



**ENVIRONMENTAL • GEOTECHNICAL  
BUILDING SCIENCES • MATERIALS TESTING**

**VISUAL SITE INSPECTION REPORT – 2020**

SOUTHERN INDIANA GAS AND ELECTRIC  
A. B. BROWN GENERATING STATION  
TYPE III RESTRICTED WASTE LANDFILL  
WEST FRANKLIN, IN

ATC PROJECT NO. 170LF00979

JANUARY 8, 2021

PREPARED FOR:

SOUTHERN INDIANA GAS AND ELECTRIC COMPANY  
dba VECTREN POWER SUPPLY  
A.B. BROWN GENERATING STATION  
8511 WELBORN ROAD  
MOUNT VERNON, IN 47620  
ATTENTION: MS. ANGIE SCHELLER



January 8, 2021

Angie Scheller  
Southern Indiana Gas and Electric Company  
8511 Welborn Road  
Mount Vernon, IN 47620

**Re: Visual Site Inspection Report – 2020**  
A.B. Brown Generating Station  
Type III Restricted Waste Landfill  
West Franklin, Indiana  
ATC Project No. 170LF00979

ATC Group Services / Atlas

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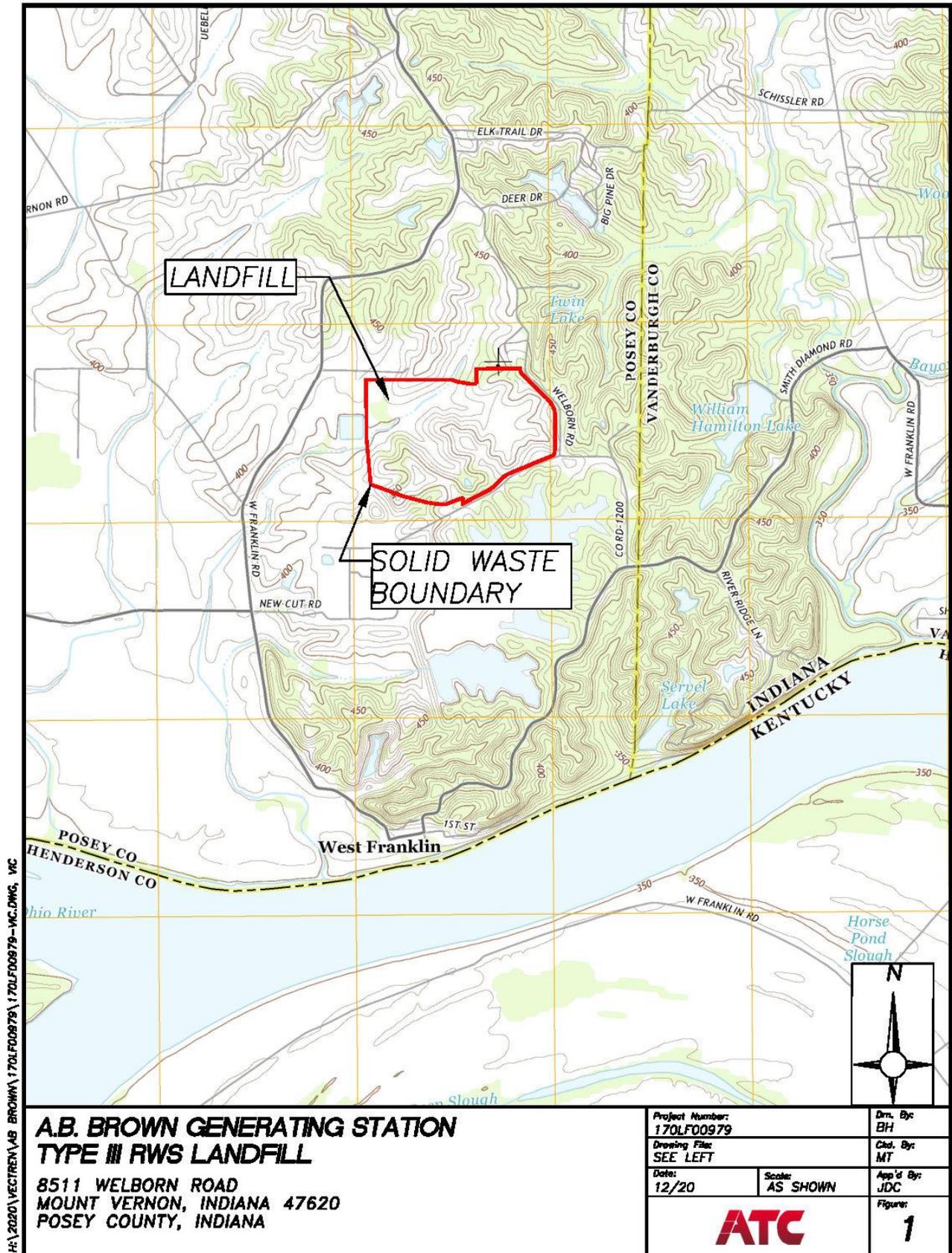
Dear Ms. Scheller:

This report summarizes our November 18, 2020 Visual Site Inspection of the Type III Restricted Waste Landfill at the A.B. Brown Generating Station. The visual inspection and this report were completed in accordance with guidelines established by the Coal Combustion Residuals (CCR) Rule published by the Environmental Protection Agency on April 17, 2015.

The scope of this inspection was limited to a visual examination of readily observable surface features of the landfill and its appurtenant structures, and a review of information that you provided. Please note that the inspection did not include any test drilling, testing of materials, precise physical measurements of landfill features, detailed calculations to verify slope stability, or other engineering analyses. Although the inspection was conducted by competent personnel in accordance with generally accepted methods for inspecting landfills, it should not be considered as a warranty or guarantee of the future performance and/or safety of the landfill.

The landfill is located within the A.B. Brown Station property in Section 24, Township 7 South, and Range 12 West, about a half mile north of the Ohio River in Posey County, Indiana as highlighted on the West Franklin, IN USGS Quadrangle map, Figure 1 on the following page.

The landfill inspection was completed by Juan Carrizo and Mike Thornbrue of ATC Group Services LLC (ATC). The weather during the inspection was sunny with temperatures around 45°F. Ground conditions were generally dry. The landfill system features are highlighted on the attached Site Plan in Appendix A.



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The landfill system was divided into the following components to help organize the inspection and the reporting:

- Landfill Partial Closure Areas (Composite Final Cover, and north, east, and south perimeter slopes of the landfill);
- Active Disposal Area (west end of the landfill);
- Vertical Expansion Disposal Area (top central portion of the landfill); and
- Landfill Settling Basin, Capitol Pond, and Detention Basin.

The approximate limits of each of these areas is noted on Sheet 1 in Appendix A.

The following paragraphs include a summary of the observations made during the inspection followed by our recommendations in bold print. Approximate locations of some of the observed features are noted on Sheet 1 in Appendix A.

## **LANDFILL PARTIAL CLOSURE AREAS – OBSERVATIONS / RECOMMENDATIONS**

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The approximate limits of the Partial Closure Area – Composite Final Cover are shown on Sheet 1 in Appendix A and cover an area of approximately 28 acres. The composite cover consists of a 40-mil LLDPE geomembrane overlain with a 16 oz/yd<sup>2</sup> nonwoven geotextile, 2.5 feet of protective soil, and 0.5 feet of topsoil. The final cover was constructed in stages from 2012 through 2014. Documentation of the completion of closure activities in this area was submitted to the Indiana Department of Environmental Management (IDEM) in three (3) separate reports in 2012, 2013, and 2014.

The approximate limits of the Partial Closure Area – Soil Final Cover are also shown on Sheet 1 in Appendix A. This section covers an area of approximately 24.5 acres and consists of a minimum of 24 inches of cohesive soils, covered with 0.5 feet of topsoil. Documentation of the completion of the closure activities along these slopes was submitted to IDEM in 2015.

Items noted during the visual inspection of this area are described in the following list.

- 1) In general, this area is well vegetated and well maintained (Locations 1 and 11). No concerns exist at this time.

**Recommendation: None at this time.**

- 2) Observed erosion occurring along perimeter drainage swale to the south and east of the Partial Closure Areas (Locations 2 and 7).

**Recommendation: Install riprap around outfall pipe, and erosion control blankets (ECB's) to prevent further erosion at these areas.**

- 3) Observed sparse vegetation around monitoring wells and other areas located on perimeter drainage swale (Locations 3, 4, and 10).

**Recommendation: Areas of sparse vegetation should be reseed with similar grasses to the ones at the site, and temporarily isolated to prevent trampling and help re-establish grass cover.**

- 4) The drop inlets and outlet pipes located in the southeast corner of the landfill were generally free of debris at the time of the inspection (Location 5).

**Recommendation: None at this time.**

- 5) A piezometer located along drainage swale to the east of the Partial Closure Area has been damaged (Location 6).

**Recommendation: Replace damaged piezometer.**

- 6) Observed rocks blocking entrance to pipe outlet at drainage swale east of Partial Closure Area. (Location 8).

**Recommendation: Remove rocks from pipe outlet.**

- 7) Observed that at outlet pipe the coupler band has come undone and the ends of the HDPE storm pipe have separated (Location 13).

**Recommendation: Fix pipe connection.**

- 8) Downdrain riprap channel on the north side of the Partial Closure Area appears in good condition and riprap has been reinforced with the addition of chain link fencing fabric (Location 14).

**Recommendation: None at this time.**

- 9) Observed downdrain pipe entrance collapsed, and accumulation of sediments deposits due to soil erosion (Location 18).

**Recommendation: Fix pipe entrance and stabilize the adjacent area with erosion control blankets, riprap, to prevent further erosion.**

## **VERTICAL EXPANSION DISPOSAL AREA OBSERVATIONS / RECOMMENDATIONS**

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The vertical expansion disposal area noted on Sheet 1 in Appendix A generally consists of approximately 18 acres across the top of the central portion of the landfill. This area has not yet been filled to the approved final grades. Items noted during the visual inspection of this area are described in the following list.

- 1) Observed sparse vegetation around side slopes areas located on the east side of the Vertical Expansion Disposal Area (Location 11).

**Recommendation: Areas of sparse vegetation should be reseed with similar grasses to the ones at the site, and temporarily isolated to prevent trampling and help re-establish grass cover.**

- 2) Erosion rills have formed on the side slopes of the Vertical Expansion Disposal Area (Locations 12, 15, and 16).

**Recommendation: Repair rills, install erosion control blankets and/or other erosion BMPs, and reseed areas to re-establish grass cover on the side slopes.**

- 3) Erosion gullies have formed on the side slopes of the Vertical Expansion Disposal Area (Location 22).

**Recommendation: Repair gullies, install erosion control blankets and/or other erosion BMPs, and reseed areas to re-establish grass cover on the side slopes.**

- 4) Observed vehicle tracks and ruts formed on terrace section of the Vertical Expansion Disposal Area (Location 23).

**Recommendation: Reinforce path section to accommodate vehicle travel, allowing for proper drainage conveyance.**

- 5) Observed soil erosion of landfill sideslope at pipe outlet, and lack of riprap at downchute on the south side of Vertical Expansion Disposal Area (Location 24).

**Recommendation: Reinforce downstream side of pipe crossing with riprap, connecting it to downchute section.**

## **ACTIVE DISPOSAL AREA OBSERVATIONS / RECOMMENDATIONS**

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The active disposal area generally consists of portions of Cells 16, 17 and 18, which occupy an area of approximately 21 acres. Items noted during the visual inspection of this area are described in the following list.

- 1) Active filling is ongoing at the west end of the landfill (Location 28).

**Recommendation: None at this time.**

- 2) There is a limited amount of freeboard between the surface of the waste and the adjoining access road at the south end of the Active Landfill Area (Location 20). In addition, surface water runoff from the northern portion of the Active Landfill Area is routed to a depression with limited freeboard at the far north end (Locations 19). It should be noted that the available freeboard at Location 19 has been improved compared to previous inspections.

**Recommendation: Monitor these areas during and after significant storm events to maintain adequate freeboard.**

- 3) Observed the presence of filter cake and soft saturated soils on the south side of the active disposal area (Location 21).

**Recommendation: Check the water levels in nearby piezometers and determine the source of the water and filter cake.**

## **LANDFILL SETTLING BASIN OBSERVATIONS / RECOMMENDATIONS**

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The existing Landfill Settling Basin was constructed in 2015 to receive water that has been in contact with waste in the landfill. The pond has a composite liner across the base and a riprap protective layer. The inlet pipe is located in the southeast corner of the pond while the drop inlet for the outlet to the Capital Pond is located in the northwest corner of the pond. A stormwater detention basin is located immediately north of the Capital Pond. Items noted during the visual inspection of this area are described in the following list.

- 1) Observed rock inside storm pipe entrance, and soil erosion in front of pipe (Location 25).

**Recommendation: Remove rock and stabilize pipe entrance with riprap to help prevent erosion.**

- 2) Grass swale west of Landfill Settling Pond appears to be working properly, adequately conveying the site drainage downstream (Location 26).

**Recommendation: None at this time.**

- 3) The slopes of the Settling Basin are lined with riprap and appeared in satisfactory condition. Also, the pond is maintaining adequate freeboard (Location 27).

**Recommendation: Continue to monitor the condition of the pond and perform maintenance as necessary.**

## **COAL COMBUSTION RESIDUALS RULE LANDFILL REQUIREMENTS/OBSERVATIONS**

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In addition to the general observations and recommendations outlined above, this visual inspection was also performed to address the standards and guidelines required by the CCR Rule established by the Environmental Protection Agency on April 17, 2015. As a result, CCR Landfills are now required to meet the requirements of 40 C.F.R. §257 to conduct annual inspections of the landfill in accordance with 40 C.F.R. §257.84(b). The requirements specified within the CCR Rule and the observations made by Juan Carrizo and Mike Thornbrue during the 2020 annual inspection are listed below:

### **40 C.F.R. §257.84**

*(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*

**The annual inspection of the AB Brown Landfill was conducted by the undersigned professional engineers on November 18, 2020. Operating records along with design plans were reviewed by the undersigned.**

*(ii) A visual inspection of the CCR unit to identify signs of distress or malfunction of the CCR unit.*

**The inspection conducted on November 18, 2020 did not reveal any signs of imminent failure for the landfill. However, there are isolated areas of erosion that require repair and/or modification as part of the ongoing maintenance of the landfill area.**

*(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;*

In general, the following changes in the geometry of the structure were noted during the 2019 visual inspection:

- **In the past year the site continued filling operations in Cells 16, 17 and 18.**
- **New waste was also placed on the center, western and southern portions of the Vertical Expansion Landfill Area.**
- **Maintenance issues noted during the 2019 visual inspection had been addressed.**

**The measures taken as outlined above have improved the overall condition of this facility.**

*(ii) The approximate volume of CCR at the time of the inspection;*

**The approximate volume of CCR within the limits of the 1988 landfill expansion is 5,048,000 cubic yards.**

*(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*

**There were no signs of structural weakness noted within the permitted solid waste boundary at the time of this visual inspection. Additional temporary erosion and sediment controls should be deployed in the Vertical Expansion area.**

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

**None noted at the time of this inspection.**

We appreciate the opportunity to assist you with this project. If you have any questions concerning information contained in this report, please do not hesitate to call either of the undersigned at 317.849.4990.

Sincerely,

**ATC Group Services**

*Michael D. Thornbrue* 1/8/2021  
Michael D. Thornbrue, P.E.  
Senior Project Engineer



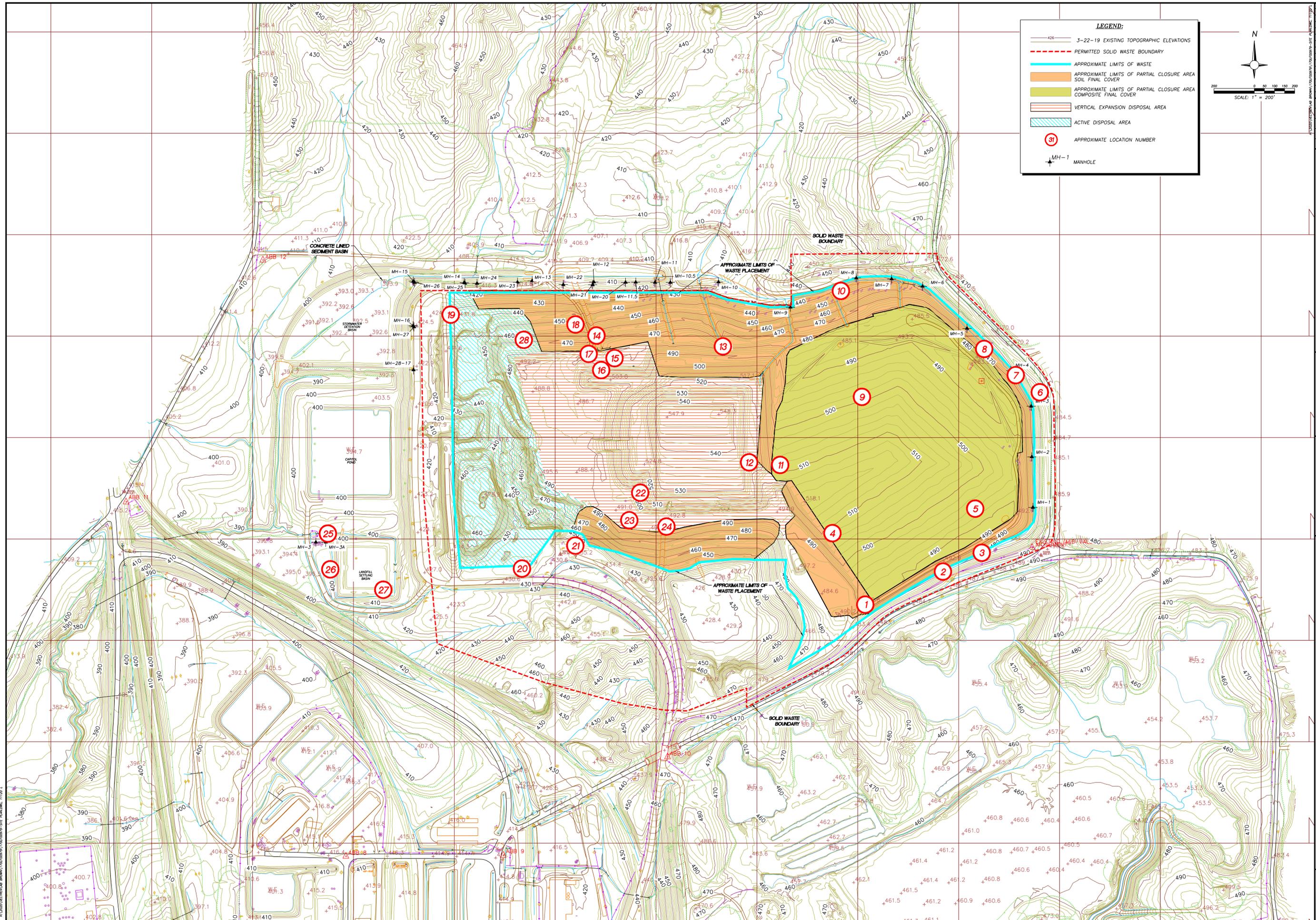
*Juan D. Carrizo*  
Juan D. Carrizo, P.E.  
Senior Project Engineer

- Copies:
- (3) Angie Scheller – SIGECO
  - (1) Eric Brown – SIGECO
  - (1) Jason Copeland – SIGECO

## Appendices

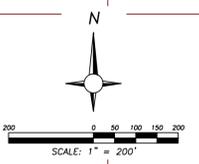
Appendix A:      Site Plan

## Appendix A: Site Plan



**LEGEND:**

- 3-22-19 EXISTING TOPOGRAPHIC ELEVATIONS
- - - PERMITTED SOLID WASTE BOUNDARY
- APPROXIMATE LIMITS OF WASTE
- APPROXIMATE LIMITS OF PARTIAL CLOSURE AREA SOIL FINAL COVER
- APPROXIMATE LIMITS OF PARTIAL CLOSURE AREA COMPOSITE FINAL COVER
- VERTICAL EXPANSION DISPOSAL AREA
- ACTIVE DISPOSAL AREA
- 31 APPROXIMATE LOCATION NUMBER
- + MH-1 MANHOLE



Project Number:  
170LF00979  
Drawing For:  
See File Location  
Date:  
12/20  
Scale:  
AS SHOWN  
App'r: JDC  
Check'r: MT  
Drawn By:  
BH

Company Name:  
ATC GROUP SERVICES, LLC  
7988 CENTERPOINT DR.  
SUITE 100  
INDIANAPOLIS, IN 46256  
PHONE +1 317 849 4990  
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Drawing Title:  
**SITE PLAN**  
TYPE III RWS LANDFILL  
8511 WELBORN ROAD  
MOUNT VERNON, INDIANA 47620

Sheet:  
**1**