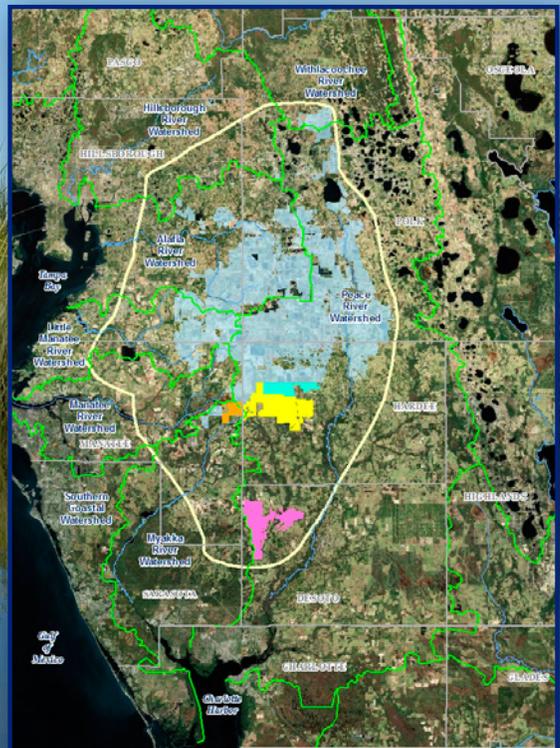


# EXECUTIVE SUMMARY



# EXECUTIVE SUMMARY

## ES.1 BACKGROUND

In 2010 and 2011, the United States Army Corps of Engineers, Jacksonville District, (USACE) received applications for Department of the Army permits under Section 404 of the Clean Water Act (CWA) from two phosphate mining companies in central and southwest Florida: Mosaic Fertilizer LLC (Mosaic) and CF Industries, Inc. (CF Industries), referred to hereinafter as “the Applicants.” The proposed actions include creating new phosphate mines, expanding existing mines, and constructing attendant facilities. As proposed, these actions would result in the discharge of fill into Waters of the United States.

Federal authorizations approving the requested permits would constitute a “Major Federal Action.” As a result, USACE determined that, when viewed collectively, the separate proposed phosphate mining projects have similarities that provide a basis for evaluating their direct, indirect, and cumulative environmental impacts in a single Areawide Environmental Impact Statement (AEIS). This Final AEIS (and the Draft AEIS on which it is based) evaluates the environmental and economic impacts of the Applicants’ four proposed mines (the Applicants’ Preferred Alternatives), as well as the impacts associated with a No Action Alternative and other reasonably foreseeable alternatives in the Central Florida Phosphate District (CFPD).

In compliance with the National Environmental Policy Act (NEPA), this Final AEIS will support decision making on the existing permit applications and will inform agencies, other stakeholders, and the public of the impacts of, and alternatives to, the Applicants’ four similar permit applications for phosphate mines, as well as future phosphate mines considered to be potentially feasible in the CFPD. This Final AEIS will be used by the USACE to determine whether to issue, issue with modifications or conditions, or deny Section 404 CWA permits in response to the four similar permit applications. As a secondary benefit, this Final AEIS will provide information to support the evaluation of possible future applications for additional phosphate mining activity.

As indicated in the scoping process and the Draft AEIS, the USACE will conduct the public interest reviews and CWA Section 404(b)(1) analyses for the four similar permit applications in the project-specific records of decision statements of finding (RODSOF).

## ES.2 PROJECT PURPOSE AND NEED

In accordance with NEPA, an Environmental Impact Statement (EIS) “shall briefly specify the underlying purpose and need to which the agency is responding” (Title 40 Code of Federal Regulations [CFR] Part 1502.13). When considered together, the “purpose” and the “need” for a proposed project (in this case, the Applicants’ Preferred Alternatives) establish the basic parameters for identifying the range of alternatives to be considered in an EIS.

1 Pursuant to 33 CFR Part 325, Appendix B, when defining the purpose and need for a project “while  
2 generally focusing on the applicant’s statement, the USACE will in all cases exercise independent  
3 judgment in defining the purpose and need for the project from both from the applicant’s and the public’s  
4 perspective.” As part of defining a project purpose and need, the USACE defines a Basic Project Purpose  
5 and an Overall Project Purpose. The basic purpose of the project as defined by the USACE is to mine  
6 phosphate ore. In general, mining of phosphate ore does not require access or proximity to a special  
7 aquatic site. Therefore, the USACE finds that the basic purpose of the project is not water-dependent.

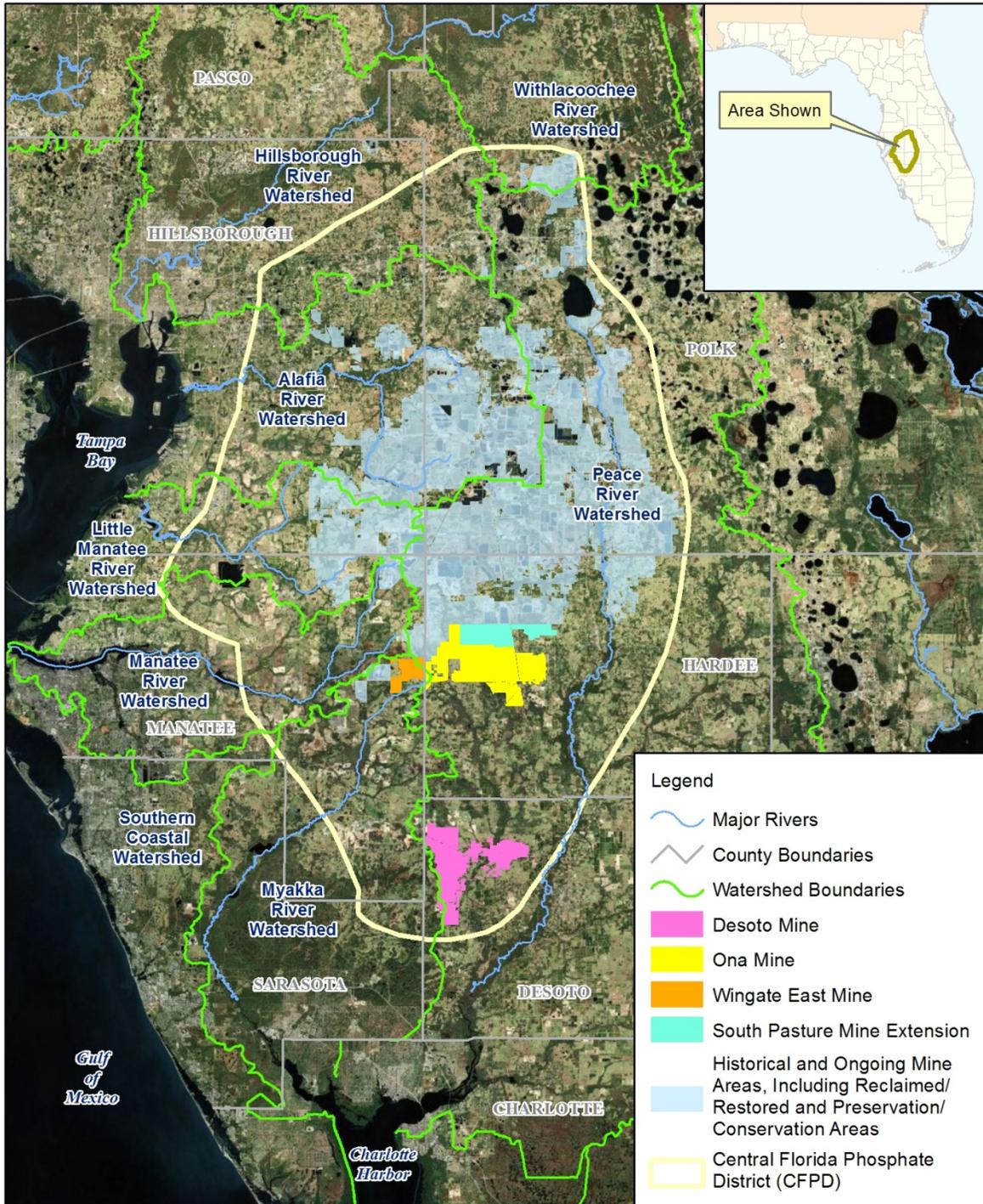
8 To guide its evaluation of the Applicants’ Preferred Alternatives, not only for purposes of NEPA and this  
9 AEIS, but also for the USACE’s evaluation of the associated applications for permits under Section 404 of  
10 the CWA pursuant to the Section 404(b) (1) Guidelines (40 CFR Part 230) and the public interest review,  
11 the purpose and need are stated in terms of the overall project purpose. The overall project purpose,  
12 independently defined as required by the USACE, forms the basis for the USACE’s evaluation of  
13 reasonable alternatives under NEPA. Therefore, for this AEIS, the overall project purpose is to extract  
14 phosphate ore from the mineral reserves in the CFPD and to construct the associated infrastructure  
15 required to extract and process the phosphate ore at separation/beneficiation facilities, recognizing that  
16 the ore extracted must be within a practicable distance of a new or existing beneficiation plant.

17 In addition to the USACE purpose and need, the Applicants developed purpose and need statements,  
18 which formed the basis for the alternatives analysis.

### 19 **ES.3 SCOPE OF THE AEIS**

#### 20 **ES.3.1 Proposed Action**

21 The specific projects proposed by CF Industries and Mosaic being reviewed by the USACE, and their  
22 Department of the Army permit application numbers, are Mosaic’s Desoto Mine (SAJ-2011-01968),  
23 Mosaic’s Ona Mine (SAJ-2011-01869), Mosaic’s Wingate East Mine (SAJ-2009-03221), and  
24 CF Industries’ South Pasture Extension Mine (SAJ-1993-01395). The four projects are proposed in the  
25 area commonly known as the CFPD, an area of approximately 1.32 million acres (or +/-2,100 square  
26 miles) in Hardee, Hillsborough, Manatee, Polk, and DeSoto Counties. There also are about 1,000 acres in  
27 Sarasota County in the CFPD; however, no mining occurs, or is proposed by the Applicants, in Sarasota  
28 County. Figure ES-1 shows the location of the CFPD and the four proposed phosphate mine projects,  
29 along with the areas where historical and ongoing mining has occurred in the CFPD.



1

2

**Figure ES-1. Locations of the Applicants' Four Proposed New Phosphate Mines in the Central Florida Phosphate District**

3

1 The descriptions of the total extent of USACE jurisdictional wetlands and streams, and of the proposed  
2 impacts to USACE jurisdictional wetlands and streams, are based on the USACE's approved and  
3 proposed approved jurisdictional determinations. The proposed impacts reflect the Applicants' Preferred  
4 Alternatives, as described in the June 1, 2012, public notices for the four projects, which may change  
5 during the USACE's further review of the four applications:

- 6 • **Desoto Mine.** A new 18,287-acre dragline-based phosphate mine in northwestern DeSoto County in  
7 the Peace River watershed. Mining would be conducted over approximately 16 years, estimated to be  
8 from 2021 to 2037, with reclamation activities to continue for up to an additional 6 years. The project,  
9 as described in the June 1, 2012, public notice, would impact 3,253 acres of a total of 4,034 acres of  
10 wetlands and approximately 64,474 linear feet of 128,639 feet of streams meeting the Waters of the  
11 United States criteria.
- 12 • **Ona Mine.** A new 22,320-acre dragline-based phosphate mine in western Hardee County, mostly in the  
13 Peace River watershed, with a small portion in the Myakka River watershed. Mining would be conducted  
14 over approximately 30 years, estimated to be from 2020 to 2050, with reclamation activities to continue  
15 for up to an additional 15 years. Overall, there are 5,389 acres of USACE jurisdictional wetlands and  
16 208,366 linear feet of USACE jurisdictional streams on the site. The project, as described in the  
17 June 1, 2012, public notice, would impact 4,615 acres of 5,389 acres of wetlands and approximately  
18 136,731 linear feet of streams of 208,366 linear feet of streams meeting the Waters of the United  
19 States criteria.
- 20 • **Wingate East Mine.** A 3,635-acre dredging and dragline-based extension of the existing permitted  
21 Wingate Creek Mine in eastern Manatee County, mostly in the Myakka River watershed, with a small  
22 portion in the Peace River watershed. Mining would be conducted over approximately 27 years,  
23 estimated to be from 2019 to 2046, with reclamation activities to continue for up to an additional  
24 8 years. Overall, there are 940 acres of USACE jurisdictional wetlands and 68,138 linear feet of  
25 USACE jurisdictional streams on the site. The project, as described in the June 1, 2012, public notice,  
26 would impact 784 acres of wetlands and approximately 27,287 linear feet of streams meeting the  
27 Waters of the United States criteria.
- 28 • **South Pasture Extension Mine.** A 7,513-acre dragline-based extension of the existing permitted  
29 South Pasture Mine in Hardee County in the Peace River watershed. Mining would be conducted  
30 over approximately 13 years, estimated to be from 2020 to 2033, with reclamation activities to  
31 continue for up to an additional 10 years. Overall, there are 1,699 acres of USACE jurisdictional  
32 wetlands and 92,809 linear feet of USACE jurisdictional streams on the site. The project, as  
33 described in the June 1, 2012, public notice, would impact 1,218 acres of wetlands and 32,161 linear  
34 feet of streams meeting the Waters of the United States criteria.

1 For this AEIS, infill parcels are not considered to be similar actions to the four proposed mines, as they do  
2 not share common alternatives and timing with the proposed mines. They also do not rise to the level of  
3 significance of the proposed actions, and would result in much lower levels of impact. These parcels are  
4 typically acquired and mined because of their proximity to an existing or planned future mine and  
5 beneficiation plant, and because of other factors, such as whether the mine owner can obtain the  
6 necessary property interest. The USACE will make project-specific determinations under NEPA and other  
7 applicable authorities on these actions separately from this Final AEIS.

8 The USACE has further determined that the Applicants' four proposed phosphate mines have independent  
9 utility from the existing fertilizer plants and that the mining operations are single and complete projects.  
10 Phosphogypsum (calcium sulfate dihydrate) is a byproduct of the process that converts mined phosphate  
11 rock into the compounds used in fertilizers. The phosphogypsum, separated from the phosphoric acid, is in  
12 the form of a solid/water mixture (slurry), which is stored in open-air storage areas known as stacks or  
13 gypstacks. Mosaic and CF Industries have stated that the mineral processing plants (fertilizer/food-grade  
14 phosphate production facilities) conceptually would be able to continue operations independently of the  
15 proposed mines because the mineral processing plants are not necessarily dependent on the mines.  
16 Therefore, fertilizer plants and the associated phosphogypsum stacks are not within the scope of the  
17 Proposed Action (Applicants' Preferred Alternatives) and are not considered to be a component of the  
18 direct and indirect effects of the four proposed mines. Although they are not included as part of the  
19 Proposed Action, they are included in the scope of the cumulative impacts analysis.

### 20 **ES.3.2 Scope of Analysis and Impacts**

21 In defining the scope of analysis for the AEIS, USACE considered the range of actions, alternatives, and  
22 impacts to be included in accordance with 40 CFR 1508.25. Based on scoping and comments on the  
23 Draft AEIS, this Final AEIS describes the significant direct and indirect impacts that would be expected to  
24 occur as a result of implementing the No Action Alternative, the Applicants' Preferred Alternatives, and  
25 Offsite Alternatives (as described in Section ES.5), and the cumulative impacts resulting from past,  
26 present, and reasonably foreseeable future actions, including both mining and non-mining actions. The  
27 USACE has determined that two of the four alternative mine areas should be identified as potential future  
28 mining sites—the Pine Level/Keys Tract (Site KK) and Pioneer Tract (Site LL), which for the AEIS  
29 includes the area shown on many maps as "West Pioneer," Mosaic has identified these areas as  
30 proposed future mines and requested a jurisdictional determination for a portion of the Pine Level/Keys  
31 Tract site. Because the Pine Level/Keys and Pioneer Tracts are reasonably foreseeable, they have been  
32 included in the cumulative impacts analysis.

33 Although the two currently proposed infill parcels (G&D Farms and Lambe Tract) are not evaluated as  
34 discrete alternatives, their contribution to potential cumulative impacts is considered as part of the  
35 cumulative effects analysis in Chapter 4. Finally, this Final AEIS took into account the impacts of

1 phosphogypsum stacks – as it does other past, present, and reasonably foreseeable actions in addition to  
2 the Applicants' Preferred Alternatives – in determining cumulative impacts of the Proposed Action and  
3 other reasonably foreseeable actions.

#### 4 **ES.4 PUBLIC COMMENT AND AREAS OF CONTROVERSY**

##### 5 **ES.4.1 Public Comment**

6 This Final AEIS is a revision of the Draft AEIS, issued on June 1, 2012. Revisions incorporated in this  
7 Final AEIS were made in response to comments received by the USACE on the Draft AEIS during the  
8 comment period, which ended on July 30, 2012. Comments were submitted in various ways, including  
9 written, by email, posted on a web form, and by transcripts taken during the public meetings.

10 Of the 1,667 individual comments, the largest number of comments related to NEPA compliance, surface  
11 water and water resources, and ecological resources. Concern related to NEPA compliance primarily  
12 addressed the purpose and need, compliance with environmental regulations, and the scope of the Draft  
13 AEIS. Water resources issues primarily addressed AEIS evaluation methods, water quantity and quality,  
14 the interrelationship between groundwater and surface water, potential impacts to public water supplies,  
15 and downstream effects. Groundwater-specific issues included requests for expanded modeling to  
16 assess impacts to the surficial aquifer system, incremental and cumulative effects on regional aquifers,  
17 and the potential for saltwater intrusion. Comments related to ecological resources addressed potential  
18 impacts, evaluation methods, the potential economic value of resources, potential effects on protected  
19 species, and mitigation needs.

20 Other resource topics receiving 200 comments or more included groundwater, cumulative impacts, and  
21 economics. There were also a number of individual comments related to regulatory processes, the  
22 alternatives development process, mitigation, and permitted withdrawals/discharges.

23 After the comments were reviewed and responses were developed, several areas were identified that  
24 required additional analyses to support this Final AEIS. These included the Offsite Alternatives analysis;  
25 the Onsite Alternatives analysis (which is discussed in this Final AEIS as a conceptual mitigation  
26 framework); an extensive reanalysis of impacts related to seasonal changes in groundwater withdrawals;  
27 additional analyses of impacts to surface water during dry seasonal conditions; and an evaluation in the  
28 economics analyses of additional approaches to considering the effects of tax revenues.

##### 29 **ES.4.2 Areas of Controversy**

30 Based on public comment provided during scoping and on the Draft AEIS, the USACE identified nine resource  
31 categories of significance to be analyzed in depth for their direct and indirect effects in the Final AEIS:

- 32 • Surface Water Resources
- 33 • Groundwater Resources

- 1 • Water Quality
- 2 • Ecological Resources (Aquatic Biological Communities, Wetlands, Wildlife Habitat, and Listed
- 3 Species)
- 4 • Economic Resources
- 5 • Environmental Justice
- 6 • Radiation
- 7 • Cultural and Historic Resources
- 8 • Surficial Geology and Soils

9 The direct and indirect effects of the No Action and Action Alternatives on these resource categories are  
10 summarized in ES.6. In addition, the Final AEIS provides brief discussions of the following resource  
11 categories which, although of concern, were not considered to have a significant effect and did not  
12 require detailed evaluation:

- 13 • Air Quality
- 14 • Noise
- 15 • Climate and Sea Level Rise
- 16 • Floodplains
- 17 • Aesthetics
- 18 • Transportation
- 19 • Recreation
- 20 • Waste Management
- 21 • Land Use

22 In accordance with Council on Environmental Quality (CEQ) guidance (CEQ, 1997), the analysis of  
23 cumulative effects in the AEIS focused on those resource categories determined to be significant. Based  
24 on consideration of the direct and indirect effects of the current and reasonably foreseeable mining  
25 actions, the resources, ecosystems, and human communities that could be affected, and the importance  
26 nationally, regionally, and locally of the resource categories based on comments received during scoping  
27 and on the Draft AEIS, the USACE determined the following resource categories to have significant  
28 potential cumulative effects:

- 29 • Surface Water Resources
- 30 • Groundwater Resources
- 31 • Surface Water Quality
- 32 • Ecological Resources (Wetlands/Surface Waters and Upland Habitat)
- 33 • Economic Resources

1 The cumulative effects of past, present, and reasonably foreseeable actions, including the four current  
2 and two reasonably foreseeable phosphate mining actions, on these resource categories are summarized  
3 in ES.6. The Final AEIS provides a brief explanation of why other resource categories considered in detail  
4 for their direct and indirect effects were not determined to be significant for the cumulative effects  
5 analyses.

## 6 **ES.5 ALTERNATIVES EVALUATED**

### 7 **ES.5.1 Alternative 1 – No Action**

8 Under the No Action Alternative, the mining that has already been authorized in the CFPD would continue  
9 as scheduled under currently approved state and federal permits. The CWA Section 404 permits for the  
10 Applicants' Preferred Alternatives would not be issued by the USACE. The Applicants would have the  
11 option to pursue mining of uplands and wetlands confirmed as not being subject to USACE regulatory  
12 jurisdiction under applicable federal laws. However, for the evaluations under this AEIS, the simplifying  
13 assumption applied was that the No Action Alternative meant no new mining projects of the scale currently  
14 proposed by the Applicants would be approved during the planning horizon analyzed (through 2060).

### 15 **ES.5.2 Alternatives 2 through 5: Applicants' Preferred Alternatives**

16 For this Final AEIS, the USACE defined the Applicants' Preferred Alternatives as the proposed mining at  
17 the proposed new mines as described in the respective permit applications and in Section ES-3.1:

- 18 • Alternative 2 –Desoto Mine
- 19 • Alternative 3 –Ona Mine
- 20 • Alternative 4 –Wingate East Mine
- 21 • Alternative 5 –South Pasture Extension Mine

### 22 **ES.5.3 Alternatives 6 through 9: Offsite Alternatives**

23 As required by the CEQ and USACE regulations, the USACE must assess and objectively evaluate all  
24 reasonable alternatives, and for alternatives that were eliminated from the detailed study, briefly discuss  
25 the reasons for their elimination. These regulations require that all reasonable, feasible, prudent, and  
26 practicable alternatives that might accomplish the objectives of a proposed project be identified and  
27 evaluated.

28 In compliance with these requirements, the USACE independently identified, reviewed, and analyzed  
29 alternatives that could achieve the purpose and need for the project. Only reasonable alternatives were  
30 considered in detail, as specified in 40 CFR Section 1502.14(a), which are those alternatives that are  
31 feasible in achieving the underlying purpose and need that would be satisfied by the proposed federal  
32 action (permit issuance).

1 The process for identifying alternatives to be considered under this Final AEIS, in addition to the No  
2 Action Alternative and the Applicants' Preferred Alternatives, applied two overarching assumptions:

- 3 1. The alternatives must be located over the geological formations where economically mineable  
4 reserves are likely to be located, which limited the evaluation to the area within the CFPD.
- 5 2. The alternatives must either be within a practicable distance of an existing beneficiation plant that  
6 would be able to process the materials excavated at the alternative mine, or a new beneficiation plant  
7 would be required as an element of the alternative.

8 This process resulted in the following offsite alternatives:

9 • Alternative 6 – Pine Level/Keys Tract

- 10 – The Pine Level/Keys Tract is in Manatee and DeSoto Counties and primarily in the Big Slough  
11 and Upper Myakka River subwatersheds of the Myakka River watershed and a smaller acreage  
12 in the Horse Creek subwatershed of the Peace River. The total area of this site is 24,711 acres.  
13 This site is also considered in the cumulative impact analysis as a reasonably foreseeable action.

14 • Alternative 7 – Pioneer Tract

- 15 – The Pioneer Tract is in Hardee County and in the Peace River watershed. The total area of the  
16 tract is 25,259 acres. This site is also considered in the cumulative impact analysis as a  
17 reasonably foreseeable action.

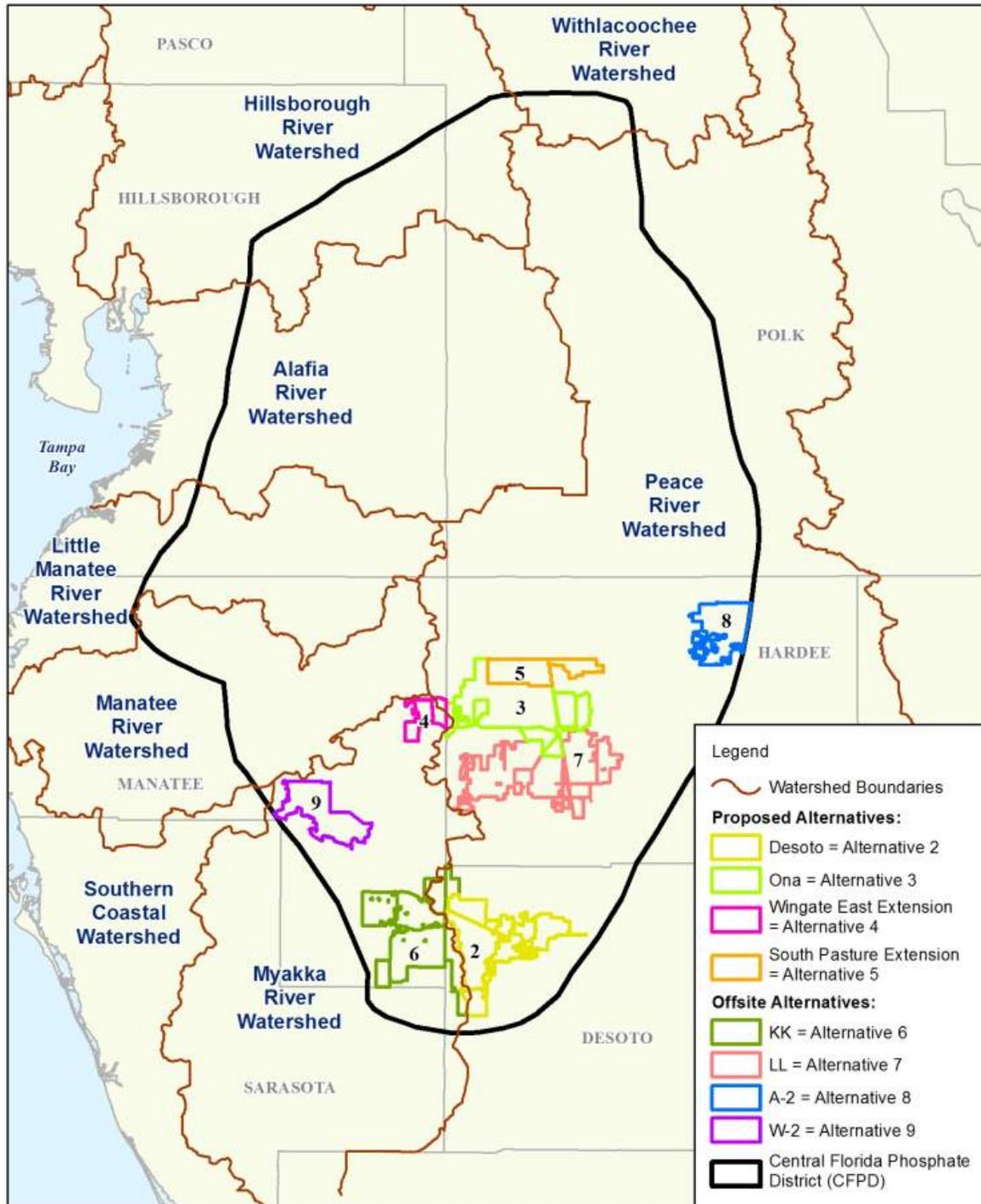
18 • Alternative 8 – Site A-2

- 19 – This alternative is in Hardee County and in the Peace River watershed. The total area of the tract  
20 is 8,189 acres. This alternative is at the minimum size considered reasonable for an individual  
21 mine; however, its proximity to other current or potential future mines, given that the property  
22 could be acquired and future prospecting indicated it was reasonable to develop the mine,  
23 enhances the site's potential as a future satellite to other mines.

24 • Alternative 9 – Site W-2

- 25 – This alternative is in Manatee County and in the Myakka River watershed. The total area of the  
26 tract is 9,719 acres. This site also has proximity to other current or potential future mines, given  
27 that the property could be acquired and future prospecting indicated it was reasonable to develop  
28 the mine, which enhances the site's potential as a future satellite to other mines.

29 The Applicants' Preferred Alternatives and the Offsite Alternatives are shown in Figure ES-2.



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**Figure ES-2. Location of Applicants' Preferred Alternatives and Offsite Alternatives**

1 **ES.5.4 Functional Alternatives**

2 Other potential alternatives to proposed mining and operational methods were proposed during the  
3 scoping period and in comments on the Draft AEIS, including the use of approaches that would avoid or  
4 minimize impacts to Waters of the United States through operational or technological changes or project  
5 substitutes. These alternatives include the potential to substitute dredging methods in place of dragline  
6 excavation, replacing phosphate ore with other fertilizer alternatives, or importing phosphate ore from  
7 outside the CFPD. These functional alternatives were determined to not meet the project purpose, and so  
8 were not carried forward for additional analysis in the Final AEIS.

9 **ES.5.5 Onsite Alternatives**

10 For this AEIS, USACE developed a proposed mitigation framework to outline reasonable alternatives for  
11 avoidance, minimization, and compensatory mitigation for the four Applicants' Preferred Alternatives. The  
12 proposed mitigation framework is based on the mitigation sequence required under the CWA  
13 Section 404(b)(1) Guidelines for mitigating potential adverse impacts to waters of the United States,  
14 which first require impact avoidance, then impact minimization, and lastly compensatory mitigation for any  
15 remaining unavoidable impacts (see Section 5.1.2). The mitigation framework identifies priority-based  
16 impact avoidance and minimization alternatives identified as reasonable under NEPA. The mitigation  
17 framework will be applied after consideration of the applicable presumptions for proposed discharges of  
18 fill into special aquatic sites under the Section 404(b)(1) Guidelines – namely, that an alternative site that  
19 is not a special aquatic site exists and that such a site will result in less adverse environmental impacts to  
20 the aquatic ecosystem unless the Applicant clearly demonstrates otherwise. The proposed mitigation  
21 framework does not modify any law or regulation or the jurisdictional authority of USACE or any other  
22 agency and is intended to be consistent with the 2008 Mitigation Rule.

23 **ES.6 SUMMARY OF EFFECTS**

24 **ES.6.1 Direct and Indirect Effects**

25 Table ES-1 summarizes the degrees of direct and indirect effects, without or with mitigation, of the No  
26 Action Alternative, the four Applicants' Preferred Alternatives, and the four Offsite Alternatives on the  
27 resource categories that were analyzed in depth for the Final AEIS. Table ES-2 summarizes the  
28 significance determinations, without or with mitigation, for the No Action Alternative, the four Applicants'  
29 Preferred Alternatives, and the four Offsite Alternatives for each resource category analyzed in depth.

**Table ES-1. Degree of Effect of the No Action, Applicants' Preferred, and Offsite Alternatives**

Resource Category	1: No Action <sup>a</sup>		2: Desoto Mine		3: Ona Mine		4: Wingate East Mine		5: South Pasture Extension Mine		6: Pine Level/ Keys Tract		7: Pioneer Tract		8: Site A-2		9: Site W-2	
	No Mining	Upland Only	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation
<b>Surface Water Resources Including Water Supply (Section 4.2)</b>																		
Horse Creek	●	○	◐	○	◐	○	○	○	◐	○	◐	○	◐	○	N/A	N/A	N/A	N/A
Peace River at Arcadia	●	○	○	○	○	○	N/A	N/A	○	○	N/A	N/A	○	○	N/A	N/A	N/A	N/A
Payne Creek	●	○	N/A	N/A	N/A	N/A	N/A	N/A	○	○	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Peace River at Zolfo Springs	●	○	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	◐	○	N/A	N/A
Upper Myakka River	●	○	N/A	N/A	○	○	○	○	N/A	N/A	○	○	N/A	N/A	N/A	N/A	◐	○
Lower Myakka/Big Slough	●	◐	○	○	N/A	N/A	N/A	N/A	N/A	N/A	◐	○	N/A	N/A	N/A	N/A	N/A	N/A
Peace River	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Myakka River	◐	○	N/A	N/A	○	○	○	○	N/A	N/A	○	○	N/A	N/A	N/A	N/A	○	○

**Table ES-1. Degree of Effect of the No Action, Applicants' Preferred, and Offsite Alternatives**

Resource Category	1: No Action <sup>a</sup>		2: Desoto Mine		3: Ona Mine		4: Wingate East Mine		5: South Pasture Extension Mine		6: Pine Level/Keys Tract		7: Pioneer Tract		8: Site A-2		9: Site W-2	
	No Mining	Upland Only	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation
Charlotte Harbor	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
<b>Groundwater Resources Including Water Supply (Section 4.3)</b>																		
Surficial Aquifer	● <sup>b</sup>	● <sup>b</sup>	N/A	○	N/A	○	N/A	○	N/A	○	N/A	○	N/A	○	N/A	○	N/A	○
Intermediate Aquifer Zone 1 and 2	● <sup>b</sup>	● <sup>b</sup>	N/A	○	N/A	○	N/A	○	N/A	○	N/A	○	N/A	○	N/A	○	N/A	○
Upper Floridan Aquifer	● <sup>b</sup>	● <sup>b</sup>	N/A	○	N/A	○	N/A	○	N/A	○	N/A	○	N/A	○	N/A	○	N/A	○
<b>Water Quality (Section 4.4)<sup>c</sup></b>																		
Surface Water Quality	○	○	N/A <sup>e</sup>	●	N/A <sup>e</sup>	●	N/A <sup>e</sup>	●	N/A <sup>e</sup>	●	N/A <sup>e</sup>	●	N/A <sup>e</sup>	●	N/A <sup>e</sup>	●	N/A <sup>e</sup>	●
Groundwater Quality	○	○	N/A <sup>e</sup>	●	N/A <sup>e</sup>	●	N/A <sup>e</sup>	●	N/A <sup>e</sup>	●	N/A <sup>e</sup>	●	N/A <sup>e</sup>	●	N/A <sup>e</sup>	●	N/A <sup>e</sup>	●

**Table ES-1. Degree of Effect of the No Action, Applicants' Preferred, and Offsite Alternatives**

Resource Category	1: No Action <sup>a</sup>		2: Desoto Mine		3: Ona Mine		4: Wingate East Mine		5: South Pasture Extension Mine		6: Pine Level/ Keys Tract		7: Pioneer Tract		8: Site A-2		9: Site W-2	
	No Mining	Upland Only	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation
<b>Ecological Resources (Section 4.5)</b>																		
Aquatic Biological Communities	○	○	●	◐	●	◐	●	◐	●	◐	●	◐	●	◐	●	◐	●	◐
Wetlands	○	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○
Wildlife Habitat	●	◐	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○
Listed Species (Threatened or Endangered)	●	◐	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>Economic Resources (Section 4.6)<sup>d</sup></b>																		
DeSoto County	○	N/A <sup>d</sup>	● <sup>b</sup>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hardee County	●	N/A <sup>d</sup>	N/A	N/A	● <sup>b</sup>	N/A	N/A	N/A	◐ <sup>b</sup>	N/A	N/A	N/A	● <sup>b</sup>	N/A	● <sup>b</sup>	N/A	N/A	N/A
Manatee County	◐	N/A <sup>d</sup>	N/A	N/A	N/A	N/A	○ <sup>b</sup>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	○ <sup>b</sup>	N/A
DeSoto and Manatee Counties	◐	N/A <sup>d</sup>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	◐ <sup>b</sup>	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Table ES-1. Degree of Effect of the No Action, Applicants' Preferred, and Offsite Alternatives**

Resource Category	1: No Action <sup>a</sup>		2: Desoto Mine		3: Ona Mine		4: Wingate East Mine		5: South Pasture Extension Mine		6: Pine Level/ Keys Tract		7: Pioneer Tract		8: Site A-2		9: Site W-2	
	No Mining	Upland Only	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation
<b>Environmental Justice (Section 4.7)</b>																		
DeSoto County	○	○	○	○	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hardee County	●	N/A <sup>e</sup>	N/A	N/A	N/A <sup>e</sup>	○ <sup>b</sup>	N/A	N/A	N/A <sup>d</sup>	○ <sup>b</sup>	N/A	N/A	○	○	○	○	N/A	N/A
Manatee County	○	N/A <sup>e</sup>	N/A	N/A	N/A	N/A	N/A <sup>e</sup>	○ <sup>b</sup>	N/A	N/A	○	○	N/A	N/A	N/A	N/A	○	○
<b>Radiation (Section 4.8)</b>	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
<b>Cultural and Historic Resources (Section 4.9)</b>	○	●	●	○	●	○	●	○	●	○	●	○	●	○	●	●	●	●
<b>Surficial Geology and Soils (Section 4.10)</b>	○	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

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Resource Category	1: No Action <sup>a</sup>		2: Desoto Mine		3: Ona Mine		4: Wingate East Mine		5: South Pasture Extension Mine		6: Pine Level/Keys Tract		7: Pioneer Tract		8: Site A-2		9: Site W-2	
	No Mining	Upland Only	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation

Legend:

+ Beneficial impact



Minor or no impact.



Moderate impact.



Major impact.

N/A Not Applicable

Notes:

<sup>a</sup> Impacts associated with the No Action Alternative include mitigation that may have been included as part of existing permitted activities.

<sup>b</sup> Impacts are beneficial

<sup>c</sup> The water quality analyses were all performed "with mitigation"

<sup>d</sup> The economic effects are as compared to the No Action Alternative

<sup>e</sup> N/A means not applicable because inadequate data to conduct analysis

**Table ES-2. Significance Determination of the No Action, Applicants' Preferred, and Offsite Alternatives**

Resource Category	1: No Action <sup>a</sup>		2: Desoto Mine		3: Ona Mine		4: Wingate East Mine		5: South Pasture Extension Mine		6: Pine Level/Keys Tract		7: Pioneer Tract		8: Site A-2		9: Site W-2		
	No Mining	Upland Only	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	
<b>Surface Water Resources Including Water Supply (Section 4.2)</b>																			
Horse Creek	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>	N/A	N/A	N/A	N/A	
Peace River at Arcadia	<b>S</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	—	—	<b>N</b>	<b>N</b>	—	—	<b>N</b>	<b>N</b>	N/A	N/A	N/A	N/A	
Payne Creek	—	—	—	—	—	—	—	—	<b>N</b>	<b>N</b>	—	—	—	—	—	—	—	—	
Peace River at Zolfo Springs	<b>S</b>	<b>N</b>	—	—	—	—	—	—	—	—	—	—	—	—	<b>S</b>	<b>N</b>	—	—	
Upper Myakka River	<b>S</b>	<b>N</b>	—	—	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	—	—	<b>N</b>	<b>N</b>	—	—	—	—	<b>S</b>	<b>N</b>	
Lower Myakka River/Big Slough	<b>S</b>	<b>N</b>	<b>N</b>	<b>N</b>	—	—	—	—	—	—	<b>S</b>	<b>N</b>	—	—	—	—	—	—	
Peace River	<b>S</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	—	—	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	—	—	
Myakka River	<b>S</b>	<b>N</b>	—	—	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	—	—	<b>N</b>	<b>N</b>	—	—	—	—	<b>N</b>	<b>N</b>	

**Table ES-2. Significance Determination of the No Action, Applicants' Preferred, and Offsite Alternatives**

Resource Category	1: No Action <sup>a</sup>		2: Desoto Mine		3: Ona Mine		4: Wingate East Mine		5: South Pasture Extension Mine		6: Pine Level/ Keys Tract		7: Pioneer Tract		8: Site A-2		9: Site W-2	
	No Mining	Upland Only	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation
Charlotte Harbor	<b>S</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>
<b>Groundwater Resources Including Water Supply (Section 4.3)</b>																		
Surficial Aquifer	<b>N</b>	<b>N</b>	—	<b>N</b>	—	<b>N</b>	—	<b>N</b>	—	<b>N</b>	—	<b>N</b>	—	<b>N</b>	—	<b>N</b>	—	<b>N</b>
Intermediate Aquifer Zone 1 and 2	<b>N</b>	<b>N</b>	—	<b>N</b>	—	<b>N</b>	—	<b>N</b>	—	<b>N</b>	—	<b>N</b>	—	<b>N</b>	—	<b>N</b>	—	<b>N</b>
Upper Floridan Aquifer	<b>N</b>	<b>N</b>	—	<b>N</b>	—	<b>N</b>	—	<b>N</b>	—	<b>N</b>	—	<b>N</b>	—	<b>N</b>	—	<b>N</b>	—	<b>N</b>
<b>Water Quality (Section 4.4)</b>																		
Surface Water Quality	<b>N</b>	<b>N</b>	—	<b>N</b>	—	<b>N</b>	—	<b>N</b>	—	<b>N</b>	—	<b>N</b>	—	<b>N</b>	—	<b>N</b>	—	<b>N</b>
Groundwater Quality	<b>N</b>	<b>N</b>	—	<b>N</b>	—	<b>N</b>	—	<b>N</b>	—	<b>N</b>	—	<b>N</b>	—	<b>N</b>	—	<b>N</b>	—	<b>N</b>

**Table ES-2. Significance Determination of the No Action, Applicants' Preferred, and Offsite Alternatives**

Resource Category	1: No Action <sup>a</sup>		2: Desoto Mine		3: Ona Mine		4: Wingate East Mine		5: South Pasture Extension Mine		6: Pine Level/Keys Tract		7: Pioneer Tract		8: Site A-2		9: Site W-2	
	No Mining	Upland Only	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation
<b>Ecological Resources (Section 4.5)</b>																		
Aquatic Biological Communities	<b>N</b>	<b>N</b>	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>
Wetlands	<b>N</b>	<b>N</b>	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>
Wildlife Habitat	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>
Listed Species (Threatened or Endangered)	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>	<b>S</b>	<b>N</b>
<b>Economic Resources (Section 4.6)</b>																		
DeSoto County	<b>N</b>	—	<b>S</b>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hardee County	<b>S</b>	—	—	—	<b>S</b>	—	—	—	<b>S</b>	—	—	—	<b>S</b>	—	<b>S</b>	—	—	—
Manatee County	<b>S</b>	—	—	—	—	—	<b>N</b>	—	—	—	—	—	—	—	—	—	<b>N</b>	—
DeSoto and Manatee Counties	<b>S</b>	—	—	—	—	—	—	—	—	—	<b>S</b>	—	—	—	—	—	—	—
<b>Environmental Justice (Section 4.7)</b>	<b>S</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>N</b>

**Table ES-2. Significance Determination of the No Action, Applicants' Preferred, and Offsite Alternatives**

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	No Mining	Upland Only	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation
Radiation (Section 4.8)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Cultural and Historic Resources (Section 4.9)	N	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N
Surficial Geology and Soils (Section 4.10)	N	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N

Legend:  
S = significant  
N = not significant

Note:  
Impacts associated with the No Action Alternative include mitigation that may have been included as part of existing permitted activities.

1

2

1 **ES.6.2 Cumulative Effects**

2 The cumulative impact analysis considered the effects of the current (Desoto, Ona, Wingate East, and  
3 South Pasture Extension) and reasonably foreseeable (Pine Level/Keys Tract and Pioneer Tract) actions,  
4 along with other past, present, and reasonably foreseeable actions, on the resource categories  
5 determined to be significant.

6 For surface water resources, the cumulative impact analysis determined that without mitigation, the four  
7 current actions, cumulatively with the two reasonably foreseeable actions and with other past, present,  
8 and reasonably foreseeable future actions, would have a minor to moderate level of magnitude, which  
9 would not be significant for most of the affected subwatersheds and watersheds. The primary exception is  
10 the Horse Creek subwatershed, which would have cumulative impacts at a moderate level of magnitude  
11 and would be significant without mitigation. With mitigation, the magnitude of the effects would be minor,  
12 which would not be significant for all of the subwatersheds and watersheds in the affected region.

13 For groundwater resources, there was no basis for evaluating potential direct and indirect effects without  
14 mitigation. Available data are all within the SWFWMD requirements that include mitigation of  
15 groundwater withdrawals, resulting in a cumulative impact analysis based on effects with mitigation. The  
16 cumulative impact analysis determined that with mitigation, the four current actions, cumulatively with the  
17 two reasonably foreseeable actions and with other past, present, and reasonably foreseeable future  
18 actions, would have a minor level of magnitude, which would not be significant.

19 For surface water quality, there was no basis for evaluating potential direct and indirect effects without  
20 mitigation since the available data are all based on mitigation required to remain in compliance with water  
21 quality standards, resulting in a cumulative impact analysis based on effects with mitigation. The  
22 cumulative impact analysis determined that with mitigation, the four current actions, cumulatively with the  
23 two reasonably foreseeable actions and with other past, present, and reasonably foreseeable future  
24 actions, would have a minor level of magnitude, which would not be significant.

25 For ecological resources (wetlands/surface waters and upland habitat), the cumulative impact analysis  
26 determined that without mitigation, the four current actions, cumulatively with the two reasonably  
27 foreseeable actions and with other past, present, and reasonably foreseeable future actions, would have  
28 a major level of magnitude, which would be significant. With mitigation, the magnitude of the cumulative  
29 effects would be minor, which would not be significant.

30 For economic resources, the cumulative impact analysis determined that the four current actions,  
31 cumulatively with the two reasonably foreseeable actions and with other past, present, and reasonably  
32 foreseeable future actions, would have a minor to major level of magnitude, which would have significant  
33 benefits.

1

2

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