



June 30, 2023

Nebraska Department of Environment and Energy  
P.O. Box 98922  
Lincoln, Nebraska 68509-8922

245 Fallbrook Blvd.  
Lincoln, Nebraska 68521

Attn: Mr. Michael Behrens

RE: CCR Removal Work Plan & CCR Retrofit Plan  
Whelan Energy Center Fossil Fuel Combustion Ash Disposal Area  
NDEE Facility ID No. 58048  
NDEE Permit No. NE0204129

Dear Mr. Behrens,

As previously discussed with NDEE, the Public Power Generation Agency (PPGA) and City of Hastings, Hastings Utilities (Hastings) intend to retrofit a portion of the permitted WEC Temporary Ash Disposal Area with a composite liner. A written retrofit plan was prepared in May/early June in accordance with the federal CCR rule 40 CFR 257.102(k)(2) to meet the requirement of placement in facility operating record at least 60 days prior to start of retrofit. This retrofit plan has been amended with the retrofit design drawings and an updated schedule. The amended CCR Retrofit Plan is enclosed for your information; it has been placed in the facility operating record and on the CCR website.

A separate CCR Removal Work Plan was developed to provide more detail on the CCR removal and procedures to verify that CCR does not remain within the retrofit area. This verification will be completed before liner construction. Enclosed is a copy of the CCR Removal Work Plan.

Please contact Marty Stange at (402) 462-3651 or me at (402) 399-4904 if you have any questions.

Sincerely,  
HDR Engineering, Inc.

A handwritten signature in blue ink that reads 'Lori Calub'.

Lori J. Calub, PE  
*Associate, Project Manager*

Enclosures

Cc: Marty Stange, City of Hastings/Hastings Utilities

# CCR Retrofit Plan

Whelan Energy Center  
WEC Temporary Ash Disposal Area

*Hastings, Nebraska*

June 28, 2023





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## APPENDICES

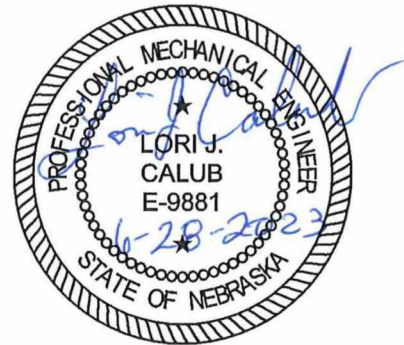
Appendix A – Site Map

Appendix B – Retrofit Drawings

## Professional Engineer Certification

"I hereby certify that the activities outlined in this written retrofit plan for the existing WEC Temporary Ash Disposal Area at the Whelan Energy Center, operated by City of Hastings/Hastings Utilities, meets the requirements of the Coal Combustion Residual Rule 40 CFR Section 257.102(k). I am a duly licensed Professional Engineer under the laws of the State of Nebraska."

Print Name: Lori J. Calub  
Signature: *Lori J. Calub*  
Date: 6-28-2023  
License #: E-9881



My license renewal date is December 31, 2023.

## 1 Introduction

The Whelan Energy Center (WEC), located in Hastings, Nebraska, has two coal fired electric generating units. WEC Units 1 and 2 have capacity ratings of 77 MW and 220 MW, respectively. City of Hastings/Hastings Utilities (Hastings) is the owner and operator of WEC Unit 1 (WEC1) and the operating agent of WEC Unit 2 (WEC2) for Public Power Generation Agency (PPGA). The WEC Temporary Ash Disposal Area is permitted under the Nebraska Department of Environment and Energy (NDEE, formerly NDEQ) Title 132 – Integrated Solid Waste Management Regulations. Original Title 132 permitting efforts began in 1999 pursuant to state regulations.

On April 17, 2015 the U.S. Environmental Protection Agency (EPA) published the final rule for the regulation and management of coal combustion residuals (CCR) under the Resource Conservation and Recovery Act (RCRA). The rule – effective on October 19, 2015 – and as amended, applies to the WEC Ash Disposal Area which is considered an existing CCR surface impoundment. The federal CCR Rule requires existing unlined CCR surface impoundments, if determined in any sampling event that the concentrations of one or more constituents listed in Appendix IV are detected at statistically significant levels (SSL) above the groundwater protection standards (GWPS) established for such CCR unit, to cease placing CCR and non-CCR waste streams into such CCR surface impoundment and either retrofit or close the CCR unit. Pursuant to 40 CFR §257.101(a)(1) as amended July 30, 2018, the deadline for completion of such action is ‘within six months of making such determination or no later than October 31, 2020, whichever date is later’. The WEC Temporary Ash Disposal Area is currently in the groundwater assessment monitoring program pursuant to 40 CFR §257.95 as stated in the 2022 Annual Groundwater Monitoring and Corrective Action Report placed in the facility operating record by January 31, 2023. To date, there have been no SSL of Appendix IV constituents.

On November 30, 2020, PPGA and Hastings submitted to EPA an Alternative Closure Deadline Extension Demonstration Plan in accordance with the CCR Part A regulations in 40 CFR §257.103(f)(1). EPA replied in a letter dated January 11, 2022 that the submitted demonstration was complete and further review would occur to make a determination on whether to approve the request. EPA further stated that the deadline for the CCR unit covered by the demonstration to cease receipt of waste is tolled until EPA issues a final decision on the demonstration (40 CFR §257.103(f)(3)(ii)).

The retrofit plan must comply with the requirements of 40 CFR §257.102(k)(2) and may be amended within 30 days of a change or event that requires revision of the written retrofit plan after retrofit activities have commenced. This CCR Retrofit Plan is applied to a designated area of the NDEE permitted WEC Temporary Ash Disposal Area (Permit No. NE0204129, Facility ID 58048), sufficient to provide a working area and storage capacity with a liner system (or alternative liner) meeting CCR rule and Title 132 requirements that allows the WEC to continue placement and temporary storage of CCR in the retrofitted area prior to CCR removal for beneficial uses.

## 2 Background

The WEC Temporary Ash Disposal Area is located at the same site as the WEC. Fossil fuel ash disposal at this site began in 1981, the same year that WEC1 began commercial operation. Commercial operation of WEC2 began on May 1, 2011. The material stream that currently goes into the WEC Temporary Ash Disposal Area is fossil fuel bottom ash and fly ash mixture (pond ash) in sluice form from WEC1 and scrubber ash and bottom ash from WEC2. Pond ash and scrubber ash are kept apart in the WEC Temporary Ash Disposal Area by a separation berm while bottom ash is stockpiled. PPGA/Hastings contracts for marketing of all CCR products for use in construction projects, soil amendments, beneficial fill, and other beneficial uses. The intent is to manage the CCR within the WEC Temporary Ash Disposal Area, excavate for beneficial use the pond ash, stockpile scrubber ash for removal to soil amendment markets, and remove the bottom ash for beneficial use.

The WEC Temporary Ash Disposal Area is an existing CCR surface impoundment of approximately 23.2 acres that historically received CCR for disposal and storage through sluicing and is a permitted solid waste facility with the State of Nebraska. WEC Temporary Ash Disposal Area continued to receive CCR for disposal/storage both before and after October 19, 2015, which is the date of CCR rule promulgation. The East Area of the WEC Temporary Ash Disposal Area has been managed as a landfill since 2015 when dry handling of scrubber ash began. A site map, provided in **Appendix A**, shows the locations of the power plant, current WEC Temporary Ash Disposal Area and groundwater monitoring wells.

## 3 Retrofit Description

Specific measures will be taken to retrofit the northeast quadrant of the existing WEC Temporary Ash Disposal Area to a composite liner. Retrofit construction activities will begin after design, bidding, bid reviews, selection, and contract award to the lowest responsive bidder as determined by PPGA. Design retrofit drawings are included in **Appendix B**. Selected contractor will be responsible for the following:

- Removal of remaining CCR from the designated retrofit area of approximately 7 to 8 acres
- Additional soils excavation to grades shown on a CCR Excavation Grading Plan
- Removal of miscellaneous CCR and soils identified by construction quality assurance visual observations and soil sampling
- Further excavation, grading and placement of clean structural fill to base grades (i.e., bottom of recompacted clay liner or GCL)
- Construction of composite liner or alternate liner complying with 40 CFR §257.70 for CCR landfill
  - Upper component consisting of 60-mil HDPE geomembrane liner
  - Lower component consisting of 2-foot recompacted clay liner with hydraulic conductivity less than  $1 \times 10^{-7}$  centimeters per second, or a geosynthetic clay liner (GCL)
- Liner sampling and testing for construction quality control and quality assurance
- Construction of leachate collection system drainage layer, perforated collection piping and solid discharge pipe into a new lined leachate pond, and perforated inlets for stormwater run-off
- Placement of protective cover material (pond ash, pond ash/soil mix, or soil)
- Placement of clean structural fill on perimeter berms provided for run-on and run-off control
- Installation of access road

Prior to the start of retrofit, PPGA/Hastings will continue to cause CCR to be removed from the designated retrofit area by plant staff and the ash marketer. PPGA/Hastings, directly and through engineering contracts, is anticipated to be responsible for the following measures during construction:

- Communications with NDEE
- Communications with contractor
- Shop drawing submittals review
- Progress meetings
- Surveying pre-construction
- Construction observation
- Construction quality assurance (CQA) activities including sampling, testing, measuring, surveying
- CQA documentation report and submittal to NDEE
- Certification of retrofit completion

The retrofit (i.e., new CCR landfill) cannot receive scrubber ash or other CCR until NDEE completes review and approval of the CQA documentation report.

The West Area of the WEC Temporary Ash Disposal Area will continue to receive CCR until specific plant modifications are completed and WEC1 sluicing ceases. Non-retrofitted portions of the WEC Temporary Ash Disposal Area will continue to remove pond ash, scrubber ash and bottom ash for beneficial use markets. Closure of the remaining CCR surface impoundment will commence within 30 days after the known final volume of CCR is removed for the purpose of beneficial use per 40 CFR §257.102(e)(1)(ii).

## 4 CCR Removal Procedures

As part of the retrofit operation and prior to any construction of a composite liner, the CCR and contaminated soils and sediments must be removed from the designated retrofit area. Detailed CCR removal procedures are described in the CCR Removal Work Plan (HDR, 2023).

## 5 CCR Quantities

Based on a March 2023 topographic survey, the maximum quantities of CCR to be removed as part of the retrofit will be approximately 30,000 cubic yards (CY). An approximate 8,500 CY of soils between elevation 1888 feet AMSL and 1887 feet AMSL will also be removed. A topographic survey of the WEC Temporary Ash Disposal Area (March 2023) and preliminary CCR Removal Excavation Grading Plan are included with **Appendix B**.

Actual quantities of CCR to be removed may be less when retrofit construction begins since CCR in the designated retrofit area may be moved to the other stockpiles and continue to be hauled by the ash marketer to beneficial use markets.

## 6 Retrofit Area

In preparation of the retrofit to a composite liner, the CCR will be removed from an area of approximately 7 to 8 acres in the northeast quadrant of the WEC Temporary Ash Disposal Area. This includes areas for construction of the perimeter berms and ditches to control stormwater run-on and run-off, and grading to tie into existing grades. The composite liner area for the CCR management will be approximately 4 acres. The new lined leachate pond will be approximately 1.5 acres.



## 7 Schedule

An updated schedule for completing all activities necessary to satisfy the retrofit criteria in 40 CFR §257.102(k) is provided below:

| Dates                      | Retrofit Activity                                                                                                                                                      |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| August 14, 2023            | Notice to Proceed to Contractor                                                                                                                                        |
| August-September 2023      | CCR removal through selected contractor, including any contaminated soils and sediments, in the retrofit area; CQA observation and soils testing to verify CCR removal |
| September-October 2023     | Structural fill, grading and composite liner construction                                                                                                              |
| October-November 2023      | Leachate drainage layer, protective cover & access road installation                                                                                                   |
| December 2023              | Contractor final completion activities, preparation of CQA documentation report and submittal to NDEE                                                                  |
| December 2023-January 2024 | Receive NDEE approval to receive waste (i.e., CCR)                                                                                                                     |

Schedule can vary depending upon bidding environment, delays in materials supply, weather conditions impacting construction including possible break in construction for winter, and NDEE regulatory review and approval timelines.

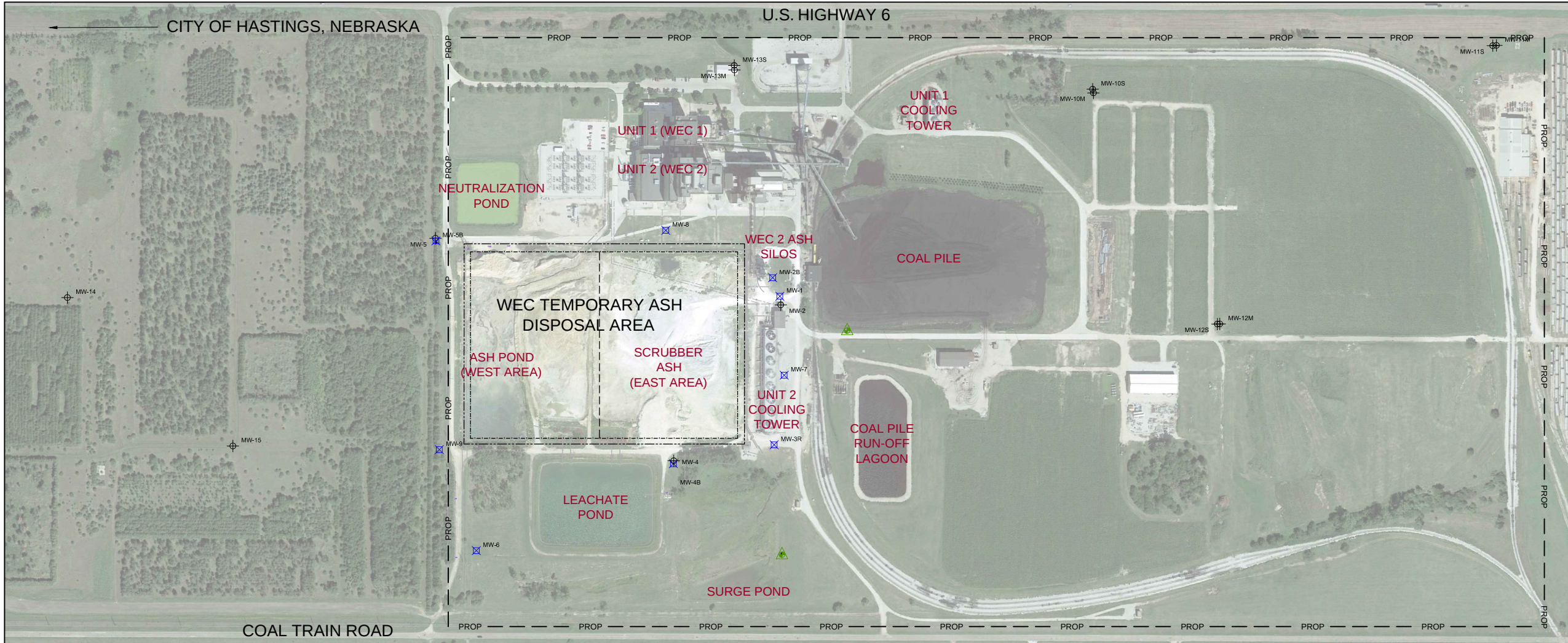
PPGA intends to select a contractor and award the contract by mid-August 2023. As a public agency, the retrofit project must be designed and bid out for competitive bidding.

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## Appendix A

### Site Map

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N

1" = 250'

250' 125' 0' 250'

SCALE IN FEET

LEGEND

MONITORING WELL

CCR MONITORING WELL

CONTROL POINT

ASH DISPOSAL AREA BOUNDARY

ORIGINAL TOE OF SLOPE

SEPARATION BERM

PROP

APPROXIMATE PROPERTY BOUNDARY

| GROUNDWATER MONITORING WELLS |           |            |                          |                   |                           |
|------------------------------|-----------|------------|--------------------------|-------------------|---------------------------|
| WELL DESIGNATION             | NORTHING  | EASTING    | TOP OF CASING ELEVATION* | GROUND ELEVATION* | COMMENT                   |
| MW-1                         | 334585.29 | 2330340.91 | 1903.16                  | 1900.68           | DETECTION MONITORING WELL |
| MW-2                         | 334549.00 | 2330345.01 | 1903.18                  | 1900.93           | DRY                       |
| MW-2B                        | 334663.85 | 2330310.77 | 1903.43                  | 1900.60**         | DETECTION MONITORING WELL |
| MW-3R                        | 333955.95 | 2330316.80 | 1900.76                  | 1897.98           | DETECTION MONITORING WELL |
| MW-4                         | 333888.31 | 2329891.68 | 1899.21                  | 1895.19           | DRY                       |
| MW-4B                        | 333876.00 | 2329890.22 | 1897.55                  | 1894.69**         | DETECTION MONITORING WELL |
| MW-5                         | 334830.77 | 2328882.44 | 1898.90                  | 1897.60           | DRY                       |
| MW-5B                        | 334819.84 | 2328884.33 | 1899.84                  | 1897.21**         | DETECTION MONITORING WELL |
| MW-6                         | 333507.64 | 2329055.42 | 1896.88                  | 1893.54           | DETECTION MONITORING WELL |
| MW-7                         | 334250.89 | 2330359.26 | 1901.79                  | 1899.14**         | DETECTION MONITORING WELL |
| MW-8                         | 334864.54 | 2329857.95 | 1903.93                  | 1901.05**         | DETECTION MONITORING WELL |
| MW-9                         | 333935.57 | 2328898.85 | 1897.11                  | 1894.31**         | DETECTION MONITORING WELL |
| MW-10S                       | 334585.29 | 2330340.91 | 1904.84                  | 1904.16           | DELINEATION WELL          |
| MW-10M                       | 334549.00 | 2330345.01 | 1905.18                  | 1902.16           | DELINEATION WELL          |
| MW-11S                       | 334663.85 | 2330310.77 | 1899.69                  | 1897.13           | DELINEATION WELL          |
| MW-11M                       | 333955.95 | 2330316.80 | 1899.66                  | 1897.13           | DELINEATION WELL          |
| MW-12S                       | 333888.31 | 2329891.68 | 1910.39                  | 1907.3            | DELINEATION WELL          |
| MW-12M                       | 333876.00 | 2329890.22 | 1910.15                  | 1907.56           | DELINEATION WELL          |
| MW-13S                       | 334830.77 | 2328882.44 | 1904.89                  | 1902.34           | DELINEATION WELL          |
| MW-13M                       | 334819.84 | 2328884.33 | 1905.04                  | 1902.40           | DELINEATION WELL          |
| MW-14                        | 333507.64 | 2329055.42 | 1897.46                  | 1894.74           | DELINEATION WELL          |
| MW-15                        | 334250.89 | 2330359.26 | 1897.64                  | 1895.32           | DELINEATION WELL          |

\* TOP OF CASING AND GROUND ELEVATIONS PROVIDED BY HASTINGS UTILITIES JULY 23, 2019.  
\*\* DESIGNATED GROUND ELEVATIONS DEPICT THE ELEVATION OF THE TOP OF THE CONCRETE SLAB NEAREST TO THE CASING ON THE NORTH SIDE.  
\*\*\*NORTHING AND EASTING COORDINATES ARE APPROXIMATIONS AND WILL BE UPDATED ALONG WITH TOC AND GROUND SURFACE ELEVATIONS DURING THE NEXT SITE SURVEY.

NOTES:

1. AERIAL DATED 8/27/2017 OBTAINED FROM GOOGLE EARTH.

2. WEC 2 BOTTOM ASH AND SCRUBBER ASH ARE PLACED DRY IN WEC TEMPORARY ASH DISPOSAL AREA.

| CONTROLS | NORTHING  | EASTING    | ELEVATION | LONG DESCRIPTION |
|----------|-----------|------------|-----------|------------------|
| 25       | 334815.14 | 2328892.86 | 1896.51   | BRASS CAP        |
| 26       | 334879.51 | 2330467.21 | 1900.86   | BRASS CAP        |
| 27       | 333932.07 | 2330190.86 | 1894.46   | BRASS CAP        |

\*NOTE: STATE PLANE CONTROL IS BASED ON NEBRASKA SOUTH ZONE NAD 27. VERTICAL CONTROL IS BASED ON NGVD29.

GERALD T. WHELAN ENERGY CENTER

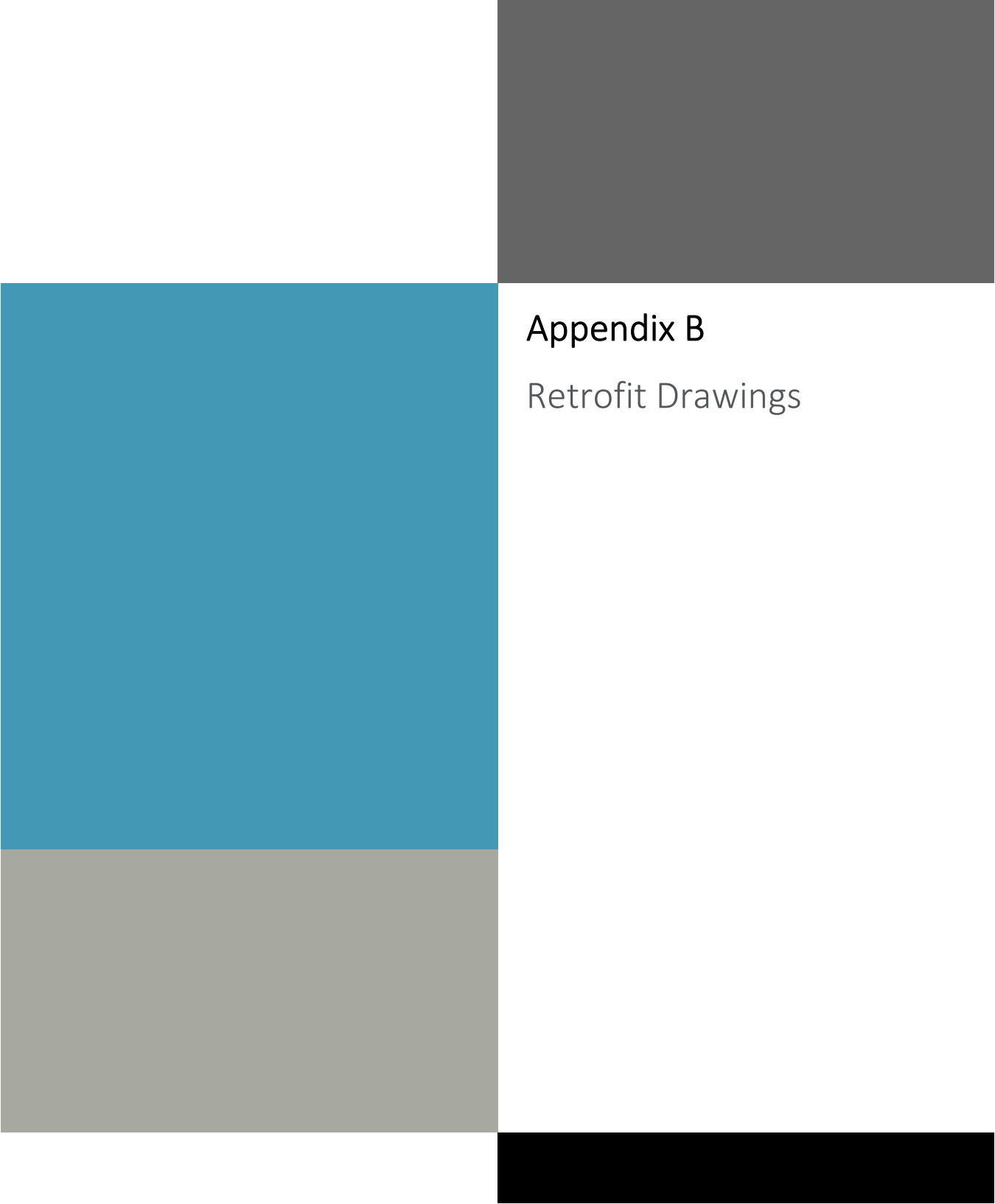
WEC CCR FACILITIES AND MONITORING WELL LOCATIONS

DATE  
NOVEMBER 2020

FIGURE

2

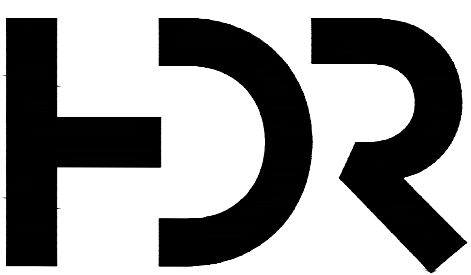
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The page features a large, light gray background. Overlaid on this are several colored rectangular blocks: a dark gray block in the top right, a blue block on the left side, a light gray block at the bottom left, and a black block at the bottom right. The title 'Appendix B' and 'Retrofit Drawings' is positioned to the right of the blue block.

## Appendix B

### Retrofit Drawings

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Contract Drawings For

# Gerald T. Whelan Energy Center

## WEC2 Ash Pond Liner Project

Formal Contract No.  
PPGA 2023-05

Civil

Project No.  
10372519

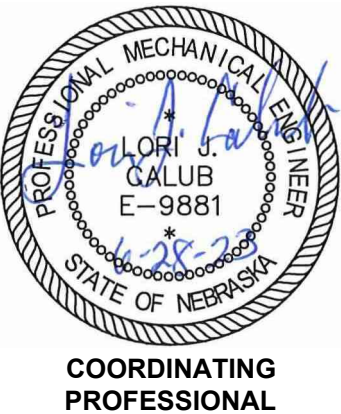
Hastings, Nebraska  
June 2023

ISSUED FOR BID

### INDEX OF DRAWINGS

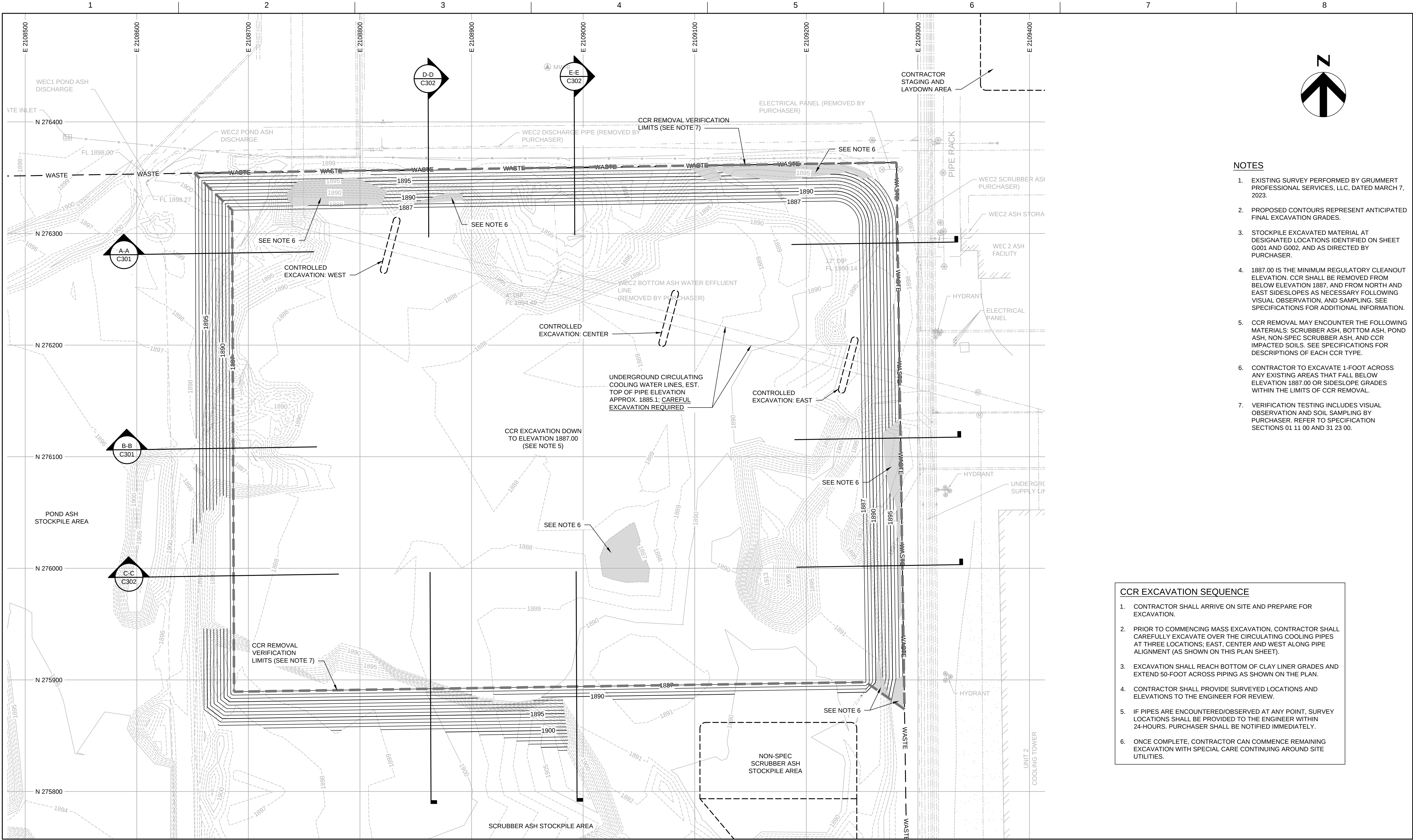
| GENERAL |                          |
|---------|--------------------------|
| G000    | COVER SHEET              |
| G001    | GENERAL SITE PLAN        |
| G002    | EXISTING CONDITIONS PLAN |

| GENERAL |                                     |
|---------|-------------------------------------|
| C101    | CCR EXCAVATION GRADING PLAN         |
| C102    | BASE GRADE GRADING PLAN             |
| C103    | RECOMPACTED CLAY LINER GRADING PLAN |
| C104    | DRAINAGE LAYER GRADING PLAN         |
| C105    | PROTECTIVE COVER GRADING PLAN       |
| C106    | CERTIFICATION POINT TABLES          |
| C301    | CROSS SECTIONS                      |
| C302    | CROSS SECTIONS                      |
| C501    | DETAILS                             |
| C502    | DETAILS                             |
| C503    | DETAILS                             |
| C504    | DETAILS                             |



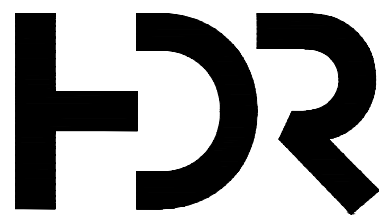






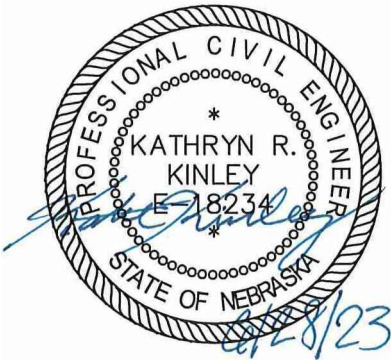
- NOTES**
- EXISTING SURVEY PERFORMED BY GRUMMERT PROFESSIONAL SERVICES, LLC, DATED MARCH 7, 2023.
  - PROPOSED CONTOURS REPRESENT ANTICIPATED FINAL EXCAVATION GRADES.
  - STOCKPILE EXCAVATED MATERIAL AT DESIGNATED LOCATIONS IDENTIFIED ON SHEET G001 AND G002, AND AS DIRECTED BY PURCHASER.
  - 1887.00 IS THE MINIMUM REGULATORY CLEANOUT ELEVATION. CCR SHALL BE REMOVED FROM BELOW ELEVATION 1887, AND FROM NORTH AND EAST SIDESLOPES AS NECESSARY FOLLOWING VISUAL OBSERVATION, AND SAMPLING. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
  - CCR REMOVAL MAY ENCOUNTER THE FOLLOWING MATERIALS: SCRUBBER ASH, BOTTOM ASH, POND ASH, NON-SPEC SCRUBBER ASH, AND CCR IMPACTED SOILS. SEE SPECIFICATIONS FOR DESCRIPTIONS OF EACH CCR TYPE.
  - CONTRACTOR TO EXCAVATE 1-FOOT ACROSS ANY EXISTING AREAS THAT FALL BELOW ELEVATION 1887.00 OR SIDESLOPE GRADES WITHIN THE LIMITS OF CCR REMOVAL.
  - VERIFICATION TESTING INCLUDES VISUAL OBSERVATION AND SOIL SAMPLING BY PURCHASER. REFER TO SPECIFICATION SECTIONS 01 11 00 AND 31 23 00.

- CCR EXCAVATION SEQUENCE**
- CONTRACTOR SHALL ARRIVE ON SITE AND PREPARE FOR EXCAVATION.
  - PRIOR TO COMMENCING MASS EXCAVATION, CONTRACTOR SHALL CAREFULLY EXCAVATE OVER THE CIRCULATING COOLING PIPES AT THREE LOCATIONS: EAST, CENTER AND WEST ALONG PIPE ALIGNMENT (AS SHOWN ON THIS PLAN SHEET).
  - EXCAVATION SHALL REACH BOTTOM OF CLAY LINER GRADES AND EXTEND 50-FOOT ACROSS PIPING AS SHOWN ON THE PLAN.
  - CONTRACTOR SHALL PROVIDE SURVEYED LOCATIONS AND ELEVATIONS TO THE ENGINEER FOR REVIEW.
  - IF PIPES ARE ENCOUNTERED/OBSERVED AT ANY POINT, SURVEY LOCATIONS SHALL BE PROVIDED TO THE ENGINEER WITHIN 24-HOURS. PURCHASER SHALL BE NOTIFIED IMMEDIATELY.
  - ONCE COMPLETE, CONTRACTOR CAN COMMENCE REMAINING EXCAVATION WITH SPECIAL CARE CONTINUING AROUND SITE UTILITIES.

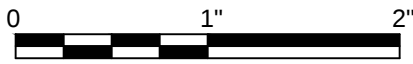


|       |            |                |
|-------|------------|----------------|
| A     | 06/28/2023 | ISSUED FOR BID |
| ISSUE | DATE       | DESCRIPTION    |

|                 |             |
|-----------------|-------------|
| PROJECT MANAGER | L. CALUB    |
| CIVIL           | L. CALUB    |
| CIVIL           | K. KINLEY   |
| DRAWN BY        | M. BICKFORD |
| QC BY           | G. SHAFER   |
| QC BY           | G. WILLIAMS |
| PROJECT NUMBER  | 10167167    |



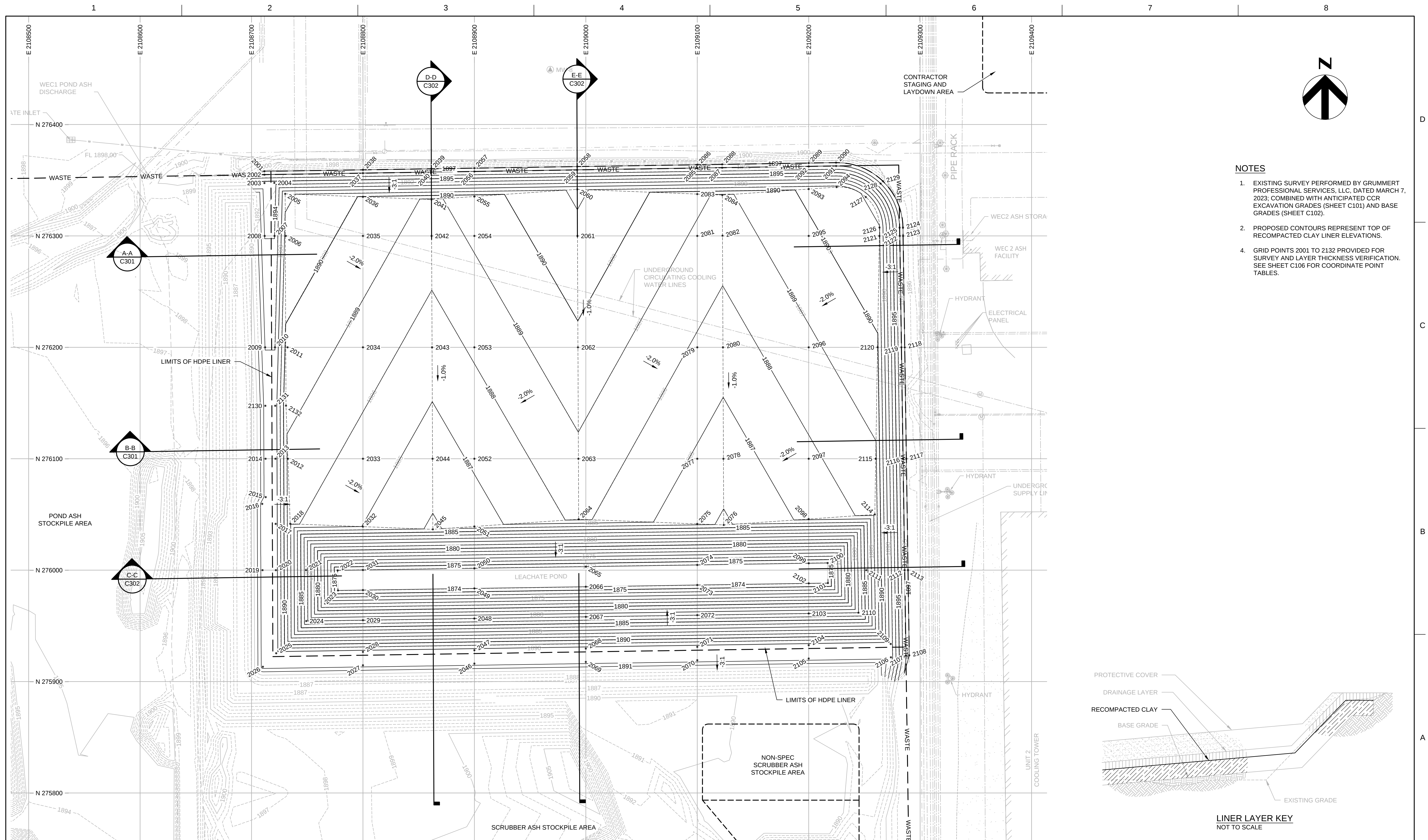
GERALD T. WHELAN ENERGY CENTER  
WEC2 ASH POND  
LINER PROJECT



FILENAME | C101.dwg  
SCALE | 1" = 40'

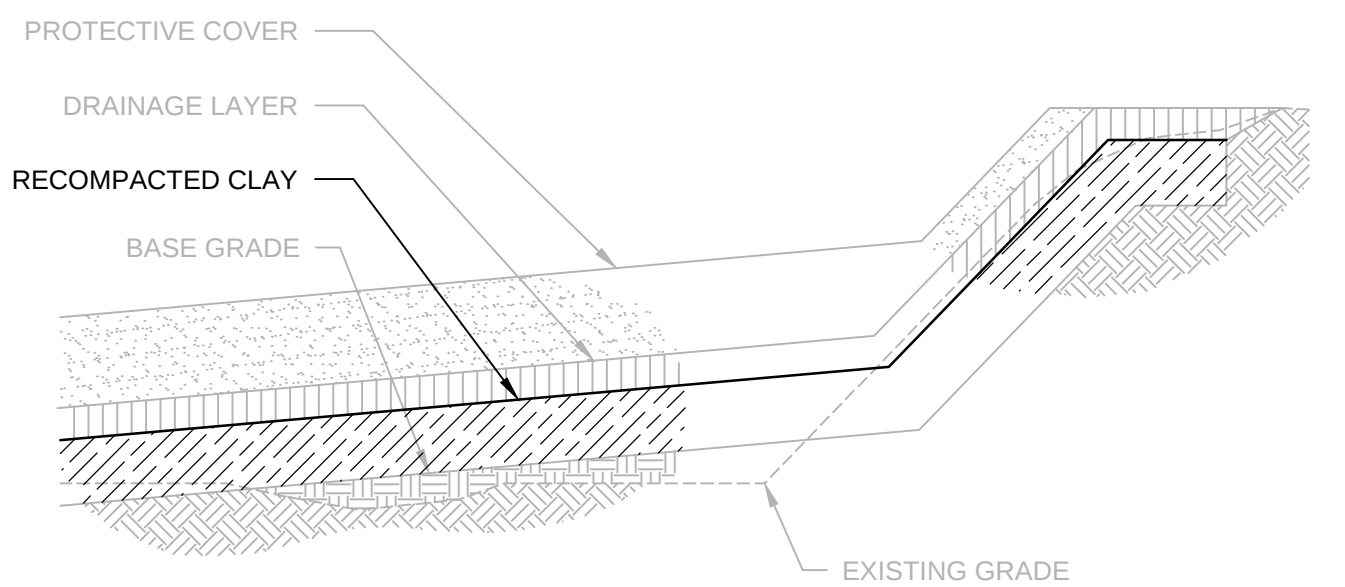
SHEET  
**C101**



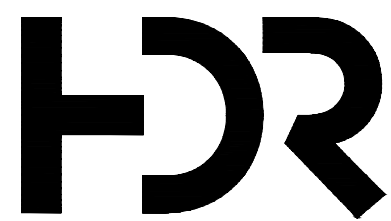


## NOTES

1. EXISTING SURVEY PERFORMED BY GRUMMETT PROFESSIONAL SERVICES, LLC, DATED MARCH 7, 2023; COMBINED WITH ANTICIPATED CCR EXCAVATION GRADES (SHEET C101) AND BASE GRADES (SHEET C102).
2. PROPOSED CONTOURS REPRESENT TOP OF RECOMPACTED CLAY LINER ELEVATIONS.
3. PROPOSED CONTOURS REPRESENT TOP OF PROPOSED CCR EXCAVATION GRADES.
4. GRID POINTS 2001 TO 2132 PROVIDED FOR SURVEY AND LAYER THICKNESS VERIFICATION. SEE SHEET C106 FOR COORDINATE POINT TABLES.

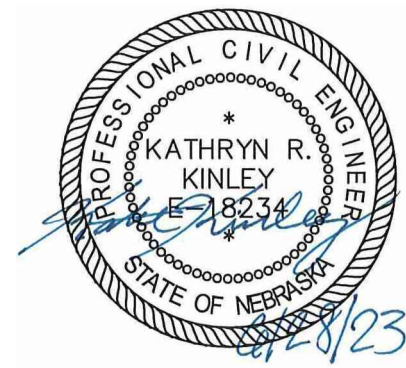


**LINER LAYER KEY**  
NOT TO SCALE

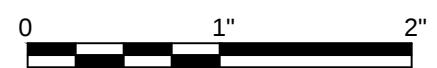


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| A            | 06/28/2023  | ISSUED FOR BID     |
| <b>ISSUE</b> | <b>DATE</b> | <b>DESCRIPTION</b> |

|                        |             |
|------------------------|-------------|
| <b>PROJECT MANAGER</b> | L. CALUB    |
| CIVIL                  | L. CALUB    |
| CIVIL                  | K. KINLEY   |
| DRAWN BY               | M. BICKFORD |
| QC BY                  | G. SHAFER   |
| QC BY                  | G. WILLIAMS |
|                        |             |
| <b>PROJECT NUMBER</b>  | 10167167    |



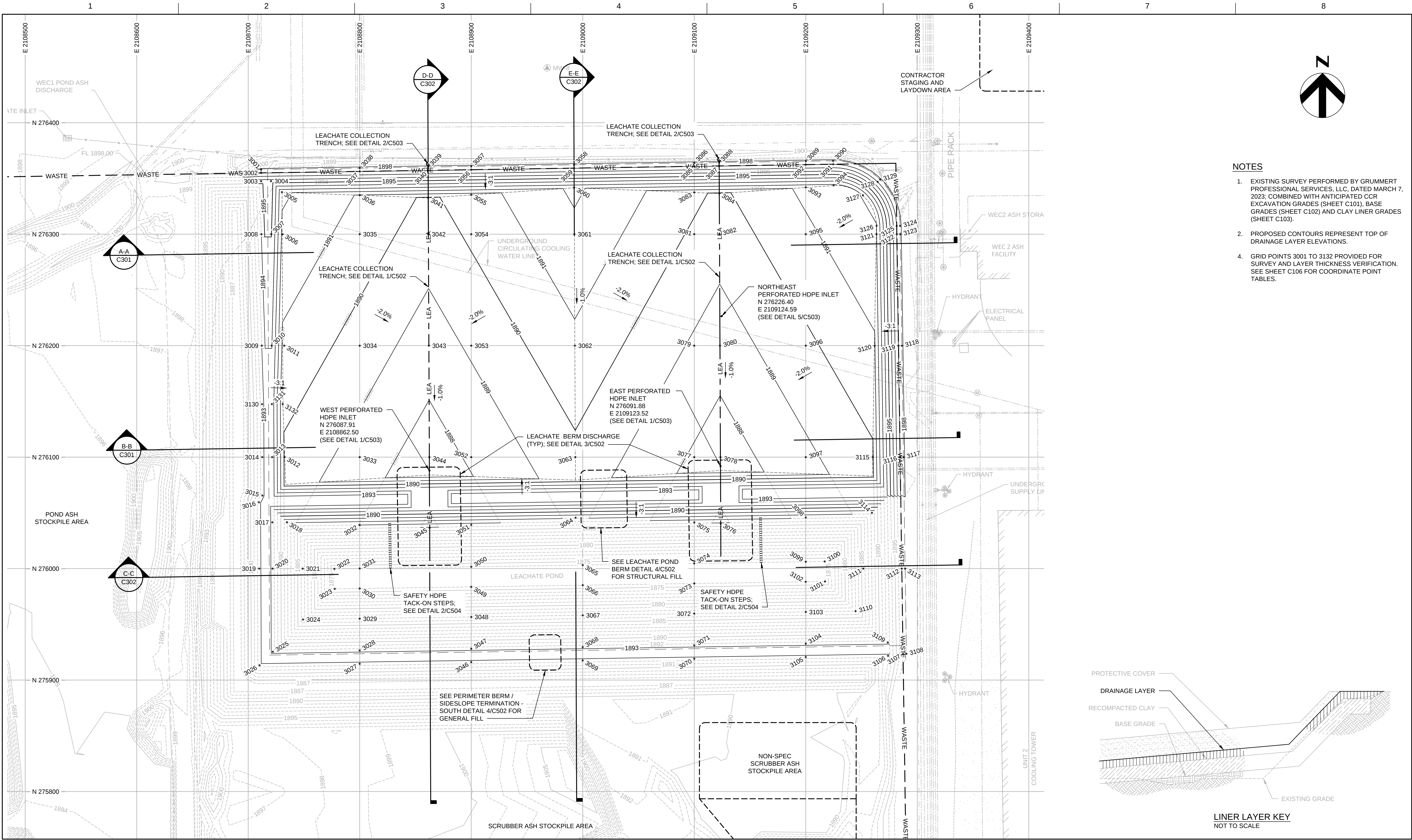
**GERALD T. WHELAN ENERGY CENTER  
WEC2 ASH POND  
LINER PROJECT**



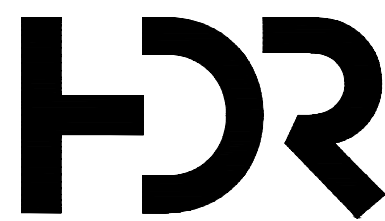
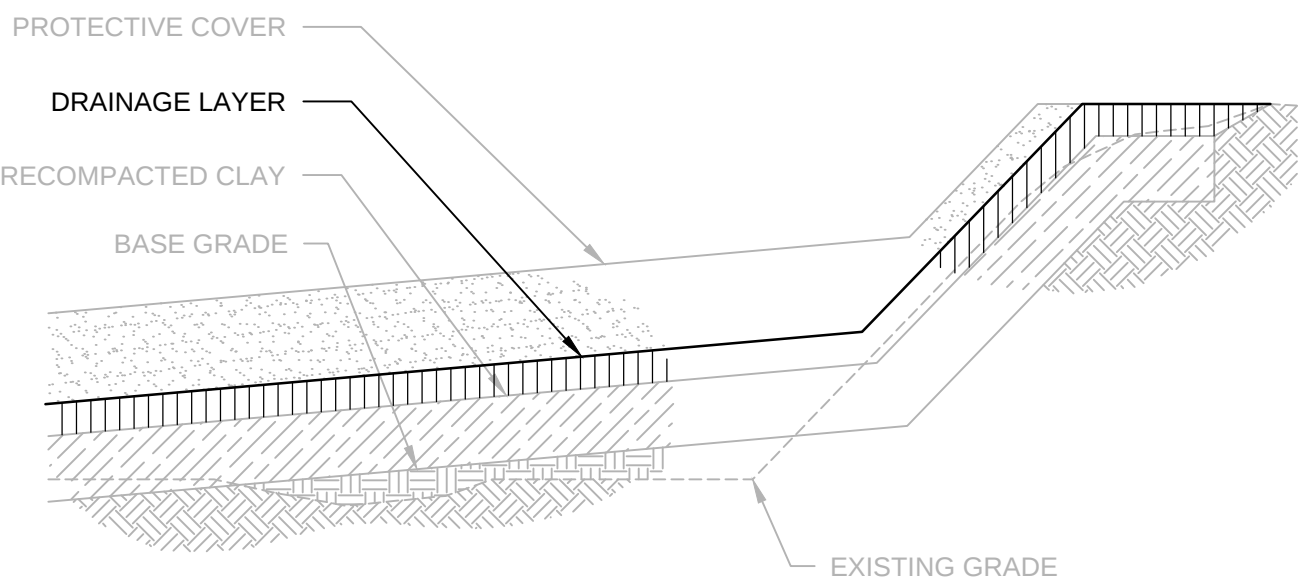
## RECOMPACTED CLAY LINER GRADING PLAN

|                 |          |
|-----------------|----------|
| <b>FILENAME</b> | C103.dwg |
| <b>SCALE</b>    | 1" = 40' |

**C103**

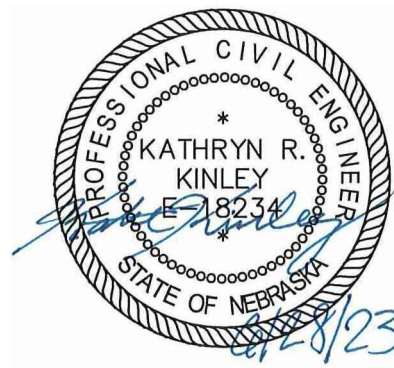


- NOTES**
- EXISTING SURVEY PERFORMED BY GRUMMERT PROFESSIONAL SERVICES, LLC, DATED MARCH 7, 2023; COMBINED WITH ANTICIPATED CCR EXCAVATION GRADES (SHEET C101), BASE GRADES (SHEET C102) AND CLAY LINER GRADES (SHEET C103).
  - PROPOSED CONTOURS REPRESENT TOP OF DRAINAGE LAYER ELEVATIONS.
  - GRID POINTS 3001 TO 3132 PROVIDED FOR SURVEY AND LAYER THICKNESS VERIFICATION. SEE SHEET C106 FOR COORDINATE POINT TABLES.



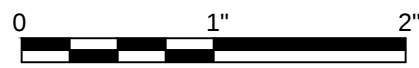
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| PROJECT MANAGER L. CALUB |            |                |
| CIVIL L. CALUB           |            |                |
| CIVIL K. KINLEY          |            |                |
| DRAWN BY M. BICKFORD     |            |                |
| QC BY G. SHAFER          |            |                |
| QC BY G. WILLIAMS        |            |                |
| PROJECT NUMBER 10167167  |            |                |
| A                        | 06/28/2023 | ISSUED FOR BID |
| ISSUE                    | DATE       | DESCRIPTION    |

|                          |  |
|--------------------------|--|
| PROJECT MANAGER L. CALUB |  |
| CIVIL L. CALUB           |  |
| CIVIL K. KINLEY          |  |
| DRAWN BY M. BICKFORD     |  |
| QC BY G. SHAFER          |  |
| QC BY G. WILLIAMS        |  |
| PROJECT NUMBER 10167167  |  |



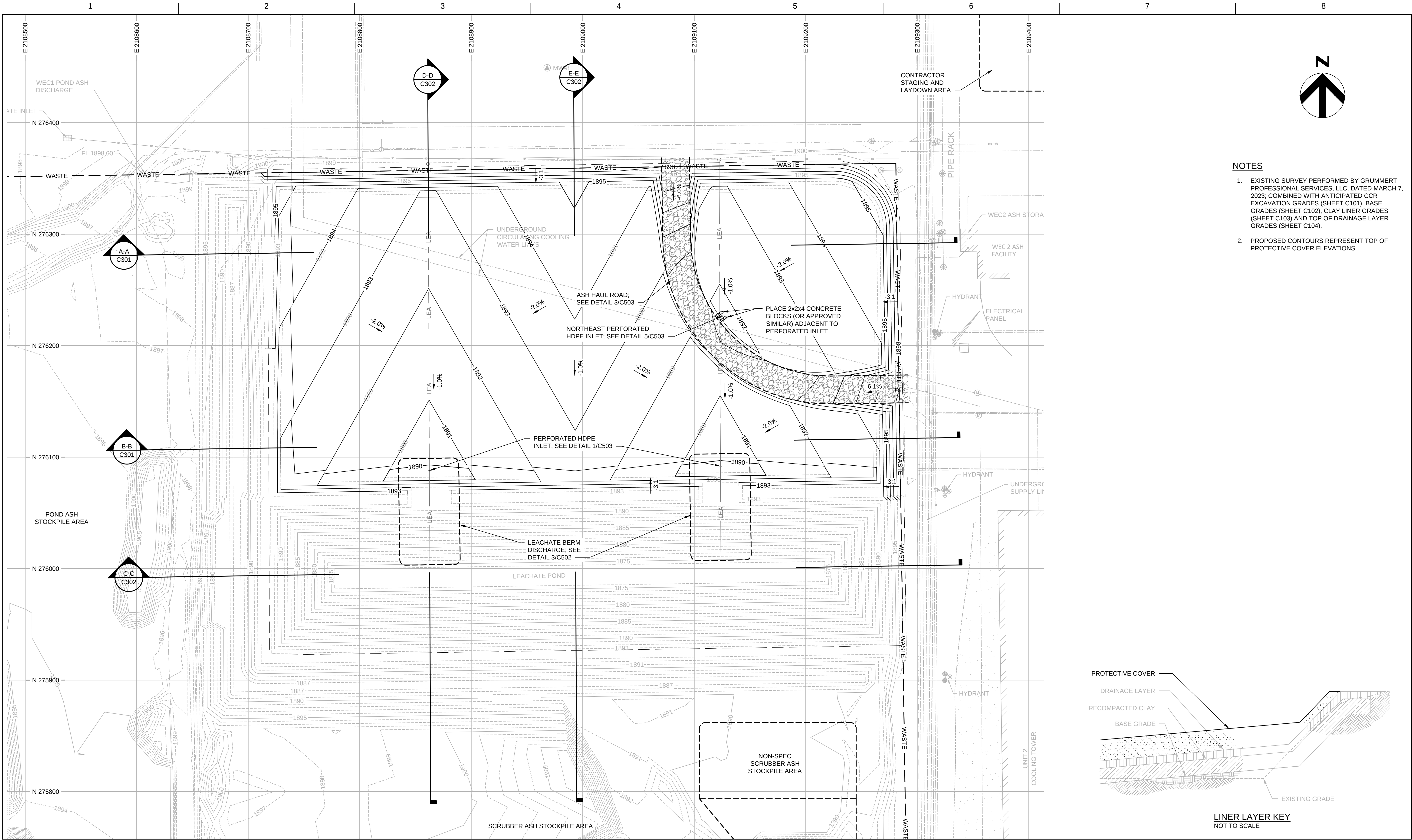
GERALD T. WHELAN ENERGY CENTER  
WEC2 ASH POND  
LINER PROJECT

**DRAINAGE LAYER  
GRADING PLAN**

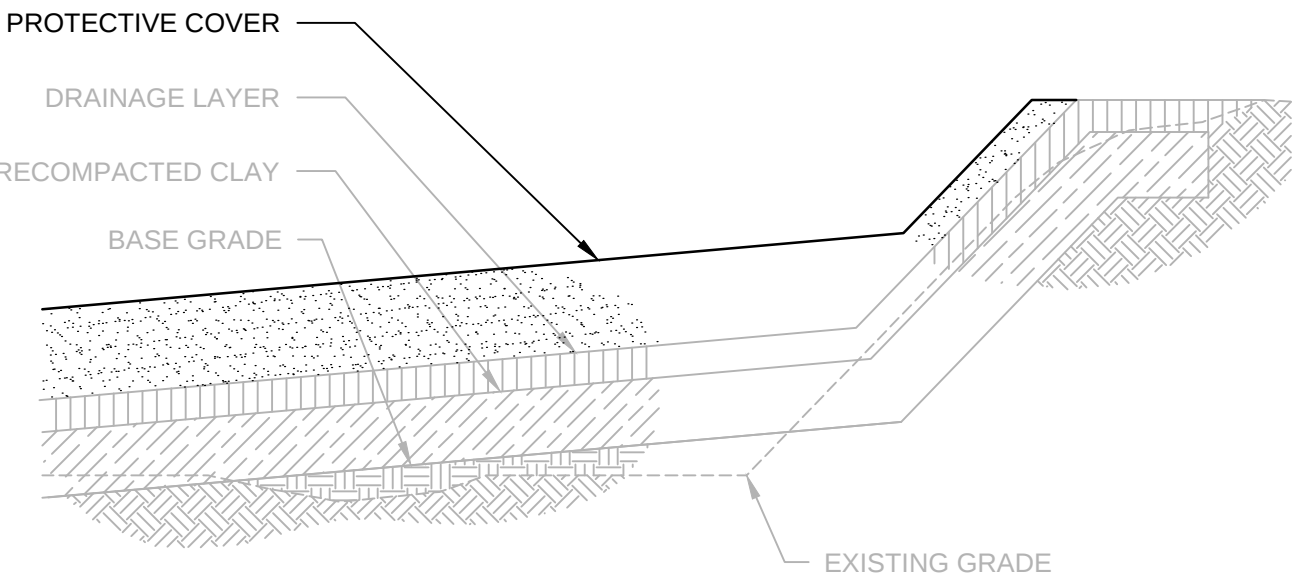


FILENAME C104.dwg  
SCALE 1" = 40'

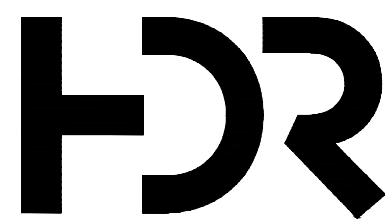
SHEET  
**C104**



- NOTES**
- EXISTING SURVEY PERFORMED BY GRUMMERT PROFESSIONAL SERVICES, LLC, DATED MARCH 7, 2023; COMBINED WITH ANTICIPATED CCR EXCAVATION GRADES (SHEET C101), BASE GRADES (SHEET C102), CLAY LINER GRADES (SHEET C103) AND TOP OF DRAINAGE LAYER GRADES (SHEET C104).
  - PROPOSED CONTOURS REPRESENT TOP OF PROTECTIVE COVER ELEVATIONS.

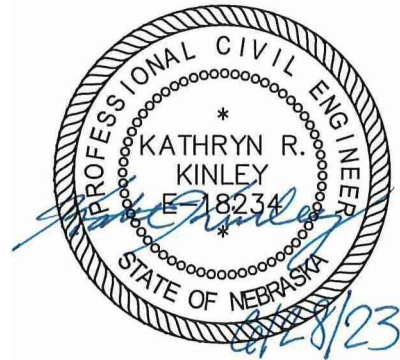


**LINER LAYER KEY**  
NOT TO SCALE

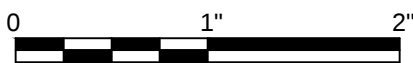


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| A     | 06/28/2023 | ISSUED FOR BID |
| ISSUE | DATE       | DESCRIPTION    |

|                 |             |
|-----------------|-------------|
| PROJECT MANAGER | L. CALUB    |
| CIVIL           | L. CALUB    |
| CIVIL           | K. KINLEY   |
| DRAWN BY        | M. BICKFORD |
| QC BY           | G. SHAFER   |
| QC BY           | G. WILLIAMS |
| PROJECT NUMBER  | 10167167    |



**GERALD T. WHELAN ENERGY CENTER  
WEC2 ASH POND  
LINER PROJECT**

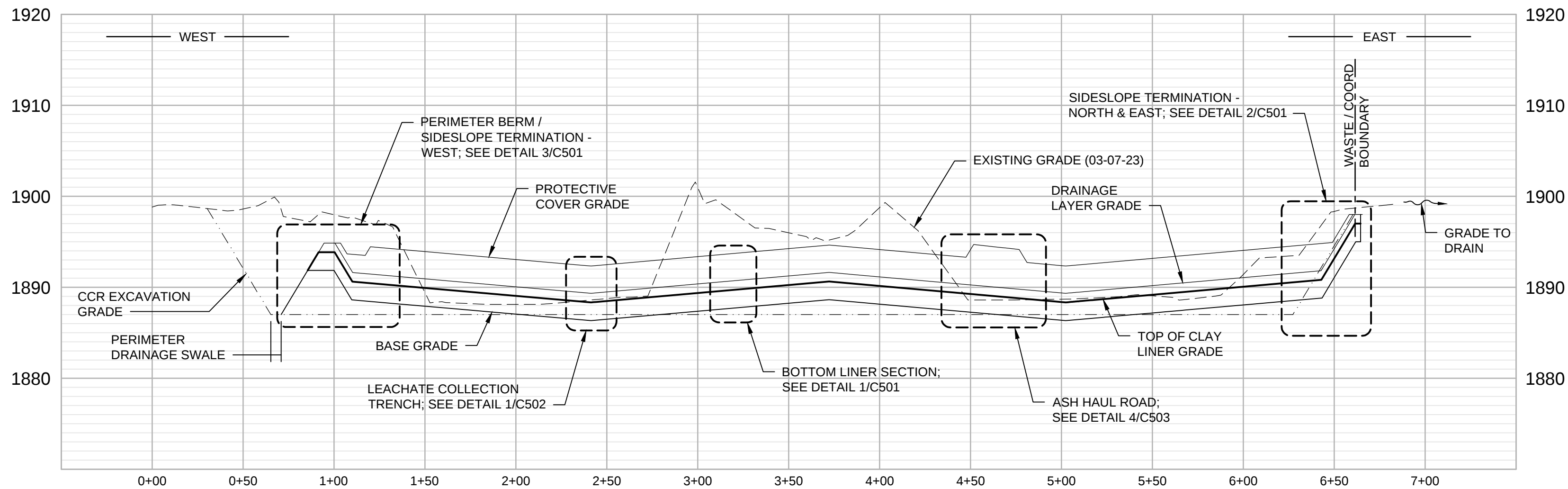


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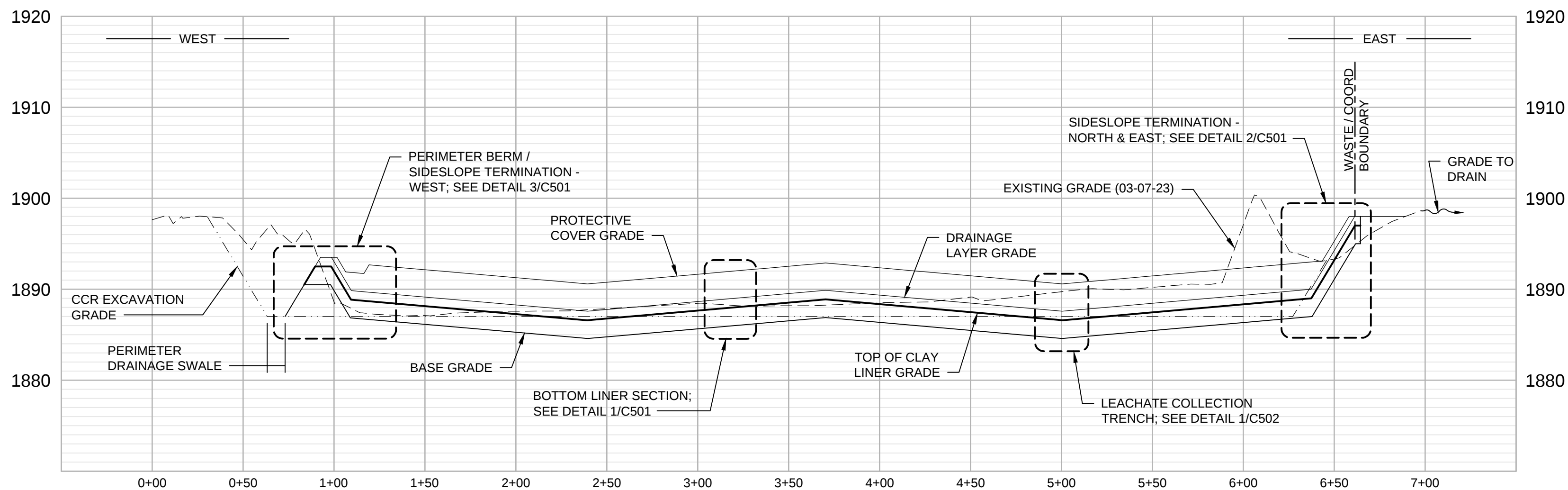
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**C105**

c:\powerking\central0\13761065\C 106.dwg, Layout1, 6/28/2023 9:14:30 AM, MBICKFORD

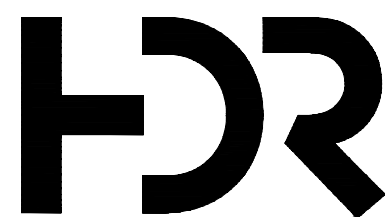
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|-----------|------------|-------------|--------------|-------------|--------------|-----------------------|--------------|-----------------------------|-----------|------------|-------------|--------------|-------------|--------------|-----------------------|--------------|------------------------------|
| NORTHING  | EASTING    | BASE GRADES |              | TOP OF CLAY |              | TOP OF DRAINAGE LAYER |              | DESCRIPTION                 | NORTHING  | EASTING    | BASE GRADES |              | TOP OF CLAY |              | TOP OF DRAINAGE LAYER |              | DESCRIPTION                  |
|           |            | POINT       | DESIGN ELEV. | POINT       | DESIGN ELEV. | POINT                 | DESIGN ELEV. |                             |           |            | POINT       | DESIGN ELEV. | POINT       | DESIGN ELEV. | POINT                 | DESIGN ELEV. |                              |
| 276357.99 | 2108711.58 | 1001        | 1895.00      | 2001        | 1897.00      | 3001                  | 1898.00      | EDGE OF CLAY                | 276362.26 | 2108992.23 | 1058        | 1895.00      | 2058        | 1897.00      | 3058                  | 1898.00      | EDGE OF CLAY                 |
| 276354.99 | 2108711.59 | 1002        | 1894.89      | 2002        | 1897.00      | 3002                  | 1898.00      | TOP OF SLOPE/COORD BNDY     | 276359.26 | 2108992.25 | 1059        | 1894.89      | 2059        | 1897.00      | 3059                  | 1898.00      | TOP OF SLOPE/COORD BNDY      |
| 276347.49 | 2108711.62 | 1003        | 1892.91      | 2003        | 1894.50      | 3003                  | 1895.61      | TOP OF SLOPE                | 276341.81 | 2108992.32 | 1060        | 1889.18      | 2060        | 1891.18      | 3060                  | 1892.24      | TOE OF SLOPE/LEACHATE TRENCH |
| 276347.62 | 2108720.46 | 1004        | 1892.39      | 2004        | 1894.50      | 3004                  | 1895.53      | TOP OF SLOPE                | 276300.00 | 2108992.50 | 1061        | 1888.76      | 2061        | 1890.76      | 3061                  | 1891.76      | LEACHATE TRENCH              |
| 276337.76 | 2108730.20 | 1005        | 1889.15      | 2005        | 1891.17      | 3005                  | 1892.22      | TOE OF SLOPE                | 276200.00 | 2108992.92 | 1062        | 1887.76      | 2062        | 1889.76      | 3062                  | 1890.76      | LEACHATE TRENCH              |
| 276300.00 | 2108730.78 | 1006        | 1888.77      | 2006        | 1890.78      | 3006                  | 1891.78      | TOE OF SLOPE                | 276100.00 | 2108993.35 | 1063        | 1886.76      | 2063        | 1888.76      | 3063                  | 1889.76      | LEACHATE TRENCH              |
| 276300.00 | 2108720.65 | 1007        | 1891.92      | 2007        | 1894.02      | 3007                  | 1895.02      | TOP OF SLOPE                | 276045.72 | 2108993.58 | 1064        | 1886.10      | 2064        | 1888.22      | 3064                  | 1888.22      | TOP OF SLOPE/LEACHATE TRENCH |
| 276300.00 | 2108711.81 | 1008        | 1892.02      | 2008        | 1894.02      | 3008                  | 1894.02      | TOP OF SLOPE                | 276003.16 | 2109000.00 | 1065        | 1872.00      | 2065        | 1874.00      | 3065                  | 0.00         | TOE OF SLOPE                 |
| 276200.00 | 2108712.21 | 1009        | 1891.02      | 2009        | 1893.02      | 3009                  | 1893.02      | TOP OF SLOPE                | 275985.16 | 2109000.00 | 1066        | 1872.00      | 2066        | 1874.00      | 3066                  | 0.00         | TOE OF SLOPE                 |
| 276200.00 | 2108721.05 | 1010        | 1890.92      | 2010        | 1893.02      | 3010                  | 1894.02      | TOP OF SLOPE                | 275958.12 | 2109000.00 | 1067        | 1880.90      | 2067        | 1883.01      | 3067                  | 0.00         | VERIFICATION POINT           |
| 276200.00 | 2108732.31 | 1011        | 1887.76      | 2011        | 1889.76      | 3011                  | 1890.76      | TOE OF SLOPE                | 275929.65 | 2109000.00 | 1068        | 1890.39      | 2068        | 1892.50      | 3068                  | 1892.50      | TOP OF SLOPE                 |
| 276100.00 | 2108732.66 | 1012        | 1886.76      | 2012        | 1888.77      | 3012                  | 1889.82      | TOE OF SLOPE                | 275917.65 | 2109000.00 | 1069        | 1890.50      | 2069        | 1892.50      | 3069                  | 1892.50      | TOP OF SLOPE                 |
| 276100.00 | 2108721.45 | 1013        | 1890.39      | 2013        | 1892.50      | 3013                  | 1893.50      | TOP OF SLOPE                | 275919.16 | 2109100.00 | 1070        | 1890.50      | 2070        | 1892.50      | 3070                  | 1892.50      | TOP OF SLOPE                 |
| 276100.00 | 2108712.62 | 1014        | 1890.50      | 2014        | 1892.50      | 3014                  | 1892.50      | TOP OF SLOPE                | 275931.16 | 2109100.00 | 1071        | 1890.39      | 2071        | 1892.50      | 3071                  | 1892.50      | TOP OF SLOPE                 |
| 276065.57 | 2108712.75 | 1015        | 1890.50      | 2015        | 1892.50      | 3015                  | 1892.50      | TOP OF SLOPE                | 275959.63 | 2109100.00 | 1072        | 1880.91      | 2072        | 1883.01      | 3072                  | 0.00         | VERIFICATION POINT           |
| 276059.52 | 2108709.62 | 1016        | 1890.50      | 2016        | 1892.50      | 3016                  | 1892.50      | TOP OF SLOPE                | 275986.67 | 2109100.00 | 1073        | 1872.00      | 2073        | 1874.00      | 3073                  | 0.00         | TOE OF SLOPE                 |
| 276041.54 | 2108721.69 | 1017        | 1890.39      | 2017        | 1892.50      | 3017                  | 1892.50      | TOP OF SLOPE                | 276004.67 | 2109100.00 | 1074        | 1872.00      | 2074        | 1874.00      | 3074                  | 0.00         | TOE OF SLOPE                 |
| 276041.60 | 2108734.74 | 1018        | 1886.05      | 2018        | 1888.15      | 3018                  | 1888.15      | TOE OF SLOPE / TOP OF SLOPE | 276041.52 | 2109100.00 | 1075        | 1884.18      | 2075        | 1886.29      | 3075                  | 1886.29      | TOP OF SLOPE                 |
| 276000.00 | 2108709.89 | 1019        | 1890.50      | 2019        | 1892.50      | 3019                  | 1892.51      | TOP OF SLOPE                | 276040.59 | 2109123.74 | 1076        | 1883.74      | 2076        | 1885.86      | 3076                  | 1885.86      | TOP OF SLOPE/LEACHATE TRENCH |
| 276000.00 | 2108721.86 | 1020        | 1890.39      | 2020        | 1892.50      | 3020                  | 1892.50      | TOP OF SLOPE                | 276100.00 | 2109100.00 | 1077        | 1884.87      | 2077        | 1886.87      | 3077                  | 1887.87      | VERIFICATION POINT           |
| 276000.00 | 2108748.86 | 1021        | 1881.39      | 2021        | 1883.49      | 3021                  | 0.00         | VERIFICATION POINT          | 276100.00 | 2109123.48 | 1078        | 1884.45      | 2078        | 1886.45      | 3078                  | 1887.45      | LEACHATE TRENCH              |
| 275999.80 | 2108777.31 | 1022        | 1874.00      | 2022        | 1874.00      | 3022                  | 1874.00      | TOE OF SLOPE                | 276200.00 | 2109100.00 | 1079        | 1885.86      | 2079        | 1887.86      | 3079                  | 1888.86      | VERIFICATION POINT           |
| 275981.80 | 2108777.58 | 1023        | 1874.00      | 2023        | 1874.00      | 3023                  | 1874.00      | TOE OF SLOPE                | 276200.00 | 2109123.06 | 1080        | 1885.45      | 2080        | 1887.45      | 3080                  | 1888.45      | LEACHATE TRENCH              |
| 275954.33 | 2108749.14 | 1024        | 1881.36      | 2024        | 1883.49      | 3024                  | 0.00         | VERIFICATION POINT          | 276300.00 | 2109100.00 | 1081        | 1886.85      | 2081        | 1888.85      | 3081                  | 1889.85      | VERIFICATION POINT           |
| 275925.46 | 2108722.16 | 1025        | 1890.39      | 2025        | 1892.50      | 3025                  | 1892.50      | TOP OF SLOPE                | 276300.22 | 2109122.64 | 1082        | 1886.45      | 2082        | 1888.45      | 3082                  | 1889.45      | LEACHATE TRENCH              |
| 275913.28 | 2108710.21 | 1026        | 1890.50      | 2026        | 1892.50      | 3026                  | 1892.50      | TOP OF SLOPE                | 276337.56 | 2109100.00 | 1083        | 1887.22      | 2083        | 1889.22      | 3083                  | 1890.28      | TOE OF SLOPE                 |
| 275914.63 | 2108800.00 | 1027        | 1890.50      | 2027        | 1892.50      | 3027                  | 1892.50      | TOP OF SLOPE                | 276336.67 | 2109122.48 | 1084        | 1886.81      | 2084        | 1888.81      | 3084                  | 1889.87      | TOE OF SLOPE/LEACHATE TRENCH |
| 275926.63 | 2108800.00 | 1028        | 1890.39      | 2028        | 1892.50      | 3028                  | 1892.50      | TOP OF SLOPE                | 276360.89 | 2109100.00 | 1085        | 1894.89      | 2085        | 1897.00      | 3085                  | 1898.00      | TOP OF SLOPE/COORD BNDY      |
| 275955.10 | 2108800.00 | 1029        | 1880.90      | 2029        | 1883.01      | 3029                  | 0.00         | VERIFICATION POINT          | 276363.89 | 2109100.00 | 1086        | 1895.00      | 2086        | 1897.00      | 3086                  | 1898.00      | EDGE OF CLAY                 |
| 275982.14 | 2108800.00 | 1030        | 1872.00      | 2030        | 1874.00      | 3030                  | 0.00         | TOE OF SLOPE                | 276361.23 | 2109122.38 | 1087        | 1894.89      | 2087        | 1897.00      | 3087                  | 1898.00      | TOP OF SLOPE/COORD BNDY      |
| 276000.14 | 2108800.00 | 1031        | 1872.00      | 2031        | 1874.00      | 3031                  | 0.00         | TOE OF SLOPE                | 276364.23 | 2109122.37 | 1088        | 1895.00      | 2088        | 1897.00      | 3088                  | 1898.00      | EDGE OF CLAY                 |
| 276039.07 | 2108800.00 | 1032        | 1884.87      | 2032        | 1886.98      | 3032                  | 1886.98      | TOP OF SLOPE                | 276365.41 | 2109200.00 | 1089        | 1895.00      | 2089        | 1897.00      | 3089                  | 1898.00      | EDGE OF CLAY                 |
| 276100.00 | 2108800.00 | 1033        | 1885.58      | 2033        | 1887.58      | 3033                  | 1888.58      | VERIFICATION POINT          | 276365.79 | 2109224.53 | 1090        | 1895.00      | 2090        | 1897.00      | 3090                  | 1898.00      | EDGE OF CLAY                 |
| 276200.00 | 2108800.00 | 1034        | 1886.57      | 2034        | 1888.58      | 3034                  | 1889.58      | VERIFICATION POINT          | 276362.79 | 2109224.58 | 1091        | 1894.89      | 2091        | 1897.00      | 3091                  | 1898.00      | TOP OF SLOPE/COORD BNDY      |
| 276300.00 | 2108800.00 | 1035        | 1887.56      | 2035        | 1889.57      | 3035                  | 1890.57      | VERIFICATION POINT          | 276362.41 | 2109200.00 | 1092        | 1894.89      | 2092        | 1897.00      | 3092                  | 1898.00      | TOP OF SLOPE/COORD BNDY      |
| 276335.07 |            |             |              |             |              |                       |              |                             |           |            |             |              |             |              |                       |              |                              |



**SECTION A-A**  
HORIZ: 1" = 50' | VERT: 1" = 10'

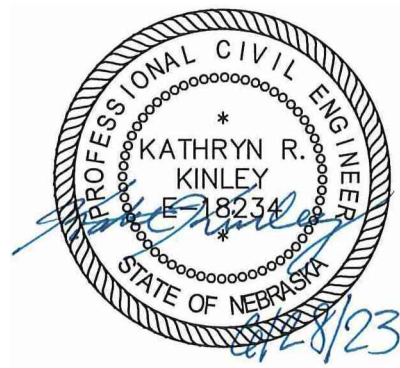


**SECTION B-B**  
HORIZ: 1" = 50' | VERT: 1" = 10'



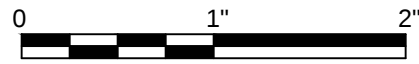
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| A     | 06/28/2023 | ISSUED FOR BID |
| ISSUE | DATE       | DESCRIPTION    |

|                 |  |             |
|-----------------|--|-------------|
| PROJECT MANAGER |  | L. CALUB    |
| CIVIL           |  | L. CALUB    |
| CIVIL           |  | K. KINLEY   |
| DRAWN BY        |  | M. BICKFORD |
| QC BY           |  | G. SHAFER   |
| QC BY           |  | G. WILLIAMS |
| PROJECT NUMBER  |  | 10167167    |



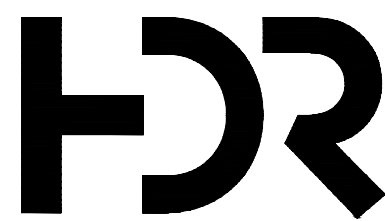
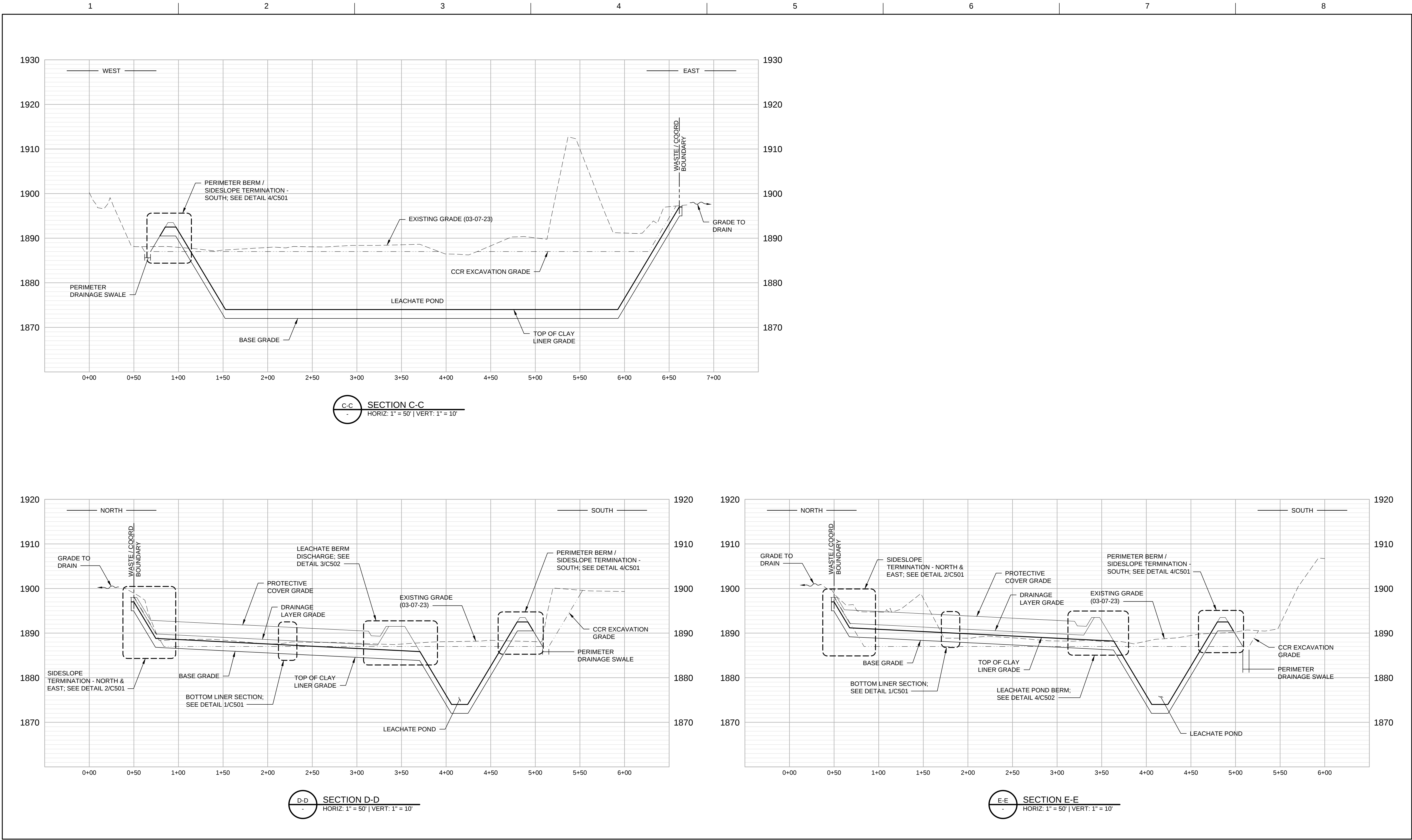
**GERALD T. WHELAN ENERGY CENTER  
WEC2 ASH POND  
LINER PROJECT**

**CROSS SECTIONS**



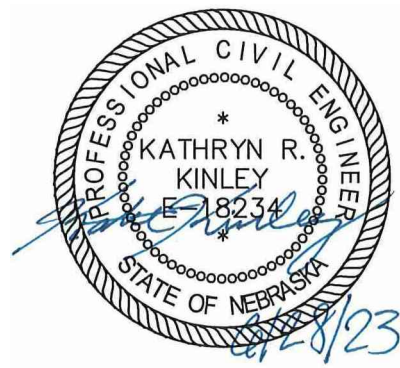
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SHEET  
**C301**

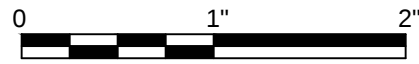


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| A     | 06/28/2023 | ISSUED FOR BID |
| ISSUE | DATE       | DESCRIPTION    |

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|-----------------|-------------|
| PROJECT MANAGER | L. CALUB    |
| CIVIL           | L. CALUB    |
| CIVIL           | K. KINLEY   |
| DRAWN BY        | M. BICKFORD |
| QC BY           | G. SHAFER   |
| QC BY           | G. WILLIAMS |
| PROJECT NUMBER  | 10167167    |



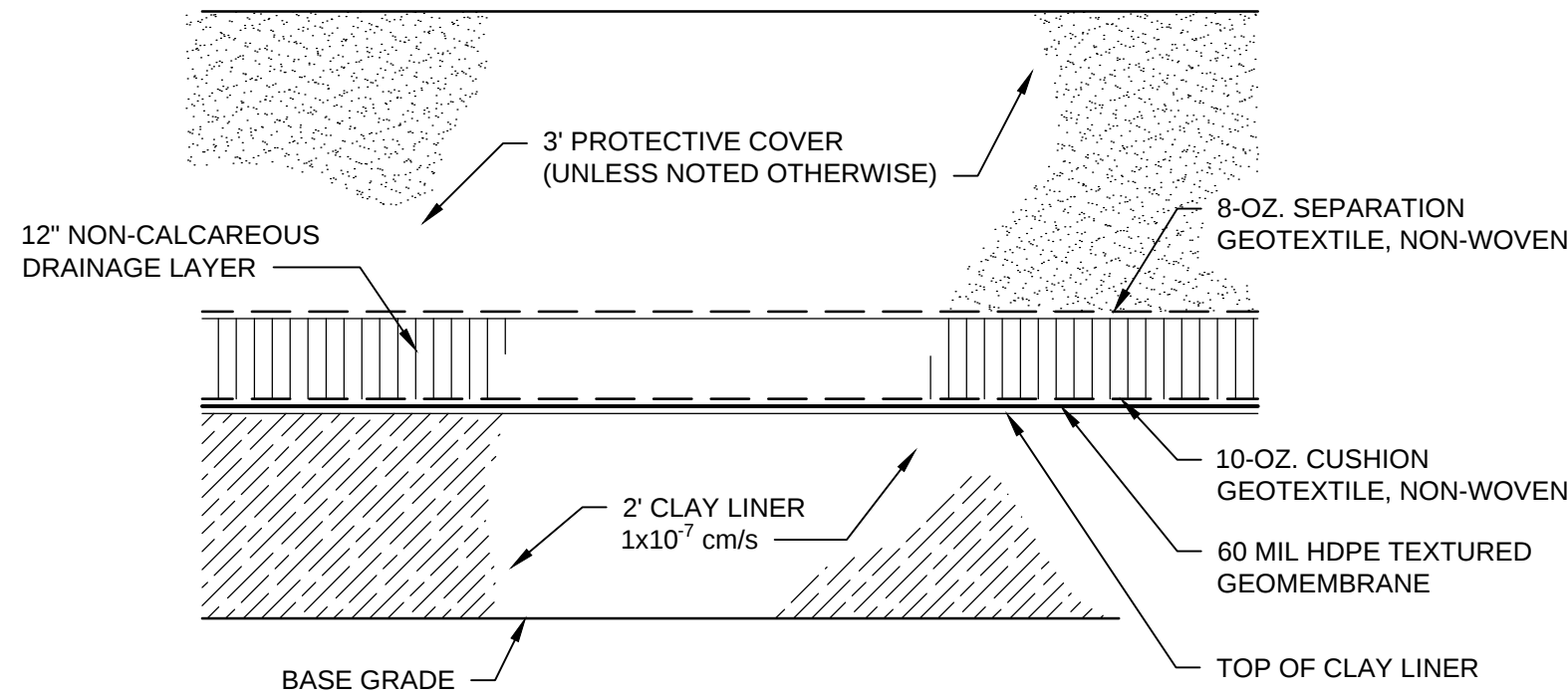
GERALD T. WHELAN ENERGY CENTER  
WEC2 ASH POND  
LINER PROJECT



CROSS SECTIONS

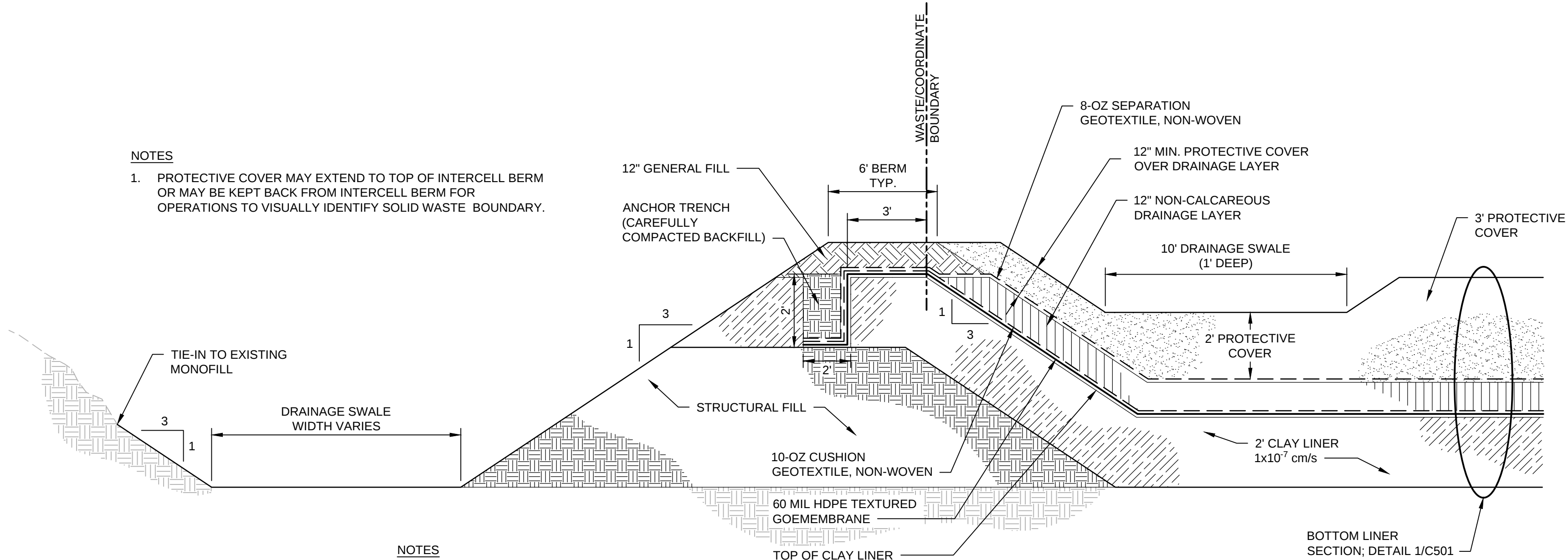
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SCALE | AS NOTED

SHEET  
C302



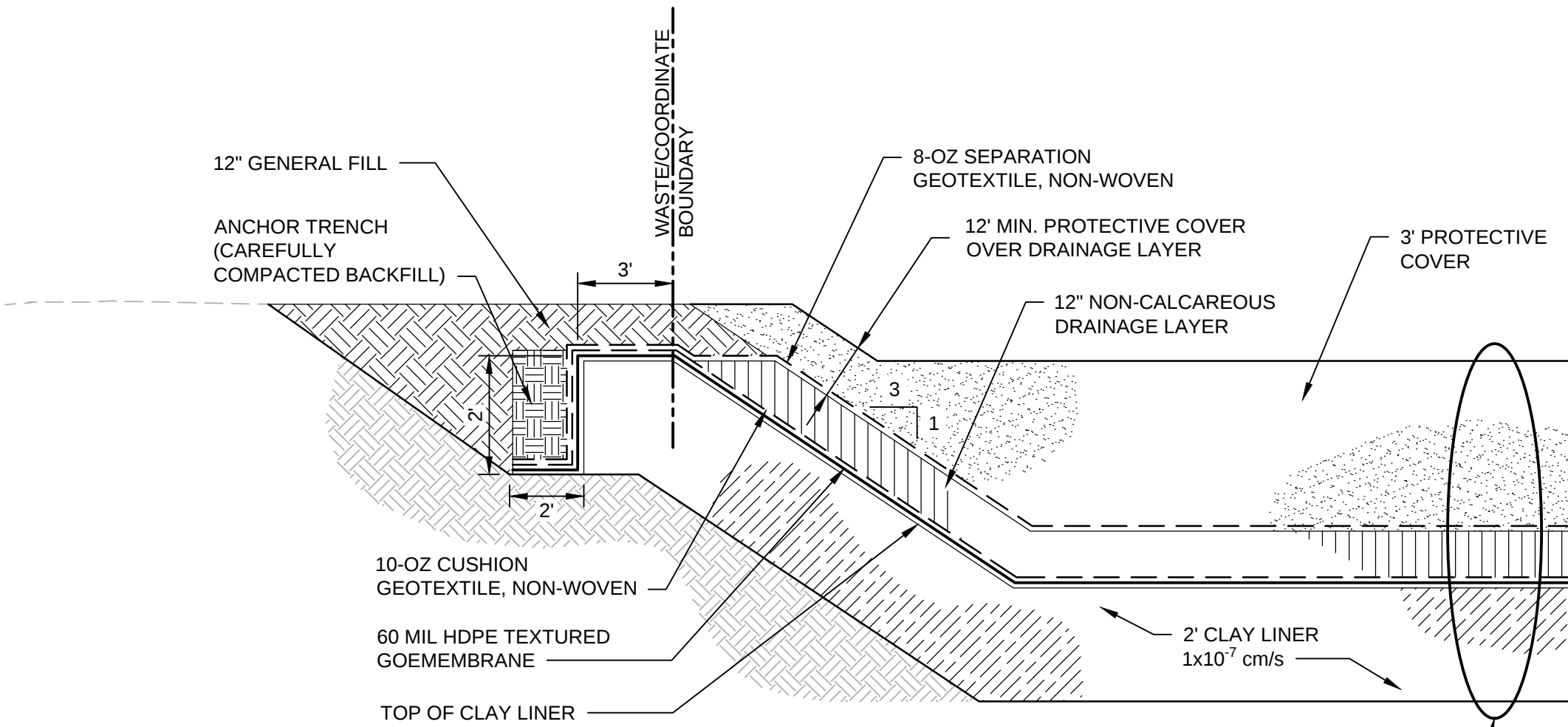
1  
C103  
BOTTOM LINER SECTION  
NO SCALE

- NOTES
1. PROTECTIVE COVER MAY EXTEND TO TOP OF INTERCELL BERM OR MAY BE KEPT BACK FROM INTERCELL BERM FOR OPERATIONS TO VISUALLY IDENTIFY SOLID WASTE BOUNDARY.



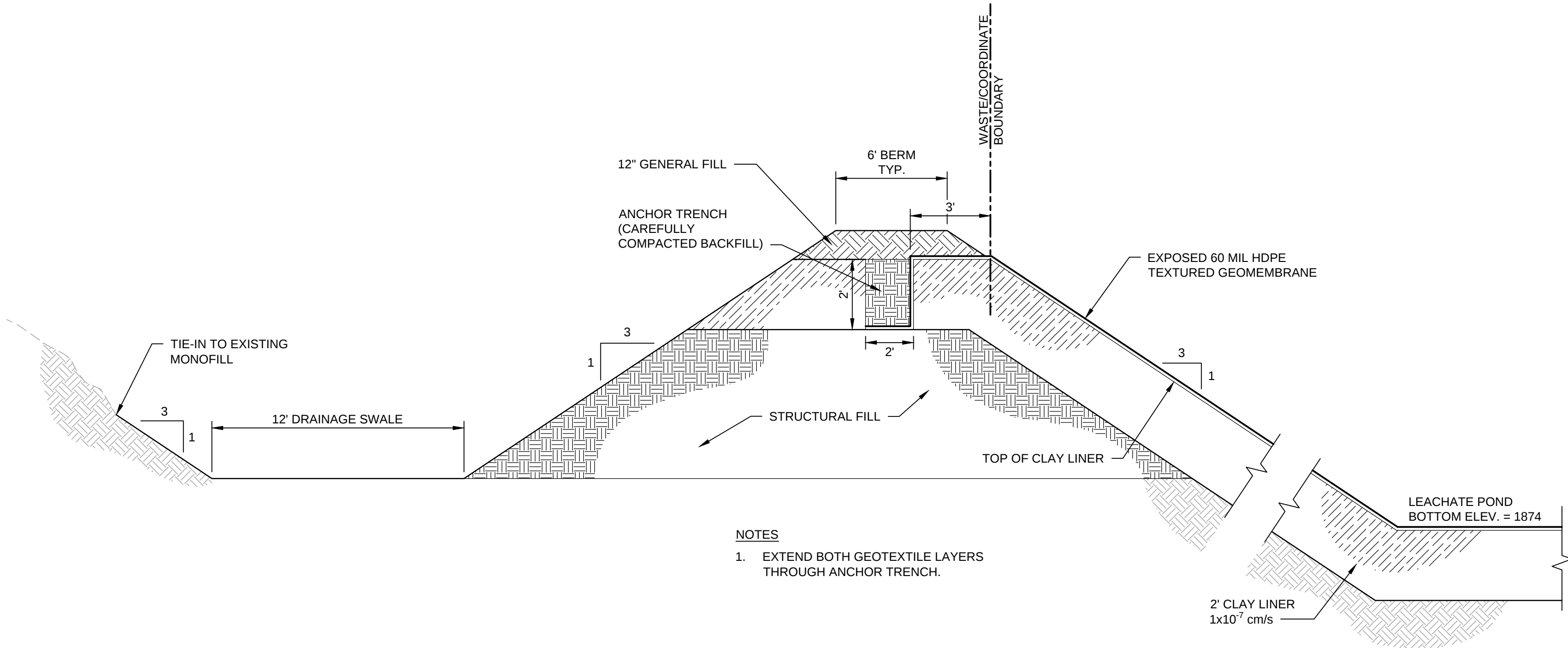
- NOTES
1. EXTEND BOTH GEOTEXTILE LAYERS THROUGH ANCHOR TRENCH.

3  
C102  
PERIMETER BERM /  
SIDESLOPE TERMINATION - WEST  
NO SCALE



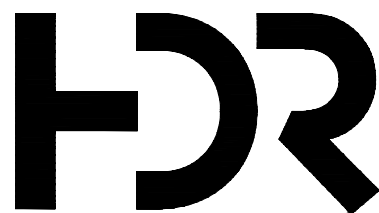
- NOTES
1. PROTECTIVE COVER MAY EXTEND TO TOP OF INTERCELL BERM OR MAY BE KEPT BACK FROM INTERCELL BERM FOR OPERATIONS TO VISUALLY IDENTIFY SOLID WASTE BOUNDARY.
  2. PROTECTIVE COVER SOIL PLACED ON BERM MUST NOT BE WASTE ASH MATERIAL.
  3. EXTEND BOTH GEOTEXTILE LAYERS THROUGH ANCHOR TRENCH.

2  
C103  
SIDESLOPE TERMINATION - NORTH & EAST  
NO SCALE



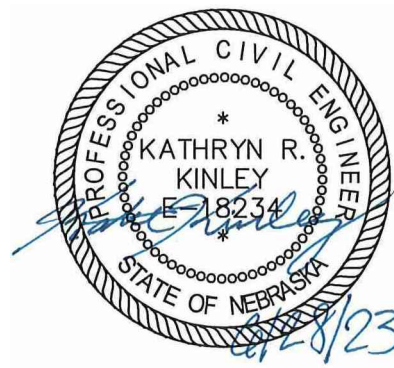
- NOTES
1. EXTEND BOTH GEOTEXTILE LAYERS THROUGH ANCHOR TRENCH.

4  
C102  
PERIMETER BERM /  
SIDESLOPE TERMINATION - SOUTH  
NO SCALE

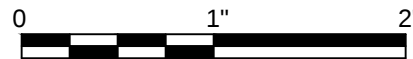


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| A     | 06/28/2023 | ISSUED FOR BID |
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|                 |             |
|-----------------|-------------|
| PROJECT MANAGER | L. CALUB    |
| CIVIL           | L. CALUB    |
| CIVIL           | K. KINLEY   |
| DRAWN BY        | M. BICKFORD |
| QC BY           | G. SHAFER   |
| QC BY           | G. WILLIAMS |
| PROJECT NUMBER  | 10167167    |



GERALD T. WHELAN ENERGY CENTER  
WEC2 ASH POND  
LINER PROJECT

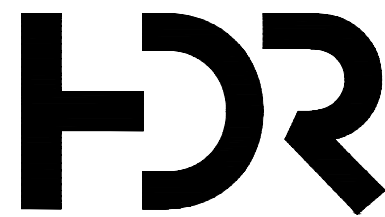
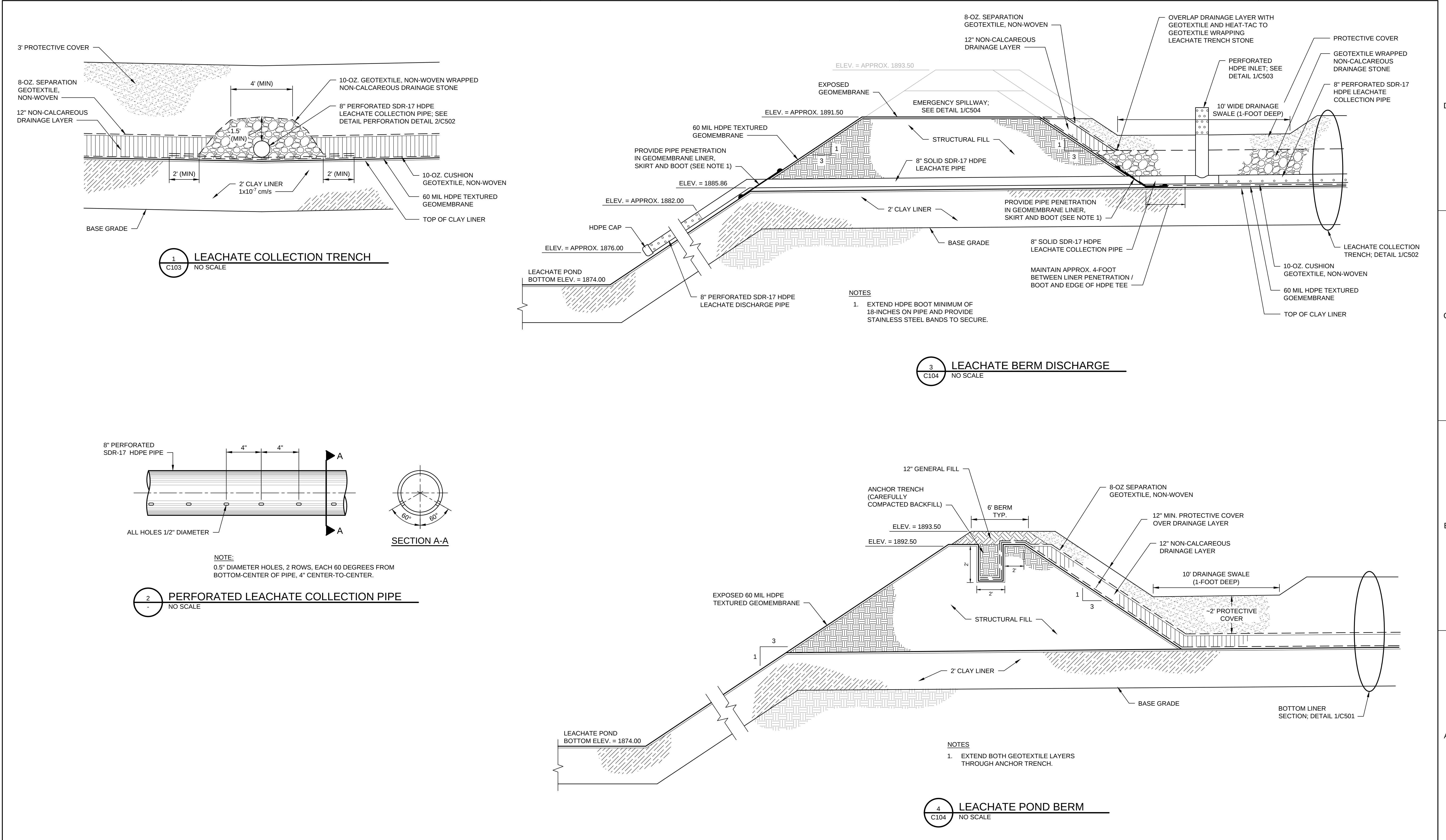


DETAILS

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SCALE | AS NOTED

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C501

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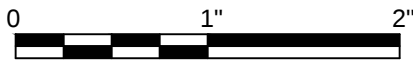


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| A     | 06/28/2023 | ISSUED FOR BID |
| ISSUE | DATE       | DESCRIPTION    |

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| PROJECT MANAGER |  | L. CALUB    |
| CIVIL           |  | L. CALUB    |
| CIVIL           |  | K. KINLEY   |
| DRAWN BY        |  | M. BICKFORD |
| QC BY           |  | G. SHAFER   |
| QC BY           |  | G. WILLIAMS |
| PROJECT NUMBER  |  | 10167167    |



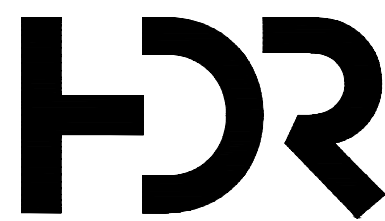
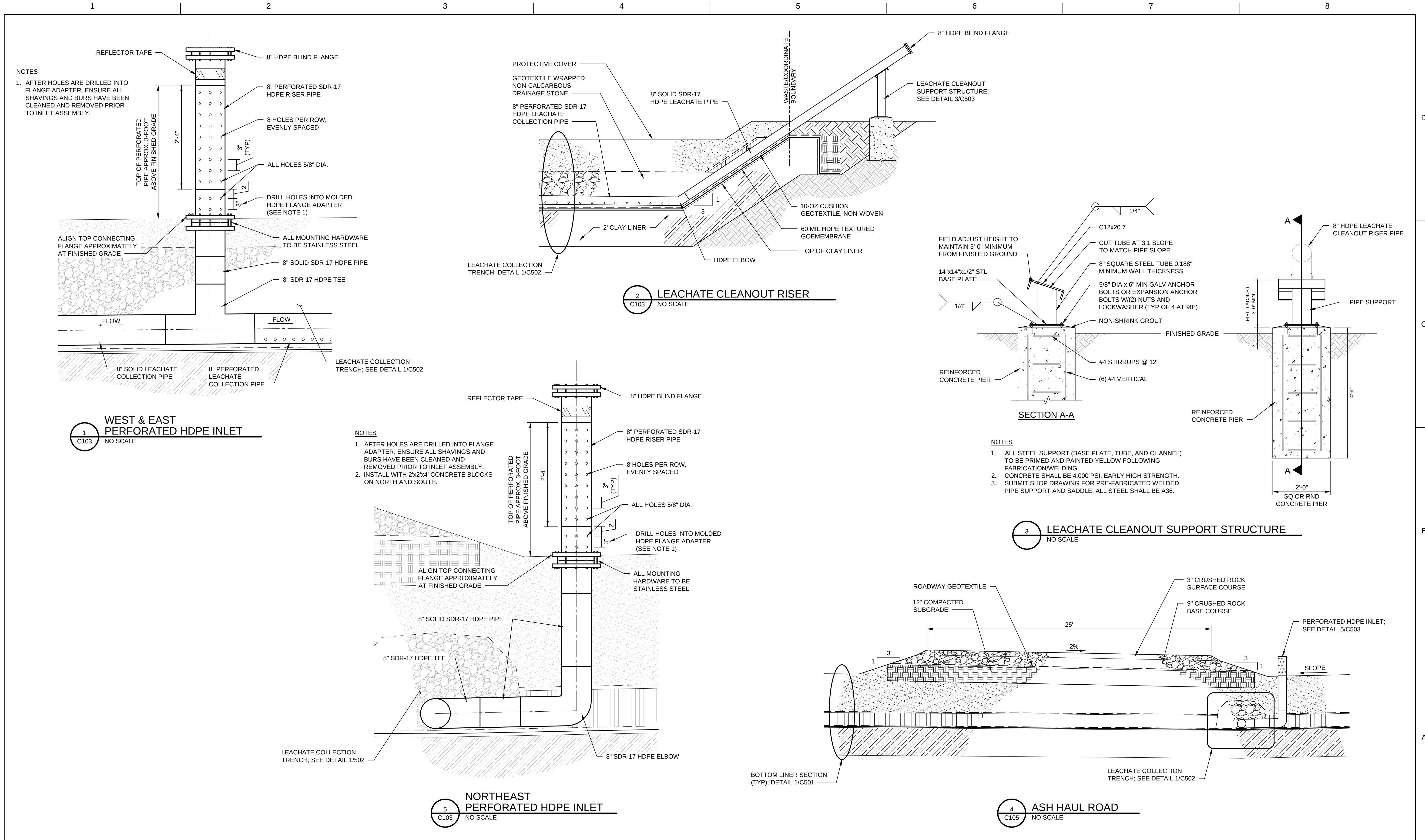
GERALD T. WHELAN ENERGY CENTER  
WEC2 ASH POND  
LINER PROJECT



DETAILS

FILENAME C502.dwg  
SCALE AS NOTED

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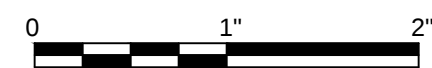


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| PROJECT MANAGER |            |                | L. CALUB    |
| CIVIL           |            |                | L. CALUB    |
| CIVIL           |            |                | K. KINLEY   |
| DRAWN BY        |            |                | M. BICKFORD |
| QC BY           |            |                | G. SHAFER   |
| QC BY           |            |                | G. WILLIAMS |
| PROJECT NUMBER  |            |                | 10167167    |
| A               | 06/28/2023 | ISSUED FOR BID |             |
| ISSUE           | DATE       | DESCRIPTION    |             |



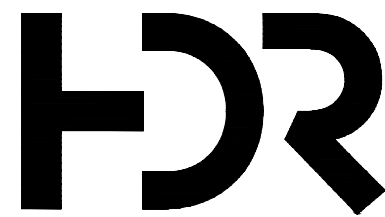
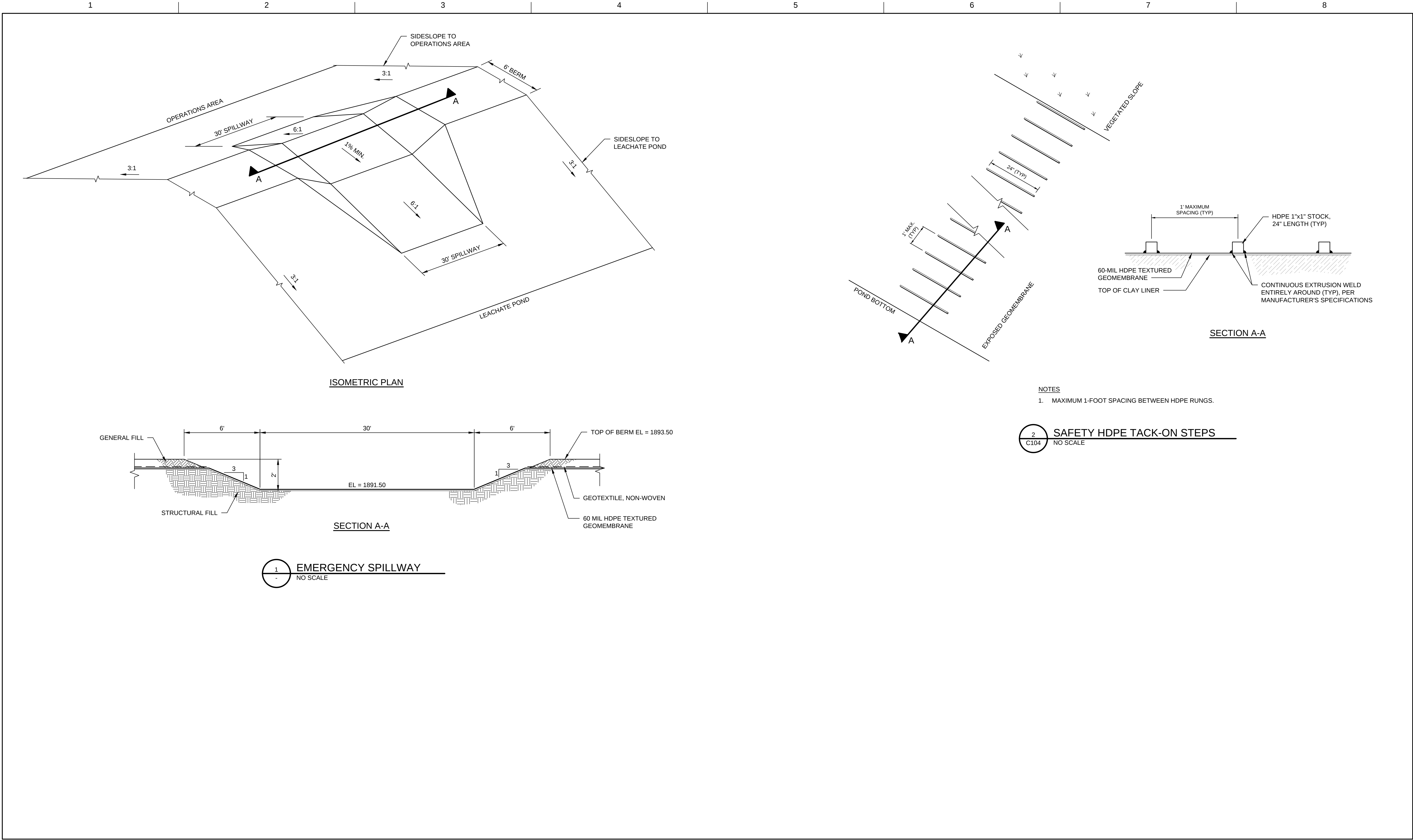
GERALD T. WHELAN ENERGY CENTER  
WEC2 ASH POND  
LINER PROJECT

DETAILS



FILENAME C503.dwg  
SCALE AS NOTED

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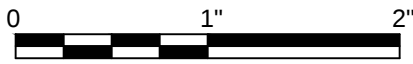


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| A     | 06/28/2023 | ISSUED FOR BID |
| ISSUE | DATE       | DESCRIPTION    |

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|-----------------|-------------|
| PROJECT MANAGER | L. CALUB    |
| CIVIL           | L. CALUB    |
| CIVIL           | K. KINLEY   |
| DRAWN BY        | M. BICKFORD |
| QC BY           | G. SHAFER   |
| QC BY           | G. WILLIAMS |
| PROJECT NUMBER  | 10167167    |



GERALD T. WHELAN ENERGY CENTER  
WEC2 ASH POND  
LINER PROJECT



DETAILS

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| FILENAME | C504.dwg |
| SCALE    | AS NOTED |

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