

PROJECT MANUAL

Sundown Lake West Marina Wetland

Sundown Lake Association

Moravia, Iowa



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SECTION 00005 – CERTIFICATION


PROJECT MANUAL

for

Sundown Lake West Marina Wetland

Sundown Lake Association

Moravia, Iowa

	<p>I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.</p> <p><u>Ryan M. Benjegerdes</u> Date: <u>10/19/2023</u></p> <p>Ryan M. Benjegerdes License No. Iowa 23767 My renewal date is 12/31/2023 Pages or sheets covered by this seal: 44</p> <p><u>All</u></p>
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SECTION 00010 - TABLE OF CONTENTS

Sundown Lake West Marina Wetland
Sundown Lake Association

CONTRACT DOCUMENTS:

PROJECT MANUAL:

Introductory Information, Bidding Requirements, Contract Forms and Conditions of Contract

00005 - CERTIFICATION PAGE

00010 - TABLE OF CONTENTS

00100 - NOTICE TO BIDDERS

00110 - NOTICE OF PUBLIC HEARING

00200 - INSTRUCTIONS TO BIDDERS

00410 - PROPOSAL

00410 – PROPOSAL ATTACHMENT: BID ITEMS

00420 - BID BOND

00500 - CONTRACT

00610 - PERFORMANCE, PAYMENT AND MAINTENANCE BOND

00800 - SPECIAL PROVISIONS

WAGE AND EXECUTIVE ORDER

EQUAL EMPLOYMENT

Technical Specifications

Flexamat Standard Specifications

Supplemental Specifications

DRAWINGS (UNDER SEPARATE COVER):

15 sheets numbered A.01 through R.04, inclusive, dated October 19th, 2023, and with each sheet bearing the following general title:

Sundown Lake West Marina Wetland

Sundown Lake Association

**This project is based on
SUDAS STANDARD SPECIFICATIONS, 2023 EDITION
unless modified herein.**

*******END OF SECTION*******

NOTICE TO BIDDERS

Sundown Lake West Marina Wetland
Sundown Lake Association
Moravia, Iowa

Time and Place for Filing Sealed Proposals. Sealed bids for the work comprising the repair & improvement as stated below must be filed before 10:00 a.m. on November 9, 2023, in the office of Lake Homes and Farm Realty, 13868 286th Ave., Moravia, Iowa.

Time and Place Sealed Proposals Will be Opened and Considered. Sealed proposals will be opened and bids tabulated at 10:00 a.m. on November 9, 2023, in the office of Lake Homes and Farm Realty, 13868 286th Ave., Moravia, Iowa for consideration by the Sundown Lake Association at its meeting at 5:30 p.m. on November 15, 2023. The Sundown Lake Association reserves the right to reject any and all bids.

Time for Commencement and Completion of Work. Work on the improvement shall commence upon approval of the contract by the Council and as stated in the Notice to Proceed. All work under the Contract must be substantially complete on or before May 15, 2024. Damages in the amount of \$500 per day will be assessed for each day the work remains incomplete.

Bid Security. Each bidder shall accompany its bid with bid security, as defined in Section 468.35 of the Iowa Code in the amount equal to 5% percent of the total amount of the bid.

Contract Documents. Copies of the project documents are available for a price of \$25 per set. This fee is refundable, provided the plans and specifications are returned complete and in good usable condition, and they are returned within fourteen (14) calendar days after the award of the project. Please make your check payable to Bolton & Menk, Inc. and send it to 430 East Grand Ave, Ste 101, Des Moines, IA 50309. Complete digital project bidding documents are available at www.bolton-menk.com or www.questcdn.com. You may view the digital plan documents for free by entering Quest project # 8743728 on the website's Project Search page. Documents may be downloaded for free (\$0.00). Please contact QuestCDN.com at 952-233-1632 or info@questcdn.com for assistance in free membership registration, viewing, downloading, and working with this digital project information.

Preference of Products and Labor. Preference shall be given to domestic construction materials by the contractor, subcontractors, material, workforce, and suppliers in performance of the contract by virtue of statutory authority, further preference will be given to products and provisions grown and coal produced within the State of Iowa, and to Iowa domestic labor, to the extent lawfully required under Iowa statutes. Failure to submit a fully completed Bidder Status Form with the bid may result in the bid being deemed nonresponsive and rejected.

Sales Tax Exemption Certificates. The bidder shall not include sales tax in the bid. The Sundown Lake Association will distribute tax exemption certificates and authorization letters to the Contractor and all subcontractors who are identified. The Contractor and subcontractor may make copies of the tax exemption certificates and provide a copy to each supplier providing construction materials. These tax exemption certificates and authorization letters are applicable only for this specific project under the Contract.

PROJECT DESCRIPTION: Construction of a storm water wetland near the west marina of Sundown Lake in Appanoose County, Iowa. Construction will include excavation, grading, tree clearing, storm sewer installation, seeding and other items incidental to construction.

This Notice is given by authority of the
Sundown Lake Association

Ron Bernard
Lake Manager

NOTICE OF PUBLIC HEARING

Sundown Lake West Marina Wetland
Sundown Lake Association
Moravia, Iowa

Public Hearing on Proposed Contract Documents and Estimated Costs for Repair or Improvement. A public hearing will be held by the Sundown Lake Association on the proposed contract documents (plans, specifications and form of contract) and estimated cost for the improvement at its meeting at 5:30 p.m. on November 15, 2023, at 13868 286th Ave., Moravia, Iowa.

PROJECT DESCRIPTION: Construction of a storm water wetland near the west marina of Sundown Lake in Appanoose County, Iowa. Construction will include excavation, grading, tree clearing, storm sewer installation, seeding and other items incidental to construction.

INSTRUCTIONS TO BIDDERS

Sundown Lake West Marina Wetland
Sundown Lake Association
Moravia, Iowa

The work comprising the above referenced project shall be constructed in accordance with the SUDAS Standard Specifications, 2023 Edition and as further modified by the supplemental specifications and special provisions included in the contract documents. The terms used in the contract version of the documents are defined in said Standard Specifications. Before submitting a bid, please review the requirements of Division One, General Provisions and Covenants. Please be certain that all documents have been completed properly as failure to complete and sign all documents and to comply with the requirements listed below can cause a submitted bid not to be read.

ARTICLE 1 - BID SECURITY

- 1.01 The bid security must be in the minimum amount of 5% of the total bid amount including all add alternates (do not deduct the amount of deduct alternates). Bid security shall be in the form of a cashier's check, a certified check; or drawn on a FDIC insured bank in Iowa; or a certified check drawn on a FDIC insured bank chartered under the laws of the United States; or a certified share draft drawn on a credit union in Iowa or chartered under the laws of the United States; or a bid bond executed by a corporation authorized to contract as a surety in Iowa or satisfactory to the Sundown Lake Association, hereinafter called the "Jurisdiction".
- 1.02 The bid bond must be submitted on the enclosed Bid Bond form as no other bid bond forms are acceptable. All signatures on the bid bond must be original signatures in ink; electronic, copies, or facsimile (fax) of any signature on the bid bond is not acceptable.
- 1.03 Bid security other than said bid bond shall be in accordance with Chapter 26 of the Iowa Code.

ARTICLE 2 - SUBMISSION OF THE PROPOSAL AND IDENTITY OF BIDDER

- 2.01 The proposal shall be sealed in an envelope, properly identified as the Proposal with the project title and the name and address of the bidder. The bid security shall be sealed in a separate envelope identified as the "Bid Security" and attached to the outside of the bid proposal envelope. The Proposal and Bid security shall be deposited with the Jurisdiction at or before the time and at the place provided in the Notice to Bidders. It is the sole responsibility of the bidder to see that its proposal is delivered to the Jurisdiction prior to the time for opening bids along with the appropriate bid security. Any proposal received after the scheduled time for the receiving of proposals will be returned to the bidder unopened and will not be considered.
- 2.02 The following documents shall be completed, signed and returned in the Proposal envelope. The bid cannot be read if any of these documents are omitted from the Proposal envelope.
 - A. PROPOSAL – Complete each of the following parts:
 - Part B – Acknowledgment of Addenda, if any have been issued;
 - Part C – Bid Items, Quantities and Prices
 - Part F – Additional Requirements;
 - Part G – Identity of Bidder;
- 2.03 Sign the proposal. The signature on the proposal and all proposal attachments must be an original signature in ink signed by the same individual who is the Company Owner or an authorized Officer of the Company; copies or facsimile of any signature will not be accepted.

- 2.04 Documents must be submitted as printed. No alterations, additions, or deletions are permitted. If the Bidder notes a requirement in the contract documents which the Bidder believes will require a conditioned or unsolicited alternate bid, the Bidder must immediately notify the Engineer in writing. The Engineer will issue any necessary interpretation by an addendum.
- 2.05 Division 1 - General Provisions and Covenants of the 2023 SUDAS Standard Specifications is modified as follows:
- A. Section 1020.1.09B, Unit Price Attachment.
- A computer generated unit price attachment may be submitted by the Bidder as specified by this Section.

ARTICLE 3 - PROSECUTION AND PROGRESS OF THE WORK

- 3.01 The work is located in the Sundown Lake Association.
- Work on the improvement shall commence upon approval of the contract by the Council and as stated in the Notice to Proceed. All work under the Contract must be substantially complete on or before 5/15/2024. Damages in the amount of \$500 per day will be assessed for each day the work remains incomplete.
- 3.02 Community Events.
- N/A
- 3.03 Each successful bidder will be required to furnish a corporate surety bond in an amount equal to 100% of its contract price. Said bond shall be issued by a responsible surety approved by Sundown Lake Association and shall guarantee the faithful performance of the contract, the terms and conditions therein contained, the prompt payment of all material and labor, protect and save harmless Sundown Lake Association from claims and damages of any kind caused by the operations of the contract, and shall also guarantee the maintenance of the improvement caused by failures in materials and construction for a period of four years from and after acceptance of the work.
- 3.04 The Sundown Lake Association, in accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42U.S.C. 2000d to 2000d-4 and title 49 Code of Federal Regulations, Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Nondiscrimination in Federally-assisted programs of the Department of Transportation issued pursuant to such Act, hereby notifies all bidders that it will affirmatively ensure that with any contract entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

ARTICLE 4 - PREFERENCE OF PRODUCTS AND LABOR

- 4.01 In accordance with Iowa statutes, a resident bidder shall be allowed preference against a nonresident bidder from a state or foreign country provided that state or foreign county gives or requires any preference to bidders from that state or foreign country. This includes, but is not limited to any preference to bidders, the imposition of any type of labor force preference, or any other form of preferential treatment to bidders or laborers from that state or foreign country. The preference allowed shall be equal to the preference given or required by the state of foreign county in which the nonresident bidder is a resident. In the instance of a resident labor force preference, a nonresident bidder shall apply the same resident labor force preference to a public improvement in this state as would be required in the construction of a public improvement by the state or foreign country in which the nonresident bidder is a resident.

- f) Contractor shall certify that materials and equipment are manufactured in accordance with applicable specifications.

20) SOIL BORINGS

- a) N/A

21) EXISTING UTILITIES

- a) Location of utility lines, mains, cables, and appurtenances shown on plans are from information provided by utility companies and records of the Owner.
- b) Prior to construction, Contractor shall contact all utility companies and have all utility lines and services located. The Contractor is responsible for excavating and exposing underground utilities in order to confirm their locations ahead of the work.
- c) The Contractor is solely responsible for damage to utilities or private or public property due to utility disruption.
- d) The Contractor shall notify utility company immediately if utility infrastructure is damaged during construction.
- e) The Contractor shall support and protect all utilities that are not moved.
- f) Utility services are not generally shown on plans; protect and maintain services during construction. Notify Jurisdiction and affected property Jurisdictions 48 hours prior to any planned utility service interruptions.
- g) If private utility work occurs within/adjacent to the site during the construction period, Contractor shall coordinate work schedules with the Engineer.
- h) Existing utilities shall remain in substantially continuous operation during construction. Contractor shall select the order and methods of construction that will not interfere with the operation of the utility systems. Interrupt utility services only with approval of Jurisdiction and Engineer.
- i) No claims for additional compensation or time extensions will be allowed to the Contractor for interference or delay caused by utility companies.

22) SALVAGE OF MATERIALS / DISPOSAL

- a) The Contractor shall remove from the project site and dispose of trees, shrubs, vegetation, excess soil excavation, rubbish, concrete, granular materials, and other materials encountered as shown on plans and as specified. Excess soil excavation not designated for waste locations shall be disposed as directed by the Engineer.
- b) The Contractor shall dispose of materials in accordance with applicable laws and ordinances. Disposal sites are subject to the review and approval of the Engineer.
- c) Burning of brush and other debris is not permitted. Contractor is responsible for selecting disposal location off site.

SECTION 00410 - PROPOSAL

Sundown Lake West Marina Wetland
Sundown Lake Association
Moravia, Iowa

PROPOSAL: PART A – SCOPE

The Sundown Lake Association, hereinafter called the "Jurisdiction", has need of a qualified contractor to complete the work comprising the below referenced repair or improvement. The undersigned Bidder hereby proposes to complete the work comprising the below referenced repair or improvement as specified in the contract documents, which are officially on file with the Jurisdiction, in the office of the Lake Homes and Farms Realty, at the prices hereinafter provided in Part C of the Proposal, for the following described improvements:

PROJECT DESCRIPTION: Construction of a storm water wetland near the west marina of Sundown Lake in Appanoose County, Iowa. Construction will include excavation, grading, tree clearing, storm sewer installation, seeding and other items incidental to construction.

PROPOSAL: PART B – ACKNOWLEDGMENT OF ADDENDA

The Bidder hereby acknowledges that all addenda become a part of the contract documents when issued and that each such addendum has been received and utilized in the preparation of this bid. The Bidder hereby acknowledges receipt of the following addenda by inserting the number of each addendum in the blanks below:

ADDENDUM NUMBER _____

ADDENDUM NUMBER _____

ADDENDUM NUMBER _____

ADDENDUM NUMBER _____

and certifies that said addenda were utilized in the preparation of this bid.

PROPOSAL: PART C – BID ITEMS AND QUANTITIES

UNIT BID PRICE CONTRACTS: The Bidder must provide the Unit Bid Price, the Total Bid Price, any Alternate Prices, and the Total Construction Costs on the Proposal Attachment: Part C – Bid Items and Quantities. In case of discrepancy, the Unit Bid Price governs. The quantities shown on the Proposal Attachment: Part C – Bid Items and Quantities are approximate only, but are considered sufficiently adequate for the purpose of comparing bids. The Total Construction Cost shall be used only for the comparison of bids. The jurisdiction shall only use the Total Construction Cost for determining the sufficiency of the bid security.

BASE BID CONTRACTS: The Bidder must provide any Bid Prices, any Alternate Prices, and the Total of the Base Bid plus any Add-Alternates on the Proposal Attachment: Part C – Bid Items and Quantities. The Jurisdiction shall only use the Total Construction Cost for comparison of bids. The Total Construction Cost, including any Add-Alternates shall be used for determining the sufficiency of the bid security.

PROPOSAL: PART D – GENERAL

The Bidder hereby acknowledges that the Jurisdiction, in advertising for public bids for this project reserves the right to:

1. Reject any or all bids. Award of the contract, if any, to be to the lowest responsible, responsive bidder; and
2. Reject any or all alternates in determining the items to be included in the contract. Designation of the lowest responsible, responsive bidder to be based on comparison of the total bid only, not including any alternates; and
3. Make such alterations in the contract documents or in the proposal quantities as it determines necessary in accordance with the contract documents after execution of the contract. Such alterations shall not be considered a waiver of any conditions of the contract documents, and shall not invalidate any of the provisions thereof; and

The Bidder hereby agrees to:

1. Enter into a contract, if this proposal is selected, in the form approved by the Jurisdiction, provide proof of registration with the Iowa Division of Labor in accordance with Chapter 91C of the Iowa Code, and furnish a performance, maintenance, and payment bond; and
2. Forfeit bid security, not as a penalty but as liquidated damages, upon failure to enter into such contract and/or to furnish said bond; and
3. Commence the work upon written Notice to Proceed; and
4. Substantially complete the work on or before 5/15/2024; and
5. Pay liquidated damages for noncompliance with said completion provisions at the rate of five hundred dollars (\$500) for each calendar day thereafter that the work remains incomplete.

PROPOSAL: PART E – NON-COLLUSION AFFIDAVIT

The Bidder hereby certifies:

1. That this proposal is not affected by, contingent on, or dependent on any other proposal submitted for any improvement with the Jurisdiction; and
2. That no individual employed by the Bidder has employed any person to solicit or procure the work on this project, nor will any employee of the Bidder make any payment or agreement for payment of any compensation in connection with the procurement of this project; and
3. That no part of the bid price received by the Bidder was or will be paid to any person, corporation, firm, association, or other organization for soliciting the bid, other than the payment of their normal compensation to persons regularly employed by the Bidder whose services in connection with the construction of the project were in the regular course of their duties for the Bidder; and
4. That this proposal is genuine and not collusive or sham; that the Bidder has not colluded, conspired, connived, or agreed, directly or indirectly, with any bidder or person, to submit a sham bid or to refrain from bidding; and
5. That the bid has not in any manner, directly or indirectly, sought, by agreement or collusion, or communication or conference, with any person, to fix the bid price of the Bidder or of any other bidder; and
6. That all statements in this proposal are true; and
7. That the individual(s) executing this proposal have the authority to execute this proposal on behalf of the Bidder.

PROPOSAL: PART F – ADDITIONAL REQUIREMENTS

The Bidder hereby agrees to comply with the additional requirements listed below which are included in this proposal and identified as proposal attachments:

ITEM NO.	DESCRIPTION OF ATTACHMENT
1.	None

PROPOSAL: PART G - IDENTITY OF BIDDER

The Bidder shall indicate whether the bid is submitted by a/an:

☐ Individual,
Sole Proprietorship

Bidder

☐ Partnership

Signature

☐ Corporation

By

Name (Print/Type)

☐ Limited Liability Company

Title

☐ Joint-venture; all parties must join-in and
execute all documents

Street Address

☐ Other

City, State, Zip Code

The bidder shall enter its Public
Registration Number ____ - ____
issued by the Iowa Commissioner of Labor
Pursuant Section 91C.5 of the Iowa Code.

Telephone Number

**Type or print the name and title of the company's
owner, president, CEO, etc. if a different person
than entered above**

Failure to provide said Registration
Number shall result in the bid being read
under advisement. A contract will not be
executed until the Contractor is registered.

Name

Title

**NOTE: The signature on this proposal must be an original signature in ink; copies, facsimiles, or
electronic signatures will not be accepted.**

All bidders must submit the following completed form to the governmental body requesting bids per
875 Iowa Administrative Code Chapter 156.

Bidder Status Form

To be completed by all bidders

Part A

Please answer "Yes" or "No" for each of the following:

- ☐ Yes ☐ No My company is authorized to transact business in Iowa.
(To help you determine if your company is authorized, please review the worksheet on the next page).
- ☐ Yes ☐ No My company has an office to transact business in Iowa.
- ☐ Yes ☐ No My company's office in Iowa is suitable for more than receiving mail, telephone calls, and e-mail.
- ☐ Yes ☐ No My company has been conducting business in Iowa for at least 3 years prior to the first request for bids on this project.
- ☐ Yes ☐ No My company is not a subsidiary of another business entity or my company is a subsidiary of another business entity that would qualify as a resident bidder in Iowa.
If you answered "Yes" for each question above, your company qualifies as a resident bidder. Please complete Parts B and D of this form.
If you answered "No" to one or more questions above, your company is a non-resident bidder. Please complete Parts C and D of this form.

To be completed by resident bidders

Part B

My company has maintained offices in Iowa during the past 3 years at the following addresses:

Dates: _____ to _____ Address: _____
(mm/dd/yyyy) City, State, Zip: _____

Dates: _____ to _____ Address: _____
(mm/dd/yyyy) City, State, Zip: _____

Dates: _____ to _____ Address: _____
(mm/dd/yyyy) City, State, Zip: _____

You may attach additional sheet(s) if needed.

To be completed by non-resident bidders

Part C

1. Name of home state or foreign country reported to the Iowa Secretary of State: _____
2. Does your company's home state or foreign country offer preferences to bidders who are residents? ☐ Yes ☐ No
3. If you answered "Yes" to question 2, identify each preference offered by your company's home state or foreign country and the appropriate legal citation.

You may attach additional sheet(s) if needed.

To be completed by all bidders

Part D

I certify that the statements made on this document are true and complete to the best of my knowledge and I know that my failure to provide accurate and truthful information may be reason to reject my bid.

Firm Name: _____
Signature: _____ Date: _____

«OWNER» - «BMINUM»

October 2023

PROPOSAL – ATTACHMENT C
BID ITEMS AND QUANTITIES

PAGE 00410-2

WORKSHEET: AUTHORIZATION TO TRANSACT BUSINESS

This worksheet may be used to help complete Part A of the Resident Bidder Status form. If at least one of the following describes your business, you are authorized to transact business in Iowa.

- ☐ Yes ☐ No My business is currently registered as a contractor with the Iowa Division of Labor.
- ☐ Yes ☐ No My business is a sole proprietorship and I am an Iowa resident for Iowa income tax purposes.
- ☐ Yes ☐ No My business is a general partnership or joint venture. More than 50 percent of the general partners or joint venture parties are residents of Iowa for Iowa income tax purposes
- ☐ Yes ☐ No My business is an active corporation with the Iowa Secretary of State and has paid all fees required by the Secretary of State, has filed its most recent biennial report, and has not filed articles of dissolution.
- ☐ Yes ☐ No My business is a corporation whose articles of incorporation are filed in a state other than Iowa, the corporation has received a certificate of authority from the Iowa Secretary of State, has filed its most recent biennial report with the Secretary of State, and has neither received a certificate of withdrawal from the Secretary of state nor had its authority revoked.
- ☐ Yes ☐ No My business is a limited liability partnership which has filed a statement of qualification in this state and the statement has not been canceled.
- ☐ Yes ☐ No My business is a limited liability partnership which has filed a statement of qualification in a state other than Iowa, has filed a statement of foreign qualification in Iowa and a statement of cancellation has not been filed.
- ☐ Yes ☐ No My business is a limited partnership or limited liability limited partnership which has filed a certificate of limited partnership in this state, and has not filed a statement of termination.
- ☐ Yes ☐ No My business is a limited partnership or a limited liability limited partnership whose certificate of limited partnership is filed in a state other than Iowa, the limited partnership or limited liability limited partnership has received notification from the Iowa Secretary of state that the application for certificate of authority has been approved and no notice of cancellation has been filed by the limited partnership or the limited liability limited partnership.
- ☐ Yes ☐ No My business is a limited liability company whose certificate of organization is filed in Iowa and has not filed a statement of termination.
- ☐ Yes ☐ No My business is a limited liability company whose certificate of organization is filed in a state other than Iowa, has received a certificate of authority to transact business in Iowa and the certificate has not been revoked or canceled.

Sundown Lake West Marina Wetland
Sundown Lake Association
Moravia, Iowa

PROPOSAL ATTACHMENT: PART C – BID ITEMS AND QUANTITIES

This is a UNIT BID PRICE CONTRACT. The bidder must provide the Unit Bid Price, the total Bid Price, and the Total Bid Amount; in case of discrepancy, the Unit Bid Price governs. The Quantities shown on the Proposal Attachment: Part C – Bid Items and quantities are approximate only but are considered sufficiently adequate for the purpose of comparing bids. The Jurisdiction shall only use the Total Base Bid Amount for comparison of bids.

BASE BID					
ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	EXTENSION
1	CLEARING AND GRUBBING	LS	1		
2	TOPSOIL, ON-SITE	CY	2650		
3	EXCAVATION, CLASS 10	CY	10130		
4	STORM SEWER, TRENCHED, HDPE, 5-INCH	LF	10		
5	STORM SEWER ABANDONMENT, PLUG	EA	1		
6	PIPE CULVERT, TRENCHED, CMP, 18-INCH	LF	42		
7	PIPE CULVERT, TRENCHED, RCP, 36-INCH	LF	117		
8	PIPE APRON, CMP, 18-INCH	EA	1		
9	PIPE APRON, RCP, 36-INCH	EA	1		
10	FOOTING FOR CONCRETE PIPE APRON, 36-INCH	EA	1		
11	STORM MANHOLE, SW-401, 48"	EA	1		
12	INTAKE, HICKENBOTTOM, 5-INCH	EA	1		
13	INTAKE, SW-513, 5' X 5'	EA	1		
14	DRIVEWAY, GRANULAR, CLASS A CRUSHED STONE	TON	445		
15	TEMPORARY TRAFFIC CONTROL	LS	1		
16	CONVENTIONAL SEEDING, SEEDING, AND MULCHING, TYPE 1	AC	0.3		
17	CONVENTIONAL SEEDING, SEEDING, AND MULCHING, TYPE 5	AC	2.7		

BASE BID					
ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	EXTENSION
18	CONVENTIONAL SEEDING, SEEDING, AND MULCHING, WET POLLINATOR	AC	1.5		
19	CONVENTIONAL SEEDING, SEEDING, AND MULCHING, EMERGENT WETLAND	AC	0.9		
20	WARRANTY	LS	1		
21	SWPPP PREPARATION	LS	1		
22	SWPPP MANAGEMENT	LS	1		
23	TEMPORARY RECP, TYPE 3B	SY	3900		
24	WATTLE, STRAW, 12-INCH	LF	200		
25	WATTLE, REMOVAL	LF	200		
26	RIP RAP, CLASS E	TON	640		
27	SILT FENCE OR SILT FENCE DITCH CHECK	LF	1045		
28	SILT FENCE OR SILT FENCE DITCH CHECK, REMOVAL OF SEDIMENT	LF	1045		
29	SILT FENCE OR SILT FENCE DITCH CHECK, REMOVAL OF DEVICE	LF	1045		
30	STABILIZED CONSTRUCTION ENTRANCE	SY	78		
31	INLET PROTECTION DEVICE, SURFACE-APPLIED	EA	1		
32	FLOW TRANSITION MAT, FLEXAMAT TIED CONCRETE BLOCK MAT	SF	1765		
33	CONSTRUCTION SURVEY	LS	1		
34	MOBILIZATION	LS	1		
TOTAL BASE BID AMOUNT:					

NOTE: IT IS UNDERSTOOD THAT THE ABOVE QUANTITIES ARE ESTIMATED FOR THE PURPOSE OF THIS BID. ALL QUANTITIES ARE SUBJECT TO REVISION BY THE DISTRICT. QUANTITY CHANGES WHICH AMOUNT TO TWENTY (20) PERCENT OR LESS OF THE TOTAL BID SHALL NOT AFFECT THE UNIT PRICE BID.

Bidder Name

«OWNER» - «BMINUM»

PROPOSAL - ATTACHMENT C
BID ITEMS AND QUANTITIES

October 2023

PAGE 00410-3

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BID BOND

Sundown Lake West Marina Wetland
Sundown Lake Association
Moravia, Iowa

KNOW ALL BY THESE PRESENTS:

That we, _____, as Principal, and

_____, as Surety, are held and firmly bound unto, Sundown Lake Association as Obligee, (hereinafter referred to as "the Jurisdiction"), in the penal sum of _____ dollars (\$ _____), lawful money of the United States, for which payment said Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns jointly and severally, firmly by these presents.

The condition of the above obligation is such that whereas the Principal has submitted to the Jurisdiction a certain proposal, in a separate envelope, and hereby made a part hereof, to enter into a contract in writing, for the following described improvement:

Construction of a storm water wetland near the west marina of Sundown Lake in Appanoose County, Iowa.
Construction will include excavation, grading, tree clearing, storm sewer installation, seeding and other items incidental to construction.

The Surety hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by any extension of the time within which the Jurisdiction may accept such bid or execute such Contract; and said Surety does hereby waive notice of any such extension.

In the event that any actions or proceedings are initiated with respect to this Bond, the parties agree that the venue thereof shall be Appanoose County, State of Iowa. If legal action is required by the Jurisdiction against the Surety or Principal to enforce the provisions of the bond or to collect the monetary obligation incurring to the benefit of the Jurisdiction, the Surety or Principal agrees to pay the Jurisdiction all damages, costs, and attorney fees incurred by enforcing any of the provisions of this Bond. All rights, powers, and remedies of the Jurisdiction hereunder shall be cumulative and not alternative and shall be in addition to all rights, powers, and remedies given to the Jurisdiction, by law. The Jurisdiction may proceed against Surety for any amount guaranteed hereunder whether action is brought against Principal or whether Principal is joined in any such action or actions or not.

NOW, THEREFORE, if said proposal by the Principal be accepted, and the Principal shall enter into a contract with Jurisdiction in accordance with the terms of such proposal, including the provision of insurance and of a bond as may be specified in the contract documents, with good and sufficient surety for the faithful performance of such contract, for the prompt payment of labor and material furnished in the prosecution thereof, and for the maintenance of said improvements as may be required therein, then this obligation shall become null and void; otherwise, the Principal shall pay to the Jurisdiction the full amount of the bid bond, together with court costs, attorney's fees, and any other expense of recovery.

Signed and sealed this _____ day of _____, 20____.

SURETY:

By

Surety Company

Signature Attorney-in-Fact/Officer

Name of Attorney-in-Fact/Officer

Company Name

Company Address

City, State, Zip Code

Company Telephone Number

PRINCIPAL:

By

Bidder

Signature

Name (Print/Type)

Title

Address

City, State, Zip Code

Telephone Number

NOTE: All signatures on this bid bond must be original signatures in ink; electronic, copies or facsimile of any signature will not be accepted. This bond must be sealed with the Surety's raised, embossing seal or official adhesive seal. The Certificate or Power of Attorney accompanying this bond must be valid on its face and sealed with the Surety's raised, embossing seal or official adhesive seal.

CONTRACT

Sundown Lake West Marina Wetland
Sundown Lake Association
Moravia, Iowa

THIS CONTRACT, made and entered into at _____
this _____ day of _____, by and between
the Sundown Lake Association hereinafter called the "Jurisdiction", and _____,
hereinafter called the "Contractor".

WITNESSETH:

The Contractor hereby agrees to complete the work comprising the Sundown Lake West Marina Wetland as specified in the contract documents, which are officially on file with the Jurisdiction, in the office of Lake Homes and Farm Realty, Sundown Lake Association, 13868 286th Ave., Moravia, Iowa, Iowa. This contract includes all such contract documents. All work under this contract shall be constructed in accordance with the SUDAS Standard Specifications, 2023 Edition and as further modified by the supplemental specifications and special provisions included in said contract documents and the Contract Attachment which is attached hereto. The Contractor further agrees to complete the work in strict accordance with said contract documents, and to guarantee the work as required by law for the time required in said contract documents after its acceptance by the Jurisdiction.

This contract is awarded and executed for completion of the work specified in the contract documents for the bid prices shown on the Contract Attachment: Bid Items and Quantities which were proposed by the Contractor in its proposal submitted in accordance with the Notice to Bidders and Notice of Public Hearing for the following described improvements:

Construction of a storm water wetland near the west marina of Sundown Lake in Appanoose County, Iowa. Construction will include excavation, grading, tree clearing, storm sewer installation, seeding and other items incidental to construction.

The Contractor agrees to perform said work for and in consideration of the Jurisdiction's payment of the bid amount of _____ dollars (\$ _____), which amount shall constitute the required amount of the performance, maintenance, and payment bond. The Contractor hereby agrees to commence work as stated in the written Notice to Proceed; and substantially complete the work on or before 5/15/2024; and to pay liquidated damages for noncompliance with said completion provisions at a rate of five hundred dollars (\$500) for each calendar day that the work remains incomplete.

IN WITNESS WHEREOF, the Parties hereto have executed this instrument, in triplicate on the date first shown written.

JURISDICTION: Sundown Lake Association

CONTRACTOR:

By _____
Ron Bernard, Lake Manager

(Seal)
ATTEST:

Jeff Sampson, Board President

By _____
Contractor's Contact Name
Contractor's Title

Street Address

City, State, Zip Code

Telephone

CONTRACTOR PUBLIC REGISTRATION INFORMATION to be Provided By:

1. All Contractors: The Contractor shall enter its Public Registration No. _____ issued by the Iowa Commissioner of Labor pursuant to Section 91C.5 of the Iowa Code.
2. Out-of-State Contractors:
 - A. Pursuant to Section 91C.7 of the Iowa Code, an out-of-state contractor, before commencing a contract in excess of five thousand dollars in value in Iowa, shall file a bond with the division of labor services of the department of workforce development. The contractor should contact 515-242-5871 for further information. Prior to contract execution, the Jurisdictional Engineer may forward a copy of this contract to the Iowa Department of Workforce Development as notification of pending construction work. It is the contractor's responsibility to comply with said Section 91C.7 before commencing this work.
 - B. Prior to entering into contract, the designated low bidder, if it is a corporation organized under the laws of a state other than Iowa, shall file with the Jurisdictional Engineer a certificate from the Secretary of the State of Iowa showing that it has complied with all the provisions of Chapter 490 of the Code of Iowa, as amended, governing foreign corporations. For further information contact the Iowa Secretary of State Office at 515-281-5204.

Bond No. _____

Name of Surety _____

NOTE: All signatures on this contract must be original signatures in ink; electronic, copies or facsimile of any signature will not be accepted.

CORPORATE ACKNOWLEDGMENT

State of _____)
_____) SS
_____ County)

On this ____ day of _____, 20____, before me, the undersigned, a Notary Public in and for the State of _____, personally appeared _____ and _____, to me known, who, being by me duly sworn, did say that they are the _____, and _____, respectively, of the corporation executing the foregoing instrument; that (no seal has been procured by) (the seal affixed thereto is the seal of) the corporation; that said instrument was signed (and sealed) on behalf of the corporation by authority of this Board of Directors; that _____ and _____ acknowledged the execution of the instrument to be the voluntary act and deed of the corporation, by it and by them voluntarily executed.

Notary Public in and for the State of _____
My commission expires _____ 20, _____

PARTNERSHIP ACKNOWLEDGMENT

State of _____)
_____) SS
_____ County)

On this ____ day of _____, 20 ____, before me, the undersigned, a Notary Public in and for the State of _____, personally appeared _____ to me personally known, who being by me duly sworn, did say that the person is one of the partners of _____, a partnership, and that the instrument was signed on behalf of the partnership by authority of the partners and the partner acknowledged the execution of the instrument to be the voluntary act and deed of the partnership by it and by the partner voluntarily executed.

Notary Public in and for the State of _____
My commission expires _____ 20, _____

INDIVIDUAL ACKNOWLEDGMENT

State of _____)
_____) SS
_____ County)

On this ____ day of _____, 20 ____, before me, the undersigned, a Notary Public in and for the State of _____, personally appeared _____ and _____, to me known to be the identical person(s) named in and who executed the foregoing instrument, and acknowledged that (he) (she) (they) executed the instrument as (his) (her) (their) voluntary act and deed.

Notary Public in and for the State of _____
My commission expires _____ 20, _____

LIMITED LIABILITY COMPANY ACKNOWLEDGMENT

State of _____)
_____) SS
_____ County)

On this ____ day of _____, 20 ____, before me a Notary Public in and for said county, personally appeared _____, to me personally known, who being by me duly sworn did say that person is _____ of said _____, that (the seal affixed to said instrument is the seal of said OR no seal has been procured by the said) _____, and that said instrument was signed and sealed on behalf of the said _____, by authority of its managers and the said _____ acknowledged the execution of said instrument to be the voluntary act and deed of said _____, by it voluntarily executed.

Notary Public in and for the State of _____
My commission expires _____ 20, _____

CONTRACT ATTACHMENT: ITEM 1: GENERAL - NONE

CONTRACT ATTACHMENT: ITEM 2: BID ITEMS AND, QUANTITIES

THIS CONTRACT IS AWARDED AND EXECUTED FOR COMPLETION OF THE WORK SPECIFIED IN THE CONTRACT DOCUMENTS FOR THE BID PRICES TABULATED BELOW AS PROPOSED BY THE CONTRACTOR IN ITS PROPOSAL SUBMITTED IN ACCORDANCE WITH NOTICE TO BIDDERS AND NOTICE OF PUBLIC HEARING. ALL QUANTITIES ARE SUBJECT TO REVISION BY THE JURISDICTION. THE JURISDICTION RESERVES THE RIGHT TO ADJUST QUANTITIES AS NECESSARY TO MAXIMIZE FUNDS BUDGETED FOR THIS PROJECT.

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PERFORMANCE, PAYMENT AND MAINTENANCE BOND

Sundown Lake West Marina Wetland
 Sundown Lake Association
 Moravia, Iowa

KNOW ALL BY THESE PRESENTS:

That we, _____, as Principal (hereinafter the "Contractor" or "Principal" and _____, as Surety are held and firmly bound unto _____, as Obligee (hereinafter referred to as "the Jurisdiction"), and to all persons who may be injured by any breach of any of the conditions of this Bond in the penal sum of _____ DOLLARS (\$ _____), lawful money of the United States, for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, legal representatives and assigns, jointly or severally, firmly by these presents.

The conditions of the above obligations are such that whereas said Contractor entered into a contract with the Jurisdiction, bearing date the _____ day of _____, _____, hereinafter the "Contract" wherein said Contractor undertakes and agrees to construct the following described improvements:

Construction of a storm water wetland near the west marina of Sundown Lake in Appanoose County, Iowa.
 Construction will include excavation, grading, tree clearing, storm sewer installation, seeding and other items incidental to construction.

and to faithfully perform all the terms and requirements of said Contract within the time therein specified, in a good and workmanlike manner, and in accordance with the Contract Documents. Provided, however, that one year after the date of acceptance as complete of the work under the above referenced Contract, the maintenance portion of this Bond shall continue in force for the stated maintenance period.

It is expressly understood and agreed by the Contractor and Surety in this bond that the following provisions are a part of this Bond and are binding upon said Contractor and Surety, to-wit:

PERFORMANCE: The Contractor shall well and faithfully observe, perform, fulfill, and abide by each and every covenant, condition, and part of said Contract and Contract Documents, by reference made a part hereof, for the above referenced improvements and shall indemnify and save harmless the Jurisdiction from all outlay and expense incurred by the Jurisdiction by reason of the Contractor's default of failure to perform as required. The Contractor shall also be responsible for the default or failure to perform as required under the Contract and Contract Documents by all its subcontractors, suppliers, agents, or employees furnishing materials or providing labor in the performance of the Contract.

PAYMENT: The Contractor and the Surety on this Bond are hereby agreed to pay all just claims submitted by persons, firms, subcontractors, and corporations furnishing materials for or performing labor in the performance of the Contract on account of which this Bond is given, including but not limited to claims for all amounts due for labor, materials, lubricants, oil, gasoline, repairs on machinery, equipment and tools, consumed or used by the Contractor or any subcontractor, wherein the same are not satisfied out of the portion of the contract price which the Jurisdiction is required to retain until completion of the improvement, but the Contractor and Surety shall not be liable to said persons, firms, or corporations unless the claims of said claimants against said portion of the contract price shall have been established as provided by law. The Contractor and Surety hereby bind themselves to the obligations and conditions set forth in Chapter 573, Code of Iowa, which by this reference is made a part hereof as though fully set out herein.

MAINTENANCE: The Contractor and the Surety on this Bond hereby agree, at their own expense:

To remedy any and all defects that may develop in or result from work to be performed under the Contract within the 4-year period, from the date of acceptance of the work under the Contract, by reason of defects in workmanship or materials used in construction of said work;

To keep all work in continuous good repair; and

To pay the Jurisdiction's reasonable costs of monitoring and inspection to assure that any defects are remedied and to repay the Jurisdiction all outlay and expense incurred as a result of Contractor's and Surety's failure to remedy any defect as required by this section.

Contractor's and Surety's agreement herein made extends to defects in workmanship or materials not discovered or known to the Jurisdiction at the time such work was accepted.

GENERAL: Every Surety on this Bond shall be deemed and held bound, any contract to the contrary notwithstanding, to the following provisions:

To consent without notice to any extension of time to the Contractor in which to perform the Contract;

To consent without notice to any change in the Contract or Contract Documents, which thereby increases the total contract price and the penal sum of this bond, provided that all such changes do not, in the aggregate, involve an increase of more than twenty percent of the total contract price, and that this bond shall then be released as to such excess increase; and

To consent without notice that this Bond shall remain in full force and effect until the Contract is completed, whether completed within the specified contract period, within an extension thereof, or within a period of time after the contract period has elapsed and the liquidated damage penalty is being charged against the Contractor.

The Contractor and every Surety on the bond shall be deemed and held bound, any contract to the contrary notwithstanding, to the following provisions:

That no provision of this Bond or of any other contract shall be valid which limits to less than five years after the acceptance of the work under the Contract the right to sue on this Bond.

That as used herein, the phrase "all outlay and expense" is not to be limited in any way, but shall include the actual and reasonable costs and expenses incurred by the Jurisdiction including interest, benefits and overhead where applicable. Accordingly, "all outlay and expense" would include but not be limited to all contract or employee expense, all equipment usage or rental, materials, testing, outside experts, attorney's fees (including overhead expenses of the Jurisdiction's staff attorneys), and all costs and expenses of litigation as they are incurred by the Jurisdiction. It is intended the Contractor and Surety will defend and indemnify the Jurisdiction on all claims made against the Jurisdiction on account of Contractor's failure to perform as required in the Contract and Contract Documents, that all agreements and promises set forth in the Contract and Contract Documents, in approved change orders, and in this Bond will be fulfilled, and that the Jurisdiction will be fully indemnified so that it will be put into the position it would have been in had the Contract been performed in the first instance as required.

In the event the Jurisdiction incurs any "outlay and expense" in defending itself with respect to any claim as to which the Contractor or Surety should have provided the defense, or in the enforcement of the promises given by the Contractor in the Contract, Contract Documents, or approved change orders, or in the enforcement of the promises given by the Contractor and Surety in this Bond, the Contractor and Surety agree that they will make the Jurisdiction whole for all such outlay and expense, provided that the Surety's obligation under this bond shall not exceed 125% of the penal sum of this bond.

In the event that any actions or proceedings are initiated with respect to this Bond, the parties agree that the venue thereof shall be «CNTY» County, State of Iowa. If legal action is required by the Jurisdiction to enforce the provisions of this Bond or to collect the monetary obligation incurring to the benefit of the Jurisdiction, the Contractor and the Surety agree, jointly and severally, to pay the Jurisdiction all outlay and expense incurred therefor by the Jurisdiction. All rights, powers, and remedies of the Jurisdiction hereunder shall be cumulative and not alternative and shall be in addition to all rights, powers and remedies given to the Jurisdiction, by law. The Jurisdiction may proceed against surety for any amount guaranteed hereunder whether action is brought against the Contractor or whether Contractor is joined in any such action(s).

NOW THEREFORE, the condition of this obligation is such that if said Principal shall faithfully perform all the promises of the Principal, as set forth and provided in the Contract, in the Contract Documents, and in this Bond, then this obligation shall be null and void, otherwise it shall remain in full force and effect.

When a work, term, or phrase is used in this Bond, it shall be interpreted or construed first as defined in this Bond, the Contract, or the Contract Documents; second, if not defined in the Bond, Contract, or Contract Documents, it shall be interpreted or construed as defined in applicable provisions of the Iowa Code; third, if not defined in the Iowa Code, it shall be interpreted or construed according to its generally accepted meaning in the construction industry; and fourth, if it has no generally accepted meaning in the construction industry, it shall be interpreted or construed according to its common or customary usage.

Failure to specify or particularize shall not exclude terms or provisions not mentioned and shall not limit liability hereunder. The Contract and Contract Documents are hereby made a part of this Bond.

Project No. _____

(CON'T – PERFORMANCE, PAYMENT AND MAINTENANCE BOND)

Witness our hands, in triplicate, this _____ day of _____, _____.

Surety Countersigned By:

PRINCIPAL:

Signature of Iowa Resident Commission Agent as
Prescribed by Chapter 515.52-57, Iowa Code.
(Require only if Attorney-in-Fact is not also an
Iowa Resident Commission Agent).

Contractor

By:

Signature

Name of Resident Commission Agent

Title

Company Name

SURETY:

Company Address

Surety Company

City, State, Zip Code

By:

Signature Attorney-in-Fact Officer

Company Telephone Number

Name of Attorney-in-Fact Officer

Company Name

Company Address

City, State, Zip Code

Company Telephone Number

NOTE: All signatures on this Performance, Maintenance & Payment Bond must be original signatures in ink; electronic, copies, or facsimile of any signature will not be accepted. This bond must be sealed with the Surety's raised, embossing seal or official adhesive seal. The Certificate or Power of Attorney accompanying this bond must be valid on its face and sealed with the Surety's raised, embossing seal or official adhesive seal.

SPECIAL PROVISIONS

FOR

Sundown Lake West Marina Wetland

City of Moravia

Moravia, Iowa 52751

TABLE OF CONTENTS

CONTRACT PROVISIONS
DEFINITION AND INTENT
GENERAL PROVISIONS AND COVENANTS
WORK REQUIRED
PLANS AND SPECIFICATIONS
SUBMITTALS
STANDARDS AND CODES
CONSTRUCTION GENERAL
EMPLOYMENT PRACTICES
RESPONSIBILITIES OF CONTRACTOR
WORK HOURS/COMMUNITY EVENTS
CONSTRUCTION FACILITIES
PROJECT SUPERVISION
COORDINATION WITH OTHERS
CONSTRUCTION LIMITS
CONSTRUCTION SCHEDULE
CONSTRUCTION PHASING
CONSTRUCTION SURVEY DOCUMENTS
MATERIELS TESTS
SOIL BORINGS
EXISTING UTILITIES
SALVAGE & MATERIALS / DISPOSAL
TRAFFIC CONTROL
TEMPORARY FENCES
DEWATERING
INCIDENTAL CONTRACT ITEMS

1) CONTRACT PROVISIONS

a) Completion Date

- i) All work under the Contract must be substantially complete as detailed in Section 00500 – Contract

b) Liquidated Damage

- i) Damages in the amount as detailed in Section 00500 –Contract per day will be assessed for each day the work remains incomplete.

c) Maintenance Bond & Warranty

- i) To remedy any and all defects as detailed in Section 00500 – Contract.

d) Bid Quantity Revisions

- i) All quantities are estimates and subject to revision by the Jurisdiction.
- ii) Quantity changes that do not materially change the character of the work to be performed and amount to less than Twenty (20) percent of a given bid item or less than Five (5) percent of the total contract amount shall not affect the unit price bid.

2) DEFINITION AND INTENT

a) The Specifications that apply to the materials and construction practices for this project are defined as follows:

- i) The 2023 Edition of the SUDAS Standard Specifications, except as modified by these Special Provisions to the Technical Specifications.
- ii) Omissions of words or phrases such as “the Contractor shall”, “in accordance with”, “shall be”, “as noted on the Plans”, “according to the Plans”, “a”, “an”, “the” and “all” are unintentional; supply omitted words or phrases by inference.
- iii) “Owner”, “Jurisdiction” and “City” shall mean the City of Moravia, acting through Sundown Lake West Marina Wetland Project.
- iv) “Person” shall mean any individual, partnership, limited partnership, joint venture, society, association, joint stock company, corporation, limited liability company, estate, receiver, trustee, assignee, or referee, whether appointed by a court or otherwise, and any combination of individuals.
- v) “Engineer” shall mean the Engineer on Record.
- vi) The intent of the Technical Specifications is to describe the construction desired, performance requirements, and standards of materials and construction.
- vii) “Standard Drawings” shall mean the Figures bound within the SUDAS Standard Specifications and/or the Typical Drawings bound within the plans.
- viii) “Work” shall mean the work to be done and the equipment, supplies, and materials to be furnished under the contract unless some other meaning is indicated by the context.
- ix) “Or equal” shall follow manufacturers names used to establish standards and, if not stated, is implied.

b) Engineer: Bolton & Menk, Inc., 430 East Grand Ave, Suite 101, Des Moines, IA 50309, (515) 259-9190, desmoines@bolton-menk.com.

3) GENERAL PROVISIONS AND COVENANTS

a) Division 1 of the General Provisions and Covenants of the 2023 Edition SUDAS Standard Specifications is modified as follows:

i) Section 1020.1.09B, Unit Price Attachment.

- (a) A computer generated unit price attachment may be submitted by the Bidder as specified by this Section.

ii) Section 1050, 1.05 Shop Drawings, Certificates, and Equipment Lists.

- (a) Electronic submittal of shop drawings will be allowed.
- (b) If hardcopy submittals are used, the Contractor shall submit a minimum of three (3) copies plus any additional required by the Contractor.

iii) Section 1050, 1.15 – Additional Contractor Responsibilities.

Notify residents of driveway closures a minimum of 48 hours in advance of closure.

4) WORK REQUIRED

- a) Work under this contract includes all materials, equipment, transportation, traffic control, and associated work for the construction of the Sundown Lake West Marina Wetland Project as described in the Official Publication.

5) PLANS AND SPECIFICATIONS

- a) The Owner will furnish five (5) sets of plans and specifications to the Contractor after award of the contract. The Contractor shall compensate the Owner for printing costs for additional copies required.
- b) Contractor shall provide one set of plans and specifications for each foreman and superintendent in charge of each crew on the job.

6) SUBMITTALS

- a) Contractor shall provide a construction schedule showing dates of starting and completing various portions of work. Schedule shall be updated as needed or as requested by Engineer due to changes in progress of construction from original schedule. Updates shall be completed within one week of request.
- b) Contractor shall submit the following information for Engineer's review. Three (3) copies plus any additional copies required by Contractor shall be submitted to the Engineer at the preconstruction conference or at least 14 days prior to utilization of the particular item on this project.
- i) Testing reports.
- ii) Manufacturer's data for materials that are to be permanently incorporated into the project.
- iii) Details of proposed methods of any special construction required.
- iv) Purchase orders and subcontracts without prices.
- v) Traffic control and staging plan.
- vi) Such other information as the Engineer may request to insure compliance with contract documents.
- vii) List of Subcontractors and Suppliers.

7) STANDARDS AND CODES

- a) Construct improvements with best present day construction practices and equipment.
- b) Conform with and test in accordance with applicable sections of the following standards and codes.
 - i) American Association of State Highway and Transportation Officials (AASHTO).
 - ii) American Society for Testing and Materials (ASTM).
 - iii) Iowa Department of Transportation Standard Specifications (Iowa DOT).
 - iv) American National Standards Institute (ANSI).
 - v) American Water Works Association (AWWA).
 - vi) American Welding Society (AWS).
 - vii) Federal Specifications (FS).
 - viii) Iowa Occupational Safety and Health Act of 1972 (IOSHA).
 - ix) Manual of Accident Prevention in Construction by Associated General Contractors of America, Inc. (AGC).
 - x) Standards and Codes of the State of Iowa and the ordinances of the Owner.
 - xi) Other standards and codes which may be applicable to acceptable standards of the industry for equipment, materials and installation under the contract.

8) CONSTRUCTION GENERAL

- a) Procedures outlined herein are not intended to fully cover all special construction procedures but are offered as an aid to the Contractor in planning work.
- b) Contractor shall cooperate with the City of Moravia, Iowa and the Engineer to minimize inconvenience to property owners, other jurisdictions and motorists and to prevent delays in construction and interruption to continuous operation of utility services and site access.
- c) The Contractor is expected to provide adequate personnel and equipment to perform work within the specified time of construction.
- d) Contractor shall install and maintain orange safety fence around all open trenches or open structures when left unattended.
- e) Contractor shall complete surface restoration and clean up activities as construction progresses.

9) EMPLOYMENT PRACTICES

- a) Neither the Contractor nor the Contractor's subcontractors shall employ any person whose physical or mental condition is such that their employment will endanger the health and safety of anyone employed on the Project.

- b) The Contractor shall not commit any of the following employment practices and agrees to include the following clauses in any subcontracts:
 - i) To discharge from employment or refuse to hire any individual because of sex, race, color, religion, national origin, sexual orientation, marital status, age, or disability unless such disability is related to job performance of such person or employee.
 - ii) To discriminate against any individual in terms, conditions, or privileges or employment because of sex, race, color, religion, national origin, sexual orientation, marital status, age, or disability unless such disability is related to job performance of such person or employee.

10) RESPONSIBILITY OF CONTRACTOR

- a) Contractor shall provide supervision of the work.
- b) Contractor shall provide protection of all property from injury or loss resulting from construction operations.
- c) Contractor shall replace or repair objects sustaining any such damage, injury, or loss, to the satisfaction of Owner and Engineer.
- d) Contractor shall cooperate with Owner, Engineer, and representatives of utilities in locating underground utility lines and structures. Incorrect, inaccurate, or inadequate information concerning location of utilities or structures shall not relieve the Contractor of responsibility for damage thereto caused by construction operations.
- e) Contractor shall keep cleanup current with construction operations.
- f) Contractor shall comply with all Federal, State of Iowa, and local laws and ordinances.

11) WORK HOURS/COMMUNITY EVENTS

- a) The Contractor will be required to limit work hours on the Project from 7:00 a.m. to 7:00 p.m., Monday through Saturday, unless otherwise directed by the Engineer.
- b) The following Community Events are scheduled. Contractor is required to coordinate with the Owner as needed to allow use of public property as necessary for the event. If contract continues for multiple years, event is still in force even though dates and locations may change.

12) CONSTRUCTION FACILITIES

- a) Contractor shall provide telephone numbers where Contractor's representative can be reached during work days and on nights and weekends in event of emergency.
- b) Contractor shall provide and maintain suitable sanitary facilities for construction personnel for duration of work; remove upon completion of work.
- c) Contractor shall not store construction equipment, employee vehicles, or materials on streets open to traffic.
- d) Contractor shall provide suitable storage facilities necessary for proper storage of materials and equipment. Location for storage of equipment by Contractor is subject to approval of Engineer.

- e) Contractor will be required to make arrangements for all services required during the construction period and pay for such services at no additional cost to the Owner.

13) PROJECT SUPERVISION

- a) The Contractor shall be represented in person at the construction site at all times that construction operations are proceeding. Representation constitutes a qualified superintendent or other designated, qualified representative capable of providing adequate supervision. The representative must be duly authorized to receive and execute instructions, notices, and written orders from the Engineer.
- b) Resolution of issues that arise during construction relating to traffic control, construction staging, etc. is the responsibility of the Contractor.
- c) Weekly progress meetings, if specified at the preconstruction conference may be held at the project site to review project schedule, coordinate activities, resolve conflicts, and coordinate the construction work. The day and time for this meeting will be set at the preconstruction conference. The Contractor shall provide qualified representation at each meeting.
- d) Refer to Division 1 – General Provisions and Covenants, Section 1080 – Contractual Provisions, Part 1 – Prosecution and Progress of the Work, Section 1.10 Contractors Employees, Methods and Equipment for additional requirements.
- e) Contractor shall provide supervision of all sub-contractors and their personnel while on the site.

14) COORDINATION WITH OTHERS

- a) Contractor shall cooperate and coordinate construction with the Owner, utility companies, affected property owners, and other contractors working in vicinity of this project.
- b) It is the Contractor's responsibility to schedule and coordinate work to minimize construction delays and conflicts.
- c) Contractor shall cooperate and coordinate with property owners prior to beginning work that will affect their parcel.

15) CONSTRUCTION LIMITS

- a) Contractor shall confine the construction operations within the construction limits shown on the plans.
- b) Contractor shall not store equipment, vehicles, or materials within the right-of-way of any streets open to traffic or on temporary access roads at any time.
- c) Areas disturbed outside of construction limits shall be restored at the contractor's expense to the satisfaction of the Jurisdiction.
- d) Contractor shall protect trees, fences, and landscaping within the construction limits not marked for removal.
- e) All work on this project will be within City Right-of-Way, Easements or Public Property.

16) CONSTRUCTION SCHEDULE

- a) The Contractor will prepare and submit to the Engineer a project schedule that will assure the completion of the project within the time specified within the Contract.
- b) Adequate equipment and forces shall be made available by the Contractor to start work immediately upon receipt of the Notice to Proceed.
- c) Contractor shall submit a construction schedule at the preconstruction conference.
- d) Contractor shall periodically update it as needed due to changes in progress of construction from original schedule or as requested by the Engineer. Updates shall be completed within one week of request.
- e) The Contractor shall be required to meet the final completion date as specified in the written Notice to Proceed.
- f) Contractor shall notify the City and property owners at least 48 hours prior to any street closures.
 - i) Notification shall be provided by written notice placed on the front door. The following items shall be included within the notice:
 - (a) The street name, location and proposed date of street closure
 - (b) The estimated schedule for completion of work
 - (c) The estimated date for reopening of the street
 - (d) Procedure for garbage collection recycling and postal service

17) CONSTRUCTION PHASING

- a) Contractor shall refer to construction staging and traffic control plans when included in construction plans.
- b) Contractor shall include construction phasing on the required construction schedule submittal.

18) CONSTRUCTION SURVEY DOCUMENTATION & RESPONSIBILITIES OF ENGINEER AND CONTRACTOR

- a) Contractor is responsible to provide construction staking per SUDAS requirements.

19) MATERIALS TESTS

- a) Material testing as specified for construction will be completed by an independent testing laboratory retained by the Contractor and approved by the Engineer. Testing shall meet the requirements of the SUDAS Standard Specifications.
- b) The Contractor shall coordinate all material testing with the Engineer.
- c) The Contractor shall provide transportation of all samples to the laboratory.
- d) The Contractor shall not deliver materials to the project site until laboratory tests have been furnished which verify compliance of materials with specifications.
- e) Contractor shall provide gradation and materials certifications for all granular materials. Certify that sources of Portland Cement and aggregate sources are Iowa DOT approved.

- f) Contractor shall certify that materials and equipment are manufactured in accordance with applicable specifications.

20) SOIL BORINGS

- a) N/A

21) EXISTING UTILITIES

- a) Location of utility lines, mains, cables, and appurtenances shown on plans are from information provided by utility companies and records of the Owner.
- b) Prior to construction, Contractor shall contact all utility companies and have all utility lines and services located. The Contractor is responsible for excavating and exposing underground utilities in order to confirm their locations ahead of the work.
- c) The Contractor is solely responsible for damage to utilities or private or public property due to utility disruption.
- d) The Contractor shall notify utility company immediately if utility infrastructure is damaged during construction.
- e) The Contractor shall support and protect all utilities that are not moved.
- f) Utility services are not generally shown on plans; protect and maintain services during construction. Notify Jurisdiction and affected property Jurisdictions 48 hours prior to any planned utility service interruptions.
- g) If private utility work occurs within/adjacent to the site during the construction period, Contractor shall coordinate work schedules with the Engineer.
- h) Existing utilities shall remain in substantially continuous operation during construction. Contractor shall select the order and methods of construction that will not interfere with the operation of the utility systems. Interrupt utility services only with approval of Jurisdiction and Engineer.
- i) No claims for additional compensation or time extensions will be allowed to the Contractor for interference or delay caused by utility companies.

22) SALVAGE OF MATERIALS / DISPOSAL

- a) The Contractor shall remove from the project site and dispose of trees, shrubs, vegetation, excess soil excavation, rubbish, concrete, granular materials, and other materials encountered as shown on plans and as specified. Excess soil excavation not designated for waste locations shall be disposed as directed by the Engineer.
- b) The Contractor shall dispose of materials in accordance with applicable laws and ordinances. Disposal sites are subject to the review and approval of the Engineer.
- c) Burning of brush and other debris is not permitted. Contractor is responsible for selecting disposal location off site.

- d) The Contractor shall dispose of broken concrete, asphalt, granular material, rubble, and excess or unsuitable excavated material. Contractor is responsible for selecting disposal location off site.
- e) The Contractor shall cooperate with all applicable City, State and Federal agencies concerning disposal of materials.
- f) The City of Moravia, Iowa retains first right of refusal for retaining any existing materials removed by the construction.
- g) The Contractor shall carefully remove, in a manner to prevent damage, all materials and equipment specified or indicated as salvage. The Contractor shall protect and store items specified.
- h) Any items damaged in removal, storage, or handling through carelessness or improper procedures shall be replaced by the Contractor in kind with new items.

23) TRAFFIC CONTROL

- a) Contractor shall furnish, erect, and maintain traffic control devices as specified in the construction drawings and directed by the Engineer including signs, barrels, cones, and barricades to direct traffic and separate traffic from work areas. Traffic control shall be in place prior to the closing of any streets.
- b) Contractor shall provide traffic control devices in accordance with the Iowa DOT Standard Specification, Section 2528, Traffic Control, and the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD).
- c) Adjustments to the traffic control or the addition of flaggers will be required if, in the opinion of the Engineer, undue traffic congestion occurs.
- d) Contractor shall provide continuous access for police, fire, and other emergency vehicles.
- e) Contractor shall notify the Engineer in writing at least 72 hours prior to the start of any construction operation that will necessitate land closure or internal traffic control signing.

24) TEMPORARY FENCES

- a) Contractor shall install temporary fencing around open excavations or material storage areas and as directed by Engineer to prevent access of unauthorized persons to construction areas.
- b) Contractor shall provide orange plastic mesh safety fence with a nominal height of 48". Support fence securely on driven posts in vertical position without sagging.
 - i) Refer to Iowa DOT Section 4188.03 for fence materials.
- c) Temporary fencing installed around open excavations or material storage areas is incidental to construction and will not be measured for payment.
- d) Contractor shall remove temporary fencing upon completion of construction.

25) DEWATERING

- a) Contractor shall perform all construction work in dry conditions.

- b) Unless specified in the Bid Items, all costs associated with Dewatering activities shall be incidental to the project.
- c) Contractor shall submit dewatering methods to the Engineer for review. Obtain the Engineer's approval on methods prior to construction.
- d) Groundwater levels are subject to variation. No additional compensation will be permitted due to high groundwater conditions.
- e) Should cohesive soils with no wet sand seams or layers be encountered, it may be possible to control water seepage by draining groundwater to temporary construction sumps and pumping it outside the perimeter of the excavation.
- f) The Contractor shall not pump water from open excavation in sand and gravel below the natural ground water level.
- g) Contractor shall maintain water levels 2 feet or more below the bottom of excavations in saturated cohesionless (sand and/or gravel) soils to prevent upward seepage, which could reduce subgrade support.
 - i) A dewatering system (well points or shallow wells) shall be installed when working in cohesionless soils.
 - ii) Costs of installing and operating dewatering system are incidental, unless specified otherwise.
- h) Contractor shall provide means for conveying surface water encountered during construction.
 - i) Surface water shall be prevented from flowing into excavation and accumulated water shall be removed.
 - ii) Surface water and storm sewer flows shall be diverted around areas of construction.
 - iii) Sanitary sewers shall not be used for the disposal of dewatering or trench water.
- i) Contractor shall backfill pipe and structures prior to stopping dewatering operations. Contractor shall not lay pipe or construct concrete structures on excessively wet soils.
- j) Costs of conveying both surface water and groundwater are incidental.

26) INCIDENTAL CONTRACT ITEMS

- a) The furnishing and installing of specific items and/or the performance of work under certain circumstances shall not be individually paid in the absence of a specific bid item for the work. These costs shall be included in the Unit Price bid for the individual items associated with the stated specific item or work effort. Such items of work include, but are not limited to:

- Concrete header removal
- Construction fencing
- Construction staging & phasing
- Coordination and cooperation with affected property owners
- Coordination and cooperation with the City of Moravia
- Coordination and cooperation with other Contractors
- Coordination and cooperation with other projects in the area
- Coordination and cooperation with utility companies
- Dust control measures

Engineering Fabric
Excavation, verification and protection of existing utilities
Field testing
Finish grading
Full depth sawcutting of existing pavement
Granular surfacing removal
Maintenance and watering for seeding and sodding
Maintenance of erosion control measures, including silt removal
Material testing
Monitoring weather conditions
Mowing
Overhaul
Protection of existing hydrant(s) and valve(s)
Protection of existing trees and plantings not shown as removals
Protection of existing utilities and light poles
Removing and reinstalling existing signs
Reseeding
Site cleanup/restoration
Temporary safety closures
Working backfill to reduce moisture content
Working subgrade to achieve acceptable moisture content

*******END OF SECTION*******

TECHNICAL SPECIFICATIONS

Flexamat Standard Specification

1. DESCRIPTION

A Tied Concrete Block Mat with Doubled Layered Underlayment. This work shall consist of furnishing and placing the system in accordance with this specification and conforming with the lines, grades, design, and dimensions shown on the plans.

2. MATERIALS

Flexamat Standard is manufactured from individual concrete blocks tied together with high strength knitted polypropylene bi-axial geogrid. Each block is tapered, beveled and interlocked and includes connections that prevent lateral displacement of the blocks within the mats when they are lifted for placement.

Tied Concrete Block Mat with Doubled Layered Underlayment shall be Flexamat Standard, manufactured by Motz Enterprises, Inc.

- 2.1. **Blocks.** Furnish blocks manufactured with concrete conforming to the cement requirements of ASTM C150 and to the aggregate requirements of ASTM C33. Blocks shall have a minimum weight of 3 lb. per block and placed no further than 2 in. apart. Material weight per square foot shall not exceed 10 lbs. Blocks shall have a 2.25" profile, a flat-top pyramid shape, and a coarse finish without protrusions. Concrete shall have a minimum compressive strength requirement of Table 1 and certified by a third party.

Table 1
Concrete Compressive Strength Requirements

Age	Required Compressive Strength psi
7 - Day	5000 psi
14 - Day	6000 psi
28 - Day	6900 psi

- 2.2. **Polypropylene Bi-Axial Geogrid.** The interlocking geogrid shall be an open knitted fabric composed of high tenacity, multifilament polypropylene yarns knitted and coated in tension with an acrylic based coating which is designed to resist degradation in environments with exposure to water and low pH (<4 pH) and high pH (>9 pH). When combined with the revetment mat, this will yield a high tenacity, low elongating, and continuous filament polypropylene geogrid that is embedded within the base of the concrete blocks. Ensure the geogrid meets the requirements of Table 2.

Table 2
Polypropylene Bi-Axial Geogrid

Property	Unit	Test	Requirement
Mass/Unit Area	oz/yd ²	ASTM D5261	6.5 oz/yd ²
Aperture Size	English units	Measured	1.4x 1.4 inch
Ultimate Wide Width Tensile Strength (MD x CMD)	lb/ft	ASTM D6637	2,055 lb/ft
Elongation at Ultimate Tensile Strength (MD x CMD)	%	ASTM D6637	6%
Wide Width Tensile Strength @ 2% (MD x CMD)	lb/ft	ASTM D6637	822 lb/ft
Wide Width Tensile Strength @ 5% (MD x CMD)	lb/ft	ASTM D6637	1,640 lb/ft
Tensile Modulus @ 2% (MD x CMD)	lb/ft	ASTM D6637	41,100 lb/ft
Tensile Modulus @ 5% (MD x CMD)	lb/ft	ASTM D6637	32,800 lb/ft

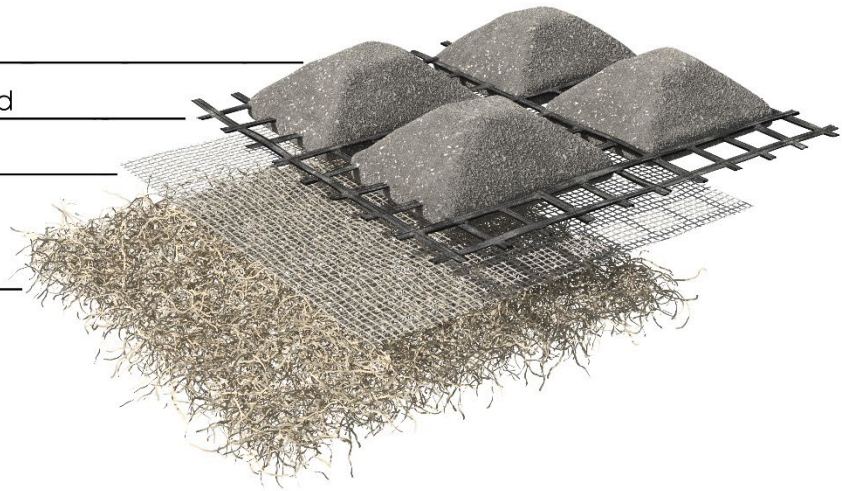
- 2.3. **Underlayment Materials.** Flexamat Standard is a three-layered system, includes, in order from top to bottom, 1) Concrete block mat 2) 5-Pick Leno Weave and 3) Curlex® II. The underlayment materials shall be packaged within the roll of the Flexamat Standard.

5000 PSI Concrete Blocks

High Strength Biaxial Geogrid

5-Pick Leno Weave

Curlex® II Wood Excelsior



Five-Pick Leno Weave:

This Five-Pick Weave provides added strength and support to the underlayments.

<u>Index Property</u>	<u>Units</u>	<u>Value</u>
GSM	g/m ²	118 (-3 ~ +3)
Density	Picks/10cm	62 x 24 (+/- 2)
Warp Strength	N/5cm	≥ 350
Warp Elongation	%	20 - 50
Weft Strength	N/5cm	≥ 280
Weft Elongation	%	20 - 50
Warp Shrinkage	%	≤ 7
Weft Shrinkage	%	≤ 9

Curlex® II:

Curlex II erosion control blanket (ECB) consists of a specific cut of naturally seed free Great Lakes Aspen curled wood excelsior with 80% six-inch fibers or greater fiber length. It is of consistent thickness with fibers evenly distributed throughout the entire area of the blanket. The top and bottom of each blanket is covered with degradable polypropylene netting.

Index Property	Test Method	Value
Thickness	ASTM D 6525	0.418 in (10.62 mm)
Light Penetration	ASTM D 6567	34.6%
Resiliency	ASTM D 6524	64%
Mass per Unit Area	ASTM D 6475	0.57 lb/yd ² (309 g/m ²)
MD-Tensile Strength Max.	ASTM D 6818	127.0 lb/ft (1.9 kN/m)
TD-Tensile Strength Max.	ASTM D 6818	50.9 lb/ft (0.7 kN/m)
MD-Elongation	ASTM D 6818	28.64%
TD-Elongation	ASTM D 6818	29.84%
Swell	ECTC Procedure	89%
Water Absorption	ASTM D 1117/ECTC	199%
Bench-Scale Rain Splash	ECTC Method 2	SLR = 6.84 @ 2 in/hr ^{2,3}
Bench-Scale Rain Splash	ECTC Method 2	SLR = 7.19 @ 4 in/hr ^{2,3}
Bench-Scale Rain Splash	ECTC Method 2	SLR = 7.56 @ 6 in/hr ^{2,3}
Bench-Scale Shear	ECTC Method 3	2.6 lb/ft ² @ 0.5 in soil loss ³
Germination Improvement	ECTC Method 4	645%

¹ Weight is based on a dry fiber weight basis at time of manufacture. Baseline moisture content of Great Lakes Aspen excelsior is 22%.

²SLR is the Soil Loss Ratio, as reported by NTPEP/AASHTO. ³ Bench-scale index values should not be used for design purposes.

- 2.4. Mats will be rolled for shipment. Upon delivery, rolls may be left exposed for up to 30 days. If exposure will exceed 30 days, cover or tarp the rolls to minimize UV exposure.

Chipping or missing concrete resulting in a weight loss exceeding 15% of the average weight of a concrete unit is grounds for rejection by the engineer. Replace, repair or patch the damaged areas per the manufacturer's recommendations.

3. PERFORMANCE

Full-Scale laboratory testing performed by an independent 3rd party testing facility with associated engineered calculations certifying the hydraulic capacity of the proposed Tied-Concrete Block Erosion Control Mat meets the following requirements:

Test	Tested Value	Bed Slope	Soil Classification	Limiting Value
ASTM 6460	Shear Stress	30%	Sandy Loam (USDA)	24lb./ft ²
ASTM 6460	Velocity	20%	Loam (USDA)	30 ft./sec

4. ALTERNATIVE PRODUCTS

Such products must be pre-approved in writing by the Engineer prior to bid date. Alternative product packages must be submitted to the Engineer a minimum of eight (8) days prior to bid date. Submittal packages for alternate products must include, as a minimum, the following:

- 4.1. Alternative Product Properties – Product must be comprised of materials as detailed in Section 2, including both in composition and performance requirements.

- 4.2. Full-Scale laboratory testing performed by an independent 3rd party testing facility with associated engineered calculations certifying the hydraulic capacity of the proposed Tied-Concrete Block Erosion Control Mat meets the performance requirements listed in Section 3 of this specification.
- 4.3. A list of 5 comparable projects in terms of project size, application and material dimensions in the United States, where the results of the specific alternative material's use can be verified and reviewed for system integrity and sustained after a minimum of 7 years of service life.

5. EQUIPMENT

Provide the proper equipment to place the mat that will not damage the mat material or disturb the soil subgrade and seed bed.

6. CONSTRUCTION

Prior to installing Flexamat Standard, prepare the subgrade as detailed in the plans. All subgrade surfaces to be smooth and free of rocks, roots, debris, or other protrusions that would prevent intimate contact between the block and the subgrade. When seeding is shown on the plans, provide subgrade material that can sustain growth.

Ensure the prepared subgrade provides a smooth, firm, and unyielding foundation for the mats. The subgrade shall be graded into a parabolic or trapezoidal shape to concentrate flow to middle of mat or mats.

When vegetation is required, distribute seed on the prepared topsoil subgrade before installation of the concrete mats in accordance with the specifications.

Install mats to the line and grade shown on the plans and per the manufacturer's guidelines. The manufacturer or authorized representative will provide technical assistance during preparation and installation of the concrete block mats as needed.

Provide a minimum 18 in. deep concrete mat embedment toe trench at all edges exposed to concentrated flows. Recess exterior edges subject to sheet flow a minimum of 6 in.

Provide fastening or anchoring as recommended by the manufacturer or engineer for the site conditions.

7. MEASUREMENT

This Item will be measured by the square foot as shown on the plans, complete in place.

8. PAYMENT

The work performed, and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Flexamat Standard". This price is full compensation for loading and transporting, placing concrete block mats; excavation and disposal; furnishing topsoil and bedding; and equipment, labor, materials, tools, and incidentals.

SUNDOWN LAKE WEST MARINA WETLAND
IDALS WATER QUALITY INITIATIVE (WQI)
PROJECT NO. 22 WQUI-015

PROJECT INFORMATION

MELISSA CAMPBELL
PROJECT MANAGER, IMPACT7G, INC.
T. (712) 899-5776

JEFF SAMPSON
PRESIDENT, SUNDOWN LAKE RURAL IMPROVEMENT ZONE BOARD
T. (402) 216-8890
E. JEFFSAMPSON123@GMAIL.COM

PROPERTY OWNER
COVES OF SUNDOWN LAKE OWNERS ASSOCIATION
13870 286TH AVE
MORAVIA, IA 52571

RON BENARD
LAKE MANAGER, COVES OF SUNDOWN LAKE OWNERS ASSOCIATION
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E. LAKEMANAGER@LAKESUNDOWNASSOCIATION.COM

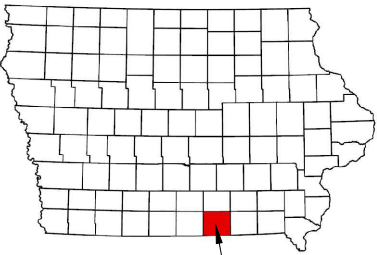
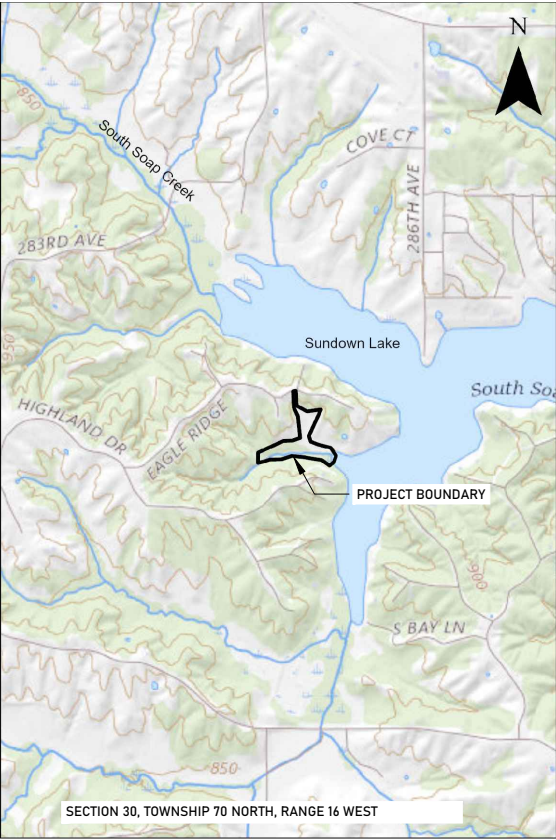
GENERAL SHEET LEGEND

	PROPERTY BOUNDARY
	CENTER LINE
	PROPOSED CONTOURS
	EXISTING CONTOURS



CONTRACTOR IS RESPONSIBLE FOR NOTIFYING
RESPECTIVE UTILITY COMPANIES PRIOR TO COMMENCING
WORK.

PROJECT LOCATION
NTS



APPANOOSE COUNTY

SHEET INDEX

SHEET NO.	SHEET TITLE
A.01	COVER SHEET
B.01	STORMWATER OUTLET DETAILS
B.02	SPILLWAY DETAILS
C.01	QUANTITIES
C.02	ESTIMATE REFERENCE NOTES
C.03	EXISTING CONDITIONS AND REMOVALS
D.01	GRADING PLAN
D.02	STORMWATER OUTLET PLAN AND PROFILE
G.01	SURVEY CONTROL
J.01	TRAFFIC CONTROL AND STAGING
Q.01	SOIL CORE DESCRIPTIONS
R.01 - R.02	EROSION CONTROL
R.03 - R.04	SEEDING PLAN

NOTE: THE 2023 EDITION OF THE IOWA STATEWIDE URBAN DESIGN AND SPECIFICATIONS FOR
PUBLIC IMPROVEMENTS (SUDAS) IS APPLICABLE TO THIS CONSTRUCTION PROJECT UNLESS
SPECIFICALLY NOTED OTHERWISE WITHIN.

	I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.	
	RYAN M. BENJEGERDES, P.E.	
	LICENSE NUMBER: 23767	DATE: OCTOBER 19TH, 2023
	MY LICENSE RENEWAL DATE IS DECEMBER 31, 2023	
PAGES OR SHEETS COVERED BY THIS SEAL:		
ALL SHEETS EXCEPT FOR Q.01		

I hereby attest that this geomorphological investigation has been prepared by me or under my direct supervision and that I am a qualified geomorphologist with sufficient training and experience in the earth sciences to adequately evaluate the sedimentology, stratigraphy, and pedology of deposits in the field and be able to describe and analyze the deposits using standard terminology. This investigation is for the exclusive use of the client, and for specific application to the project discussed. To the best of our knowledge the statements, attachments, including those labeled and identified as enclosures, and all conclusions are true, accurate, and based on current environmental principles and science. No warranties, either expressed or implied, are intended or made. If changes in the nature, design or location of the project as shown are planned, the conclusions and recommendations contained on this form shall not be considered valid unless I review the changes and either verify or modify the conclusions of this form in writing. This report has been prepared by:

Signature:	Date: October 19th, 2023	Sheet Covered: Q.01
Type or Printed Name: Judith E. Joyce	Title: Professional Geomorphologist	



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(515) 473-6256

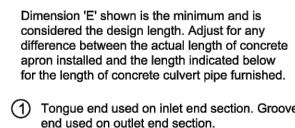
REVISIONS					
REV	DESCRIPTION	DATE	CHANGED BY	CHECKED BY	

PRJ MGR: MC	DESIGN BY: JF	DRAWN BY: JF	CHECKED BY: RB
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SUNDOWN LAKE WEST MARINA
WETLAND
COVER SHEET
COVES OF SUNDOWN LAKE OWNERS ASSOCIATION


Sheet No.

A.01



TYPE 1 APRONS						
DIAM.	SLOPE	A	B	MINIMUM		F
				C	E	
12"	2.4:1	4"	2'-0"	3'-6"	6'-6"	2'-0"
15"	2.4:1	6"	2'-3"	4'-0"	6'-1"	2'-6"
18"	2.3:1	9"	2'-3"	3'-10"	6'-1"	3'-0"
21"	2.4:1	9"	3'-0"	3'-1 $\frac{1}{2}$ "	6'-1 $\frac{1}{2}$ "	3'-5"
24"	2.5:1	9 $\frac{1}{2}$ "	3'-7 $\frac{1}{2}$ "	2'-8"	6'-1 $\frac{1}{2}$ "	4'-0"
27"	2.5:1	10 $\frac{1}{2}$ "	4'-1"	2'-8"	6'-1 $\frac{1}{2}$ "	4'-4"
30"	2.5:1	12"	4'-8"	1'-7 $\frac{1}{2}$ "	6'-1 $\frac{1}{2}$ "	5'-0"
36"	2.5:1	15"	5'-3"	2'-9"	8'-0"	6'-0"
42"	2.5:1	21"	5'-3"	2'-9"	8'-0"	6'-6"
48"	2.5:1	24"	6'-0"	2'-8"	8'-0"	7'-0"
54"	1.8:1	27"	5'-0"	3'-0"	8'-0"	7'-6"
60"	1.6:1	29 $\frac{1}{2}$ "	5'-0"	3'-0"	8'-0"	8'-0"
66"	1.7:1	30"	6'-0"	2'-3"	8'-3"	8'-0"
72"	1.6:1	30"	6'-6"	1'-9"	8'-3"	9'-0"
78"	1.8:1	36"	7'-6"	1'-9"	9'-3"	9'-0"
84"	1.3:1	29 $\frac{1}{2}$ "	6'-9"	2'-6 $\frac{1}{2}$ "	9'-3 $\frac{1}{2}$ "	10'-6"

TYPE 2 APRONS						
DIAM.	SLOPE	A	B	MINIMUM		F
				C	E	
12"	2.4:1	4"	2-0"	4- $\frac{1}{2}$ "	6- $\frac{1}{2}$ "	2-0"
15"	2.4:1	6"	2-3"	3-10"	6-1"	2-6"
18"	2.3:1	9"	2-3"	3-10"	6-1"	3-0"
21"	2.4:1	9"	3-0"	3-1 $\frac{1}{2}$ "	6-1 $\frac{1}{2}$ "	3-5"
24"	2.5:1	9 $\frac{3}{4}$ "	3-7 $\frac{1}{2}$ "	2-6"	6-1 $\frac{1}{2}$ "	4-0"
27"	2.5:1	10 $\frac{1}{2}$ "	4-1"	2-0"	6-1 $\frac{1}{2}$ "	4-4"
30"	2.5:1	12"	4-6"	1-7 $\frac{1}{2}$ "	6-1 $\frac{1}{2}$ "	5-0"
36"	2.5:1	15"	5-3"	2-9"	8-0"	6-0"
42"	2.5:1	21"	5-3"	2-9"	8-0"	6-6"
48"	2.5:1	24"	6-0"	2-0"	8-0"	7-0"
54"	1.9:1	24 $\frac{1}{2}$ "	5-5"	2-7"	8-0"	7-6"
60"	1.4:1	24 $\frac{1}{2}$ "	5-0"	3-0"	8-0"	8-0"
66"	1.7:1	30"	6-0"	2-3"	8-3"	8-0"
72"	1.4:1	24"	6-6"	1-9"	8-3"	9-0"
78"	1.8:1	36"	7-6"	1-9"	9-3"	9-6"
84"	1.5:1	23 $\frac{1}{2}$ "	7-6"	1-9"	9-3 $\frac{1}{2}$ "	10-0"


 SUDAS	REVISION	
	Now	10-18-18
	4030.222	
SHEET 1 of 1		

SUDAS Standard Specifications

CIRCULAR CONCRETE APRONS

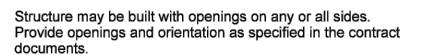


D	W	Mark	Size	Length	Count
12"	2'-4"	4f1	4	2'-0"	3
		4f2	4	3'-8"	2
15"	2'-10 1/2"	4f1	4	2'-6 1/2"	3
		4f2	4	3'-8"	2
18"	3'-5"	4f1	4	3'-1"	3
		4f2	4	3'-8"	3
24"	4'-6"	4f1	4	4'-2"	3
		4f2	4	3'-8"	3
30"	5'-7"	4f1	4	5'-3"	3
		4f2	4	3'-8"	4
36"	6'-8"	4f1	4	6'-4"	3
		4f2	4	3'-8"	5
42"	7'-3"	4f1	4	6'-11"	3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

	SUDAS		REVISION 1 10-21-
			4030.22
	SHEET 1 of 1		



SUDAS Standard Specifications

RCP APRON SECTION FOOTING

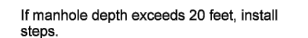


Adjacent walls may have different widths based upon pipe configuration, but structure must be rectangular.

- ① Construct inlet openings with 15-inch #4 epoxy-coated bars at 8 inches on center. Embed bars a minimum of 3 inches into walls and top at all openings.
- ② Grade to inlet elevation on open sides. Grade to top elevation on closed sides.
- ③ Corner pier required between openings of two adjacent walls. Extend wall reinforcing vertically through pier. Install one additional 15-inch #4 bar in pier.
- ④ Center pier required at center of any inlet opening with length of 5 feet or greater. Extend wall reinforcing vertically through pier. Install one additional 15-inch #4 bar in pier.
- ⑤ Wall widths vary with pipe diameter. Provide 6 inches of wall width (minimum) each side of pipe opening. Minimum wall width is 36 inches. Maximum wall width is 72 inches.
- ⑥ Cast-in-place base shown. If base is precast integral with walls, the footprint of base is not required to extend beyond the outer edge of the walls.
- ⑦ Install four #4 diagonal bars at all pipe openings.
- ⑧ 12" minimum wall height above all pipes.





 SUDAS	 IOWADOT	REVISION	
		2	04-21-10
FIGURE 6010.513	STANDARD ROAD PLAN	SW-513	
REVISIONS: Added Class 1 Bending Material.		SHEET 1 of 1	
<i>Paul D. Weigand</i> SUDAS DIRECTOR		<i>Scott Miller</i> DESIGN METHODS ENGINEER	

OPEN-SIDED AREA INTAKE



- ① Cast-in-place base shown. If base is precast integral with bottom riser, the footprint of the base is not required to extend beyond the outer edge of the riser.
- ② For additional configurations, maintain a minimum of 12 inches of concrete between vertical edges of pipe openings.
- ③ 12 inch minimum riser height above all pipe openings.

Manhole Diameter (inches)	Maximum Pipe Diameter (inches) for 2 Pipes	
	At 180° Separation	At 90° Separation
48	24	18
60	36	24
72	42	30
84	48	36
96	60	42

 SUDAS	 IOWADOT	REVISION 3 04-20	
		SW-40 SHEET 1 of 1	
FIGURE 6010.401	STANDARD ROAD PLAN		
REVISIONS: Added manhole depth note.			
 RUSSA D. WEIGAND		 DESIGN METHODS ENGINEER	
CIRCULAR STORM SEWER MANHOLE			

PRJ/T MGR: MC		REVISIONS				
DESIGN BY: JF						
DRAWN BY: JF						
CHECKED BY: RB						
		REV	DESCRIPTION	DATE	CHANGED BY	CHECKED BY

SUNDOWN LAKE WEST MARINA WETLAND STORMWATER OUTLET DETAILS

COVERS OF LAKE SHUTDOWN OWNERS ASSOCIATION

Sheet No.

B.O'

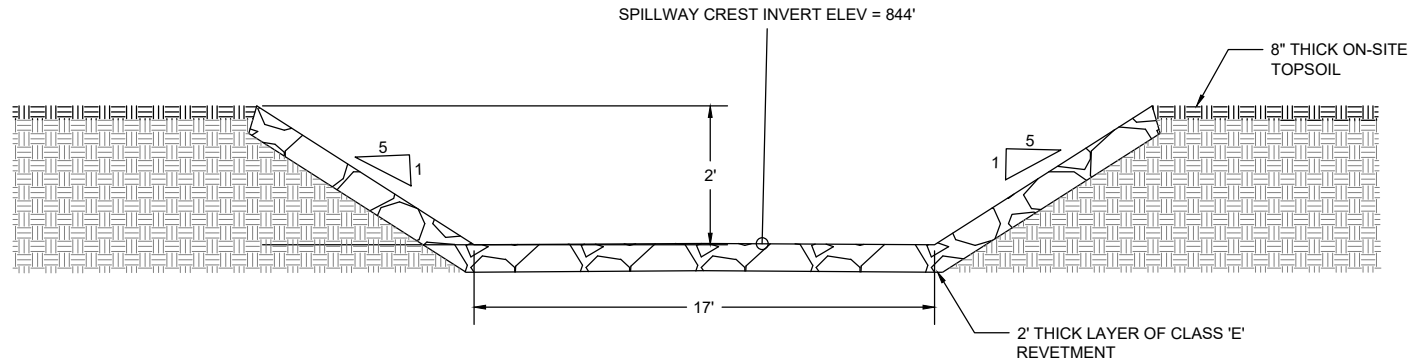


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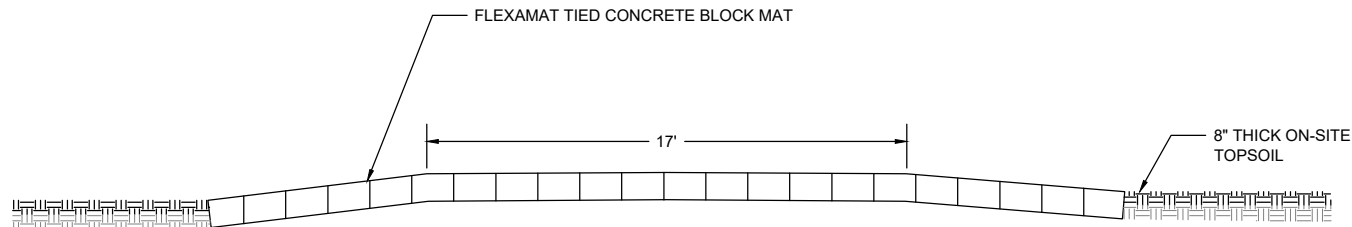
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					DATE
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					DESCRIPTION

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MC	JF	JF	RB

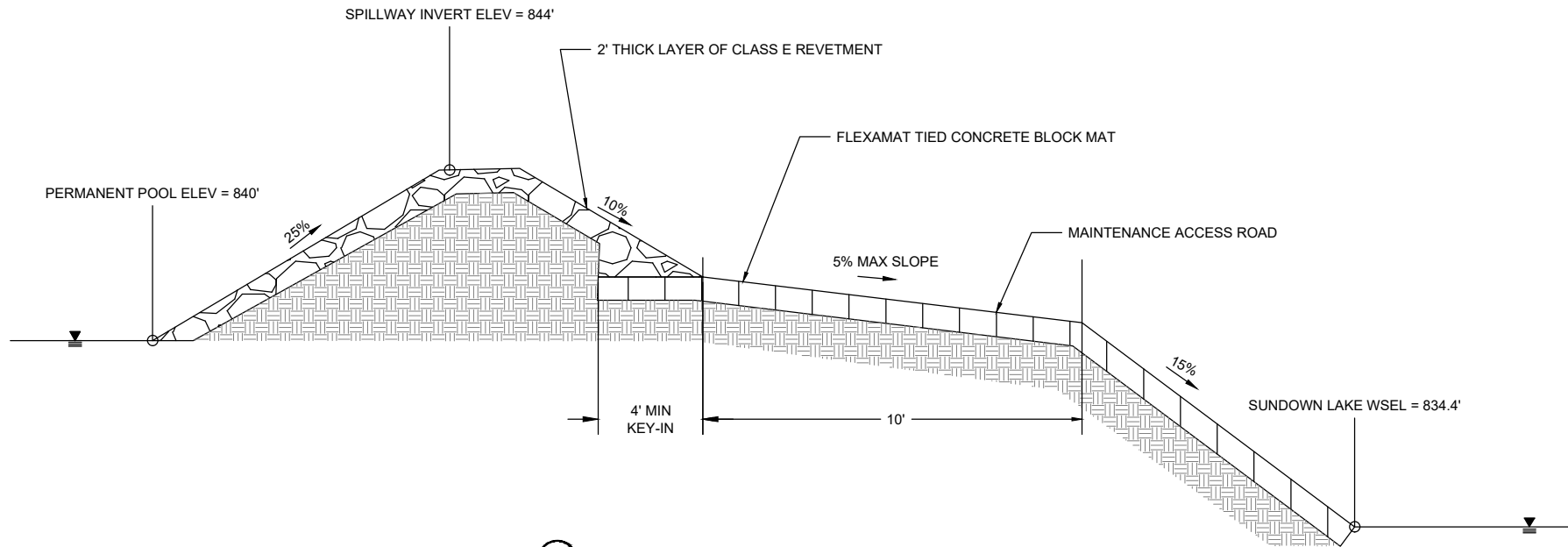
SUNDOWN LAKE WEST MARINA
WETLAND
SPILLWAY DETAILS
COVES OF SUNDOWN LAKE OWNERS ASSOCIATION



① TYP. SPILLWAY CROSS SECTION
AT CREST (NTS)



② SPILLWAY CROSS SECTION AT
MAINTENANCE ACCESS (NTS)



③ SPILLWAY PROFILE
(NTS)

PLOTTED 10/19/2023

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CREATED BY JFLANSBURG ON 10/19/2023

ESTIMATED PROJECT QUANTITIES				
ITEM NO.	ITEM CODE	ITEM	UNIT	QUANT
1	2010-108-C-0	CLEARING AND GRUBBING	LS	1
2	2010-108-D-1	TOPSOIL, ON-SITE	CY	2650
3	2010-108-E-0	EXCAVATION, CLASS 10	CY	10130
4	4020-108-A-1	STORM SEWER, TRENCHED, HDPE, 5-INCH	LF	10
5	4020-108-F-0	STORM SEWER ABANDONMENT, PLUG	EA	1
6	4030-108-A-1	PIPE CULVERT, TRENCHED, CMP, 18-INCH	LF	42
7	4030-108-A-1	PIPE CULVERT, TRENCHED, RCP, 36-INCH	LF	117
8	4030-108-B-0	PIPE APRON, CMP, 18-INCH	EA	1
9	4030-108-B-0	PIPE APRON, RCP, 36-INCH	EA	1
10	4030-108-C-0	FOOTING FOR CONCRETE PIPE APRON, 36-INCH	EA	1
11	6010-108-A-0	STORM MANHOLE, SW-401, 48"	EA	1
12	6010-108-B-0	INTAKE, HICKENBOTTOM, 5-INCH	EA	1
13	6010-108-B-0	INTAKE, SW-513, 5' X 5'	EA	1
14	7030-108-H-2	DRIVEWAY, GRANULAR, CLASS A CRUSHED STONE	TON	445
15	8030-108-A-0	TEMPORARY TRAFFIC CONTROL	LS	1
16	9010-108-A-0	CONVENTIONAL SEEDING, SEEDING, AND MULCHING, TYPE 1	AC	0.3
17	9010-108-A-0	CONVENTIONAL SEEDING, SEEDING, AND MULCHING, TYPE 5	AC	2.7
18	9010-108-A-0	CONVENTIONAL SEEDING, SEEDING, AND MULCHING, WET POLLINATOR	AC	1.5
19	9010-108-A-0	CONVENTIONAL SEEDING, SEEDING, AND MULCHING, EMERGENT WETLAND	AC	0.9
20	9010-108-E-0	WARRANTY	LS	1
21	9040-108-A-1	SWPPP PREPARATION	LS	1
22	9040-108-A-2	SWPPP MANAGEMENT	LS	1
23	9040-108-E-0	TEMPORARY RECP, TYPE 3B	SY	3900
24	9040-108-F-1	WATTLE, STRAW, 12-INCH	LF	200
25	9040-108-F-2	WATTLE, REMOVAL	LF	200
26	9040-108-J-0	RIP RAP, CLASS E	TON	640
27	9040-108-N-1	SILT FENCE OR SILT FENCE DITCH CHECK	LF	1045
28	9040-108-N-2	SILT FENCE OR SILT FENCE DITCH CHECK, REMOVAL OF SEDIMENT	LF	1045
29	9040-108-N-3	SILT FENCE OR SILT FENCE DITCH CHECK, REMOVAL OF DEVICE	LF	1045
30	9040-108-O-1	STABILIZED CONSTRUCTION ENTRANCE	SY	78
31	9040-108-T-1	INLET PROTECTION DEVICE, SURFACE-APPLIED	EA	1
32	9040-108-U-0	FLOW TRANSITION MAT, FLEXAMAT TIED CONCRETE BLOCK MAT	SF	1765
33	11010-108-A-1	CONSTRUCTION SURVEY	LS	1
34	11020-108-A-1	MOBILIZATION	LS	1

STANDARD CONSTRUCTION NOTES

- ANY DEFECTIVE WORK CONDEMNED BY THE ENGINEER SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE IN ACCORDANCE WITH THE SPECIFICATIONS. FAILURE TO REMOVE DEFECTIVE WORK MAY RESULT IN SUSPENSION OF OPERATIONS AND/OR WITHHOLDING OF PAYMENTS UNTIL DEFECTIVE WORK HAS BEEN REMOVED AND/OR REMEDIED.
- THE CONTRACTOR SHALL PRESERVE OR REPLACE BY REGISTERED LAND SURVEYOR, ALL PROPERTY MONUMENTS ON THE PROJECT SITE THAT ARE DISTURBED OR DESTROYED DURING CONSTRUCTION.
- THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING SITE CLEANLINESS. UPON REQUEST BY THE ENGINEER, THE CONTRACTOR SHALL, AT ITS EXPENSE, CLEAN UP AND REMOVE ALL REFUSE AND UNUSED MATERIALS OF ANY KIND RESULTING FROM THE WORK INCLUDING CLEANING AND SWEEPING OF ADJACENT STREETS. UPON FAILURE TO DO SO WITHIN THREE WORKING DAYS AFTER SUCH REQUEST BY THE ENGINEER, THE WORK MAY BE DONE BY THE OWNER AND THE COST THEREOF CHARGED TO THE CONTRACTOR AND DEDUCTED FROM ITS FINAL PAYMENT IN ACCORDANCE WITH THE SPECIFICATIONS.
- CONTRACTOR OPERATIONS CREATING OBJECTIONABLE LEVELS OF NOISE SHALL NOT BEGIN PRIOR TO 7:00 AM AND SHALL END PRIOR TO 7:00 PM, UNLESS OTHERWISE APPROVED BY ENGINEER.
- DEWATERING (IF NECESSARY) IS CONTRACTOR'S RESPONSIBILITY AND SHALL BE CONSIDERED INCIDENTAL.
- PRIOR TO MOBILIZING OFF OF THE JOB SITE, THE CONTRACTOR SHALL NOTIFY THE ENGINEER TO REQUEST A FINAL INSPECTION IN ACCORDANCE WITH SECTION 1050, 1.14 'FINAL INSPECTION AND ACCEPTANCE' OF THE STANDARD SPECIFICATIONS.
- THE CONTRACTOR IS RESPONSIBLE FOR SITE SAFETY AND COMPLYING WITH ALL CURRENT AND FUTURE FEDERAL AND STATE OSHA REQUIREMENTS IN ACCORDANCE WITH SECTION 1070, 2.02 'CONVENIENCE AND SAFETY' OF THE STANDARD SPECIFICATIONS.
- IN ACCORDANCE WITH SECTION 1070, 2.08 'PROTECTION OF PROPERTY' OF THE STANDARD SPECIFICATIONS, THE CONTRACTOR SHALL CONTINUOUSLY MAINTAIN ADEQUATE PROTECTION OF ALL ITS WORK FROM DAMAGE AND SHALL PROTECT THE JURISDICTION'S PROPERTY AND ADJACENT PRIVATE PROPERTY FROM INJURY OR LOSS ARISING IN CONNECTION WITH THE WORK. THE CONTRACTOR SHALL REPAIR OR RESTORE ANY SUCH DAMAGE, INJURY, OR LOSS TO JURISDICTION PROPERTY OR ADJACENT PROPERTY. THE CONTRACTOR SHALL PROTECT TREES AND OTHER PROPERTY NOT MARKED FOR REMOVAL. THE CONTRACTOR SHALL SALVAGE ANY LANDSCAPING WITHIN THE RIGHT OF WAY UPON REQUEST BY THE ADJACENT PROPERTY OWNERS.
- IF PROJECT IS SUBSTANTIALLY COMPLETED AND ONLY CLEANUP AND MINOR WORK ITEMS REMAIN FOR MORE THAN 30 CALENDAR DAYS, THE ENGINEER MAY RESTART CHARGING OF WORKING DAYS OR CHARGE PENALTIES EQUAL TO THE CONTRACT LIQUIDATED DAMAGES UNTIL ALL CORRECTIVE ACTION HAS BEEN COMPLETED IN ACCORDANCE WITH SECTION 1080, 1.06 'WEEKLY RECORD OF WORKING DAYS' OF THE STANDARD SPECIFICATIONS.
- CONTRACTOR SHALL PROPERLY SECURE PROJECT SITE AT THE END OF EACH DAY.

UTILITY COORDINATION NOTES

- THE CONTRACTOR IS REQUIRED TO UTILIZE THE UTILITY ONE-CALL SERVICE AT (800) 292-8989 TO LOCATE EXISTING UNDERGROUND UTILITIES AT LEAST 48 HOURS PRIOR TO EXCAVATING ANYWHERE ON THE PROJECT.
- COORDINATE WITH UTILITY OWNER TO RESOLVE POTENTIAL CONFLICTS. THE CONTRACTOR SHALL PROTECT THE EXISTING UTILITIES TO REMAIN WITHIN THE PROJECT SITE.
- THE LOCATION OF ALL AERIAL AND UNDERGROUND UTILITIES MAY NOT BE INDICATED ON THESE PLANS. WORK SHALL BE COMPLETED IN ACCORDANCE WITH SECTION 1070, 2.07 'PROTECTION OF ABOVEGROUND AND UNDERGROUND FACILITIES' OF THE STANDARD SPECIFICATIONS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DAMAGE TO EXISTING UTILITIES.
- IF A CONFLICT IS DISCOVERED BY THE CONTRACTOR, NOTIFY THE ENGINEER IMMEDIATELY AND COORDINATE WITH OWNER OF UTILITY TO RESOLVE CONFLICT.

SITE NOTES

- TREE REMOVALS TO OCCUR BETWEEN OCTOBER 1ST AND MARCH 31ST. COORDINATE REMOVALS WITH ENGINEER.
- CONTRACTOR TO NOTIFY PROPERTY OWNER 2 WEEKS PRIOR TO THE START OF CONSTRUCTION.
- THE CONTRACTOR SHALL CONFINE ALL WORK TO THE CONSTRUCTION LIMITS AND EASEMENT SHOWN ON THE PLANS. IF THE CONTRACTOR OBTAINS ADDITIONAL EASEMENTS FOR THE STORAGE OF EQUIPMENT AND MATERIALS, COPIES OF THE AGREEMENT WITH THE PROPERTY OWNERS SHALL BE PROVIDED TO THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE.
- ALL STOCKPILE AREAS, HAUL ROADS, AREAS USED FOR MANEUVERING EQUIPMENT AND DISTURBED AREAS OUTSIDE OF THE GRADING LIMITS ON THIS PROJECT WILL REQUIRE SOIL TILLAGE TO AN AVERAGE DEPTH OF 12 TO 16 INCHES PRIOR TO PLACEMENT OF SEEDING. IT SHALL BE APPROVED BY ENGINEER FOR THE USE INTENDED. AFTER APPROVAL, AREA TO BE SEEDED WITH TYPE 1 AND MULCHED. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO OTHER WORK ON THE PROJECT AND NO PAYMENT WILL BE MADE.
- CONTRACTOR RESPONSIBLE FOR ANY DAMAGE TO STREET, SIDEWALK, DRIVEWAY, AND ANY OTHER ITEMS NOT DESIGNATED FOR REMOVAL.



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SUNDOWN LAKE WEST MARINA WETLAND

QUANTITIES

COVES OF SUNDOWN LAKE OWNERS ASSOCIATION

Sheet No.

C.01

PLOTTED 10/19/2023

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CREATED BY JFLANSEURG ON 10/19/2023

ESTIMATE REFERENCE INFORMATION		
ITEM NO.	ITEM CODE	DESCRIPTION
1	2010-108-C-0	<p><u>CLEARING AND GRUBBING</u></p> <p>CLEARING AND GRUBBING SHALL BE LIMITED TO ONLY THAT AREA WITHIN THE CONSTRUCTION LIMITS OR WITHIN THE SEEDING LIMITS. WASTE MATERIAL SHALL BE REMOVED FROM SITE FOR DISPOSAL. PROTECT AND PRESERVE TREES WHERE INDICATED IN THE PLANS. OWNER HAS ALREADY COMPLETED SOME CLEARING ON-SITE. STUMP REMOVAL IS INCIDENTAL TO CLEARING & GRUBBING.</p>
2	2010-108-D-1	<p><u>TOPSOIL, ON-SITE</u></p> <p>CONTRACTOR SHALL BE RESPONSIBLE FOR STRIPPING, SALVAGING, STOCKPILING, AND RESPREADING EXISTING TOPSOIL. RESPREAD TOPSOIL TO A MINIMUM DEPTH OF 8 INCHES OVER ALL DISTURBED AREAS.</p>
3	2010-108-E-0	<p><u>EXCAVATION, CLASS 10</u></p> <p>ITEM WILL BE PAID PER CUBIC YARD ACCORDING TO THE PLAN QUANTITY. COMPENSATION WILL NOT BE MADE FOR EXCAVATION OF ADDITIONAL MATERIAL WITHOUT PRIOR APPROVAL OF THE ENGINEER/OWNER. PERFORM GRADING AS DETAILED IN THE PLANS. CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND DISPOSAL OF EXCESS MATERIAL. A DIGITAL TERRAIN MODEL CAN BE PROVIDED WITHIN 5 WORKING DAYS' NOTICE TO AIDE IN MACHINE CONTROL GRADING, HOWEVER, THE PLAN DOCUMENTS SHALL CONTROL. PLAN QUANTITY INCLUDES A 1.30 FILL FACTOR AND THE FOLLOWING COMBINATION OF CUT VERSUS FILL: RAW CUT = 12,780 CY (INCLUDING TOPSOIL) PAID CUT = 10,130 CY (EXCLUDING TOPSOIL) FILL = 2,210 CY</p>
4	4020-108-A-1	<p><u>STORM SEWER, TRENCHED, HDPE, 5-INCH</u></p> <p>SEE SHEET D-SHEETS FOR LOCATION. ALL MATERIALS, LABOR, AND EQUIPMENT NECESSARY FOR INSTALLATION OF PIPE FITTINGS AND BENDS ARE INCIDENTAL TO THIS ITEM.</p>
5	4020-108-F-0	<p><u>STORM SEWER ABANDONMENT, PLUG</u></p> <p>ABANDON AND PLUG UPSTREAM END OF EXISTING 6" ABS PIPE, AS SHOWN ON D-SHEETS. CUT OFF EXISTING HICKENBOTTOM INTAKE AND PLUG PIPE AT LEAST 24" BELOW FINISHED GRADE. REMOVAL AND DISPOSAL OF EXISTING HICKENBOTTOM SURFACE INTAKE IS INCIDENTAL TO ITEM.</p>
6	4030-108-A-1	<p><u>PIPE CULVERT, TRENCHED, CMP, 18-INCH</u></p> <p>SEE D-SHEETS FOR LOCATION.</p>
7	4030-108-A-1	<p><u>PIPE CULVERT, TRENCHED, RCP, 36-INCH</u></p> <p>SEE D-SHEETS FOR LOCATION. WRAP ALL JOINTS. TIE THE FIVE MOST DOWNSTREAM JOINTS, INCLUDING THE APRON.</p>
8	4030-108-B-0	<p><u>PIPE APRON, CMP, 18-INCH</u></p> <p>SEE D-SHEETS FOR LOCATION.</p>
9	4030-108-B-0	<p><u>PIPE APRON, RCP, 36-INCH</u></p> <p>SEE D-SHEETS FOR LOCATION. TIE AND WRAP JOINT. INCLUDE PIPE APRON GUARD AND CONCRETE APRON FOOTING (BOTH PAID SEPARATELY).</p>
10	4030-108-C-0	<p><u>FOOTING FOR CONCRETE PIPE APRON, 36-INCH</u></p> <p>CONSTRUCT FOOTING FOR 36-INCH RCP PIPE APRON. PERFORM CONCRETE WASHING OFF-SITE OR INTO APPROVED CONTAINER FOR DISPOSAL.</p>
11	6010-108-A-0	<p><u>STORM MANHOLE, SW-401, 48"</u></p> <p>SEE D-SHEETS FOR LOCATION. CONNECTION TO EXISTING STORM SEWER PIPE IS INCIDENTAL TO PLACEMENT OF MANHOLE.</p>
12	6010-108-B-0	<p><u>INTAKE, HICKENBOTTOM, 5-INCH</u></p> <p>ITEM IS FOR INSTALLATION OF HICKENBOTTOM RISER INLET HBI-5510 OR APPROVED EQUAL.</p>
13	6010-108-B-0	<p><u>INTAKE, SW-513, 5' X 5'</u></p> <p>REFER TO DETAILS AND DIMENSIONS ON D-SHEETS. STRUCTURE SHALL BE PRECAST. CAST-IN-PLACE STRUCTURE IS ALLOWABLE WITH DESIGN AND CERTIFICATION BY A LICENSED STRUCTURAL ENGINEER.</p>
14	7030-108-H-2	<p><u>DRIVEWAY, GRANULAR, CLASS A CRUSHED STONE</u></p> <p>ITEM IS FOR RESURFACING OF EXISTING GRANULAR ENTRANCE TO REPAIR DAMAGES CAUSED BY CONSTRUCTION TRAFFIC. ITEM WILL BE PAID PER TON OF GRANULAR MATERIAL PLACED, WITH PRIOR APPROVAL OF THE ENGINEER. BID QUANTITY IS AN ESTIMATE.</p>
15	8030-108-A-0	<p><u>TEMPORARY TRAFFIC CONTROL</u></p> <p>REFER TO THE J-SHEETS FOR TEMPORARY TRAFFIC CONTROL AND STAGING PLAN. 1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING AND MAINTAINING TRAFFIC CONTROL FOR THE DURATION OF THE PROJECT. IF TRAFFIC CONTROL DEVICES FAIL, THEY MUST BE IMMEDIATELY REPAIRED OR REPLACED BEFORE CONTINUING WORK. 2. TEMPORARY TRAFFIC CONTROL DEVICES MUST BE INSTALLED PRIOR TO COMMENCING WORK. 3. PAYMENT FOR THIS ITEM SHALL BE MADE AT THE CONTRACT UNIT PRICE PER LUMP SUM. PAYMENT WILL BE MADE AT PROJECT COMPLETION, UNLESS PARTIAL PAYMENT IS APPROVED BY ENGINEER.</p>
16	9010-108-A-0	<p><u>CONVENTIONAL SEEDING, SEEDING, AND MULCHING, TYPE 1</u></p> <p>PLACE WHERE INDICATED ON THE SEEDING PLAN. ITEM IS INCLUDED FOR RESTORATION OF STAGING AREA AND ANY OTHER DISTURBED AREAS OUTSIDE OF THE WETLAND. COMPENSATION WILL NOT BE MADE FOR PLACEMENT OF ADDITIONAL SEED WITHOUT PRIOR APPROVAL OF ENGINEER. COMPENSATION WILL NOT BE MADE FOR OVERSEEDING OR FOR SEEDING ADDITIONAL DISTURBED AREAS BEYOND THE CONSTRUCTION LIMITS, WITHOUT PRIOR APPROVAL OF THE ENGINEER/OWNER. USE SUDAS TYPE 1 SEED MIX.</p>

17	9010-108-A-0	<p><u>CONVENTIONAL SEEDING, SEEDING, AND MULCHING, TYPE 5</u></p> <p>ITEM IS INCLUDED TO ESTABLISH TEMPORARY EROSION CONTROL COVER DURING PERIODS OUTSIDE OF THE SEEDING WINDOW FOR PERMANENT VEGETATION. QUANTITY PAID WILL BE THE QUANTITY PLACED ON A PER ACRE BASIS. COMPENSATION WILL NOT BE MADE FOR OVERSEEDING OR FOR SEEDING ADDITIONAL DISTURBED AREAS BEYOND THE CONSTRUCTION LIMITS, WITHOUT PRIOR APPROVAL OF THE ENGINEER/OWNER. USE SUDAS TYPE 5 SEED MIX.</p>
18	9010-108-A-0	<p><u>CONVENTIONAL SEEDING, SEEDING, AND MULCHING, WET POLLINATOR</u></p> <p>PLACE WET POLLINATOR SEEDING WHERE INDICATED IN THE PLANTING PLANS. SEED MIX IS SPECIFIED ON THE PLANTING PLAN. PAYMENT WILL BE BASED ON THE PLAN QUANTITY. COMPENSATION WILL NOT BE MADE FOR PLACEMENT OF ADDITIONAL SEED WITHOUT PRIOR APPROVAL OF ENGINEER. SEEDING WINDOW SHALL BE EXTENDED TO ALLOW DORMANT SEEDING TO OCCUR FROM NOVEMBER TO MARCH. ADDITIONAL PAYMENT SHALL NOT BE PAID FOR DORMANT SEEDING. WARRANTY WILL BE PROVIDED AS PART OF ITEM 'SEEDING WARRANTY'.</p>
19	9010-108-A-0	<p><u>CONVENTIONAL SEEDING, SEEDING, AND MULCHING, EMERGENT WETLAND</u></p> <p>PLACE EMERGENT WETLAND SEEDING WHERE INDICATED IN THE PLANTING PLANS. SEED MIX IS SPECIFIED ON THE PLANTING PLAN. PAYMENT WILL BE BASED ON THE PLAN QUANTITY. COMPENSATION WILL NOT BE MADE FOR PLACEMENT OF ADDITIONAL SEED WITHOUT PRIOR APPROVAL OF ENGINEER. SEEDING WINDOW SHALL BE EXTENDED TO ALLOW DORMANT SEEDING TO OCCUR FROM NOVEMBER TO MARCH. ADDITIONAL PAYMENT SHALL NOT BE PAID FOR DORMANT SEEDING. WARRANTY WILL BE PROVIDED AS PART OF ITEM 'SEEDING WARRANTY'.</p>
20	9010-108-E-0	<p><u>WARRANTY</u></p> <p>SEED WARRANTY SHALL BE MEASURED AND PAID AS LUMP SUM FOR A PERIOD OF 12 MONTHS. SEEDING WARRANTY SHALL COVER BOTH THE WET POLLINATOR AND EMERGENT WETLAND SEEDING.</p>
21	9040-108-A-1	<p><u>SWPPP PREPARATION</u></p> <p>REFER TO R-SHEETS FOR EROSION & SEDIMENT CONTROL PLAN AND NOTES.</p>
22	9040-108-A-2	<p><u>SWPPP MANAGEMENT</u></p> <p>REFER TO R-SHEETS FOR EROSION & SEDIMENT CONTROL PLAN AND NOTES.</p>
23	9040-108-E-0	<p><u>TEMPORARY RECP, TYPE 3B</u></p> <p>ITEM SHALL BE INSTALLED AS WHERE SHOWN ON THE EROSION CONTROL PLAN. OVERLAP AT SEAMS IS INCIDENTAL. MATERIAL SHALL CONSIST OF NATURAL MATERIALS (NOT SYNTHETIC).</p>
24	9040-108-F-1	<p><u>WATTLE, STRAW, 12-INCH</u></p> <p>ITEM IS INCLUDED TO ESTABLISH A UNIT PRICE. ITEM TO BE USED TO ADDRESS EROSION THAT MAY DEVELOP DURING CONSTRUCTION, WHERE DIRECTED BY ENGINEER. BID QUANTITY IS AN ASSUMED QUANTITY AND NOT CURRENTLY SHOWN IN THE EROSION CONTROL PLAN. PAY QUANTITY WILL BE MEASURED PER LF OF STRAW WATTLES PLACED. ITEM SHALL INCLUDE INSTALLATION AND MAINTENANCE OF WATTLES.</p>
25	9040-108-F-2	<p><u>WATTLE, REMOVAL</u></p> <p>ITEM PROVIDED FOR REMOVAL OF WATTLES FOLLOWING ADEQUATE VEGETATION ESTABLISHMENT. ITEM IS INCLUDED TO ESTABLISH A UNIT PRICE. BID QUANTITY IS AN ASSUMED QUANTITY.</p>
26	9040-108-J-0	<p><u>RIP RAP, CLASS E</u></p> <p>REFER TO PLANS FOR PLACEMENT LOCATIONS AND QUANTITIES. DO NOT PLACE ENGINEERING FABRIC BELOW RIP RAP. ITEM WILL BE MEASURED AND PAID PER TON, NOT TO EXCEED 10% OF THE PLAN QUANTITY. THE PLACEMENT OF EXCESS MATERIAL WILL NOT BE COMPENSATED WITHOUT PRIOR APPROVAL OF THE ENGINEER. A UNIT WEIGHT OF 110 POUNDS PER CUBIC FOOT WAS USED FOR DETERMINING THE BID QUANTITY.</p>
27	9040-108-N-1	<p><u>SILT FENCE OR SILT FENCE DITCH CHECK</u></p> <p>REFER TO EROSION CONTROL PLAN FOR LOCATIONS.</p>
28	9040-108-N-2	<p><u>SILT FENCE OR SILT FENCE DITCH CHECK, REMOVAL OF SEDIMENT</u></p> <p>ITEM PROVIDED FOR REMOVAL OF ACCUMULATED SEDIMENT WITHIN SILT FENCE. BID QUANTITY ASSUMES ONE OCCURRENCE FOR ALL PLACED SILT FENCE.</p>
29	9040-108-N-3	<p><u>SILT FENCE OR SILT FENCE DITCH CHECK, REMOVAL OF DEVICE</u></p> <p>ITEM PROVIDED FOR REMOVAL OF SILT FENCE FOLLOWING ADEQUATE VEGETATION ESTABLISHMENT.</p>
30	9040-108-O-1	<p><u>STABILIZED CONSTRUCTION ENTRANCE</u></p> <p>REFER TO EROSION CONTROL PLAN FOR LOCATION.</p>
31	9040-108-T-1	<p><u>INLET PROTECTION DEVICE, SURFACE-APPLIED</u></p> <p>REFER TO EROSION CONTROL PLAN FOR LOCATION.</p>
32	9040-108-U-0	<p><u>FLOW TRANSITION MAT, FLEXAMAT TIED CONCRETE BLOCK MAT</u></p> <p>PLACE WHERE INDICATED ON D-SHEETS. REFER TO SUPPLEMENTAL SPECIFICATIONS. USE PRODUCT FLEXAMAT STANDARD, OR APPROVED EQUAL.</p>
33	11010-108-A-1	<p><u>CONSTRUCTION SURVEY</u></p> <p>SURVEYOR MAY CONTACT ENGINEER FOR USE OF CAD FILES TO OBTAIN STAKING INFORMATION TO COMPLETE PROJECT. REFER TO G-SHEETS FOR ON-SITE SURVEY CONTROL POINTS. A DIGITAL TERRAIN MODEL CAN BE PROVIDED WITHIN 5 WORKING DAYS' NOTICE TO AID IN MACHINE CONTROL GRADING, HOWEVER, THE PLAN DOCUMENTS SHALL CONTROL.</p>
34	11020-108-A-1	<p><u>MOBILIZATION</u></p>



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SUNDOWN LAKE WEST MARINA
 WETLAND

ESTIMATE REFERENCE NOTES

COVES OF SUNDOWN LAKE OWNERS ASSOCIATION

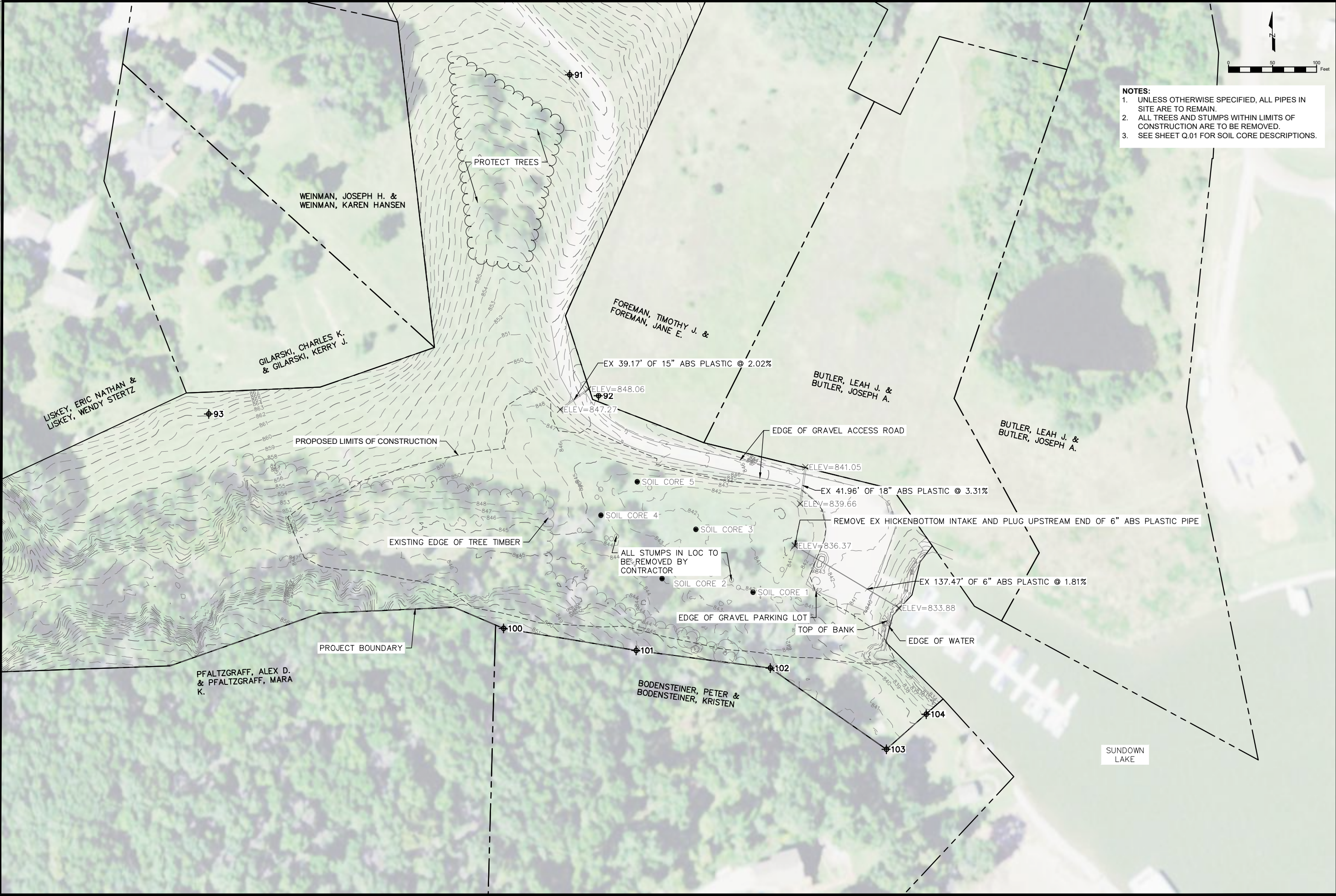
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PLOTTED 10/19/2023

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CREATED BY JFLANSEURG ON 10/05/2023



- NOTES:**
1. UNLESS OTHERWISE SPECIFIED, ALL PIPES IN SITE ARE TO REMAIN.
 2. ALL TREES AND STUMPS WITHIN LIMITS OF CONSTRUCTION ARE TO BE REMOVED.
 3. SEE SHEET Q.01 FOR SOIL CORE DESCRIPTIONS.



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**SUNDOWN LAKE WEST MARINA
WETLAND**

EXISTING CONDITIONS AND REMOVALS

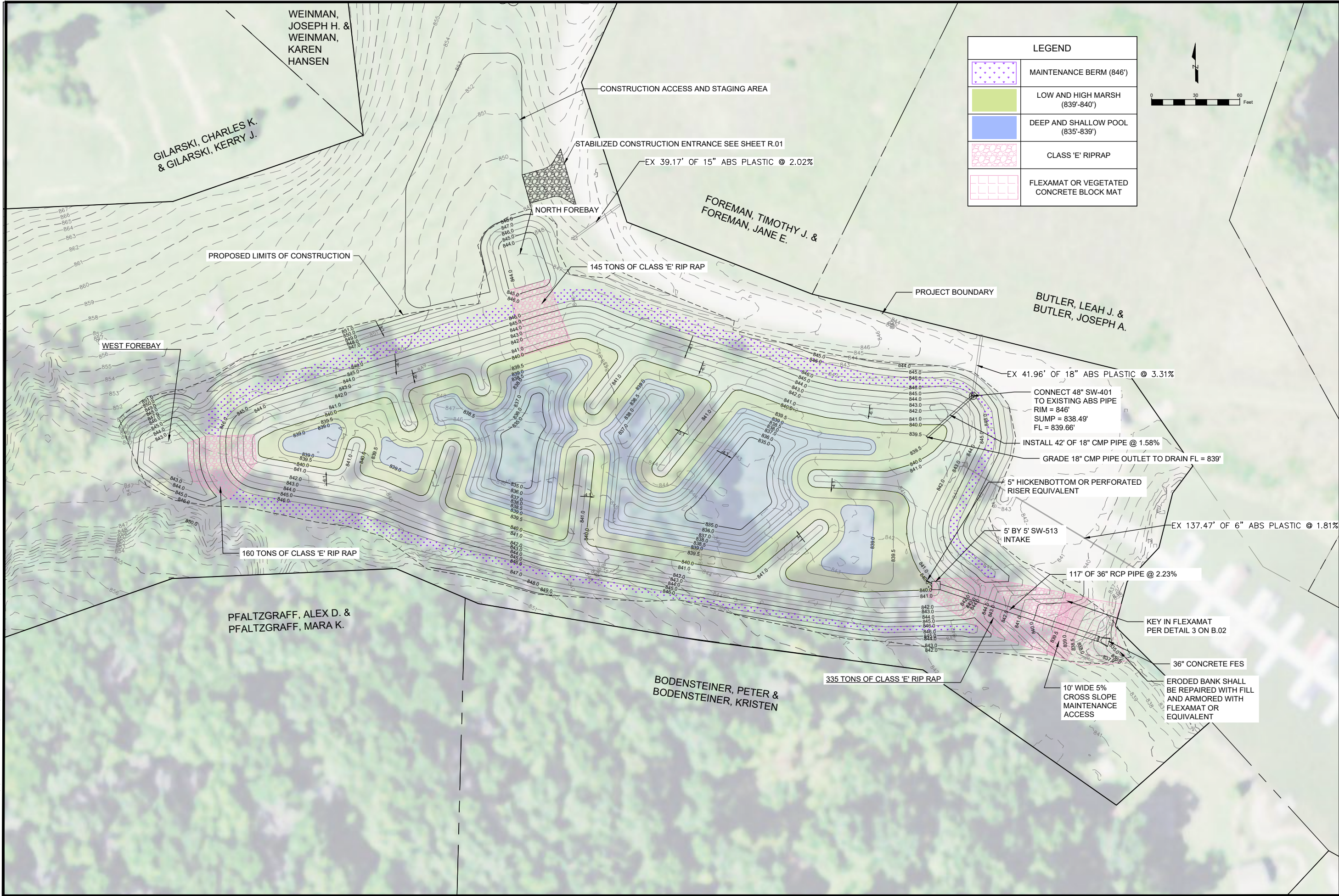
COVES OF SUNDOWN LAKE OWNERS ASSOCIATION

Sheet No.
C.03

PLOTTED 10/19/2023

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SUNDOWN LAKE WEST MARINA
WETLAND
GRADING PLAN

COVES OF SUNDOWN LAKE OWNERS ASSOCIATION

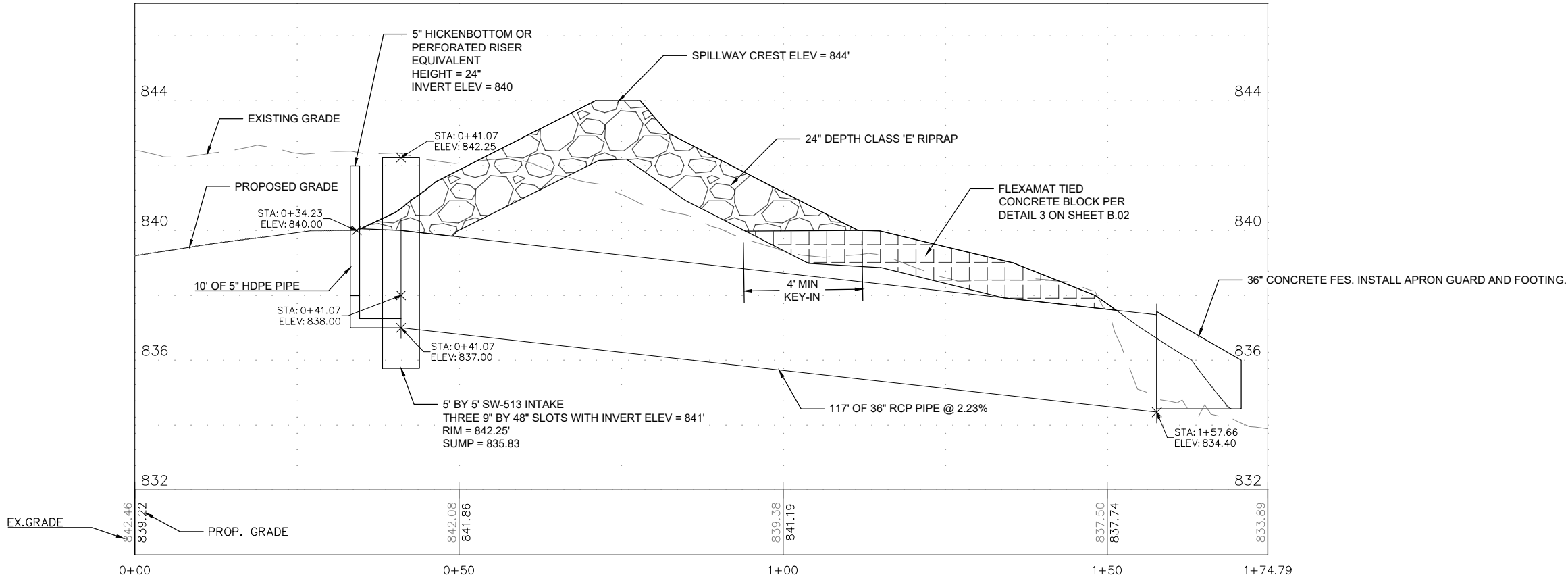
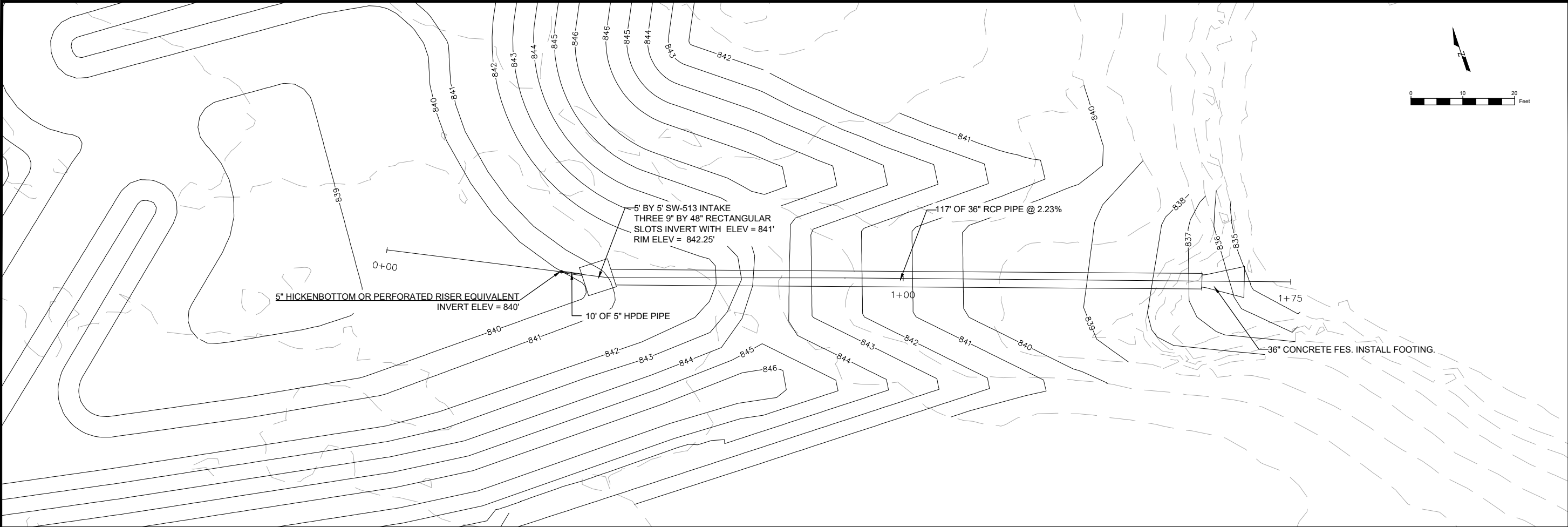
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SUNDOWN LAKE WEST MARINA
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 STORMWATER OUTLET PLAN AND
 PROFILE

COVES OF SUNDOWN LAKE OWNERS ASSOCIATION

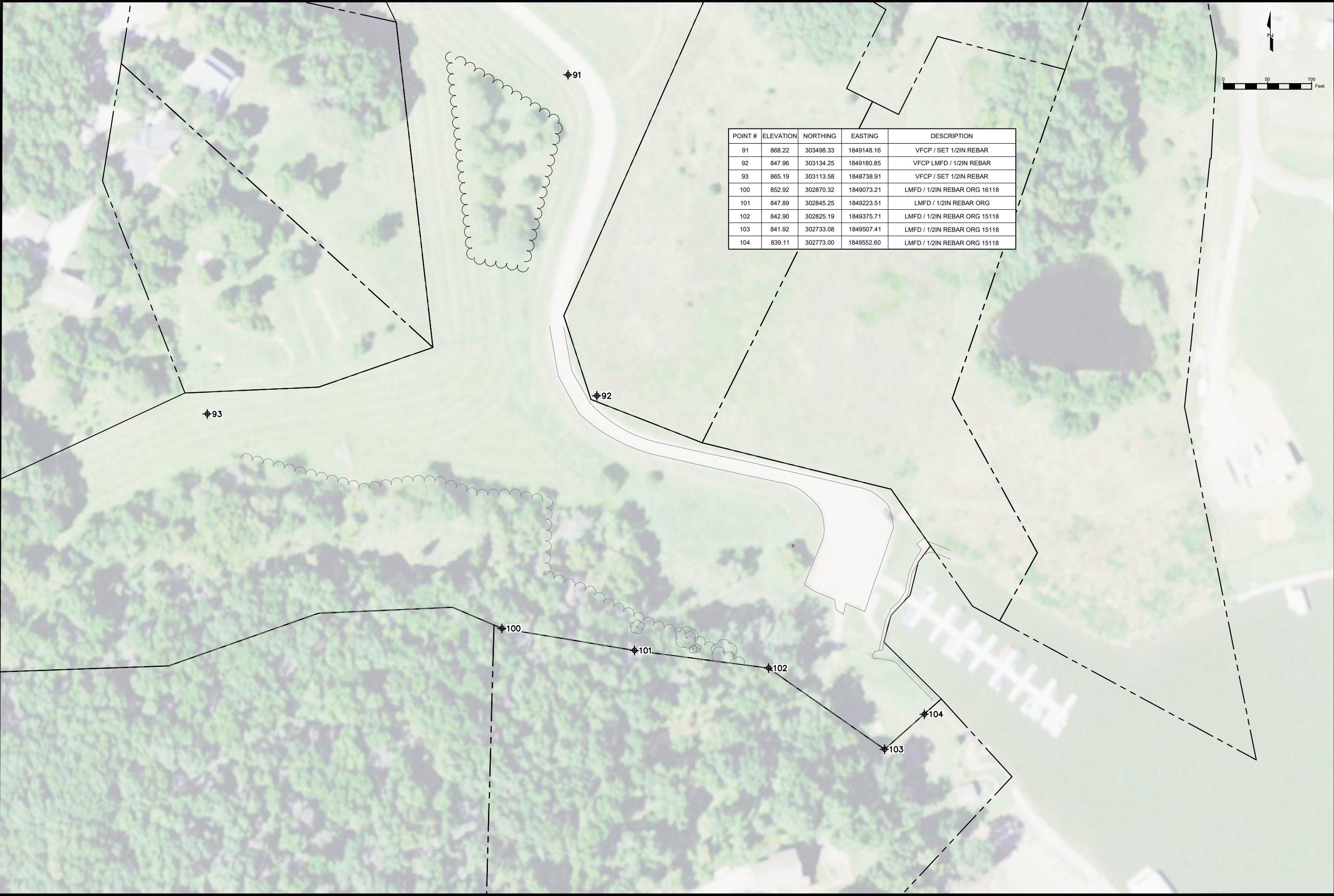
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D.02

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Y:\CIVIL\3D1_PROJECTS\SUNDOWN LAKE W. MARINA SWM\EXISTING CONDITIONS.DWG

CREATED BY JFLANSEURG ON 10/05/2023





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PRJTG MGR: MC	DESIGN BY: JF	DRAWN BY: JF	CHECKED BY: RB
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SUNDOWN LAKE WEST MARINA
WETLAND
SURVEY CONTROL

COVES OF SUNDOWN LAKE OWNERS ASSOCIATION

Sheet No.


G.01

PLOTTED 10/19/2023

Y:\CIVIL\201\PROJECTS\SUNDOWN LAKE W. MARINA SWMA\20% GRADING CURRENT.DWG

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**SUNDOWN LAKE WEST MARINA
WETLAND**
TRAFFIC CONTROL AND STAGING
 COVES OF SUNDOWN LAKE OWNERS ASSOCIATION

Sheet No.

J.01

PLOTTED 10/19/2023

Y:\CIVIL\3D_PROJECTS\SUNDOWN LAKE W. MARINA SWMA\3D\ GRADING PLAN CURRENT.DWG

CREATED BY: JPLANSURG ON 10/08/2023

Impact7G Soil Cores Logs				
Project Name	Sundown Lake West Marina Stormwater Wetland		Client	Sundown Lake RIZ Board
Location	Sundown Lake, Appanoose County, IA		Described by: J. Joyce	
Date	3/15/2022		Vegetation	Brome, Tall Aster, Locust
	Depth (cm)		Horizon	Descriptions
Core 01				
	0	20	Ap	dull yellowish brown (10YR 4/3) loam; massive structure; wet slightly sticky; common fine brown redox concentrations (7.5 YR 4/6) and common fine dull reddish brown (2.5YR 5/3) redox concentrations; many fine roots; fine iron masses; noneffervescent; abrupt boundary.
	20	56	Acb	dull yellowish brown (10YR 4/3) loam; thin bedding (1-10 cm); massive structure; wet slightly sticky; many fine to medium brown redox concentrations (7.5YR 4/6) and bright brown redox concentrations (7.5YR 5/6); many fine roots; common fine iron masses; noneffervescent; clear boundary.
	56	110	C	dark gray (N3/0) silt loam; thick bedding (1-10 cm); Massive structure; wet slightly sticky; common fine to medium dark brown (7.5Y 3/4) redox concentrations; common coarse roots and wood; commond fine iron masses; noneffervescent; clear boundary.
	110	180	C	olive black (10Y 3/1) fine sandy loam; interbedded (1-10 cm) massive structure; wood material; common fine iron masses; noneffervescent.
Core 02				
	0	18	AC	dull yellowish brown (10YR 4/3) loam; thin bedding; massive structure; many fine brown redox concentrations (7.5YR 4/6) and bright brown redox concentrations (7.5YR 5/6); many very fine to medium roots; mand fine to medium iron masses; noneffervescent; gradual boundary.
	18	62	2ABb	grayish yellow brown (10YR 4/2) silt loam; moderate fine prismatic to moderate fine sub angular blocky; wet slightly sticky; many fine to medium brown redox concentrations (7.5YR 4/6) and bright brown redox concentrations (7.5YR 5/6) many very fine to fine roots; many fine to medium iron masses; noneffervescent; abrupt boundary.
	62	68	C	dark brown (7.5YR 3/4) fine sandy loam; massive structure; wet nonsticky; black redox concentrations (10YR 2/1); many fine iron masses and many fine manganesee masses; noneffervescent; clear boundary.
	68	118	C2	dark grayish yellow (2.5Y 4/2) loam; massive structure; wet nonsticky; many fine brown redox concentration (7.5YR 4/6) and many coarse reddish brown redox concentrations (5YR 3/4); common fine roots; wood material concentrated at 110 cm; many medium iron masses along roots; noneffervescent; gradual boundary.
	118	150	C3	brownish black (2.5Y 3/1) fine sandy loam; medium lamented bedding; massive structure; wet nonsticky; thin silt layer within 146-148 cm; noneffervescent; gradual boundary.
	150	168	C4	yellowish gray (2.5Y 4/1) fine sandy loam; medium lamented bedding; massive structure; noneffervescent; diffuse boundary.
	168	173	C5	dark grayish yellow (2.5Y 4/2) medium loamy sand; medium lamented bedding; massive structure; many medium dark brown redox concentrations (7.5 YR 3/4) and brown redox concentrations (7.5YR 4/6); iron masses and manganesee masses; noneffervescent; abrupt boundary.
	173	196	C6	gray (5Y 4/1) loam; massive structure; slightly firm; common fine to medium brown redox concentrations (7.5YR 4/6); few fine roots and common fine pores; iron masses; noneffervescent.
Core 03				
	0	28	A	brownish gray (10YR 4/1) loam; moderate medium granular; slightly firm wet slightly sticky; very dark brown to dark brown many fine medium redox concentrations (7.5YR 2.5/3) and common fine to medium brown redox concentrations (7.5YR 4/6); many fine to medium roots; many fine to medium iron masses; noneffervescent; abrupt boundary.
	28	44	C	brownish gray (10YR 4/1) silt loam; massive structure; wet slightly sticky; common fine to medium brown redox concentrations (7.5YR 4/6) and dark brown redox concentrations (7.5YR 3/4); many fine roots and wood fibers; common medium iron masses; noneffervescent; clear boundary.
	44	80	C	brownish gray (10YR 4/1) loamy fine to medium sand; single grain; wet nonsticky; noneveffervescent;
	80	200		black to dark gray (2.5N) silty clay loam; massive structure; firm; few iron nodules; perched water above.
Core 04				
	0	8	A	black (10YR 2/1) silty clay loam; moderate medium granular; firm; many fine to medium roots; noneffervescent; clear boundary.
	8	50	A2	brownish black (10YR 3/1) clay loam; massive; very firm; many fine to medium brown redox concentrations (7.5YR 4/4) and bright brown redox concentrations (7.5YR 4/6); Common fine roots; common iron masses and iron nodules; noneffervescent; clear boundary.
	50	62	C	dark grayish yellow (2.5Y 5/2) clay loam; bedded (0.5-1 cm); massive; very firm; many coarse brown redox concentrations (7.5YR 4/4) and bright brown redox concentrations (7.5YR 4/6); many iron masses; noneffervescent; clear boundary.
	62	196+	C2	dark grayish yellow (2.5Y 5/2) clay loam; bedded (1-2 cm); massive; very firm; many medium to coarse brown redox concentrations (7.5YR 4/4) and bright brown redox concentrations (7.5YR 4/6); common pores; many iron masses; noneffervescent; clear boundary.
Core 05				
	0	14	A	brownish black (10YR 2/2) silty clay loam; moderate medium granular; friable; common fine roots; noneffervescent; clear boundary
	14	54	A2	black (10YR 2/1) silty clay loam; strong very fine sub angular blocky; friable; common fine roots; noneffervescent; diffuse boundary
	54	90	Bt	black (10YR 2/1) silty clay loam; strong fine sub angular blocky; slightly firm; common medium brown redox concentrations (7.5YR 4/4); common fine roots; black (10YR 2/1) clay coatings; common fine iron masses; noneffervescent; diffuse boundary.
	90	200+	BC	Gray (5Y 5/1) silty clay loam; moderate medium prismatic and moderate medium platy to moderate medium angular blocky;many medium brown redox concentrations (7.5YR 4/6); few fine roots; common fine iron masses; noneffervescent.

NOTE:
 SEE SHEET C.03 FOR SOIL CORE
 LOCATIONS.



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<div> <div> SUNDOWN LAKE WEST MARINA WETLAND </div> <div> SOIL CORE DESCRIPTIONS </div> <div> COVES OF SUNDOWN LAKE OWNERS ASSOCIATION </div> </div>					
Sheet No. <div>Q.01</div>					

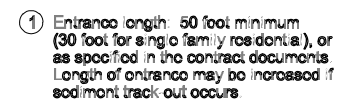


SILT FENCE



DETAILS OF SILT FENCE ON LONGITUDINAL SLOPES

SILT FENCE



**STABILIZED
CONSTRUCTION ENTRANCE**

**SUNDOWN LAKE WEST MARINA
WETLAND
EROSION CONTROL DETAILS
COVES OF SUNDOWN LAKE OWNERS ASSOCIATION**

Sheet No.

R.01

PLOTTED 10/19/2023

Y:\CIVIL\3D_PROJECTS\SUNDOWN LAKE W. MARINA SWMA\X3 SEEDING PLAN.DWG


CREATED BY JPLANSBURG ON 10/05/2023

WET POLLINATOR MIX

Seeding Mix Summary					
Grasses	Scientific Name	Common Name	Seeds/Ft2	PLS Lbs/Acre	PLS Lbs Total
1	<i>Andropogon gerardii</i>	Big Bluestem	0.992	0.270	0.22
2	<i>Elymus virginicus</i>	Virginia Wildrye	2.499	1.620	1.34
3	<i>Schizachyrium scoparium</i>	Little Bluestem	4.298	0.780	0.65
4	<i>Sporobolus heterolepis</i>	Prairie Dropseed	2.527	0.430	0.36
Forbs/Legumes	Scientific Name	Common Name	Seeds/Ft2	PLS Lbs/Acre	PLS Lbs Total
1	<i>Asclepias incarnata</i>	Swamp Milkweed	1.992	1.130	0.94
2	<i>Asclepias syriaca</i>	Common Milkweed	0.157	0.100	0.083
3	<i>Symphyotrichum novae-angliae</i>	New England Aster	0.485	0.020	0.017
4	<i>Chamaecrista fasciculata</i>	Partridge Pea	0.803	0.810	0.67
5	<i>Dalea candida</i>	White Prairie Clover	0.977	0.140	0.12
6	<i>Dalea purpurea</i>	Purple Prairie Clover	1.983	0.300	0.25
7	<i>Eutrochium maculatum</i>	Spotted Joe Pye Weed	0.698	0.020	0.017
8	<i>Eupatorium perfoliatum</i>	Boneset	4.702	0.080	0.066
9	<i>Physostegia parviflora</i>	False Dragonhead	0.485	0.120	0.100
10	<i>Helianthus maximiliani</i>	Maximilian's Sunflower	1.003	0.210	0.17
11	<i>Heliopsis helianthoides</i>	Oxeye, False Sunflower	0.393	0.170	0.14
12	<i>Liatris pycnostachya</i>	Prairie Blazing Star	0.687	0.170	0.14
13	<i>Lobelia siphilitica</i>	Great Blue Lobelia	3.673	0.020	0.017
14	<i>Monarda fistulosa</i>	Wild Bergamot	1.286	0.050	0.042
15	<i>Oenothera biennis</i>	Common Evening Primrose	0.661	0.020	0.017
16	<i>Ratibida pinnata</i>	Gray-headed Coneflower	0.551	0.050	0.042
17	<i>Rudbeckia hirta</i>	Black-eyed Susan	3.041	0.090	0.075
18	<i>Silphium perfoliatum</i>	Cup Plant	0.252	0.490	0.41
19	<i>Gentiana andrewsii</i>	Bottle Gentian, Closed Gentian	3.188	0.031	0.026
20	<i>Tradescantia ohiensis</i>	Ohio Spiderwort	0.411	0.140	0.12
21	<i>Verbena hastata</i>	Blue Vervain	0.683	0.020	0.017
22	<i>Zizia aurea</i>	Golden Alexander's	0.768	0.190	0.16
23	<i>Iris shrevei</i>	Blue Flag Iris	5.877	16.000	13.28

EMERGENT WETLAND MIX

Seeding Mix Summary					
Grasses	Scientific Name	Common Name	Seeds/Ft2	PLS Lbs/Acre	PLS Lbs Total
1	<i>Glyceria grandis</i>	American Mannagrass	2.645	0.090	0.032
2	<i>Leersia oryzoides</i>	Rice Cutgrass	2.248	0.180	0.065
3	<i>Carex hystericina</i>	Porcupine Sedge	1.212	0.110	0.040
4	<i>Eleocharis acicularis</i>	Needle Spikerush	2.725	0.106	0.038
5	<i>Juncus torreyi</i>	Torrey's Rush	5.877	0.010	0.0036
6	<i>Scirpus cyperinus</i>	Woolgrass	6.244	0.010	0.0036
7	<i>Schoenoplectus tabernaemontani</i>	Softstem Bulrush	1.822	0.160	0.058
8	<i>Scirpus atrovirens</i>	Dark Green Bulrush	1.014	0.006	0.0022
9	<i>Carex stricta</i>	Upright Sedge	0.389	0.020	0.0072
Forbs/Legumes	Scientific Name	Common Name	Seeds/Ft2	PLS Lbs/Acre	PLS Lbs Total
1	<i>Acorus calamus</i>	Sweetflag	1.794	0.740	0.27
2	<i>Alisma subcordatum</i>	Water Plantain	2.424	0.110	0.040
3	<i>Asclepias incarnata</i>	Swamp Milkweed	1.199	0.680	0.24
4	<i>Sagittaria latifolia</i>	Common Arrowhead	2.913	0.130	0.047
5	<i>Sparganium eurycarpum</i>	Common Bur Reed	0.108	0.590	0.21
6	<i>Physostegia parviflora</i>	False Dragonhead	0.141	0.035	0.013
7	<i>Euthamia graminifolia</i>	Grass-leaved Goldenrod	0.514	0.004	0.0014
8	<i>Helenium autumnale</i>	Sneezeweed	1.433	0.030	0.011
9	<i>Chelone glabra</i>	White Turtlehead	1.081	0.032	0.012
10	<i>Oligoneuron riddellii</i>	Riddell's Goldenrod	1.366	0.040	0.014
11	<i>Symphyotrichum puniceum</i>	Swamp Aster	1.175	0.040	0.014



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SUNDOWN LAKE WEST MARINA WETLAND SEEDING PLAN

COVES OF SUNDOWN LAKE OWNERS ASSOCIATION

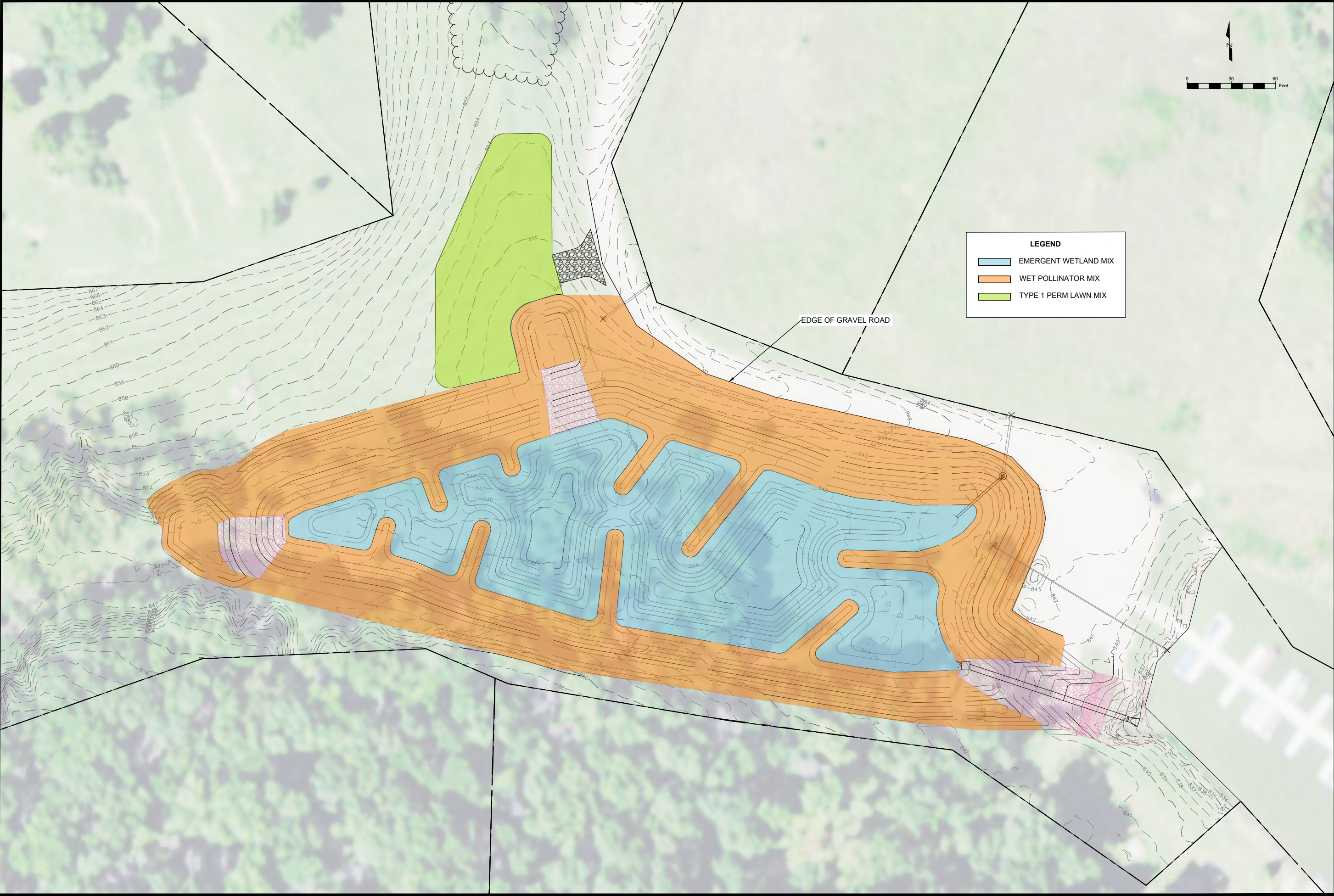
Sheet No.

R.03

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SUNDOWN LAKE WEST MARINA

WETLAND

SEEDING PLAN

COVES OF SUNDOWN LAKE OWNERS ASSOCIATION

Sheet No.

R.04