## Location Restriction Compliance Demonstration

Burlington Generating Station Surface Impoundments 4282 Sullivan Slough Road Burlington, Iowa 52601

Prepared for:

Interstate Power and Light Company Burlington Generating Station 4282 Sullivan Slough Road Burlington, Iowa 52601

## SCS ENGINEERS

25219168.00 | October 29, 2020

2830 Dairy Drive Madison, WI 53718-6751 608-224-2830

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## P.E. CERTIFICATION

ERIC J. NELSON	I, Eric J. Nelson, hereby certify that the demonstrations prepared for the surface Burlington Generating Station meet the 257.61(a), 62(a), and 63(a). This certific of the October 2020 Location Restriction Demonstrations for the surface impound Engineers. I am a duly licensed Profession of the State of Iowa.	e impoundments at the requirements in 40 CFR cation is based on my review n Compliance dments prepared by SCS
	(signature)	(date)
IOWA INT	Eric J. Nelson	
10/29/20	(printed or typed name)	
	License number 23136	
	My license renewal date is December 32	1, 2020.
	Pages or sheets covered by this seal:	
	All pages except Appendix A.	

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## 1.0 INTRODUCTION

On behalf of Interstate Power and Light Company (IPL), SCS Engineers (SCS) has prepared the enclosed Location Restriction Compliance Demonstration for the coal combustion residual (CCR) surface impoundments at the Burlington Generating Station (BGS) as required by 40 CFR 257.61-63. The CCR surface impoundments addressed with this demonstration include:

- BGS Ash Seal Pond
- BGS Main Ash Pond
- BGS Economizer Pond
- BGS Upper Ash Pond

Figure 1 shows the site and surface impoundment locations.

#### **2.0** LOCATION RESTRICTIONS

#### §257.61 "Wetlands."

"(a) New CCR landfills, existing and new CCR surface impoundments, and all lateral expansions of CCR units must not be located in wetlands, as defined in §232.2 of this chapter, unless the owner or operator demonstrates by the dates specified in paragraph (c) of this section that the CCR unit meets the requirements of paragraphs (a)(1) through (5) of this section."

The existing CCR surface impoundments are not located in wetlands as defined by 40 CFR 232.2. A wetland delineation was performed by Impact7G, Inc. in October 2019. The wetland delineation identified wetland areas adjacent to BGS facilities. All of the delineated wetlands are separated from the CCR surface impoundments by existing embankments. The surface impoundments at BGS were identified as non-wetland areas of industrial ponds and waterways. As described by Impact7G, "these areas were not classified as wetlands as they have been explicitly designed, constructed, and maintained for the treatment and containment of CCR." No wetlands meeting the 40 CFR 232.2 definition were delineated in the surface impoundments. A copy of the wetland delineation report is included in **Appendix A**.

#### §257.62 "Fault areas."

"(a) New CCR landfills, existing and new CCR surface impoundments, and all lateral expansions of CCR units must not be located within 60 meters (200 feet) of the outermost damage zone of a fault that has had displacement in Holocene time unless the owner or operator demonstrates by the dates specified in paragraph (c) of this section that an alternative setback distance of less than 60 meters (200 feet) will prevent damage to the structural integrity of the CCR unit."

Based on a review of the U.S. Geological Survey (USGS) Quaternary faults database and map as shown in **Appendix B**, the existing CCR surface impoundments are not located within 200 feet of the outermost damage zone of a fault that has had displacement in Holocene time. In 40 CFR 257.53, Holocene is defined as the most recent epoch of the Quaternary period extending from 11,700 years before present, to present. The USGS map shows that no faults are located in lowa.

#### §257.63 *"Seismic impact zones."*

"(a) New CCR landfills, existing and new CCR surface impoundments, and all lateral expansions of CCR units must not be located in seismic impact zones unless the owner or operator demonstrates by the dates specified in paragraph (c) of this section that all structural components including liners, leachate collection and removal systems, and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth material for the site."

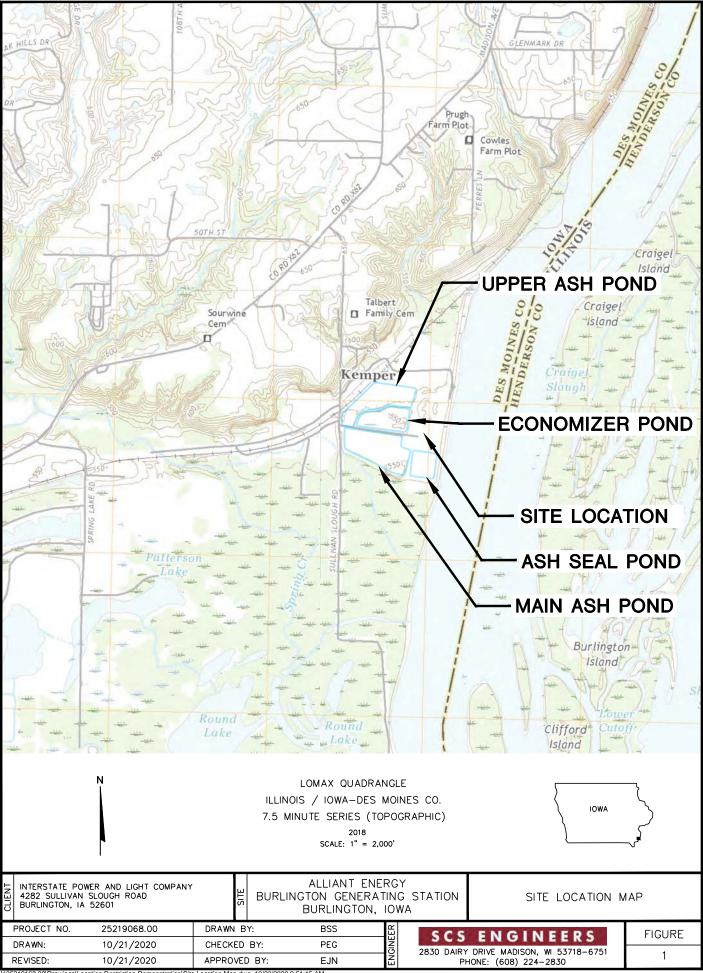
The existing CCR surface impoundments are not located in seismic impact zones. In 40 CFR 257.53, a seismic impact zone is defined as an area having a 2 percent or greater probability that the maximum expected horizontal acceleration, expressed as a percentage of the earth's gravitational pull (g), will exceed 0.10 g in 50 years. Based on a review of the USGS 2014 Seismic Hazard Maps (see **Appendix C**), the maximum expected horizontal acceleration for the vicinity of BGS is approximately 0.04-0.06 g, below the threshold for a seismic impact zone.

#### **3.0** REFERENCES

- A. Impact7G, Inc., 2020, Wetland Delineation Report Burlington Generating Station Pond Closure, January 6, 2020.
- B. USGS Quaternary Faults map website (accessed, 10/21/2020): https://usgs.maps.arcgis.com/apps/webappviewer/index.html?id=5a6038b3a1684561a9b0 aadf88412fcf
- C. Petersen, M.D., Moschetti, M.P., Powers, P.M., Mueller, C.S., Haller, K.M., Frankel, A.D., Zeng, Yuehua, Rezaeian, Sanaz, Harmsen, S.C., Boyd, O.S., Field, E.H., Chen, Rui, Luco, Nicolas, Wheeler, R.L., Williams, R.A., Olsen, A.H., and Rukstales, K.S., 2015, Seismic-hazard maps for the conterminous United States, 2014: U.S. Geological Survey Scientific Investigations Map 3325, 6 sheets, scale 1: 7,000,000, <u>http://dx.doi.org/10.3133/sim3325</u>

Figure 1

Site Location Map



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Appendix A

Wetland Information

## Wetland Delineation Report



Burlington Generating Station Pond Closure

Prepared for:

SCS Engineers 2830 Dairy Drive Madison, WI 53718

Prepared by:



Impact7G, Inc. 310 Second St. Coralville, Iowa 52241 Project #: SCS-002

1/6/2020

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## **1.0 Executive Summary**

#### 1.1 Purpose & Need

Impact7G was contracted by SCS Engineers to complete a wetland delineation investigation for a proposed pond closure at the Burlington Generating Station (BGS). The intent of this wetland investigation is to document existing site conditions, at the time of delineation, as may be of consequence to any potential regulatory compliance needs.

#### **1.2 Location**

Street Address:4282 Sullivan Slough Road<br/>Burlington, IA 52601Township:69NRange:02WSection:29Quarter:SW ¼See Figure B for Location Map.

#### **1.3 Summary Findings**

Impact7G delineated 1.43 total acres of wetland within the Investigation Area, composed of 0.99 acres of emergent wetland and 0.44 acres of forested wetland. Figure A shows delineated wetlands within the Investigation Area.

Potential jurisdiction of wetlands by state or federal agencies is not discussed in this report.

# 2.0 Methodology: Delineation of Wetlands and Other Waters of the U.S.

#### 2.1 Wetlands

Field analysis was completed using the routine onsite determination method defined in the *U.S. Army Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (USACE, 2010). Delineation data points and wetland boundaries were recorded across the site and associated shapefiles are available upon request.

#### 2.2 Streams & Tributaries

For the purposes of this report, streams & tributaries are characterized by having both a defined bed and bank, and an ordinary high water mark (OHWM).

#### **2.3 Ditches**

Any areas identified as ditches within the Investigation Area were specifically designed and are maintained to promote roadway or other drainage. Ditches exhibiting wetland characteristics (hydrophytic vegetation, hydric soils, or wetland hydrology), that were constructed in *upland* areas are not identified as wetlands or other waters of the U.S. For the purposes of this report, ditches or portions of ditches meeting wetland characteristics that were likely constructed in pre-existing wetlands and/or intersect existing wetlands, or

other waters of the U.S., are identified as wetlands. Furthermore, ditches are distinguished herein from streams or tributaries if they lack a defined bed and bank, ordinary high water mark, and perennial flow.

## 3.0 Discussion of Findings

Wetland delineation fieldwork was completed on 10/17/2019, by: Will Downey, Certified Wetland Delineator Reid Stamer, PWS, Certified Wetland Delineator

#### **3.1 Current Conditions**

The Burlington Generating Station is a coal power plant facility adjacent to the Mississippi River. Figure F outlines all areas of the BGS currently in use for the storage, capture, and treatment of coal and coal combustion residuals (CCR). These areas were not classified as wetlands as they have been explicitly designed, constructed, and maintained for the treatment and containment of CCR. Within the Investigation Area there are two areas delineated as wetland which are not explicitly designed and used for BGS operations: the wetland ditch between the BGS Upper Ash Pond/railroad and the floodplain forest along the southern boundary of the Investigation Area.

The Palmer Hydrologic Drought Index for the week of the wetland delineation field work indicates wetter than normal conditions (very moist) for the region. Wetland boundaries were readily distinguishable within the Investigation Area according to changes in topography and landscape position, and the presence/absence of visible standing water and saturation within the upper 12" of the soil surface.

Field conditions observed are supported by National Wetland Inventory (NWI) data and minimally supported by SSURGO hydric soils mapping (Figure D). Mapped NWI wetlands within the Investigation Area correspond to the delineated wetland areas as well as the constructed industrial ponds and waterways. Soils within the Investigation Area do not accurately correspond with SSURGO soils mapping, as the site has been disturbed by the construction and operation of the BGS facility and CCR treatment ponds.

The entire Investigation Area is located within either the FEMA National Flood Hazard Layer (NFHL) 0.2% annual chance flood hazard zone or the NFHL 1% annual chance flood hazard zone. The United States Army Corps of Engineers (USACE) has a river monitoring gage for the Mississippi River located upstream from the site in Burlington. At the time of the delineation, the Mississippi River was at approximately 18 feet (Figure G), where flood stage is 15 feet, and major flood stage is 18 feet. Due to the level of flooding within the lowest sections of the Investigation Area, soils or vegetation were inaccessible due to deep standing flood water from the river.

#### **3.2 Wetland Determinations**

Emergent wetlands included low-landscape areas in the right of way subject to frequent flooding and high water tables, with vegetation dominated by Kentucky blue grass, reed canary grass, or common reed grass (datapoint S-06). These areas were not considered ditch (as described in Section 2.3, above) due to inundation at the time of field work, potential construction within pre-existing wetland (prior to 1930's), and direct connection with the floodplain of the Mississippi River (20% annual probability flood zone according to flood mapping available from the Iowa Department of Natural Resources [IDNR] / Iowa Flood Center [IFC] Draft Flood Hazard Mapping<sup>1</sup> – Figure H). The area between the railway and the BGS Upper Ash Pond had an open water area (0.24 acres) within the center of the emergent wetland, where vegetation was not visible at the time of field work and does not appear to have distinguishable emergent vegetation in recent aerial imagery. This area is assumed to be nonpersistent emergent wetland, which was flooded at the time of field observation.

<sup>&</sup>lt;sup>1</sup> https://ifis.iowafloodcenter.org/ifis/newmaps/risk/map/

Forested wetlands are located along the southern boundary of the Investigation Area (datapoint S-07). This wetland area is subject to frequent flooding and high water tables and is dominated by typical floodplain forest species such as silver maple, green ash, and eastern cottonwood. Herbaceous vegetation and soils were not observable during field work due to the depth of flooding, as this area is within the two year flood plain of the Iowa Draft Flood Hazard Map (50% annual probability flood zone –Figure H).

Non-wetland areas including industrial ponds and waterways (labeled on Figure A) were dominated by common reed and other hydrophytic species (data points S-04 & S-05). Wetland hydrology was present in most areas. Soils within these areas were not hydric, composed of a shallow mixture of CCR and fill soils above a barrier of unknown material at approximately 10 inches of depth, where sampled. Furthermore, these areas are considered previously disturbed due to a well-documented history of disturbance and industrial nature of the site. Disturbance history is evident on historic aerial imagery and is described in detail on *Alliant Energy's CCR Rule Compliance Data and Information*<sup>2</sup> website.

Table 1: Delineated Wetland Areas (Cowardin Classification)

Palustrine Wetland Class	Total Acres
Emergent	0.99
Forested	0.44

See also: Figure A: Wetland Delineation Map Appendix A: Photos Appendix B: Wetland Delineation Datasheets

## 4.0 Regulatory Review

The USACE regulates the discharge of dredged or fill materials into all regulated waters of the United States (WATERS), including wetlands and streams, under Section 404 of the Clean Water Act (USAEWES Environmental Laboratory, 1987). The process of Jurisdictional Determination, conducted by the USACE, may determine that all or part of the WATERS delineated for this project are considered regulated. Based on the information provided, it appears this project may involve filling part of WATERS and therefore may require permits from the USACE and the IDNR prior to beginning work.

The USACE normally requires acquisition of a Section 404 permit and mitigation when any WATERS impact is proposed. In general, there are two types of permits as described below.

<u>Nationwide Permits</u>: A nationwide permit is generally the simplest form of the 404 permits. Wetland loss of 1/2 acre or less is typically permitted under a Nationwide Permit. Stream impacts of 300 linear feet or less are typically permitted under a Nationwide Permit. This permit often requires preconstruction notification to the Corps for impacts to as little as 1/10 of an acre or less. Generally, this permit takes 30 to 45 days to obtain.

<u>Individual Permits:</u> An individual permit requires a full public interest review. A Public Notice is distributed to all known interested persons. After evaluating comments and information received, a final decision on the application is made. The permit decision is generally based on the outcome of a public interest balancing process in which the benefits of the project are balanced against the detriments. A permit will be granted unless the proposal is found to be contrary to the public interest. Processing time usually takes 60 to 120 days unless a public hearing is required or an environmental statement must be prepared.

<sup>&</sup>lt;sup>2</sup> https://ccr.alliantenergy.com/Burlington/SurfaceImpoundment/DesignCriteria

During the permitting process for either type of permit, the USACE requires that applicants first establish that impacts to WATERS cannot be avoided. Permit applicants then must demonstrate that reasonable efforts to minimize impacts to WATERS have been made in the design and construction plans. Having taken the first two steps, applicants then must provide a plan for compensation, usually through mitigation, for unavoidable impacts. In general, our experience has been that the USACE requires in-kind mitigation be done at a minimum ratio of one (1) to one (1) but may require a compensation ratio of 1.5:1 to 2.5:1 (i.e., two and one-half acres of constructed wetland for every one acre of impact) in some circumstances.

## **5.0 Conclusions**

Impact7G delineated 1.43 total acres of wetland within the Investigation Area, composed of 0.99 acres of emergent wetland and 0.44 acres of forested wetland.

If proposed activities will impact these areas, consultation with the USACE and the IDNR is strongly recommended

This report has been prepared for the exclusive use of our client, and for specific application to the project discussed. To the best of my knowledge the above statements, attachments, including those labeled and identified as enclosures, and all conclusions are true, accurate, and based on current environmental principles and science. No warranties, either expressed or implied, are intended or made. In the event that changes in the nature, design or location of the project as shown are planned, the conclusions and recommendations contained on this form shall not be considered valid unless Impact7G, Inc. reviews the changes and either verifies or modifies the conclusions of this form in writing. This report has been prepared by:

1/6/2020

Prepared by: Will Downey, Environmental Specialist II

Date

Reviewed by: Reid Stamer, PWS

## References

"Closure Plan for Existing CCR Surface Impoundments." Sargent & Lundy, LLC, prepared for Interstate Power and Light Company. 9, December 2019, https://ccr.alliantenergy.com/-/media/aeccr/CCRDocuments/Burlington/SurfaceImpoundment/ClosurePostClosureCare/WrittenClosurePlan.pdf

Hurt, G.W. (ed.), 2006. Field Indicators of Hydric Soils in the United States, Version 6.0. USDA, NRCS, Baltimore, MD.

"Iowa Flood Risk Maps." Iowa Flood Center. 25, November 2019, https://ifis.iowafloodcenter.org/ifis/newmaps/risk/map/

USAEWES Environmental Laboratory, 1987. <u>Corps of Engineers Wetland Delineation Manual</u>. Technical Report Y-87-1.

- U. S. Army Corps of Engineers (USACE), 2005. <u>Subject: Ordinary High Water Mark Identification</u>. Regulatory Guidance Letter No. 05-05. Date: 12/7/2005.
- U. S. Army Corps of Engineers (USACE), 2010. <u>Regional Supplement to the Corps of Engineers Wetland Delineation</u> <u>Manual: Midwest Region.</u> ERDC/EL TR-08-27. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- "USGS 404753091053001 Mississippi River at Burlington, IA." United States Geologic Survey. 9, December 2019, https://waterdata.usgs.gov/nwis/uv?site\_no=404753091053001
- "Weekly Palmer Drought Indices." *National Oceanic and Atmospheric Administration*, US Department of Commerce, 3 October 2019, https://www.ncdc.noaa.gov/temp-and-precip/drought/weekly-palmers/

#### **GIS & Mapping Layer Sources**

All field data shown on maps for wetlands, waterways, bat tree habitat, and data points field-collected and post-processed using ArcGIS by Impact7G Inc., 2019.

Aerial photography provided by Iowa GEODATA (ArcGIS Server) Source: <u>https://geodata.iowa.gov/</u>

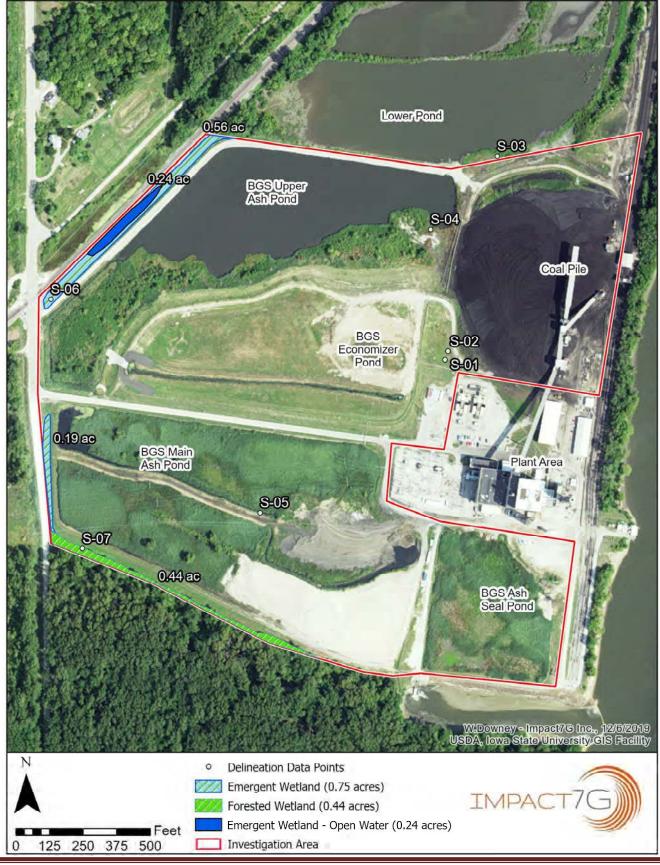
Base-mapping data provided by Iowa GEODATA, including:

- 2-foot contour lines
- USGS 24,000 Topographic Mapping
- National Wetland Inventory (NWI) mapping
- Stream Centerlines in Iowa
- Source: <u>https://geodata.iowa.gov/</u>

Digital SSURGO Soils Data provided by USDA data gateway. Source: <u>http://datagateway.nrcs.usda.gov/</u>

Iowa Flood Risk Mapping provided by the Iowa Flood Center (ArcGIS Server) Source: <u>https://ifis.iowafloodcenter.org/ifis/newmaps/risk/map/</u>

## **Figure A: Wetland Delineation Map**



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## **Figure B: Location Map**



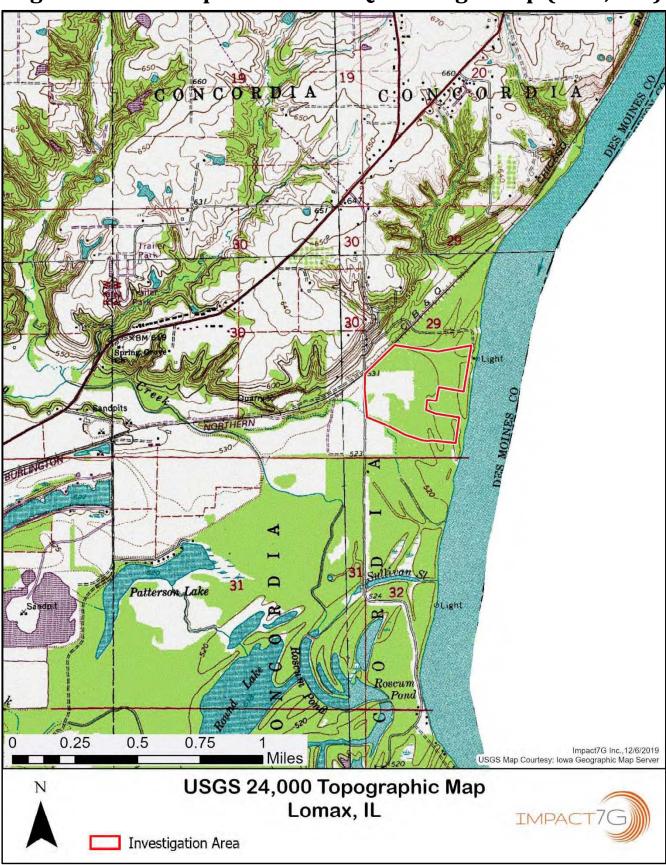
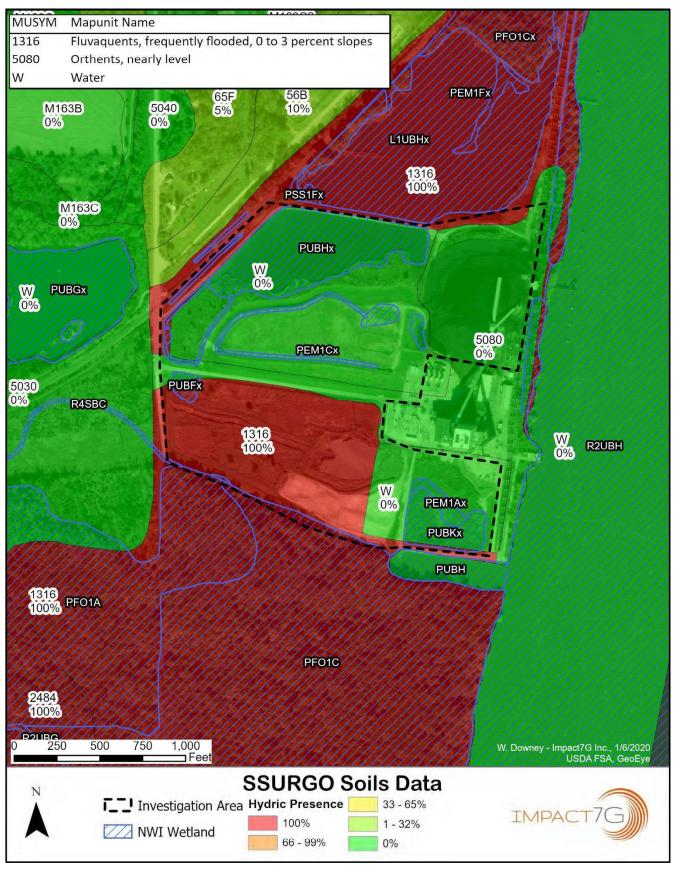


Figure C: USGS Topo 7.5 Minute Quadrangle Map (1:24,000)

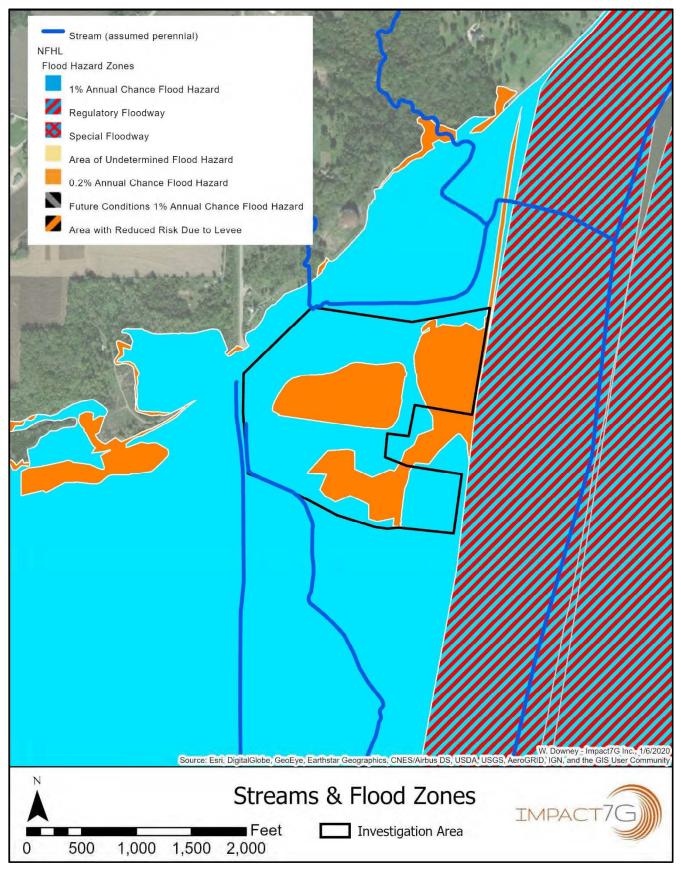
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## Figure D: Soils and National Wetland Inventory (NWI) Map

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## **Figure E: FEMA National Flood Hazard Layer**



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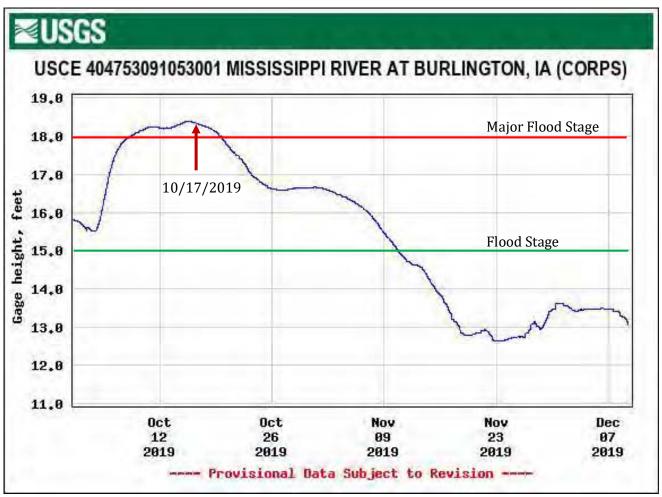
#### Figure F: BGS Facility Use Map

(From the Alliant Energy: Closure Plan for Existing CCR [Coal Combustion Residuals] Surface Impoundments, 2016)



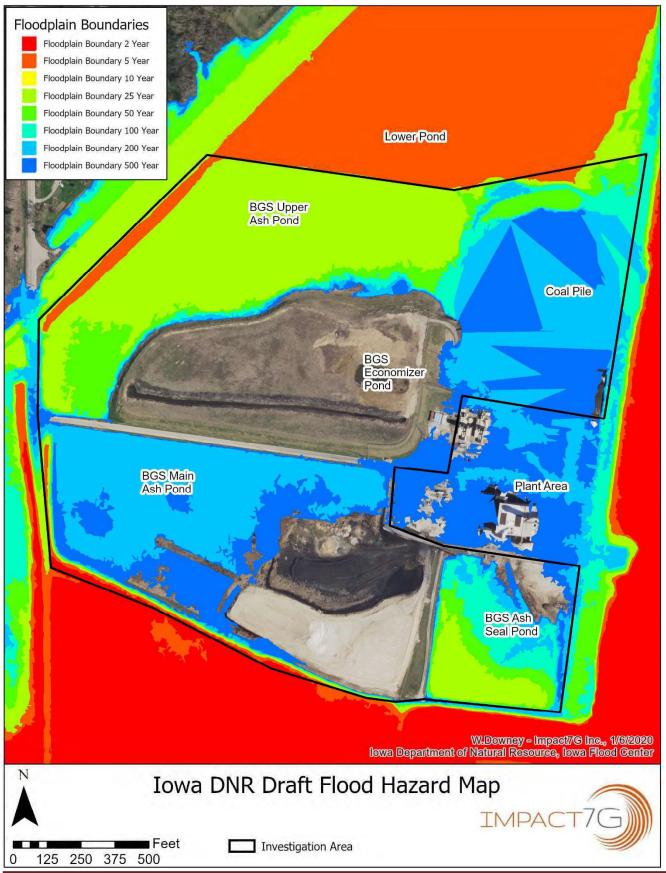
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## Figure G: Mississippi River Gage at Burlington

## Figure H: IDNR/IFC Draft Flood Hazard Map



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## **Appendix A: Photos**



**Photo 1: Non-wetland** Data Point S-01 Date: 10/17/2019 Direction: looking north

**Photo 2: Non-wetland** Data Point S-02 Date: 10/17/2019 Direction: looking north

**Photo 3: BGS Lower Pond** Data Point S-03 Date: 10/17/2019 Direction: looking east

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**Photo 4: BGS Upper Ash Pond** Data Point S-04 Date: 10/17/2019 Direction: looking southwest at delineation data point from across pond

**Photo 5: Emergent Wetland** Date: 10/17/2019 Direction: looking south at emergent wetland at southwest corner of Investigation Area, within floodplain of Mississippi River

Photo 6: BGC Main Ash Pond Data Point S-05 Date: 10/17/2019 Direction: looking north at CCR treatment pond, dominated entirely by common reed

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**Photo 7: Emergent Wetland** Data Point S-06 Date: 10/17/2019 Direction: looking northeast at emergent wetland between railway (left of photo) and BGS Upper Ash Pond (right of photo)

**Photo 8: Forested Wetland** Data Point S-07 Date: 10/17/2019 Direction: looking southeast at floodplain forest along southern boundary of Investigation Area

**Photo 9: Coal Pile Runoff Pond** Date: 10/17/2019 Direction: looking west, immediately north of the coal pile – non wetland area

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## **Appendix B: Wetland Delineation Data Sheets**

V	Wetland Determination Data Form - Midwest Region										
Project/Site: SCS-002	BGS Pond Closure			City/Co	unty: Des Moine	es	Date:	10/17/2	2019		
Applicant/Owner: SCS Engineers				State:	IA	Sample Po	int:	S-01			
Investigator(s): Impact7G (Will Downey, F	Reid Stamer )		Section,	Township	, Range: Sectio	on 29 Townsh	ip 69N F	Range 02	W		
Landform (hillslope, terrace, etc.): River Te	rrace	Lo	ocal relief (c	oncave, co	onvex, none): c	oncave					
Slope (%) 0-2% Latitude(dd): 40.7	4239576	Longitude(dd)	): -91.1179	99645	Da	atum NAD 19	83 UTM	Zone 15	N		
Soil Map Unit Name: Water											
Are climatic / hydrologic conditions on the	site typical for this time of ye	ar? Yes	] No 🔽 (I	f no, expla	in in Remarks.)						
Are Vegetation 🖌 Soil 🖌 or Hydrology	✓ significantly disturbed?				Are "Normal (	Circumstance	s" prese	nt?	No 🗸		
Are Vegetation Soil or Hydrology	✓ naturally problematic?				(If needed, e	explain any ar	nswers i	n Remarl	ks.)		
Summary of Findings -	Attach site map show	wing same	lina poir	t locatio	ons. transed	cts. impor	tant fe	atures	. etc.		
Hydrophytic Vegetation	nresent? 🗔										
Hydric Soil	· 🗆	Is the Sar		-10	Wetland		Wetla	and Type:			
Wetland Hydrology		within a	vvetian	a? N	Ion-Wetland						
Remarks: Moved turf is present over fill material nea	ar the mapped NWI. Area is	adjacent to co	oal storage	pile. Missis	sippi River curr	ently at majo	r flood s	tage, wet	ter		
than average conditions.			Ū,			, ,		0			
Vegetation											
Tree Stratum: Plot size: 30ft	radius Common Name	Absolute % Cover	Dominant Species?	Status	Dominance 1	fest workshe	et:				
1.		0			Number of Do That Are OBL			1	(A)		
2.		0							(~)		
3.		0			Total Number Species Acros			2	(B)		
4.		0			Percent of Do						
5.			= Total Cover		That Are OBL	., FACW, or F	AC:	50%	(A/B)		
Sapling/Shrub Stratum: Plot size:	Common Name	,,			Prevelance li	ndex worksh	ieet:				
1.		0			Total %	Cover of:	Μ	lultiply by	<i>'</i> :		
2.		0			OBL species	: 3	x 1	3			
3		0			FACW specie	es: 3	x 2	6	_		
5.		0			FAC species	. 42	x 3	126			
1			= Total Cover	L	FACU specie		x 4	280			
Herbaceous Stratum: Plot size:	Common Name Smooth Crab Grass	70	YES	FACU	UPL species	. 0	x 5	0	_		
De a mastematic	Kentucky Blue Grass	30	YES	FAC	Column Tota	als: 118	(A)	415	(B		
2. Poa pratensis 3. Setaria pumila	Yellow Bristle Grass	7	NO	FAC	Prevalence	e Index = B/A	<u>۱</u> =	3.52			
4. Rumex crispus	Curly Dock	5	NO	FAC							
5. Typha angustifolia	Narrow-Leaf Cat-Tail	3	NO	OBL	Hydrophytic	•		rs:			
6. Phragmites australis	Common Reed	3	NO	FACW		ce Test is >50					
7.		0				ce Index is ≤3 gical Adaptati		Provide			
8.		0			supporting	g data in Rem					
9.		0			separate	sheet) itic Hydrophyt	tic Voge	tation1 (F	volain)		
10.		0				ao nyuropnyi	lic veget	auon" (E	лріаш)		
Vine Stratum: Plot size: 30ft	radius Common Name		= Total Cover		<sup>1</sup> Indicators of must be prese						
1.		0			must be prese	sint, unless dis	surbed		matic.		
2.		0			Hydrophy	ytic Vegeta	ation	Yes			
Remarks: (Include photo numbers here of	or on a separate sheet)	0	= Total Cover	<u> </u>	P	Present?		No			

Mowed turf.

Profile Description: (Description: (Description: (Description: Control the indicators or confirm the absence of indicators.)  Define Mark Red The Reference indicators is a second of the second indicators.)  Define Control to a second of the second indicators is a second of the second indicators.)  Define Control to a second of the second indicators is a second of the second indicators.)  Define Control to a second of the second indicators is a second of the second indicators.)  Define Control to a second of the second indicators is a second of the second indicators.  Type: Concentration, D-Deptition, RM-Reducted Matrix, CS=Covered or Could Sand Grains. "Location: PL=Pore Lining, M=Matrix  Profile Sand Mark (S6)  Head Second Matrix, CS=Covered or Could Sand Grains." "Location: PL=Pore Lining, M=Matrix  Profile Sand Mark (S6)  Head Second Matrix, CS=Covered or Could Sand Grains." "Location: PL=Pore Lining, M=Matrix  Profile Sand Mark (S6)  Head Second Matrix, CS=Covered or Could Sand Grains. "Location: PL=Pore Lining, M=Matrix  Profile Sand Mark (S6)  Head Second Matrix, CS=Covered or Could Sand Grains." "Location: PL=Pore Lining, M=Matrix  Profile Sand Mark (S6)  Head Second Matrix, CS=Covered or Could Sand Grains." "Location: PL=Pore Lining, M=Matrix  Profile Sand Mark (S1)  Dependent Carls, Since (K1)  Dependent Carls, Since (K	Soils									Sample Point:	S-01		
Indicators         Color (molet)         %         Operating of the second of		Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)											
1       Construction       Construction         2.3       2.5Y 5/1       7.5YR 4/4       15       C       M       all         2.3       2.5Y 5/1       7.5YR 4/4       15       C       M       all         10/R 5/4       85       all       all       Image: Construction Constructin Construction Constructin Construction Construction	Depth	Matrix		Re	edox Fea								
2.3       2.5V 5/1       0       7.5VR 4/4       15       C       M       sil         3.4       10VR 5/2       15       0       sil       sil       sil         10VR 5/2       15       0       0       sil       sil       sil         8-10       10VR 2/2       15       0       sil       sil       sil       sil         8-10       10VR 2/2       15       0       0       sil       sil       Fy and         7/Der: C>Concontration, D=Doptotorn, RM=Reduced Matrix, CS       0       0       o <td>. ,</td> <td></td> <td>%</td> <td>Color (moist)</td> <td>%</td> <td>I ype<sup>1</sup></td> <td>Loc<sup>2</sup></td> <td>Texture</td> <td>Remarks:</td> <td></td> <td></td>	. ,		%	Color (moist)	%	I ype <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks:				
3.4       10YR 5/4       85       0       sil         10YR 5/2       15       0       0       sil         8-10       10YR 5/2       15       0       0       sil         8-10       10YR 5/2       15       0       0       sil       Flags         8-10       10YR 5/2       15       0       0       sil       Flags         Price       C-Concentration, D=Deplation, RM=Reduced Matrix, (S=Covered or Coated Sand Grains.       *Location: PL=Pare Lining, M=Matrix         Hydrocost Indicators:         Histic Explore(1,A)       Simp Modely Matrix (S3)       Indicators for Problematic Hydric Soils*         Hydric Soil Indicators:       Simped Matrix (S4)       Indicators for Problematic Hydric Soils*         Hydric Soil Indicators:       Simped Matrix (S3)       Indicators for Problematic Hydric Soils*         Completed Balow Dark Surface (A11)       Completed Matrix (S3)       Indicators of problematic.         Soil Rematik:       Reduce Dark Surface (FF)       Indicators of problematic.       Indicators of problematic.         Type:       Restrictle Lagres (A5)       Loany Oldeyd Matrix (F2)       Price Hydric Soil Present?       Yes         Soil Rematik:       The sample location is deturbed with coal and fly ash in some areas. No indicators metrestrite Hydric Soil Pre	0-2	2.5Y 3/1						1					
10VR 5/2       15       iii         8-10       10VR 5/2       15       iii         8-10       10VR 2.5/1       iii       iii         9-10       10VR 2.5/1       iii       iii         1-10       10VR 2.5/1       iii       iii         1-10       10VR 2.5/1       iii       iii         1-10       10VR 2.5/1       iii       iii       iii         1-10       10VR 2.5/1       iii       iii       iii       iii         1-10       1-10       1-10       1-10       1-10       1-10       1-10         1-10       1	2-3	2.5Y 5/1		7.5YR 4/4	15	С	М	sil					
8-10       10YR 2.51       Image: Secondary Indicators       *Location: PL=Pore Lining, M=Matrix         *Matrix (Sta)         Image: Colspan="2">*Location: Pl=Pore Lining, M=Matrix         *Location: Flaiter Redox (At12)         Statistication: (At12)       Colspan="2">Colspan="2">*Location: Flaiter Redox (At12)         *Location Rocks       Pl=Pore Lining, M=Matrix (Sta)       *Location: Flaiter Redox (At12)       Colspan="2">*Location: Flaiter Redox (At12)         *Location: Flaiter Redox (At12)       Colspan="2">*Location: Flaiter Redox (At12)         *Location: Flaiter Redox (At12)       Fl	3-8	10YR 5/4	85					sil					
Type: C-Concentration, D=Depieted n, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.  Type: C-Concentration, D=Depieted n, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.  Type: C-Concentration, D=Depieted Natrix, CS=Covered or Coated Sand Grains.  Type: C-Concentration, D=Depieted Matrix, CS=Covered or Coated Sand Grains.  Type: C-Concentration, D=Depieted Matrix, CS=Covered or Coated Sand Grains.  Type: C-Concentration, D=Depieted Matrix, CS=Covered or Coated Sand Grains.  Type: C-Concentration, D=Depieted Matrix, CS=Covered or Coated Sand Grains.  Type: C-Concentration, D=Depieted Matrix, CS=Covered or Coated Sand Grains.  Type: C-Concentration, D=Depieted Matrix, CS=Covered or Coated Sand Grains.  Type: C-Concentration, D=Depieted Matrix, CS=Covered or Coated Sand Grains.  Type: C-Concentration, D=Depieted Matrix, CS=Covered or Coated Sand Grains.  Type: C-Concentration, D=Depieted Matrix, CS=Covered or Coated Sand Grains.  Type: C-Concentration, D=Depieted Matrix, CS=Covered or Coated Sand Grains.  The Sandy Redver Real (A1)  D=Depieted Matrix, CS D=Depieted Matrix, CSD		10YR 5/2	15					sil					
Hydric Soil Indicators:       Sandy Gleyed Matrix (S4)       Indicators for Problematic Hydric Soils <sup>5</sup> I=Histic Epideodn (A2)       Sandy Redox (S5)       Coast Prairie Redox (A16)         Black Histic (A3)       Stripped Matrix (S6)       Iorat Magnese Masses (F12)         Hydrogon Sulfde (A4)       Learny Kleyed Matrix (F3)       Iorat Magnese Masses (F12)         Black Histic (A3)       Depided Matrix (F3)       Iorata Surface (A11)         Boel Below Dark Surface (A12)       Depided Dark Surface (F7)       and wetland hydrology must be present, unless disturbed or problematic.         S or Mucky Peat or Peat (S3)       Redox Depressions (F8)       Hydric Soil Present?       Yes         Type:       Restrictive Layer (if observed):       Type: Restricted on Rocks       Depit (inches):       10         Soil Remarks:       The sample location is disturbed with coal and fly ash in some areas. No indicators met.       Secondary Indicators (minimum of two required)         Wigfund Hydrogos Midicators:       Secondary Indicators (B6)       Ioratage Patterns (B10)       Do-Season Water Table (C2)         Water Marks (B1)       Hydrogon Sulfde Odor (C1)       Dy-Season Water Table (C2)       Caray find Burrows (C8)         Sufface S0 (B2)       Oxidized Rhizospheres on Living Roots (C3)       Suturation Visible on Aerial Imagery (C9)       Suturation Visible on Aerial Imagery (C9)         Sufface Water Tab	8-10	10YR 2.5/1						sil	Fly ash				
Hydric Soil Indicators:       Sandy Gleyed Matrix (S4)       Indicators for Problematic Hydric Soils <sup>5</sup> I=Histic Epideodn (A2)       Sandy Redox (S5)       Coast Prairie Redox (A16)         Black Histic (A3)       Stripped Matrix (S6)       Iorat Magnese Masses (F12)         Hydrogon Sulfde (A4)       Learny Kleyed Matrix (F3)       Iorat Magnese Masses (F12)         Black Histic (A3)       Depided Matrix (F3)       Iorata Surface (A11)         Boel Below Dark Surface (A12)       Depided Dark Surface (F7)       and wetland hydrology must be present, unless disturbed or problematic.         S or Mucky Peat or Peat (S3)       Redox Depressions (F8)       Hydric Soil Present?       Yes         Type:       Restrictive Layer (if observed):       Type: Restricted on Rocks       Depit (inches):       10         Soil Remarks:       The sample location is disturbed with coal and fly ash in some areas. No indicators met.       Secondary Indicators (minimum of two required)         Wigfund Hydrogos Midicators:       Secondary Indicators (B6)       Ioratage Patterns (B10)       Do-Season Water Table (C2)         Water Marks (B1)       Hydrogon Sulfde Odor (C1)       Dy-Season Water Table (C2)       Caray find Burrows (C8)         Sufface S0 (B2)       Oxidized Rhizospheres on Living Roots (C3)       Suturation Visible on Aerial Imagery (C9)       Suturation Visible on Aerial Imagery (C9)         Sufface Water Tab													
Hydric Soil Indicators:       Sandy Gleyed Matrix (S4)       Indicators for Problematic Hydric Soils <sup>5</sup> I=Histic Epideodn (A2)       Sandy Redox (S5)       Coast Prairie Redox (A16)         Black Histic (A3)       Stripped Matrix (S6)       Iorat Magnese Masses (F12)         Hydrogon Sulfde (A4)       Learny Kleyed Matrix (F3)       Iorat Magnese Masses (F12)         Black Histic (A3)       Depided Matrix (F3)       Iorata Surface (A11)         Boel Below Dark Surface (A12)       Depided Dark Surface (F7)       and wetland hydrology must be present, unless disturbed or problematic.         S or Mucky Peat or Peat (S3)       Redox Depressions (F8)       Hydric Soil Present?       Yes         Type:       Restrictive Layer (if observed):       Type: Restricted on Rocks       Depit (inches):       10         Soil Remarks:       The sample location is disturbed with coal and fly ash in some areas. No indicators met.       Secondary Indicators (minimum of two required)         Wigfund Hydrogos Midicators:       Secondary Indicators (B6)       Ioratage Patterns (B10)       Do-Season Water Table (C2)         Water Marks (B1)       Hydrogon Sulfde Odor (C1)       Dy-Season Water Table (C2)       Caray find Burrows (C8)         Sufface S0 (B2)       Oxidized Rhizospheres on Living Roots (C3)       Suturation Visible on Aerial Imagery (C9)       Suturation Visible on Aerial Imagery (C9)         Sufface Water Tab													
Hydric Soil Indicators:       Sandy Gleyed Matrix (S4)       Indicators for Problematic Hydric Soils <sup>5</sup> I=Histic Epideodn (A2)       Sandy Redox (S5)       Coast Prairie Redox (A16)         Black Histic (A3)       Stripped Matrix (S6)       Iorat Magnese Masses (F12)         Hydrogon Sulfde (A4)       Learny Kleyed Matrix (F3)       Iorat Magnese Masses (F12)         Black Histic (A3)       Depided Matrix (F3)       Iorata Surface (A11)         Boel Below Dark Surface (A12)       Depided Dark Surface (F7)       and wetland hydrology must be present, unless disturbed or problematic.         S or Mucky Peat or Peat (S3)       Redox Depressions (F8)       Hydric Soil Present?       Yes         Type:       Restrictive Layer (if observed):       Type: Restricted on Rocks       Depit (inches):       10         Soil Remarks:       The sample location is disturbed with coal and fly ash in some areas. No indicators met.       Secondary Indicators (minimum of two required)         Wigfund Hydrogos Midicators:       Secondary Indicators (B6)       Ioratage Patterns (B10)       Do-Season Water Table (C2)         Water Marks (B1)       Hydrogon Sulfde Odor (C1)       Dy-Season Water Table (C2)       Caray find Burrows (C8)         Sufface S0 (B2)       Oxidized Rhizospheres on Living Roots (C3)       Suturation Visible on Aerial Imagery (C9)       Suturation Visible on Aerial Imagery (C9)         Sufface Water Tab	1Turnet C-	Concentration D	-Doplatia	n PM-Roducod	Motrix C	S-Cover	od or Co	atad Sand Cr	aina 21 agotian: DI -I	Doro Lining M-M	otriv		
Histosol (A1)			=Depletio	n, RM=Reduced	Matrix, C	S=Cover	ed or Co	ated Sand Gr	ains. <sup>-</sup> Location: PL=i	Pore Lining, IVI=IVI	atnx		
Histic Epipedon (A2)       Sandy Redix (S5)       Coast Prairie Redox (A15)         Black Histic (A3)       Stripped Matrix (S6)       Inor-Manganese Masses (F12)         Hydrogen Suifide (A4)       Loamy Mucky Mineral (F1)       Doter (Explain in Remarks)         C m Mucky (A10)       Depieted Matrix (F2)       Depieted Matrix (F2)         Depieted Matrix (F2)       Depieted Matrix (F2)       Indicators of hydrophytic vegetation and vetTand hydrology must be present, unless disturbed or problematic.         S mady Red (A11)       Redox Depressions (F8)       Indicators of hydrophytic vegetation and vetTand hydrology must be present, unless disturbed or problematic.         S mady Red (A12)       Depieted Matrix (F2)       Medox Depressions (F8)         Soli Remarks:       The sample location is disturbed with coal and fly ash in some areas. No indicators met.         Hydrology       Secondary Indicators (minimum of one is required: check all that apply)       Secondary Indicators (minimum of two required)         Variance Water (A1)       Water-Stamed Leaves (89)       Surface Soli Cracks (80)         Variance Water (A1)       Hydrogen Surface Action (C12)       Depiession (C12)         Variance Water (A1)       Hydrogen Surface Action (C13)       Dariange Patterns (B10)         Variance Water (A1)       Hydrogen Surface Action in Tilled Solis (C6)       Saturation Visible on Actial Imagery (C9)         Surface Rate Rabis (D2)	•						(0.4)	la d'a	a tama fan Daalda waatin Ulada				
□       □		. ,					(54)						
International (A)             Bytatified Layers (AS)                 Commy Gived Matrix (F2)                 Commy Gived Matrix (F3)                Depleted Matrix (F3)                Commy Mucky Mineral (F1)                Charles Surface (A11)                Bedpleted Below Dark Surface (A12)                Commy Mucky Mineral (S1)                Bedpleted Dark Surface (F7)                Commod Mucky Mineral (S1)                Soil Remarks:                Type: Restricted on Rocks                Depth (inches): 10                Sufface Soil Cracks (B6)                Mucky Mineral (S1)                Sufface Soil Cracks (B7)                Mucky Mineral (S		••• • • •			-				· · · ·	(10)			
□ Stratified Layers (A5)       □ Loamy Gleyed Matrix (F2)         □ duck (A10)       □ Depleted Dark Surface (F7)         □ duck (A10)       □ duck (A10)         □ duck (A10) <t< td=""><td></td><td></td><td>4)</td><td></td><td></td><td></td><td>al (F1)</td><td></td><td></td><td>12)</td><td></td></t<>			4)				al (F1)			12)			
□ Depleted Below Dark Surface (A1)       □ Redox Dark Surface (F6)       □Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.         □ Sandy Wucky Mineral (S1)       □ Redox Depressions (F8)       □Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.         □ Soil Remarks:       Type: Restricted on Rocks       Depth (inches):       10       Hydric Soil Present?       Yes       No         Soil Remarks:       The sample location is disturbed with coal and fly ash in some areas. No indicators met.       Hydric Soil Present?       Yes       No       No         Watard Hydrology Indicators:       Primary indicators (ininimum of one is required; check all that apply)       Secondary Indicators (minimum of two required)       □ Surface Soil Cracks (B6)       □ preinage Patterns (B10)       □ preinage Patterns (B10)       □ preinage Patterns (B10)       □ preinage Patterns (B10)       □ preinage Patterns (C2)       □ crayfish Burrows (C3)       □ Surface Soil Cracks (B6)       □ preinage Patterns (C3)       □ preinage Patterns (C3)       □ preinage Patterns (C3)       □ Surface Valer Pable (P2)       □ preinage Patterns (C3)       □ preinage Patte	Stra	atified Layers (A5	)		amy Gley	ed Matrix	(F2)						
□ Trick Dark Surface (A12)       □ Depleted Dark Surface (F7)       and wetland hydrology must be present, unless disturbed or problematic.         □ S om Mucky Mineral (S1)       □ Redox Depressions (F8)       Hydric Soil Present?       Yes         Type:       Restrictive Layer (if observed):       10       Hydric Soil Present?       No         Soil Remarks:       The sample location is disturbed with coal and fly ash in some areas. No indicators met.       Hydric Soil Present?       Yes       No       No         Primary Indicators (minimum of one is required; check all that apply)       Secondary Indicators (minimum of two required)       Surface Soil Cracks (B6)       District Present?       District Present?       Secondary Indicators (minimum of two required)         Primary Indicators (minimum of one is required; check all that apply)       Secondary Indicators (minimum of two required)       Surface Soil Cracks (B6)       District Present?       District Present?       Secondary Indicators (minimum of two required)         Primary Indicators (minimum of one is required; CA2)       Aquatic Fauna (B13)       District Present?       District Present?       District Present?       Secondary Indicators (minimum of two required)         Primary Indicators (minimum of one is required; CA2)       Aquatic Fauna (B13)       District Present?       District Present?       Secondary Indicators (C2)       Sufface Bools (B2)       Distrateo C7)       Sufface Bools (B2)       Dixdit		. ,			pleted Ma	atrix (F3)							
Sandy Mucky Mineral (S1)       Redox Depressions (F8)       unless disturbed or problematic.         Soil Restrictive Layer (if observed):       Type: Restricted on Rocks       Depth (inches):       10       Hydric Soil Present?       No       No         Soil Remarks:       The sample location is disturbed with coal and fly ash in some areas. No indicators met.       Hydric Soil Present?       Yeis       No       No         Wetland Hydrology Indicators:       Primary Indicators (minimum of one is required; check all that apply)       Secondary Indicators (minimum of two required)       Surface Soil Cracks (B6)       Orrinage Patterns (B10)       Orrights Burrows (C8)       Orrights Burrows (C8)       Sturtaton Visible on Aerial Imagery (C9)       Orrights Burrow							. ,						
□ or Mudxy Peat or Peat (33)         Restrictive Layer (if observed):         Type:       Restrictive Layer (if observed):         10       Hydric Soil Present?         No       ✓         Soil Remarks:       The sample location is disturbed with coal and fly ash in some areas. No indicators met.         Hydrology       ✓         Wetland Hydrology Indicators:       Primary Indicators (minimum of one is required; check all that apply)         Sufface Water (A1)       □         ○       Sufface Soil Cracks (B6)         ○       Image Patterns (B10)         ○       Sufface Soil Cracks (B6)         ○       Image Patterns (B10)         ○       Sufface Soil Cracks (B6)         ○       Image Patterns (B10)         ○       Sufface Soil Cracks (B6)         ○       Image Patterns (B10)         ○       Sufface Soil Cracks (B6)         ○       Image Patterns (B10)         ○       Sufface Soil Cracks (B6)         ○       Image Patterns (B10)         ○       Saturated in Upper 12* (A3)         ○       Image Patterns (B10)         ○       Saturated in Upper 12* (A3)         ○       Image Patterns (B10)         ○       Oxidized Rhizospheres on Livin					•		• •						
Type:       Restricted on Rocks       Depth (inches):       10       Hydric Soil Present?       No       No         Soil Remarks:       The sample location is disturbed with coal and fly ash in some areas. No indicators met.       Image: Soil Remarks:       Image: Soil Remarks:         Hydrology       Wetland Hydrology Indicators:       Image: Soil Remarks:       Secondary Indicators (minimum of two required)       Soil Remarks:         Yestinate Valer (A1)       Image: Soil Remarks (B1)       Image: Soil Cracks (B6)       Soil Cracks (B6)       Soil Cracks (B6)         Image: Soil Remarks (B1)       Image: Soil Cracks (B6)         Image: Soil Remarks (B1)       Image: Soil Cracks (B6)       Soil Cracks (C1)       Soil Cracks			• •			63310113 (	10)						
Type:       Restricted on Rocks       Depth (inches):       10       Hydric Soil Present?       No       No         Soil Remarks:       The sample location is disturbed with coal and fly ash in some areas. No indicators met.       Image: Soil Remarks:       Image: Soil Remarks:         Hydrology       Wetland Hydrology Indicators:       Image: Soil Remarks:       Secondary Indicators (minimum of two required)       Soil Remarks:         Yestianted Hydrology Indicators:       Image: Soil Remarks:       Secondary Indicators (minimum of two required)       Soil Cracks (B6)         Water Valer Valer (A1)       Image: Water Cana (B13)       Drainage Patterns (B10)       Soil Accessoil Cracks (B6)         Image: Water Table (A2)       Aquatic Fauna (B13)       Drainage Patterns (B10)       Soil Accessoil Cracks (B6)         Water Marks (B1)       Improve Acutic Plana (B13)       Dry-Seeson Water Table (C2)       Soil Research Plants (D1)         Image: Solid Cracks (B2)       Oxidized Rhizospheres on Living Roots (C3)       Sturation Visible on Aerial Imagery (C9)       Soil Research Plants (D1)         Improvement: Present?       Rescent Iron Reduced Iron (C4)       Sourasoi Oxtersead Plants (D1)       Rescent Iron Reduced Iron (C4)       Rescent Iron Reduced Iron (C4)       Rescent Iron Reduced Iron (C4)       Rescent Iron Remarks)         Field Observations:       Immundation Visible on Aerial Imagery (B7)       Gauge or Well Data (D9)<	Restrictiv												
Soil Remarks:         The sample location is disturbed with coal and fly ash in some areas. No indicators met.         Hydrology         Wetland Hydrology Indicators:         Primary Indicators (minimum of one is required; check all that apply)       Secondary Indicators (minimum of two required)         Sufface Water (A1)       Water-Stained Leaves (B9)       Surface Soil Cracks (B6)         High Water Table (A2)       Aquatic Fauna (B13)       Drainage Patterns (B10)         Saturated in Upper 12" (A3)       True Aquatic Plants (B14)       Dry-Season Water Table (C2)         Sediment Deposits (B2)       Oxidized Rhizospheres on Living Roots (C3)       Saturation Visible on Aerial Imagery (C9)         Drift Deposits (B2)       Oxidized Iron Reduction in Tilled Soils (C6)       Secomorphic Position (D2)         Inundation Visible on Aerial Imagery (B7)       Gauge or Well Data (D9)       FAC-Neutral Test (D5)         Sufface Water Present? Yes No       Depth (inches):       1 in         Saturation Present? Yes No       Depth (inches):       0 in         Water Table Present? Yes No       Depth (inches):       0 in         Saturation Present? Yes No       Depth (inches):       0 in         Mater Table Present? Yes No       Depth (inches):       0 in         Mater Table Present? Yes No       Depth (inches):       0 in         No<				Dept	(inches)	: 10	)		Hydric Soil P	resent?			
The sample location is disturbed with coal and fly ash in some areas. No indicators met.  Hydrology  Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)  Surface Water (A1) Aquatic Fauna (B13) Surface Soil Cracks (B6) Drainage Patterns (B10) Surface Soil Cracks (B6) Drainage Patterns (B10) Surface Vater Table (A2) Aquatic Fauna (B13) Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) Sufface (C2) Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Solis (C6) Inundation Visible on Aerial Imagery (B7) Gauge or Well Data (D9) Sparsely Vegetated Concave Surface (B8) Other (Explain in Remarks)  Field Observations: Surface Water Present? Yes No Depth (inches): 1 in Saturation Present? Yes No Depth (inches): 0 in Includes capillary finge) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Hydrology Remarks:				•	. ,								
Hydrology         Wetland Hydrology Indicators:         Primary Indicators (minimum of one is required; check all that apply)       Secondary Indicators (minimum of two required)         Surface Water (A1)       Quatic Fauna (B13)       Durainage Patterns (B10)         High Water Table (A2)       Qauatic Fauna (B13)       Drainage Patterns (B10)         Saturated in Upper 12" (A3)       True Aquatic Plants (B14)       Dry-Season Water Table (C2)         Water Marks (B1)       Hydrogen Sulfide Odor (C1)       Crayfish Burrows (C8)         Sediment Deposits (B2)       Oxidized Rhizospheres on Living Roots (C3)       Saturation Visible on Aerial Imagery (C9)         Diff Deposits (B3)       Presence of Reduced Iron (C4)       Geomorphic Position (D2)         Agal Mat or Crus (B4)       Recent Iron Reduction in Tilled Soils (C6)       Geomorphic Position (D2)         Inundation Visible on Aerial Imagery (B7)       Gauge or Well Data (D9)       FAC-Neutral Test (D5)         Surface Water Present? Yes       No       Depth (inches):       1 in         Saturation Present? Yes       No       Depth (inches):       0 in         Water Table Present? Yes       No       Depth (inches):       0 in         Water Table Present? Yes       No       Depth (inches):       0 in         Mater Table Present? Yes       No       Depth (inches):			urbed wit	h coal and fly ast	in some	areas N	o indicat	ors met					
Wetland Hydrology Indicators:         Primary Indicators (minimum of one is required; check all that apply)       Secondary Indicators (minimum of two required)         Surface Water (A1)       Water-Stained Leaves (B9)         High Water Table (A2)       Aquatic Fauna (B13)         Saturated in Upper 12" (A3)       True Aquatic Plants (B14)         Water Marks (B1)       Hydrogen Sulfide Odor (C1)         Sediment Deposits (B2)       Oxidized Rhizospheres on Living Roots (C3)         Drift Deposits (B3)       Presence of Reduced Iron (C4)         Iron Deposits (B5)       Thin Muck Surface (C7)         Iron Deposits (B5)       Thin Muck Surface (C7)         Iron Deposits (B5)       Thin Muck Surface (C7)         Sparsely Vegetated Concave Surface (B8)       Other (Explain in Remarks)         Field Observations:       Surface Water Present? Yes No         Surface Water Present? Yes No       Depth (inches):         Water Table Present? Yes No       Depth (inches):         Water Table Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:													
Wetland Hydrology Indicators:         Primary Indicators (minimum of one is required; check all that apply)       Secondary Indicators (minimum of two required)         Surface Water (A1)       Water-Stained Leaves (B9)         High Water Table (A2)       Aquatic Fauna (B13)         Saturated in Upper 12" (A3)       True Aquatic Plants (B14)         Water Marks (B1)       Hydrogen Sulfide Odor (C1)         Sediment Deposits (B2)       Oxidized Rhizospheres on Living Roots (C3)         Drift Deposits (B3)       Presence of Reduced Iron (C4)         Iron Deposits (B5)       Thin Muck Surface (C7)         Iron Deposits (B5)       Gauge or Well Data (D9)         Sparsely Vegetated Concave Surface (B8)       Other (Explain in Remarks)         Field Observations:       Surface Water Present? Yes No       Depth (inches):         Water Table Present? Yes No       Depth (inches):       1 in         Water Table Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:       No													
Primary Indicators (minimum of one is required; check all that apply)       Secondary Indicators (minimum of two required)         Surface Water (A1)       Water-Stained Leaves (B9)         High Water Table (A2)       Aquatic Fauna (B13)         Saturated in Upper 12" (A3)       True Aquatic Plants (B14)         Water Marks (B1)       Hydrogen Sulfide Odor (C1)         Sediment Deposits (B2)       Oxidized Rhizospheres on Living Roots (C3)         Drift Deposits (B3)       Presence of Reduced Iron (C4)         Algal Mat or Crust (B4)       Recent Iron Reduction in Tilled Soils (C6)         Iron Deposits (B5)       Thin Muck Surface (C7)         Inundation Visible on Aerial Imagery (B7)       Gauge or Well Data (D9)         Sparsely Vegetated Concave Surface (B8)       Other (Explain in Remarks)         Field Observations:       Surface Water Present? Yes No       Depth (inches):         Sutration Present? Yes No       Depth (inches):       1 in         Saturation Present? Yes No       Depth (inches):       0 in         (includes capillary fringe)       Depth (inches):       0 in         Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:       No	Hydro	ology —											
✓ Surface Water (A1)       Water-Stained Leaves (B9)       Surface Soil Cracks (B6)         ✓ High Water Table (A2)       Aquatic Fauna (B13)       Drainage Patterns (B10)         ✓ Saturated in Upper 12" (A3)       True Aquatic Plants (B14)       Dry-Season Water Table (C2)         Water Marks (B1)       Hydrogen Sulfide Odor (C1)       Crayfish Burrows (C8)         Sediment Deposits (B2)       Oxidized Rhizospheres on Living Roots (C3)       Saturation Visible on Aerial Imagery (C9)         Drift Deposits (B3)       Presence of Reduced Iron (C4)       Stunted or Stressed Plants (D1)         Algal Mat or Crust (B4)       Recent Iron Reduction in Tilled Soils (C6)       Geomorphic Position (D2)         Iron Deposits (B5)       Thin Muck Surface (C7)       FAC-Neutral Test (D5)         Inundation Visible on Aerial Imagery (B7)       Gauge or Well Data (D9)         Sparsely Vegetated Concave Surface (B8)       Other (Explain in Remarks)         Field Observations:       Surface Water Present? Yes No       Depth (inches):         Water Table Present? Yes No       Depth (inches):       0 in         Mater Table Present? Yes No       Depth (inches):       0 in         Moter Table Present? Yes No       Depth (inches):       0 in         Moter Craylish Ream gauge, monitoring well, aerial photos, previous inspections), if available:       No         Hydrology Remarks:	Wetland H	Hydrology Indica	tors:										
Wigh Water Table (A2)       Aquatic Fauna (B13)       Drainage Patterns (B10)         Saturated in Upper 12" (A3)       True Aquatic Plants (B14)       Dry-Season Water Table (C2)         Water Marks (B1)       Hydrogen Sulfide Odor (C1)       Crayfish Burrows (C8)         Sediment Deposits (B2)       Oxidized Rhizospheres on Living Roots (C3)       Saturation Visible on Aerial Imagery (C9)         Drift Deposits (B3)       Presence of Reduced Iron (C4)       Stunted or Stressed Plants (D1)         Algal Mat or Crust (B4)       Recent Iron Reduction in Tilled Solis (C6)       Geomorphic Position (D2)         Iron Deposits (B5)       Thin Muck Surface (C7)       FAC-Neutral Test (D5)         Inundation Visible on Aerial Imagery (B7)       Gauge or Well Data (D9)         Sparsely Vegetated Concave Surface (B8)       Other (Explain in Remarks)         Field Observations:       Surface Water Present? Yes No       Depth (inches):         Saturation Present? Yes No       Depth (inches):       0 in         (includes capillary fringe)       Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:       Ves         Hydrology Remarks:       Hydrology Remarks:       Hydrology Remarks:       Hydrology Remarks:	-		m of one i	s required; check		••••					of two required)		
			•	[				39)					
Water Marks (B1)       Hydrogen Sulfide Odor (C1)       Crayfish Burrows (C8)         Sediment Deposits (B2)       Oxidized Rhizospheres on Living Roots (C3)       Saturation Visible on Aerial Imagery (C9)         Drift Deposits (B3)       Presence of Reduced Iron (C4)       Stunted or Stressed Plants (D1)         Algal Mat or Crust (B4)       Recent Iron Reduction in Tilled Soils (C6)       Geomorphic Position (D2)         Iron Deposits (B5)       Thin Muck Surface (C7)       FAC-Neutral Test (D5)         Inundation Visible on Aerial Imagery (B7)       Gauge or Well Data (D9)         Sparsely Vegetated Concave Surface (B8)       Other (Explain in Remarks)         Field Observations:       Surface Water Present? Yes ♥ No □ Depth (inches):       1 in         Water Table Present? Yes ♥ No □ Depth (inches):       0 in       No □         (includes capillary fringe)       Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:       Hydrology Remarks:				l				1)					
Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)   Drift Deposits (B3) Presence of Reduced Iron (C4) Stunted or Stressed Plants (D1)   Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils (C6) Geomorphic Position (D2)   Iron Deposits (B5) Thin Muck Surface (C7) FAC-Neutral Test (D5)   Inundation Visible on Aerial Imagery (B7) Gauge or Well Data (D9)   Sparsely Vegetated Concave Surface (B8) Other (Explain in Remarks)   Field Observations: Surface Water Present? Yes ♥ No □ Depth (inches): Water Table Present? Yes ♥ No □ Depth (inches): Water Table Present? Yes ♥ No □ Depth (inches): Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Hydrology Remarks:			2 (A3)	l							,		
□ Drift Deposits (B3) □ Presence of Reduced Iron (C4) □ Stunted or Stressed Plants (D1)   □ Algal Mat or Crust (B4) □ Recent Iron Reduction in Tilled Soils (C6) □ Geomorphic Position (D2)   □ Iron Deposits (B5) □ Thin Muck Surface (C7) □ FAC-Neutral Test (D5)   □ Inundation Visible on Aerial Imagery (B7) □ Gauge or Well Data (D9)   □ Sparsely Vegetated Concave Surface (B8) □ Other (Explain in Remarks)   Field Observations: Surface Water Present? Yes ♥ No □ Depth (inches) Water Table Present? Yes ♥ No □ Depth (inches): 1 in Saturation Present? Yes ♥ No □ Depth (inches): 0 in (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Hydrology Remarks:		· · /	B2)	L [							nagery (C9)		
□ Iron Deposits (B5) □ Thin Muck Surface (C7) □ FAC-Neutral Test (D5)   □ Inundation Visible on Aerial Imagery (B7) □ Gauge or Well Data (D9)   □ Sparsely Vegetated Concave Surface (B8) □ Other (Explain in Remarks)   Field Observations:   Surface Water Present? Yes ♥ No □ Depth (inches) □ in   Water Table Present? Yes ♥ No □ Depth (inches): □ in   Saturation Present? Yes ♥ No □ Depth (inches): 0 in   (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:   Hydrology Remarks:				[				-					
□ Inundation Visible on Aerial Imagery (B7) □ Gauge or Well Data (D9)   □ Sparsely Vegetated Concave Surface (B8) ○ Other (Explain in Remarks)   Field Observations:   Surface Water Present? Yes ♥ No □ Depth (inches) 1 in   Water Table Present? Yes ♥ No □ Depth (inches): 1 in   Saturation Present? Yes ♥ No □ Depth (inches): 0 in   (includes capillary fringe) 0 in   Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:   Hydrology Remarks:	Alg	al Mat or Crust (B	34)	[	Recent	Iron Red	luction ir	n Tilled Soils (					
Sparsely Vegetated Concave Surface (B8) Other (Explain in Remarks)   Field Observations: Surface Water Present? Yes ♥ No □ Depth (inches) Water Table Present? Yes ♥ No □ Depth (inches): 1 in Saturation Present? Yes ♥ No □ Depth (inches): 0 in (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Hydrology Remarks:				[			` '		FAC-Neutra	l Test (D5)			
Field Observations:         Surface Water Present? Yes ♥ No □ Depth (inches)         Water Table Present? Yes ♥ No □ Depth (inches):         1 in         Saturation Present? Yes ♥ No □ Depth (inches):         0 in         (includes capillary fringe)         Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:         Hydrology Remarks:													
Surface Water Present? Yes No Depth (inches)   Water Table Present? Yes No   Depth (inches): 1 in   Saturation Present? Yes   Yes No   Depth (inches): 0 in   Wetland Hydrology Present?   No Depth (inches):   Present?   Yes No   Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:   Hydrology Remarks:			Concave				Thema	ns)					
Water Table Present? Yes 🗹 No 🗋 Depth (inches): 1 in Saturation Present? Yes 🗹 No 🗋 Depth (inches): 0 in (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Hydrology Remarks:			s 🗸 No	Depth (inche	c)								
Saturation Present?       Yes ☑ No □ Depth (inches):       0 in         No □       Includes capillary fringe)       No □         Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:       Includes capillary fringe)         Hydrology Remarks:       Includes capillary fringe)       Includes capillary fringe)						in			Wetland Hydrology	Present?	Yes 🗹		
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Hydrology Remarks:									wedana nyarology	Tresent:	No 🗌		
Hydrology Remarks:			S 💌 NO		s): 0	IN							
Hydrology Remarks:	Describe F	Recorded Data (s	tream gau	ige, monitoring w	ell, aerial	photos, p	orevious	inspections),	if available:				
		(0	3-10	J	,	, ,							
	Hydrology	Remarks:											
			hin the Mi	ssissippi River fl	odplain,	which is o	common	ly flooded.					

	Vetland Determinat	tion Data	Form - I		0				
Project/Site: SCS-002	BGS Pond Closure			City/Co	unty: Des Moin	es E	Date:	10/17/2	2019
Applicant/Owner: SCS Engineers				State:	IA	Sample Poin	it:	S-02	2
Investigator(s): Impact7G (Will Downey, F	Reid Stamer)		Section,	Township	, Range: Section	on 29 Township	) 69N R	lange 02	W
Landform (hillslope, terrace, etc.): River Te	rrace	Lo	ocal relief (c	oncave, co	onvex, none):	concave			
Slope (%) 0-2% Latitude(dd): 40.7	4248148	Longitude(dd)	: -91.1179	95368	Da	atum NAD 1983	3 UTM	Zone 15	N
Soil Map Unit Name: Water									
Are climatic / hydrologic conditions on the	site typical for this time of ye	ear? Yes	] No 🖌 (li	f no, expla	in in Remarks.)	)			
Are Vegetation 🖌 Soil 🖌 or Hydrology	✓ significantly disturbed?	,			Are "Normal	Circumstances'	' presei	nt? 🗌	No 🔽
Are Vegetation Soil 🗸 or Hydrology	✓ naturally problematic?				(If needed,	explain any ans	swers ir	ו Remar	ks.)
Summary of Findings -	Attach site map show	wing samp	ling poin	t locatio	ons, transe	cts, importa	ant fea	atures	, etc.
Hydrophytic Vegetation	present?	Is the Sar	mpled A	roo	Wetlan	d 🗆	Wetla	nd Type:	-
Hydric Soil	present?	within a		-10	Ion-Wetland				
Remarks: Wetland Hydrology	present? 🖌			N	IOII-Wetland	d 🔽			
Standing water is present at the smaple p						orixidae). Area	is mow	ed and	
adjacent to coal storage pile. Mississippi F	River currentiy at major hood	i stage, wetter	than average	ye conditio	JIIS.				
Vegetation		Absolute	Dominant						
Tree Stratum: Plot size: 30ft	radius Common Name		Species?	Status		Test workshee			
1.		0				ominant Specie L, FACW, OR F		1	(A)
2.		0				r of Dominant			
3		0			Species Acro	ss All Strata:		2	(B)
5.		0				ominant Specie L, FACW, or FA		50%	(A/B)
Sapling/Shrub Stratum: Plot size:	Common Name		= Total Cover						
1.					Prevelance I	ndex workshe	et:		
2.		0				Cover of:		ultiply by	':
3.		0			OBL species		_ x 1	0	_
4.		0			FACW spec	ies: 0 s: 0	x 2 x 3	0	
5.		0			FACU species	-	- ×3	300	
Herbaceous Stratum: Plot size:	Common Name		= Total Cover		UPL species	-	x 5	0	
1. Portulaca Oleracea	Little-Hogweed	60	YES	FACU	Column Tota	als: 98	- (A)	323	 (B
2. Typha angustifolia	Narrow-Leaf Cat-Tail	20	YES	OBL	Describer				_`
3. Digitaria ischaemum	Smooth Crab Grass	15	NO	FACU	Prevalenc	ce Index = B/A =		3.30	
4. Eleocharis acicularis	Needle Spike-Rush	3	NO	OBL	Hydrophytic	Vegetation Inc	dicator	s:	
5.		0			Dominan	ce Test is >50%	6		
6.		0			Prevalen	ce Index is ≤3.0	)1		
7		0				ogical Adaptatio ng data in Rema			
9.		0			separate	,			
10.		0			Problema	atic Hydrophytic	Vegeta	ation¹ (E	xplain)
	radius Common Name		= Total Cover			hydric soil and			
Vine Stratum: Plot size: 30ft 1.	radius Common Name				must be pres	ent, unless dist	urbed c	or proble	matic.
2.		0			Hydroph	ytic Vegetat	ion	Yes	
Remarks: (Include photo numbers here c	or on a separate sheet)		= Total Cover	L		Present?		No	

The vegetation is more sparce around the sample point than in the surrounding area.

Soils										Sample Point:	S	6-02
Profile De	escription: (D	escribe to	the dep	oth neede	d to docur	nent the	indicator	r or confirm the	e absence of indicators	s.)		. 02
Depth	Matrix			R	edox Featu	ures						
(inches)	Color (moist)	%		(moist)	%	Type¹	Loc <sup>2</sup>	Texture	Remarks:			
0-1			10YR	5/6		С	М	sil				
1-10									Fly Ash			
<sup>1</sup> Type: Ca	-Concentration, D	)=Depletic	n RM=	Reduced	Matrix C	S=Cover	ed or Co	ated Sand Gr	ains <sup>2</sup> location: F	PL=Pore Lining, M=M	latrix	
		-Depietic	/II, IXIVI-	Neuuceu		3-00vei		aleu Sanu Gra	anis. Location. r		Iduix	
•	oil Indicators:						(0.1)					
	tosol (A1) tic Epipedon (A2)	,			ndy Gleye ndy Redo		(S4)		ators for Problematic H			
	ck Histic (A3)	,			ipped Mat	• •			coast Prairie Redox (A	,		
	drogen Sulfide (A	4)			amy Muck		al (F1)		on-Manganese Masse hther (Explain in Remai			
Str	atified Layers (A5	)		Lo	amy Gleye	ed Matrix	: (F2)		(	,		
	m Muck (A10)				pleted Ma		(= 0)					
	pleted Below Dar ck Dark Surface (		(A11)		dox Dark pleted Da				<sup>3</sup> Indicators of hydr and wetland hydrolo			
	ndy Mucky Minera				dox Depre					d or problematic.		
	m Mucky Peat or					(	,					
Restrictiv	e Layer (if obse	rved):									N/s s	
Туре:		veu).		Dent	n (inches):				Hydric So	il Present?	Yes	
				Вера	r (mones).						No	
Soil Rem		ilo. No inc	licatora	mot								
r iy asii p	resent in soil prot	ne. No mo	licators	met.								
Hydro	ology ——											
Wetland	Hydrology Indica	ators:										
Primary Ir	idicators (minimu	m of one i	s requir	ed; checł	all that a	oply)			Secondary	Indicators (minimum	of two	required)
	face Water (A1)		<u> </u>				.eaves (E	39)	·	Soil Cracks (B6)		<u> </u>
	h Water Table (A			[	Aquatic	Fauna (	B13)		-	e Patterns (B10)		
	turated in Upper	I2" (A3)		[			ants (B14	-	·	son Water Table (C2)	)	
	iter Marks (B1) diment Deposits (	B2)		ļ			e Odor (	C1) on Living Root		Burrows (C8) on Visible on Aerial In	nagen	(CQ)
	ft Deposits (B3)	DZ)		l I			duced Irc	-		or Stressed Plants (E		(09)
	al Mat or Crust (E	34)		[				Tilled Soils (0		phic Position (D2)	,	
	n Deposits (B5)			[	 Thin Μι	ick Surfa	ace (C7)			utral Test (D5)		
	ndation Visible or			· .			Data (D9)					
Sp	arsely Vegetated	Concave	Surface	(B8)	Other (B	Explain ir	n Remarl	ks)				
	ervations:		_									
	/ater Present? Ye			-		in					Yes	
Water Tal	ble Present? Ye	es 🗹 No	🗌 Dep	oth (inche	s): 0	in			Wetland Hydrold	ogy Present?	No	
	n Present? Ye capillary fringe)	es 🗹 No	🗌 Dep	oth (inche	s): 0	in					NO	
Describe	Recorded Data (s	tream gau	ige, mo	nitoring w	ell, aerial	photos,	previous	inspections), i	f available:			
Hydrology	Remarks:											
The area	contains standing	water I	ikely du	e to flood	ing or Mis	sissippi a	and/or ur	seasonably w	et growing season.			

V	Vetland Determinat	ion Data	Form -		•				
Project/Site: SCS-002	BGS Pond Closure			City/Co	unty: Des Moine	S	Date:	10/17/	2019
Applicant/Owner: SCS Engineers				State:	IA	Sample Po	nt:	S-03	3
Investigator(s): Impact7G (Will Downey, F	Reid Stamer )		Section,	Township	, Range: Sectio	n 29 Townsh	ip 69N F	tange 02	2 W
Landform (hillslope, terrace, etc.): Pond Slo	ope	Lo	ocal relief (c	oncave, co	onvex, none): c	oncave			
Slope (%) 2-5% Latitude(dd): 40.7	4445837 L	ongitude(dd)	): -91.1172	22153	Da	tum NAD 198	33 UTM	Zone 15	5N
Soil Map Unit Name: Fluvaquents, frequen	tly flooded, 0 to 3 percent slo	pes							
Are climatic / hydrologic conditions on the	site typical for this time of yea	ar? Yes	] No 🖌 (I	f no, expla	in in Remarks.)				
Are Vegetation 🔄 Soil 🖌 or Hydrology	significantly disturbed?				Are "Normal C	ircumstance	s" prese	nt?	No 🗸
Are Vegetation Soil or Hydrology	naturally problematic?				(If needed, e	explain any ar	nswers i	n Remar	ˈks.)
Summary of Findings -	Attach site map show	/ing samp	ling poir	t locatio	ons, transec	ts, import	ant fe	atures	, etc.
Hydrophytic Vegetation	present?	_						and Type	
Hydric Soil	•	s the Saı within a	•	-10	Wetland		vella	па туре	
Wetland Hydrology	present? 🔽	wiuiiii a	vellan	u: N	Ion-Wetland	$\checkmark$			
The sample point was taken on the edge				Area is d	esigned and use	ed for contain	ment an	d treatm	ent of
fly ash. Mississippi River currently at majo	r flood stage, wetter than ave	erage conditio	ons.						
Vegetation		AL 1.	<b>D</b> : (						
Tree Stratum: Plot size: 30ft	radius Common Name	Absolute % Cover	Dominant Species?	Status	Dominance T	est workshe	et:		
1		0			Number of Dominant Species - That Are OBL, FACW, OR FAC:3(				(A)
3.	0			Total Number Species Acros			3	(B)	
4		0			Percent of Do That Are OBL			100%	(A/B)
		0	= Total Cover						()
Sapling/Shrub Stratum:Plot size:1Cephalanthus occidentalis	Common Name	5	YES	OBL	Prevelance In	ndex worksh	eet:		
Cephalanthus occidentalis     2.		0			Total %	Cover of:	M	lultiply by	/:
3.		0			OBL species:	-	x 1	57	
4.		0			FACW specie		x 2	22	
5.		0			FAC species:	-	_ x 3	90	
Herbaceous Stratum Plot size:	Common Name	5	= Total Cover		FACU specie UPL species:	-	_ ×4	0	
Herbaceous Stratum:         Plot size:           1.         Hibiscus laevis	Halberd-Leaf Rose-Mallow	40	YES	OBL	•		_ x 5		
2. Panicum capillare	Common Panic Grass	30	YES	FAC	Column Total	ls: 98	_ (A)	169	(В
3. Persicaria pensylvanica	Pinkweed	10	NO	FACW	Prevalence	e Index = B/A	=	1.72	_
4. Lemna minor	Common Duckweed	7	NO	OBL	Hydrophytic V	Vegetation I	ndicato	rs:	
5. Iris virginica	Virginia Blueflag	5	NO	OBL	Dominanc	•		0.	
6. Fraxinus pennsylvanica	Green Ash	1	NO	FACW	Prevalence				
7.		0			Morpholog	gical Adaptati	ons¹ (P		
8.		0			supporting separate s	data in Rem sheet)	arks or	on a	
9.		0			· _ ·	, tic Hydrophyt	ic Veget	ation¹ (E	xplain)
10		0			41 11 1				
Vine Stratum: Plot size: 30ft	radius Common Name	93	= Total Cover		<sup>1</sup> Indicators of I must be prese				
1.		0							
2.		0				/tic Vegeta	tion	Yes	
Remarks: (Include photo numbers here of	or on a separate sheet)	0	= Total Cover		P	resent?		No	

Soils									Sample Point:	S	-03
Profile De	escription: (D	Describe to	the depth needed	d to docun	nent the i	indicator	r or confirm the	e absence of indicators.)			
Depth											
. ,	. ,	%	Color (moist)	%	туре	Loc <sup>2</sup>	Texture				
Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)											
17 0	0 1 1										
		D=Depletio	n, RM=Reduced	Matrix, CS	S=Covere	ed or Co	ated Sand Gra	ains. <sup>2</sup> Location: PL=F	ore Lining, M=Ma	atrix	
•					al Mantuis d	(04)	ا الم ما	atana fan Duahlanastia Ulydu			
	. ,	2)				(54)			.0 30115		
		,		•	• •			· · · ·	12)		
		-			•	• •			,		
		5)				(F2)					
		rk Surface				F6)		<sup>3</sup> Indicators of hydrophy	utic vegetation		
	ck Dark Surface	(A12)		oleted Dar	rk Surface	e (F7)		and wetland hydrology n	nust be present,		
				dox Depre	essions (F	-8)		unless disturbed or	problematic.		
	•	. ,									
Restrictiv	e Layer (if obse	erved):						Hydric Soil P	resent?		
Туре:			Depth	(inches):					coontr	No	
		Cha Min Ind	P								
Fiy asn p	resent in soil pro	file. No Inc	licators met.								
Hydro	ology —										
Wetland	Hydrology Indic	ators:									
		im of one i	s required; check							of two r	equired)
						•	39)				
		-					L)				
		(,							. ,		
	•	(B2)					•				C9)
	,									1)	
		D4)									
		n Aerial Im	agery (B7)				)		, , ,		
Spa	arsely Vegetated	Concave	Surface (B8)	Other (E	Explain in	Remark	ks)				
					8 ft				Due e e u to	Yes	
				-				vvetiand Hydrology	Present?		
		es 🗀 No	Depth (inches	s):							
		stream dau	iae monitorina w	ell aerial i	nhotos n	revious	inspections) i	f available:			
2 2001100		can guu		_, aonar	μ						
Hydrology	Remarks:										
		mapped N	IWI area, which n	nay be a fl	ly ash po	nd / deta	onation basin.				

	Vetland Determinat	ion Data	Form -		•		
Project/Site: SCS-002	BGS Pond Closure			City/Co	unty: Des Moin	es Date:	10/17/2019
Applicant/Owner: SCS Engineers				State:	IA	Sample Point:	S-04
Investigator(s): Impact7G (Will Downey, F	Reid Stamer)		Section,	Township	, Range: Sectio	on 29 Township 69N	N Range 02 W
Landform (hillslope, terrace, etc.): Depress	ion	Lo	ocal relief (c	oncave, c	onvex, none):	concave	
Slope (%) 0-2% Latitude(dd): 40.7	4372947	Longitude(dd)	: -91.118 <sup>-</sup>	14059	Da	atum NAD 1983 UT	M Zone 15N
Soil Map Unit Name: Water							
Are climatic / hydrologic conditions on the	site typical for this time of ye	ar? Yes	No 🔽 (I	f no, expla	in in Remarks.)	1	
Are Vegetation Soil 🖌 or Hydrology	significantly disturbed?				Are "Normal	Circumstances" pre	esent? 📄 No 🗸
Are Vegetation Soil or Hydrology	v  ▼ naturally problematic?				(If needed,	explain any answer	s in Remarks.)
Summary of Findings -	Attach site map show	ving samp	ling poir	nt locatio	ons, transe	cts, important	features, etc.
Hydrophytic Vegetation	present? 🔽	ls the Sar	nnled A	rea	Wetlan	d 🗌 🛛 We	etland Type:
Hydric Soil	present?	within a	•	-10	Ion-Wetland		
Wetland Hydrology Remarks:	present? 🔽						
The sample point was taken at the edge of Mississippi River currently at major flood			a is designe	ed and use	ed for containm	ent and treatment o	f fly ash.
Vegetation							
0		Absolute	Dominant	<b>a</b>	Dominance	Test worksheet:	
	radius Common Name	% Cover	Species?	Status		ominant Species	
1		0				_, FACW, OR FAC:	4 (A)
3.		0			Total Numbe Species Acro	r of Dominant	4 (B)
4.	1	0					(D)
5.		0				ominant Species _, FACW, or FAC:	(A/B)
Sapling/Shrub Stratum: Plot size:	Common Name		= Total Cover		Prevelance	ndex worksheet:	
1. Amorpha fruticosa	False Indigo-Bush	7	YES	FACW		Cover of:	Multiply by:
2. Fraxinus pennsylvanica	Green Ash	2	YES	FACW	OBL species		
3.		0			FACW spec		
4.		0			FAC species		
5.		0			FACU speci	es: 0 x	4 0
Herbaceous Stratum: Plot size:	Common Name		= Total Cover		UPL species	s: <u>0</u> x	5 0
1. Phragmites australis	Common Reed	70	YES	FACW	Column Tota	als: <u>166</u> (A)	) <u>345</u> (B
2. Panicum capillare	Common Panic Grass	40	YES	FAC	Prevalenc	e Index = B/A =	2.08
<ul> <li>3. Eleocharis acicularis</li> <li>Phalaris arundinacea</li> </ul>	Needle Spike-Rush Reed Canary Grass	20	NO NO	OBL FACW			2.00
T.	Nodding Burr-Marigold	5	NO	OBL	Hydrophytic	Vegetation Indica	tors:
<ol> <li>Bidens cernua</li> <li>Asclepias incarnata</li> </ol>	Swamp Milkweed	2	NO	OBL		ce Test is >50%	
7.	· ·	0				ce Index is ≤3.0¹	
8.		0			supportin	ogical Adaptations <sup>1</sup> Ig data in Remarks	
9.		0			separate	,	notation1 (Franks)
10.		0				atic Hydrophytic Veo	Jetation' (Explain)
Vine Stratum: Plot size: 30ft	radius Common Name		= Total Cover			hydric soil and wet ent, unless disturbe	
1.		0			must be pres	ent, uniess disturbe	a or problematic.
2.		0			Hydroph	ytic Vegetation	Yes 🔽
Remarks: (Include photo numbers here	or on a separate sheet)	0	= Total Cover		F	Present?	No 🗌

Soils										Sample Point:	S-04
Profile De	escription: (D	escribe to	the de	pth neede	d to docun	nent the i	ndicator o	or confirm the	e absence of indicators.)	L	001
Depth	Matrix	(		Re	edox Featu						
(inches)	Color (moist)	%	Color	(moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks:		
0-3	N2.5								Fly Ash		
3-10	2.5Y 4/1								Refused		
1Turnet C	-Concentration	)-Doplatia	n DM-	-Bodupod	Matrix CS	S=Covora	d or Coo	tod Sand Cra	aina 21 agostion: DI - F	Poro Lipipa M-M	otriv
	Concentration, E	J-Depletio	11, <b>K</b> IVI-	-Reduced	Matrix, Co	S-Covere	a or Coa	leu Sanu Gra		Pore Lining, M=M	
-	oil Indicators:						( <b>a</b> 1)				
	tosol (A1) tic Epipedon (A2	)			ndy Gleye ndy Redox		(S4)		ators for Problematic Hydri	c Solls'	
	ck Histic (A3)	)			ipped Matr	• •			oast Prairie Redox (A16)	10)	
	drogen Sulfide (A	4)			amy Mucky	• •	l (F1)		on-Manganese Masses (F ther (Explain in Remarks)	12)	
Str	atified Layers (A5	5)			amy Gleye	d Matrix	(F2)				
	m Muck (A10)				pleted Mat						
	pleted Below Dar		(A11)		dox Dark S	•	,		<sup>3</sup> Indicators of hydrophy		
	ck Dark Surface ndy Mucky Miner				pleted Dar dox Depre				and wetland hydrology n unless disturbed or		
	m Mucky Peat or					5510115 (1	0)				
	-										
_	e Layer (if obse	rvea):		Dant	()				Hydric Soil Pr	esent?	Yes
Туре:				Depth	n (inches):				,		No 🗹
Soil Rem											
Fly ash p	resent in soil pro	file - no inc	dicators	s met							
Hydro	loav —										
•	Hydrology Indica	atore									
			e roquir	rad: chack	all that an	anly)			Secondary Indi	cators (minimum	of two required)
	idicators (minimu rface Water (A1)		s requi				eaves (BS	3)			or two required)
	h Water Table (A	(2)		Ĺ	Aquatic		``	·)	Drainage Pa		
	turated in Upper			ſ			, nts (B14)			Water Table (C2)	
Wa	iter Marks (B1)			[			e Odor (C	-	Crayfish Bur	rows (C8)	
	diment Deposits	(B2)		[				Living Roots		sible on Aerial Im	••••
	ft Deposits (B3)			[			uced Iron			tressed Plants (D	1)
	al Mat or Crust (I า Deposits (B5)	34)				Iron Redi ick Surfa		Tilled Soils (C	C6) Geomorphic FAC-Neutral		
	ndation Visible o	n Aerial Im	aderv (	( <b>B7</b> ) [		or Well D	• •			lest (D5)	
	arsely Vegetated						Remarks	s)			
Field Obs	ervations:										
	/ater Present? Ye	es 🗹 No 🛛	🗌 Dej	pth (inche	s) 0-2	in					_
	ble Present? Ye					n			Wetland Hydrology	Present?	Yes 🗹
		es 🗹 No 🛛		-					, ,,		No 🗌
	capillary fringe)				5). 01						
Describe I	Recorded Data (s	stream gau	ige, mo	onitoring w	ell, aerial i	photos, p	revious ir	nspections). i	f available:		
	- (-	0	5	<u> </u>		· · · · F		. ,, .			
Hydrology	Remarks:										
	detention pond.										
	-										

V	Vetland Determinati	on Data	Form - I		•			
Project/Site: SCS-002	BGS Pond Closure			City/Co	unty: Des Moines	B Date	e: 10/1	7/2019
Applicant/Owner: SCS Engineers				State:	IA	Sample Point:	S-0	)5
Investigator(s): Impact7G (Will Downey, F	≀eid Stamer )		Section,	Township	, Range: Section	29 Township 69	9N Range (	02 W
Landform (hillslope, terrace, etc.): Detentio	n Pond	Lo	ocal relief (c	oncave, co	onvex, none): co	ncave		
Slope (%) 0-2% Latitude(dd): 40.7	4088333 L	ongitude(dd)	): -91.1205	3372	Date	um NAD 1983 U	ITM Zone 1	15N
Soil Map Unit Name: Fluvaquents, frequen	tly flooded, 0 to 3 percent slor	pes						
Are climatic / hydrologic conditions on the	site typical for this time of yea	r? Yes	No 🔽 (If	<sup>r</sup> no, expla	in in Remarks.)			
Are Vegetation Soil 🖌 or Hydrology	v <b>y</b> significantly disturbed?				Are "Normal Ci	rcumstances" pr	resent?	No 🗸
Are Vegetation Soil or Hydrology	naturally problematic?				(If needed, ex	kplain any answe	ers in Rema	arks.)
Summary of Findings -	Attach site map show	ving samp	ling poin	t locatio	ons, transect	s, importan	t feature	s, etc.
Hydrophytic Vegetation	present?	s the Sai	mnled A	rea	Wetland	<b>v</b>	/etland Typ	be:
Hydric Soil	present?	within a	•	-10	Ion-Wetland		,,	
Wetland Hydrology Remarks:	present? 🔽							
The sample point consists of a detention Mississippi River currently at major flood			rea is desig	ned and u	sed for containm	ent and treatme	nt of fly ash	۱.
	stage, weller than average co	nutions.						
Vegetation		Absolute	Dominant					
Tree Stratum: Plot size: 30ft	radius Common Name	% Cover	Species?	Status		est worksheet:		
1.		0			Number of Dor That Are OBL,	FACW, OR FAC	: 1	(A)
2.		0			Total Number of	of Dominant		
3.		0			Species Across	s All Strata:	1	(B)
4. 5.		0			Percent of Don That Are OBI	ninant Species FACW, or FAC:	100%	(A/B)
	0	0	= Total Cover					_ ()
Sapling/Shrub Stratum: Plot size: 1.	Common Name	0			Prevelance Inc	dex worksheet:		
2.		0			Total % C	over of:	Multiply I	by:
3.		0			OBL species:		x 10	
4.		0			FACW species			
5.		0			FAC species:		x 3 0	
Herbaceous Stratum Plot size:	Common Name	0	= Total Cover		FACU species UPL species:		x 4 0 x 5 0	
Herbaceous Stratum:         Plot size:           1.         Phragmites australis	Common Reed	100	YES	FACW				
2.		0			Column Totals	s: <u>100</u> (/	A)20	00(B
3.		0			Prevalence	Index = B/A =	2.00	
4.		0			Hydrophytic V	egetation Indic	ators:	
5.		0				e Test is >50%		
6.		0			✓ Prevalence	e Index is ≤3.0¹		
7.		0		-		ical Adaptations		
8.		0			separate s	data in Remarks heet)	sorona	
9		0			Problemati	c Hydrophytic Ve	egetation <sup>1</sup> (	(Explain)
	radius Common Name	100	= Total Cover			ydric soil and we		
1.		0			must be preser	nt, unless disturb	ed or prob	lematic.
2.		0			Hydrophy	tic Vegetatior	n Yes	s 🗸
Remarks: (Include photo numbers here o	or on a separate sheet)	0	= Total Cover			esent?	No	

US Army Corps of Engineers

Soils								Sample Point:	S-05
Profile Description:	(Describe to	the depth need	ded to docur	nent the indi	cator	or confirm the	e absence of indicators.)	L	
Depth Matrix Redox Features									
(inches) Color (moist	) %	Color (moist)	%	Type¹ L	_0C <sup>2</sup>	Texture	Remarks:		
0-10 N2.5						I	Fly Ash		
<sup>1</sup> Type: C=Concentration	n, D=Depletic	on, RM=Reduce	ed Matrix, CS	S=Covered o	or Coa	ted Sand Gra	ains. <sup>2</sup> Location: PL=I	Pore Lining, M=M	atrix
Hydric Soil Indicators:									
Histosol (A1)		□\$	Sandy Gleve	d Matrix (S4	)	Indic	ators for Problematic Hydr	ic Soils <sup>3</sup>	
Histic Epipedon (	A2)		Sandy Redox		,		oast Prairie Redox (A16)		
Black Histic (A3)			Stripped Mat	rix (S6)			on-Manganese Masses (F	12)	
Hydrogen Sulfide	e (A4)		oamy Muck	y Mineral (F	1)		ther (Explain in Remarks)	,	
Stratified Layers				ed Matrix (F2	2)				
2 cm Muck (A10)			Depleted Ma						
Depleted Below		· · ·		Surface (F6)			<sup>3</sup> Indicators of hydroph		
Thick Dark Surfac			Redox Depre	rk Surface (F	-7)		and wetland hydrology r unless disturbed or	•	
5 cm Mucky Peat				3310113 (1 0)					
		·							
Restrictive Layer (if ob	servea):						Hydric Soil P	resent?	Yes
Туре:		Dep	oth (inches):						No 🗹
Fly ash present in soil p									
Wetland Hydrology Inc	licatore								
		in required; abo	ok oll that or				Secondary Ind	iaatara (minimum	of two require
Primary Indicators (mini		is requirea; che		opiy) Stained Leav	os (BC	))		icators (minimum Cracks (B6)	or two required
High Water Table				Fauna (B13	•	,		atterns (B10)	
Saturated in Upp				uatic Plants				Water Table (C2)	
Water Marks (B1)			Hydroge	en Sulfide O	dor (C	1)	Crayfish Bur	rows (C8)	
Sediment Deposi	ts (B2)		Oxidize	d Rhizosphe	res or	n Living Roots	s (C3)	isible on Aerial Im	agery (C9)
Drift Deposits (B3	,			ce of Reduce				tressed Plants (D	1)
Algal Mat or Crus						Tilled Soils (C			
Iron Deposits (B5	-	pagan (P7)		ick Surface (			FAC-Neutra	Test (D5)	
Inundation Visible				or Well Data Explain in Re		5)			
						-,			
Field Observations: Surface Water Present?		Depth (incl	nes) 4 i	in					
							Wetland Hydrology	Present?	Yes 🗹
Water Table Present?							wedana nyarology	Tresent:	No
Saturation Present? (includes capillary fringe		Depth (inch	nes): 0	In					
		una manitaring	wall carial	nhataa nray			fovoilable:		
Describe Recorded Data	a (sueam gat	age, monitoring	wen, aerial	priotos, prev	ious fr	ispections), I	i avaliavie.		
Hydrology Remarks:									

Project/Site: SCS-002 BGS Pond Closure		west Region y/County: Des Moines Date: 10/17/2019							
Applicant/Owner: SCS Engineers		- 3-00							
Investigator(s): Impact7G (Will Downey, Reid Stamer) Section, Township, Range: Section 29 Township 69N Range 02 V									
Landform (hillslope, terrace, etc.): River terrace / ditch									
Slope (%)         0-2%         Latitude(dd):         40.7431004         Longitude(dd):         -91.1232744         Datum         NAD 1983 UTM Zone 15N									
Soil Map Unit Name: Fluvaquents, frequently flooded, 0 to 3 percent slop	es								
Are climatic / hydrologic conditions on the site typical for this time of year	? Yes 🗌 No 🖌 (If no, e	explain in Remarks.)							
Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present?									
Are Vegetation Soil 🖌 or Hydrology 🖌 naturally problematic?		(If needed, explain any answers in Remarks.)							
Summary of Findings - Attach site map show	ing sampling point loc	ations, transects, important features, etc							
Hydrophytic Vegetation present?	the Sampled Area	Wetland 🔽 Wetland Type:							
Hydric Soil present?	within a Wetland?	Non-Wetland							
Wetland Hydrology present?									
Area mapped as 100% hydric soils, partially NWI wetland. Area is locate an active cell of the BGS pond facility. Mississippi River currently at maj		ash pond and railroad bed that does not appear to be							
	en neen en gen								
Vegetation	Absolute Dominant								
Tree Stratum: Plot size: 30ft radius Common Name	% Cover Species? Sta	tus Dominance Test worksheet: Number of Dominant Species							
1.	0	That Are OBL, FACW, OR FAC: 1 (A)							
2	0	Total Number of Dominant							
4.	0	Species Across All Strata: (B)							
5.	0	<ul> <li>Percent of Dominant Species</li> <li>That Are OBL, FACW, or FAC: 100% (A/B)</li> </ul>							
Sapling/Shrub Stratum: Plot size: Common Name	0 = Total Cover								
	0	Prevelance Index worksheet:							
2.	0	Total % Cover of: Multiply by:							
3.	0	OBL species:         0         x 1         0           FACW species:         90         x 2         180							
4.	0	FAC species: 0 x 3 0							
5.	0	FACU species: 0 x 4 0							
Herbaceous Stratum: Plot size: Common Name	0 = Total Cover	UPL species: 0 x 5 0							
Phragmites australis         Common Reed	90 YES FAC	W Column Totals: 90 (A) 180 (B							
2.	0	Prevalence Index = B/A = 2.00							
3.	0								
4.	0	Hydrophytic Vegetation Indicators:							
5.	0	✓ Dominance Test is >50%							
6 7	0	Prevalence Index is ≤3.0 <sup>1</sup>							
8.	0	Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a							
9.	0	separate sheet)							
10.	0	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain							
Vine Stratum: Plot size: 30ft radius Common Name	90 = Total Cover	<sup>1</sup> Indicators of hydric soil and wetland hydrology							
1.	0	must be present, unless disturbed or problematic.							
2.	0	Hydrophytic Vegetation Yes 🗹							
Remarks: (Include photo numbers here or on a separate sheet)	0 = Total Cover	Present? No							

Soils							Sample Point:	S-06
•				ndicator	or confirm th	e absence of indicators.)		
Depth <u>Matrix</u>		edox Featu	ures Type¹	1 2	Tartan	Demonstra		
(inches) Color (moist) % C	Color (moist)	%	. )   0	Loc <sup>2</sup>	Texture	Remarks:		
Type: C=Concentration, D=Depletion,	RM=Reduced	Matrix, CS	S=Covered	d or Coa	ted Sand Gr	ains. <sup>2</sup> Location: PL=	Pore Lining, M=M	latrix
lydric Soil Indicators:								
Histosol (A1)	Sa	ndy Gleye	ed Matrix (	S4)	Indic	cators for Problematic Hyd	Iric Soils³	
Histic Epipedon (A2)		ndy Redo				Coast Prairie Redox (A16)		
Black Histic (A3)		ipped Mat				ron-Manganese Masses (	F12)	
☐ Hydrogen Sulfide (A4) ☐ Stratified Layers (A5)		-	xy Mineral ed Matrix (			Other (Explain in Remarks	)	
$\square 2 \text{ cm Muck (A10)}$		pleted Ma		12)				
Depleted Below Dark Surface (A		•	Surface (F	6)		<sup>3</sup> Indicators of hydropl	nvtic vegetation	
Thick Dark Surface (A12)			rk Surface			and wetland hydrology	must be present,	
Sandy Mucky Mineral (S1)	Re	dox Depre	essions (F	8)		unless disturbed o	r problematic.	
5 cm Mucky Peat or Peat (S3)								
Restrictive Layer (if observed):						Hydric Soil F	Procont?	Yes 🗹
Гуре:	Depth	n (inches):					resent	No 🗌
with rip-rap. Hydrology ————								
Wetland Hydrology Indicators:								
Primary Indicators (minimum of one is r	equired; check		,				dicators (minimum	of two required)
Surface Water (A1)			Stained Le	•	9)		il Cracks (B6)	
✓ High Water Table (A2) ✓ Saturated in Upper 12" (A3)	L		Fauna (B quatic Plan				atterns (B10) NWater Table (C2	)
Water Marks (B1)			en Sulfide		1)	Crayfish Bu		/
Sediment Deposits (B2)	[				Living Root		Visible on Aerial In	nagery (C9)
Drift Deposits (B3)	[		ce of Redu				Stressed Plants (D	01)
Algal Mat or Crust (B4)					Tilled Soils (		c Position (D2)	
☐ Iron Deposits (B5) ✓ Inundation Visible on Aerial Imag	uery (B7)		uck Surfac or Well Da	• •		FAC-Neutra	ai Test (D5)	
Sparsely Vegetated Concave Su	L.		Explain in	• •	6)			
Field Observations:								
Surface Water Present? Yes 🗹 No 🗌	] Depth (inche	s) 24	<b>1</b> +					
Water Table Present? Yes 🗹 No 🗌	Depth (inche	s): 0	)			Wetland Hydrology	/ Present?	Yes 🗹
Saturation Present? Yes ✔ No ☐ includes capillary fringe)	Depth (inches	s): 0	)					No
Describe Recorded Data (stream gauge	ə, monitoring w	ell, aerial	photos, pr	evious ir	nspections),	if available:		
Hydrology Remarks:								
Center of wetland is open water on aeri	ial imagery, ve	getation is	not visible	Э				

Wetland Determinat	ion Data	Form -		•				
Project/Site: SCS-002 BGS Pond Closure			City/Co	ounty: Des Mo	bines	Date:	10/17/20	)19
Applicant/Owner: SCS Engineers			State:	IA	Sample Po	vint:	S-07	
Investigator(s): Impact7G (Will Downey, Reid Stamer)		Section,	Township	o, Range: See	ction 29 Townsl	nip 69N F	Range 02 V	V
Landform (hillslope, terrace, etc.): Floodplain	L	ocal relief (c	oncave, c	onvex, none)	: concave			
Slope (%) 0-2% Latitude(dd): 40.7405565 I	_ongitude(dd	): -91.1229	9292		Datum NAD 19	983 UTM	Zone 15N	
Soil Map Unit Name: Fluvaquents, frequently flooded, 0 to 3 percent slo	pes							
Are climatic / hydrologic conditions on the site typical for this time of year	ar? Yes	No ✔ (I	f no, expla	ain in Remark	s.)			
Are Vegetation Soil or Hydrology significantly disturbed?				Are "Norma	al Circumstance	s" prese	nt? 🔽 N	lo 🗌
Are Vegetation Soil 🖌 or Hydrology 🖌 naturally problematic?				(If neede	d, explain any a	nswers i	n Remarks	.)
Summary of Findings - Attach site map show	ving samp	oling poir	nt locatio	ons, trans	ects, impor	tant fe	atures, o	etc.
Hydrophytic Vegetation present?					nd 🗸		and Type:	
Hydric Soil present? 🔽	s the Sa	Wetlan	-10				lain forest	
Wetland Hydrology present? 🔽	within a	vetan		Ion-Wetla	nd 🗌			
Floodplain forest along toe of slope of the Burlington Generating Static			s currently	/ flooded with	2-3 feet or mor	e of star	nding water	and
extends to the south outside of the propert boundary (Mississippi River	r at major floo	od stage).						
Vegetation	Abaaluta	Dominant		1				
Tree Stratum: Plot size: 30ft radius Common Name	Absolute % Cover	Dominant Species?	Status	Dominanc	e Test worksh	eet:		
Acer saccharinum         Silver Maple	80	YES	FACW		Dominant Spece		3 (A	A)
2. Fraxinus pennsylvanica Green Ash	40	YES	FACW		ber of Dominan		(.	.,
3. Populus deltoides Eastern Cottonwood	20	NO	FAC		cross All Strata:		(E	B)
4.	0				Dominant Spec		10001	
5.	140	= Total Cover		That Are O	BL, FACW, or I	-AC:	_100%(A	A/B)
Sapling/Shrub Stratum: Plot size: Common Name			·	Prevelanc	e Index works	neet:		
1.	0			Total	% Cover of:	N	fultiply by:	
2	0	-		OBL spec	ies: 0	x 1	0	
4.	0			FACW spe	ecies: 125	x 2	250	_
5.	0			FAC spec		x 3	60	_
	0	= Total Cover		FACU spe	-	x 4	0	_
Herbaceous Stratum:         Plot size:         Common Name           1.         Phragmites australis         Common Reed	5	YES	FACW	UPL spec		x 5	0	-
2.	0			Column T	otals: 145	(A)	310	_(B
3.	0	,		Prevale	ence Index = B//	<i>۱</i> =	2.14	
4.	0			Hydrophyt	tic Vegetation	Indicato	re ·	
5.	0				ance Test is >5			
6.	0				ence Index is ≤			
7.	0			Morphe	ological Adapta	tions¹ (F		
8.	0				ting data in Rei ite sheet)	narks or	on a	
9.	0				matic Hydrophy	tic Vege	tation¹ (Exp	olain)
10	0							
Vine Stratum: Plot size: 30ft radius Common Name		= Total Cover			of hydric soil a esent, unless d			
1.	0							
2.	0			Hydrop	ohytic Veget	ation	_	
Remarks: (Include photo numbers here or on a separate sheet)	0	= Total Cover			Present?		No	

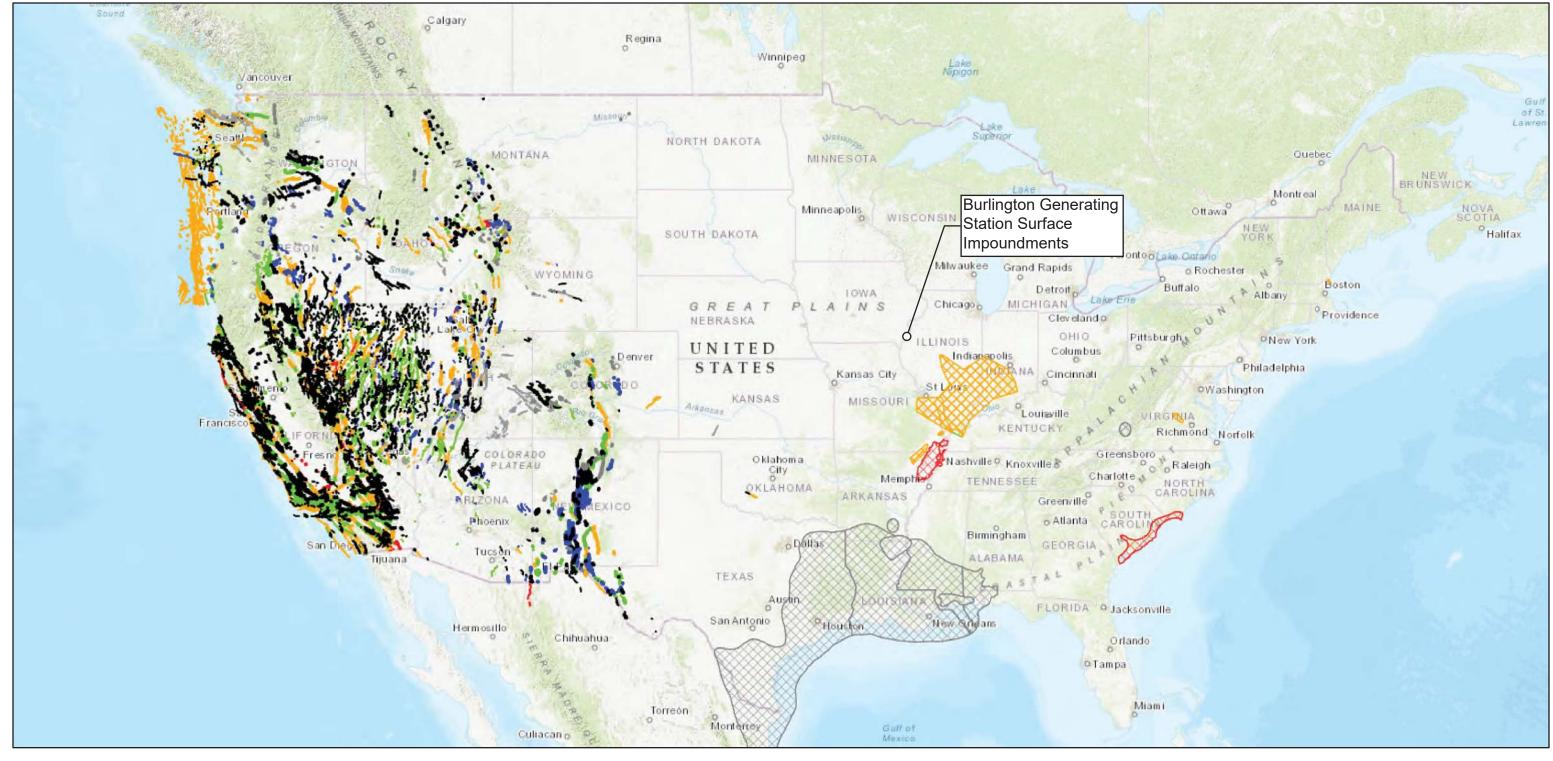
Herbaceaous species covered by flood waters

Soils						Sample Point:	S-07
Profile Description: (Describe to the	ne depth needed	to document the	indicator	or confirm the	e absence of indicators.)		
Depth Matrix							
(inches) Color (moist) %	Color (moist)	% Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks:		
<sup>1</sup> Type: C=Concentration, D=Depletion	, RM=Reduced M	/atrix, CS=Cove	red or Coa	ted Sand Gra	ains. <sup>2</sup> Location: PL=I	Pore Lining, M=Ma	atrix
Hydric Soil Indicators:	,	,					
Histosol (A1)	⊡San	dy Gleyed Matrix	(S4)	Indic	ators for Problematic Hydr	ic Soils <sup>3</sup>	
Histic Epipedon (A2)		dy Redox (S5)	(01)		coast Prairie Redox (A16)		
Black Histic (A3)		ped Matrix (S6)			on-Manganese Masses (F	12)	
Hydrogen Sulfide (A4)		my Mucky Miner	. ,		ther (Explain in Remarks)	,	
Stratified Layers (A5)		my Gleyed Matrix					
☐ 2 cm Muck (A10) ☐ Depleted Below Dark Surface (A		leted Matrix (F3) ox Dark Surface			31. diastana of huduanhu		
Thick Dark Surface (A12)	· 🗆	leted Dark Surfa	• •		<sup>3</sup> Indicators of hydrophy and wetland hydrology r		
Sandy Mucky Mineral (S1)	Red	ox Depressions (	(F8)		unless disturbed or		
☐5 cm Mucky Peat or Peat (S3)							
Restrictive Layer (if observed):						_	Yes 🗹
Туре:	Depth	(inches):			Hydric Soil P	resent?	No 🗌
Soil Remarks:							
Water too deep to collect soil. Mapped	d as 100% hydric	fluvaquents, wit	hin floodpl	ain, assumed	to be hydric		
L h reline le en r							
Hydrology —							
Wetland Hydrology Indicators:							
Primary Indicators (minimum of one is	required; check a				·	cators (minimum	of two required)
Surface Water (A1)		Water-Stained I		9)	Surface Soil		
✓ High Water Table (A2) ✓ Saturated in Upper 12" (A3)		]Aquatic Fauna ( ]True Aquatic Pl			Drainage Pa	Water Table (C2)	
Water Marks (B1)		Hydrogen Sulfic			Crayfish Bur		
Sediment Deposits (B2)		Oxidized Rhizos		-		isible on Aerial Im	agery (C9)
✓ Drift Deposits (B3)		Presence of Re		. ,		tressed Plants (D	1)
Algal Mat or Crust (B4)		Recent Iron Rec		Tilled Soils (0			
☐ Iron Deposits (B5) ✓ Inundation Visible on Aerial Ima	derv (B7)	]Thin Muck Surfa ]Gauge or Well I	· · /		FAC-Neutral	Test (D5)	
Sparsely Vegetated Concave St		Other (Explain i	• •	s)			
Field Observations:							
Surface Water Present? Yes V No	Depth (inches)	36+					_
Water Table Present? Yes 🗹 No					Wetland Hydrology	Present?	Yes 🗹
	Depth (inches)				, ,		No 🗌
(includes capillary fringe)	[ (	-					
Describe Recorded Data (stream gaug	e, monitoring we	ll, aerial photos,	previous ir	nspections), i	f available:		
	Ū						
Hydrology Remarks:							
Area entirely inundated along contour							

Appendix B

Fault Location Map

## U.S. Geological Survey Quaternary Faults



#### 10/21/2020, 11:38:11 AM

Fault	Areas
i auit	Aleas

#### National Database

$\times$	~	_
$\times$	Class	в

- historic
- late Quaternary
- latest Quaternary
- middle and late Quaternary
- Historic (< 150 years), well constrained location Historic (< 150 years), moderately constrained location
- Historic (< 150 years), inferred location
- Latest Quaternary (<15,000 years), well constrained location
- ernary --- Latest Quaternary (<15,000 years), moderately constrained location ....

Latest Quaternary (<15,000 years), inferred location

- Late Quaternary (< 130,000 years), well constrained location</li>
- -- Late Quaternary (< 130,000 years), moderately contrained location
- Late Quaternary (< 130,000 years), inferred location
- Middle and late Quaternary (< 750,000 years), well constrained location
- Middle and late Quaternary (< 750,000 years), moderately constrained location</p>
- Middle and late Quaternary (< 750,000 years), inferred location</p>

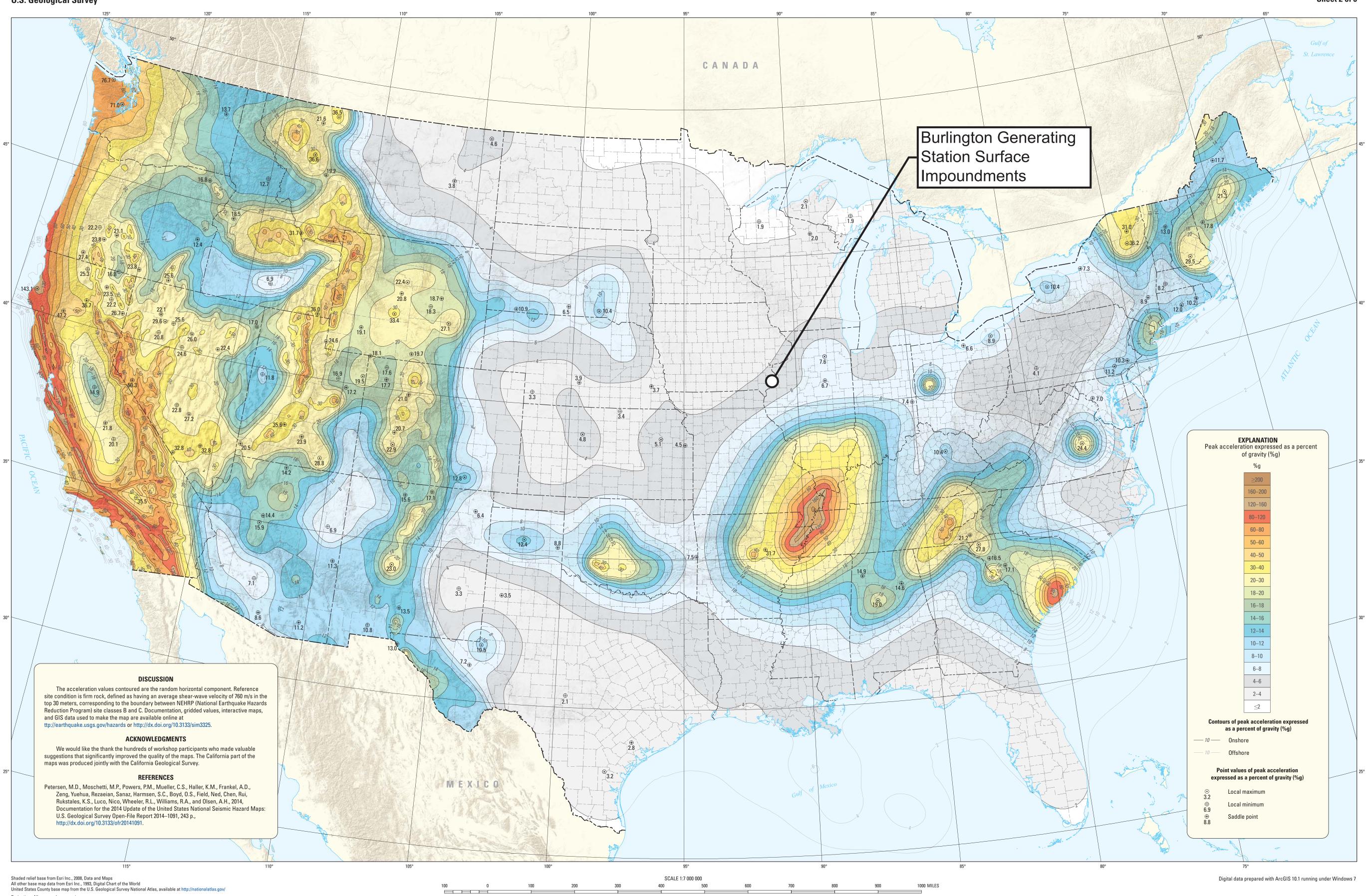
0	935,3	1 99.05		3,741,	596.2 ft			
0	287	,125	574	,250	I	1	1,148	1 3,500 m

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community Appendix C

Seismic Hazard Map



U.S. Department of the Interior U.S. Geological Survey



Projection: Albers equal-area conic Standard parallels 29.5°N. and 45.5°N., central meridian 95°W

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Box 25046, Mail Stop 966 Denver, CO 80225

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 $\square$   $\square$   $\square$ 

## **Seismic-Hazard Maps for the Conterminous United States, 2014** Peak Horizontal Acceleration with 2 Percent Probability of Exceedance in 50 Years

500

600

700

-----

800

900

1000 KILOMETERS

400

200

100

0

300

-----

Mark D. Petersen,<sup>1</sup> Morgan P. Moschetti,<sup>1</sup> Peter M. Powers,<sup>1</sup> Charles S. Mueller,<sup>1</sup> Kathleen M. Haller,<sup>1</sup>Arthur D. Frankel,<sup>1</sup> Yuehua Zeng,<sup>1</sup> Sanaz Rezaeian,<sup>1</sup> Stephen C. Harmsen,<sup>1</sup>Oliver S. Boyd,<sup>1</sup> Edward H. Field,<sup>1</sup> Rui Chen,<sup>2</sup> Nicolas Luco,<sup>1</sup>Russell L. Wheeler,<sup>1</sup> Robert A. Williams,<sup>1</sup> Anna H. Olsen,<sup>1</sup> and Kenneth S. Rukstales<sup>1</sup> <sup>1</sup>U.S. Geological Survey 2015 <sup>2</sup>California Geological Survey, Sacramento, Calif.

By

#### Scientific Investigations Map 3325 Sheet 2 of 6

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