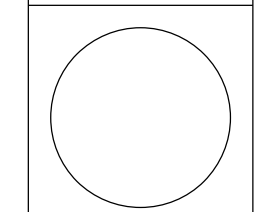


**PROJECT LOCATION**

CONSULTANT:



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



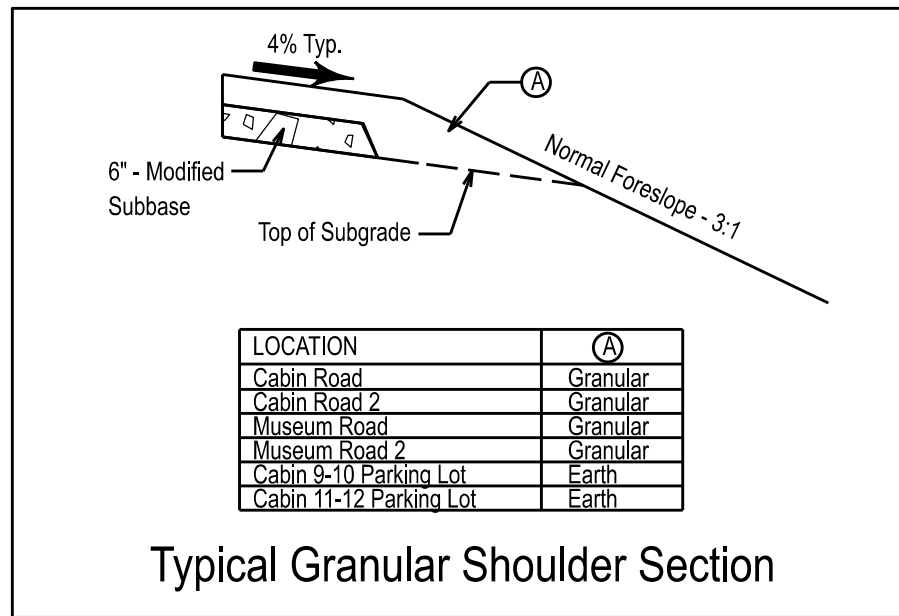
**PROJECT LOCATION MAP**  
 Coble and Museum Road Reconstruction For:  
**BACKBONE STATE PARK**  
 DELAWARE COUNTY

NO.	BY	REVISION

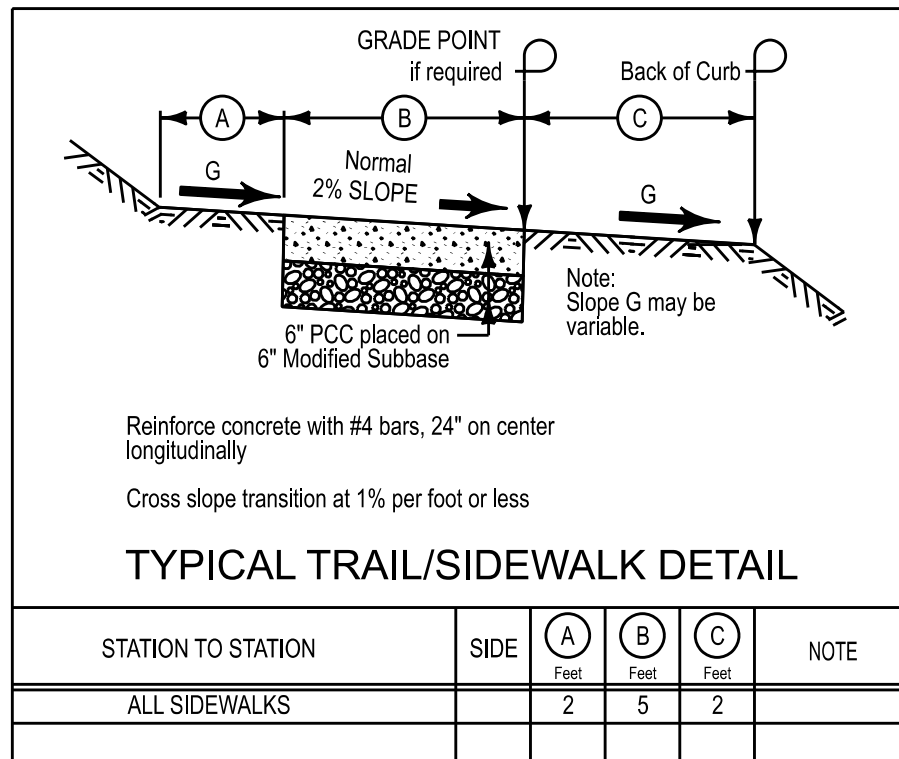
DRAWN BY: PROJECT NUMBER:  
 21-03-28-02

CHK'D BY: DATE:  
 November 17, 2022

SHEET NO:  
**A.02**



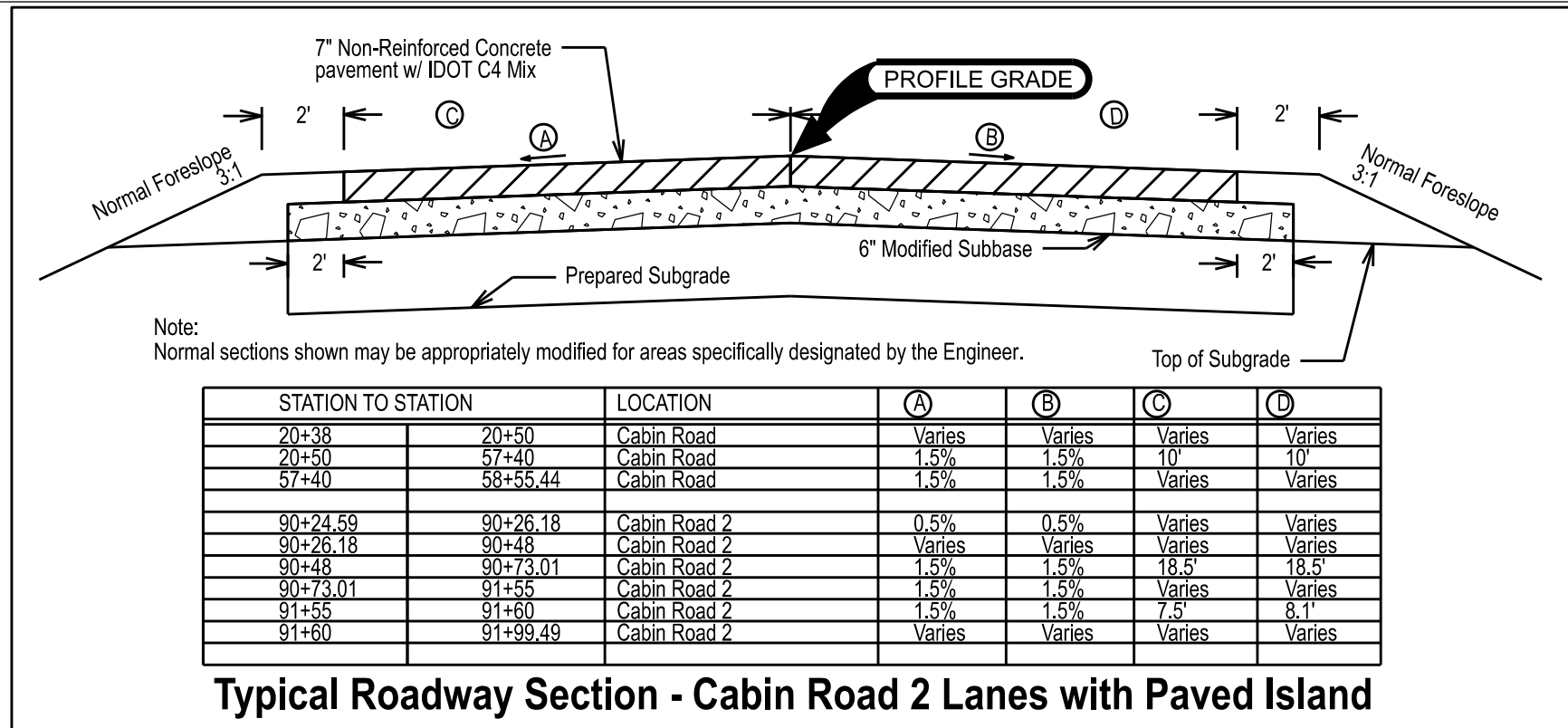
Typical Granular Shoulder Section



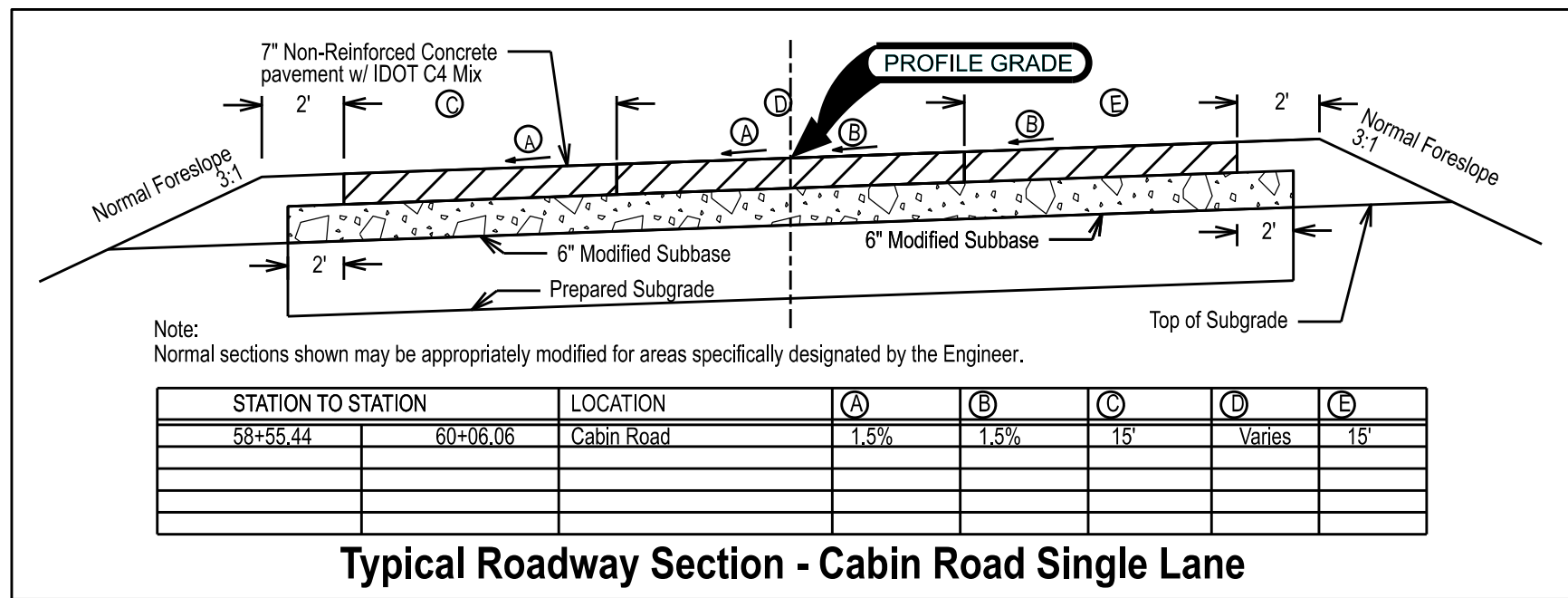
TYPICAL TRAIL/SIDEWALK DETAIL

Number	Date
DR-101	4-18-17
DR-102	4-21-15
DR-121	10-17-17
DR-201	4-21-20
DR-213	10-18-22
EC-104	4-17-18
EC-204	10-19-21
PM-120	10-21-14
PV-101	4-19-22
SW-303	10-18-22
SW-513	4-20-21
TC-252	4-21-20

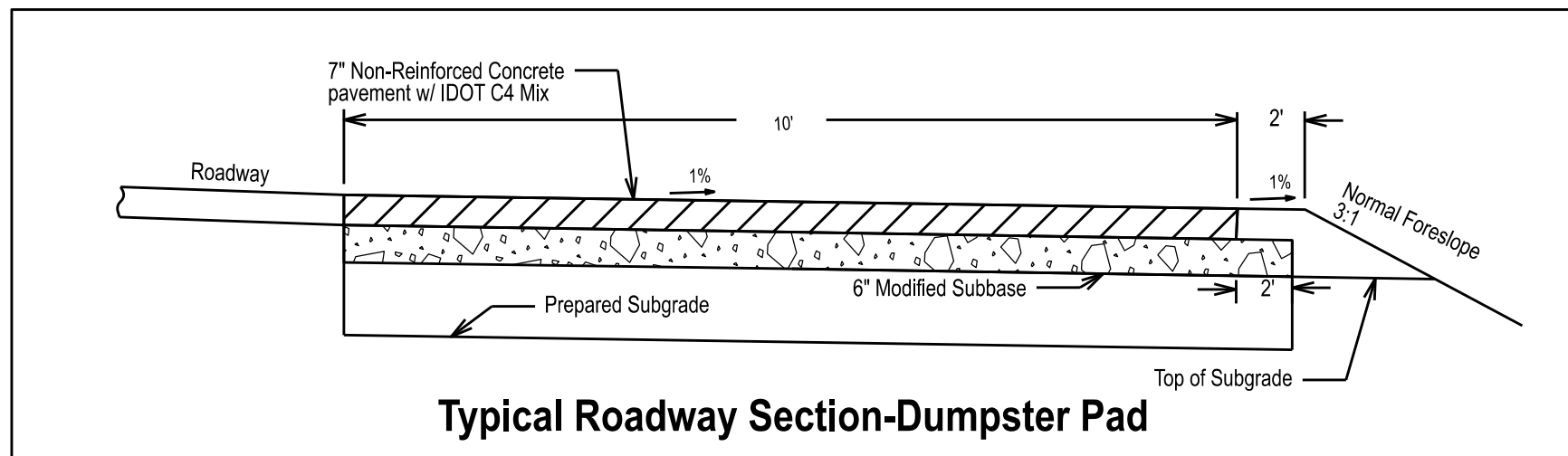
Iowa DOT Standard Road Plans



Typical Roadway Section - Cabin Road 2 Lanes with Paved Island

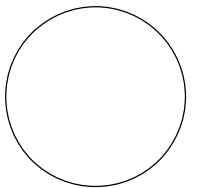


Typical Roadway Section - Cabin Road Single Lane



Typical Roadway Section-Dumpster Pad

CONSULTANT:



IOWA DEPARTMENT OF  
NATURAL RESOURCES

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



TYPICAL CROSS SECTIONS AND DETAILS

Cabin and Museum Road Reconstruction For:

BACKBONE STATE PARK

DELAWARE COUNTY

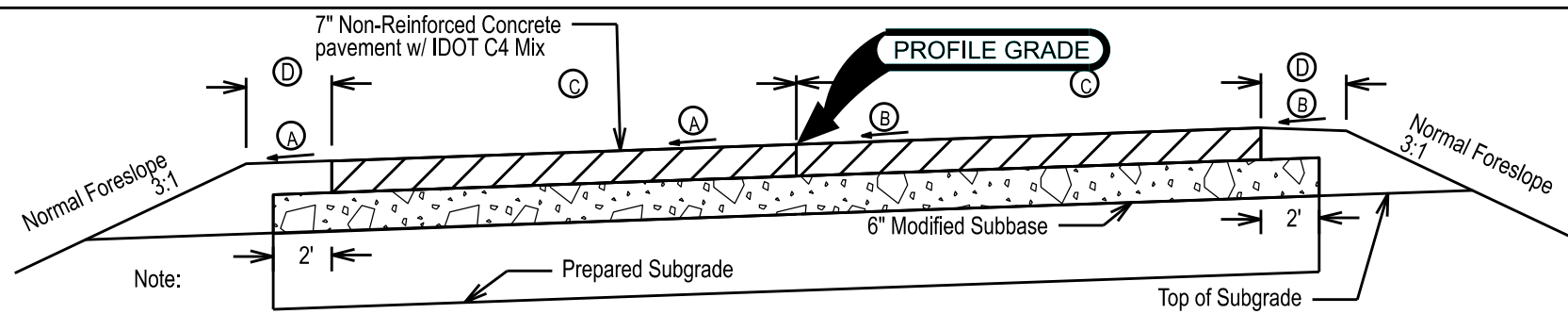
NO.	BY	REVISION

DRAWN BY: PROJECT NUMBER:  
21-03-28-02

CHK'D BY: DATE:  
November 17, 2022

SHEET NO:

B.01

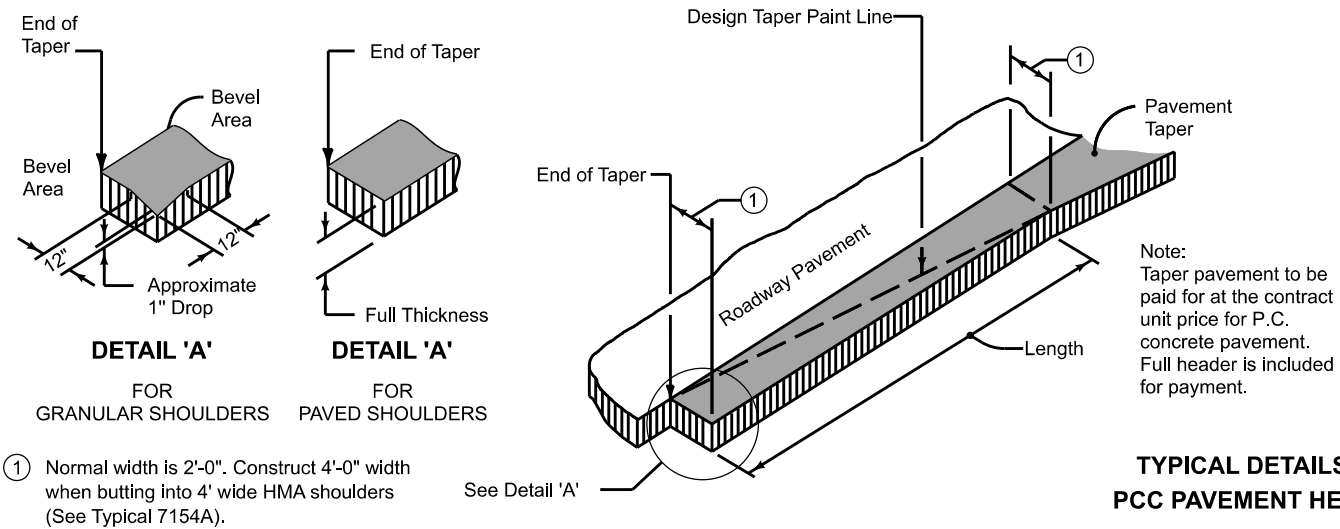


Note:

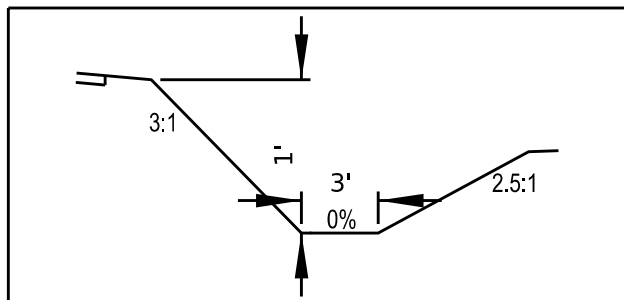
Normal sections shown may be appropriately modified for areas specifically designated by the Engineer.

STATION TO STATION		LOCATION	(A)	(B)	(C)	(D)
0+28.26	2+15	Museum Road	2.0%	2.0%	8	2
2+15	2+64.78	Museum Road	Varies	Varies	Varies	Varies
10+10	10+15	Museum Road 2	1.0%	1.0%	8 RT/10 LT	2
10+15	10+31.95	Museum Road 2	Varies	Varies	Varies	Varies

### Typical Roadway Section - Museum Entrance

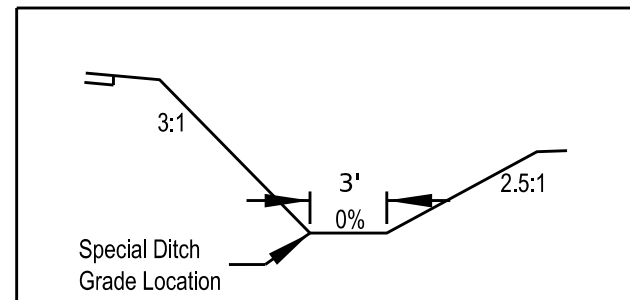


① Normal width is 2'-0". Construct 4'-0" width when butting into 4' wide HMA shoulders (See Typical 7154A).



STATION TO STATION		LOCATION
27+80 RT	35+15 RT	Cabin Road
35+20 RT	38+25 RT	Cabin Road
38+30 RT	41+86 RT	Cabin Road
42+90 RT	47+85 RT	Cabin Road
47+90 RT	57+40 RT	Cabin Road
57+45 RT	59+45.5 RT	Cabin Road
35+20 LT	38+25 LT	Cabin Road
47+90 LT	57+40 LT	Cabin Road

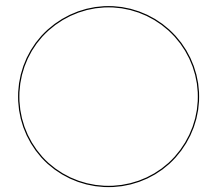
### Typical Ditch Detail



START	END	SLOPE	LOCATION	
27+90 RT	1021.89	28+45 RT	9.75%	Cabin Road
40+00 RT	1054.19	41+30 RT	7.80%	Cabin Road
41+30 RT	1064.33	41+90 RT	9.10%	Cabin Road
46+80 RT	1064.81	47+20 RT	-8.40%	Cabin Road
47+90 LT	1072.20	50+10 LT	8.10%	Cabin Road
50+30 LT	1091.48	50+85 LT	7.40%	Cabin Road
57+00 RT	1099.07	57+85 RT	-2.43%	Cabin Road
57+85 RT	1097.00	58+32 RT	2.16%	Cabin Road

### Special Ditch Grade

CONSULTANT:



**IOWA DEPARTMENT OF NATURAL RESOURCES**

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



**TYPICAL CROSS SECTIONS AND DETAILS**

Cabin and Museum Road Reconstruction For:

**BACKBONE STATE PARK**

DELAWARE COUNTY

NO. BY DATE REVISION

NO.	BY	DATE	REVISION

DRAWN BY: PROJECT NUMBER:  
21-03-28-02

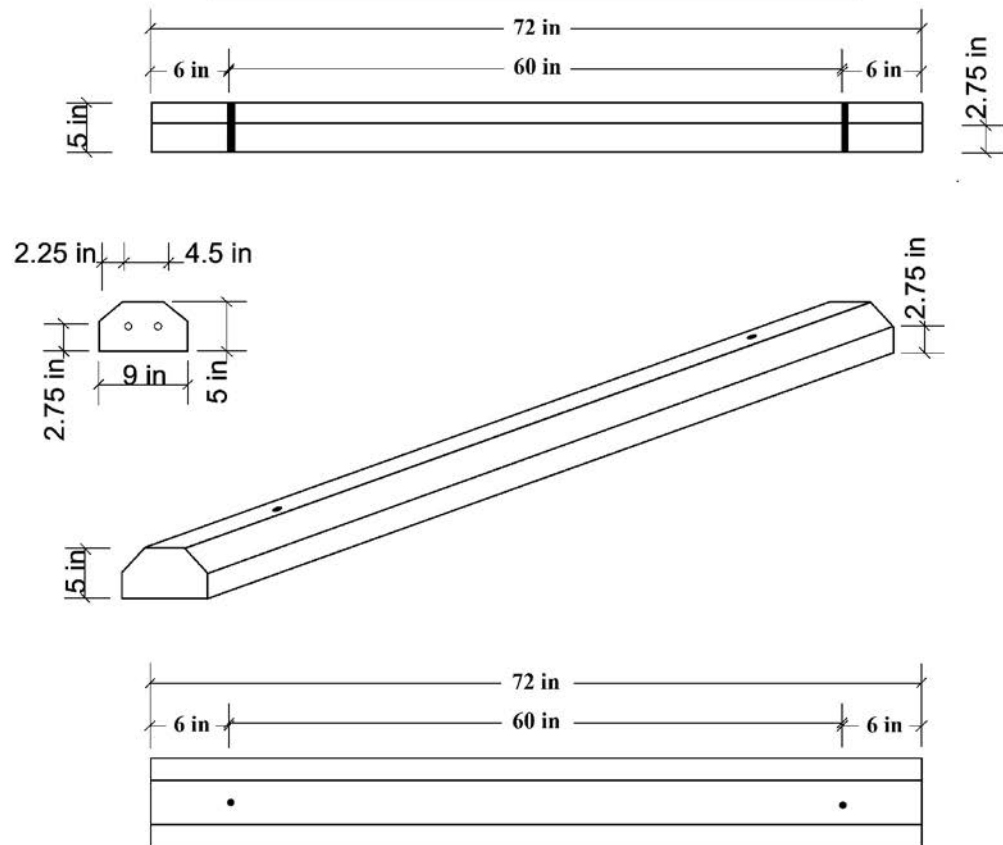
CHK'D BY: DATE:  
November 17, 2022

SHEET NO.:

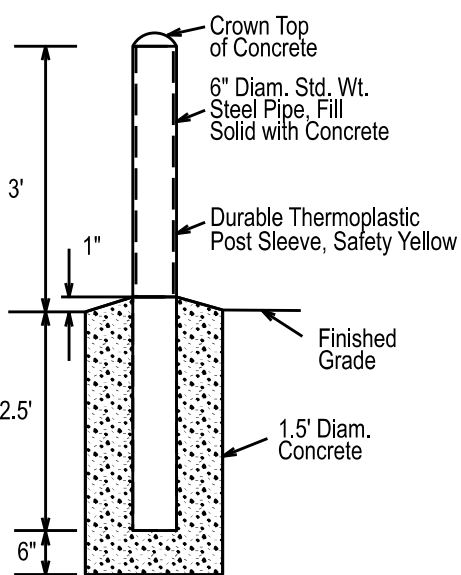
**B.02**



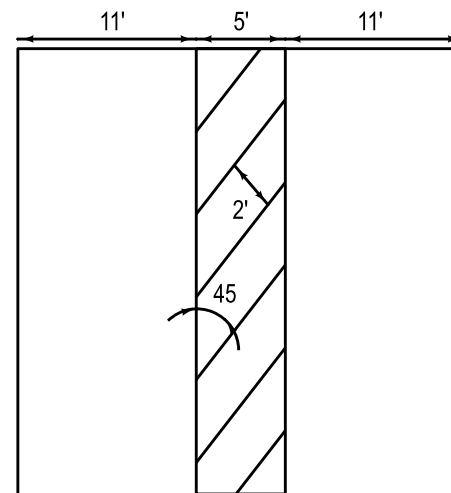
## FLAT PARKING BUMPER



Air Entrained Concrete  
 4000 p.s.i. @ 28 days  
 Length: **6'0"**  
 Height: **5"**  
 Width: **9"**



**CONCRETE BOLLARD DETAIL**



Painted Pavement Markings,  
 Waterborne/Solvent - White

**ACCESS ISLE PAINTING DETAIL**

MUTCD R7-8  
 SOLID GREEN LEGEND  
 AND BORDER  
 REFLECTIVE WHITE  
 BACKGROUND  
 WHITE ACCESSIBILITY  
 SYMBOL ON  
 BLUE BACKGROUND

MUTCD R7-8P  
 SOLID GREEN LEGEND  
 AND BORDER  
 REFLECTIVE WHITE  
 BACKGROUND  
 REQUIRED FOR VAN  
 ACCESSIBLE  
 SPACES ONLY

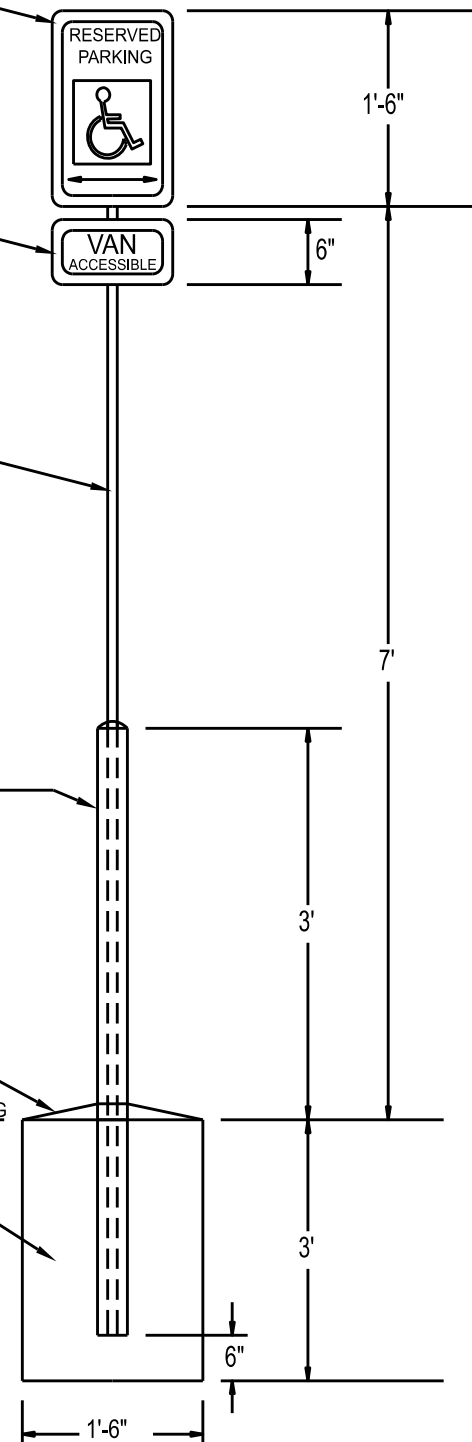
"U"-CHANNEL  
 POST (2 LBS./FT.)

USE 6" PIPE BOLLARD  
 FILLED W/CONCRETE  
 AND PAINTED TRAFFIC  
 YELLOW ONLY WHEN  
 SIGN IS IN PAVED AREA  
 OR SIDEWALK

SLOPE TOP OF  
 CONCRETE

GROUND/PAVING  
 SURFACE

3500 P.S.I. P.C.  
 CONCRETE  
 (WHEN PIPE  
 BOLLARD IS NOT  
 INSTALLED,  
 FOUNDATION  
 NOT REQUIRED)

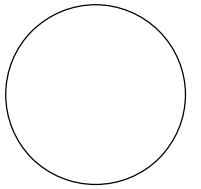


**NOTES**

1. 12"x18" ACCESSIBILITY SIGN (R7-8) SHALL BE MOUNTED 7' FROM FINISH GRADE TO BOTTOM EDGE OF SIGN FACE. MOUNTING HEIGHT MAY BE REDUCED TO 5' IF PLACED IN A LANDSCAPE AREA IN WHICH PEDESTRIANS ARE NOT EXPECTED TO USE.
2. BOLLARD MAY BE OMITTED IF INSTALLED IN LANDSCAPE AREAS. WHEN INSTALLED IN LANDSCAPE AREAS, MOUNTING POST SHALL BE DRIVEN A MINIMUM OF 3' BELOW FINISHED GRADE. ALTERNATE MOUNTING POSTS MUST BE APPROVED BY THE FIELD INSPECTOR PRIOR TO CONSTRUCTION.
3. SIGNAGE SHALL BE INSTALLED IN FRONT OF EACH ACCESSIBLE SPACE, CENTERED ON THE WIDTH OF THE SPACE.
4. REFER TO AMERICANS WITH DISABILITIES ACT AND ARCHITECTURAL BARRIERS ACT ACCESSIBILITY GUIDELINES (ADAAG), LATEST EDITION, FOR REQUIRED NUMBER OF ACCESSIBLE SPACE. PER ADAAG, ONE VAN ACCESSIBLE SPACE SHALL BE PROVIDED, MINIMUM, WITH ADDITIONAL VAN ACCESSIBLE SPACES PER ADAAG REQUIREMENTS.
5. ALL SIGNAGE SHALL BE ENGINEER GRADE .080 ALUMINUM REFLECTIVE SIGN MEETING THE REQUIREMENTS OF THE MUTCD AND ADAAG.

**HANDICAP SIGN DETAIL  
 NOT TO SCALE**

CONSULTANT:



**IOWA DEPARTMENT OF  
 NATURAL RESOURCES**

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



**TYPICAL CROSS SECTIONS AND DETAILS**

Coburn and Museum Road Reconstruction For:

**BACKBONE STATE PARK**

DELAWARE COUNTY

NO. BY DATE REVISION

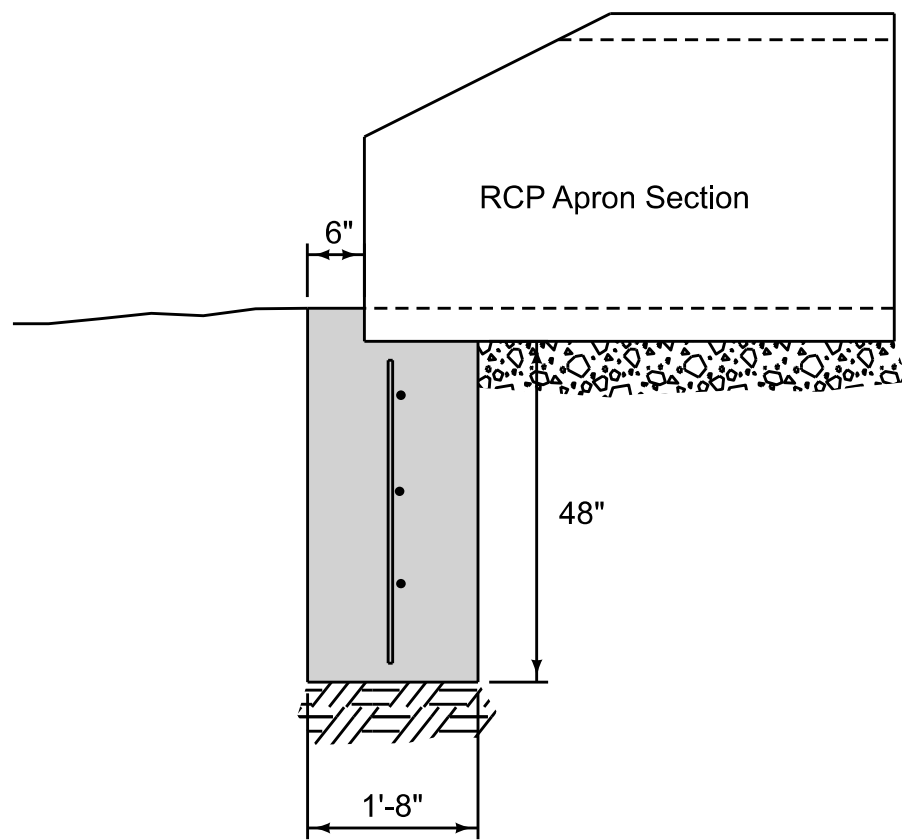
DRAWN BY PROJECT NUMBER:

21-03-28-02

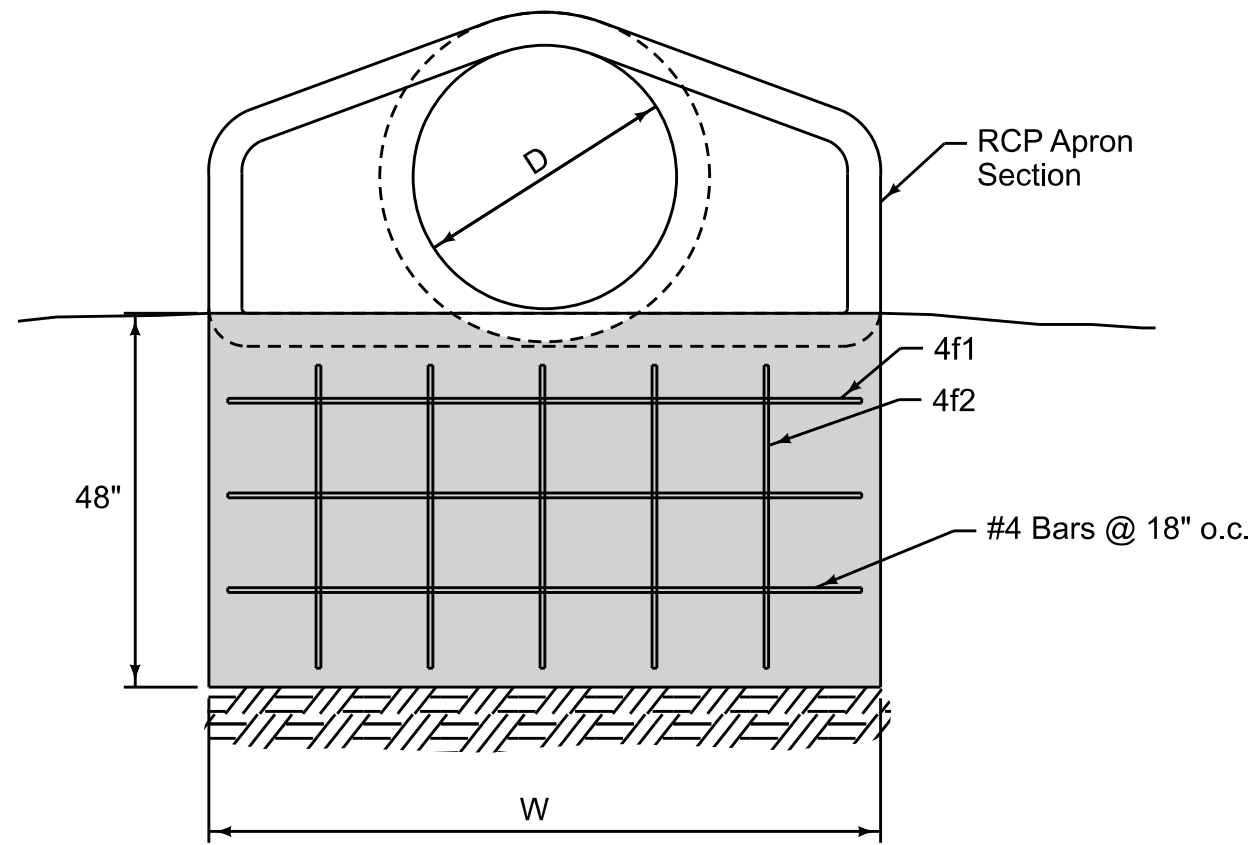
CHK'D BY DATE: November 17, 2022

SHEET NO:

**B.03**



TYPICAL SECTION



ELEVATION

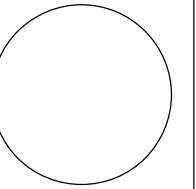
REINFORCING BAR LIST

D	W	Mark	Size	Length	Count
12"	2'-4"	4f1	4	2'-0"	3
		4f2	4	3'-8"	2
15"	2'-10 1/2"	4f1	4	2'-6 59/64"	3
		4f2	4	3'-8"	2
18"	3'-5"	4f1	4	3'-1"	3
		4f2	4	3'-8"	3
24"	4'-6"	4f1	4	4'-2"	3
		4f2	4	3'-8"	3
30"	5'-7"	4f1	4	5'-3"	3
		4f2	4	3'-8"	4
36"	6'-8"	4f1	4	6'-4"	3
		4f2	4	3'-8"	5
42"	7'-3"	4f1	4	6'-11"	3
		4f2	4	3'-8"	5

D	W	Mark	Size	Length	Count
48"	7'-10"	4f1	4	7'-6"	3
		4f2	4	3'-8"	6
54"	8'-5"	4f1	4	8'-1"	3
		4f2	4	3'-8"	6
60"	8'-11"	4f1	4	8'-7"	3
		4f2	4	3'-8"	6
66"	8'-11"	4f1	4	8'-7"	3
		4f2	4	3'-8"	6
72"	10'-0"	4f1	4	9'-8"	3
		4f2	4	3'-8"	7
78"	10'-7"	4f1	4	10'-3"	3
		4f2	4	3'-8"	7
84"	11'-1"	4f1	4	10'-9"	3
		4f2	4	3'-8"	8

RCP APRON SECTION FOOTING

CONSULTANT:



IOWA DEPARTMENT OF  
NATURAL RESOURCES

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



TYPICAL CROSS SECTIONS AND DETAILS

Coble and Museum Road Reconstruction For:  
BACKBONE STATE PARK

DELAWARE COUNTY

NO. BY DATE REVISION

1. 1. 1. 1.

2. 2. 2. 2.

3. 3. 3. 3.

4. 4. 4. 4.

5. 5. 5. 5.

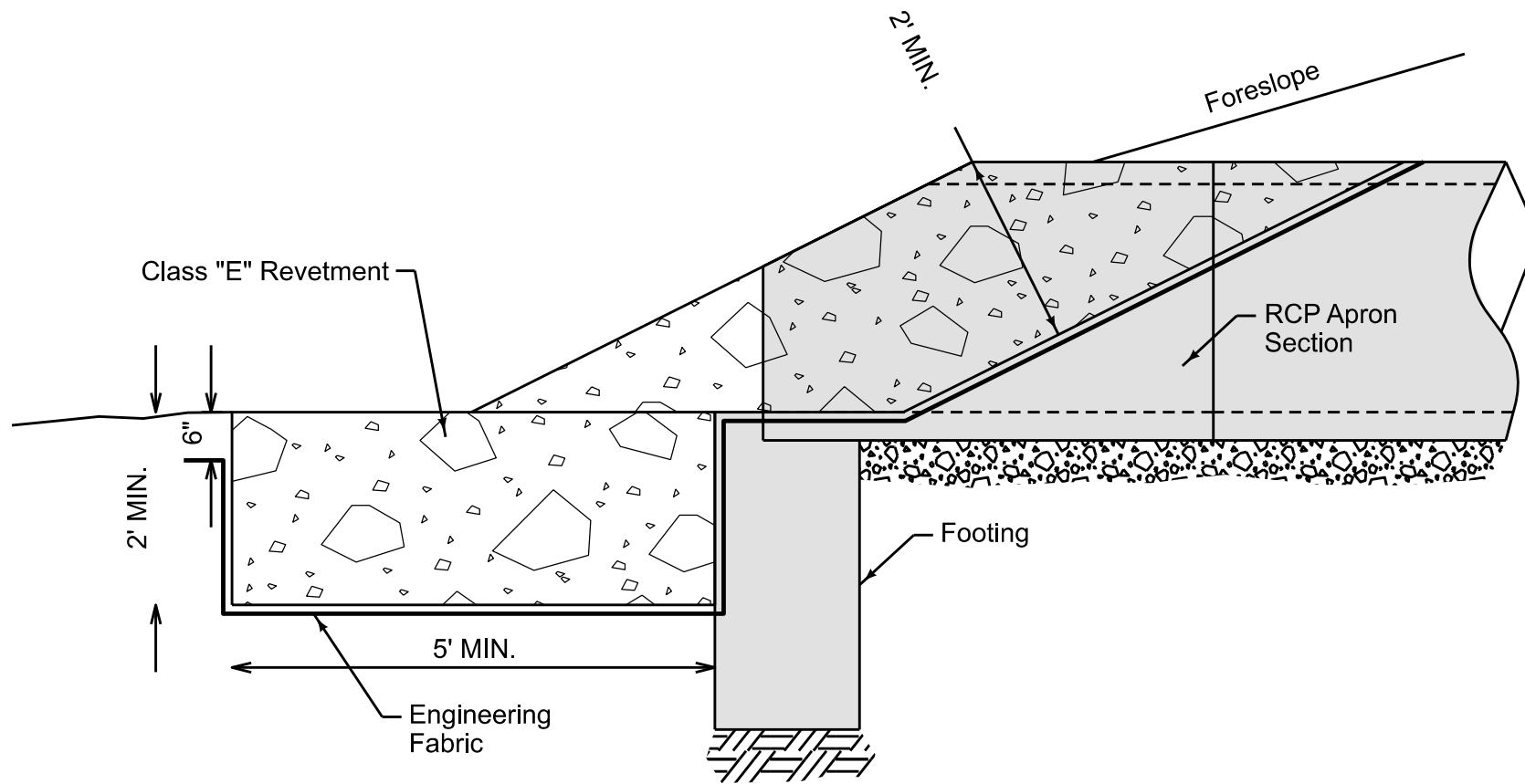
DRAWN BY: PROJECT NUMBER:

CHK'D BY: DATE:

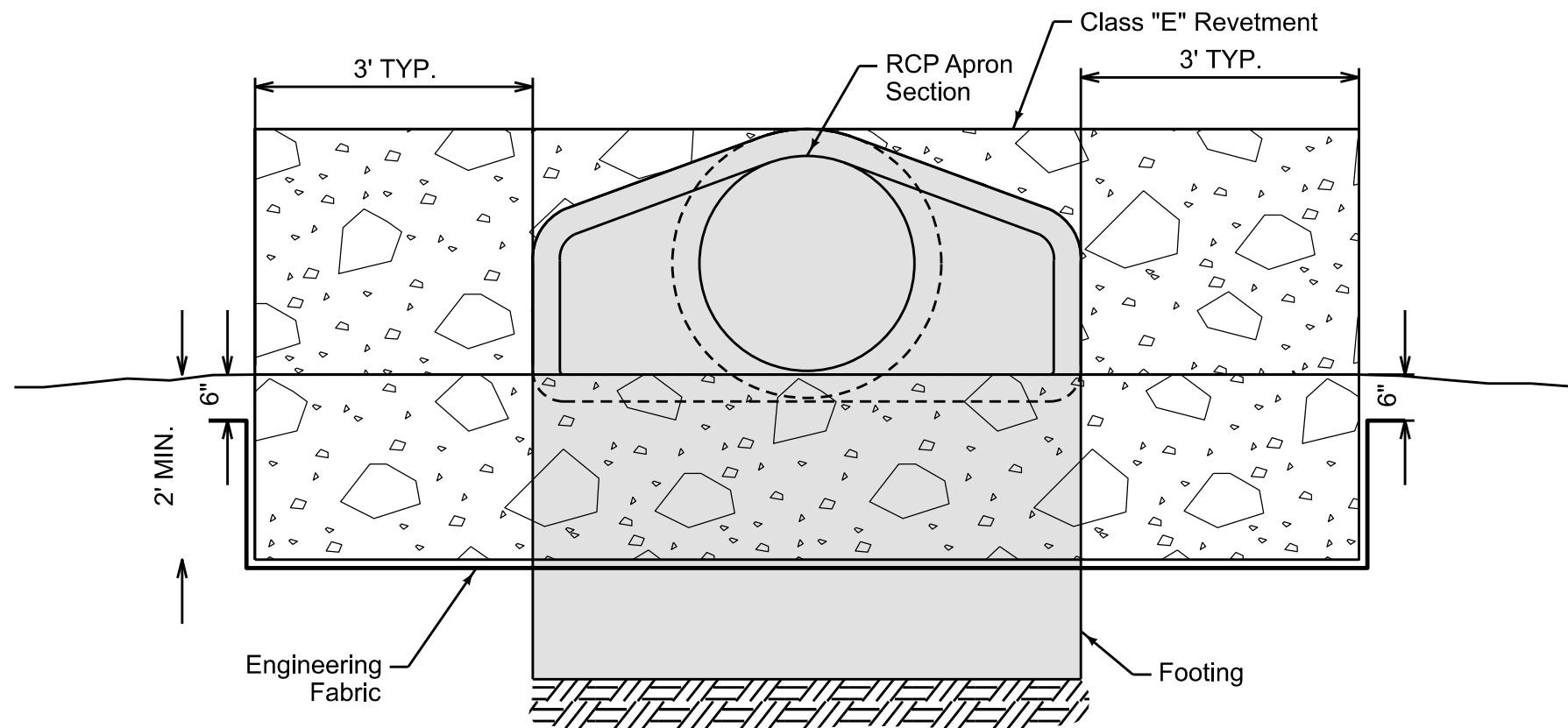
NOVEMBER 17, 2022

SHEET NO.:

B.04



TYPICAL SECTION



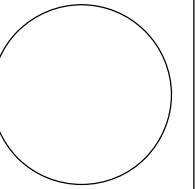
ELEVATION

CONSTRUCTION NOTES:

CLASS E REVETMENT SHOULD BE USED AND PLACED ACCORDING TO ARTICLE 2507.03 OF THE STANDARD SPECIFICATIONS.

THE ENGINEERING FABRIC SHALL MEET THE MATERIAL REQUIREMENTS IN ACCORDANCE WITH ARTICLE 4196.01, B, 3 OF THE STANDARD SPECIFICATIONS.

CONSULTANT:



IOWA DEPARTMENT OF  
NATURAL RESOURCES

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



TYPICAL CROSS SECTIONS AND DETAILS

Cobh and Museum Road Reconstruction For:

BACKBONE STATE PARK

DELAWARE COUNTY

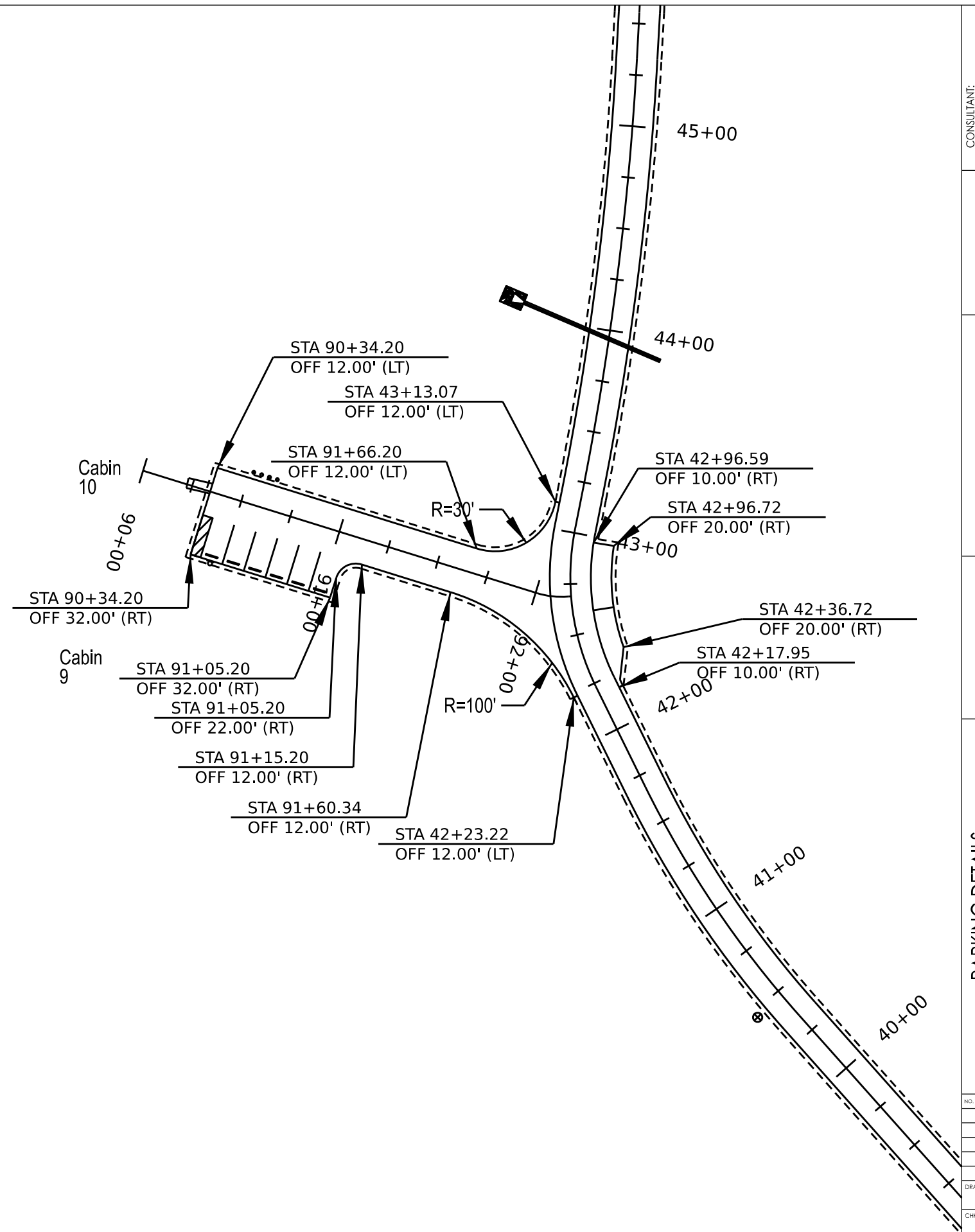
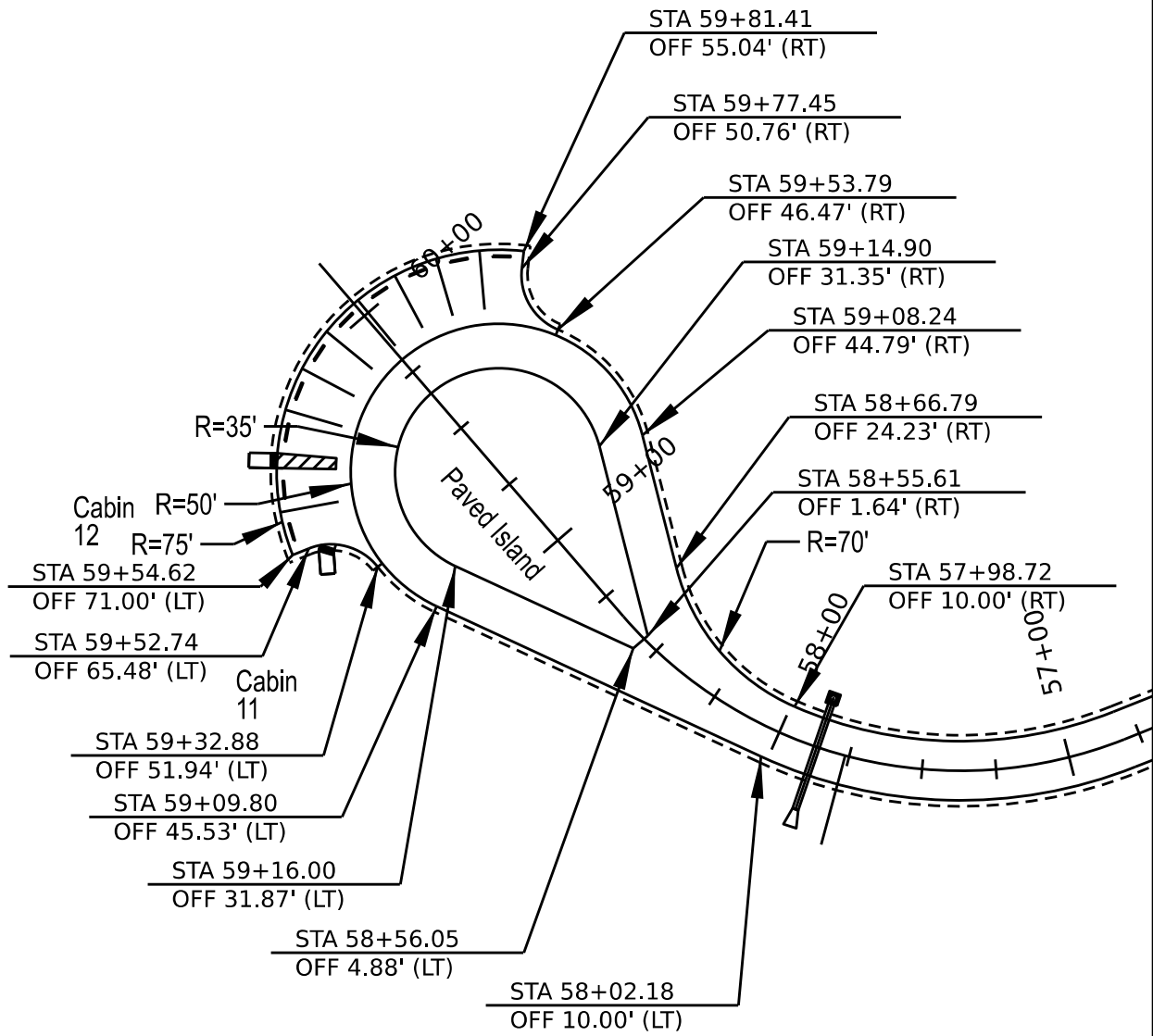
NO.	BY	REVISION

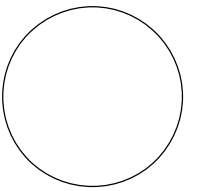
DRAWN BY:	PROJECT NUMBER:
	21-03-28-02
CHK'D BY:	DATE:
	November 17, 2022
SHEET NO.:	

**B.05**

EMBANKMENT  
PROTECTION DETAILS



CONSULTANT:



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



**PARKING DETAILS**

Cabin and Museum Road Reconstruction For:  
**BACKBONE STATE PARK**  
 DELAWARE COUNTY

NO.	BY	REVISION

DRAWN BY: PROJECT NUMBER:  
 21-03-28-02  
 CHK'D BY: DATE:  
 November 17, 2022  
 SHEET No: **B.06**



### ESTIMATED PROJECT QUANTITIES

ITEM NO.	ITEM	UNIT	TOTAL
1	Clearing and Grubbing	AC	6.80
2	Removal of Existing Pavement and Base	SY	7,799
3	Removal of Existing Sidewalk and Base	SY	31
4	Removal of Existing Parking Lot and Base	SY	148
5	Removal of Intake	EACH	1
6	Removal of Sanitary Sewer Manhole	EACH	6
7	Removal of Existing Reinforced Concrete Pipe < 36"	LF	63
8	Removal of Existing Corrugated Metal Pipe < 36"	LF	65
9	Removal of Headwall	LS	1
10	Removal of Existing Gate	LS	1
11	Manhole, Sanitary Sewer, SW-303, 48"	EACH	6
12	Manhole Adjustment, Minor	EACH	1
13	Intake, SW-513	EACH	2
14	Intake Investigation	EACH	2
15	Tile Investigation	LF	50
16	Intake Grate	EACH	1
17	Roadway Pavement, 7" PCC	SY	10,725
18	Parking Lot Pavement, 7" PCC	SY	606
19	Sidewalk, 6" PCC	SY	26
20	Special Backfill	TONS	4,209
21	Granular Shoulder, Type A	TONS	606
22	Reinforced Concrete Pipe, 18"	LF	72
23	Reinforced Concrete Pipe, 24"	LF	40
24	Reinforced Concrete Pipe, 30"	LF	90
25	Apron, Conc, 18"	EACH	1
26	Apron, Conc, 30"	EACH	1
27	Footing for Concrete Pipe Apron	EACH	2
28	Pipe Apron Guard, 18"	EACH	1
29	Pipe Apron Guard, 24"	EACH	1
30	Pipe Apron Guard, 30"	EACH	1
31	Erosion Control Mat, RECP Type 2.C	SQ	24
32	Excavation, Class 10, Roadway and Borrow	CY	869
33	Embankment-In-Place	CY	4,059
34	Revetment, Class E	TON	25
35	Painted Pavement Mark, High-Build Waterborne	LS	1
36	Precast Concrete Parking Wheel Stops	EACH	16
37	Detectable Warning Panel	SF	40
38	Seeding, Fertilizing, and Mulching	AC	6.80
39	Filter Sock, 8"	LF	9,310
40	Signing	EACH	10
41	NPDES General Permit #2 & SWPPP	EACH	1
42	Construction Staking	LS	1
43	Traffic Control	LS	1
44	Mobilization	LS	1

#### NOTES

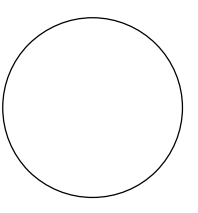
No weekend work shall be allowed.

The parking lot for the lodge, shelter and playground must be accessible weekly from Friday at 5 pm through Sunday.

### ESTIMATE REFERENCE INFORMATION

ITEM NO.	DESCRIPTION
1	<p>Clearing and Grubbing</p> <p>A. Cutting shall be performed between October 1st and March 31st.</p> <p>B. Root removal will be required for all trees removed. In areas with construction, all trunks and roots that have a diameter of 1 inch or larger shall be grubbed out to a depth of at least 3 feet below ground surface. In areas outside of the construction, trunks and roots shall be grubbed to a depth of at least 4 inches below the ground surface.</p> <p>C. Includes the removal and disposal of trees and shrubs as shown in the plans and as directed by the DNR Inspector.</p> <p>D. Burning may take place in the north cul-de-sac at cabins 11-12. Off-site disposal shall be the responsibility of the contractor. No payment for overhaul will be allowed.</p>
2	Removal of Existing Pavement and Base
3	Removal of Existing Sidewalk and Base
4	<p>Removal of Existing Parking Lot and Base</p> <p>A. The contractor shall remove the existing pavement and base as indicated in the plan sheets.</p> <p>B. All saw cuts shall be incidental.</p> <p>C. Off-site disposal is the responsibility of the contractor.</p> <p>D. No payment for overhaul will be allowed.</p> <p>E. Regrading to drain shall be incidental.</p>
5	Removal of Intake
6	Removal of Sanitary Sewer Manhole
7	Removal of Existing Reinforced Concrete Pipe < 36"
8	Removal of Existing Corrugated Metal Pipe < 36"
9	<p>Removal of Headwall</p> <p>A. Off-site disposal is the responsibility of the contractor.</p> <p>B. No payment for overhaul will be allowed.</p>
10	<p>Removal of Existing Gate</p> <p>A. Salvage post and give to DNR Inspector or park staff.</p>
14	<p>Intake Investigation</p> <p>A. Inspect Intakes 1 and 4 for cracking and notify the DNR Inspector of the results</p> <p>B. Remove the earth on the east exterior face of Intake 1 and repair tile as necessary.</p> <p>C. Clean outsides of Intakes 1 and 4 of debris.</p> <p>D. Regrade around Intakes 1 and 4 to match existing ground.</p>
17	<p>Roadway Pavement 7" PCC</p> <p>A. Non-reinforced concrete pavement with IDOT C4 mix.</p> <p>B. Joints shall be sawcut at 14' maximum spacing.</p> <p>C. An expansion joint shall be installed between the sidewalk and the roadway.</p> <p>D. Joints shall be cut to a maximum width of 1/8" +/- 1/16" and not sealed.</p> <p>E. PCC testing to be handled by a separate DNR contract.</p> <p>F. Earth shoulders at the Museum shall be incidental.</p>
18	<p>Parking Lot Pavement 7" PCC</p> <p>A. Non-reinforced concrete pavement with IDOT C4 mix.</p> <p>B. Joints shall be sawcut at 14' maximum spacing.</p> <p>C. An expansion joint shall be installed between the sidewalk and the parking lot.</p> <p>C. Joints shall be cut to a maximum width of 1/8" +/- 1/16" and not sealed.</p> <p>D. PCC testing to be handled by a separate DNR contract.</p> <p>E. Earth shoulders shall be incidental.</p>
19	<p>Sidewalk, 6" PCC</p> <p>A. Reinforced concrete pavement with IDOT C4 mix.</p> <p>B. Contraction joints shall be sawcut at 5' maximum spacing. Expansion joints shall be between the sidewalk around the building and the sidewalks leading up to the building.</p> <p>C. Expansion joints shall be installed between the sidewalk, roadway and parking lot.</p> <p>D. PCC testing to be handled by a separate DNR contract.</p> <p>E. Earth shoulders shall be incidental.</p>

CONSULTANT:



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



**QUANTITIES AND GENERAL INFORMATION**

Cabin and Museum Road Reconstruction For  
**BACKBONE STATE PARK**  
DELAWARE COUNTY

NO.	BY	REVISION

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

C.01

**ESTIMATE REFERENCE INFORMATION**

ITEM NO.	DESCRIPTION
20	<p><b>Special Backfill</b>                      A. Contractor shall install 6" special backfill under all roadways, parking lots, and sidewalks.                      B. The contractor may crush ACC from the pavement removal and use as recycled material provided it meets the gradation requirements. Gradation shall be per the Standard Specifications for Bridge and Highway Design, Series 2015, Section 4123. No payment for overhaul will be allowed.                      C. Preparation of subgrade shall be incidental.</p>
22	Reinforced Concrete Pipe, 18"
23	Reinforced Concrete Pipe, 24"
24	<p>Reinforced Concrete Pipe, 30"                      A. Furnishing and placing of Class "B" Bedding shall be considered incidental.                      B. Trench excavation shall be considered incidental.                      C. Removal and disposal of unsuitable backfill material encountered during trench excavation shall be considered incidental.                      D. Placing and compacting backfill material shall be considered incidental.                      E. Dewatering including, but not limited to, all equipment such as generators, pumps, rock for sump pits, discharge piping, and any extra excavation needed to facilitate dewatering according to stormwater regulations, as applicable shall be considered incidental.                      F. Sheet piling, shoring, and bracing shall be considered incidental.                      G. Temporary support for existing water, sewer, gas, telephone, electric, and other utilities or services that cross the trench.                      H. Type 2 connected pipe joints shall be incidental.</p>
32	<p>Excavation, Class 10, Roadway and Borrow                      A. Removal of signs is incidental.                      B. Adjustment of hydrant is incidental.</p>
33	<p>Embankment-In-Place                      A. Contractor shall furnish borrow material.</p>
35	<p>Painted Pavement Mark, High-Build Waterborne                      A. Includes parking lot striping and stop lines.</p>
36	<p>Precast Concrete Parking Wheel Stops                      A. Contractor shall install the wheel stops in the parking stalls at the bathroom/shower building.                      B. Wheel stops shall be tied to the paved surface via metal pins.</p>
37	<p>Detectable Warning Panel                      A. 2x5 surface area applied truncated dome, detectable warning tactile surface, in sidewalks without flares to meet edge of road.</p>
38	<p>Seeding, Fertilizing, and Mulching                      A. Contractor shall seed, fertilize, and mulch all disturbed areas.                      B. All rural seeding shall be completed per the /64Standard Specifications for Bridge and Highway Design, Series 2015, Section 9010.                      C. All rural seeding shall be completed using DOT Urban or Class "C" seed mixture.</p>
39	<p>Filter Sock, 8"                      A. Filter sock shall be installed as detailed to prevent sediment from exiting the project site and shall remain in place and be maintained during construction. DNR Park staff will remove once the site is stabilized.</p>
40	<p>Signing                      A. All signage shall be meet the requirements of the MUTCD.                      B. Sign locations shown are approximate.                      C. Includes 4-15 MPH signs, 1 handicap parking sign, 1 Not A Through Street sign and 3 stop signs.</p>

**ESTIMATE REFERENCE INFORMATION**

ITEM NO.	DESCRIPTION
41	<p><b>NPDES GENERAL PERMIT #2 &amp; SWPPP</b>                      A. Contractor is responsible for obtaining the necessary permit, SWPPP, inspecting and maintaining the log.</p>
42	<p><b>Contractor Construction Staking</b>                      A. Contractor is responsible for the survey staking of the construction of the project.</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.

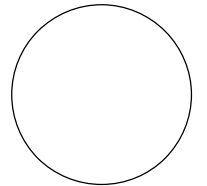
The contractor shall not disturb desirable grass areas and desirable trees outside the construction limits. The contractor will not be permitted to park or service vehicles and equipment or use these areas for storage of materials. Storage, parking and service areas will be subject to the approval of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

CONSULTANT:



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



**QUANTITIES AND GENERAL INFORMATION**

Cobh and Museum Road Reconstruction For  
**BACKBONE STATE PARK**  
 DELAWARE COUNTY

NO.	BY	REVISION

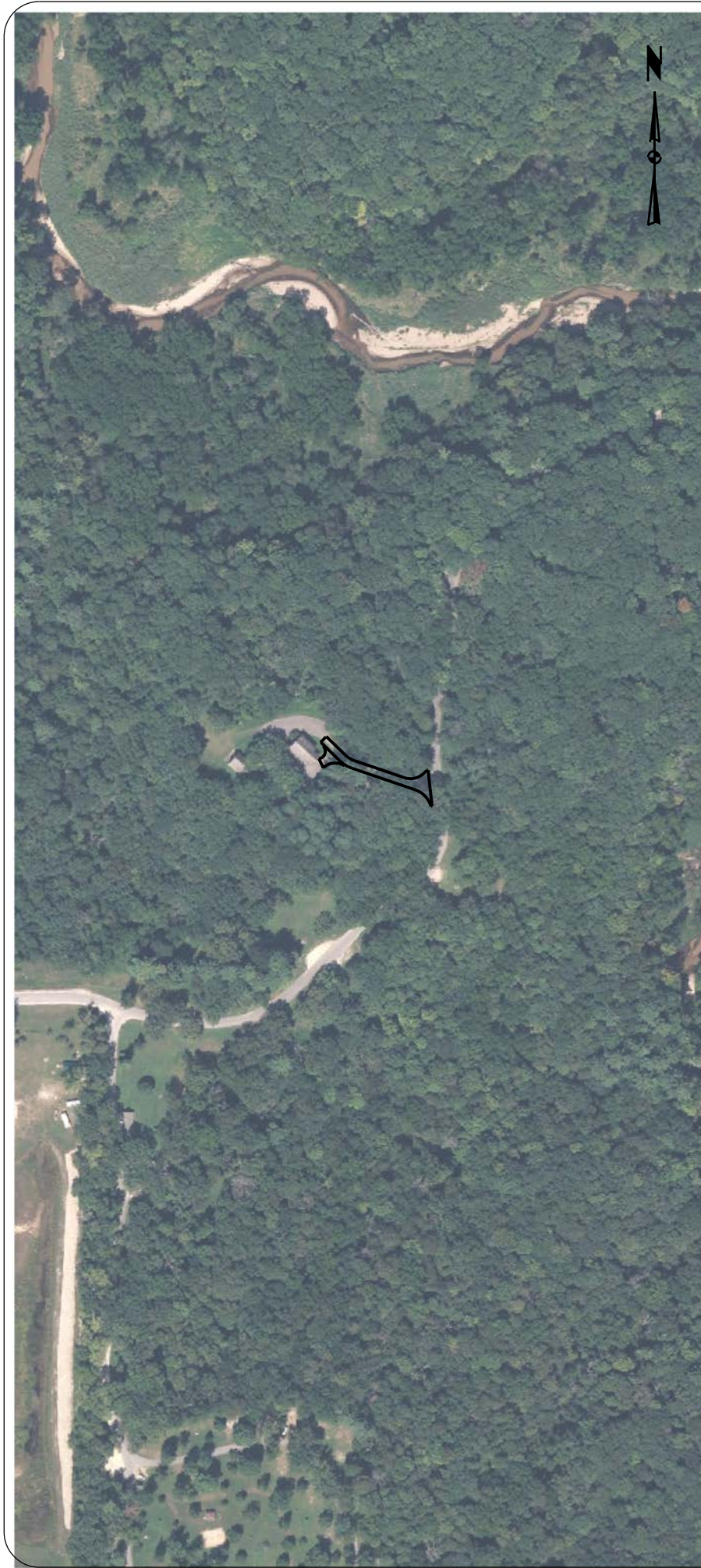
DRAWN BY: PROJECT NUMBER:  
 \_\_\_\_\_ 21-03-28-02

CHK'D BY: DATE:  
 \_\_\_\_\_ November 17, 2022

SHEET NO:

**C.02**

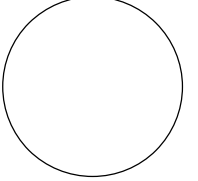




Staging Area

Protect Sensitive Area

CONSULTANT:



IOWA DEPARTMENT OF NATURAL RESOURCES

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



SITE PLAN

Cobh and Museum Road Reconstruction For:

BACKBONE STATE PARK

DELAWARE COUNTY

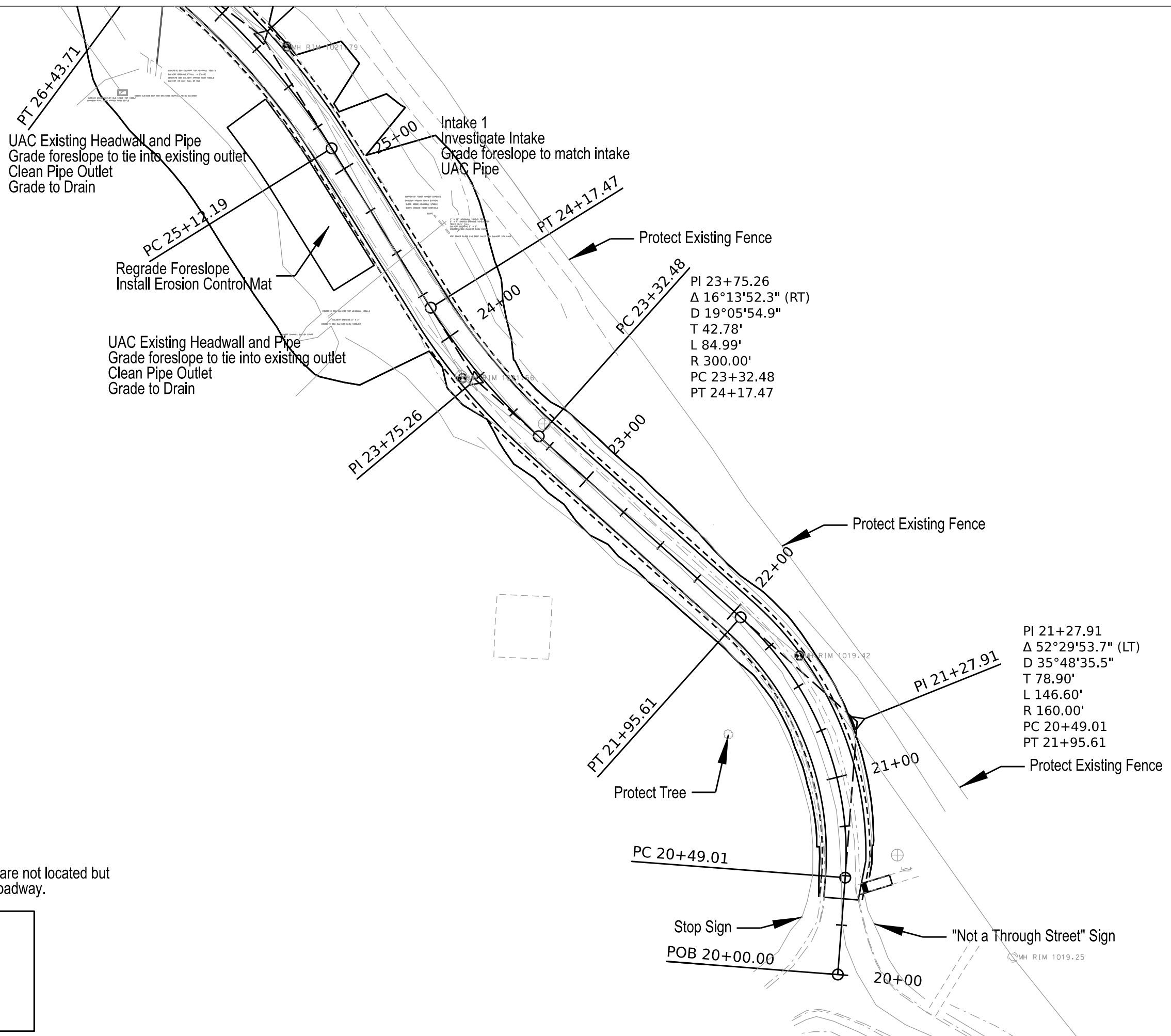
NO.	DATE	BY	REVISION

DRAWN BY: PROJECT NUMBER:  
21-03-28-02

CHK'D BY: DATE:  
November 17, 2022

SHEET NO:  
**D.01**





UAC Existing Headwall and Pipe  
 Grade foreslope to tie into existing outlet  
 Clean Pipe Outlet  
 Grade to Drain

Intake 1  
 Investigate Intake  
 Grade foreslope to match intake  
 UAC Pipe

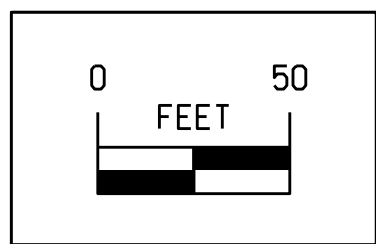
Regrade Foreslope  
 Install Erosion Control Mat

UAC Existing Headwall and Pipe  
 Grade foreslope to tie into existing outlet  
 Clean Pipe Outlet  
 Grade to Drain

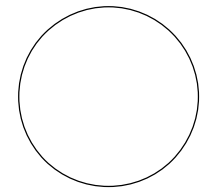
PI 23+75.26  
 $\Delta 16^\circ 13' 52.3''$  (RT)  
 $D 19^\circ 05' 54.9''$   
 T 42.78'  
 L 84.99'  
 R 300.00'  
 PC 23+32.48  
 PT 24+17.47

PI 21+27.91  
 $\Delta 52^\circ 29' 53.7''$  (LT)  
 $D 35^\circ 48' 35.5''$   
 T 78.90'  
 L 146.60'  
 R 160.00'  
 PC 20+49.01  
 PT 21+95.61

Water and electrical lines are not located but are in the vicinity of the roadway.



CONSULTANT:



**IOWA DEPARTMENT OF NATURAL RESOURCES**

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



**SITE PLAN**

Cobh and Museum Road Reconstruction For  
**BACKBONE STATE PARK**

DELAWARE COUNTY

NO.	BY	REVISION

DRAWN BY: PROJECT NUMBER:  
 21-03-28-02

CHK'D BY: DATE:  
 November 17, 2022

SHEET No:

**D.02**





into existing headwall

PI 36+25.28  
Δ 11°28'15.1" (LT)  
D 03°49'11.0"  
T 150.66'  
L 300.31'  
R 1500.00'  
PC 34+74.62  
PT 37+74.93

Protect Existing Fence

Cabin 4

Protect Existing Parking Lot

MH R1M 1046.57

Match Existing Pavement

Cabin 3

PC 34+74.62

MH R1M 1045.39

Cabin 2

Cabin 1

Protect Existing Fence

MH R1M 1044.37

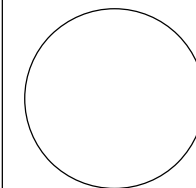
Match Existing Pavement  
Protect Existing Parking Lot  
Protect Pipe

Regrade Ditch to Drain

Cabin D-Falcon Lair



CONSULTANT:



IOWA DEPARTMENT OF  
NATURAL RESOURCES

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



SITE PLAN

Cabin and Museum Road Reconstruction For  
BACKBONE STATE PARK

DELAWARE COUNTY

NO. BY REVISION

DATE

DRAWN BY: PROJECT NUMBER:

21-03-28-02

CHK'D BY: DATE:

November 17, 2022

SHEET No:

D.04

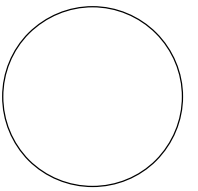


Water and electrical lines are not located but are in the vicinity of the roadway.





CONSULTANT:



**IOWA DEPARTMENT OF NATURAL RESOURCES**

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



**SITE PLAN**

Cabin and Museum Road Reconstruction For:  
**BACKBONE STATE PARK**

DELAWARE COUNTY

NO. BY DATE REVISION


DRAWN BY: PROJECT NUMBER:

21-03-28-02

CHK'D BY: DATE:

November 17, 2022

SHEET NO:

**D.06**

Sta. 46+71.95, 36.91' LT  
30" RCP FL 1056.12  
FES  
Riprap Outlet

PC 45+55.41

PT 45+33.17

PI 44+25.94  
Δ 08°12'20.7" (LT)  
D 03°49'11.0"  
T 107.60'  
L 214.83'  
R 1500.00'  
PC 43+18.35  
PT 45+33.17

Pipe 4  
72' of 18" RCP @ 4.44%

Sta. 44+07.78, 43.46' LT  
18" RCP FL 1053.3  
FES  
Riprap Outlet

PI 44+25.94

Protect Existing Wellhead

Concrete Bollards

Protect Existing Water Valve

Intake 4  
Investigate Intake  
Regrade to match intake top  
Reconnect 4" Clay Tile  
18" RCP FL 1056.5

Cabin 10

Handicap Sign

Cabin 9

PI 42+64.17

R=100'

Stop Sign

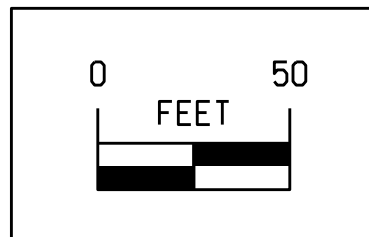
Protect Electric Box

Protect Retaining Walls and Building

Protect Existing Fence

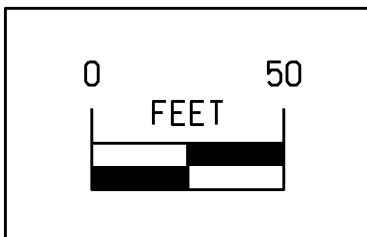
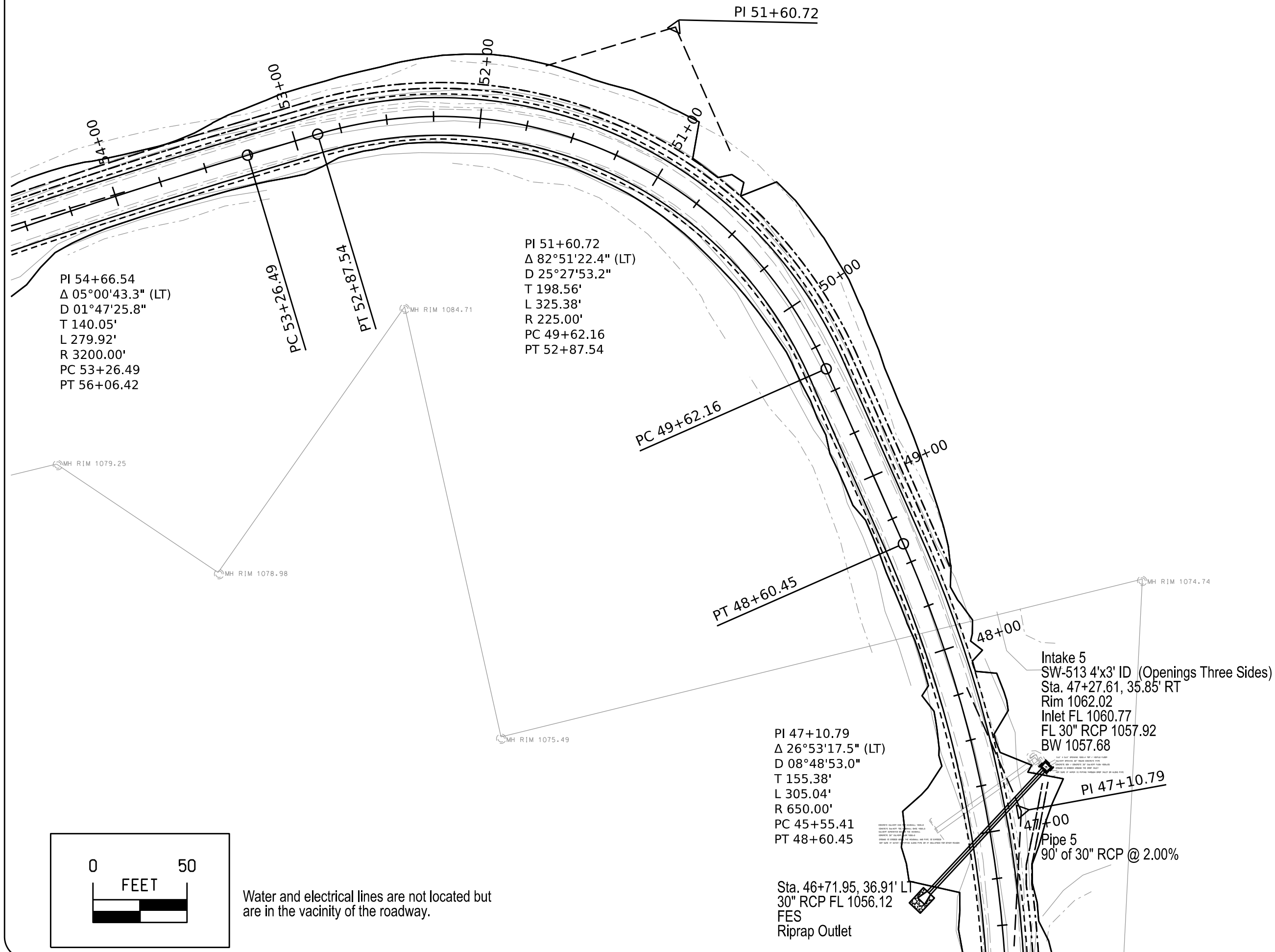
PI 92+08.47  
Δ 21°44'49.4" (LT)  
D 143°14'22.0"  
T 7.68'  
L 15.18'  
R 40.00'  
PC 92+00.79  
PT 92+15.97

Protect Telephone Pedestal



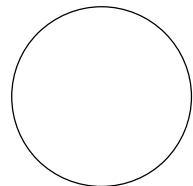
Water and electrical lines are not located but are in the vicinity of the roadway.





Water and electrical lines are not located but are in the vicinity of the roadway.

CONSULTANT:



**IOWA DEPARTMENT OF NATURAL RESOURCES**

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



**SITE PLAN**

Cobh and Museum Road Reconstruction For:

**BACKBONE STATE PARK**

DELAWARE COUNTY

NO.	BY	REVISION

DRAWN BY: PROJECT NUMBER:  
21-03-28-02

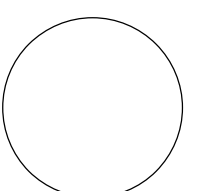
CHK'D BY: DATE:  
November 17, 2022

SHEET NO:

**D.07**



CONSULTANT:



IOWA DEPARTMENT OF NATURAL RESOURCES

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



SITE PLAN

Cabin and Museum Road Reconstruction For

BACKBONE STATE PARK

DELAWARE COUNTY

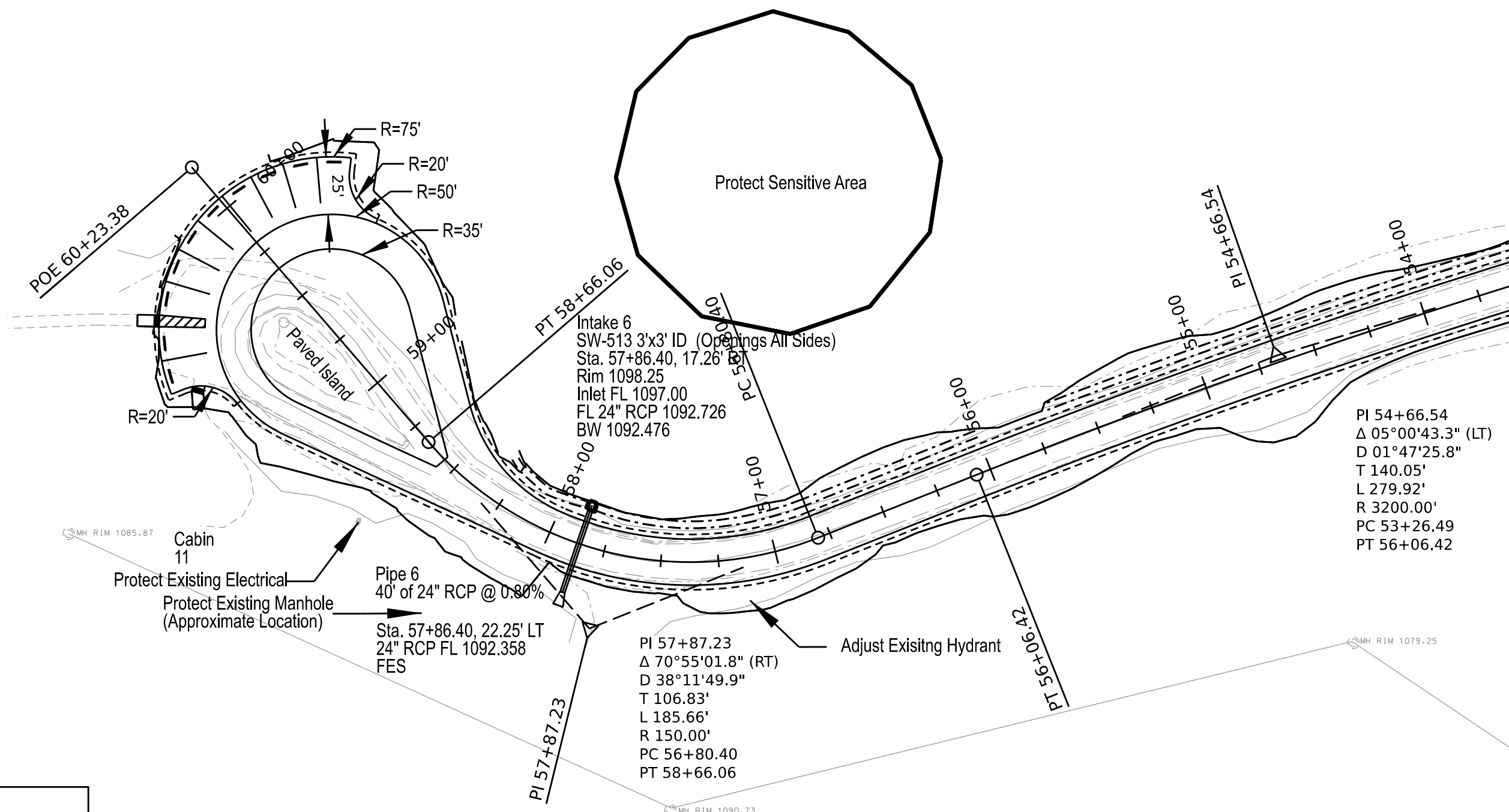
NO. BY DATE REVISION

DRAWN BY: PROJECT NUMBER:  
21-03-28-02

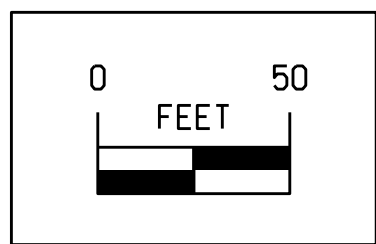
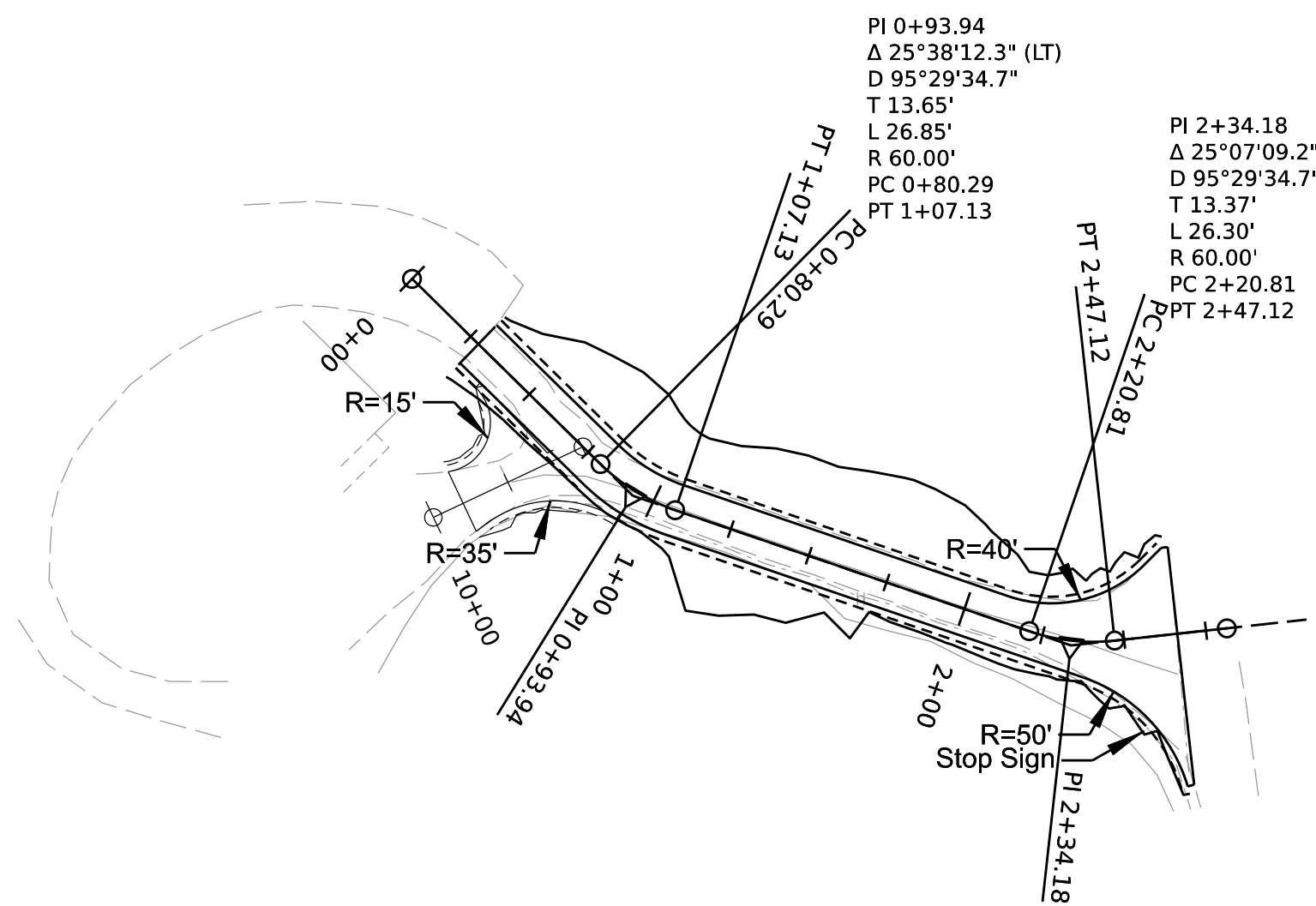
CHK'D BY: DATE:  
November 17, 2022

SHEET No:

D.08

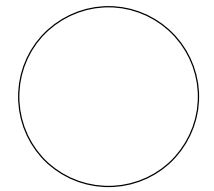


Water and electrical lines are not located but are in the vicinity of the roadway.



Water and electrical lines are not located but may be in the vicinity of the roadway.

CONSULTANT:



**IOWA DEPARTMENT OF NATURAL RESOURCES**

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



**SITE PLAN**

Cobth and Museum Road Reconstruction For:

**BACKBONE STATE PARK**

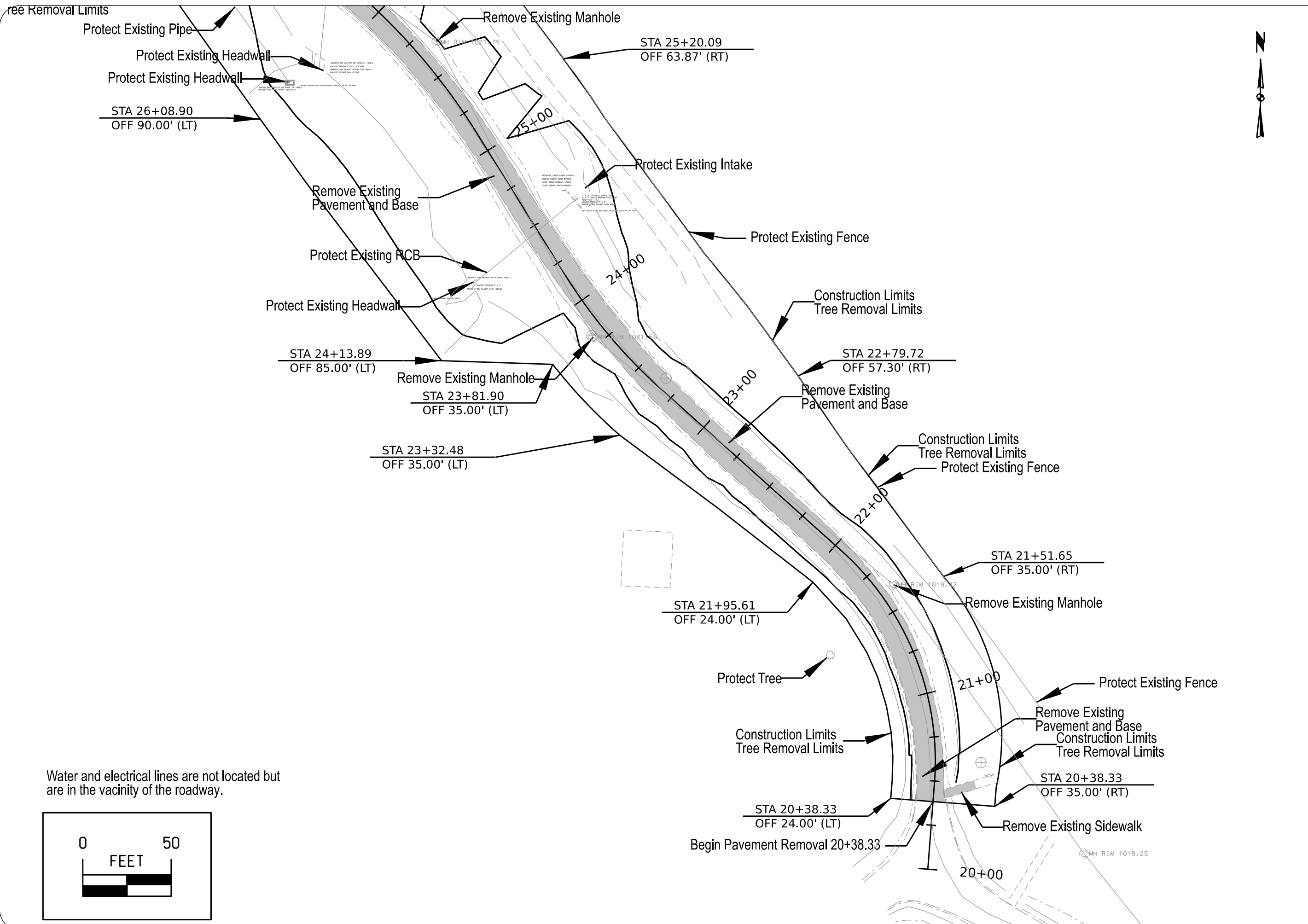
DELAWARE COUNTY

NO.	BY	REVISION

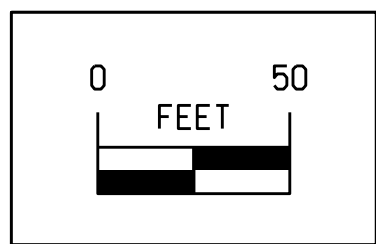
DRAWN BY: PROJECT NUMBER:  
21-03-28-02

CHK'D BY: DATE:  
November 17, 2022

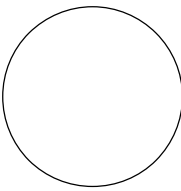
SHEET No: **D.09**



Water and electrical lines are not located but are in the vicinity of the roadway.



CONSULTANT:



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



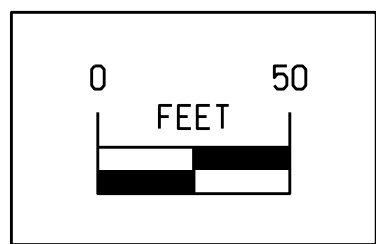
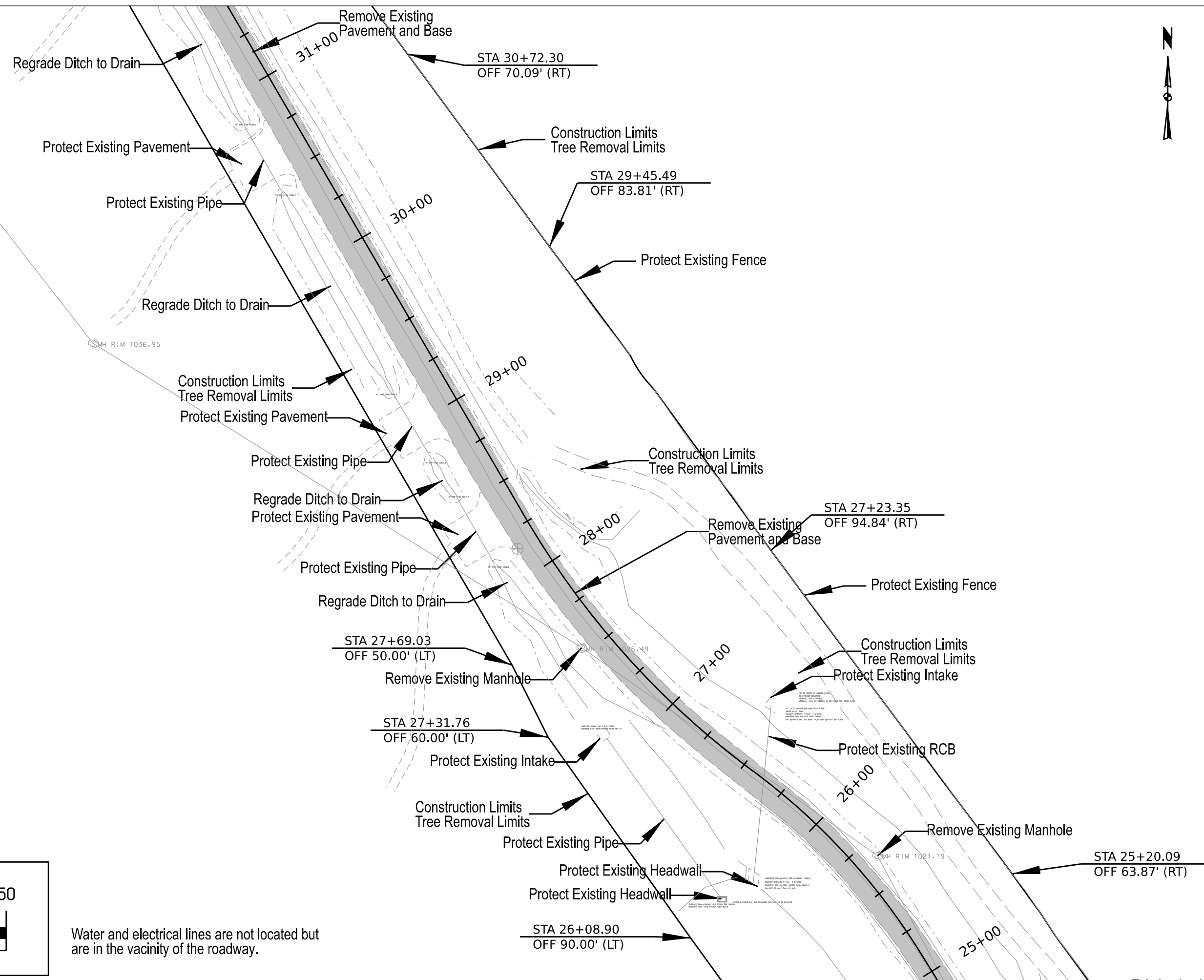
**DEMOLITION PLAN**

Cobh and Museum Road Reconstruction For:  
**BACKBONE STATE PARK**  
 DELAWARE COUNTY

NO.	BY	REVISION

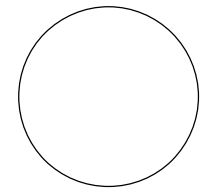
DRAWN BY: PROJECT NUMBER:  
 21-03-28-02  
 CHK'D BY: DATE:  
 November 17, 2022  
 SHEET NO.:  
**E.01**





Water and electrical lines are not located but are in the vicinity of the roadway.

CONSULTANT:



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



**DEMOLITION PLAN**

Coblen and Museum Road Reconstruction For:  
**BACKBONE STATE PARK**

DELAWARE COUNTY

NO.	BY	REVISION

DRAWN BY: PROJECT NUMBER:  
 21-03-28-02  
 CHK'D BY: DATE:  
 November 17, 2022

SHEET NO:  
**E.02**



Instruction Limits  
Tree Removal Limits

STA 42+53.75  
OFF 112.68' (LT)

STA 42+59.41  
OFF 78.53' (LT)

STA 42+35.49  
OFF 35.00' (LT)  
Protect Telephone Pedestal

Construction Limits  
Tree Removal Limits

STA 41+08.45  
OFF 48.35' (LT)

Remove Existing Manhole

Protect Existing Pavement

STA 41+91.31  
OFF 20.33' (RT)  
STA 41+91.62  
OFF 45.00' (RT)

Protect Existing Fence

Construction Limits  
Tree Removal Limits

STA 41+08.75  
OFF 48.92' (RT)

Remove Existing  
Pavement and Base

Protect Existing Fence

STA 39+86.41  
OFF 43.78' (RT)

STA 38+71.65  
OFF 33.11' (RT)

STA 38+43.15  
OFF 24.53' (LT)

Adjust Existing Manhole Top

Construction Limits  
Tree Removal Limits

Construction Limits  
Tree Removal Limits

Remove Existing RCB

STA 37+75.46  
OFF 60.11' (LT)

Protect Existing Intake

Remove Existing Manhole

Protect Existing Fence

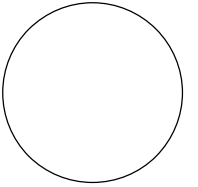
STA 36+89.10  
OFF 17.98' (RT)

Construction Limits  
Tree Removal Limits

STA 36+90.47  
OFF 26.80' (LT)



CONSULTANT:



IOWA DEPARTMENT OF  
NATURAL RESOURCES

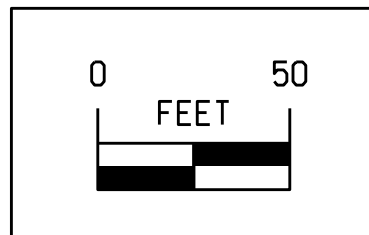
ENGINEERING SERVICES - WALLACE BUILDING  
502 E. 9TH ST., DES MOINES, IA 50319-0034



DEMOLITION PLAN

Coburn and Museum Road Reconstruction For  
BACKBONE STATE PARK

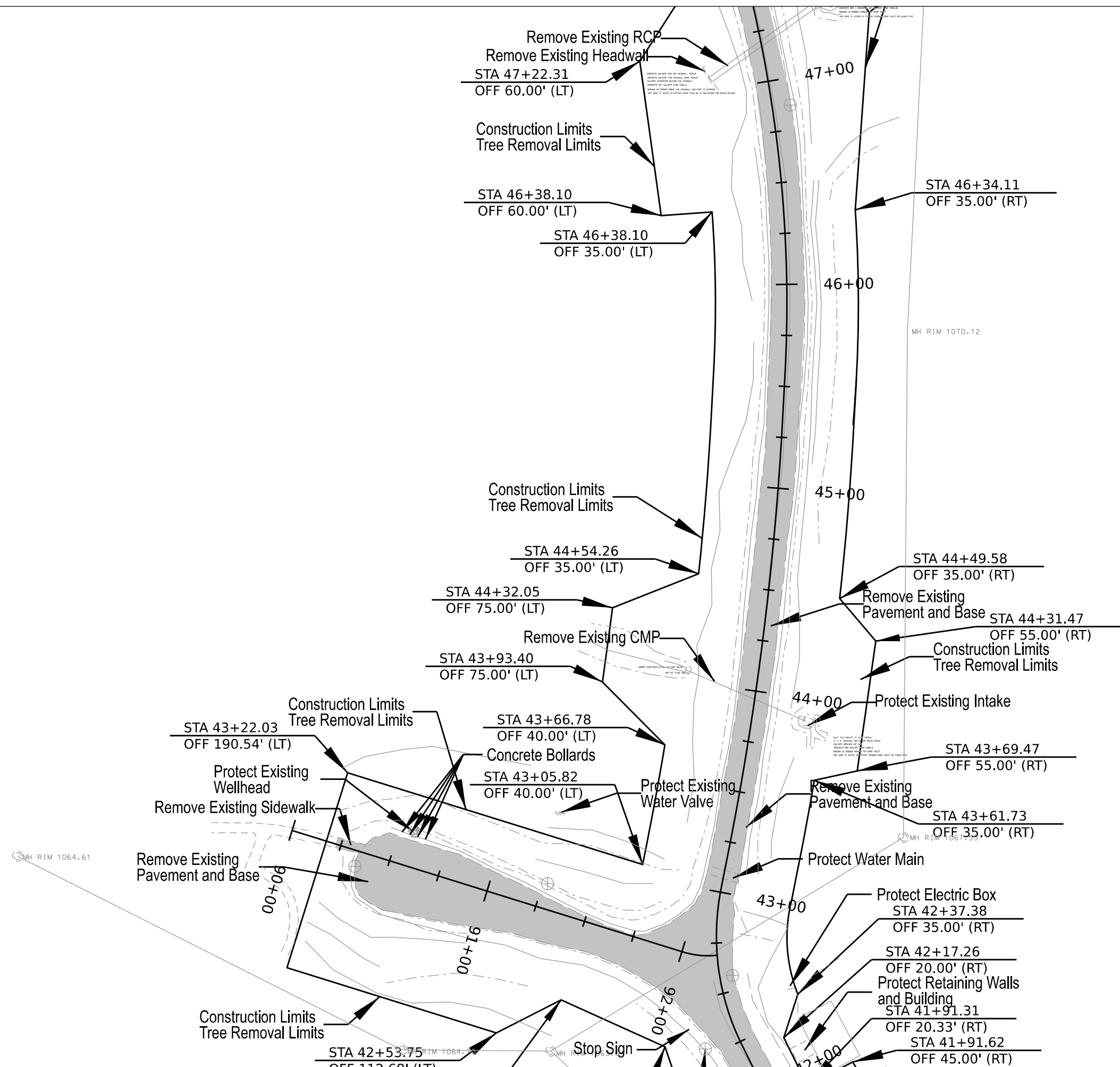
DELAWARE COUNTY



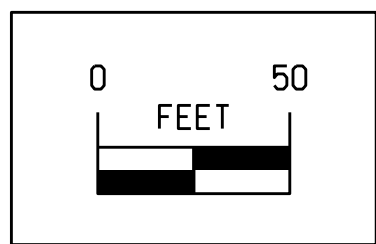
Water and electrical lines are not located but  
are in the vicinity of the roadway.

NO.	DATE	REVISION
DRAWN BY:	PROJECT NUMBER:	21-03-28-02
CHK'D BY:	DATE:	November 17, 2022
SHEET NO.:	E.04	

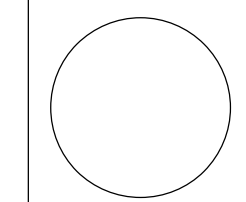




Water and electrical lines are not located but are in the vicinity of the roadway.



CONSULTANT:



**IOWA DEPARTMENT OF NATURAL RESOURCES**

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



**DEMOLITION PLAN**

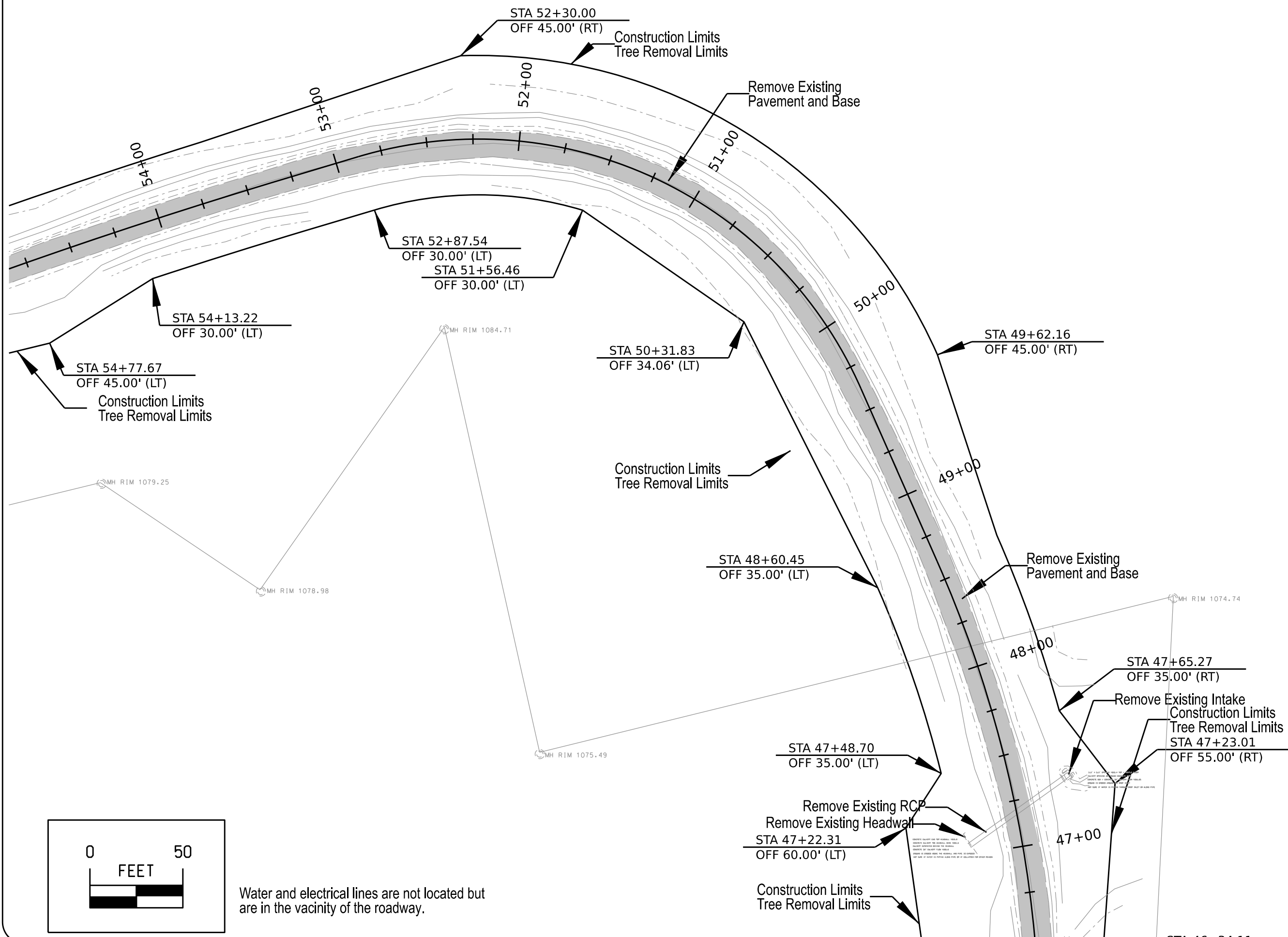
Cobth and Museum Road Reconstruction For  
**BACKBONE STATE PARK**  
DELAWARE COUNTY

NO.	BY	REVISION

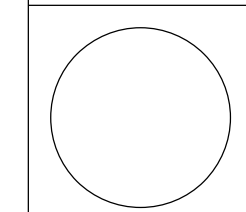
  

DRAWN BY:	PROJECT NUMBER: 21-03-28-02
CHK'D BY:	DATE: November 17, 2022

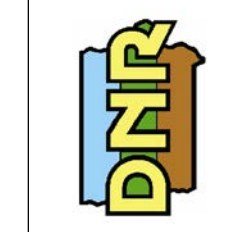
SHEET NO:  
**E.05**



CONSULTANT:



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



**DEMOLITION PLAN**  
 Cobble and Museum Road Reconstruction For  
**BACKBONE STATE PARK**  
 DELAWARE COUNTY

NO.	BY	REVISION

DRAWN BY: PROJECT NUMBER:  
 21-03-28-02

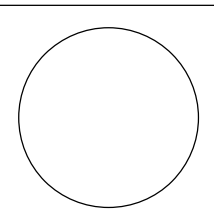
CHK'D BY: DATE:  
 November 17, 2022

SHEET No:

**E.06**



CONSULTANT:



IOWA DEPARTMENT OF NATURAL RESOURCES

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



DEMOLITION PLAN

Coburn and Museum Road Reconstruction For:

BACKBONE STATE PARK

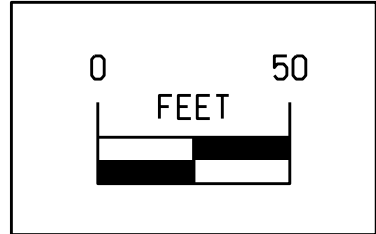
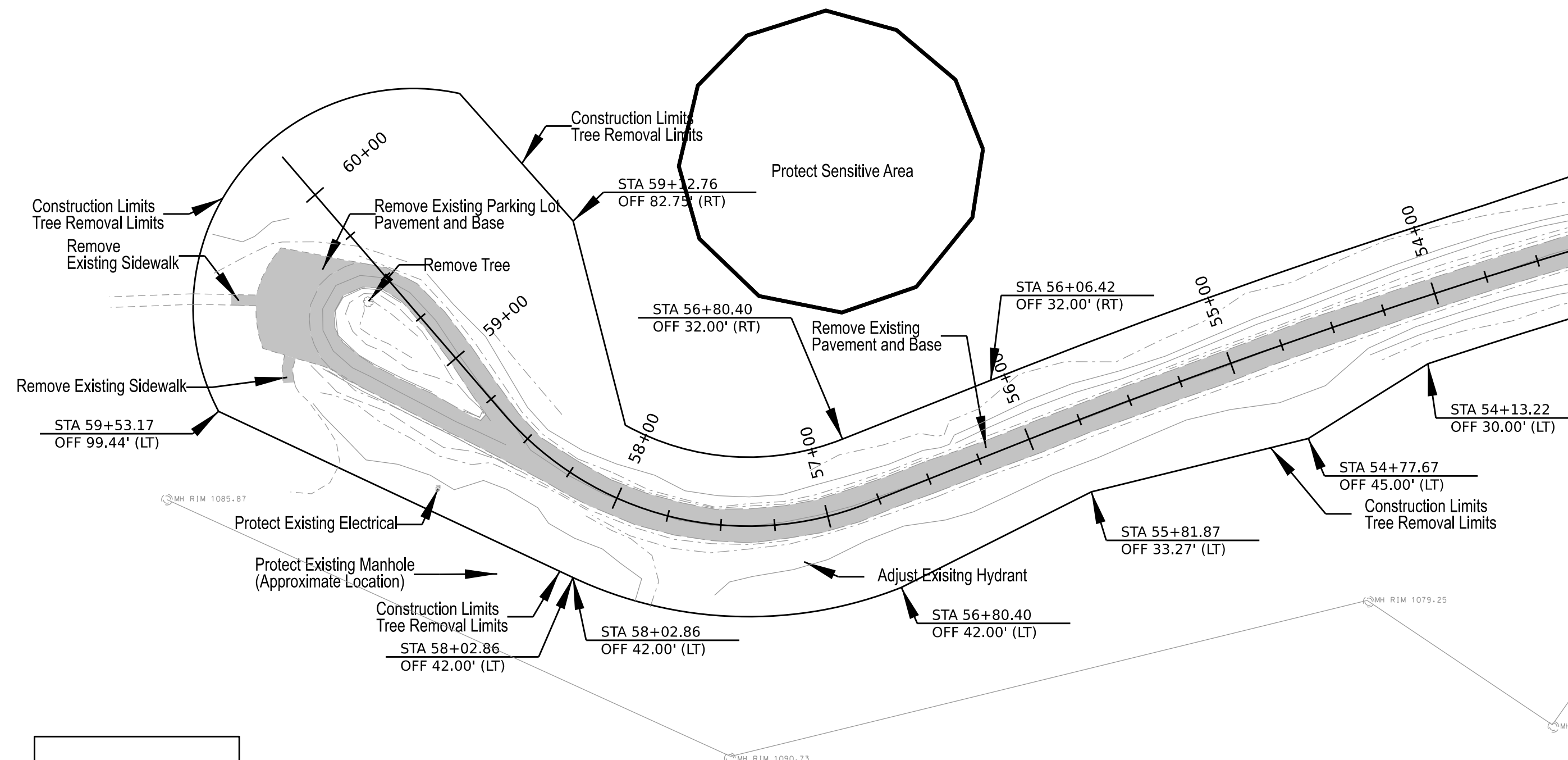
DELAWARE COUNTY

NO.	BY	REVISION

DRAWN BY: PROJECT NUMBER:  
21-03-28-02

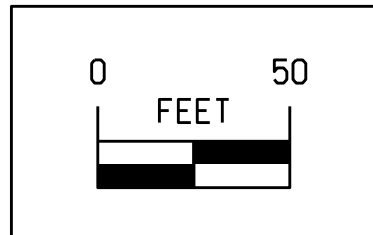
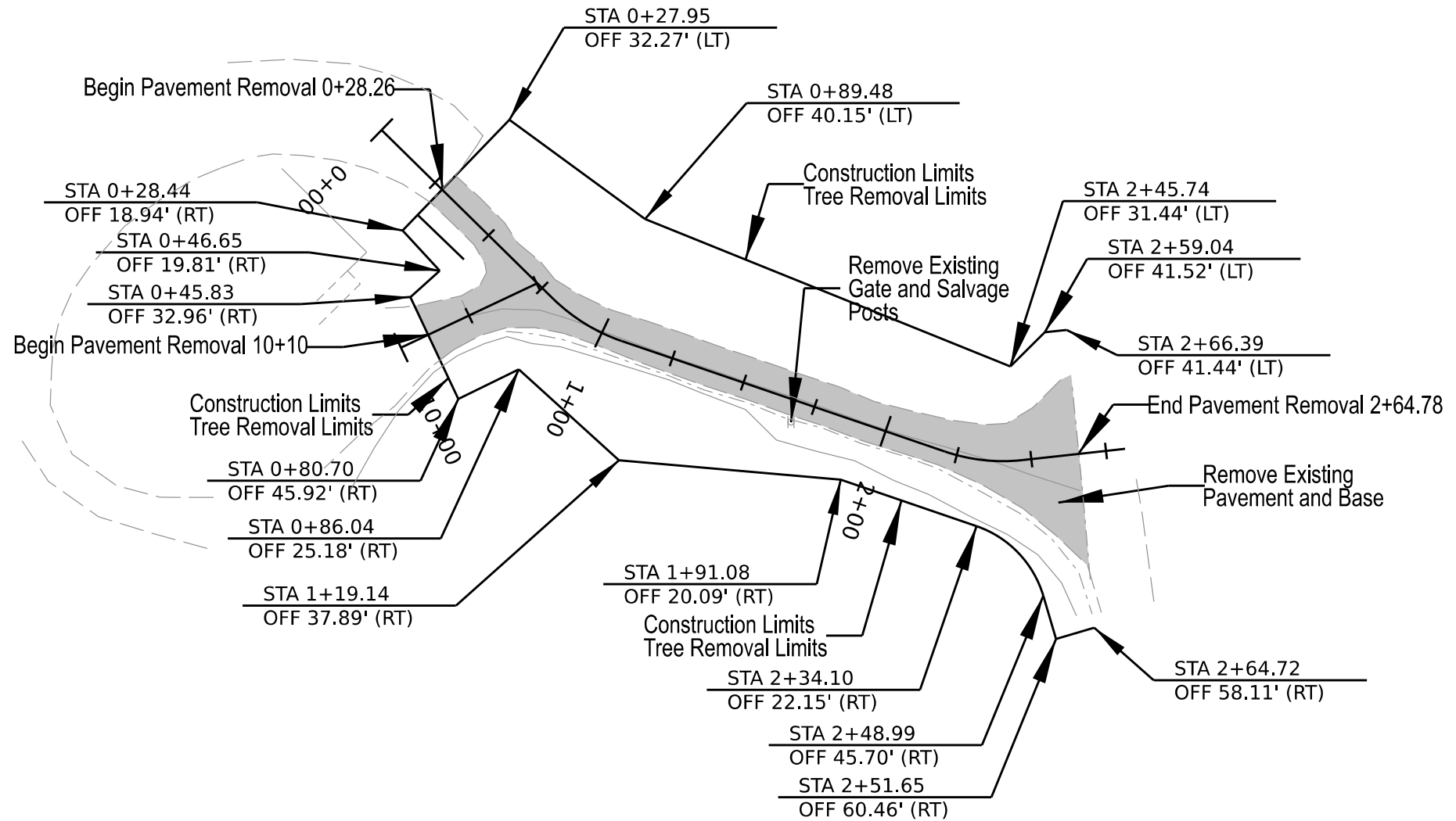
CHK'D BY: DATE:  
November 17, 2022

SHEET NO:  
**E.07**



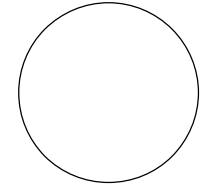
Water and electrical lines are not located but are in the vicinity of the roadway.





Water and electrical lines are not located but may be in the vicinity of the roadway.

CONSULTANT:



**IOWA DEPARTMENT OF NATURAL RESOURCES**

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



**DEMOLITION PLAN**

Cobh and Museum Road Reconstruction For:

**BACKBONE STATE PARK**

DELAWARE COUNTY

NO. BY REVISION

DATE

DRAWN BY: PROJECT NUMBER:

21-03-28-02

CHK'D BY: DATE:

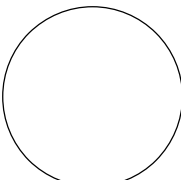
November 17, 2022

SHEET No.:

**E.08**



CONSULTANT:



**IOWA DEPARTMENT OF  
NATURAL RESOURCES**

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



**SURVEY CONTROL**

Cobh and Museum Road Reconstruction For:

**BACKBONE STATE PARK**

DELAWARE COUNTY

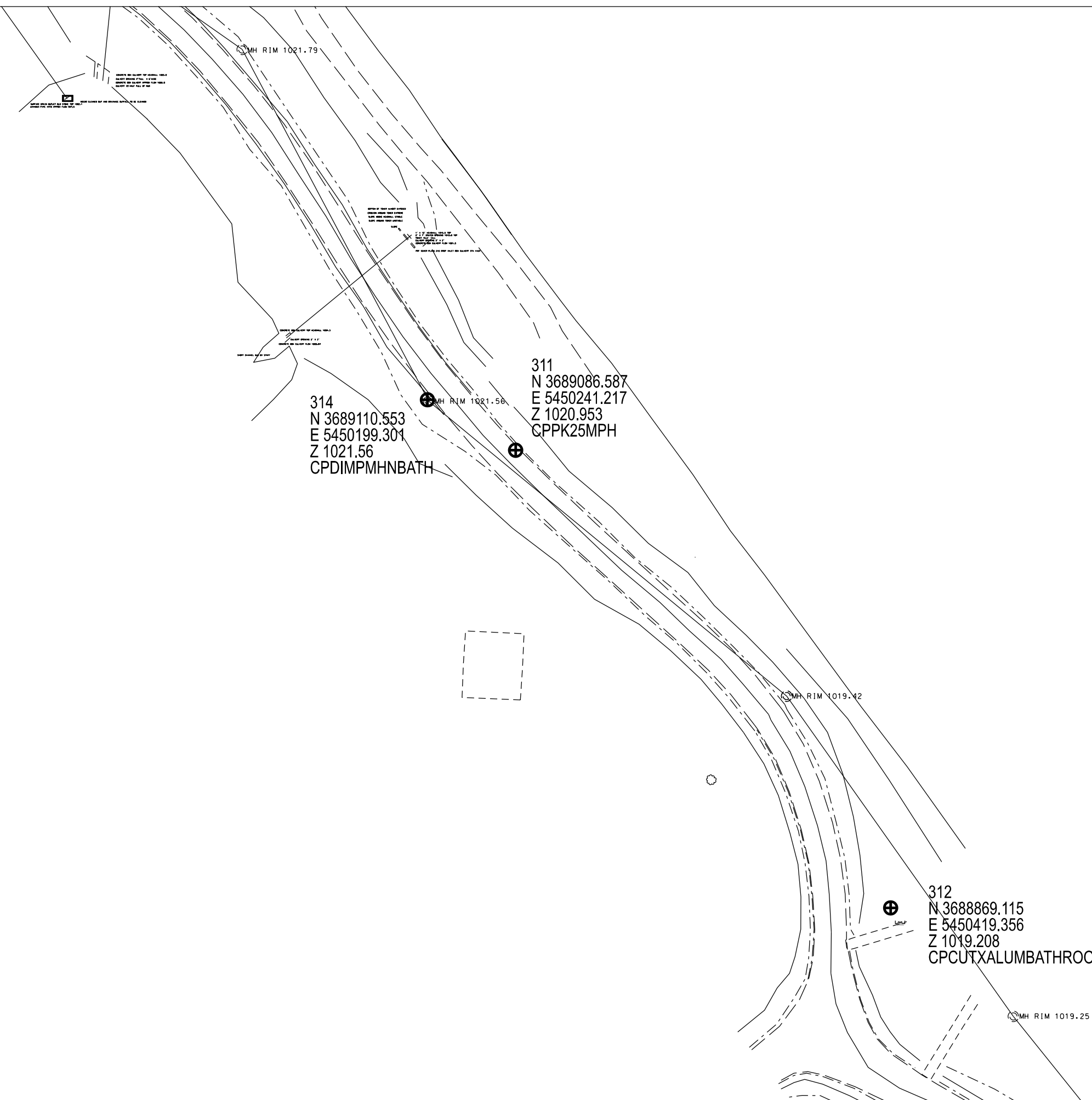
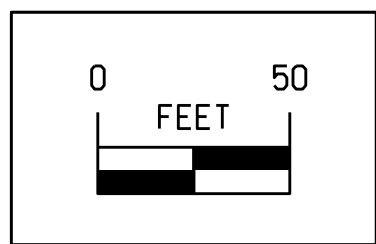
NO. BY REVISION  
DATE

DRAWN BY: PROJECT NUMBER:  
21-03-28-02

CHK'D BY: DATE:  
November 17, 2022

SHEET No:

**G.01**



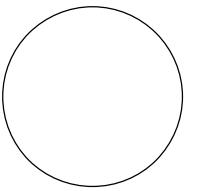
314  
N 3689110.553  
E 5450199.301  
Z 1021.56  
CPDIMP MHN BATH

311  
N 3689086.587  
E 5450241.217  
Z 1020.953  
CPPK25MPH

312  
N 3688869.115  
E 5450419.356  
Z 1019.208  
CPCUTXALUMBATHROOM



CONSULTANT:



**IOWA DEPARTMENT OF  
NATURAL RESOURCES**

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



**SURVEY CONTROL**

Cobh and Museum Road Reconstruction For:  
**BACKBONE STATE PARK**

DELAWARE COUNTY

NO. BY REVISION

DATE

DRAWN BY: PROJECT NUMBER:

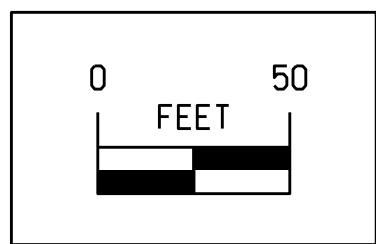
21-03-28-02

CHK'D BY: DATE:

November 17, 2022

SHEET No:

**G.02**



MH RIM 1036.95

313  
N/3689440.712  
E/5449919.342  
Z/1028.002  
CPPKPARKOWL

MH RIM 1026.49

MH RIM 1021.79

SEE PLAN FOR  
ALL DIMENSIONS  
AND NOTES  
UNLESS OTHERWISE  
NOTED.

SEE PLAN FOR  
ALL DIMENSIONS  
AND NOTES  
UNLESS OTHERWISE  
NOTED.

SEE PLAN FOR  
ALL DIMENSIONS  
AND NOTES  
UNLESS OTHERWISE  
NOTED.





MH RIM 1064.70      MH RIM 1063.64

319  
N 3690611.366  
E 5449132.469  
Z 1071.244  
CRSPKETPEDWATER

MH RIM 1057.49

317  
N 3690319.734  
E 5449375.686  
Z 1049.79  
CPPKRDCABIN5

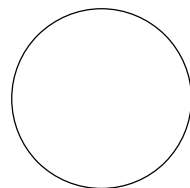
MH RIM 1048.57

BM ELEV 1047.20

MH RIM 1047.42



CONSULTANT:



**IOWA DEPARTMENT OF  
NATURAL RESOURCES**

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



**SURVEY CONTROL**

Cobh and Museum Road Reconstruction For  
**BACKBONE STATE PARK**

DELAWARE COUNTY

NO. BY REVISION

DATE

DRAWN BY: PROJECT NUMBER:

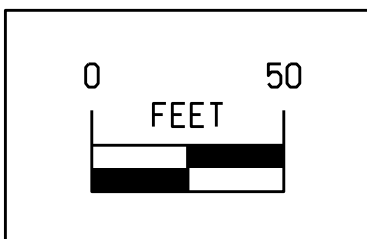
21-03-28-02

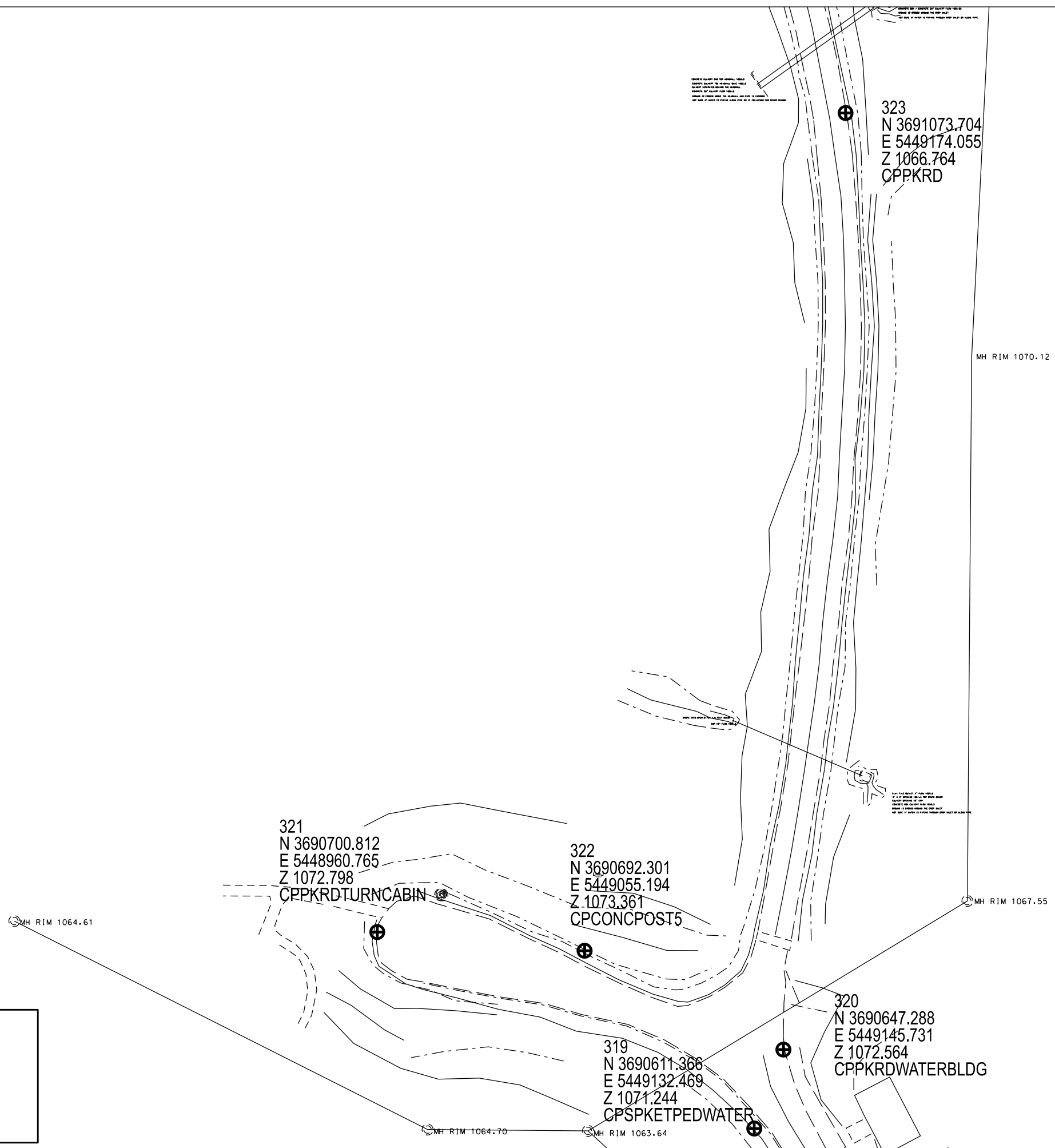
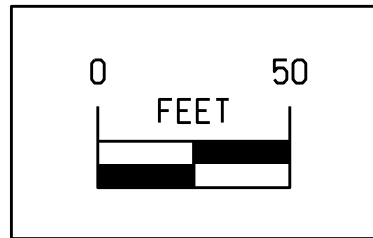
CHK'D BY: DATE:

November 17, 2022

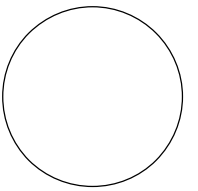
SHEET NO.:

**G.04**





CONSULTANT:



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



**SURVEY CONTROL**

Cobh and Museum Road Reconstruction For  
**BACKBONE STATE PARK**  
DELAWARE COUNTY

NO.	BY	REVISION
DATE		

DRAWN BY: PROJECT NUMBER:  
21-03-28-02

CHK'D BY: DATE:  
November 17, 2022

SHEET No:

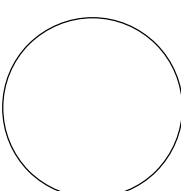
**G.05**







CONSULTANT:



**IOWA DEPARTMENT OF  
NATURAL RESOURCES**

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



**SURVEY CONTROL**

Cobh and Museum Road Reconstruction For:

**BACKBONE STATE PARK**

DELAWARE COUNTY

NO. BY REVISION

DATE

DRAWN BY: PROJECT NUMBER:

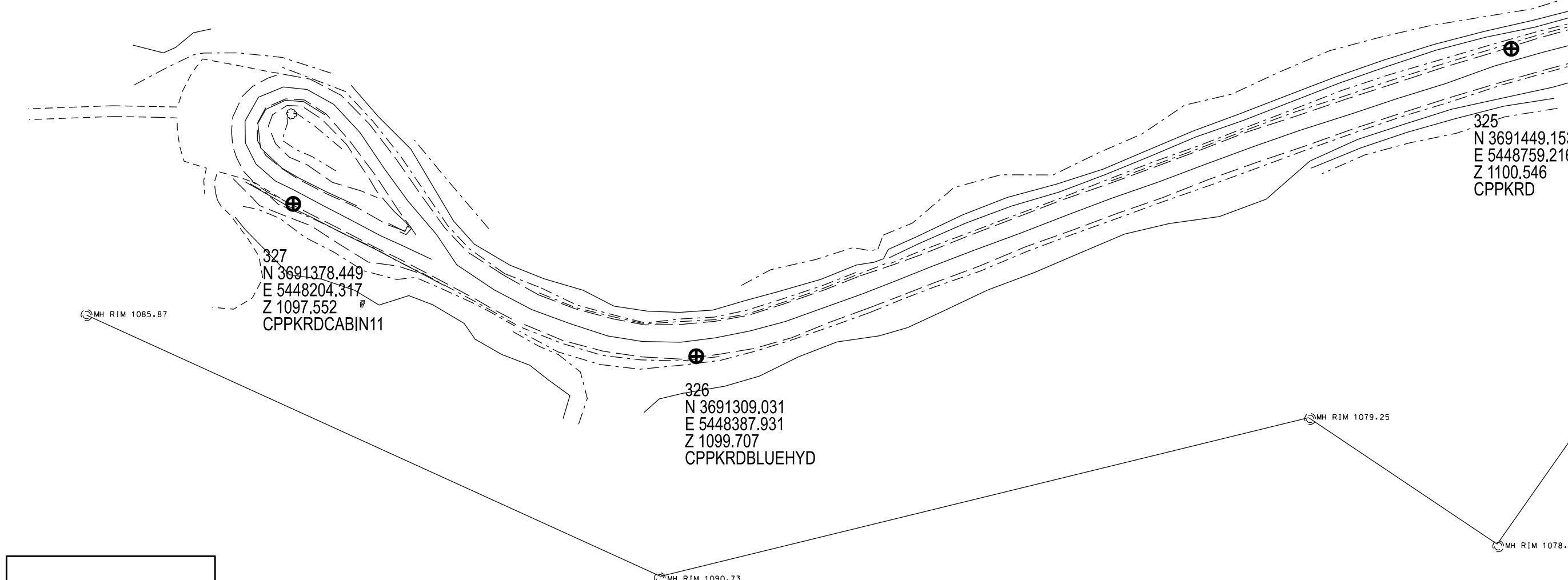
21-03-28-02

CHK'D BY: DATE:

November 17, 2022

SHEET No:

**G.07**



327  
N 3691378.449  
E 5448204.317  
Z 1097.552  
CPPKRDCABIN11

326  
N 3691309.031  
E 5448387.931  
Z 1099.707  
CPPKRDBLUEHYD

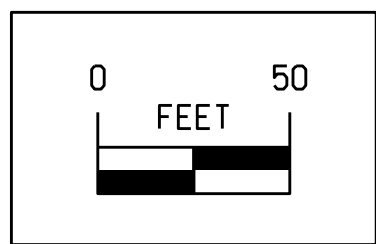
325  
N 3691449.153  
E 5448759.216  
Z 1100.546  
CPPKRD

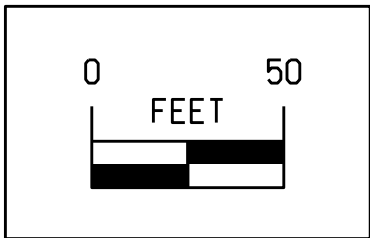
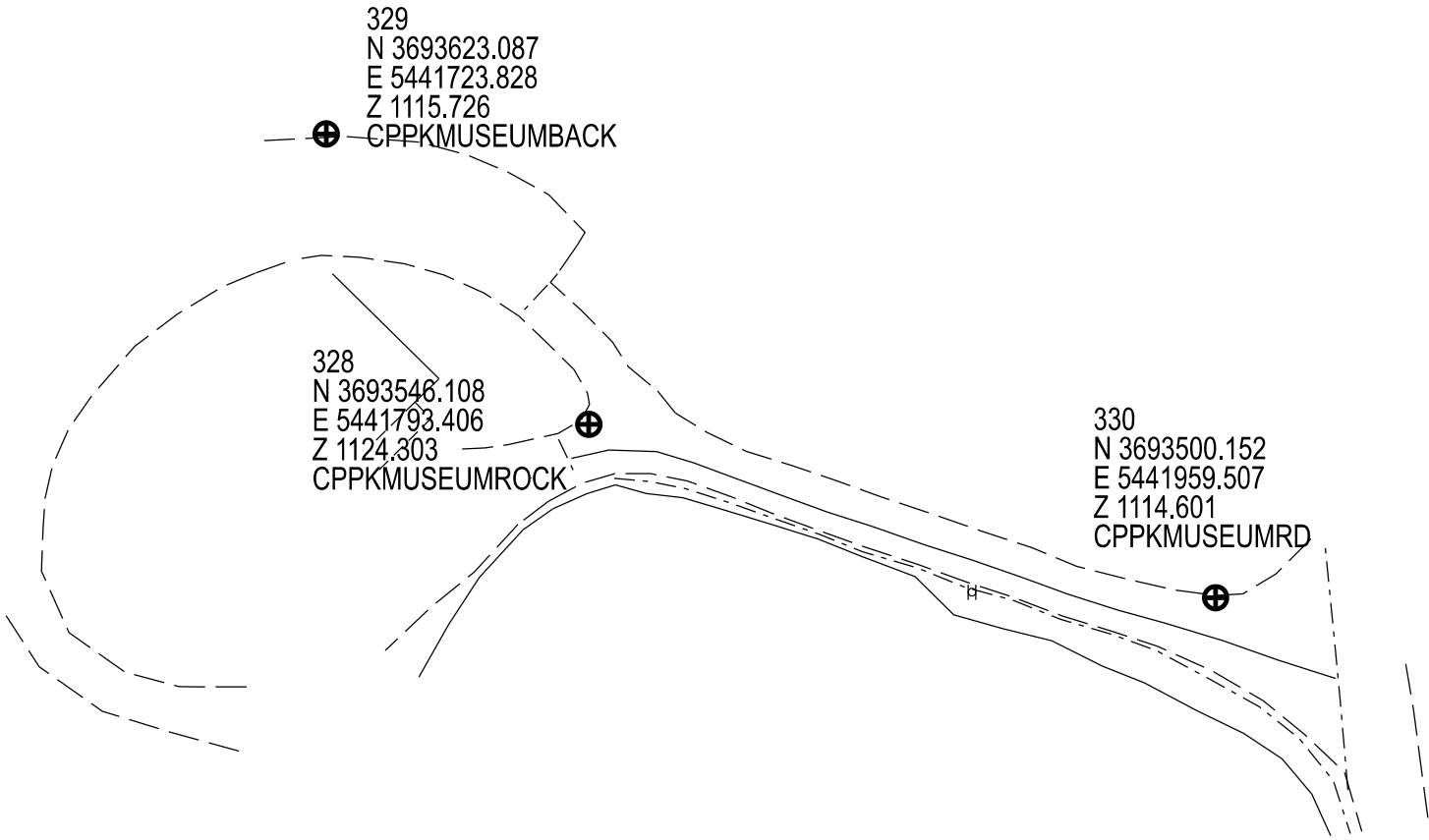
MH RIM 1085.87

MH RIM 1090.73

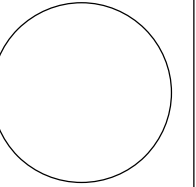
MH RIM 1079.25

MH RIM 1078.98





CONSULTANT:



**IOWA DEPARTMENT OF  
NATURAL RESOURCES**

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



**SURVEY CONTROL**

Cobln and Museum Road Reconstruction For:

**BACKBONE STATE PARK**

DELAWARE COUNTY

NO. BY REVISION

DATE

DRAWN BY: PROJECT NUMBER:  
21-03-28-02

CHK'D BY: DATE:  
November 17, 2022

SHEET No:

**G.08**



\* Cabin Road Horizontal\*

STATION	NORTHING	EASTING
Element: Linear		
START( )	20+00.000	3688808.935
PC( )	20+49.010	3688857.802
Tangential Direction:	N4.370°E	
Tangential Length:	49.010	

Element: Circular			
PC( )	20+49.010	3688857.802	5450393.044
HPI( )	21+27.910	3688936.473	5450399.057
CC( )		3688869.995	5450233.510
PT( )	21+95.613	3688989.137	5450340.305
Radius:	160.000		
Delta:	52.498° Left		
Degree of Curvature(Arc):	35.81°		
Length:	146.603		
Tangent:	78.900		
Chord:	141.528		
Middle Ordinate:	16.499		
External:	18.396		
Tangent Direction:	N4.370°E		
Radial Direction:	S85.630°E		
Chord Direction:	N21.879°W		
Radial Direction:	N41.872°E		
Tangent Direction:	N48.128°W		

Element: Linear			
PT( )	21+95.613	3688989.137	5450340.305
PC( )	23+32.484	3689080.494	5450238.386
Tangential Direction:	N48.128°W		
Tangential Length:	136.871		

Element: Circular			
PC( )	23+32.484	3689080.494	5450238.386
HPI( )	23+75.264	3689109.048	5450206.530
CC( )		3689303.885	5450438.627
PT( )	24+17.470	3689145.368	5450183.926
Radius:	300.000		
Delta:	16.231° Right		
Degree of Curvature(Arc):	19.099°		
Length:	84.986		
Tangent:	42.780		
Chord:	84.703		
Middle Ordinate:	3.004		
External:	3.035		
Tangent Direction:	N48.128°W		
Radial Direction:	N41.872°E		
Chord Direction:	N40.012°W		
Radial Direction:	N58.103°E		
Tangent Direction:	N31.897°W		

Element: Linear			
PT( )	24+17.470	3689145.368	5450183.926
PC( )	25+12.187	3689225.784	5450133.879
Tangential Direction:	N31.897°W		
Tangential Length:	94.717		

Element: Circular			
PC( )	25+12.187	3689225.784	5450133.879
HPI( )	25+78.735	3689282.283	5450098.716
CC( )		3689040.848	5449836.728
PT( )	26+43.712	3689321.934	5450045.271
Radius:	350.000		
Delta:	21.531° Left		
Degree of Curvature(Arc):	16.37°		
Length:	131.525		
Tangent:	66.547		
Chord:	130.752		
Middle Ordinate:	6.160		
External:	6.270		
Tangent Direction:	N31.897°W		
Radial Direction:	N58.103°E		
Chord Direction:	N42.662°W		
Radial Direction:	N36.572°E		
Tangent Direction:	N53.428°W		

Element: Linear			
PT( )	26+43.712	3689321.934	5450045.271
PC( )	26+45.297	3689322.879	5450043.998
Tangential Direction:	N53.428°W		
Tangential Length:	1.585		

Element: Circular			
PC( )	26+45.297	3689322.879	5450043.998
HPI( )	27+37.758	3689377.970	5449969.743
CC( )		3689684.276	5450312.126
PT( )	28+27.680	3689457.876	5449923.225
Radius:	450.000		
Delta:	23.222° Right		
Degree of Curvature(Arc):	12.732°		
Length:	182.382		
Tangent:	92.460		
Chord:	181.137		
Middle Ordinate:	9.208		
External:	9.401		
Tangent Direction:	N53.428°W		
Radial Direction:	N36.572°E		
Chord Direction:	N41.817°W		
Radial Direction:	N59.794°E		
Tangent Direction:	N30.206°W		

Element: Linear			
PT( )	28+27.680	3689457.876	5449923.225
PC( )	34+74.621	3690016.978	5449597.743
Tangential Direction:	N30.206°W		
Tangential Length:	646.942		

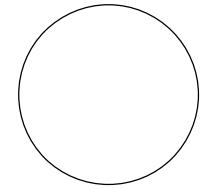
Element: Circular			
PC( )	34+74.621	3690016.978	5449597.743
HPI( )	36+25.278	3690147.179	5449521.946
CC( )		3689262.314	5448301.409
PT( )	37+74.928	3690259.706	5449421.770
Radius:	1500.000		
Delta:	11.471° Left		
Degree of Curvature(Arc):	3.82°		
Length:	300.307		
Tangent:	150.657		
Chord:	299.805		
Middle Ordinate:	7.509		
External:	7.547		
Tangent Direction:	N30.206°W		
Radial Direction:	N59.794°E		
Chord Direction:	N35.941°W		
Radial Direction:	N48.323°E		
Tangent Direction:	N41.677°W		

Element: Linear			
PT( )	37+74.928	3690259.706	5449421.770
PC( )	40+34.175	3690453.339	5449249.390
Tangential Direction:	N41.677°W		
Tangential Length:	259.247		

Element: Circular			
PC( )	40+34.175	3690453.339	5449249.390
HPI( )	41+01.891	3690503.917	5449204.363
CC( )		3690785.803	5449622.843
PT( )	41+68.789	3690564.649	5449174.412
Radius:	500.000		
Delta:	15.426° Right		
Degree of Curvature(Arc):	11.459°		
Length:	134.614		
Tangent:	67.716		
Chord:	134.208		
Middle Ordinate:	4.523		
External:	4.565		
Tangent Direction:	N41.677°W		
Radial Direction:	N48.323°E		
Chord Direction:	N33.964°W		
Radial Direction:	N63.749°E		
Tangent Direction:	N26.251°W		

Element: Linear			
PT( )	41+68.789	3690564.649	5449174.412
PC( )	42+23.388	3690613.617	5449150.262
Tangential Direction:	N26.251°W		
Tangential Length:	54.599		

CONSULTANT:



IOWA DEPARTMENT OF  
NATURAL RESOURCES

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



HORIZONTAL ALIGNMENTS

Cobh and Museum Road Reconstruction For:

BACKBONE STATE PARK

DELAWARE COUNTY

NO. BY DATE REVISION

DRAWN BY: PROJECT NUMBER:  
21-03-28-02

CHK'D BY: DATE:  
November 17, 2022

SHEET NO.:

G.09

\* Cabin Road Horizontal Continued\*

Element: Circular  
 PC( ) 42+23.388 3690613.617 5449150.262  
 HPI( ) 42+64.174 3690650.197 5449132.222  
 CC( ) 3690666.694 5449257.886  
 PT( ) 43+02.021 3690690.194 5449140.209  
 Radius: 120.000  
 Delta: 37.545° Right  
 Degree of Curvature(Arc): 47.746°  
 Length: 78.634  
 Tangent: 40.787  
 Chord: 77.234  
 Middle Ordinate: 6.383  
 External: 6.742  
 Tangent Direction: N26.251°W  
 Radial Direction: N63.749°E  
 Chord Direction: N7.479°W  
 Radial Direction: S78.706°E  
 Tangent Direction: N11.294°E

Element: Linear  
 PT( ) 23+02.021 3690690.194 5449140.209  
 PC( ) 43+18.346 3690706.203 5449143.406  
 Tangential Direction: N11.294°E  
 Tangential Length: 16.325

Element: Circular  
 PC( ) 43+18.346 3690706.203 5449143.406  
 HPI( ) 44+25.943 3690811.717 5449164.478  
 CC( ) 3690999.957 5447672.451  
 PT( ) 45+33.172 3690919.157 5449170.273  
 Radius: 1500.000  
 Delta: 8.206° Left  
 Degree of Curvature(Arc): 3.82°  
 Length: 214.826  
 Tangent: 107.597  
 Chord: 214.642  
 Middle Ordinate: 3.844  
 External: 3.854  
 Tangent Direction: N11.294°E  
 Radial Direction: S78.706°E  
 Chord Direction: N7.191°E  
 Radial Direction: S86.912°E  
 Tangent Direction: N3.088°E

Element: Linear  
 PT( ) 45+33.172 3690919.157 5449170.273  
 PC( ) 45+55.410 3690941.363 5449171.471  
 Tangential Direction: N3.088°E  
 Tangential Length: 22.238

Element: Circular  
 PC( ) 45+55.410 3690941.363 5449171.471  
 HPI( ) 47+10.791 3691096.518 5449179.841  
 CC( ) 3690976.377 5448522.415  
 PT( ) 48+60.447 3691238.685 5449117.137  
 Radius: 650.000  
 Delta: 26.888° Left  
 Degree of Curvature(Arc): 8.815°  
 Length: 305.037  
 Tangent: 155.381  
 Chord: 302.245  
 Middle Ordinate: 17.812  
 External: 18.314  
 Tangent Direction: N3.088°E  
 Radial Direction: S86.912°E  
 Chord Direction: N10.356°W  
 Radial Direction: N66.200°E  
 Tangent Direction: N23.800°W

Element: Linear  
 PT( ) 48+60.447 3691238.685 5449117.137  
 PC( ) 49+62.161 3691331.749 5449076.090  
 Tangential Direction: N23.800°W  
 Tangential Length: 101.714

Element: Circular  
 PC( ) 29+62.161 3691331.749 5449076.090  
 HPI( ) 51+60.722 3691513.423 5448995.961  
 CC( ) 3691240.950 5448870.225  
 PT( ) 52+87.537 3691456.509 5448805.732  
 Radius: 225.000  
 Delta: 82.856° Left  
 Degree of Curvature(Arc): 25.465°  
 Length: 325.376  
 Tangent: 198.560  
 Chord: 297.756  
 Middle Ordinate: 56.298  
 External: 75.085  
 Tangent Direction: N23.800°W  
 Radial Direction: N66.200°E  
 Chord Direction: N65.228°W  
 Radial Direction: N16.657°W  
 Tangent Direction: S73.343°W

Element: Linear  
 PT( ) 52+87.537 3691456.509 5448805.732  
 PC( ) 53+26.492 3691445.343 5448768.411  
 Tangential Direction: S73.343°W  
 Tangential Length: 38.955

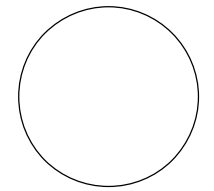
Element: Circular  
 PC( ) 53+26.492 3691445.343 5448768.411  
 HPI( ) 54+66.544 3691405.199 5448634.236  
 CC( ) 3688379.615 5449685.643  
 PT( ) 56+06.417 3691353.487 5448504.082  
 Radius: 3200.000  
 Delta: 5.012° Left  
 Degree of Curvature(Arc): 1.79°  
 Length: 279.924  
 Tangent: 140.051  
 Chord: 279.835  
 Middle Ordinate: 3.060  
 External: 3.063  
 Tangent Direction: S73.343°W  
 Radial Direction: N16.657°W  
 Chord Direction: S70.837°W  
 Radial Direction: N21.669°W  
 Tangent Direction: S68.331°W

Element: Linear  
 PT( ) 56+06.417 3691353.487 5448504.082  
 PC( ) 56+80.402 3691326.169 5448435.324  
 Tangential Direction: S68.331°W  
 Tangential Length: 73.986

Element: Circular  
 PC( ) 56+80.402 3691326.169 5448435.324  
 HPI( ) 57+87.233 3691286.723 5448336.043  
 CC( ) 3691465.569 5448379.939  
 PT( ) 58+66.063 3691367.652 5448266.306  
 Radius: 150.000  
 Delta: 70.917° Right  
 Degree of Curvature(Arc): 38.197°  
 Length: 185.661  
 Tangent: 106.830  
 Chord: 174.034  
 Middle Ordinate: 27.820  
 External: 34.154  
 Tangent Direction: S68.331°W  
 Radial Direction: N21.669°W  
 Chord Direction: N76.210°W  
 Radial Direction: N49.249°E  
 Tangent Direction: N40.751°W

Element: Linear  
 PT( ) 58+66.063 3691367.652 5448266.306  
 END( ) 60+23.385 3691486.831 5448163.610  
 Tangential Direction: N40.751°W  
 Tangential Length: 157.322

CONSULTANT:



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



HORIZONTAL ALIGNMENTS

Cabin and Museum Road Reconstruction For:

BACKBONE STATE PARK

DELAWARE COUNTY

NO.	BY	REVISION
DATE		

DRAWN BY: PROJECT NUMBER:  
21-03-28-02

CHK'D BY: DATE:  
November 17, 2022

SHEET No:

**G.10**

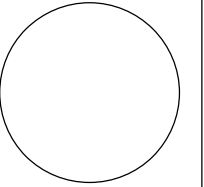
\* Cabin Road 2 Horizontal\*

	STATION	NORTHING	EASTING
Element: Linear			
START( )	90+00.000	3690718.469	5448930.011
PC( )	92+00.787	3690658.876	5449121.751
Tangential Direction:	S72.735°E		
Tangential Length:	200.787		

Element: Circular			
PC( )	92+00.787	3690658.876	5449121.751
HPI( )	92+08.470	3690656.596	5449129.088
CC( )		3690697.074	5449133.622
PT( )	92+15.969	3690657.196	5449136.748
Radius:	40.000		
Delta:	21.747° Left		
Degree of Curvature(Arc):	143.239°		
Length:	15.182		
Tangent:	7.684		
Chord:	15.091		
Middle Ordinate:	0.718		
External:	0.731		
Tangent Direction:	S72.735°E		
Radial Direction:	S17.265°W		
Chord Direction:	S83.608°E		
Radial Direction:	S4.482°E		
Tangent Direction:	N85.518°E		

Element: Linear			
PT( )	92+15.969	3690657.196	5449136.748
END( )	92+17.478	3690657.314	5449138.253
Tangential Direction:	N85.518°E		
Tangential Length:	1.509		

CONSULTANT:



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



**HORIZONTAL ALIGNMENTS**

Cobh and Museum Road Reconstruction For  
**BACKBONE STATE PARK**

DELAWARE COUNTY

NO.	BY	REVISION

DRAWN BY: PROJECT NUMBER:  
21-03-28-02

CHK'D BY: DATE:  
November 17, 2022

SHEET No:

**G.11**

\* Museum Road Mainline Horizontal\*

	STATION	NORTHING	EASTING
Element: Linear			
START( )	0.000	3693598.957	5441758.626
PC( )	80.286	3693542.675	5441815.882
Tangential Direction:	S45.492°E		
Tangential Length:	80.286		

Element: Circular

PC( )	80.286	3693542.675	5441815.882
HPI( )	93.938	3693533.105	5441825.618
CC( )		3693585.464	5441857.943
PT( )	107.133	3693528.689	5441838.536

Radius: 60.000  
Delta: 25.637° Left

Degree of Curvature(Arc): 95.493°

Length: 26.847  
Tangent: 13.652  
Chord: 26.623

Middle Ordinate: 1.495

External: 1.534

Tangent Direction: S45.492°E

Radial Direction: S44.508°W

Chord Direction: S58.310°E

Radial Direction: S18.871°W

Tangent Direction: S71.129°E

Element: Linear

PT( )	107.133	3693528.689	5441838.536
PC( )	220.812	3693491.921	5441946.104
Tangential Direction:	S71.129°E		
Tangential Length:	113.679		

Element: Circular

PC( )	220.812	3693491.921	5441946.104
HPI( )	234.179	3693487.597	5441958.753
CC( )		3693548.695	5441965.511
PT( )	247.117	3693489.052	5441972.041

Radius: 60.000  
Delta: 25.119° Left

Degree of Curvature(Arc): 95.493°

Length: 26.305  
Tangent: 13.367  
Chord: 26.095

Middle Ordinate: 1.436

External: 1.471

Tangent Direction: S71.129°E

Radial Direction: S18.871°W

Chord Direction: S83.688°E

Radial Direction: S6.248°E

Tangent Direction: N83.752°E

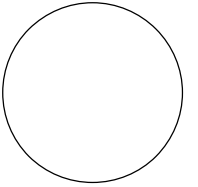
Element: Linear

PT( )	247.117	3693489.052	5441972.041
END( )	281.397	3693492.782	5442006.117
Tangential Direction:	N83.752°E		
Tangential Length:	34.280		

\* Museum Road 2 Horizontal\*

	STATION	NORTHING	EASTING
Element: Linear			
START( )	10+00.000	3693526.477	5441765.097
END( )	10+50.247	3693547.933	5441810.533
Tangential Direction:	N64.722°E		
Tangential Length:	50.247		

CONSULTANT:



**IOWA DEPARTMENT OF  
NATURAL RESOURCES**

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



**HORIZONTAL ALIGNMENTS**

Cobh and Museum Road Reconstruction For:

**BACKBONE STATE PARK**

DELAWARE COUNTY

NO.	BY	REVISION
	DATE	

DRAWN BY: PROJECT NUMBER:

21-03-28-02

CHK'D BY: DATE:

November 17, 2022

SHEET No:

**G.12**



\* Sidewalk RR Horizontal\*

	STATION	NORTHING	EASTING
Element: Linear			
START( )	600+00.000	3688849.403	5450392.093
END( )	600+31.148	3688858.467	5450421.893
Tangential Direction:	N73.082°E		
Tangential Length:	31.148		

\* Sidewalk Cabin 9-10 Horizontal\*

	STATION	NORTHING	EASTING
Element: Linear			
START( )	800+00.000	3690714.883	5448941.467
END( )	800+29.599	3690708.092	5448970.276
Tangential Direction:	S76.735°E		
Tangential Length:	29.599		

\* Sidewalk Cabin 11 Horizontal\*

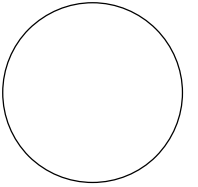
	STATION	NORTHING	EASTING
Element: Linear			
START( )	900+00.000	3691380.916	5448166.653
HPI( )	900+08.806	3691389.701	5448166.041
Tangential Direction:	N3.988°W		
Tangential Length:	8.806		

Element: Linear			
HPI( )	900+08.806	3691389.701	5448166.041
END( )	900+16.068	3691396.676	5448168.064
Tangential Direction:	N16.170°E		
Tangential Length:	7.263		

\* Sidewalk Cabin 12 Horizontal\*

	STATION	NORTHING	EASTING
Element: Linear			
START( )	1000+00.000	3691420.560	5448132.841
END( )	1000+24.302	3691420.021	5448157.137
Tangential Direction:	S88.729°E		
Tangential Length:	24.302		

CONSULTANT:



**IOWA DEPARTMENT OF  
NATURAL RESOURCES**

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



**HORIZONTAL ALIGNMENTS**

Cobln and Museum Road Reconstruction For:

**BACKBONE STATE PARK**

DELAWARE COUNTY

NO.	BY	REVISION

DRAWN BY: PROJECT NUMBER:  
21-03-28-02

CHK'D BY: DATE:  
November 17, 2022

SHEET No:

**G.13**



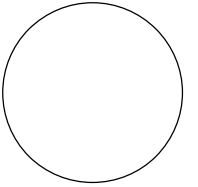


\* Cabin Road 2 Vertical\*

\*

	STATION	ELEVATION
Element: Linear		
START	90+34.119	1072.825
VPC	90+54.296	1073.229
Tangent Grade:	0.020	
Tangent Length:	20.177	
Element: Symmetrical Parabola		
VPC	90+54.296	1073.229
VPI	90+69.296	1073.529
VPT	90+84.296	1073.453
VHP	90+78.216	1073.468
Length:	30.000	
Entrance Grade:	0.020	
Exit Grade:	-0.005	
$r = (g2 - g1) / L$ :	-8.361	
$K = l / (g2 - g1)$ :	11.960	
Middle Ordinate:	-0.094	
Element: Linear		
VPT	90+84.296	1073.453
VPC	91+04.299	1073.351
Tangent Grade:	-0.005	
Tangent Length:	20.003	
Element: Symmetrical Parabola		
VPC	91+04.299	1073.351
VPI	91+14.299	1073.300
VPT	91+24.299	1073.224
Length:	20.000	
Entrance Grade:	-0.005	
Exit Grade:	-0.008	
$r = (g2 - g1) / L$ :	-1.270	
$K = l / (g2 - g1)$ :	78.761	
Middle Ordinate:	-0.006	
Element: Linear		
VPT	91+24.299	1073.224
VPC	91+61.905	1072.937
Tangent Grade:	-0.008	
Tangent Length:	37.605	
Element: Symmetrical Parabola		
VPC	91+61.905	1072.937
VPI	91+76.905	1072.823
VPT	91+91.905	1072.553
Length:	30.000	
Entrance Grade:	-0.008	
Exit Grade:	-0.018	
$r = (g2 - g1) / L$ :	-3.454	
$K = l / (g2 - g1)$ :	28.951	
Middle Ordinate:	-0.039	
Element: Linear		
VPT	91+91.905	1072.553
END	92+07.417	1072.284
Tangent Grade:	-0.018	
Tangent Length:	15.512	

CONSULTANT:



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



**VERTICAL ALIGNMENTS**

Cobh and Museum Road Reconstruction For:  
**BACKBONE STATE PARK**

DELAWARE COUNTY

NO.	BY	REVISION

DRAWN BY:	PROJECT NUMBER:
	21-03-28-02
CHK'D BY:	DATE:
	November 17, 2022

SHEET No: **G.16**



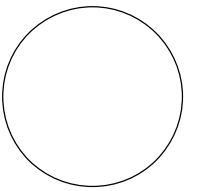
**\*Museum Road Mainline Vertical\***

	STATION	ELEVATION
Element: Linear		
START	0+28.260	1120.547
VPC	0+50.971	1122.818
Tangent Grade:	0.100	
Tangent Length:	22.711	
Element: Symmetrical Parabola		
VPC	0+50.971	1122.818
VPI	0+70.971	1124.818
VPT	0+90.971	1123.458
VHP	0+74.780	1124.009
Length:	40.000	
Entrance Grade:	0.100	
Exit Grade:	-0.068	
$r = (g2 - g1) / L:$	-42.000	
$K = l / (g2 - g1):$	2.381	
Middle Ordinate:	-0.840	
Element: Linear		
VPT	0+90.971	1123.458
VPC	1+72.905	1117.887
Tangent Grade:	-0.068	
Tangent Length:	81.934	
Element: Symmetrical Parabola		
VPC	1+72.905	1117.887
VPI	1+85.405	1117.037
VPT	1+97.905	1116.352
Length:	25.000	
Entrance Grade:	-0.068	
Exit Grade:	-0.055	
$r = (g2 - g1) / L:$	5.291	
$K = l / (g2 - g1):$	18.900	
Middle Ordinate:	0.041	
Element: Linear		
VPT	1+97.905	1116.352
VPC	2+29.296	1114.633
Tangent Grade:	-0.055	
Tangent Length:	31.391	
Element: Symmetrical Parabola		
VPC	2+29.296	1114.633
VPI	2+44.296	1113.811
VPT	2+59.296	1113.871
VLP	2+57.254	1113.867
Length:	30.000	
Entrance Grade:	-0.055	
Exit Grade:	0.004	
$r = (g2 - g1) / L:$	19.591	
$K = l / (g2 - g1):$	5.104	
Middle Ordinate:	0.220	
Element: Linear		
VPT	2+59.296	1113.871
END	2+64.780	1113.893
Tangent Grade:	0.004	
Tangent Length:	5.484	

**\*Museum Road 2 Vertical\***

	STATION	ELEVATION
Element: Linear		
START	10+10.000	1125.522
VPC	10+11.560	1125.471
Tangent Grade:	-0.033	
Tangent Length:	1.560	
Element: Symmetrical Parabola		
VPC	10+11.560	1125.471
VPI	10+21.560	1125.141
VPT	10+31.560	1124.631
Length:	20.000	
Entrance Grade:	-0.033	
Exit Grade:	-0.051	
$r = (g2 - g1) / L:$	-9.015	
$K = l / (g2 - g1):$	11.092	
Middle Ordinate:	-0.045	
Element: Linear		
VPT	10+31.560	1124.631
END	10+41.720	1124.113
Tangent Grade:	-0.051	
Tangent Length:	10.160	

CONSULTANT:



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



**VERTICAL ALIGNMENTS**

Cobh and Museum Road Reconstruction For:

**BACKBONE STATE PARK**

DELAWARE COUNTY

NO.	BY	REVISION

DRAWN BY: PROJECT NUMBER:  
21-03-28-02

CHK'D BY: DATE:  
November 17, 2022

SHEET No:

\*Sidewalk RR Vertical\*

	STATION	ELEVATION
Element: Linear		
START	600+08.986	1019.112
END	600+25.090	1019.381
Tangent Grade:	-0.017	
Tangent Length:	16.104	

\*Sidewalk Cabin 9-10 Vertical\*

	STATION	ELEVATION
Element: Linear		
START	800+10.407	1072.355
END	800+22.265	1072.833
Tangent Grade:	-0.040	
Tangent Length:	11.858	

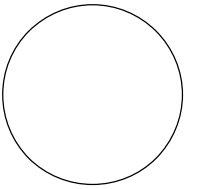
\*Sidewalk Cabin 11 Vertical\*

	STATION	ELEVATION
Element: Linear		
START	900+01.100	1096.986
END	900+11.207	1097.430
Tangent Grade:	0.044	
Tangent Length:	10.107	

\*Sidewalk Cabin 12 Vertical\*

	STATION	ELEVATION
Element: Linear		
START	1000+01.520	1095.894
END	1000+16.525	1096.404
Tangent Grade:	0.034	
Tangent Length:	15.005	

CONSULTANT:



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



**VERTICAL ALIGNMENTS**

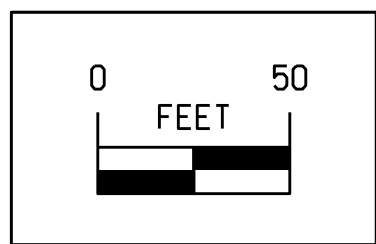
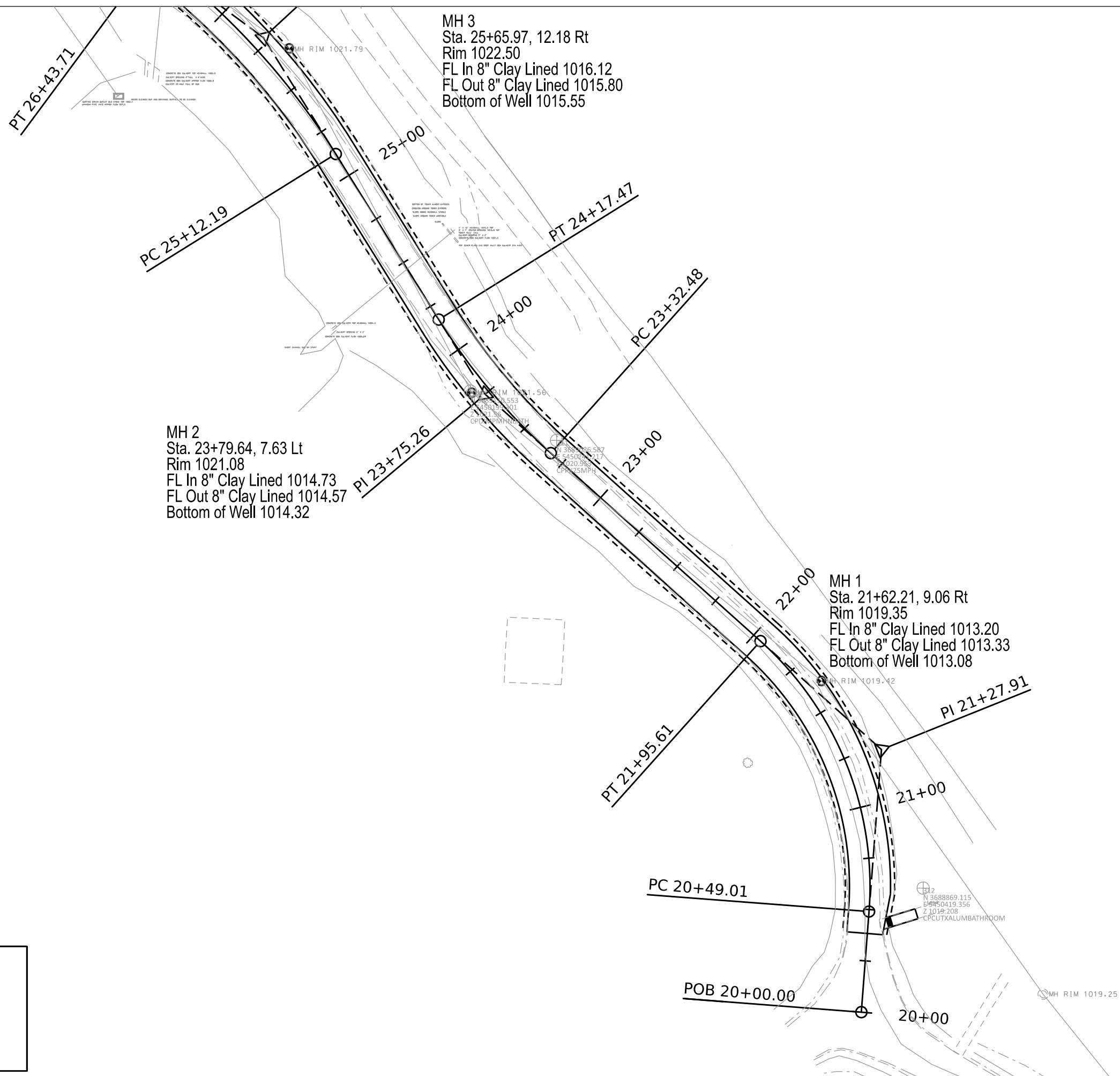
Cobh and Museum Road Reconstruction For:  
**BACKBONE STATE PARK**

DELAWARE COUNTY

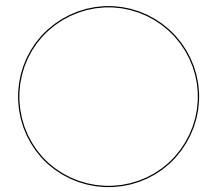
NO.	DATE	BY	REVISION

DRAWN BY:	PROJECT NUMBER: 21-03-28-02
CHK'D BY:	DATE: November 17, 2022
SHEET No:	

**G.18**



CONSULTANT:



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



**SANITARY SEWER PLAN**

Cobh and Museum Road Reconstruction For:  
**BACKBONE STATE PARK**  
 DELAWARE COUNTY

NO.	BY	REVISION

DRAWN BY: PROJECT NUMBER:  
 21-03-28-02

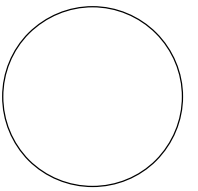
CHK'D BY: DATE:  
 November 17, 2022

SHEET No:

**S.01**



CONSULTANT:



**IOWA DEPARTMENT OF  
NATURAL RESOURCES**

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



**SANITARY SEWER PLAN**

Cobh and Museum Road Reconstruction For:

**BACKBONE STATE PARK**

DELAWARE COUNTY

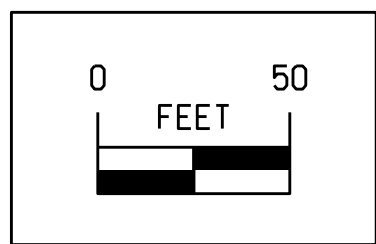
NO. BY REVISION  
DATE

DRAWN BY: PROJECT NUMBER:  
DATE: 21-03-28-02

CHK'D BY: DATE:  
November 17, 2022

SHEET No:

**S.02**



MH RIM 1036.95

31+00

30+00

29+00

28+00

27+00

26+00

25+00

MH 4  
Sta. 27+54.17, 15.19 Lt  
Rim 1025.49  
FL In 8" Clay Lined 1018.68  
FL Out 8" Clay Lined 1018.61  
Bottom of Well 1018.36

MH 3  
Sta. 25+65.97, 12.18 Rt  
Rim 1022.50  
FL In 8" Clay Lined 1016.12  
FL Out 8" Clay Lined 1015.80  
Bottom of Well 1015.55

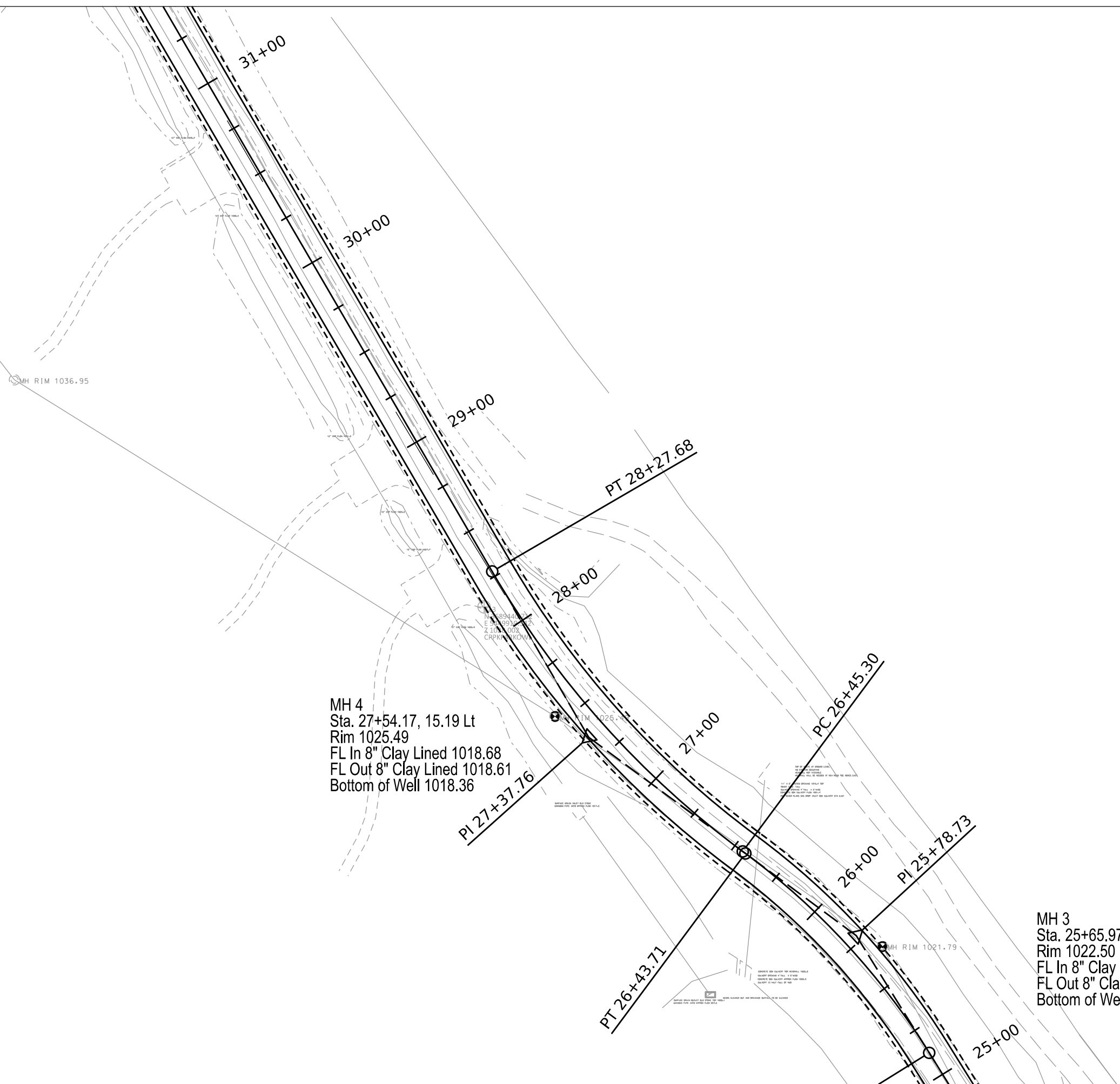
PT 28+27.68

PC 26+45.30

PI 27+37.76

PI 25+78.73

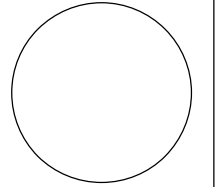
PT 26+43.71







CONSULTANT:



IOWA DEPARTMENT OF  
NATURAL RESOURCES

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



SANITARY SEWER PLAN

Coble and Museum Road Reconstruction For:  
BACKBONE STATE PARK

DELAWARE COUNTY

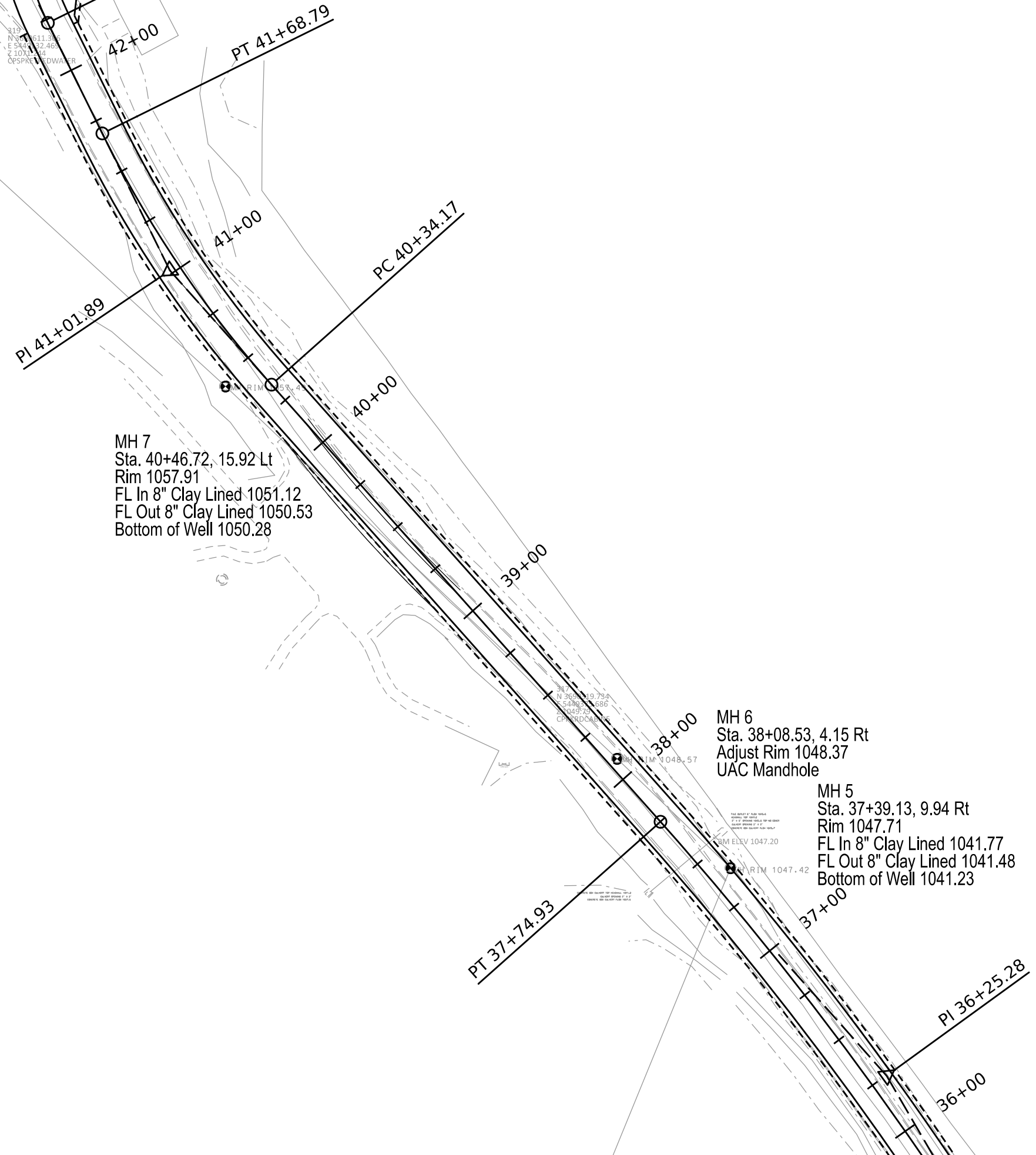
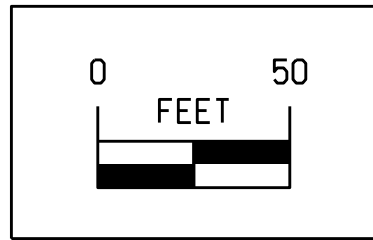
NO. BY DATE REVISION

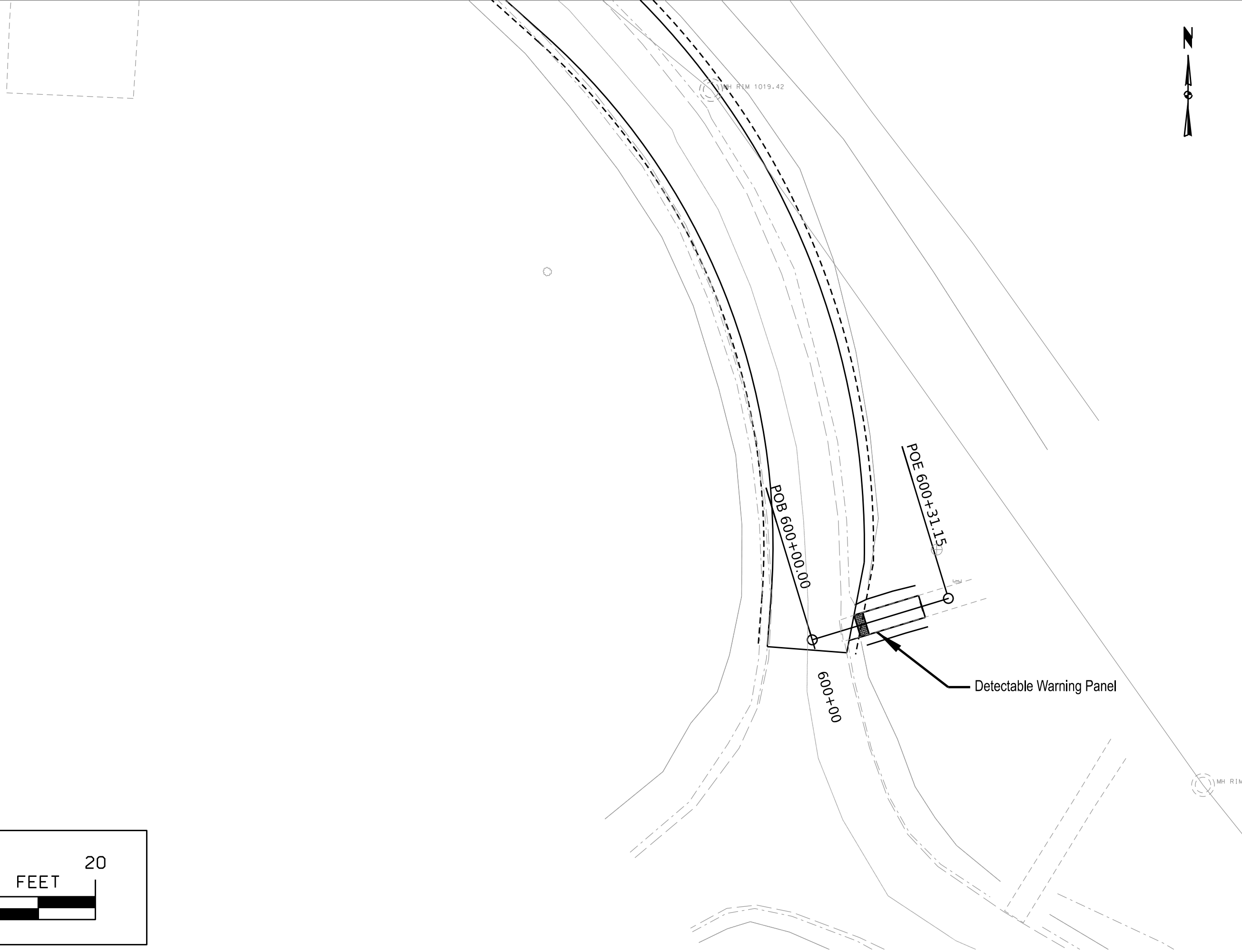
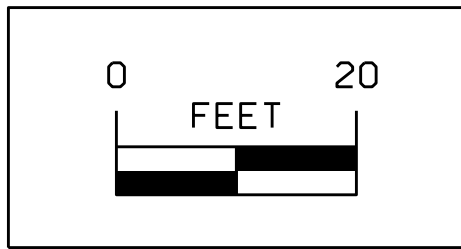

DRAWN BY: PROJECT NUMBER:  
21-03-28-02

CHK'D BY: DATE:  
November 17, 2022

SHEET No.:

**S.03**





NO.	BY	REVISION

DRAWN BY: PROJECT NUMBER:  
21-03-28-02

CHK'D BY: DATE:  
November 17, 2022

SHEET No:

**T.01**

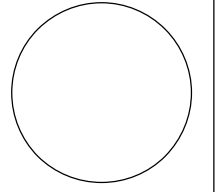
**SIDEWALK PLAN**

Cobh and Museum Road Reconstruction For:  
**BACKBONE STATE PARK**

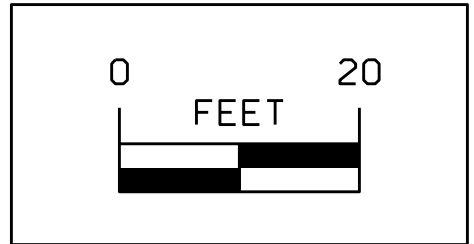
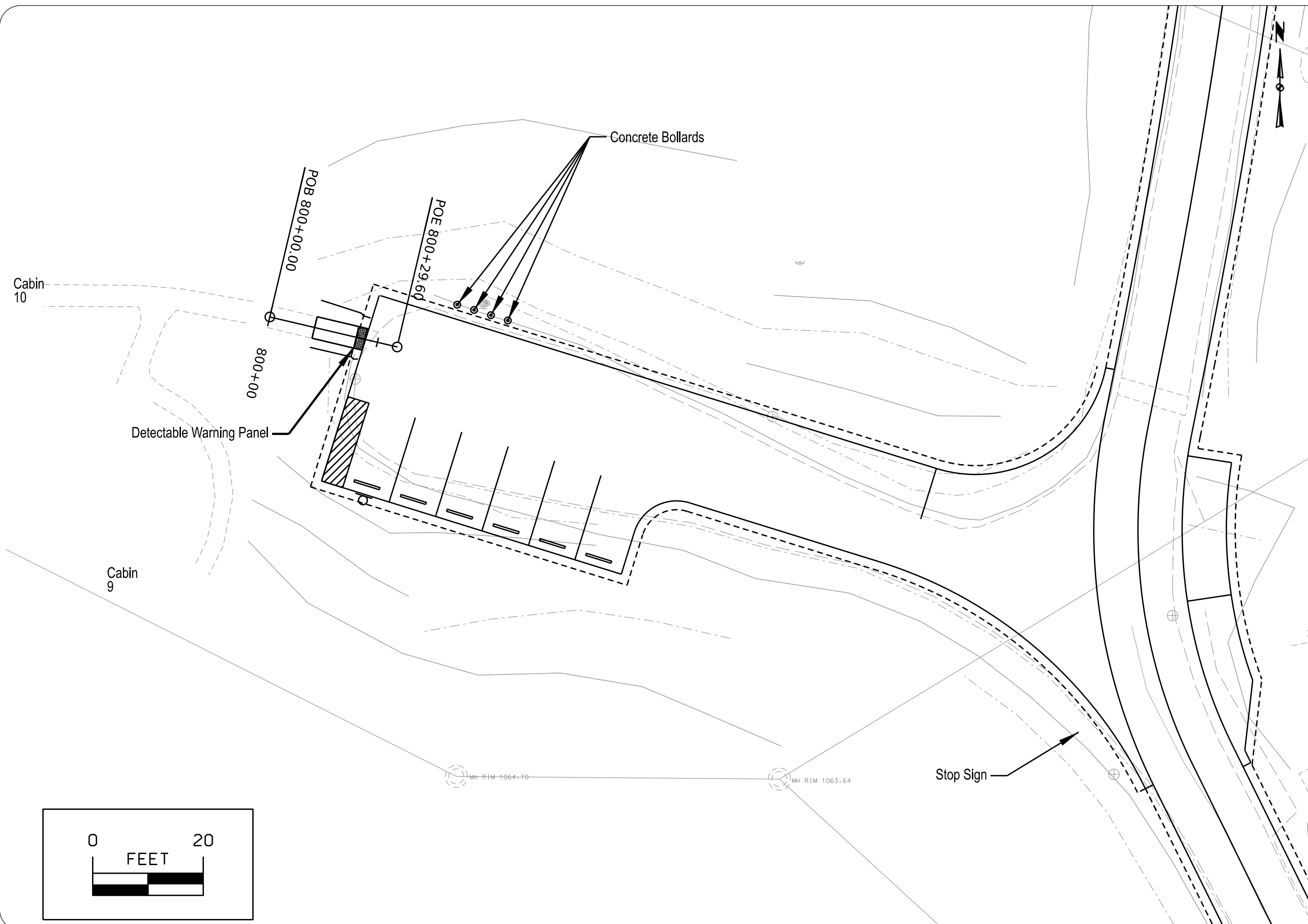
DELAWARE COUNTY



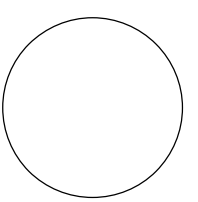
**IOWA DEPARTMENT OF  
NATURAL RESOURCES**  
ENGINEERING SERVICES - WALLACE BUILDING  
502 E. 9TH ST., DES MOINES, IA 50319-0034



CONSULTANT:



CONSULTANT:



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



**SIDEWALK PLAN**

Cabin and Museum Road Reconstruction For:  
**BACKBONE STATE PARK**

DELAWARE COUNTY

NO.	BY	REVISION
DATE		

DRAWN BY: PROJECT NUMBER:  
 21-03-28-02

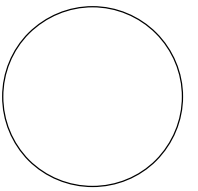
CHK'D BY: DATE:  
 November 17, 2022

SHEET NO:

**T.02**



CONSULTANT:



**IOWA DEPARTMENT OF NATURAL RESOURCES**

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



**SIDEWALK PLAN**

Cabin and Museum Road Reconstruction For:

**BACKBONE STATE PARK**

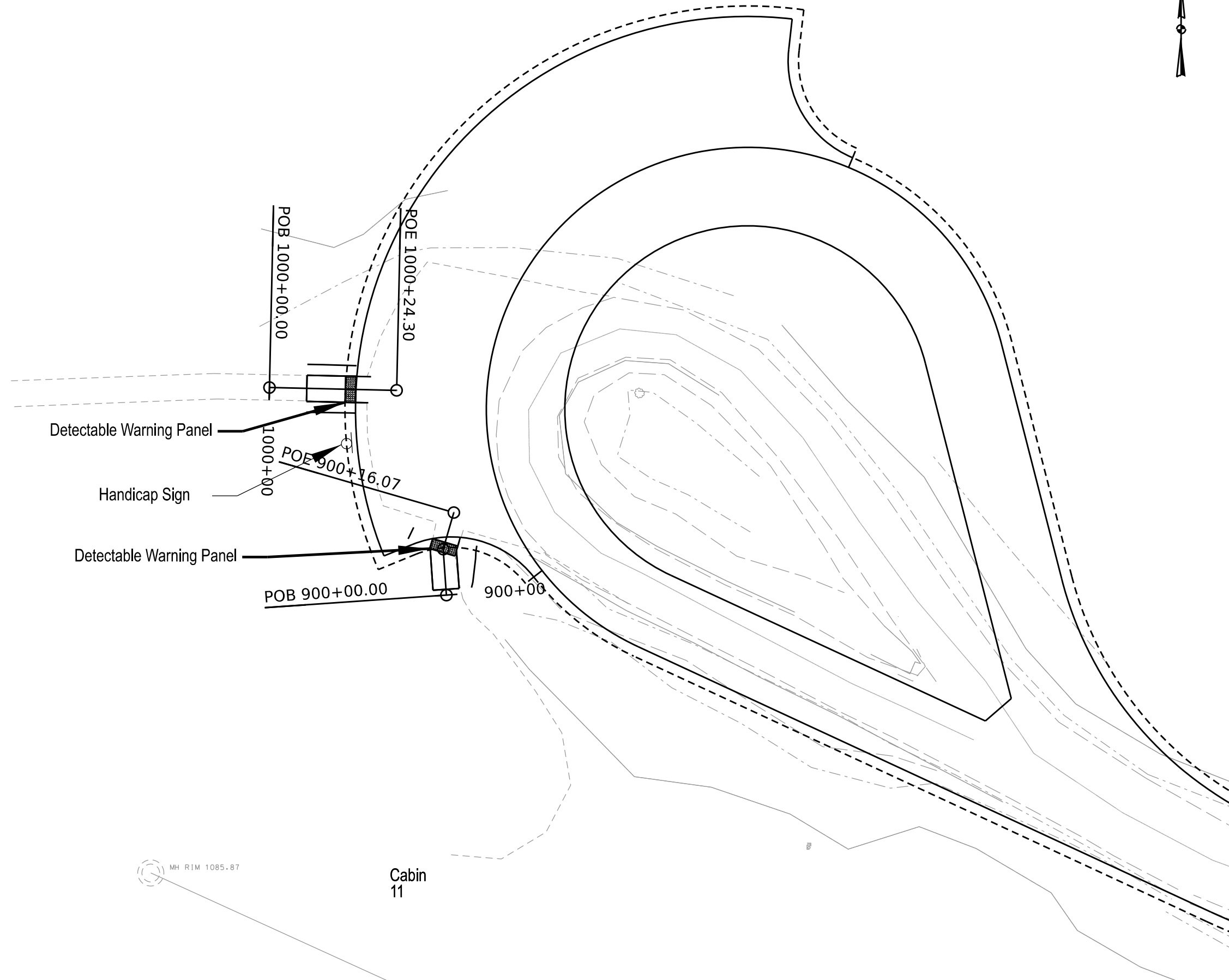
DELAWARE COUNTY

NO.	BY	REVISION
DATE		

DRAWN BY: PROJECT NUMBER:  
21-03-28-02

CHK'D BY: DATE:  
November 17, 2022

SHEET No: **T.03**



Cabin 12

Cabin 11

