OHIO DEPARTMENT OF TRANSPORTATION
INTER-OFFICE COMMUNICATION
Office of Environmental Services

TO:	Ferzan Ahmed, District Deputy Director	**DATE:**	**2-12-2015**
	Attention: Janice, Environmental Project Coordinator		
FROM:	Timothy M. Hill, Administrator, Office of Environmental Services		
SUBJECT:	Waterway Permit Determination	(SJN):	**466686**
PROJECT:	FRA-70-12.68 (Project 4A)	(PID):	**77372**

We have reviewed the waterway permit determination package for the above referenced project to determine the appropriate level of waterway permitting required for the project.

1. ☐ No waterway permits are required.
2. ☐ An US Army Corps of Engineers (USACE) Individual 404 Permit will be required.
3. ☐ An Ohio Environmental Protection Agency (OEPA) Individual 401 Water Quality Certification (WQC) will be required.
4. ☐ ODOT Let project activity is covered by the Regional General Permit (RGP) Sections(s)
   - ☐ A. Linear Transportation Projects
   - ☐ B. Maintenance

   The waterway permit conditions shall be included in the plan package as special provisions.
5. ☑ **The project will meet criteria for a USACE Regional General Permit Section A, a Pre-Construction Notification (PCN) is required to obtain USACE authorization.**
6. ☐ Project activity is covered by the USACE 404 NWP [#].
   All conditions stated in the Nationwide Permit Program shall be followed. The waterway permit conditions shall be included in the plan package as special provisions.
7. ☐ OEPA General/Individual Isolated Wetland Permit Level [#] Review is required. Please submit appropriate level application.
8. ☐ USCG Section 9 Bridge Permit is required. OR ☐ USCG Coordination is required.
9. ☐ USACE Section 10 Notice to Navigation is required. OR ☐ USACE Section 10 Permit is required, a PCN is required to obtain Section 10 authorization.
10. ☐ Project will require a waterway permit strategy meeting to discuss Individual permit application preparation, alternatives and mitigaiton. District please schedule this meeting at your earliest convenience.
11. ☐ Mitigation required: Stream: TBD
    Wetland: No
12. ☐ Waterway permit determination submission is incomplete. District, please provide the following items:

Comments: OES-WPU has reviewed the subject project and has determined that it likely meets the criteria for USACE Regional General Permit Section A (Linear Transportation), however a PCN is required for work in a Section 10 water, impacts to a perennial stream over 300 feet, and total impact for a single and complete project greater than 500 feet. Per the Waterway Permit Manual, the District is responsible for completing the PCN or getting a pre-qualified consultant to complete the PCN and coordinating it with OES-WPU for review and final agency submittal and approval. No work in waters shall commence until the PCN is authorized. Special Provisions will be completed following the USACE concurrence with the PCN. Note that there will be in-water work restrictions for the Scioto River (WWH) due to it being over 20 square miles at the project site.

Please contact Matt Perlik at 614-466-1937, Adrienne Earley at 614-466-2159, or Katie Dunlap, CO-WPU Reviewer at 614-466-6983 with any questions.
TMH:MKP:AEE:kad
c.

Temporary Construction, Access and Dewatering Activities

Permit Determination Checklist

The purpose of this form is to aid the Office of Environmental Services – Waterway Permits Unit (OES-WPU) in the permit determination process. This form shall be completed by the project designer and reflect the anticipated needs for temporary fill. If the type and amount of temporary fill is unknown, assume a worst case scenario of what could be needed. A completed copy of this form and a temporary construction access plan shall be forwarded to the DEC to be included in the Permit Determination Request Package submitted to OES-WPU.

Co-Rte-Sec: FRA-70-12.68 & FRA-70-13.10 PID: 77372 & 89464

Description: I-70/I-71 WEST INTERCHANGE BRIDGE REPLACEMENTS OVER THE SCIOTO RIVER: Project 4A & Project 6A

During the construction of this project, the following activities in the waters of the United States are anticipated: (check all that apply)

- ☐ Temporary structure for maintaining traffic
- ☒ Cofferdams
- ☒ Temporary access fill (e.g. causeways and work pads)
- ☒ Demolition and debris removal
- ☒ Dams, sumps, and pumping

ODOT requires that temporary activity to accommodate a minimum flow equal to twice the highest mean monthly flow without creating a rise in backwater above the OHWM. **The minimum flow to be maintained throughout construction for this location is** 6,260 **cfs**. The means that will most likely be implemented by the Contractor to maintain this flow will be:

- ☒ Conduit(s)
- ☒ Open channel(s)\Temporary Bridge

Different 404 permit types have different limitations and requirements. Please read the limitations and provide the required measurements and answers as it applies for this project.

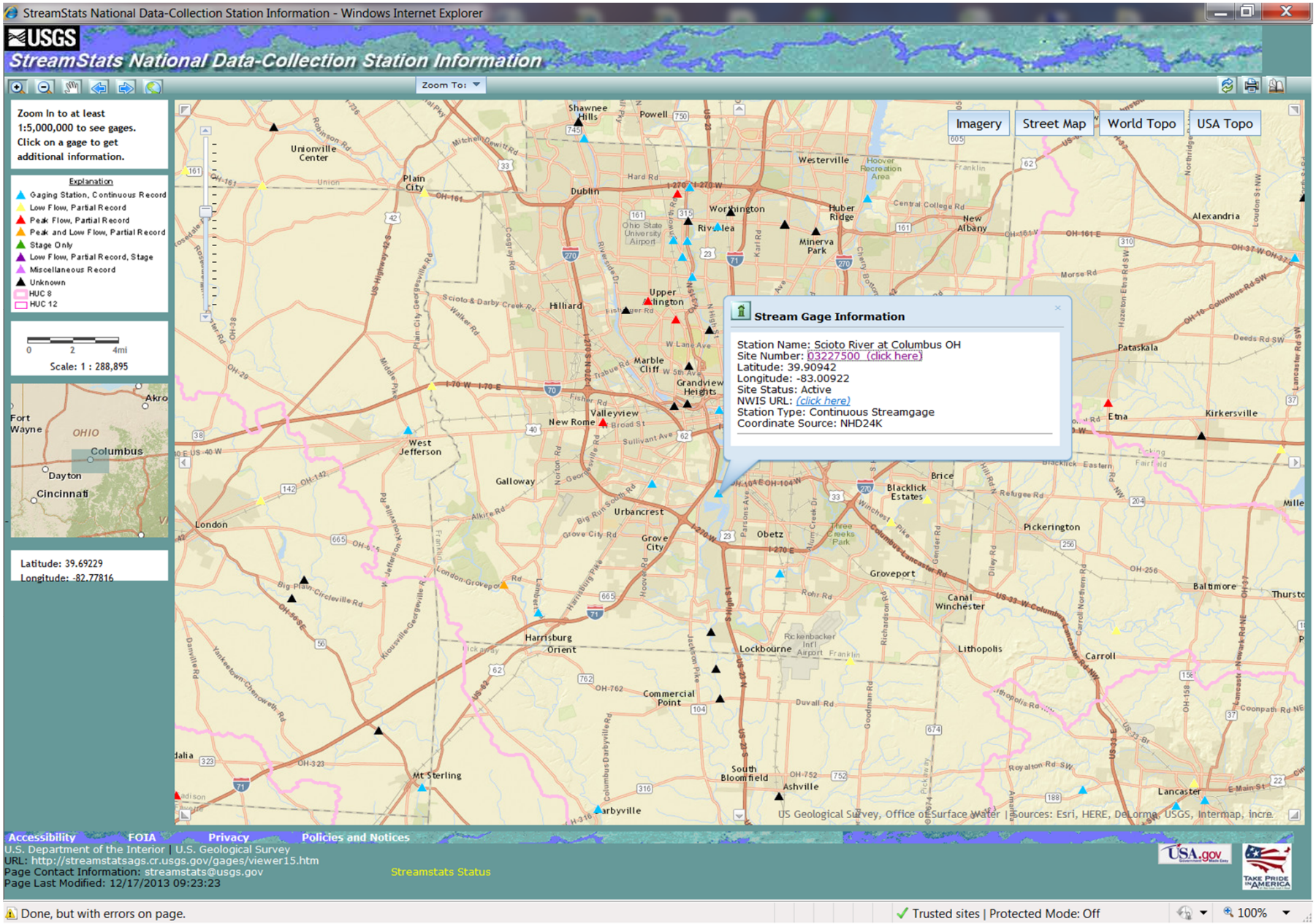
- ☒ The maximum length of temporary impact, as measured upstream to downstream along one bank, cannot exceed 300-ft. **Proposed impact length for this project is** 410 **ft.** per project.
- ☒ The duration of the impact to waters of the United States cannot exceed 2 years. **Proposed temporary impact duration is** 2 **years.** per project.
- ☐ The proposed temporary fill is within the flowage easement of a flood control facility*. ___YES ____NO

*Only applies to federal flood control facilities. Flowage easements associated with these facilities can occur several miles away from the facility. If uncertain that the project is in a flowage easement area, please contact OES and consult your district's real estate office for assistance.

cc. District Environmental Coordinator (DEC)

A complete copy of the RGP with the OEPA conditions may be downloaded at the following website:
http://www.dot.state.oh.us/Divisions/Planning/Environment/Ecological_Resources_Permits/WATERWAY_PERMITS/Pages/default.aspx

Figure 203.5-2


StreamStats National Data-Collection Station Information - Windows Internet Explorer
USGS
StreamStats National Data-Collection Station Information
Zoom To:
Zoom In to at least 1:5,000,000 to see gages. Click on a gage to get additional information.
Explanation
Gaging Station, Continuous Record
Low Flow, Partial Record
Peak Flow, Partial Record
Peak and Low Flow, Partial Record
Stage Only
Low Flow, Partial Record, Stage
Miscellaneous Record
Unknown
HUC 8
HUC 12
0 2 4mi
Scale: 1 : 288,895
Latitude: 39.69229
Longitude: -82.77816
Imagery
Street Map
World Topo
USA Topo
Stream Gage Information
Station Name: Scioto River at Columbus OH
Site Number: 03227500 (click here)
Latitude: 39.90942
Longitude: -83.00922
Site Status: Active
NWIS URL: (click here)
Station Type: Continuous Streamgage
Coordinate Source: NHD24K
US Geological Survey, Office of Surface Water | Sources: Esri, HERE, DeLorme, USGS, Intermap, incre
Accessibility FOIA Privacy Policies and Notices
U.S. Department of the Interior | U.S. Geological Survey
URL: http://streamstatsags.cr.usgs.gov/gages/viewer15.htm
Page Contact Information: streamstats@usgs.gov
Page Last Modified: 12/17/2013 09:23:23
Streamstats Status
USA.gov
Done, but with errors on page.
Trusted sites | Protected Mode: Off
100%

URS

Project Name:		Page	of
Project Limits:		Sheet	of
Route:		Computed by	Date
PID Number:		Checked by	Date
ODOT District: 6			
Client:		URS Project No.	14578403

L:\Projects\14578403\TRANS\FRA\77372\drainage\docs\Report\2015-04-22\[77372_Appndx J_ USGS-03-4164-Rural.xlsx]USGS_Stream Stats

Print Date 4/22/2015

USGS Monthly Statistics for the Nation

The statistics generated from this site are based on approved daily-mean data and may not match those published by the USGS in official publications. The user is responsible for assessment and use of statistics from this site. For more details on why the statistics may not match, click here.

USGS 03227500 Scioto River at Columbus OH

Franklin County, Ohio
Hydrologic Unit Code 05060001
Latitude 39°54'34", Longitude 83°00'33" NAD27
Drainage area 1,629 square miles
Contributing drainage area 1,629 square miles
Gage datum 679.18 feet above NAVD88

Output formats
HTML table of all data
Tab-separated data
Reselect output format

00060, Discharge, cubic feet per second,
Monthly mean in ft3/s (Calculation Period: 1920-10-01 -> 2014-08-31)

YEAR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Min	Avg	Max
1920										109.6	1,587	1,855	110	1,184	1,855
1921	1,540	3,340	6,744	2,603	1,509	283.1	85.5	95.5	66.9	60.5	2,591	2,389	61	1,776	6,744
1922	943.8	2,079	3,349	5,424	3,620	747.7	414.7	118.7	191.7	69.5	71.7	264.1	70	1,441	5,424
1923	2,388	1,308	3,137	1,054	2,689	495	249.9	178.5	221.6	87.8	178.5	5,311	88	1,442	5,311
1924	3,038	1,623	4,840	1,310	751.4	3,784	874	98.3	66.4	73.6	71.7	392	66	1,410	4,840
1925	147.8	1,878	2,372	478.3	183.5	97.6	171.9	112.8	206.4	278.6	2,441	761.5	98	761	2,441
1926	593.5	3,916	1,832	3,059	376.5	180.4	202.8	573.3	3,883	4,633	2,011	875.5	180	1,845	4,633
1927	3,748	3,303	5,573	2,732	3,466	1,526	584.7	207.3	176.5	99.1	804.5	5,672	99	2,324	5,672
1928	1,673	3,072	2,056	2,391	373.5	2,583	1,098	248.3	100.8	98.5	136.2	818.3	99	1,221	3,072
1929	4,090	3,199	3,521	2,903	3,665	363.4	1,559	539.8	117.3	1,389	2,527	3,581	117	2,288	4,090
1930	8,436	3,649	2,010	881	221.9	178	124.7	82	68.5	93	96.5	123.7	69	1,330	8,436
1931	164.5	341.1	744.8	1,671	424.3	189.9	497.9	1,420	640.7	560.7	737.4	3,472	165	905	3,472
1932	5,704	1,600	1,307	1,225	486.6	289.8	292.8	92.6	95.4	123.9	839	1,526	93	1,132	5,704
1933	2,712	940.9	4,878	3,399	4,608	210.2	138.7	101.5	139.1	143.7	94.9	308.4	95	1,473	4,878
1934	412.5	110	1,355	632.7	132	116	108.8	122.6	98.7	77.2	73.4	71.1	71	276	1,355
1935	106.2	168.9	748.6	428.8	2,055	400.6	847	1,789	153.6	123.1	356.9	1,404	106	715	2,055
1936	1,199	3,781	3,352	1,483	752.9	129.5	171.5	139.3	102.3	245.8	757.7	217.9	102	1,028	3,781
1937	10,510	2,265	1,008	2,092	759	4,163	1,800	413.5	155.4	232.7	105.1	1,326	105	2,069	10,510
1938	574.5	2,985	4,269	4,035	884	512.5	441.2	647.8	180.8	104.6	155.3	240.7	105	1,253	4,269
1939	770.5	3,292	4,659	3,407	384.8	2,773	686.7	254.7	86.1	120.8	120.4	123.2	86	1,390	4,659
1940	278.4	2,059	2,914	4,634	552.8	1,794	479.4	158.5	174.6	100.4	206.9	1,154	100	1,209	4,634
1941	1,109	1,238	493.4	471.9	251.1	1,430	500.8	137.1	116.2	202	176.7	351.9	116	540	1,430
1942	378.1	2,256	1,855	3,527	535	465.1	185.1	131.6	133.5	139.8	327.7	1,858	132	983	3,527
1943	2,137	2,119	4,387	849.2	2,135	782.4	982	1,505	316	123.7	137.8	119.4	119	1,299	4,387
1944	145	285.7	3,140	3,506	674.4	464.4	139.2	110	85.7	78.3	77.1	88.9	77	733	3,506
1945	96.1	1,792	5,912	2,239	2,432	2,637	705.1	692.9	114.3	430.5	826.2	807	96	1,557	5,912
1946	1,382	2,443	2,618	322.4	1,280	3,877	329.3	133	85.5	101.5	158.3	907.6	86	1,136	3,877
1947	3,519	1,349	1,494	3,749	4,180	5,866	1,178	893	743.8	243.5	653	461.6	244	2,027	5,866
1948	1,778	3,639	4,407	4,921	1,921	391.2	326.2	189.9	141.4	157	1,262	2,567	141	1,808	4,921
1949	6,569	3,278	2,116	1,968	537.3	648.1	442.4	193.5	265	173.3	110	440.2	110	1,395	6,569
1950	9,767	5,847	2,048	2,508	987.1	480.4	223.6	166.8	281.2	588.4	1,619	4,000	167	2,376	9,767
1951	4,706	5,259	3,102	2,515	1,157	569	259	140.6	141.1	120.3	210.7	2,440	120	1,718	5,259
1952	7,740	2,858	3,804	3,593	710.7	240.6	167.5	142.5	118.7	96.8	87.3	123.4	87	1,640	7,740
1953	1,011	846.7	1,426	640.9	2,547	210.2	251.8	156	101.1	99	168.9	100.4	99	630	2,547
1954	119.4	144.3	956.5	2,145	456.8	733.8	169	166.4	109.4	173.2	204.4	284.6	109	472	2,145
1955	865.3	2,928	4,855	694.2	223.7	171.7	150.7	144.4	133.1	134.3	939.1	302.5	133	962	4,855
1956	196.2	4,522	3,938	1,241	1,686	854.1	1,002	381.6	217.9	150.9	138.1	202.9	138	1,211	4,522
1957	854.8	992.7	818.5	6,816	2,983	1,915	1,652	215	676.8	276.6	1,088	3,589	215	1,823	6,816
1958	1,326	792.1	1,454	1,992	2,039	3,391	2,107	2,136	627.9	378.3	438.1	507.9	378	1,432	3,391
1959	6,524	5,974	2,437	1,294	2,074	554.8	400.3	216.9	154.5	171.7	252.5	1,522	155	1,798	6,524
1960	2,420	2,413	1,157	1,474	658.8	667.2	292.5	339.7	159	145.2	165.2	136.1	136	836	2,420
1961	170.5	1,560	5,128	4,845	1,734	936.3	302.3	614.2	408.7	193.2	448.4	789.2	171	1,427	5,128
1962	3,149	2,221	4,184	721	353.9	218	224.3	181.7	179	222.6	510.6	302.2	179	1,039	4,184
1963	549.9	474.8	8,373	913.2	423.6	413.2	227.6	210.3	175.9	141.2	153.3	133.5	134	1,016	8,373
1964	191.7	168.2	6,563	6,865	1,173	1,296	272.2	231.5	196.8	167.5	196.6	297.4	168	1,468	6,865
1965	879.4	2,166	3,164	4,040	589.9	310.9	255.6	325.1	391.8	543.7	354	261.3	256	1,107	4,040
1966	1,162	2,879	1,068	1,040	1,468	301.6	2,022	591.3	245.9	245.1	1,452	3,377	245	1,321	3,377
1967	566.2	1,784	6,011	1,908	3,713	461.4	262.5	258.8	175.7	166.1	479.3	2,910	166	1,558	6,011
1968	1,303	2,586	1,988	1,093	3,038	1,718	647.2	496.4	177.9	146.5	454.9	2,144	147	1,316	3,038
1969	2,843	2,777	1,033	3,840	3,854	1,851	2,130	510	560	318.9	1,454	954.4	319	1,844	3,854
1970	1,384	3,200	2,277	4,589	2,222	1,941	504.3	376.6	222.1	210.1	270.1	917	210	1,509	4,589
1971	589.1	4,097	2,792	395.4	1,821	754.4	452	291.1	222.6	172.3	222.2	1,203	172	1,084	4,097
1972	1,758	886	3,174	6,458	3,513	771.3	1,639	726.9	916.8	1,313	5,490	3,540	727	2,516	6,458
1973	2,172	1,840	4,698	3,300	1,566	2,738	1,691	1,532	283.7	390.7	1,667	2,856	284	2,061	4,698
1974	5,348	2,042	2,462	3,004	695.1	503.8	233	280.5	538.5	199.2	998.1	2,940	199	1,604	5,348
1975	4,453	5,993	3,697	1,141	683.3	737.9	281	293.1	601.2	421.6	374.2	1,161	281	1,653	5,993
1976	2,539	4,624	1,987	585.1	393.3	1,194	573.2	762.6	287.5	268.7	318.5	156.1	156	1,141	4,624
1977	120	1,296	2,456	2,502	882	393.3	397.2	235.1	277	439	317.9	4,398	120	1,143	4,398
1978	1,005	385.4	7,139	3,496	1,856	575.3	297.2	270.5	203.3	203.7	214.8	712.2	203	1,363	7,139
1979	1,531	1,775	5,281	4,434	950.6	649.4	573	1,654	2,518	949	2,711	2,546	573	2,131	5,281
1980	1,727	1,129	4,607	3,188	1,097	4,117	1,134	2,191	322.5	169	252.7	654.8	169	1,716	4,607
1981	451.7	3,247	882.6	1,950	3,061	4,147	516.6	205.5	837.4	256.1	531.8	1,190	206	1,440	4,147
1982	2,233	5,349	5,254	2,093	661.8	1,158	333.8	173.4	172.7	173.5	758.7	2,174	173	1,711	5,349
1983	747.6	1,044	509	2,182	2,857	1,012	476.4	196.5	170.2	555.6	3,175	2,974	170	1,325	3,175
1984	569	3,159	5,523	3,515	1,418	411	246.1	243.6	186.7	217.2	733.9	1,224	187	1,454	5,523
1985	1,160	2,950	2,313	1,585	1,430	981.4	506.3	260.5	198.2	195.4	3,423	3,012	195	1,501	3,423
1986	1,271	4,495	3,763	886.3	669.3	989.5	1,467	217.2	1,105	3,076	2,384	3,346	217	1,972	4,495
1987	852.1	746.8	848.2	2,369	916.2	2,200	4,886	290.4	196.4	158.1	251	437.4	158	1,179	4,886
1988	436.4	2,937	1,777	1,546	291.5	149	316.5	247.8	310.1	143.6	768.4	648.5	144	798	2,937
1989	1,888	1,194	2,063	3,801	3,441	2,859	1,116	554.4	261.1	179.7	610.3	265.1	180	1,519	3,801
1990	1,853	5,360	994.7	2,274	3,739	2,786	3,567	960.3	540.2	2,087	847.1	7,274	540	2,690	7,274
1991	4,553	3,114	2,390		495.5	336.6	162.3	142.6	134.6	150.3	121.9	197.5	122	1,073	4,553
1992	304.5	282.9	987.4	1,971	638.4	884	5,804	1,235	364.1	334.7	3,885	848.8	283	1,462	5,804
1993	4,667	1,363	5,248	3,264	703.4	1,039	3,225	191	185	174.5	2,689	2,315	175	2,089	5,248
1994	2,127	3,452	1,703	2,964	493.7	908.9	1,657	405.8	247.1	216.8	315.2	512.1	217	1,250	3,452
1995	2,110	1,067	2,173	3,031	3,445	3,068	1,667	3,287	170.8	543.6	1,305	508.1	171	1,865	3,445
1996	4,731	2,163	3,147	3,554	6,175	2,001	867.9	289.6	356.9	371	1,074	4,898	290	2,469	6,175
1997	1,663	2,642	4,001	657.1	1,524	4,459	517.3	770.2	199.6	182.8	264.8	592.8	183	1,456	4,459
1998	2,614	2,069	1,986	3,120	1,731	1,835	1,550	406.7	142.7	209	250.4	325.4	143	1,353	3,120
1999	2,969	1,537	2,907	2,559	488.7	274.6	271.5	162.1	133.8	130.8	163.5	380.7	131	998	2,969
2000	1,244	2,941	1,257	3,866	1,185	1,658	513.5	299.5	326.7	446.8	388	1,494	300	1,302	3,866
2001	358.1	2,200	761	2,769	2,577	1,106	245.7	231.1	180.3	1,206	808	3,385	180	1,319	3,385
2002	571	2,236	2,197	4,482	2,367	1,100	221.9	185.4	325.8	279.9	961.5	1,390	185	1,360	4,482
2003	1,994	1,032	4,657	2,115	3,922	2,475	2,559	1,448	3,135	1,244	1,989	3,707	1,032	2,523	4,657
2004	3,877	2,107	2,631	1,913	4,034	4,876	693.2	677.7	376.4	257.9	1,081	1,229	258	1,979	4,876
2005	12,840	3,219	2,144	3,824	1,100	408.9	576.9	469.1	1,298	1,678	1,919	2,006	409	2,624	12,840
2006	3,616	2,397	2,046	911.9	1,455	2,442	1,927	312.5	465.3	2,481	2,062	3,741	313	1,988	3,741
2007	5,405	923.9	7,772	2,750	864.9	400.7	248.8	1,189	354.5	400.2	1,108	4,038	249	2,121	7,772
2008	2,520	5,053	9,281	1,669	2,219	3,462	974.8	139.9	141	160.8	210.1	1,402	140	2,269	9,281
2009	475.6	3,437	1,272	1,969	1,660	914.2	311.9	362.8	273.2	653.9	648.4	1,326	273	1,109	3,437
2010	1,588	777.9	4,641	823.5	1,223	3,533	644.6	334.9	177.6	168.4	548.5	782	168	1,270	4,641
2011	739	3,252	8,394	5,367	6,333	1,585	907.1	867.5	1,338	3,081	3,678	7,607	739	3,596	8,394
2012	4,062	1,617	2,188	542.7	2,357	337.6	250.2	208.1	890.4	1,619	1,539	2,355	208	1,497	4,062
2013	3,510	1,746	3,341	4,346	896.4	1,431	4,960	729	244.4	859.1	1,840	4,832	244	2,395	4,960
2014	1,920	3,305	1,619	4,402	3,734	3,126	732.6	591.8					592	2,429	4,402
Mean of monthly Discharge	2,310	2,380	**3,130**	2,530	1,700	1,380	865	488	387	464	911	1,670			
Min	96	110	493	322	132	98	86	82	66	61	72	71	61	276	1,355
Avg	2,309	2,385	**3,126**	2,535	1,697	1,377	865	488	387	464	911	1,674	200	1,518	4,894
Max	12,840	5,993	9,281	6,865	6,333	5,866	5,804	3,287	3,883	4,633	5,490	7,607	1,032	3,596	12,840

** No Incomplete data have been used for statistical calculation

URS

Project Name:	Solve for Bankful Discharge	**Page**		of	
Project Limits:		**Sheet**		of	
Route:		**Computed by**		**Date**	
PID Number:		**Checked by**		**Date**	
ODOT District:	6				
Client:		**URS Project No.**	14578403		

L:\Projects\14578403\TRANS\FRA\77372\drainage\docs\Report\2015-04-22\[77372_Appndx J_ USGS-03-4164-Rural.xlsx]USGS_03-4164

Print Date 4/22/2015

ESTIMATED PEAK DISCHARGES OF UNREGULATED RURAL STREAMS IN OHIO
U.S. GEOLOGICAL SURVEY WATER-RESOURCES INVESTIGATIONS REPORT 03-4164
Aug-03
Note: Supercedes WRIR 89-4126 Dated March 1990

TRIBUTARY:		**COUNTY:**	Franklin County
WATERSHED:	Scioto River at I-70 / I-71	**TOWNSHIP:**	
USGS QUAD MAP:			
LOCATION:			
DESCRIPTION:			

CULVERT NUMBER:		**STRUCTURE TYPE:**	
TRIBUTARY AREA LABEL:		**STRUCTURE NUMBER:**	
STATION:		**QUANTITY REF. NO.**	
SIDE:			

REGION:	A			
AREA:	1,042,560	ACRES		
SLOPE:		ELEVATION DIFFERENCE (10% & 85%) =	**4.8522**	feet
		CHANNEL LENGTH (10% & 85%) =	5280	feet
		CHANNEL SLOPE % =	0.00092	
		SLOPE IN FEET PER MILE =	4.85	

EQUATION VARIABLES:	DA=	1629.00	AREA IN SQUARE MILES
	SL=	4.85	MAIN CHANNEL SLOPE IN FEET PER MILE
	W=	0.00	STORAGE AREA IN PERCENT

RECURRENCE INTERVAL	**SIMPLE EQUATION**		**FULL MODEL EQUATION**	
	REGRESSION CONSTANT	**PEAK DISCHARGE**	**REGRESSION CONSTANT**	**PEAK DISCHARGE**
	RC	Q	RC	Q
(year)		(cfs)		(cfs)
2	106.3	**21,197**	58.9	**25,753**
5	186.1	**29,725**	96.2	**38,200**
10	244.4	**35,722**	121.2	**46,795**
25	321	**43,252**	152.4	**58,065**
50	379.6	**48,928**	175.3	**66,155**
100	439.1	**54,543**	197.7	**75,000**

Bankfull Discharge				
Region		A	~~B~~	
Drainage Area:	DA =	1629.00 sq mi	~~1629.00 sq mi~~	
Bankfull Width:	WBF=	250.4 ft	~~445.2 ft~~	USGS report 2005-5153
Bankfull Mean Depth:	DBF=	10.8 ft	~~14.3 ft~~	
Bankfull Cross Section Area	ABF=	2677 sq ft	~~6370 sq ft~~	
Bankfull Discharge	QBF=	**10372 cfs**	~~**25569 cfs**~~	