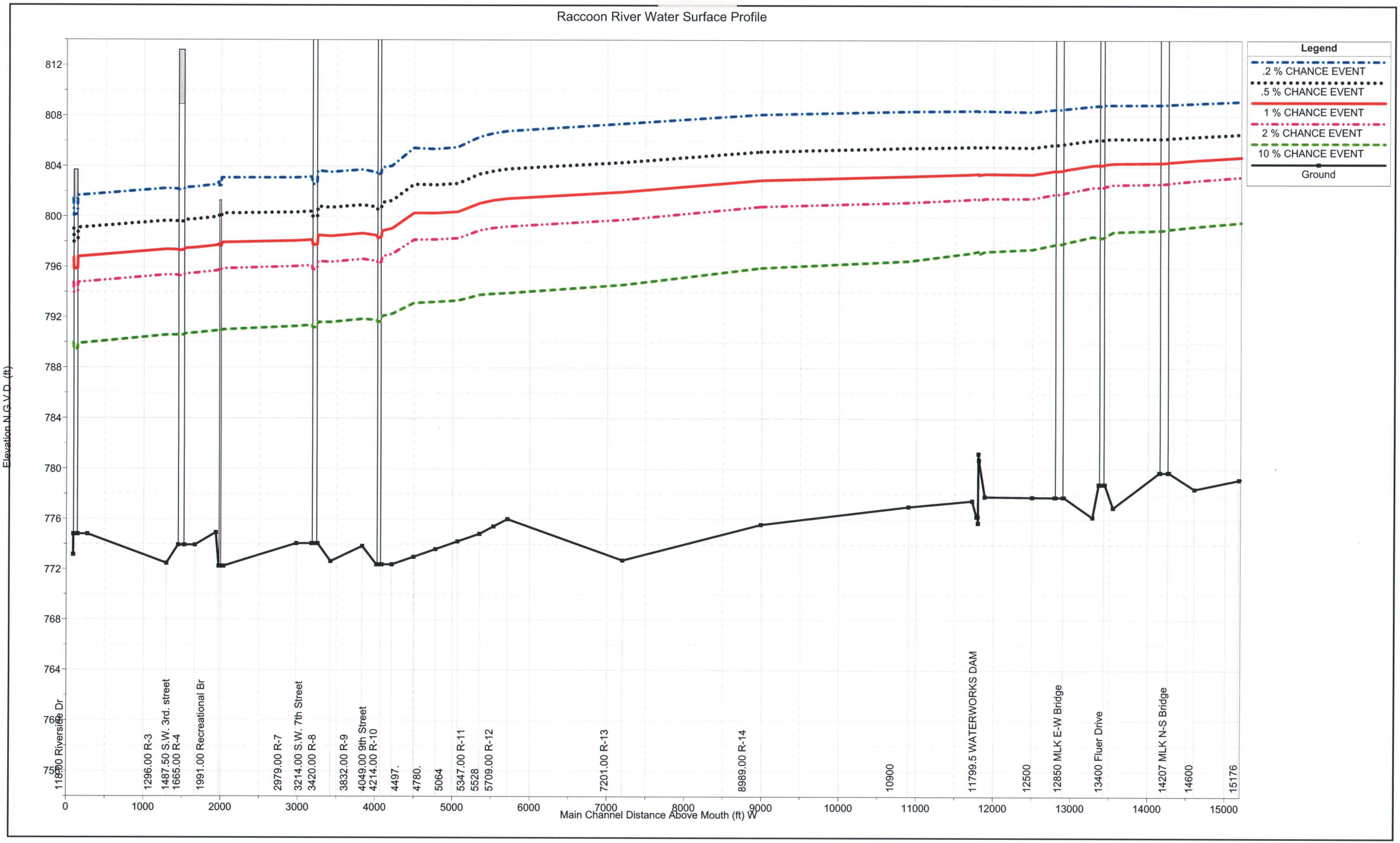
Raccoon River Water Surface Profile
Legend
.2 % CHANCE EVENT
.5 % CHANCE EVENT
1 % CHANCE EVENT
2 % CHANCE EVENT
10 % CHANCE EVENT
Ground
Elevation N.G.V.D. (ft)
812
808
804
800
796
792
788
784
780
776
772
768
764
760
756
11800 Riverside Dr
1296.00 R-3
1487.50 S.W. 3rd. street
1665.00 R-4
1991.00 Recreational Br
2979.00 R-7
3214.00 S.W. 7th Street
3420.00 R-8
3832.00 R-9
4049.00 9th Street
4214.00 R-10
4497.
4780.
5064
5347.00 R-11
5528
5709.00 R-12
7201.00 R-13
8989.00 R-14
10900
11799.5 WATERWORKS DAM
12500
12850 MLK E-W Bridge
13400 Fluer Drive
14207 MLK N-S Bridge
14600
15176
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
11000
12000
13000
14000
15000
Main Channel Distance Above Mouth (ft) W

Plate A-8

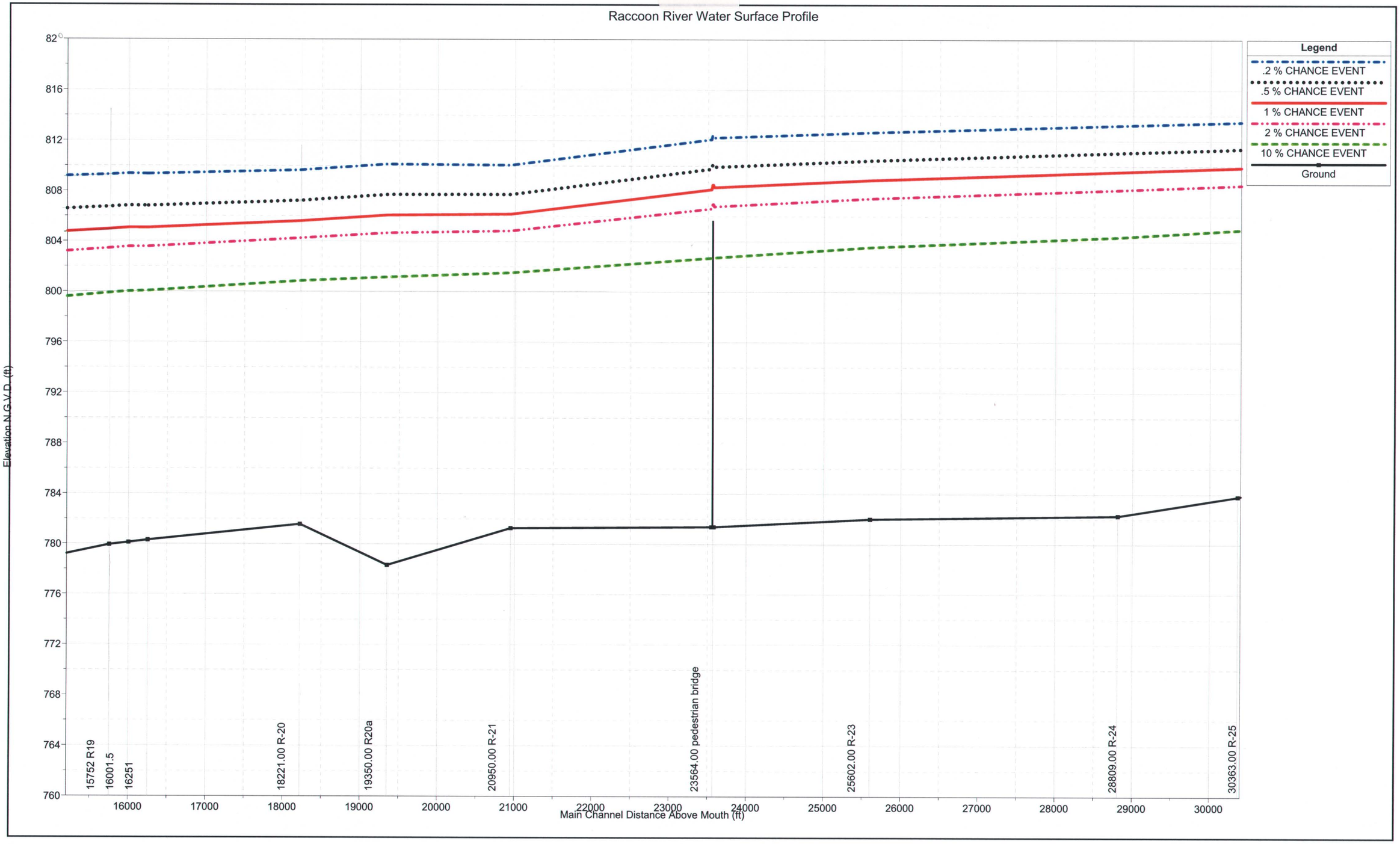
Raccoon River Water Surface Profile
Legend
.2 % CHANCE EVENT
.5 % CHANCE EVENT
1 % CHANCE EVENT
2 % CHANCE EVENT
10 % CHANCE EVENT
Ground
Elevation N.G.V.D. (ft)
82
816
812
808
804
800
796
792
788
784
780
776
772
768
764
760
15752 R19
16001.5
16251
18221.00 R-20
19350.00 R20a
20950.00 R-21
23564.00 pedestrian bridge
25602.00 R-23
28809.00 R-24
30363.00 R-25
16000
17000
18000
19000
20000
21000
22000
23000
24000
25000
26000
27000
28000
29000
30000
Main Channel Distance Above Mouth (ft)

Plate A-9

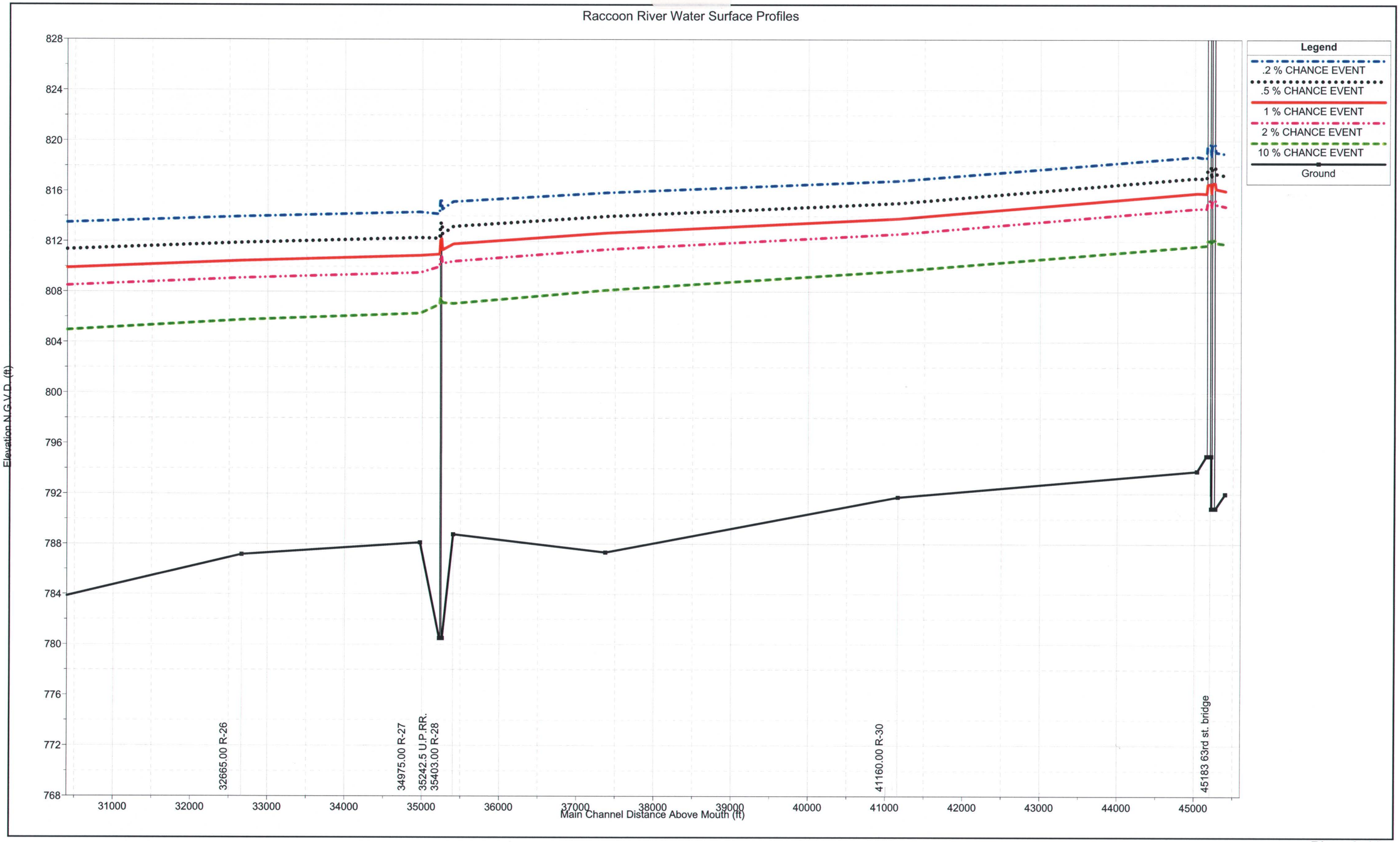
Raccoon River Water Surface Profiles
Legend
.2 % CHANCE EVENT
.5 % CHANCE EVENT
1 % CHANCE EVENT
2 % CHANCE EVENT
10 % CHANCE EVENT
Ground
Elevation N.G.V.D. (ft)
828
824
820
816
812
808
804
800
796
792
788
784
780
776
772
768
31000
32000
33000
34000
35000
36000
37000
38000
39000
40000
41000
42000
43000
44000
45000
Main Channel Distance Above Mouth (ft)
32665.00 R-26
34975.00 R-27
35242.5 U.P.RR.
35403.00 R-28
41160.00 R-30
45183 63rd st. bridge

Plate A-10

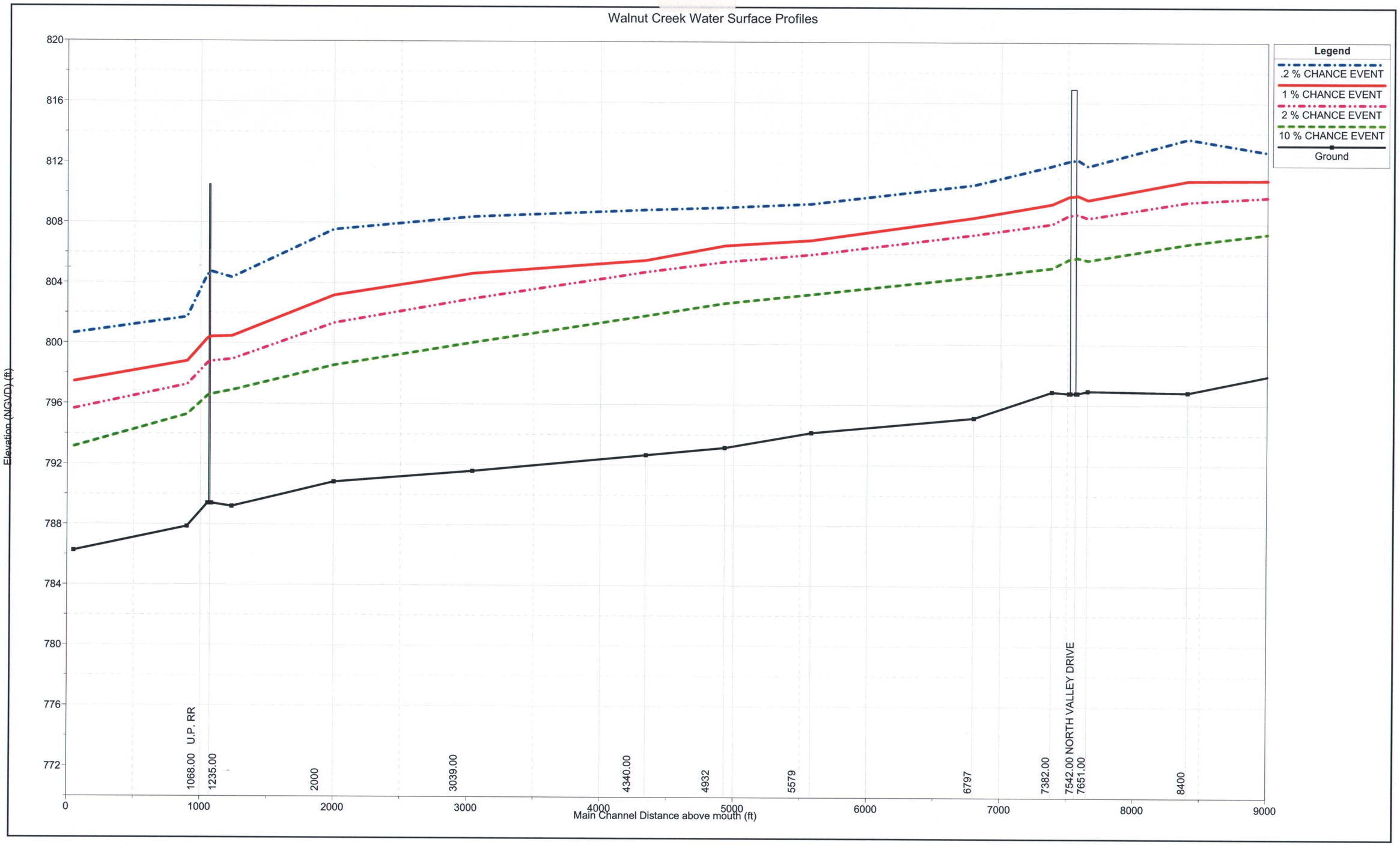
Walnut Creek Water Surface Profiles
Legend
.2 % CHANCE EVENT
1 % CHANCE EVENT
2 % CHANCE EVENT
10 % CHANCE EVENT
Ground
Elevation (NGVD) (ft)
820
816
812
808
804
800
796
792
788
784
780
776
772
1068.00 U.P. RR
1235.00
2000
3039.00
4340.00
4932
5579
6797
7382.00
7542.00 NORTH VALLEY DRIVE
7651.00
8400
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
Main Channel Distance above mouth (ft)

Plate A-11

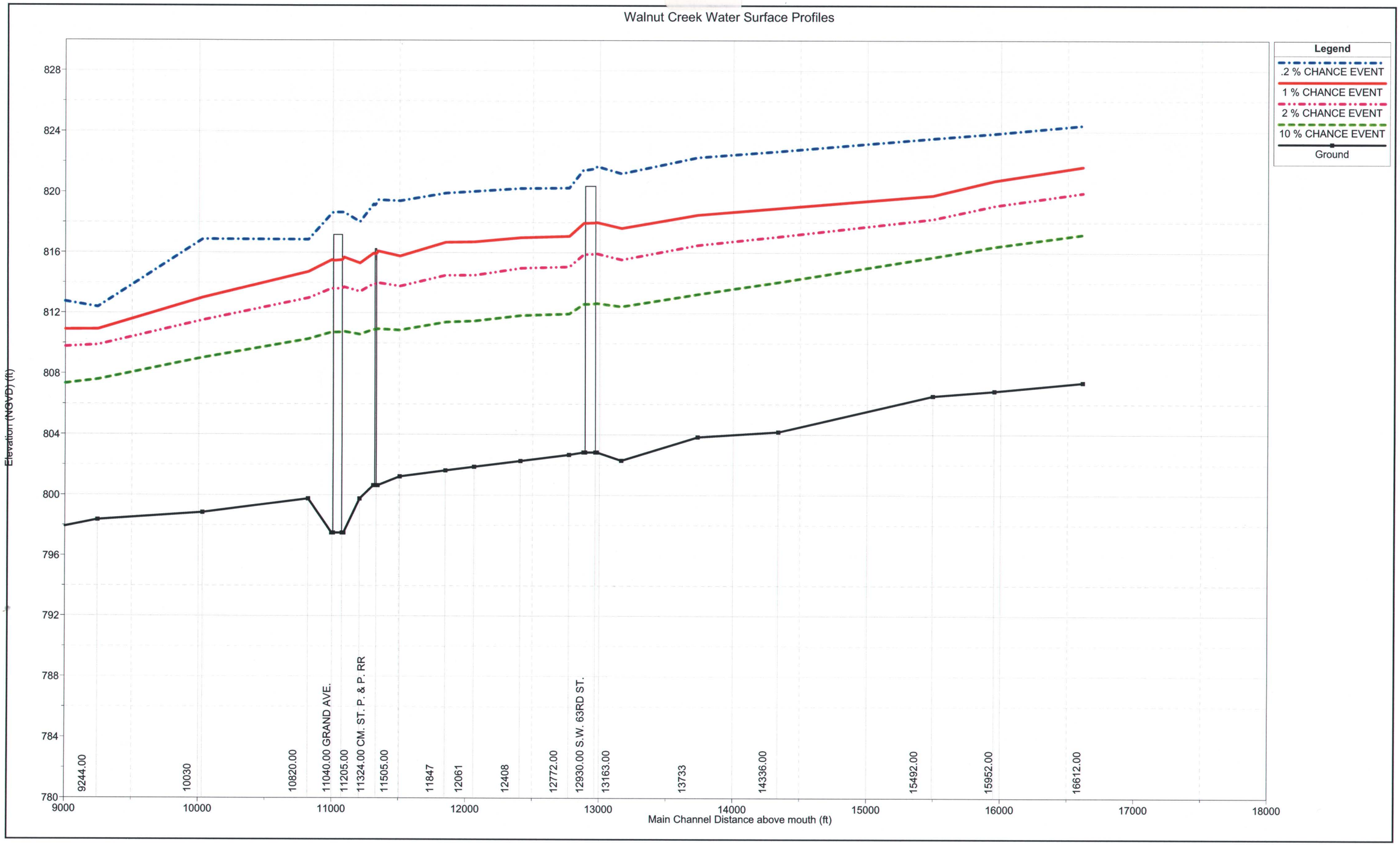
Walnut Creek Water Surface Profiles
Legend
.2 % CHANCE EVENT
1 % CHANCE EVENT
2 % CHANCE EVENT
10 % CHANCE EVENT
Ground
Elevation (NGVD) (ft)
828
824
820
816
812
808
804
800
796
792
788
784
780
9000
10000
11000
12000
13000
14000
15000
16000
17000
18000
Main Channel Distance above mouth (ft)
9244.00
10030
10820.00
11040.00 GRAND AVE.
11205.00
11324.00 CM. ST. P. & P. RR
11505.00
11847
12061
12408
12772.00
12930.00 S.W. 63RD ST.
13163.00
13733
14336.00
15492.00
15952.00
16612.00

Plate A-12

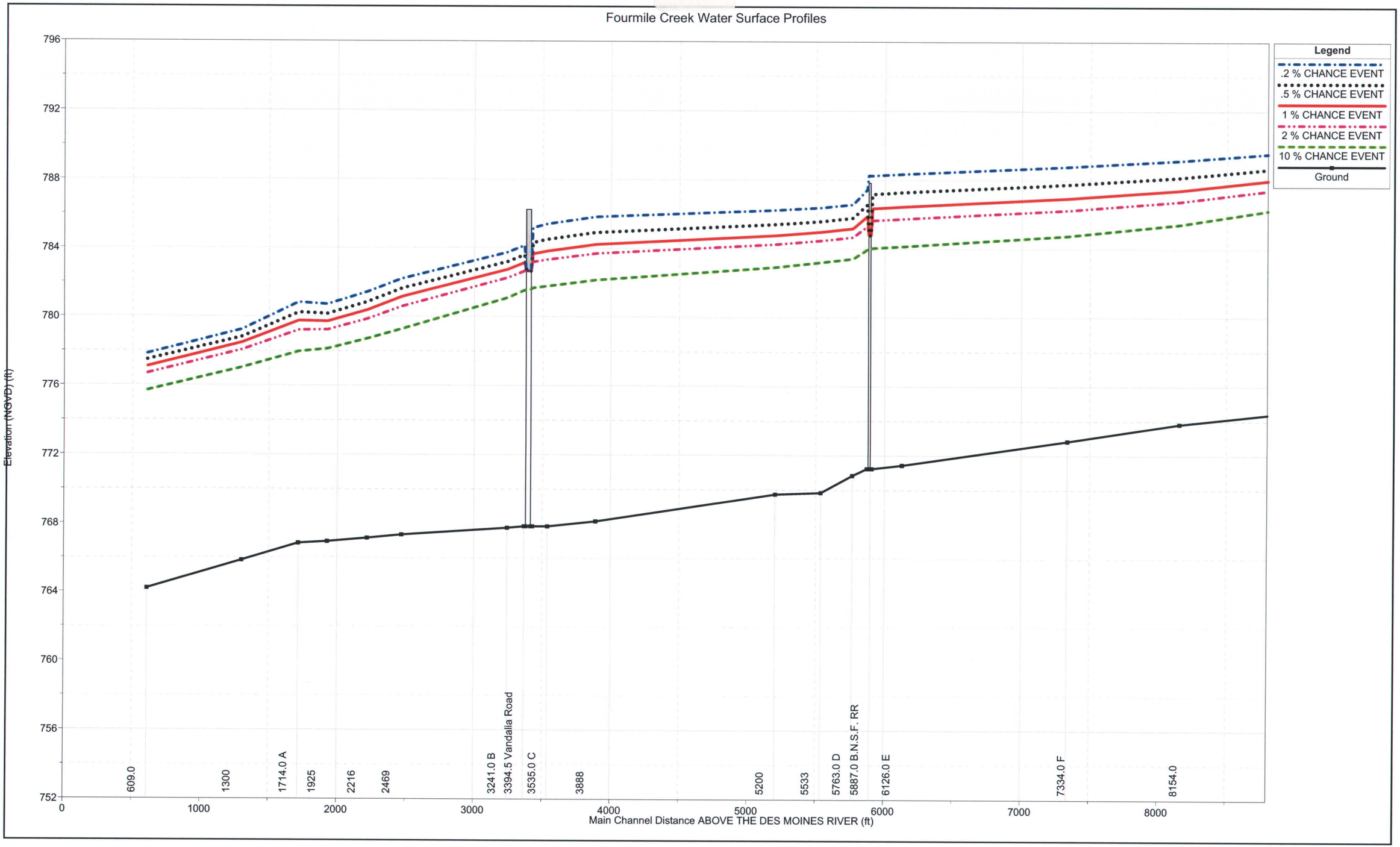
Fourmile Creek Water Surface Profiles
Elevation (NGVD) (ft)
796
792
788
784
780
776
772
768
764
760
756
752
0
1000
2000
3000
4000
5000
6000
7000
8000
Main Channel Distance ABOVE THE DES MOINES RIVER (ft)
609.0
1300
1714.0 A
1925
2216
2469
3241.0 B
3394.5 Vandalia Road
3535.0 C
3888
5200
5533
5763.0 D
5887.0 B.N.S.F. RR
6126.0 E
7334.0 F
8154.0
Legend
.2 % CHANCE EVENT
.5 % CHANCE EVENT
1 % CHANCE EVENT
2 % CHANCE EVENT
10 % CHANCE EVENT
Ground

Plate A-13

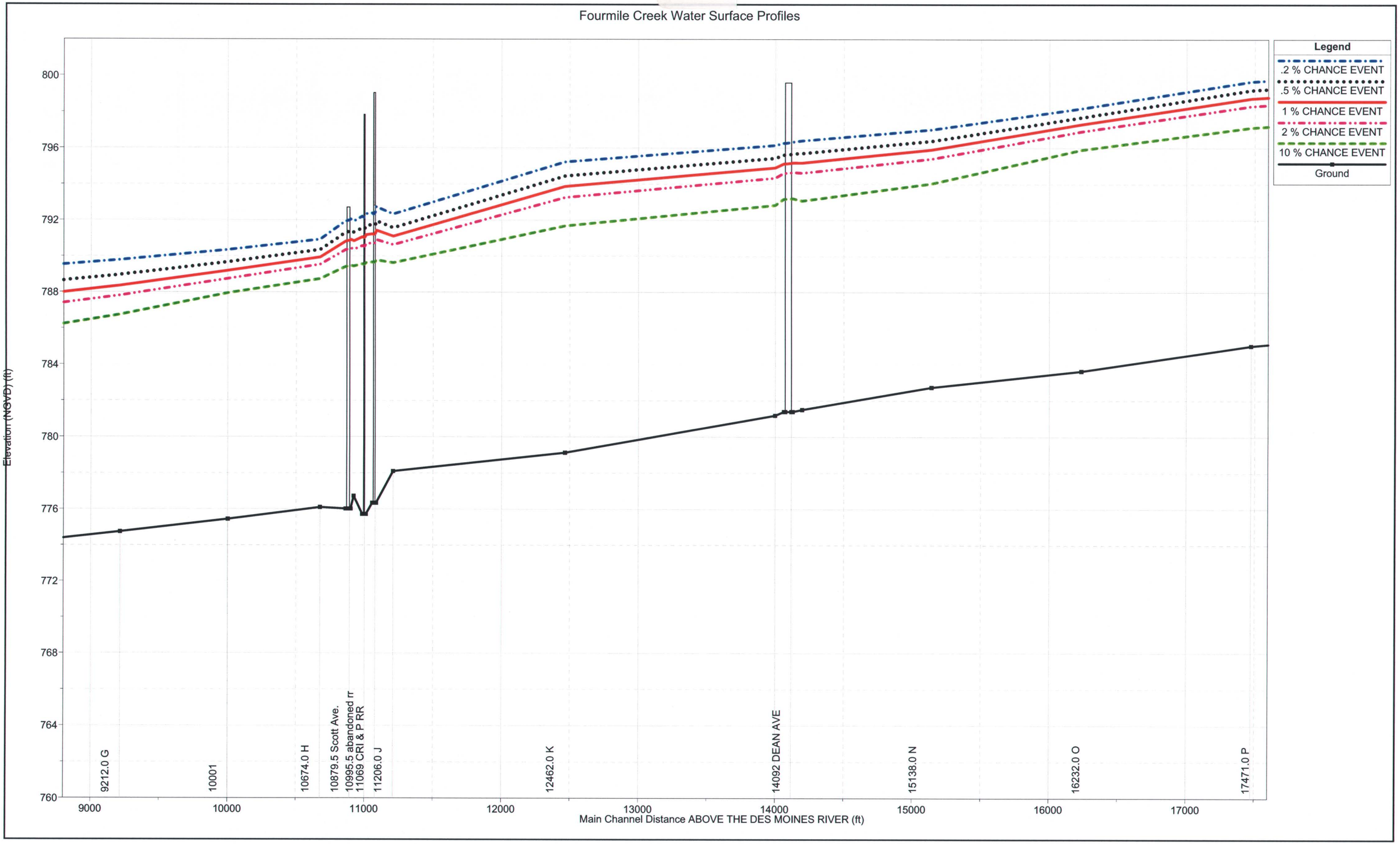
Fourmile Creek Water Surface Profiles
Legend
.2 % CHANCE EVENT
.5 % CHANCE EVENT
1 % CHANCE EVENT
2 % CHANCE EVENT
10 % CHANCE EVENT
Ground
Elevation (NGVD) (ft)
800
796
792
788
784
780
776
772
768
764
760
9212.0 G
10001
10674.0 H
10879.5 Scott Ave.
10995.5 abandoned rr
11069 CRI & P RR
11206.0 J
12462.0 K
14092 DEAN AVE
15138.0 N
16232.0 O
17471.0 P
9000
10000
11000
12000
13000
14000
15000
16000
17000
Main Channel Distance ABOVE THE DES MOINES RIVER (ft)

Plate A-14

Fourmile Creek Water Surface Profiles

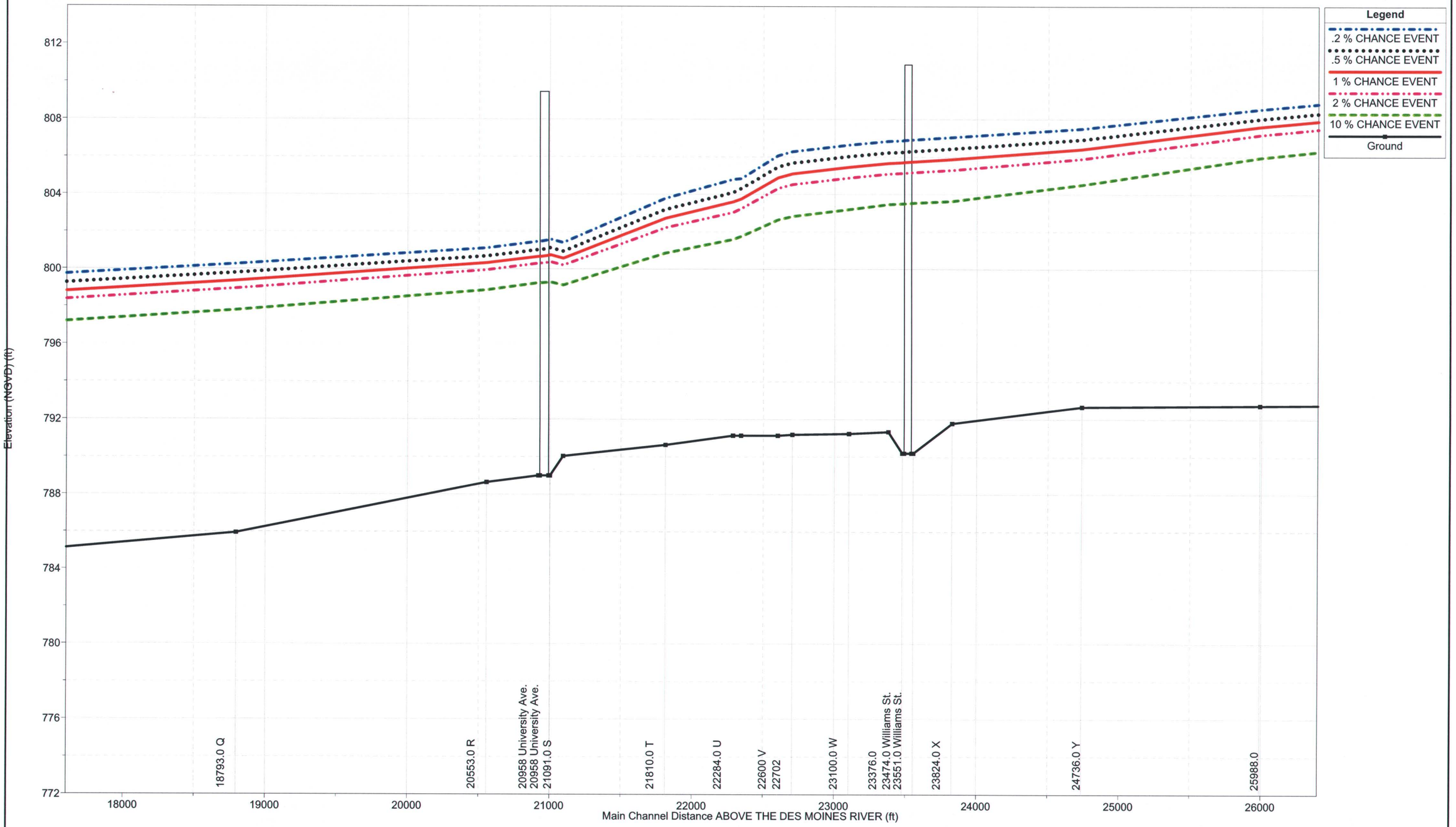

Plate A-15

Fourmile Creek Water Surface Profiles

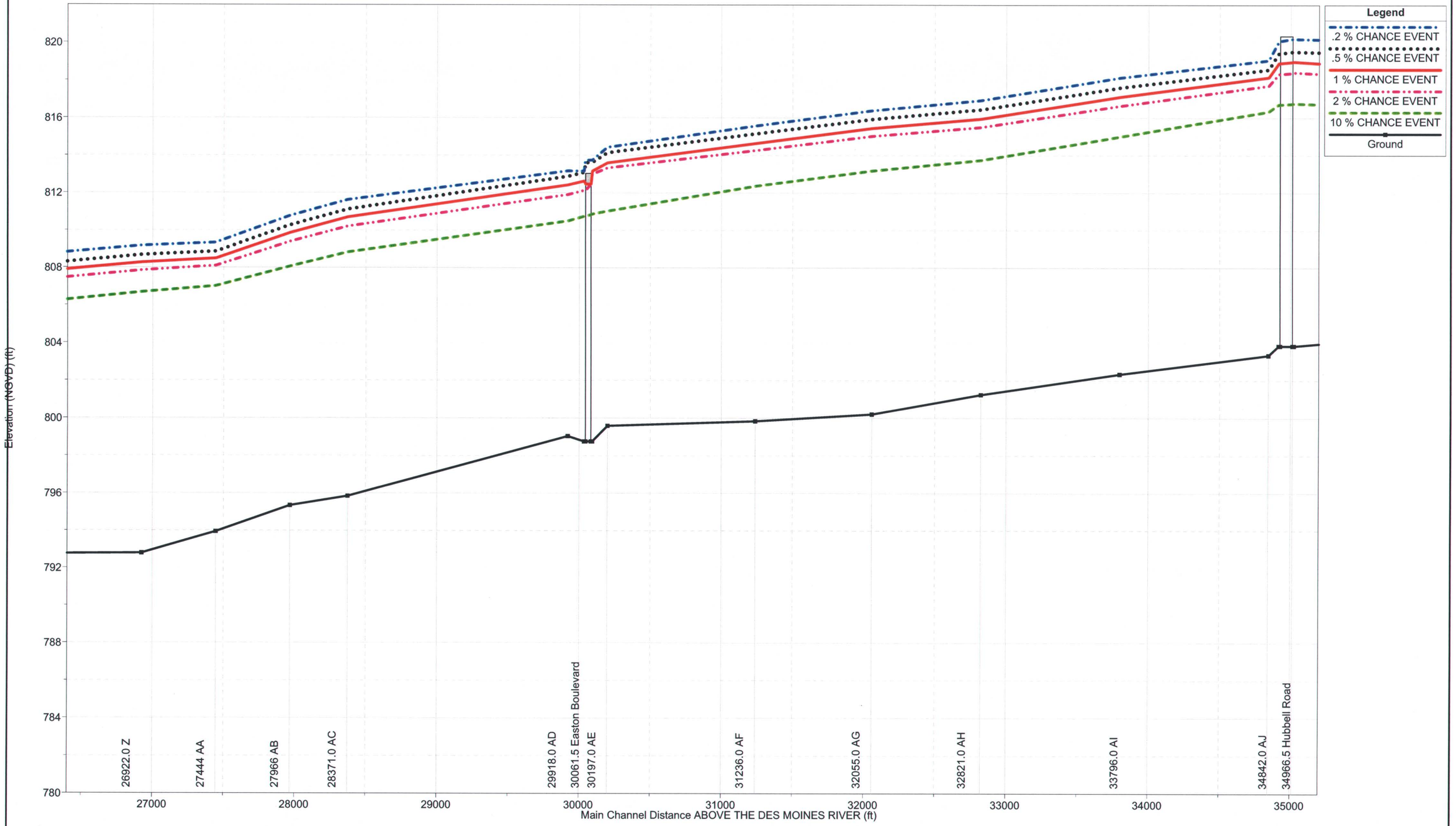

Plate A-16

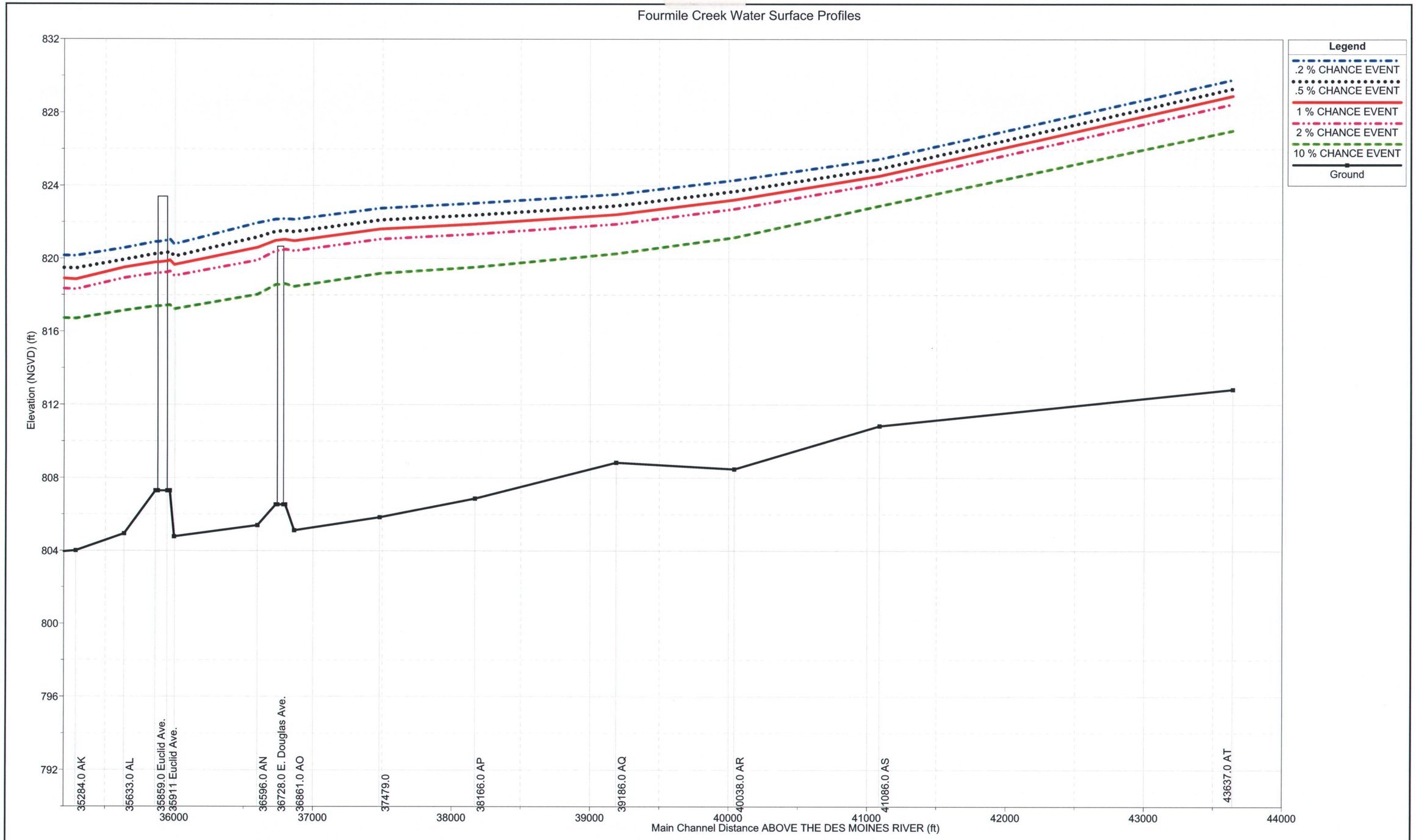
Fourmile Creek Water Surface Profiles
Legend
.2 % CHANCE EVENT
.5 % CHANCE EVENT
1 % CHANCE EVENT
2 % CHANCE EVENT
10 % CHANCE EVENT
Ground
Elevation (NGVD) (ft)
832
828
824
820
816
812
808
804
800
796
792
35284.0 AK
35633.0 AL
35859.0 Euclid Ave.
35911 Euclid Ave.
36596.0 AN
36728.0 E. Douglas Ave.
36861.0 AO
37479.0
38166.0 AP
39186.0 AQ
40038.0 AR
41086.0 AS
43637.0 AT
36000
37000
38000
39000
40000
41000
42000
43000
44000
Main Channel Distance ABOVE THE DES MOINES RIVER (ft)

Plate A-17

Birdland Park Levee, Reach 1

Central Place Levee, Reach 2

Downtown West Levee, Reach 4

Walnut Creek at Grand Avenue, Reach 9

Des Moines Water Works Levee, Reach 7

Raccoon River Section 205 Levee, Reach 6

Des Moines–West Des Moines Levee, Reach 8

Downtown East Levee, Reach 3

Downtown South Levee, Reach 5

Red Rock Remedial Works Levee

Fourmile Creek, Reach 10

Leetown Creekway, Reach 11

LEGEND

= EXISTING LEVEE ALTERNATIVES

= NEW LEVEE ALTERNATIVES

2000 0 2000 4000'
SCALE IN FEET

PLATE 1

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

Designed By:		Date:	01 JAN 03
Drawn By:		Scale:	AS SHOWN
Checked By:		Project Code:	DM08
Reviewed By:		Solicitation Number:	

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

DES MOINES AND RACCOON RIVERS
DES MOINES, IOWA
FLOOD DAMAGE REDUCTION
FEASIBILITY STUDY

CITY SITE PLAN

Sheet Reference Number:
X2
Sheet 2 of XX

13-OCT-2004 08:54
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DES MOINES AND RACCOON RIVERS, DES MOINES, IOWA FEASIBILITY STUDY

BIRDLAND LEVEE

US Army Corps of Engineers
Rock Island District

THIS PROJECT WAS DESIGNED BY THE ROCK ISLAND DISTRICT OF THE U.S. ARMY CORPS OF ENGINEERS. THE INITIALS OR SIGNATURES AND REGISTRATION DESIGNATIONS OF INDIVIDUALS APPEARING ON THESE PROJECT DOCUMENTS WITHIN THE SCOPE OF THEIR EMPLOYMENT AS REQUIRED BY ER 1110-1-8152. SIGNATURES AFFIXED BELOW INDICATE OFFICIAL RECOMMENDATION AND APPROVAL OF ALL DRAWINGS IN THIS SET AS INDICATED ON EACH INDIVIDUAL TITLE BLOCK.

Recommended by:
Chief, Engineering Division — Date
Approved by:
Col., Corps of Engineers — Date

Symbol	Description	Date	Appr.
	Revisions		

Reviewed by:
Chief, Design Branch — Date
Chief, Hydraulics Branch — Date
Chief, Geotechnical Branch — Date

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

Designed By: JDG
Drawn By: SRJ
Checked By:
Reviewed By:
Date:
Scale: AS SHOWN
Project Code: XXXXX
Solicitation Number: DACW25-XX-B-XXXX

Stanley Consultants INC.

DES MOINES AND RACCOON RIVERS,
DES MOINES, IOWA
FEASIBILITY STUDY
BIRDLAND LEVEE

COVER SHEET

Sheet Reference Number:
GI
Sheet 1 of 16

PLATE B1

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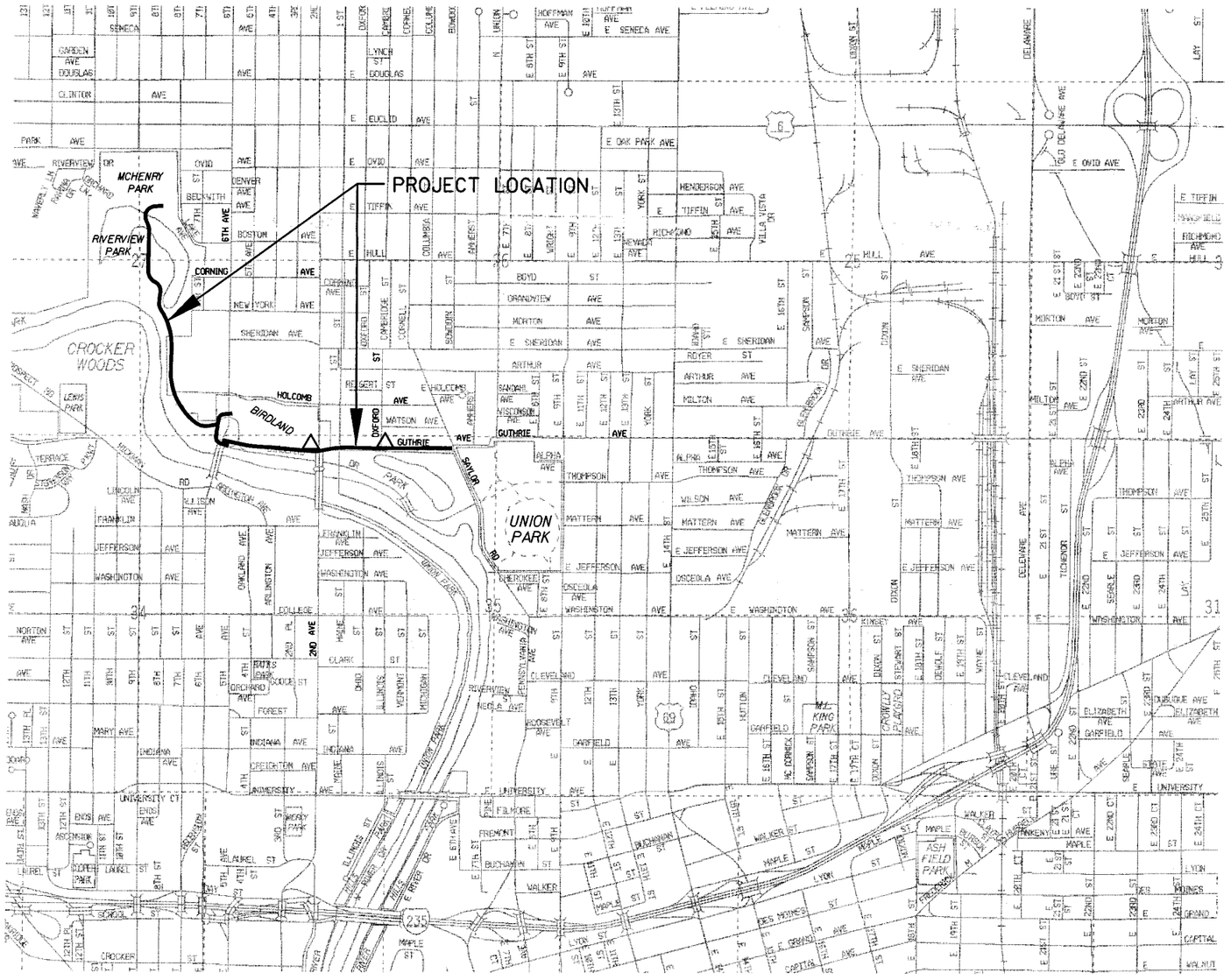
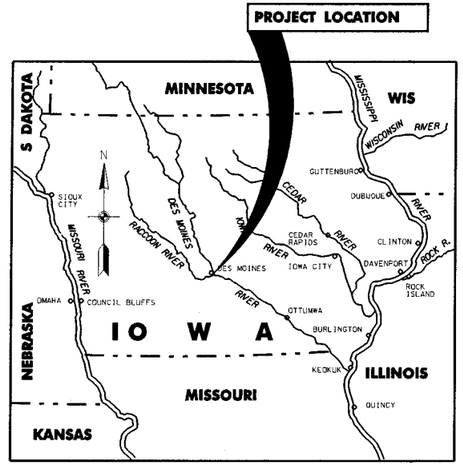


LOCATION MAP

SCALE: 1" = 1000'

500 0 1000 2000

SCALE IN FEET



VICINITY MAP

25 0 25 50 75

SCALE IN MILES

△ PUMP STATION

INDEX

SHEET NO.	SHEET REF. NO.	
1	G1	COVER SHEET
2	G2	LOCATION MAP AND INDEX
3	C1	SITE MAP - SHEET 1OF 2
4	C2	SITE MAP - SHEET 2 OF 2
5	C3	PLAN AND PROFILE
6	C4	PLAN AND PROFILE
7	C5	PLAN AND PROFILE
8	C6	PLAN AND PROFILE
9	C7	PLAN AND PROFILE
10	C8	PLAN AND PROFILE
11	C9	PLAN AND PROFILE
12	C10	TYPICAL SECTIONS
13	C11	DETAILS
14	S1	GATEWELL STRUCTURE DETAILS
15	S2	SWING GATE STRUCTURE DETAILS
16	R1	REFERENCE DRAWING

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

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

Designed By: JDG
Drawn By: SRJ
Checked By:
Reviewed By:
Dates:
Scale: AS SHOWN
Project Code: XXXXX
Solicitation Number: DACW25-XX-B-XXXX

Stanley Consultants INC.

DES MOINES AND RACCOON RIVERS
DES MOINES, IOWA
FEASIBILITY STUDY
BIRDLAND LEVEE

LOCATION MAP AND INDEX

Sheet Reference Number: G2
Sheet 2 of 16

PLATE B2

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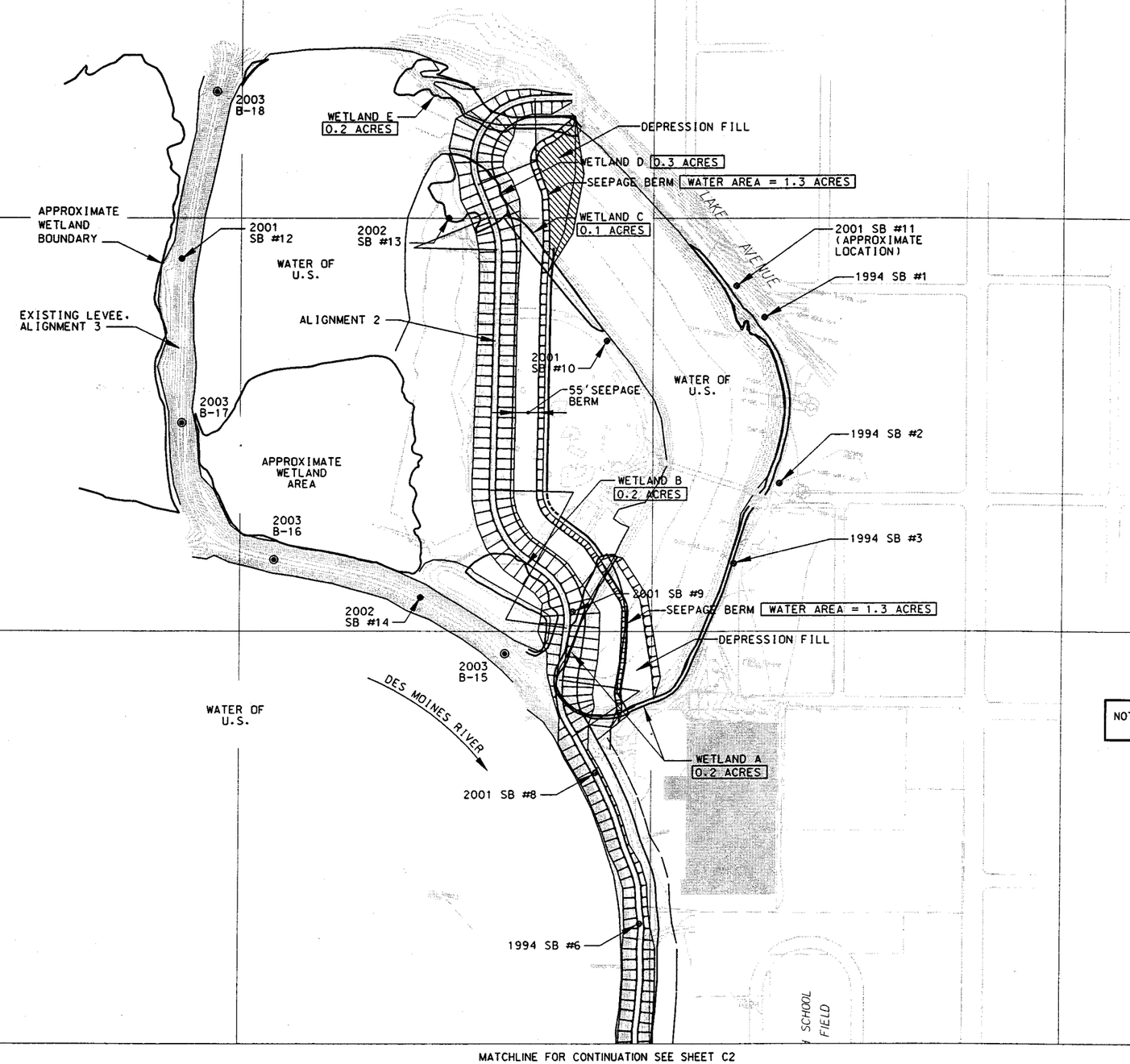

MATCHLINE FOR CONTINUATION SEE SHEET C2

NOTES:

1. THE U.S. ARMY CORPS OF ENGINEERS, ROCK ISLAND DISTRICT DELINEATED WETLANDS "A" THROUGH "G" IN 2001 IN ACCORDANCE WITH THE 1987 CORPS OF ENGINEERS WETLAND DELINEATION MANUAL.
2. THE WETLAND AREAS SHOWN ON THIS SHEET ARE THOSE IN THE VICINITY OF THE PROPOSED ALTERNATIVES. THE AREA MEASUREMENTS IN ACRES SHOW THE OVERLAP WITH THE PROPOSED PROJECT.
3. THE ALIGNMENT MAY BE ADJUSTED DURING FINAL DESIGN.

NOTE: ALL ELEVATIONS ARE IN DES MOINES DATUM. (EL 0' = 773.837' NGVD)

150 0 150 300'
SCALE IN FEET

BIRDLAND LEVEE IN DES MOINES, IOWA

PLATE B3

US Army Corps of Engineers
Rock Island District

Revisions: Symbol | Description | Date | Approved

Designed By: | Date:
Drawn By: | Scale:
Checked By: | Project Code: XXXXX
Reviewed By: | Solicitation Number: DACW25-XX-B-XXXX

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

Stanley Consultants INC.

DES MOINES AND RACCOON RIVERS
DES MOINES, IOWA
FEASIBILITY STUDY
BIRDLAND LEVEE

SITE MAP
SHEET 1 OF 2

Sheet Reference Number: C1
Sheet 3 of 16

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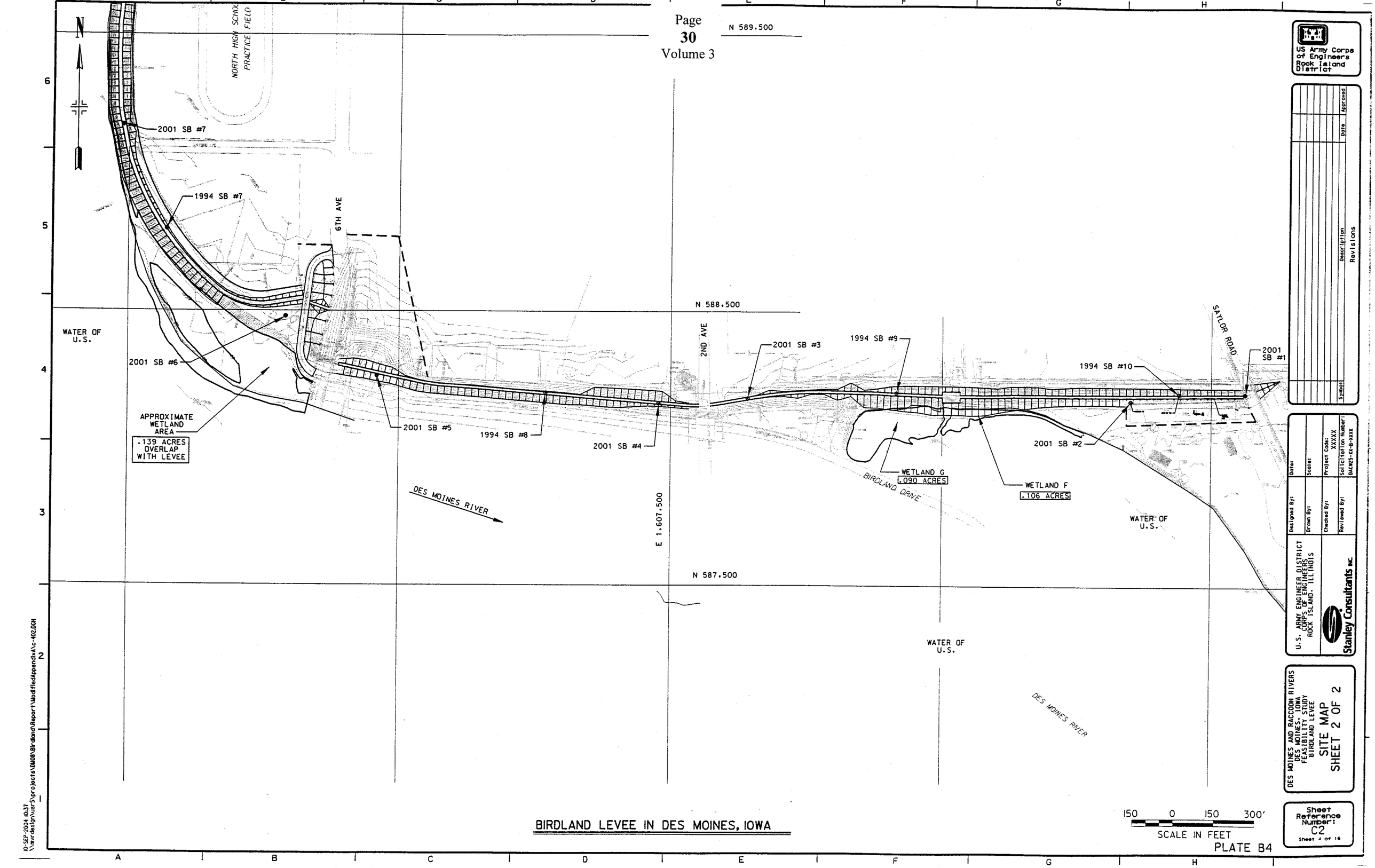

US Army Corps of Engineers
Rock Island District

Revisions			
Symbol	Description	Date	Approved

Designed By:	Dates:	Project Code: XXXXX	Solicitation Number: DACW25-XX-B-XXXX
Drawn By:	Scale:		
Checked By:			
Reviewed By:			

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

Stanley Consultants INC.

DES MOINES AND RACCOON RIVERS
DES MOINES, IOWA
FEASIBILITY STUDY
BIRDLAND LEVEE

SITE MAP
SHEET 2 OF 2

Sheet Reference Number:
C2
Sheet 4 of 16

150 0 150 300'
SCALE IN FEET

BIRDLAND LEVEE IN DES MOINES, IOWA

PLATE B4

10-SEP-2004 10:37
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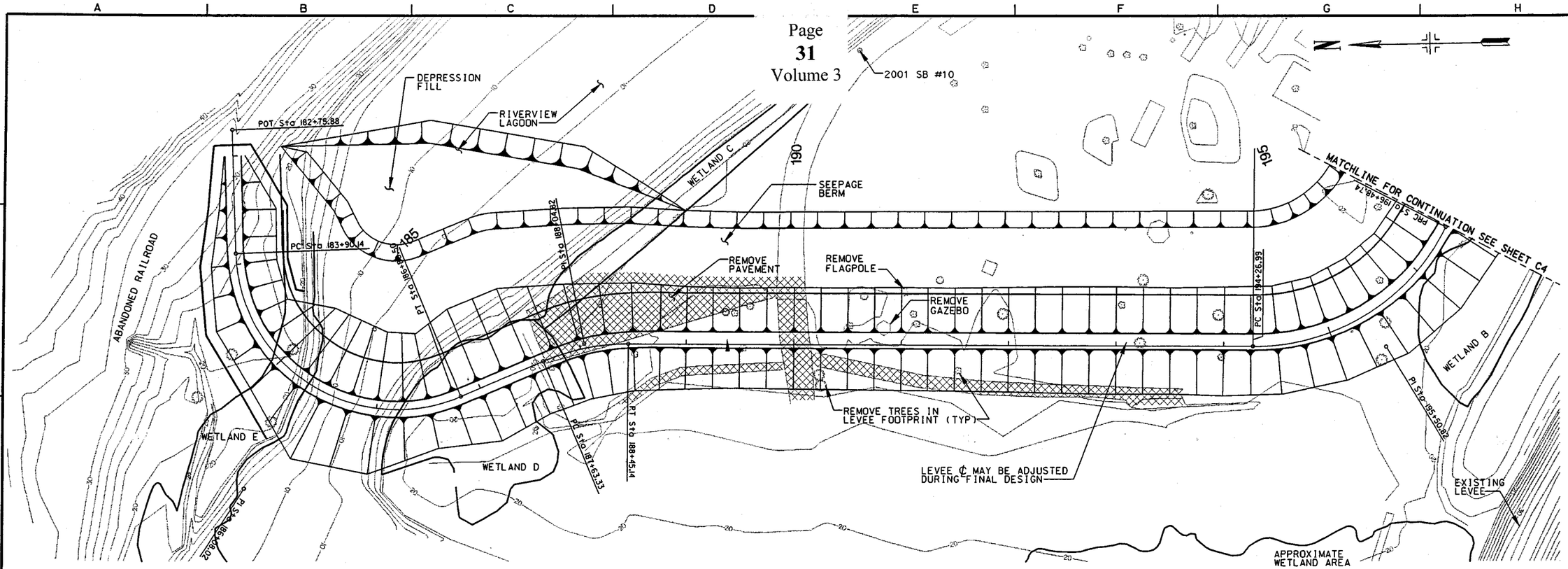
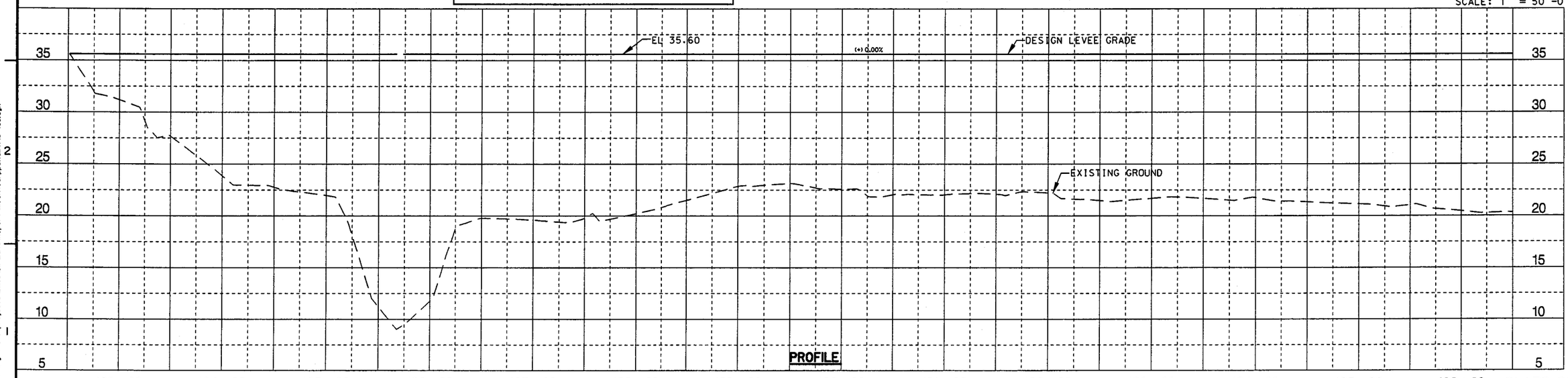


NOTE:
1. ALL AREAS MUST BE STRIPPED. CLEARED. AND GRUBBED BEFORE NEW FILL IS PLACED.

LEGEND
SOIL BORING LOCATION W/ LABEL
2001 SB #9

PLAN

50' 25' 0 50'
SCALE: 1''= 50'-0"



PROFILE

PLATE B5

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

Designed By: KLA
Drawn By: SRJ
Checked By:
Reviewed By:
Date:
Scale: H: 1"=50'
V: 1"=5'
Project Code: XXXXX
Solicitation Number: DACW25-XX-B-XXXX

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

Stanley Consultants INC.

DES MOINES AND RACCOON RIVERS
DES MOINES, IOWA
FEASIBILITY STUDY
BIRDLAND LEVEE

PLAN AND PROFILE

Sheet Reference Number:
C3
Sheet 5 of 16

21-SEP-2004 16:00
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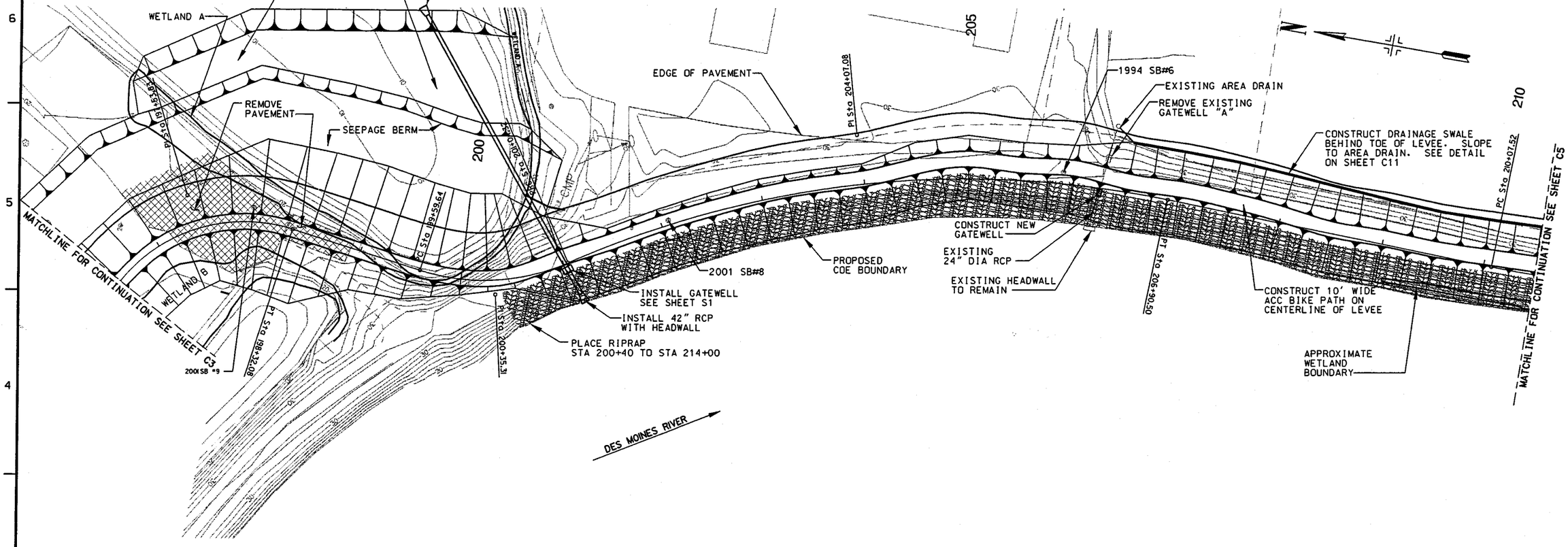

PLAN

SCALE: 1'' = 50'-0"

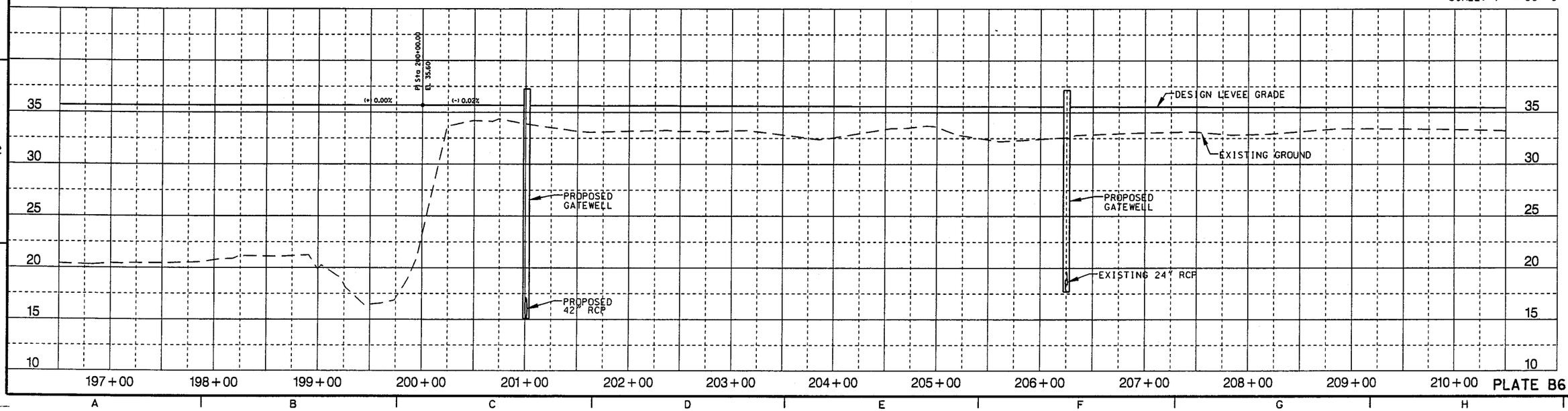

PLATE B6

US Army Corps of Engineers Rock Island District

Symbol	Description	Date	Approved
	Revisions		

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Drawn By: SRJ
Checked By:
Reviewed By:
Date:
Scale: H: 1"=50' V: 1"=5'
Project Code: XXXXX
Solicitation Number: DACW25-XX-B-XXXX

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

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DES MOINES AND RACCOON RIVERS DES MOINES, IOWA FEASIBILITY STUDY BIRDLAND LEVEE

PLAN AND PROFILE

Sheet Reference Number: C4
Sheet 6 of 16

21-SEP-2004 15:57
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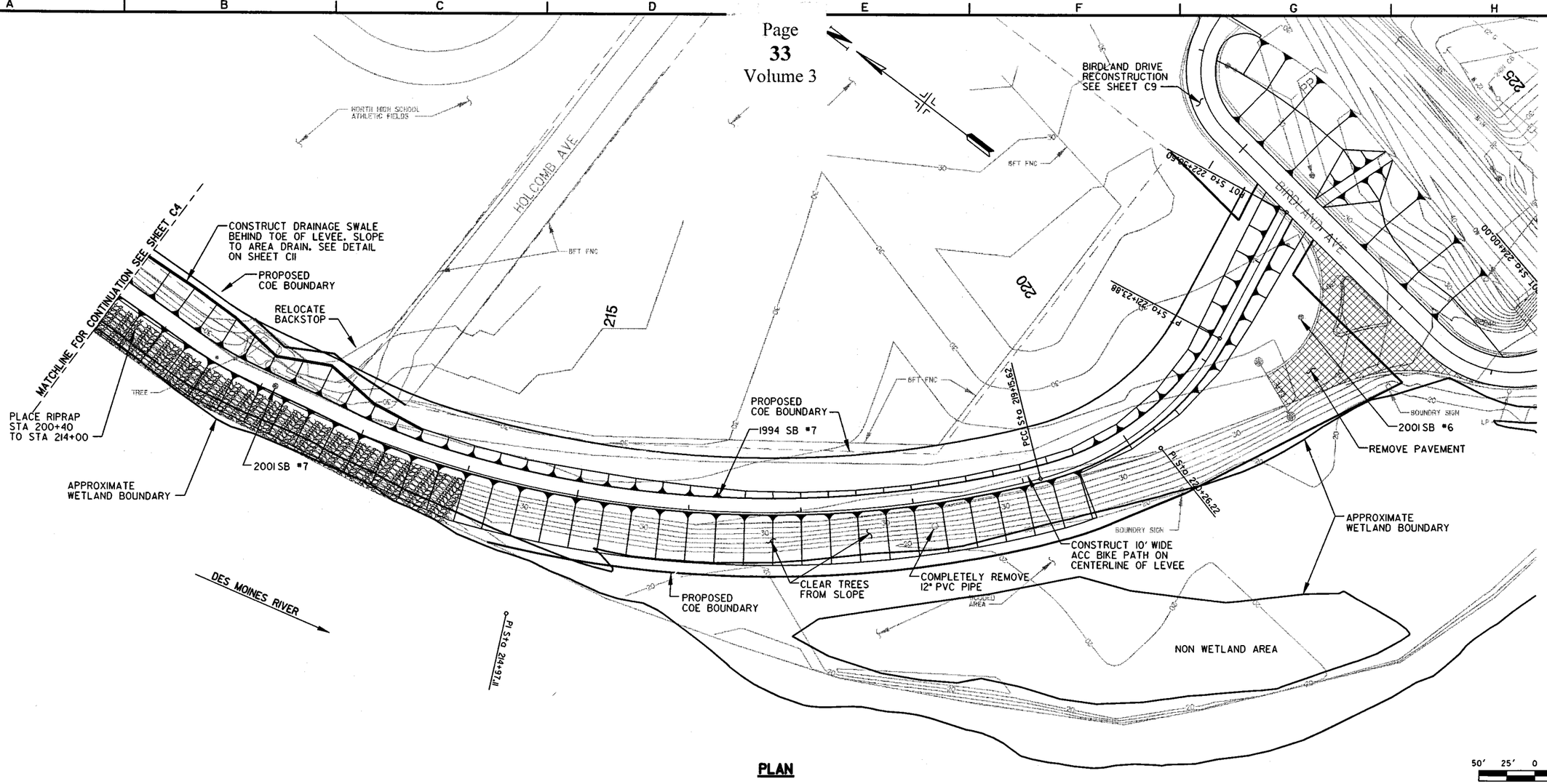
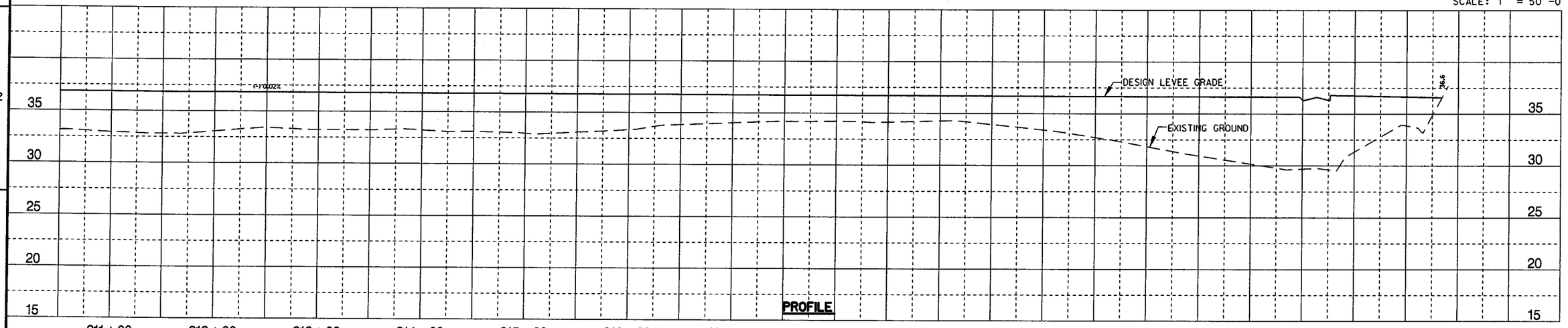


PLAN

SCALE: 1'' = 50'-0"



PROFILE

PLATE B7

US Army Corps of Engineers Rock Island District

Symbol	Description	Date	Approved
	Revisions		

Designed By: KLA	Date:	Scale: H: 1"=50' V: 1"=5'	Solicitation Number: DACW25-XX-B-XXXX
Drawn By: SRJ		Project code: XXXXX	
Checked By:		Reviewed By:	

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

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DES MOINES AND RACCOON RIVERS
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BIRDLAND LEVEE

PLAN AND PROFILE

Sheet Reference Number:
C5
Sheet 7 of 16

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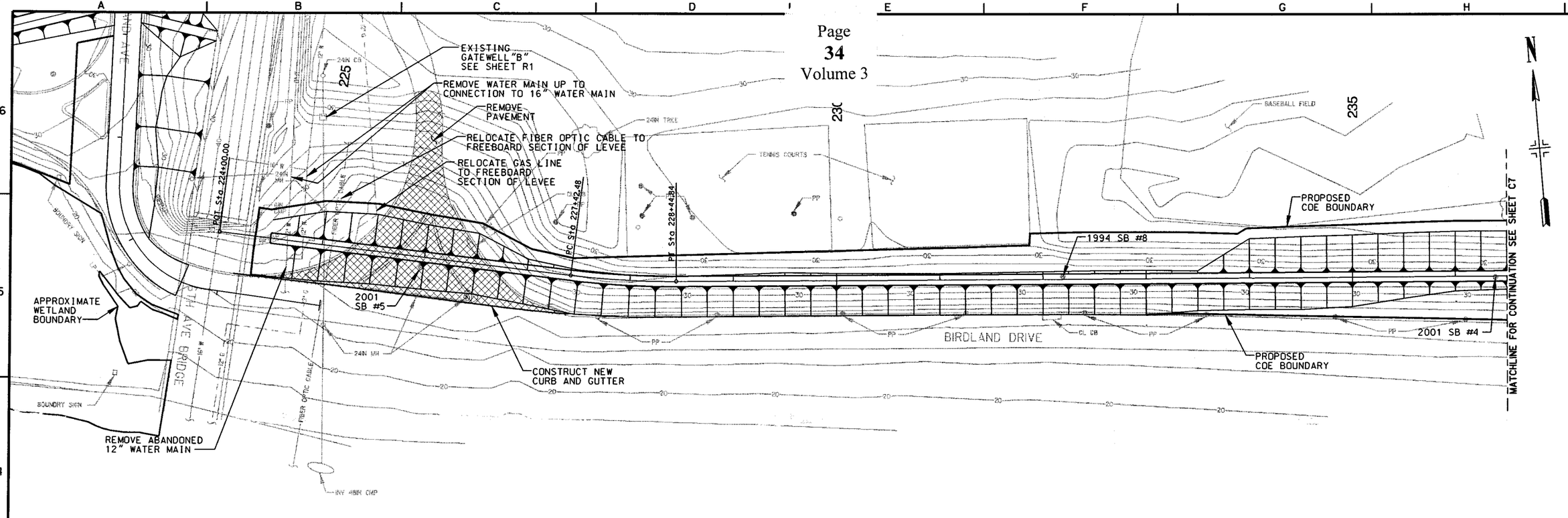
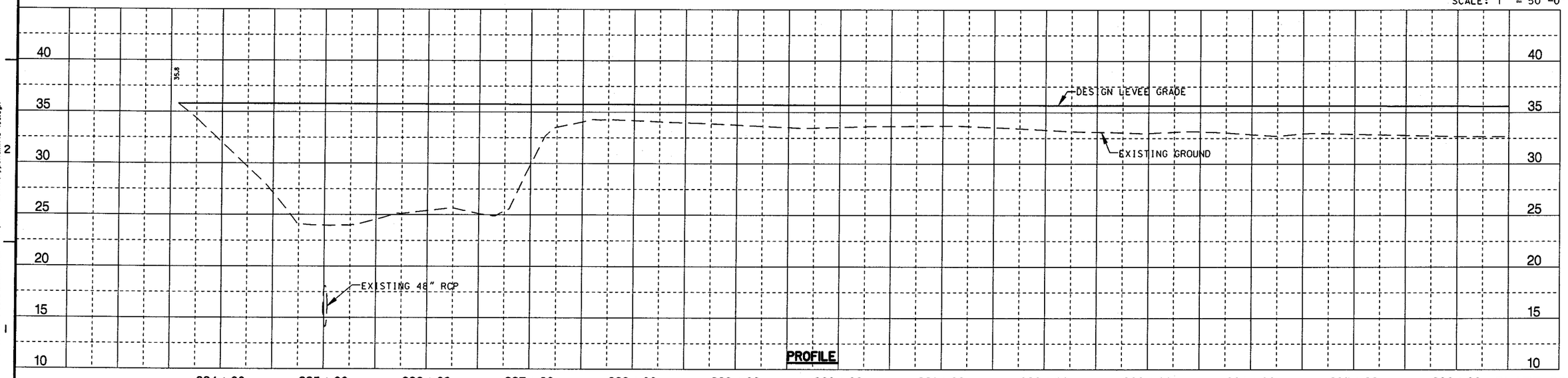


DES MOINES RIVER

PLAN

50' 25' 0 50'

SCALE: 1''= 50'-0"



PROFILE

PLATE B8

US Army Corps of Engineers Rock Island District

Symbol	Description	Date	Approved
	Revisions		

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Drawn By: BBO	Scale: H: 1"=50' V: 1"=10'		
Checked By: XXX	Project Code: XXXXX		
Reviewed By: MRH	Solicitation Number: DACW25-XX-B-XXXX		

U.S. ARMY ENGINEER DISTRICT
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DES MOINES AND RACCOON RIVERS
DES MOINES, IOWA
FEASIBILITY STUDY
BIRDLAND LEVEE

PLAN AND PROFILE

Sheet Reference Number:
C6
Sheet 8 of 16

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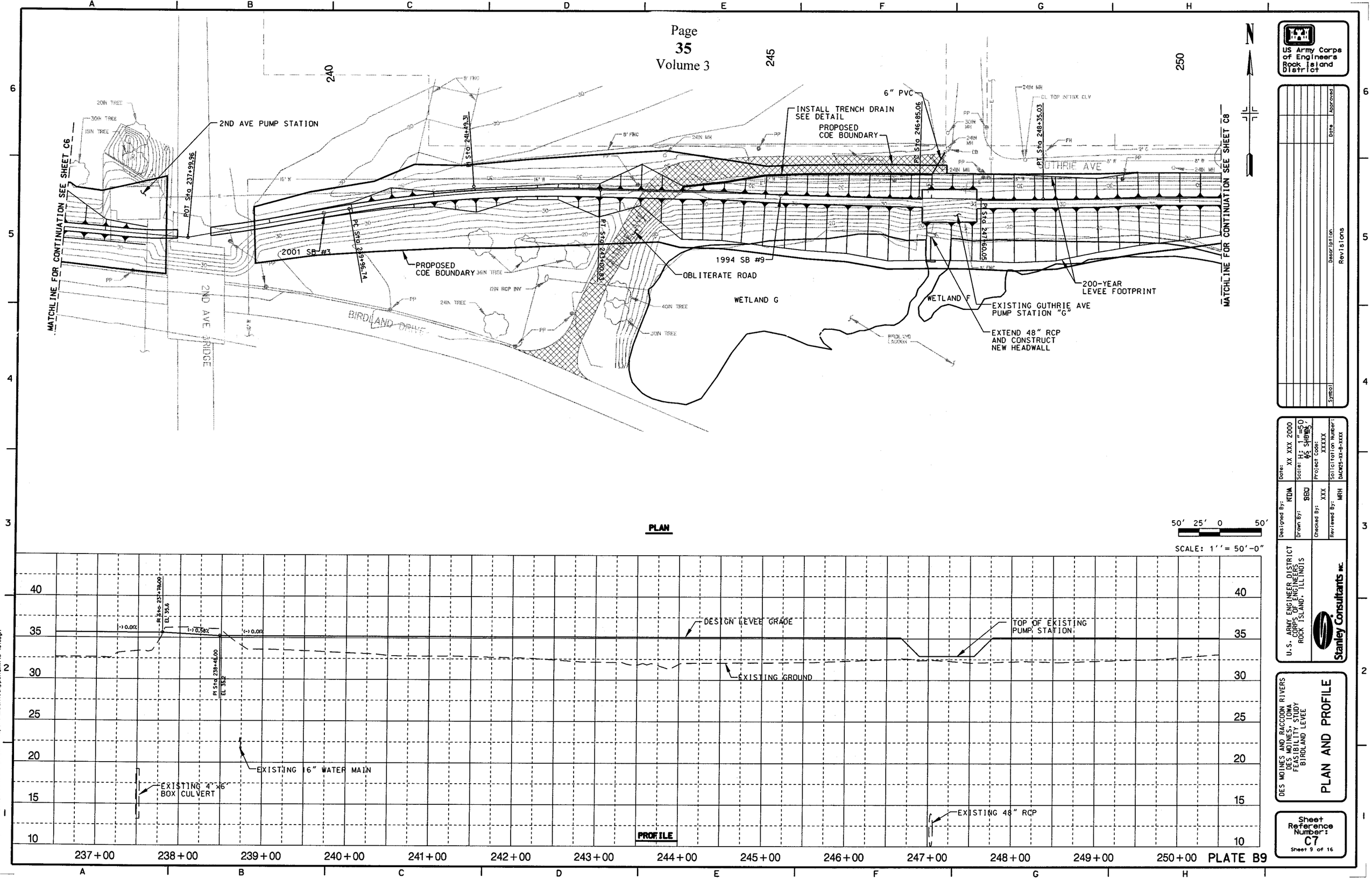

PLATE B9

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

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Drawn By: BRCJ
Checked By: XXX
Reviewed By: MRH
Date: XX XXX 2000
Scale: H: 1"=50' AS SHOWN
Project Code: XXXXX
Solicitation Number: DACW25-XX-B-XXXX

U.S. ARMY ENGINEER DISTRICT
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FEASIBILITY STUDY
BIRDLAND LEVEE

PLAN AND PROFILE

Sheet Reference Number: C7
Sheet 9 of 16

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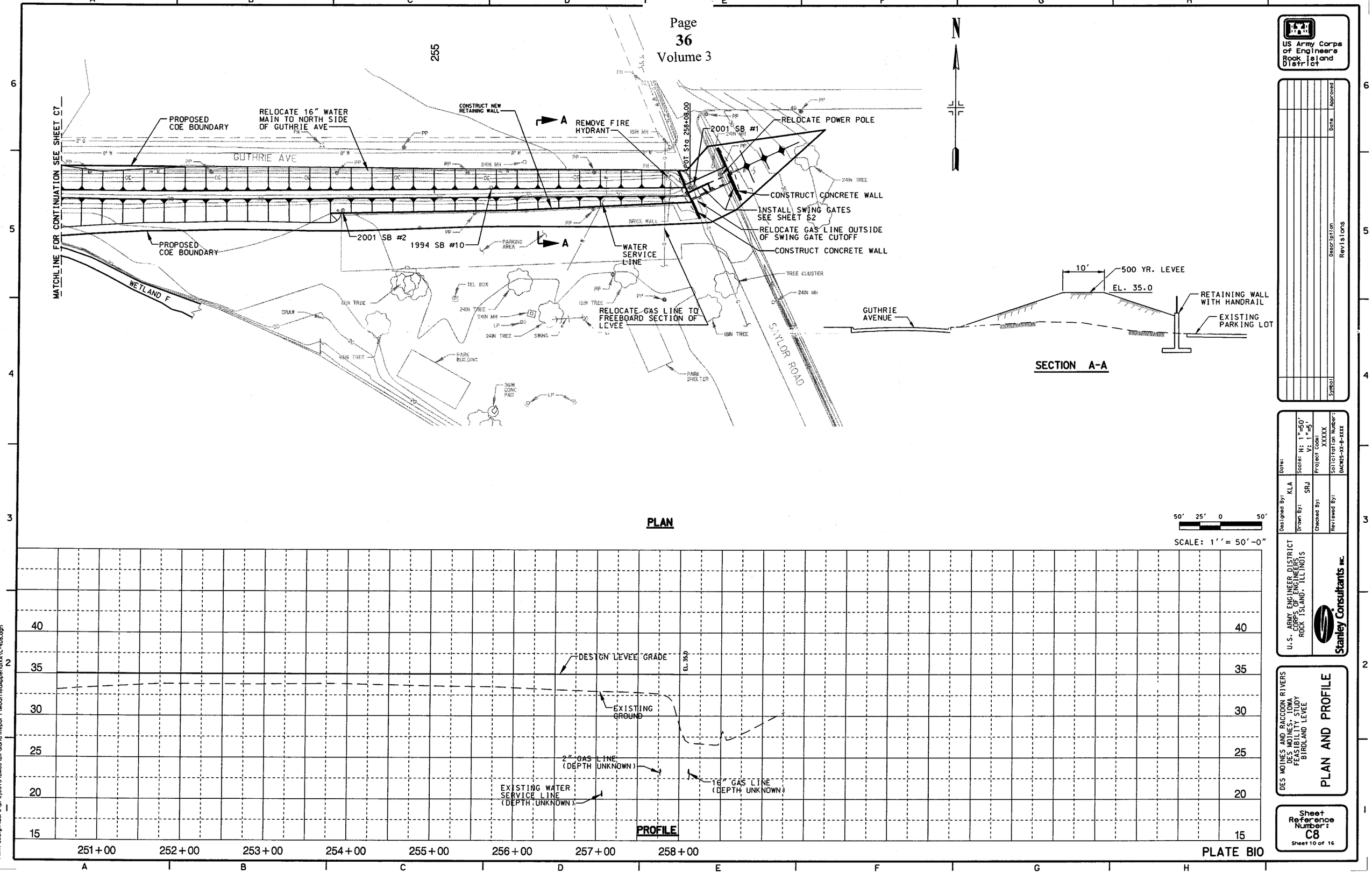

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

Designed By: KLA
Drawn By: SRJ
Checked By:
Reviewed By:
Date:
Scale: H: 1"=50' V: 1"=5'
Project Code: XXXXX
Solicitation Number: DACW25-XX-B-XXXX

U.S. ARMY ENGINEER DISTRICT
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ROCK ISLAND, ILLINOIS

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DES MOINES AND RACCOON RIVERS
DES MOINES, IOWA
FEASIBILITY STUDY
BIRDLAND LEVEE

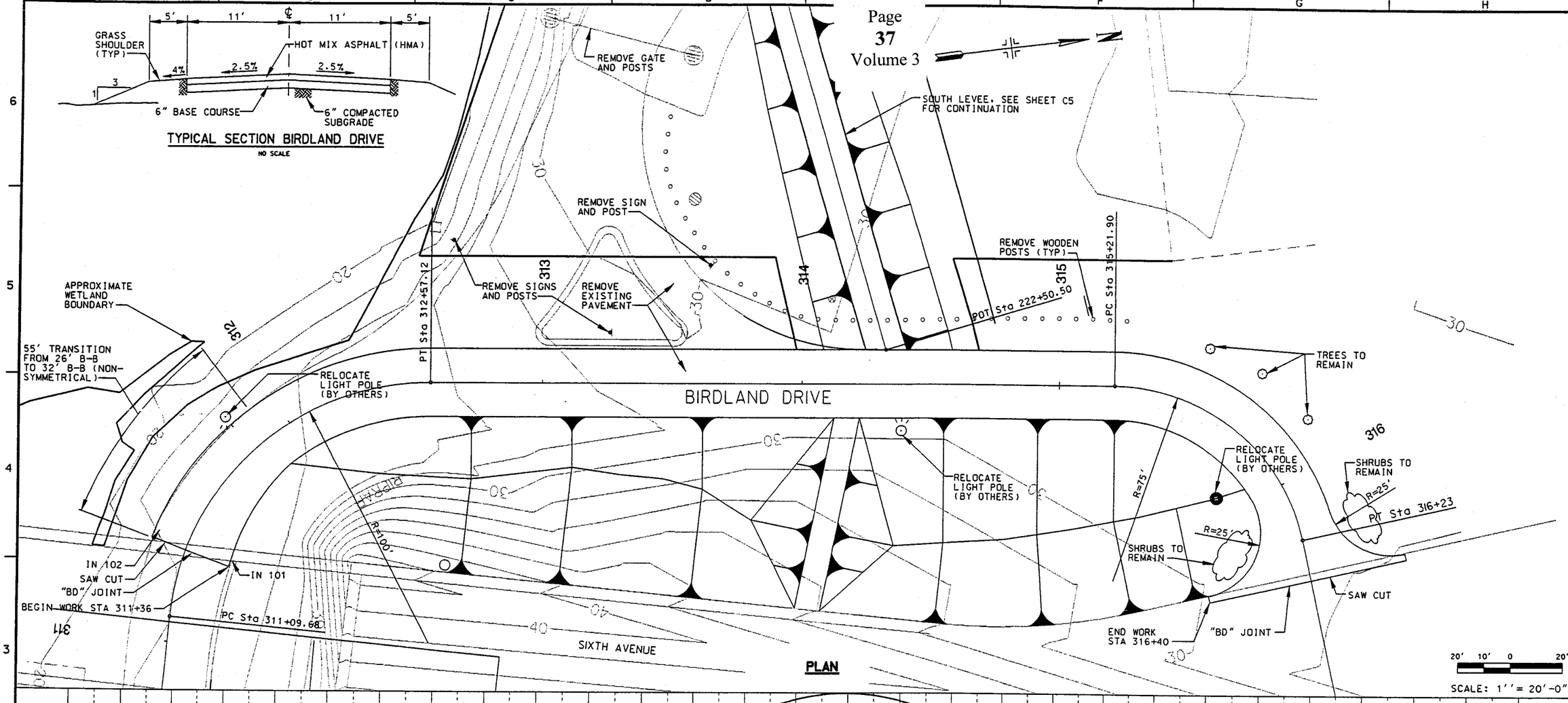
PLAN AND PROFILE

Sheet Reference Number: C8
Sheet 10 of 16

PLATE B10

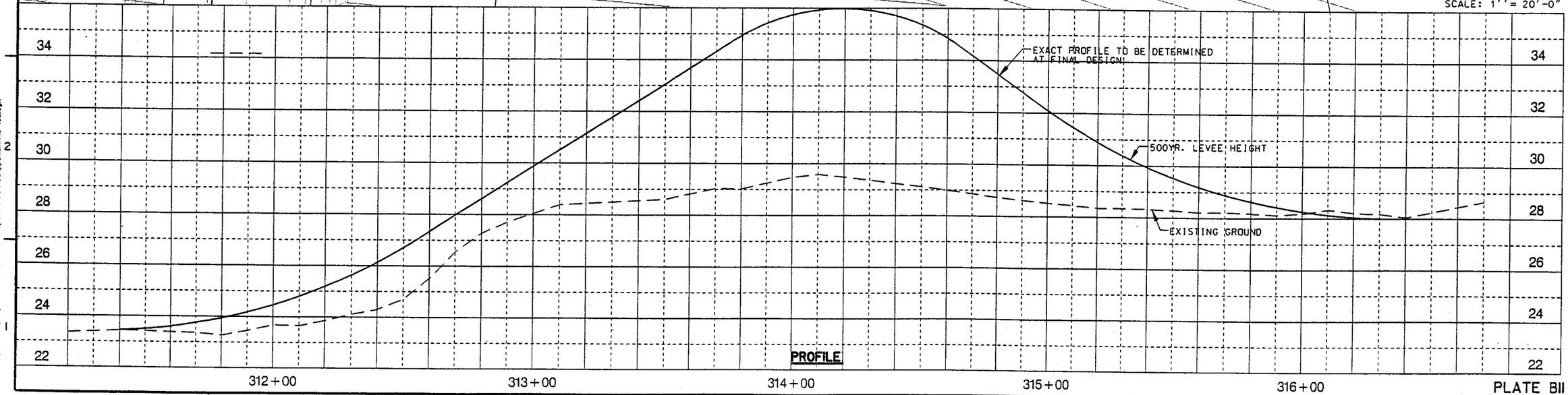
TYPICAL SECTION BIRDLAND DRIVE

NO SCALE



PLAN

SCALE: 1'' = 20'-0"



PROFILE

PLATE BII

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US Army Corps of Engineers Rock Island District

No.	Description	Date	Approved
	Revisions		

Designed By: KLA
Drawn By: SRJ
Checked By:
Reviewed By:
Date:
Scale: H: 1"=20' V: 1"=2'
Project Code: XXXXX
Solicitation Number: DACW25-XX-B-XXXX

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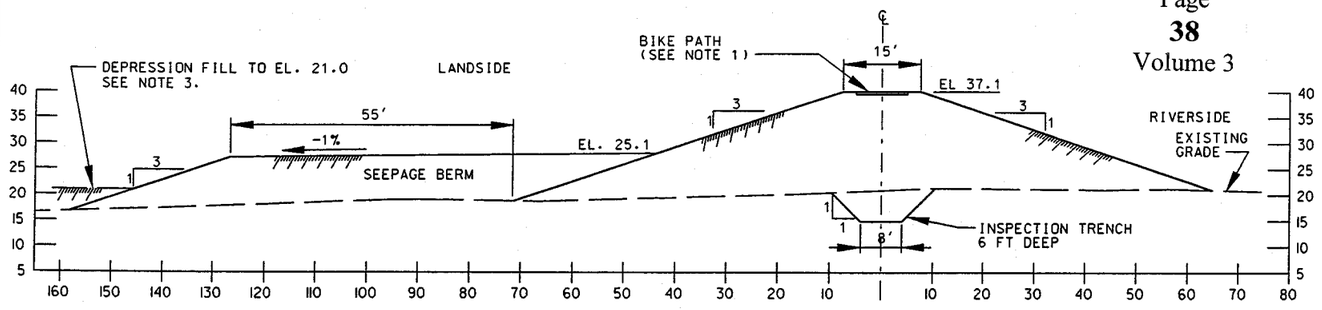
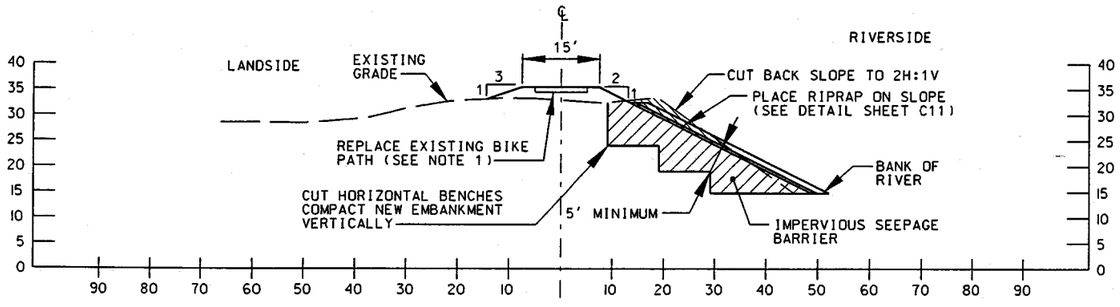
DES MOINES AND RACCOON RIVERS
DES MOINES, IOWA
FEASIBILITY STUDY
BIRDLAND LEVEE

PLAN AND PROFILE

Sheet Reference Number: C9
Sheet 11 of 16



TYPICAL SECTION
STA 182+75.88 TO STA 200+40



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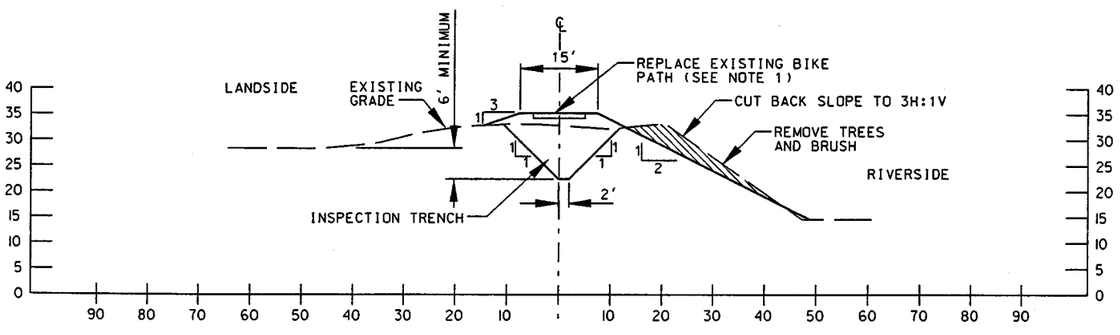

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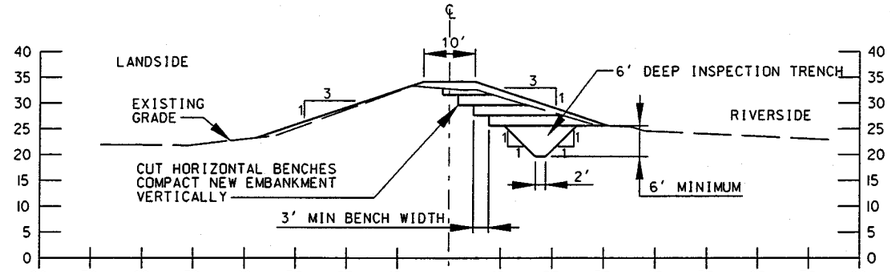
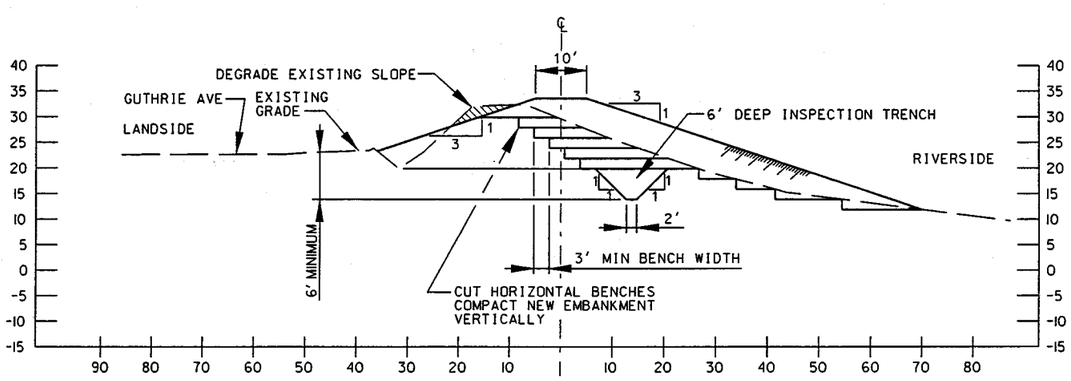
STA 213+00 TO STA 220+00



TYPICAL SECTION
STA 227+00 TO STA 245+50



TYPICAL SECTION
STA 245+50 TO STA 258+00

NOTES:
1. BIKE PATH SHALL BE 10' WIDE AND 3" THICK ACC PAVING. 2' WIDE GRASS SHOULDERS SHALL BE PLACED ON EACH SIDE OF BIKE PATH.
2. SEE PLAN SHEETS C5, C6 AND C9 FOR SHAPE OF LEVEE STA 220+00 TO STA 227+00.
3. PLACE DEPRESSION FILL TO EL. 21.0. STA. 182+75.88 TO STA. 189+00 AND STA. 197+00 TO STA. 201+20 AS SHOWN ON PLAN SHEETS C3 AND C4.

NOTE: ALL ELEVATIONS ARE IN DES MOINES DATUM. EL 0' = 773.936' NGVD)

15'10' 5' 0 15'

SCALE: 1''= 15'-0"

PLATE B12

US Army Corps of Engineers Rock Island District

Revisions: Symbol | Description | Date | Approved

Designed By: KLA | Drawn By: SRJ | Checked By: | Reviewed By: | Date: | Scale: 1"=15' | Project Code: XXXXX | Solicitation Number: DACW25-XX-B-XXXX

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DES MOINES AND RACCOON RIVERS DES MOINES, IOWA FEASIBILITY STUDY BIRDLAND LEVEE

TYPICAL SECTIONS

Sheet Reference Number: C10 Sheet 12 Of 16

21-SEP-2004 15:56
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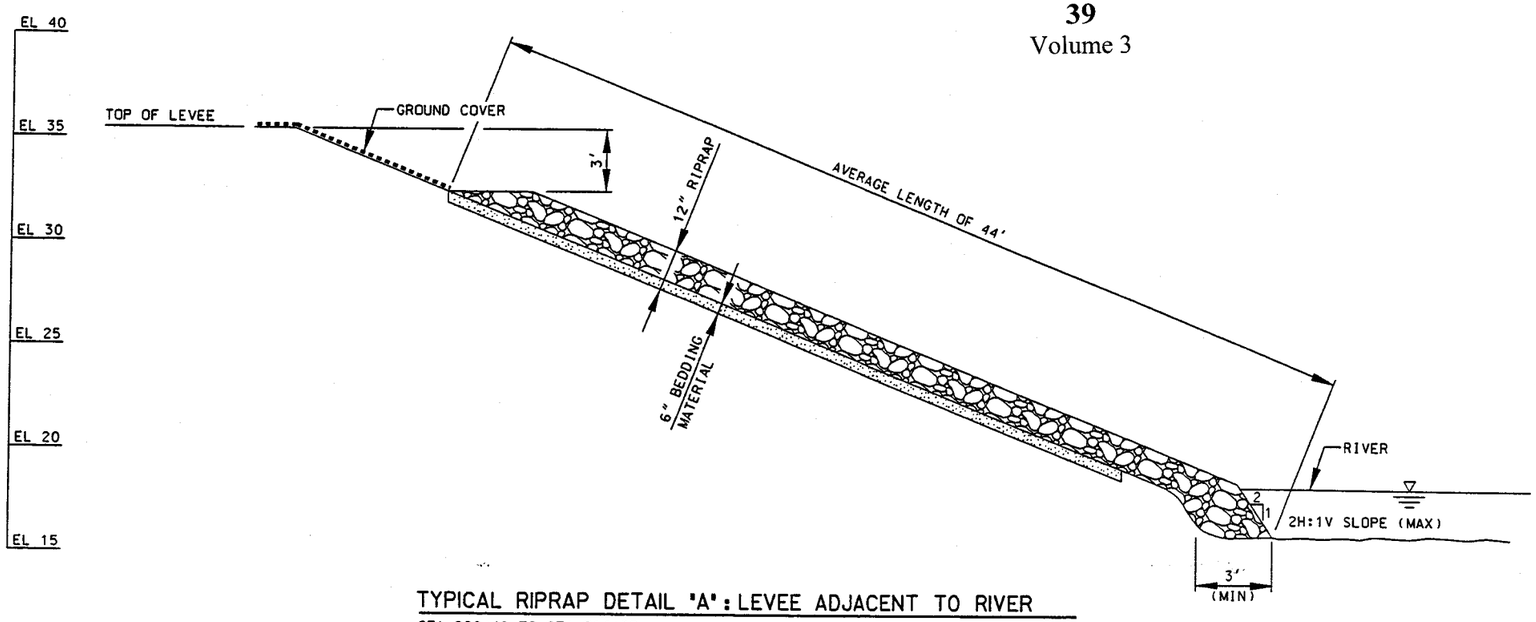
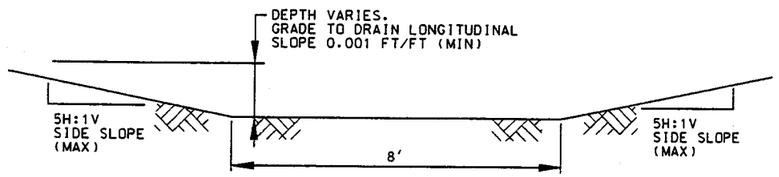


TYPICAL RIPRAP DETAIL "A": LEVEE ADJACENT TO RIVER

STA 200+40 TO STA 214+00



DRAINAGE SWALE DETAIL

STA 206+25 TO STA 212+50

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

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

Stanley Consultants INC.

Designed By: KLA	Date:		
Drawn By: SRJ	Scale: NONE		
Checked By:	Project Code: XXXXX		
Reviewed By:	Solicitation Number: DACW25-XX-B-XXXX		

DES MOINES AND RACCOON RIVERS
DES MOINES, IOWA
FEASIBILITY STUDY
BIRDLAND LEVEE

DETAILS

Sheet Reference Number: C11
Sheet 13 of 16

PLATE B13

10-SEP-2004 09:04
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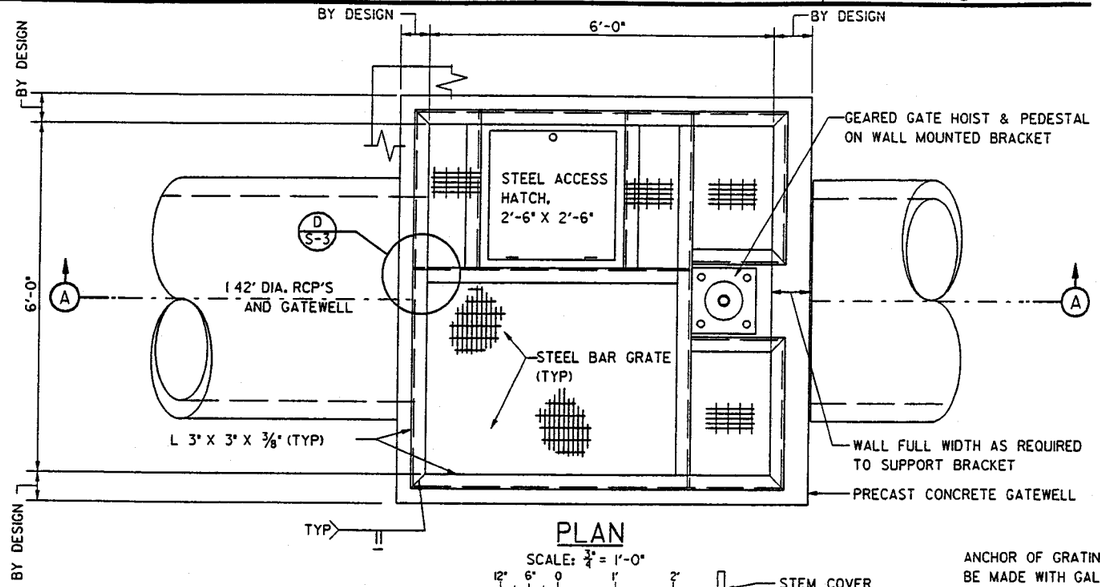
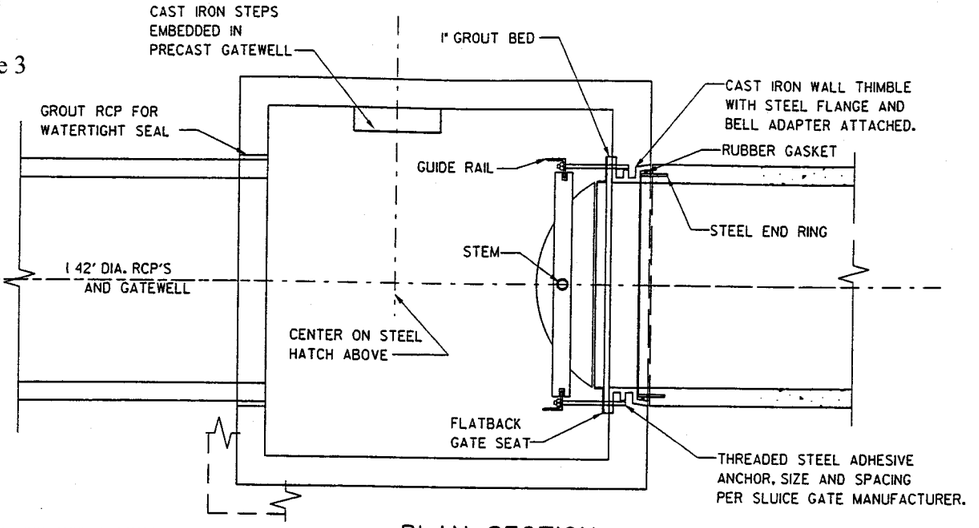


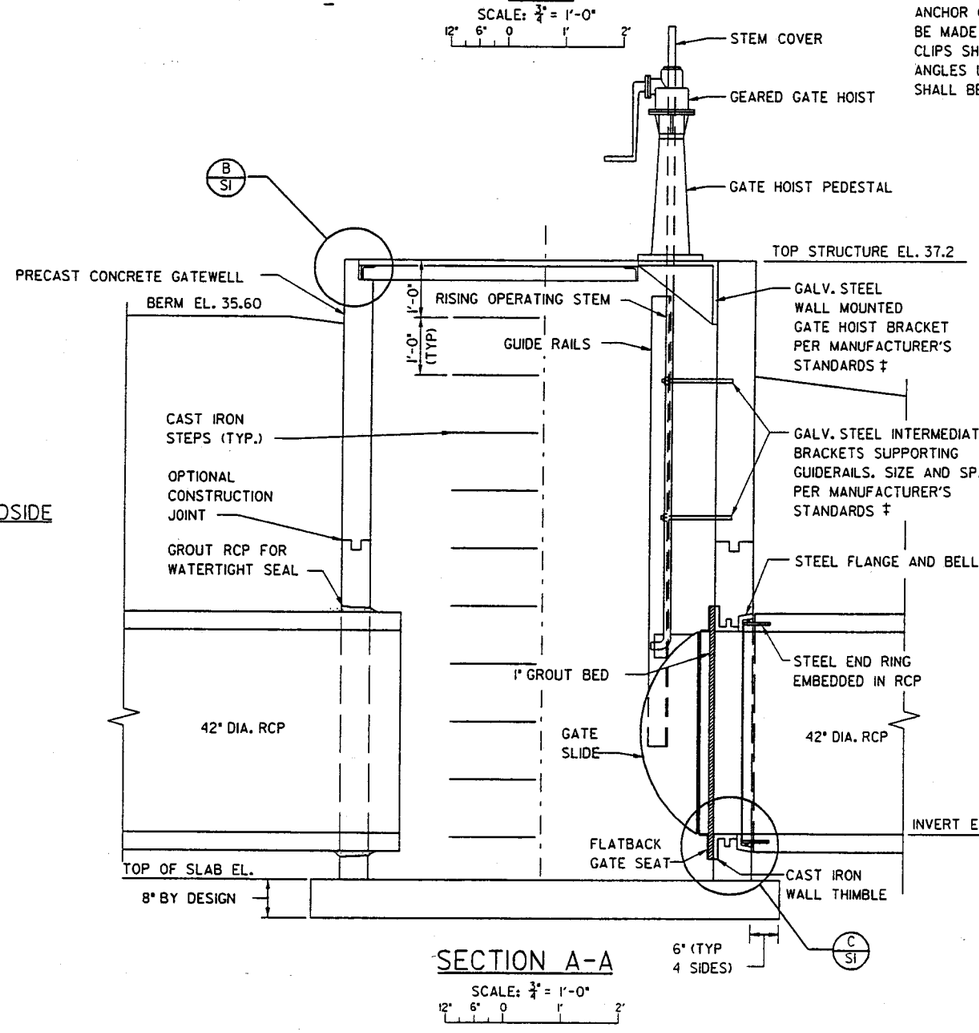
PLAN

SCALE: 3/4" = 1'-0"



PLAN SECTION

SCALE: 3/4" = 1'-0"

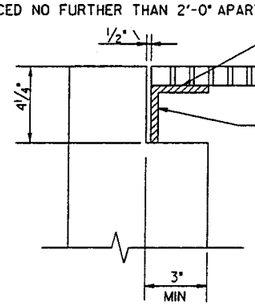


SECTION A-A

SCALE: 3/4" = 1'-0"

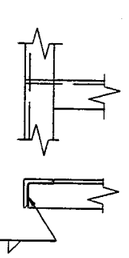
‡ ANCHORED WITH STAINLESS STEEL ADHESIVE ANCHORS.

ANCHOR OF GRATING TO SUPPORTING ANGLES SHALL BE MADE WITH GALVANIZED SADDLE CLIPS. SADDLE CLIPS SHALL BE LOW PROFILE & ATTACHED TO THE ANGLES USING SELF TAPPING SCREWS. SADDLE CLIPS SHALL BE SPACED NO FURTHER THAN 2'-0" APART.



B DETAIL S1

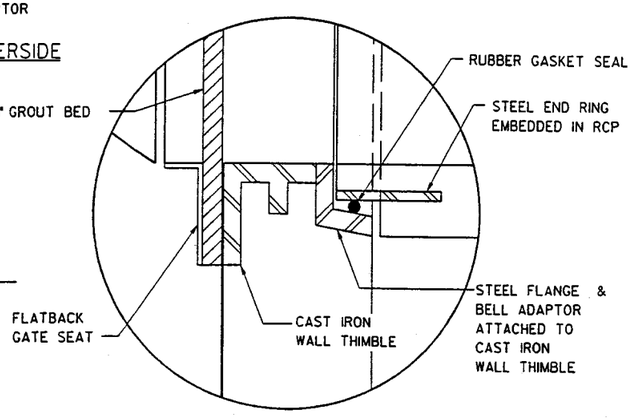
NO SCALE



D DETAIL S1

NO SCALE

RIVERSIDE



C DETAIL S1

NO SCALE

NOTES:
1. CONTRACTOR MAY PROVIDE ALTERNATE PIPE TO GATEWELL ATTACHMENT CONFIGURATION AT THE APPROVAL OF CONTRACTING OFFICER.
2. CAST IRON STEPS SHALL MEET THE REQUIREMENTS OF ILDOT STANDARD 602701-CAST IRON STEPS.
3. STEEL BAR GRATE SIZE AND WEIGHT SHALL BE PER SPECIFICATION.
4. STEEL HINGED HATCH TYPE SHALL BE PER SPECIFICATION. SHOP FILLET WELD HATCH TO ANGLE FRAME.
5. STEEL BAR GRATING, ANGLES AND HATCH SHALL BE DESIGNED FOR 100 LBS./FT ^{2} OF LIVE LOAD AND SHOP FABRICATED USING WELDED CONSTRUCTION AND SHALL REST IN RECESS AS SHOWN. ALL SHALL BE GALVANIZED PER SPECIFICATIONS.
6. AT CONTRACTOR'S OPTION, THE PRECAST CONCRETE GATEWELL MAY BE CONSTRUCTED USING CAST IN PLACE CONCRETE. THE CAST IN PLACE OPTION SHALL MEET ALL DESIGN REQUIREMENTS OUTLINED IN THE SPECIFICATIONS FOR THE PRECAST OPTION. DETAILED SHOP DRAWINGS SHALL BE SUBMITTED FOR APPROVAL TO THE CONTRACTING OFFICER.
7. SHOP DRAWINGS FOR EITHER PRECAST OR CAST IN PLACE GATEWELL OPTION SHALL BE SEALED BY A LICENSED IL STRUCTURAL ENGINEER.
8. THE CONTRACTOR AND SLUICE GATE MANUFACTURER SHALL CONFIRM THAT THE SLUICE GATE ASSEMBLY PROVIDED WILL FIT WITHIN THE INTERIOR DIMENSIONS AND ELEVATIONS SHOWN ON THE GATEWELL DRAWING.
9. THE CONTRACTOR AND SLUICE GATE MANUFACTURER SHALL CONFIRM THAT ALL BRACKETS, ANCHORS, AND THE WALL OF THE GATEWELL ITSELF IS DESIGNED FOR THE RATED OUTPUT OF THE GATE HOIST AND THE PORTABLE OPERATORS.

SEQUENCE OF CONSTRUCTION:
1. PRECAST CONCRETE GATEWELL OFF SITE AT PRECAST MANUFACTURER'S FACILITY. EMBED IN WALL OF GATEWELL THE CAST IRON THIMBLE AND STEEL FLANGE AND BELL ADAPTOR.
2. TRANSPORT PRECAST GATEWELL TO SITE.
3. SET PRECAST GATEWELL ON A LAYER OF COMPACTED PIPE BEDDING MATERIAL, MINIMUM DEPTH = 6".
4. INSTALL SLUICE GATE AND ACCESSORIES AS SHOWN.

MATERIALS:
PRECAST CONCRETE f'c = 4000 psi @ 28 DAYS

REINFORCING Fy = 60,000 psi.

US Army Corps of Engineers Rock Island District

Symbol	Description	Date	Approved
	Revisions		

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

Stanley Consultants INC.

Designed By:	Dates:	Scales: AS SHOWN
Drawn By: SRJ		Project Code: XXXXX
Checked By:		Solicitation Number: DACW25-XX-B-XXXX
Reviewed By:		

DES MOINES AND RACCOON RIVERS
DES MOINES, IOWA
FEASIBILITY STUDY
BIRDLAND LEVEE

GATEWELL STRUCTURE DETAILS

Sheet Reference Number: S1
Sheet 14 of 16

PLATE B14

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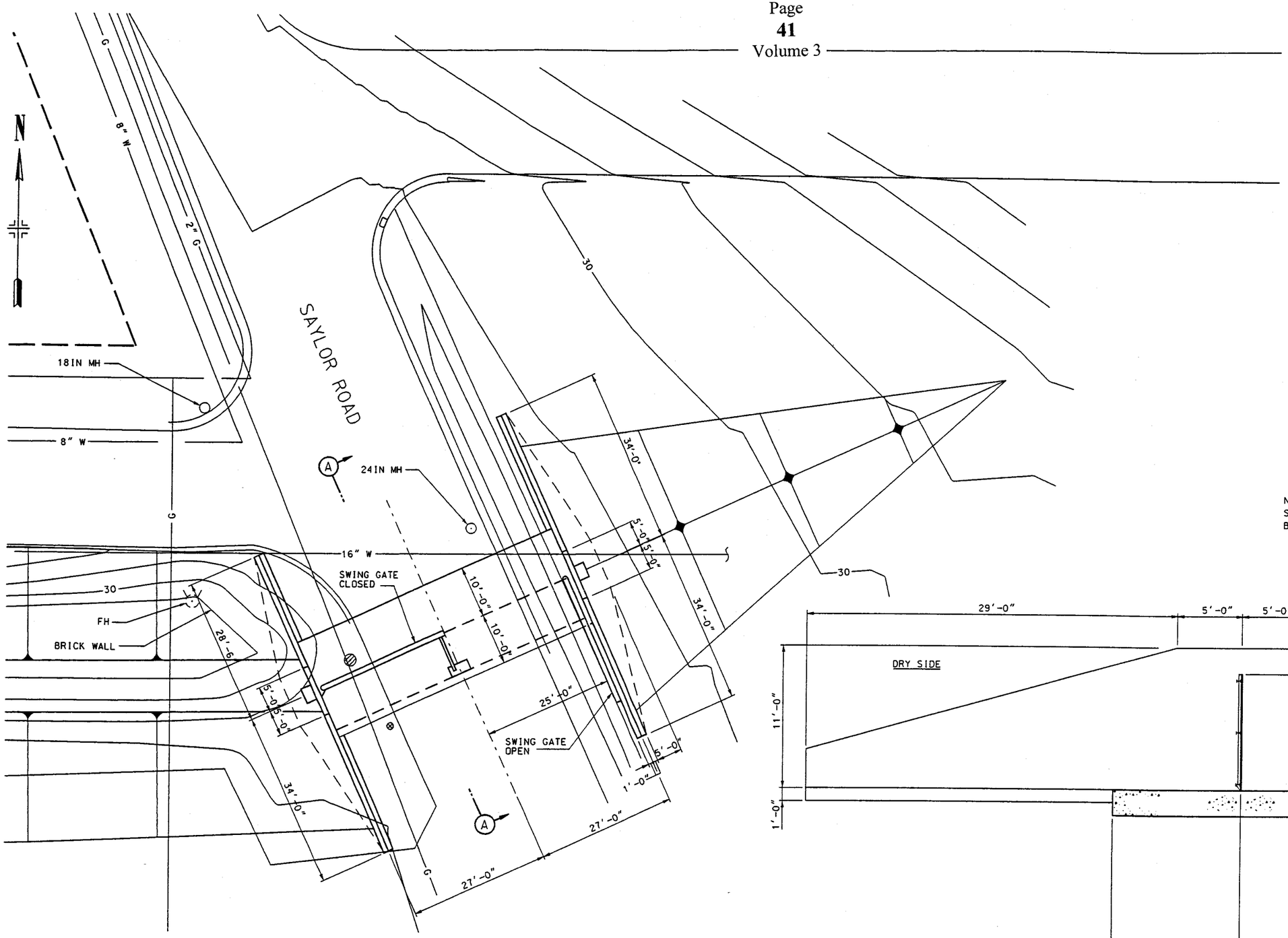
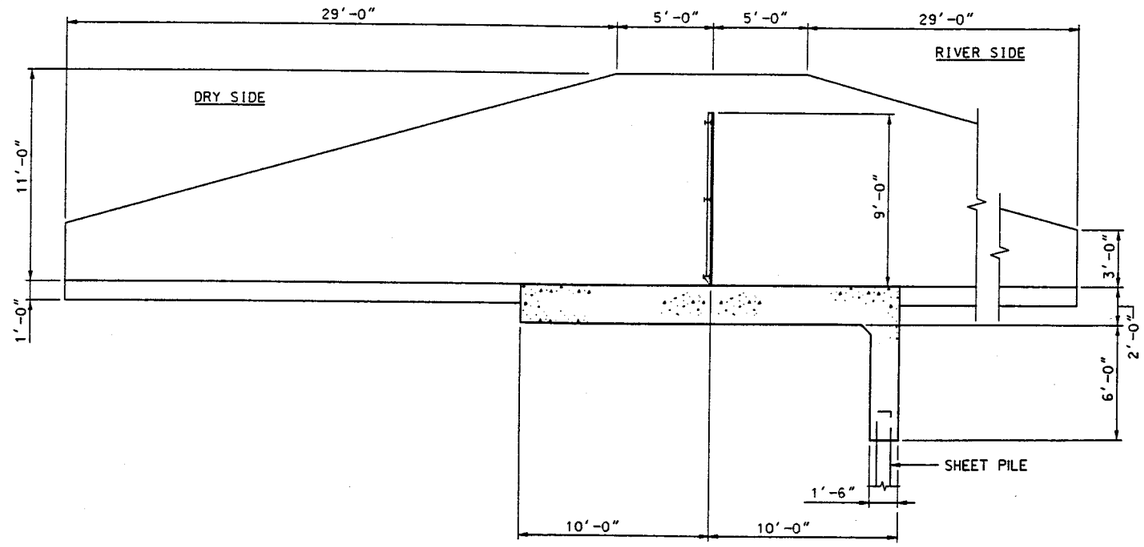


SWING GATE STRUCTURE

SCALE: 1"=10'-0"



SECTION A-A

SCALE: 1/4 "=1'-0"

NOTE:
STRUCTURAL DESIGN AND ANALYSIS TO BE COMPLETED DURING FINAL DESIGN

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

Designed By: MDW
Drawn By: NV
Checked By:
Reviewed By:
Date:
Scale: AS SHOWN
Project Code: XXXXX
Solicitation Number: DACW25-XX-B-XXXX

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

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DES MOINES AND RACCOON RIVERS
DES MOINES, IOWA
FEASIBILITY STUDY
BIRDLAND LEVEE

SWING GATE
STRUCTURE DETAILS

Sheet Reference Number: S2
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PLATE B15

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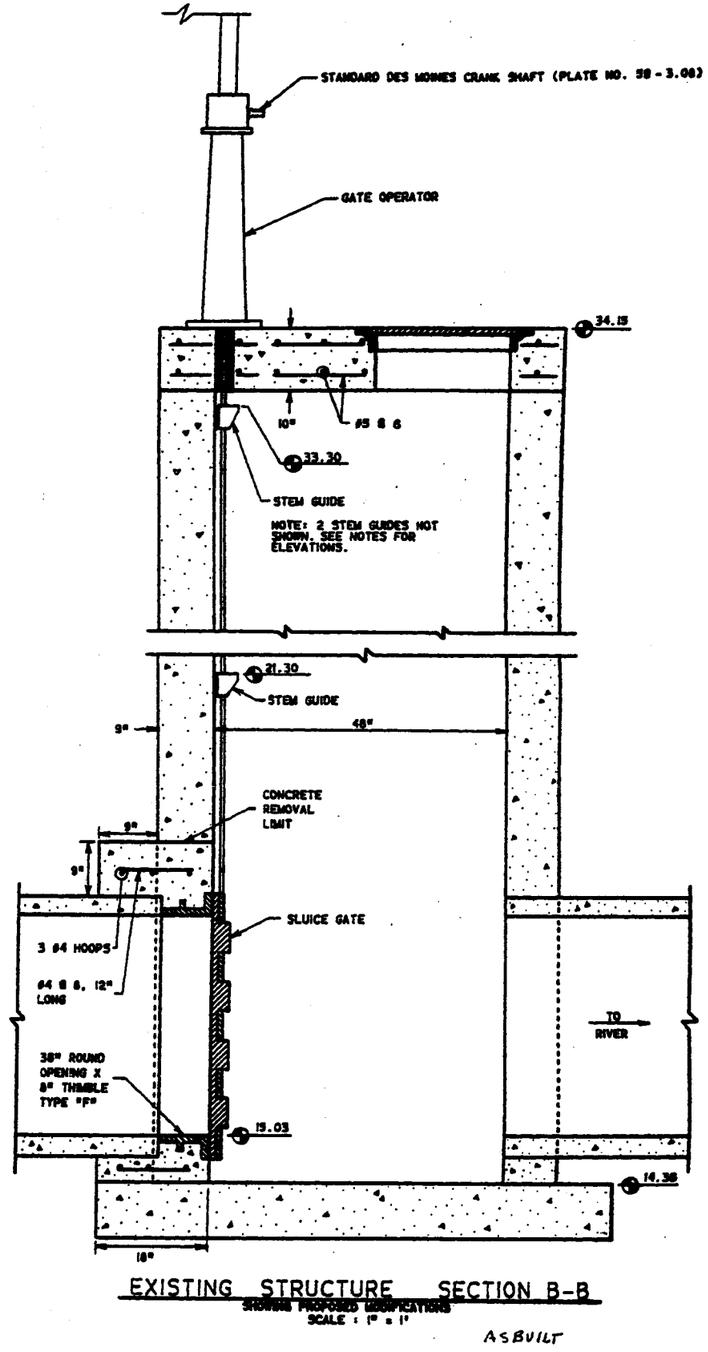
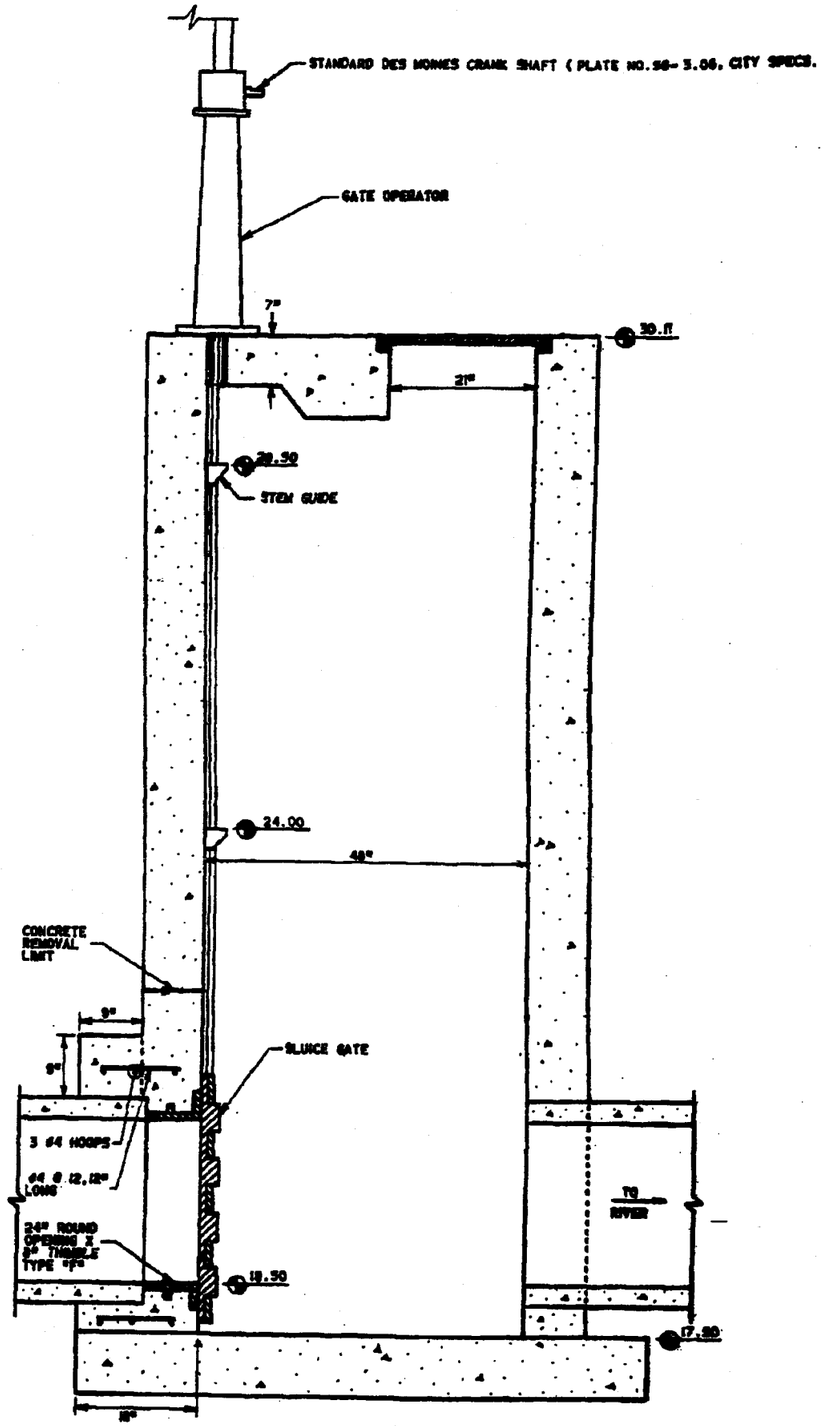


EXISTING STRUCTURE SECTION B-B
SHOWING PROPOSED MODIFICATIONS
SCALE : 1" = 1'

ASBUILT

GATE WELL B STA 225+02



EXISTING STRUCTURE SECTION B-B
SHOWING PROPOSED MODIFICATIONS
SCALE : 1" = 1'

ASBUILT

GATE WELL A STA 206+25

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

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

Stanley Consultants INC.

Designed By: KLA	Date:		
Drawn By: SRJ	Scale: NONE		
Checked By:	Project Code: XXXXX		
Reviewed By:	Solicitation Number: DACW25-XX-B-XXXX		

DES MOINES AND RACCOON RIVERS
DES MOINES, IOWA
FEASIBILITY STUDY
BIRDLAND LEVEE

REFERENCE DRAWING

Sheet Reference Number:
RI
Sheet 16 of 16

PLATE B16

10-SEP-2004 11:25
\\mvr design\usr5\projects\DM08\Birdland\Report\ModifiedAppendixA\r-SOLDGN

DES MOINES AND RACCOON RIVERS, DES MOINES, IA FEASIBILITY STUDY

CENTRAL PLACE

US Army Corps of Engineers
Rock Island District

THIS PROJECT WAS DESIGNED BY THE ROCK ISLAND DISTRICT OF THE U.S. ARMY CORPS OF ENGINEERS. THE INITIALS OR SIGNATURES AND REGISTRATION DESIGNATIONS OF THE PROFESSIONAL ENGINEERS ON THE PROJECT DOCUMENTS WITHIN THE SCOPE OF THEIR EMPLOYMENT AS REQUIRED BY ER 1110-1-8152. SIGNATURES AFFIXED BELOW INDICATE OFFICIAL RECOMMENDATION AND APPROVAL OF ALL DRAWINGS IN THIS SET AS INDICATED ON EACH INDIVIDUAL TITLE BLOCK.

Symbol	Description	Date	Appr.
	Revisions		

Reviewed by:
Chief, Design Branch — Date
Chief, Hydraulics Branch — Date
Chief, Geotechnical Branch — Date

Recommended by:
Chief, Engineering Division — Date
Approved by:
Col., Corps of Engineers — Date

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

Designed By: DRC
Drawn By: MRC
Checked By: RAL
Reviewed By: PAK
Date: 24 APRIL 2002
Scale: AS SHOWN
Project Code: dm08
Solicitation Number: DACW25-XX-B-XXXX

DES MOINES RIVER, DES MOINES, IOWA, FEASIBILITY STUDY, CENTRAL PLACE

COVER SHEET

Sheet Reference Number:
X1
Sheet 1 of 12

PLATE CP1

06-DEC-2004 15:37
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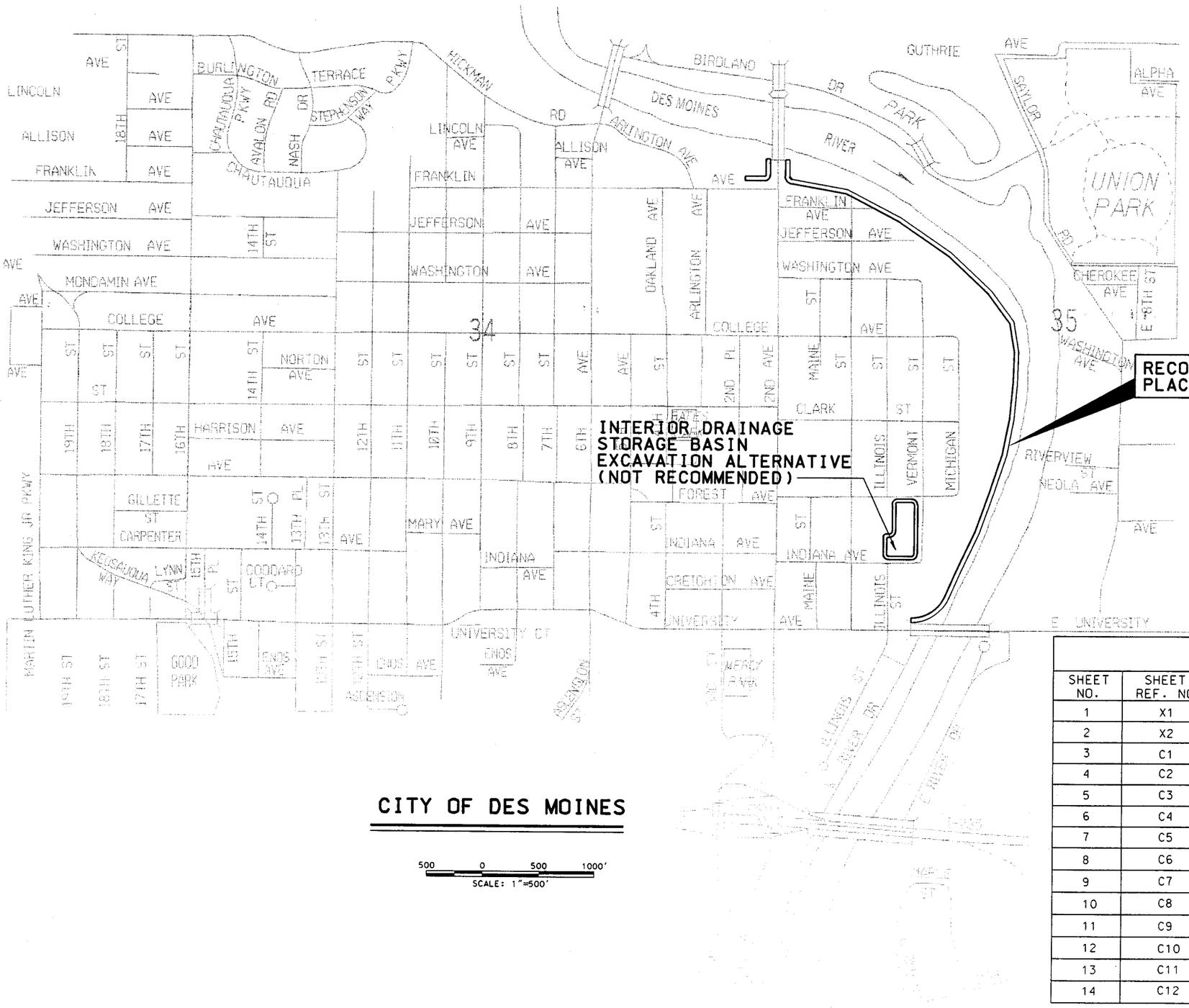

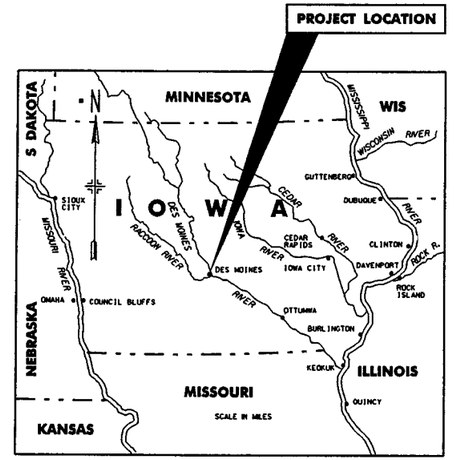

VICINITY MAP
25 0 25 50 75

INDEX

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4	C2	PLAN AND PROFILE STA.24+00 TO STA.34+00
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PLATE CP2

US Army Corps of Engineers Rock Island District

Symbol	Description	Date	Approved
	Revisions		

Designed By: DRC
Drawn By: MGC
Checked By: RJL
Reviewed By: RJL
Date: 24 APRIL 2002
Scale: AS SHOWN
Project Code: cm08
Identification Number: 0000-xx-0-xxxx

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

DES MOINES RIVER, DES MOINES, IOWA. FEASIBILITY STUDY, CENTRAL PLACE

CENTRAL PLACE SITE PLAN AND INDEX

Sheet Reference Number:
X2
Sheet 2 of 12

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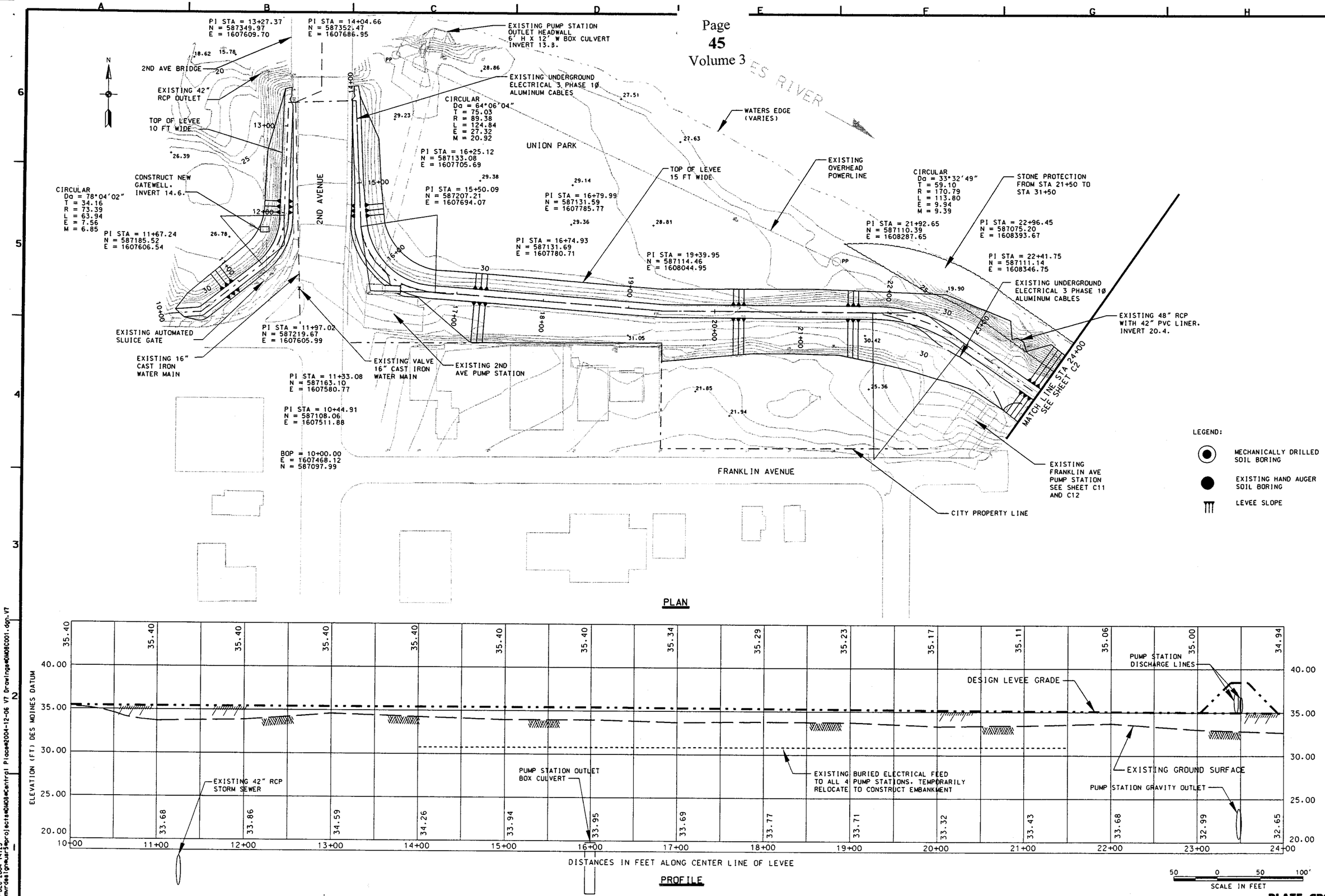

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

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

Designed By: DRC	Date: 24 APRIL 2002		
Drawn By: MRC	Scale: AS SHOWN		
Checked By: RAL	Project Code: dm08		
Reviewed By: PAK	Solicitation Number: DACW25-XX-B-XXXX		

DES MOINES RIVER, DES MOINES, IOWA, FEASIBILITY STUDY, CENTRAL PLACE

PLAN AND PROFILE STATION 10+00 TO STATION 24+00

Sheet Reference Number: C1
Sheet 3 of 12

PLATE CP3

06-DEC-2004 14:25
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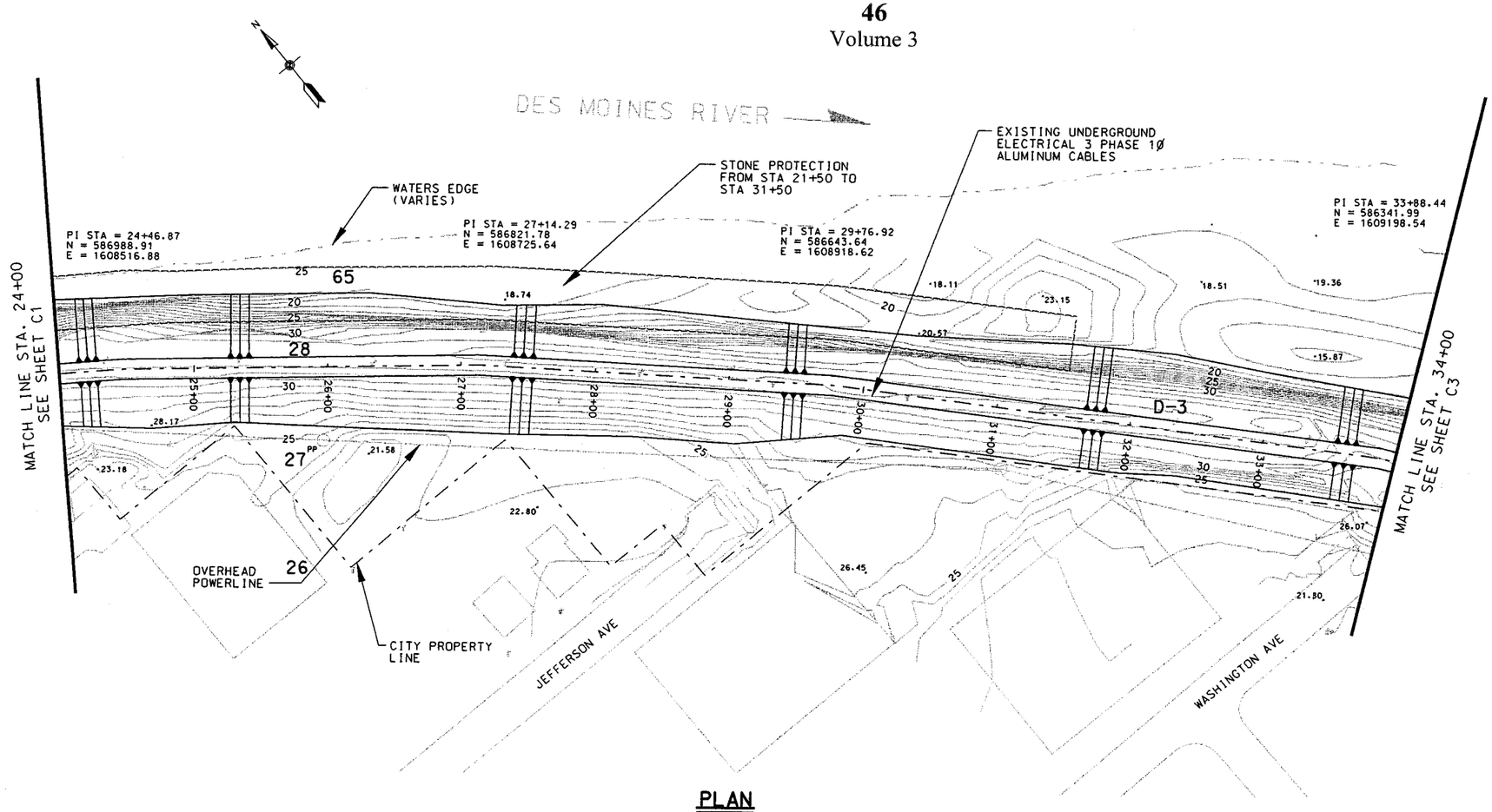

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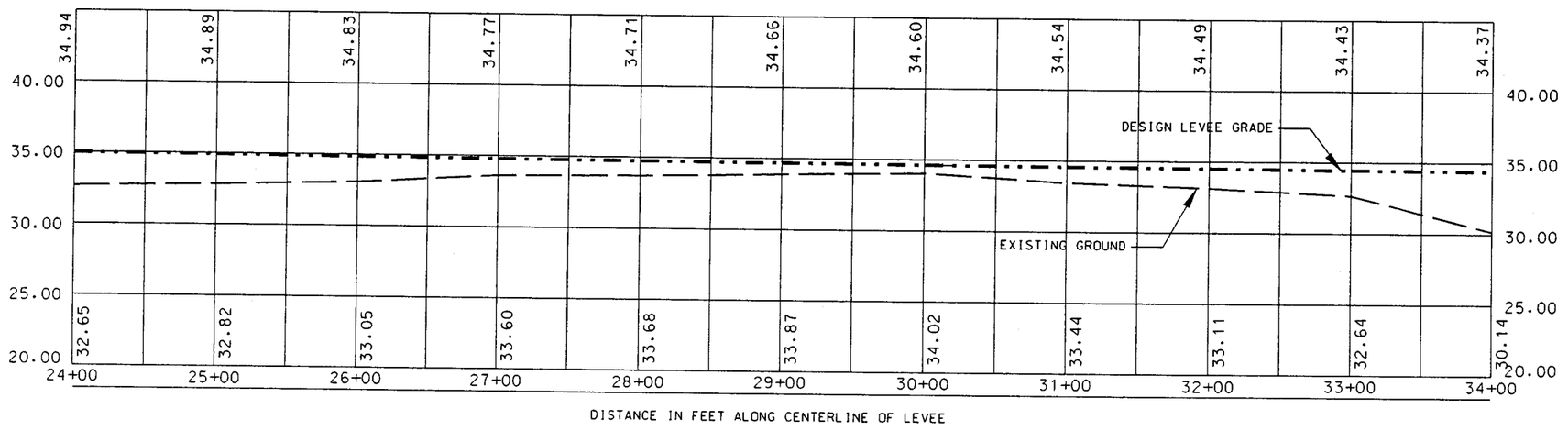

PROFILE

50 0 50 100'
SCALE IN FEET

PLATE CP4

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

Designed By: DRC	Drawn By: MRC	Checked By: RAL	Revised By: PAK
Date: 24 APRIL 2002	Scale: AS SHOWN	Project Code: cm08	Solicitation Number: DACW25-XX-B-XXXX

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

DES MOINES RIVER, DES MOINES, IOWA, FEASIBILITY STUDY, CENTRAL PLACE

PLAN AND PROFILE STATION 24+00 TO STATION 34+00

Sheet Reference Number: **C2**
Sheet 4 of 12

06-DEC-2004 14:56
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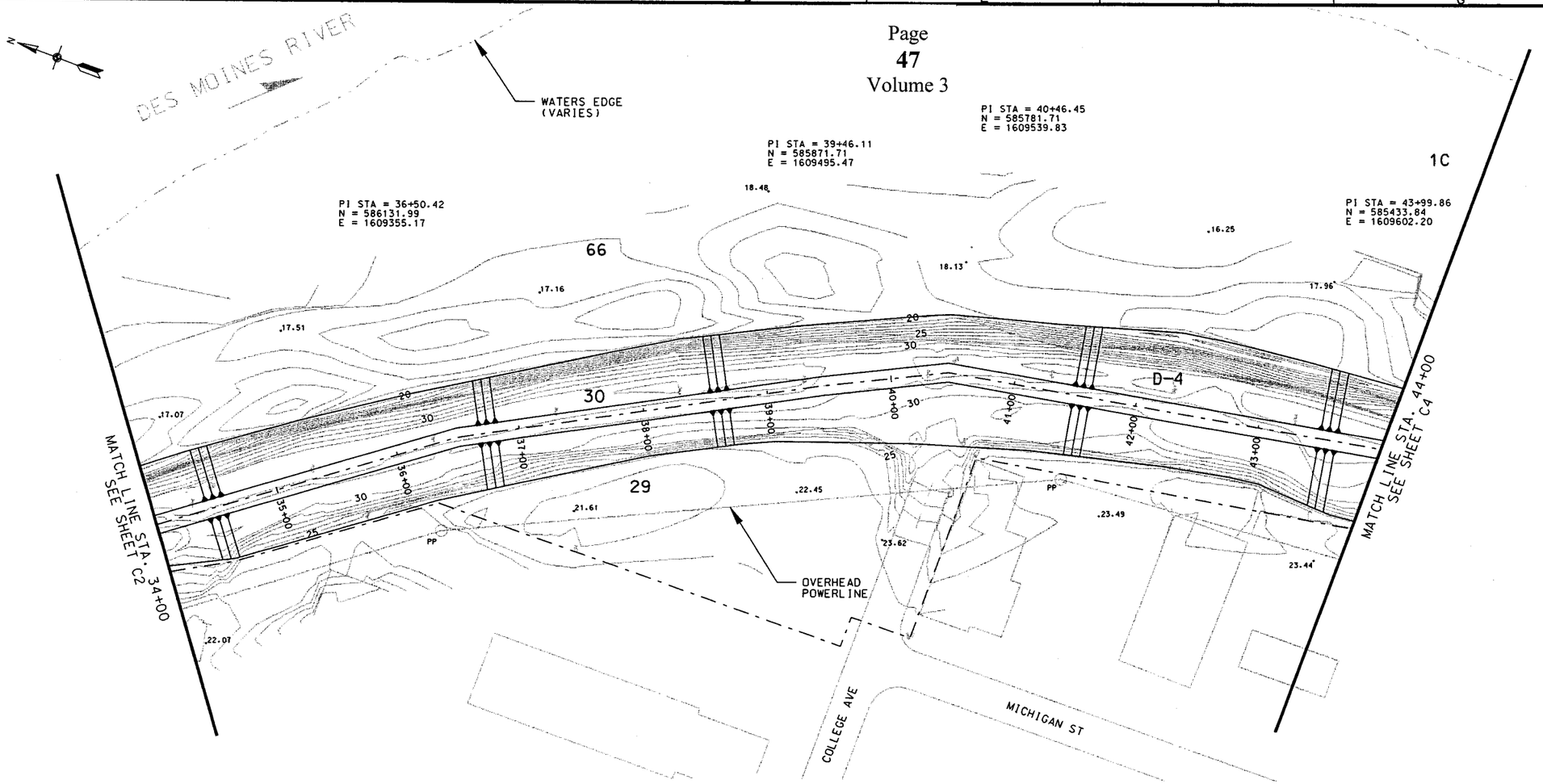

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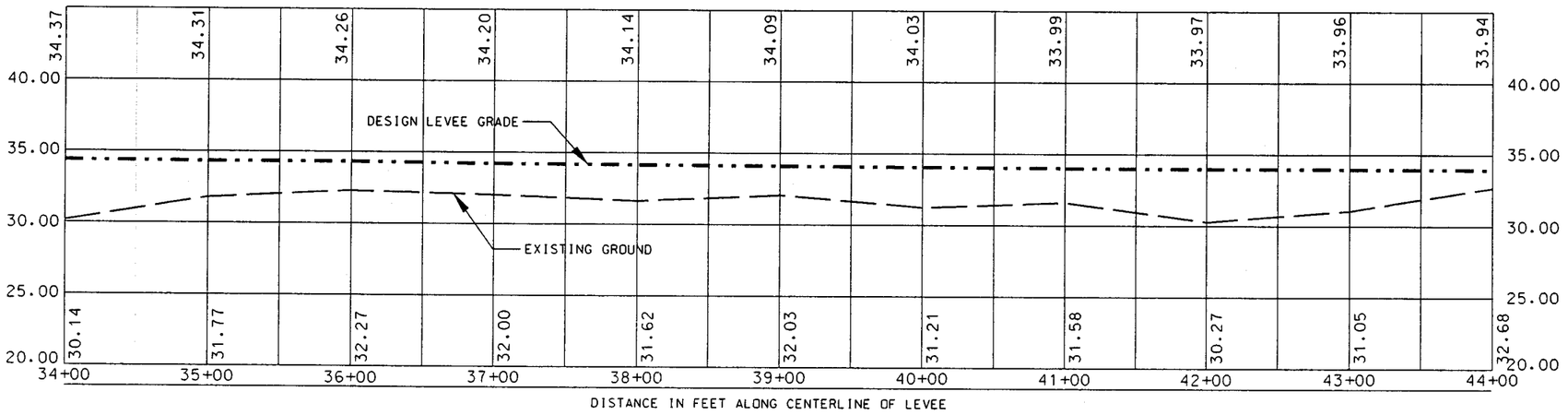

PROFILE

50 0 50 100'
SCALE IN FEET

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

Designed By: DRC
Drawn By: MRC
Checked By: RAL
Reviewed By: PAK
Date: 24 APRIL 2002
Scale: AS SHOWN
Project Code: dm08
Solicitation Number: DACW25-XX-B-XXXX

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

DES MOINES RIVER, DES MOINES, IOWA, FEASIBILITY STUDY, CENTRAL PLACE

PLAN AND PROFILE STATION 34+00 TO STATION 44+00

Sheet Reference Number: C3
Sheet 5 of 12

PLATE CP5

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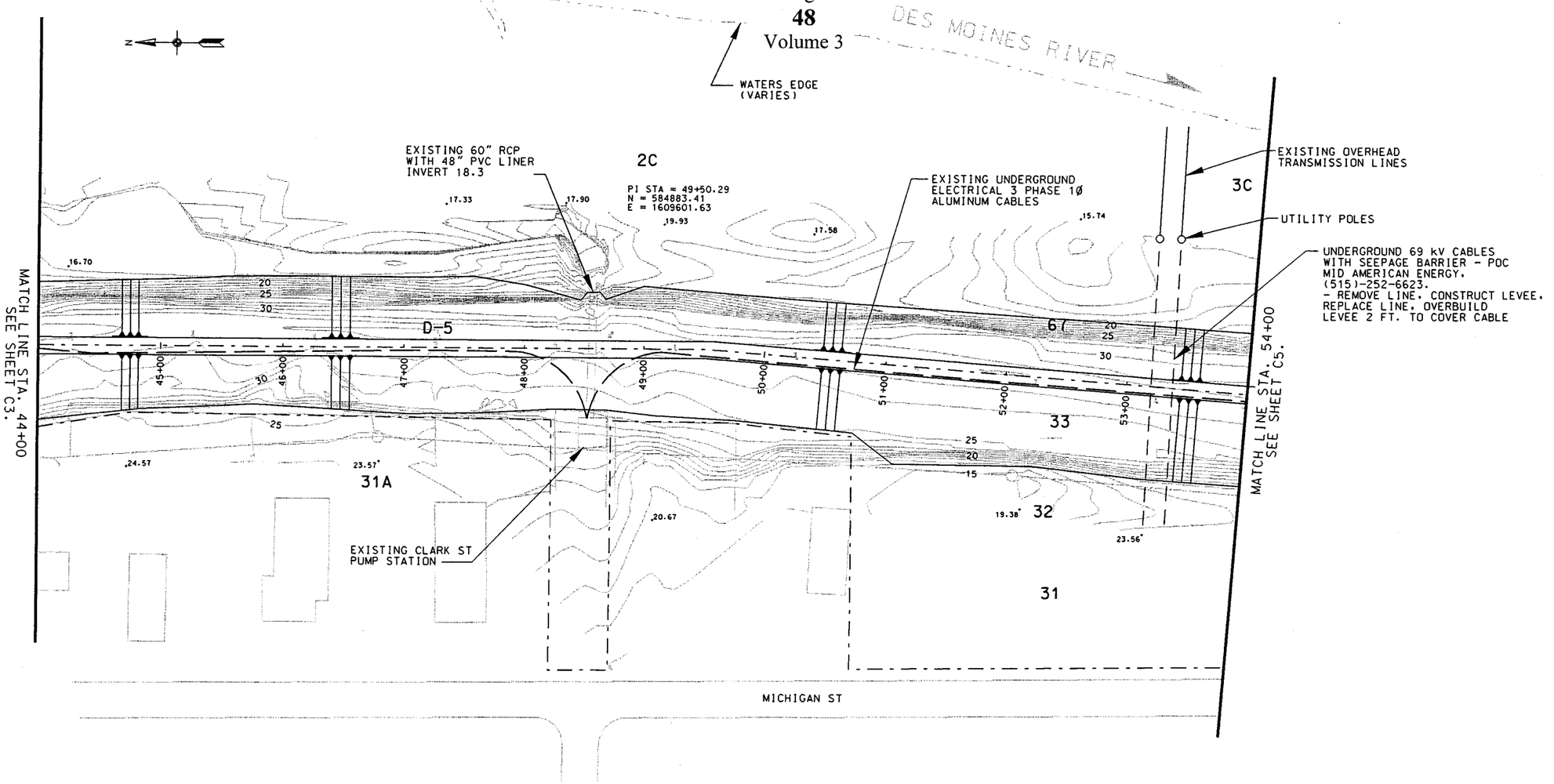

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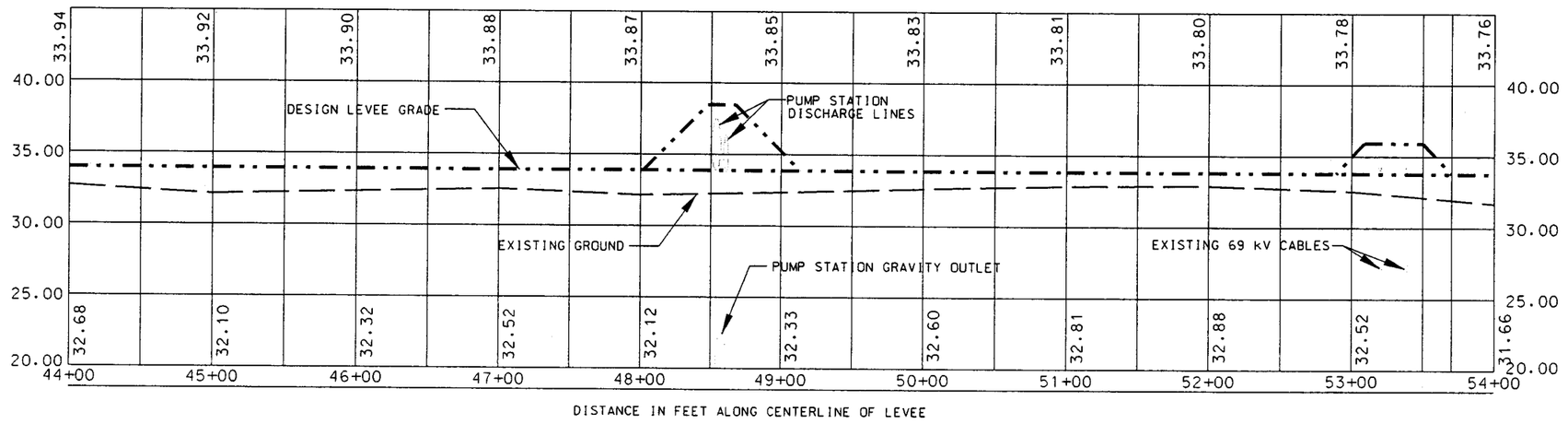

PROFILE

50 0 50 100'
SCALE IN FEET

US Army Corps of Engineers Rock Island District

Symbol	Description	Date	Approved
	Revisions		

Designed By: DRC	Date: 24 APRIL 2002		
Drawn By: MRC	Scale: AS SHOWN		
Checked By: RAL	Project Code: dm08		
Reviewed By: PAK	Solicitation Number: DACW25-XX-B-XXXX		

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

DES MOINES RIVER, DES MOINES, IOWA, FEASIBILITY STUDY, CENTRAL PLACE

PLAN AND PROFILE STATION 44+00 TO STATION 54+00

Sheet Reference Number: **C4**
Sheet 6 of 12

PLATE CP6

06-DEC-2004 15:16
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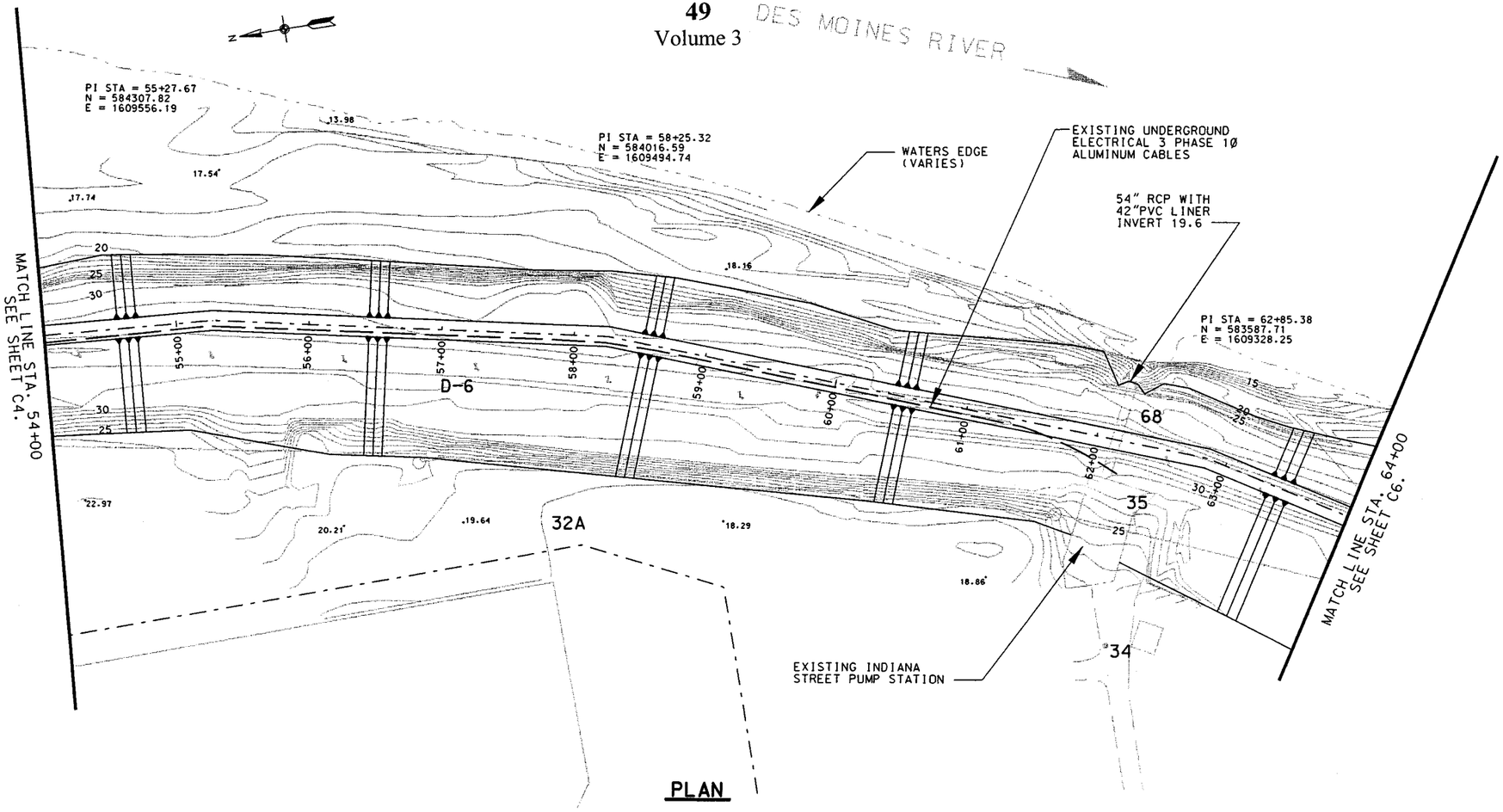

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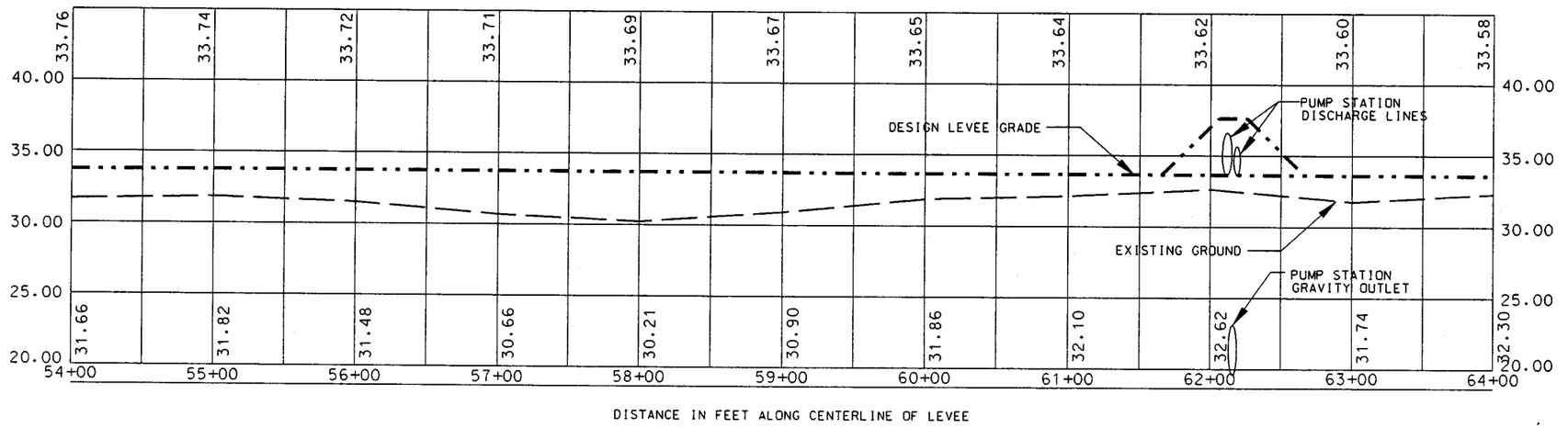

PROFILE

SCALE IN FEET

PLATE CP7

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

Designed By: DRC
Drawn By: MRC
Checked By: RAL
Reviewed By: PAK
Date: 24 APRIL 2002
Scale: AS SHOWN
Project Code: Qm08
Solicitation Number: DACW25-XX-R-XXXX

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

DES MOINES RIVER, DES MOINE, IOWA, FEASIBILITY STUDY, CENTRAL PLACE

PLAN AND PROFILE STATION 54+00 TO STATION 64+00

Sheet Reference Number: **C5**
Sheet 7 of 12

06-DEC-2004 15:05
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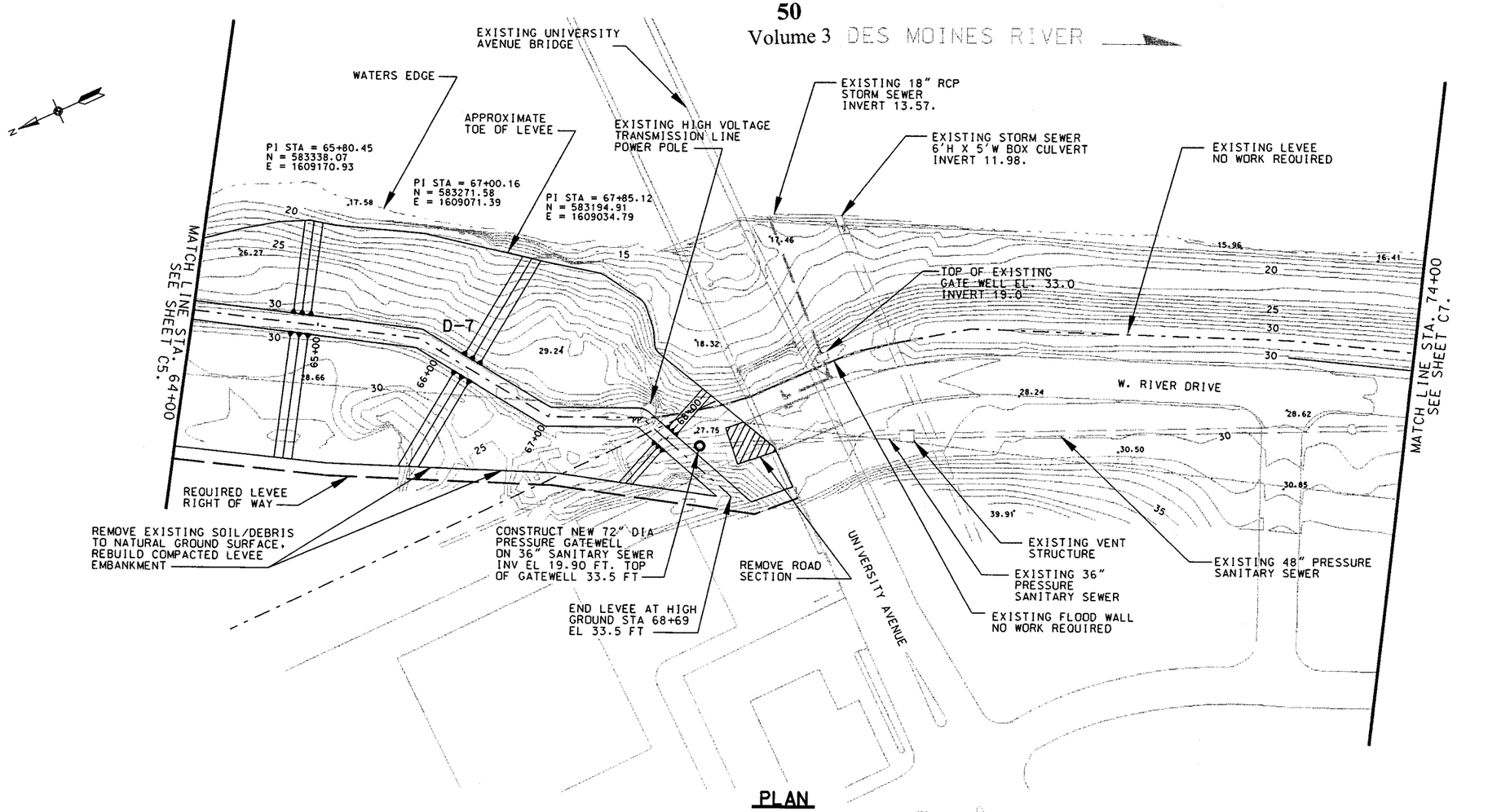

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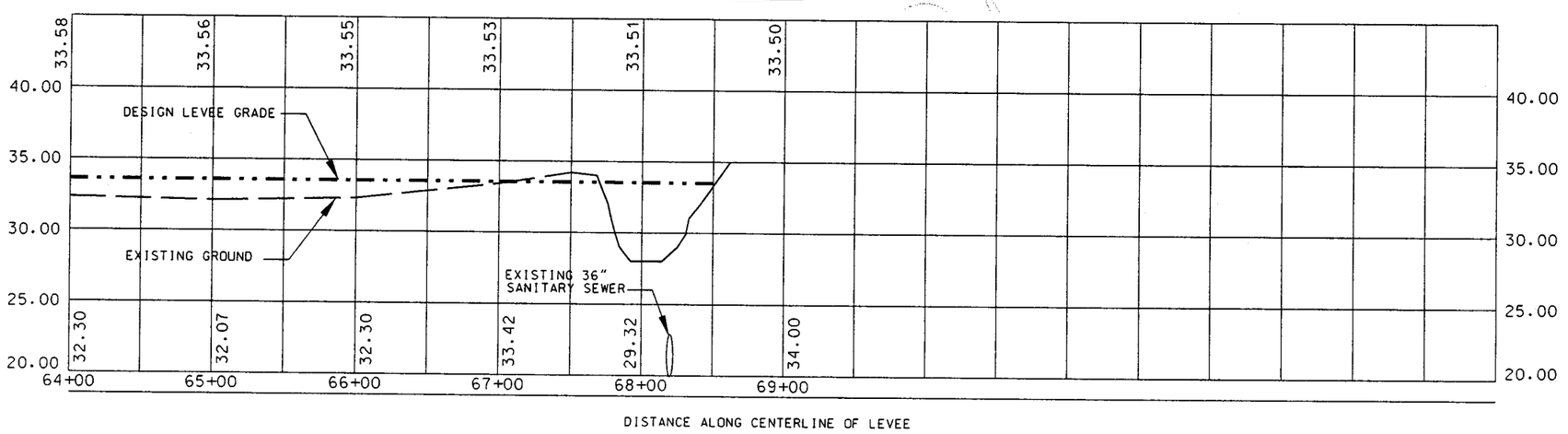

PROFILE

US Army Corps of Engineers Rock Island District

Symbol	Description	Date	Approved
	Revisions		

Designed By: DRC	Date: 24 APRIL 2002		
Drawn By: MRC	Scale: AS SHOWN	Project Code: dm08	Solicitation Number: DACW25-02-B-XXXX
Checked By: RAL			
Reviewed By: PAK			

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

DES MOINES RIVER, DES MOINES, IOWA FEASIBILITY STUDY, CENTRAL PLACE

PLAN AND PROFILE STATION 64+00 TO STATION 74+00

Sheet Reference Number: **C6**
Sheet 8 of 12

PLATE CP8

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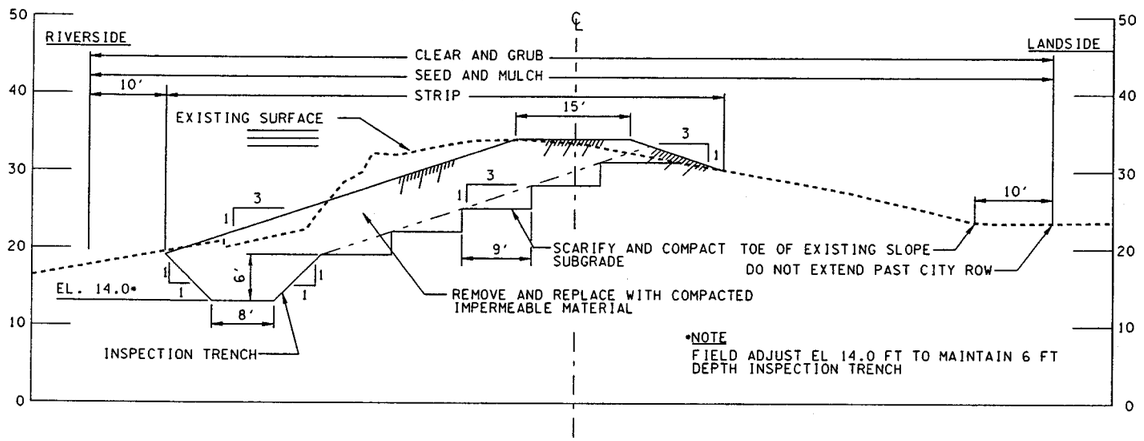
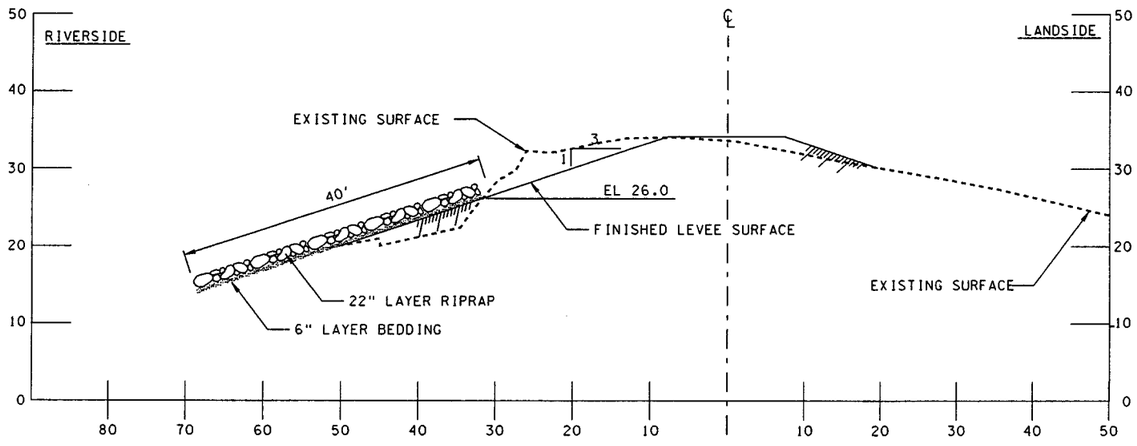
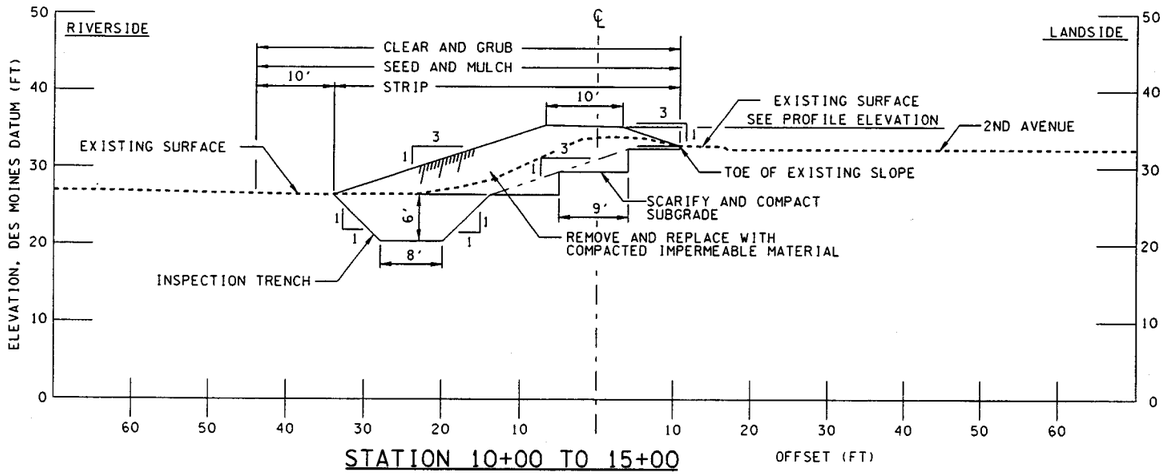


STATION 16+00 TO 68+69



STONE PROTECTION DETAIL STATION 21+50 TO 31+50



STATION 10+00 TO 15+00

NOTES

1. SEE PLAN AND PROFILE DRAWINGS FOR ALIGNMENT PI DATA
2. ELEVATIONS ARE IN DES MOINES DATUM. EL 773.837 NGVD = EL 0.0 DES MOINES DATUM.
3. STATION 15+00 TO 16+00 TRANSITIONS FROM 10' TOP WIDTH TO 15' TOP WIDTH
4. CONTRACTOR SHALL MARK CITY ROW.

10' 0 10'
SCALE IN FEET

PLATE CP9

US Army Corps of Engineers Rock Island District

Symbol	Description	Date	Approved
	Revisions		

Dates: 24 APRIL 2002
Scale: AS SHOWN
Project Code: dm08
Solicitation Number: DACW25-XX-B-XXXX

Designed By: DRC
Drawn By: MRC
Checked By: RAL
Reviewed By: PAK

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

DES MOINES RIVER, DES MOINES, IOWA, FEASIBILITY STUDY, CENTRAL PLACE

TYPICAL SECTIONS

Sheet Reference Number: **C7**
Sheet 9 of 12

06-DEC-2004 15:12
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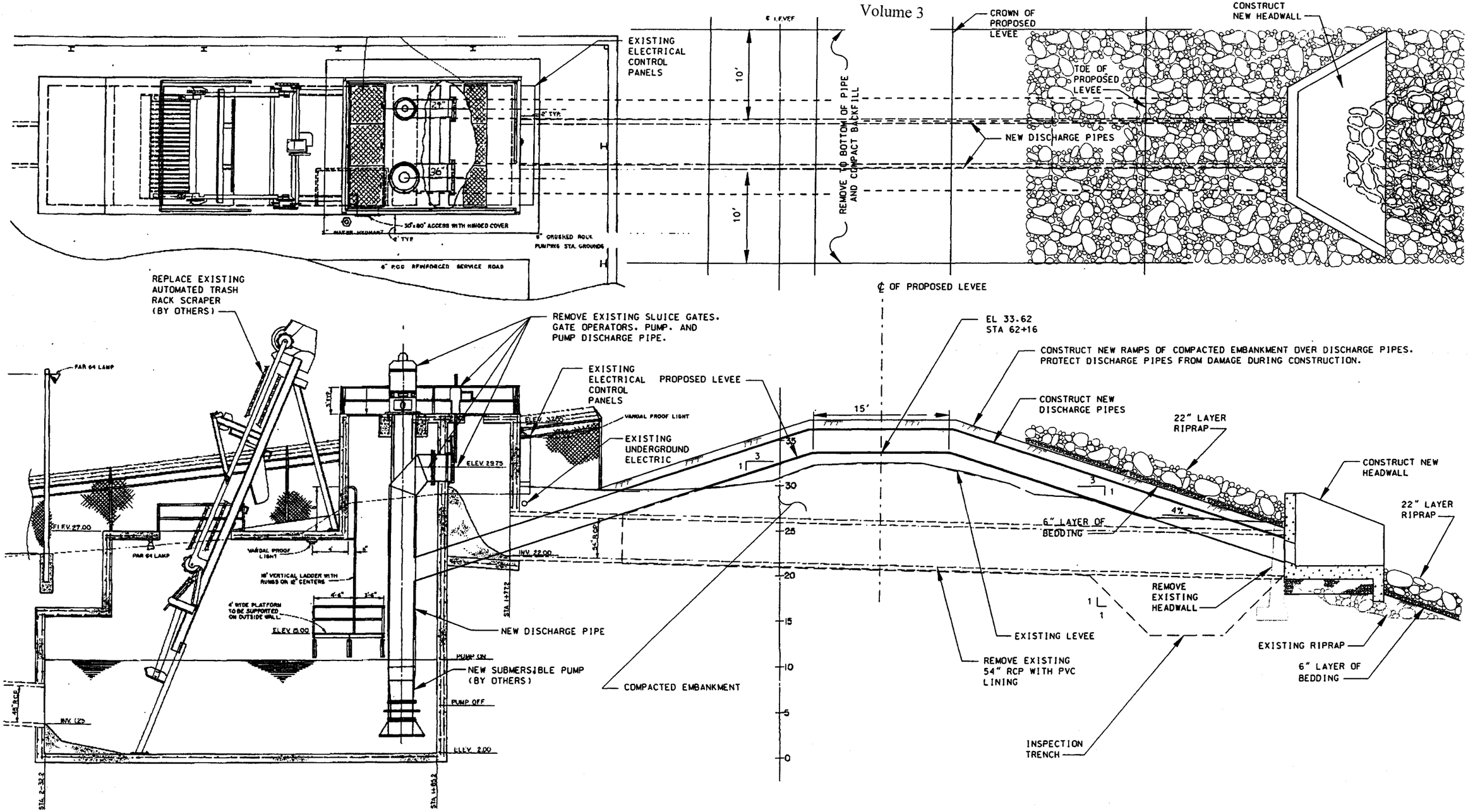

PLAN AND ELEVATION OF PUMPING STATION ON INDIANA AVENUE

6 0 6 12'
SCALE IN FEET

NOTE:

1. THIS DEPICTS THE DRAWING OF INDIANA AVENUE PUMPING STATION. THE FRANKLIN AVENUE AND CLARK STREET PUMP STATIONS HAVE A SIMILAR CONFIGURATION AND REQUIRE SIMILAR UPGRADE.
2. CITY OF DES MOINES COMPLETED SURVEY USING DES MOINES DATUM IN 2001.

US Army Corps of Engineers Rock Island District

Symbol	Description	Date	Approved
	Revisions		

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

Designed By: DRC	Date: 24 APRIL 2002		
Drawn By: MRC	Scale: AS SHOWN		
Checked By: RAL	Project Code: dm08	Solicitation Number: DACW25-XX-B-XXXX	
Reviewed By: PAK			

DES MOINES RIVER, DES MOINE METROPOLITAN AREA, IOWA STUDY, CENTRAL PLACE

PUMP STATION DETAILS ALTERNATIVE 2

Sheet Reference Number: **C8**
Sheet 10 of 12

PLATE CP10

07-DEC-2004 09:04
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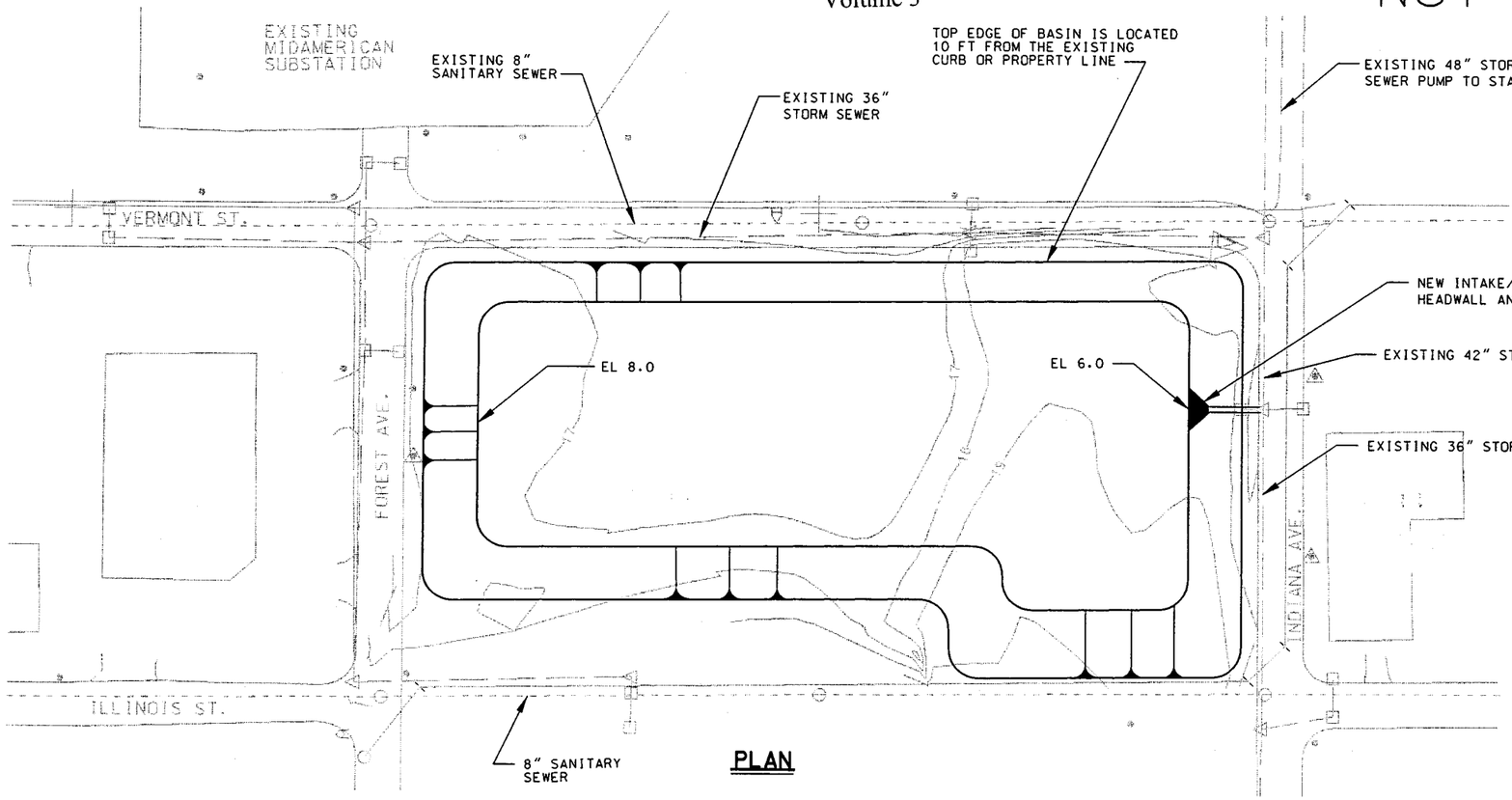
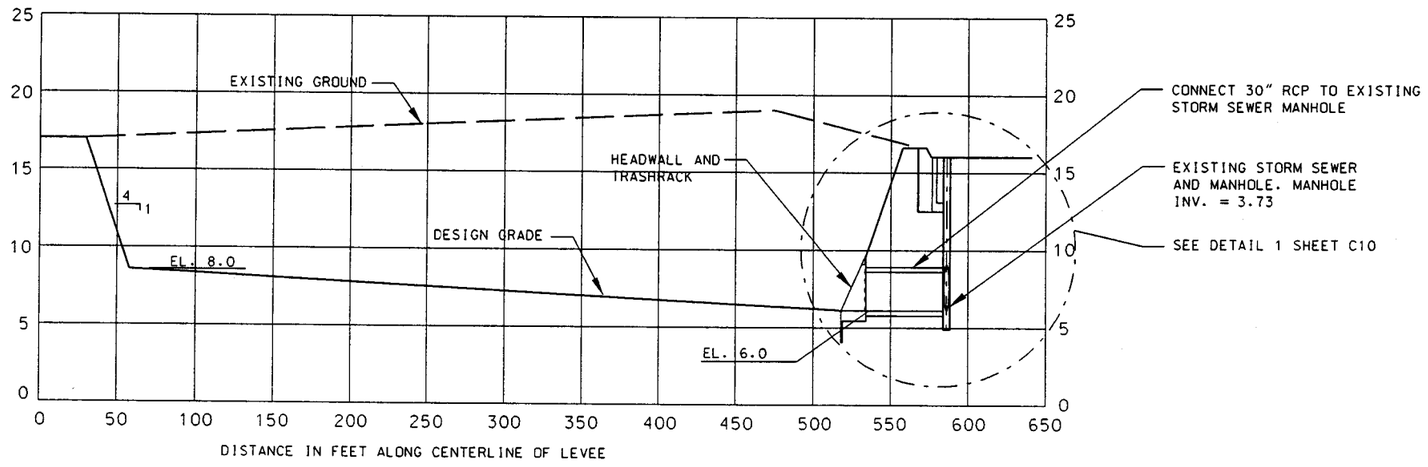
NOT RECOMMENDED



PLAN

NOTES:

1. EXCAVATED MATERIAL SHALL BE USED AS BORROW.
2. UNSUITABLE MATERIAL SHALL BE HAULED OFF SITE.
3. SEED AND MULCH ALL DISTURBED AREAS.



PROFILE

50 0 50 100'
SCALE IN FEET

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

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

Designed By: DRC
Drawn By: MRC
Checked By: RAL
Reviewed By: PAK
Date: 24 APRIL 2002
Scale: AS SHOWN
Project Code: dm08
Solicitation Number: DACW25-XX-B-XXXX

DES MOINES RIVER, DES MOINES, IOWA, FEASIBILITY STUDY, CENTRAL PLACE

INTERIOR FLOOD STORAGE BASIN

Sheet Reference Number: C9
Sheet 11 of 12

PLATE CP11

06-DEC-2004 15:34
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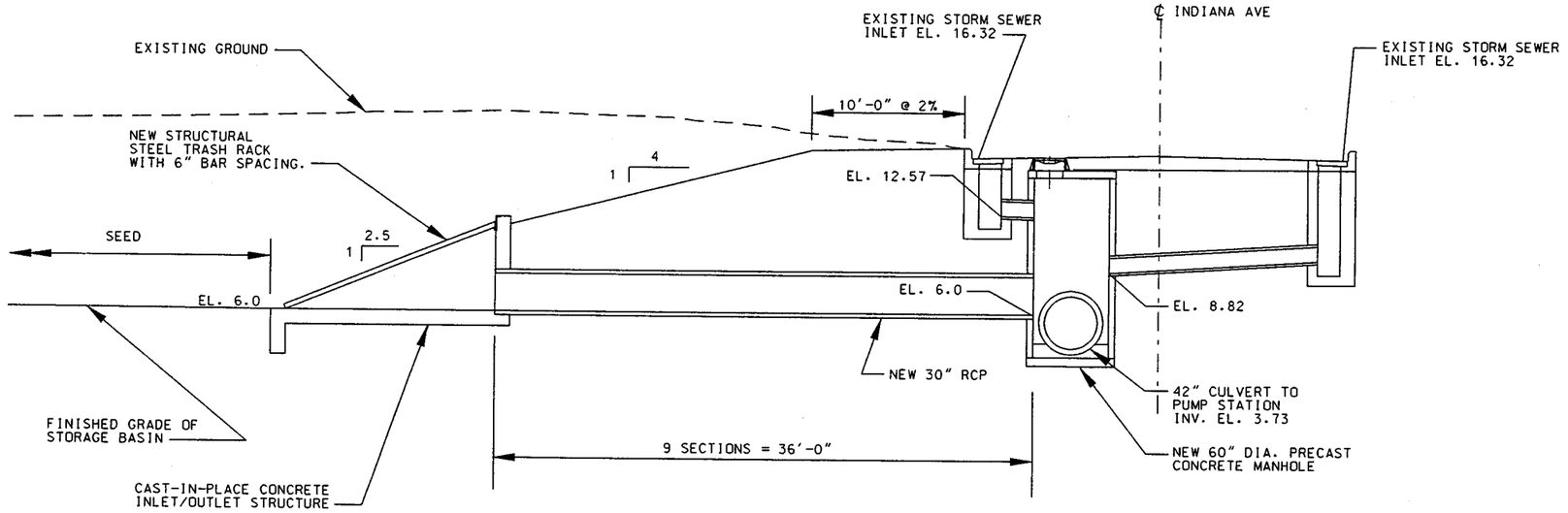
NOT RECOMMENDED



FINAL DESIGN TO:

1. VERIFY 30" RCP
2. VERIFY ELEVATIONS AND PUMP STATION SETTINGS
3. DESIGN TRASH RACK AND HEADWALL

DETAIL 1

US Army Corps of Engineers Rock Island District

Symbol	Description	Date	Approved

Revisions

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

Designed By:	DRC	Date:	24 APRIL 2002
Drawn By:	MRC	Scale:	AS SHOWN
Checked By:	RAL	Project Code:	dm08
Reviewed By:	PAK	Solicitation Number:	DACW25-XX-B-XXXX

DES MOINES RIVER, DES MOINES, IOWA, FEASIBILITY STUDY, CENTRAL PLACE

DETAILS I

Sheet Reference Number: C10
Sheet 12 of 12

PLATE CP12

06-DEC-2004 17:06
**mvrdesign*usr5*projects*DM08*Central Place*2004-12-06 V7 Drawings*dm08c810.dgn.V7.dgn

DES MOINES AND RACCOON RIVERS, DES MOINES, IA FEASIBILITY STUDY

DOWNTOWN - EAST

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Appr.
	Revisions		

Reviewed by:
Chief, Design Branch — Date
Chief, Hydraulics Branch — Date
Chief, Geotechnical Branch — Date

THIS PROJECT WAS DESIGNED BY THE ROCK ISLAND DISTRICT OF THE U.S. ARMY CORPS 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 AFFIXED BELOW INDICATE OFFICIAL RECOMMENDATION AND APPROVAL OF ALL DRAWINGS IN THIS SET AS INDICATED ON EACH INDIVIDUAL TITLE BLOCK.

Recommended by:
Chief, Engineering Division — Date
Approved by:
Col., Corps of Engineers — Date

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

Designed By: DRC
Drawn By: JSF
Checked By: RAL
Reviewed By: PAK
Date: MARCH 2002
Scale: AS SHOWN
Project Code: XXXXX
Solicitation Number: DACW25-XX-B-XXXX

DES MOINES RIVER, DES MOINES, IOWA FEASIBILITY STUDY, DOWNTOWN EAST

COVER SHEET

Sheet Reference Number:
DMR3-0
Sheet 1 of XX

PLATE D1

18-AUG-2004 07:47
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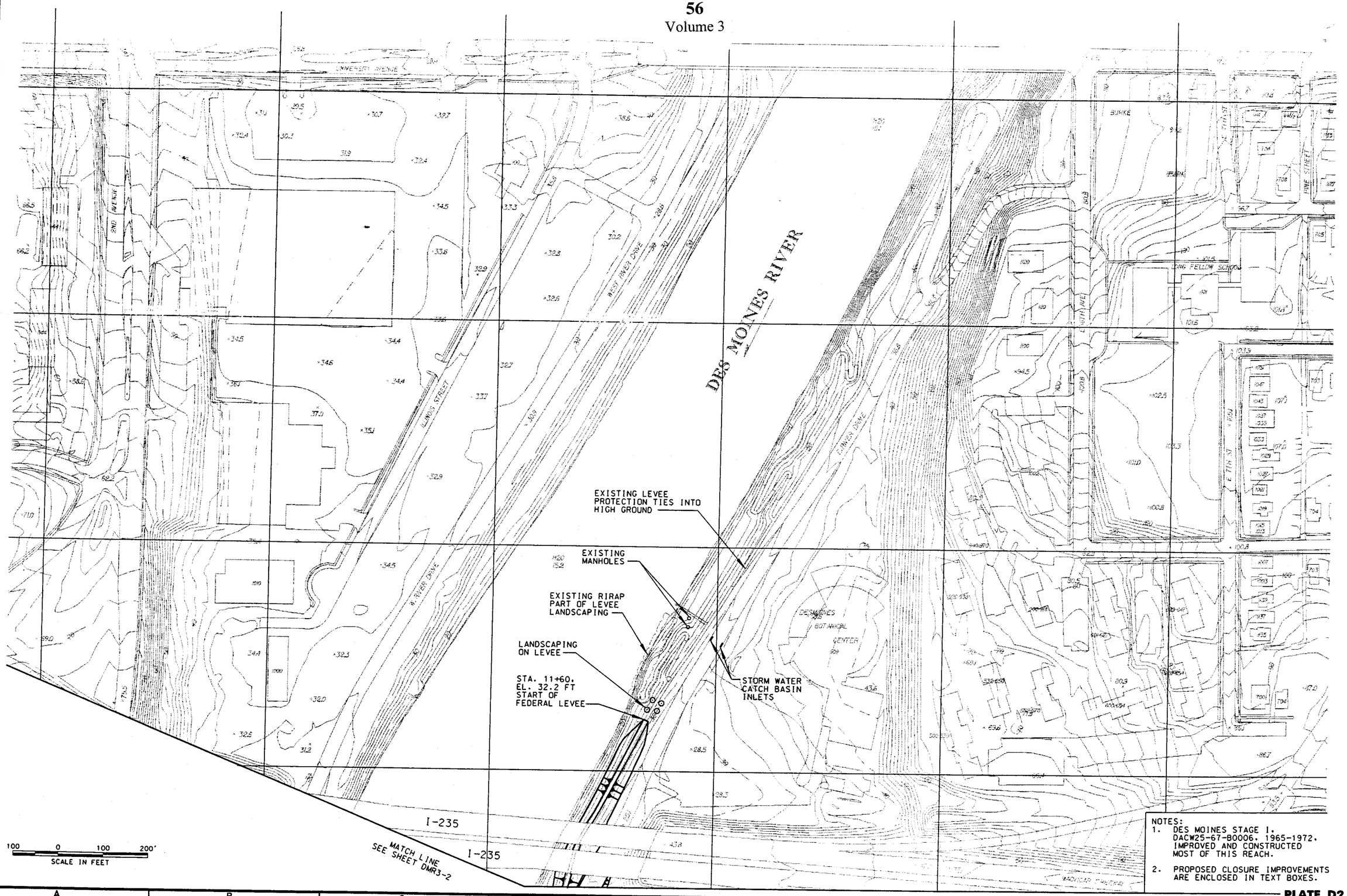


NOTES:
1. DES MOINES STAGE I, DACW25-67-B0006, 1965-1972, IMPROVED AND CONSTRUCTED MOST OF THIS REACH.
2. PROPOSED CLOSURE IMPROVEMENTS ARE ENCLOSED IN TEXT BOXES.

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

Designed By: DRC	Date: MARCH 2002		
Drawn By: JSF	Scale: AS SHOWN		
Checked By: RAL	Project Code: XXXXX		
Reviewed By: PAK	Solicitation Number: DACW25-XX-B-XXXX		

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

DES MOINES RIVER, DES MOINES, IOWA FEASIBILITY STUDY, DOWNTOWN EAST

DOWNTOWN-EAST REACH 3

Sheet Reference Number:
DMR3-1
Sheet 2 of XX

PLATE D2

MATCH LINE
SEE SHEET DMR3-1

GATEWELL "A" STA 16+12
NO 555, 48" RCP STORM
INV EL 15.0 FT

TIE LEVEE INTO
EMBANKMENT

CONSTRUCT LEVEE
TIE-OFF AS SHOWN

EAST RIVER DRIVE
IS TOP OF LEVEE
L/S SLOPE 3H:1V
R/S SLOPE 3H:1V

STA. 25+00,
EL. 32.2 FT

PRECAST FLOOD
WALL STA 27+35.
EL. 32.2 FT

CENTER
STREET
DAM

EL. 30.5 FT
STA. 29+25
EL. 30.5 FT

GATEWELL B.
STA 31+27.
NO 565A
30" RCP
STORM INV
EL 5.4 FT

RIVER WALL

12 INCH CAST
IRON PIPES
FROM ARMORY
SHOWN ON
ORIGINAL DRAWINGS
STA 32+51
AND 34+00

STORMWATER
PUMP STATION.
GATE 565B

GATEWELL NO 565C
PUMP STA OUTLET
RCP 42" STORM

DES MOINES RIVER

EAGLE DRIVE

W. RIVER DRIVE

3RD STREET

2ND AVENUE

MAPLE STREET

E 2ND STREET

E 6TH STREET

WALNUT STREET

DES MOINES STREET

ARMORY BLDG

SUBSTATION

MATCH LINE
SEE SHEET DMR3-3

NOTE:
PROPOSED CLOSURE IMPROVEMENTS
ARE ENCASED IN TEXT BOXES.

100 0 100 200'
SCALE IN FEET

PLATE D3

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

Designed By: DRC	Date: MARCH 2002		
Drawn By: JSF	Scale: AS SHOWN		
Checked By: RAL	Project Code: XXXXX	Solicitation Number: DACW25-XX-B-XXXX	
Reviewed By: PAK			

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

DES MOINES RIVER, DES MOINES, IOWA FEASIBILITY STUDY, DOWNTOWN EAST

DOWNTOWN-EAST REACH 3

Sheet Reference Number:
DMR3-2
Sheet 3 of xx

\\Rmrdesign\usr\projects\40808\Downtown\East\dmr3-002.dgn

MATCH LINE
SEE SHEET DMR3-2

GATEWELL "B-1".
STA. 34+88. NO. 567.
42" RCP STORM
INVERT 9.7 FT

RIVER WALL

INTERCEPTOR
SEWER

PRECAST FLOODWALL
STA. 37+81.8A.
EL. 30.5 FT

SANDBAG LEVEE
CLOSURE NO. 73

STA. 38+27.
EL. 30.2 FT

IMPROVE LEVEE
CLOSURE DM73

GATEWELL "C".
STA. 38+09. NO. 661.
42" RCP CSO SANITARY
INVERT 6.7 FT

STA. 41+10.
EL. 30.2 FT

STA. 41+90.
EL. 30.0 FT

ABANDONED GATEWELL "D".
STA. 41+88. 36" RCP
CSO SANITARY INVERT
8.0 FT. TOP 30.0

IMPROVE LEVEE
CLOSURE DM75

7.7' WIDE

SANDBAG LEVEE
CLOSURES NO 77

SANDBAG
LEVEE
CLOSURE
NO. 75

7.4' WIDE

12' WIDE +/-

MODIFY AMPHITHEATER
FLOOD WALL TO IMPROVE
CLOSURES

AMPHITHEATER

11.5' WIDE

STA. 45+25.
EL. 29.8 FT

IMPROVE LEVEE
CLOSURE DM79

SANDBAG
LEVEE CLOSURE
NO. 79

TOP WIDTH 10 FT
L/S SLOPE 3H:1V
R/S SLOPE 3H:1V

EL. 29.8 FT

SANDBAG
LEVEE
CLOSURE
NO 81

STA. 50+75.
EL. 29.6 FT

IMPROVE LEVEE
CLOSURE DM81

ABANDONED
GATEWELL "E".
STA. 52+72.
NO. 575. 24" RCP
STORM INVERT
15.0 FT

SANDBAG LEVEE
CLOSURE NO 85

CENTER LINE OF TRACK
STA 53+19.2. SHEET PILE
CUT- OFF. EL 27.0.
34 FT 4.2 IN WIDE

STA. 53+40.3A.
EL. 29.5 FT
PRECAST FLOODWALL

CONSTRUCT PERMANENT
CLOSURE DM85

16 INCH GAS MAIN

MATCH LINE
SEE SHEET DMR3-4

GRAND AVENUE
E LOCUST STREET
WALNUT STREET
2ND AVENUE
1ST STREET
DES MOINES RIVER
COURT AVENUE
E COURT AVENUE
E 4TH STREET
E 5TH STREET
E 6TH STREET
E VINE STREET
EMBASSY SUITES HOTEL
LIBRARY
POLK COUNTY ADMINISTRATIVE BUILDING
US COURT HOUSE
MUNICIPAL COURT

NOTE:
PROPOSED CLOSURE IMPROVEMENTS
ARE ENCLOSED IN TEXT BOXES

100 0 100 200'
SCALE IN FEET

PLATE D4

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

Designed By: DRC	Date: MARCH 2002		
Drawn By: JSF	Scale: AS SHOWN		
Checked By: RAL	Project Code: XXXXX		
Reviewed By: PAK	Solicitation Number: DACW25-XX-B-XXXX		

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

DES MOINES RIVER, DES MOINES, IOWA FEASIBILITY STUDY DOWNTOWN EAST

DOWNTOWN-EAST REACH 3

Sheet Reference Number:
DMR3-3
Sheet 4 of XX

\\ENGINEER\GIS\Projects\Projects\Des Moines\Documents\DMR3-003.dgn

MATCH LINE
SEE SHEET DMR3-3

6" PIPE THROUGH
WALL WITH FLAPGATE

SANDBAG LEVEE
CLOSURE NO 87
SHEET PILE CUT-OFF
EL 25.9, 45 FT 9.5 IN WIDE

EXTEND FLOODWALL
TO REDUCE CLOSURE
REQUIREMENT DM 87

PRECAST FLOODWALL
STA. 55+48.7A.
EL. 29.5 FT

GATEWELL "F".
STA. 57+35 NO. 589.
10" VIT CLAY STORM
INVERT 5.7 FT

GATEWELL NO 591
84" STORM

STA. 57+80.
EL. 29.5 FT

RIVER WALL

EXISTING
MONITORING WELLS

INTERCEPTOR
SIORM SEWER

STORMWATER
PUMP STATION

6" TIDEFLEX VALVE
THROUGH FLOODWALL

PUMPSTATION
OUTLET IS
THROUGH
FLOODWALL

STA. 62+75.
EL. 29.5 FT

OVERHEAD
POWER LINES

EXISTING
MONITORING WELLS

GATEWELL.
NO. 595
6" STORM

DES MOINES RIVER

TOP WIDTH 10 FT
L/S SLOPE 2H:1V

3'2" BY 4'3"
SANITARY BOX
CULVERT

STEEP SIDE
SLOPES

RIVER WALL

INTERCEPTOR
STORM SEWER

EXISTING STONE
PROTECTION

OVERHEAD
POWER LINES

STA. 76+00.
EL. 29.5 FT

2001 PL 84-99
EROSION REPAIR
D/S OF BRIDGE

5' BY 6'
SANITARY
BOX CULVERT

GATEWELL "G".
STA. 76+50 NO. 409.
5'x5' BOX SANITARY
INVERT 1.6 FT. TOP
IS FLUSH
WITH STREET

STA. 76+60.
EL. 28.5 FT

SCOTT AVENUE
DAM

MATCH LINE
SEE SHEET DMR3-5

NOTE:
PROPOSED CLOSURE IMPROVEMENTS
ARE ENCLOSED IN TEXT BOXES.

100 0 100 200'
SCALE IN FEET

PLATE D5

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

Designed By:	DRC	Date:	MARCH 2002
Drawn By:	JSF	Scale:	AS SHOWN
Checked By:	RAL	Project Code:	XXXXX
Reviewed By:	PAK	Solicitation Number:	DACW25-XX-B-XXXX

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

DES MOINES RIVER, DES MOINES, IOWA FEASIBILITY STUDY, DOWNTOWN EAST

DOWNTOWN-EAST REACH 3

Sheet Reference Number:
DMR3-4
Sheet 5 of XX

*\\mvrdesign\usr\projects\MUDS\downtown\mEast\dmr3-004.dgn

MATCH LINE
SEE SHEET DMR3-4

GATEWELL.
NO. 415. 78"
RCP SANITARY

GATEWELL "I".
STA. 81+39 NO. 305.
24" RCP STORM
INVERT 6.0 FT

CONSTRUCT PERMANENT
LEVEE CLOSURE DM41

ABANDONED
RAIL LINES

ABANDONED GATEWELL "J"
STA. 86+66 NO. 429.
12" RCP SANITARY
INVERT -0.5 FT

STA. 83+80.
EL. 27.7 FT
SANDBAG LEVEE
CLOSURE NO 41
TOP OF SHEET PILE 25.4
LENGTH 45 FT
STA. 84+20.
EL. 27.7 FT

5 FT BY 6 FT
BOX CULVERT

TOP WIDTH 10 FT
L/S SLOPE 3H:1V
R/S SLOPE 2H:1V
STA. 90+90.
EL. 26.3 FT

EXISTING RIRAP
ON RIVERSIDE SLOPE

EL. 25.8 FT
USGS RIVER
GAGING STA.

ABANDONED GATEWELL "K"
STA 96+71. 36" RCP
INVERT 11.6

ABANDONED GATEWELL
STA 97+02. 12" VIT SANITARY
INVERT 4.36

ABANDONED GATEWELL "M"
STA 102+70. 24"
VCP INVERT 0.83

PL 84-99 LEVEE REPAIRS
1994 LEVEE RECONSTRUCTED
2001 ADDED STONE PROTECTION
SE 6TH TO SE 9TH

9TH STREET
PUMP STATION
GATE 325 A

OVERHEAD POWER
LINES

GATEWELL.
STA 110+00 NO. 3258
78" STORM

DES MOINES RIVER

VALE STREET

RAILROAD AVENUE

SE 6TH STREET

SE 9TH STREET

MATCH LINE
SEE SHEET DMR3-6

NOTE:
PROPOSED CLOSURE IMPROVEMENTS
ARE ENCLOSED IN TEXT BOXES.

100 0 100 200'
SCALE IN FEET

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

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

Designed By: DRC	Date: MARCH 2002		
Drawn By: JSF	Scale: AS SHOWN		
Checked By: RAL	Project Code: XXXXX		
Reviewed By: PAK	Solicitation Number: DACW25-XX-B-XXXX		

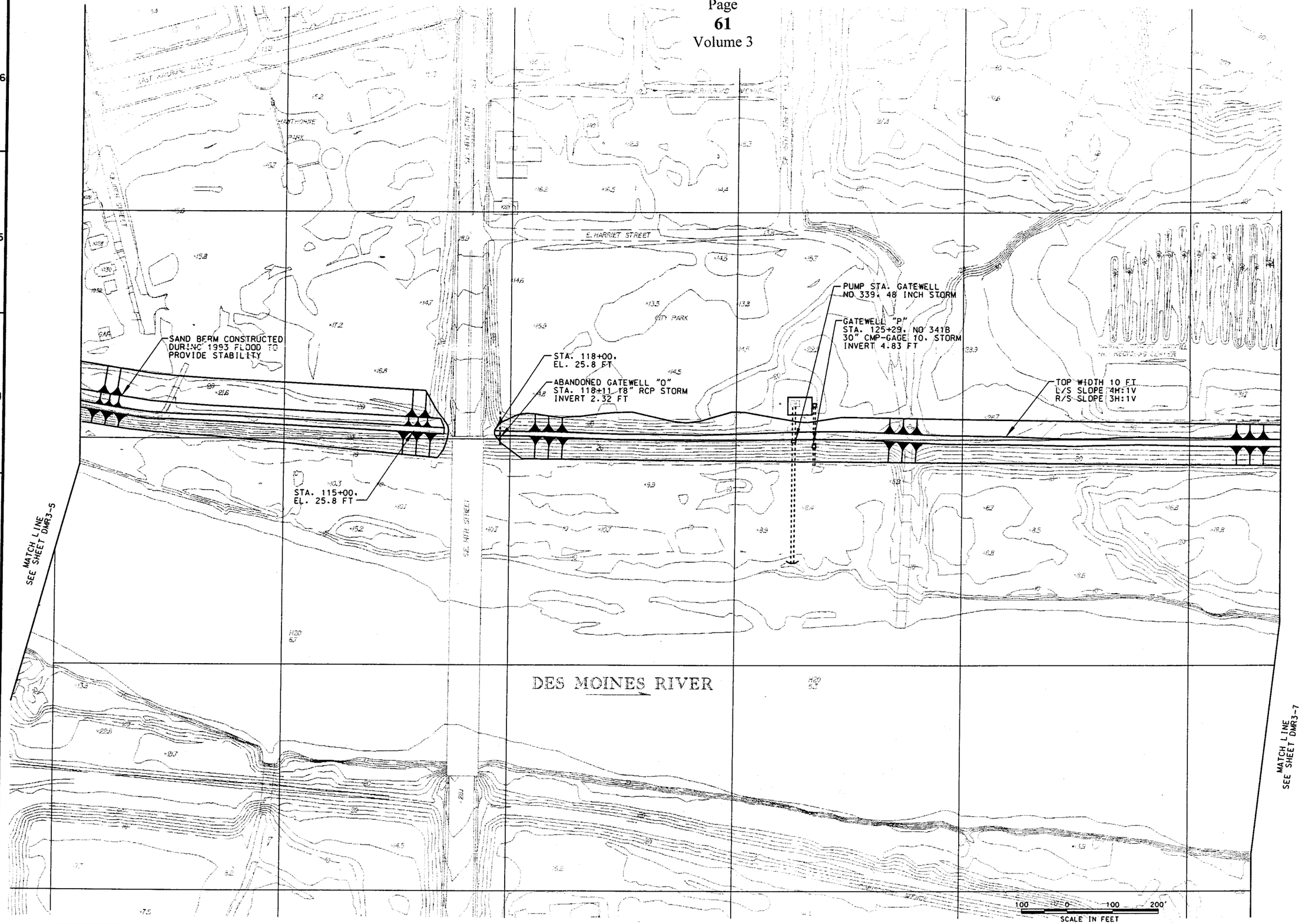
DES MOINES RIVER, DES MOINES, IOWA FEASIBILITY STUDY, DOWNTOWN EAST

DOWNTOWN-EAST REACH 3

Sheet Reference Number:
DMR3-5
Sheet 6 of xx

PLATE D6

\\mvrdesigndrive\Projects\MAS\Downtown\East\dmr3-005.dgn



US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

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

Designed By:	DRC	Date:	MARCH 2002
Drawn By:	JSF	Scale:	AS SHOWN
Checked By:	RAL	Project Code:	XXXXX
Reviewed By:	PAK	Solicitation Number:	DACW25-XX-B-XXXX

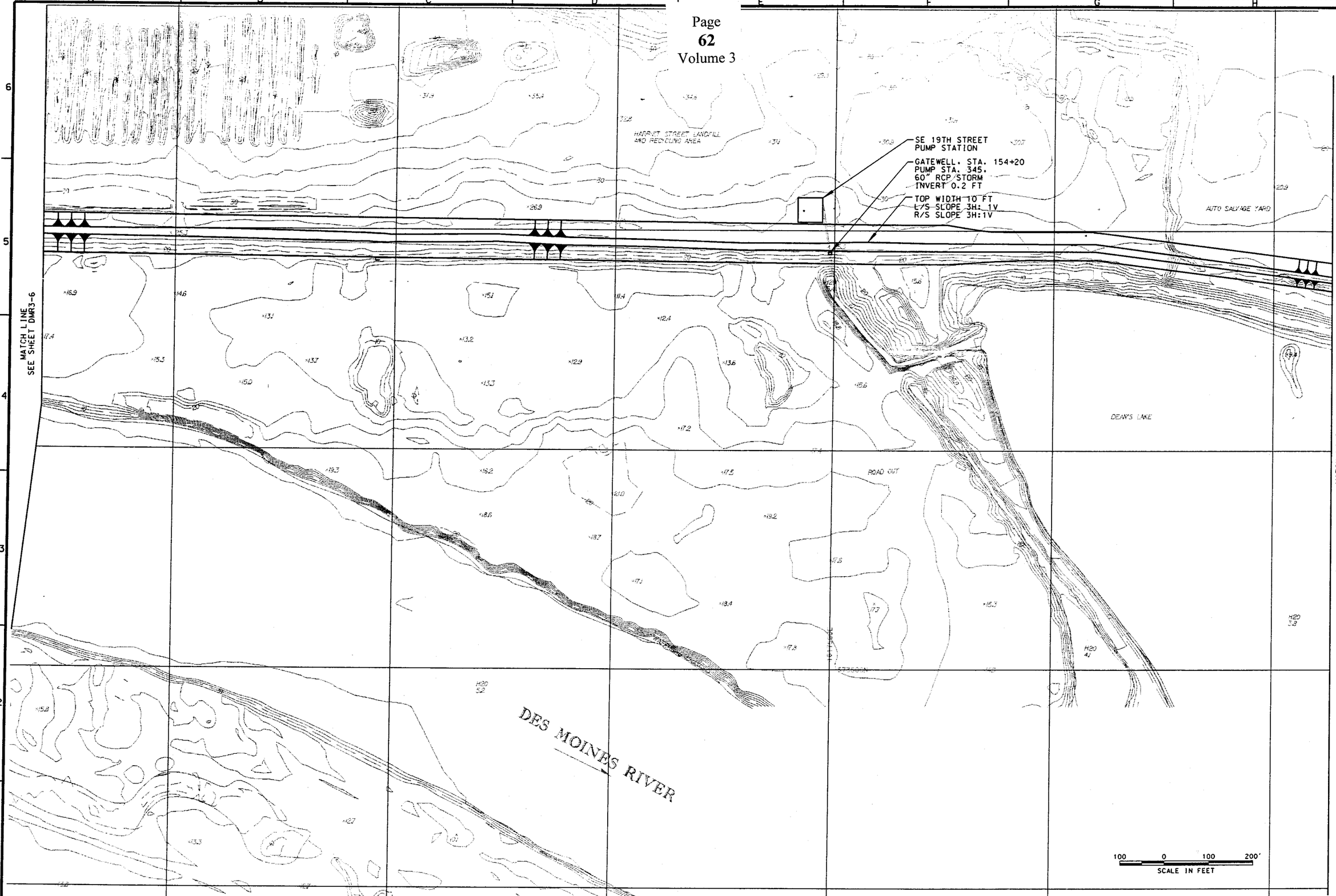
DES MOINES RIVER, DES MOINES, IOWA FEASIBILITY STUDY, DOWNTOWN EAST

DOWNTOWN-EAST REACH 3

Sheet Reference Number:
DMR3-6
Sheet 7 of XX

PLATE D7

**mvrdesign*usr5*projects*DM08*Downtown*East*dmr3-006.dgn



US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

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

Designed By:	DRC	Date:	MARCH 2002
Drawn By:	JSF	Scale:	AS SHOWN
Checked By:	RAL	Project Code:	XXXXX
Reviewed By:	PAK	Solicitation Number:	DACW25-XX-B-XXXX

DES MOINES RIVER, DES MOINES, IOWA FEASIBILITY STUDY, DOWNTOWN EAST

DOWNTOWN-EAST REACH 3

Sheet Reference Number:
DMR3-7
Sheet 8 of XX

PLATE D8

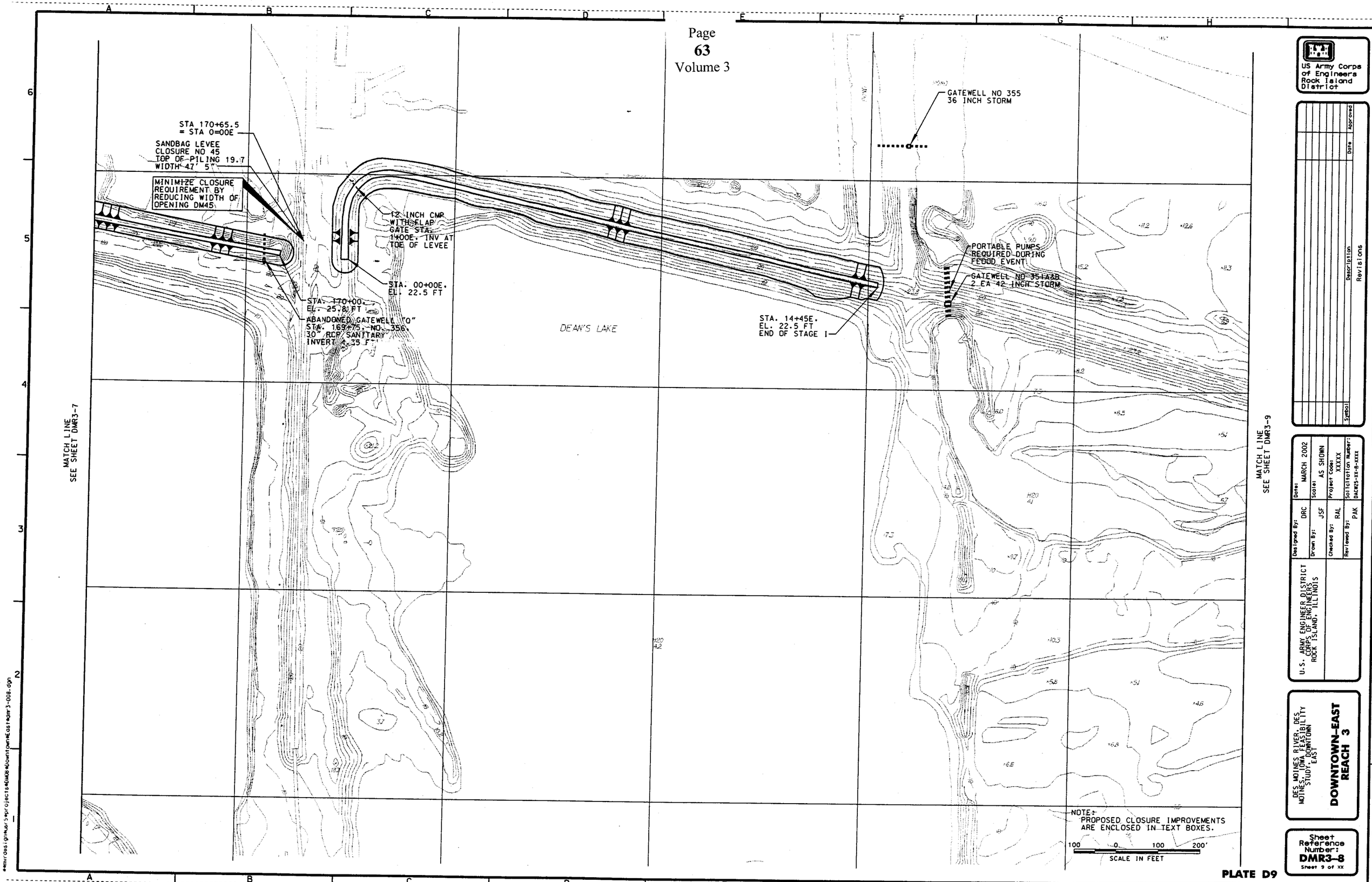

STA 170+65.5
= STA 0=00E
SANDBAG LEVEE
CLOSURE NO 45
TOP OF PILING 19.7
WIDTH 47' 5"
MINIMIZE CLOSURE
REQUIREMENT BY
REDUCING WIDTH OF
OPENING DM45
12 INCH CMP
WITH FLAP
GATE STA.
1+00E. INV AT
TOE OF LEVEE
STA. 00+00E.
EL. 22.5 FT
STA. 170+00.
EL. 25.8 FT
ABANDONED GATEWELL "O"
STA. 169+75. NO. 356.
30" RCP SANITARY
INVERT 4.35 FT
DEAN'S LAKE
GATEWELL NO 355
36 INCH STORM
PORTABLE PUMPS
REQUIRED DURING
FLOOD EVENT
GATEWELL NO 351A&B
2 EA 42 INCH STORM
STA. 14+45E.
EL. 22.5 FT
END OF STAGE I
MATCH LINE
SEE SHEET DMR3-7
MATCH LINE
SEE SHEET DMR3-9
NOTE:
PROPOSED CLOSURE IMPROVEMENTS
ARE ENCLOSED IN TEXT BOXES.
100 0 100 200'
SCALE IN FEET
US Army Corps
of Engineers
Rock Island
District
Symbol
Description
Date
Approved
Revisions
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS
Designed By: DRC
Drawn By: JSF
Checked By: RAL
Reviewed By: PAK
Date: MARCH 2002
Scale: AS SHOWN
Project Code: XXXXX
Solicitation Number: DACW25-XX-B-XXXX
DES MOINES RIVER, DES
MOINES, IOWA FEASIBILITY
STUDY, DOWNTOWN
EAST
DOWNTOWN-EAST
REACH 3
Sheet
Reference
Number:
DMR3-8
Sheet 9 of XX

PLATE D9

MATCH LINE
SEE SHEET DMR3-8

GATEWELL, NO 353
24 INCH RCP STORM

TREATMENT PLANT
DRYING BEDS

CHICAGO BURLINGTON & QUINCY RAILROAD

AUTO SALVAGE YARD

GATEWELL
NO 46190
INCH RCP
SANITARY

GATEWELL, NO 371
24 INCH RCP STORM

GATEWELL, NO 467
90 INCH RCP SANITARY

DES MOINES
TREATMENT PLANT

GATEWELLS, NO 459 A&B
72 AND 42 INCH RCP SANITARY

DES MOINES RIVER

24443

MATCH LINE
SEE SHEET DMR3-10

100 0 100 200'
SCALE IN FEET

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

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

Designed By: DRC	Date: MARCH 2002		
Drawn By: JSF	Scale: AS SHOWN		
Checked By: RAL	Project Code: XXXXX		
Reviewed By: PAK	Solicitation Number: DACW25-XX-B-XXXX		

DES MOINES RIVER, DES MOINES, IOWA FEASIBILITY STUDY DOWNTOWN EAST

DOWNTOWN-EAST REACH 3

Sheet Reference Number:
DMR3-9
Sheet 10 of XX

PLATE D10

18-AUG-2004 07:59
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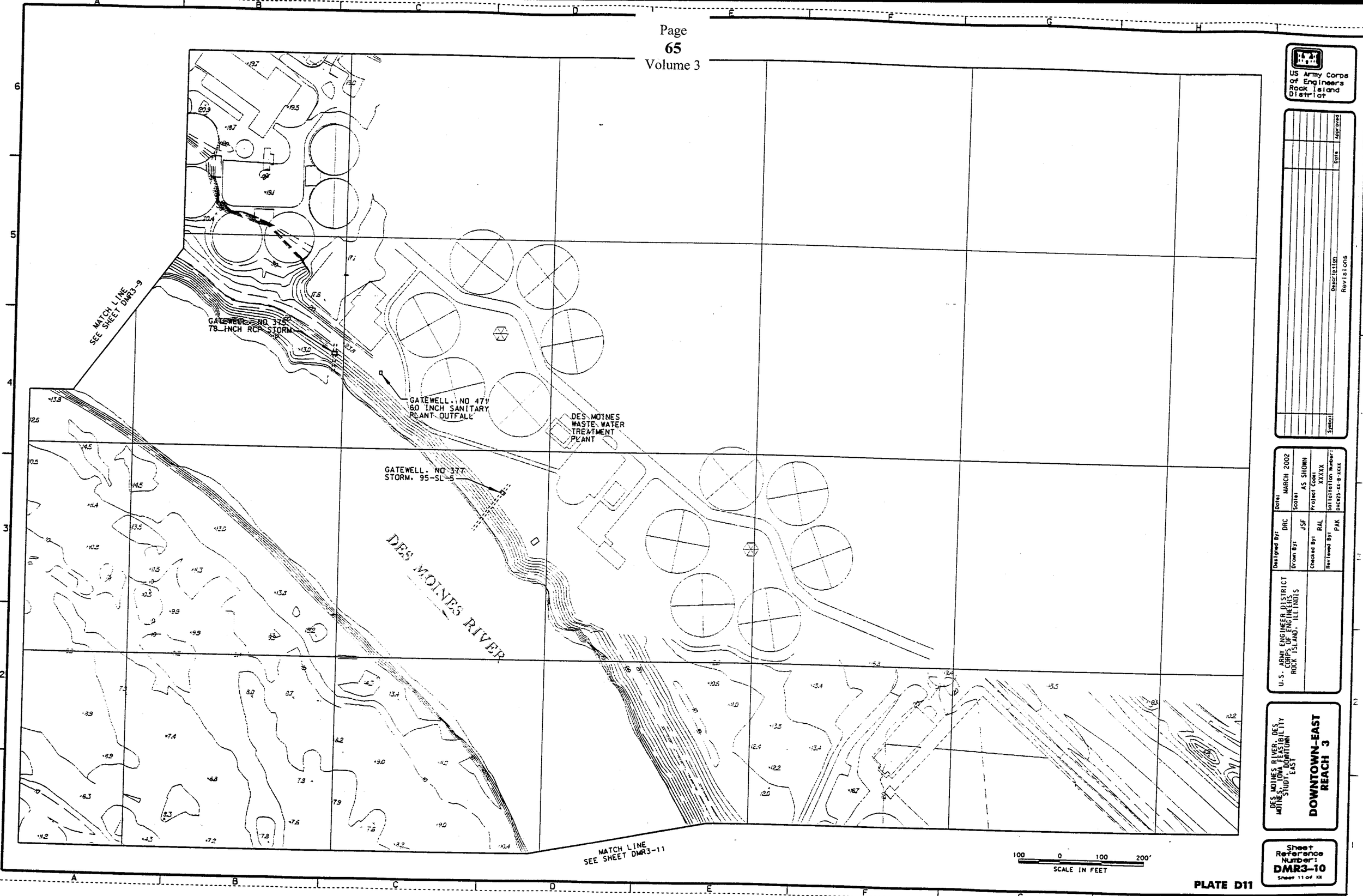
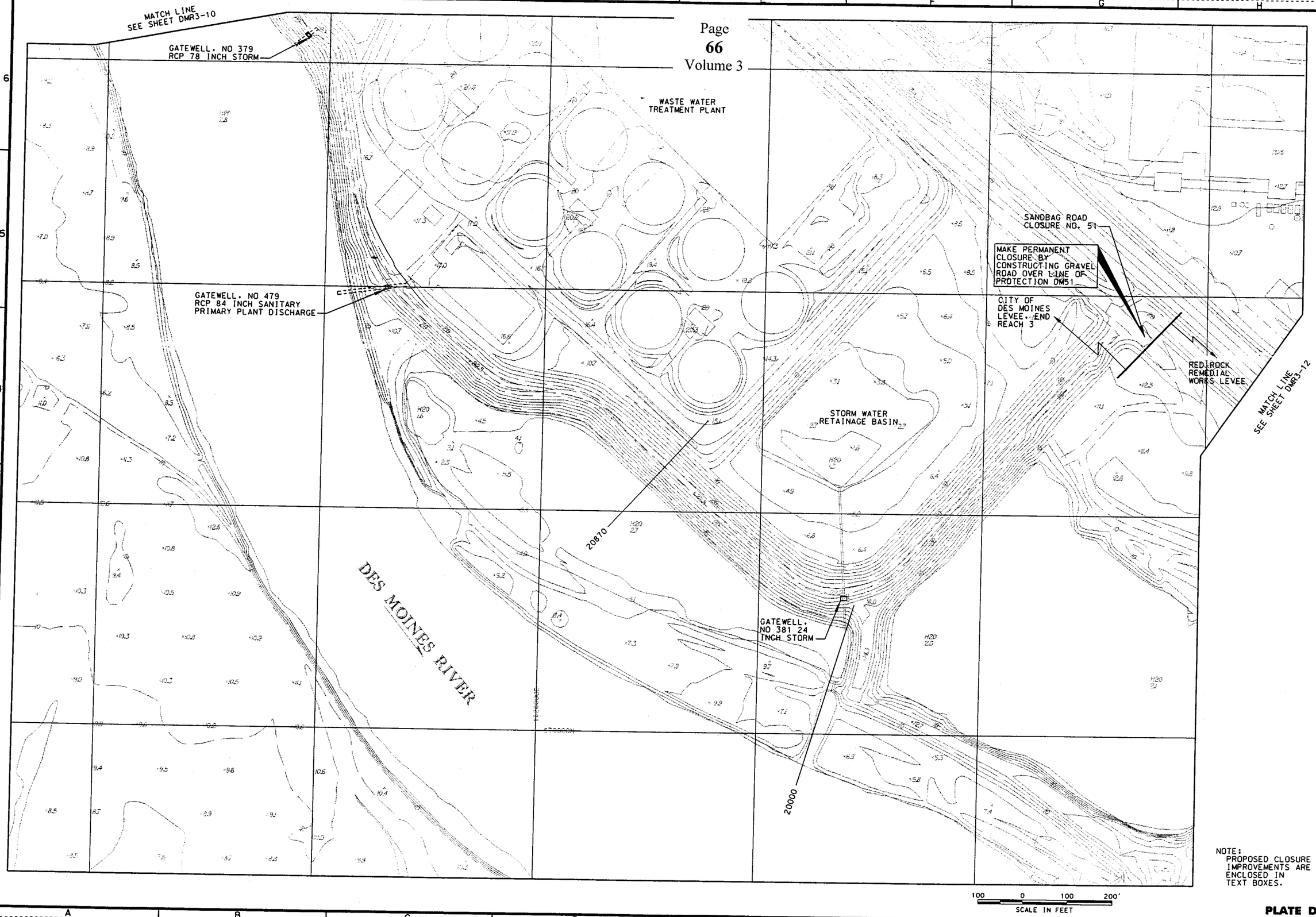

MATCH LINE
SEE SHEET DMR3-9
GATEWELL, NO 375
78 INCH RCP STORM
GATEWELL, NO 471
60 INCH SANITARY
PLANT OUTFALL
DES MOINES
WASTE WATER
TREATMENT
PLANT
GATEWELL, NO 377
STORM, 95-SL-5
DES MOINES RIVER
MATCH LINE
SEE SHEET DMR3-11
100 0 100 200'
SCALE IN FEET
US Army Corps of Engineers Rock Island District
Symbol
Description
Date
Approved
Revisions
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS
Designed By: DRC
Drawn By: JSF
Checked By: RAL
Reviewed By: PAK
Date: MARCH 2002
Scale: AS SHOWN
Project Code: XXXXX
Solicitation Number: DACW25-XX-B-XXXX
DES MOINES RIVER, DES MOINES, IOWA FEASIBILITY STUDY, DOWNTOWN EAST
DOWNTOWN-EAST
REACH 3
Sheet Reference Number:
DMR3-10
Sheet 11 of XX
PLATE D11



NOTE:
PROPOSED CLOSURE IMPROVEMENTS ARE ENCLOSED IN TEXT BOXES.

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

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

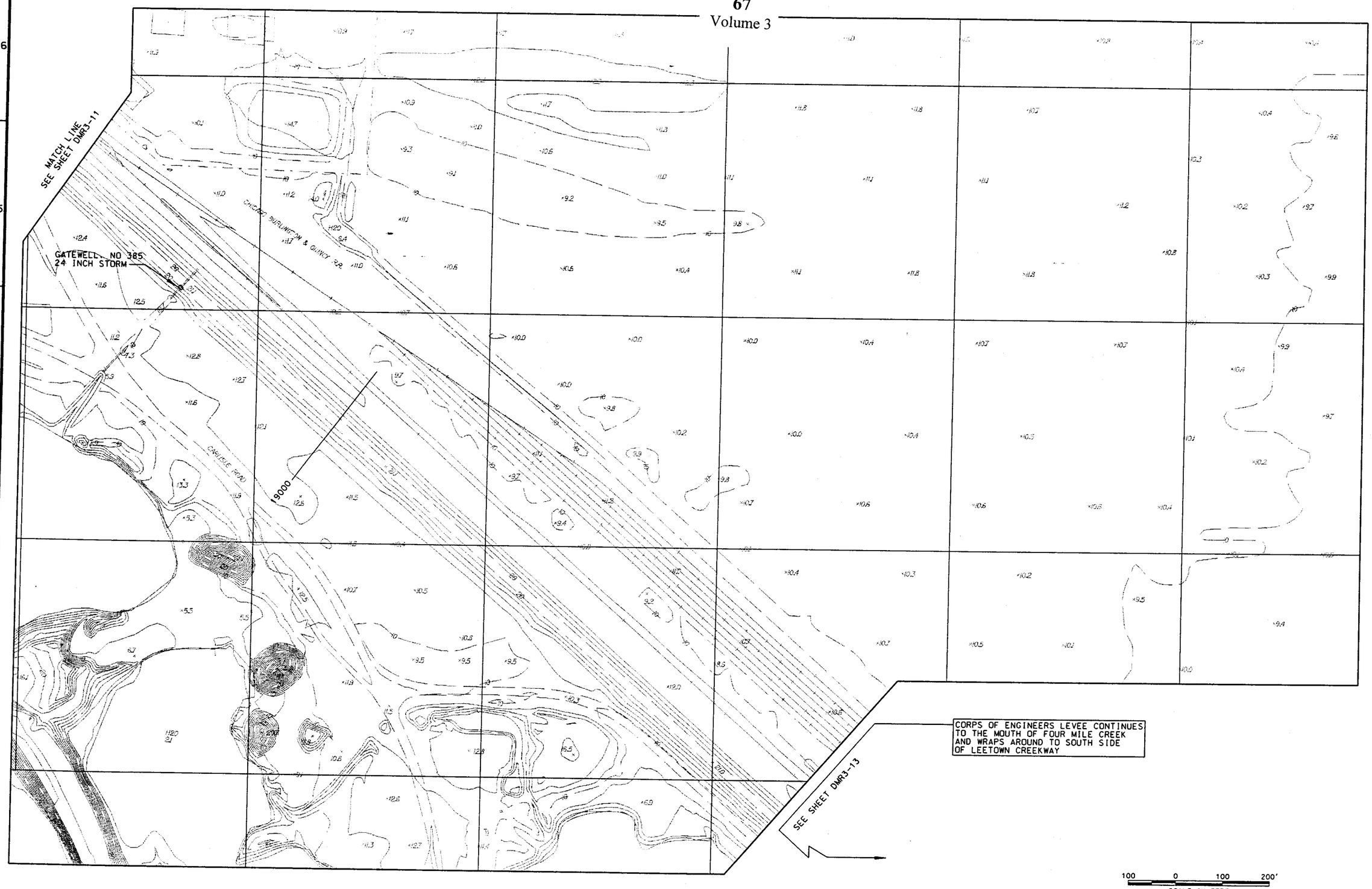
Designed By:	DRC	Date:	MARCH 2002
Drawn By:	JSF	Scale:	AS SHOWN
Checked By:	RAL	Project Code:	XXXXX
Reviewed By:	PAK	Solicitation Number:	DACW25-XX-B-XXXX

DES MOINES RIVER, DES MOINES, IOWA FEASIBILITY STUDY, DOWNTOWN EAST

DOWNTOWN-EAST REACH 3

Sheet Reference Number:
DMR3-11
Sheet 12 of XX

PLATE D12



US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

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

Designed By:	DRC	Date:	MARCH 2002
Drawn By:	JSF	Scale:	AS SHOWN
Checked By:	RAL	Project Code:	XXXXX
Reviewed By:	PAK	Solicitation Number:	DACW25-XX-B-XXXX

DES MOINES RIVER, DES MOINES, IOWA FEASIBILITY STUDY, DOWNTOWN EAST

DOWNTOWN-EAST REACH 3

Sheet Reference Number:
DMR3-12
Sheet 13 of XX

PLATE D13

DES MOINES AND RACCOON RIVERS, DES MOINES, IA FEASIBILITY STUDY

DOWNTOWN - WEST

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Appr.
	Revisions		

Reviewed by:
Chief, Design Branch — Date
Chief, Hydraulics Branch — Date
Chief, Geotechnical Branch — Date

THIS PROJECT WAS DESIGNED BY THE ROCK ISLAND DISTRICT OF THE U.S. ARMY CORPS 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 AFFIXED BELOW INDICATE OFFICIAL RECOMMENDATION AND APPROVAL OF ALL DRAWINGS IN THIS SET AS INDICATED ON EACH INDIVIDUAL TITLE BLOCK.

Recommended by:
Chief, Engineering Division — Date
Approved by:
Col., Corps of Engineers — Date

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

Designed By:	DRC	Date:	MARCH 2002
Drawn By:	JSF	Scale:	AS SHOWN
Checked By:	RAL	Project Code:	XXXXX
Reviewed By:	PAK	Solicitation Number:	DACW25-XY-B-XXXX

DES MOINES RIVER, DES MOINES, IOWA FEASIBILITY STUDY, DOWNTOWN WEST

COVER SHEET

Sheet Reference Number:
DMR4-0
Sheet 1 of XX

PLATE D14

18-AUG-2004 08:12
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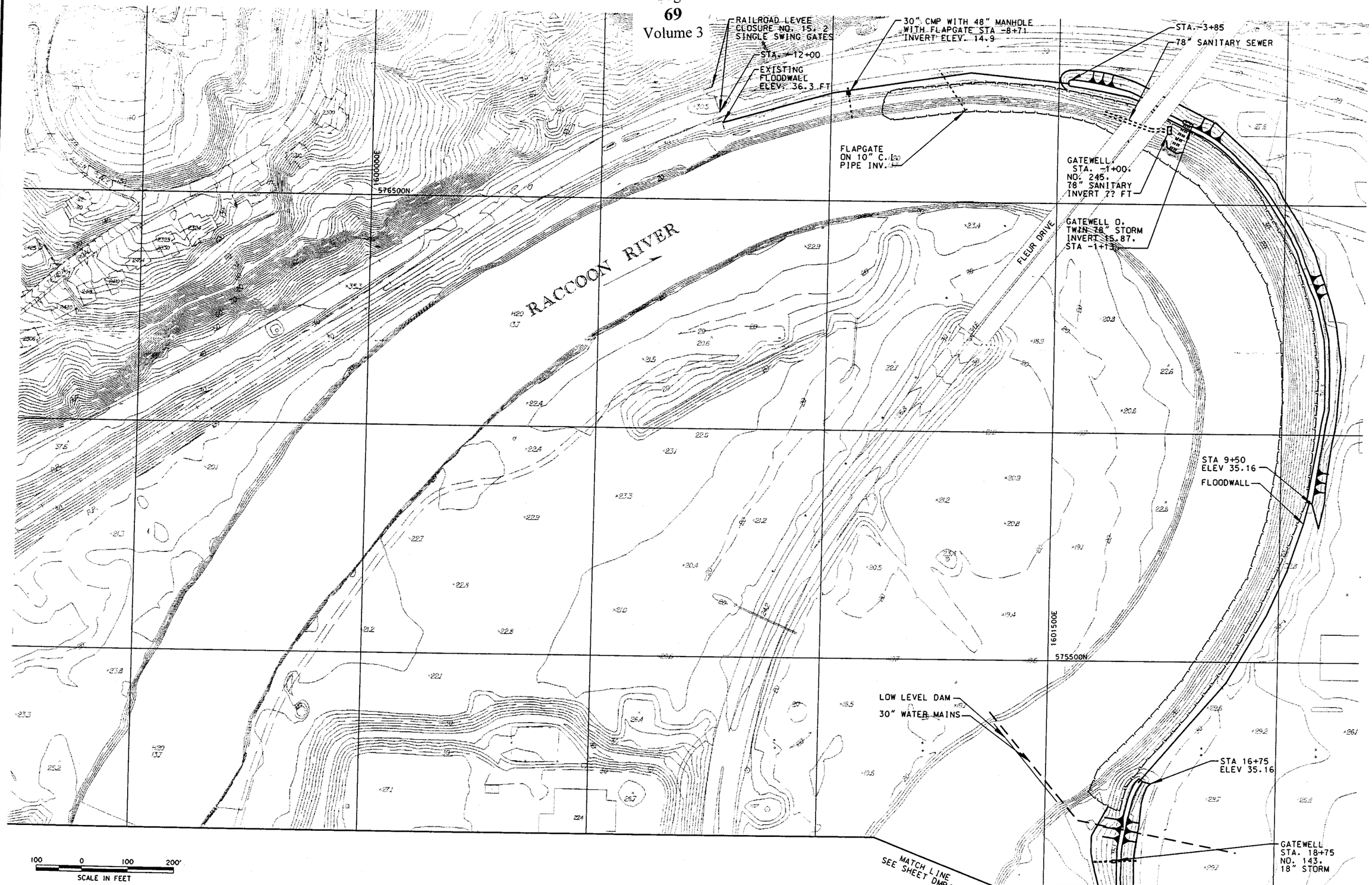

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

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

Designed By:	DRC	Date:	MARCH 2002
Drawn By:	JSF	Scale:	AS SHOWN
Checked By:	RAL	Project Code:	XXXXX
Reviewed By:	PAK	Solicitation Number:	DACW25-XX-B-XXXX

DES MOINES RIVER, DES MOINES, IOWA FEASIBILITY STUDY, DOWNTOWN WEST

DOWNTOWN-WEST REACH 4

Sheet Reference Number:
DMR4-1
Sheet 2 of XX

PLATE D15

MATCH LINE
SEE SHEET DMR4-1

FLEUR DRIVE

1600500E

574500N

RACCOON RIVER

1602000E

573500N

MATCH LINE
SEE SHEET DMR4-3

100 0 100 200'
SCALE IN FEET

US Army Corps of Engineers
Rock Island District

Symbol	Date	Description	Approved
		Revisions	

Designed By:	DRC	Date:	MARCH 2002
Drawn By:	JSF	Scale:	AS SHOWN
Checked By:	RAL	Project Code:	XXXXX
Reviewed By:	PAK	Solicitation Number:	DACW25-XX-B-XXXX

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

DES MOINES RIVER, DES MOINES, IOWA FEASIBILITY STUDY, DOWNTOWN WEST

DOWNTOWN-WEST
REACH 4

Sheet Reference Number:
DMR4-2
Sheet 3 of XX

PLATE D16

18-AUG-2004 08:15
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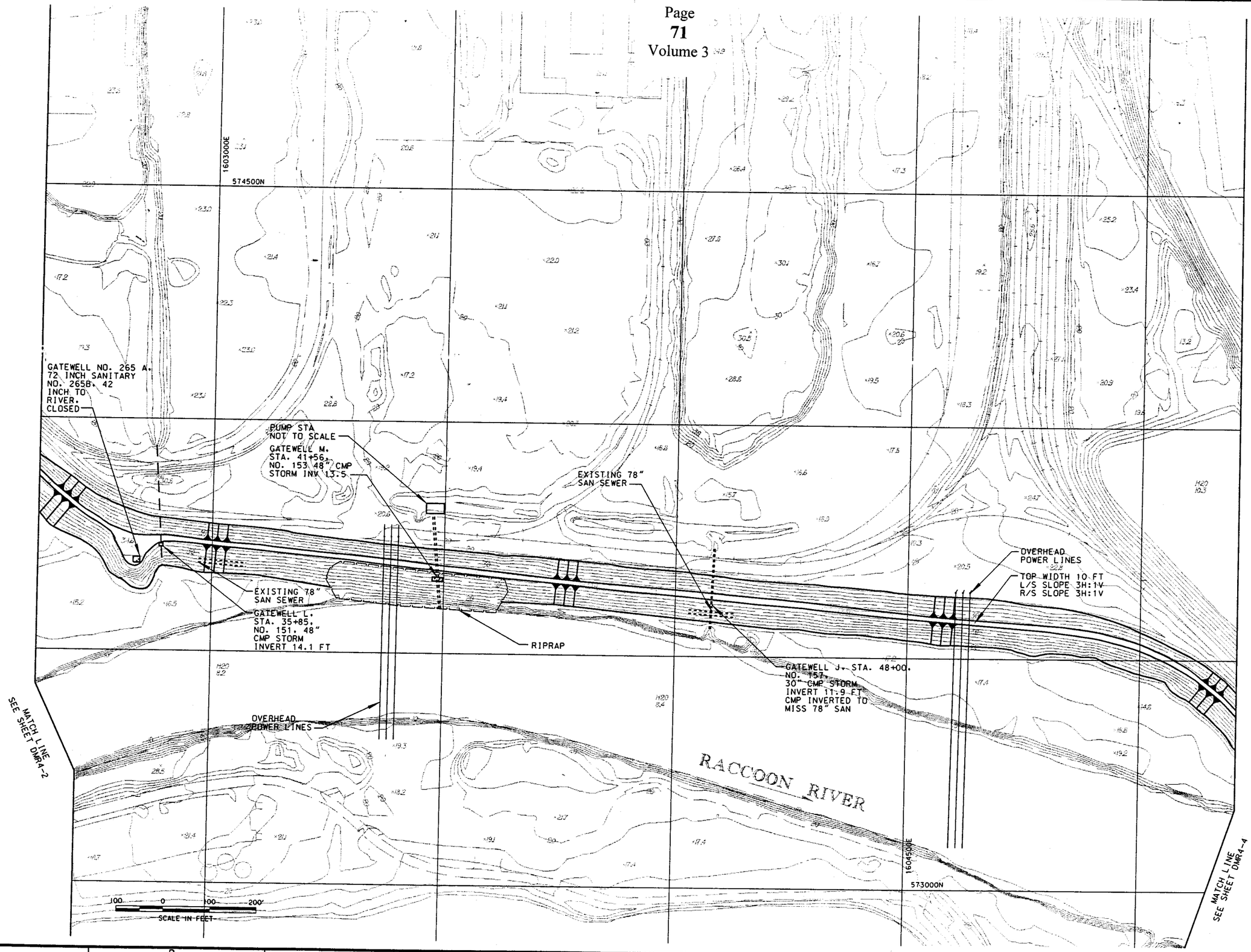


US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

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

Designed By:	DRC	Date:	MARCH 2002
Drawn By:	JSF	Scale:	AS SHOWN
Checked By:	RAL	Project Code:	XXXXX
Reviewed By:	PAK	Solicitation Number:	DACW25-XX-B-XXXX

DES MOINES RIVER, DES MOINES, IOWA FEASIBILITY STUDY, DOWNTOWN WEST

DOWNTOWN-WEST
REACH 4

Sheet Reference Number:
DMR4-3
Sheet 4 of XX

PLATE D17

TOP WIDTH 10 FT
L/S SLOPE 3H:1V
R/S SLOPE 3H:1V

MATCH LINE
SEE SHEET DMR4-5

STA 85+00
EL 30.8

MANHOLE.
STA. 84+00. NO. 181.
24 INCH CMP
FLAP GATE. EL 21.4
OUTLET INV EL 14.2

VALVEWELL. STA. 81+80
PUMP STA. 175
3 EA. 36 INCH STORM

GATEWELL. STA 80+30
PUMP STA. 175C
72 INCH STORM

NEW VAULT
SANITARY

NEW GATEWELL
SANITARY
STA 79+80

EXISTING 78"
SANITARY SEWER

15" SANITARY
SEWER

STA. 75+50
EL. 31.3

24" SANITARY
SEWER

MANHOLE. STA. 75+00.
NO. 275. CENTER OF LEVEE
96" STORM. GATE?

ABANDONED
RAIL LINE

RAILROAD LEVEE
CLOSURE 19.
62 INCH HIGH SWING GATE
STA 63+15
DOWNSTREAM EL 32.4
UPSTREAM EL 33.1
SILL EL 26.9

EXISTING 78"
SANITARY SEWER

MATCH LINE
SEE SHEET DMR4-3

STA 70+00
EL 32.4

EXISTING RIPRAP

MANHOLE. STA. 69+00.
NO. 165. 24 INCH CMP
FLAP GATE. EL 24.2
OUTLET INV EL 13.9

RACCOON RIVER

SW 7TH STREET

GREAT WESTERN

INDIANOLA ROAD

1605500E

574000N

1607500E

572500N

100 0 100 200
SCALE IN FEET

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

Designed By:	DRC	Date:	MARCH 2002
Drawn By:	JSF	Scale:	AS SHOWN
Checked By:	RAL	Project Code:	XXXXX
Reviewed By:	PAK	Solicitation Number:	DACW25-XX-B-XXXX

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

DES MOINES RIVER, DES MOINES, IOWA, FEASIBILITY STUDY, DOWNTOWN WEST

DOWNTOWN-WEST
REACH 4

Sheet Reference Number:
DMR4-4
Sheet 5 of XX

PLATE D18

*\Projects\DMR4-004.dgn

MATCH LINE
SEE SHEET DMR4-6

SANDBAG LEVEE
CLOSURE 27
STA 7+60B

GATEWELL. STA 8+20B
NO. 295.
54" SANITARY

RENOVATIONS
DONE HERE

GATEWELL NO. 291 A&B
36" SANITARY

RACCOON RIVER

STA. 101+32.5
= STA 14+16.9B
EL. 29.6 FT

TOP WIDTH 34 FT
L/S SLOPE 2H:1V
R/S SLOPE 2H:1V

RIVER WALL

GATEWELL.
STA. 95+54. NO. 285.
48" RCP SANITARY
INVERT 1.5 FT

PUMP
STATION

STA 92+50.
EL 30.8

STA. 93+00
EL. 29.9

GATEWELL. STA. 91+00.
PUMP STA. 185C.
72" STORM
INVERT 8.76 FT AT OUILET

PREVIOUS LEVEE
CLOSURE 23

PLACED RIPRAP 2002.
PL84-99 REPAIR

MATCH LINE
SEE SHEET DMR4-4

575500N

574500N

1609000E

607500E

SW 5TH STREET

SW 3RD STREET

MURPHY STREET

JACKSON AVENUE

CLAY STREET

ELM STREET

ELLWINGSTON AVENUE

PARKSIDE DRIVE

BLDG GONE

NEW BLDG

100 0 100 200'
SCALE IN FEET

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

Designed By: DRC		Date: MARCH 2002	
Drawn By: JSF		Scale: AS SHOWN	
Checked By: RAL		Project Code: XXXXX	
Reviewed By: PAK		Solicitation Number: DACW25-XX-B-XXXX	

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

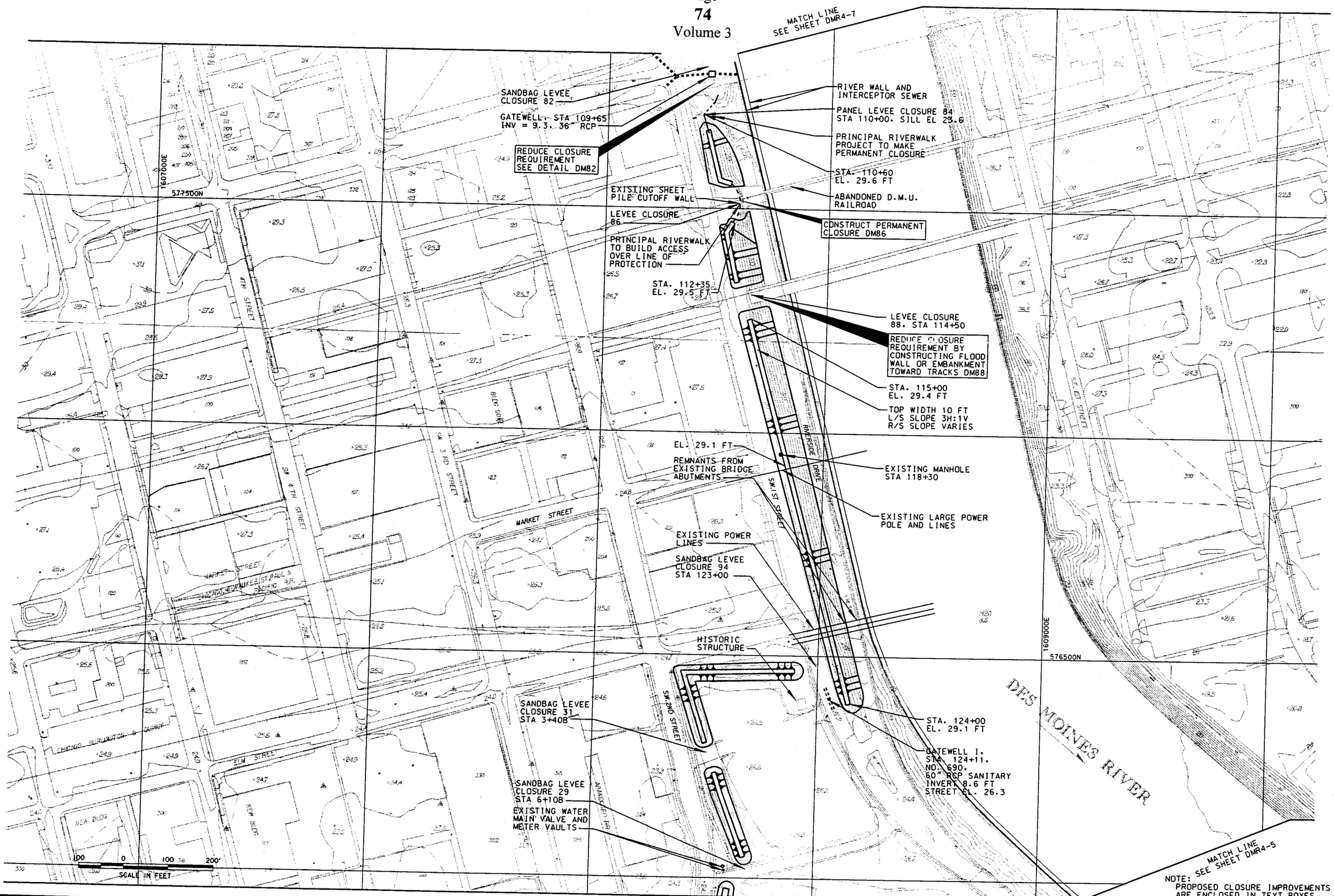
DES MOINES RIVER, DES MOINES, IOWA FEASIBILITY STUDY, DOWNTOWN WEST

DOWNTOWN-WEST
REACH 4

Sheet Reference Number:
DMR4-5
Sheet 6 of XX

PLATE D19

Plotted: 20-DEC-2002 08:47 By: Jeffrey S. Fisher
Z:\Projects\DesMoines\Downtown\Reach 4\DMR4-005.dgn



NOTE:
PROPOSED CLOSURE IMPROVEMENTS
ARE ENCLOSED IN TEXT BOXES.

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

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

Designed By: DRC		Date: MARCH 2002	
Drawn By: JSF		Scale: AS SHOWN	
Checked By: RAL		Project Code: XXXXX	
Reviewed By: PAK		Solicitation Number: DACW25-XX-B-XXXX	

DES MOINES RIVER, DES MOINES, IOWA FEASIBILITY STUDY, DOWNTOWN WEST

DOWNTOWN-WEST

REACH 4

Sheet Reference Number:
DMR4-6
Sheet 7 of XX

PLATE D80

MATCH LINE
SEE SHEET DMR4-8

FLOOD WALL, 7 INCH WIDE AT TOP AND APPROX. 3.5 FT HIGH

RIVER WALL

STA. 90+00
EL. 31.2

DES MOINES RIVER

GATEWELL B. STA. 96+74.
NO. 570.
36" STORM
INVERT 11.7 FT

CLOSE GAP BETWEEN GATEWELL AND FLOODWALL

STA 1+25A
EL 31.2

GATEWELL C. STA. 97+23.
NO. 656.
36" SANITARY CSO
INVERT 8.6 FT
TOP OF GATEWELL 27.2

LEVEE CLOSURE
76
STA 97+25

IMPROVE LEVEE CLOSURE DM76

STA. 97+60
EL. 30.2

SANITARY VAULT.
STA 97+75
NO. 658.
36" CSO

60"-SAN SEWER OVER 96" RCP STORM

2 EA 48" DIA MANHOLES IN 96" RCP

TOP WIDTH 10 FT
L/S SLOPE 3H:1V
R/S SLOPE 3H:1V

GATEWELL D.
STA. 99+26.
NO. 578
96" RCP STORM
INVERT 0.6 FT

LEVEE CLOSURE
78
STA 100+40

IMPROVE LEVEE CLOSURE DM78

GATEWELL E.
STA. 100+71.
NO. 582
36" RCP STORM
INVERT 8.3 FT

STA. 100+90
EL. 30.0 FT

UTILITY MANHOLE

GATEWELL. STA. 103+30.
NO. 584.
36" RCP STORM

LEVEE CLOSURE
80
STA 104+00

IMPROVE LEVEE CLOSURE DM80

MANHOLE IN LEVEE TO SEWER LINE

GATEWELL F.
STA 104+47
NO. 670.
36" RCP SANITARY CSO
INV 8.9 FT

INTERCEPTOR BOX SEWER

STA. 108+70
EL. 29.8 FT

TOP WIDTH 10 FT
L/S SLOPE 3H:1V
R/S SLOPE 3H:1V

ABANDONED GATEWELL G
STA 107+50
NO. 590
18" SAN INV 6.1

1606500E

579500N

1608500E

578000N

MATCH LINE
SEE SHEET DMR4-6

NOTE:
PROPOSED CLOSURE IMPROVEMENTS ARE ENCLOSED IN TEXT BOXES.

SCALE IN FEET
100 0 100 200

PLATE D21

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

Designed By:	DRC	Date:	MARCH 2002
Drawn By:	JSF	Scale:	AS SHOWN
Checked By:	RAL	Project Code:	XXXXX
Reviewed By:	PAK	Solicitation Number:	DACW25-XX-B-XXXX

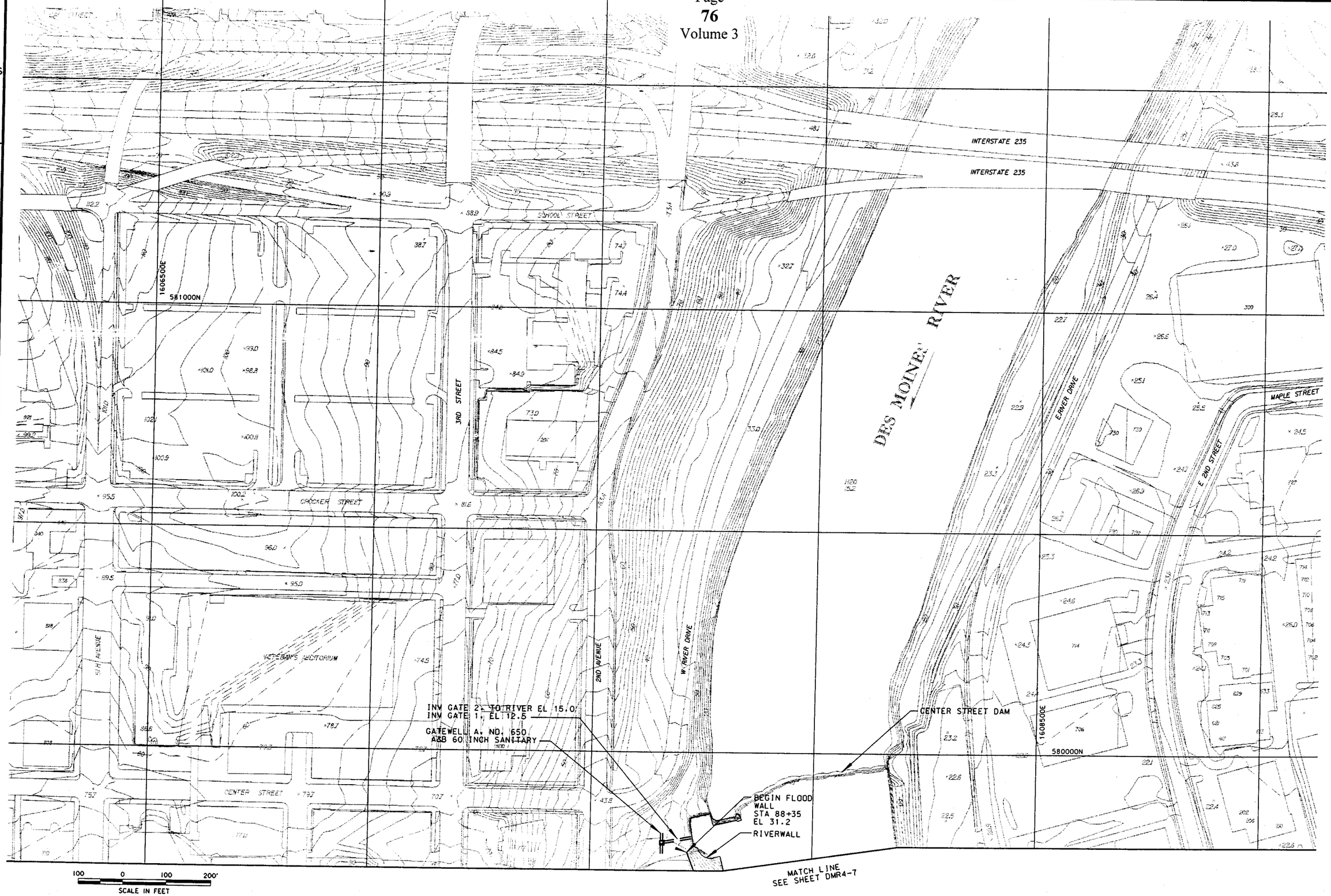
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

DES MOINES RIVER, DES MOINES, IOWA FEASIBILITY STUDY DOWNTOWN WEST

DOWNTOWN-WEST REACH 4

Sheet Reference Number:
DMR4-7
Sheet 8 of XX

*\\Rivercity\projects\Des Moines\Downtown West\dgn 4-007.dgn



US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

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

Designed By:	DRC	Date:	MARCH 2002
Drawn By:	JSF	Scale:	AS SHOWN
Checked By:	RAL	Project Code:	XXXXX
Reviewed By:	PAK	Solicitation Number:	DACW25-XX-B-XXXX

DES MOINES RIVER, DES MOINES, IOWA FEASIBILITY STUDY, DOWNTOWN WEST

DOWNTOWN-WEST

REACH 4

Sheet Reference Number:
DMR4-8
Sheet 9 of XX

PLATE D22

DES MOINES AND RACCOON RIVERS, DES MOINES, IA FEASIBILITY STUDY

DOWNTOWN - SOUTH

US Army Corps of Engineers
Rock Island District

THIS PROJECT WAS DESIGNED BY THE ROCK ISLAND DISTRICT OF THE U.S. ARMY CORPS 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 AFFIXED BELOW INDICATE OFFICIAL RECOMMENDATION AND APPROVAL OF ALL DRAWINGS IN THIS SET AS INDICATED ON EACH INDIVIDUAL TITLE BLOCK.

Symbol	Description	Date	Appr.
	Revisions		

Reviewed by:
Chief, Design Branch — Date
Chief, Hydraulics Branch — Date
Chief, Geotechnical Branch — Date

Recommended by:
Chief, Engineering Division — Date
Approved by:
Col., Corps of Engineers — Date

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

Designed By:	DRC	Date:	MAR 02
Drawn By:	JSF	Scale:	AS SHOWN
Checked By:	RAL	Project Code:	XXXXX
Reviewed By:	PAK	Solicitation Number:	DACW25-XX-B-XXXX

DES MOINES RIVER, DES MOINES, IOWA, FEASIBILITY STUDY, DOWNTOWN SOUTH

COVER SHEET

Sheet Reference Number:
DMR5-0
Sheet 1 of XX

PLATE D23

07-SEP-2004 17:07

MATCH LINE
SEE SHEET DMR5-2

PRECAST FLOODWALL
EL 30.8

4 INCH FLAP GATE
STA 11+85

REMOVE DRAIN PIPE

STA 11+55

12 INCH CMP
ON FLAP GATE
CONSTRUCTED 1971
NO LONGER VISIBLE
STA 10+50

GRAVEL DRIVE-WAY
ON LEVEE

EXISTING 78"
SANITARY SEWER

EXISTING 36"
SANITARY SEWER

FLAP-GATE ON
12 INCH CMP
STA 4+00

TOP WIDTH 10 FT
L/S SLOPE 3H:1V
R/S SLOPE 3H:1V

ABANDONED RAIL LINE

RAILROAD SANDBAG
LEVEE CLOSURE 36
STA 0+00, EL 30.8 FT

CONSTRUCT PERMANENT
LEVEE CLOSURE DM36

GATEWELL "A".
STA. 0+25
NO. 280
36" SANITARY
INVERT 9.9 FT

ADD EMBANKMENT
AROUND GATEWELL

LEVEE BEGINS
AT HIGH GROUND

SW 7TH STREET

RACCOON RIVER

DOWNTOWN AVENUE

ELSON AVENUE

COLUMBIA AVENUE

SW 2ND STREET

SW 1ST STREET

SW 3RD STREET

SW 5TH STREET

100 0 100 200'
SCALE IN FEET

NOTE:
PROPOSED CLOSURE IMPROVEMENTS
ARE ENCLOSED IN TEXT BOXES.

PLATE D24

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

Designed By: DRC	Date: MAR 02		
Drawn By: JSF	Scale: AS SHOWN		
Checked By: RAL	Project Code: XXXXX		
Reviewed By: PAK	Solicitation Number: DACW25-XX-B-XXXX		

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

DES MOINES RIVER, DES MOINES, IOWA, FEASIBILITY STUDY, DOWNTOWN SOUTH

DOWNTOWN-SOUTH REACH 5

Sheet Reference Number:
DMR5-1
Sheet 2 of XX

Drawing Objects\grfRUSF3.dgn(Objects\MAIN Alignment\Downtown South\dgnfile 5-001.dgn

RACCOON RIVER

DES MOINES RIVER

SCOTT AVE.

RIVERSIDE DRIVE

SW 3RD STREET

SW 1ST STREET

SW 2ND STREET

SW 4TH STREET

E. LEXINGTON AVENUE

E. MAPLE AVENUE

FLAT STREET

GREAT WESTERN RAILROAD

BRIDGE OUT OF COMMISSION

BLDG DOME

RENOVATIONS DONE HERE

STA. 31+15
EL. 29.0 FT

GATEWELL "B".
STA. 30+80 NO. 290
36" SANITARY
INVERT 7.2 FT

BARRICADE

GATEWELL NO. 286
36" & 24" SANITARY

TOP WIDTH 34 FT
L/S SLOPE 3H:1V
R/S SLOPE 3H:1V

EXISTING
RIVERWALL

15" INCH STORM
78 INCH SANITARY
36 INCH SANITARY

GATEWELL,
STA. 15+00
NO. 190

STA. 14+25
EL. 29.9 FT

15 INCH CMP WITH
NO FLAP GATE AND
NO SLUICE GATE

36" SANITARY
SEWER/
78" SANITARY
SEWER

EARTH LEVEE CLOSURE
NO. 38 INPLACE

STA. 13+67
EL. 30.8 FT

PRECAST FLOODWALL
78 INCH SANITARY SEWER
IS LOCATED BELOW WALL

MATCH LINE
SEE SHEET DMR5-1

EXISTING 18 INCH
STORM OUTLET IS
ERODED

GATEWELL "C".
STA. 32+00 NO. 310
15" STORM
INVERT 17.5 FT

GATEWELL. STA. 32+25
NO. 410
36" & 78" SANITARY

STA. 32+35
EL. 28.5 FT

ABANDONED RAIL LINE

RAILROAD
SANDBAG LEVEE
CLOSURE 42
STA 34+04

CONSTRUCT PERMANENT
CLOSURE DM42

STA. 34+25
EL. 27.5 FT

GATEWELL
STA. 34+70
PUMP STA.
GATE 320
60" STORM

TOP WIDTH 10 FT
L/S SLOPE 3H:1V
R/S SLOPE 3H:1V

ABANDONED
GATEWELL "D"
STA. 43+64 NO. 328
36" STORM
INVERT 2.5 FT

MATCH LINE
SEE SHEET DMR5-3

100 0 100 200'
SCALE IN FEET

NOTE:
PROPOSED CLOSURE IMPROVEMENTS
ARE ENCLOSED IN TEXT BOXES.

PLATE D25

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

Designed By: DRC	Date: MAR 02		
Drawn By: JSF	Scale: AS SHOWN		
Checked By: RAL	Project Code: XXXXX		
Reviewed By: PAK	Solicitation Number: DACW25-XX-B-XXXX		

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

DES MOINES RIVER, DES MOINES, IOWA, FEASIBILITY STUDY, DOWNTOWN SOUTH

DOWNTOWN-SOUTH REACH 5

Sheet Reference Number:
DMR5-2
Sheet 3 of XX

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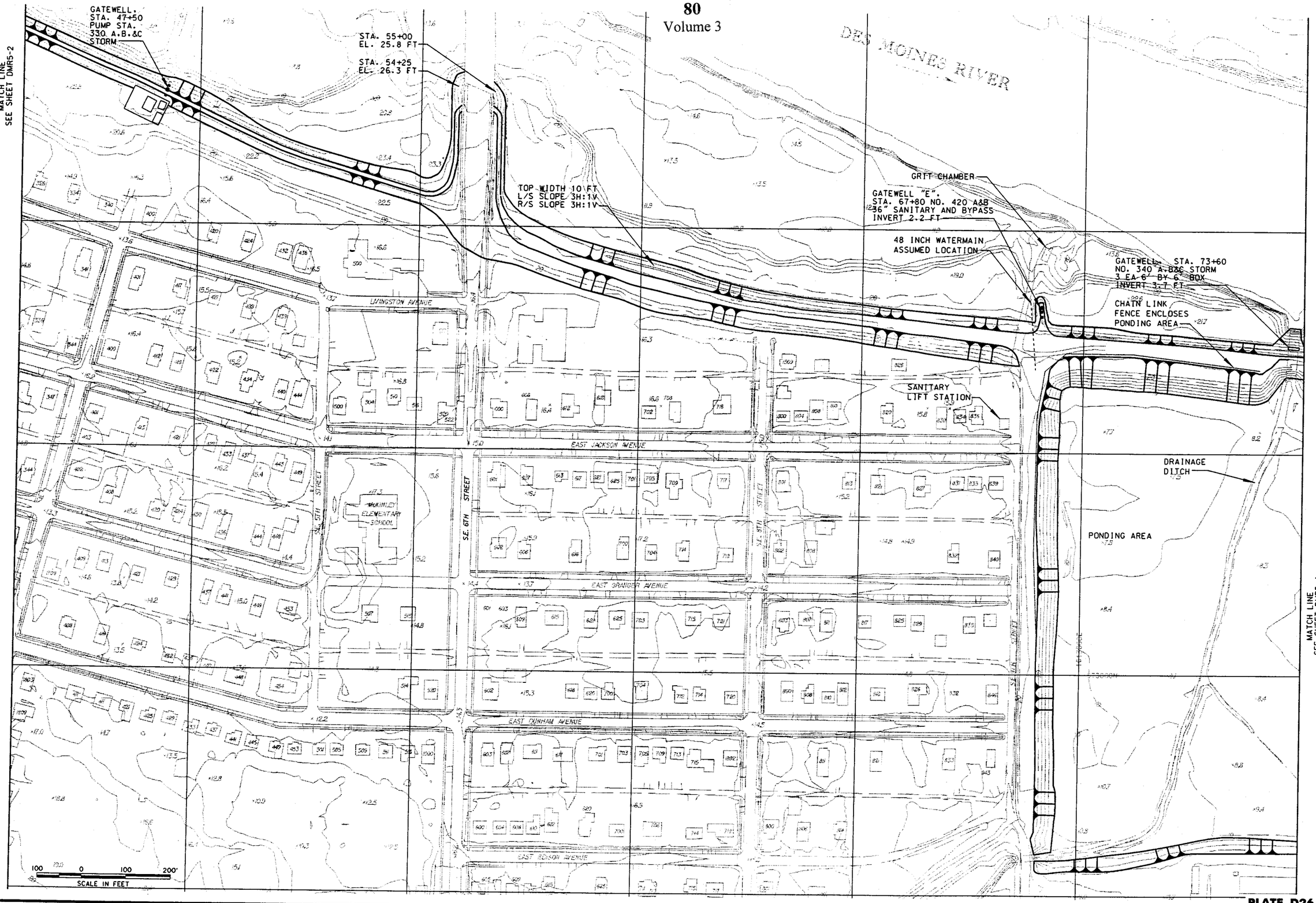

US Army Corps of Engineers Rock Island District

Symbol	Description	Date	Approved
	Revisions		

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

Designed By:	DRC	Date:	MAR 02
Drawn By:	JSF	Scale:	AS SHOWN
Checked By:	RAL	Project Code:	XXXXX
Reviewed By:	PAK	Solicitation Number:	DACW25-XX-B-XXXX

DES MOINES RIVER, DES MOINES, IOWA, FEASIBILITY STUDY, DOWNTOWN SOUTH

DOWNTOWN-SOUTH REACH 5

Sheet Reference Number: **DMR5-3**
Sheet 4 of XX

PLATE D26

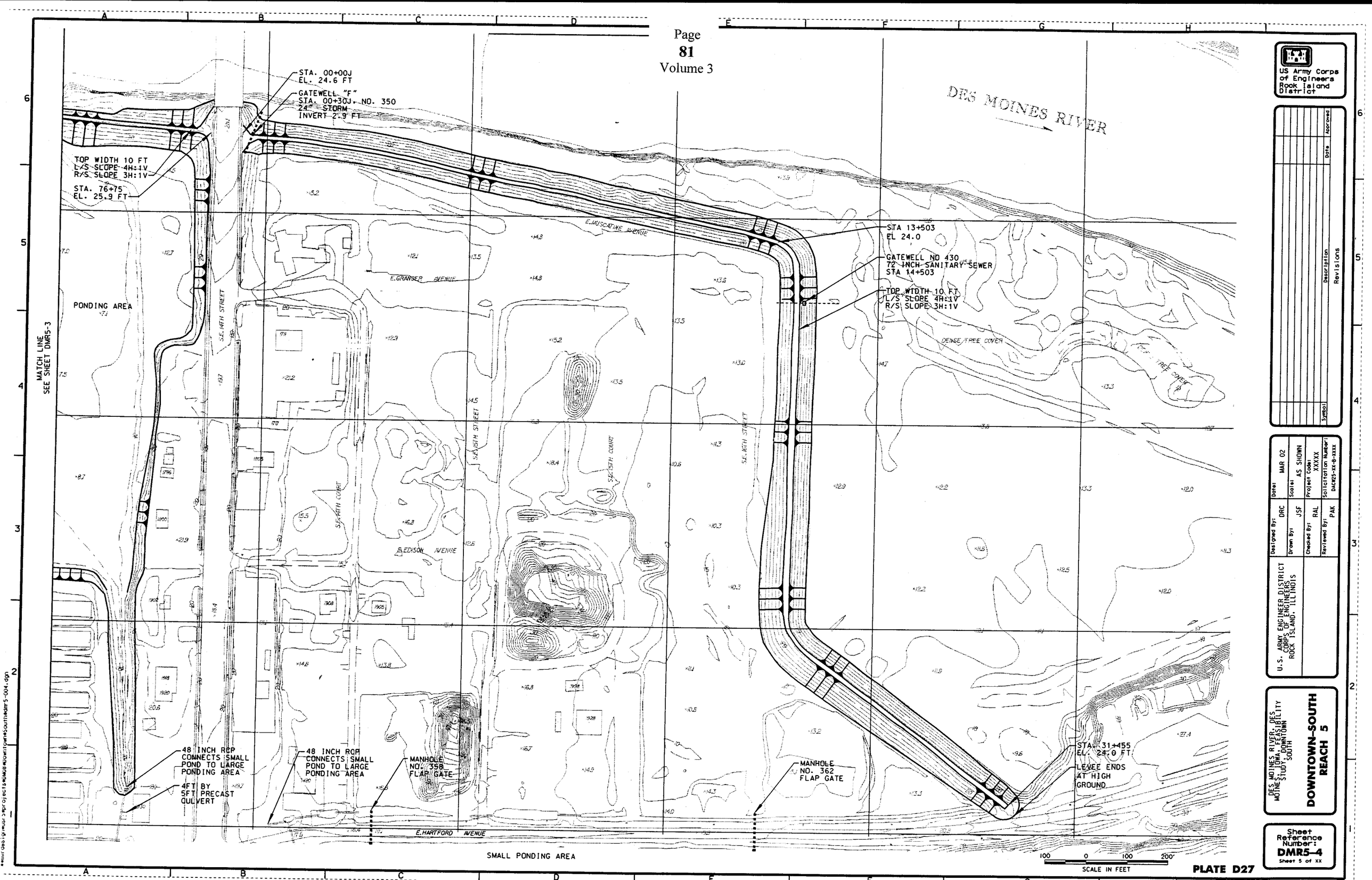
STA. 00+00J
EL. 24.6 FT
GATEWELL "F"
STA. 00+30J, NO. 350
24" STORM
INVERT 2.9 FT
TOP WIDTH 10 FT
L/S SLOPE 4H:1V
R/S SLOPE 3H:1V
STA. 76+75
EL. 25.9 FT
DES MOINES RIVER
E.MUSCATINE AVENUE
E.GRANGER AVENUE
PONDING AREA
S.E.14TH STREET
S.E.15TH STREET
S.E.16TH STREET
S.E.15TH COURT
S.E.14TH COURT
S.EDISON AVENUE
E.HARTFORD AVENUE
STA 13+503
EL 24.0
GATEWELL NO 430
72 INCH SANITARY SEWER
STA 14+503
TOP WIDTH 10 FT
L/S SLOPE 4H:1V
R/S SLOPE 3H:1V
DENSE TREE COVER
MATCH LINE
SEE SHEET DMR5-3
48 INCH RCP
CONNECTS SMALL
POND TO LARGE
PONDING AREA
4FT BY
5FT PRECAST
CULVERT
48 INCH RCP
CONNECTS SMALL
POND TO LARGE
PONDING AREA
MANHOLE
NO. 358
FLAP GATE
MANHOLE
NO. 362
FLAP GATE
STA. 31+455
EL. 24.0 FT
LEVEE ENDS
AT HIGH
GROUND
SMALL PONDING AREA
100 0 100 200'
SCALE IN FEET
US Army Corps
of Engineers
Rock Island
District
Symbol
Description
Date
Approved
Revisions
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS
Designed By: DRC
Drawn By: JSF
Checked By: RAL
Reviewed By: PAK
Date: MAR 02
Scale: AS SHOWN
Project Code: XXXXX
Solicitation Number: DACW25-XX-B-XXXX
DES MOINES RIVER, DES
MOINES, IOWA, FEASIBILITY
STUDY, DOWNTOWN
SOUTH
DOWNTOWN-SOUTH
REACH 5
Sheet
Reference
Number:
DMR5-4
Sheet 5 of XX

PLATE D27

DES MOINES AND RACCOON RIVERS, DES MOINES, IA FEASIBILITY STUDY

WALNUT CREEK AT GRAND AVENUE

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Appr.
	Revisions		

Reviewed by:
Chief, Design Branch — Date
Chief, Hydraulics Branch — Date
Chief, Geotechnical Branch — Date

THIS PROJECT WAS DESIGNED BY THE ROCK ISLAND DISTRICT OF THE U.S. ARMY CORPS 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 1110-1-8153, SIGNATURES OF THE BELOW INDICATE OFFICIAL RECOMMENDATION AND APPROVAL OF ALL DRAWINGS IN THIS SET AS INDICATED ON EACH INDIVIDUAL TITLE BLOCK.

Recommended by:
Chief, Engineering Division — Date
Approved by:
Col., Corps of Engineers — Date

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

Designed By:	MJA	Date:	JUNE 2002
Drawn By:	MRC	Scale:	AS SHOWN
Checked By:	DRC	Project Code:	
Reviewed By:	RAL	Solicitation Number:	

DES MOINES RIVER, IOWA
DES MOINES METRO FEASIBILITY STUDY

COVER SHEET

Sheet Reference Number:
WC1
Sheet 1 of 10

PLATE W1

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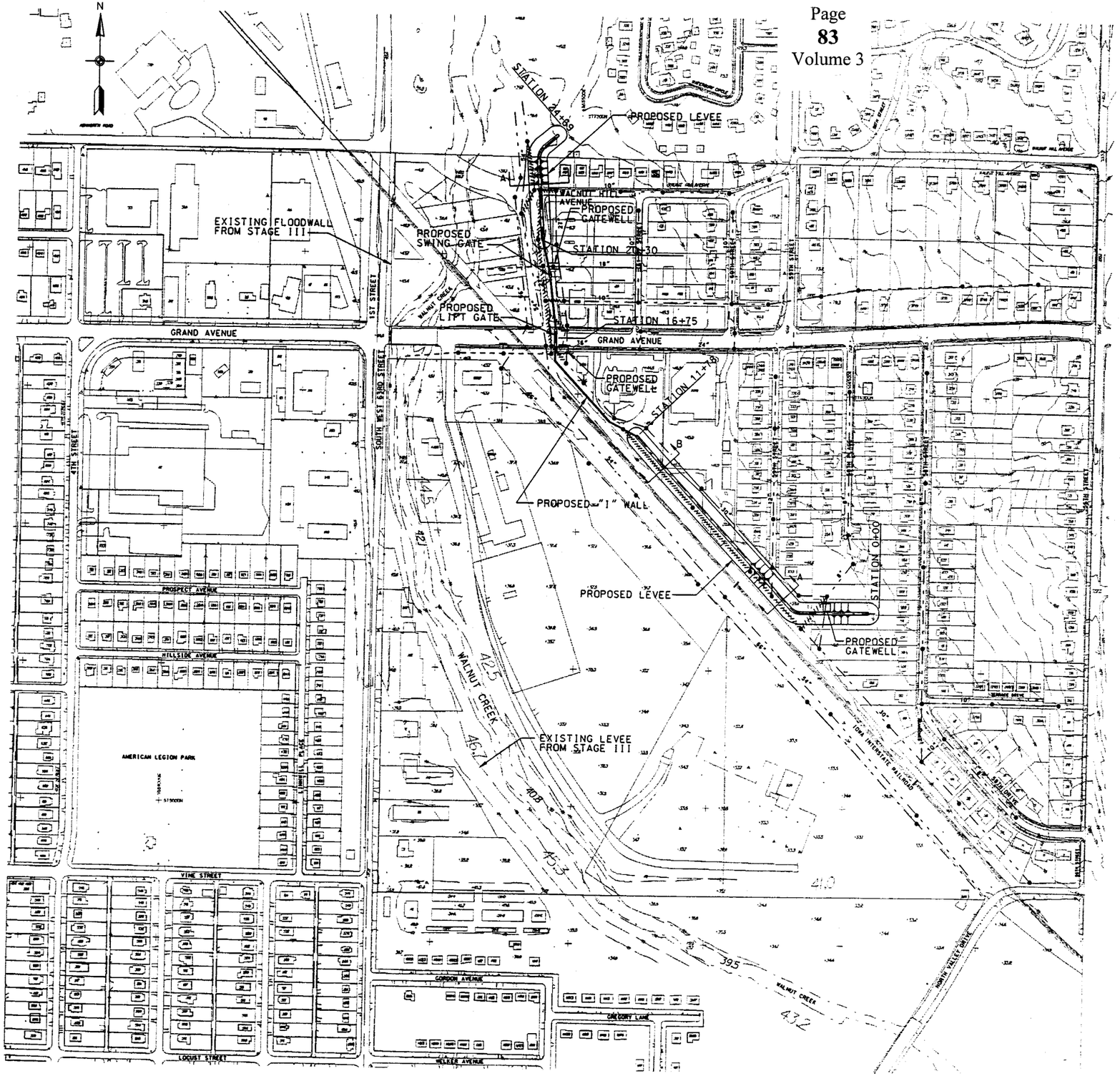
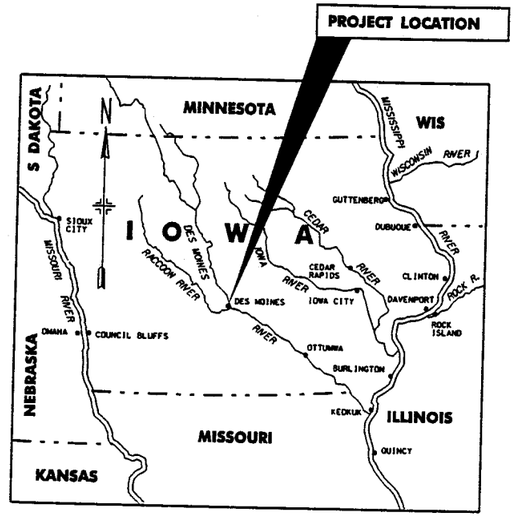




VICINITY MAP

25 0 25 50 75
SCALE IN MILES

NOT RECOMMENDED FOR CONSTRUCTION

NOTES:

1. STATIONING BASED ON LEVEE CENTERLINE LENGTHS.
2. ELEVATIONS SHOWN ARE CITY DATUM. 0.00 FEET. CITY DATUM = 773.73 FEET NGVD.
3. FOR TYPICAL SECTIONS, SEE SHEET WC6.

LEGEND:

- EXISTING STORM SEWER
- RELOCATED STORM SEWER
- EXISTING SANITARY SEWER
- RELOCATED SANITARY SEWER
- MANHOLE
- STORM SEWER INLET
- EXISTING STORM SEWER TO BE REMOVED
- EXISTING SANITARY SEWER TO BE REMOVED

200 0 200 400'
SCALE IN FEET

PLATE W2

US Army Corps of Engineers Rock Island District

Symbol	Description	Date	Approved
	Revisions		

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

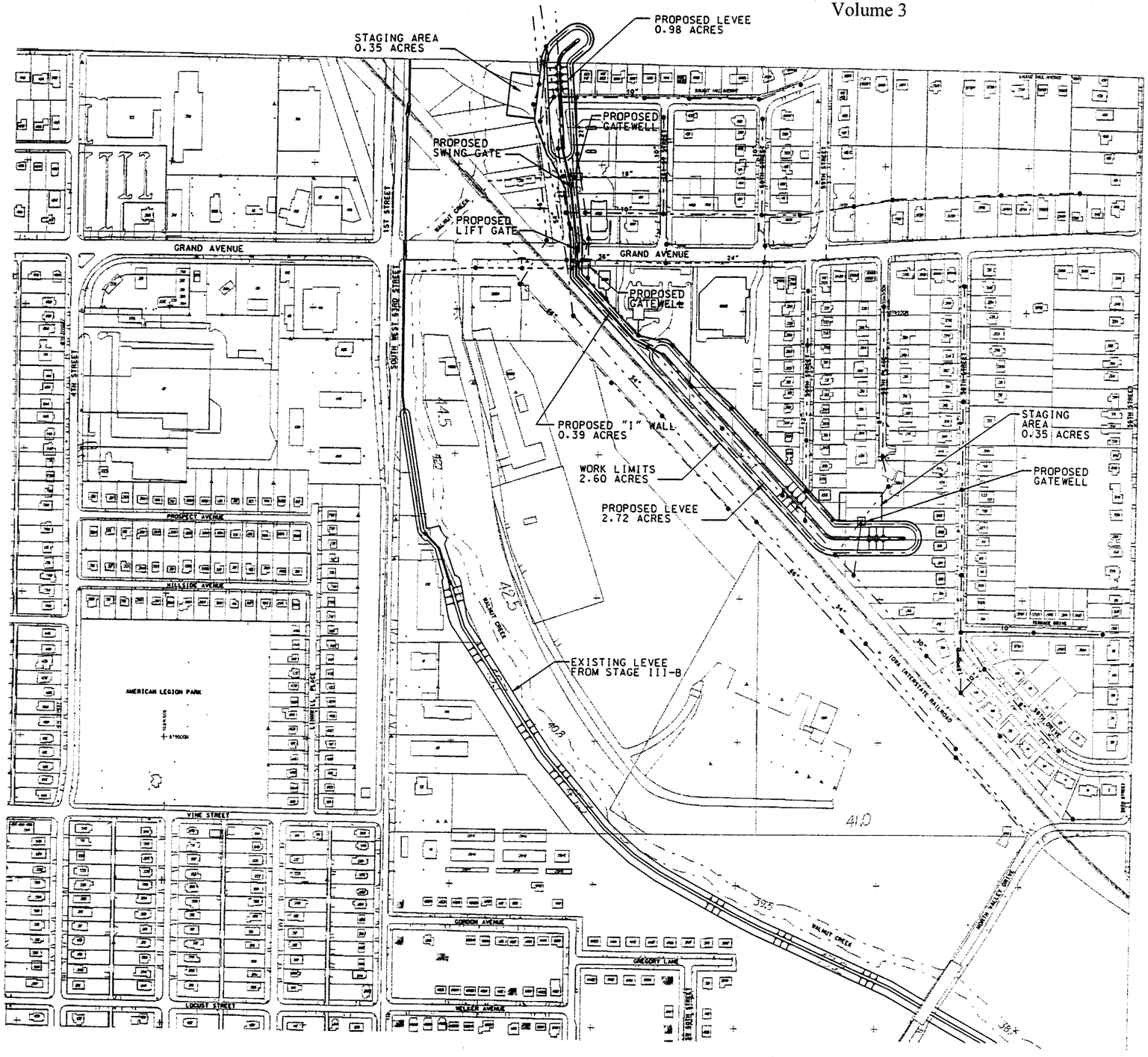
Designed By: MJA	Date: JUNE 2002		
Drawn By: MRC	Scale: AS SHOWN		
Checked By: DRC	Project Code:		
Reviewed By: RAL	Solicitation Number:		

DES MOINES RIVER, IOWA
DES MOINES METRO FEASIBILITY STUDY

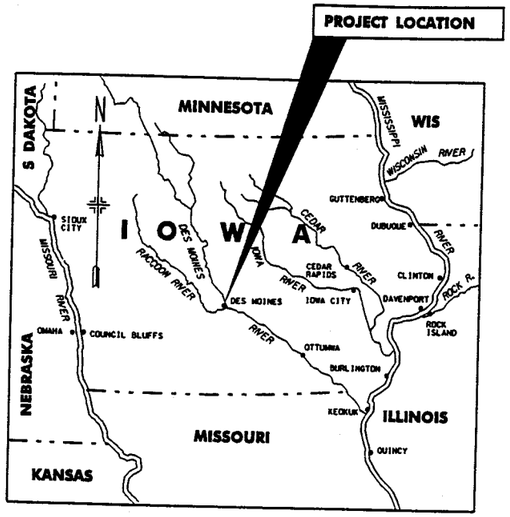
SITE PLAN

Sheet Reference Number: WC2
Sheet 2 of 10

18-AUG-2004 14:41



PLAN



VICINITY MAP

25 0 25 50 75
SCALE IN MILES

LEGEND:

- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- RELOCATED SANITARY SEWER
- MANHOLE
- STORM SEWER INLET

200 0 200 400'
SCALE: 1"=200'

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

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

Designed By:	MJA	Date:	JUNE 2002
Drawn By:	MRC	Scale:	AS SHOWN
Checked By:	DRC	Project Code:	
Reviewed By:	RAL	Solicitation Number:	

DES MOINES RIVER, IOWA
DES MOINES METRO FEASIBILITY STUDY

RIGHT-OF-WAY REQUIREMENTS

Sheet Reference Number:
WC3
Sheet 3 of 10

PLATE W3

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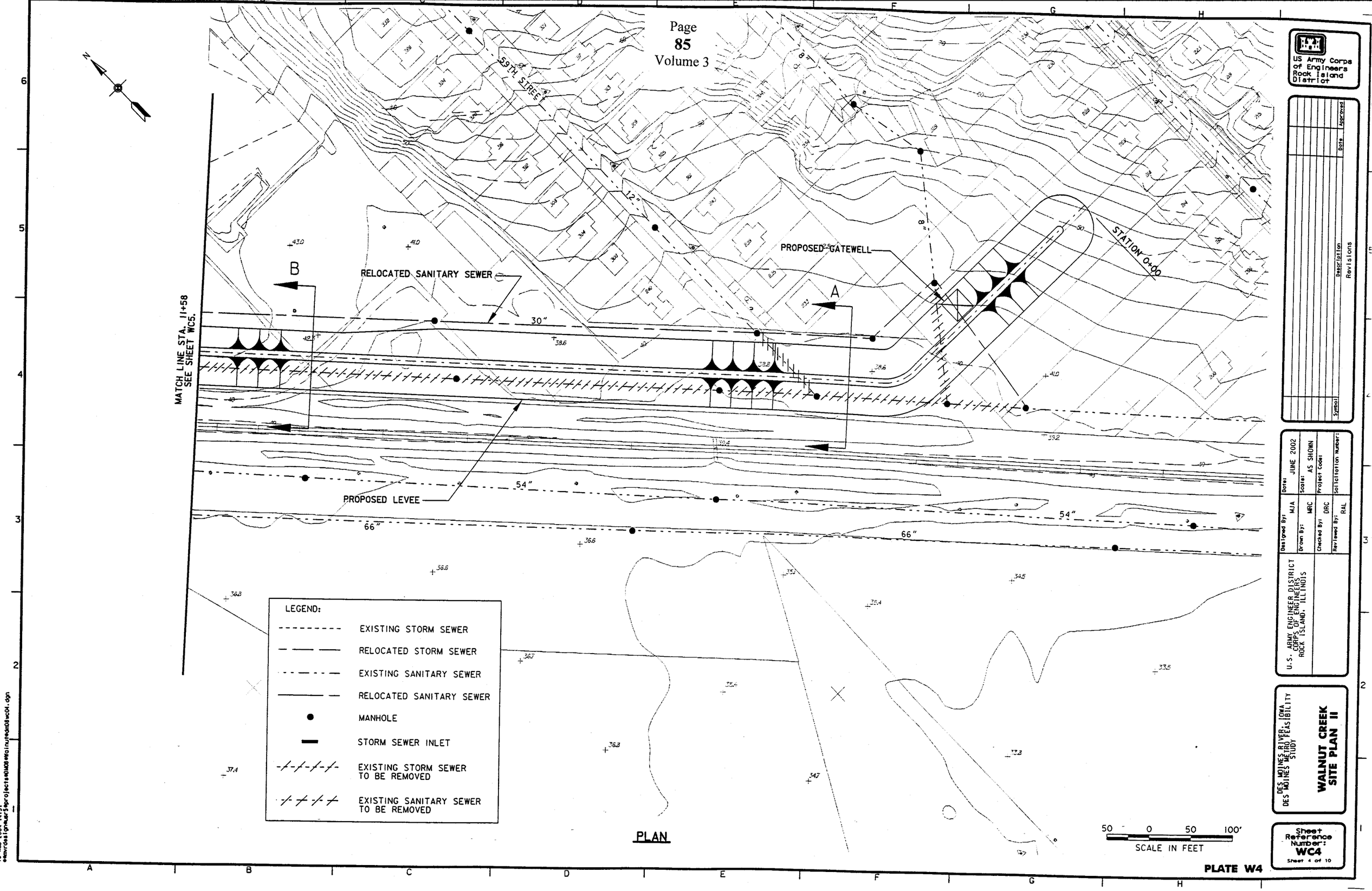
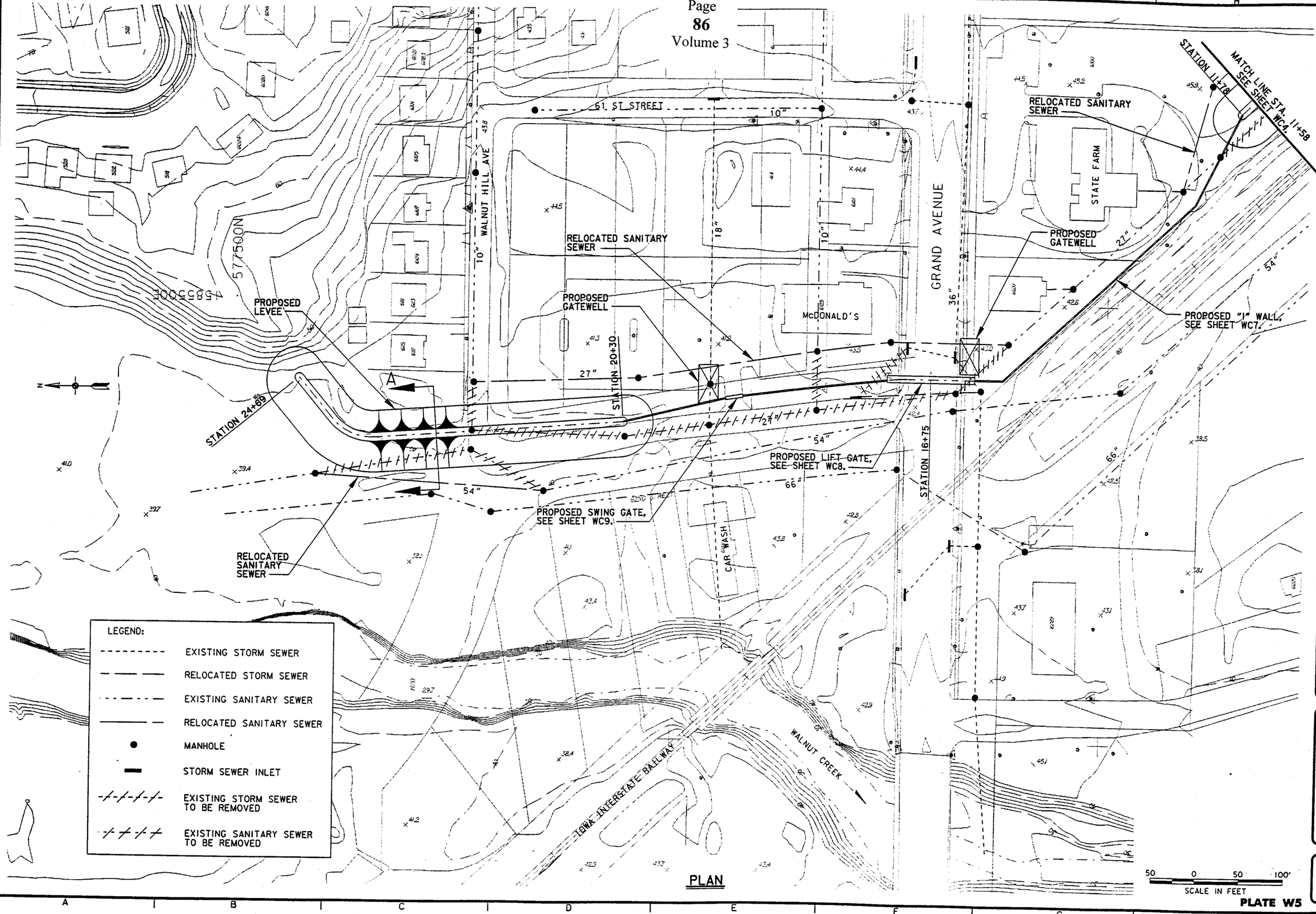

59TH STREET
12"
8"
PROPOSED GATEWELL
STATION 0+00
B
A
RELOCATED SANITARY SEWER
30"
MATCH LINE STA. 11+58
SEE SHEET WC5.
PROPOSED LEVEE
54"
66"
LEGEND:
EXISTING STORM SEWER
RELOCATED STORM SEWER
EXISTING SANITARY SEWER
RELOCATED SANITARY SEWER
MANHOLE
STORM SEWER INLET
EXISTING STORM SEWER TO BE REMOVED
EXISTING SANITARY SEWER TO BE REMOVED
PLAN
50 0 50 100'
SCALE IN FEET
US Army Corps of Engineers Rock Island District
Symbol
Description
Date
Approved
Revisions
Designed By: MJA
Drawn By: MRC
Checked By: DRC
Reviewed By: RAL
Date: JUNE 2002
Scale: AS SHOWN
Project Code:
Solicitation Number:
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS
DES MOINES RIVER, IOWA
DES MOINES METRO FEASIBILITY STUDY
WALNUT CREEK
SITE PLAN II
Sheet Reference Number:
WC4
Sheet 4 of 10
PLATE W4



PLAN

US Army Corps of Engineers
Rock Island District

Symbol	Description Revisions	Date	Approved

Designed By: MJA	Dates: JUNE 2002		
Drawn By: MRC	Scale: AS SHOWN		
Checked By: DRC	Project Code:		
Reviewed By: RAL	Solicitation Number:		

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

DES MOINES RIVER, IOWA
DES MOINES METRO FEASIBILITY STUDY

WALNUT CREEK SITE PLAN 1

Sheet Reference Number:
WC5
Sheet 5 of 10

PLATE W5

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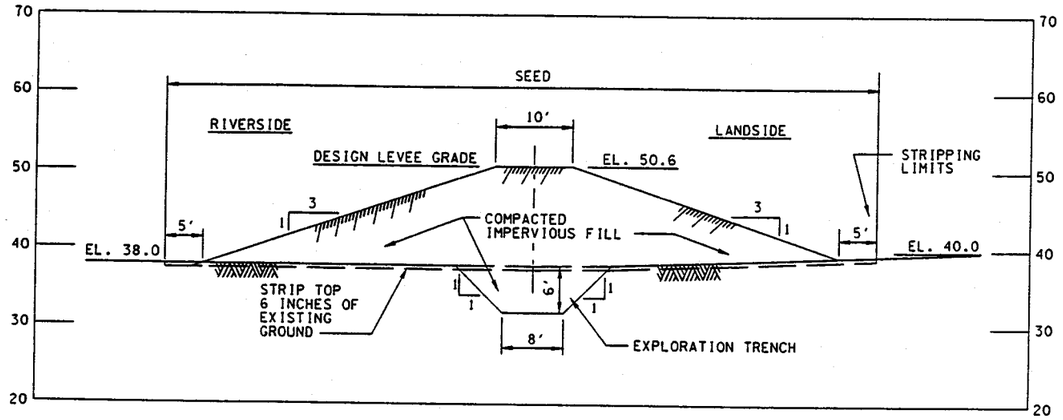
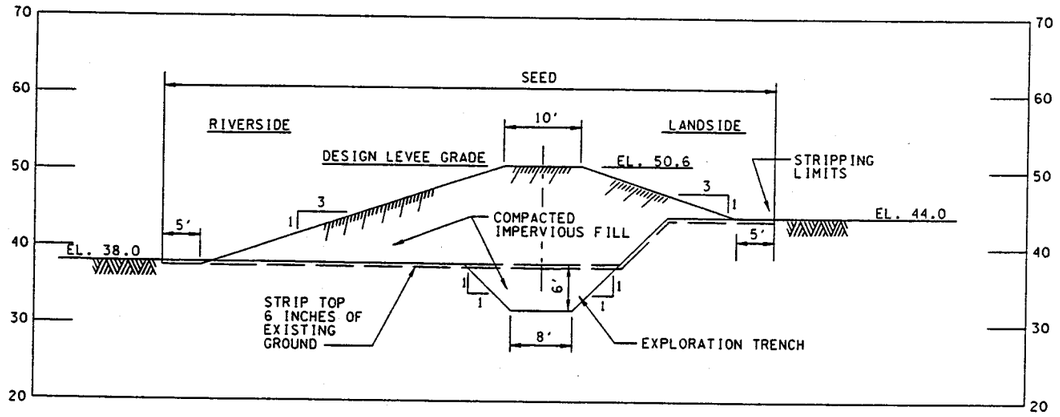
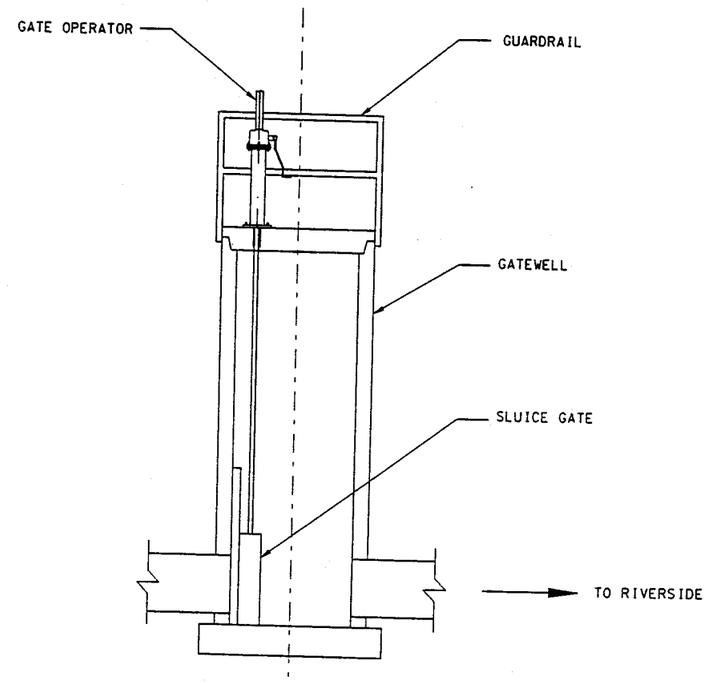


SECTION A STATION 0+00 - 9+30; STATION 20+30 - 24+69



SECTION B STATION 9+30 - 11+78



TYPICAL GATEWELL

NOT TO SCALE

10' 0 10'
SCALE IN FEET

US Army Corps of Engineers Rock Island District

Revisions

Symbol	Description	Date	Approved

Designed By: MJA
Drawn By: MRC
Checked By: DRC
Reviewed By: RAL
Date: JUNE 2002
Scale: AS SHOWN
Project Code:
Solicitation Number:

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

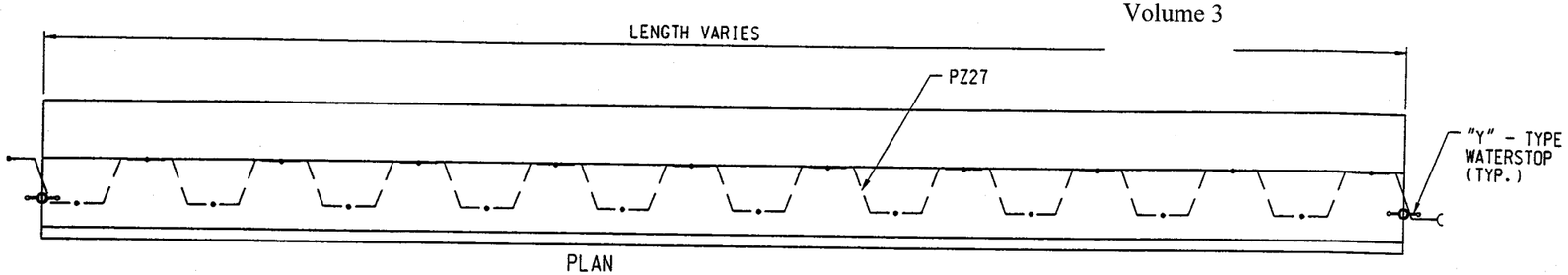
DES MOINES RIVER, IOWA
DES MOINES METRO FEASIBILITY STUDY

TYPICAL SECTIONS

Sheet Reference Number: WC6
Sheet 6 of 10

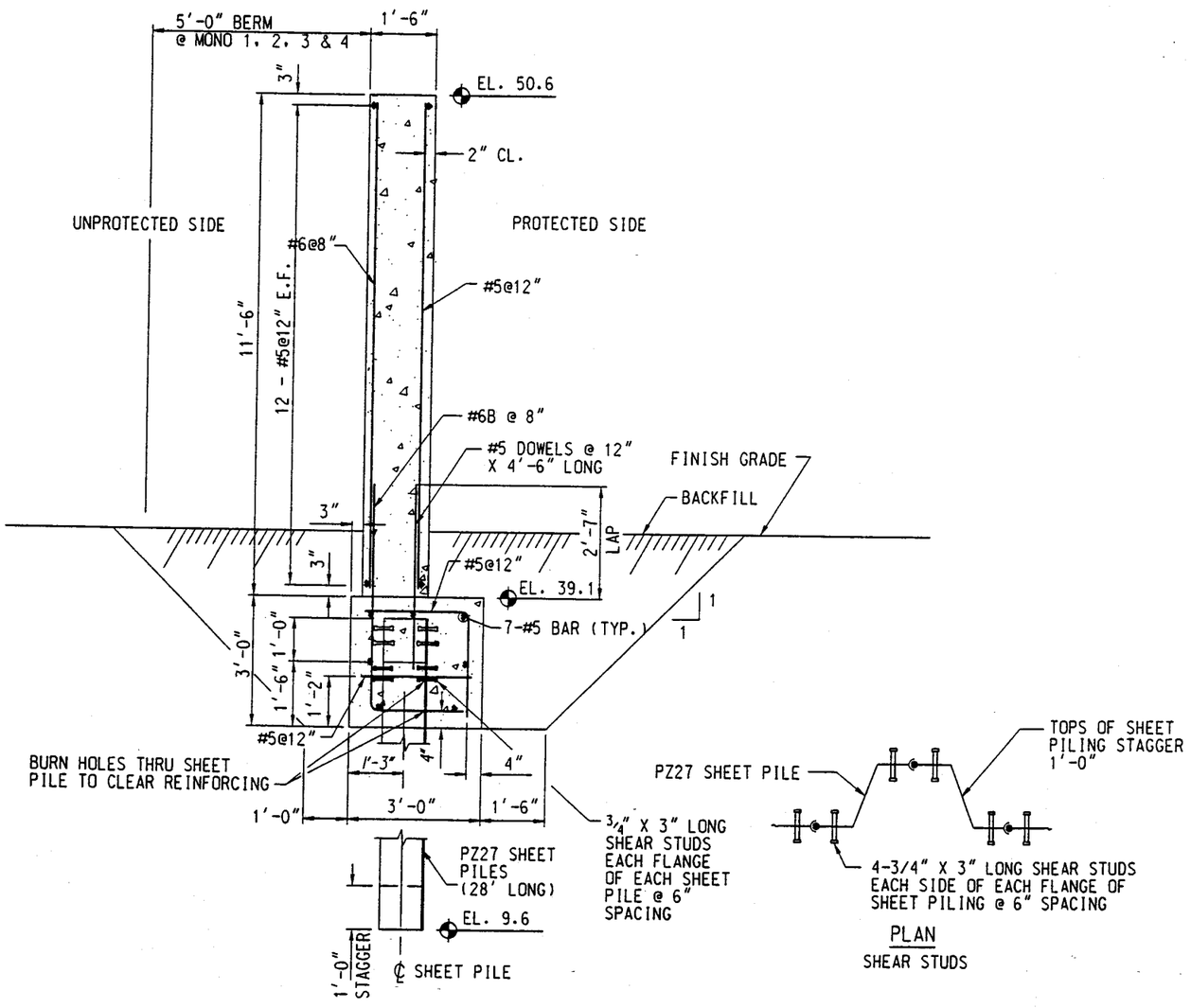
PLATE W6

18-AUG-2004 15:25



PLAN

I-WALL MONOLITHS PZ27



PLAN

SHEAR STUDS

NOTES:

1. ALL SHEET PILING IS PZ27.
2. 1/2" PREFORMED EXPANSION JOINT FILLER WILL BE PLACED BETWEEN ALL MONOLITHS.
3. ALL CORNERS 90° AND SHARPER SHALL BE CHAMFERED 3/4".
4. FOR LOCATION. SEE WC5.

1' 0 1' 2

SCALE: 1/2" = 1'-0".

US Army Corps of Engineers Rock Island District

Symbol	Description Revisions	Date	Approved

Designed By: MJA	Date: JUNE 2002		
Drawn By: MRC	Scale: AS SHOWN		
Checked By: DRC	Project Code:		
Reviewed By: RAL	Solicitation Number:		

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

DES MOINES RIVER, IOWA
DES MOINES METRO FEASIBILITY STUDY

I-WALL DETAILS AND CORNERS

Sheet Reference Number: **WC7**
Sheet 7 of 10

PLATE W7

18-AUG-2004 15:26
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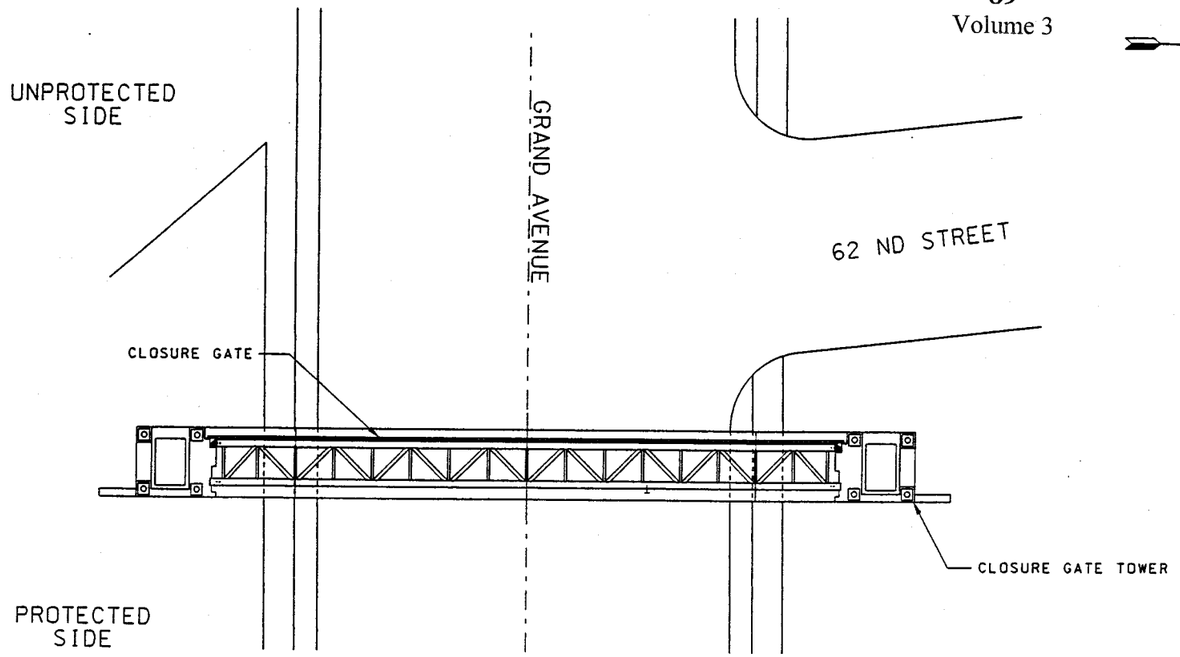
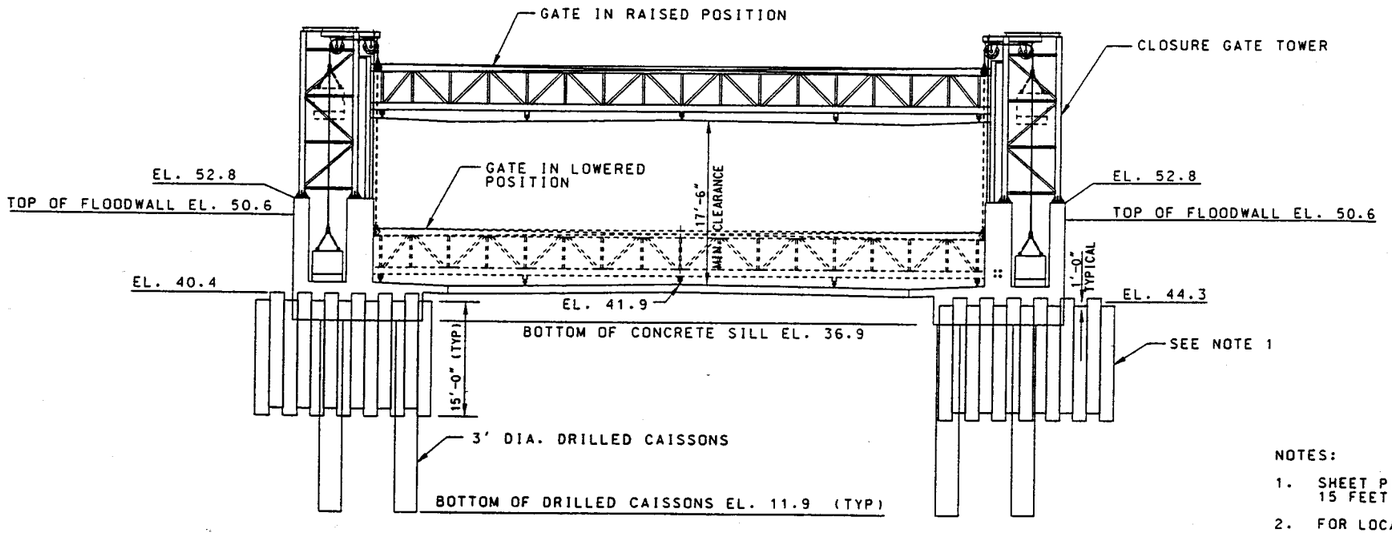


PLAN



PROFILE

LIFT GATE CLOSURE STRUCTURE

NOTES:

1. SHEET PILING UNDER CLOSURE GATE TOWER SHAL BE SZ-22, 15 FEET LONG STAGGERED IN ELEVATION AS SHOWN.
2. FOR LOCATION, SEE WC5.

0 10 20
Scale in Feet

US Army Corps of Engineers Rock Island District

Symbol	Description	Date	Approved
	Revisions		

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

Designed By:	MJA	Date:	JUNE 2002
Drawn By:	MRC	Scale:	AS SHOWN
Checked By:	DRC	Project Code:	
Reviewed By:	RAL	Solicitation Number:	

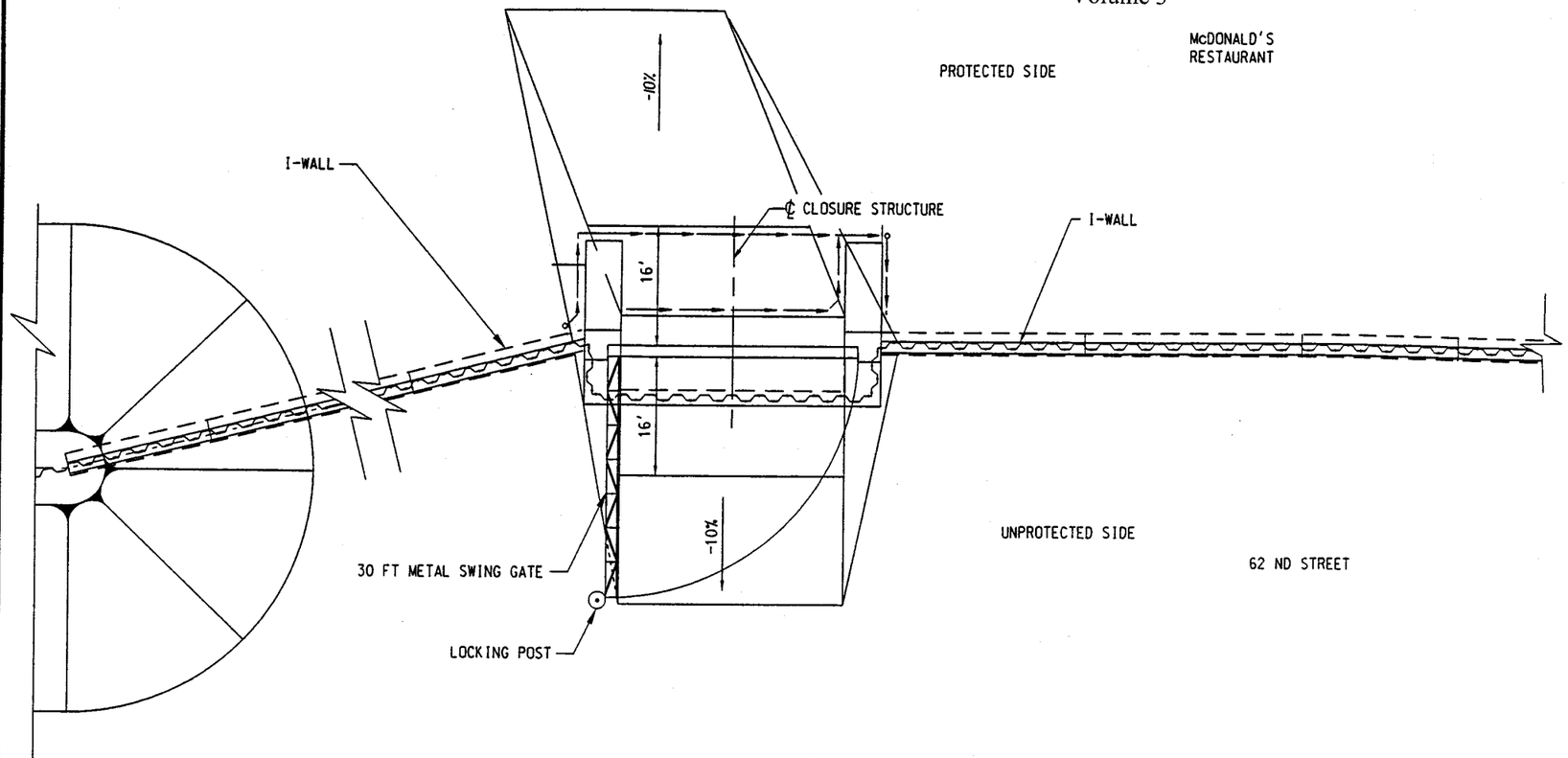
DES MOINES RIVER, IOWA
DES MOINES METRO FEASIBILITY STUDY

GRAND AVENUE CLOSURE GATE PLAN AND PROFILE

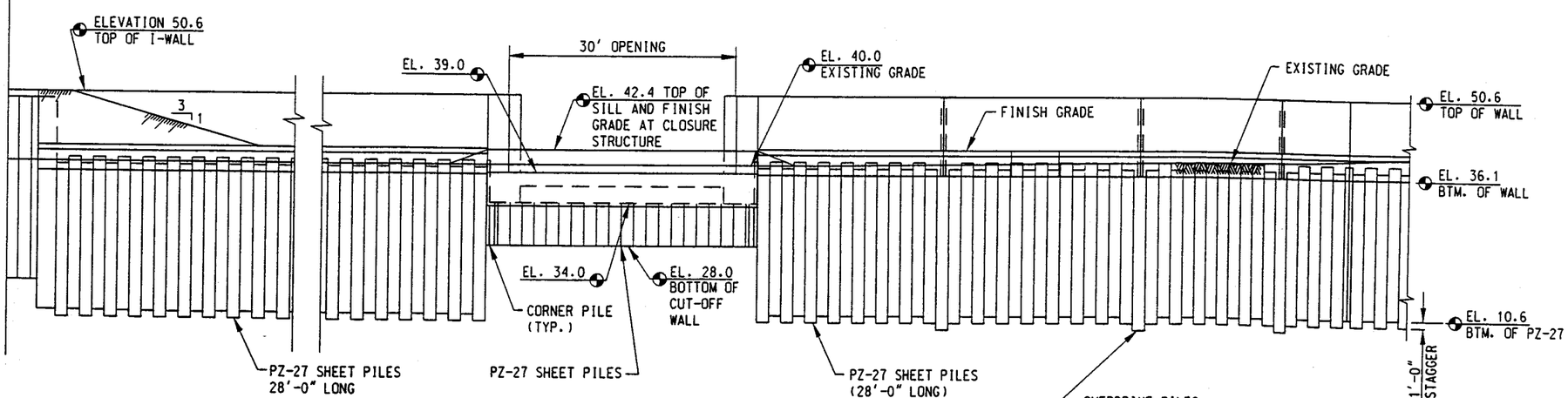
Sheet Reference Number: **WC8**
Sheet 8 of 10

PLATE W8

18-AUG-2004 15:27



PLAN



PROFILE
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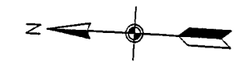


SWING GATE CLOSURE STRUCTURE

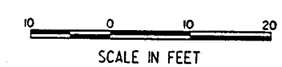
NOTES:

1. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI IN 28 DAYS.

2. ALL REINFORCEMENT BARS SHALL CONFORM TO ASTM A615 GRADE 60.

3. ALL EXPOSED CORNERS 90° OR SHARPER SHALL BE CHAMFERED 3/4".

4. FOR LOCATION SEE WC5.



US Army Corps of Engineers Rock Island District

Symbol	Description	Date	Approved
	Revisions		

Designed By: MJA
Drawn By: MRC
Checked By: DRC
Reviewed By: RAL
Date: JUNE 2002
Scale: AS SHOWN
Project Code:
Solicitation Number:

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

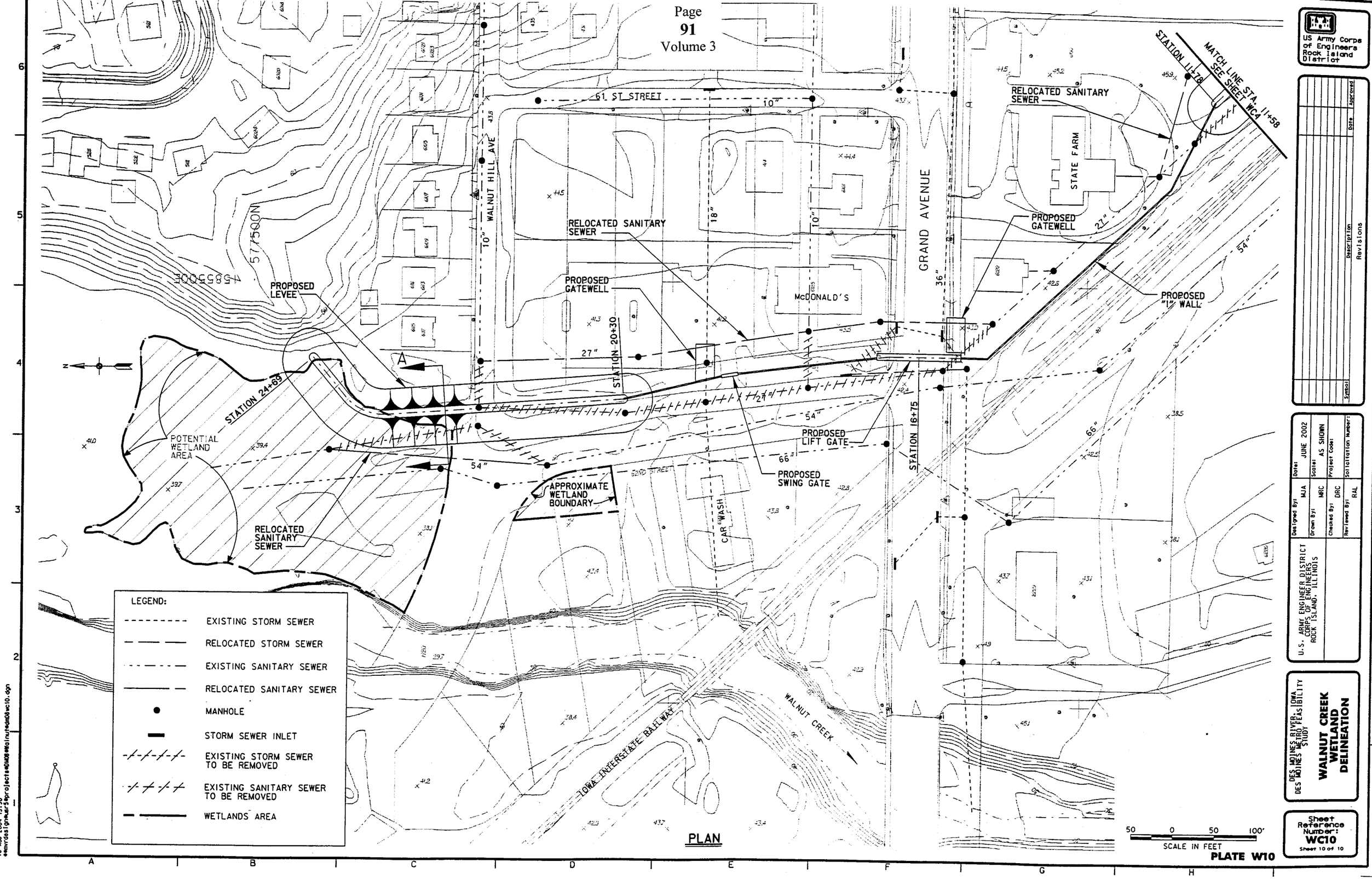
DES MOINES RIVER, IOWA
DES MOINES METRO FEASIBILITY STUDY

MC DONALD'S CLOSURE GATE PLAN AND PROFILE

Sheet Reference Number: WC9
Sheet 9 of 10

PLATE W9

18-AUG-2004 15:28


US Army Corps of Engineers Rock Island District
MATCH LINE STA. 11+58 SEE SHEET WC4
STATION 11+78
61 ST STREET
WALNUT HILL AVE
GRAND AVENUE
STATE FARM
McDONALD'S
RELOCATED SANITARY SEWER
PROPOSED GATEWELL
PROPOSED "I" WALL
PROPOSED LEVEE
STATION 20+30
STATION 24+69
STATION 16+75
POTENTIAL WETLAND AREA
APPROXIMATE WETLAND BOUNDARY
PROPOSED LIFT GATE
PROPOSED SWING GATE
CAR WASH
WALNUT CREEK
IOWA INTERSTATE RAILWAY
LEGEND:
EXISTING STORM SEWER
RELOCATED STORM SEWER
EXISTING SANITARY SEWER
RELOCATED SANITARY SEWER
MANHOLE
STORM SEWER INLET
EXISTING STORM SEWER TO BE REMOVED
EXISTING SANITARY SEWER TO BE REMOVED
WETLANDS AREA
PLAN
SCALE IN FEET
PLATE W10
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ROCK ISLAND, ILLINOIS
Designed By: MJA
Drawn By: NRC
Checked By: DRC
Reviewed By: RAL
Date: JUNE 2002
Scale: AS SHOWN
Project Code:
Solicitation Number:
DES MOINES RIVER, IOWA
DES MOINES METRO FEASIBILITY STUDY
WALNUT CREEK WETLAND DELINEATION
Sheet Reference Number: WC10
Sheet 10 of 10
Revisions
Symbol
Description
Date
Approved
18-AUG-2004 15:30

DES MOINES AND RACCOON RIVERS DES MOINES, IOWA FEASIBILITY STUDY

FOURMILE CREEK

US Army Corps of Engineers
Rock Island District

THIS PROJECT WAS DESIGNED BY THE ROCK ISLAND DISTRICT OF THE U.S. ARMY CORPS 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 AFFIXED BELOW INDICATE OFFICIAL RECOMMENDATION AND APPROVAL OF ALL DRAWINGS IN THIS SET AS INDICATED ON EACH INDIVIDUAL TITLE BLOCK.

Symbol	Description	Date	Appr.
	Revisions		

Reviewed by:
Chief, Design Branch — Date
Chief, Hydraulics Branch — Date
Chief, Geotechnical Branch — Date

Recommended by:
Chief, Engineering Division — Date
Approved by:
Col., Corps of Engineers — Date

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

Designed By:	RAL	Date:	28 MAY 02
Drawn By:	DWP	Scale:	AS SHOWN
Checked By:	DRC	Project Code:	DM08
Reviewed By:	DWH	Solicitation Number:	DACW25-XX-B-XXXX

FOUR MILE CREEK,
DES MOINES, IOWA,
FEASIBILITY STUDY

COVER SHEET

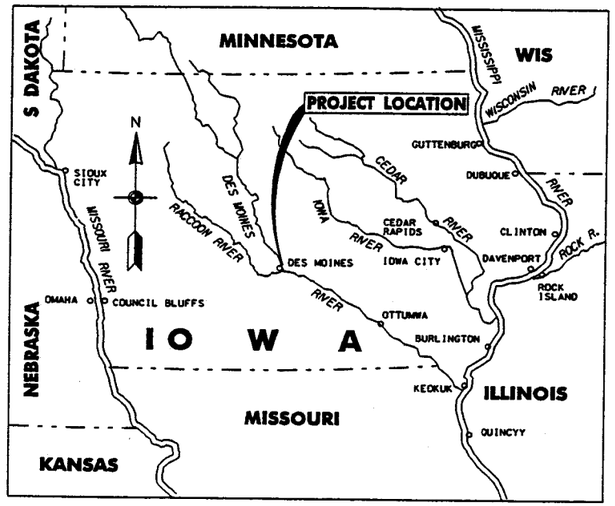
Sheet Reference Number:
FMC1
Sheet 1 of 11

PLATE F1

29-SEP-2004 09:33
**mvrdesign*usr5*projects*DM08*Fourmile*FourMileCreek*dm08fmc1.dgn

NOT RECOMMENDED FOR CONSTRUCTION

PROJECT LOCATION

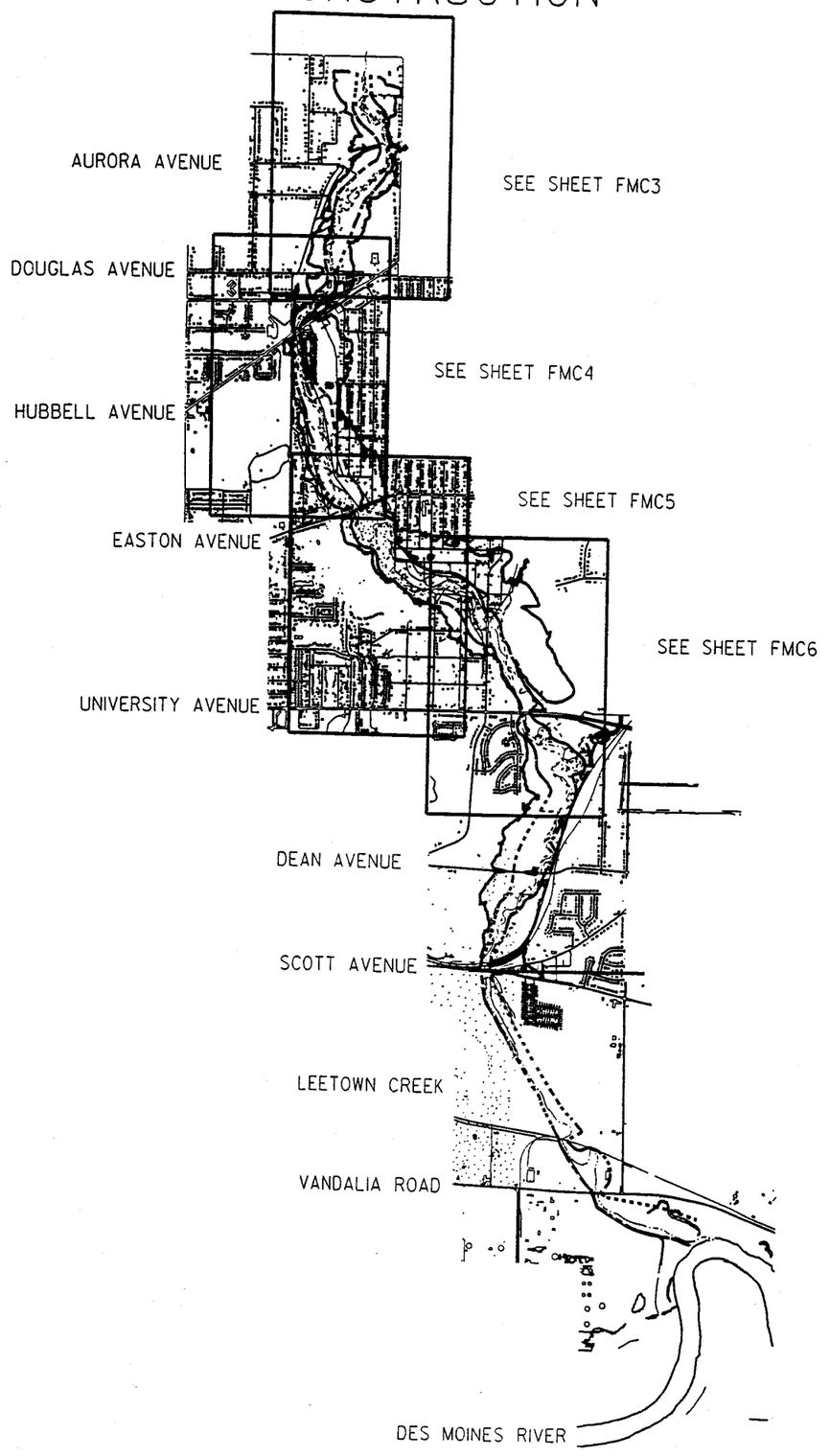


VICINITY MAP

25 0 25 50 75
SCALE IN MILES

EVALUATED LEVEE ALTERNATIVES:
ALIGNMENTS: LB2, LB4, RB3, RB4,
RB5, AND RB6

INDEX OF DRAWINGS		
SHEET REFERENCE NUMBER	SHEET NUMBER	TITLE OF DRAWINGS
FMC 1	1	COVER SHEET
FMC 2	2	INDEX AND SITE PLAN
FMC 3	3	ALTERNATIVE LEVEE ALIGNMENTS 1
FMC 4	4	ALTERNATIVE LEVEE ALIGNMENTS 2
FMC 5	5	ALTERNATICE LEVEE ALIGHMENTS 3
FMC 6	6	ALTERNATIVE LEVEE ALIGNMENTS 4
FMC 11	7	TYPICAL SECTIONS



US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

Designed By: RAL	Date: 28 MAY 02		
Drawn By: DWP	Scale: AS SHOWN		
Checked By: DRC	Project Code: DM08		
Reviewed By: DWH	Solicitation Number: DACW25-XX-B-XXXX		

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

FOUR MILE CREEK,
DES MOINES, IOWA,
FEASIBILITY STUDY

INDEX AND SITE PLAN

Sheet Reference Number:
FMC2
Sheet 2 of 11

PLATE F2

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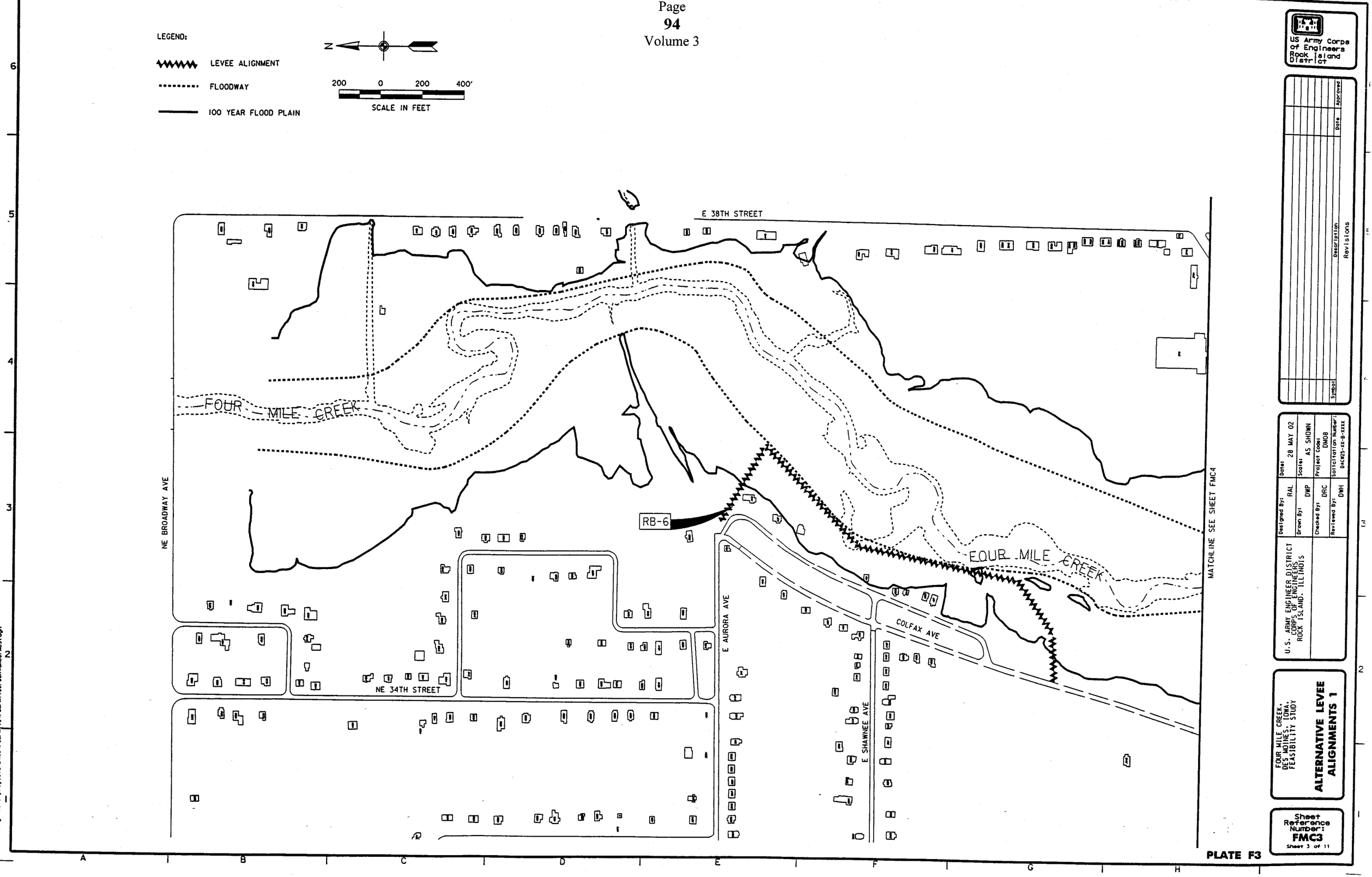
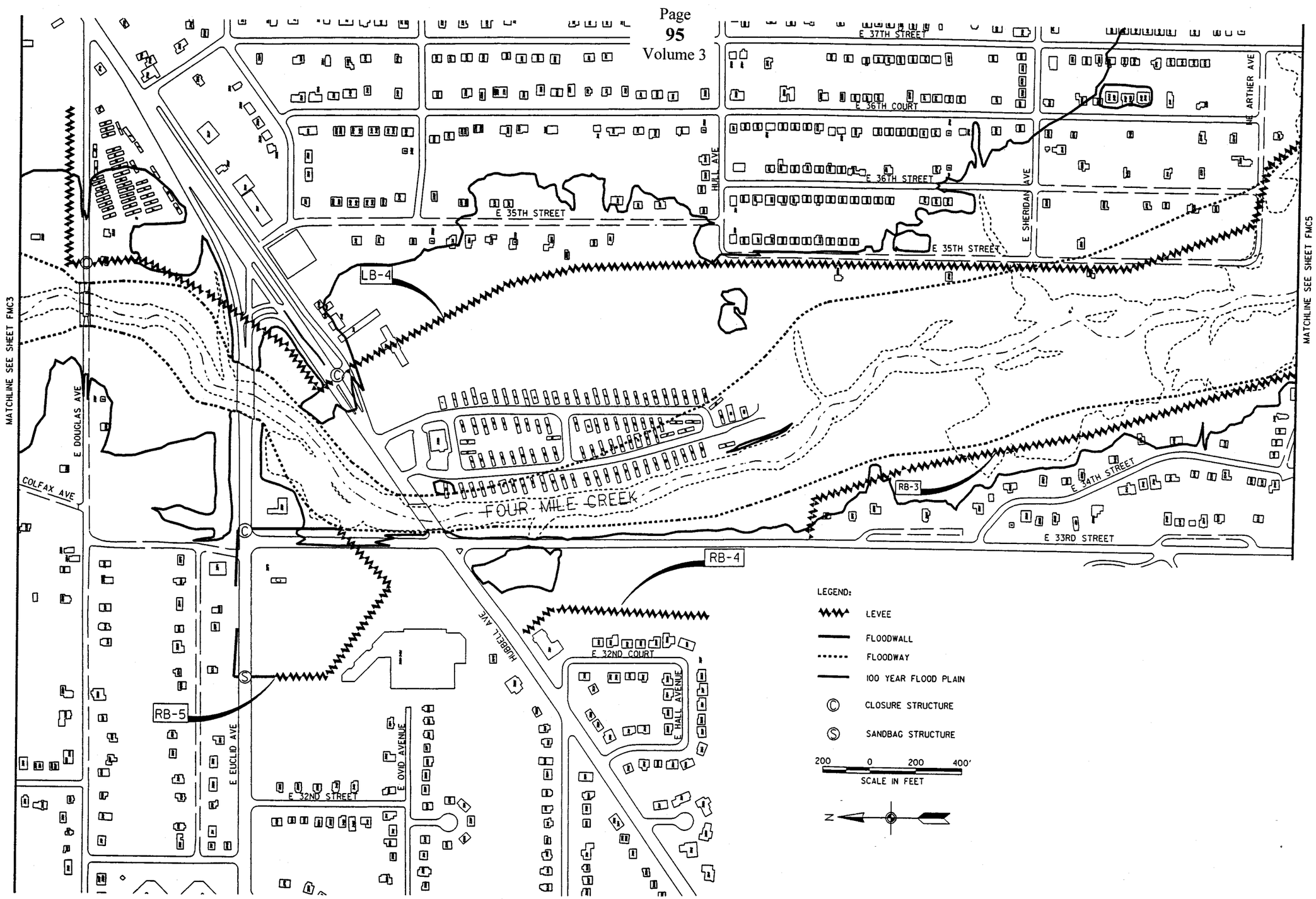

LEGEND:
LEVEE ALIGNMENT
FLOODWAY
100 YEAR FLOOD PLAIN
N
200 0 200 400'
SCALE IN FEET
E 38TH STREET
FOUR MILE CREEK
NE BROADWAY AVE
RB-6
E AURORA AVE
COLFAX AVE
E SHAWNEE AVE
NE 34TH STREET
MATCHLINE SEE SHEET FMC4
US Army Corps of Engineers Rock Island District
Symbol
Description
Date
Approved
Revisions
Designed By: RAL
Drawn By: DWP
Checked By: DRC
Reviewed By: DWH
Date: 28 MAY 02
Scale: AS SHOWN
Project Code: DM08
Solicitation Number: DACW25-XX-B-XXXX
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS
FOUR MILE CREEK,
DES MOINES, IOWA,
FEASIBILITY STUDY
ALTERNATIVE LEVEE
ALIGNMENTS 1
Sheet Reference Number:
FMC3
Sheet 3 of 11
PLATE F3
18-AUG-2004 10:26



US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

Designed By: RAL
Drawn By: DWP
Checked By: DRC
Reviewed By: DWH
Date: 28 MAY 02
Scale: AS SHOWN
Project Code: DM08
Solicitation Number: DACW25-XX-B-XXXX

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

FOUR MILE CREEK,
DES MOINES, IOWA,
FEASIBILITY STUDY

ALTERNATIVE LEVEE ALIGNMENTS 2

Sheet Reference Number:
FMC4
Sheet 4 of 11

PLATE F4

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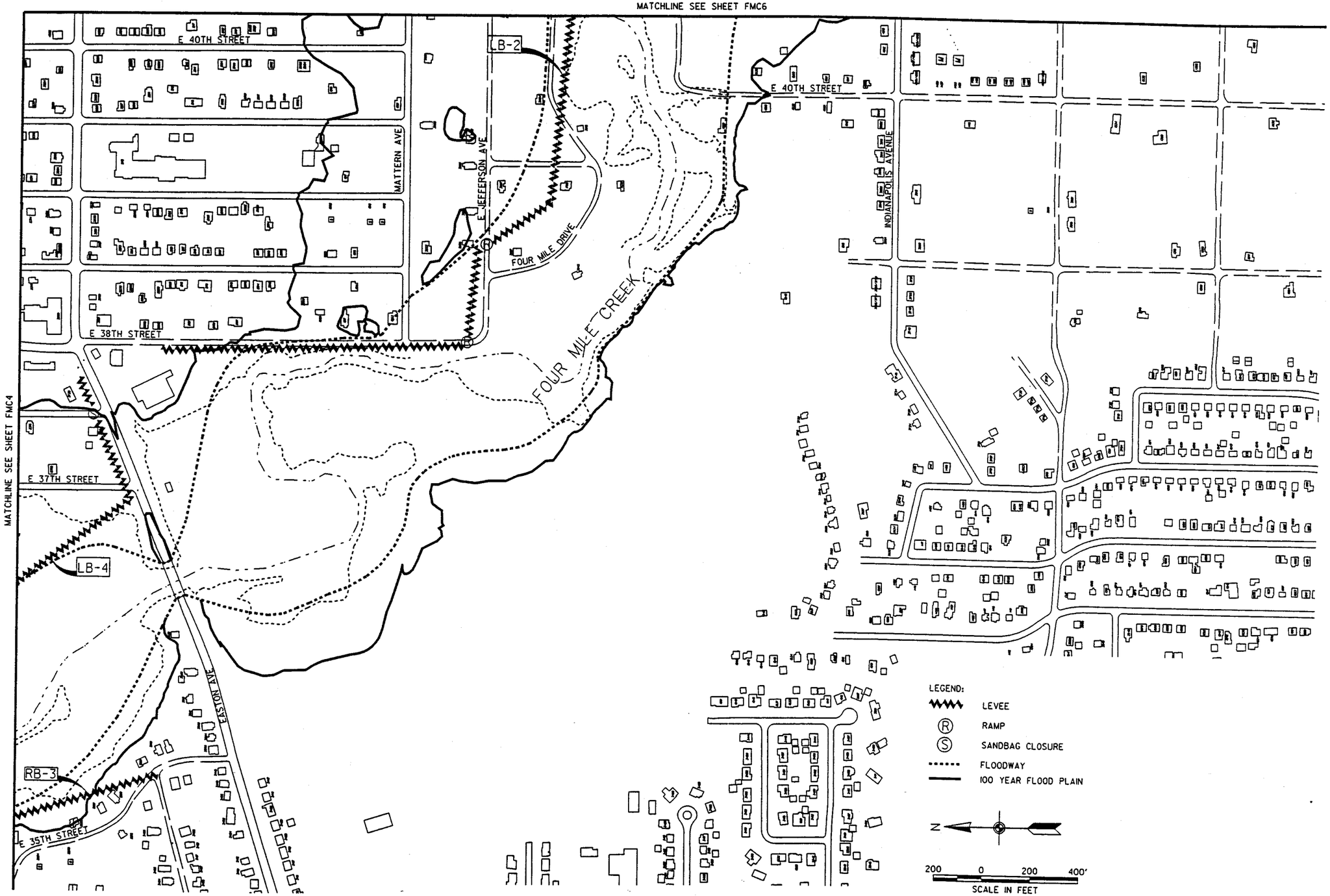


US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

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

Designed By: RAL	Date: 28 MAY 02		
Drawn By: DWP	Scale: AS SHOWN		
Checked By: DRC	Project Code: DM08		
Reviewed By: DWH	Solicitation Number: DACW25-XX-B-XXXX		

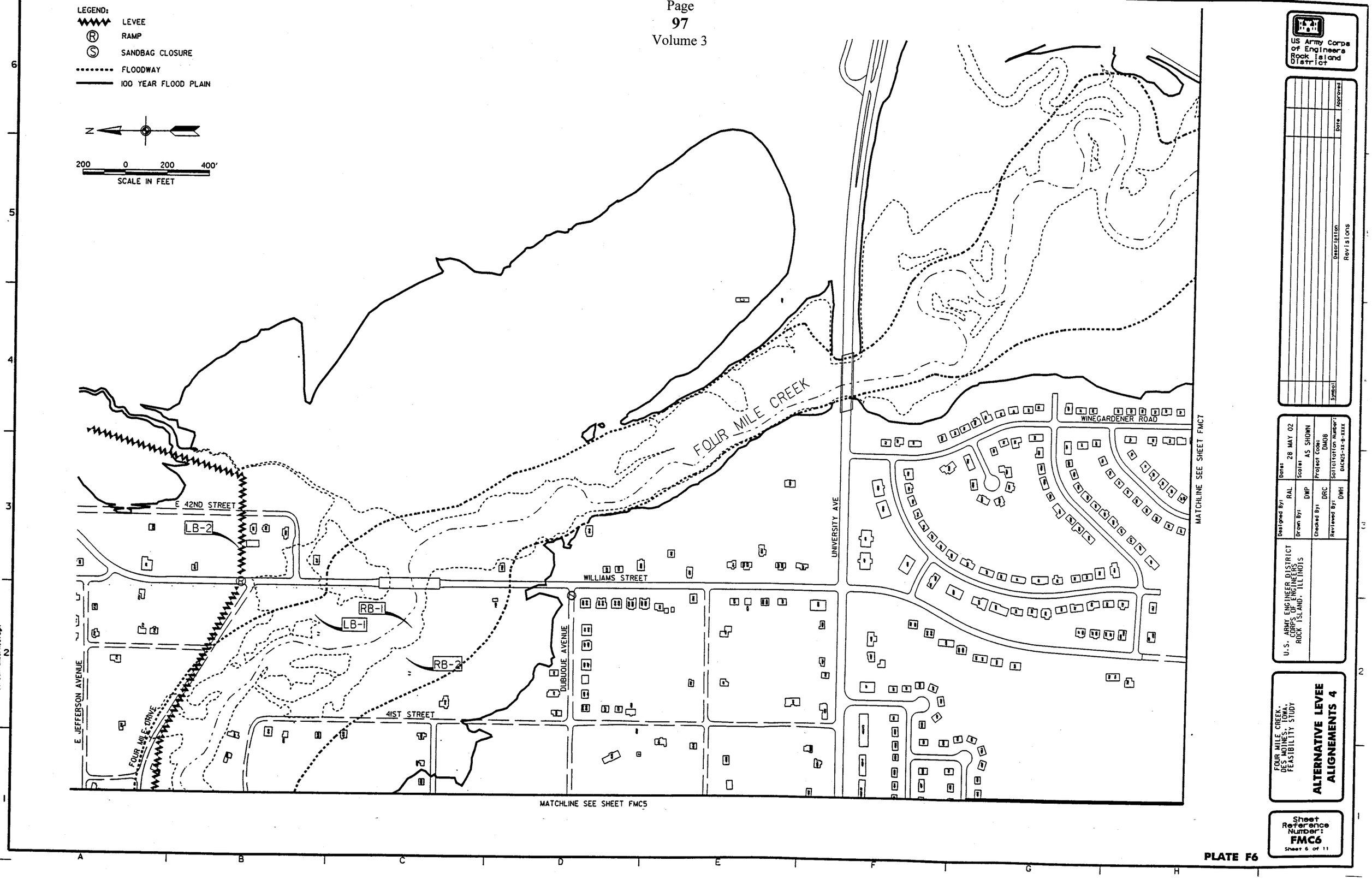
FOUR MILE CREEK,
DES MOINES, IOWA,
FEASIBILITY STUDY

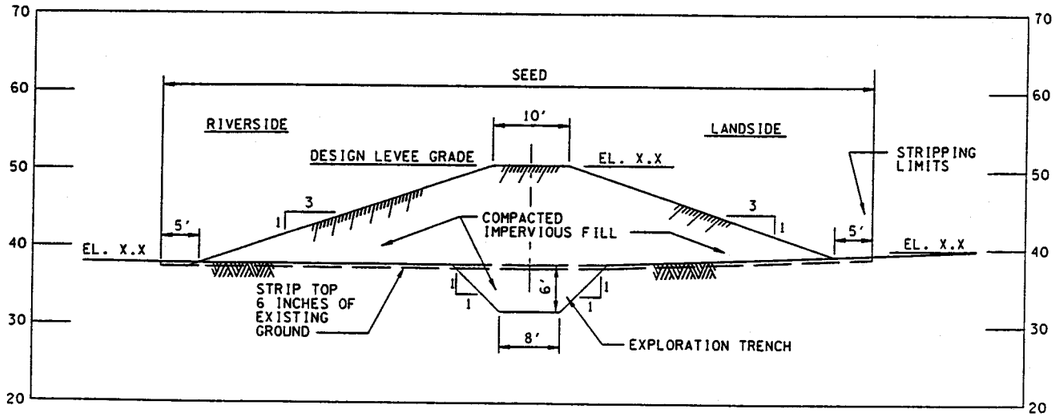
ALTERNATIVE LEVEE ALIGNMENTS 3

Sheet Reference Number:
FMC5
Sheet 5 of 11

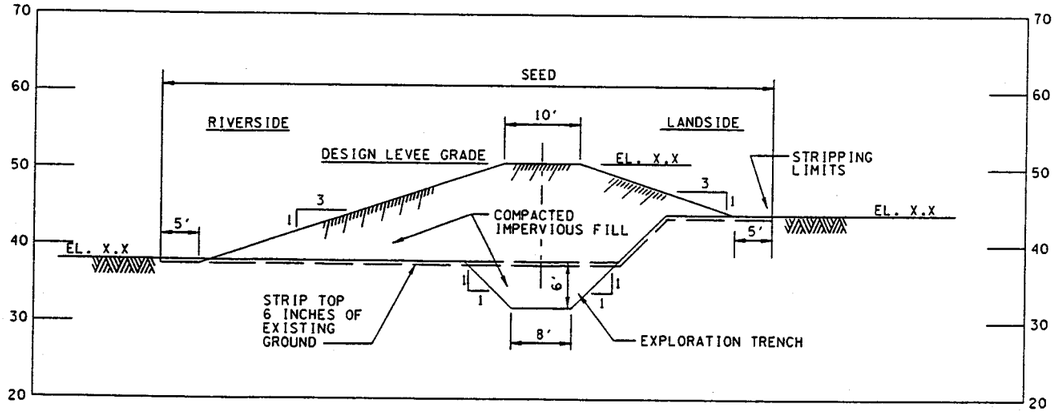
PLATE F5

18-AUG-2004 14:21


LEGEND:
LEVEE
RAMP
SANDBAG CLOSURE
FLOODWAY
100 YEAR FLOOD PLAIN
N
200 0 200 400'
SCALE IN FEET
FOUR MILE CREEK
E 42ND STREET
LB-2
RB-1
LB-1
RB-2
WILLIAMS STREET
41ST STREET
E JEFFERSON AVENUE
FOUR MILE DRIVE
DUBUQUE AVENUE
UNIVERSITY AVE
WINEGARDENER ROAD
MATCHLINE SEE SHEET FMC7
MATCHLINE SEE SHEET FMC5
US Army Corps of Engineers Rock Island District
Symbol
Description
Date
Approved
Revisions
Designed By: RAL
Drawn By: DWP
Checked By: DRC
Reviewed By: DWH
Date: 28 MAY 02
Scale: AS SHOWN
Project Code: DM08
Solicitation Number: DACW25-XX-B-XXXX
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS
FOUR MILE CREEK,
DES MOINES, IOWA,
FEASIBILITY STUDY
ALTERNATIVE LEVEE
ALIGNEMENTS 4
Sheet Reference Number:
FMC6
Sheet 6 of 11
18-AUG-2004 14:27
PLATE F6



SECTION A



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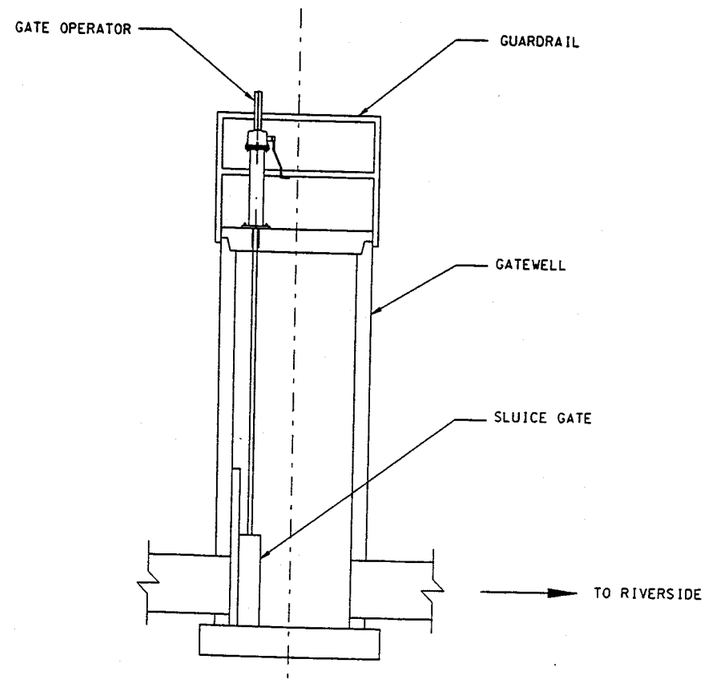

TYPICAL GATEWELL

NOT TO SCALE

10' 0 10'
SCALE IN FEET

US Army Corps of Engineers Rock Island District

Symbol	Description	Date	Approved
	Revisions		

Designed By: RAL	Date: 28 MAY 02		
Drawn By: DWP	Scale: AS SHOWN		
Checked By: DRC	Project Code: DMOB		
Reviewed By: DWH	Solicitation Number: DACW25-XX-R-XXXX		

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

FOUR MILE CREEK,
DES MOINES, IOWA.
FEASIBILITY STUDY

TYPICAL SECTIONS

Sheet Reference Number:
FMC7
Sheet 11 of 11

PLATE F7

18-AUG-2004 14:30
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DES MOINES AND RACCOON RIVERS, DES MOINES, IA FEASIBILITY STUDY

LEETOWN CREEKWAY

US Army Corps of Engineers
Rock Island District

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Symbol	Description	Date	Appr.
	Revisions		

Reviewed by:
Chief, Design Branch — Date
Chief, Hydraulics Branch — Date
Chief, Geotechnical Branch — Date

Recommended by:
Chief, Engineering Division — Date
Approved by:
Col., Corps of Engineers — Date

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

Designed By: MJA
Drawn By: MRC
Checked By: DRC
Reviewed By: RAL
Date: JUNE 2002
Scale: AS SHOWN
Project Code:
Solicitation Number:

DES MOINES AND RACCOON RIVERS
DES MOINES, IOWA
FLOOD DAMAGE REDUCTION
FEASIBILITY STUDY

COVER SHEET

Sheet Reference Number:
LT1
Sheet 1 of 10

PLATE L1

29-SEP-2004 09:35
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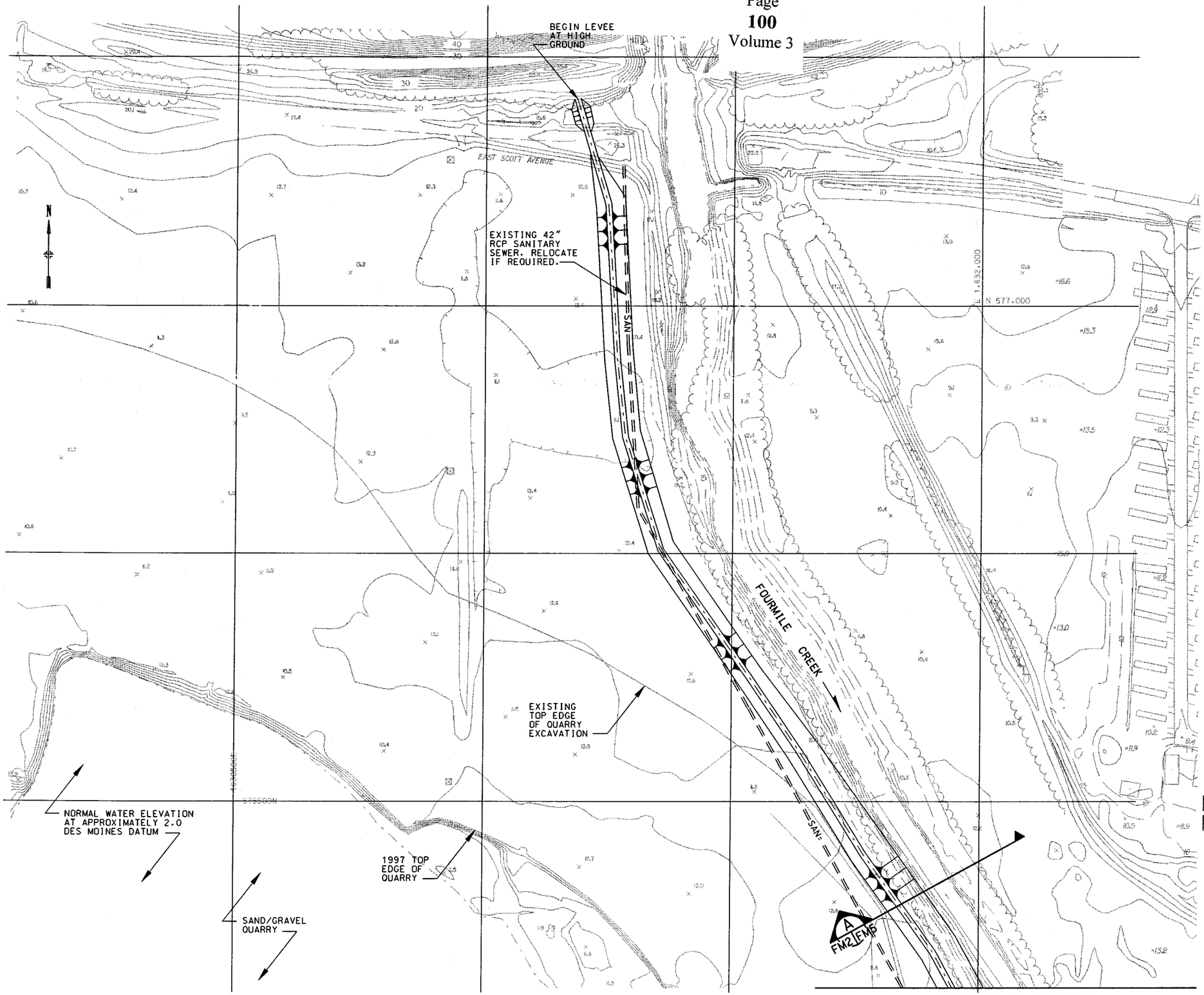

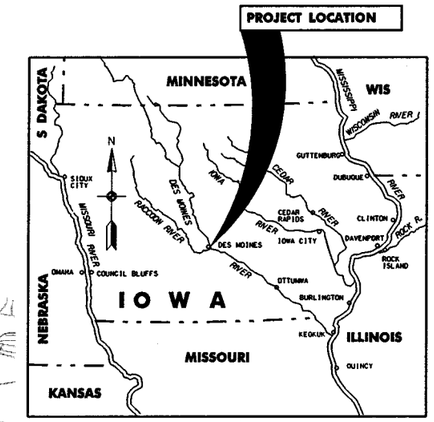

VICINITY MAP

25 0 25 50 75
SCALE IN MILES

NOT RECOMMENDED FOR CONSTRUCTION

NOTE:

THE AREA WEST OF THE LEVEE WOULD BE PROTECTED FROM HIGH FLOWS ON FOURMILE CREEK. HIGH FLOWS ON LEETOWN CREEKWAY WOULD BE DIVERTED INTO THE QUARRY.

100 0 100 200
SCALE IN FEET

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

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

Designed By: DRC	Date: 25 SEP 2002		
Drawn By: MRC	Scale: AS SHOWN		
Checked By: RAL	Project Code: XXXXX		
Reviewed By: PAK	Solicitation Number: DACW25-01-B-0001		

DES MOINES AND RACCOON RIVERS, DES MOINES, IOWA
FLOOD DAMAGE REDUCTION FEASIBILITY STUDY

LEETOWN CREEKWAY ALTERNATIVE

Sheet Reference Number: **LT2**
Sheet 2 of XX

PLATE L2

29-SEP-2004 09:37
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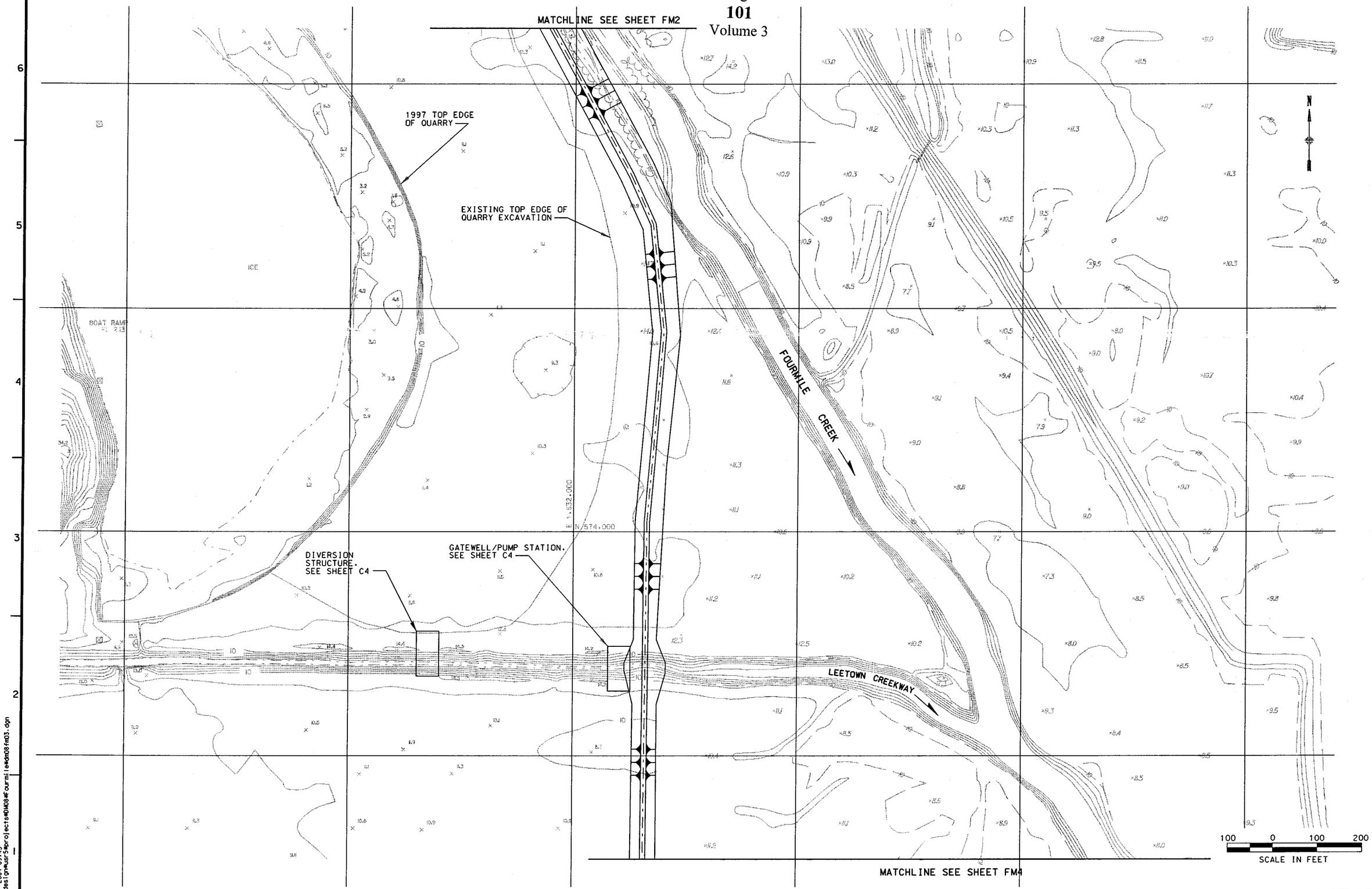

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

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

Designed By:	DRC	Date:	25 SEP 2002
Drawn By:	MRC	Scale:	AS SHOWN
Checked By:	RAL	Project Code:	XXXXX
Reviewed By:	PAK	Solicitation Number:	DACW25-01-B-0001

DES MOINES AND RACCOON RIVERS,
DES MOINES, IOWA
FLOOD DAMAGE REDUCTION
FEASIBILITY STUDY

LEETOWN CREEKWAY ALTERNATIVE

Sheet Reference Number:
LT3
Sheet 3 of XX

PLATE L3

29-SEP-2004 09:43
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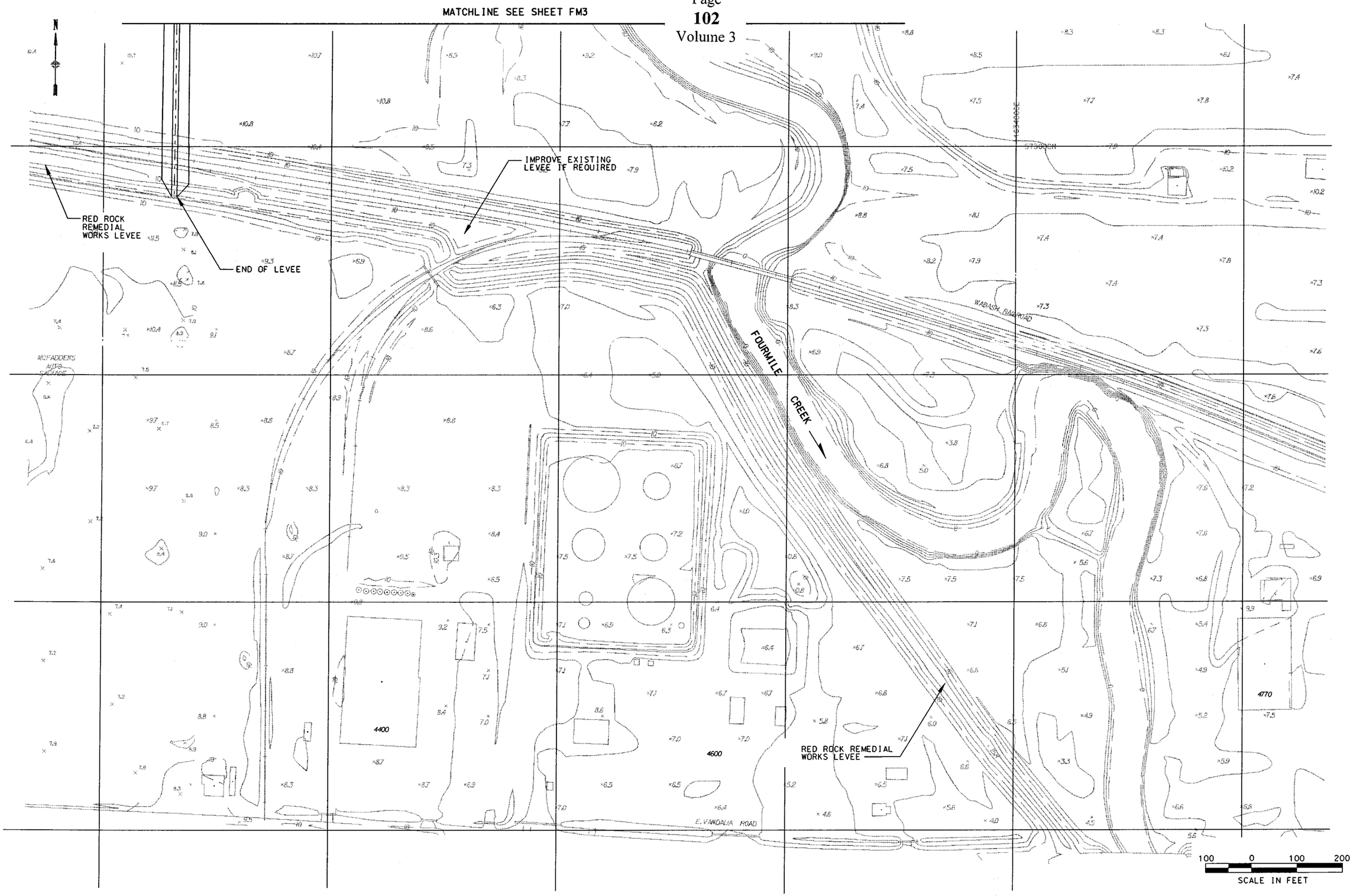

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved

Revisions

Designed By: DRC	Date: 25 SEP 2002		
Drawn By: MRC	Scale: AS SHOWN		
Checked By: RAL	Project Code: XXXXX		
Reviewed By: PAK	Solicitation Number: DACW25-01-B-0001		

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

DES MOINES AND RACCOON RIVERS,
DES MOINES, IOWA
FLOOD DAMAGE REDUCTION
FEASIBILITY STUDY

LEETOWN CREEKWAY ALTERNATIVE

Sheet Reference Number:
LT4
Sheet 4 of XX

PLATE L4

29-SEP-2004 09:46
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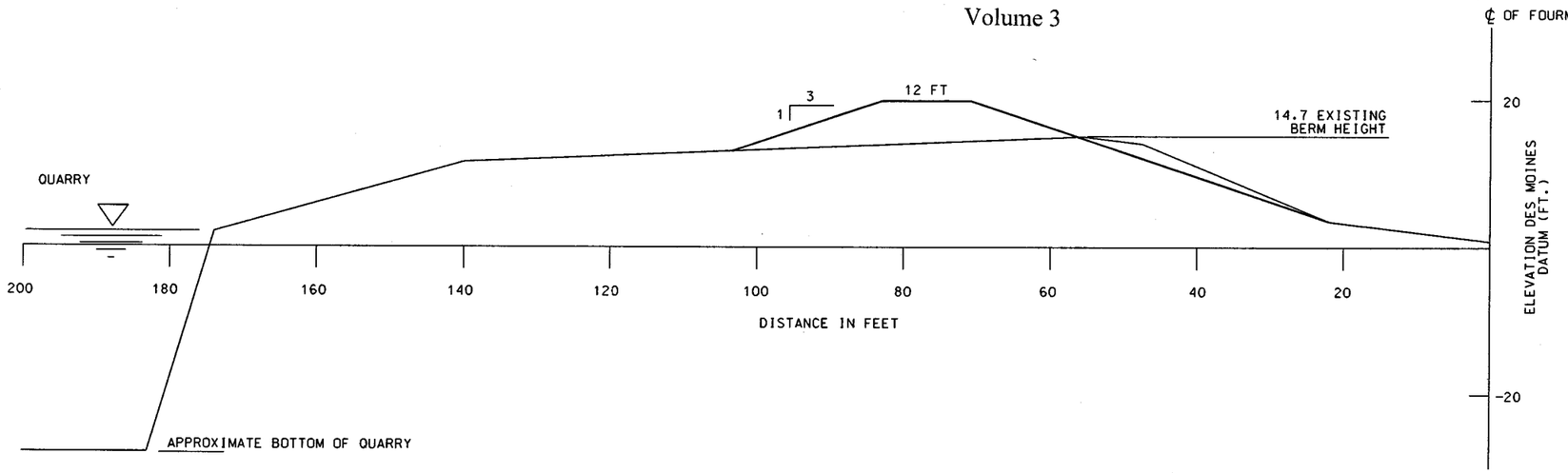
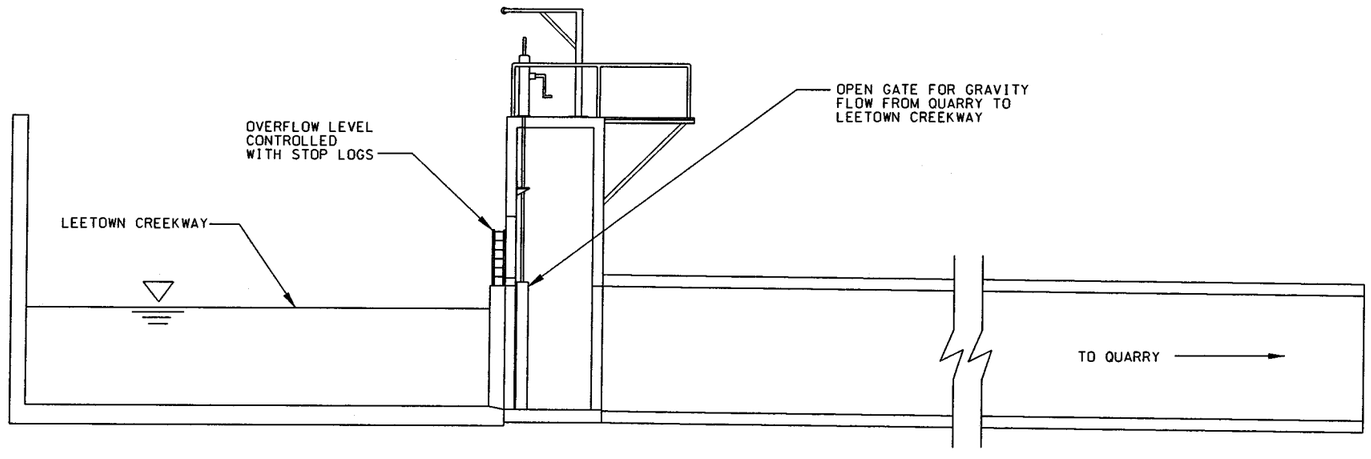


A
FM2 FM5
QUARRY AND FOURMILE CREEK



LEETOWN CREEKWAY DIVERSION STRUCTURE

NOT TO SCALE

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

Designed By: DRC		Date: 25 SEP 2002	
Drawn By: MRC		Scale: AS SHOWN	
Checked By: RAL		Project Code: XXXXX	
Reviewed By: PAK		Solicitation Number: DACW25-01-B-0001	

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

DES MOINES AND RACCOON RIVERS
DES MOINES, IOWA
FLOOD DAMAGE REDUCTION
FEASIBILITY STUDY

SECTIONS

Sheet Reference Number:
LT5
Sheet 6 of XX

PLATE L5

29-SEP-2004 09:49
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FLOOD DAMAGE REDUCTION FOR THE DES MOINES AND RACCOON RIVERS PROJECT

PHASE IIA HTRW ASSESSMENT

US Army Corps of Engineers
Rock Island District

THIS PROJECT WAS DESIGNED BY THE ROCK ISLAND DISTRICT OF THE U.S. ARMY CORPS 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 OFFICED BELOW INDICATE OFFICIAL RECOMMENDATION AND APPROVAL OF ALL DRAWINGS IN THIS SET AS INDICATED ON EACH INDIVIDUAL TITLE BLOCK.

Symbol	Description	Date	Appr.
	Revisions		

Reviewed by:
Chief, Design Branch — Date
Chief, Hydraulics Branch — Date
Chief, Geotechnical Branch — Date

Recommended by:
Chief, Engineering Division — Date
Approved by:
Col., Corps of Engineers — Date

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

Designed By: KNM
Drawn By: LLT
Checked By: ARM
Reviewed By: DJJ
Date: 17 OCT 2003
Scale: AS SHOWN
Project Code: DM08
Solicitation Number: N/A

FLOOD DAMAGE REDUCTION FOR THE DES MOINES AND RACCOON RIVERS PROJECT - PHASE IIA HTRW ASSESSMENT

COVER SHEET

Sheet Reference Number:
PLATE 1
Sheet 1 of 7

28-JUL-2004 15:00
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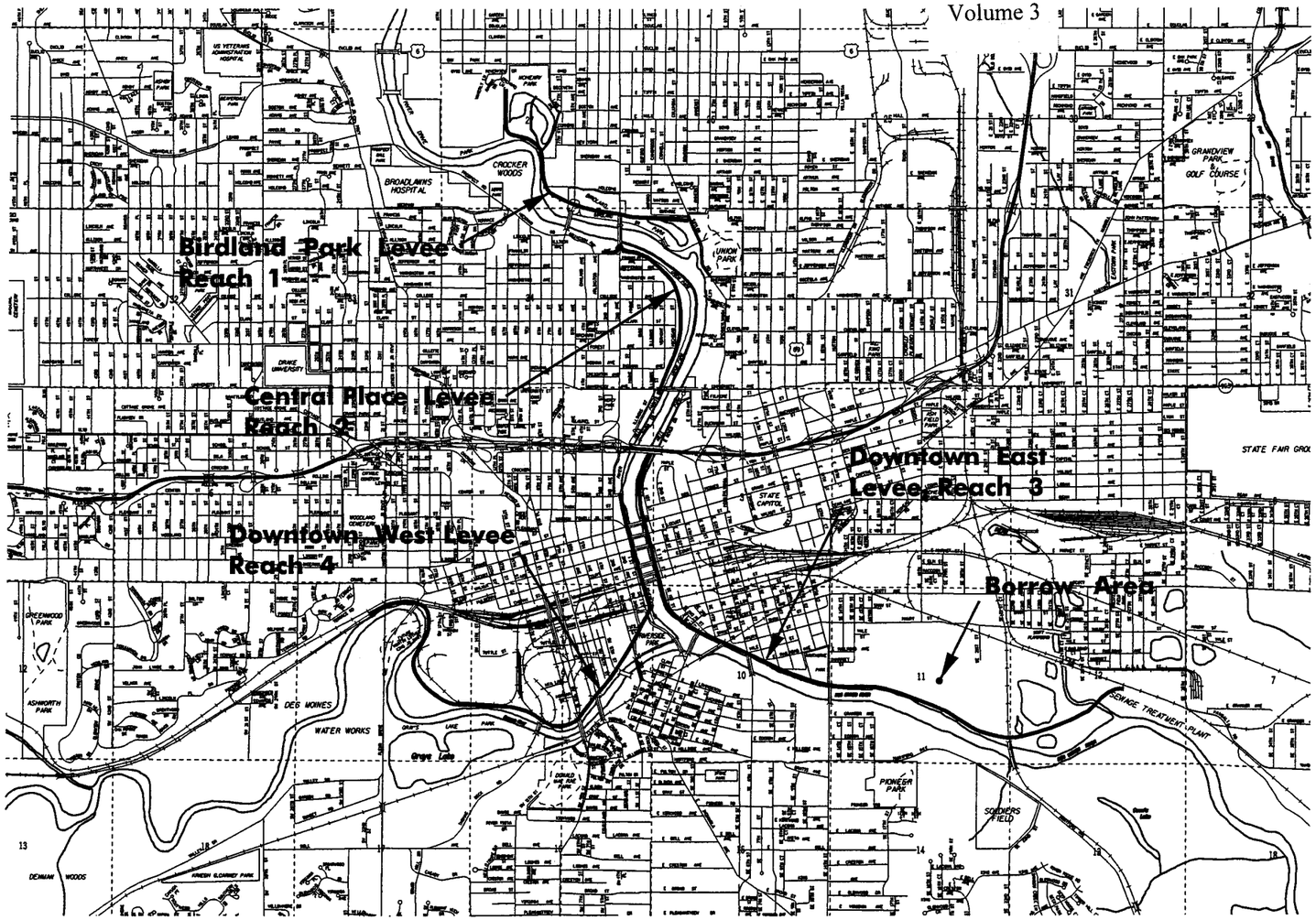

LOCATION PLAN

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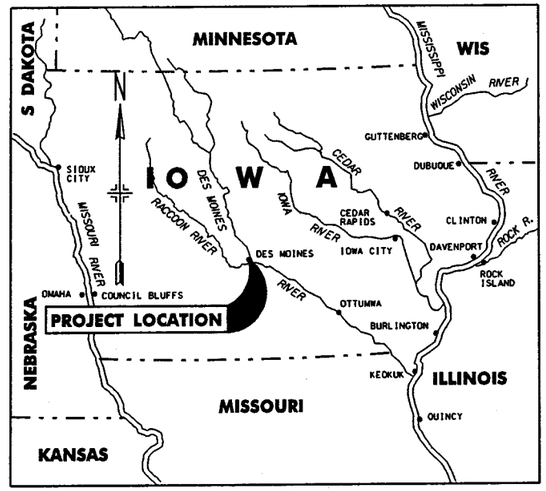
SCALE IN FEET



VICINITY MAP

25 0 25 50 75
SCALE IN MILES

INDEX

SHEET NO.	SHEET REF. NO.	TITLE OF DRAWING
1	PLATE 1	COVER SHEET
2	PLATE 2	LOCATION PLAN, VICINITY MAP, INDEX AND GENERAL NOTES
3	PLATE 3	BIRDLAND PARK SAMPLE PLAN
4	PLATE 4	CENTRAL PLACE SAMPLE PLAN
5	PLATE 5	DOWNTOWN EAST SAMPLE PLAN
6	PLATE 6	DOWNTOWN WEST SAMPLE PLAN
7	PLATE 7	BORROW AREA SAMPLE PLAN

GENERAL NOTES

1. UTILITIES SHALL BE LOCATED BY THE CONTRACTOR AND AVOIDED.
2. ALL SAMPLING SHALL OCCUR ON CITY OF DES MOINES PROPERTY.
3. SAMPLES SHALL BE OBTAINED NEAR THE INDICATED SAMPLE POINTS ON THE FOLLOWING DRAWINGS. NO SAMPLING THROUGH A HARD SURFACE IS EXPECTED. FOR AREAS INDICATED AT A ROAD CROSSING, THE SAMPLE SHALL BE OBTAINED EITHER UPSTREAM OR DOWNSTREAM OF THE ROAD (ONE LOCATION PER CROSSING) AT THE CLOSEST POROUS SURFACE.
4. FINAL SAMPLE LOCATIONS SHALL BE INDICATED ON THE DRAWINGS, AND GEO-REFERENCED.
5. ALL EQUIPMENT SHALL BE DECONTAMINATED BETWEEN SAMPLE LOCATIONS TO ENSURE CROSS CONTAMINATION DOES NOT OCCUR.
6. EACH SAMPLE LOCATION REQUIRES SURFACE AND SUBSURFACE SOIL SAMPLES AND GROUNDWATER SAMPLES. SEE SCOPE OF WORK FOR DESCRIPTION OF SAMPLE ACQUISITION REQUIREMENTS.
7. SURVEY DATUM: IOWA SOUTHEAST NAD 83, US FEET.

LEGEND

APPROXIMATE LEVEE LOCATION

US Army Corps of Engineers Rock Island District

Symbol	Description	Date	Approved
	Revisions		

Designed By: KNM
Drawn By: LLT
Checked By: ARM
Reviewed By: DJJ
Date: 17 OCT 2003
Scales: AS SHOWN
Project Code: DM08
Solicitation Number: N/A

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

FLOOD DAMAGE REDUCTION FOR THE DES MOINES AND RACCOON RIVERS PROJECT - PHASE IIA HTRW ASSESSMENT

LOCATION PLAN, VICINITY MAP, INDEX AND GENERAL NOTES

Sheet Reference Number:
PLATE 2
Sheet 2 of 7

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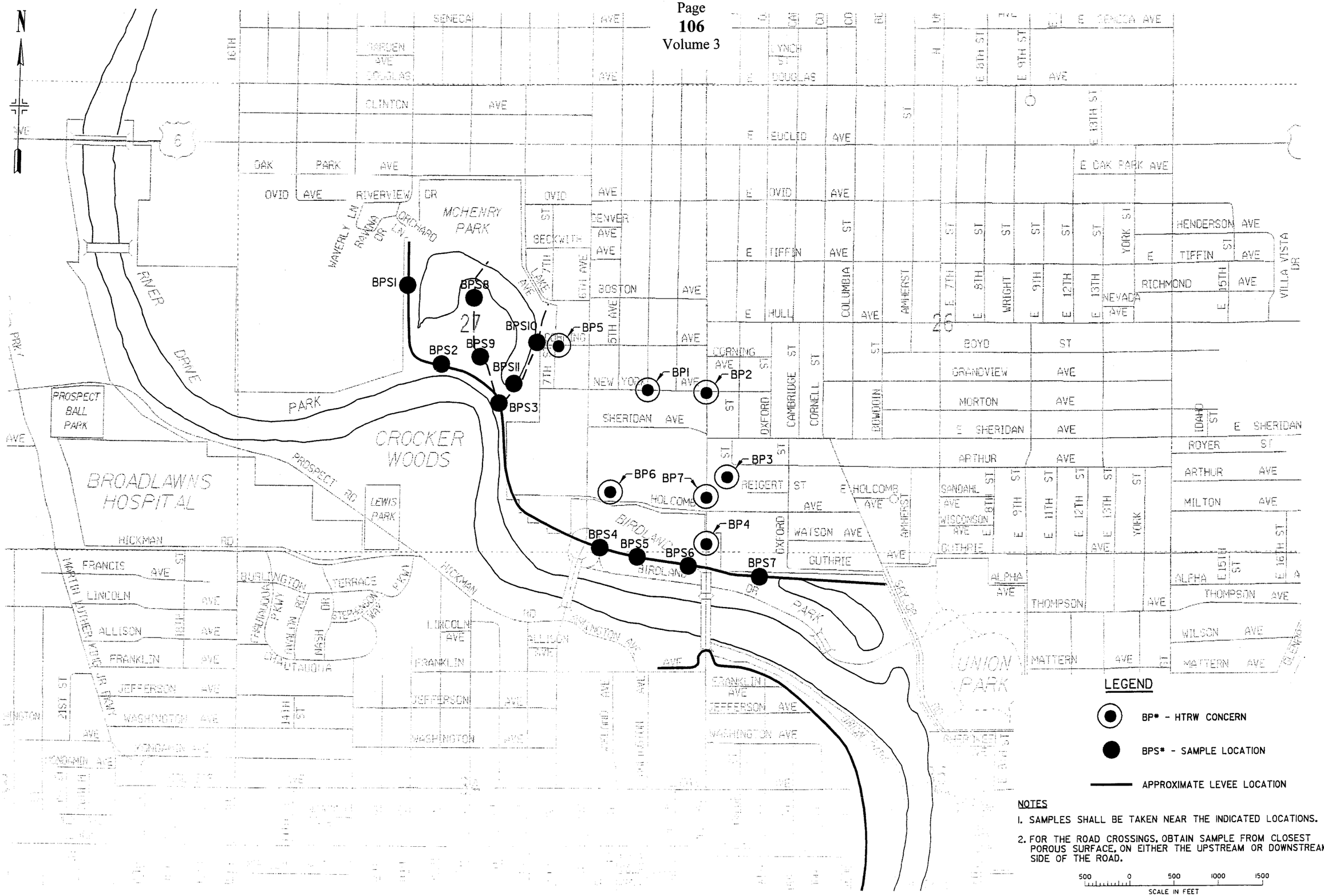

LEGEND

- BP* - HTRW CONCERN
- BPS* - SAMPLE LOCATION
- APPROXIMATE LEVEE LOCATION

NOTES

1. SAMPLES SHALL BE TAKEN NEAR THE INDICATED LOCATIONS.
2. FOR THE ROAD CROSSINGS, OBTAIN SAMPLE FROM CLOSEST POROUS SURFACE, ON EITHER THE UPSTREAM OR DOWNSTREAM SIDE OF THE ROAD.

SCALE IN FEET: 500 0 500 1000 1500

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
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Designed By: KNM
Drawn By: LLT
Checked By: ARM
Reviewed By: DJJ
Date: 7 JAN 2004
Scale: AS SHOWN
Project Code: DM08
Solicitation Number: N/A

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

FLOOD DAMAGE REDUCTION FOR THE DES MOINES AND RACCOON RIVERS
PROJECT - PHASE IIA HTRW
ASSESSMENT

BIRDLAND PARK SAMPLE PLAN

Sheet Reference Number:
PLATE 3
Sheet 3 of 7

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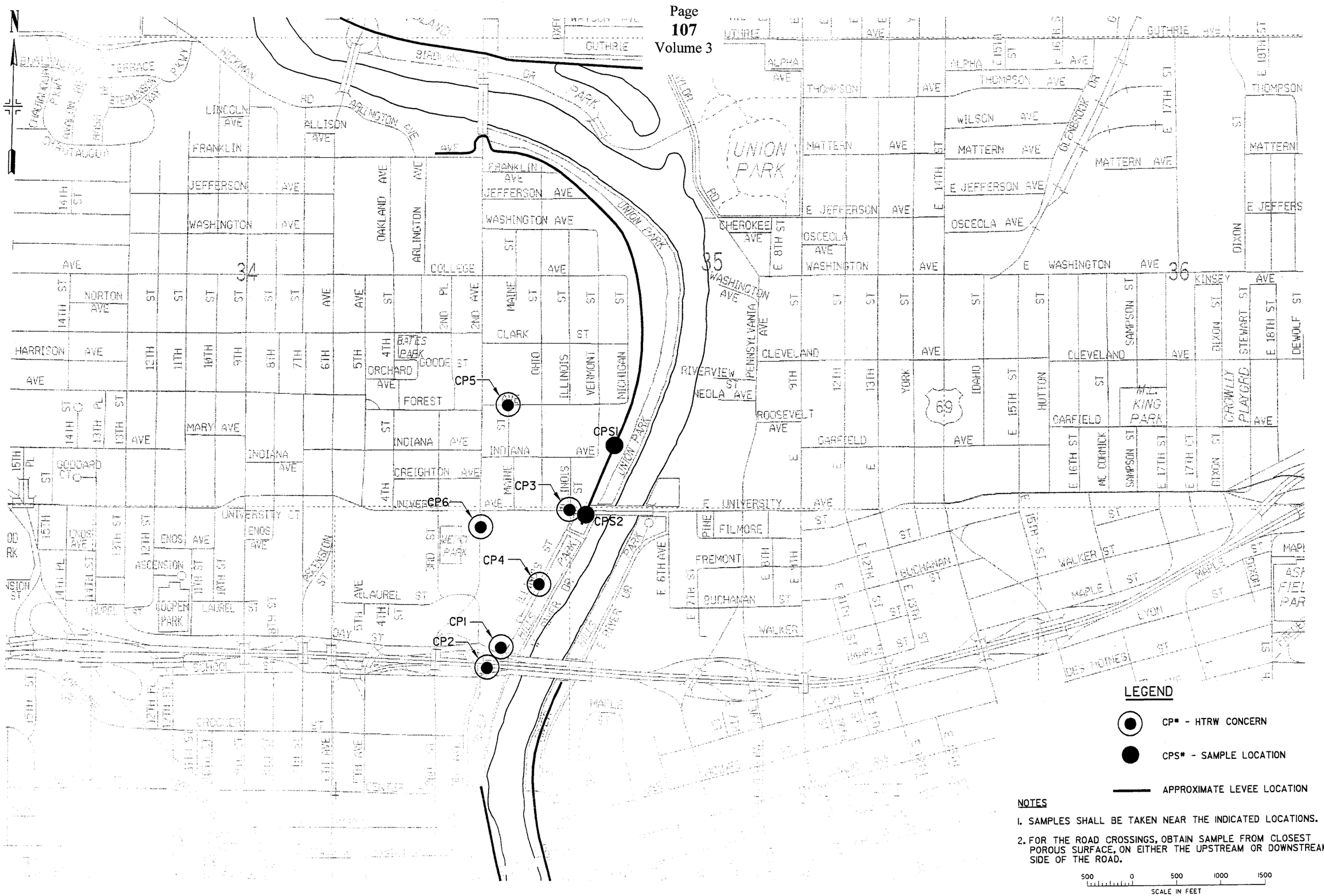

NOTES

1. SAMPLES SHALL BE TAKEN NEAR THE INDICATED LOCATIONS.
2. FOR THE ROAD CROSSINGS, OBTAIN SAMPLE FROM CLOSEST POROUS SURFACE, ON EITHER THE UPSTREAM OR DOWNSTREAM SIDE OF THE ROAD.

US Army Corps of Engineers Rock Island District

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Designed By: KNM
Drawn By: LLT
Checked By: ARM
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Date: 17 OCT 2003
Scale: AS SHOWN
Project Code: DM08
Solicitation Number: N/A

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

FLOOD DAMAGE REDUCTION FOR THE DES MOINES AND RACCOON RIVERS PROJECT - PHASE IIA HTRW ASSESSMENT

CENTRAL PLACE SAMPLE PLAN

Sheet Reference Number:
PLATE 4
Sheet 4 of 7

28-APR-2004 14:25

LEGEND

- DE* - HTRW CONCERN
- DES* - SAMPLE LOCATION
- APPROXIMATE LEVEE LOCATION

NOTES

1. SAMPLES SHALL BE TAKEN NEAR THE INDICATED LOCATIONS.
2. FOR THE ROAD CROSSINGS, OBTAIN SAMPLE FROM CLOSEST POROUS SURFACE, ON EITHER THE UPSTREAM OR DOWNSTREAM SIDE OF THE ROAD.

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SCALE IN FEET

US Army Corps of Engineers
Rock Island District

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

FLOOD DAMAGE REDUCTION FOR THE DES MOINES AND RACCOON RIVERS PROJECT - PHASE IIA HTRW ASSESSMENT

DOWNTOWN EAST SAMPLE PLAN

Sheet Reference Number:
PLATE 5
Sheet 5 of 7

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DW1
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DICO - DES MOINES TCE SUPERFUND SITE
DW12
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DWS1
DW15
DW11
DW10
DW16
DW8
DWS2
DWS3
DW9
DWS4
DWS5
DW14
DWS7
DWS6
RIVER POINT WEST AREA PHASE II ESA
Raccoon River
Grays Lake
DES MOINES RIVER
STATE CAPITOL
RIVERSIDE PARK
REDHEAD PARK
WATSON POWELL JR. WAY
E LOCUST
E WALNUT
E VINE ST
E MARKET ST
E ELM ST
RACCOON
SCOTT AVE
MAURY ST
SHAW ST
VALE ST
E RAILROAD AVE
HAWTHORNE PARK
HARRIET ST
E GRANGER AVE
E EDISON AVE
HILLSIDE AVE
MAPLE ST
CLAY ST
LIVINGSTON AVE
JACKSON AVE
WALKER
LUCHAMAN ST
DES MOINES
LYON ST
GRAND AVE
DEAN AVE
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ALAEM PARK
PARK
CENTER ST
PLEASANT ST
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DAY ST
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LEGEND

DW* - HTRW CONCERN

DWS* - SAMPLE LOCATION

APPROXIMATE LEVEE LOCATION

NOTES

1. SAMPLES SHALL BE TAKEN NEAR THE INDICATED LOCATIONS.
2. FOR THE ROAD CROSSINGS, OBTAIN SAMPLE FROM CLOSEST POROUS SURFACE, ON EITHER THE UPSTREAM OR DOWNSTREAM SIDE OF THE ROAD.

600 0 600 1200 1800
SCALE IN FEET

US Army Corps of Engineers Rock Island District

Revisions			
Symbol	Description	Date	Approved

Designed By: KNM	Dates: 17 OCT 2003		
Drawn By: LLT	Scales: AS SHOWN		
Checked By: ARM	Project Code: DM08		
Reviewed By: DJJ	Solicitation Number: N/A		

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

FLOOD DAMAGE REDUCTION FOR THE DES MOINES AND RACCOON RIVERS PROJECT PHASE IIA HTRW ASSESSMENT

DOWNTOWN WEST SAMPLE PLAN

Sheet Reference Number:
PLATE 6
Sheet 6 of 7

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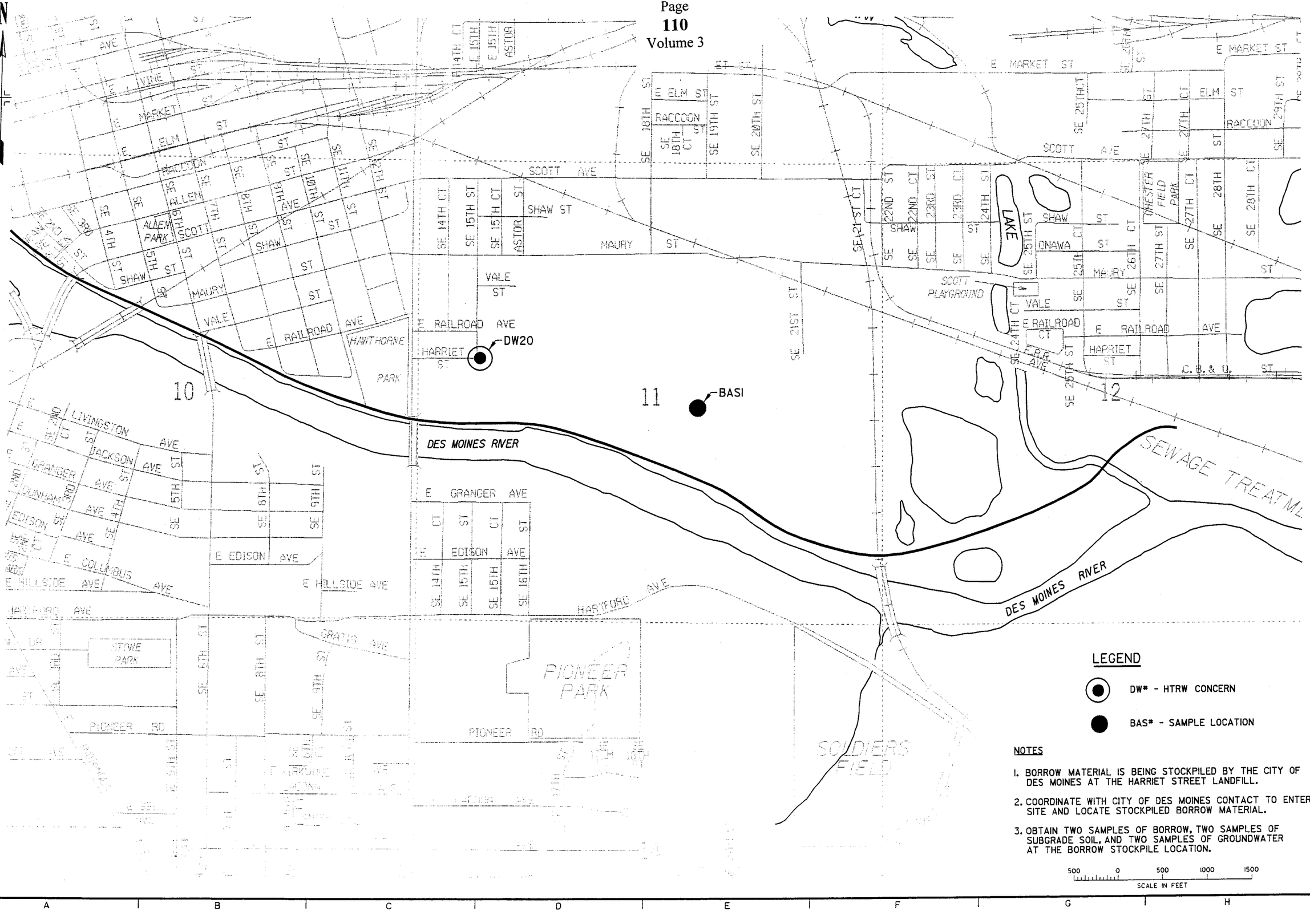

NOTES

1. BORROW MATERIAL IS BEING STOCKPILED BY THE CITY OF DES MOINES AT THE HARRIET STREET LANDFILL.
2. COORDINATE WITH CITY OF DES MOINES CONTACT TO ENTER SITE AND LOCATE STOCKPILED BORROW MATERIAL.
3. OBTAIN TWO SAMPLES OF BORROW, TWO SAMPLES OF SUBGRADE SOIL, AND TWO SAMPLES OF GROUNDWATER AT THE BORROW STOCKPILE LOCATION.

US Army Corps of Engineers
Rock Island District

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Revisions

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CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

FLOOD DAMAGE REDUCTION FOR THE DES MOINES AND RACCOON RIVERS PROJECT - PHASE IIA HTRW ASSESSMENT

BORROW AREA SAMPLE PLAN

Sheet Reference Number:
PLATE 7
Sheet 7 of 7

28-APR-2004 14:28

POT Sta 182+78.88
PC Sta 183+90.14
PT Sta 186+80.59
PI Sta 188+04.82
PI Sta 188+45.14
PI Sta 188+63.33
PT Sta 186+08.02
RIVERVIEW LAGOON
ABANDONED RAILROAD
185
190
195
TEMPORARY STAGING AREA
APPROXIMATELY 2 ACRES
PROPOSED
COE BOUNDARY
6.56 ACRES
PRC Sta 196+48.74
MATCHLINE A
500 YEAR
LEVEE FOOTPRINT
PC Sta 194+26.99
PROPOSED
COE BOUNDARY
PI Sta 195+50.82
NOTE:
ALL NON-SHADED PROPERTY INSIDE PROPOSED
COE BOUNDARY IS CITY RIGHT-OF-WAY.

PI Sta 197+18.52
500 YEAR
LEVEE FOOTPRINT
PRC Sta 199+59.64
PI Sta 200+04.32
200
EDGE OF PAVEMENT
0.08 ACRES
DES MOINES
COLD STORAGE CO.
PI Sta 204+07.08
205
DES MOINES INDEPENDENT
SCHOOL DISTRICT
0.07 ACRES
DES MOINES INDEPENDENT
SCHOOL DISTRICT
210
0.33 ACRES
PCT Sta 210+07.52
PROPOSED
COE BOUNDARY
5.98 ACRES
PT Sta 206+90.50
PI Sta 198+32.08
PI Sta 200+35.30
MATCHLINE A
MATCHLINE FOR CONTINUATION SEE SHEET C19

LEGEND
ACQUISITION REQUIREMENTS

50' 25' 0 50'
SCALE: 1''= 50'-0"

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

Designed By: KLA
Drawn By: SRJ
Checked By:
Reviewed By:
Date:
Scale: 1"=50'
Project Code: XXXXX
Solicitation Number: DACW25-XX-B-XXXX

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

Stanley Consultants INC.

DES MOINES RIVER, IOWA
CITY OF DES MOINES
BIRDLAND LEVEE IMPROVEMENTS

EXHIBIT A
500 YEAR DESIGN ACQUISITION REQUIREMENTS

Sheet Reference Number:
C18
Sheet of 19

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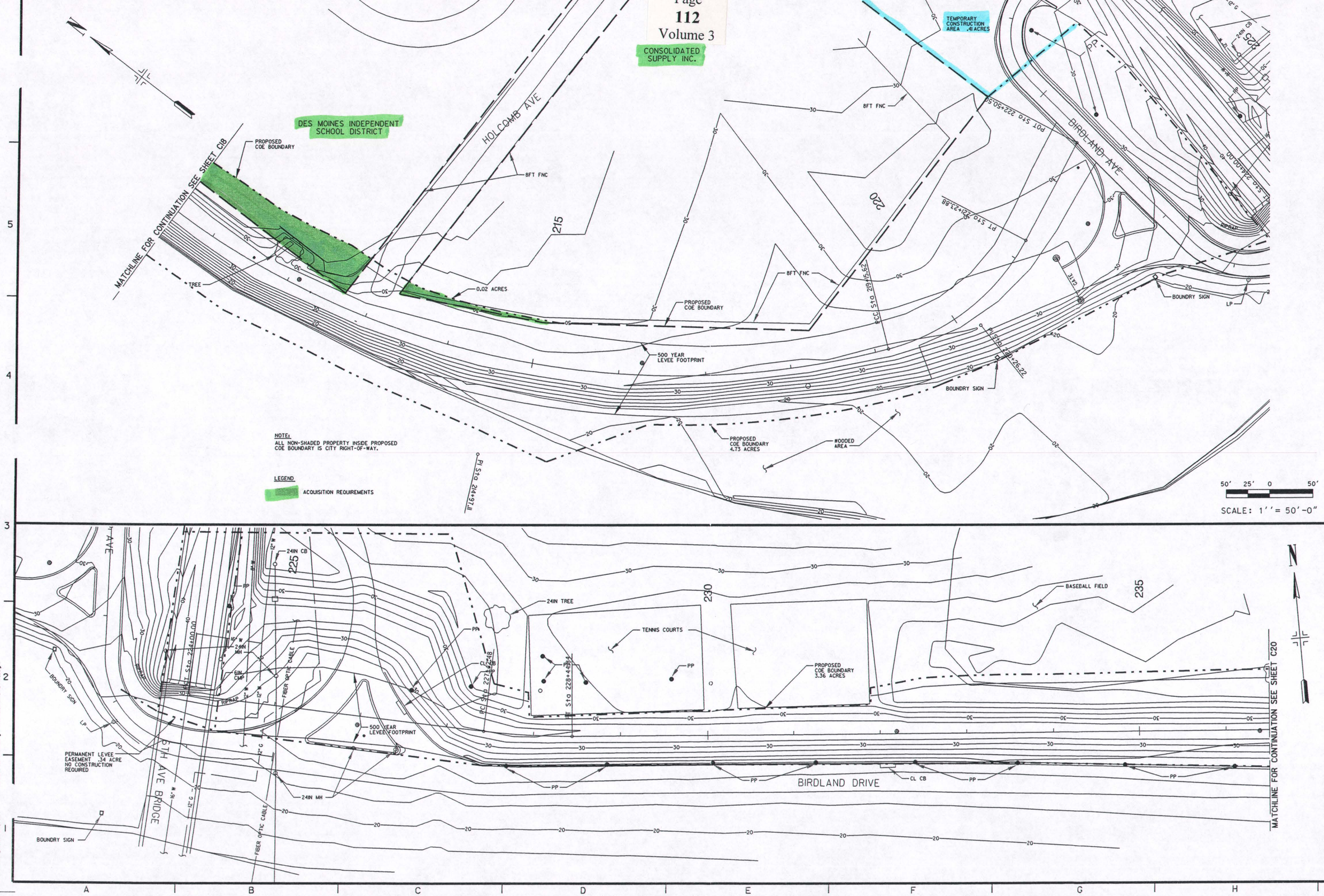

US Army Corps of Engineers
Rock Island District

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Designed By: KLA
Drawn By: SRJ
Checked By:
Reviewed By:
Date:
Scale: 1"=50'
Project Code: XXXXX
Solicitation Number: DACW25-XX-B-XXXX

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

Stanley Consultants INC.

DES MOINES RIVER, IOWA
CITY OF DES MOINES
BIRDLAND LEVEE IMPROVEMENTS

EXHIBIT A
500 YEAR DESIGN ACQUISITION REQUIREMENTS

Sheet Reference Number: C19
Sheet of 19

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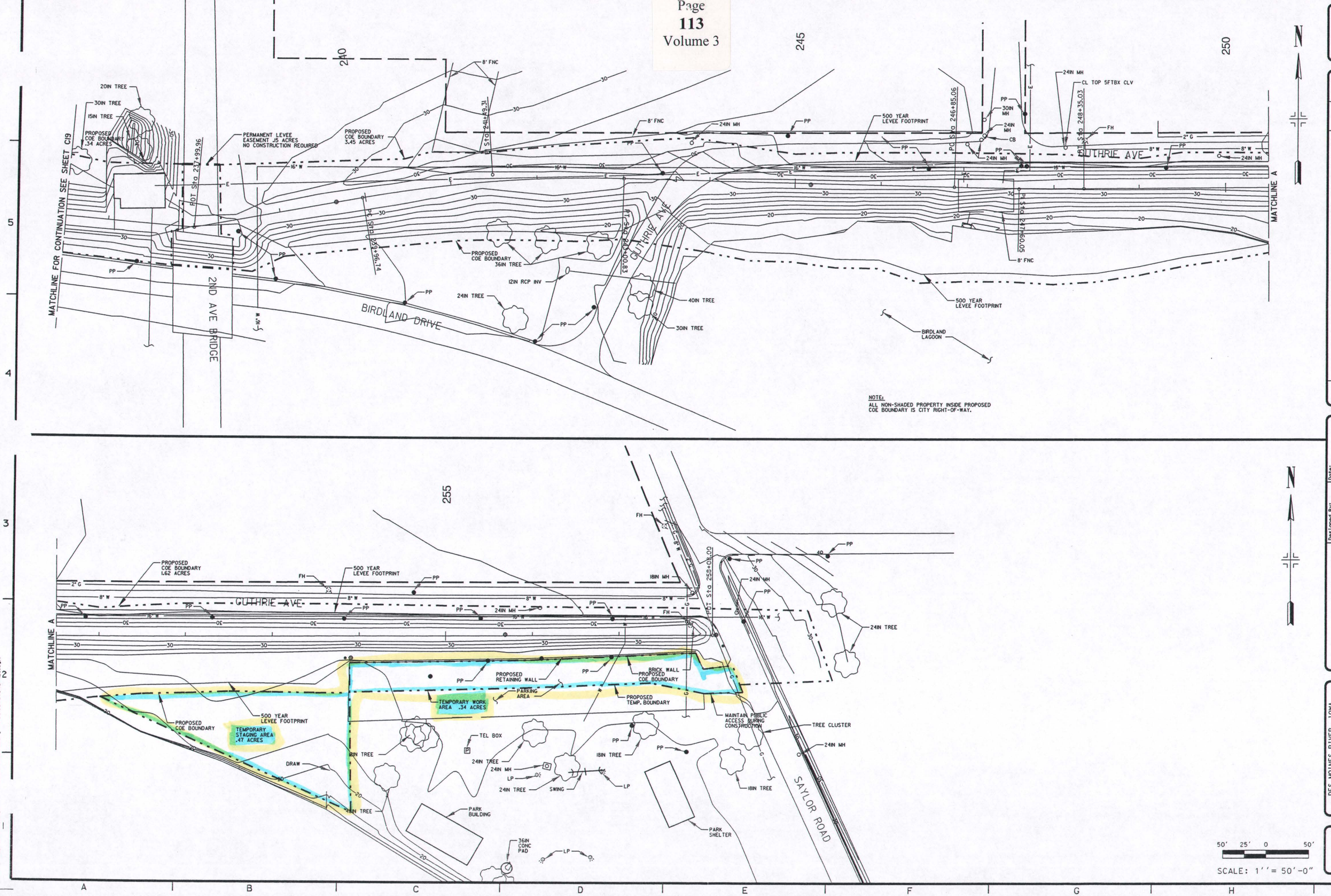

NOTE:
ALL NON-SHADED PROPERTY INSIDE PROPOSED COE BOUNDARY IS CITY RIGHT-OF-WAY.

US Army Corps of Engineers
Rock Island District

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	Revisions		

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

Stanley Consultants INC.

Designed By: KLA
Drawn By: SRJ
Checked By:
Reviewed By:
Date:
Scale: 1"=50'
Project Code: XXXXX
Solicitation Number: DACW25-XX-B-XXXX

DES MOINES RIVER, IOWA
CITY OF DES MOINES
BIRDLAND LEVEE IMPROVEMENTS

EXHIBIT A
500 YEAR DESIGN ACQUISITION REQUIREMENTS

Sheet Reference Number: C20
Sheet of 19

21-APR-2004 14:25
\\mvrdesign\usr5\proj\...\Birdland\500 yr realestate\C-420.dgn

EXHIBIT B

BIRDLAND PARK LEVEE SYSTEM
DES MOINES FLOOD STUDY
REAL ESTATE REQUIRMENTS
BORROW AREA
4/21/04

1671637;640073
1672216;640068
0.029 acres
1673290;640057
1672340;640067
1672199;640033
1671738;640014
0.565 acres
1672283;639868
1673303;639786
16.550 acres
1673300;639444
1672523;639381
1673259;639354
1672809;639202
1673141;639220
0.140 acres
0.092 acres

500 0 500 Feet

Exhibit C

BIRDLAND PARK LEVEE SYSTEM
DES MOINES FLOOD STUDY
REAL ESTATE REQUIREMENTS
MITIGATION AREA
4/21/04

N

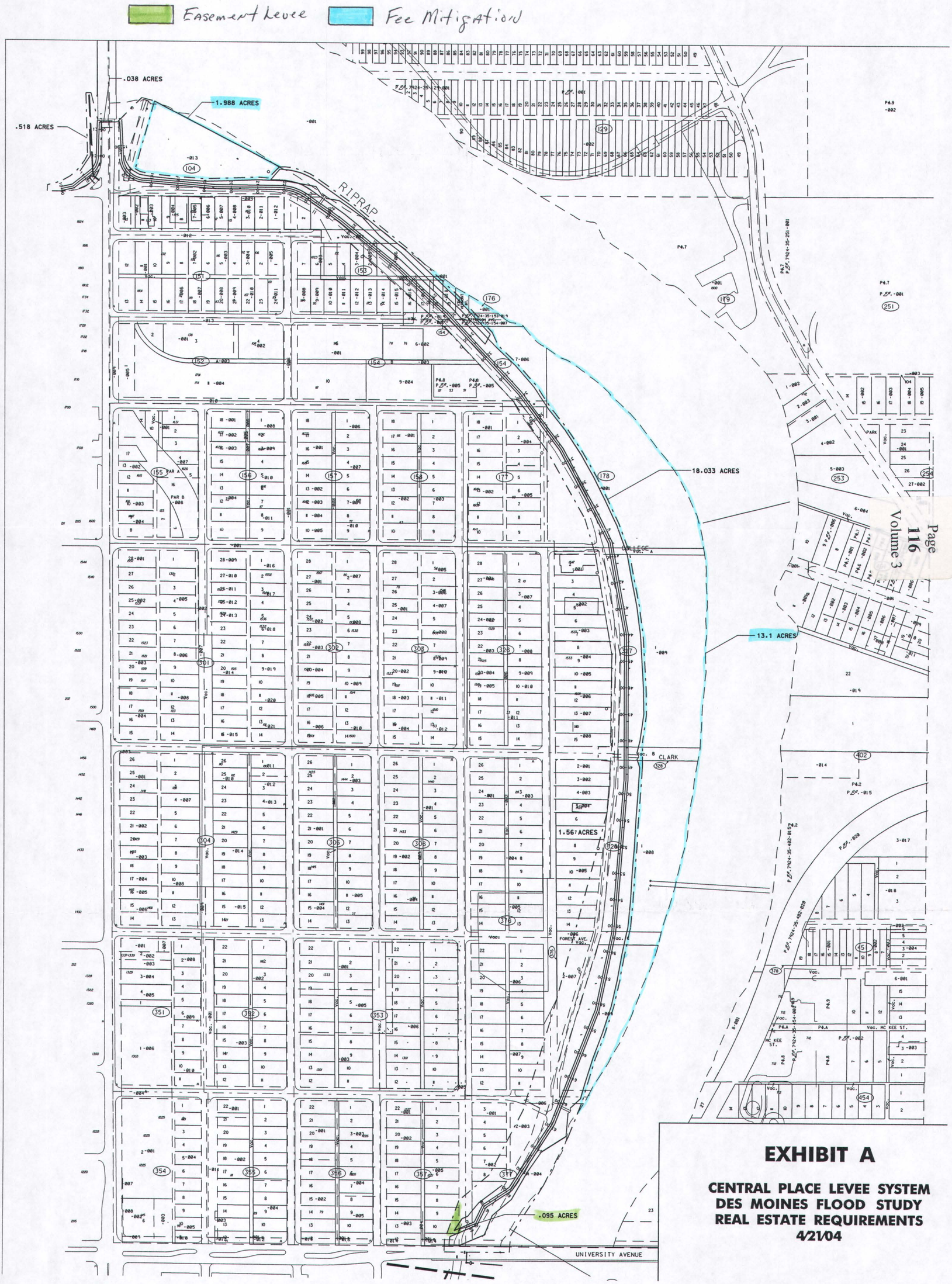
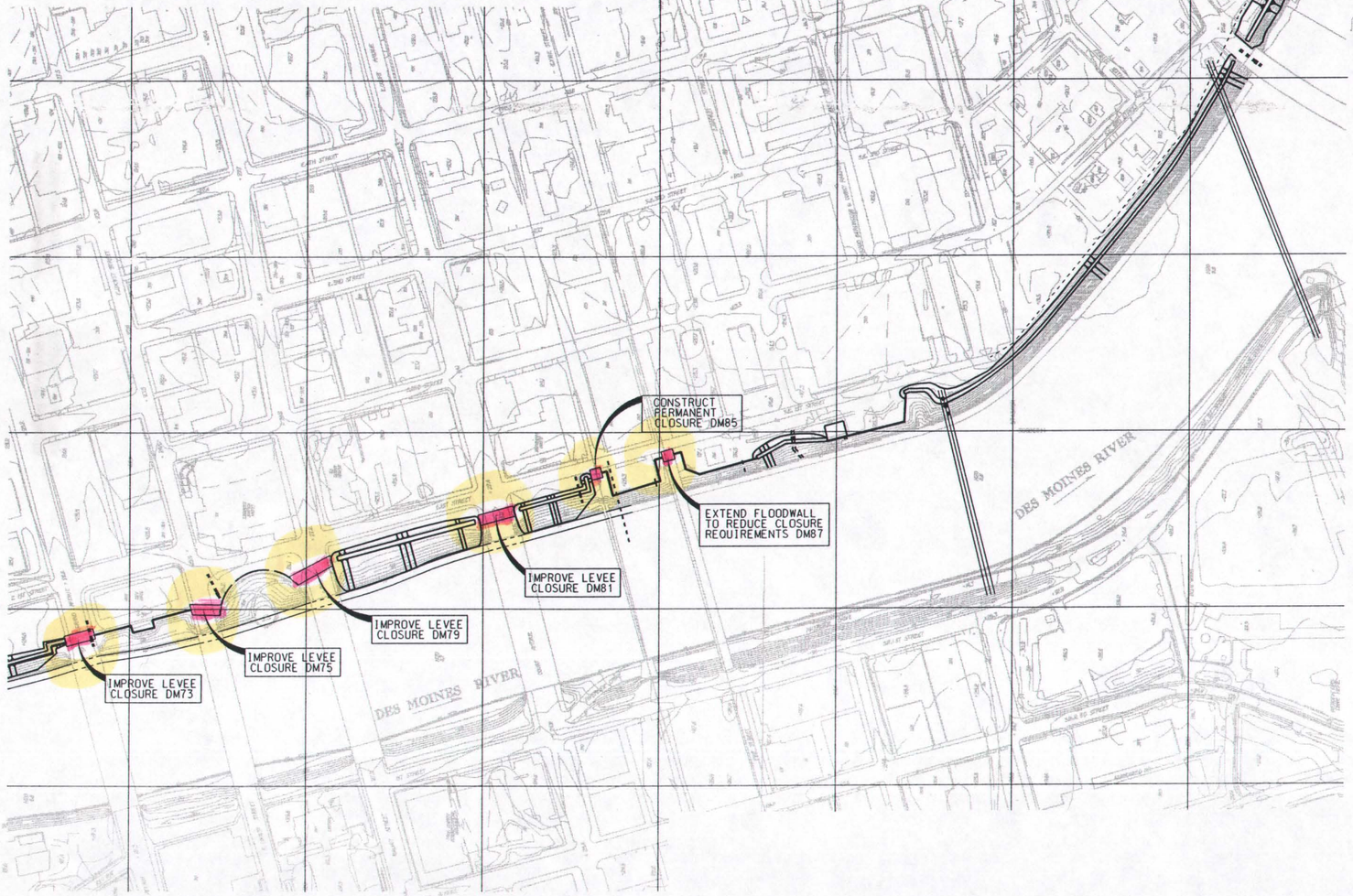
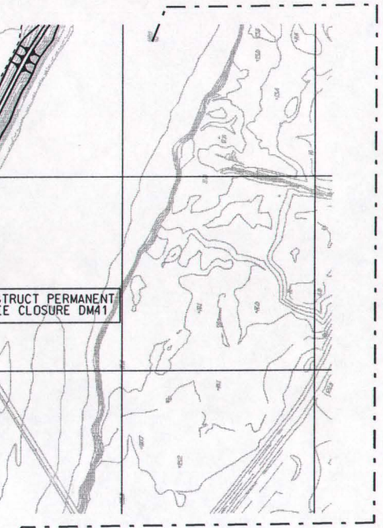
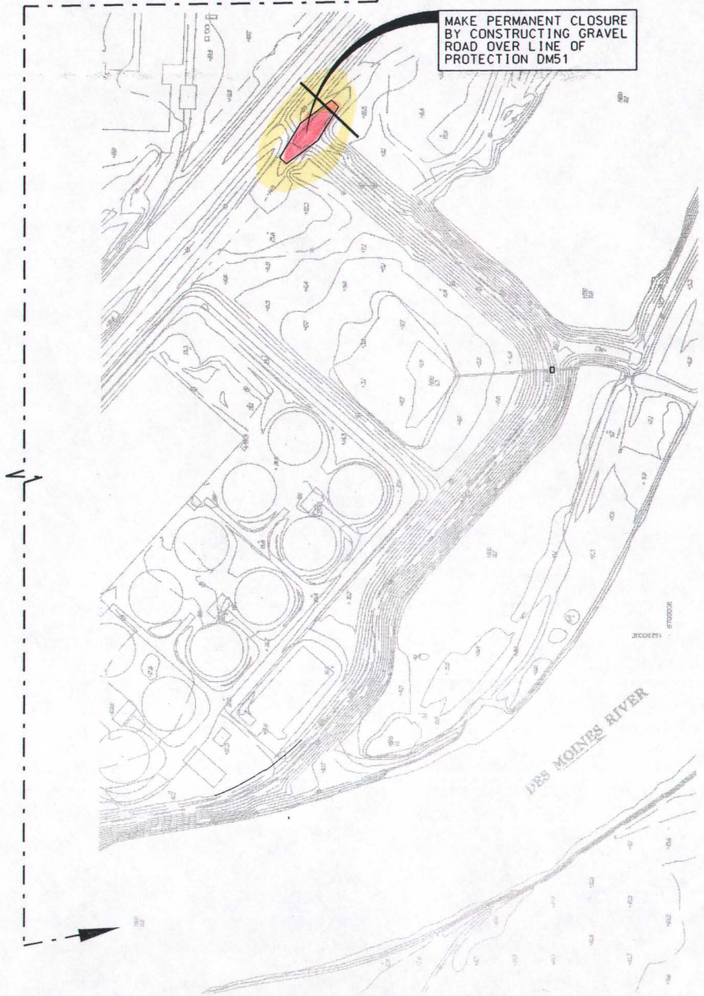

Easement Levee
Fee Mitigation
.038 ACRES
1.988 ACRES
.518 ACRES
RIPRAP
18.033 ACRES
13.1 ACRES
1.56 ACRES
.095 ACRES
COLLEGE
CLARK
FOREST AVE.
UNIVERSITY AVENUE
EXHIBIT A
CENTRAL PLACE LEVEE SYSTEM
DES MOINES FLOOD STUDY
REAL ESTATE REQUIREMENTS
4/21/04

EXHIBIT B

CENTRAL PLACE LEVEE SYSTEM
DES MOINES FLOOD STUDY
REAL ESTATE REQUIREMENTS
BORROW AREA
4/21/04







US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

Designed By:	Date:	Project Code:	Solicitation Number:
Drawn By:	Scale:		
Checked By:			
Reviewed By:			

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

DES MOINES RIVER, DES MOINES, IOWA FEASIBILITY STUDY, DOWNTOWN

REAL ESTATE REQUIREMENTS EAST

Sheet Reference Number:
Sheet of XX

200 0 200 400'
SCALE IN FEET

Exhibit "A"

14-MAR-2005 16:18
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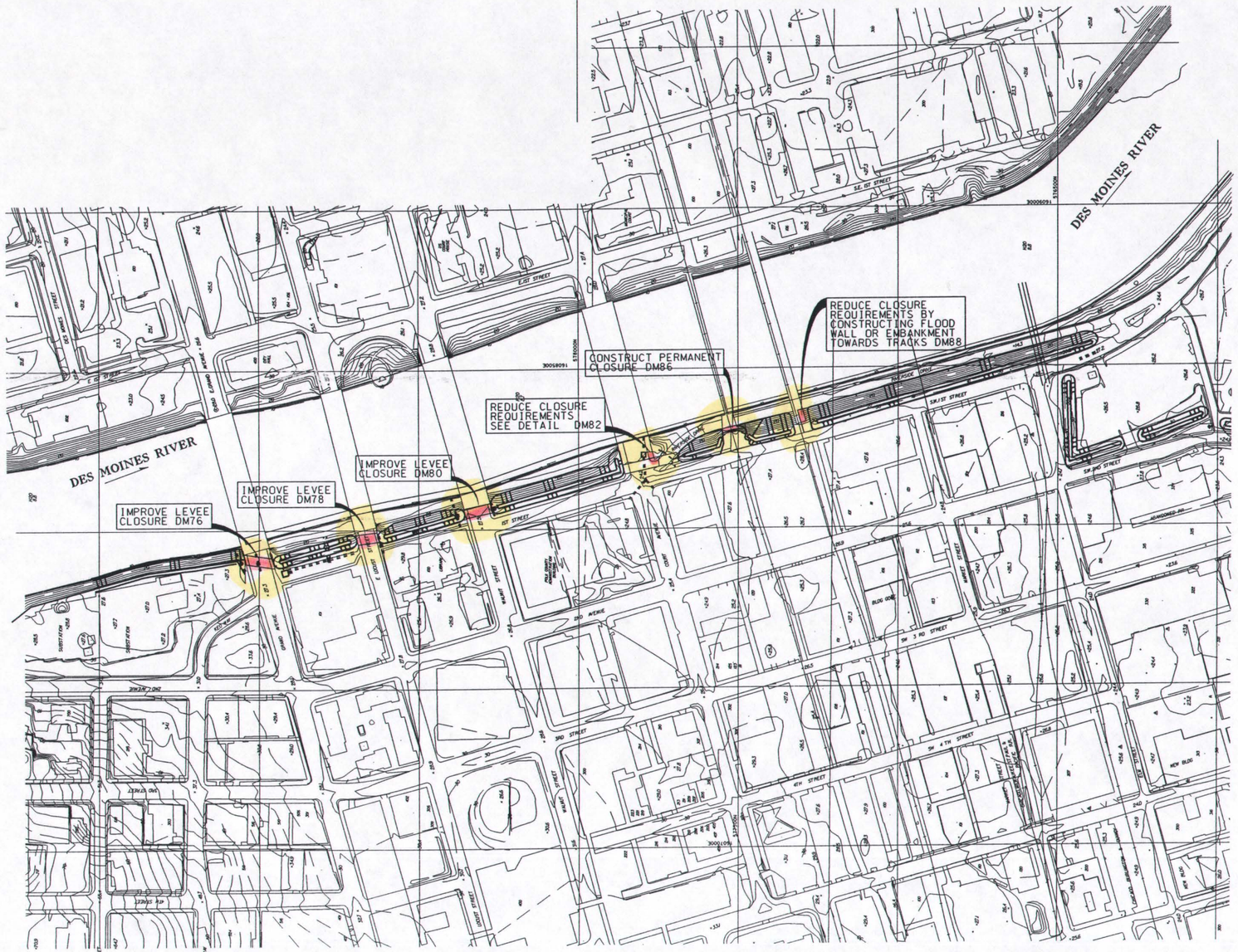

Exhibit "B"

200 0 200 400'
SCALE IN FEET

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ROCK ISLAND, ILLINOIS	Designed By:	Date:	
	Drawn By:	Scale:	
	Checked By:	Project Code:	
	Reviewed By:	Solicitation Number:	

DES MOINES RIVER, DES MOINES, IOWA FEASIBILITY STUDY - DOWNTOWN

REAL ESTATE REQUIREMENTS WEST

Sheet Reference Number:
Sheet of XX

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Page
118
Volume 3
C

Exhibit "C"

200 0 200 400'
SCALE IN FEET

US Army Corps of Engineers
Rock Island District

Symbol	Description	Date	Approved
	Revisions		

Designed By:		Date:	
Drawn By:		Scale:	
Checked By:		Project Code:	
Reviewed By:		Solicitation Number:	

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

DES MOINES RIVER, DES MOINES, IOWA FEASIBILITY STUDY, DOWNTOWN

REAL ESTATE REQUIREMENTS SOUTH

Sheet Reference Number:
Sheet of XX

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Des Moines & Raccoon Rivers Feasibility Study, Polk Co., IA Environmental Impact & Mitigation Sites

Proposed Chichaqua Wetland & Upland Forest Mitigation Site

Saylorville Reservoir

Saylorville Dam

Ankeny

Polk Co.

Bondurant

Mitchellville

Altoona

Birdland Wetland Impact Area

Birdland Upland Forest Impact Area

Central Place Upland Forest Mitigation Site

Central Place Wetland Mitigation Site

Birdland Park Levee, Reach 1

Central Place Levee, Reach 2

Fourmile Creek, Reach 10

Walnut Cr. at Grand Ave., Reach 9

Des Moines Water Works Levee, Reach 7

Downtown West Levee, Reach 4

Downtown East Levee, Reach 3

Leetown Creek, Reach 3

Downtown South Levee, Reach 5

Raccoon River Sect. 205, Reach 6

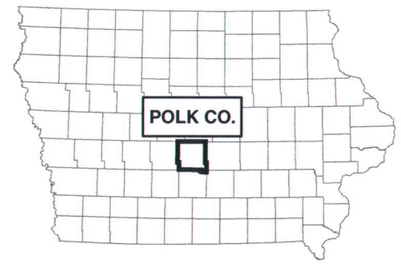
Des Moines - West Des Moines Levee, Reach 8

Red Rock Remedial Works Levee

35 931 65 945 69 80 6 235

0 0.5 1 2 3 4 Miles

N



US Army Corps of Engineers®
Rock Island District

Map produced 13 October 2004.

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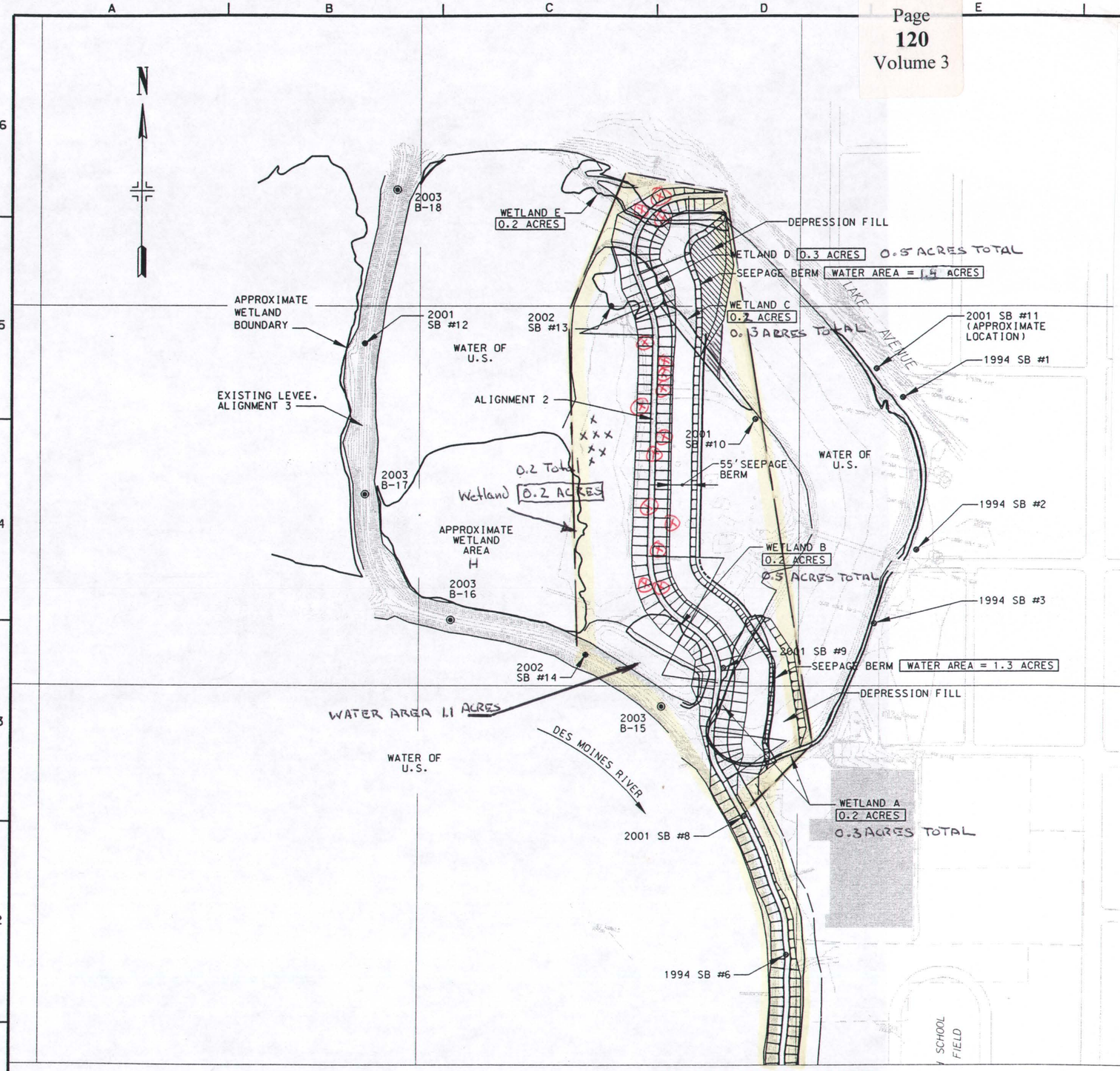

MATCHLINE FOR CONTINUATION SEE SHEET C2

Habitat Type		Proposed Alignment Impact Acres	Proposed Alignment % of Total	Total Acres in Potential Impact Area	
Uplands Willow Grove		0	0%	0.75	
Wetlands	Total	1.4	55%	2.3	
A -area		0.2	67%	0.3	
B-area		0.2	40%	0.5	
C-area		0.2	67%	0.3	
D-area		0.3	75%	0.4	
E-area		0.2	67%	0.3	*
F-area		0.1	100%	0.1	
G-area		0.1	100%	0.1	
H-area		0	0%	0.2	*
I-area		0.1	100%	0.1	
Open Water		2.7	71%	3.8	

*Approximately 50% of the Wetland Area E is located outside the potential impact area

*Approximately 95% of the Wetland Area H is located outside the potential impact area

NOTES:

1. THE U.S. ARMY CORPS OF ENGINEERS, ROCK ISLAND DISTRICT DELINEATED WETLANDS "A" THROUGH "G" IN 2001 IN ACCORDANCE WITH THE 1987 CORPS OF ENGINEERS WETLAND DELINEATION MANUAL.
2. THE WETLAND AREAS SHOWN ON THIS SHEET ARE THOSE IN THE VICINITY OF THE PROPOSED ALTERNATIVES. THE AREA MEASUREMENTS IN ACRES SHOW THE OVERLAP WITH THE PROPOSED PROJECT.
3. THE ALIGNMENT MAY BE ADJUSTED DURING FINAL DESIGN.

NOTE: ALL ELEVATIONS ARE IN DES MOINES DATUM. (EL 0' = 773.837' NGVD)

⊗ Mature Trees

x Willow Grove

— - — Boundary of Potential Impact Area (Levee will be located within this area)

150 0 150 300'
SCALE IN FEET

BIRDLAND LEVEE IN DES MOINES, IOWA

PLATE B3

US Army Corps of Engineers Rock Island District

Symbol | Description | Date | Approved
Revisions

Designed By: | Date:
Drawn By: | Scale:
Checked By: | Project Code: XXXXX
Reviewed By: | Solicitation Number: DACW25-XX-B-XXXX

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

Stanley Consultants INC.

DES MOINES AND RACCOON RIVERS
DES MOINES, IOWA
FEASIBILITY STUDY
BIRDLAND LEVEE

SITE MAP
SHEET 1 OF 2

Sheet Reference Number: C1
Sheet 3 of 16

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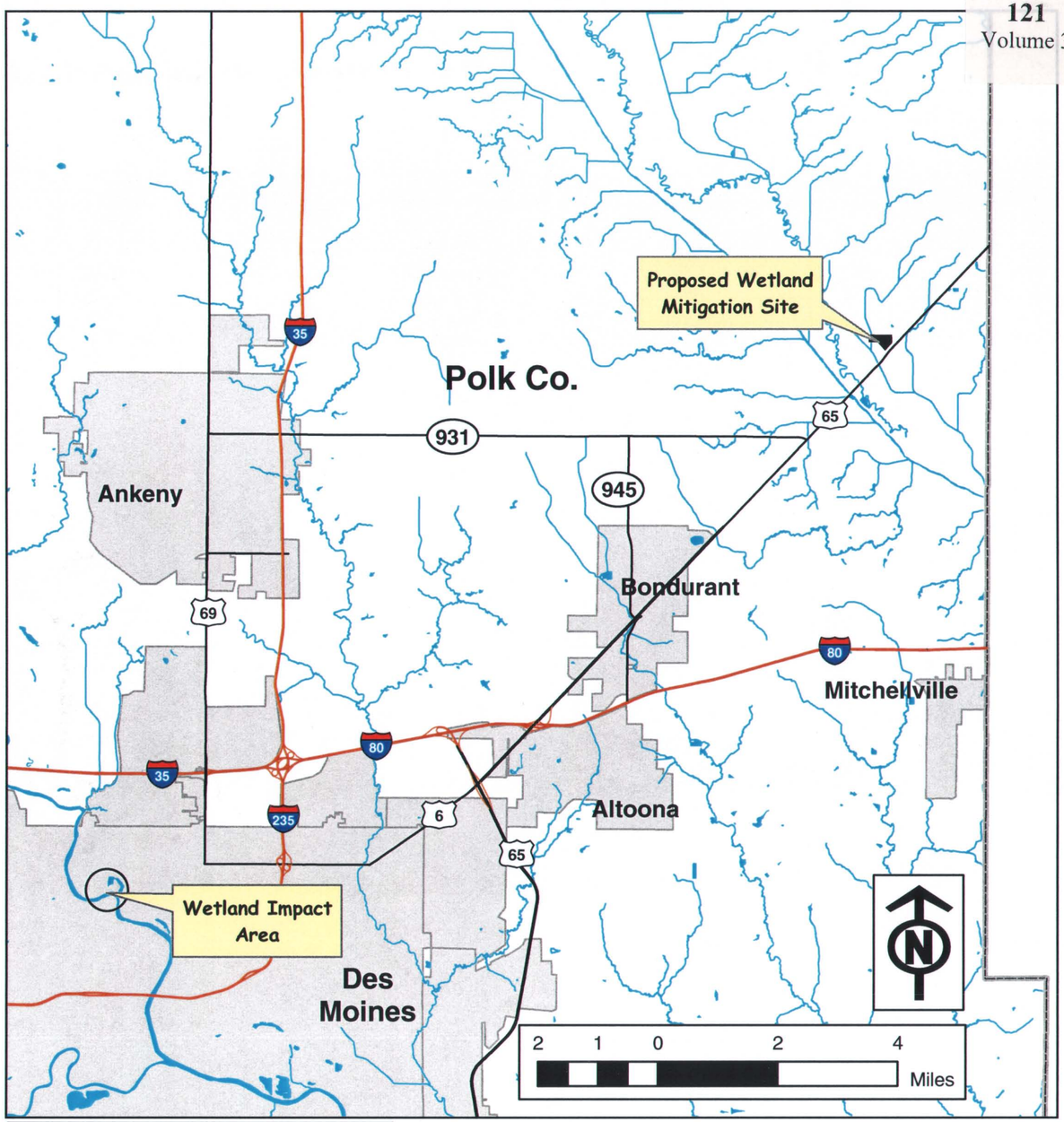

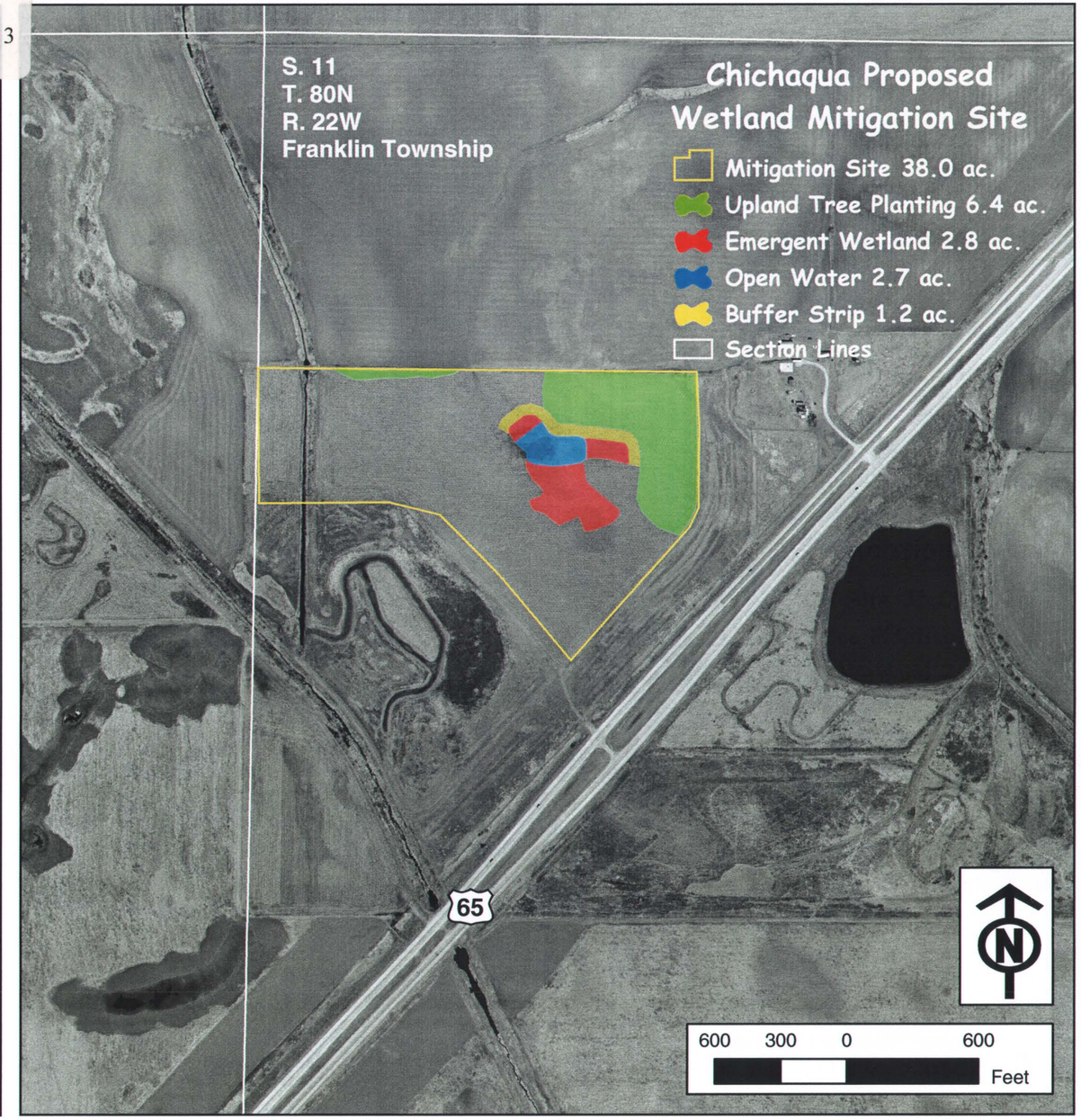

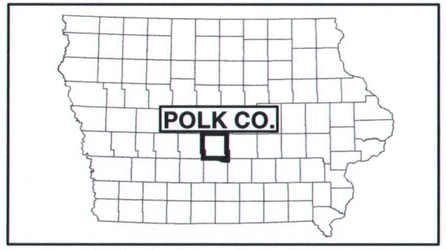

Des Moines Flood Study
Proposed Wetland Mitigation Site
Polk Co., IA

US Army Corps of Engineers®
Rock Island District

Map revised 14 October 2004.

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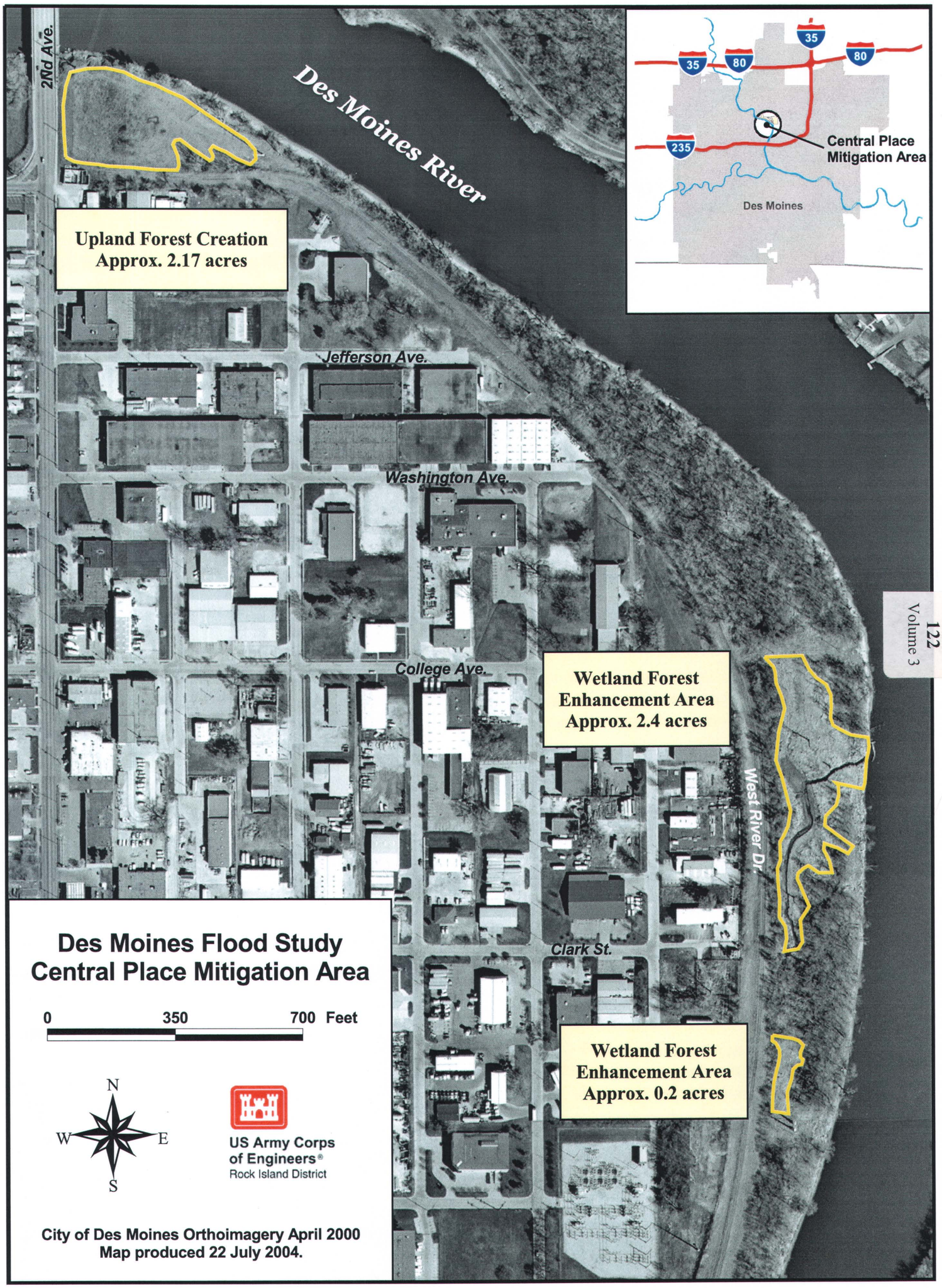

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