NTH Consultants, Ltd.

Infrastructure Engineering
and Environmental Services

41780 Six Mile Road, Suite 200
Northville, MI 48168
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Mr. Christopher Scieszka
DTE Electric Company
One Energy Plaza
Detroit, Michigan 48226

October 14, 2021
NTH Project No. 62-210081-03

RE: Periodic Hazard Potential Classification Assessment – Bottom Ash Basins
Belle River Power Plant
East China Township, Michigan

Dear Mr. Scieszka:

NTH Consultants, Ltd. (NTH) has completed a periodic assessment of the hazard potential classification assessment (HPCA) for the bottom ash basins (CCR surface impoundments) at Belle River Power Plant (BRPP) in accordance with the Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals (CCR) from Electric Utilities, 40 CFR Part 257.73(a)(2) and (f)(3). Specifically, this HPCA constitutes the 5-year periodic assessment of the initial hazard potential classification (dated October 14, 2016) for these impoundments, as required by 40 CFR Part 257.73(f)(3). NTH performed this HPCA using information provided by personnel from DTE Electric Company (DTE) as well as our current observations and evaluations. In general, the analysis methods and development of baseline information are presented in the initial HPCA (attached) and are not reiterated herein. This letter identifies changes to the conditions documented in the initial HPCA and stipulates any new information made available to NTH as part of the periodic HPCA that may alter or re-affirm the findings from the initial 2016 assessment, which is attached to the end of the report for reference.

BACKGROUND

The BRPP bottom ash basins are physical sedimentation basins and receive bottom ash and other process flow effluent pumped from the power plant. Discharge water from each basin flows over an outlet weir and gravity flows to a site storm water conveyance network of ditches and pipes, eventually discharging in accordance with a National Pollution Discharge Elimination System (NPDES) permit. The basins are not incised CCR surface impoundments, per the definition in 40 CFR 257.53.

NTH performed the initial HPCA for the BRPP bottom ash basins in 2016 in which we documented and assessed the conditions of the bottom ash basins and the surrounding areas along with the effects of a potential sudden discharge of the basin contents. NTH estimated the volume of the release from each basin based on the site topography, geometry of the basin, and available historical information regarding flow characteristics. We previously estimated the area likely to receive an inundation if the basins were to suddenly discharge and evaluated the effects of such a sudden release.

ASSESSMENT

For this periodic HPCA, NTH performed the following to evaluate the condition of the bottom ash basins and verify the information presented in the initial HPCA:

- Performed a site visit on July 29, 2021, to meet DTE personnel, review the DTE assets, and observe the current system conditions;
- Reviewed the initial HPCA; and
- Procured supplemental topographic and bathymetric surveying of the conveyance ditches and bottom ash basins. The supplemental survey was performed on May 17, 2021, by BMJ Engineers & Surveyors, Inc. to update previous bathymetric information from 2016 and to facilitate accurate capacity calculations for the system. The supplemental survey information is included as an attachment to this letter.

Based on information from the above actions, NTH summarizes the following for this HPCA periodic assessment:

- The current configuration and condition of the basins (as shown in the attached photographs) are consistent with those presented in the initial HPCA. DTE personnel indicated that no significant alterations have been made to the basins, and no substantive changes were apparent during NTH's field observation.
- The capacity of the basins has not significantly changed from that presented in the initial HPCA:
    - 2.6 million gallons for the north basin (2.4 million gallons in 2016) and
    - 2.2 million gallons for the south basin (2.5 million gallons in 2016).

  As a point of clarification, the capacity of the basins at any given time is a function of the active dredging state and is not necessarily indicative of changes to the basin geometry. The west side overflow weirs control the basin water levels and NTH staff observed no indication that the basin or weir geometries have been altered since the initial HPCA. As such, no substantive changes to the estimated flood release volumes presented in the initial HPCA are apparent.
- The pattern and controls of the process flow system are consistent with that documented in the initial HPCA. No substantive changes were apparent during NTH's field inspection.
- The approximate dimensions and capacities of the receiving ditches have not substantively changed from those presented in the initial HPCA that would materially affect the conclusions previously identified.
- Information from the supplemental survey indicates basin water surface elevations are consistent with that documented in the initial HPCA.
- The areas of potential inundation presented in the initial HPCA are consistent with current conditions. No new inundation areas were identified and no obstructions to flow into the previously identified areas were observed.
- Usage of the potential inundation areas remains largely unchanged and there are no staffed buildings in the inundation area.

Based on the findings summarized above, the evaluation of release effects presented in the initial HPCA are applicable to the current condition of the BRPP bottom ash basins.

CONCLUSIONS

Based on the findings summarized herein and the hazard classification criteria presented in 40 CFR 257.53, NTH has determined that the bottom ash basins of the BRPP are still classified as low-hazard potential CCR surface impoundments, in accordance with 40 CFR 257.73(a)(2). A Statement of Certification for the BRPP bottom ash basins is included with this letter as an attachment. A copy of this letter should be kept in the facility's operating record for future reference.

Please contact us if you have any questions or require further information.

Sincerely,

NTH Consultants, Ltd.

DocuSigned by:
David R. Lutz
2BF41F0D0F4749B...

Steven A. McManus, P.E.
Project Engineer

DocuSigned by:
Peter A. Margules
B9A39417605C412...

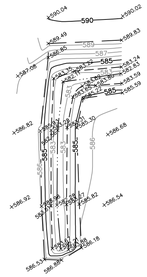
Peter A. Margules, P.E.
Principal Engineer

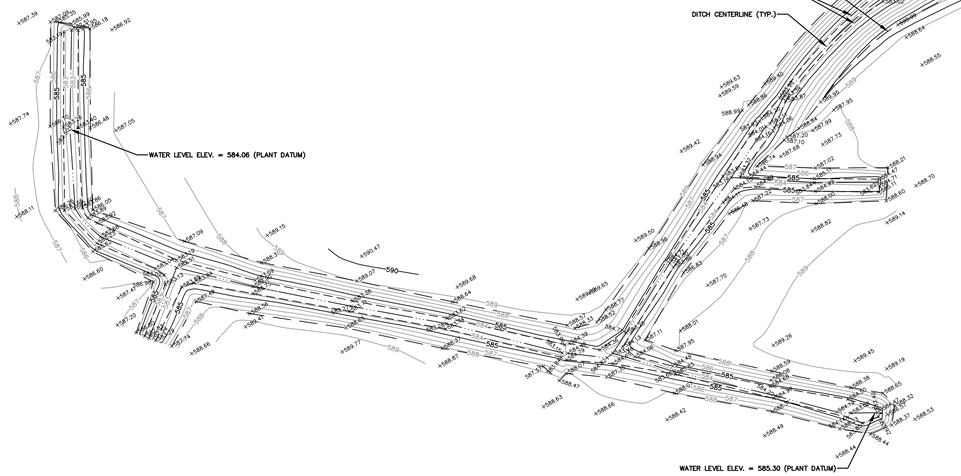
SAM/PAM/mam

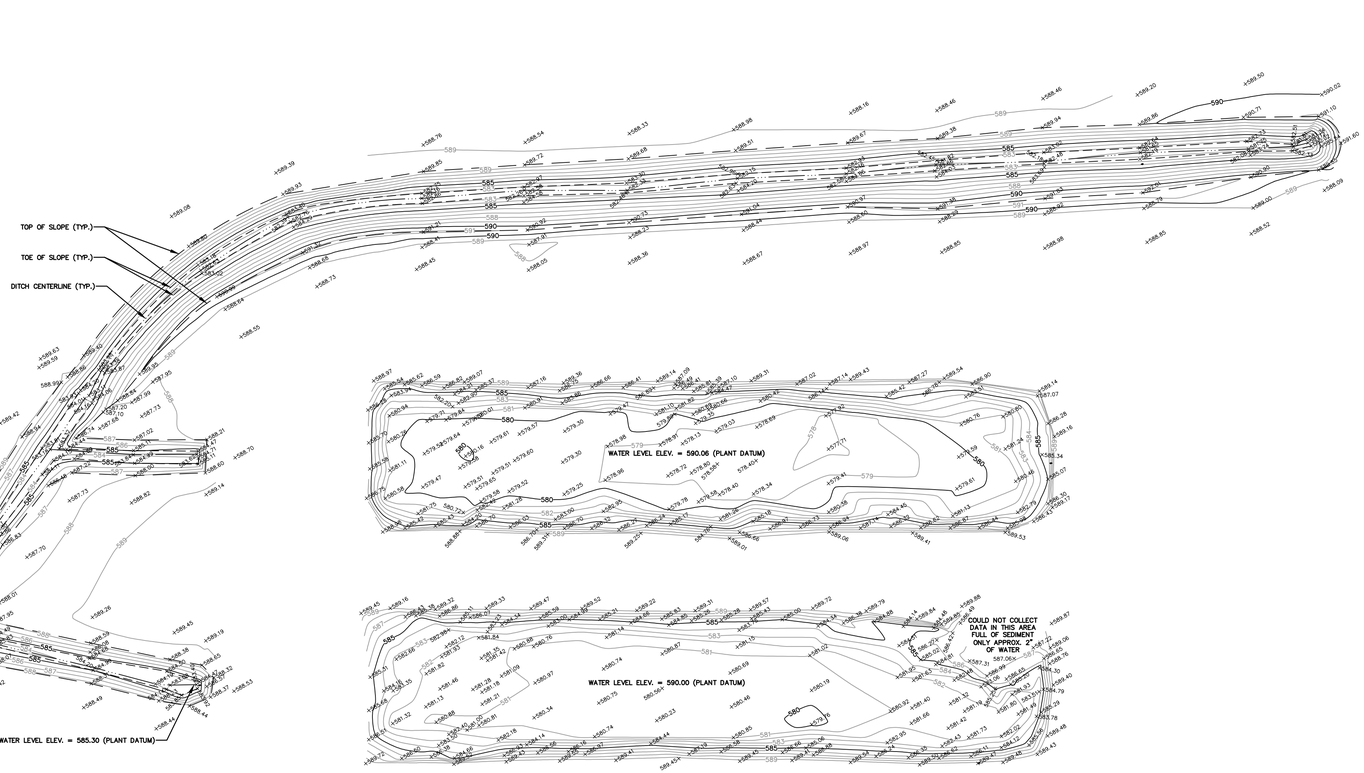
Attachments

cc: David R. Lutz, P.E. – NTH

BELLE RIVER POWER PLANT
ASH SETTLING BASINS







NOTES:
VERTICAL DATUM: DTE PLANT DATUM (ORIGIN UNKNOWN)

HORIZONTAL DATUM: DTE PLANT DATUM (ORIGIN UNKNOWN)

BENCHMARK:
DESCRIPTION: ATOP FOUND PAINTED "+" ON NORTH SIDE OF STORM MANHOLE RIM NORTHEAST OF ASH PONDS AND ±16' EAST OF ASH HAUL ROAD
ELEVATION = 590.52 (PLANT DATUM)

GRAPHIC SCALE

40 0 20 40 80

(IN FEET)
1 inch = 40 ft.

CIVIL ENGINEERS & LAND SURVEYORS
519 HURON AVE. PORT HURON, MI 48060
TEL: 810-984-5596 FAX: 810-984-8760
Web Page: www.bmjinc.com Email: mail@bmjinc.com

BMJ ENGINEERS & SURVEYORS, INC.

BATHYMETRIC SURVEY OF ASH SETTLING BASIN AT DTE BELLE RIVER POWER PLANT
KING ROAD, CHINA TOWNSHIP, ST. CLAIR COUNTY, MICHIGAN
FOR: NTH CONSULTANTS, LTD

NO	REVISIONS	DATE

SCALE: 1" = 40'
DATE: 5-17-21
SURVEYED: AMB
DRAWN: SWS
CHK'D: RJA
JOB NO. 1904.13
SHT 1 OF 1

Z:\ZDrawings\1904-13\dwg\1904-13 Bathymetric.dwg, 5/24/2021 7:30 AM, BMS

Photograph 1: South Dike of the South Basin Looking Approximately West from Near the Southeast Corner of the Dike

Photograph 2: Weir at the West End of the South Basin Looking Approximately North

Photograph 3: Looking Approximately South from Near the Diversion Gate

Photograph 4: Looking Approximately Southwest from Near the Southwest Corner of the South Basin

Photograph 5: Looking Approximately West from the West Side of the Dike West of the South Basin

Photograph 6: Looking Approximately Southwest from South of the Discharge Channel for the North Basin

Photograph 7: Looking Northeast from Knife Gate North of the Discharge Channel for the North Basin

Photograph 8: Looking Approximately East from North of the North Dike of the North Basin

STATEMENT OF CERTIFICATION

I, Peter A. Margules, a Professional Engineer licensed in the State of Michigan, certify[1] that NTH Consultants, Ltd. have reviewed available historical information, conducted a field visit, and performed engineering analysis and calculations to assess the hazard potential classification for the bottom ash CCR surface impoundments at the DTE Belle River Power Plant, located in East China Township, Michigan. To the best of my knowledge and belief, the analysis and documentation presented in this report for the bottom ash basins at the aforementioned facility is accurate and has been developed in substantial conformance with the requirements stipulated in 40 CFR Part 257.73.

_____

Peter A. Margules, P.E.
State of Michigan Professional Engineer
License No. 49197

([1]) I am rendering my professional opinion based on the information available to me at the time of this report's writing. This certification does not comprise a guarantee or warranty that certain conditions exist, nor does it relieve any other party of their requirements to abide by all applicable local, state, and federal regulations, and to honor all express or customary guarantees and warranties associated with their work.

Report

Hazard Potential Classification Assessment
Belle River Power Plant
East China Township, Michigan

DTE Energy Company
One Energy Plaza, Detroit, MI

October 14, 2016
NTH Project No. 62-160047-05

NTH Consultants, Ltd.
41780 Six Mile Road
Northville, MI 48168

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INTRODUCTION

NTH Consultants, Ltd. (NTH), using information it developed as well as that provided by personnel from DTE Energy Company (DTE), has completed a hazard potential classification assessment (HPCA) for the bottom ash basins (CCR surface impoundments) at Belle River Power Plant (BRPP) in accordance with the Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals (CCR) from Electric Utilities, 40 CFR Part 257.73. The hazard potential classification categorizes the CCR impoundments according to the probable loss of human life, the impacts on economic and environmental interests, and disruption of lifeline facilities. One purpose of the hazard potential classification is to select appropriate design, analysis, and operations criteria, such that these criteria become more conservative as the potential for loss of life and/or property damage increases.

The BRPP was constructed in the 1980s in East China Township, just west of the DTE St. Clair Power Plant (STCPP). The power plant is located on the peninsula formed by the St. Clair and Belle Rivers, approximately three miles south of St. Clair, Michigan. The bottom ash basins are physical sedimentation basins and receive bottom ash and other process flow effluent pumped from the power plant. Discharge water from each basin flows over an outlet weir and gravity flows to a site storm water conveyance network of ditches and pipes, eventually discharging in accordance with a National Pollution Discharge Elimination System (NPDES) permit. An overall site plan is included as Figure 1, in the attachments.

Regulatory Basis

In accordance with 40 CFR Part 257.73(a)(2), NTH has prepared this HPCA to evaluate and document the hazard potential classification for the bottom ash CCR surface impoundments. Specifically, this HPCA constitutes the initial hazard potential classification for these impoundments in accordance with the definitions of high, significant, and low hazard potential CCR impoundments given in 40 CFR 257.53. These definitions are:

- (1) *High hazard potential CCR surface impoundment*: a diked surface impoundment where failure or mis-operation will probably cause loss of human life.

- (2) *Significant hazard potential CCR surface impoundment:* a diked surface impoundment where failure or mis-operation results in no probable loss of human life, but can cause economic loss, environmental damage, disruption of lifeline facilities, or impact other concerns.

- (3) *Low hazard potential CCR surface impoundment:* a diked surface impoundment where failure or mis-operation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the surface impoundment owner's property.

As prescribed by 40 CFR 257.73(a), performing the HPCA is required because the basins at BRPP are not incised CCR surface impoundments, based on the definition given in 40 CFR 257.53. NTH has concluded that, based on the evaluation discussed below, the BRPP CCR bottom ash impoundments are classified as low-hazard potential CCR surface impoundments.

BACKGROUND AND ANALYSIS

NTH performed the hazard potential classification assessment to evaluate how the bottom ash CCR surface impoundments would affect surrounding areas in the event of sudden discharge of the contents of the basins. NTH estimated the volume of the release from each basin based on the site topography, geometry of the basins, and available historical information regarding the flow characteristics. Using this information, we considered the downstream areas into which the release would flow, site topography, and the existing occupancy and usage of these areas. As such, a comparison was made between the estimated volume of the release and the downstream storage volume in areas likely to receive an inundation if the basins were to suddenly discharge, to assess the impact on the affected area.

The Preamble of 40 CFR 257 indicates the Environmental Protection Agency (EPA) relies on Federal Emergency Management Agency (FEMA) requirements "as the basis for general CCR surface impoundment safety requirements," including hazard potential classification. Accordingly, NTH referred to the Federal Guidelines for Dam Safety: Hazard Potential Classification System for Dams (Guidelines), prepared by the Interagency Committee on Dam Safety (FEMA 333, April 2004) for completing the HPCA. With regard to the conditions that are assumed, the Guidelines indicate that classification is based on consideration of the effects of a release during both normal and flood flow conditions. Among other criteria, the Guidelines also indicate the hazard potential classification system "considers improbable loss of life to exist where persons are only temporarily in the potential inundation area."

Development of Information

In order to compile the data necessary for the HPCA, NTH conducted several steps including:

- Performed a site visit to meet DTE personnel, learn about the DTE assets, and field review the existing system conditions;
- Reviewed historic site drawings provided by DTE plant staff; and
- Procured ground surface topographical elevations for the site in the vicinity of the basins and portions of the downstream flow channels by McNeely & Lincoln Associates (MLA), a registered land surveyor, on April 11, 12, and May 20, 2016. MLA also sounded the bottom of the basins to allow for accurate capacity calculations and surveyed components of the system, including the basins (identified on Figure 2 as the North Pond and South Pond), the weir and box structure, ditch dimensions, and pipe and manhole inverts (see the attached Figure 2 for the detailed survey information).

Existing System Components and Surrounding Area

Two bottom ash basins exist at BRPP, designated as the north basin and the south basin. The basins' constructed side slopes of 2 units horizontal to 1 unit vertical (2H:1V) inclination are

riprap-protected, with a portion of the exterior dikes constructed above-grade with compacted clay (according to a review of historical construction drawings). Refer to Photograph 1 for the typical geometry of the exterior slopes of the basins and the relative elevation of the top of the dike and the surrounding areas. As depicted on Figure 2, the basins are roughly rectangular in plan shape and are arranged side-by-side with a single, intermediate dike common to both basins. The north basin has a capacity of 2.4 million gallons (approximately 7.4 acre-feet) and the south basin has a capacity of 2.5 million gallons (approximately 7.7 acre-feet).

Water containing bottom ash enters on the east side of each basin through two 24-inch underground pipes. The basins each discharge over an outlet weir into a box structure on the west side of the basins (see Photograph 2). The weirs span the entire width of the basins (approximately 90 feet) and each box structure flows into a 24-inch reinforced concrete pipe (RCP) which discharges into a surface ditch. The ditches combine into a larger ditch located north of the north basin from which the flow is routed into a 36-inch RCP underground pipe and eventually discharges into another site storm/process water pond, identified as the Diversion Pond.

The water levels in the bottom ash basins are controlled by the fixed elevation of the outlet weirs, establishing a water level in the basins at 590.0 feet, which is higher than the surrounding grade outside the embankments. Knife gate structures in the surface ditches (Photograph 3) can be opened to allow emergency overflow or bypass from the basins to Webster Drain but normally are closed to direct flow to the Diversion Pond. Accordingly, our analysis is based on the consideration that flow from the basins would be operating under normal conditions at the time of sudden release from the basins and would not reach the Webster Drain through the gate structures.

Pertinent elevations of the bottom ash basins and drainage system are presented in Table 1, below, developed from the available topographic survey information.

Table 1 – Basin and Discharge Ditch Elevations		
Feature	**North Basin**	**South Basin**
Crest Elevation of Dikes	592.1 to 592.5 (most locations) 595.3 (maximum)	
Toe of Dike Exterior Slope	588.6 (minimum) (1) 588.9 (typical) 590.9 (maximum)	586.7 (minimum) (1) 587.0 (typical) 589.8 (maximum)
Top of Bank from Individual Discharge Ditches	587.3 to 588.7	587.4 to 588.4

(1) Elevation is an individual spot elevation from the survey; however, the typical value is considered to be more representative of the overall dike geometry for purposes of the HPCA and is the value used for the downstream toe for analysis purposes.

Other site features not related to the drainage system for the bottom ash basins but which could potentially be affected by a release from the basins include site roads, storm ditches, storage areas, and undeveloped areas. These features are visible in Figure 1 and pertinent items are shown and labeled on Figure 3, as appropriate.

The land to the northwest and west of the paved road and to the north and west of the basins is generally either unused at present or is used for outside storage of equipment and materials. See Photographs 4 through 8 for typical conditions in these areas.

The nearby area to the south and southeast of the paved road (south of the basins) is generally also used for outside storage; however an un-manned carpenter shop building (according to DTE personnel, no workers are stationed in the building and it is not normally occupied) and a covered storage structure are also present.

The unused and storage areas to the west and northwest of the paved road and to the west of the basins generally have ground surface elevations ranging from approximately Elevation 586 at the edge of the ditch along the paved road to higher than Elevation 590 in the storage area south of the Webster Drain.

Release of Basin Contents

NTH performed hydraulic/hydrologic analysis to estimate the elevation of the water surface within the basins under conditions of peak discharge from plant process flow in combination with inflows from the 1% annual chance storm event (*i.e.*, the 100-year storm, resulting in the 100-year flood event). Our analysis is outlined in the report, "Inflow Design Flood Control System Plan; Belle River Power Plant," dated October 14, 2016, and indicates the water level under these conditions would rise to approximately 0.2 feet above the weir level, approximately Elevation 590.2.

Based on a water level of roughly Elevation 590.2 and releasing the contents of the basin to the typical elevation of the toe of the exterior slope of the basin, NTH estimated the release volume for each basin by multiplying the surface area of each basin (calculated using AutoCAD Civil 3D 2017 computer software) by the change in elevation of the water surface being considered (*i.e.*, 590.2 minus either 588.9 for the north basin or 587.0 for the south basin). The estimate maximum potential flooded volume for each basin summarized in Table 2.

Table 2 – Basin Flood Release Estimates

Location	Flood Volume (CF)	Flood Volume (Gallons)
North Basin	45,900	343,400
South Basin	109,900	822,000

Considering the available topographic information, a release of the contents of the north basin is of concern only as a result of failure of the north and west dikes, as the ground surface at the toe of the east dike is approximately at or above the water surface elevation and the south side of the north pond is the intermediate dike. Similarly, release of the contents of the south basin is of reasonable concern as a result of failure of the south and west dikes.

Since the release volume is considerably less for the north basin than for the south basin, and a release from the north basin would flow almost directly into the combined channel under

normal conditions, a release from the north basin only affects a relatively small, and currently unused, area between the basin and the combined discharge ditch.

A release from the south basin resulting from failure of the south dike or southern portion of the west dike would generally flow southward and into the storm ditch on the north side of the paved road south of the basins and would fill the portion of the ditch to the southwest. The ditch is estimated to have the capacity to store approximately 11,600 CF, corresponding to approximately 86,800 gallons, below Elevation 585.8, which appears to be the lowest point on the north bank of the ditch. Accordingly, the ditch will become full, then flood the unused and storage areas to the west of the paved road and southwest of the south basin. The flood level will rise to the level at which water will likely spill into the discharge ditch for the south pond, which is below the low level of the paved road surface in the vicinity of the basins at Elevation 588.6. The discharge ditches are estimated to have the capacity to store approximately 91,300 CF, corresponding to approximately 682,800 gallons, below Elevation 587.0. As such, it is expected that flooding, if a dike failure for the south basin were to occur, would inundate not only the perimeter discharge and storm ditches around the basins, but also the unused and outside storage areas, which will make up the difference between the release volume and the combined storm ditch and discharge ditch storage volumes. Figure 3 shows the approximate extents of potential inundation (flooding) from release of water from either basin based on available site topographical information and our observations made during our site visit.

As indicated earlier in this report, for purposes of assessing the extent of flooding, it is assumed that flow will remain in the storm ditch on the north side of the road and adjacent areas to the north and west of the paved road without exiting through the various connected pipes. Considering the potential that flow may occur through these pipes away from the basin area, an increase in the available capacity of the ditches to store released water results in an expected reduction for the extent of inundation. The ground surface elevation of the storage area on the south and east side of the paved road, in the vicinity of the carpenter shop

building, is generally expected to be above the level to which water would rise in the adjacent ditches and therefore is not expected to be within the area of flooding, as shown on Figure 3.

Evaluation of Release Effects

As described above, in the event of a release of the south basin contents, areas currently unused or used for outside storage of materials and equipment are expected to experience flooding. According to information provided by DTE personnel, no workers are typically stationed within the area of potential inundation from release of the basin contents. Accordingly, loss of life resulting from a release of the basin contents is not probable. Further, considering the nature of the items stored in the outside storage areas that would potentially be subjected to flooding, it does not appear that appreciable economic loss would be caused by release from the basins as well as the affected inundation areas are expected to remain principally on the BRPP property, as shown on Figure 3.

CONCLUSIONS

According to 40 CFR 257.53, for a CCR surface impoundment to be classified as a low-hazard, failure of the impoundment must result in no probable loss of life and low economic or environmental losses, with losses principally limited to the owner's property. Based on the evaluation outlined in earlier sections of this report, it is NTH's opinion that these conditions are satisfied for the bottom ash CCR impoundments at BRPP. As such, through this HPCA, NTH has determined that the bottom ash basins of the BRPP are classified as low-hazard potential CCR surface impoundments in accordance with 40 CFR 257.73(a)(2).

STATEMENT OF CERTIFICATION

I, Peter A. Margules, a Professional Engineer licensed in the State of Michigan, certify[1] that NTH Consultants, Ltd. have reviewed available historical information, conducted a field visit, and performed engineering analysis and calculations to determine the hazard potential classification for the bottom ash CCR surface impoundments at the DTE Belle River Power Plan, located in East China Township, Michigan. To the best of my knowledge and belief, the analysis and documentation presented in this report for the bottom ash basins at the aforementioned facility is accurate and has been developed in substantial conformance with the requirements stipulated in 40 CFR Part 257.73.

Peter A. Margules, P.E.
State of Michigan Professional Engineer
License No. 49197

([1]) I am rendering my professional opinion based on the information available to me at the time of this report writing. This certification does not comprise a guarantee or warranty that certain conditions exist, nor does it relieve any other party of their requirements to abide by all applicable local, state, and federal regulations, and to honor all express or customary guarantees and warranties associated with their work.

ATTACHMENTS

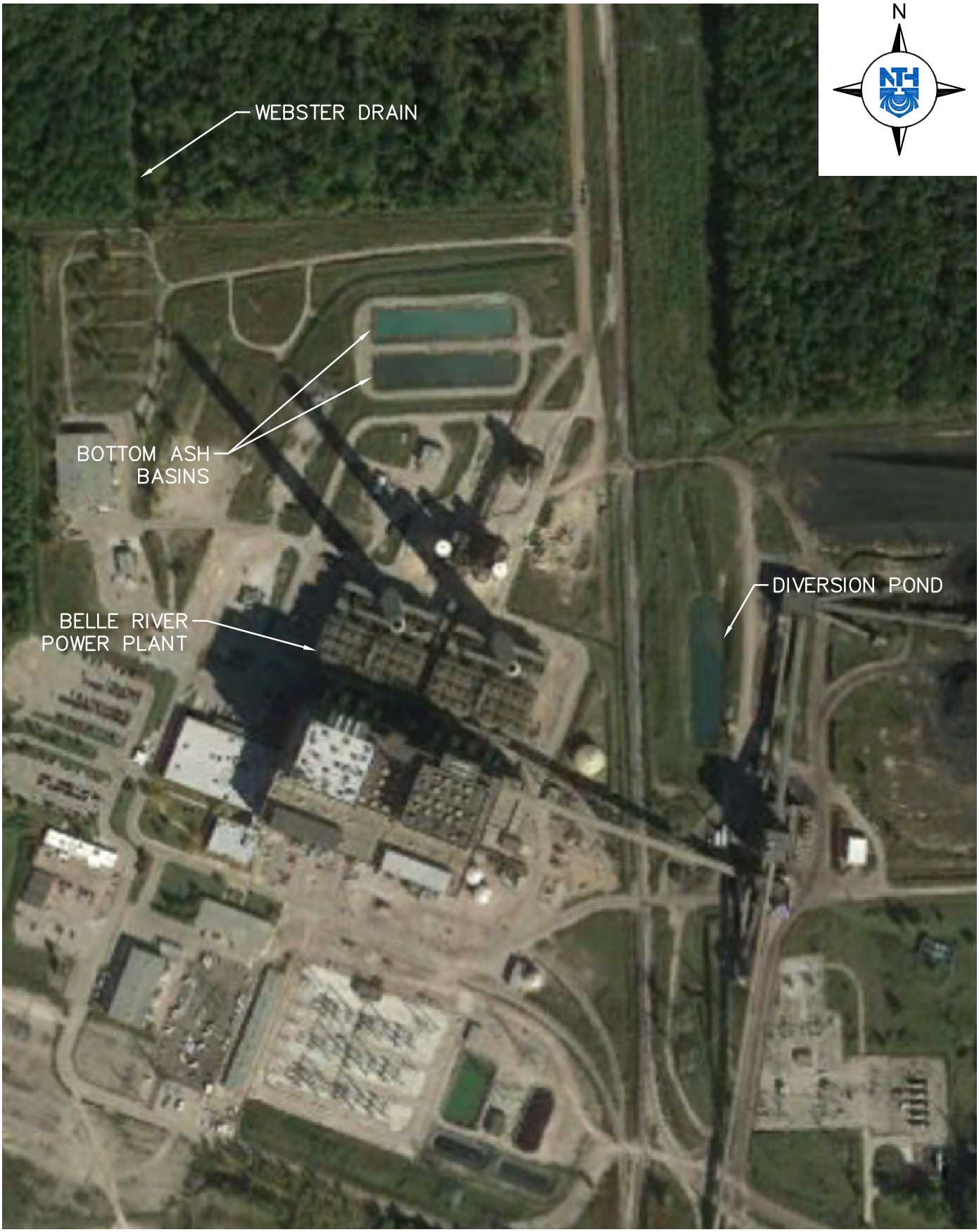
- Figure 1: Overall Site Plan
- Figure 2: Topographic Survey
- Figure 3: Existing Conditions and Potential Flooding Zone
- Photographs 1 through 8: Site Conditions

REFERENCE DOCUMENTS

- 6C1258-1 “GENERAL SITE PLAN & PROPERTY SURVEY”
- 6C1258-15-1 “YARD PIPING & DUCT BANK PLAN”
- 6C1258-15-3 “ASH SETTLING SYSTEM PLAN SECTIONS & DETAILS”
- 6MS1258-27 “GENERAL YARD MAP”

ATTACHMENTS

- FIGURE 1: OVERALL SITE PLAN
- FIGURE 2: TOPOGRAPHIC SURVEY
- FIGURE 3: EXISTING CONDITIONS AND POTENTIAL FLOODING ZONE
- PHOTOGRAPHS 1 – 8: SITE CONDITIONS



NTH PROJECT No.: 62-160047	CAD FILE NAME: 160047-BRPP
DESIGNED BY: SLG	PLOT DATE: 10/10/2016
DRAWN BY: SLG	DRAWING SCALE: 1" = 400'
CHECKED BY: DRL	INCEPTION DATE: 9/7/2016

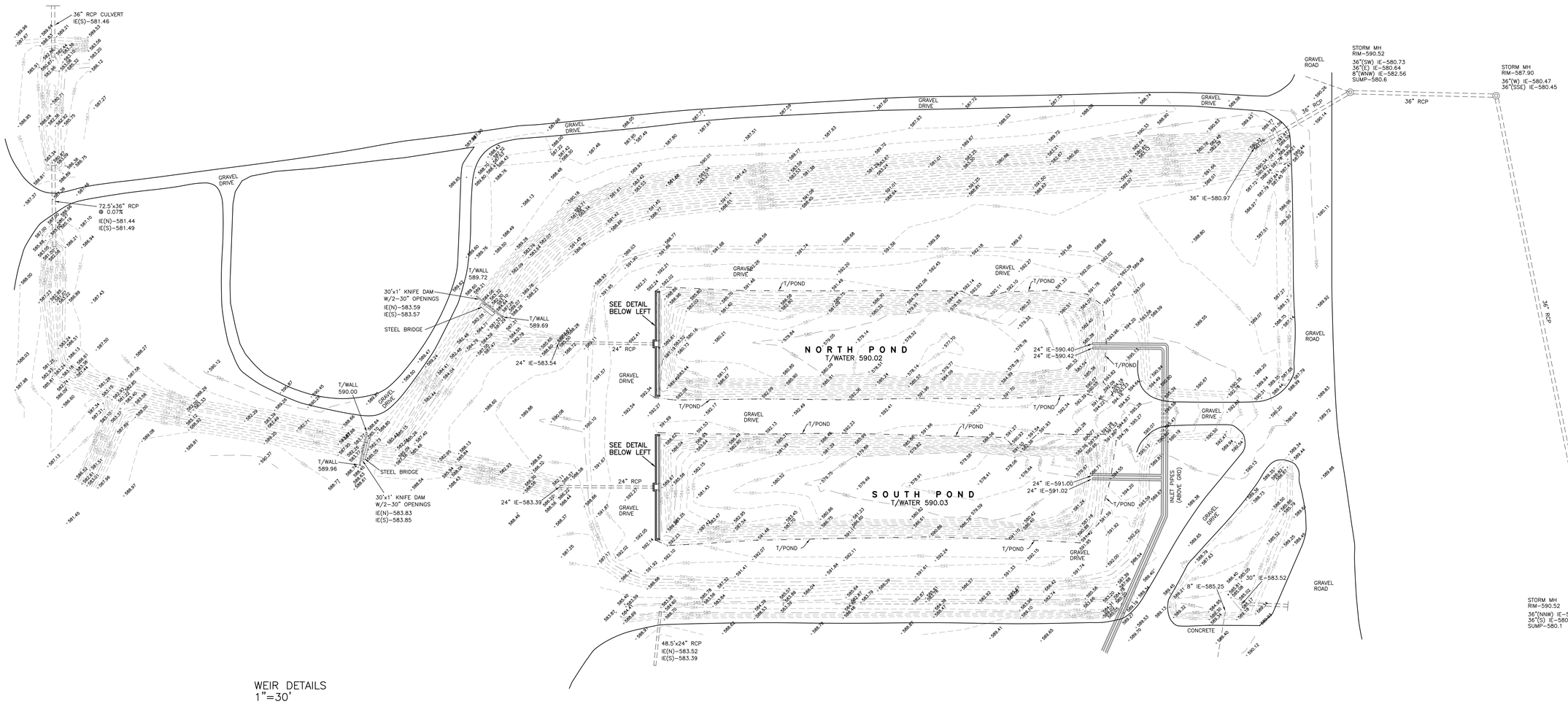
NTH Consultants, Ltd.
Infrastructure Engineering and Environmental Services

SITE LOCATION PLAN

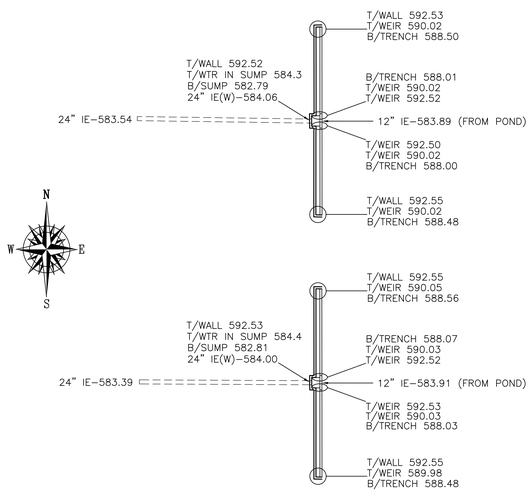
BELLE RIVER POWER PLANT
EAST CHINA TOWNSHIP, MI

FIGURE: 1

BELLE RIVER POWER PLANT
ASH SETTLING BASINS



WEIR DETAILS
1"=30'



UTILITY WARNING

UNDERGROUND UTILITY LOCATIONS, AS SHOWN ON THE PLAN, WERE OBTAINED FROM UTILITY OWNERS, AND FIELD LOCATION WHERE POSSIBLE. MCNEELY & LINCOLN CAN NOT GUARANTEE THE ACCURACY AND COMPLETENESS OF THE UTILITY INFORMATION.

A MINIMUM OF 3 WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY "MISS DIG" AND HAVE ALL UNDERGROUND UTILITIES STAKED BEFORE ANY WORK MAY BEGIN.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES THAT MAY INTERFERE WITH CONSTRUCTION.

811 Know what's below. Call before you dig.

DATUM INFORMATION:
HORIZONTAL DATUM = DTE PLANT DATUM
ORIGIN UNKNOWN

VERTICAL DATUM = DTE PLANT DATUM
ORIGIN UNKNOWN

STATE OF MICHIGAN
DAVID P. WHITE
PROFESSIONAL SURVEYOR
NO. 50458
LICENSED PROFESSIONAL SURVEYOR

NTH Figure 2

0 10 40 80 120
SCALE: 1 INCH = 40 FEET

McNEELY&LINCOLN Associates, Inc.
CIVIL ENGINEERING & LAND SURVEYING
PH. (734) 432-9777 FAX (734) 432-9786
37741 PEMBROKE, LIVONIA, MICHIGAN 48152

CLIENT: NTH CONSULTANTS, LTD.
41700 GARDENBROOK, SUITE 100
NORTHVILLE, MI 48168

DATE:	060316
SURV. BY:	TFS
DRWN BY:	DPW
CHKD BY:	MRD
F.B.:	840

REVISIONS

REV.	
E	
D	
C	
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A	

TOPOGRAPHIC SURVEY – ASH BASINS
BELLE RIVER POWER PLANT
SE 1/4 SECTION 13, CHINA TWP.
ST. CLAIR COUNTY, MICHIGAN

1

SCALE: 1"=40'
PROJECT NO.: 8243.01
FILE NAME: 8243.01 TOPO
SHEET 1 OF 1

LEGEND

- 580 — EXISTING CONTOUR LINE
- EXISTING GRAVEL DRIVE
- EXISTING PIPING
- EXISTING MANHOLE
- APPROXIMATE LIMITS OF POTENTIAL FLOODING

N

0 25' 50' 100'
SCALE

NOTE: EXISTING TOPOGRAPHIC SURVEY COMPLETED BY MCNEELY LINCOLN AND ASSOCIATES ON APRIL 11, 12, AND MAY 20, 2016

J:\2016\EA\160047\source drawings\surfaces\160047-br-phcr.dwg Plotted: 10/13/2016 11:35 AM by sgrant

NTH Consultants, Ltd.
Infrastructure Engineering and Environmental Services

Northville, MI	248.553.6300
Detroit, MI	313.237.3900
Lansing, MI	517.484.6900
Grand Rapids, MI	616.451.6270
Cleveland, OH	216.334.4040

SUBMITTAL

REV	DESCRIPTION	DATE	BY

PROJECT NAME:

DTE BELLE RIVER POWER PLANT CCR IMPOUNDMENT HAZARD POTENTIAL CLASSIFICATION ASSESSMENT

PROJECT LOCATION:

BELLE RIVER POWER PLANT
EAST CHINA TOWNSHIP, MICHIGAN

NTH PROJECT NO.: 62-160047	CAD FILE NAME: 160047-BR-PHCR
DESIGNED BY: PAM	INCEP DATE: 10/10/2016
DRAWN BY: SLG	DRAWING SCALE: 1" = 50'
CHECKED BY: DRL	SUBMITTED DATE: 10/13/2016

SHEET TITLE:

EXISTING CONDITIONS AND POTENTIAL FLOODING ZONE

SHEET REFERENCE NUMBER:

3

Hazard Potential Classification Assessment
Bottom Ash Basins CCR Surface Impoundments
Belle River Power Plant
East China Township, Michigan

Photograph 1: South Dike of the South Basin Looking Approximately West from Near the Southeast Corner of the Dike

Photograph 2: Weir at the West End of the South Basin Looking Approximately North

Photograph 3: Looking Approximately South from Near the Diversion Gate

Photograph 4: Looking Approximately Southwest from Near the Southwest Corner of the South Basin

Photograph 5: Looking Approximately West from the West Side of the Dike West of the South Basin

Photograph 6: Looking Approximately Southwest from South of the Discharge Channel for the North Basin

Photograph 7: Looking Approximately North from South of the Discharge Channel for the North Basin

Photograph 8: Looking Approximately East from North of the North Dike of the North Basin