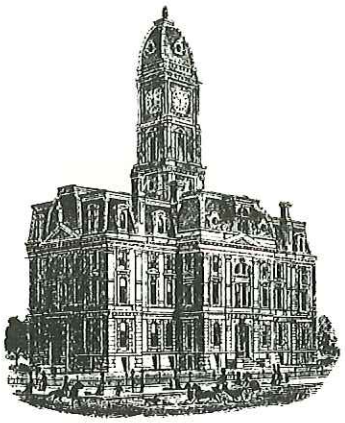

SURVEYOR'S OFFICE

Hamilton County

Kenton C. Ward, CFM
Surveyor of Hamilton County
Phone (317) 776-8495
Fax (317) 776-9628

Suite 188
One Hamilton County Square
Noblesville, Indiana 46060-2230

August 7, 2015

TO: Hamilton County Drainage Board

RE: Mud Creek Drain – 106th & Cumberland S.E. High-Flow Shelf

Attached are plans for the construction of the High-Flow Shelf for the southeast corner of 106th Street and Cumberland Road. This project proposal is a reconstruction of the Mud Creek Drain. This shelf is the first construction phase of the recommendations outlined in the study prepared by Christopher B. Burke, "Study of Alternatives to Reduce Flooding of Cumberland Road and 106th Street from Mud Creek", July 2013.

Of the recommendations set out in the study on page 23, the first was accomplished by the Board in November 2013 by the purchase of the southeast quadrant of the intersection. This project shall be the first construction phase of recommendation 3 which is the phased implementation of Alternate 7.

The cost of this project is $405,000.00. The cost is to be paid out of the maintenance fund for Mud Creek as per the Board's motion of July 13, 2015. This is under the authority of IC 36-9-27-45.5.

Since the project is totally within the property boundaries of tract 13-15-08-00-00-001.000 which is owned by the Hamilton County Board of Commissioners and the funds needed are being used from the Mud Creek maintenance fund, I believe that this proposed reconstruction falls under IC 36-9-27-52.5.

I recommend the Board approve the reconstruction and set the project for bid.

Kenton C. Ward, CFM
Hamilton County Surveyor

KCW/pll

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Opinion of Probable Cost for Mud Creek High-Flow Shelf & Wetland

Channel & Wetland Improvements Overall Project Cost Summary

Line	Description	Estimated Construction Cost	Estimated Professional Services Fee	Estimated Total Cost of Phase
1	**Proposed Channel Improvements along Big Cicero Creek**			
2	Phase 1 Improvements	$ 382,000	$ 23,000	$ 405,000
3	Phase 2 Improvements	$ 228,000	$ 14,000	$ 242,000
4	Phase 3 Improvements	$ 154,000	$ 10,000	$ 164,000
5	Phase 4 Improvements	$ 199,000	$ 12,000	$ 211,000
6				
7	**ESTIMATED TOTAL COST FOR PROJECT**	**$ 963,000**	**$ 59,000**	**$ 1,022,000**

Notes and Assumptions

1. All costs are estimates based on the engineer's knowledge of common construction methods and materials. Christopher B. Burke Engineering does not guarantee that the actual bid price will not vary from the costs used with this estimate.
2. All costs are in 2015 dollars.
3. Estimated costs have been rounded.
4. This estimate does not include unforeseen costs increases that may result from shortages in fuel and materials as a result of a natural or man-made disaster.
5. Earthwork costs have been estimated with the assumption that all spoil material could be stockpiled on a site with a maximum 20 minute one-way haul.
6. This estimate does not include land acquisition costs necessary to construct the proposed alternative.
7. This estimate does not include the cost of the observation platorm shown on the Drawings.

6/29/2015

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Opinion of Probable Cost for Mud Creek High-Flow Shelf & Wetland

Channel & Wetland Improvements - Phase I

Line	Description	Estimated Quantities	Units	Unit Price	Estimated Cost (Rounded)
1	**Demolition**				
2	Tree Clearing & Grubbing	1	LS	$ 20,000	$ 20,000
3			Estimated Demolition Cost		$ 20,000
4	**Channel Construction**				
5	Strip & Stockpile Topsoil	1,300	CY	$ 10	$ 13,000
6	Channel & Wetland Excavation	3,700	CY	$ 10	$ 37,000
7	Place & Compact Fill along Cumberland Rd	500	CY	$ 15	$ 8,000
8	Haul Spoils	3,700	CY	$ 5	$ 19,000
9	Finish Grading	14,100	SY	$ 5	$ 71,000
10	Topsoil Placement	2,400	CY	$ 5	$ 12,000
11	Obtain Topsoil Material	1,100	CY	$ 20	$ 22,000
12	Seeding	7,000	SY	$ 1	$ 7,000
13	Native Seeding	7,100	SY	$ 5	$ 36,000
14	Mulching	4,800	SY	$ 1	$ 5,000
15	Erosion Control Blankets	5,100	SY	$ 3	$ 15,000
16	Turf Reinforcement Mats	4,200	SY	$ 8	$ 34,000
17	Riprap Bank Protection	230	TN	$ 35	$ 8,000
18		Estimated Channel Construction Cost			$ 287,000
19	**Miscellaneous**				
20	Erosion and Sediment Control (2%)	1	LS	$ 7,000	$ 7,000
21	Construction Surveying (1%)	1	LS	$ 4,000	$ 4,000
22	Maintenance of Traffic (1%)	1	LS	$ 4,000	$ 4,000
23	Construction Mobilization/Demobilization (5%)	1	LS	$ 20,000	$ 20,000
24	Project Administration & Unforeseen Additional Costs (10%)	1	LS	$ 40,000	$ 40,000
25		Estimated Miscellaneous Cost			$ 75,000
26					
27		**Estimated Total Construction Cost**			**$ 382,000**
28					
29	**Professional Services**				
30	Construction Observation (6%)	1	LS	$ 23,000	$ 23,000
31		Estimated Professional Services Cost			$ 23,000
32					
33					
34		**Estimated Total Cost for Project**			**$ 405,000**

Notes and Assumptions

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3. Estimated costs have been rounded.
4. This estimate does not include unforeseen costs increases that may result from shortages in fuel and materials as a result of a natural or man-made disaster.
5. Earthwork costs have been estimated with the assumption that all spoil material could be stockpiled on a site with a maximum 20 minute one-way haul.
6. This estimate does not include land acquisition costs necessary to construct the proposed alternative.
7. This estimate does not include the cost of the observation platorm shown on the Drawings.

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Opinion of Probable Cost for Mud Creek High-Flow Shelf & Wetland

Channel & Wetland Improvements - Phase II

Line	Description	Estimated Quantities	Units	Unit Price	Estimated Cost (Rounded)
1	**Wetland Construction**				
2	Strip & Stockpile Topsoil	900	CY	$ 10	$ 9,000
3	Channel & Wetland Excavation	1,800	CY	$ 10	$ 18,000
4	Place & Compact Trail 'Berms'	800	CY	$ 15	$ 12,000
5	Haul Spoils	1,800	CY	$ 5	$ 9,000
6	Finish Grading	9,800	SY	$ 5	$ 49,000
7	Topsoil Placement	1,400	CY	$ 5	$ 7,000
8	Obtain Topsoil Material	500	CY	$ 20	$ 10,000
9	Seeding	3,900	SY	$ 1	$ 4,000
10	Native Seeding	5,900	SY	$ 5	$ 30,000
11	Mulching	8,900	SY	$ 1	$ 9,000
12	Erosion Control Blankets	900	SY	$ 3	$ 3,000
13		Estimated Wetland Construction Cost			$ 160,000
14	**Wetland / Trail Improvements**				
15	Trail Subbase	250	TN	$ 25	$ 6,000
16	Trail Asphalt	180	TN	$ 75	$ 14,000
17	Footbridges	3	EA	$ 1,000	$ 3,000
18	Wetland Plantings	470	EA	$ 10	$ 5,000
19	Site Signage	1	LS	$ 2,000	$ 2,000
20		Estimated Wetland / Trail Improvements Cost			$ 30,000
21	**Miscellaneous**				
22	Erosion and Sediment Control (2%)	1	LS	$ 4,000	$ 4,000
23	Construction Surveying (1%)	1	LS	$ 2,000	$ 2,000
24	Maintenance of Traffic (1%)	1	LS	$ 2,000	$ 2,000
25	Construction Mobilization/Demobilization (5%)	1	LS	$ 10,000	$ 10,000
26	Project Administration & Unforeseen Additional Costs (10%)	1	LS	$ 20,000	$ 20,000
27		Estimated Miscellaneous Cost			$ 38,000
28					
29		**Estimated Total Construction Cost**			**$ 228,000**
30					
31	**Professional Services**				
32	Construction Observation (6%)	1	LS	$ 14,000	$ 14,000
33		Estimated Professional Services Cost			$ 14,000
34					
35					
36		**Estimated Total Cost for Project**			**$ 242,000**

Notes and Assumptions

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3. Estimated costs have been rounded.
4. This estimate does not include unforeseen costs increases that may result from shortages in fuel and materials as a result of a natural or man-made disaster.
5. Earthwork costs have been estimated with the assumption that all spoil material could be stockpiled on a site with a maximum 20 minute one-way haul.
6. This estimate does not include land acquisition costs necessary to construct the proposed alternative.
7. This estimate does not include the cost of the observation platorm shown on the Drawings.

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Opinion of Probable Cost for Mud Creek High-Flow Shelf & Wetland

Channel & Wetland Improvements - Phase III

Line	Description	Estimated Quantities	Units	Unit Price	Estimated Cost (Rounded)
1	**Wetland Construction**				
2	Strip & Stockpile Topsoil	600	CY	$ 10	$ 6,000
3	Channel & Wetland Excavation	1,400	CY	$ 10	$ 14,000
4	Place & Compact Trail 'Berms'	200	CY	$ 15	$ 3,000
5	Haul Spoils	1,400	CY	$ 5	$ 7,000
6	Finish Grading	6,300	SY	$ 5	$ 32,000
7	Topsoil Placement	900	CY	$ 5	$ 5,000
8	Obtain Topsoil Material	300	CY	$ 20	$ 6,000
9	Seeding	2,000	SY	$ 1	$ 2,000
10	Native Seeding	4,300	SY	$ 5	$ 22,000
11	Mulching	5,900	SY	$ 1	$ 6,000
12	Erosion Control Blankets	400	SY	$ 3	$ 1,000
13		Estimated Wetland Construction Cost			$ 104,000
14	**Wetland / Trail Improvements**				
15	Trail Subbase	90	TN	$ 25	$ 2,000
16	Trail Asphalt	60	TN	$ 75	$ 5,000
17	Wetland Plantings	360	EA	$ 10	$ 4,000
18	Site Signage	1	LS	$ 2,000	$ 2,000
19		Estimated Wetland / Trail Improvements Cost			$ 13,000
20	**Miscellaneous**				
21	Erosion and Sediment Control (2%)	1	LS	$ 3,000	$ 3,000
22	Construction Surveying (1%)	1	LS	$ 2,000	$ 2,000
23	Maintenance of Traffic (1%)	1	LS	$ 2,000	$ 2,000
24	Construction Mobilization/Demobilization (5%)	1	LS	$ 10,000	$ 10,000
25	Project Administration & Unforeseen Additional Costs (10%)	1	LS	$ 20,000	$ 20,000
26		Estimated Miscellaneous Cost			$ 37,000
27					
28		**Estimated Total Construction Cost**			**$ 154,000**
29					
30	**Professional Services**				
31	Construction Observation (6%)	1	LS	$ 10,000	$ 10,000
32		Estimated Professional Services Cost			$ 10,000
33					
34					
35		**Estimated Total Cost for Project**			**$ 164,000**

Notes and Assumptions

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Opinion of Probable Cost for Mud Creek High-Flow Shelf & Wetland

Channel & Wetland Improvements - Phase IV

Line	Description	Estimated Quantities	Units	Unit Price	Estimated Cost (Rounded)
1	**Wetland Construction**				
2	Strip & Stockpile Topsoil	900	CY	$ 10	$ 9,000
3	Channel & Wetland Excavation	1,100	CY	$ 10	$ 11,000
4	Place & Compact Trail 'Berms'	500	CY	$ 15	$ 8,000
5	Haul Spoils	1,100	CY	$ 5	$ 6,000
6	Finish Grading	9,400	SY	$ 5	$ 47,000
7	Topsoil Placement	1,300	CY	$ 5	$ 7,000
8	Obtain Topsoil Material	400	CY	$ 20	$ 8,000
9	Seeding	4,500	SY	$ 1	$ 5,000
10	Native Seeding	4,900	SY	$ 5	$ 25,000
11	Mulching	7,700	SY	$ 1	$ 8,000
12	Erosion Control Blankets	1,700	SY	$ 3	$ 5,000
13		Estimated Wetland Construction Cost			$ 139,000
14	**Wetland / Trail Improvements**				
15	Trail / Parking Lot Subbase	210	TN	$ 25	$ 5,000
16	Trail / Parking Lot Asphalt	150	TN	$ 75	$ 11,000
17	Wetland Plantings	370	EA	$ 10	$ 4,000
18	Site Signage	1	LS	$ 2,000	$ 2,000
19		Estimated Wetland / Trail Improvements Cost			$ 22,000
20	**Miscellaneous**				
21	Erosion and Sediment Control (2%)	1	LS	$ 4,000	$ 4,000
22	Construction Surveying (1%)	1	LS	$ 2,000	$ 2,000
23	Maintenance of Traffic (1%)	1	LS	$ 2,000	$ 2,000
24	Construction Mobilization/Demobilization (5%)	1	LS	$ 10,000	$ 10,000
25	Project Administration & Unforeseen Additional Costs (10%)	1	LS	$ 20,000	$ 20,000
26		Estimated Miscellaneous Cost			$ 38,000
27					
28		**Estimated Total Construction Cost**			**$ 199,000**
29					
30	**Professional Services**				
31	Construction Observation (6%)	1	LS	$ 12,000	$ 12,000
32		Estimated Professional Services Cost			$ 12,000
33					
34					
35		**Estimated Total Cost for Project**			**$ 211,000**

Notes and Assumptions

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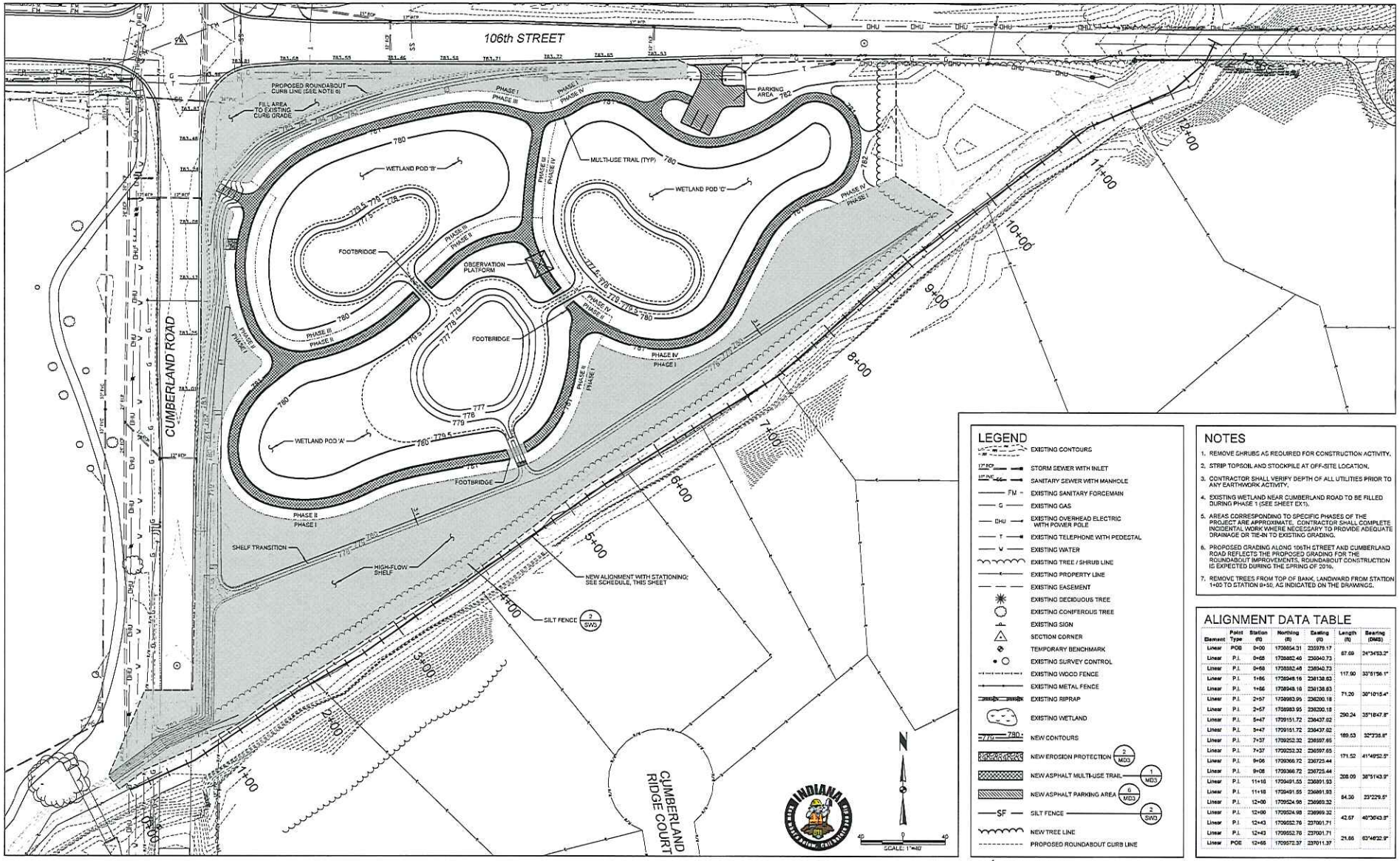

LEGEND

- EXISTING CONTOURS
- 12" RCP — STORM SEWER WITH INLET
- 18" DIP — SANITARY SEWER WITH MANHOLE
- FM — EXISTING SANITARY FORCEMAIN
- G — EXISTING GAS
- OHU — EXISTING OVERHEAD ELECTRIC WITH POWER POLE
- T — EXISTING TELEPHONE WITH PEDESTAL
- W — EXISTING WATER
- EXISTING TREE / SHRUB LINE
- EXISTING PROPERTY LINE
- EXISTING EASEMENT
- EXISTING DECIDUOUS TREE
- EXISTING CONIFEROUS TREE
- EXISTING SIGN
- SECTION CORNER
- TEMPORARY BENCHMARK
- EXISTING SURVEY CONTROL
- EXISTING WOOD FENCE
- EXISTING METAL FENCE
- EXISTING RIPRAP
- EXISTING WETLAND
- 770 — 780 — NEW CONTOURS
- NEW EROSION PROTECTION (2 / MD3)
- NEW ASPHALT MULTI-USE TRAIL (1 / MD3)
- NEW ASPHALT PARKING AREA (6 / MD3)
- SF — SILT FENCE (2 / SWD)
- NEW TREE LINE
- PROPOSED ROUNDABOUT CURB LINE

NOTES

1. REMOVE SHRUBS AS REQUIRED FOR CONSTRUCTION ACTIVITY.
2. STRIP TOPSOIL AND STOCKPILE AT OFF-SITE LOCATION.
3. CONTRACTOR SHALL VERIFY DEPTH OF ALL UTILITIES PRIOR TO ANY EARTHWORK ACTIVITY.
4. EXISTING WETLAND NEAR CUMBERLAND ROAD TO BE FILLED DURING PHASE 1 (SEE SHEET EX1).
5. AREAS CORRESPONDING TO SPECIFIC PHASES OF THE PROJECT ARE APPROXIMATE. CONTRACTOR SHALL COMPLETE INCIDENTAL WORK WHERE NECESSARY TO PROVIDE ADEQUATE DRAINAGE OR TIE-IN TO EXISTING GRADING.
6. PROPOSED GRADING ALONG 106TH STREET AND CUMBERLAND ROAD REFLECTS THE PROPOSED GRADING FOR THE ROUNDABOUT IMPROVEMENTS. ROUNDABOUT CONSTRUCTION IS EXPECTED DURING THE SPRING OF 2016.
7. REMOVE TREES FROM TOP OF BANK, LANDWARD FROM STATION 1+00 TO STATION 8+50, AS INDICATED ON THE DRAWINGS.

ALIGNMENT DATA TABLE

Element	Point Type	Station (ft)	Northing (ft)	Easting (ft)	Length (ft)	Bearing (DMS)
Linear	POB	0+00	1709854.31	235979.17	67.69	24°34'53.2"
Linear	P.I.	0+68	1709882.40	236040.73		
Linear	P.I.	0+68	1709882.48	236040.73	117.90	33°51'36.1"
Linear	P.I.	1+86	1709948.18	236138.63		
Linear	P.I.	1+86	1709948.18	236138.63	71.20	30°10'15.4"
Linear	P.I.	2+57	1709983.95	236200.18		
Linear	P.I.	2+57	1709983.95	236200.18	290.24	35°18'47.8"
Linear	P.I.	5+47	1709151.72	236437.62		
Linear	P.I.	5+47	1709151.72	236437.62	169.53	32°3'36.8"
Linear	P.I.	7+37	1709252.32	236597.65		
Linear	P.I.	7+37	1709252.32	236597.65	171.52	41°49'52.5"
Linear	P.I.	9+06	1709366.72	236725.44		
Linear	P.I.	9+06	1709366.72	236725.44	208.09	38°51'43.9"
Linear	P.I.	11+18	1709491.55	236891.83		
Linear	P.I.	11+18	1709491.55	236891.83	84.30	23°22'9.5"
Linear	P.I.	12+00	1709524.98	236969.32		
Linear	P.I.	12+00	1709524.98	236969.32	42.57	40°35'43.8"
Linear	P.I.	12+43	1709552.76	237001.71		
Linear	P.I.	12+43	1709552.76	237001.71	21.66	63°46'22.9"
Linear	POE	12+65	1709572.37	237011.37		

CHRISTOPHER B. BURKE ENGINEERING, LLC
PNC Center, Suite 1368 South
115 West Washington Street
Indianapolis, Indiana 46204
(317) 266-8000 FAX: (317) 632-3306

PROJECT:
MUD CREEK AT 106th STREET
HIGH-FLOW SHELF AND WETLAND
HAMILTON COUNTY, INDIANA

NO.	DATE	NATURE OF REVISION	CHKD.
1	6/24/2015	ISSUED FOR BID	BJM

FILE NAME: R:\2014\14-0004.00\00\Work Hub\Dwg\SDM Plans\04-Issued for Bid\Project Exhibit.dgn

DSGN.	BJM
DWN.	DJW
CHKD.	BWM
SCALE:	AS NOTED
DATE:	6/29/2015

BRIAN W. MEUWISSEN REGISTERED No. PE11300321 STATE OF INDIANA PROFESSIONAL ENGINEER

TITLE:
SITE PLAN LAYOUT-
ALIGNMENT DATA

PROJECT NO. 15.R.140004.00000
SHEET 4 OF 15
DRAWING NO. SP1

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