

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 20, 2012

To: Hamilton County Drainage Board

Re: Miller Carson Drain Reconstruction - State Rd 19 Crossing @ Tishner Property

On May 14, 2012 the Hamilton County Drainage Board held a public meeting on the Miller-Carson Regulated Drain Reconstruction located within the Town of Atlanta (See Hamilton County Drainage Board Minutes Book 14, Pages 152 to 160).

SURVEYOR

The Hamilton County Surveyor's Office received one written objection to the project from Larry and Laura Tishner, 8301 E. 286th Street, Atlanta, Indiana, 46031, Parcel No. 03-02-12-00-00-004.001 dated May 7, 2012. Mr. Tishner appeared before the Hamilton County Drainage Board to object to the project. He stated that the increased pipe size (27" to 60" RCP) that outlets upstream of his home into the Miller-Carson open drain will probably flood his house. Mr. Tishner asked that we look closely at this project because the water backs up now waiting to go thru an existing culvert under S.R. 19. Mr. Tishner said he wasn't against the project but felt the S.R.19 box culvert should be bigger to allow more water to pass under S.R. 19.

The Hamilton County Drainage Board approved the project asking the County Surveyor to proceed with a flood analysis on both the existing condition and the proposed upsizing to the Miller-Carson Regulated Drain.

On June 11th, 2012, the Hamilton County Drainage Board approved a contract with Christopher Burke Engineering to prepare a flood study on the Tishner property (see Hamilton County Drainage Board Minutes Book 14, page 179). The County Surveyor's staff performed the field survey for Burke.

Mr. Siavash Beik presented his report to the Hamilton County Drainage Board on July 9, 2012. Mr. Tishner, Mr. Abe Evans and Walter Evans and Ron Buel from the Indiana Department of Transportation (INDOT) were present (see Hamilton County Drainage Board Minutes Book 14, pages 179).

Hydraulics

Existing Q = 24 cfs in a 100 year storm event. Proposed Q-60" flowing full = 119 cfs in a 100 year storm event.

The impact of the upsizing will raise the water elevation about three (3) feet. See attached Drainage analysis dated July 6, 2012 by Christopher B. Burke Engineering. Burke recommends two (2) options to increase the culvert at S.R. 19, downstream of the Tishner property.

Option 1 - Install an additional 66 inch diameter RCP next to the existing box culvert. The engineers estimate is given below and the total cost is \$234,500.00.

Preliminary Opinion of Probable Cost

Install Additional 66-Inch Diameter RCP Culvert

Line	Description	Estimated Quantities	Units	Unit Price	Esimated Cost (Rounded
1 Profession	al Services				
2 Engineerin	g Design and Project Manage	ment 1	LS	\$ 25,000	\$ 25,000
3 Topo Surve		1	LS	\$ 4,000	\$ 4,000
	cal Engineering Investigation	1 .	LS	\$ 4,000	\$ 4,000
5	-	Estimated Pr	ofessiona	l Services Costs	\$ 33,000
6 66-Inch C	ulvert Installation				
7 Selective D	Demolition and Clearing	1	LS	\$ 5,000	\$ 5,000
8 Dewatering		1	LS	\$ 3,000	\$ 3,000
9 Prepare Jac		1	LS	\$ 10,000	\$ 10,000
	ch Diameter Class V Concrete	e Pipe 70	LF	\$ 1,000	\$ 70,000
	d Concrete Headwalls	2	EA	\$ 15,000	\$ 30,000
12 Channel E	xcavation and Grading for cu	lvert 1	LS	\$ 5,000	\$ 5,000
13 Site Resto		1	LS	\$ 5,000	\$ 5,000
	on Surveying	1	LS	\$ 2,000	\$ 2,000
15 Erosion ar	nd Sediment Control	1	LS	\$ 12,000	\$ 12,000
16 Maintenar	ice of Traffic	1	LS	\$ 3,000	\$ 3,000
	on/Demobilization & Admini	stration 1	CY	\$ 10,000	\$ <u>10,000</u>
18	E	Estimated 66-In	nch Culve	ert Installation Cost	\$155,000
19 Construct	tion Contingencies				
	on Contingencies (30%)	1	LS	\$ 46,500	\$ 46,500
21		Estimated Cor	struction	Contingencies	\$ 46,500
22					
23		Estimated Co	nstructio	on Cost	\$203,500
24					
25		Esti	mated To	otal Cost	\$234,500

Notes and Assumptions

- Gen. This estimate assumes that a steel casting pipe is NOT required.
- Gen. Permitting from IDNR and IDEM is not anticipated due to the watershed size and area of disturbance. An site investigation is recommended to determine potential permitting considerations.
- Gen. All costs are estimates based on the engineer's knowledge of common construction methods and Materials. Christopher B. Burke Engineering, LLC does not guarantee that the actual bid price will not vary form the costs used with this estimate.
- Gen. All costs are in 2012 dollars.
- Gen. Estimated costs have been rounded.
- Gen. This estimate does not include unforeseen cost increase that may result from shortages in fuel and Materials as a result of natural or man- made disasters.

Gen. This estimate does not include land acquisition, easements, or utility relocation/coordination.

Option 2 – Install an additional 5 x 5 reinforced concrete box next to the existing box culvert.

The Engineers estimate is given below and the total cost is \$233,000.00.

Preliminary Opinion of Probable Cost

Install Additional 5-ft by 5 ft RCP Box Culvert

Line	2	Estimated Quantities	Units	Unit Price	Esimated Cost (Rounded
1 Pro	fessional Services				
2 Eng	ineering Design and Project Manageme	nt 1	LS	\$ 30,000	\$ 30,000
_	oo Survey	1	LS	\$ 5,000	\$ 5,000
	otechnical Engineering Investigation	1	LS	\$ 4,000	\$ 4,000
5		stimated Pro	ofession	al Services Costs	\$ 39,000
	x 5-ft Culvert Installation				
7 Cle	aring & Grubbing	1	LS	\$ 5,000	\$ 5,000
	nove and Reinstall Guardrail	45	LF	\$ 30	\$ 1,400
	shalt Pavement Removal	100	SY	\$ 12	\$ 1,200
	move and Reinstall Riprap	1	LS	\$ 3,000	\$ 3,000
	cavation for Culvert installation	500	CY	\$ 10	\$ 5,000
	watering	1	LS	\$ 5,000	\$ 5,000
	x 5ft Reinforced Concrete Box Culvert	70	LF	\$ 400	\$ 28,000
	inforced Concrete Headwalls	2	EA	\$ 15,000	\$ 30,000
	ading for New Culvert	1	LS	\$ 3,000	\$ 3,000
	ne Backfill and Bedding material – Place & Com	pact 250	CY	\$ 25	\$ 6,300
	gular Backfill – Place & Compact	150	CY	\$ 10	\$ 1,500
The second secon	ul Spoil Material from Site	350	CY	\$ 5	\$ 1,800
	phalt Pavement	1	LS	\$ 4,000	\$ 4,000
	e Restoration	1	LS	\$ 5,000	\$ 5,000
	nstruction Surveying	1	LS	\$ 4,000	\$ 4,000
22 Erc	osion and Sediment Control	1	LS	\$15,000	\$ 15,000
	aintenance of Traffic	1	LS	\$20,000	\$ 20,000
	bilization/Demobilzation & Administra	tion 1	CY	\$10,000	\$ 10,000
25	Estim	nated 5-ft x	5-ft Cul	vert Installation Cost	\$149,200
	nstruction Contingencies				
	onstruction Contingencies (30%)	1	LS	\$44,800	\$ 44,800
	onstruction contingencies (c a , a)	Estimate	d Const	ruction Contingencies	\$ 44,800
]	Estimat	ed Construction Cost	\$194,000
				ed Total Cost	\$ 233,000
		-			
28 29 30 31 32]	Estimat		\$194,000

Notes and Assumptions

Gen. This estimate assumes that a steel casting pipe is NOT required.

Gen. Permitting from IDNR and IDEM is not anticipated due to the watershed size and area of disturbance. An site investigation is recommended to determine potential permitting considerations.

Gen. All costs are estimates based on the engineer's knowledge of common construction methods and Materials. Christopher B. Burke Engineering, LLC does not guarantee that the actual bid price will not vary form the costs used with this estimate.

Gen. All costs are in 2012 dollars.

Gen. Estimated costs have been rounded.

Gen. This estimate does not include unforeseen cost increase that may result from shortages in fuel and Materials as a result of natural or man-made disasters.

Gen. This estimate does not include land acquisition, easements, or utility relocation/coordination.

Mr. Evans spoke on behalf of INDOT. He asked to have their hydrologist Crystal Weaver look at the project from a hydraulics standpoint. Mr. Evans said INDOT will have to determine if this project is funded out of their maintenance budget or out of their capitol improvements budget.

On August 13, 2012 Mr. Tishner and Mr. Watkins addressed the Drainage Board. They had concerns that the new 60 inch RCP was being installed and INDOT had not addressed their flooding concerns and the existing crossing at S.R. 19 was undersized to take the flow. At that time the Board set the hearing date for a new structure under S.R.19 for September 26, 2012.

The Hamilton County Surveyor's Office recommends going forward with the additional 66" steel directional bore for a total cost of \$234,500.00. This work will begin at the west right of way line of S.R. 19, Sta 48+00 of the Miller- Carson Drain, and extend across the S.R.19 right of way to the east line of said right of way. All of the work will be performed within INDOT right of way and existing regulated drainage easement for the Miller- Carson Drain.

In addition to the new structure under S.R. 19 will be bank armoring and ditch clean out of obstructions for a distance of six hundred seven (607) feet downstream from the S.R. 19 right of way. This work will be done on parcel 03-02-12-00-00-005.00 owned by Waltz Ena Farms LLC. This is the same length of regulated open ditch cleared and cleaned with the 1981 reconstruction of the Miller-Carson Drain.

Although mapped as regulated drain at the time, during the 2005 mapping project the map was changed to show the drain stopping at the west right of way of S.R. 19. I believe that even if the map was incorrect prior 1981, the fact the Board at the time included this portion as part of the reconstruction in 1981 that this section is indeed part of the regulated drain.

The cost for the additional 66" steel directional bore under S.R. 19 will be a special assessment of \$234,500.00 to the Indiana Department of Transportation per IC 36-9-27-71.

No additional easements are required for the project. I believe no damages will result to the landowners. Damages are set at zero (0).

A hearing for this item has been set by the Board for September 26, 2012.

Sincerely,

Christie Kallio, P.E.

Chioti Killio

Hamilton County Surveyor's Office

CK/pll

Gasb 34 Asset Price & Drain Length Log

Drain-Improvement: MILLER-CARSON & WHISLER-BRENNER DRAIN: TISHNER EXTENSION

				lf App	licable
Size:	Length	Length (DB Query)	Length Reconcile	Price:	Cost:
N/A	638	638	0	\$19.55 LF	\$12,472.90
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STATE OF INDIANA) BEFORE THE HAMILTON COUNTY DRAINAGE BOARD NOBLESVILLE, INDIANA

IN THE MATTER OF THE RECONSTRUCTION OF THE

Miller-Carson Drain Reconstruction - S.R. 19 Crossing @ Tishner Property

FINDINGS AND ORDER FOR RECONSTRUCTION

The matter of the proposed Reconstruction of the *Miller-Carson Drain Reconstruction - S.R. 19 Crossing @ Tishner Property* came before the Hamilton County Drainage Board for hearing *on September 26, 2012,* on the Reconstruction Report consisting of the report and the Schedule of Damages and Assessments. The Board also received and considered the written objection of an owner of certain lands affected by the proposed Reconstruction, said owner being:

Evidence was heard on the Reconstruction Report and on the aforementioned objections.

The Board, having considered the evidence and objections, and, upon motion duly made, seconded and unanimously carried, did find and determine that the costs, damages and expenses of the proposed Reconstruction will be less than the benefits accruing to the owners of all land benefited by the Reconstruction.

The Board having considered the evidence and objections, upon motion duly made, seconded and unanimously carried, did adopt the Schedule of Assessments as proposed, subject to amendment after inspection of the subject drain as it relates to the lands of any owners which may have been erroneously included or omitted from the Schedule of Assessments.

The Board further finds that it has jurisdiction of these proceedings and that all required notices have been duly given or published as required by law.

Wherefore, it is ORDERED, that the proposed Reconstruction of the *Miller-Carson Drain Reconstruction - S.R. 19 Crossing @ Tishner Property* be and is hereby declared established.

Thereafter, the Board made inspection for the purpose of determining whether or not the lands of any owners had been erroneously included or excluded from the Schedule of Assessments. The Board finds on the basis of the reports and findings at this hearing as follows:

PRESIDENT

Member

Member

ATTEST: Butto Mashaudh Executive Secretary



INDIANA DEPARTMENT OF TRANSPORTATION

Driving Indiana's Economic Growth

Greenfield District 32 South Broadway Greenfield, IN 46140 PHONE: (317) 462-7751 FAX: (317) 467-3955

Mitchell E. Daniels, Jr., Governor Michael B. Cline, Commissioner

Hamilton County Drainage Board 1 Hamilton County Sq. Suite 188 Noblesville, IN 46060

September 20, 2012

SECRETARY SECRETARY

To Whom it May Concern:

The Indiana Department of Transportation(INDOT) is objecting to their assessment of \$233,000 of the Miller-Carson Drain Reconstruction-State Road 19 crossing at Tishner property.

The basis of objection is that the current INDOT 5'X6'(vertical X span) culvert is adequate in most stormwater events. At this time, INDOT's hydraulic staff is requesting more time to study CBBEL's report to determine whether this hydraulic information warrants the construction of an any additional pipe or culvert. If our hydraulic staff determines that an additional pipe and/or culvert is needed, INDOT can either plan this project with the possibility of receiving federal funds or at least look at doing the project more swiftly with discretionary funds. With the latter option, INDOT would look at either getting quotes for the work or to use a Quality Purchase Agreement(QPA).

At this time, we request that this assessment be tabled until more information can be gathered and to provide Hamilton County with the best solution to a potential drainage problem.

Sincerely,

Walter Evans, P.E.

Maintenance Field Engineer, HE2

Indiana Department of Transportation

32 S. Broadway

Greenfield, IN 46140

wevans@indot.in.gov

(317) 467-3943 office

(317) 439-7254 cell



INDIANA DEPARTMENT OF TRANSPORTATION

Driving Indiana's Economic Growth

100 North Senate Avenue Room N642 Indianapolis, Indiana 46204

PHONE: (317) 232-5228 FAX: (317) 233-4929 Mitchell E. Daniels, Jr., Governor Michael B. Cline, Commissioner

September 25, 2012

MEMORANDUM

TO:

Walter Evans, PE

Greenfield District Field Engineer

32 South Broadway Street Greenfield, IN 46140

FROM:

John Bartolo, P.E.

Senior Hydraulics Engineer

SUBJECT: Miller-Carson Drain Reconstruction

DES #:

n.a.

Location: Hamilton County

This office has not been able to fully execute an analysis of the hydraulics for the Miller-Carson Drain Reconstruction Project as provided by CBBEL on September 18, 2012. A surprising element of the review so far presents a serious problem for Hamilton County residents immediately south and west of Atlanta and SR 19. The proposed culvert increase seems to imply that the flood elevation would increase by approximately 3 feet, which would initially appear to be in direct conflict with State and Federal regulations regarding increasing backwater and/or flood elevations.

Secondly, with the inability to complete a hydraulic review, the estimation of peak discharge and resultant flow elevations has not been determined to be compatible to the expected watershed discharge. At this time we cannot concur with the discharge estimation for this location.

Finally, with the statement of such a substantial flood level increase with one structure size increase, and an additional structure size increase at the southerly culvert crossing of SR 19, the State may be placed in a precarious situation of contributing to further flood increases and damages progressing downstream of SR 19. There does not seem to have been any breaches or road overtopping of SR 19 at either location in recent history, which further questions the discharge estimation at either SR 19 culvert crossing location.

Therefore, until further review and documentation is presented, we cannot concur with the proposed reconstruction at this time.

If you have any questions or comments, please contact me at (317) 232-5228.

JJB

cc: file

BEFORE THE HAMILTON COUNTY DRAINAGE BOARD IN THE MATTER OF

Miller-Carson Drain, S. R. 19 Crossing @ Tishner Property

NOTICE

			record in Faces		1		
ΤО	Whom	Ιt	May	Concern	and:		

Notice is hereby given of the hearing of the Hamilton County Drainage Board concerning the reconstruction of the Miller-Carson Drain, S.R. 19 Crossing @ Tishner Property on September 26, 2012 at 9:15 A.M. in Commissioners Court, Hamilton County Judicial Center, One Hamilton County Square, Noblesville, Indiana. Construction and maintenance reports of the Surveyor and the Schedule of Assessments proposed by the Drainage Board have been filed and are available for public inspection in the office of the Hamilton County Surveyor.

Hamilton County Drainage Board

Attest:Lynette Mosbaugh

ONE TIME ONLY

STATE	OF	INDIANA)	SS	BEFORE	THE	E HAMILTON
)				
COUNTY	OF	HAMILTON)		DRAINAC	GE E	BOARD

IN THE MATTER OF Miller-Carson Drain Reconstruction, S.R. 19 Crossing @ Tishner Property

NOTICE

Notice is hereby given that the Hamilton County Drainage Board at its regular meeting September 26, 2012 adopted the reconstruction report of the Surveyor and the Amended Schedule of damages and assessments including annual assessment for periodic maintenance, finding that the costs, damages and expense of the proposed improvement would be less than the benefits which will result to the owner of lands benefited thereby.

The Board issued an order declaring the proposed improvement established. Such findings and order were marked filed and are available for inspection in the Office of the Hamilton County Surveyor.

If judicial review of the findings and order of the Board is not requested pursuant to Article VIII of the 1965 Indiana Drainage Code as amended within twenty (20) days from the date of publication of this notice, the findings and order shall become conclusive.

HAMILTON COUNTY DRAINAGE BOARD

BY: Steven C. Dillinger
PRESIDENT

ATTEST: Lynette Mosbaugh
SECRETARY





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

To: Hamilton County Drainage Board

Re: Whisler Brenner Drain Crossing

State Road 19

Final Inspection Report

July 22, 2013

FINAL INSPECTION REPORT

This is the inspector's final report on the Whisler Brenner Drain Crossing under State Road 19 in Section 12, Township 20 North, Range 4 East, in Jackson Township, Hamilton County, Indiana. The Whisler Brenner Drain Crossing und State Road SR19 consists of 80 feet of 60" diameter 3/4" thick wall steel pipe and 180 feet of open channel improvements.

The hearing for the Whisler Brenner SR19 crossing was held on September 26, 2012 (D.B. 14, Page 300). The Engineer's Estimate for the project was \$234,500.00 (D.B. 14, Page 293).

Christopher Burke Engineering was awarded a contract for Professional Services to design the Whisler Brenner SR 19 crossing on October 10, 2012 (D.B. 12 Page 332). The amount of the contract was \$32,700.00.

The Hamilton County Drainage Board awarded the construction contract to R.L.Vuckson Excavating in the amount of \$194,935.00 for the installation of the Whisler Brenner SR19 crossing on March 25, 2013 (D.B. 14, Page 533).

There was (1) Change Order for field revisions on the project as allowed by IC 36-9-27-80.5.

Change Order #1

The stone temporary construction entrance on the plans for the State Road 19 crossing on the Whisler Brenner Drain was not needed on the project. However, additional rip-rap was needed on the project so the additional stone rip-rap was substituted for stone that was bid for the temporary construction entrance.

Final inspection and approval was on June 25, 2013. The 60 day waiting period for release of retainage concludes on August 24, 2013.

Certificate of Completion and Compliance was received from Vuckson Excavating on July 10, 2013, signed by Richard L. Vuckson.

The Statement of All Incurred Expenses Paid signed by the contractor as required in IC 36-9-27-82(b) was received on July 25, 2013. The contractors claim for release of retainage (Partial Pay Request #4) was submitted on June 28, 2013.

Pay Requests for this project submitted and paid as allowed in IC 36-9-27-81 are as follows:

Pay Request #1 submitted 5-3-2013 Pay Request #2 submitted 5-17-2013 Pay Request #3 submitted 6-28-2013	Claim Paid 5-29-2013 Claim Paid 6-11-2013 Claim Paid 7-23-2013	\$55,239.37 \$91,766.00 \$18,102.87
Pay Request #4 submitted 6-28-2013 Total – Vuckson Excavating	(retainage) Pending	\$29,136.76 \$194,245.00
Vuckson Excavating Total Christopher Burke Engineering Total Project Total		\$194,245.00 \$32,691.45 \$226,936.45
Engineer's Estimate Project Total Difference		\$234,500.00 \$226,936.45 \$7,563.55

Per IC 36-9-27-71 the Indiana Department of Transportation shall pay the cost of this crossing. The Indiana Department of Transportation will be assessed \$226,936.45 for this project.

As of the date of this report, I hereby attest to and agree that the reconstruction have been installed according to the specified plans. All inspections have been completed.

I recommend the Board approve the construction as complete and acceptable. I also recommend that the Board release the surety provided by the contractor per IC 36-9-27-78

Submitted by:

Andrew D. Conover

Inspector

TO: HAMILTON COUNTY DRAINAGE BOARD

RE.

As Contractor on the contract awarded on MARCH 25, 2013 for the WHISLER BRENNER DRAIN Drain, I hereby notify the Hamilton County Drainage Board that all expenses incurred for labor and materials have been paid in full.

The foregoing is true under the penalties of perjury.

Contractor-Print

Contractor-Signature

STATE OF INDIANA, HAMILTON COUNTY, ss:

Subscribed and sworn to before me, the undersigned, a Notary Public in and for said County this 25 day of 30.13.

Witness my hand and official seal

My Commission expires June 29 2017

__Notary Publi

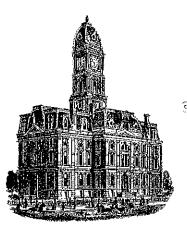
Washington County of Residence

CERTIFICATE OF COMPLETION AND COMPLIANCE

RE: WHISTLER- BRENNER CROSSING - SR 19

To: Hamilton County Surveyor

I hereby certify that: 1. I am a Registered Land Surveyor or Engineer in the State of Indiana. 2. I am familiar with the plans and specifications for the above referenced subdivision. 3. I have personally observed and supervised the completion of the drainage facilities for the above referenced subdivision. 4. The drainage facilities within the above referenced subdivision to the best of my knowledge, information and belief have been installed and completed in conformity with all plans and specifications. Signature: With M Buck Date: 1/10/13 Type or Print Name: KEITH M. BUCK Business Address: 115 WEST WIASHINGTON ST, SUITE 1368 SOUTH INDIANAPORIS, IN 44204 Telephone Number: 317 - 266 - 8000 INDIANA REGISTRATION NUMBER SEAL : NO. 10302164 STATE C STATE





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

To: Hamilton County Drainage Board

November 8, 2013

Re: Miller-Carson, Whistler Brenner - SR 19 Crossing at Tishner Property

Attached are as-builts, certificate of completion & compliance, and other information for SR 19 Crossing at Tishner Property. An inspection of the drainage facilities for this section has been made and the facilities were found to be complete and acceptable.

During construction, changes were made to the drain, which will alter the plans submitted with my report for this drain-dated August 20, 2012. The report was approved by the Board at the hearing held September 26, 2012. (See Drainage Board Minutes Book 14, Pages 231-233) The changes are as follows:

The 60" Steel Pipe bored under SR 19 was 80 feet in length. The report listed a 66" Steel Pipe. There was 636 feet of open ditch regulated and repaired at the outlet of the steel pipe. The length of the drain due to the changes described above is now 716 feet.

The work was done within existing drainage easement and road right of way. The project will be paid for by INDOT through drainage assessments as per IC 36-9-27-1. Per the drainage inspectors final report dated July 22, 2013 all work was completed and acceptable.

I recommend the Board approve the drain's construction as complete and acceptable.

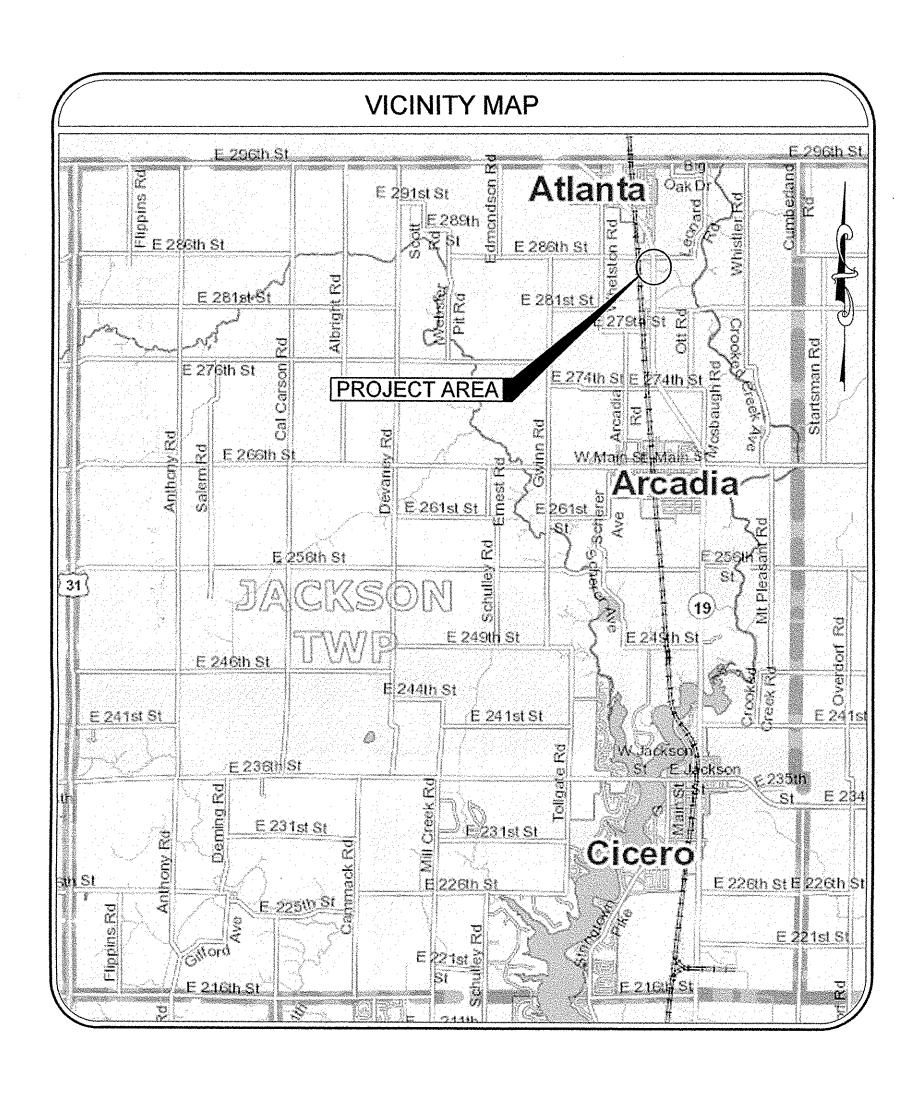
Sincerely,

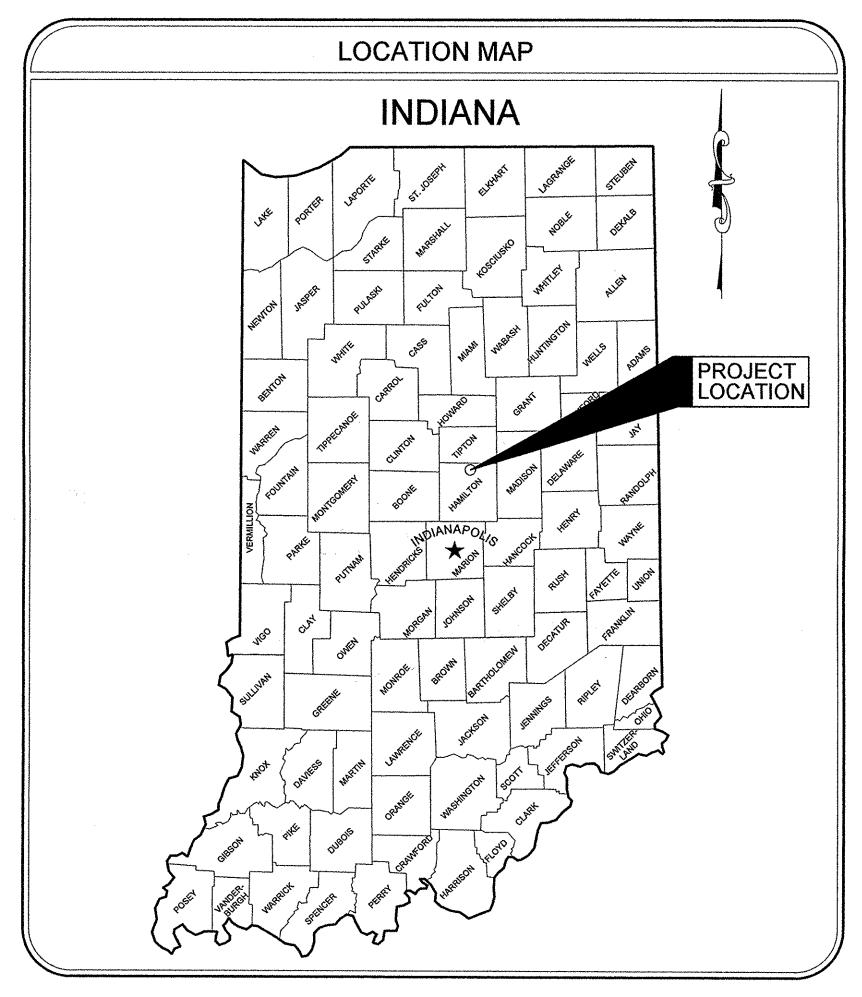
Kenton C. Ward, CFM Hamilton County Surveyor

KCW/slm

WHISTLER DRAIN 60" CULVERT BORE UNDER S.R. 19

HAMILTON COUNTY, INDIANA

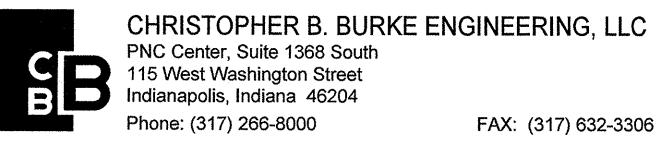




HAMILTON COUNTY DRAINAGE BOARD

Christine Altman, President
Mark Heirbrandt, Vice President
Steven C. Dillinger, Member
Don Silvey, Alternate
Jerry Rulon, Alternate
Steven A. Holt, Alternate
Mark Heirbrandt, Big Cicero Creek Board Member
Michael Howard, Attorney
Kenton C. Ward, Surveyor
Lynette Mosbaugh, Executive Secretary

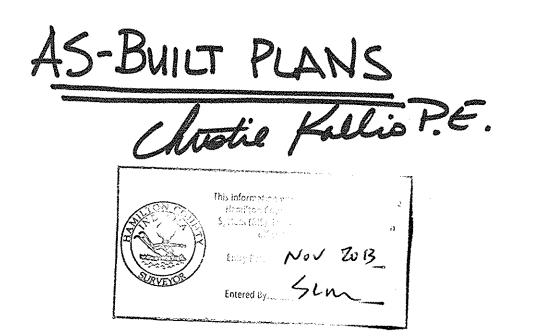
PREPARED BY:



PREPARED FOR:

HAMILTON COUNTY DRAINAGE BOARD
1 HAMILTON COUNTY SQUARE
SUITE 188
NOBLESVILLE, IN 46060

		SHEET INDEX
SHEET No.	DRAWING No.	TITLE
1	TS1	TITLE SHEET
2	EX1	EXISTING CONDITIONS & GENERAL NOTES
3	PP1	PLAN & PROFILE - PROPOSED PIPE & DITCH
4	MD1	MISCELLANEOUS DETAILS
5	EC1	EROSION CONTROL DETAILS
-		









Muth M Buck ENGINEER

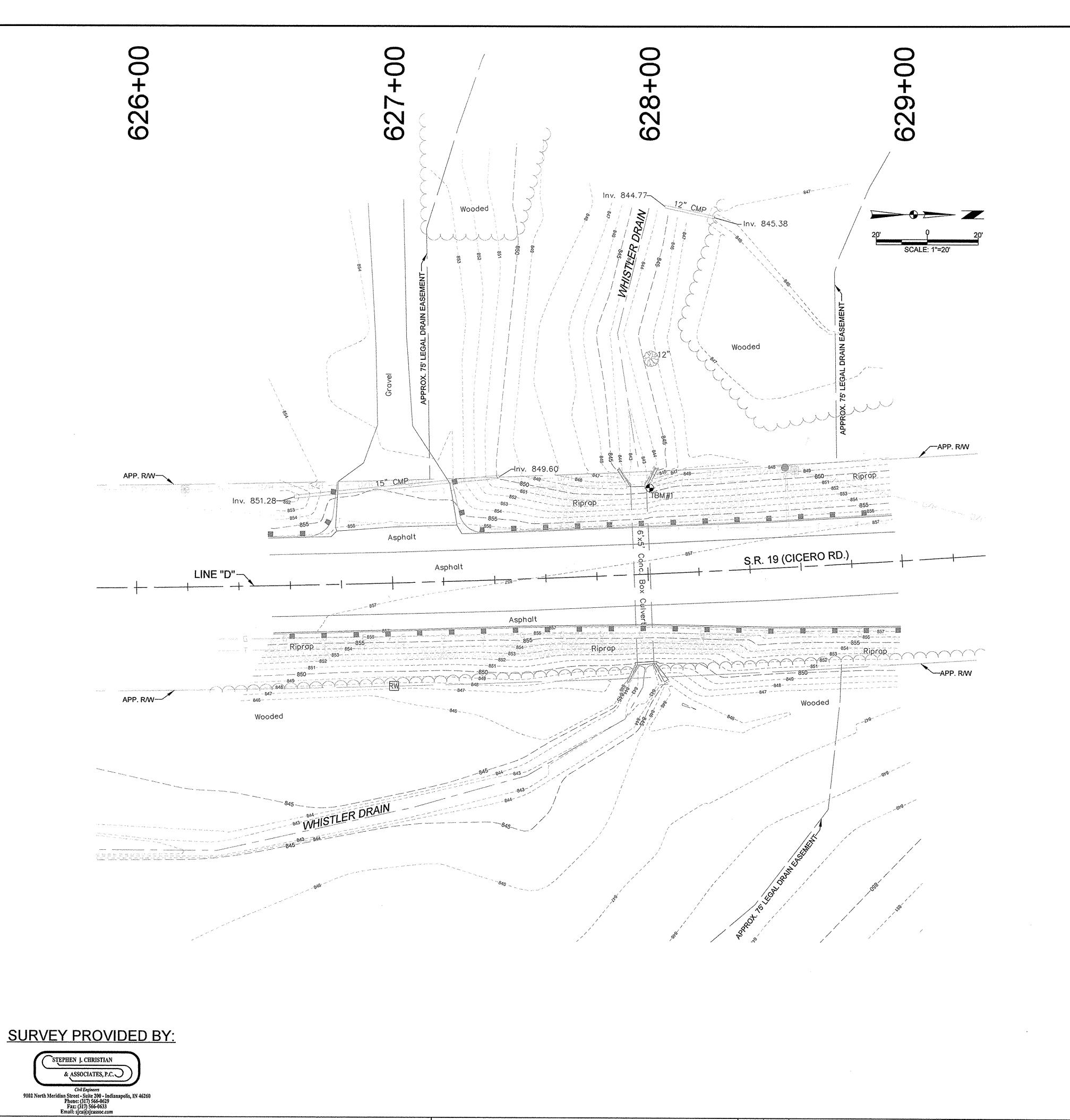
February 4, 2013

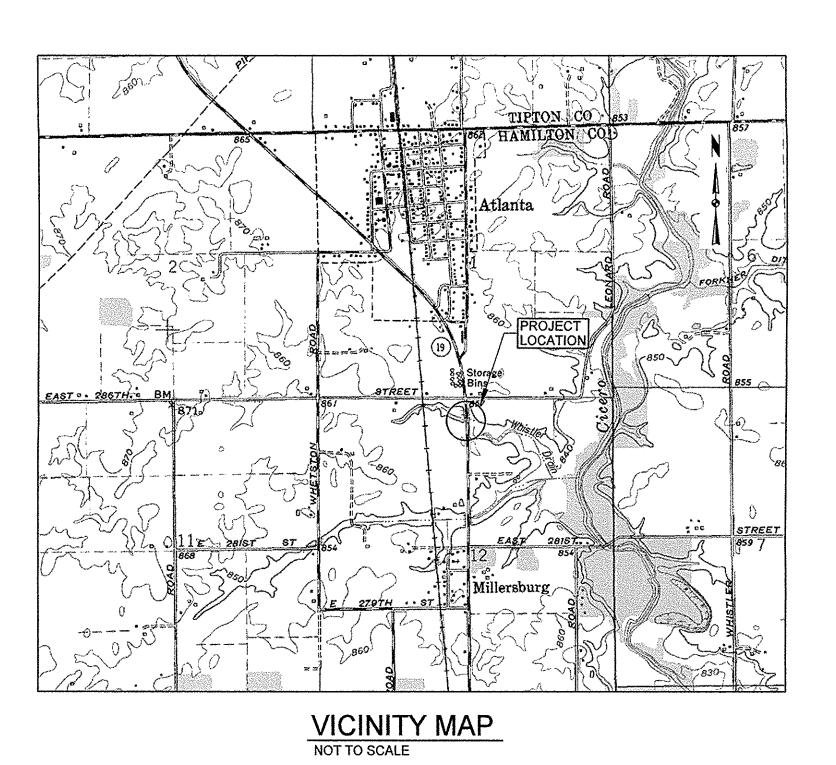
KEITH M. BUCK, P.E.
INDIANA REGISTRATION No. 10302164
EXPIRATION DATE: 7/31/2014

WHISTLER DRAIN 60" CULVERT BORE UNDER S.R. 19

HAMILTON COUNTY, INDIANA

January 2013 Project No. 19.R120467.00000





BENCHMARK INFO

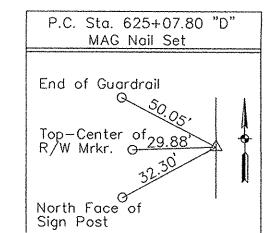
TBM#1
Cut square at northeast corner and on top of headwall.
Elev=849.69'
N: 1805166.01
E: 228678.03

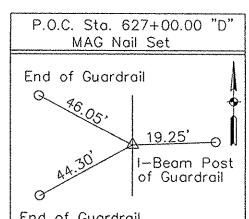
TBM#2
Pole barn nail in west face of Pwp#58-099.
Elev=857.40'
N: 1805461.86
E: 228731.95

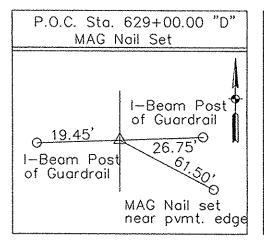
TBM#3
Pole barn nail in east face of Pwp.
Elev=858.40'
N:1804734.06
E:228679.48

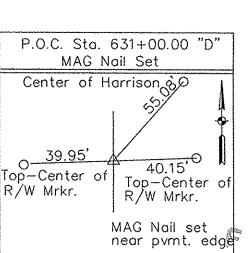
ALIGNMENT DATA - LINE "D"									
Element	Point	Station	Northing	Easting	Radius	Length	Delta	Direction	
	POB	622+00.00	1783486.51	228717.47					
Tangent	and the second s					307.80'		N 0°06'24" E	
Arc	PC	625+07.80	1804873.31	228718.05					
Arc	PI	631+73.34	1805538.85	228719.29	6072.92'	1325.79'	12°30'30"	Left	
Arc	PT	638+33.59	1806188.86	228576.35	······				
Tangent	······································	The state of the s		***************************************		266.41'		N 12°24'06" W	
	POE	641+00.00	1806449.05	228519.14	**************************************				

REFERENCE POINTS









gB

CHRISTOPHER B. BURKE ENGINEERING, LLC

PNC Center, Suite 1368 South
115 West Washington Street
Indianapolis, Indiana 46204
(317) 266-8000 FAX: (317) 632-3306

WHISTLER DRAIN 60" CULVERT BORE UNDER S.R. 19

HAMILTON COUNTY, INDIANA

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Α	2-1-13	50% PLANS		SCALE:	AS NOTED	1
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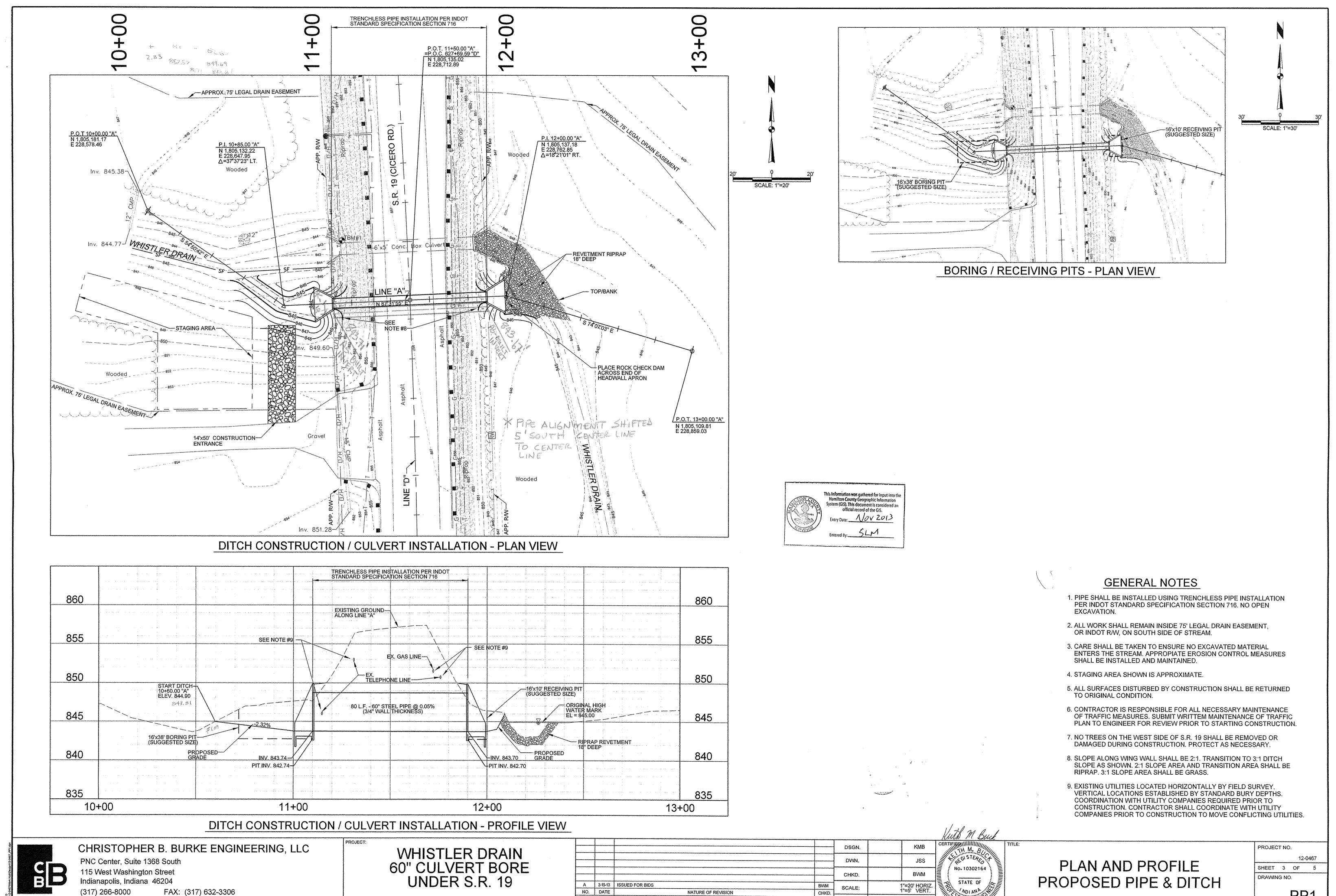
EXISTING CONDITIONS

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SHEET 2 OF 5

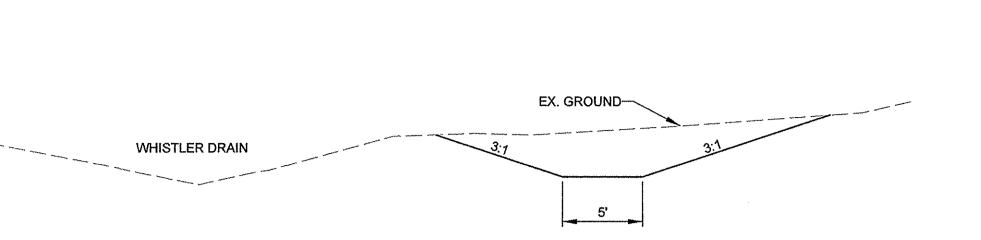
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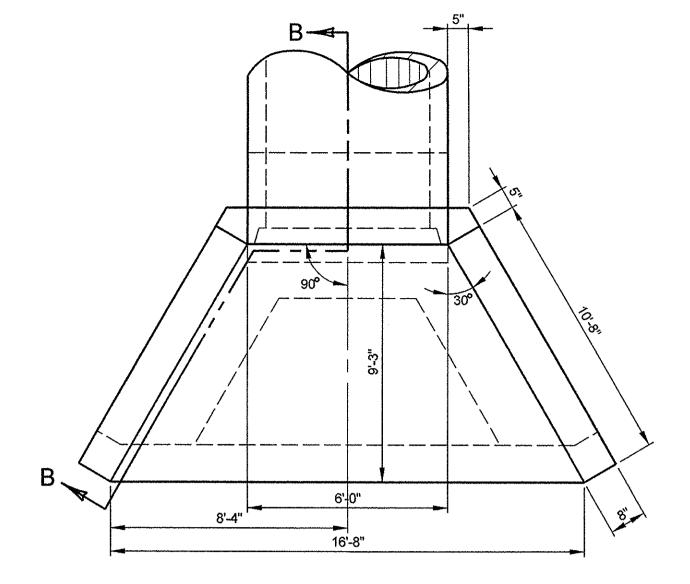
HAMILTON COUNTY, INDIANA

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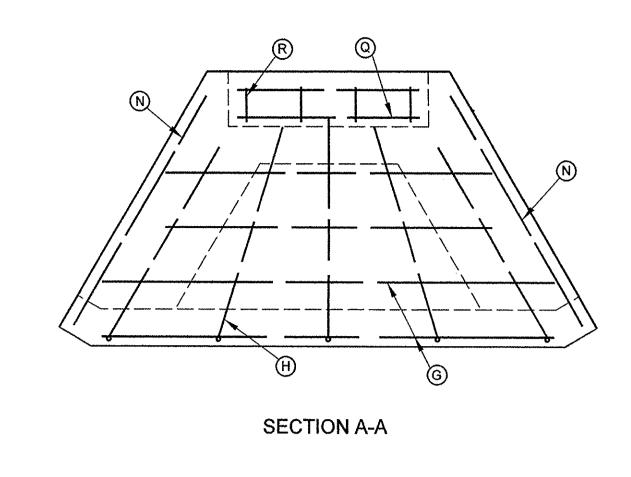


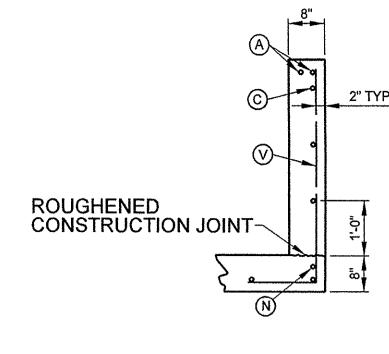
TYPICAL CROSS SECTION

NOT TO SCALE

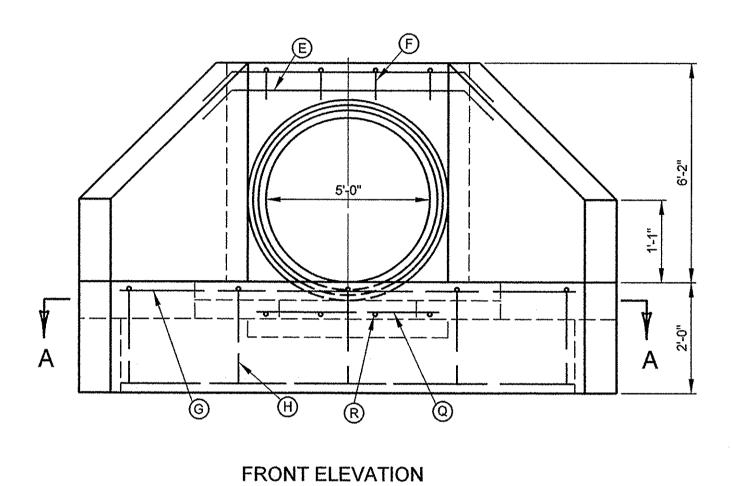


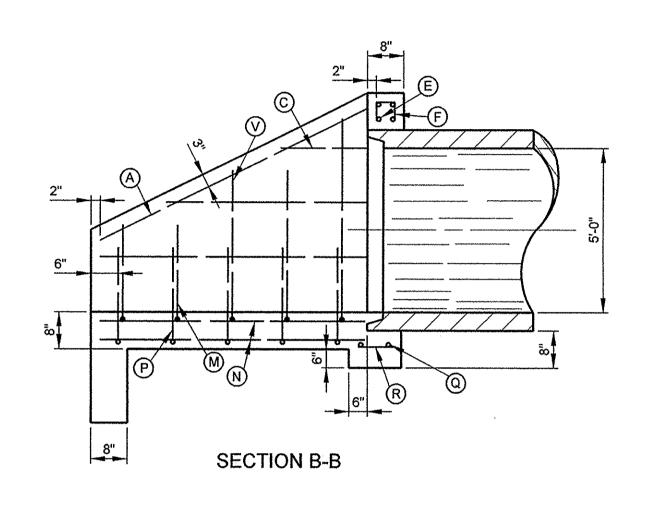


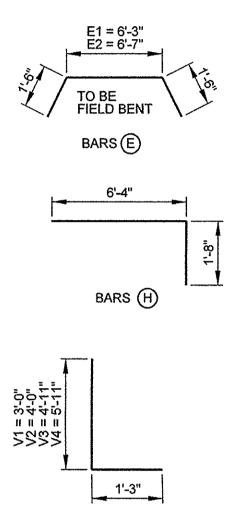




WING SECTION 30" TO 60" CIRCULAR PIPE







TYPICAL HEADWALL DETAIL NOT TO SCALE

- 1. DIMENSIONS FROM FACE OF CONCRETE TO STEEL SHALL BE 2" CLEAR DISTANCE.
- 2. ALL BARS SHALL BE #4 BARS, SPACED 1'-0" O.C., UNLESS NOTED OTHERWISE. SEE NOTE #3.
- 3. BARS A & E, SHALL BE #5 BARS, SPACED 1'-0" O.C. BAR H SHALL BE EVENLY SPACED.
- 4. WING WALL BARS ARE PLACED IN ORDER OF INCREASING LENGTHS, BEGINNING AT THE END OF EACH WING.
- 5. APRON BETWEEN WINGS SHALL BE SLOPED IN DIRECTION OF FLOW AS SHOWN ON THE PLANS. FRONT FACE OF HEADWALL AND ENDS OF WINGS SHALL REMAIN VERTICAL.
- 6. DETAIL ADAPTED FROM KENTUCKY DEPARTMENT OF HIGHWAYS STANDARD DRAWING NO. RDH-110-02.

M A R K	S I Z E	NO.	LENGTH	К
Α	5	4	8'-4"	
C1	4	2	2'-1"	
C2	4	2	4'-2"	
С3	4	2	6'-3"	
C4	4	4	7'7"	
E 1	5	2	9'-3"	6'-3"
E2	5	2	9'-7"	6'-7"
F	4	6	1'-3"	0'-4"
G 1	4	2	6'-6"	
G 2	4	3	10'-0"	
G 3	4	3	12'-4"	
Н	4	7	8'-0"	6'-0"
N	4	6	7'-7"	
Q	4	2	5'-8"	
R	4	6	0'-10"	
V1	5	4	4'-3"	3'-0"
V 2	5	4	5'-3"	4'-0"
V 3	5	4	6'-2"	4'-11"
V 4	5	4	7'-2"	5'-11"

REINFORCEMENT STEEL TABLE

①NUMBER OF BARS IN ONE HEADWALL.

2. DIMENSIONS ARE O. TO O. OF BARS.

3. ALL BARS ARE STRAIGHT EXCEPT BARS E, H AND V.

FEB 1 9 2013

MD1

OFFICE OF MAMILEON COUNTY

BB

CHRISTOPHER B. BURKE ENGINEERING, LLC

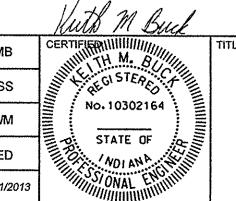
PNC Center, Suite 1368 South
115 West Washington Street
Indianapolis, Indiana 46204
(317) 266-8000 FAX: (317) 632-3306

WHISTLER DRAIN 60" CULVERT BORE UNDER S.R. 19

HAMILTON COUNTY, INDIANA

PROJECT:

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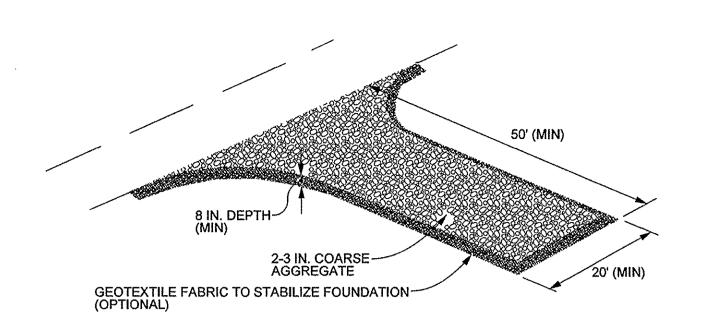
MISCELLANEOUS DETAILS

PROJECT NO.

12-0467

SHEET 4 OF 5

DRAWING NO.



2-3 IN. WASHED STONE (INDOT #2) OVER A STABLE FOUNDATION 8 IN MINIMUM 20 FT. MINIMUM OR FULL WIDTH OF ENTRANCE/EXIT ROADWAY, WHICHEVER IS GREATER.

50 FT. MINIMUM. GEOTEXTILE FABRIC UNDERLINER: MAY BE USED UNDER WET CONDITIONS OR FOR SOIL WITHIN A HIGH SEASONAL WATER TABLE TO PROVIDE GREATER BEARING BEARING STRENGTH

CONSTRUCTION ENTRANCE/EXIT DETAIL

STABILIZED CONSTRUCTION ENTRANCE

- 1. Construction entrance material shall be 2 to 3-inches washed stone (INDOT No. 2).
- 2. Construction entrance shall have a minimum thickness of 8-inches. 3. Construction entrance width shall be 20-feet minimum or full width of entrance/exit, whichever is greater.
- 4. Construction entrance shall have a minimum length of 50-feet. 5. Geotextile underliner fabric shall be used under wet conditions or for soil with a high seasonal water table to provide greater bearing strenath.

- Avoid locating on steep slopes or at curves in public roads. 2. Remove all vegetation and questionable material from the foundation area, and grade and crown for positive drainage.
- 3. If slope towards road exceeds 2%, construct a 6-8-inches high water bar (ridge) with 3:1 side slopes across the foundation area about 15feet from the entrance to divert runoff away from the road.
- 4. Install pipe under pad if needed to maintain proper public road 5. Place stone to dimensions and grade shown on the engineering plan,
- leaving surface smooth and sloped for drainage. 6. Divert all surface runoff and drainage from the stone pad to a sediment trap or basin.

Maintenance:

ect entrance pad weekly and after each storm event or heavy use Reshape pad as needed for drainage and runoff control. Topdress with clean stone as needed. Immediately remove mud and sediment tracked or washed into public roads by brushing or sweeping. Flushing should only be used if the water is conveyed into a sediment trap or basin. Repair any broken road pavement immediately.

NONWOVEN GEOTEXTILE

(MIRAFI 180N OR EQUAL)

AASHTO #57 -

AGGREGATE

REVETMENT

NONWOVEN GEOTEXTILE

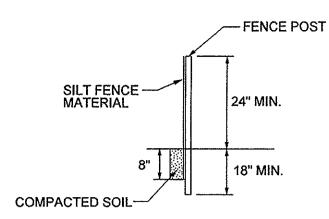
(MIRAFI 180N OR EQUAL)

RIPRAP

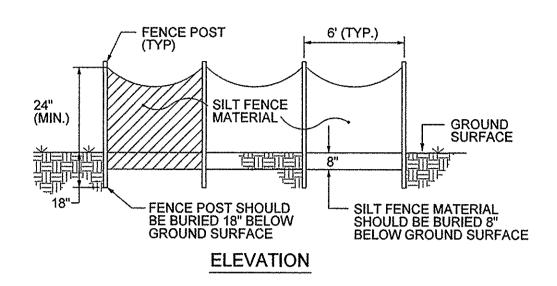
STREAM FLOWLINE

FLOW

1' (MIN.)-



SIDE VIEW



SEE DETAIL 1, SHEET 15 FOR SILT FENCE LOCATION

SILT FENCE DETAIL

SILT FENCING

- 1. Fence posts shall be buried 18-inches minimum below the ground surface.
- 2. Fence posts shall be spaced at a maximum of 6-feet laterally. 3. Silt fence fabric shall be buried 8-inches minimum below the ground
- 4. Fence post shall have a minimum height above the ground surface of 24-inches.

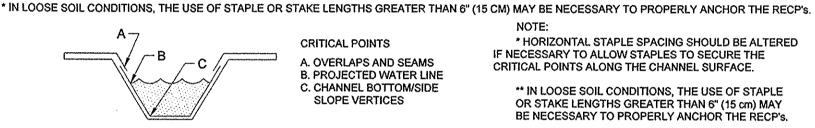
- 1. Dig an 8-inches deep trench along proposed fence line (a trenching machine is needed on long runs).
- 2. Pound stake in trench 18-inches minimum. Be sure to stretch fabric taut when pounding stakes. (Note: Stake must be on the downhill or downstream side of the fence).
- Drape loose end of geotextile into trench. Backfill and compact soil on both sides.

CHANNEL BANKS

24" MAX

@ CENTER

Inspect the silt fence periodically and after each storm event. If fence fabric tears, starts to decompose, or in any way becomes ineffective, replace the affected portion immediately. Remove deposited sediment when it reaches half the height of the fence at its lowest point or is causing the fabric to bulge. Take care to avoid undermining the fence during cleanout. After the contributing drainage area has been stabilized, remove the fence and sediment deposits, bring the disturbed area to grade and stabilize.



WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

APART AND 4" (10 CM) ON CENTER TO SECURE RECP's.

DEEP X 6" (15 CM) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

STAGGERED 4" (10 CM) APART AND 4" (10 CM) ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL

CRITICAL POINTS A. OVERLAPS AND SEAMS B. PROJECTED WATER LINE C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP'S), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.

EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP'S WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN THE

BOTTOM OF THE TRENCH. BACKFILL AND COMAPCT THE TRENCH AFTER STAPLING, APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF RECP'S BACK OVER SEED AND COMPACTED SOIL. SECURE RECP'S OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM)

WHEN USING THE DOT SYSTEM™, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.

2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE RECP'S IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30 CM) OF RECP'S

3. ROLL CENTER RECP'S IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. RECP'S WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP'S MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE.

4. PLACE CONSECUTIVE RECP'S END OVER END (SHINGLE STYLE) WITH A 4" - 6" (10 CM -15 CM) OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10 CM)

7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT (9 M - 12 M) INTERVALS. USE A DOUBLE ROW OF STAPLES

8. THE TERMINAL END OF THE RECP'S MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN A 6" (15 CM) DEEP X 6" (15 CM)

5. FULL LENGTH EDGE OF RECP'S AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN A 6" (15 CM)

NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.

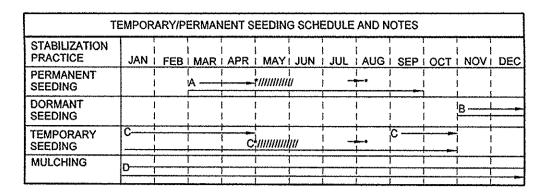
6. ADJACENT RECP'S MUST BE OVERLAPPED APPROXIMATELY 2" - 5" (5 CM -12.5 CM) (DEPENDING ON RECP'S TYPE) AND STAPLED.

CHANNEL INSTALLATION

* HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE

(10 CM - 15 CM)

CRITICAL POINTS ALONG THE CHANNEL SURFACE. ** IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 cm) MAY BE NECESSARY TO PROPERLY ANCHOR THE RECP's.



SEEDING NOTES

- SEED SHALL BE OF KNOWN ORIGIN AND QUALITY. SEED SHALL BE PURCHASED FROM SOURCES OF SUPPLY THAT HAVE BEEN SAMPLED, TESTED, AND APPROVED BY THE STATE SEED COMMISSION, PURDUE UNIVERSITY. EACH BAG OF SEED SHALL BEAR A TAG SHOWING THE PURITY AND GERMINATION TEST RESULTS, THE TESTING DATE, AND THAT THE SEED MEETS THE REQUIREMENTS OF THE COMMISSION. RECEIPTS OR TAGS INDICATING THE SEED MIX IS IN COMPLIANCE WITH THE SPECIFICATIONS SHALL BE RETAINED BY THE CONTRACTOR AND PRESENTED TO THE ENGINEER UPON REQUEST.
- 2. SEED SHALL BE WEED-FREE CONTAINING NO NOXIOUS SEED, AS LISTED IN I.C. 15-4-1-3(e), 360 I.A.C. 1-1-5, AND 360 I.A.C. 1-1-6.
- 3. LEGUME SEED SHALL BE INOCULATED WITH THE PROPER BACTERIAL CULTURES PRIOR TO MIXING INTO THE SEED MIX. IF THE CONTRACTOR USES A HYDROSEEDER, THE INOCULANT RATE SHALL BE DOUBLED, AND THE pH OF THE SLURRY SHALL BE KEPT ABOVE 5.0 BY ADDING HYDRATED LIME.
- 4. ALL SEEDING RATES SHALL BE BASED ON PURE LIVE SEED (PLS). THE GERMINATION AND PURITY TESTS RESULTS, AS DETERMINED BY THE STATE SEED COMMISSION, SHALL BE USED TO DETERMINE THE PLS (PLS= GERMINATION RATE TIMES PURITY).
- 5. NO SEED SHALL BE USED AFTER ONE (1) YEAR FROM THE TEST DATE SHOWN ON THE BAG.
- 6. STRAW MUCLH SHALL BE FREE FROM NOXIOUS WEEDS, NOXIOUS SEED, AND MOLD. MULCH SHALL CONTAIN NO MORE THAN 50% MOISTURE AT TIME OF DELIVERY. MOISTURE IN EXCESS OF THIS SHALL BE CAUSE FOR REJETION OF MATERIAL. MULCH SHALL BE APPLIED UNTIL THE GROUND IS COMPLETELY COVERED AT AN AVERAGE RATE OF THREE (3) TONS PER ACRE. MULCH MATERIAL SHALL BE PUNCHED INTO THE SOIL WITH A MULCH STABILIZER SUCH AS A FINN KRIMPER. IN ACRES INACCESSIBLE TO MULCH STABILIZING EQUIPMENT, MULCH SHALL BE STABILIZED BY HAND USING NETTING OR OTHER APPROVED
- 7. ALL DISTURBED AREAS NOT UNDER ACTIVE CONSTRUCTION FOR A PERIOD OF FOURTEEN (14) DAYS SHALL BE MULCHED, UNLESS OTHERWISE DIRECTED BY THE OWNER OR
- 8. TYPE 1 AND TYPE 2 SEED MIXES SHALL BE PLANTED WITH AN APPROPIATE DRILLING DEVICE CAPABLE OF DISTRIBUTING THE REQUIRED APPLICATION RATE.

A= ORCHARDGRASS 5 LBS. /ACRE PERENNIAL RYE GRASS 8 LBS. /ACRE REDTOP 2 LBS. /ACRE TIMOTHY 4 LBS. /ACRE LADINO CLOVER 4 LBS. /ACRE RED CLOVER 8 LBS. /ACRE B= ADD 50% MORE SEED TO MIXTURES IN "A" ABOVE.

C= ANNUAL RYEGRASS 60 LBS. / ACRE OATS (SPRING) 150 LBS. / ACRE

WINTER WHEAT (FALL) 150 LBS. / ACRE D= STRAW MULCH AT 2 1/2 TONS/ACRE W/LIQUID BINDER.

/// = IRRIGATION NEEDED DURING JUNE, JULY AND/OR SEPTEMBER

DETAIL SOURCE: NORTH AMERICAN GREEN

EROSION CONTROL BLANKET CHANNEL INSTALLATION

EROSION CONTROL BLANKET - CHANNEL APPLICATION

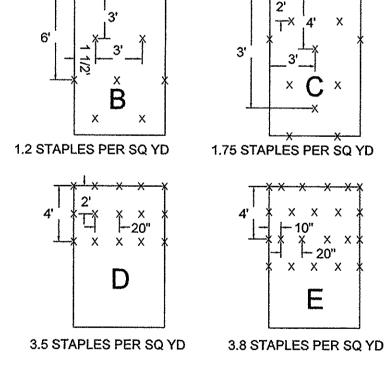
Requirements: North American Green SC150 erosion control blanket or approved equivalent are required in the drainage swales

1. Prepare soil before installing blankets, including application of lime, fertilizer, and

- Begin at the top of the channel by anchoring the blanket in a 6-inch deep by 6-inch wide trench with approximately 12-inches of blanket extended beyond the up-slope portion of the trench. Anchor the blanket with a row of staples/stakes approximately 12-inches apart in the bottom of the trench. Backfill and compact the trench after stapling. Apply seed to compacted soil and fold remaining 12inch portion of the blanket over seed and compacted soil. Secure the blanket over compacted soil with a row of staples/stakes spaced approximately 12inches across the width of the blanket. 3. Roll the blanket in direction of water flow in bottom of channel, blankets will unroll
- with appropriate side against the soil surface. All blankets must be securely fastened to soil surface by placing staples/stakes in appropriate locations as shown in the staple pattern guide. 4. Place blankets end over end (shingle style) with a 4- to 6-inches overlap. Use a double row of staples staggered 4-inches apart and 4-inches on center to secure
- 5. Full length edge of blankets at top of side slopes must be anchored with a row of staples/stakes approximately 12-inches apart in a 6-inch deep by 6-inch wide trench. Backfill and compact the trench after stapling.
- 6. The adjacent blankets must be overlapped approximately 2- to 5-inches and 7. In high flow channels applications, a staple check slot is recommended at 30- to 40-foot intervals. Use a double row of staples staggered 4-inches apart and 4inches on center over entire width of the channel.
- 8. The terminal end of the blankets must be anchored with a row of staples/stakes approximately 12-inches apart in a 6-inch deep by 6-inch wide trench. Backfill and compact the trench after stapling.

Note: In loose soil conditions, the use of staple or stake lengths greater than 6inches may be necessary to properly secure the blanket.

During vegetative establishment, inspect after storm events for erosion below the blanket. If any area shows erosion, pull back the portion of the blanket covering it. add soil, reseed the area, and re-lay and staple the blanket. After vegetative establishment, check the treated area periodically. Add additional staples as necessary to securely anchor the erosion control blanket.



DETAIL SOURCE: NORTH AMERICAN GREEN

SEEDING NOTES AND SCHEDULE

PERMANENT VEGETATION

Plant species shall be selected on the basis of soil type, soil pH, region of the state, time of year, and planned use of the area to be seeded.

Installation: Permanent Seed Bed Preparation:

- 1. Test soil to determine pH and nutrient levels. 2. If soil pH is unsuitable for the species to be seeded, apply lime
- according to test recommendations 3. Till the soil to obtain a uniform seedbed, working the fertilizer and lime into the soil 2-4-inches deep with a disc or rake operated across the

Permanent Seeding:

Optimum seeding dates are March 1 through May 10 and August 10 through September 30. Permanent seeding done between May 10 and August 10 may need to be irrigated. As an alternative, use temporary seeding until the preferred date for permanent seeding.

- 1. Use seed mix A as specified on plans. 2. Apply seed uniformly with a hydroseeder, drill or cultipacker-seeder, or by broadcast, and cover to a depth of 1/4 to 1/2-inches.
- 3. If drilling or broadcasting, firm the seedbed with a roller or cultipacker. 4. Mulch all seeded areas and anchor with a tackifver. Use erosion control blankets on areas sloping 4:1 or steeper if erosion becomes a problem or if directed by the ENGINEER. (Note: if seeding is done with a hydroseeder, fertilize and mulch can be applied with the seed in

Maintenance:

Inspect periodically, especially after storm events, until the stand is successfully established (characteristics of a successful stand include: vigorous dark green or blue-ish green seedings; uniform density with nurse plants, legumes, and grasses well intermixed; and the perennials remaining green throughout the summer, at least at the plant base). Add fertilizer the following growing season according to soil test recommendation. Repair damaged, bare or sparse areas by filling any gullies, refertilizing, over- or reseeding. If plant cover is sparse or patchy, review the plant material chosen, soil fertility, moisture condition, and mulching; then repair the affected area either by over-seeding or reseeding and mulching after re-preparing the seedbed. If vegetation fails to grow, perform soil testing to determine acidity or nutrient deficiency problems. If additional fertilization is needed to get a satisfactory stand. do so according to soil test recommendations.

TEMPORARY VEGETATION

Requirements: Plant species shall be selected on the basis of quick germination, growth, and time of year. Seeding should be done as often as possible following construction activity. Daily seeding or rough graded areas when the soil is

remporary Seed Bed Preparation:

operated across the slope

loose and moist is usually most effective.

1. Test soil to determine its nutrient levels. 2. Fertilize as recommended by soil testing. If testing is not done, apply 400-600 lbs/acre of 12-12-12 analysis, or equivalent, fertilizer. 3. Work the fertilizer into the soil 2-4-inches deep with a disc or rake

Temporary Seeding:

- 1. Use temporary seed mixed as specified on plans. 2. Apply seed uniformly with a drill or cultipacker-seeder or by
- broadcasting, and cover to the appropriate depth for the seed used.
- 3. If drilling or broadcasting, firm the seedbed with a roller or cultipacker. 4. Mulch seeded area to increase seeding success. Anchor all mulch by

Inspect periodically after planting to ensure that vegetative stands are adequately established; reseed if necessary. Check for erosion damage after storm event and repair: reseed and mulch if necessary.

(5) ROCK CHECK DAM

NOT TO SCALE

SIDE VIEW

VARIES

FRONT VIEW (UPSTREAM FACE)

CHRISTOPHER B. BURKE ENGINEERING, LLC PNC Center, Suite 1368 South

115 West Washington Street Indianapolis, Indiana 46204 (317) 266-8000

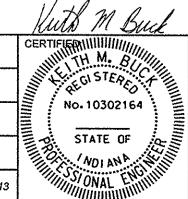
FAX: (317) 632-3306

WHISTLER DRAIN 60" CULVERT BORE UNDER S.R. 19

HAMILTON COUNTY, INDIANA

A 2-1-13 50% PLANS NO. DATE NATURE OF REVISION P:\2012\12-0467\Work Hub\Design\12-0467_EC1.dgn

JSS BWM CHKD. SCALE: AS NOTED CHKD. DATE: 2/11/2013



EROSION CONTROL DETAILS

12-0467 SHEET 5 OF 5 DRAWING NO.

PROJECT NO.

EC1