SECONDARY WETLAND IMPACTS ANALYSIS

Texas Department of Transportation
State Highway (SH) 99, Grand Parkway, Segments H and I-1
USACE File No. SWG-2012-00153

During the development of the *Grand Parkway (State Highway 99) Segments H and I-1 from United States Highway 59/Interstate Highway 69 N to Interstate Highway 10 E Montgomery, Chambers, Harris and Liberty Counties Final Environmental Impact Statement* (Segment H and I-1 FEIS), pursuant to the National Environmental Policy Act (NEPA), the U.S. Department of Transportation, Federal Highway Administration (FHWA), the TxDOT, and the Grand Parkway Association evaluated reasonable alternative corridors and alternative alignments to determine the alignment with the least number of environmental and social impacts that would meet the project purpose and need. Public meetings, workshops, and a public hearing were held to gather input from the public and from resource agencies including the Texas Parks and Wildlife Department, Texas Commission on Environmental Quality and the U.S. Fish and Wildlife, and from cooperating agencies such as the U.S. Army Corps of Engineers (Corps) and the U.S. Environmental Protection Agency. The selected alternative was based on public and agency input and on a thorough evaluation of available data and site investigations. The corridor and alternative alignment analysis detailed in the Segments H and I-1 FEIS resulted in the choice of the Preferred Alternative as described in FHWA's Record of Decision (ROD) signed on June 24, 2014. The Preferred Alternative provided the best approach to avoid impacts to environmental and social resources while meeting the project purpose and need. After issuance of the ROD, it was determined that several alignment shifts were necessary due to design modifications that occurred subsequent to the ROD. These modifications resulted from updated information on future developments and TxDOT roadway manual design changes, and a reevaluation study was conducted to assess the effects of the alignment shifts. For both the FEIS Preferred Alternative and the reevaluation, impacts to Waters of the U.S. were avoided and minimized by bridging wherever feasible (see the Segment H AND I-1 FEIS).

Under NEPA, the USACE must also consider the direct and indirect effects of a proposed project needing the Corps' permit authorization (see 40 CFR 1508.8). Pursuant to the Clean Water Act, the USACE must make a written determination of the potential short and long-term effects, including secondary effects, of a proposed discharge of dredged or fill material on the physical, chemical, and biological components of the aquatic environment, and must use these determinations in making findings of compliance or non-compliance with the Section 404(b)(1) Guidelines (see 40 CFR 230.11(h)). Secondary effects are effects on an aquatic ecosystem that are associated with a discharge of dredged or fill materials, but do not result from the actual placement of the dredged or fill material. The USACE may require compensatory mitigation for unavoidable impacts to ensure that an activity requiring a Section 404 permit complies with Section 404(b)(1) Guidelines (40 CFR 230.91(c)).

The Texas Department of Transportation (TxDOT) has identified all waters and wetlands within the 400-foot Right of Way (ROW) as potential Waters of the U.S. and has signed a preliminary jurisdictional determination agreeing to that determination despite the likelihood that a number of those wetlands are isolated or lack a significant nexus to navigable waters. Direct impacts to existing wetlands were calculated based on the roadway design and the wetland delineation. Temporary construction impacts to the wetlands were included in the direct impact calculation and are currently included as part of the proposed mitigation. These temporary construction easements will be restored to existing contours and elevation. These wetland areas are likely to naturally revegetate and regain wetland functions once construction is complete, in which case the mitigation would result in a net gain of functional wetland area. Additionally, 14 bridges are proposed along the linear project that will avoid or minimize impacts to all but one stream (which will be culverted) and many of the wetlands. Forested wetlands located under proposed bridges that may be impacted by conversion from forested wetlands to emergent wetlands have also been addressed as part of the direct impacts acreage. Full mitigation is also proposed for these areas. Because the logistical complications of constructing the project make further identification of avoidance and minimization impracticable, the applicant is proposing to mitigate for all wetlands within the ROW including those that are being bridged, those that may actually lack a significant nexus to navigable waters, and those that are only being temporarily impacted. Therefore, the quantity of mitigation proposed actually results in a net gain of wetland function and value over the pre-project condition, as some wetland functions and values will remain within the ROW despite being fully offset through compensatory mitigation.

For the secondary impact analysis, each wetland within the project area was individually reviewed in coordination with the design plans (see Attachments B and C, Permit Plan and Profile Sheets, of the permit application). Wetlands are also identified in Attachment F, Wetland Assessment Package, of the permit application. The following factors were considered in the secondary impact analysis:

- If the wetland was located within the floodplain;
- If hydrology would be present after construction;
- If the wetland area would have a bridge or culvert present after construction;
- If the wetland area or water extended outside of the right-of-way (ROW); and
- Additional comments in Table 1 and Table 2 of this analysis for other individual wetland factors, such as soil type.

Each wetland was reviewed to determine existing hydrology sources. Precipitation is the major hydrology source for the identified wetlands. As part of the engineering design, a study associated with the storm water hydrology and hydraulics was conducted and a sheet flow analysis/design was performed on the entire corridor. Hydrologic continuity to wetlands outside of the project ROW was provided where applicable. Wetlands bisected by the proposed

project that occur inside and outside the ROW could potentially be impacted by the hydrology change. However, flow equalization culverts were added to allow the storm water to flow across the corridor, maintaining the 100-year (1%) sheet flow event in order to preserve the same hydrology as the existing condition on the north side of the roadway. Therefore, wetlands outside the project alignment that depend on hydrology from riverine overflow are not anticipated to be affected by the project. In some locations where sheet flow could not be preserved on both sides of the roadway, it would be intercepted into the roadway drainage system and directed to a detention basin. Most wetlands outside the 100-year flood zone would be expected to be depressional in nature, and would therefore be expected to have direct precipitation as a hydrology source. Wetlands adjacent to but not directly impacted by the project that depend on runoff for hydrology are not expected to be significantly impacted.

Soil types within the wetland areas were evaluated for their hydric characteristics. Most wetlands are within mapped hydric soils, indicating that they are usually located within depressional areas in or near the lowest point within the landscape. They are generally saturated during wet periods, drain poorly, have a moderate permeability rate, and have a high available water capacity (NRCS, 2012 Web Soil Survey). These mapped hydric soils should sustain the current wetlands in areas that are not directly impacted. Therefore, wetland areas not being directly impacted would likely also not have considerable secondary impacts.

As previously noted, the Applicant has proposed mitigation for both jurisdictional and non-jurisdictional wetlands and waters of the U.S., which will over-mitigate unavoidable impacts associated with this project.

Results of the analysis and findings for each feature are included in Table 1 and Table 2. Potential secondary impacts outside the ROW were evaluated and none were identified for additional mitigation.

Reference:

Natural Resources Conservation Service (NRCS), U.S. Department of Agriculture. 2012. Web Soil Survey of Harris and Montgomery Counties, Texas.

Table 1:
Segments H and I Secondary Impact Analysis per Wetland

Jurisdictional Area	Plan and Profile Sheet Number	Classification	Total Direct Impacts (Acres)	Additional Comments	Secondary Impacts
Wetlands					
Wetland 02	2 of 63	PEM	0.01	Entire wetland is within the ROW and is being mitigated.	No
Wetland 03	2 of 63	PFO	0.04	The portion of the wetland south of the ROW impact area is part of an existing depressional area and will still hold water. Mitigation will offset any impacts.	No
Wetland 04	3 of 63	PEM	0.02	Entire wetland is within the ROW and is being mitigated.	No
Wetland 05	3 of 63	PEM	0.01	Entire wetland is within the ROW and is being mitigated.	No
Wetland 06	3 of 63	PEM	0.02	Entire wetland is within the ROW and is being mitigated.	No
Wetland 07	3 of 63	PEM	0.04	The portion of the wetland south of the ROW impact area is part of an existing depressional area and will still hold water.	No

Jurisdictional Area	Plan and Profile Sheet Number	Classification	Total Direct Impacts (Acres)	Additional Comments	Secondary Impacts
				Mitigation will offset any impacts.	
Wetland 08	5 of 63	PFO	0.94	Wetland is part of an existing oxbow/pond. Hydrology has been taken into consideration during the drainage analysis to continue flow to both sides of the ROW by the installation of culverts.	No
Wetland 09	8 of 63	PFO	1.09	Roadway development south of the alignment has created a barrier. A small portion of the wetland extends to the south of the alignment and could potentially be impacted; however, mitigation for all PJD features will offset any minor impacts.	No
Wetland 10	8 of 63	PEM	0.14	This is a wetland adjacent to a perennial stream. A bridge will span the crossing. No impacts are expected, but mitigation is proposed for the wetland.	No
Wetland 11	9 of 63	PFO	13.55	This wetland is part of an existing depressional area adjacent to the floodplain and will still hold water; however, mitigation of all PJD features will	No

Jurisdictional Area	Plan and Profile Sheet Number	Classification	Total Direct Impacts (Acres)	Additional Comments	Secondary Impacts
				offset minor impacts associated with the feature north and south of the ROW impact. Hydrology has been taken into consideration during the drainage analysis to continue flow to both sides of the ROW by the installation of culverts.	
Wetland 13	10-11 of 63	PFO	11.18	This wetland is part of an existing depressional area adjacent to the floodplain and will still hold water; however, mitigation of all PJD features will offset minor impacts associated with the feature north and south of the ROW impact.	No
Wetland 14	12 of 63	PEM	0.02	Entire wetland is within the ROW and is being mitigated.	No
Wetland 15	12 of 63	PEM	0.04	Entire wetland is within the ROW and is being mitigated.	No
Wetland 16	13 of 63	PFO	0.10	Entire wetland is within the ROW and is being mitigated.	No

Jurisdictional Area	Plan and Profile Sheet Number	Classification	Total Direct Impacts (Acres)	Additional Comments	Secondary Impacts
Wetland 17	13 of 63	PSS	0.28	The portion of the wetland south of the ROW impact area is part of an existing depressional area and will still hold water. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 18	13 of 63	PEM	0.01	Entire wetland is within the ROW and is being mitigated.	No
Wetland 19	14 of 63	PEM	0.32	Entire wetland is within the ROW and is being mitigated.	No
Wetland 20	14 of 63	PFO	0.08	Entire wetland is within the ROW and is being mitigated.	No
Wetland 21	15 of 63	PFO	0.73	Entire wetland is within the ROW and is being mitigated.	No
Wetland 22	16 of 63	PSS	2.76	The portions of the wetland east and west of the ROW impact area are part of an existing depressional area and will still hold water. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 23	16 of 63	PEM	0.05	Entire wetland is within the ROW and is being mitigated.	No

Jurisdictional Area	Plan and Profile Sheet Number	Classification	Total Direct Impacts (Acres)	Additional Comments	Secondary Impacts
Wetland 29	23 of 63	PFO	0.55	This area is a floodplain wetland associated with Cedar Bayou. Flow will not be impeded because the main source of input is from Cedar Bayou, which will be bridged. No impacts are expected, but mitigation is proposed for the wetland.	No
Wetland 30	24 of 63	PFO	3.24	Existing agricultural development within the alignment has created a barrier to the south and west. The portion of the wetland north of the ROW impact area is part of an existing agricultural/silvicultural depressional area and will continue to hold water. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 40	31 of 63	PFO	0.56	All but a small fringe area (0.04 acre) of the wetland is within the ROW and is being mitigated. The area is depressional and will still hold water. Mitigation will offset any impacts.	No
Wetland 43	33 of 63	PEM	0.59	Wetlands 43 and 44 are wetlands associated with agricultural ditch Wetlands 41 and 42. A bridge will span the features.	No

Jurisdictional Area	Plan and Profile Sheet Number	Classification	Total Direct Impacts (Acres)	Additional Comments	Secondary Impacts
				No impacts are expected, but mitigation is proposed for the wetlands.	
Wetland 44	33 of 63	PEM	0.27	See comments for Wetland 43 above.	No
Wetland 46	34 of 63	PEM	0.18	Wetlands 46 and 46A are depressional features extending offsite westward within a clear-cut easement, and will continue to hold water. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 46A	34 of 63	PEM	0.07	See comments for Wetland 43 above.	No
Wetland 51	40 of 63	PEM	0.52	The portion of the wetland west of the ROW impact area is part of an existing depressional area and will still hold water. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 51A	41 of 63	PEM	0.38	The portion of the wetland east of the ROW impact area is part of an existing depressional area and will still hold water. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 55	43 of 63	PEM	1.41	The portion of the wetland east of the ROW impact area is part of an existing depressional area and will still hold water.	No

Jurisdictional Area	Plan and Profile Sheet Number	Classification	Total Direct Impacts (Acres)	Additional Comments	Secondary Impacts
				Mitigation for all PJD features will offset any minor impacts.	
Wetland 68	48 of 63	PEM	6.71	A bridge will span the crossing. No impacts are expected, but mitigation is proposed.	No
Wetland 80	50 of 63	PFO	6.60	The portions of the wetland east and west of the ROW impact area are part of an existing depressional area and will continue to hold water. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 86A	51 of 63	PFO	1.78	The portion of the wetland west of the ROW impact area is part of an existing depressional area and will continue to hold water. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 89	52 of 63	PEM	0.91	The linear wetland features north and south of the ROW impact area are part of an existing depressional area and will still hold water. Mitigation for all PJD features will offset any minor impacts.	No

Jurisdictional Area	Plan and Profile Sheet Number	Classification	Total Direct Impacts (Acres)	Additional Comments	Secondary Impacts
Wetland 91	53 of 63	PEM	1.04	If a small portion of the wetland extends east of the ROW impact area, it is depressional and will continue to hold water. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 92	54 of 63	PFO	8.99	The portions of the wetland north and south of the ROW impact area are part of an existing depressional area and will continue to hold water. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 93	55 of 63	PFO	3.59	Roadways, industrial development and drainage alterations west and south of the alignment have created barriers. The wetland north of the ROW impact area is part of an existing depressional area and will still hold water. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 97	56 of 63	PEM	0.08	Entire wetland is within the ROW and is being mitigated.	No
Wetland 101	57 of 63	PEM	0.41	Entire wetland is within the ROW and is	No

Jurisdictional Area	Plan and Profile Sheet Number	Classification	Total Direct Impacts (Acres)	Additional Comments	Secondary Impacts
				being mitigated.	
Wetland 102	58 of 63	PEM	0.05	Entire wetland is within the ROW and is being mitigated.	No
Wetland 103	58 of 63	PEM	0.20	Entire wetland is within the ROW and is being mitigated.	No
Wetland 104	59 of 63	PEM	0.13	Entire wetland is within the ROW and is being mitigated.	No
Wetland 106	59 of 63	PFO	0.12	The portion of the wetland north of the ROW impact area is part of an existing depressional area and will continue to hold water. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 112	62 of 63	PFO	12.38	The portions of the wetland north and south of the ROW impact area are part of an existing depressional area and will continue to hold water. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 113	63 of 63	PEM	1.22	Entire wetland is within the ROW and is	No

Jurisdictional Area	Plan and Profile Sheet Number	Classification	Total Direct Impacts (Acres)	Additional Comments	Secondary Impacts
				being mitigated.	
Wetland 117	3 of 63	PFO	1.36	The portions of the wetland north and south of the ROW impact area are part of an existing depressional area and will still hold water. Mitigation for all PJD features will offset any minor impacts.	No
Ditches					
Wetland 01	1 of 63	Ditch	0.23	A bridge will span the crossing. No impacts are expected, but mitigation is proposed for the wetland.	No
Wetland 25	18 of 63	Ditch	0.15	This is a linear ditch feature surrounded by row crops and planted pines. Hydrology has been taken into consideration during the drainage analysis to continue flow to both sides of the ROW by the installation of culverts. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 26	19 of 63	Ditch	0.20	This is a linear agricultural ditch feature. Hydrology has been taken into consideration during the drainage analysis	No

Jurisdictional Area	Plan and Profile Sheet Number	Classification	Total Direct Impacts (Acres)	Additional Comments	Secondary Impacts
				to continue flow to both sides of the ROW by the installation of culverts. Mitigation for all PJD features will offset any minor impacts.	
Wetland 27	20 of 63	Ditch	0.42	This is a linear agricultural ditch feature. Hydrology has been taken into consideration during the drainage analysis to continue flow to both sides of the ROW by the installation of culverts. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 28	21 of 63	Ditch	0.09	This is a linear agricultural ditch feature. Hydrology has been taken into consideration during the drainage analysis to continue flow to both sides of the ROW by the installation of culverts. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 31	25 of 63	Ditch	0.26	This area is an intersection of two linear agricultural ditch features. Hydrology has been taken into consideration during the	No

Jurisdictional Area	Plan and Profile Sheet Number	Classification	Total Direct Impacts (Acres)	Additional Comments	Secondary Impacts
				drainage analysis to continue flow to both sides of the ROW by the installation of culverts. Mitigation for all PJD features will offset any minor impacts.	
Wetland 32	25 of 63	Ditch	0.21	This is a linear agricultural ditch feature. Hydrology has been taken into consideration during the drainage analysis to continue flow to both sides of the ROW by the installation of culverts. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 34	26 of 63	Ditch	0.30	A bridge will span the crossing. No impacts are expected, but mitigation is proposed.	No
Wetland 35	27 of 63	Ditch	0.04	This is a linear ditch feature surrounded by agricultural fields. There is little associated wetland habitat. No impacts are expected; however, mitigation for all PJD features will offset any minor impacts.	No
Wetland 36	27 of 63	Ditch	0.05	A bridge will span the crossing. No	No

Jurisdictional Area	Plan and Profile Sheet Number	Classification	Total Direct Impacts (Acres)	Additional Comments	Secondary Impacts
				impacts are expected, but mitigation is proposed.	
Wetland 37	27 of 63	Ditch	0.01	A bridge will span the crossing. No impacts are expected, but mitigation is proposed.	No
Wetland 38	29 of 63	Ditch	0.07	A bridge will span the crossing. No impacts are expected, but mitigation is proposed.	No
Wetland 38A	30 of 63	Ditch	0.13	A bridge will span the crossing. No impacts are expected, but mitigation is proposed.	No
Wetland 41	33 of 63	Ditch	0.24	Wetlands 41 and 42 comprise a series of linear agricultural ditches. A bridge will span the crossing. No impacts are expected, but mitigation is proposed.	No
Wetland 42	33 of 63	Ditch	0.61	See comments for Wetland 41 above.	No
Wetland 45	34, 35 of 63	Ditch	0.65	This is a linear ditch feature surrounded by agricultural fields. Hydrology has been taken into consideration during the	No

Jurisdictional Area	Plan and Profile Sheet Number	Classification	Total Direct Impacts (Acres)	Additional Comments	Secondary Impacts
				drainage analysis to continue flow to both sides of the ROW by the installation of culverts. Mitigation for all PJD features will offset any minor impacts.	
Wetland 47	36 of 63	Ditch	0.10	This is a linear agricultural ditch feature. Hydrology has been taken into consideration during the drainage analysis to continue flow to both sides of the ROW by the installation of culverts. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 48	38 of 63	Ditch	0.04	This is a linear agricultural ditch feature. Hydrology has been taken into consideration during the drainage analysis to continue flow to both sides of the ROW by the installation of culverts. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 49	38 of 63	Ditch	0.08	This is a linear ditch feature surrounded by agricultural fields. There is little associated wetland habitat. No secondary impacts are	No

Jurisdictional Area	Plan and Profile Sheet Number	Classification	Total Direct Impacts (Acres)	Additional Comments	Secondary Impacts
				expected. Mitigation for all PJD features will offset any minor impacts.	
Wetland 50	39 of 63	Ditch	0.15	A bridge will span the crossing. No impacts are expected, but mitigation is proposed.	No
Wetland 52	41 of 63	Ditch	0.13	Wetlands 52 and 53 comprise two linear agricultural ditches. Hydrology has been taken into consideration during the drainage analysis to continue flow through the ditches to both sides of the ROW by the installation of culverts. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 53	41 of 63	Ditch	0.09	See comments for Wetland 52 above.	No
Wetland 54	42 of 63	Ditch	0.11	A bridge will span the crossing. No impacts are expected, but mitigation is proposed.	No
Wetland 56	43 of 63	Ditch	0.14	Wetlands 56 and 57consist of two linear agricultural ditches. Hydrology has been taken into consideration during the drainage analysis to continue flow through	No

Jurisdictional Area	Plan and Profile Sheet Number	Classification	Total Direct Impacts (Acres)	Additional Comments	Secondary Impacts
				the ditches to both sides of the ROW by the installation of culverts. Mitigation for all PJD features will offset any minor impacts.	
Wetland 57	43 of 63	Ditch	0.14	See comments for Wetland 56 above.	No
Wetland 58	44 of 63	Ditch	0.07	Wetlands 58 and 59 include two linear agricultural ditches. Hydrology has been taken into consideration during the drainage analysis to continue flow through the ditches to both sides of the ROW by the installation of culverts. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 59	44 of 63	Ditch	0.11	See comments for Wetland 58 above.	No
Wetland 60	45 of 63	Ditch	0.12	Wetlands 60 and 61 include two linear agricultural ditches. A bridge will span the crossing. No impacts are expected, but mitigation is proposed.	No
Wetland 61	45 of 63	Ditch	0.27	See comments for Wetland 60 above.	No
Wetland 62	46 of 63	Ditch	0.34	This is a linear ditch feature surrounded by agricultural fields. Hydrology has been	No

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				taken into consideration during the drainage analysis to continue flow through the ditches to both sides of the ROW by the installation of culverts. Mitigation for all PJD features will offset any minor impacts.	
Wetland 66	47 of 63	Ditch	0.12	This is a linear ditch feature. Hydrology has been taken into consideration during the drainage analysis to continue flow through the ditches to both sides of the ROW by the installation of culverts. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 67	48 of 63	Ditch	0.15	A bridge will span the crossing. No impacts are expected, but mitigation is proposed.	No
Wetland 79	49 of 63	Ditch	0.10	This is a linear agricultural ditch in an area that has been heavily altered by the Lynchburg Canal and adjacent roads and berms to the north and west. A bridge will span the area. No impacts are expected, but mitigation is proposed.	No

Jurisdictional Area	Plan and Profile Sheet Number	Classification	Total Direct Impacts (Acres)	Additional Comments	Secondary Impacts
Wetland 81	50 of 63	Ditch	0.18	Wetlands 81 and 82 are linear agricultural ditch features. Hydrology has been taken into consideration during the drainage analysis to continue flow through the ditches to both sides of the ROW by the installation of culverts. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 82	50 of 63	Ditch	0.09	See comments for Wetland 81 above.	No
Wetland 83	51 of 63	Ditch	0.05	This is a linear agricultural ditch feature. There is little associated wetland habitat. No secondary impacts are expected. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 86	61 of 63	Ditch	0.04	This is a linear ditch feature. Hydrology has been taken into consideration during the drainage analysis to continue flow through the ditches to both sides of the ROW by the installation of culverts. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 87	52 of 63	Ditch	0.10	Wetlands 87 and 88 consist of two linear agricultural ditches. Hydrology has been	No

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				taken into consideration during the drainage analysis to continue flow through the ditches to both sides of the ROW by the installation of culverts. Mitigation for all PJD features will offset any minor impacts.	
Wetland 88	52 of 63	Ditch	0.10	See comments for Wetland 87 above.	No
Wetland 90	53 of 63	Ditch	0.13	This is a linear ditch feature surrounded by agricultural fields. Hydrology has been taken into consideration during the drainage analysis to continue flow through the ditches to both sides of the ROW by the installation of culverts. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 94	56 of 63	Ditch	0.02	Wetlands 94, 95, 98, and 99 comprise a system of ditches surrounded by agricultural fields. There is little associated wetland habitat. No secondary impacts are expected. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 95	56 of 63	Ditch	0.25	See comments for Wetland 94 above. A	No

Jurisdictional Area	Plan and Profile Sheet Number	Classification	Total Direct Impacts (Acres)	Additional Comments	Secondary Impacts
				culvert would be installed to allow continued flow through the ditch to the area north of the ROW.	
Wetland 98	56 of 63	Ditch	0.08	See comments for Wetland 94 above.	No
Wetland 99	56 of 63	Ditch	0.13	See comments for Wetland 94 above.	No
Wetland 100	57 of 63	Ditch	0.15	This is a linear agricultural ditch feature. Hydrology has been taken into consideration during the drainage analysis to continue flow through the ditch to the north side of the ROW by the installation of a culvert. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 105	59 of 63	Ditch	0.08	This is a linear agricultural ditch feature. Hydrology has been taken into consideration during the drainage analysis to continue flow through the ditch to the north side of the ROW by the installation of a culvert. Mitigation for all PJD features will offset any minor impacts.	No

Jurisdictional Area	Plan and Profile Sheet Number	Classification	Total Direct Impacts (Acres)	Additional Comments	Secondary Impacts
Wetland 108	60 of 63	Ditch	0.15	Wetlands 108 and 109 are parallel linear ditch features surrounded by agricultural fields. There is little associated wetland habitat. No secondary impacts are expected. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 109	60 of 63	Ditch	0.21	See comments for Wetland 108 above.	No
Wetland 110	61 of 63	Ditch	0.43	This is a linear agricultural ditch feature. There is little associated wetland habitat. No secondary impacts are expected. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 114	63 of 63	Ditch	0.63	Wetlands 114 and 115 are parallel linear agricultural ditch features adjacent to IH-10. A bridge will span the area. No impacts are expected, but mitigation is proposed.	No
Wetland 115	63 of 63	Ditch	0.33	See comments for Wetland 114 above.	No
Other Waters of the U.S.					

Jurisdictional Area	Plan and Profile Sheet Number	Classification	Total Direct Impacts (Acres)	Additional Comments	Secondary Impacts
area 12	9 of 63	Pond	0.30	Entire pond boundary is within the ROW and will be mitigated.	No
Wetland 33	26 of 63	Agricultural Wetland	2.85	The Wetland is a depressional wetland surrounded by agricultural fields. A bridge will span the crossing. No impacts are expected, but mitigation is proposed.	No
Wetland 78	49 of 63	Canal	1.04	The Lynchburg Canal. A bridge will span the crossing.	No
Wetland 84	51 of 63	Agricultural Wetland	0.23	The portion of the wetland east of the ROW impact area is part of an existing depressional area and will continue to hold water. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 85	51 of 63	Pond	0.73	The small portion of the pond east of the ROW impact area will continue to hold water. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 96	56 of 63	Agricultural Wetland	1.45	The area is a depressional wetland surrounded by agricultural fields. There is little associated wetland habitat. No	No

Jurisdictional Area	Plan and Profile Sheet Number	Classification	Total Direct Impacts (Acres)	Additional Comments	Secondary Impacts
				secondary impacts are expected. Mitigation for all PJD features will offset any minor impacts.	
Wetland 107	59 of 63	Canal	0.56	This is a linear agricultural canal. Hydrology has been taken into consideration during the drainage analysis to continue flow through the ditch to both sides of the ROW by the installation of culverts. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 111	61 of 63	Canal	0.89	This is a linear agricultural canal. There is little associated wetland habitat. No secondary impacts are expected. Mitigation for all PJD features will offset any minor impacts.	No
Wetland 116	63 of 63	Canal	0.01	This is a small section of a linear agricultural ditch feature. There is little associated wetland habitat. No secondary impacts are expected. Mitigation for all PJD features will offset any minor impacts.	No

Table 2:
Segments H and I Secondary Impact Analysis per Stream

Jurisdictional Area	Plan and Profile Sheet Number	Classification	Total Direct Impacts Stream Length (Feet)	Additional Comments	Secondary Impacts
Water 1	4 of 63	Stream	0	A bridge will span this stream segment.	No
Water 2	4 of 63	Stream	944	A bridge will span this stream segment. However, impacts will occur due to riprap and fill around columns.	No
Water 3	6 of 63	Stream	0	A bridge will span this stream segment.	No
Water 4	6 of 63	Stream	0	A bridge will span this stream segment.	No
Water 5	7 of 63	Stream	0	A bridge will span this stream segment.	No
Water 6	8 of 63	Stream	578	A bridge will span this stream segment. However, impacts will occur due to riprap and fill around columns.	No
Water 8	17 of 63	Stream	0	A bridge will span this stream segment.	No
Water 10	21 of 63	Stream	0	A bridge will span this stream segment.	No
Water 11	22 of 63	Stream	0	A bridge will span this stream segment.	No
Water 12	23 of 63	Stream	0	A bridge will span this stream segment.	No

Water 13	28 of 63	Stream	0	A bridge will span this stream segment.	No
Water 14	32 of 63	Stream	0	A bridge will span this stream segment.	No
Water 15	32 of 63	Stream	120	A culvert will be installed for construction of a frontage road.	No
Water 17	37 of 63	Stream	0	A bridge will span this stream segment.	No
Water 18	40 of 63	Stream	0	A bridge will span this stream segment.	No