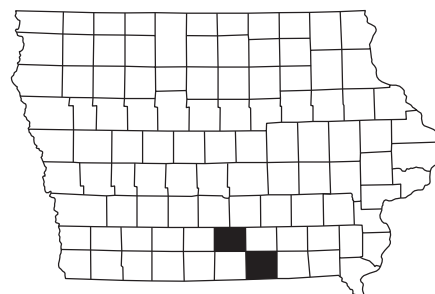



IOWA DEPARTMENT OF NATURAL RESOURCES
 CONSTRUCTION DOCUMENTS
 FOR
 RATHBUN WMA
 ROAD MAINTENANCE
 APPANOOSE/LUCAS COUNTIES, IOWA

DOT PROJECT #SP-00SP(7)--7C-00
DNR PROJECT #22-05-04-05



	<p>I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED UNDER MY SUPERVISION AND THAT ENGINEERING DECISIONS WITH REGARD TO THE DESIGN WERE MADE BY ME UNDER THE LAWS OF THE STATE OF IOWA.</p> <p style="text-align: center;">Bruce L. Flippin</p>	<p><small>Digitally signed by Bruce L. Flippin DN: cn=Bruce L. Flippin, o=Professional Engineer, ou=Iowa State Board of Engineers, email=bruce.flippin@iowa.gov, c=US</small></p>
	<p>SIGNATURE _____ DATE _____</p> <p>BRUCE L. FLIPPIN _____</p> <p>PRINTED OR TYPED NAME _____</p> <p>MY LICENCE RENEWAL DATE IS DECEMBER 31, 20 <u>22</u></p> <p>PAGES COVERED BY THIS SEAL: _____</p>	

DIRECTORY			
PROJECT MANAGER		CONSTRUCTION INSPECTOR	
COMPANY	IOWA DEPARTMENT OF NATURAL RESOURCES	COMPANY	IOWA DEPARTMENT OF NATURAL RESOURCES
ADDRESS	502 EAST 9TH STREET	ADDRESS	
CITY,STATE,ZIP	DES MOINES, IA, 50319	CITY,STATE,ZIP	
CONTACT	BRUCE L. FLIPPIN	CONTACT	JASON KRUSE
TELEPHONE	515-689-8009	TELEPHONE	515-250-3707
FAX	515-281-8685	FAX	
EMAIL	bruce.flippin@dnr.iowa.gov	EMAIL	jason.kruse@dnr.iowa.gov

PROJECT DESCRIPTION

This project consists of granular roadway maintenance - small tree/brush clearing, ditch cleaning/shaping, blading/shaping, spreading new aggregate, placing revetment/erosion stone, the replacement of 2 culverts and seeding/fertilizing.

AUTHORIZATION TO BID

Karen Kinkead Digitally signed by Karen Kinkead
Date: 2022.07.19 14:46:40 -05'00'

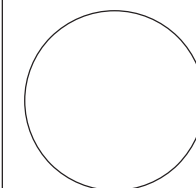
AUTHORIZATION - PARKS | WILDLIFE | FISHERIES | LAW ENFORCEMENT | FORESTRY DATE

Travis Baker Digitally signed by Travis Baker
Date: 2022.07.19 14:56:20 -05'00'

ENGINEERING BUREAU CHIEF DATE

[illegible]

CONSULTANT.

IOWA DEPARTMENT OF
NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST. DES MOINES, IA 50319-0034



COVER SHEET

ROAD MAINTENANCE FOR:

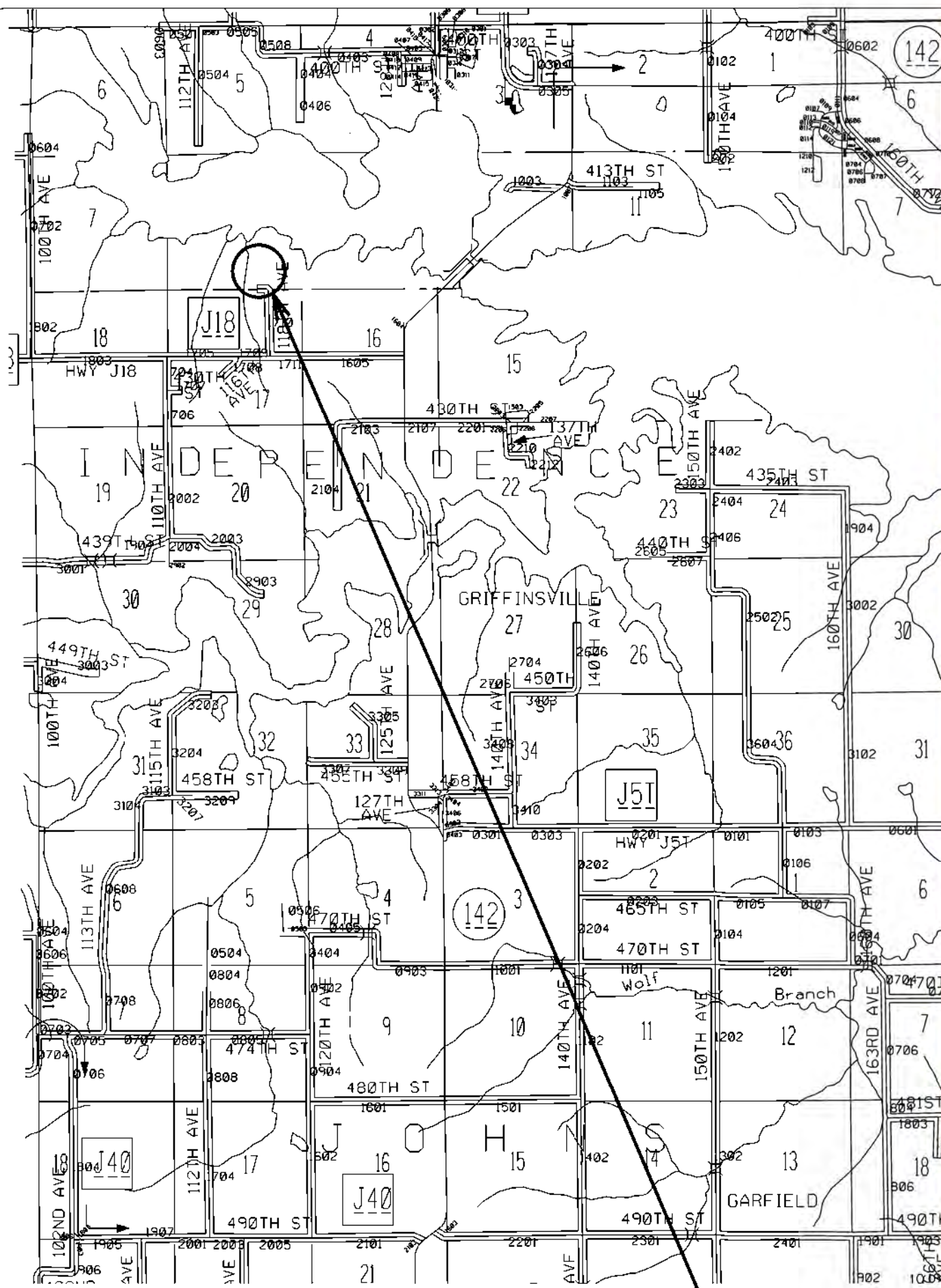
RATHBUN WMA

APPANOOSE/LUCAS COUNTIES

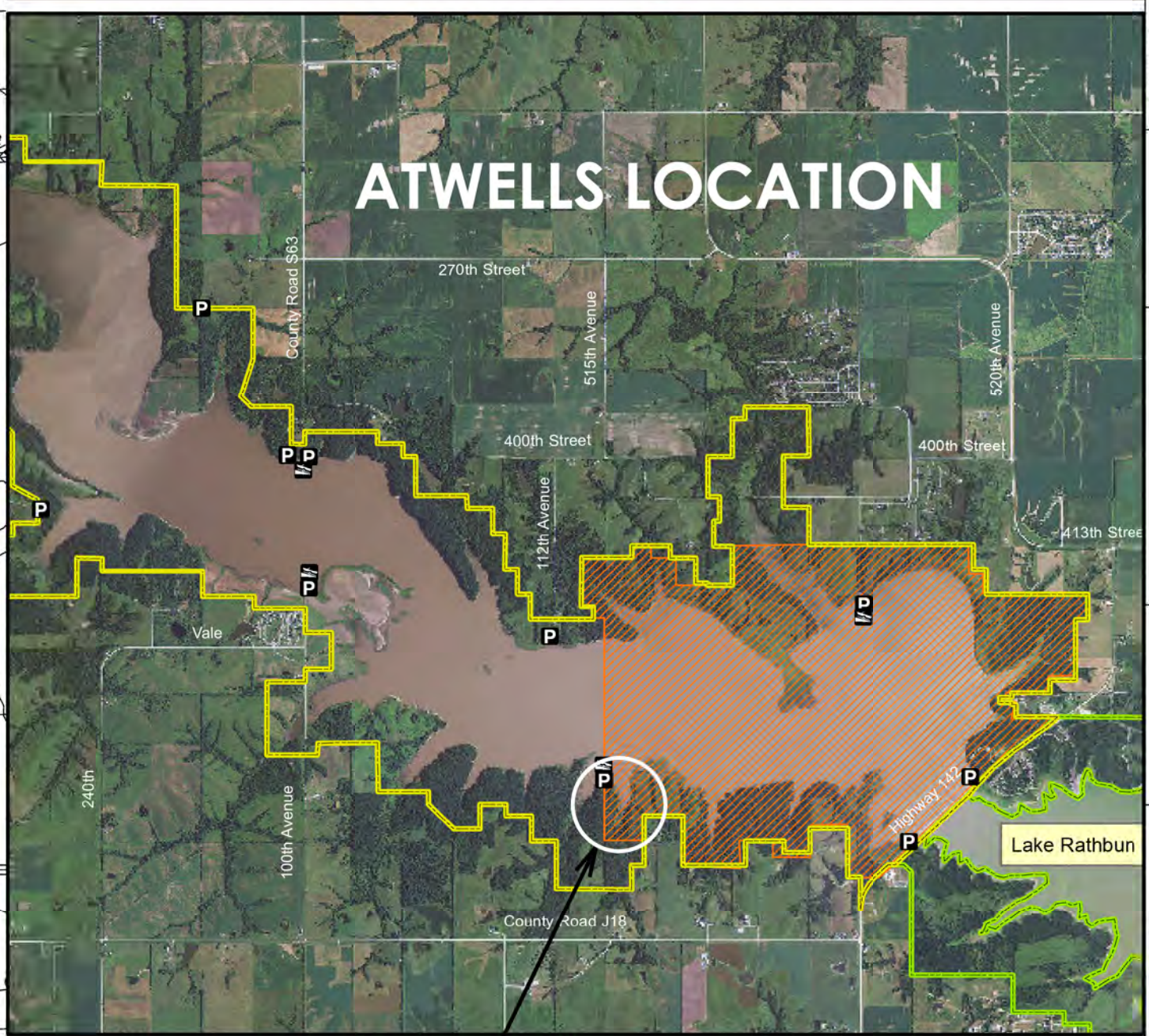
NO.	BY DATE	REVISION
DRAWN BY: BLF		PROJECT 22-05
CHK'D BY:		DATE: JULY 2
SHEET 1 of 1		

A.01

Rathbun Wildlife Management Area - NE



ATWELLS LOCATION



Legend Map Creation Date: 5/2013

- State Areas open to hunting
- WMA Boundary
- Refuge
- Parking Lot
- Boat Ramp
- Other Public Land
- 2011 Aerial Photography

DNR DEPARTMENT OF NATURAL RESOURCES

Acres: 15,888

Habitat: 1/4 Lake, 1/4 Timber, 1/2 Upland

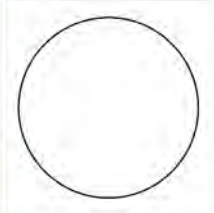
Species: Deer, Pheasant, Waterfowl, Quail, Dove

Contact: Jeff Telleen
Rathbun Wildlife Unit
641-414-1513

Lucas, Monroe, Wayne & Appanoose Counties, Iowa

Directions: 6 miles S of Russell on S56.

CONSULTANT:



**IOWA DEPARTMENT OF
NATURAL RESOURCES**

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034



PROJECT LOCATION MAP

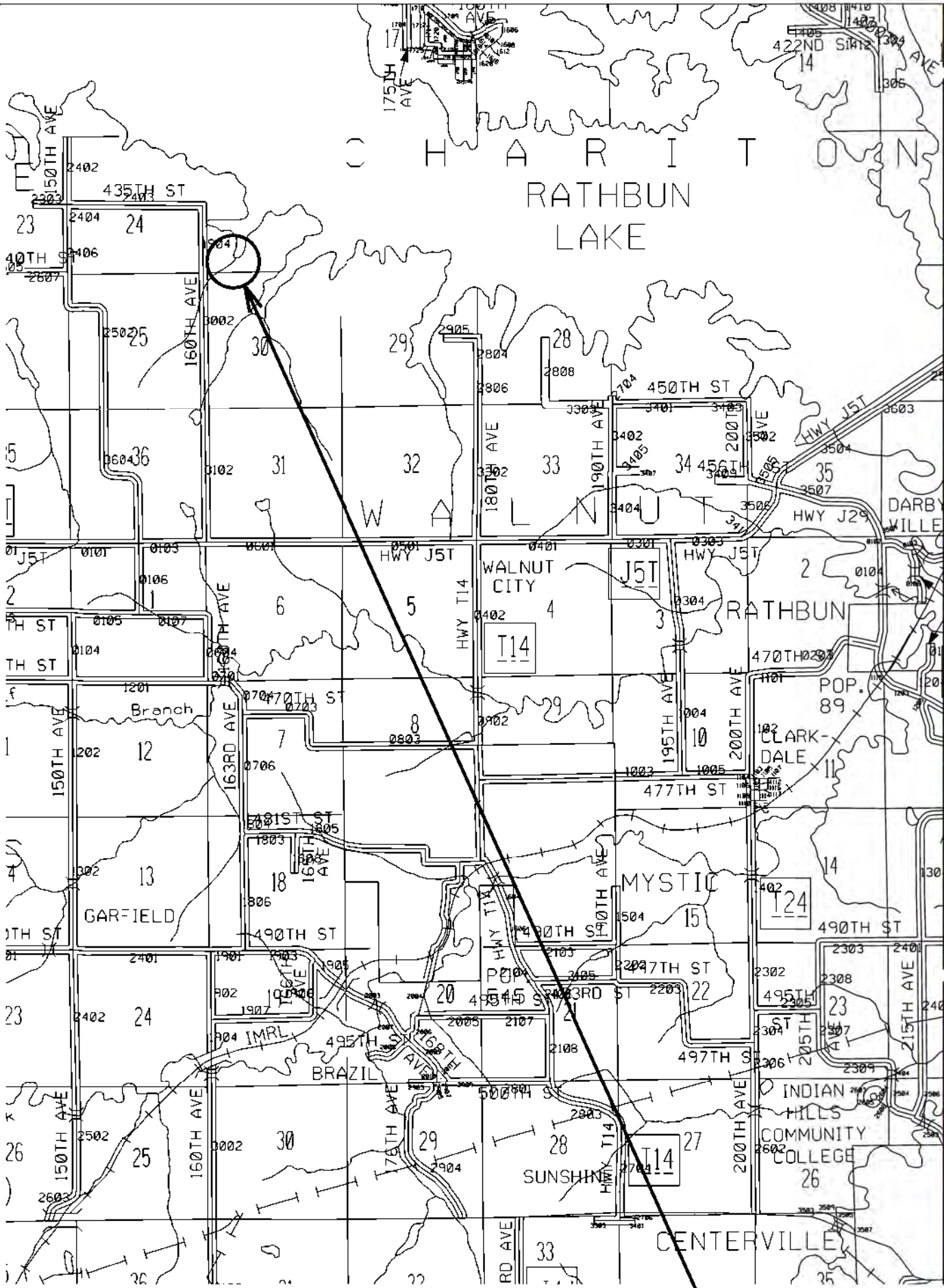
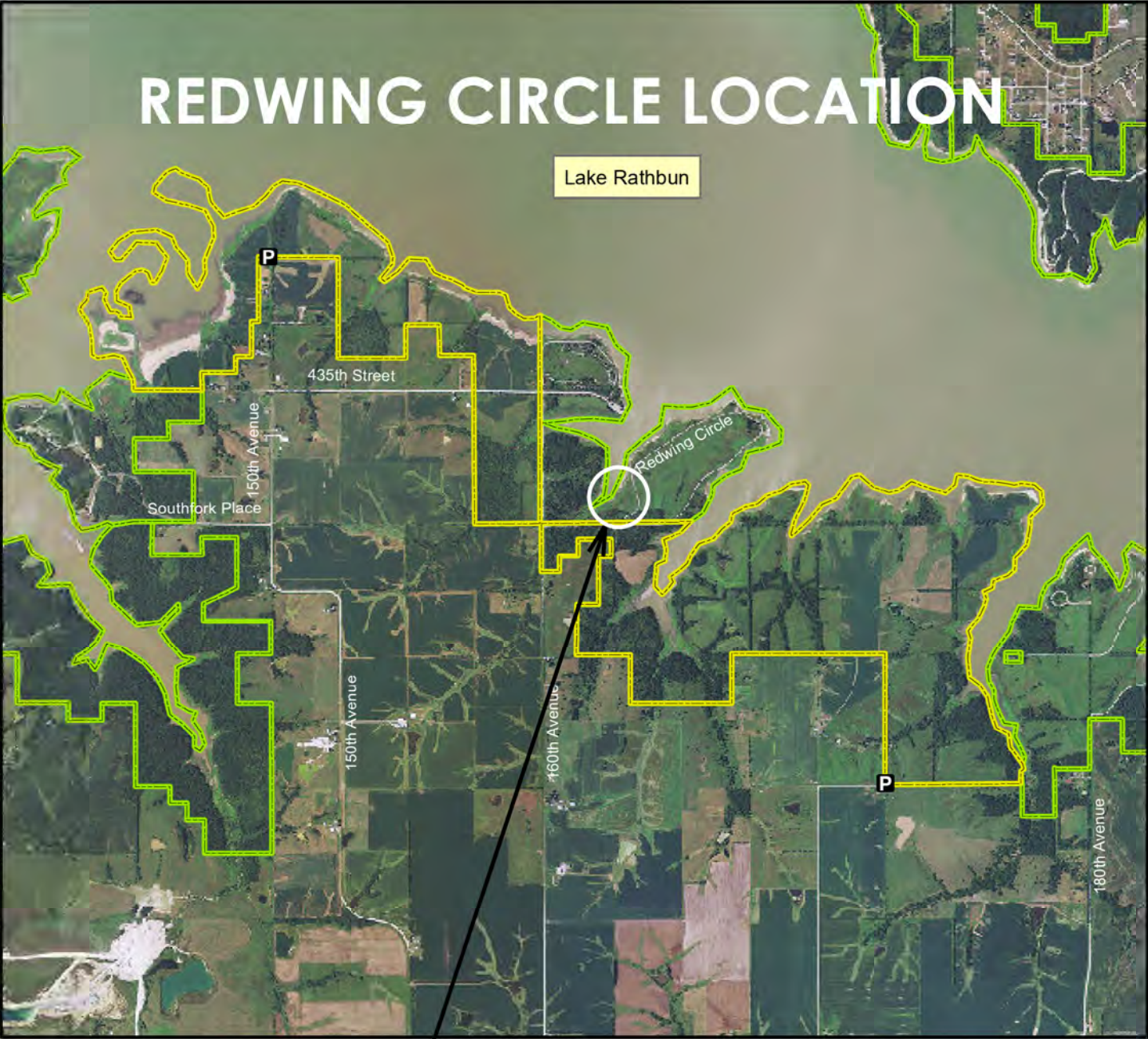
ROAD MAINTENANCE FOR:
RATHBUN WMA

APPANOOSE/LUCAS COUNTIES

NO.	DATE	REVISION
1	05/04/05	PROJECT NUMBER
2	07/01/22	DATE
3		SHEET NO.

Rathbun Wildlife Management Area - SE

REDWING CIRCLE LOCATION



Legend

- State Areas open to hunting
- WMA Boundary
- Parking Lot
- Other Public Land
- 2011 Aerial Photography

Acres: 15,888

Habitat: 1/4 Lake, 1/4 Timber, 1/2 Upland

Species: Deer, Pheasant, Waterfowl, Quail, Dove

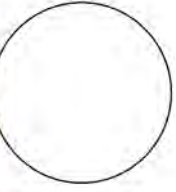
Contact: Jeff Telleen
Rathbun Wildlife Unit
641-414-1513

Restrictions: Canada Goose
Closed Area #5

Lucas, Monroe, Wayne & Appanoose Counties, Iowa

Directions: 6 miles S of Russell on S56.

CONSULTANT:



IOWA DEPARTMENT OF
NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034



PROJECT LOCATION MAP

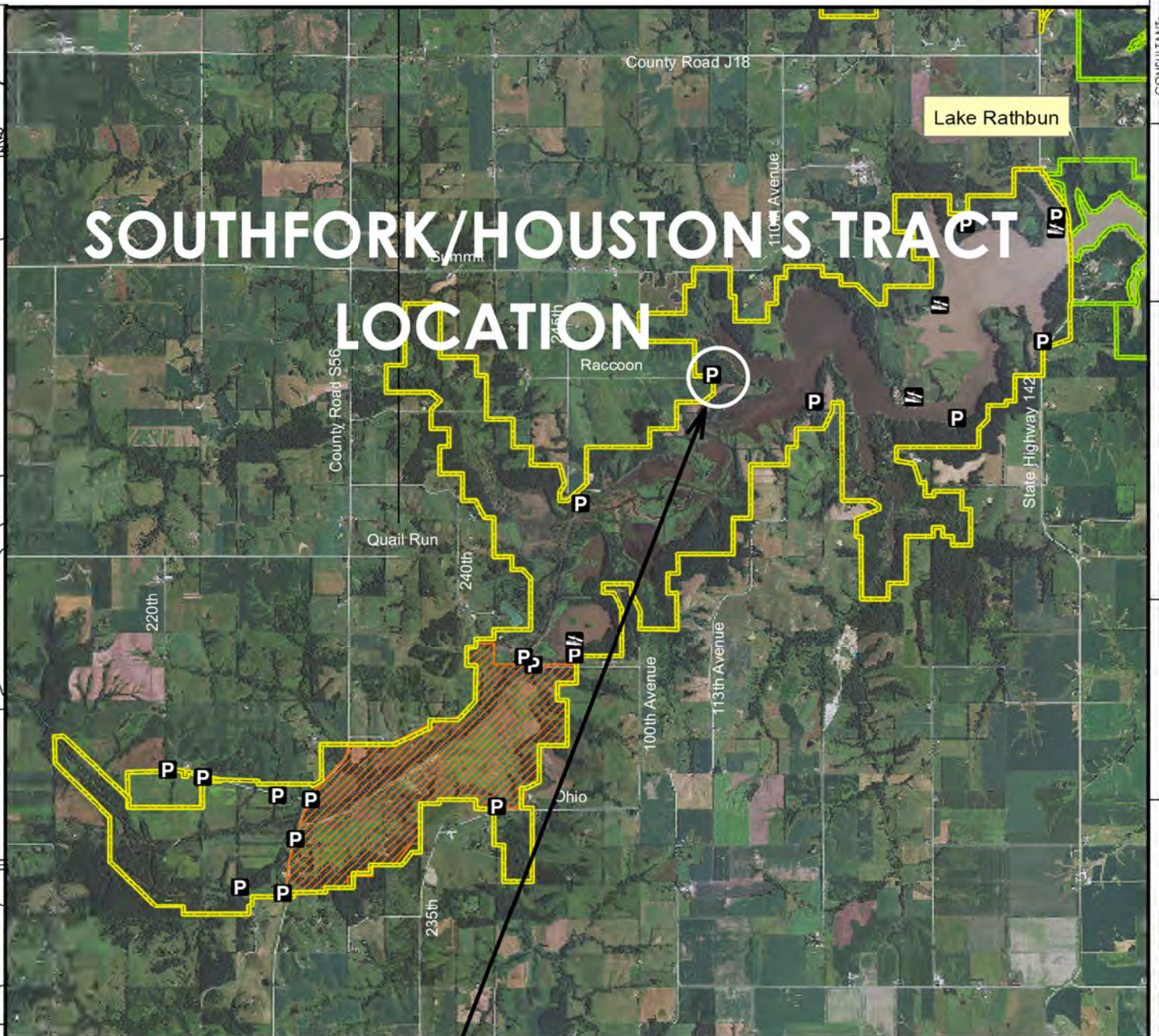
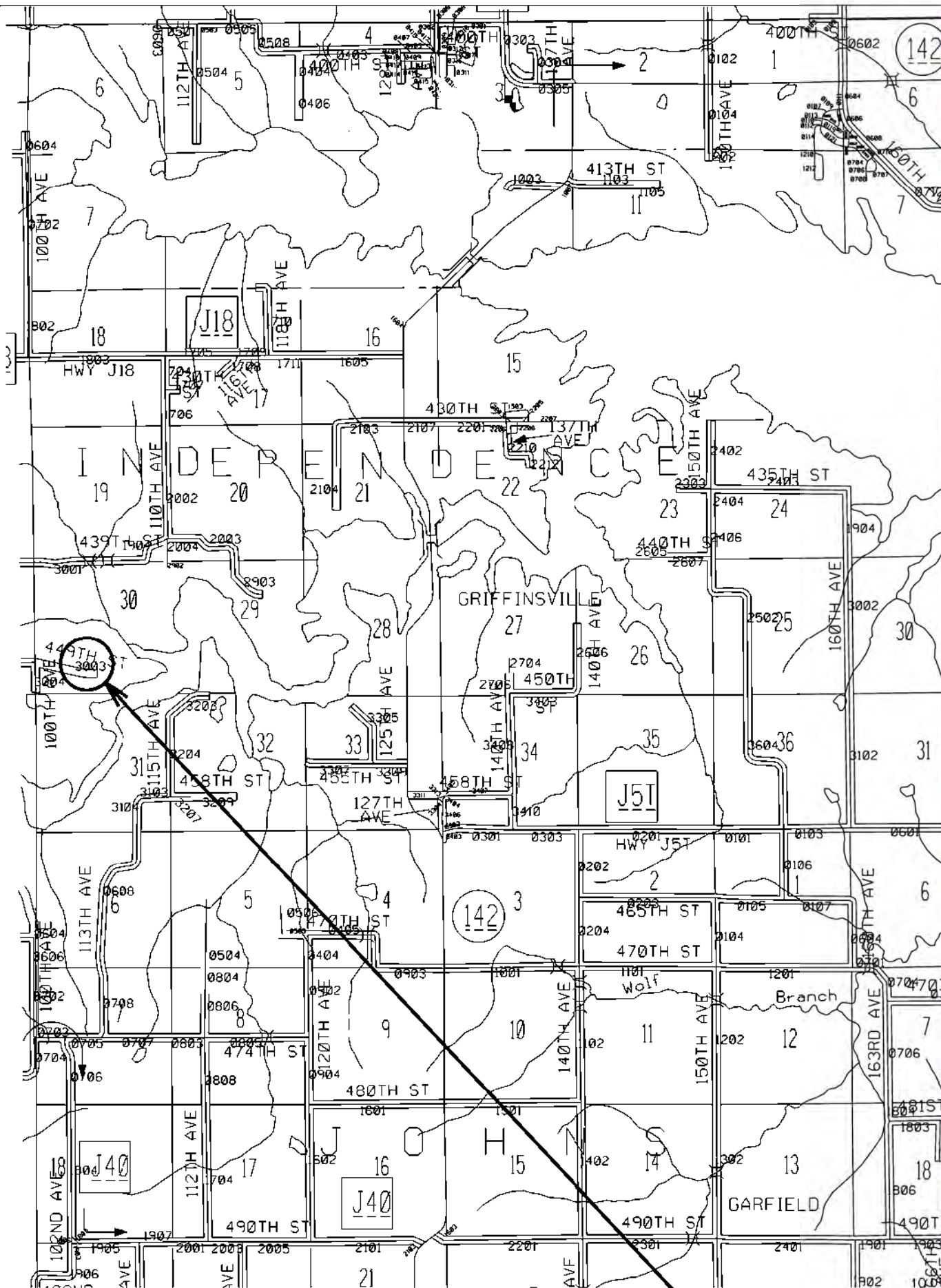
ROAD MAINTENANCE FOR:

RATHBUN WMA

APPANOOSE/LUCAS COUNTIES

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3	22.05.04	05
4	22.05.04	05
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100	22.05.04	05

Rathbun Wildlife Management Area - SW



Legend

- State Areas open to hunting
- WMA Boundary
- Refuge
- Parking Lot
- Boat Ramp
- Other Public Land
- 2011 Aerial Photography

Map Creation Date: 5/2013

Acres: 15,888

Habitat: 1/4 Lake, 1/4 Timber, 1/2 Upland

Species: Deer, Pheasant, Waterfowl, Quail, Dove

Contact: Jeff Telleen
Rathbun Wildlife Unit
641-414-1513

Restrictions: Canada Goose Closed Area #5

Lucas, Monroe, Wayne & Appanoose Counties, Iowa

Directions: 6 miles S of Russell on S56.

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

PROJECT LOCATION MAP

ROAD MAINTENANCE FOR:

RATHBUN WMA

APPANOOSE/LUCAS COUNTIES

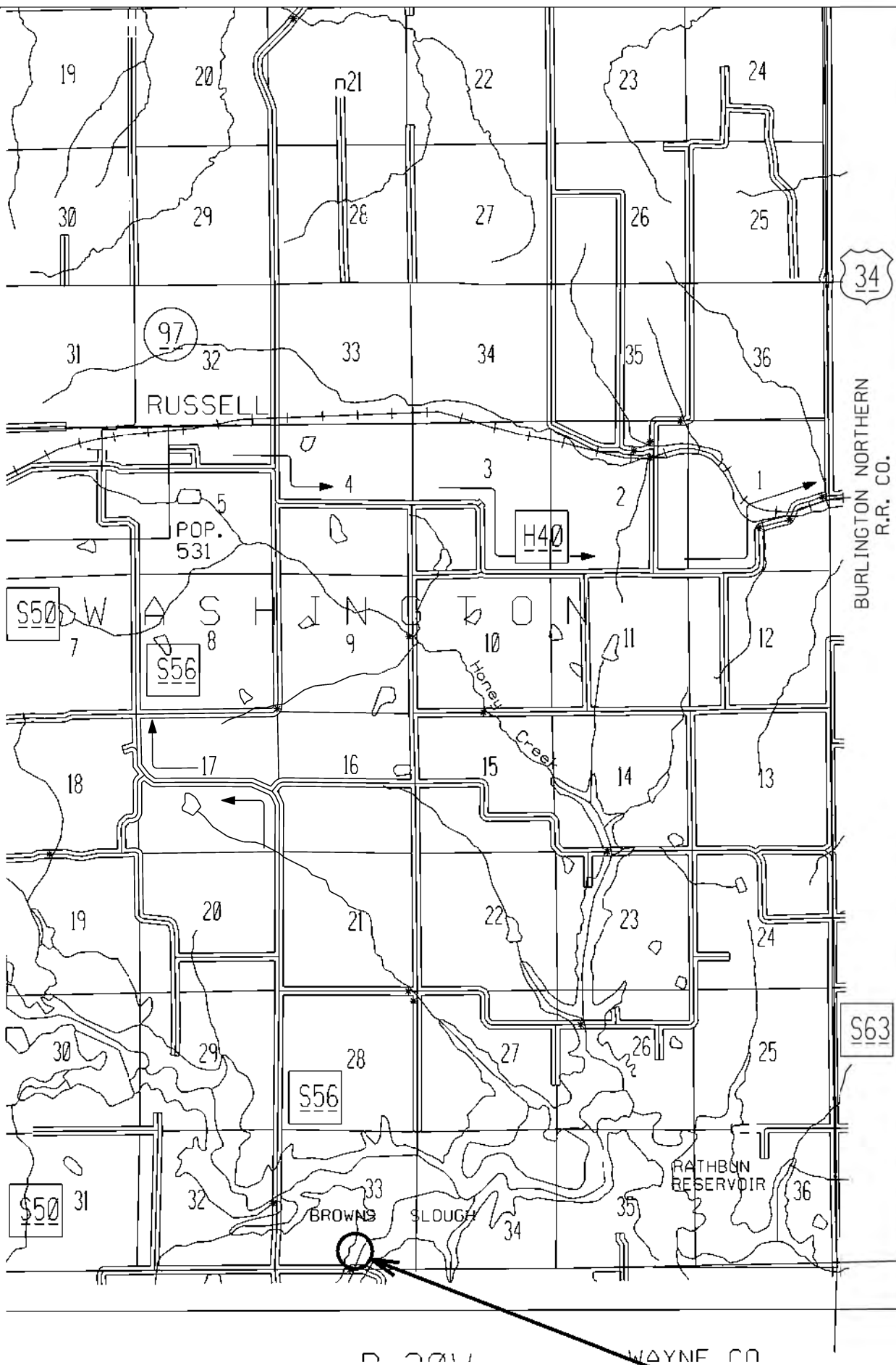
NO.	DATE	REVISION
1	22.05.04.05	

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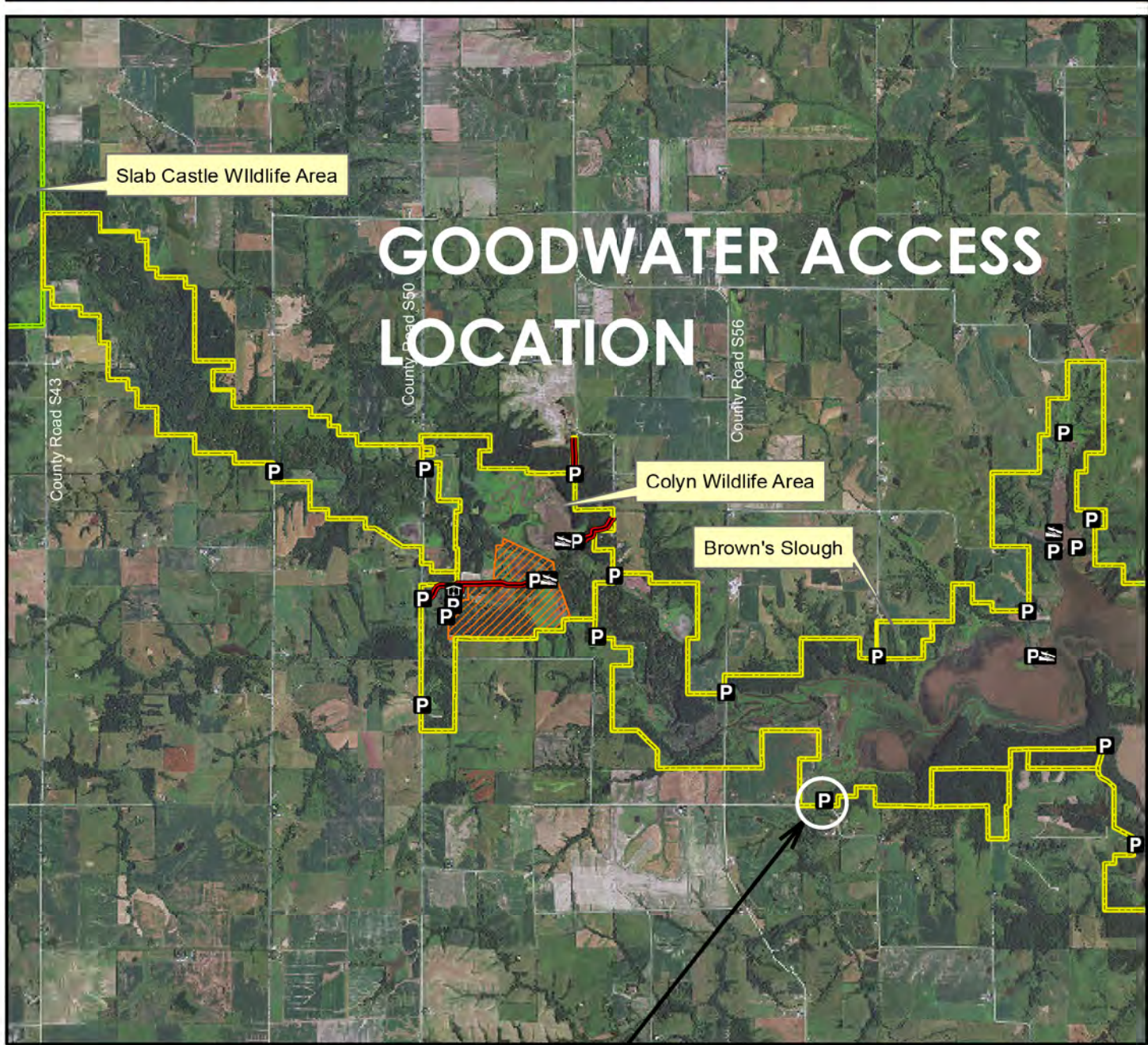
CHECKED BY: DATE: JULY 2022

SHEET NO:

A.04



Rathbun Wildlife Management Area - NW



Legend

- State Areas open to hunting
- WMA Boundary
- Refuge
- Unit Headquarters
- Parking Lot
- Boat Ramp
- Access Road
- Other Public Land
- 2011 Aerial Photography

Map Creation Date: 5/2013

Legend

Acres: 15,888

Habitat: 1/4 Lake, 1/4 Timber, 1/2 Upland

Species: Deer, Pheasant, Waterfowl, Quail, Dove

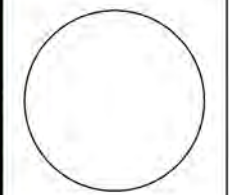
Contact: Jeff Telleen
Rathbun Wildlife Unit
641-414-1513

Restrictions: Canada Goose Closed Area #5

Lucas, Monroe, Wayne & Appanoose Counties, Iowa

Directions: 6 miles S of Russell on S56.

CONSULTANT:



IOWA DEPARTMENT OF
NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034



PROJECT LOCATION MAP

ROAD MAINTENANCE FOR:
RATHBUN WMA


APPANOOSE/LUCAS COUNTIES

NO.	DATE	REVISION
1	22.05.04.05	PROJECT NUMBER
2	JULY 2022	DATE
3		SHEET NO.



Normal sections shown may be appropriately modified for areas specifically designated by the Engineer.

STATION	TO	STATION	LOCATION	WIDTH
100+00		132+23	ATWELLS	14'
200+00		215+53	REDWING CIRCLE	14'
300+00		306+82	SOUTHFORK ACCESS	14'
400+00		401+48	GOODWATER ACCESS	14'



ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

ROAD MAINTENANCE FOR:

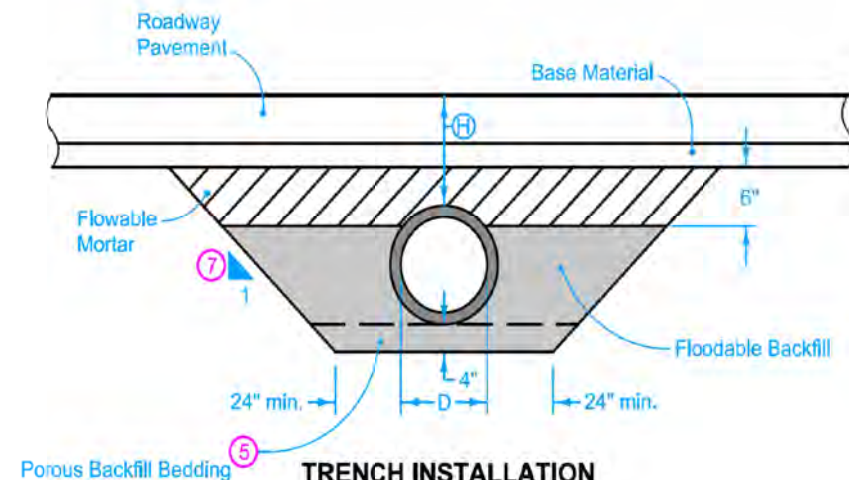
RATHBUN WMA

APPANOOSE/LUCAS COUNTIES

NO.	BY DATE	REVISION
DRAWN BY:		PROJECT NUMBER:
BLF		22-05-04-05
CHK'D BY:		DATE:
		JULY 2022
SHEET NO.		

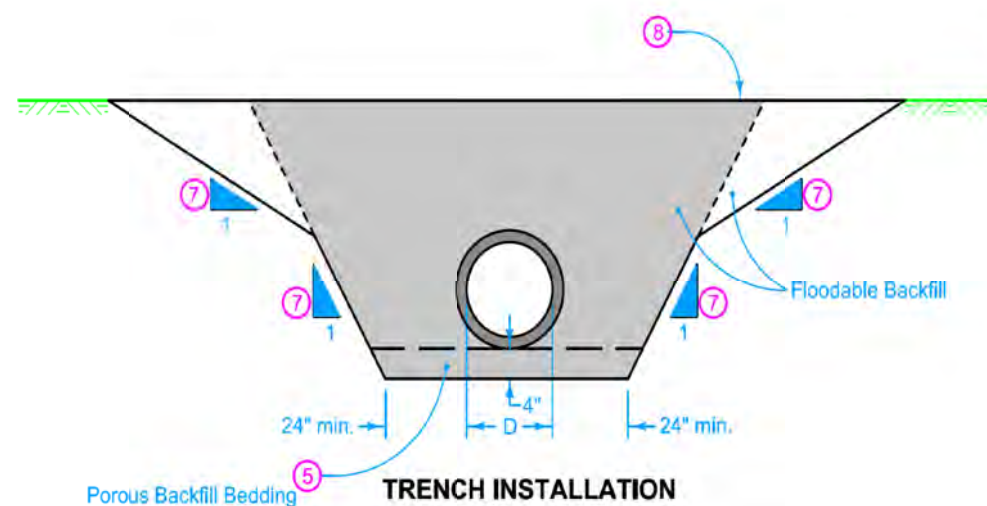
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B.01



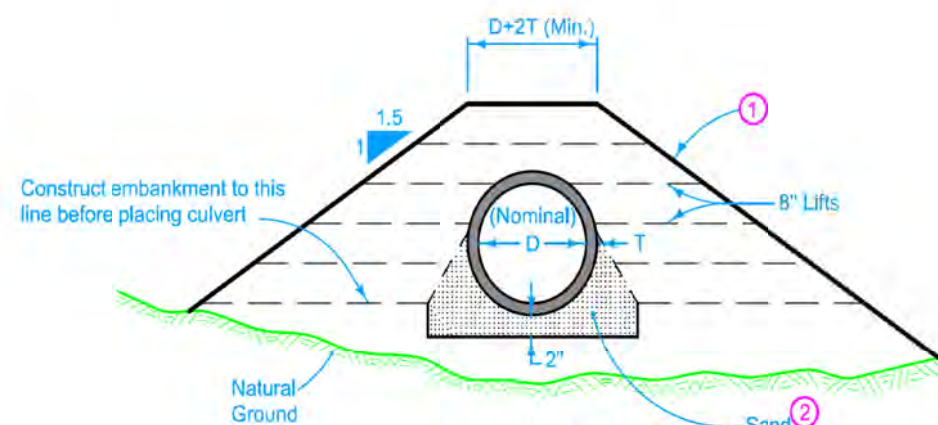
TRENCH INSTALLATION

(H) ≤ 4'



TRENCH INSTALLATION

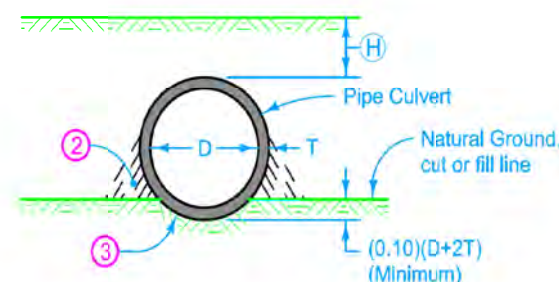
(H) > 4'



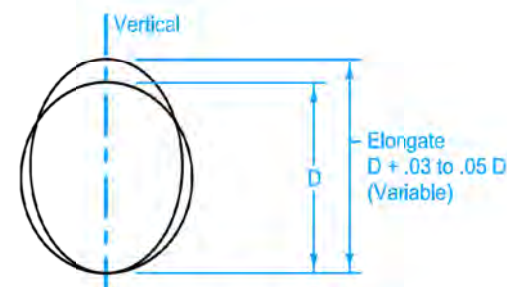
FILL INSTALLATION
(FOR RIGID PIPES ONLY)

CLASS 'B' BEDDING & BACKFILL

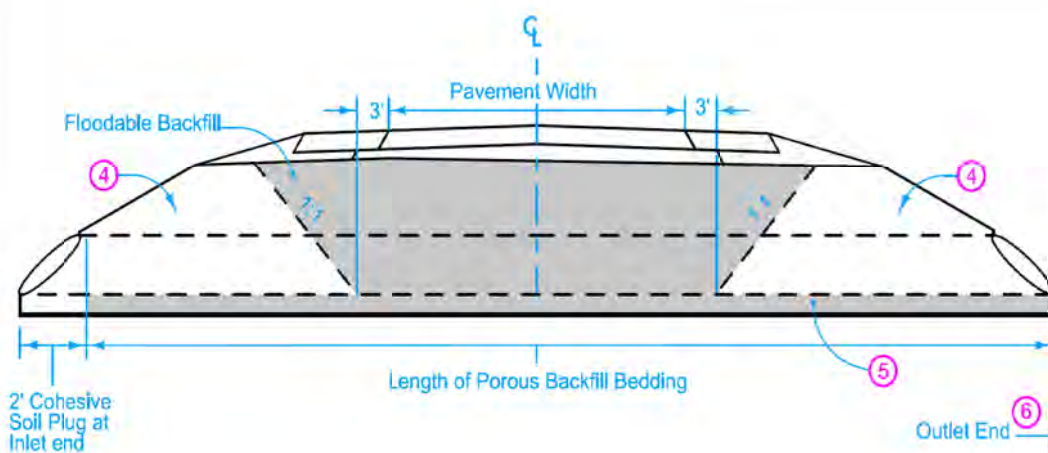
Denotes pay limits for flooded backfill



CLASS 'C' BEDDING & BACKFILL



ELONGATED PIPE



TYPICAL SECTION - SOIL PLUG

Refer to DR-104 for minimum and maximum allowable cover (H) for the particular kind of pipe culvert.

- The backfill adjacent to and above the pipe culvert may be placed in conjunction with normal embankment construction. Thoroughly tamp the embankment within the limits shown.
- Take extra care to ensure complete and satisfactory tamping of backfill material in the area immediately adjacent to the lower portion of pipe.
- Carefully shape excavation below groundline either using a template conforming to actual dimension and shape of the pipe or using other means. If using other means, check with a template conforming to the actual dimension and shape of the pipe.
- For culverts backfilled by flooding, place a cohesive soil plug at the inlet, outlet, and, when necessary, sides, prior to flooding.
- 4-inch Porous Backfill bedding. 2-inch Floodable Backfill bedding may be used under unsealed rigid pipe.
- Extend Porous Backfill through the outlet end soil plug when used for bedding.
- Quantity calculations are based upon a 1:1 slope and minimum trench dimension. Actual slope of trench may vary based upon Contractor's operations.
- Ground Line at time of pipe installation. When existing ground exceeds 5 feet depth over pipe, backfill and compaction by flooding is not required more than 5 feet above the pipe.
- Where a corrugated metal pipe culvert requiring elongation is to be installed (to counteract deformation caused by backfill), complete elongation using a means approved by the Engineer. Elongation may be developed either as part of shop fabrication or field installation. Install with elongated axis vertical.

Possible Contract Items:

Flowable Mortar
Flooded Backfill
Excavation, Class 20

Possible Tabulations:

104-3
104-4

	REVISION
	2 04-18-17
STANDARD ROAD PLAN	DR-101
SHEET 1 of 1	
REVISIONS: Changed "Porous Backfill" to "Porous Backfill Bedding" for clarity. Modified trench installation detail for H>4' to clarify pay limits.	
APPROVED BY DESIGN METHODS ENGINEER 	
PIPE CULVERT (BEDDING AND BACKFILL)	

CONSULTANT:

IOWA DEPARTMENT OF
NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034

TYPICAL CROSS SECTIONS AND DETAILS

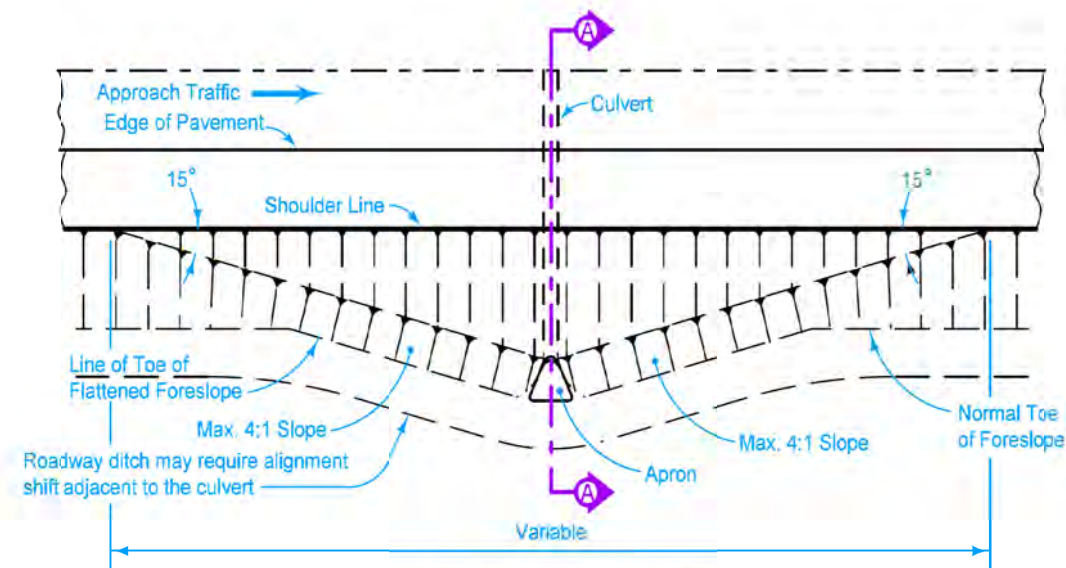
ROAD MAINTENANCE FOR:

RATHBUN WMA

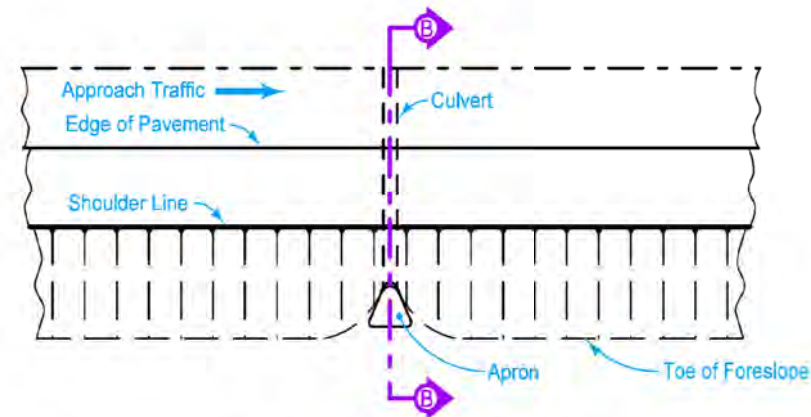
APPANOOSE/LUCAS COUNTIES

NO. 1
DATE: 04-18-17
REVISION
DRAWN BY: BLF
PROJECT NUMBER: 22-05-04-05
CHK'D BY: DATE: JULY 2022
SHEET NO.:

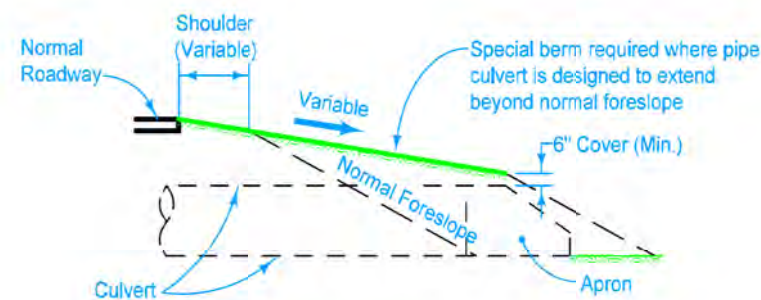
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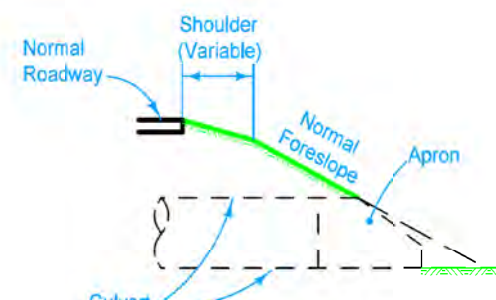
TYPICAL INSTALLATION PLAN
WHERE SPECIAL BERM IS REQUIRED



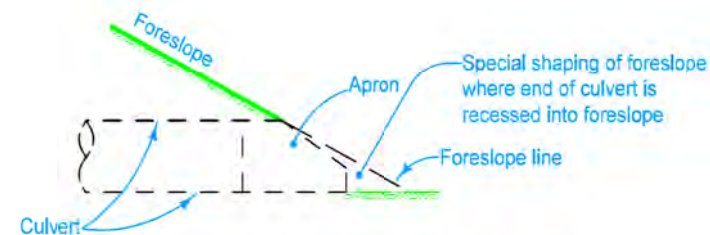
TYPICAL INSTALLATION PLAN
WHERE CULVERT MATCHES NORMAL FORESLOPE



SECTION A-A



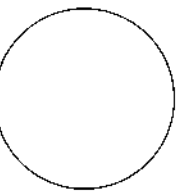
SECTION B-B



DETAIL OF SHAPING EARTH FORESLOPE
AT CULVERT END

	REVISION	
	New	04-21-15
STANDARD ROAD PLAN	DR-103	
SHEET 1 of 1		
REVISIONS: New. Replaces RF-30C.		
APPROVED BY DESIGN METHODS ENGINEER		
PIPE CULVERT (INSTALLATION DETAILS)		

CONSULTANT:



IOWA DEPARTMENT OF
NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034



TYPICAL CROSS SECTIONS AND DETAILS

ROAD MAINTENANCE FOR:

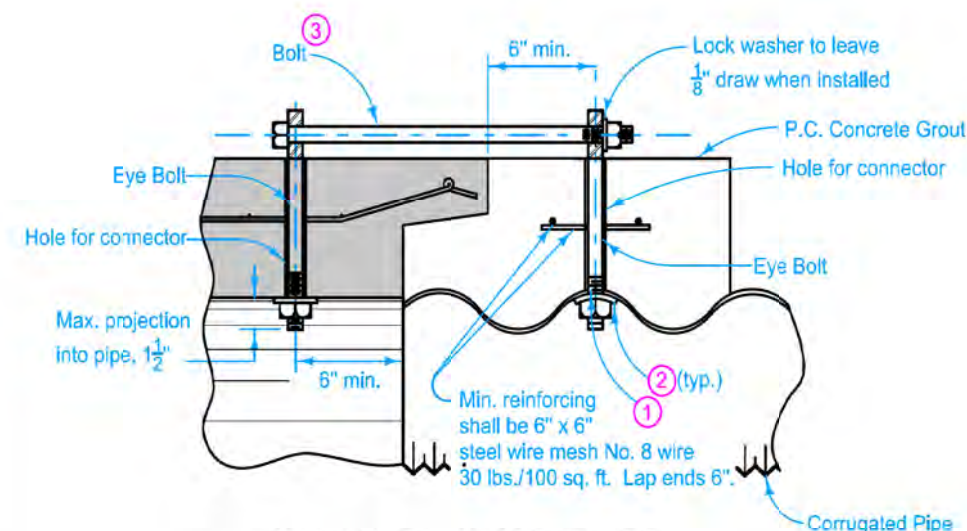
RATHBUN WMA

APPANOOSE/LUCAS COUNTIES

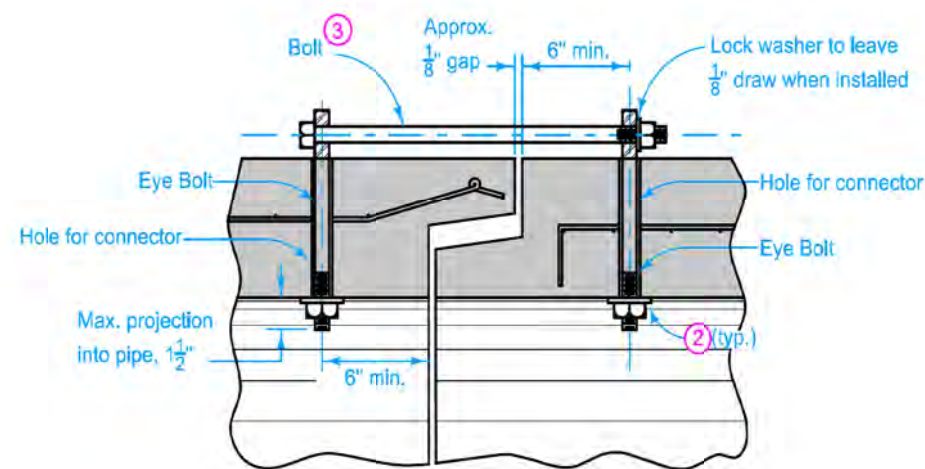
NO.	BY	REVISION
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DRAWN BY: BLF
PROJECT NUMBER: 22-05-04-05
CHK'D BY: DATE: JULY 2022
SHEET NO:

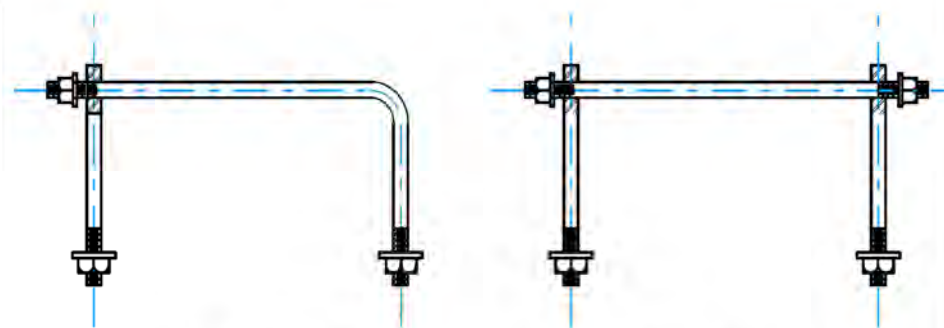
B.03



**SECTION OF PIPE CONNECTOR
(Concrete Pipe to Corrugated Pipe)**



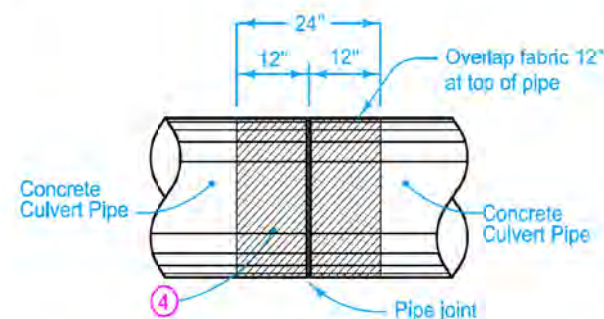
**SECTION OF PIPE CONNECTOR
(Concrete Pipe to Concrete Pipe)**



ONE BEND END

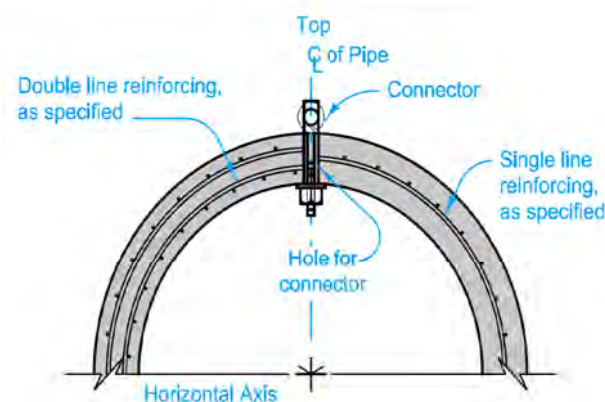
THREADED AT BOTH ENDS

OPTIONAL BOLTS/CONNECTORS

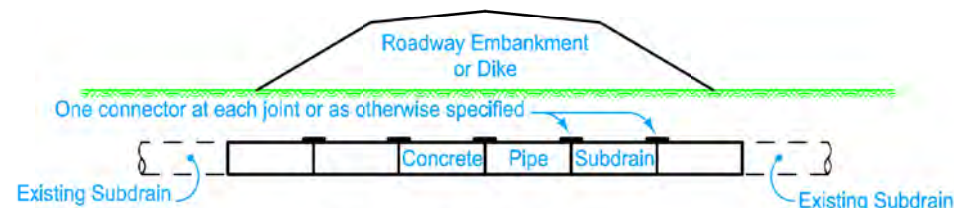


PIPE JOINT WRAPPING

PIPE SIZE (in.)	CONNECTOR AND BOLT SIZE (in.)	HOLE FOR CONNECTOR (in.)
12 to 27	5/8	7/8
30 to 60	3/4	1.0
66 to 132	1.0	1 1/4



**TYPICAL SECTION
(Non-Sealed Joint)**



TYPICAL INSTALLATION

TYPE 1 CONNECTION

Wrap all joints on concrete roadway pipe culverts.

Use Type 3 Connections on all culvert pipes, unless specified otherwise. Refer to Materials I.M. 445.01 for Connector requirements.

Minimum 2 threads showing at all threaded ends.

Connections not required on pipe sections installed by trenchless methods.

For belled concrete pipe joints, connectors may be installed on the inside of the pipe.

TYPE 1

One connector at the top of the pipe section.

TYPE 2 (Sealed Joint)

Two connectors near the top of the pipe section. For details of reinforcement, refer to AASHTO M 170 for the class of pipe required. Refer to Materials I.M. 491.09 for seal requirements.

TYPE 3 (Non - Sealed Joint)

Two connectors near the top of the pipe section. For details of reinforcement, refer to AASHTO M 170 for the class of pipe required.

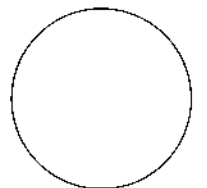
- 1 If holes are field drilled, place a ribbon of butyl sealant around bolts before placing 3 in. x 3 in. x 1/4 in. plate on bolts through corrugated metal pipe and tightening nuts.
- 2 1 1/2 inch round x 9/64 inch thick washer or 3 in. x 3 in. x 1/4 in. square plate (shaped to pipe radius).
- 3 Connectors with One Bend End and Bell End spacers allowed per Materials I.M. 451. Refer to Optional Bolts detail.
- 4 Engineering fabric for embankment erosion control.

Possible Tabulations:
104-3
104-5B

	REVISION	
	3	10-17-17
STANDARD ROAD PLAN		DR-121
REVISIONS: Added 104-5B to Possible Tabulations. Added Type 3 connection to storm sewer outlet.		SHEET 1 of 2
DRAWN BY: <i>Brian Smith</i> APPROVED BY DESIGN METHODS ENGINEER		

CONNECTED PIPE JOINTS

CONSULTANT:



**IOWA DEPARTMENT OF
NATURAL RESOURCES**

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034



TYPICAL CROSS SECTIONS AND DETAILS

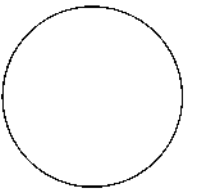
ROAD MAINTENANCE FOR:
RATHBUN WMA

APPANOOSE/LUCAS COUNTIES

NO. 1
BY DATE
REVISION
PROJECT NUMBER:
22-05-04-05
DATE:
JULY 2022
SHEET NO.:

B.04

CONSULTANT:



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



TYPICAL CROSS SECTIONS AND DETAILS

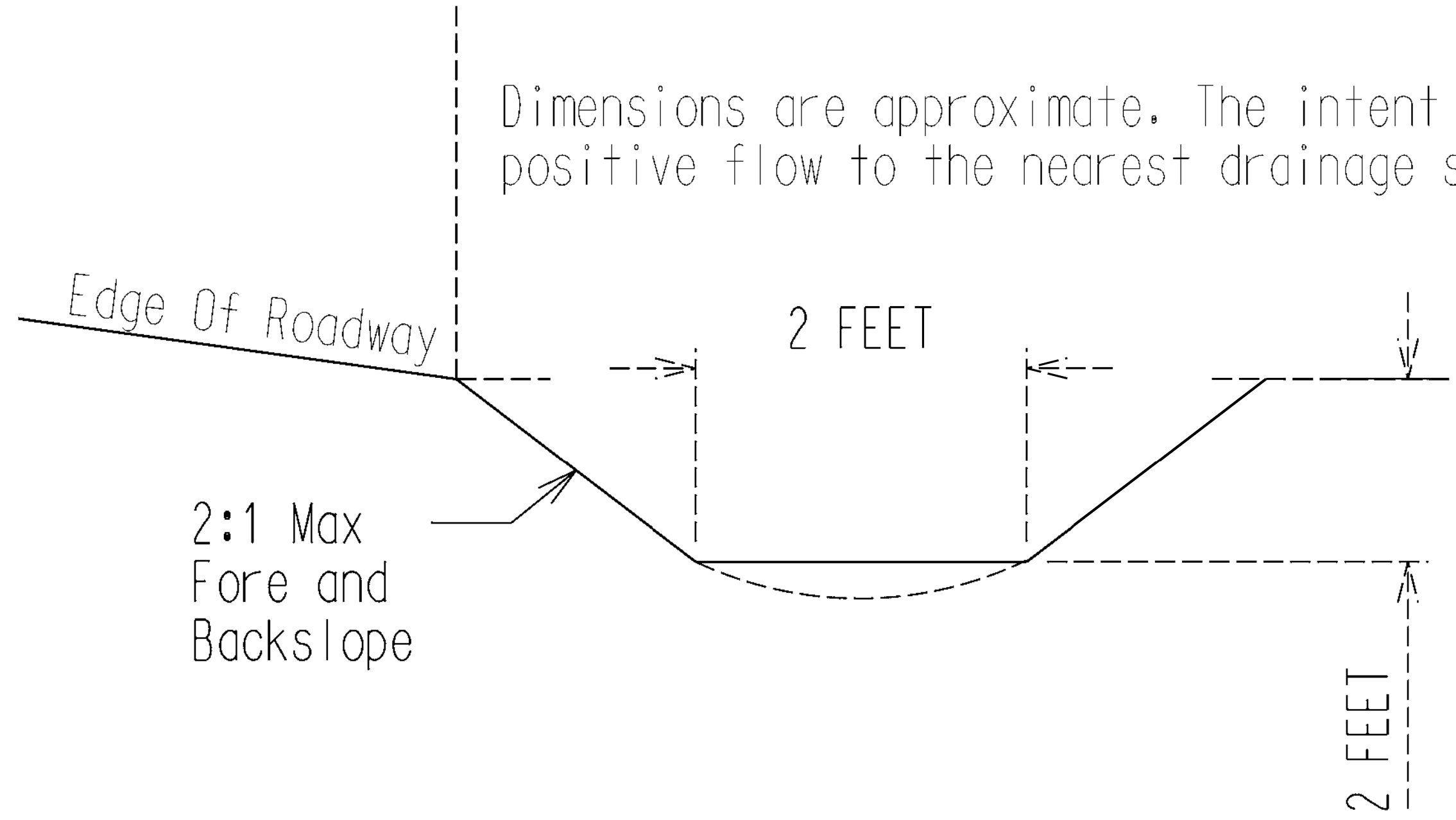
ROAD MAINTENANCE FOR:
RATHBUN WMA
APPANOOSE/LUCAS COUNTIES

NO.	BY	REVISION
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DRAWN BY:
BLF
PROJECT NUMBER:
22-05-04-05
CHK'D BY:
DATE:
JULY 2022
SHEET NO.:

B.05

Dimensions are approximate. The intent is for positive flow to the nearest drainage structure.



Typical Roadway Ditch Section
(Not To Scale)

ESTIMATED PROJECT QUANTITIES

[illegible]

ESTIMATE REFERENCE INFORMATION

ITEM NO.	DESCRIPTION
1	<p>A. Clear ALL trees and brush, 6-inches in diameter and smaller, flush with the ground, within 15 feet of both edges of roadway.</p> <p>B. Trees/brush may be cleared in any manner allowed - cutting, grinding, chipping, fecon, pushed/dozed back, etc.</p> <p>C. Trees/brush chipped, grinded and/or pushed back may be left where they land. Cut trees/brush must be removed from project site.</p>
2	<p>A. Clean ditches for 1 station either side of new culvert inlet, and at locations indicated, for positive flow to nearest inlet.</p> <p>B. Remove any excess spoil from project site.</p>
3	<p>A. Repair all potholes by scarifying surrounding area to depth of pothole and recompacting.</p> <p>B. Re-establish roadway crown; 6% positive drainage each way from centerline and 4% across the width of banked sections.</p> <p>C. Remove any high shoulders before spreading new rock.</p> <p>D. See sheet B.01 for typical roadway cross section.</p>
4,5	<p>A. A final leveling of the aggregate after spreading is required.</p> <p>B. Roll aggregate after spreading.</p> <p>C. DOT approved source.</p>
6/7	<p>A. DNR Field Engineer will set Inlet/Outlet flowline elevations.</p> <p>B. Center length of culvert with centerline of roadway.</p> <p>C. Wrap and pin all connections - use Type 3 connections, see detail sheet B.0X.</p> <p>D. Dewatering is incidental to this item.</p> <p>E. Dispose of existing culvert off project site.</p>
8	<p>A. Place at inlet/outlet of new RCP culverts as directed on plans.</p> <p>B. DOT approved source.</p>
9/10	<p>A. Place at inlet/outlet of new RCP culverts as directed on plans.</p> <p>B. Dot approved source.</p>
11	<p>A. Follow Iowa DOT Specification 2528 for set-up details.</p>
14	<p>A. Seed and fertilize all disturbed areas.</p>

GENERAL NOTES

Verify actual locations and elevations with DNR Engineer.

All work shall conform to and be performed in accordance with all applicable codes and ordinances.

The contractor shall visit the site and inspect the project area and thoroughly familiarize themselves with the actual job conditions prior to bidding and the start of work. Failure to visit the project site shall not relieve the contractor from performing the work in accordance to the plans, specification, special provisions and contract.

The contractor shall verify, at the site, all dimensions and conditions shown on the plans and shall notify the DNR Engineer of any discrepancies, omissions, and/or conflicts prior to proceeding with the work.

It shall be the contractor's responsibility to provide waste areas or disposal sites for excess material (excavated material or broken concrete) which is not desirable to be incorporated into the work involved on this project. No payment for overhaul will be allowed for material hauled to these sites. No material shall be placed within the right-of-way, unless specifically stated in the plans or approved by the DNR Engineer.

The contractor shall not disturb desirable grass areas and desirable trees outside the construction limits. The contractor will not be permitted to park or service vehicles and equipment or use these areas for storage of materials. Storage, parking and service areas will be subject to the approval of the DNR Engineer.

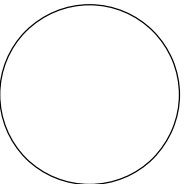
Where utilities and fixtures are shown as Existing on the plans or encountered within the construction area, it shall be the responsibility of the contractor to notify the DNR Engineer of those utilities prior to the beginning of any construction. The contractor shall be afforded access to these facilities for necessary modification of services. Underground facilities, structures and utilities have been plotted from available surveys and records and therefore their locations must be considered approximate only. It is possible there may be others, the existence of which is presently not known or shown. It is the contractor's responsibility to determine their existence and exact location and to avoid damage thereto. No claims for additional compensation will be allowed to the contractor for any interference or delay caused by such work.

The contractor shall shape graded area to maintain surface drainage. All elevations are to finish grade.

The contractor is expected to have materials, equipment, and labor available on a daily basis to install and maintain erosion control features on the project. This may involve seeding, silt fence, rock ditch checks, silt basins or silt dikes.

NO WORK FROM 12 NOON FRIDAYS, UNTIL THE FOLLOWING MONDAY.

CONSULTANT:



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502 E. 9TH ST., DES MOINES, IA 50319-0034



QUANTITIES AND GENERAL INFORMATION

ROAD MAINTENANCE FOR:

RATHBUN WMA

APPANOOSE/LUCAS COUNTIES

NO.	BY DATE	REVISION
DRAWN BY:		PROJECT NUMBER:
BLF		22-05-04-05
CHK'D BY:	DATE:	
	JULY 2022	
SHEET No:		

SHEET No:

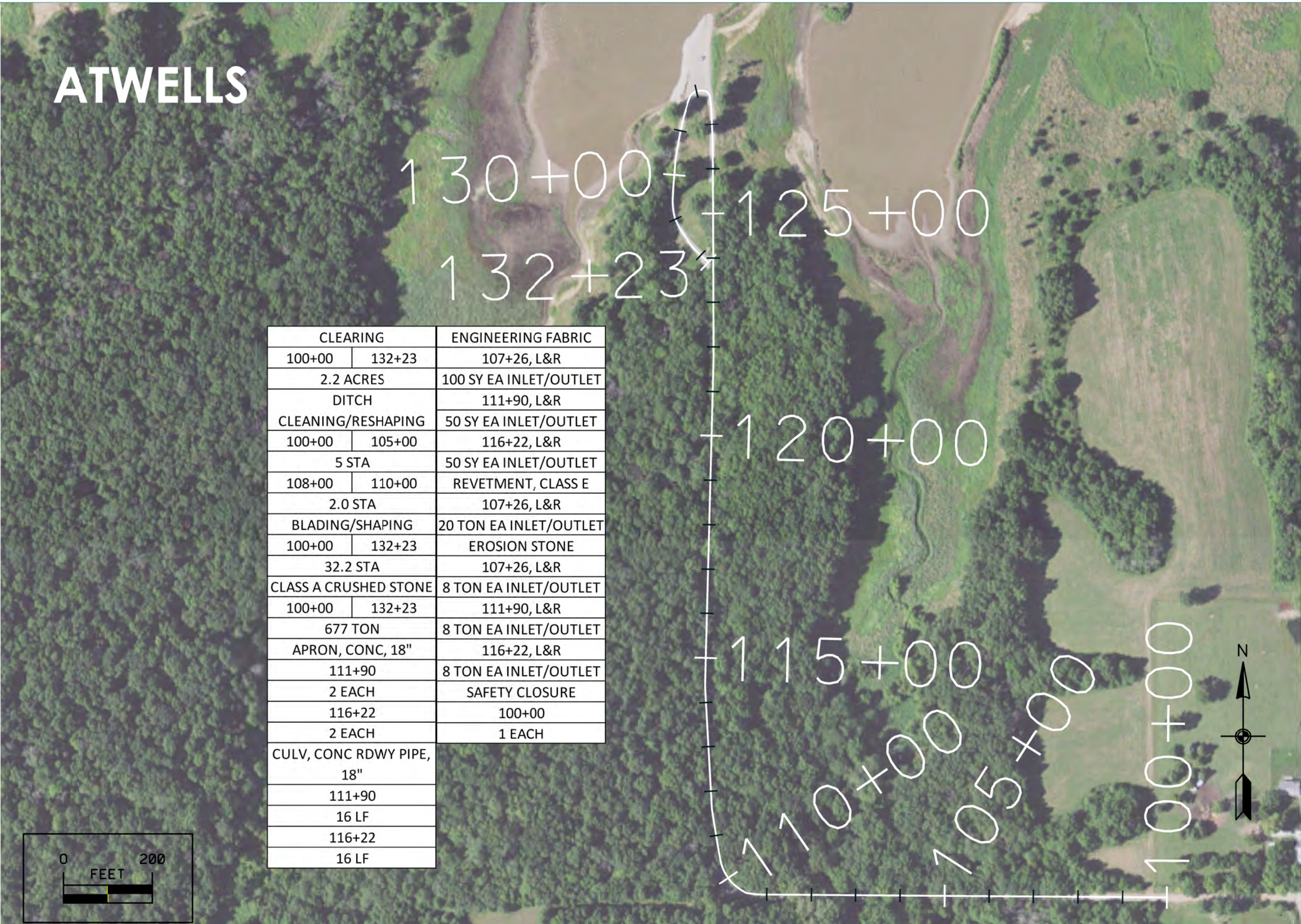
C.01

ATWELLS

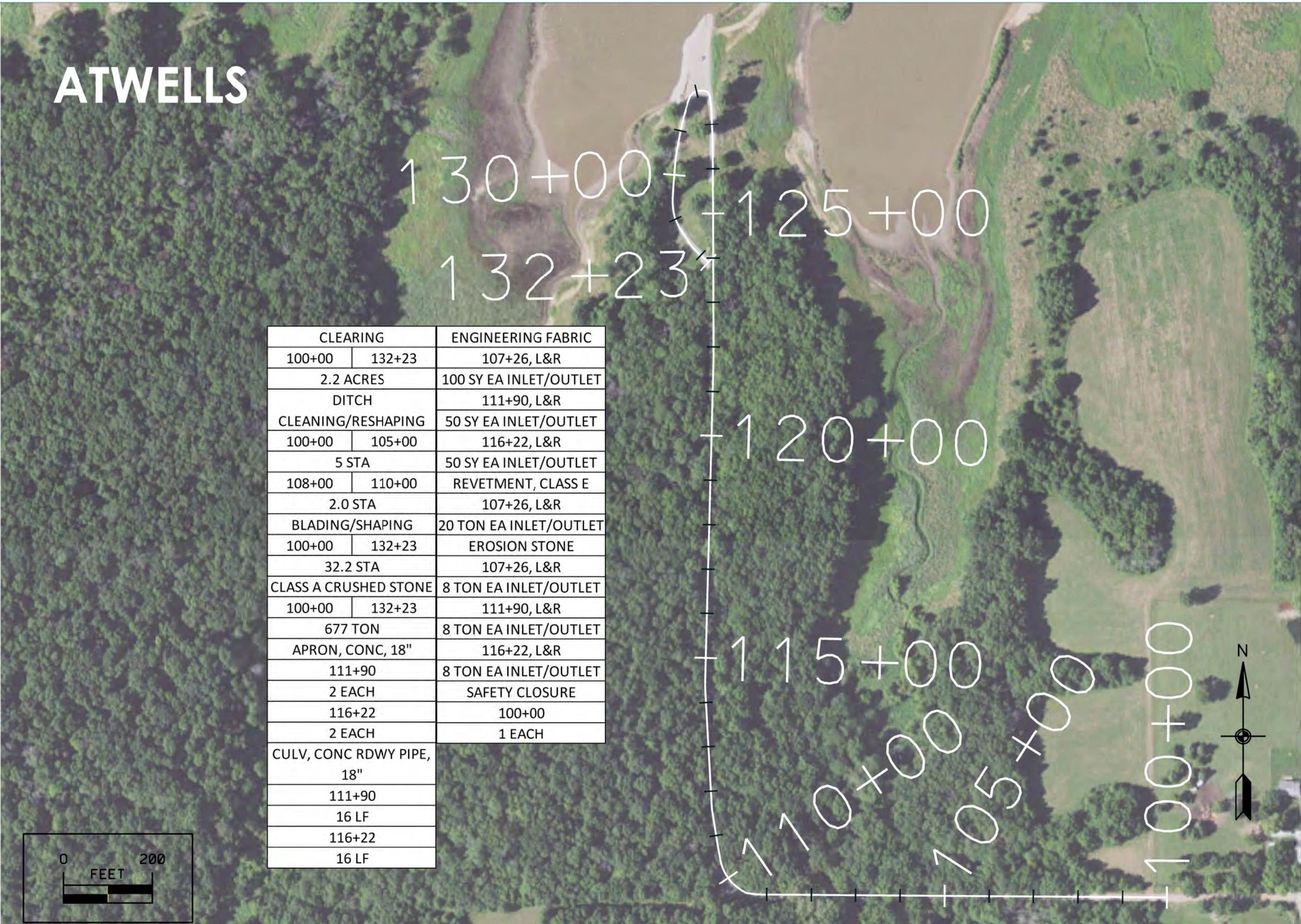
CLEARING		ENGINEERING FABRIC
100+00	132+23	107+26, L&R
2.2 ACRES		100 SY EA INLET/OUTLET
DITCH		111+90, L&R
CLEANING/RESHAPING		50 SY EA INLET/OUTLET
100+00	105+00	116+22, L&R
5 STA		50 SY EA INLET/OUTLET
108+00	110+00	REVTMENT, CLASS E
2.0 STA		107+26, L&R
BLADING/SHAPING		20 TON EA INLET/OUTLET
100+00	132+23	EROSION STONE
32.2 STA		107+26, L&R
CLASS A CRUSHED STONE		8 TON EA INLET/OUTLET
100+00	132+23	111+90, L&R
677 TON		8 TON EA INLET/OUTLET
APRON, CONC, 18"		116+22, L&R
111+90		8 TON EA INLET/OUTLET
2 EACH		SAFETY CLOSURE
116+22		100+00
2 EACH		1 EACH
CULV, CONC RDWY PIPE, 18"		
111+90		
16 LF		
116+22		
16 LF		

ATWELLS

CLEARING		ENGINEERING FABRIC
100+00	132+23	107+26, L&R
2.2 ACRES		100 SY EA INLET/OUTLET
DITCH		111+90, L&R
CLEANING/RESHAPING		50 SY EA INLET/OUTLET
100+00	105+00	116+22, L&R
5 STA		50 SY EA INLET/OUTLET
108+00	110+00	REVTMENT, CLASS E
2.0 STA		107+26, L&R
BLADING/SHAPING		20 TON EA INLET/OUTLET
100+00	132+23	EROSION STONE
32.2 STA		107+26, L&R
CLASS A CRUSHED STONE		8 TON EA INLET/OUTLET
100+00	132+23	111+90, L&R
677 TON		8 TON EA INLET/OUTLET
APRON, CONC, 18"		116+22, L&R
111+90		8 TON EA INLET/OUTLET
2 EACH		SAFETY CLOSURE
116+22		100+00
2 EACH		1 EACH
CULV, CONC RDWY PIPE, 18"		
111+90		
16 LF		
116+22		
16 LF		



ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034



ROAD MAINTENANCE FOR:-

APPANOOSE/LUCAS COUNTIES

ATWELLS

CLEARING		ENGINEERING FABRIC
100+00	132+23	107+26, L&R
2.2 ACRES		100 SY EA INLET/OUTLET
DITCH		111+90, L&R
CLEANING/RESHAPING		50 SY EA INLET/OUTLET
100+00	105+00	116+22, L&R
5 STA		50 SY EA INLET/OUTLET
108+00	110+00	REVTMENT, CLASS E
2.0 STA		107+26, L&R
BLADING/SHAPING		20 TON EA INLET/OUTLET
100+00	132+23	EROSION STONE
32.2 STA		107+26, L&R
CLASS A CRUSHED STONE		8 TON EA INLET/OUTLET
100+00	132+23	111+90, L&R
677 TON		8 TON EA INLET/OUTLET
APRON, CONC, 18"		116+22, L&R
111+90		8 TON EA INLET/OUTLET
2 EACH		SAFETY CLOSURE
116+22		100+00
2 EACH		1 EACH
CULV, CONC RDWY PIPE, 18"		
111+90		
16 LF		
116+22		
16 LF		

ATWELLS

CLEARING		ENGINEERING FABRIC
100+00	132+23	107+26, L&R
2.2 ACRES		100 SY EA INLET/OUTLET
DITCH		111+90, L&R
CLEANING/RESHAPING		50 SY EA INLET/OUTLET
100+00	105+00	116+22, L&R
5 STA		50 SY EA INLET/OUTLET
108+00	110+00	REVTMENT, CLASS E
2.0 STA		107+26, L&R
BLADING/SHAPING		20 TON EA INLET/OUTLET
100+00	132+23	EROSION STONE
32.2 STA		107+26, L&R
CLASS A CRUSHED STONE		8 TON EA INLET/OUTLET
100+00	132+23	111+90, L&R
677 TON		8 TON EA INLET/OUTLET
APRON, CONC, 18"		116+22, L&R
111+90		8 TON EA INLET/OUTLET
2 EACH		SAFETY CLOSURE
116+22		100+00
2 EACH		1 EACH
CULV, CONC RDWY PIPE, 18"		
111+90		
16 LF		
116+22		
16 LF		

RED WING CIRCLE

CLEARING	
200+00	215+53
1.1 ACRES	
DITCH	
CLEANING/RESHAPING	
200+00	215+53
15.5 STA	
BLADING/SHAPING	
200+00	215+53
15.5 STA	
CLASS A CRUSHED STONE	
200+00	215+53
327 TON	
SAFETY CLOSURE	
200+00	
1 EACH	

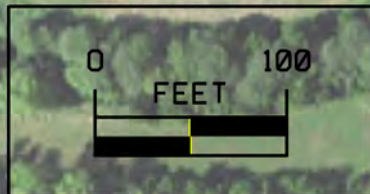
200+00

205+00

210+00

215+00

215 + 53



CONSULTANT:

IOWA DEPARTMENT OF
NATURAL RESOURCES

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502 E. 9TH ST., DES MOINES, IA 50319-0034



SITE PLAN

ROAD MAINTENANCE FOR:

RATHBUN WMA

APPANOOSE/LUCAS COUNTIES

[illegible]

D.02

SOUTH FORK - HOUSTON'S TRACT

CLEARING	
300+00	306+82
0.42 ACRES	
DITCH	
CLEANING/RESHAPING	
300+00	306+82
6.8 STA	
BLADING/SHAPING	
300+00	306+82
6.8 STA	
CLASS A CRUSHED STONE	
300+00	306+82
144 TON	
CRUSHED STONE - 2-INCH	
300+00	306+82
125 TON	
ENGINEERING FABRIC	
303+00, L&R	
100 SY EA INLET/OUTLET	
REVTMENT, CLASS E	
303+00, L&R	
20 TON EA INLET/OUTLET	
EROSION STONE	
303+00, L&R	
8 TON EA INLET/OUTLET	
SAFETY CLOSURE	
300+00	

306 + 82

305 + 00

300 + 00

7



CONSULTANT:

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NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING
502 E. 9TH ST., DES MOINES, IA 50319-0034



SITE PLAN

ROAD MAINTENANCE FOR:-

APPANOOSE/LUCAS COUNTIES

NO.	BY DATE	REVISION
DRAWN BY: BLF		PROJECT NUMBER: 22-05-04-05
CHECK BY:		DATE: JULY 2022
SHEET NO:		

D.03

GOODWATER ACCESS

BLADING/SHAPING	
400+00	402+76
3 STA	
CLASS A CRUSHED STONE	
400+00	401+48
68 TON	
SAFETY CLOSURE	
400+00	
1 EACH	

402+76

400+00

KNOCK DOWN 20 FEET OF HIGH SHOULDER TO KEEP WATER FROM RUNNING ACROSS ACCESS ENTRANCE ROAD. SEED ALL DISTURBED AREAS.

0 100
FEET

N

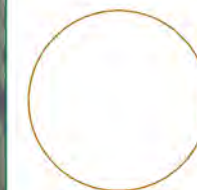
BLADING/SHAPING	
400+00	402+76
3 STA	
CLASS A CRUSHED STONE	
400+00	401+48
68 TON	
SAFETY CLOSURE	
400+00	
1 EACH	

 $402 + 76$

400+00

**- KNOCK DOWN 20 FEET OF HIGH SHOULDER
TO KEEP WATER FROM RUNNING ACROSS
ACCESS ENTRANCE ROAD.
SEED ALL DISTURBED AREAS.**

1

IOWA DEPARTMENT OF
NATURAL RESOURCES

ENGINEERING SERVICES - WALLACE BUILDING



SITE PLAN

ROAD MAINTENANCE FOR:

RATHBUN WMA

OBAMA/JOSEPH/ILLIC AND COUNTIES

NO.	BY [DATE]	REVISION
DRAWN BY:	PROJECT NUMBER:	
BLF	22-05-04-05	
CHECKED BY:	DATE:	
	JULY 2022	

D.04