

## **Requirement N**

### Hydrologic and Hydraulic Analysis

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## **Hydrologic and Hydraulic Analysis**

There are no above-ground watercourse fills on the Project in Beaver County; therefore, a hydrologic and hydraulic analysis is unnecessary.

## **Requirement O**

### **Stormwater Management Analysis and Consistency Letters**

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**STORMWATER MANAGEMENT PLAN ANALYSIS**

A Stormwater Management Analysis may be required if the proposed water obstruction or encroachment is within a county that has an approved Act 167 Plan. The proposed project is located within Greene, Independence, Potter, and Raccoon townships, Beaver County, Pennsylvania. The proposed meter station at the northern end of the Project is located within the previously permitted boundaries of the Pennsylvania Petrochemical Facility. The meter station located at the junction is located in Raccoon Township which does not have an approved Act 167 Plan. Therefore, Stormwater Management Plan Analysis and an Act 167 Consistency Letter are not required.

## **Requirement P**

### Floodplain Management Analysis and Consistency Letter

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**Floodplain Management Analysis and Consistency Letter**

A Floodplain Management Analysis may be required if the proposed water obstruction or encroachment is within a floodway delineated on a FEMA map. No permanent above ground structures are to be installed within any FEMA identified areas; therefore, no Floodplain Management Analysis is required. However, per PADEP request, floodplain consistency letters were sent to Greene, Independence, Potter, and Raccoon townships. The letters submitted to each township are included in this section.

**From:** TrackingUpdates@fedex.com  
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**To:** Shearer, Natalie  
**Subject:** FedEx Shipment 772914132063 Delivered

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This tracking update has been requested by:

Company Name: AECOM  
Name: Natalie L. Shearer  
E-mail: [natalie.shearer@aecom.com](mailto:natalie.shearer@aecom.com)

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Our records indicate that the following shipment has been delivered:

Invoice number: 70.12  
Purchase order number: 60536988  
Reference: 04104183.1  
Ship date: Aug 9, 2018  
Signed for by: G.SHORT  
Delivery location: HOOKSTOWN, PA  
Delivered to: Receptionist/Front Desk  
Delivery date: Fri, 8/10/2018 9:09 am  
Service type: FedEx Standard Overnight®  
Packaging type: FedEx® Envelope  
Number of pieces: 1  
Weight: 0.50 lb.  
Special handling/Services: Deliver Weekday  
Standard transit: 8/10/2018 by 3:00 pm  
  
Tracking number: 772914132063

Shipper Information	Recipient Information
Natalie L. Shearer	Floodplain Manager
AECOM	Green Township
681 Andersen Drive, Suite 400	262 Pittsburgh Grade Road
Foster Plaza 6	HOOKSTOWN
Pittsburgh	PA
PA	US
US	15050
15220	

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August 9, 2018

GREENE TOWNSHIP  
FLOODPLAIN MANAGER  
262 PITTSBURGH GRADE ROAD  
HOOKSTOWN, PA 15050

**Municipal Floodplain Management Analysis  
Falcon Ethane Pipeline System  
Beaver County, Pennsylvania**

Dear Sir or Madam:

Shell Pipeline Company LP (SPLC) proposes to build, own, and operate the Falcon Ethane Pipeline System (Project). The Project will consist of an approximately 98-mile common carrier ethane supply pipeline that will be located in southwestern Pennsylvania, Ohio, and West Virginia. The Project will connect three major ethane sources in Houston, Pennsylvania, Scio, Ohio, and Cadiz, Ohio to Shell Chemical's planned Pennsylvania Petrochemical Plant (Plant) located in Monaca, Pennsylvania.

The Project will consist of the following:

- An approximately eleven (11) mile 10-inch diameter steel pipeline that will run from the existing MarkWest Cadiz, Ohio facility to a junction point located two miles southeast of Scio, Ohio.
- An approximately fifty-three (53)-mile 12-inch diameter steel pipeline will stretch from the Utica East Ohio plant in Scio, Ohio to a junction site located four miles southwest of the Monaca, Pennsylvania Petrochemical plant.
- A third 12-inch diameter steel pipeline will originate out of MarkWest's Houston, Pennsylvania fractionation plant and stretch to the junction site that is located four (4) miles southwest of Monaca.
- A 16-inch diameter steel pipeline will stretch approximately (4) four miles from that junction site to the Plant in Monaca, Pennsylvania.

This letter is specific to those activities occurring within Greene Township as it relates to Federal Emergency Management Agency (FEMA) Special Flood Hazard Areas (SFHA) which are also consider the 100-year floodplain. The 100-year floodplain is the land area covered by the floodwaters of the 100-year flood.

AECOM has completed an analysis of potential impacts to the FEMA SFHAs from the Project in accordance with 25 Pa. Code § 105.13, including, *inter alia*, a visual review of FEMA SFHAs in relation to the planned construction activities. A summary of the proposed impacts related to Greene Township is provided below for your review and comment.

<b>FALCON ETHANE PIPELINE SYSTEM FEMA FLOODPLAIN CROSSINGS GREENE TOWNSHIP, BEAVER COUNTY, PENNSYLVANIA</b>								
Description of Impact	Structure Type	Resource ID	Resource Name	FEMA Special Flood Hazard Area Designation	Impact area (acres)		Latitude	Longitude
					Permanent	Temporary		
Pipeline Crossing	Equipment access and E&S controls	S-PA-160316-CBA-002	Mill Creek	Zone A	0	0.335	40.590096	-80.477708

The SFHA crossings listed above are depicted on the enclosed plans from the Project's PADEP Chapter 105 Permit Application.

Please note that based on AECOM's analysis, construction activities are not expected to create permanent loss of flood storage capacity or hydraulic capacity since the pre-construction surface elevations will be re-established following construction. The temporary and permanent impacts noted above are associated with vegetation management resulting from underground pipe installation only, and do not represent a permanent ground elevation modification or flood storage or hydraulic capacity loss. No permanent aboveground structures or fill are proposed within the FEMA 100-year floodplain and therefore, no increases in 100-year flood elevation are anticipated as a result of temporary impacts for construction activities to install the pipeline. Pipeline construction across waterbodies will be performed in accordance with applicable PADEP Chapter 105 and 102 permit conditions, and SPLC's approved Soil Erosion Sediment Control (SESC) Plan. The proposed crossing will be restored to preconstruction contours and revegetated within disturbed riparian areas.

On behalf of SPLC, AECOM respectfully requests that Greene Township review this analysis with respect to your municipality's respective floodplain management codes and ordinances and, if applicable, provide comments to:

Natalie L. Shearer, M.S., QEP  
AECOM  
Foster Plaza 6  
681 Andersen Drive, Suite 400  
Pittsburgh, PA 15220

**Please do not send comments directly to the PADEP**, as SPLC must include them with their permit application. Should you have any questions or concerns regarding this request, please contact Natalie Shearer at (412)-503-4595 or via email at [natalie.shearer@aecom.com](mailto:natalie.shearer@aecom.com).

Yours sincerely,



Natalie L. Shearer, M.S., QEP  
Senior Ecologist  
AECOM  
T: 412-503-4595  
M: 412-694-8971  
E: [natalie.shearer@aecom.com](mailto:natalie.shearer@aecom.com)



Brandon M. Walker, PE  
Project Manager  
AECOM  
T: 412-503-4554  
M: 412-522-9566  
E: [brandon.walker@aecom.com](mailto:brandon.walker@aecom.com)

**enclosures:** Erosion and Sediment Control Plan Drawing(s)

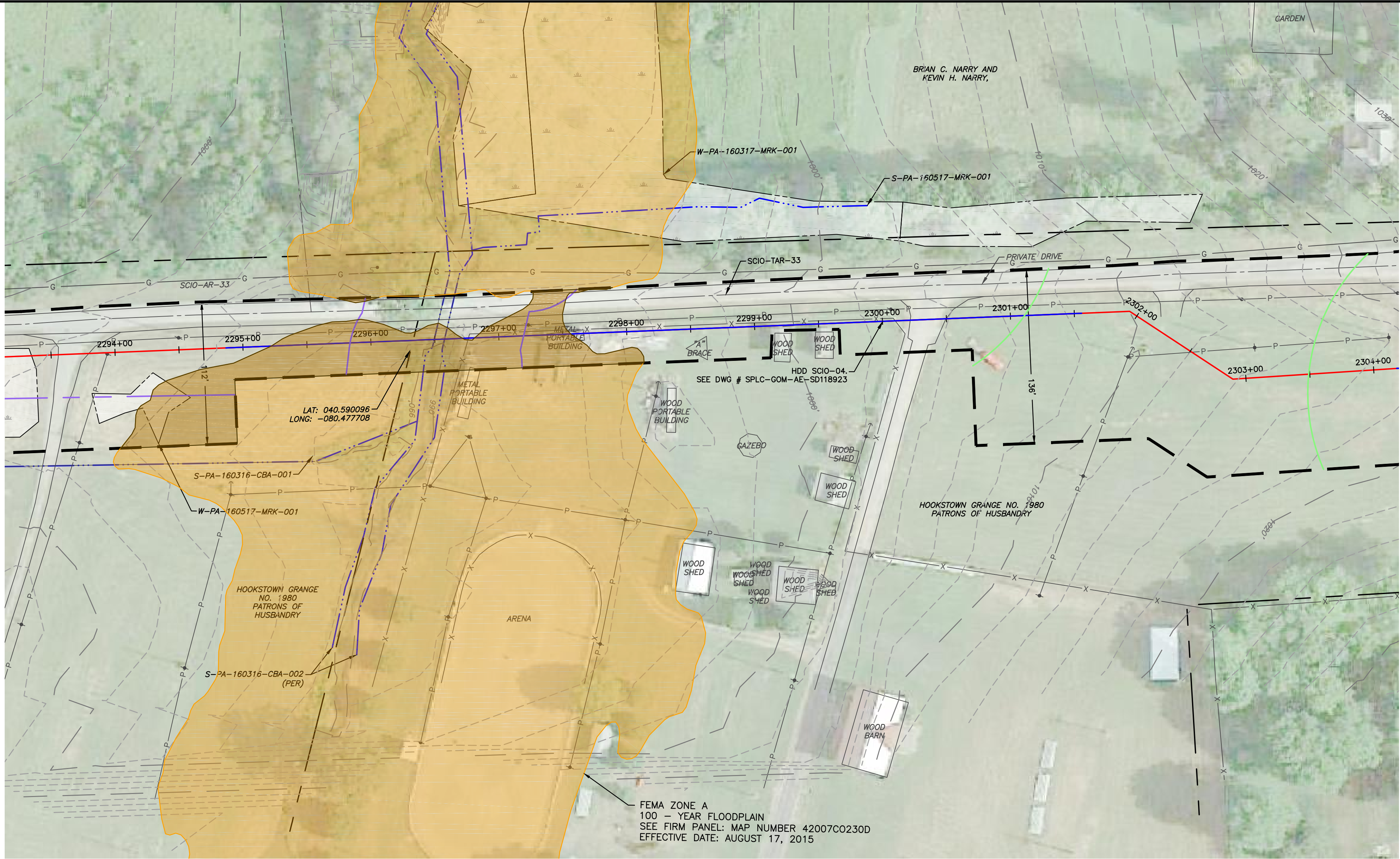
**cc:** Doug Scott, PE, SPLC Project Manager  
Robert Wooten, SPLC Land and Permitting Manager



Filepath: \\A:\PROJECTS\1747\SH-1747-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\FLOODPLAIN CROSSINGS\FC\_PLANT67.DWG  
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0 50' 100'  
SCALE: 1" = 50'



IMPACT AREA (ACRES)	
PERMANENT	TEMPORARY
0	0.335

REFERENCES:

- FLOODPLAIN SPECIAL FLOOD HAZARD AREA OBTAINED FROM NATIONAL FLOOD HAZARD LAYER, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)
- TOPOGRAPHIC SURVEY DATA PROVIDED BY PERCHERON LLC, 2016-2017
- WETLAND INVESTIGATION WAS COMPLETED BY AECOM FROM FEBRUARY 2016 TO MAY 2017

	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		PROPOSED LIMIT OF DISTURBANCE
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		WATERSHED BOUNDARY
	EXISTING WETLAND		FLOODPLAIN
	SOIL TYPE BOUNDARY AND SOIL BOUNDARY		FLOODPLAIN IMPACT
	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY		
	TREE/BRUSH LINE		

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP

FALCON ETHANE PIPELINE SYSTEM		FLOODPLAIN MAP 12	
HOUSTON TO JUNCTION		MILL CREEK	
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		SCALE: 1"=50'	DATE: 08/07/18
DRAWN: TLM		SPLC-GOM-AE-SD120091	REVISION: 0



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**Sent:** Friday, August 10, 2018 2:50 PM  
**To:** Shearer, Natalie  
**Subject:** FedEx Shipment 772914283788 Delivered

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E-mail: [natalie.shearer@aecom.com](mailto:natalie.shearer@aecom.com)

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Signed for by: D.SHAFER  
Delivery location: ALIQUIPPA, PA  
Delivered to: Receptionist/Front Desk  
Delivery date: Fri, 8/10/2018 2:48 pm  
Service type: FedEx Standard Overnight®  
Packaging type: FedEx® Envelope  
Number of pieces: 1  
Weight: 0.50 lb.  
Special handling/Services: Deliver Weekday  
Standard transit: 8/10/2018 by 3:00 pm  
  
Tracking number: 772914283788

Shipper Information	Recipient Information
Natalie L. Shearer	Floodplain Manager
AECOM	Independence Township
681 Andersen Drive, Suite 400	104 School Rd
Foster Plaza 6	ALIQUIPPA
Pittsburgh	PA
PA	US
US	15001
15220	

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August 9, 2018

INDEPENDENCE TOWNSHIP  
FLOODPLAIN MANAGER  
104 SCHOOL ROAD  
ALIQUIPPA, PA 15001

**Municipal Floodplain Management Analysis  
Falcon Ethane Pipeline System  
Beaver County, Pennsylvania**

Dear Sir or Madam:

Shell Pipeline Company LP (SPLC) proposes to build, own, and operate the Falcon Ethane Pipeline System (Project). The Project will consist of an approximately 98-mile common carrier ethane supply pipeline that will be located in southwestern Pennsylvania, Ohio, and West Virginia. The Project will connect three major ethane sources in Houston, Pennsylvania, Scio, Ohio, and Cadiz, Ohio to Shell Chemical's planned Pennsylvania Petrochemical Plant (Plant) located in Monaca, Pennsylvania.

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- A third 12-inch diameter steel pipeline will originate out of MarkWest's Houston, Pennsylvania fractionation plant and stretch to the junction site that is located four (4) miles southwest of Monaca.
- A 16-inch diameter steel pipeline will stretch approximately (4) four miles from that junction site to the Plant in Monaca, Pennsylvania.

This letter is specific to those activities occurring within Independence Township as it relates to Federal Emergency Management Agency (FEMA) Special Flood Hazard Areas (SFHA) which are also consider the 100-year floodplain. The 100-year floodplain is the land area covered by the floodwaters of the 100-year flood.

AECOM has completed an analysis of potential impacts to the FEMA SFHAs from the Project in accordance with 25 Pa. Code § 105.13, including, *inter alia*, a visual review of FEMA SFHAs in relation to the planned construction activities. A summary of the proposed impacts related to Independence Township is provided below for your review and comment.

<b>FALCON ETHANE PIPELINE SYSTEM FEMA FLOODPLAIN CROSSINGS INDEPENDENCE TOWNSHIP, BEAVER COUNTY, PENNSYLVANIA</b>								
Description of Impact	Structure Type	Resource ID	Resource Name	FEMA Special Flood Hazard Area Designation	Impact area (acres)		Latitude	Longitude
					Permanent	Temporary		
Permanent Access Road	Equipment access and E&S controls	S-PA-160310-MRK-001	Unt to Raccoon Creek	Zone A	0.022	0	40.54842	-80.312897
Pipeline Crossing	Equipment access and E&S controls	S-PA-151013-MRK-002	Raccoon Creek	Zone A	0	0.920	40.551593	-80.317141
Temporary Access Road	Equipment access and E&S controls	S-PA-151204-MRK-003	Service Creek	Zone A	0	0.265	40.581105	-80.326335

The SFHA crossings listed above are depicted on the enclosed plans from the Project's PADEP Chapter 105 Permit Application.

Please note that based on AECOM's analysis, construction activities are not expected to create permanent loss of flood storage capacity or hydraulic capacity since the pre-construction surface elevations will be re-established following construction. The temporary and permanent impacts noted above are associated with vegetation management resulting from underground pipe installation only, and do not represent a permanent ground elevation modification or flood storage or hydraulic capacity loss. No permanent aboveground structures or fill are proposed within the FEMA 100-year floodplain and therefore, no increases in 100-year flood elevation are anticipated as a result of temporary impacts for construction activities to install the pipeline. Pipeline construction across waterbodies will be performed in accordance with applicable PADEP Chapter 105 and 102 permit conditions, and SPLC's approved Soil Erosion Sediment Control (SESC) Plan. The proposed crossing will be restored to preconstruction contours and revegetated within disturbed riparian areas.

On behalf of SPLC, AECOM respectfully requests that Independence Township review this analysis with respect to your municipality's respective floodplain management codes and ordinances and, if applicable, provide comments to:

Natalie L. Shearer, M.S., QEP  
AECOM  
Foster Plaza 6  
681 Andersen Drive, Suite 400  
Pittsburgh, PA 15220



**Please do not send comments directly to the PADEP**, as SPLC must include them with their permit application. Should you have any questions or concerns regarding this request, please contact Natalie Shearer at (412)-503-4595 or via email at [natalie.shearer@aecom.com](mailto:natalie.shearer@aecom.com).

Yours sincerely,



Natalie L. Shearer, M.S., QEP  
Senior Ecologist  
AECOM  
T: 412-503-4595  
M: 412-694-8971  
E: [natalie.shearer@aecom.com](mailto:natalie.shearer@aecom.com)



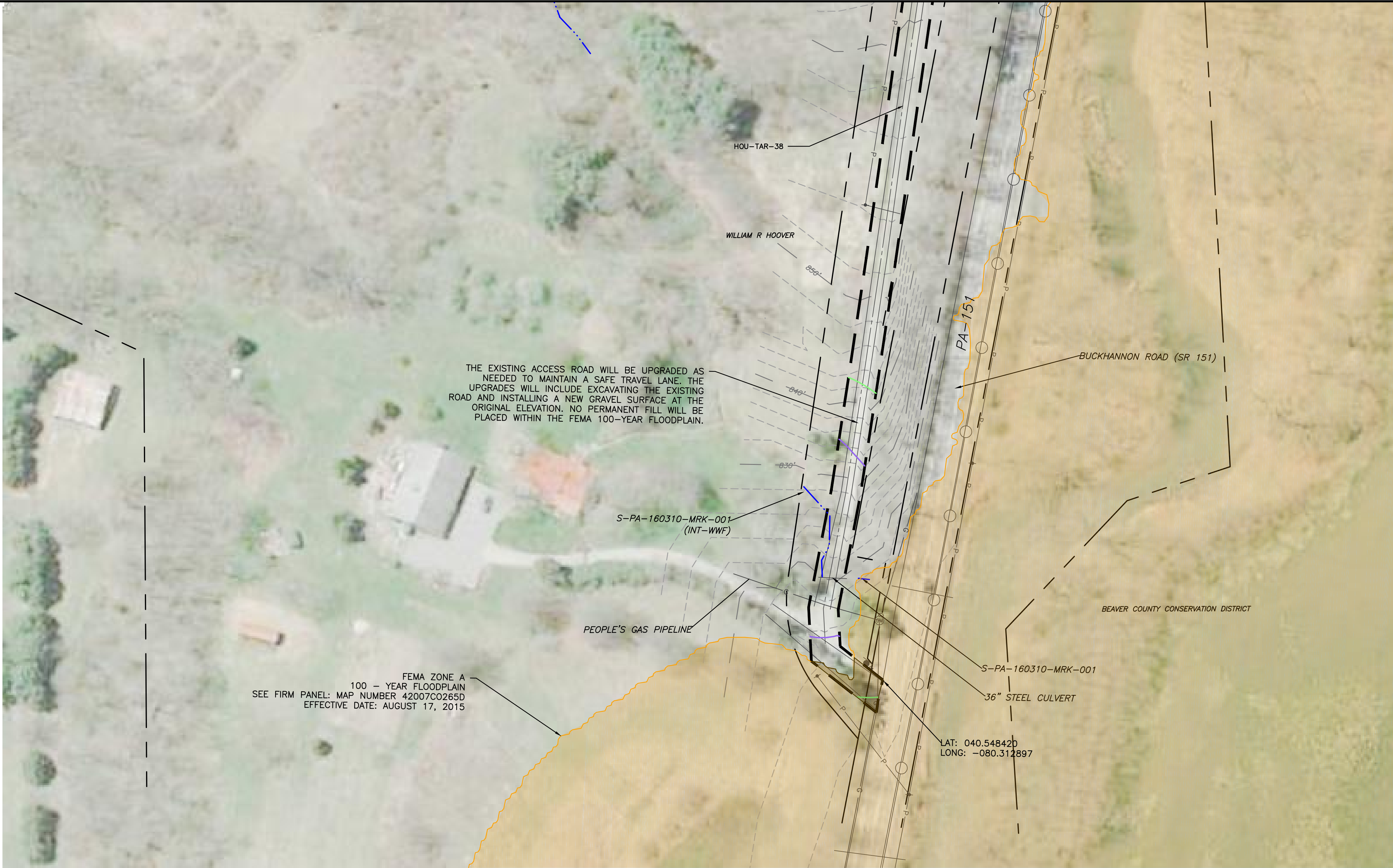
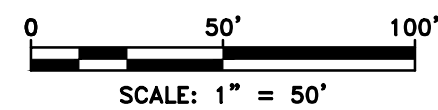
Brandon M. Walker, PE  
Project Manager  
AECOM  
T: 412-503-4554  
M: 412-522-9566  
E: [brandon.walker@aecom.com](mailto:brandon.walker@aecom.com)

**enclosures:** Erosion and Sediment Control Plan Drawing(s)

**cc:** Doug Scott, PE, SPLC Project Manager  
Robert Wooten, SPLC Land and Permitting Manager



Filepath: \\projects\1747\shelly\6046885 - FALCON 900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\FLOODPLAIN CROSSINGS\FC\_PLANT12A.DWG  
Last saved by: TASHIA MCKINNEY (6/8/2018 4:15 PM) Last Plotted: 2018-08-08 09:08:08 (6/8/2018 14:27 PM)



FEMA ZONE A  
100 - YEAR FLOODPLAIN  
SEE FIRM PANEL: MAP NUMBER 42007C0265D  
EFFECTIVE DATE: AUGUST 17, 2015

THE EXISTING ACCESS ROAD WILL BE UPGRADED AS  
NEEDED TO MAINTAIN A SAFE TRAVEL LANE. THE  
UPGRADES WILL INCLUDE EXCAVATING THE EXISTING  
ROAD AND INSTALLING A NEW GRAVEL SURFACE AT THE  
ORIGINAL ELEVATION. NO PERMANENT FILL WILL BE  
PLACED WITHIN THE FEMA 100-YEAR FLOODPLAIN.

REFERENCES:

1. FLOODPLAIN SPECIAL FLOOD HAZARD AREA OBTAINED FROM NATIONAL FLOOD HAZARD LAYER, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)
2. TOPOGRAPHIC SURVEY DATA PROVIDED BY PERCHERON LLC, 2016-2017
3. WETLAND INVESTIGATION WAS COMPLETED BY AECOM FROM FEBRUARY 2016 TO MAY 2017

IMPACT AREA (ACRES)	
PERMANENT	TEMPORARY
0.022	0.000

	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		PROPOSED LIMIT OF DISTURBANCE
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		WATERSHED BOUNDARY
	EXISTING WETLAND		FLOODPLAIN
	SOIL TYPE BOUNDARY AND SOIL BOUNDARY		FLOODPLAIN IMPACT
	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY		
	TREE/BRUSH LINE		

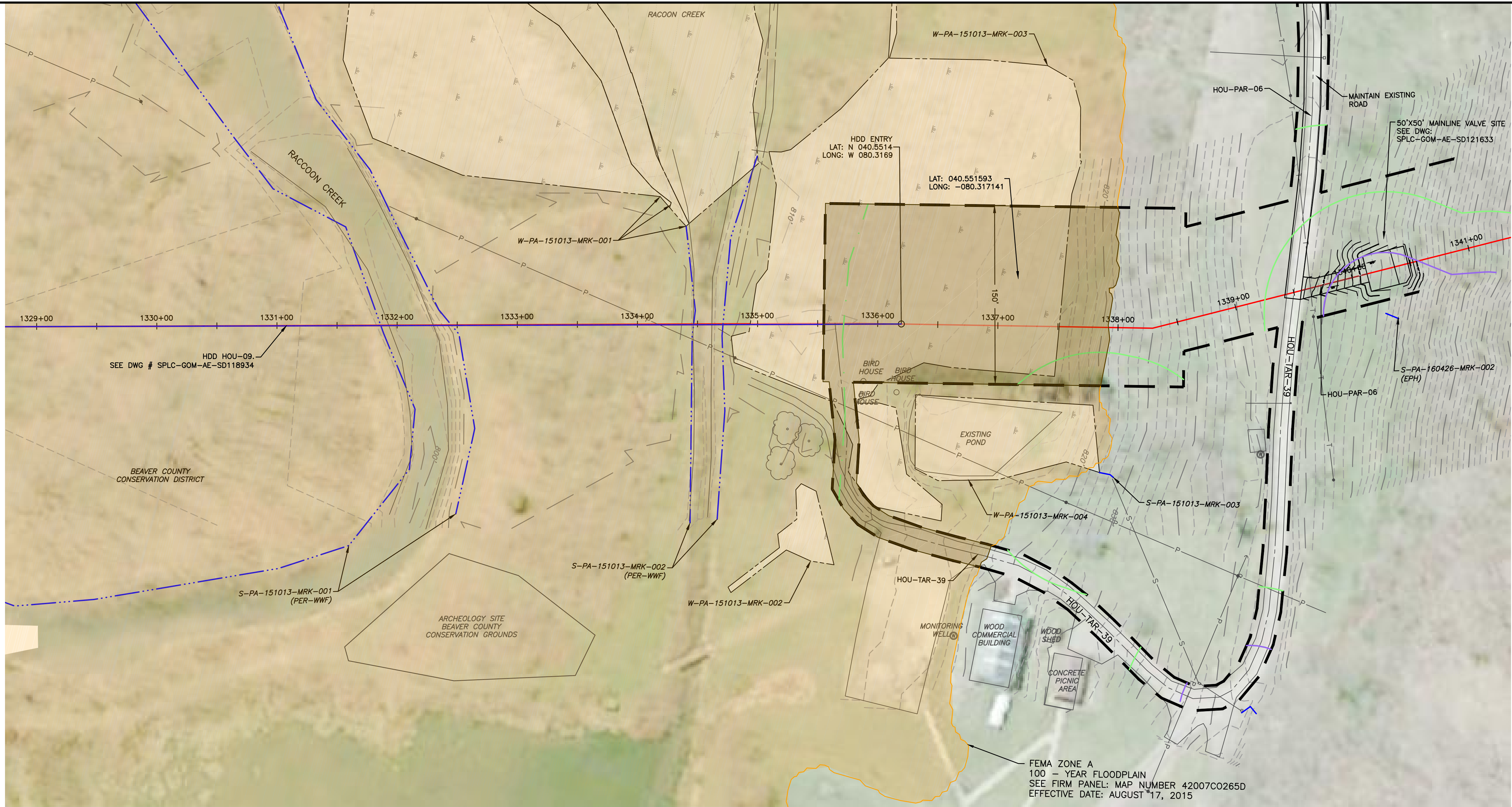
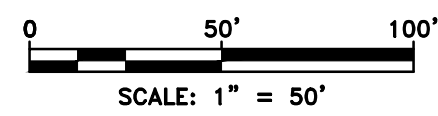
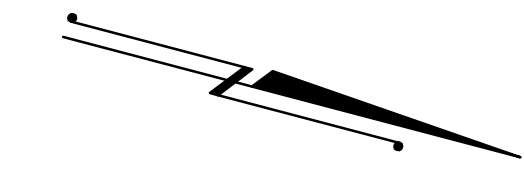
GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP

FALCON ETHANE PIPELINE SYSTEM		FLOODPLAIN MAP 06	
HOUSTON TO JUNCTION		UNT TO RACCOON CREEK	
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		PENNSYLVANIA	
SCALE	1"=50'	DATE	08/07/18
DRAWN	TLM		
SPLC-GOM-AE-SD120085			REVISION 0



\\projects\1747\shells\6048885 - FALCON 900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\FLOODPLAIN CROSSINGS\FC\_PLANT13.DWG  
Last saved by: TASHIA WICKINNEY (6/8/2018 4:15 PM) Last Plotted: 2018-08-08 (6/8/2018 4:48 PM)



IMPACT AREA (ACRES)	
PERMANENT	TEMPORARY
0	0.920

- REFERENCES:
- FLOODPLAIN SPECIAL FLOOD HAZARD AREA OBTAINED FROM NATIONAL FLOOD HAZARD LAYER, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)
  - TOPOGRAPHIC SURVEY DATA PROVIDED BY PERCHERON LLC, 2016-2017
  - WETLAND INVESTIGATION WAS COMPLETED BY AECOM FROM FEBRUARY 2016 TO MAY 2017

	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		PROPOSED LIMIT OF DISTURBANCE
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		WATERSHED BOUNDARY
	EXISTING WETLAND		FLOODPLAIN
	SOIL TYPE BOUNDARY AND SOIL BOUNDARY		FLOODPLAIN IMPACT
	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY		
	TREE/BRUSH LINE		

GENERAL NOTES:

REV	NO	DATE	DESCRIPTION OF REVISION	CHK	APP

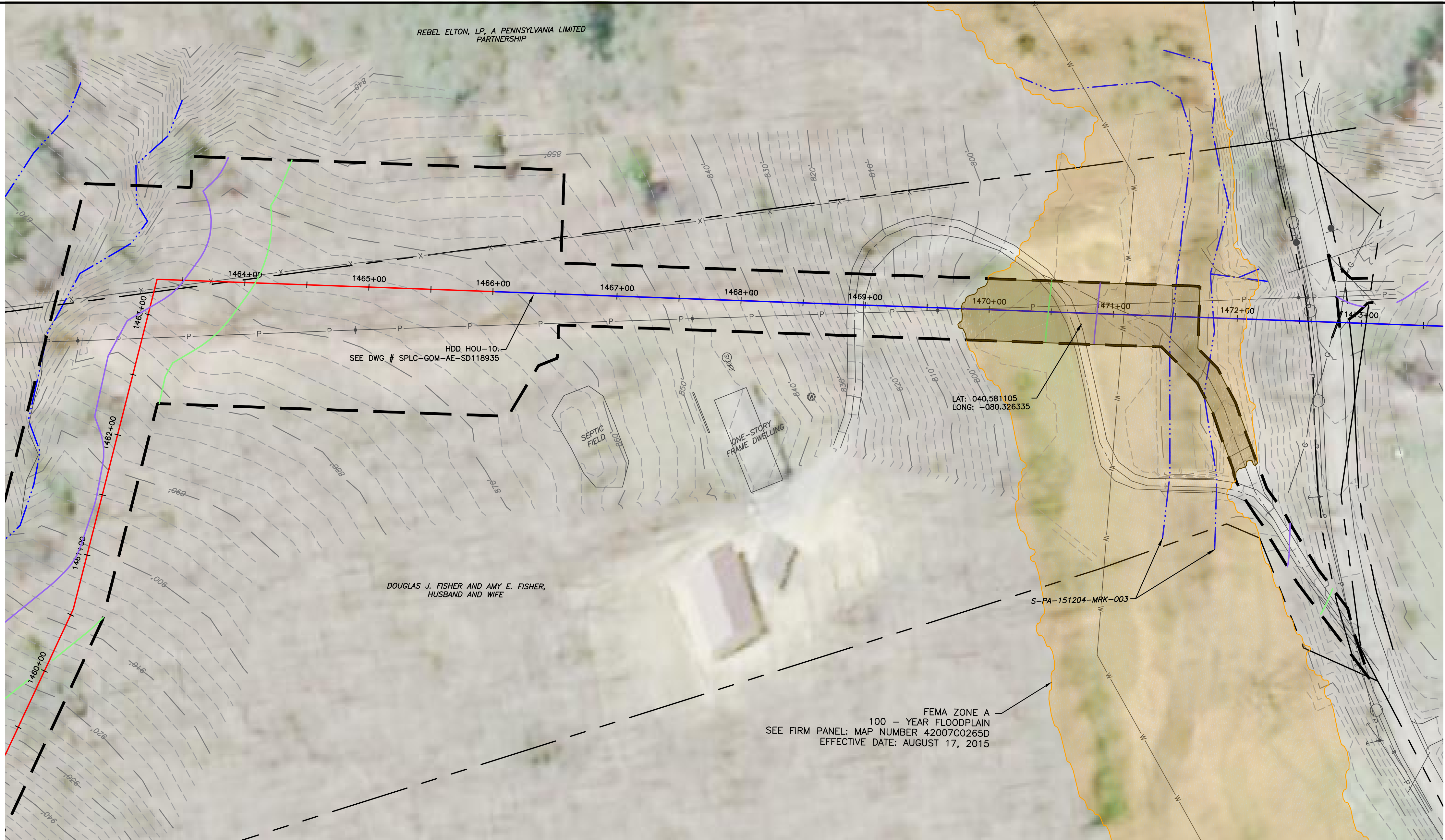
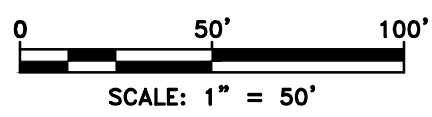
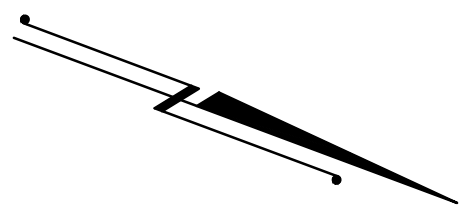
FALCON ETHANE PIPELINE SYSTEM  
HOUSTON TO JUNCTION

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FLOODPLAIN MAP 07 RACCOON CREEK #1		PENNSYLVANIA	
BEAVER COUNTY INDEPENDENCE TOWNSHIP			
SCALE	1"=50'	DATE	08/07/18
DRAWN	TLM	SPLC-GOM-AE-SD120086	REVISION 0



\\projects\1747\shelly\60468885 - FALCON 900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\FLOODPLAIN CROSSINGS\FC\_PLANT24.DWG  
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IMPACT AREA (ACRES)	
PERMANENT	TEMPORARY
0	0.265

REFERENCES:

- FLOODPLAIN SPECIAL FLOOD HAZARD AREA OBTAINED FROM NATIONAL FLOOD HAZARD LAYER, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)
- TOPOGRAPHIC SURVEY DATA PROVIDED BY PERCHERON LLC, 2016-2017
- WETLAND INVESTIGATION WAS COMPLETED BY AECOM FROM FEBRUARY 2016 TO MAY 2017

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	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY		
	TREE/BRUSH LINE		

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP

FALCON ETHANE PIPELINE SYSTEM		FLOODPLAIN MAP 08	
HOUSTON TO JUNCTION		SERVICE CREEK	
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		INDEPENDENCE TOWNSHIP	
SCALE	1"=50'	DATE	
DRAWN	TLM	08/07/18	
SPLC-GOM-AE-SD120087			REVISION 0



**From:** TrackingUpdates@fedex.com  
**Sent:** Friday, August 10, 2018 8:34 AM  
**To:** Shearer, Natalie  
**Subject:** FedEx Shipment 772940015400 Delivered

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This tracking update has been requested by:

Company Name: AECOM  
Name: Natalie L. Shearer  
E-mail: [natalie.shearer@aecom.com](mailto:natalie.shearer@aecom.com)

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Invoice number: 70.12  
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Reference: 04104183.1  
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Signed for by: D.HIGGEN  
Delivery location: MONACA, PA  
Delivered to: Receptionist/Front Desk  
Delivery date: Fri, 8/10/2018 8:27 am  
Service type: FedEx Standard Overnight®  
Packaging type: FedEx® Envelope  
Number of pieces: 1  
Weight: 0.50 lb.  
Special handling/Services: Deliver Weekday  
Standard transit: 8/10/2018 by 3:00 pm  
  
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AECOM	Potter Township
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Thank you for your business.

August 9, 2018

POTTER TOWNSHIP  
FLOODPLAIN MANAGER  
206 MOWRY ROAD  
MONACA, PA 15061

**Municipal Floodplain Management Analysis  
Falcon Ethane Pipeline System  
Beaver County, Pennsylvania**

Dear Sir or Madam:

Shell Pipeline Company LP (SPLC) proposes to build, own, and operate the Falcon Ethane Pipeline System (Project). The Project will consist of an approximately 98-mile common carrier ethane supply pipeline that will be located in southwestern Pennsylvania, Ohio, and West Virginia. The Project will connect three major ethane sources in Houston, Pennsylvania, Scio, Ohio, and Cadiz, Ohio to Shell Chemical's planned Pennsylvania Petrochemical Plant (Plant) located in Monaca, Pennsylvania.

The Project will consist of the following:

- An approximately eleven (11) mile 10-inch diameter steel pipeline that will run from the existing MarkWest Cadiz, Ohio facility to a junction point located two miles southeast of Scio, Ohio.
- An approximately fifty-three (53)-mile 12-inch diameter steel pipeline will stretch from the Utica East Ohio plant in Scio, Ohio to a junction site located four miles southwest of the Monaca, Pennsylvania Petrochemical plant.
- A third 12-inch diameter steel pipeline will originate out of MarkWest's Houston, Pennsylvania fractionation plant and stretch to the junction site that is located four (4) miles southwest of Monaca.
- A 16-inch diameter steel pipeline will stretch approximately (4) four miles from that junction site to the Plant in Monaca, Pennsylvania.

This letter is specific to those activities occurring within Potter Township as it relates to Federal Emergency Management Agency (FEMA) Special Flood Hazard Areas (SFHA) which are also consider the 100-year floodplain. The 100-year floodplain is the land area covered by the floodwaters of the 100-year flood.

AECOM has completed an analysis of potential impacts to the FEMA SFHAs from the Project in accordance with 25 Pa. Code § 105.13, including, *inter alia*, a visual review of FEMA SFHAs in relation to the planned construction activities. A summary of the proposed impacts related to Potter Township is provided below for your review and comment.

<b>FALCON ETHANE PIPELINE SYSTEM FEMA FLOODPLAIN CROSSINGS POTTER TOWNSHIP, BEAVER COUNTY, PENNSYLVANIA</b>								
Description of Impact	Structure Type	Resource ID	Resource Name	FEMA Special Flood Hazard Area Designation	Impact area (acres)		Latitude	Longitude
					Permanent	Temporary		
Pipeline Crossing	Equipment access and E&S controls	S-PA-160408-MRK-002	Fishpot Run	Zone A	0	0.048	40.637001	-80.351268
Temporary Access Road	Equipment access and E&S controls	S-PA-160412-CBA-001	Raccoon Creek	Zone A	0	0.117	40.648472	-80.346936
Pipeline Crossing and Temporary Access Road	Equipment access and E&S controls	S-PA-151015-MRK-005	Raccoon Creek	Zone A	0	2.240	40.653455	-80.346376

The SFHA crossings listed above are depicted on the enclosed plans from the Project's PADEP Chapter 105 Permit Application.

Please note that based on AECOM's analysis, construction activities are not expected to create permanent loss of flood storage capacity or hydraulic capacity since the pre-construction surface elevations will be re-established following construction. The temporary and permanent impacts noted above are associated with vegetation management resulting from underground pipe installation only, and do not represent a permanent ground elevation modification or flood storage or hydraulic capacity loss. No permanent aboveground structures or fill are proposed within the FEMA 100-year floodplain and therefore, no increases in 100-year flood elevation are anticipated as a result of temporary impacts for construction activities to install the pipeline. Pipeline construction across waterbodies will be performed in accordance with applicable PADEP Chapter 105 and 102 permit conditions, and SPLC's approved Soil Erosion Sediment Control (SESC) Plan. The proposed crossing will be restored to preconstruction contours and revegetated within disturbed riparian areas.

On behalf of SPLC, AECOM respectfully requests that Potter Township review this analysis with respect to your municipality's respective floodplain management codes and ordinances and, if applicable, provide comments to:

Natalie L. Shearer, M.S., QEP  
AECOM  
Foster Plaza 6  
681 Andersen Drive, Suite 400  
Pittsburgh, PA 15220



**Please do not send comments directly to the PADEP**, as SPLC must include them with their permit application. Should you have any questions or concerns regarding this request, please contact Natalie Shearer at (412)-503-4595 or via email at [natalie.shearer@aecom.com](mailto:natalie.shearer@aecom.com).

Yours sincerely,



Natalie L. Shearer, M.S., QEP  
Senior Ecologist  
AECOM  
T: 412-503-4595  
M: 412-694-8971  
E: [natalie.shearer@aecom.com](mailto:natalie.shearer@aecom.com)



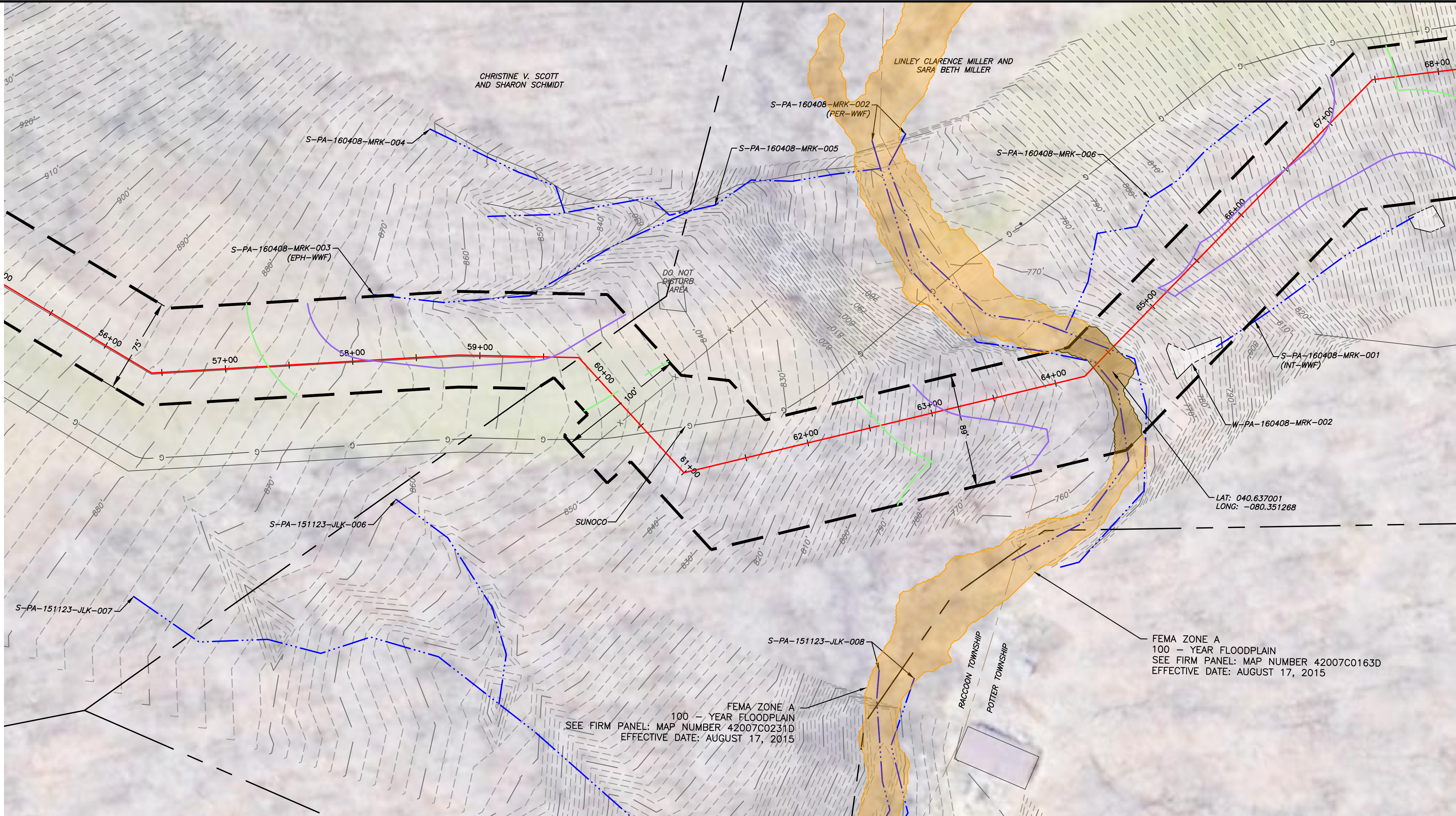
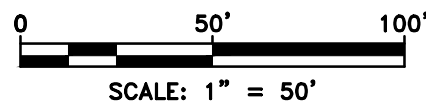
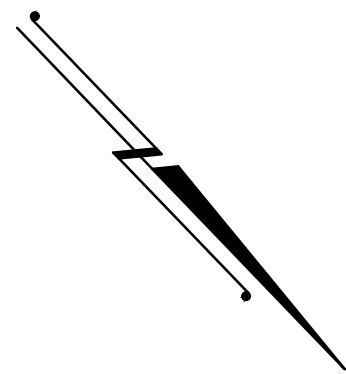
Brandon M. Walker, PE  
Project Manager  
AECOM  
T: 412-503-4554  
M: 412-522-9566  
E: [brandon.walker@aecom.com](mailto:brandon.walker@aecom.com)

**enclosures:** Erosion and Sediment Control Plan Drawing(s)

**cc:** Doug Scott, PE, SPLC Project Manager  
Robert Wooten, SPLC Land and Permitting Manager



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- REFERENCES:
- FLOODPLAIN SPECIAL FLOOD HAZARD AREA OBTAINED FROM NATIONAL FLOOD HAZARD LAYER, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)
  - TOPOGRAPHIC SURVEY DATA PROVIDED BY PERCHERON LLC, 2016-2017
  - WETLAND INVESTIGATION WAS COMPLETED BY AECOM FROM FEBRUARY 2016 TO MAY 2017

IMPACT AREA (ACRES)	
RACCOON TOWNSHIP	
PERMANENT	TEMPORARY
0	0.132
POTTER TOWNSHIP	
PERMANENT	TEMPORARY
0	0.048

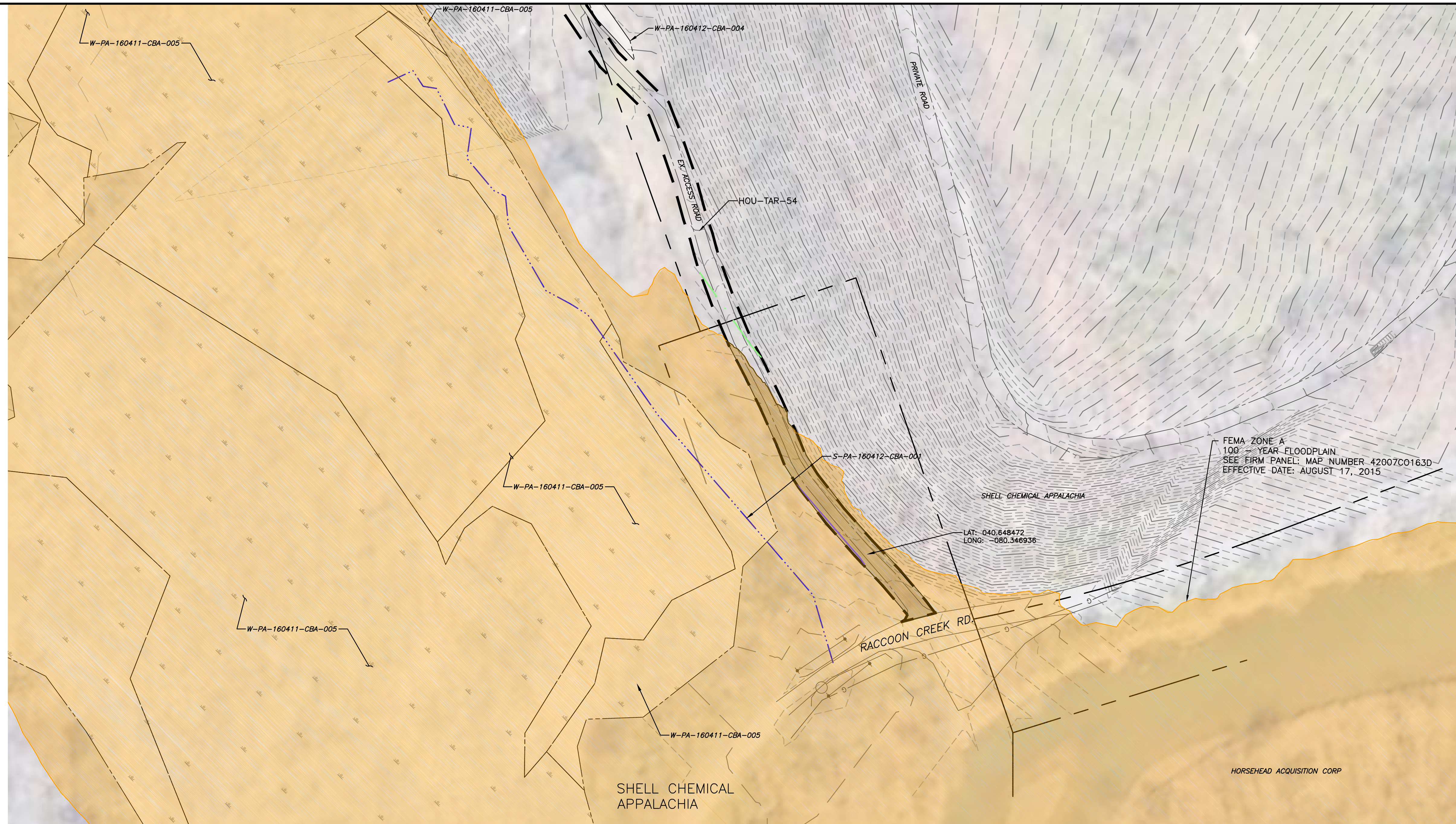
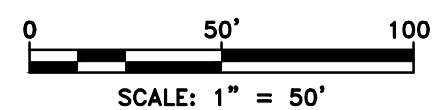
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	EXISTING CONTOURS (INTERMEDIATE)		PROPOSED LIMIT OF DISTURBANCE
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		WATERSHED BOUNDARY
	EXISTING WETLAND		FLOODPLAIN
	SOIL TYPE BOUNDARY AND SOIL BOUNDARY		FLOODPLAIN IMPACT
	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY		
	TREE/BRUSH LINE		

GENERAL NOTES:

REV	NO	DATE	DESCRIPTION OF REVISION	CHK	APP

FALCON ETHANE PIPELINE SYSTEM		FLOODPLAIN MAP 09	
HOUSTON TO JUNCTION		UNT TO HADEN RUN & FISHPOT RUN	
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		SCALE: 1"=50'	DATE: 08/07/18
DRAWN: TLM		SPLC-GOM-AE-SD120088	REVISION: 0





IMPACT AREA (ACRES)	
PERMANENT	TEMPORARY
0	0.117

1. FLOODPLAIN SPECIAL FLOOD HAZARD AREA OBTAINED FROM NATIONAL FLOOD HAZARD LAYER, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)
2. TOPOGRAPHIC SURVEY DATA PROVIDED BY PERCHERON LLC, 2016-2017
3. WETLAND INVESTIGATION WAS COMPLETED BY AECOM FROM FEBRUARY 2016 TO MAY 2017

Legend:

- EXISTING CONTOURS (INDEX)
- EXISTING CONTOURS (INTERMEDIATE)
- EXISTING PROPERTY LINE
- EXISTING STREAM
- EXISTING WETLAND
- Soil Type Boundary AND Soil Boundary
- Land Use Type Boundary AND Land Use Boundary
- TREE/BRUSH LINE
- PROPOSED PIPELINE
- PROPOSED LIMIT OF DISTURBANCE
- ACCESS ROAD CENTERLINE
- WATERSHED BOUNDARY
- FLOODPLAIN
- FLOODPLAIN IMPACT

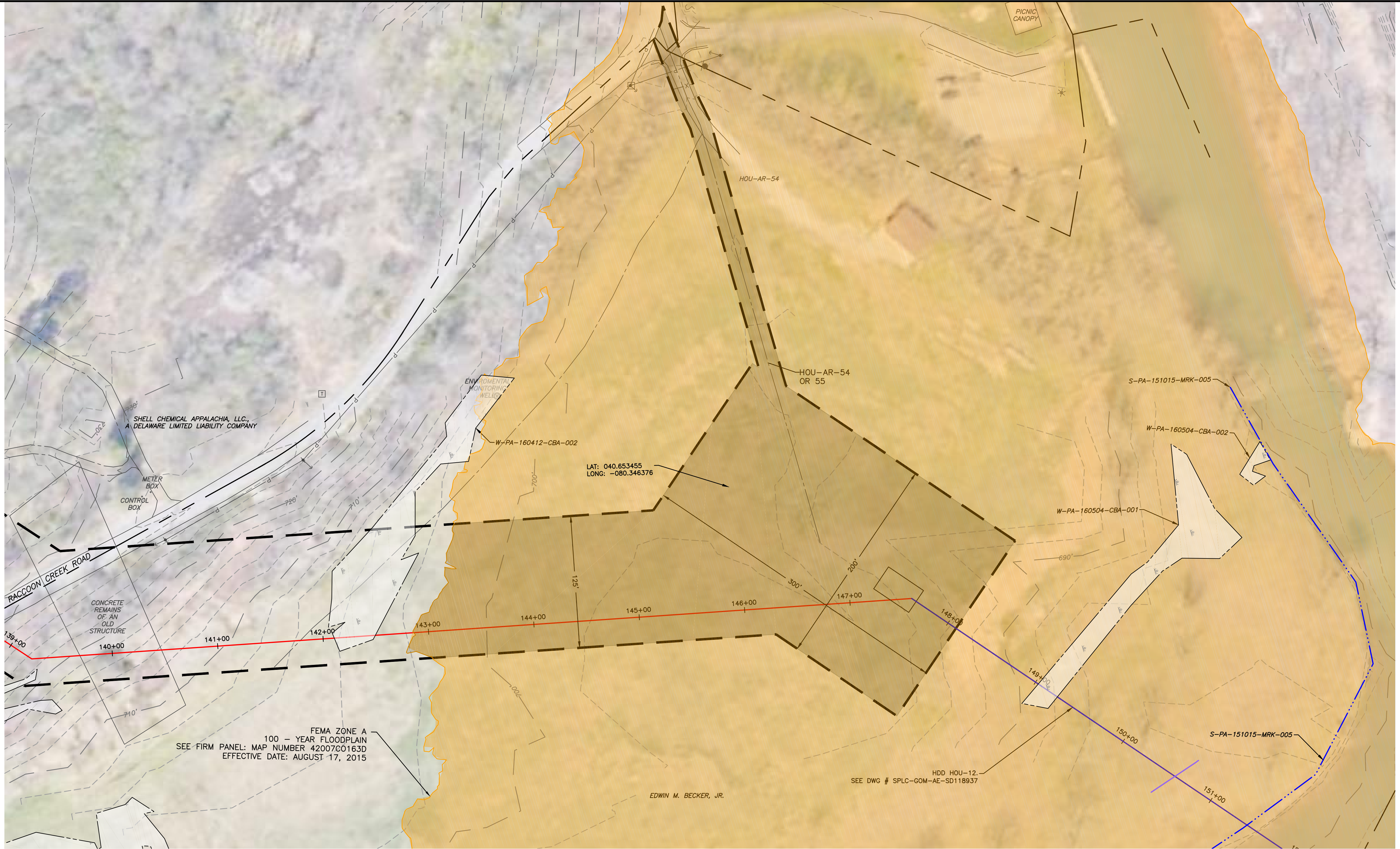
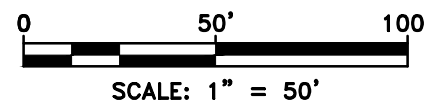
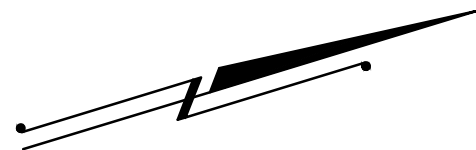
GENERAL NOTES:				
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FALCON ETHANE PIPELINE SYSTEM		FLOODPLAIN MAP 10	
HOUSTON TO JUNCTION		RACCOON CREEK #2	
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		PENNSYLVANIA	
SCALE	1"=50'	DATE	
DRAWN	TLM	08/07/18	SPLC-GOM-AE-SD120089 REVISION 0

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REFERENCES:

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2. TOPOGRAPHIC SURVEY DATA PROVIDED BY PERCHERON LLC, 2016-2017
3. WETLAND INVESTIGATION WAS COMPLETED BY AECOM FROM FEBRUARY 2016 TO MAY 2017

IMPACT AREA (ACRES)	
PERMANENT	TEMPORARY
0	2.240

	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		PROPOSED LIMIT OF DISTURBANCE
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		WATERSHED BOUNDARY
	EXISTING WETLAND		FLOODPLAIN
	SOIL TYPE BOUNDARY AND SOIL BOUNDARY		FLOODPLAIN IMPACT
	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY		
	TREE/BRUSH LINE		

GENERAL NOTES:

REV	NO	DATE	DESCRIPTION OF REVISION	CHK	APP

FALCON ETHANE PIPELINE SYSTEM  
HOUSTON TO JUNCTION

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FLOODPLAIN MAP 11  
RACCOON CREEK #3  
PENNYSYLVANIA

BEAVER COUNTY  
POTTER TOWNSHIP

SCALE: 1"=50'  
DRAWN: TLM

DATE: 08/07/18

SPLC-GOM-AE-SD120090

REVISION: 0



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Name: Natalie L. Shearer  
E-mail: [natalie.shearer@aecom.com](mailto:natalie.shearer@aecom.com)

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Delivered to: Receptionist/Front Desk  
Delivery date: Fri, 8/10/2018 8:44 am  
Service type: FedEx Standard Overnight®  
Packaging type: FedEx® Envelope  
Number of pieces: 1  
Weight: 0.50 lb.  
Special handling/Services: Deliver Weekday  
Standard transit: 8/10/2018 by 3:00 pm  
  
Tracking number: 772940215586

Shipper Information	Recipient Information
Natalie L. Shearer	Floodplain Manager
AECOM	Raccoon Township
681 Andersen Drive, Suite 400	1234 State Route 18
Foster Plaza 6	ALIQUIPPA
Pittsburgh	PA
PA	US
US	15001
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August 9, 2018

RACCOON TOWNSHIP  
FLOODPLAIN MANAGER  
1234 STATE ROUTE 18  
ALIQIPPA, PA 15001

**Municipal Floodplain Management Analysis  
Falcon Ethane Pipeline System  
Beaver County, Pennsylvania**

Dear Sir or Madam:

Shell Pipeline Company LP (SPLC) proposes to build, own, and operate the Falcon Ethane Pipeline System (Project). The Project will consist of an approximately 98-mile common carrier ethane supply pipeline that will be located in southwestern Pennsylvania, Ohio, and West Virginia. The Project will connect three major ethane sources in Houston, Pennsylvania, Scio, Ohio, and Cadiz, Ohio to Shell Chemical's planned Pennsylvania Petrochemical Plant (Plant) located in Monaca, Pennsylvania.

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This letter is specific to those activities occurring within Racoon Township as it relates to Federal Emergency Management Agency (FEMA) Special Flood Hazard Areas (SFHA) which are also consider the 100-year floodplain. The 100-year floodplain is the land area covered by the floodwaters of the 100-year flood.

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<b>FALCON ETHANE PIPELINE SYSTEM FEMA FLOODPLAIN CROSSINGS RACCOON TOWNSHIP, BEAVER COUNTY, PENNSYLVANIA</b>								
Description of Impact	Structure Type	Resource ID	Resource Name	FEMA Special Flood Hazard Area Designation	Impact area (acres)		Latitude	Longitude
					Permanent	Temporary		
Pipeline Crossing	Equipment access and E&S controls	S-PA-161202-MRK-001	UNT to Haden Run	Zone A	0	0.132	40.613101	-80.409887

The SFHA crossings listed above are depicted on the enclosed plans from the Project's PADEP Chapter 105 Permit Application.

Please note that based on AECOM's analysis, construction activities are not expected to create permanent loss of flood storage capacity or hydraulic capacity since the pre-construction surface elevations will be re-established following construction. The temporary and permanent impacts noted above are associated with vegetation management resulting from underground pipe installation only, and do not represent a permanent ground elevation modification or flood storage or hydraulic capacity loss. No permanent aboveground structures or fill are proposed within the FEMA 100-year floodplain and therefore, no increases in 100-year flood elevation are anticipated as a result of temporary impacts for construction activities to install the pipeline. Pipeline construction across waterbodies will be performed in accordance with applicable PADEP Chapter 105 and 102 permit conditions, and SPLC's approved Soil Erosion Sediment Control (SESC) Plan. The proposed crossing will be restored to preconstruction contours and revegetated within disturbed riparian areas.

On behalf of SPLC, AECOM respectfully requests that Raccoon Township review this analysis with respect to your municipality's respective floodplain management codes and ordinances and, if applicable, provide comments to:

Natalie L. Shearer, M.S., QEP  
AECOM  
Foster Plaza 6  
681 Andersen Drive, Suite 400  
Pittsburgh, PA 15220



**Please do not send comments directly to the PADEP**, as SPLC must include them with their permit application. Should you have any questions or concerns regarding this request, please contact Natalie Shearer at (412)-503-4595 or via email at [natalie.shearer@aecom.com](mailto:natalie.shearer@aecom.com).

Yours sincerely,



Natalie L. Shearer, M.S., QEP  
Senior Ecologist  
AECOM  
T: 412-503-4595  
M: 412-694-8971  
E: [natalie.shearer@aecom.com](mailto:natalie.shearer@aecom.com)



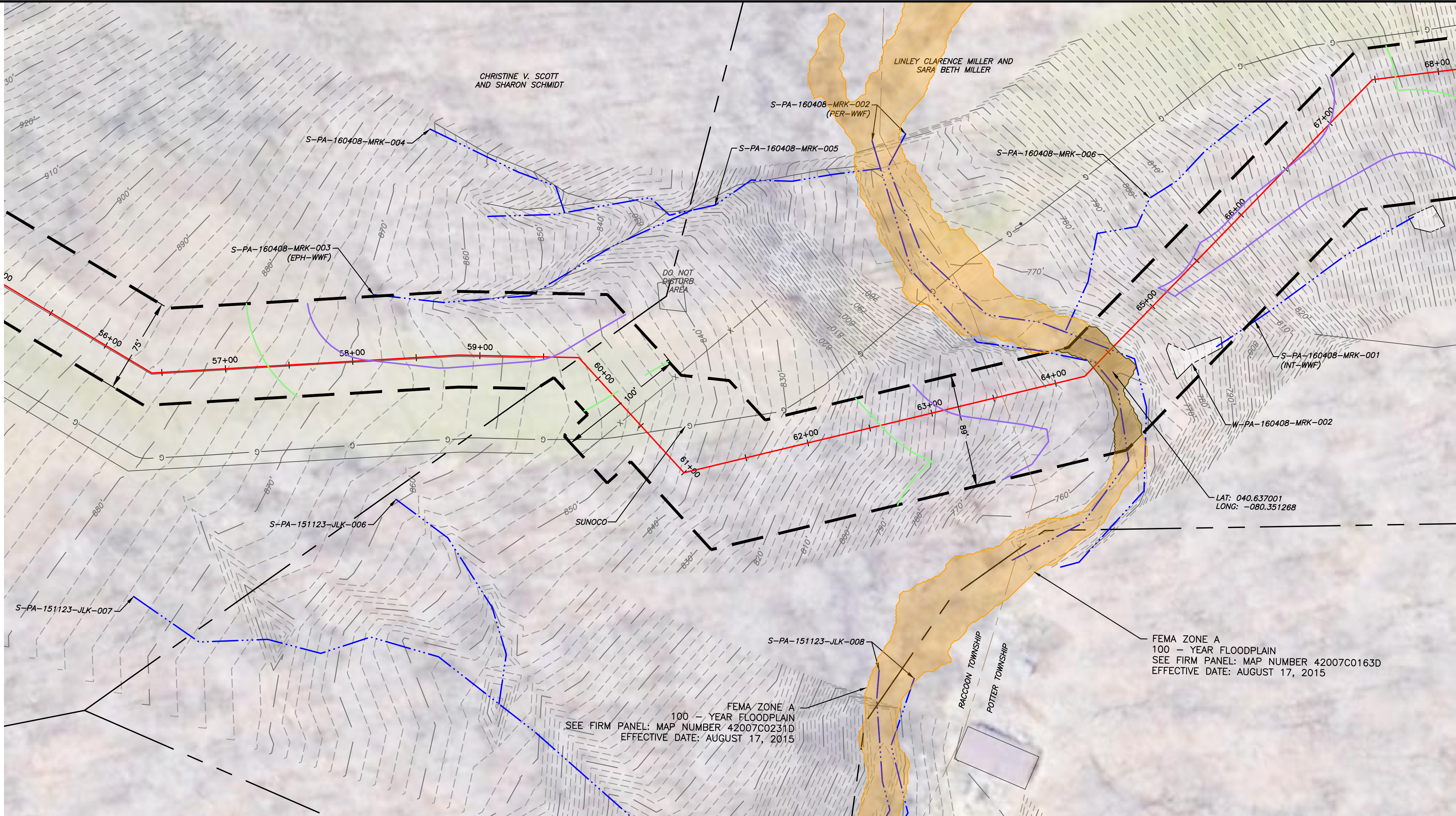
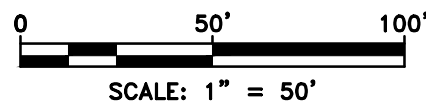
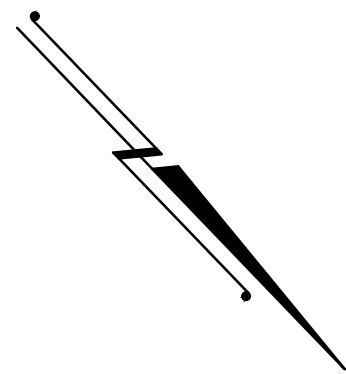
Brandon M. Walker, PE  
Project Manager  
AECOM  
T: 412-503-4554  
M: 412-522-9566  
E: [brandon.walker@aecom.com](mailto:brandon.walker@aecom.com)

**enclosures:** Erosion and Sediment Control Plan Drawing(s)

**cc:** Doug Scott, PE, SPLC Project Manager  
Robert Wooten, SPLC Land and Permitting Manager



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IMPACT AREA (ACRES)	
RACCOON TOWNSHIP	
PERMANENT	TEMPORARY
0	0.132
POTTER TOWNSHIP	
PERMANENT	TEMPORARY
0	0.048

REFERENCES:

- FLOODPLAIN SPECIAL FLOOD HAZARD AREA OBTAINED FROM NATIONAL FLOOD HAZARD LAYER, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)
- TOPOGRAPHIC SURVEY DATA PROVIDED BY PERCHERON LLC, 2016-2017
- WETLAND INVESTIGATION WAS COMPLETED BY AECOM FROM FEBRUARY 2016 TO MAY 2017

	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		PROPOSED LIMIT OF DISTURBANCE
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		WATERSHED BOUNDARY
	EXISTING WETLAND		FLOODPLAIN
	SOIL TYPE BOUNDARY AND SOIL BOUNDARY		FLOODPLAIN IMPACT
	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY		
	TREE/BRUSH LINE		

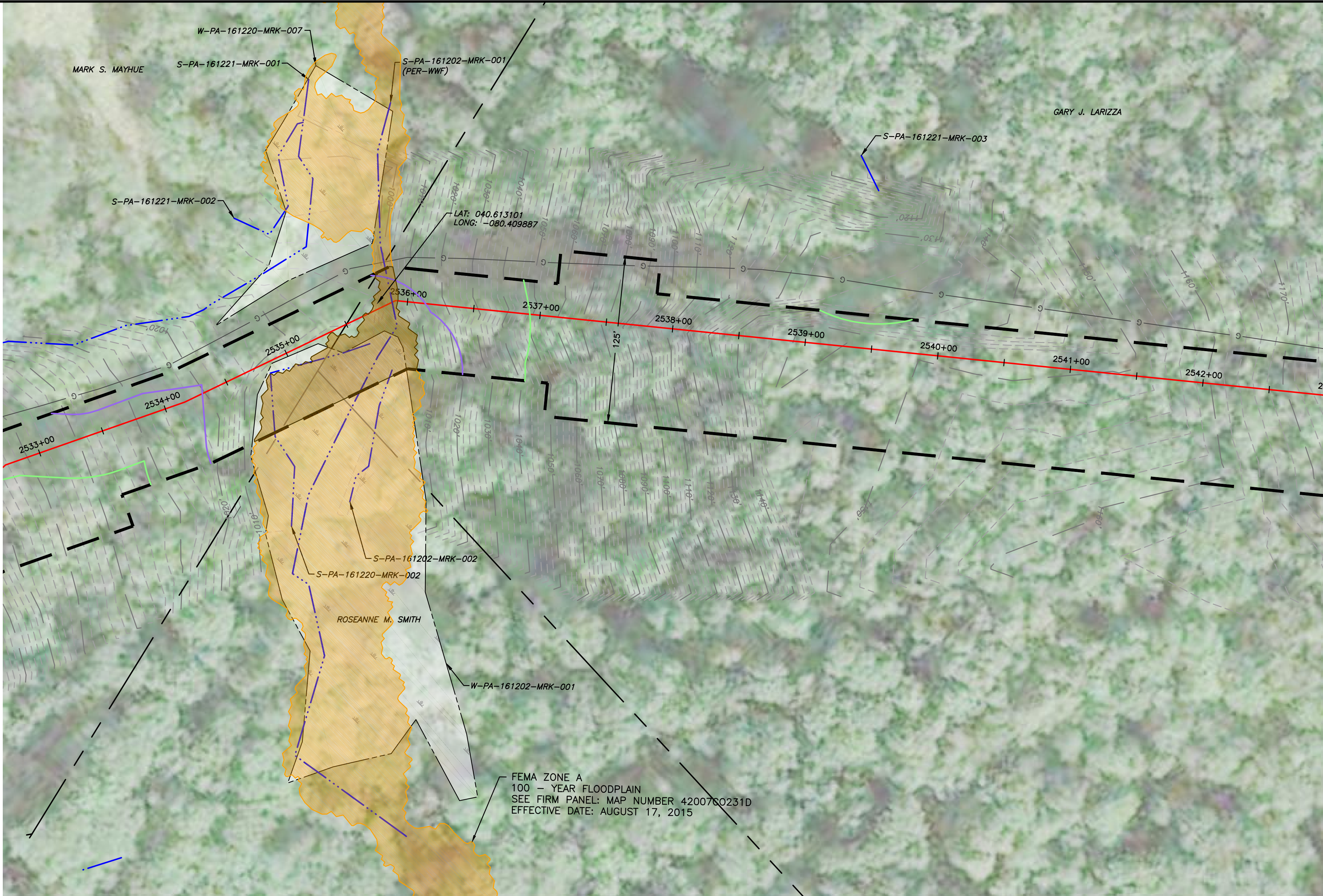
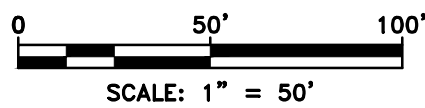
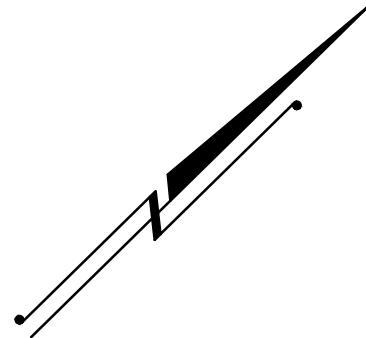
GENERAL NOTES:

REV	NO	DATE	DESCRIPTION OF REVISION	CHK	APP

FALCON ETHANE PIPELINE SYSTEM		FLOODPLAIN MAP 09	
HOUSTON TO JUNCTION		UNT TO HADEN RUN & FISHPOT RUN	
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		SCALE: 1"=50'	DATE: 08/07/18
DRAWN: TLM			
SPLC-GOM-AE-SD120088			REVISION: 0



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IMPACT AREA (ACRES)	
PERMANENT	TEMPORARY
0	0.132

REFERENCES:

1. FLOODPLAIN SPECIAL FLOOD HAZARD AREA OBTAINED FROM NATIONAL FLOOD HAZARD LAYER, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)
2. TOPOGRAPHIC SURVEY DATA PROVIDED BY PERCHERON LLC, 2016-2017
3. WETLAND INVESTIGATION WAS COMPLETED BY AECOM FROM FEBRUARY 2016 TO MAY 2017

	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		PROPOSED LIMIT OF DISTURBANCE
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		WATERSHED BOUNDARY
	EXISTING WETLAND		FLOODPLAIN
	SOIL TYPE BOUNDARY AND SOIL BOUNDARY		FLOODPLAIN IMPACT
	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY		
	TREE/BRUSH LINE		

GENERAL NOTES:

REV	NO	DATE	DESCRIPTION OF REVISION	CHK	APP

FALCON ETHANE PIPELINE SYSTEM		FLOODPLAIN MAP 13	
HOUSTON TO JUNCTION		UNT TO HADEN RUN #2	
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		SCALE: 1"=50'	DATE: 08/07/18
DRAWN: TLM		SPLC-GOM-AE-SD120092	REVISION: 0



**Requirement Q**  
Risk Assessment

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### **Risk Assessment**

Proper Best Management Practices will be followed during construction to reduce or eliminate issues associated with flooding and sedimentation. The floodplain management analysis did not indicate any degree of increased risk to life, property, or the environment. As a result, the engineers determined that a risk assessment was not necessary for this Project.

## **Requirement R**

### Professional Engineer's Seal and Certification

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**PROFESSIONAL ENGINEER'S SEAL AND CERTIFICATION**

I, Andrew R. Gullone, do hereby certify pursuant to the penalties of 18 Pa. C.S.A., Section 4904 to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance with Chapter 105 of the rules and regulations of the Department of Environmental Protection.

The proposed Falcon Ethane Pipeline System within Beaver County, Pennsylvania involves no permanent water obstructions or encroachments. Temporary impacts are to be limited to stream and wetland crossings of duration only long enough to allow pipeline construction. All wetlands and waterways are to be restored to original contours and land cover to the extent feasible.

Engineer Name (typed): Andrew R. Gullone

Registration Number: PE 078979

Signature:

Date:

18-APR-2018

