October 21, 2015

Mr. Greg Davies, Director
Department of Public Utilities
910 Dublin Road
Columbus, Ohio 43215-9060

Re:  City of Columbus – Blacklick Creek Sanitary Interceptor Sewer
     CIP650034-10000
     Final Finding of No Significant Impact
     WPCLF Loan No.: CS390274-0183

Dear Mr. Davies:

On September 14, 2015, the Ohio EPA issued an Environmental Assessment for the City of Columbus, Blacklick Creek Sanitary Interceptor Sewer project, Water Pollution Control Loan Fund (WPCLF) number CS390274-0183. The conclusions contained in the Environmental Assessment are the basis for this final Finding of No Significant Impact for the above-referenced project.

This final Finding of No Significant Impact may be revised or rescinded at a future date based upon either changes to the proposed project, the presentation of information which significantly alters earlier conclusions, or failure of the applicant to perform the environmental impact mitigation prescribed in the Environmental Assessment.

Sincerely,

[Handwritten Signature: Jerry Rouch]

Jerry Rouch, Assistant Chief
Ohio EPA
Division of Environmental and Financial Assistance
Office of Financial Assistance

Cc: Michael Garnes, EMH&T, 5500 New Albany Rd, New Albany, Ohio 43054
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ENVIRONMENTAL ASSESSMENT

Project: City of Columbus
Blacklick Creek Sanitary Interceptor Sewer
CIP650034-10000
WPCLF Loan No.: CS390274-0183

Applicant: Mr. Greg Davies, Director
Department of Public Utilities
910 Dublin Road
Columbus, Ohio 43215-9060

A. Proposed Project

1. Summary

The City of Columbus' Division of Sewerage and Drainage, in Franklin County, has applied to Ohio EPA for financial assistance from the Water Pollution Control Loan Fund (WPCLF) to fund the construction of a new sanitary interceptor sewer. This project, known as the Blacklick Creek Sanitary Interceptor Sewer (BCSIS) project, will provide additional sewer service to New Albany and the City of Columbus, with available future sewer service to Jefferson Township.

The project area is located within and to the north of the unincorporated community of Blacklick, Ohio, and will extend the existing Blacklick Sanitary Interceptor Sewer from its existing terminus, which is just south of Blacklick Ridge Boulevard, north to Morse Road. Additional sewer service to New Albany and the City of Columbus will be provided by proposed Shaft 4, with service to Jefferson Township connecting in the future to structures at proposed Shafts 2 and 3. The proposed sewer system is anticipated to serve approximately 16,000 acres within the Blacklick Creek watershed. Existing service is currently provided - and will continue to be provided - to Jefferson Township via an existing manhole (MH12).

Ohio EPA anticipates awarding a WPCLF loan to the City of Columbus for the BCSIS project in December, 2015. Construction of the project will begin in the spring of 2016 and be completed within approximately 3.5 years. See the figures below for a project location map (Figure 1), a project plan map (Figure 2) and a tributary area map (Figure 3).

The WPCLF program requires that a comprehensive environmental review be completed prior to the award of financial assistance. This Environmental Assessment (EA) describes the BCSIS project, the planning and analysis that were performed prior to the design and the potential for adverse environmental impacts during construction. Ohio EPA’s environmental review has concluded that the proposed project will not result in significant adverse environmental impacts. More detailed information follows in the sections below.
Figure 1: Blacklick Creek Sanitary Interceptor Sewer Project Location Map
Figure 2: Blacklick Creek Sanitary Interceptor Sewer Project Plan Map
Figure 3: Blacklick Creek Tributary Map
2. Background and Existing Conditions

The Blacklick Creek tributary and Rocky Fork tributary areas encompass numerous municipal and governmental jurisdictions including Franklin, Licking and Delaware counties, the cities of Columbus, New Albany, Reynoldsburg, and Gahanna, and several townships. In addition to jurisdictional separations, the Jefferson Water and Sewer District (Jefferson Township) and the Village of New Albany both have existing sewer service agreements with the City of Columbus, which allow these “satellite communities” to discharge their sewerage into the City of Columbus wastewater collection and treatment system.

These areas have been the subject of numerous studies and planning efforts, dating back to 1963. The following documents are most pertinent to the proposed project:

In 1963, H.G. Dill Co. published a report and preliminary general plan for the Big Walnut Creek Area Trunk Sewer.

In 1968, Evans, Mechwart, Hambleton & Tilton, Inc. (EMH&T) developed a report and recommendations for a sanitary trunk sewer for the Blacklick Creek drainage area.

In 1981, Malcolm Pirnie, Inc. developed the Columbus Metropolitan Areas Facilities Plan Update Segment 5 – Blacklick Interceptor Part 1.

In 1988, the Blacklick Creek Interceptor Sewer, Part 6A (CIP 710 034) was engineered and later constructed. This project extended the Interceptor Sewer from just south of the intersection of Reynoldsburg-New Albany Road and Broad Street approximately 4,300 linear feet along the west side of Blacklick Creek to its current termination point at the Jefferson Township Corporation line near Blacklick Ridge Boulevard.

In 2000, the BCSIS, Part 6B Final Design Report (CIP 034.6B) reevaluated the BCSIS tributary area and recommended an alignment for the interceptor extension to Morse Road, which in 2005, became known as the BCSIS Part 6B.

In early 2005, the BCSIS, Part 6B (CC-13709) plan was approved to extend the 66-inch diameter interceptor sewer from existing MH12 approximately 3,550 linear feet, to just north of Taylor Road. The plan was bid; however, it was never constructed due to higher than anticipated costs. Additionally, that plan also eliminated the possibility of future gravity service to the Rocky Fork Area, which is currently diverted to the Big Walnut Trunk Sewer.

Recent analysis of the proposed project re-evaluated the opportunities underlying the BCSIS, Part 6B report in order to identify the best alignment and construction methods to facilitate the future needs of the wastewater collection system.
a. Population Projections

Franklin County has experienced rapid growth from the early 1900s to present. The current population estimate is 1,231,393. Per estimates from the Ohio Development Services Agency, the population of Franklin County is expected to continue to grow at a steady rate of 1.3 percent.

3. Discussion of Alternatives

As indicated above, there was a significant amount of planning that went into the development of the proposed project, which is needed to address both existing and future wastewater conveyance needs in the northeastern portion of the Columbus service area. The refinement of the BCSIS project into the currently-proposed design was accomplished after considering large- and small-scale alternatives, which included, among other things, the investigation of horizontal and vertical alignments and construction methods.

a. Horizontal Alignments
A total of four distinctly different horizontal alignment options were considered. Two alignments, the Reynoldsburg-New Albany Road Alignment and the Waggoner Road Alignment made it past desktop screening into a more in-depth analysis. The other horizontal alignments were the Eastern Alignment and the Direct Route Alignment.

1. Reynoldsburg-New Albany Road Alignment
This alignment begins at the existing Blacklick tie-in location at MH12 and extends to the north along Reynoldsburg-New Albany Road to a terminal point at the intersection with Morse Road. The alignment extends approximately 23,300 feet in length. Flow calculations require a 66-inch or 72-inch diameter pipe at the downstream connection point, depending on the final slope. The subsurface consist of mixed rock and soft ground conditions. Invert depths for this alignment are expected to range from approximately 30 to 105 feet below ground surface. At its northern terminus near Morse Road, a connection could be made to the Rocky Fork Diversion Manhole (RP-10182 MH 43) through a pump station and force main or by gravity sewer, depending on the chosen vertical alignment.

2. Waggoner Road Alignment
This alignment also begins at the Blacklick tie-in location at MH12 and travels northeast utilizing the railroad easements until reaching Waggoner Road. It then travels within the right-of-way of Waggoner, Clark State and Babbit roads until it reaches its terminus near the intersection of Babbit and Morse roads. This alignment is approximately 27,000 feet in length. Flow calculations require a 66-inch diameter pipe at the downstream connection point. As a generality, the subsurface consists of mixed rock and soft ground conditions. Invert depths for this alignment are expected to range from approximately 30 to 130 feet below the ground surface. Existing and proposed inverts show that the Rocky Fork Diversion Manhole would require a pump station in order to tie into this trunk sewer.
3. **Eastern Alignment**
This alignment would begin at manhole 3, which is downstream of the Blacklick tie-in location at MH12, and travel east along Broad Street until it reaches the county line. At the county line, the alignment turns north, eventually coming west slightly, terminating on Morse Road west of Babbit Road. This alignment was initially considered as an alternative when it was believed that a tunnel located solely in rock would offset the cost of the additional length of sewer line needed. However, it was eliminated upon learning that it was not possible to stay in rock.

4. **Direct Route Alignment**
This alignment would be a cross country gravity sewer connecting the Rocky Fork Diversion Manhole Chamber to the existing Blacklick Sewer, making it more an extension of the Rocky Fork Sewer rather than an extension of the Blacklick Sewer. Inverts for this alignment would be expected to range from approximately 8 to 50 feet below the ground surface. No structures or sub-trunks would be planned. Subsurface conditions would require a mixed-face tunneling construction method; however, a subsurface investigation was not conducted and an extensive alignment investigation would have been required just to deem this alignment feasible. The lack of information concerning subsurface conditions, numerous required easements, unrealistic sharp bends involved in the alignment, creek crossings, and a significantly smaller service area were several factors leading to this alignment’s elimination.

b. **Vertical Alignments**
Three vertical alignments were analyzed specifically for consideration as part of the Reynoldsburg-New Albany Road horizontal alignment: the Reynoldsburg-New Albany Road gravity alignment, the Reynoldsburg-New Albany Road shallow alignment and the Reynoldsburg-New Albany Road deep tunnel alignment. These alignments were mainly developed to compare construction methods required, and resultant gravity service areas and pump station locations and requirements, so as to optimize the potential of the Reynoldsburg-New Albany Road horizontal alignment. Vertical alignment alternatives were not developed for the other horizontal alignment options because either the horizontal alignment had already been eliminated or the vertical alternative provided no additional benefit.

1. **Reynoldsburg-New Albany Road Gravity Alignment**
This is a shallow, gravity-flow alignment that follows Reynoldsburg-New Albany and Morse roads. The alignment begins at the Blacklick tie-in location at MH12, and follows Reynoldsburg-New Albany Road until turning west at Morse Road, ending at the existing Rocky Fork Diversion Manhole 43.

2. **Reynoldsburg-New Albany Road Shallow Alignment**
This shallow alignment is similar in design to the previously-accepted alignment from the Part 6B design report. The alignment would connect at existing MH12 and generally utilize the existing easements of Reynoldsburg-New Albany road north until its terminus at Morse Road. The main difference between this design and the gravity alignment is the reduction in slope from 0.28 percent to 0.20 percent.
3. Reynoldsburg-New Albany Road Deep Tunnel Alignment
This is a deep tunnel and large pump station alignment along Reynoldsburg-New Albany and Morse roads. The tunnel portion of the alignment begins at the location of the proposed pump station, which is along Reynoldsburg-New Albany Road, south of Havens Corners road and has a depth of approximately 130 feet. The tunnel follows Reynoldsburg-New Albany Road north until turning west at Morse Road, ending approximately 560 feet east of Rocky Fork Creek. A shallow gravity tunnel would then be constructed at the Rocky Fork Manhole. The pump station would send flows south to MH12 via a force main.

c. Construction methods
The various horizontal and vertical alignments that were evaluated all have different possible construction methods associated with them and varying geological conditions. The geological conditions and the sewer size also dictate the cost-effective methods available for each alignment. The bedrock valleys discovered during the preliminary geological boring program have affected the vertical alignments as well as potential construction equipment selection. The following methods were studied for the tunnel construction:

1. **Open-Cut**
Open-cut excavating is a common method for placement of shallow sewers. The maximum cost-effective depth for open-cut or trench work is typically around 40 feet and is dependent upon the geology and the contractor’s means and methods. This option is not feasible due to the required depth necessary to maintain a gravity-flow sewer, as well as, the lack of surface area available for construction, particularly along Reynoldsburg-New Albany Road; however, it is viable at the connection to the existing sewer.

2. **Drill and Blast**
The drill and blast excavation method is commonly used in hard rock and is particularly effective in very hard rocks such as granites and tuffs. It is unlikely that drill and blast will be used in the rock portions of the alignment, as the shale is an excellent material for a tunnel boring machine to tunnel through.

3. **Trenchless Excavation (Horizontal Directional Drilling and Microtunneling)**
Horizontal directional drilling is a steerable trenchless pipe installation system that uses a surface-launched drill rig to install an uncased horizontal bore that is followed by the pullback of the product pipe. The method is ideal for pipes installed in locations where surface disturbance must be minimized. However, the pipe size range required for this project is bigger than horizontal directional drilling can achieve. And given the capacity of the sewer and the ability to achieve gravity-flow conditions using other methods, installing the sewer by this method was not recommended.

Microtunneling is a trenchless construction method where the microtunneling machine is remotely controlled, usually from the surface, during routine operation. This machine uses laser guidance systems, allowing pipes to be installed within line grade tolerances. Sewer pipe is directly jacked into the ground and the pressures at the excavation face
are continuously supported by either a pressurized slurry system or an earth pressure system that utilizes an auger. A slurry separation plant would also be required with additional surface space requirements.

For the proposed project, pipe jacking would be an expensive option. Multiple shafts would be required along the alignment, estimated at a total of 36. And the varying terrain would necessitate that this alternative be a force main rather than a gravity-flow sewer. It may be possible to use microtunneling for a short section at the beginning or end of the sewer; however, the use of it for the entire length would be technically difficult and very costly.

4. Tunnel Boring Machine Excavation

Five types of tunnel boring machines were evaluated: an open face machine (shielded and main beam), an earth pressure balance machine, a slurry pressure balance machine, a mixed shield tunnel boring machine and a road header tunnel boring machine. The selected tunneling method was finalized during final design after the geotechnical investigation was complete. The method chosen was almost entirely based on the geological conditions that can be achieved in conjunction with the final alignment. Cost was a major factor as some methods were significantly more expensive than others.

4. Description of the Selected Alternative

The proposed project is a tunneled relief sewer. The selected alternative, the Reynoldsburg-New Albany Road Gravity Alignment, provides the City with an interceptor sewer extension that meets the current and future needs of the Blacklick Creek, Rocky Fork, and Big Walnut tributary areas. The flexibility in the operation of these sewersheds will allow the City of Columbus to best capitalize on development opportunities and balance flows within the Blacklick and Big Walnut tributary areas. This option also allows the City to bypass the need for a pump station to support the Rocky Fork Diversion of existing flows to the Blacklick Interceptor Sewer.

It should be noted that the horizontal alignment of the final designed BCSIS project is different than it was depicted in the facilities planning report. The horizontal alignment changes are due to a number of factors including: the change from open-cut methods to tunnel methods (i.e. the vertical alignment change), proximity to Blacklick Creek, avoidance of wetlands and streams, easement availability, and potential locations for relief and diversion structures. And, because of the concern about lowering ground water if dewatering was done, it was determined that tunneling will be conducted using a pressurized face tunnel boring machine capable of excavating through soft ground, mixed face and rock without dewatering.

The proposed BCSIS alignment will have a total length of 23,020 linear feet (lf), with approximately 4.3 miles (22,600 lf) to be constructed by tunneling methods with an earth pressure balance machine. An additional 400 lf of the sanitary sewer will be
constructed via open trench. The project will connect to the existing 66-inch diameter Blacklick Creek Interceptor Sewer, Part 6A terminus at existing MH12, just south of Blacklick Ridge Boulevard, and run in an overall northerly direction following Reynoldsburg-New Albany Road, where it terminates southwest of the intersection of Morse Road and Reynoldsburg-New Albany Road at Shaft 4. The proposed interceptor will be a minimum of 120-inches (10-ft) in finished diameter and have four vertical shafts, one open cut portal and one optional temporary maintenance shaft. The tunnel will be constructed of segmental concrete between 40 feet to 125 feet below ground surface.

The four in-line access shafts will be constructed, along with one optional maintenance access shaft, as described in more detail below. Shaft excavation through the rock for all the shafts will be performed using drill and blast techniques.

**MH12 and Junction Chamber**
Located at Blacklick Ridge Boulevard, approximately 650 feet east of the intersection with Reynoldsburg-New Albany Road. The tail/starter tunnel will be constructed between MH12 and Shaft 1. Approximately 400 feet of 120-inch inside diameter concrete sanitary sewer will be constructed via open-cut trench that will cross Blacklick Ridge Boulevard. Also, a cast-in-place concrete junction chamber will be constructed at MH12, to replace it. The existing 36-inch diameter storm sewer will be removed and then replaced after construction of the tunnel. The site will include a stabilized construction access drive.

**Shaft 1**
Located on the northeast corner of Blacklick Ridge Boulevard and Reynoldsburg-New Albany Road. The in-line access shaft will be 8-feet in diameter, and will be where the tunnel boring machine is launched. The site will include an asphalt construction access drive and parking lot (approximately 60 ft. x 160 ft.), a gravel parking area (approximately 30 ft. x 140 ft.) and a sediment basin (approximately 60 ft. x 40 ft.).

**Shaft 2**
Located on the west side of Reynoldsburg-New Albany Road across from the T-intersection with Clear Creek Court. The in-line access shaft will be 8-feet in diameter. Additionally, a connection manhole and drop manhole will be constructed. The site will include a stabilized construction access drive.

**Optional Maintenance Access Location**
Located along the east side of Reynoldsburg-New Albany Road approximately 500 feet south of the intersection with Havens Corners Road. This site will be used solely for the construction of an optional maintenance shaft for tunnel boring machine maintenance. The site will include a stabilized construction access drive.
Shaft 3
Located at the northeast corner of the intersection between Reynoldsburg-New Albany Road and Haven's Road. The in-line access shaft will be 8-feet in diameter. Additionally, a connection manhole and drop manhole will be constructed. The site will include a stabilized construction access drive.

Shaft 4
Located at the southwest corner of the intersection between Reynoldsburg-New Albany Road and Morse Road. The in-line access shaft will be 8-feet in diameter. Additionally, a single-connection drop manhole will be constructed. The site will include a stabilized construction access drive.

5. Implementation Costs of the Proposed Project

The total project cost of the BCSIS project is estimated to be $130,000,000. The City of Columbus has applied to the WPCLF for financing of $125,000,000 of the total cost. Columbus qualifies for the standard below-market interest rate, which is adjusted monthly prior to loan award, and is currently 2.24 percent (September 2015). The actual WPCLF loan amount to Columbus will be based on the as-bid costs of the project. Compared to the market interest rate (3.49 percent in September 2015), Columbus will save over $18 million in interest payments through the WPCLF.

The City of Columbus passed an ordinance in October, 2014, authorizing an increase in sewer rates as of January, 2015. Inside the City, residential rates will increase approximately 2.89 percent. Outside the city, residential customer rates will increase 3 percent. The Department of Public Utilities will continue to offer the low income discount program that reduces qualifying participant’s sewer commodity portion of their sewer bill by 20 percent.

In 2005, Columbus passed an ordinance to create a Clean River Fee to recover costs of construction for projects necessary to meet the requirements of its two consent orders that mandate elimination of wet-weather related combined sewer overflows and sanitary sewer overflows. This charge was assessed based on each property’s measured impervious surface area. Since 2005, Columbus City Council has approved across-the-board rate increases, including the Clean River Fee, which allows the city to continue to address these consent order projects.

6. Proposed Project Schedule

Advertise for Bids.................................September 2015
WPCLF Loan Award.............................December 2015
Start Construction.............................Winter 2016
Complete Construction.........................October 2019
B. **Environmental Impacts of the Proposed Project**

A complete environmental review of the BCSIS project was conducted, which included the extensive alternatives analysis that has been conducted over the years to determine the most cost-effective, environmentally-sound solution to meet the need of the planning area.

The project consists of the installation of a ten-foot diameter trunk sewer along Reynoldsburg New-Albany Road with tunnel-boring technology, eliminating many of the potential impacts associated with a conventional sewer project. There will be four permanent shafts and one temporary maintenance access location along the sewer alignment, which will require surface disturbance during construction, as well as an open-cut construction area where the sewer extension will begin. Ground disturbing activity will also occur at construction staging/storage sites. Specific areas of disturbance include:

**MH-12 and Junction Chamber**

This site work will disturb an estimated 1.23 acres.

**Shaft 1**
This site work will disturb an estimated 9.5 acres.

**Shaft 2**
This site work will disturb an estimated 1.55 acres.

**Optional Maintenance Access Location**
This site work will disturb an estimated 1.03 acres.

**Shaft 3**
This site work will disturb an estimated 1.43 acres.

**Shaft 4**
This site work will disturb an estimated 2.13 acres.

Construction mitigation has been included in the detailed plans and specifications for the BCSIS project to help further prevent adverse environmental impacts. More detailed information regarding potential impacts follows.

1. **Land Use**

Existing land use within the northern two thirds of the project area generally consists of agricultural, rural and residential land use types, with other uses mixed throughout. The southern third of the project area has experienced significantly greater development, primarily urban and suburban residential, park and public service, with lesser amounts of residential rural, agricultural, commercial and industrial use.
Existing land use within the project alignment includes roadway and utility corridor. The project area is bordered by a mix of cultivated land, woods and single-family residential development. Blacklick Creek borders the project area to the east.

2. Major Land Forms

The current depositional environment of the project area is fluvial plain dominated by the Blacklick Creek.

No major landforms will be permanently altered by the BCSIS project. The construction techniques that will be utilized include trenchless and open-cut sewer installation, pipe “jacking,” and tunneling. All of these methods will avoid impacts or relatively easily return the ground surfaces to their pre-existing elevations. There should be no long-term depressions or mounded areas after construction restoration is completed. Once completed, the project will cause no significant change in the land forms in the project area. Based on the above, the proposed project will not result in a significant adverse impact to major landforms.

3. Local Economy

According to the 2009-2013 American Community Survey, the median household income (MHI) for Franklin County is $50,877.

In anticipation of this and many other projects, Columbus issues bonds to generate the capital to proceed with construction. As such, the sewer service charges to Columbus customers are driven by the total expected indebtedness of the City’s Division of Sewerage and Drainage, and expected overall operation and maintenance costs, as opposed to the specific indebtedness of this or any other individual project.

Currently, the average Columbus household (using approximately 7,480 gallons of water per month) is charged for wastewater treatment at a quarterly rate of $122.87. This rate includes the Clean River Surcharge of $9.66 per quarter. Annually, a typical Columbus household pays $491.48.

The 2009-2013 American Community Survey estimate for the City of Columbus median household income (MHI) was $44,072. Therefore, the average annual sewer service charge represents about 1.11% of the MHI for the Columbus area. This amount of household income spent on sewer service charges is slightly below the Ohio average of 1.14%. Based on this, no significant adverse impact to the local economy is expected from implementation of the BCSIS project.

4. Air Quality

Franklin County is currently in attainment with respect to carbon monoxide, lead,
nitrogen dioxide, particulate matter, and sulfur dioxide. The County is not in attainment of the ozone standards. During construction, continuous ventilation will be installed to exhaust gases and dust from all excavations directly to the outside air, as well as to deliver fresh air to the tunnel. Additionally, the proposed project will result in a temporary increase of dust and fumes from construction activities. This will be mitigated using standard construction best management practices (BMPs), such as dust suppressants and properly-operated equipment in good working order. With these mitigation measures, any effects on air quality will be short-term, ending when construction is complete. Future operation of the proposed sewer tunnel will have no impact on air quality. Therefore, no significant adverse impact to air quality will result from the project.

5. Archaeological and Historical Resources

The BCSIS project was submitted to the Ohio Historic Preservation Office (OHPO) for review. The proposed project will be implemented in an area that has recently seen a rapid increase in residential and commercial development. The area immediately surrounding the project includes woods, agricultural fields and modern residences. Ohio EPA believes that the proposed project will have no effect on properties eligible for or listed on the National Register of Historic Places.

Through a combination of shovel testing and visual inspection, a Phase I archaeological survey identified one previously unknown archaeological site (33-Fr-2914). This site is a 19th century historic artifact deposit related to a demolished house. It was not determined to be eligible for inclusion onto the National Register of Historic Places. Additionally, five historic houses were noted in the project area, but are not considered to be potentially eligible for inclusion onto the National Register of Historic Places. Regardless, the low potential for visual impacts to the setting of these properties would be unlikely to lead to an adverse effect. And, there are no National Historic Landmarks in close proximity to the project area.

OHPO concurred with consultant’s recommendation that no further archaeological investigations are required for this project, supporting Ohio EPA’s no-effect conclusion. In the event of archaeological finds during construction, contractors and subcontractors are required under Ohio Revised Code Section 149.53 to notify OHPO of any archaeological discoveries in the project area, and to cooperate with that entity (and with Ohio EPA) in archaeological and historic surveys and salvage efforts when appropriate.

6. Drinking and Ground Water

The BCSIS alignment follows Reynoldsburg-New Albany Road within the right-of-way. The right-of-way contains several existing buried utilities, including an existing 12-inch diameter water main that is the sole source of public drinking water for the neighborhood to the east of Blacklick Creek. Due to the size of the sanitary sewer and
location within the right-of-way, the proposed sewer does not maintain ten feet horizontal separation from the water main as required per the Ten State Standards. However, the sanitary sewer will be tunneled far below the water main, providing significant vertical separation. The design has been coordinated with Jefferson Water and Sewer District to ensure protection of their utilities and Ohio EPA accepted the horizontal separation deviation for the alignment.

Extensive geotechnical site exploration has been conducted in the form of geotechnical surveys, geotechnical drilling explorations, soil and rock laboratory testing and various reports completed during the preliminary and final phases of the investigation of the project area.

Three ground water aquifers are present within the project area. Residential wells in the vicinity of the project area are vulnerable to failure with changes in ground water levels. Therefore, the City has established a fund of $750,000 to provide corrective measures for temporary impacts to water supplies. If lowering of the ground water levels during construction of the sanitary sewer affects the supply of water to existing wells in the surrounding area, a potable water supply will be provided to the affected properties. If a well is permanently impacted, a replacement well will be provided to restore the same quantity and quality of ground water that existed prior to construction.

Therefore, construction of the BCSIS project should not have significant adverse long-term impacts on drinking water or ground water resources. Dewatering of ground water to enable below grade work may be necessary, but is not expected to create significant adverse impacts.

7. Floodplains

Franklin County administers a floodplain management program as outlined in a document entitled “Special Resolution, National Flood Insurance Program (NFIP) Regulation.” Any work located within a designated Special Flood Hazard Area (SFHA) shall be performed in accordance with the NFIP permit issued for this project by the county and in accordance with the adopted regulation. Specifically, any infrastructure improvements associated with this project and located within a designated SFHA have been planned and designed, and shall be constructed and maintained, consistent with the need to minimize the potential for flood damages.

Shaft 1 and Shaft 3 are located in the flood way and flood plain, respectively, of Blacklick Creek. The proposed construction methods and ground water and surface water control methods have been designed to allow the work area to be effectively protected from potential 100-year flood impacts.
The BCSIS project will not involve the construction of any substantial above-ground structures that could affect the floodplain. And it will have no negative impact on future flood levels.

8. Surface Water Resources and Aquatic Habitat

The primary surface water resource in the project area is Blacklick Creek, which has an aquatic life use designation of warmwater habitat. The Blacklick Creek Watershed is a sub-watershed of Big Walnut Creek, covering an area of 63 square miles. A 31 mile long stream, Blacklick Creek's headwaters begin in Delaware and Licking counties, with the mainstem flowing through the far eastside of Franklin County and crossing the northwest corner of Fairfield County before entering Big Walnut Creek at Three Creeks Park. The watershed includes parts of Monroe, Harlem, Jersey, Plain, Jefferson, Truro, Etna, Violet and Madison townships. Eight municipalities include portions of the watershed: New Albany, Gahanna, Columbus, Reynoldsburg, Pataskala, Brice, Pickerington, and Groveport.

A water resources delineation was completed on the proposed surface area disturbance locations: MH12, Junction Chamber, optional maintenance access and four shaft site properties. A consultant, hired by the City, concluded that no streams or wetlands located on these project areas will be impacted by the project. Additionally, due to the proposed depth of the proposed sewer alignment, the tunnel-work will not impact waters of the United States. Minor, short-term impacts from the open-cut construction could occur. The excavation of the trenches and temporary stockpiling of excavated material could be prone to erosion and deposition if approved construction mitigation measures are not followed. Erosion and sediment will be controlled by the use of inlet protection, sediment fence, dewatering traps, swales, temporary and permanent seeding, and a sediment basin at the tunnel boring machine launch site, along the north side of Blacklick Ridge Boulevard.

Additionally, it is expected that a large volume of spoil material will be generated from the tunnel construction. The selected contractor will be required to provide a spoil material disposal plan to the city and Ohio EPA for review and approval prior to disposal. No disposal of spoil material will be permitted in wetlands, in or along streams, or at other environmentally-sensitive locations.

9. Terrestrial Habitat and Agriculture

The U.S. Fish and Wildlife Service (USFWS) confirmed that there are no federal wilderness areas, wildlife refuges or designated critical habitat within the vicinity of the

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1 Warmwater habitat (WWH) – warmwater habitats are capable of supporting and maintaining a balanced, integrated, adaptive community of warmwater aquatic organisms.
project area. With regards to the two federally-endangered/threatened species that could inhabit the area, the Indiana bat and northern long-eared bat, the USFWS recommends that trees exhibiting suitable bat habitat characteristics, along with any other wooded areas or tree lined corridors, be saved wherever possible. However, if those areas cannot be avoided, the USFWS recommends that trees should only be cut from October 1 through March 31. Due to the project type, size and location, the USFWS does not anticipate potential adverse effects to any other federally endangered, threatened, proposed or candidate species.

The Ohio Department of Natural Resources confirmed that there are no unique ecological sites; geologic features; animal assemblages; scenic rivers; state wildlife areas, nature preserves, parks or forests; national wildlife refuges, parks or forests; or other protected natural areas within a one mile radius of the project area.

**10. Safety, Traffic, Noise and Aesthetics**

The BCSIS tunnel and shafts are aligned within public rights-of-way along Reynoldsburg-New Albany Road. Construction of the BCSIS project will result in increased noise in the vicinity of shaft sites and likely cause vibration where the top of bedrock is near the foundations of buildings. These impacts will be mitigated by limiting the hours when blasting work will occur and by conducting pre-and post-blasting surveys and adhering to detailing blasting requirements.

Noise and dust control procedures will comply with the Columbus City Code. The tunnel boring machine will be fitted with a combustible gas analyzer that continuously monitors methane and other flammable gas concentrations.

To prevent over pressurization of the tunnel, vent structures will be provided to release pressurized air into the atmosphere at appropriate shaft locations.

A detailed traffic control plan will be coordinated with the Franklin County Engineer. The plan will then be implemented during construction to manage traffic disruptions and prevent public safety problems. It will include temporary detours for lane closures caused by the project, it will allow for the provision of emergency access at all times and it will allow ingress and egress to all residential and commercial properties. The closure of Blacklick Ridge Boulevard will have substantial, short-term impacts on the local residents and various public services; however, the goal is to minimize these impacts to the greatest extent practical. The closure will be coordinated with Jefferson Township Fire Department, Jefferson Township Administrative Office, the Construction Management team and all other stakeholders. All stakeholders will be notified regarding the anticipated closure schedule at least thirty days prior to the closure. And the closure will not last longer than six consecutive weeks. Temporary driveway closures, during work hours only, may be necessary to enable work on or in front of a drive. In these instances, the contractor will give the property owner 48 hours notification in advance of the closure.
When hauling or moving equipment, the contractor will only enter and exit the project area along Reynoldsburg-New Albany Road between Taylor Road and Broad Street.

Although construction activity is generally considered aesthetically displeasing, once construction is complete, the project areas will be restored and returned to pre-construction conditions. There will be no long-term change in the aesthetics of the project areas.

C. **Public Participation**

The City of Columbus has made efforts throughout project development to keep the public and key stakeholders abreast of the project and to ensure that the project meets the needs and addresses the concerns of the community in the least controversial manner, while avoiding significant adverse environmental impacts. This has been accomplished through a combination of public involvement and stakeholder coordination meetings and direct mailings. Meetings were held with the following stakeholders: Franklin County Engineers Office, the City of New Albany, the Jefferson Water and Sewer District, and the City of Columbus. There were also two public meetings held in Jefferson Township. Additionally, preceding any field activity that occurred during the design phase of the project, a notification letter was sent and/or a door hanger was placed alerting the property owner(s) to the work.

The City of Columbus, Department of Public Utilities has an internet website ([https://columbus.gov/publicutilities/](https://columbus.gov/publicutilities/)), where the community can view information about this and upcoming projects.

The following agencies and organizations were provided an opportunity to review the project’s planning information:

- Ohio Environmental Protection Agency
- Ohio Historic Preservation Office
- Ohio Department of Natural Resources
- Bureau of Underground Storage Tank Regulation
- U.S. Fish and Wildlife Service
- Mid-Ohio Regional Planning Commission

D. **Conclusion**

Based upon Ohio EPA’s review of the planning information and the materials presented in this Environmental Assessment, it is concluded that there will be no significant adverse impacts from the BCSIS project as it relates to the environmental features discussed previously. Through the use of standard construction mitigative measures, any adverse impacts from construction should generally be short-term and insignificant.
The completion of the BCSIS project is an important investment in critical water pollution control infrastructure. It will provide the primary service to the Village of New Albany and expansion in the Jefferson Township area. It will also provide relief to the Big Walnut Trunk Sewer by redirecting the Rocky Fork Trunk Sewer to the BCSIS.

E. Questions or Comments

For further information or to provide comments regarding this document or the project discussed herein, please contact:

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