

Consulting
Engineers and
Scientists

December 19, 2018

GEI Project No. 1803049

Mr. Timothy C. Muehlfeld, P.E.
Principal Engineer
WEC Energy Group – Business Services
333 West Everett Street, A231
Milwaukee, Wisconsin 53203

**Re: Landfill Inspection Report for the
Weston Disposal Site No. 3
Wisconsin Public Service Corporation
Town of Knowlton, Marathon County, Wisconsin**

Dear Mr. Muehlfeld:

GEI Consultants, Inc. (GEI) is pleased to provide this landfill inspection report for the Wisconsin Public Service Corporation (WPS) Weston Disposal Site No. 3. The inspection was completed to comply with *40 CFR 257 Subpart D – Standards for the Disposal of Coal Combustion Residuals (CCR) in Landfills and Surface Impoundments* and specifically with *§ 257.84(b) Annual inspections by a qualified professional engineer*.

§ 257.84 Inspection Requirements for CCR Landfills

(b) Annual inspections by a qualified professional engineer.

(1) Existing and new CCR landfills and any lateral expansion of a CCR landfill must be inspected on a periodic basis by a qualified professional engineer to ensure that the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering standards. The inspection must, at a minimum, include:

- (i) A review of available information regarding the status and condition of the CCR unit, including, but not limited to, files available in the operating record (e.g., the results of inspections by a qualified person and results of previous annual inspections); and
- (ii) A visual inspection of the CCR unit to identify signs of distress or malfunction of the CCR unit.

(2) *Inspection report.* The qualified professional engineer must prepare a report following each inspection that addresses the following:

- (i) Any changes in geometry of the structure since the previous annual inspection;
- (ii) The approximate volume of CCR contained in the unit at the time of the inspection;
- (iii) Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit; and

- (iv) Any other change(s) which may have affected the stability or operation of the CCR unit since the previous annual inspection.

Background

The landfill, located in the E 1/2 of the NW 1/4 and W 1/2 of the NE 1/4, Section 23, Township 26 North, Range 7 East, Town of Knowlton, Marathon County, Wisconsin, is permitted by the Wisconsin Department of Natural Resources (WDNR) under License No. 3067. Figure 1 - Site Location Figure, shows the location of the landfill relative to the Weston Power Plant. The landfill was permitted by the WDNR on December 11, 2014, with the issuance of a Conditional Plan of Operation Approval. The facility is licensed and approved as a 57.6-acre, 4,075,500 cubic yard (cy) landfill. Cells 1 and 2 were constructed during the 2015 construction season. Construction included the new landfill cells and installation of a leachate force main, storage tank, and load-out system in late December 2015. The construction of Cells 1 and 2 was approved by WDNR on April 22, 2016, and Cell 2 was placed into service on June 27, 2016. Due to the success of the CCR beneficial use program, Cell 1 has not yet been placed into service.

GEI was retained to perform an annual inspection of the landfill in compliance with § 257.84(b) *Annual inspections by a qualified professional engineer*. The inspection was performed on November 20, 2018. Copies of the site location figure and landfill inspection photo log are appended to this letter-report and constitute the entirety of the report.

Site Inspection

The landfill site inspection was performed by Mr. John Trast, P.E. on November 20, 2018. The inspection included a meeting with the landfill operator, River View Construction to discuss the landfill operations; observation of landfill cells, the Cell 2 partial final cover slopes, and storm water management features for the site. The following are the observed conditions as of the date of the annual inspection:

- (i) Cell 1 has not been placed into service;
- (ii) Cell 2 was placed into service on June 27, 2016. As of November 20, 2018, approximately 254,335 cy of CCR have been disposed of in Cell 2. CCR placement consists of the 4-foot frost protection layer on the floor of the cell and CCR placed to final waste grades over approximately 2.5 acres of Cell 2. The permanent final cover was constructed over 2.3 acres; the remainder of the cell has CCR placed in accordance with the waste filling and storm water management plans.
- (iii) The perimeter slopes of Cells 1 and 2, and the final cover slopes of Cell 2 appear to be in excellent condition with no signs of instability, structural weakness, significant erosion, woody vegetation, or animal burrows.

Conclusion

On November 20, 2018, staff from GEI completed annual inspections of the WPS Weston Disposal Site No. 3 in compliance with § 257.84(b) *Annual inspections by a qualified professional engineer*. Cell 2 of the landfill is operational and received approximately 60,425 cy of CCR during 2018. Cell 1 is not operational and no CCR have been placed in Cell 1. The perimeter slopes of Cells 1 and 2, appeared to be in excellent condition with no significant erosion, no woody vegetation, no animal burrows, and no areas of instability or structural weakness. Approximately 2.3 acres of permanent final cover was constructed in 2016 in Cell 2,

December 19, 2018

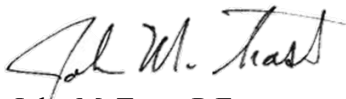
which included the south perimeter slope, southeast corner, and a portion of the east perimeter slope. No final cover construction occurred in 2017 or 2018. At the time of the inspection the permanent final cover has excellent vegetative growth cover. The cover was in excellent condition with no erosion, no woody vegetation, no animal burrows, and no areas of instability or structural weakness.

The inspection was completed by John, M. Trast, P.E. I am a licensed professional engineer in the State of Wisconsin in accordance with the requirements of Chapter A-E 4, Wisconsin Administrative Code; that this document has been prepared in accordance with the Rules of Professional Conduct in Chapter A-E 8, Wisconsin Administrative Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in Chapters NR 500 to 538, Wisconsin Administrative Code and 40 CFR 257.

If you have any questions regarding this report, please contact me at 920-455-8299.

Sincerely,

GEI CONSULTANTS, INC.



John M. Trast, P.E.
Senior Consultant

Attachments:

- Figure 1 - Site Location Figure
- Existing Site Conditions and Top of Final Waste Cross-Sections A-A', B-B', C-C', & D-D'
- Landfill Inspection Photo Log



JXT:cah

K:\WEC Energy Group\1803049_WEC WDS3 GW Monitoring and CCR Compliance\In_Progress\Landfill CCR Inspection 2018\R1803049 WPS_WDS3 2018 CCR Landfill Inspection Rpt.docx



WISCONSIN PUBLIC SERVICE
TOWN OF KNOWLTON, WISCONSIN

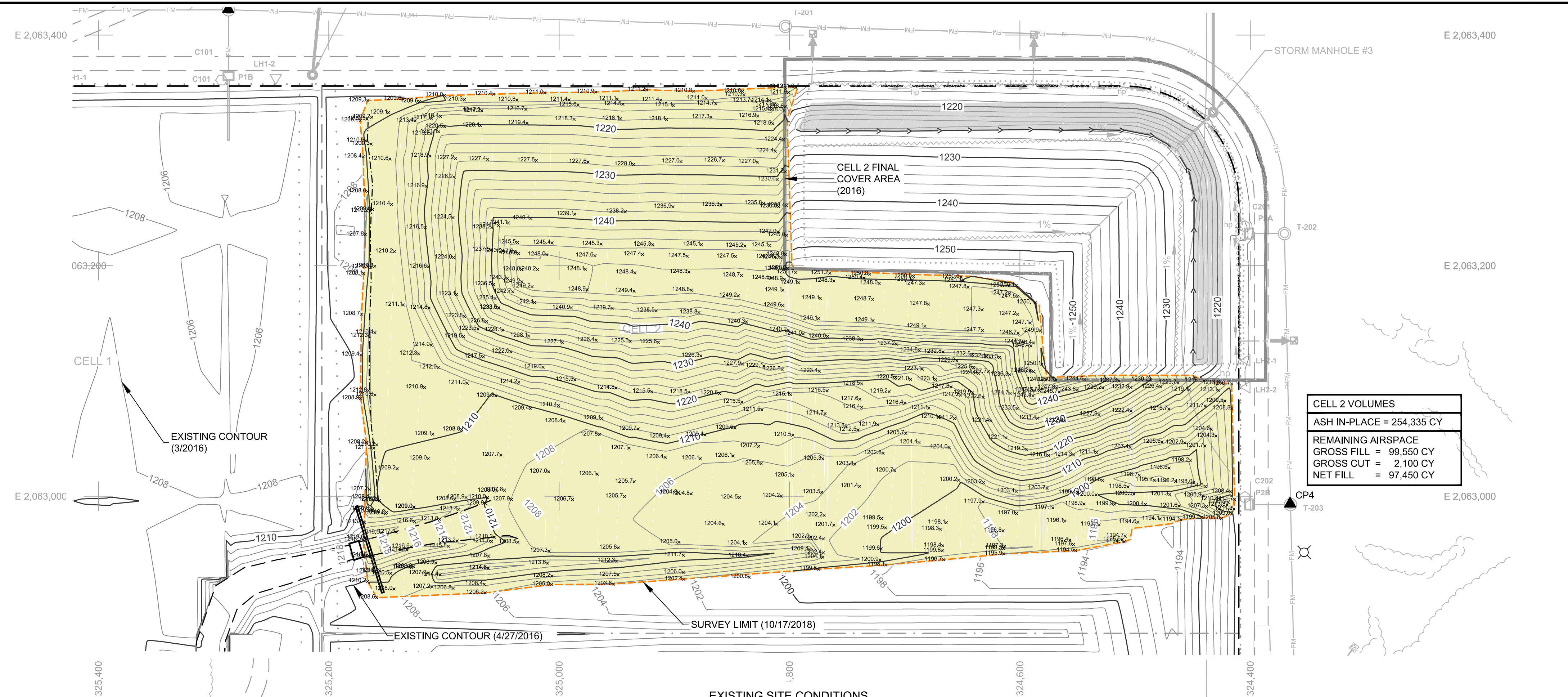


WESTON DISPOSAL SITE NO. 3
SITE LOCATION FIGURE

Project 1803049

December 5, 2018

Fig. 1



EXISTING SITE CONDITIONS



DESIGN TOP OF WASTE GRADES

SCALE IN FEET
60' 0 60'

LEGEND

- 1190 EXISTING GROUND SURFACE CONTOUR
- ROAD, NON PAVED
- ROAD, PAVED
- FENCE
- CULVERT
- STRUCTURE
- POWER POLE
- LIGHT POLE
- MANHOLE
- POST
- OBJECT
- CP4 SURVEY CONTROL MONUMENT
- CB CATCH BASIN ROUND (CB)
- MW MONITORING WELL (MW)
- WATER
- BRUSH/HEDGE
- APPROXIMATE LANDFILL LIMIT OF WASTE
- APPROXIMATE LANDFILL CELL BOUNDARY
- GEOMEMBRANE LIMIT
- FM LEACHATE FORCE MAIN
- LH2-2 LEACHATE HEADWELL
- C102 LEACHATE CLEANOUT
- P2B PERIMETER ACCESS MANHOLE
- T-202 TRANSFER MANHOLE
- STORM MANHOLE #3 STORM WATER MANHOLE & DOWNSLOPE PIPE
- 1240 MAJOR CONTOUR
- DIVERSION BERM
- 6" DIA. NON-PERFORATED DRAIN PIPE
- 24" DIA. NON-PERFORATED DRAIN PIPE
- 4" DIA. NON-PERFORATED TOE DRAIN OUTLET & RIPRAP
- 4" DIA. PERFORATED SIDESLOPE INTERCEPT & TOE DRAIN
- SPOT ELEVATION (10/17/2018)
- 1200.3x FILL FROM EXISTING GRADE TO DESIGN TOP OF WASTE GRADES THICKNESS (FT)
- .124 CUT FROM EXISTING GRADE TO DESIGN TOP OF WASTE GRADES THICKNESS (FT)
- .25

- NOTES:**
- THE TOPOGRAPHIC BASE MAP HAS BEEN CREATED FROM AERIAL PHOTOGRAPHY AND LIDAR ACQUISITION BY AERO-METRIC, INC., SHEBOYGAN, WI. DATE FLOWN: NOVEMBER 5, 2010.
 - PLAN OF OPERATION, WESTON DISPOSAL SITE NO. 3 EXPANSION, BY TRC ENVIRONMENTAL CORPORATION, MADISON, WISCONSIN, MARCH 2014.
 - CELLS 1 & 2 LINER CONSTRUCTION DOCUMENTATION, WESTON DISPOSAL SITE NO. 3, BY TRC ENVIRONMENTAL CORPORATION, MADISON, WISCONSIN, MARCH 2016.
 - CELLS 3-6 EXISTING CONDITIONS, WERE SURVEYED BY GEI, GREEN BAY, WISCONSIN, APRIL 27, 2016.
 - CELL 2 EXISTING CONDITIONS, WERE SURVEYED BY GEI, GREEN BAY, WISCONSIN, OCTOBER 17, 2018.
 - HORIZONTAL DATUM IS REFERENCED TO WISCONSIN STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE, NORTH AMERICAN DATUM (NAD 83/2007), US SURVEY FEET.
 - VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 88). CONTOUR INTERVAL IS 2 FEET.
 - APPROXIMATE PROPERTY BOUNDARY IS BASED ON EXETER DESIGN, INC. GROUND SURVEY, DATED OCTOBER 9, 2014.

CONTROL POINT COORDINATES AND ELEVATIONS

| POINT I.D. | NORTH | EAST | ELEVATION | DESCRIPTION |
|------------|------------|--------------|-----------|-------------------------|
| CP1 | 325,993.77 | 2,061,281.40 | 1187.37 | MONUMENT BRASS MHT-1000 |
| CP2 | 325,688.83 | 2,062,529.07 | 1200.35 | MONUMENT BRASS MHT-401 |
| CP3 | 325,287.26 | 2,063,422.35 | 1202.18 | MONUMENT BRASS MHT-101 |
| CP4 | 324,365.46 | 2,062,993.43 | 1208.51 | MONUMENT BRASS MHT-203 |

May 3, 2016

Attention:

0 1"

If this scale bar does not measure 1" then drawing is not original scale.

| NO. | DATE | ISSUE/REVISION | APP |
|-----|------|----------------|-----|
| 0 | X | X | X |

DRAFT

Designed: JXT
Checked: JXT
Drawn: JLC

Submittal Date: 11/16/2018



WISCONSIN PUBLIC SERVICE
700 NORTH ADAMS STREET
GREEN BAY, WISCONSIN 54307

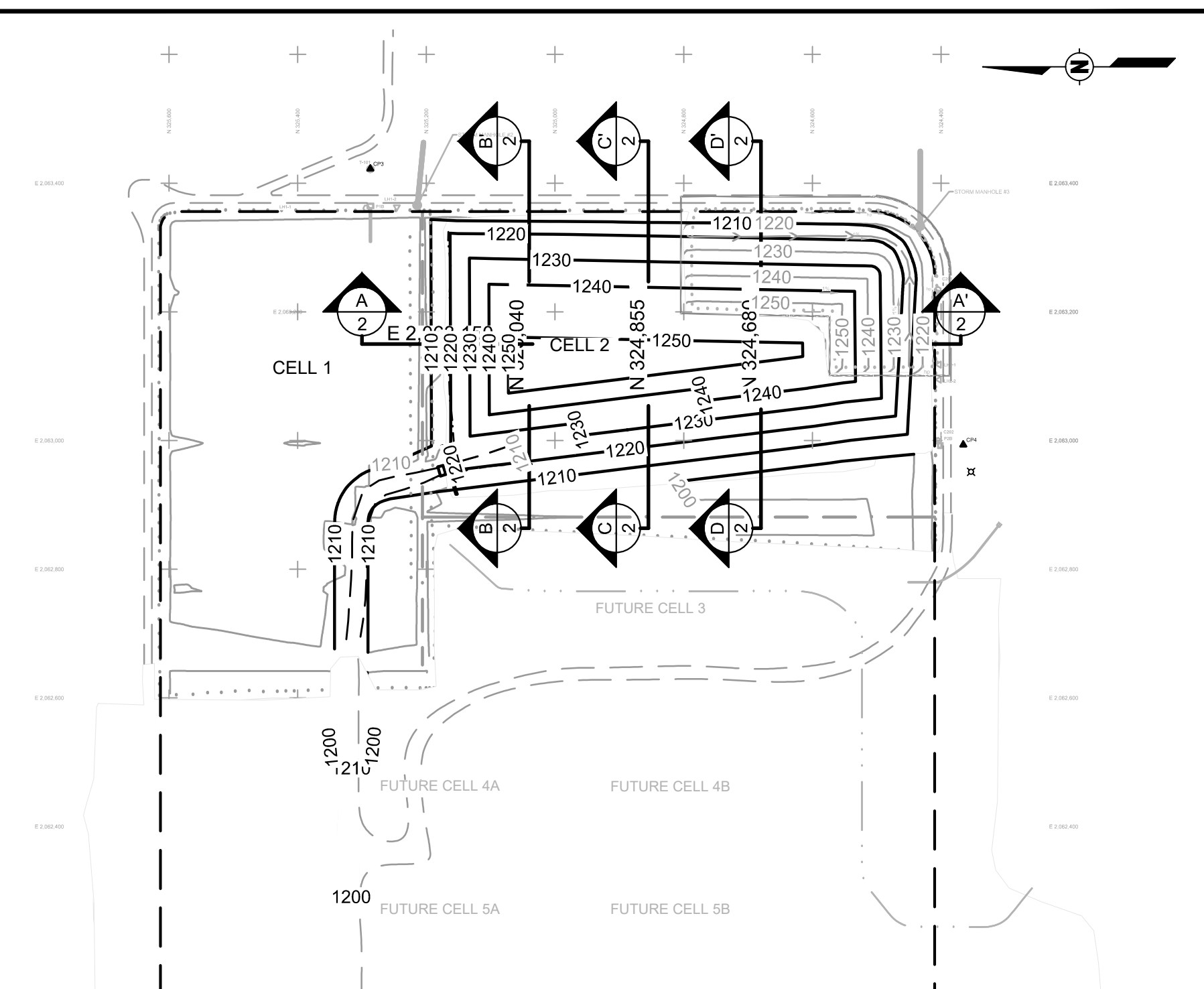
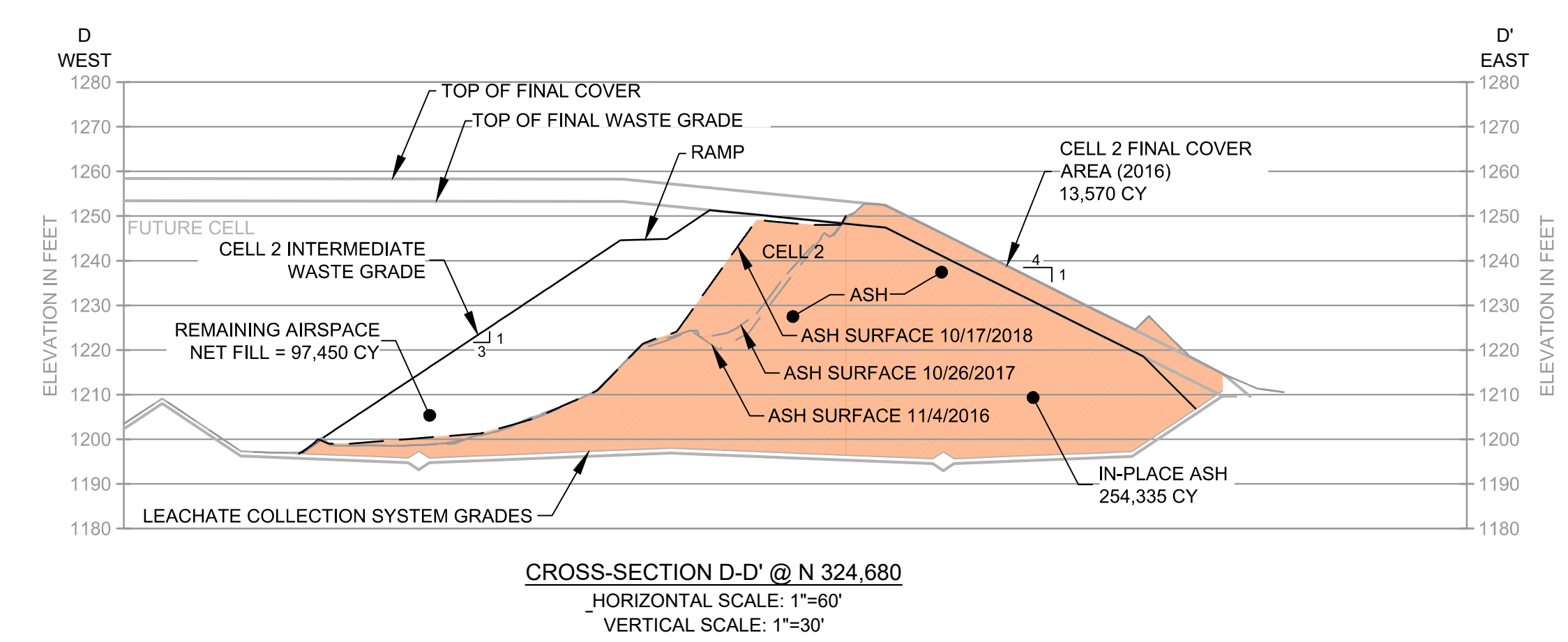
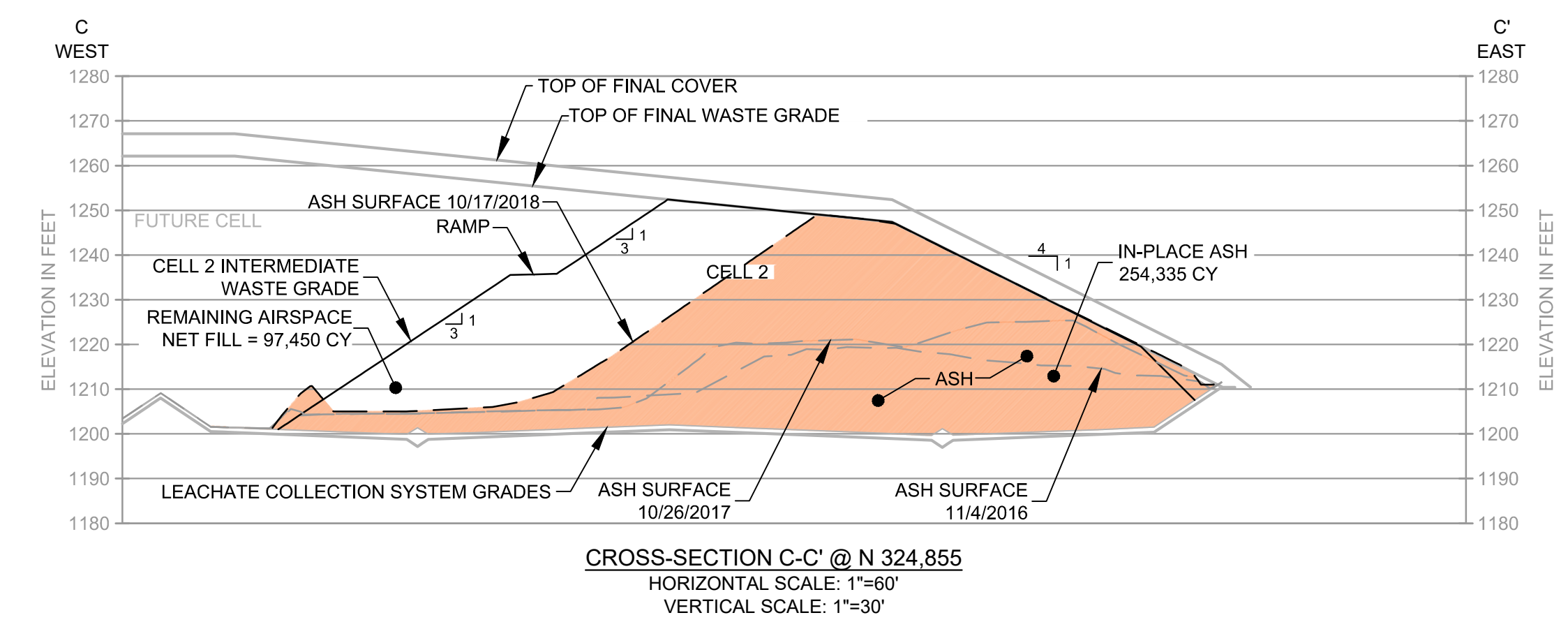
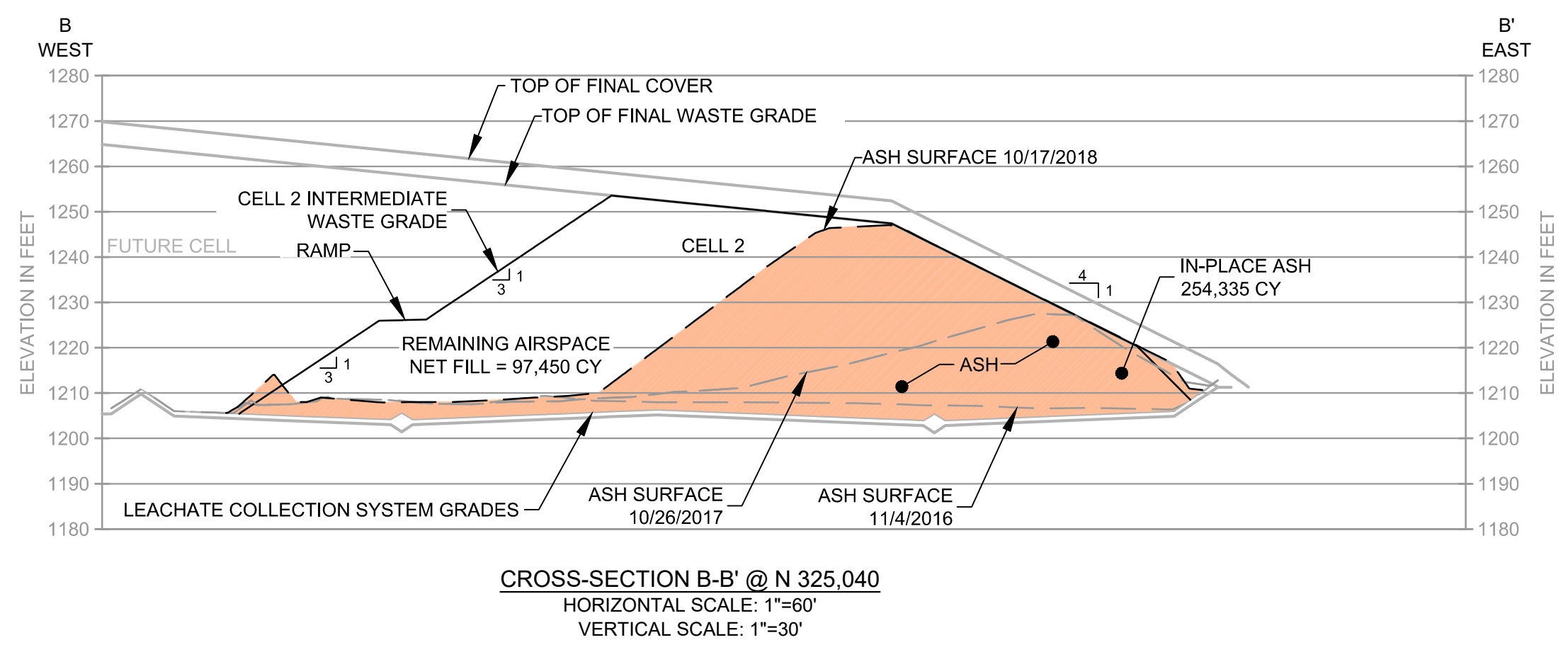
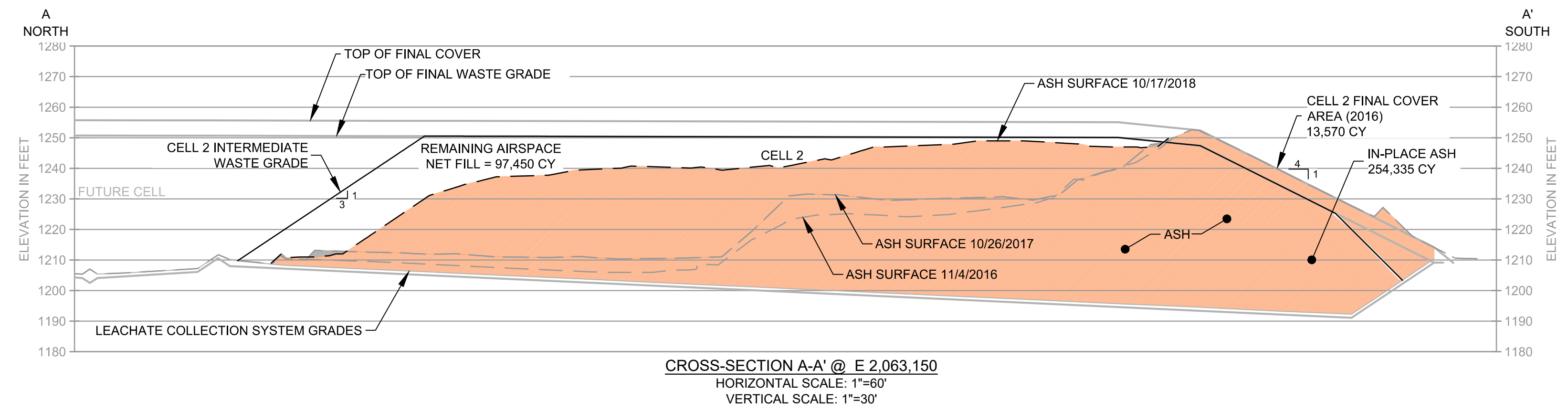
GEI Project 1600360

WPS WESTON DISPOSAL SITE NO. 3
TOWN OF KNOWLTON,
MARATHON COUNTY, WISCONSIN
2017 AIRSPACE

EXISTING SITE CONDITIONS AND
DESIGN TOP OF FINAL WASTE

DWG. NO.
C-1

SHEET NO.
1



| | | | |
|------------|------|----------------|-----|
| Attention: | | | |
| 0 | X | X | X |
| NO. | DATE | ISSUE/REVISION | APP |

DRAFT

Designed: JXT
 Checked: JXT
 Drawn: JLC
 Submittal Date: 11/16/2018



WISCONSIN PUBLIC SERVICE
 700 NORTH ADAMS STREET
 GREEN BAY, WISCONSIN 54307

GEI Project 1600360

WPS WESTON DISPOSAL SITE NO. 3
 TOWN OF KNOWLTON,
 MARATHON COUNTY, WISCONSIN
 2017 AIRSPACE

CROSS-SECTIONS A-A', B-B', C-C', & D-D'

DWG. NO. C-2
 SHEET NO. 2



Photo 1 - Westernmost gradient control pipe along south perimeter berm.



Photo 2 - Gradient control pipe slightly east of westernmost gradient control pipe along south perimeter berm



Photo 3 - Easternmost gradient control pipe along south perimeter berm.



Photo 4 - Along cell 2-3 intercell berm.



Photo 5 – Along south perimeter berm near Leachate Extraction Vault P2B.



Photo 6 – Looking at the south perimeter slope from the Stormwater Basin 3



Photo 7 - From top of Cell 2 partial final cover at Stormwater Basin 2 and Stormwater Basin 3



Photo 8 - From top of Cell 2 partial final cover at Stormwater Basin 2.



Photo 9 - Along top of Cell 2 partial final cover.



Photo 10 – From top of Cell 2 partial final cover at Stormwater Basin 2.



Photo 11 - Looking at ash slope in Cell 2 towards Cell 1



Photo 12 - Looking at ash slope in Cell 2 towards Cell 1



Photo 13 - Looking north to the east showing stormwater control ditch.



Photo 14 - Looking north to the west towards Cell 1 showing stormwater control ditch..