WETLAND AND STREAM MITIGATION PLAN
PROPOSED OHIO RIVER CLEAN FUELS FACILITY
COLUMBIANA AND JEFFERSON COUNTIES
WELLSVILLE, OHIO

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1.0 INTRODUCTION

The purpose of this plan is to provide stream and wetland mitigation for impacts associated with the proposed development of the Ohio River Clean Fuel (ORCF) facility located near Wellsville in Columbiana and Jefferson Counties, Ohio. The ORCF development site consists of approximately 649 acres located primarily along a ridge top adjacent to the Ohio River (Figure 1).

This plan has been drafted to comply with the Ohio Revised Code Section 6111.03 and Section 404 of the federal Clean Water Act. The plan will provide the basis for the construction/enhancement of streams and wetlands, which will provide replacement functions and values, for those impacted during the construction of the ORCF facility. This plan has been prepared to satisfy the requirements of the U. S. Army Corps of Engineers (Corps) and the Ohio Environmental Protection Agency (Ohio EPA).

2.0 PROPOSED IMPACTS

2.1 PROPOSED WETLAND IMPACTS

A total of 12 wetlands totaling 1.71 acre are proposed to be impacted. Wetlands 1 through 8, 17, 28, and 29 will be impacted as a result of their location within the proposed project area. Refer to Figure 2 for the location of all identified wetlands within the project area. Wetland 12 will be impacted by the creation of the wetland mitigation area. The following table summarizes the proposed wetland impacts, their classification, assessment category, regulatory status, minimum mitigation ratio, and proposed mitigation amount.

TABLE 1
WETLAND IMPACT SUMMARY

Wetlands	Acreage	Classification	ORAM Score	Category	Jurisdiction	Mitigation Ratio	Mitigation Acreage
Wetland 1	0.04	PEM	33	1 or 2 gray	Ohio EPA	1.5:1	0.06
Wetland 2	0.20	PEM	38	2 modified	Ohio EPA	1.5:1	0.30
Wetland 3	0.56	PEM	41	2 modified	Ohio EPA	1.5:1	0.84
Wetland 4	0.02	PEM	31	1 or 2 gray	Ohio EPA	1.5:1	0.03
Wetland 5	0.02	PEM	52	2	Ohio EPA	1.5:1	0.03
Wetland 6	0.01	PEM	31	1 or 2 gray	Corps/OEPA	1.5:1	0.02
Wetland 7	0.25	PEM	40	2 modified	Ohio EPA	1.5:1	0.38
Wetland 8	0.35	PEM	37	2 modified	Ohio EPA	1.5:1	0.53
Wetland 12	0.02	PEM	21	1	Corps/OEPA	1.5:1	0.03
Wetland 17	0.02	PEM	26	1	Corps/OEPA	1.5:1	0.03
Wetland 28	0.08	PEM	26	1	Ohio EPA	1.5:1	0.12
Wetland 29	0.14	PEM	19	1	Corps/OEPA	1.5:1	0.21
Total	**1.71**						**2.57**

The total proposed wetland impacts regulated by the Corps are 0.19 acres and the total proposed wetland impacts regulated by the Ohio EPA are 1.52 acres. All of the wetland impacts will be mitigated at a minimum of a 1.5:1 ratio, totaling a minimum of 2.57 acres of wetland mitigation.

2.2 PROPOSED STREAM IMPACTS

A total of 27 stream segments totaling 8,745 linear feet (l.f.) (1.66 miles) consisting of 1,701 l.f. of ephemeral, 4,295 l.f. of intermittent, and 2,749 l.f. of perennial stream are proposed to be impacted. All of the stream segments will be impacted by the proposed project except UNT-B, UNT-Bb, and UNT-Bc which will be impacted by the creation of the wetland mitigation area. Refer to Figure 2 for the location of all identified streams within the project area. Similar to the wetland impacts, the streams will be impacted as a result of their location within the project area. The following table provides a summary of the proposed stream impacts.

TABLE 2
STREAM IMPACT SUMMARY

Streams	Length (ft)	Classification	HMFEI Score	Stream Class	Jurisdiction	Mitigation Ratio	Mitigation Length (ft)
RR-A	20	Perennial	25	Class II	Corps/OEPA	1.5:1	30
RR-Aa	64	Ephemeral	0	Class I	Corps/OEPA	1.5:1	96
RR-Ab	179	Intermittent	1	Class I	Corps/OEPA	1.5:1	269
RR-Ac	840	Intermittent	0	Class I	Corps/OEPA	1.5:1	1,260
UNT-A	969	Perennial	10	Class II	Corps/OEPA	1.5:1	1,454
UNT-A	262	Ephemeral	0	Class I	Corps/OEPA	1.5:1	393
UNT-Aa	16	Perennial	8	Class II	Corps/OEPA	1.5:1	24
UNT-Aa	115	Ephemeral	0	Class I	Corps/OEPA	1.5:1	173
UNT-B	84	Perennial	17	Class II	Corps/OEPA	1.5:1	126
UNT-Bb	556	Intermittent	3	Class I	Corps/OEPA	1.5:1	835
UNT-Bc	123	Intermittent	3	Class I	Corps/OEPA	1.5:1	185
UNT-C (Isolated)	275	Intermittent	2	Class I	Ohio EPA	1.5:1	413
UNT-Ca (Isolated)	50	Intermittent	2	Class I	Ohio EPA	1.5:1	75
UNT-Ca1 (Isolated)	32	Ephemeral	0	Class I	Ohio EPA	1.5:1	48
UNT-D (Isolated)	828	Intermittent	2	Class I	Ohio EPA	1.5:1	1,242
UNT-Da (Isolated)	33	Ephemeral	0	Class I	Ohio EPA	1.5:1	50
UNT-Db (Isolated)	224	Ephemeral	1	Class I	Ohio EPA	1.5:1	336

Streams	Length (ft)	Classification	HMFEI Score	Stream Class	Jurisdiction	Mitigation Ratio	Mitigation Length (ft)
UNT-Dc (Isolated)	56	Ephemeral	0	Class I	Ohio EPA	1.5:1	84
UNT-Dc1 (Isolated)	162	Perennial	13	Class II	Ohio EPA	1.5:1	243
UNT-E	1,423	Perennial	18	Class II	Corps/OEPA	1.5:1	2,135
UNT-E	716	Intermittent	2	Class I	Corps/OEPA	1.5:1	1,074
UNT-Ea	187	Intermittent	0	Class I	Corps/OEPA	1.5:1	281
UNT-Ea	184	Ephemeral	0	Class I	Corps/OEPA	1.5:1	276
UNT-Eb	423	Ephemeral	0	Class I	Corps/OEPA	1.5:1	635
UNT-Ec	251	Ephemeral	0	Class I	Corps/OEPA	1.5:1	377
UNT-F	75	Perennial	8	Class II	Corps/OEPA	1.5:1	113
UNT-H (Isolated)	541	Intermittent	3	Class I	Ohio EPA	1.5:1	812
UNT-Ha (Isolated)	57	Ephemeral	1	Class I	Ohio EPA	1.5:1	86
Total Perennial	**2,749**						**4,093**
Total Intermittent	**4,295**						**6,443**
Total Ephemeral	**1,701**						**2,552**
Total Stream	**8,745**						**13,118**

The total proposed stream impacts regulated by the Corps totals 6,487 l.f. composed of 1,299 l.f. of ephemeral, 2,601 l.f. of intermittent, and 2,587 l.f. of perennial. The total proposed stream impacts regulated by the Ohio EPA and not the Corps (isolated), totals 2,258 l.f. composed of 402 l.f. of ephemeral, 1,694 l.f. of intermittent, and 162 l.f. of perennial. All of the stream impacts will be mitigated at a minimum of 1.5:1 resulting in a minimum of 13,118 l.f. (2.48 miles) of stream.

2.3 PROPOSED OPEN WATER IMPACTS

A total of 2 open water areas (manmade ponds) totaling 0.29 acre are proposed to be impacted (Figure 2). Pond A and B will be filled as a result of their location within the proposed project area. The following table summarizes the proposed pond impacts, regulatory status, minimum mitigation ratio, and proposed mitigation amount.

TABLE 3
OPEN WATER IMPACT SUMMARY

Open Water	Acreage	Jurisdiction	Mitigation Ratio	Mitigation Acreage
Pond A	0.12	Ohio EPA	1:1	0.06
Pond B	0.17	Ohio EPA	1:1	0.09
Total	**0.29**			**0.29**

The total proposed impacts to open water from the proposed project equals 0.29 acre. Both of these open water areas are isolated and are only regulated by the Ohio EPA. All of the open water impacts will be mitigated within the proposed wetland mitigation area at a minimum of 1:1 resulting in a minimum of 0.29 of open water mitigation.

2.4 STREAM AND WETLAND FUNCTIONS

The on-site wetlands, streams, and ponds provide some habitat for wildlife such as rearing, resting, and feeding habitat for certain terrestrial and wetland adapted species. Based on observations of animal tracks and plant life, the wetlands, streams, ponds, and surrounding woodlands provide foraging and feeding habitat, water sources, resting areas and escape cover for small vertebrates, snakes, rabbits, turkey, and white-tailed deer. To a limited extent, they also contribute to food chain production within the small headwater areas.

Wetlands 12, 17, 28, and 29 were scored using the Ohio Rapid Assessment Method (ORAM) version 5.0 as Category I wetlands. These wetlands support minimal wildlife habitat, and minimal hydrological and recreational functions. Wetlands 1, 4, and 6 were scored using the ORAM as Category 1 or 2 Gray Zone. These wetlands could have been Category 2 wetlands at one time but have experienced significant degradation and are providing minimal wildlife habitat, and minimal hydrological and recreational functions. Wetlands 2, 3, 7, and 8 were scored using the ORAM as Category 2 Modified and have experienced minor disturbances or have recovered from past disturbances. The Category 2 Modified wetlands provided higher quality wildlife habitat and

hydrological and recreational functions than Category 1 wetlands but do not provide these functions at the same level as Category 2 wetlands. Wetland 5 was scored using the ORAM as a Category 2 wetland. This wetland supports moderate wildlife habitat, and moderate hydrological and/or recreational functions.

Streams within the proposed project area were assessed using the Headwater Habitat Evaluation Index (HHEI) and Headwater Macroinvertebrate Field Evaluation Index (HMFEI). The combination of these two evaluation indices categorized each of the identified streams into Primary Headwater Habitat (PHWH) stream classes. Class III streams usually are found to have native fauna adapted to cool-cold perennial flowing water characterized by a community of vertebrates (either cold water adapted species of headwater fish and/or obligate aquatic species of salamanders from the lungless family Plethodontidae), and/or a diverse community of benthic macroinvertebrates including cool water taxa, with larval life stages resident in the stream continuously on an annual basis. Class II streams are usually found to have a moderately diverse community of warm-water adapted native fauna either present seasonally or on an annual basis. The native fauna of these streams is characterized by species of vertebrates (fish or salamanders) and/or benthic macroinvertebrates that are pioneering, headwater, temporary, and/or temperature facultative. Class I streams are usually found to be normally dry, with little or no aquatic life present. This type of primary headwater waterway is normally ephemeral, with water present for short periods of time due to infiltration from snow melt or storm water runoff.

The primary physical habitat distinction between a Class I and Class II-PHWH streams is the presence of flowing water or isolated pools for extended periods of time in Class II-PHWH stream channels during summer months. The primary biological distinction is that Class I-PHWH streams either have no species of aquatic life present, or if present, it is of relatively poor biological diversity.

Of the 27 stream segments proposed to be impacted by the project seven were classified as Class II streams and 20 were classified as Class I streams. Due to the site characteristics which include past

disturbances from mining and ongoing disturbances from all-terrain vehicles (ATV) a majority of the identified streams within the project area appear to be impaired.

Two ponds, A and B will be impacted by the proposed project. Pond A is located within an area that was previously strip-mined for coal and appears to have been created as a result of the past mining activity. Pond B is a man made impoundment located within a residential area. Both of these ponds are hydrologically isolated from adjacent surface water.

The proposed project site is located along a steep sided ridge top which overlooks the Ohio River. Most of the project area is dominated by deciduous forest, residential houses, and utility right-of-ways. Additionally, much of the forested habitat is slightly to severely disturbed by an on-going primitive campground, ATV park, and hunting club. Most of the buffers surrounding the identified aquatic resources have experienced historical and current disturbances and have not recovered or are still recovering. The disturbances to the upland habitat buffers are indirectly and directly affecting the quality of the identified aquatic resources as apparent in the wetland ORAM scores and the stream PHWH classes.

The mitigation presented in this plan will provide improved wetland and stream values and functions compared to the aquatic resources proposed to be impacted.

3.0 MITIGATION GOALS AND SUCCESS CRITERIA

3.1 MITIGATION GOALS

Mitigation goals serve as the basis for designing the mitigation projects and measuring success.

3.1.1 Wetlands

The overall goal of the wetland mitigation is to provide biologically diverse wetland habitats that contain higher functions and values when compared to those wetlands proposed to be impacted. This will be accomplished by offsetting the loss of 1.71 acres of wetlands with the creation of a minimum of 2.57 acres of wetland habitat (1.5:1 mitigation ratio) within the project site. These areas will provide high quality habitat for a variety of native plant and animal species and improve water quality within an unnamed tributary of the Ohio River.

3.1.2 Streams

The overall goal of the stream mitigation is to provide replacement and enhanced streams that will contribute to an overall improvement of watershed water quality when compared to those streams proposed to be impacted. This will be accomplished by offsetting the loss of 8,745 linear feet of stream with the preservation, enhancement, and restoration of a minimum of 13,118 l.f. of streams (1.5:1 mitigation ratio) within the adjacent ORCF-owned Rocky Run stream valley area. This stream mitigation will provide high quality habitat for a variety of native plant and animal species and improve water quality within the Yellow Creek watershed and, ultimately, the Ohio River.

3.2 SUCCESS CRITERIA

The mitigation success criteria measure the success or failure of the project in meeting the defined mitigation goals. The following criteria will be used to measure the success of the proposed mitigation in compensating for impacts to wetlands and streams by the proposed project.

3.2.1 Wetlands

(1) To offset the loss of 1.71 acres of emergent wetlands by creating a minimum of 2.57 acres of upland buffer, wet shrub/emergent marsh and intermediate/deep marsh habitat. Additionally, within the wetland mitigation area a minimum of 0.29 acres of open water will be created to offset the loss of 0.29 acres of ponds.

(2) Greater than 50% of the dominant plant species in the wetland mitigation area will be classified as obligate, facultative wetland, or facultative, according to Reed (1988). Planted woody vegetation in the wetland mitigation project area will have a minimum 80% survival rate and will show a positive increase in height at the end of each year of monitoring during the five-year monitoring period.

(3) Wetland mitigation success will also be determined based upon native species composition, presence of invasive species, and overall wildlife usage. These success criteria will be determined by visual inspections during routine monitoring of the wetland mitigation site.

3.2.2 Streams

(1) To offset the loss of 8,745 l.f. (1.66 miles) of streams by creating a minimum of 13,118 l.f. (2.48 miles) of stream mitigation consisting of exclusion fencing, flood plain seeding/planting, vernal pool creation, vernal pool enhancement, wetland enhancement, and sediment trap/wetland creation areas along Rocky Run. For the exclusion fencing, the

success will be determined when ATV traffic is prevented from impacting the stream and the riparian buffer is reestablished between the stream and fencing.

(2) Stream mitigation will be deemed a success when the habitat assessment scores, in accordance with the Ohio EPA's QHEI scoring parameters, increase 20% and when the IBI scores show that Rocky Run is within attainment of its WWH designation after 5 years. Improvements will be measured against the baseline data presented in CEC's December, 2007 Benthic Macroinvertebrate and Fish Community Data Report presented in Appendix D of the 401/404 permit application.

Upon approval of this mitigation plan by reviewing agencies, ORCF will assume responsibility for achieving the success criteria specified above. Success monitoring and reporting will be required for five years following construction of the mitigation project. Refer to Section 4.7 and 5.6 of this Mitigation Plan for details relating to monitoring and reporting.

4.0 WETLAND MITIGATION

4.1 SITE SELECTION

The proposed wetland mitigation site has many desirable qualities that led to its selection. First, the proposed mitigation site is located adjacent to the Project site and within the same Ohio River headwater watershed as most of the proposed wetland impacts. Second, the configuration and size of the cleared/farmed area is conducive to wetland creation. Third, the wetland mitigation site has a desirable source of hydrology. Fourth, the area had been previously cleared for livestock grazing, significantly reducing clearing and grubbing costs. Last, and maybe most obvious, the presence of an existing developed spring, intermittent streams, and a wetland indicates that the area can and does support wetland hydrology. The existing developed spring and wetland also provided a valuable "biological benchmark" that was used in the design of the mitigation area.

4.2 WETLAND CREATION

ORCF proposes to construct a total of 4.34 acres of created wetland consisting of wet shrub/emergent marsh habitat, intermediate/deep marsh habitat, open water habitat, and upland buffer habitat on ORCF-owned property contiguous with the Project (see Figure 1). The property consists of pasture fields, prior converted wetlands, drainage swales, intermittent streams, and a developed spring currently being used as a watering source for cattle. The mitigation plan calls for grading one large area to create topography that will retain wetland hydrology and planting this area with aquatic, wetland, and upland vegetation. The grading plan, planting plan, and plant specifications for the onsite wetland mitigation area is shown on Figure 3.

4.2.1 Grading Plan

The grading plan incorporates depressional topography, an elevated berm, and a water control outlet structure to maintain a seasonal high water table in the various wetland habitats. The depressional

topography will collect precipitation from approximately 40 acres of upland drainage, two intermittent streams, and the existing spring.

The approximate base elevations of land surface relative to the estimated pool elevation of the created wetland cells are summarized for each plant community in the following table.

TABLE 4
WETLAND DESIGN CRITERIA SUMMARY

Habitat Type	Hydrologic Design Criteria	Approximate Acreage
Upland Buffer Habitat	> 2.5 feet above Pool Elevation	1.74
Wet Shrub/Emergent Marsh Habitat	0.0 to 2.5 feet above Pool Elevation	1.40
Intermediate/Deep Marsh Habitat	0.0 feet to 3.0 feet below Pool Elevation	0.79
Open Water Habitat	> 3.0 feet below Pool Elevation	0.41
	TOTAL	**4.34**

4.2.2 Wetland Hydrology

The hydrology of the replacement wetland will be maintained by a combination of surface water runoff, intermittent streams, and the interception of the local groundwater table. A water control structure will be installed between the wetland and the down slope perennial stream within a constructed berm to regulate the water level within the designed wetland area. Direct precipitation will also augment wetland hydrology.

4.2.3 Wetland Plant Communities

The wetland vegetation specified within this mitigation plan includes the use of trees, shrubs, herbaceous, and aquatic vegetation to create a diverse wetland complex that provides wildlife habitat using native regional plant communities. Many of the wetland plant species were selected based

primarily on wetland plant species found within the onsite wetlands that will be impacted. Selection of temporary and permanent wetland and upland herbaceous seed mixtures was also based on the commercial availability of products. The plant communities specified for the wetland mitigation areas are described below and shown on Figure 3. Planting specifications are also provided on Figure 3.

Upland Buffer Habitat (1.74 acres)

The upland habitat adjacent to the wet shrub/emergent marsh habitat area will include silver maple (*Acer saccharinum*), pin oak (*Quercus palustris*), and green ash (*Fraxinus pennsylvanica*). This community typically occurs at the upland edges of marshes. The upland habitat surrounding the wetland mitigation area will also be planted with species selected to provide mast and for their potential to provide bat roosting habitat. These species include red maple (*Acer rubrum*), shagbark hickory (*Carya ovata*), and white oak (*Quercus alba*).

The variable upland buffer is proposed around the boundary of the wetland mitigation area. The upland buffer will be planted on all side slopes and surrounding upland areas of the excavated mitigation area. The upland buffer will be seeded with warm season grasses designed to provide both food and shelter for wildlife and planted with a mixture of mast producing trees.

Wet Shrub/Emergent Marsh Habitat (1.40 acres)

The Wet Shrub component of the wetland will include sandbar willow (*Salix interior*), black willow (*Salix nigra*), nanny berry (*Viburnum lentago*), winter berry (*Ilex verticillata*), elderberry (*Sambucus canadensis*), and silky dogwood (*Cornus amomum*). These communities typically occur between upland habitats and the edges of marshes where seasonal high water tables occur.

The emergent marsh component of the wetland will be dominated by various sedges (*Carex spp.*), burreeds (*Sparganium spp.*), bulrushes (*Schoenoplectus spp.*) swamp milkweed (*Asclepias*

incarnata), blue flag (*Iris versicolor*), and soft rush (*Juncus effusus*). The emergent marsh habitat will be subject to variable water levels during the year, but the core species require shallow inundation for a portion of the growing season.

Intermediate/Deep Marsh Habitat (0.79 acre)

The intermediate/deep marsh planting habitat features woody shrubs, emergent, and floating-leaved rooted vegetation including arrow arum (*Peltandra virginica*), swamp smartweed (*Polygonum amphibium*) pickerelweed (*Pontederia cordata*), and button bush (*Cephalanthus occidentalis*). Other wetland vegetation from the emergent marsh zone will overlap into this area and provide ecological diversity.

Open Water Habitat (0.41 acre)

This habitat will be created to mitigate the open water (pond) impacts within the proposed Project and to provide habitat diversity within the wetland mitigation area. The open water habitat will be enhanced with boulders, logs, and standing snags.

The proposed wetlands will exhibit a wide range of hydrologic regimes due to the micro-topography constructed with these varying habitat elevations. The wet shrub/emergent marsh habitat should exhibit a seasonally saturated to a seasonally flooded/semi-permanently saturated soils moisture regime. The intermediate/deep marsh habitat will be located in depressions and will have a semi-permanently flooded to permanently flooded hydro-period. Lastly, the open water habitat will exhibit a permanently flooded hydro-period.

4.3 ANTICIPATED WETLAND FUNCTIONS

The wetland mitigation area has been designed to provide replacement hydrologic and ecological functions equal to or greater then the proposed impacted wetland areas at the proposed Project.

ORCF expects that the depressional topography of the wetland replacement area will provide a more diverse habitat for flora and fauna and will provide enhanced water quality functions compared with the proposed impacted wetlands. As previously stated, the majority of impacted wetlands (1.52 of the 1.71 acres or 89%) are "isolated" and provide limited values and functions.

Wildlife habitat will be enhanced by the construction of a wetland complex with a high level of horizontal and vertical habitat interspersion. The depressional area will provide breeding habitat for amphibians. The open water, marsh, and upland habitat will provide feeding, resting and rearing habitat for migratory and resident birds, amphibians, reptiles, and mammals.

4.4 HABITAT ENHANCEMENT FEATURES

The proposed wetland mitigation design includes several wildlife amenities that will enhance the overall wildlife habitat at the site. These include the installation of one 7-chamber bat box. The bat box will be mounted on a 16-foot pressure treated post to provide maternity roosts that can house approximately 300 bats. Additionally, one wood duck box will be installed adjacent to the open water area. The wood duck box will be installed approximately 52 to 60 inches above the high water elevation on a pressure treated post equipped with a predator guard. Additionally, several bluebird boxes will be installed within the upland buffer area.

The wetland design also includes the placement of standing snags to provide perching areas for birds and downed logs to provide habitat for amphibians and reptiles. The standing snags should be a minimum of 12 inch diameter at breast height (dbh) and stand a minimum of 20 feet above the pool elevation. Downed logs should be a minimum of 12 inch dbh and minimum of 30 feet long. The downed logs should be arranged in a criss-cross fashion and span the various habitat types to create transition passageways. Rock piles have been incorporated to provide additional breeding habitat and sunning areas for reptiles and amphibians. Rock should be a minimum of 12 inches and should be stacked a minimum of 12 inches above the water level. Rock can be obtained from the site during grading operations. No riprap will be used.

4.5 CONSTRUCTION OF THE WETLAND MITIGATION AREA

4.5.1 Construction Schedule

It is anticipated that grading/filling of the wetland replacement areas identified in this plan will be initiated in 2010 or possibly 2011. Herbaceous wetland plantings will be installed during the fall (September 1 to October 15) or spring (April 15 to May 15). Planting of dormant trees and shrubs shall be done in the fall (September 15 to November 15) or spring (April 15 to May 15). Seed mixtures will be sown in the fall (October through November) or early spring (April). Within 24-hours following seeding, weed-free straw mulch will be placed in those areas not inundated with water. Refer to the Notes section on Figure 3 for additional information relating to planting and seeding.

A temporary seed mixture will be used to stabilize the mitigation site if the construction sequence is delayed more than 30 days between grading and planting of the areas, or if final planting is delayed until after October 15. Temporary seeding will only include switch grass (*Panicum virgatum*).

4.5.2 Erosion Control Measures

The following guidelines are provided to ensure adequate erosion and sedimentation measures during construction of the wetland mitigation areas specified by this plan.

- Reduce the area and length of time that the site is cleared and graded.
- Limit the amount of disturbed area exposed at any one time.
- Provide immediate vegetative stabilization of disturbed areas.
- Strict adherence to the design plans and specifications contained herein.

Given the flatness of topography and the "bowl-like" nature of the area, the primary erosion control materials to be used during wetland construction will include silt fences and straw bales (as needed).

These materials will be installed at down gradient locations and other areas on the site where earth is to be disturbed in order to confine sediment.

Temporary and permanent revegetation of exposed soils will be performed by seeding and planting replacement wetlands and disturbed upland areas with appropriate grasses, forbs and woody plants. Since the goal of the project is ecological mitigation, plant species have been carefully selected for both their ability to control erosion and for their roles in providing beneficial ecological functions.

4.5.3 Construction Sequence

Rough grading of the wetland mitigation areas will be performed to the grade elevations shown on Figure 3. These grades represent the top of replaced topsoil.

Planting of trees and shrubs shall be done in the fall (September 15 to October 15) or spring (April 15 to May 15) following permanent seeding and when plants are dormant. Plants shall be of the size and type specified on Figure 3, unless the owner or representative for the owner approves substitutions.

The following construction sequence is anticipated for the wetland mitigation project:

- Installation of erosion control features;
- Establish survey control/wetland stakeout;
- Removal and stockpiling of all existing topsoils and wetland soils in an area adjacent to the mitigation site;
- Rough grading of site;
- Fine grading of the mitigation area to a depth of one foot below final grades;
- Placement of one foot of stockpiled topsoil/wetland soils;
- Installation of stock plant material;
- Seeding and mulching of all wetland and disturbed areas. Temporary seeding, if necessary;

4.6 CONSERVATION OF ON-SITE RESOURCES

The wetland that will be constructed as part of the mitigation will be protected in perpetuity, via an Environmental Covenant or Conservation Easement prepared by ORCF. Figure 3 identifies the area surrounding the wetland mitigation site that will be protected in perpetuity. ORCF will forward a copy this Environmental Covenant or Conservation Easement once the 401/404 permit application has been approved by the Corps and Ohio EPA.

4.7 MONITORING AND MAINTENANCE PLAN

4.7.1 Site Inspection Schedule

Monitoring and maintenance of the wetland mitigation area will be conducted for a period of five years by ORCF. Monitoring will occur bi-annually (spring and fall) during the first two years after the wetland mitigation area is constructed and annually (fall) during the final three years of monitoring. The first monitoring event will be conducted after the end of the first active growing season (September 1 - October 30). A person qualified to evaluate wetlands will conduct the monitoring work.

4.7.2 Monitoring Parameters and Reporting

Yearly reports with photographs will be submitted to the Corps and Ohio EPA within 90 days of each late-summer/fall inspection. The monitoring reports will include the following information:

- Identification of wetland plant species, ranked in order of dominance, for each wetland plant community type.
- An estimate of percent aerial coverage of the dominant plant species.
- Water depth and estimated hydro-period of the monitoring area.

- Photographs taken from permanent photo stations. A plan showing the location and orientation of each photograph will also be included.
- Observations of wildlife usage.
- The presence of invasive and/or exotic vegetation.
- Notes relating to the water level and the water control structure and the need to raise or lower water level within the wetland.
- Problems encountered, if any, and a written plan to correct any deficiencies identified during the monitoring phase.
- An assessment of compliance with the mitigation success criteria.

If the constructed wetland has not achieved the design objectives within the monitoring period, remedial work will be required to assure establishment of a minimum of 2.57 acres of functional wetlands. Corrective actions and remedial measures may include replanting vegetation or regrading, as necessary; and other reasonable actions and measures necessary for the success of the mitigation project. Replacement wetlands shall be considered successful when they meet the design objectives as stated in the approved wetland mitigation plan.

5.0 STREAM MITIGATION

5.1 SITE SELECTION

In order to provide adequate compensation for 8,745 feet of stream impacts, ORCF performed an extensive search for stream mitigation sites. The search for stream mitigation began on-site and expanded throughout Columbiana and Jefferson Counties, Ohio within the Yellow Creek and Little Beaver Creek watersheds.

ORCF contracted with Civil & Environmental Consultants, Inc. (CEC) to identify potential stream mitigation projects adjacent to the proposed project and within ORCF site. CEC subsequently contacted the Columbiana and Jefferson County Soil and Water Conservation Districts to discuss potential mitigation projects within their respective counties. ORCF teamed with Crossroads Resource Conservation and Development Council, Inc. (Crossroads RC&D) to establish an avenue to compensate the Conservation Districts for identifying potential stream mitigation sites within the Yellow Creek and Little Beaver Creek watersheds.

The Conservation Districts assisted ORCF by identifying several potential stream mitigation sites throughout Columbiana and Jefferson Counties. These mitigation sites included agriculturally degraded streams, streams that had been historically culverted or tile drained, and any other unstable stream channels. CEC identified several potential stream mitigation sites within, and adjacent to, the proposed ORCF project. ORCF then deliberated over each stream mitigation project that was identified to determine their proposed stream mitigation plan. Factors that contributed to the final stream mitigation selection included: location relevant to the proposed project, cost, feasibility, sustainability, constructability, anticipated results, and potential for watershed improvement.

After reviewing all of the available stream mitigation projects and soliciting input from the Conservation Districts, CEC, the Ohio EPA, and the Corps, ORCF decided to focus their effort on rehabilitating Rocky Run and protecting its associated riparian corridor. The proposed stream

mitigation site has many desirable qualities that led to its selection. First, the proposed mitigation site is located adjacent to the project site and within the same sub-watershed of the Ohio River as the proposed stream impacts (Figure 1). Second, Rocky Run is significantly degraded by unrestricted ATV use. Third, the stream mitigation site includes a forested riparian corridor, existing wetlands, degraded vernal pools, and potential areas for wetland creation/enhancement. Forth, since ORCF will control the corridor adjacent to Rocky Run they will be able to control external factors such as ATV's that would potentially affect the integrity of the mitigation. Finally, ORCF anticipates that restoration of Rocky Run will have the greatest impact to regional water quality.

Based on conversations with Ohio EPA, CEC used the methodology described within the draft document titled *Compensatory Mitigation Requirements for Stream Impacts in the State of Ohio, Revision 4.0.* Although it has not been finalized, this draft document was released by the Ohio EPA on April 14, 2004 and is a useful tool in evaluating mitigation using a credit and debit system. A more detailed discussion is provided in Section 6.0 of this report.

5.2 ROCKY RUN

5.2.1 Existing Conditions

The proposed development project is located within the Yellow Creek sub-watershed of the Upper Ohio drainage area. The Yellow Creek sub-watershed, located in the Western Allegheny Plateau Eco-region, is dominated by historically coal mined areas, agricultural land, and forested areas encompassing approximately 240 square miles. Rocky Run, a tributary of Yellow Creek is dominated by forested habitat with some agricultural land within its 3 square mile drainage area. Yellow Creek and Rocky Run have been designated by the State of Ohio as Warm Water Habitat (WWH) identified in rule 3745-1-13 (Central Ohio tributaries drainage basin) of Chapter 3745-1, Water Quality Standards, of the Ohio Administrative Code. The WWH designation for Rocky Run is based on the 1978 water quality standards and is not based on the results of a biological field

assessment performed by the Ohio EPA. Based on previous conversations with Ohio EPA, CEC understands that Rocky Run has not been assessed to date.

Currently, the central and lower portions of Rocky Run are severely degraded by unrestricted access of ATVs across, through, and adjacent to its channel. As a result of this ATV traffic, extensive siltation and sedimentation have diminished the overall quality of Rocky Run has suffered. Photographs 1 - 6, presented in Attachment A, contain typical views of the disturbed Rocky Run stream channel and riparian corridor. As previously mentioned, CEC performed a biological assessment of Rocky Run and other streams within the proposed project area in the Fall of 2007. The results of this biological assessment indicate that a large portion of Rocky Run is not within attainment of its Ohio EPAWWH designation.

As discussed in the Benthic Macroinvertebrate and Fish Community Data Report (Appendix D), three sampling stations were established within Rocky Run. Station RR-01 was located downstream of the proposed project site, near the confluence of Rocky Run and Yellow Creek (Attachment A, photo 7). Station RR-02 was located further upstream on Rocky Run near the southern portion of the ORCF project and directly downstream of the confluence with Tributary RR-A (Attachment A, Photo 8). This section of the stream, floodplain, and riparian corridor was extensively disturbed by ATVs. Station RR-03 was located further upstream on Rocky Run above the confluence with Tributary RR-D (Attachment A, photo 9). Refer to Figure 4 for sampling locations. The following table presents a summary of the results from the Benthic Macroinvertebrate and Fish Community Data Report.

TABLE 5
BENTHIC MACROINVERTEBRATE AND FISH COMMUNITY DATA SUMMARY

Sampling Station	Observed ATV Disturbance	Dominate Substrates	Associated Substrates	QHEI Score	No. of Macroinvertebrate Taxa Present	No. of Fish Taxa Present	IBI Score
RR-01	Moderate	Gravel	Cobble & Sand	48 (fair)	41	14	52
RR-02	High	Sand	Gravel	39.5 (poor)	20	0	0
RR-03	Low	Gravel & Sand	Cobble & Bedrock	59 (good)	38	3	32

Given the significant impacts documented and observed in Rocky Run, ORCF is proposing to conduct stream mitigation within Rocky Run and its associated riparian corridor. Figure 4 presents the conceptual stream mitigation plan for Rocky Run. The main component of the stream mitigation will be to restore the riparian corridor along Rocky Run and to limit ATV access to the stream and associated floodplain.

5.2.2 Proposed Restoration

Riparian Buffer and ATV Exclusion Fencing

In order to restore Rocky Run to a more natural state, all ATV traffic within, and adjacent to, the riparian corridor must be excluded. Currently, ATV's use the streambed of Rocky Run and the adjacent floodplain as major trails. ORCF proposes to inhibit ATV traffic within the riparian corridor of Rocky Run by placing a high security fence a minimum of 100 feet upslope from each bank along the entire reach within ORCF controlled property. It is anticipated that the security fence will be a minimum of 6 feet high and designed in a manner that will prohibit ATV use within the stream corridor while still allowing wildlife passage underneath. Additionally, ORCF security staff will occasionally patrol the fencing to ensure the fence remains secure from vandalism and environmental factors (falling trees, vegetation, etc.). By limiting ATV traffic, ORCF anticipates that the ongoing disruption, vegetative disturbance, and siltation of Rocky Run and the associated

upland habitats within ORCF controlled property will be eliminated. The actual location of the fence (as shown on Figure 4) will be determined later based upon topography, slope, presence of bedrock, soil stability, accessibility, etc. The proposed security fence will establish the outside perimeter of the 100 foot minimum riparian corridor buffer that is also being proposed by ORCF along each side of Rocky Run.

In addition to the ATV exclusion fencing and protection of the riparian corridor, numerous enhancements are proposed for the Rocky Run stream corridor. These enhancements will increase flora and fauna diversity and speed the recovery of the floodplain and stream channel.

As shown in Photo 10 of Attachment A, certain portions of forested riparian corridor along Rocky Run are void of vegetation due to excessive ATV use. These areas are in a constant state of disturbance. The situation is exacerbated with surface water runoff and illegal dumping. As part of the Rocky Run restoration, all unvegetated roads, trails, and disturbed areas within the corridor will be reclaimed. The total area that this reclamation will occur is approximately 32 acres. Areas that are well vegetated and undisturbed will not be reworked.

Reclamation of compacted roads, trails, and disturbed areas will first involve loosening of compacted soils by disking and/or shallow surface plowing to a depth no greater than 6-inches. Immediately after the disturbed soils are loosened, the entire area will be seeded with the Riparian Corridor General Seed Mix as shown on Figure 4. The proposed Riparian Corridor General Seed Mix contains a diversity of both upland and wetland shrubs and herbaceous plant species which will stabilize the soils and provide cover and forage for wildlife. This seed mix will be sown throughout the riparian corridor except along and within existing or proposed wetlands or vernal pools. Following seeding, all areas not inundated will be stabilized by mulching with weed free straw. The establishment of herbaceous and woody vegetation within areas currently not vegetated will speed the recovery of the Rocky Run stream valley, promote the removal of sediment, and establish native vegetation within the riparian corridor much quicker than would occur naturally. It will also inhibit

the establishment of non-native, invasive species such as Japanese knotweed (*Polygonum cuspidatum*) that are present in other portions of the site.

Sediment Traps/Wetland Creation Areas

CEC biologists have identified numerous point source discharges of sediment into Rocky Run during previous field surveys. In general, these sediment sources have developed where ATV trails slope steeply into Rocky Run. These trails cut across large areas of upland habitat and headwater streams. Over time, the continued use of these trails has diverted upgradient stormwater runoff away from the natural stream channels into these confined, unstable trail systems. This has resulted in numerous washouts throughout the stream valley and along its steep side slopes. To counter this problem, ORCF proposes to construct seven separate sediment traps/wetland creation areas within the riparian corridor of Rocky Run at the base of these identified sediment point source discharges. Refer to Figure 4 for the location of each of the proposed sediment traps/wetland creation areas. Photos 11 through 15, located in Attachment A, show typical views of some of the identified sediment point source areas. Figure 4 contains a typical drawing of a sediment trap/wetland creation area.

These sediment traps/wetland creation areas will remove sediment contained in the upland storm water runoff with a combination of step pools, a settling basin, rock deflectors, and wetland vegetation. The sediment traps/wetland creation areas will not be constructed within the Rocky Run stream channel or its immediately adjacent floodplain but will be built at the toe of the slope along the outside edge of the floodplain. The distance between Rocky Run and the sediment traps/wetland creation areas will vary based upon each structures location relevant to Rocky Run and its floodplain.

Step pools will be constructed at the lower end of the existing trails to dissipate the velocity of runoff prior to entering the sediment trap. The material excavated to create the sediment traps will be placed in adjacent upland areas outside of the floodplain and stabilized with switchgrass. The wetland fringe and rock deflectors located along the outside edge of these structures will further dissipate flows from storm events and trap sediments within the system. ORCF proposes to seed

these areas upon completion of construction with the Riparian Corridor Wetland Seed Mix shown on Figure 4, in order to promote a diverse assemblage of wetland plants. These areas will be constructed after the riparian corridor area is secured by fencing. The sediment traps/wetland creation areas will naturally maintain hydrology throughout the year via stormwater runoff. Over time, it is anticipated that sediment collection areas will naturally revert into wetlands. These wetlands will continue to remove sediments, retain floodwaters, and enhance water quality within the watershed.

Vernal Pool Enhancements

During a site reconnaissance of Rocky Run in November 2007, CEC's biologists identified a total of 24 vernal pools (0.34 acres) along the floodplain of Rocky Run. Unfortunately, these seasonally inundated areas serve more as mud bogs for ATV's than they do as vernal pools. Attachment A contains typical photos of these existing mud bog areas (Photos 16 – 19) and one photo, Photo 20, of an abandoned mud bog that has naturally reverted into a vernal pool containing a wetland fringe. Once ATV's are excluded from Rocky Run, it is anticipated that the existing mud bogs will naturally settle, stabilize, and develop into vernal pools with wetland fringes, such as the one shown in Photo 20. ORCF proposes to speed the transformation of these mud bogs into vernal pools by enhancing habitat within each pool. Habitat enhancements will include the placement of logs, rock piles, and woody debris within, and adjacent to, these areas. Additionally, the perimeter of these areas will be seeded with the Riparian Corridor Wetland Seed Mix. These vernal pools are anticipated to retain water for various periods throughout the year and provide breeding, spawning, nesting, foraging, and escape cover for a variety of wildlife including salamanders, toads, and frogs. These vernal pools will not only benefit local and transient wildlife but will also retain floodwaters, act as sediment traps during high flows, and promote water quality recovery within the Rocky Run watershed.

Wetland/Vernal Pool Complex

One area has been identified that is suitable for the creation of a scrub/shrub wetland, vernal pool complex (1.56 acres). This area is a large, flat, sediment deposition area which serves as the main access point for ATV's into the Rocky Run valley (refer to Figure 4). The stream channel within this area is relatively stable but, during high flow events, Rocky Run floods this area. ORCF proposes to develop several small vernal pool areas and stabilize the existing sediment floodplain by planting black willow (*Salix nigra*) and red osier dogwood (*Cornus stolonifera*) live stakes. A detailed drawing illustrating how the live stakes will be installed is included on Figure 4.

Along with the vernal pool creation and live stake planting, this area and the other 12 existing wetland areas (0.90 acre) identified within the Rocky Run riparian corridor will be overseeded with the Riparian Corridor Wetland Seed Mix. Overseeding the existing wetlands and the proposed scrub/shrub wetland area will further promote vegetative diversity within the wetland complexes.

Vernal Pool Creation

There are numerous areas along Rocky Run that provide the opportunity for the creation of additional vernal pools. As part of the Rocky Run restoration, ORCF will create/excavate a minimum of six vernal pools along the Rocky Run corridor. These vernal pools will provide habitat for amphibians and other wildlife, retain floodwaters, and act as sediment traps during high flows within the Rocky Run watershed.

Trash Removal

Several abandoned vehicles are located within the Rocky Run stream corridor. Refer to Attachment A, Photos 21 and 22. These vehicles are eyesores and potential sources of pollution and will be removed and properly disposed of as part of the Rocky Run restoration.

5.3 HABITAT ENHANCEMENT FEATURES

The proposed restoration of Rocky Run includes several wildlife amenities that will enhance the overall wildlife habitat within the riparian corridor. These include the installation of one 7-chamber bat box. The bat box will be located within the downstream portion of the restoration reach in a location that will allow the artificial roost to receive at least seven hours of direct sunlight. The bat box will be mounted on a 16-foot pressure treated post to provide an artificial maternity roost that can house up to 300 bats. Several wood duck boxes will be installed within the riparian corridor adjacent to existing mud bogs/vernal pools. The wood duck boxes will provide nesting habitat for wood ducks and other tree cavity nesting animals such as owls, kestrels, woodpeckers, and hooded mergansers. Each wood duck box will be installed approximately 52 to 60 inches off the ground on pressure treated posts equipped with predator guards.

Ten wildlife brush piles will be constructed within the riparian corridor using existing available materials within the Rocky Run corridor. Brush piles provide shelter, den sites, and foraging areas for rabbits, chipmunks, woodchucks, weasels, skunks, chipping sparrows, juncos, thrashers, towhees, cardinals, catbirds, garter snakes, salamanders and more. Brush piles have two basic components—a base and a brushy top. The base raises the brush pile off the ground and creates tunnels for dens, nests and escape routes. The brushy top protects this space from predators. Base materials will vary depending on what material is available nearby. Typically, the base will be constructed with fallen trees, logs, boulders, and stone. The stones and boulders should be at least 8 to 12 inches in diameter and should be placed in three loose piles, in the shape of a triangle. The 4 to 6 inch diameter logs will be cut between 4 and 6 feet long and placed, log cabin-style, 3 to 4 feet high. Once the base is completed, piles of brush, tree tops, branches, and limbs, will be placed on top.

Rock piles will be constructed throughout the Rocky Run riparian corridor using on-site material from site grading activities. No substrate material from the Rocky Run stream corridor will be used. These rock piles will provide habitat for amphibians and reptiles such as frogs, lizards, salamanders and snakes. Besides providing shelter and basking areas, the rocks absorb heat during the day and

radiate warmth at night. The rock piles will be constructed by placing the largest rocks (or boulders) on the bottom of the stack to create hiding places and to form tunnels and cavities. The rock pile will consist of a mound of rocks and stones of different shapes and sizes, arranged in a way that creates openings for shelter and basking areas.

Dozens of wild birds and mammals use tree cavities for shelter, resting, or nesting. These cavities in dead and dying trees as well as some living trees are invaluable to bluebirds, kestrels, wood ducks, flickers, pileated woodpeckers, chickadees and many other species. Their limited availability makes each one a precious commodity in any forest. In order to provide additional nesting habitat within the existing riparian corridor, a total of ten song bird nest boxes will be erected randomly throughout the area. These bird boxes will be mounted on 1 inch galvanized metal poles approximately 5 feet above the ground level.

5.4 CONSTRUCTION SCHEDULE FOR THE STREAM MITIGATION

5.4.1 Construction Schedule

It is anticipated that stream restoration measures as identified in this plan will be initiated in 2010 or possibly 2011. The security fencing and other stream mitigation work will be dictated by the construction of the proposed Project and associated stream impacts. The fencing will be installed prior to any stream improvement work on Rocky Run. The fencing and the associated patrol road will be constructed a minimum of 100 feet upslope from the top of bank along the entire reach of Rocky Run within ORCF controlled property.

Once the entire Rocky Run corridor is fenced and secured from ATV disturbance, the riparian corridor rehabilitation will commence. Construction will begin with the creation of the sediment traps/wetland creation areas during the summer months when flows are low. In addition to constructing during the summer months, the work areas will be surrounded by silt fence to limit additional siltation and erosion within the stream valley. During the construction of the sediment traps/wetland creation areas the abandoned vehicles will be removed and the vernal pool

creation/enhancements will be completed. Additionally, all of the wildlife amenities, bat box, song bird boxes, wood duck boxes, brush piles, and rock piles will be erected and/or constructed during this period. The proposed scrub/shrub wetland area will be live staked after the vernal pool areas are created, but prior to seeding and mulching.

Upon completion of all construction and habitat enhancements, the existing disturbed and compacted soils (road beds and existing trails) within the riparian corridor will be scarified and seeded. Along with seeding the unvegetated areas, the existing wetland areas will be overseeded and the sediment trap/wetland creation areas, vernal pool fringes, and the scrub/shrub wetland area will be seeded with the Riparian Corridor Wetland Seed Mix. Within 24-hours following seeding, weed-free straw mulch will be placed in those areas not inundated with water.

A temporary seed mixture will be used to stabilize the mitigation site if the construction sequence is delayed more than 30 days between reclamation and planting of the areas. Temporary seeding will only include switch grass (*Panicum virgatum*).

5.4.2 Erosion Control Measures

The following guidelines are provided to ensure adequate erosion and sedimentation measures during construction of the stream mitigation specified by this plan.

- Reduce the area and length of time that the areas are graded and unvegetated.
- Limit the amount of disturbed area exposed at any one time.
- Provide immediate vegetative stabilization of disturbed areas.
- Strict adherence to the design plans and specifications contained herein.

Given the flatness of topography with the floodplain of Rocky Run the primary erosion control materials to be used during construction will include silt fences and straw bales (as needed). These

materials will be installed at downgradient locations and other areas on the site where earth is to be disturbed in order to confine sediment and prevent it from entering Rocky Run.

Temporary and permanent revegetation of exposed soils will be performed by seeding. Since the goal of the project is ecological mitigation, plant species have been carefully selected for both their ability to control erosion and for their roles in providing beneficial ecological functions.

5.4.3 Construction Sequence

The following construction sequence is anticipated for the Rocky Run restoration project:

- Installation fencing to establish riparian corridor;
- Installation of erosion control features;
- Creation of sediment traps/wetland creation areas;
- Removal of abandoned vehicles;
- Vernal pool creation, vernal pool enhancement, and wildlife amenities installation;
- Live staking
- Soil reclamation;
- Seeding and mulching of all wetland, vernal pool fringes and disturbed areas. Temporary seeding, if necessary;

5.5 CONSERVATION OF ON-SITE RESOURCES

The stream and riparian corridor that will be included as part of the mitigation will be protected in perpetuity, via an Environmental Covenant or Conservation Easement prepared by ORCF. Figure 4 identifies the area surrounding the mitigation site that will be protected in perpetuity. ORCF will forward a copy this Environmental Covenant or Conservation Easement once the Section 401/404 permit has been approved.

5.6 MONITORING AND MAINTENCE PLAN

5.6.1 Site Inspection Schedule

Monitoring and maintenance of the stream mitigation area will be conducted for a period of five years by ORCF. Monitoring will occur bi-annually (spring and fall) during the first two years after the wetland mitigation area is constructed and annually (fall) during the final three years of monitoring. The first monitoring event will be conducted after the end of the first active growing season (September 1 - October 30). A person qualified to evaluate streams will conduct the monitoring work.

5.6.2 Monitoring Parameters and Reporting

Yearly reports with photographs will be submitted to the Corps and Ohio EPA within 90 days of each late-summer/fall inspection. The monitoring reports will include the following information:

Stream mitigation success will be determined by conducting yearly habitat assessments in accordance with the Ohio EPA's QHEI scoring parameters. Improvements will be measured against the baseline data collected in CEC's November, 2007 Benthic Macroinvertebrate and Fish Community Data Report. An increase in the habitat assessment scores and biological metrics will demonstrate an increase in in-stream habitat, thereby fulfilling the success criteria. Monitoring will also consist of general observations and photographic documentation. The stream improvement areas will be visited after all stream improvements have been completed to ensure satisfactory installation.

Additionally, the monitoring reports will include the following information:

- An estimate of percent aerial coverage and list of dominant plant species within the reclaimed areas.

- Water depth and estimated hydro-period of the vernal pools and wetland areas.
- Photographs taken from permanent photo stations. A plan showing the location and orientation of each photograph will also be included.
- Observations of wildlife usage.
- The presence of invasive and/or exotic vegetation.

Based upon qualified biologist observations, recommendations will be made consisting of any problems observed and if any corrective actions need implemented. All general observations, photographs, recommendations, and an assessment of compliance with the mitigation success criteria will be submitted to the Ohio EPA and USACE via the annual inspection report.

If the stream mitigation has not achieved the design objectives within the monitoring period, remedial work will be required to assure establishment of a minimum of 13,723 l.f. of restored/enhanced stream. Corrective actions and remedial measures may include replanting vegetation or regrading, as necessary; and other reasonable actions and measures necessary for the success of the mitigation project. Stream mitigation shall be considered successful when Rocky Run is documented to be within attainment of its Ohio EPA WWH designation after 5 years.

6.0 OHIO EPA STREAM MITIGATION MODEL

6.1 INTRODUCTION

On April 10, 2004, the Ohio EPA released a draft document titled *Compensatory Mitigation Requirements for Stream Impacts in the State of Ohio, Revision 4.0* , herein referred to as the Model. Historically, the 1.5:1 ratio of mitigation length versus feet of impacts had resulted in inconsistent and failed mitigation projects. The intent of the document was to find a system that better compared (quantified) project impacts to proposed mitigation. The Model assesses Impact Debits and Mitigation Credits. Theoretically, a successful mitigation plan will have at least the same number of Mitigation Credits as it has Impact Debits.

It should be noted that the draft document is used as a "tool" to evaluate the stream mitigation plan. CEC used this model to assess the mitigation proposed in this plan. The scoring sheets used in this model (Forms A-C) are presented in Attachment B of this plan. The following sections evaluate the proposed ORCF Mitigation Plan using the Model.

6.2 STREAM IMPACTS

The Model evaluates each individual stream proposed for impacts based upon on a number of factors which include: designated Aquatic Life Use - as defined by the Ohio EPA, habitat quality - as defined by QHEI, HHEI, and HMFEI scores, the location of the stream in relation to Ohio EPA defined Priority Areas, existing stream geomorphic characteristics – based upon field observations, existing stream flood plain quality – based upon field observations, and proposed stream impact – based upon site development plans. Each evaluation factor is assigned a "Weighting Factor" (WF) with a numerical value. The Model is designed to quantify the proposed stream impacts by using the assigned WF values for each scoring category to calculate an "Impact Factor" for each stream. The Impact Factor (IF) for each stream is multiplied by the proposed length of impact to obtain the Stream Impact Debit. Each Stream Impact Debit is then summed to determine the total proposed

mitigation Debit Factor. This method is carried out for streams to be impacted which have an existing Aquatic Life Use of Warmwater Habitat (WWH) or higher.

Streams to be impacted which have an Aquatic Life Use lower than WWH are automatically diverted out of the Model and evaluated in two ways. If the stream is a Limited Resource Water (LRW) or a Class I PMWH stream, protection of downstream uses are typically all that are required for mitigation purposes. This refers to those Best Management Practices (BMPs) typically outlined in an Erosion and Sedimentation Control Plan (E&S Plan) for approval under a National Pollutant Discharge Elimination System (NPDES) permit. Proper implementation of BMPs will protect downstream water quality and stream uses through the long term control of the quantity and quality of runoff from sites impacted by construction activities.

Streams with an aquatic life use of Modified Warmwater Habitat or Class II PHWH are automatically assigned an IF of 3.0. This IF is then multiplied by the length of stream to be impacted to obtain the amount of Stream Impact Debits for that particular stream.

Impact Factors that are considered during the process include 1) the Ohio EPA Existing Aquatic Life Use; 2) Existing Habitat Quality; 3) Priority Area; 4) Existing Geomorphic Integrity; 5) Existing Flood Plain Quality; and 6) Impact Category.

6.3 STREAM MITIGATION

The Model evaluates mitigation credits on a number of factors. Each factor has several scoring categories and a "Weighting Factor" (WF) associated with it. The Model is designed to add up all of these WF values and assign a Sum of Factor Values. This Sum of Factor Values is then multiplied by the linear length of stream to be mitigated to obtain the total amount of Mitigation Credits. This is done for all streams proposed for mitigation, and adding together the Mitigation Credits for all impacted streams assigns a Credit total, which must exceed the amount of Impact Debits.

The Mitigation Factors that are evaluated include 1) Stream Restoration/Relocation Design; 2) Riparian/Floodplain Preservation; 3) Riparian Restoration and Enhancement; 4) Resulting Aquatic Life Use; 5) Resulting Habitat Quality; 6) Priority Area; 7) Watershed Location; 8) Control; 9) Impact/Mitigation Relationship; 10) Implementation Schedule; 11) Supplemental Water Quality Activities; and 12) Threat to Stream Segment.

6.4 RESULTS OF MODEL CALCUATION

6.4.1 Impacts/Debits

Designated Aquatic Life Uses for the streams to be impacted were obtained by using QHEI, HHEI, and PHWH scores from the original Wetland and Stream Delineation Report (Appendix A) and the Benthic Macroinvertebrate and Fish Community Data Report (Appendix D). The benthic and fish report was only performed on those streams proposed for impacts which had flow at the time of the investigation. The majority of the streams proposed for impact (17 of 24) were identified as Class I PHWH streams and therefore not assigned Impact Debits. According to the Model, the loss of these streams can be mitigated for by the implementation of, and strict adherence to, post-construction BMP controls. The remaining seven streams totaled 12,078 Impact Debits. Five of these streams were classified as Class II PHWH streams, and RR-A and UNT-B were both classified as Class III PHWH streams.

Applying the Model to the 8,745 linear feet of streams proposed for impact, a total of 12,078 Impact Debits were calculated. Only six of the twenty-four streams proposed for impact had an Aquatic Life Use of Class II PWHW or higher. According to the Model, the remaining 17 streams are able to be mitigated for by protecting their downstream uses through proper implementation of BMPs.

The scoring forms were completed by those CEC personnel involved in the data collection of the streams to be impacted. These observations were used in the evaluation of each stream in the Model (Existing Habitat Quality, Existing Geomorphic Integrity, and Existing Floodplain Quality). All

streams to be impacted fell under the Tertiary Priority Area, and were scored accordingly. The Impact Category was "High" for both RR-A and UNT-B, from 20 feet of additional culvert (>50' total) and 84 feet impacted from the placement of fill, respectively. Refer to Attachment B for the Impact Weighting Tables for each stream (Form A). The following table summarizes the impacts and debits for impacted streams at the proposed ORCF facility.

TABLE 6
IMPACT/DEBITS SUMMARY

Impacted Streams	Stream Class	Classification	Impact Weighting Factor	Linear Feet of Impact	Stream Impact Debits
1. RR-A	Class II	Perennial	7.1	20	142
2. RR-Aa	Class I	Intermittent	N/A	64	N/A
3. RR-Ab	Class I	Intermittent	N/A	179	N/A
4. RR-Ae	Class I	Intermittent	N/A	840	N/A
5. UNT-A	Class II	Perennial	3.0	1231	3693
6. UNT-Aa	Class II	Perennial	3.0	131	393
7. UNT-B	Class III	Perennial	8.6	84	722
8. UNT-Bb	Class I Mod.	Intermittent	N/A	556	N/A
9. UNT-Bc	Class I	Intermittent	N/A	123	N/A
10. UNT-C (Isolated)	Class I	Intermittent	N/A	275	N/A
11. UNT-Ca (Isolated)	Class I	Intermittent	N/A	50	N/A
12.UNT-Ca1 (Isolated)	Class I	Ephemeral	N/A	32	N/A
13. UNT-D (Isolated)	Class I	Intermittent	N/A	828	N/A
14. UND-Da (Isolated)	Class I	Ephemeral	N/A	33	N/A
15. UNT-Db (Isolated)	Class I Mod.	Ephemeral	N/A	224	N/A
16. UNT-Dc (Isolated)	Class I	Ephemeral	N/A	56	N/A
17. UNT-Dc1 (Isolated)	Class II	Perennial	3.0	162	486
18. UNT-E	Class II	Perennial	3.0	2139	6417
19. UNT-Ea	Class I	Intermittent	N/A	371	N/A
20. UNT-Eb	Class I	Ephemeral	N/A	423	N/A
21. UNT-Ec	Class I	Ephemeral	N/A	251	N/A
22. UNT-F	Class II	Perennial	3.0	75	225
23. UNT-H (Isolated)	Class I	Intermittent	N/A	541	N/A
24. UNT-Ha (Isolated)	Class I	Ephemeral	N/A	57	N/A
			Total	**8,745**	**12,078**

* Based on data collected for the Benthic Macroinvertebrate and Fish Community Data Report

6.4.2 Mitigation/Credits

The stream mitigation plan focused on the restoration and preservation of Rocky Run and its riparian corridor. Preserving Rocky Run's riparian buffer also meant preserving the lower portions of 16 additional unnamed tributaries to Rocky Run. A 100-foot buffer (minimum) will be preserved from the toe of the slope in the Rocky Run floodway outward. This resulted in a substantial amount of preservation to these 16 additional tributaries. These tributaries were accounted for in the calculation of the mitigation credits. Aquatic Life Use Designations were determined in the field by calculating HHEI and HMFEI scores on these tributaries.

Rocky Run

In calculating Mitigation Credits for Rocky Run, CEC assumed a Stream Restoration score of "Good" based upon the fact that although Rocky Run varies in its geomorphic ratings (according to the criteria in Section 5.2.4 of the Model) at various points throughout the mitigation area, the proposed restoration techniques will improve the stream by at least one geomorphic integrity rating (i.e., from "Poor" to "Good", from "Fair" to "Good", or from "Good" to "Excellent") in each area. The minimal 200-foot riparian buffer qualifies for the "Excellent" rating in the Model with a WF of 1.0. The riparian restoration techniques planned for Rocky Run vary between the "Good" and "Excellent" ratings, but were conservatively assigned "Good". Although it is possible for Rocky Run to achieve an Aquatic Life Use higher than WWH following mitigation, a conservative approach was assumed that it will stay within its WWH attainment. The Resulting Habitat Quality was assigned a rating of "Good" because mitigation techniques should reduce the sediment loads in Rocky Run which will increase its QHEI score. Rocky Run falls under the Tertiary Priority Area, and was scored accordingly. Mitigation to Rocky Run will be performed within the project area and extended downstream, which was considered onsite. Mitigation to Rocky Run will be protected via a Environmental Covenant or Conservation Easement, and the impact mitigation relationship was considered "Out-of-Kind" because of the nature of the impacts. ORCF will adhere to the Schedule 2 requirements and was scored accordingly. For the purposes of the Supplemental Water Quality

Activities category, the ATV's were considered to be livestock (performing equal damage to the stream, if not worse); and will be kept out of Rocky Run, a Supplemental Water Activity indicative of the "Good" Rating. The Threat to Stream Segment was assigned "Low" because the majority of mitigation will occur in Jefferson County, which is classified as having a "Low" population growth rate in Table 6 of the Model. Although a good portion of the mitigation does occur in Columbiana County, with a population growth rate of "Moderate", a conservative approach was taken and the "Low" option was assigned. Please refer to Attachment B for the scoring sheet used to evaluate Rocky Run (Form B).

Unnamed Tributaries to Rocky Run

The Mitigation Factor for the unnamed tributaries to Rocky Run varied slightly, but averaged approximately 3.4. These consistencies are accounted for because restoration activities are not planned for these streams, only preservation due to their location within the buffer area of Rocky Run. The slight discrepancies in their Mitigation Factors are dependant on which county in which they are located. Streams in Columbiana County have a "Moderate" threat to stream segment, whereas streams in Jefferson County have a "Low" threat to stream segment.

Applying this Model to Rocky Run and its tributaries calculated a Mitigation Credit total of 83,554 credits. The individual scoring sheets (Form B) for Rocky Run and its tributaries are presented in Attachment B to this Plan. The following table provides a summary of mitigation credits for the proposed ORCF facility.

TABLE 7
MITIGATION/CREDITS SUMMARY

Mitigation Streams	Stream Class/Designation	Classification	Mitigation Weighting Factor	Linear Feet of Mitigation	Stream Mitigation Credits
1. Rocky Run	WWH	Perennial	6.7	11,188	74,960
2. RR-A	Class II	Perennial	3.4	226	768
3. RR-B	Class II	Intermittent	3.4	229	779
4. RR-C	Class II	Perennial	3.6	148	533
5. RR-D	Class II	Perennial	3.4	262	891
6. RR-E	Class II	Perennial	3.4	146	496
7. RR-F	Class I	Ephemeral	3.3	63	208
8. RR-G	Class I	Intermittent	3.2	154	493
9. RR-H	Class I	Ephemeral	3.4	107	364
10. RR-I	Class II	Perennial	3.3	171	564
11. RR-K	Class I	Intermittent	3.4	156	530
12. RR-L	Class I	Intermittent	3.4	107	364
13. RR-M	Class I	Perennial	3.4	60	204
14. RR-N	Class I	Intermittent	3.4	237	806
15. RR-O	Class II	Perennial	3.4	144	490
16. RR-P	Class II	Perennial	3.4	170	578
17. RR-Q	Class I	Perennial	3.4	155	527
			Total	**13,723**	**83,554**

6.5 CONCLUSION OF MODEL CALCULATIONS

The goal of this Model is to have at least as many Mitigation Credits as there are Impact Debits. The Model calculated a total of 12,078 Impact Debits as a result of the proposed construction of the ORCF Facility. Based on the results of this model, ORCF proposes to offset these Impact Debits with 83,554 Mitigation Credits obtained from rehabilitating and preserving Rocky Run and its associated riparian corridor.

The small number of Impact Debits is accounted for by the large number of Class I streams proposed for impacts. According to the Model, the loss of Class I streams can be offset by proper implementation of post-construction BMPs, and are not included in the Mitigation Credit total.

Based upon the Model, impacts from construction of the ORCF facility will be more than compensated for by the proposed Rocky Run stream mitigation plan. It is understood that the Model is not to be used in a regulatory context or to conclude sufficient mitigation for projects with impacts to streams. It is however used here as a tool to further evaluate what is "adequate" mitigation. Under this scenario, the proposed mitigation more than compensates for the impacts

7.0 SUMMARY AND CONCLUSIONS

This wetland and stream mitigation plan has been prepared to describe the stream mitigation and wetland replacement proposed as compensation for impacts to wetlands, streams, and ponds that will result from the development of the proposed Ohio River Clean Fuel Facility located in Columbiana and Jefferson Counties, near Wellsville, Ohio.

The proposed Project will impact 12 wetlands totaling 1.71 acre, 24 tributaries (27 stream segments) totaling 8,745 linear feet (including 1,701 of ephemeral, 4,295 of intermittent, and 2,749 of perennial) and two ponds totaling 0.29 acre. The 1.71 acres of wetland impacts includes 1.69 acres of permanent impacts to wetlands from the development of the Project and 0.02 acres of permanent impacts to wetlands from the construction of the wetland mitigation area. The 8,745 linear feet of stream impacts includes 7,982 linear feet of permanent impacts to streams from the development of the Project and 763 linear feet permanent impacts from the construction of the wetland mitigation area. Of the 1.71 acres of wetland impacts, a total of 1.52 acres are isolated wetlands. Therefore, the total amount of Corps regulated wetlands are 0.19 acres.

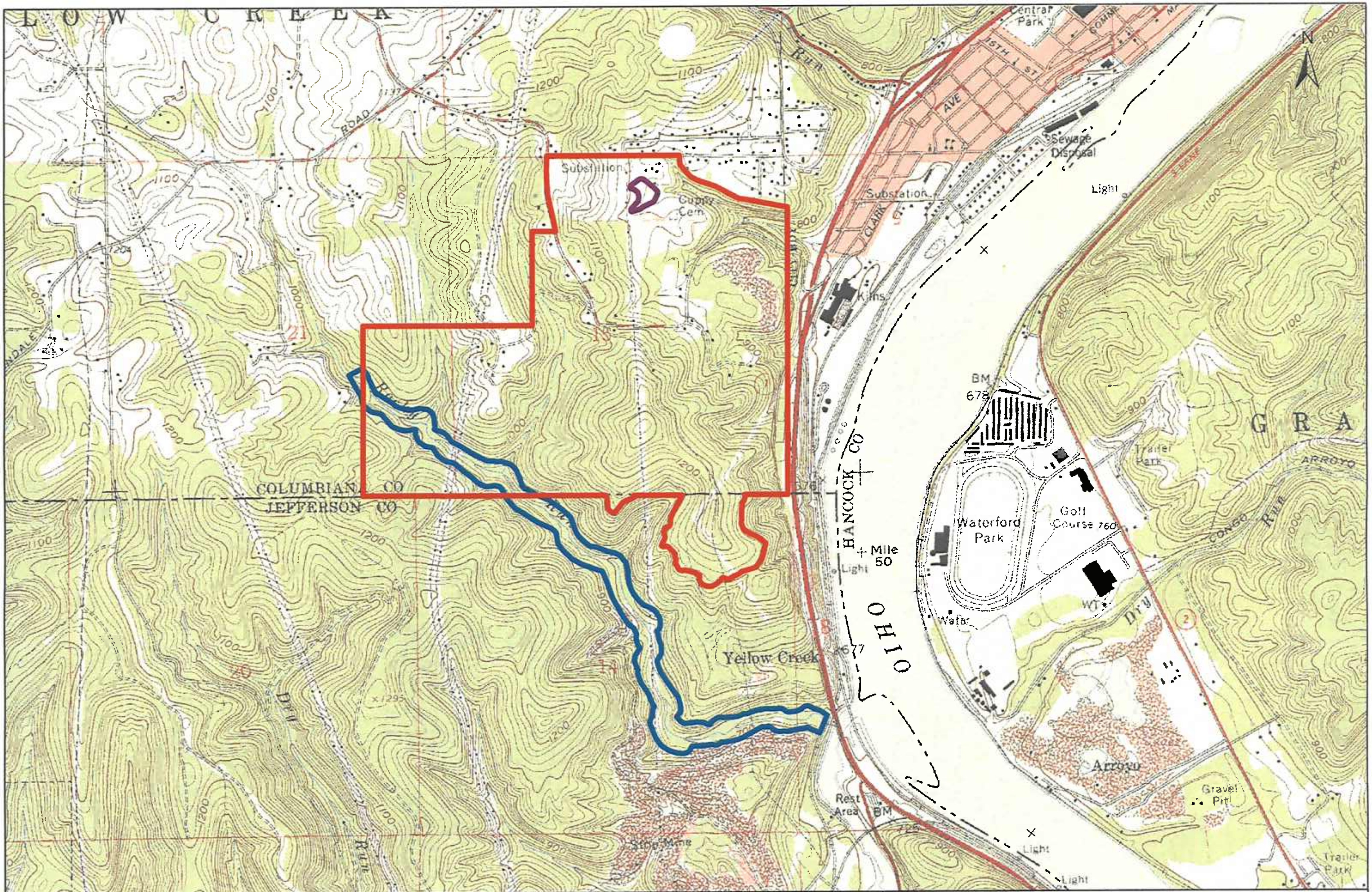
To offset these impacts, ORCF proposes to complete onsite stream and wetland mitigation that will provide aquatic resources with higher functions and values than those proposed to be impacted. ORCF proposes to create a total of 3.93 acres of wetlands and 0.41 acre of open water to the north of the proposed Project. Additionally, ORCF proposes to rehabilitate 13,723 feet of Rocky Run and its associated riparian corridor to the west and south of the proposed Project

TABLE 8
SUMMARY OF TOTAL PROPOSED MITIGATION

Jurisdictional Water	Proposed Impacts (acres / feet)	Created (acres)	Length or Acreage Restored/Protected	Mitigation Ratio
Wetland	1.71 acres	3.93 acres	--	2.3 : 1
Stream	8,745 feet	--	13,723 feet	1.6 : 1
Open Water	0.29 acres	0.41	--	1.4 : 1

The total impacts calculated by using the Ohio EPA Model results in 12,078 Impact Debits and 83,554 Mitigation Credits. Based upon the Model, proposed stream impacts will be compensated by a factor of almost 7:1.

FIGURES



USGS Wellsville, OH Quadrangle, Dated 1960, Revised 1992.	Legend	ISSUED FOR: OHIO RIVER CLEAN FUELS, LLC.	SITE LOCATION AND MITIGATION MAP OHIO RIVER CLEAN FUELS FACILITY COLUMBIANA AND JEFFERSON COUNTIES WELLSVILLE, OHIO
DWN. BY: CLC / CHK. BY: DAM*	Project Boundary Wetland Mitigation Area Rocky Run Stream Mitigation Area	ISSUED BY: CEC CIVIL & ENVIRONMENTAL CONSULTANTS, INC. 333 Baldwin Road Pittsburgh, PA 15205-9702 1-800-365-2324	
1 inch equals 2,000 feet	0 1,000 2,000 3,000 4,000 Feet	Columbus, OH * Cincinnati, OH * Indianapolis, IN * Nashville, TN * Chicago, IL * St. Louis, MO * Export, PA * Detroit, MI	PROJECT NO.: 061-933
DATE: 12/10/2007	* Hand signature on file		FIGURE NO: 1

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ATTACHMENT A

PHOTOGRAPHS

Photo 1: View of ATV disturbed floodplain adjacent to Rocky Run facing downstream.

Photo 2: View of ATV disturbed Rocky Run facing upstream.

Photo 3: View of ATV disturbed Rocky Run facing downstream.

Photo 4: View of ATV disturbed Rocky Run facing upstream.

Photo 5: View of ATV disturbed Rocky Run and associated floodplain.

Photo 6: View of ATV disturbed Rocky Run and associated floodplain.

Photo 7: View of biological sampling station RR-01.

Photo 8: View of biological sampling station RR-02.

Photo 9: View of biological sampling station RR-03.

Photo 10: View of typical area that will be revegetated by seeding.

Photo 11: View of severely eroded hillside trail to be controlled with sediment trap/wetland creation area.

Photo 12: View of eroded hillside trail to be controlled with sediment trap/wetland creation area.

Photo 13: View of eroded hillside trail to be controlled with sediment trap/wetland creation area.

Photo 14: View of eroded hillside trail to be controlled with sediment trap/wetland creation area.

Photo 15: View of eroded hillside trail to be controlled with sediment trap/wetland creation area.

Photo 16: ATV mud bog area located adjacent to Rocky Run within the floodplain.

Photo 17: ATV mud bog area located adjacent to Rocky Run within the floodplain.

Photo 18: ATV mud bog area located adjacent to Rocky Run within the floodplain.

Photo 19: ATV mud bog area located adjacent to Rocky Run within the floodplain.

Photo 20: View of abandoned ATV mud bog area recovering into vernal pool with wetland fringe

Photo 21: View of abandoned vehicle within Rocky Run corridor to be removed.

Photo 22: View of abandoned vehicle within Rocky Run corridor to be removed.

ATTACHMENT B

OHIO EPA MITIGATION FORMS A, B, AND C

Ohio EPA 401 Water Quality Certification
FORM A. ADVERSE IMPACT WEIGHTING TABLE FOR STREAM IMPACTS

Project Name: OHIO RIVER CLEAN FUELS FACILITY Page ____ of ____

Stream Segment: RB-A Use Designation: CLASS III PHWH

Impact Summary: CULVERT EXTENSION FOR ACCESS ROAD

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Impact Factors	Options						Impact Factor Value
Existing Aquatic Life Use Section 5.2.1	LRW Class I PHWH Protection of Downstream Uses, skip remaining analysis	MWH Class II PHWH Enter **3.0** for (I) in Box 1 below, calculate mitigation credits needed	WWH **1.5**	EWH **2.5**	CWH Class III PHWH **3.0**	SSH Add **0.2** to score for June-September Aquatic life Use	3.0
Existing Habitat Quality Section 5.2.2	Analysis for these weighting factors is not necessary for default procedures (see Section 2.1.3.2)		Poor **0.2**	Fair **0.6**	Good **1.0** 52	Excellent **1.5**	1.0
Priority Area Section 5.2.3			Tertiary **0.1**	Secondary **0.5**	Primary **1.0**		0.1
Existing Geo-morphic Integrity Section 5.2.4			Poor **0.2**	Fair **0.5**	Good **1.0**	Excellent **1.5**	0.5
Existing Flood Plain Quality Section 5.2.5.1			Poor **0.2**	Fair **0.8**	Good **1.0**	Excellent **1.5**	1.0
Impact Category Section 5.2.6			Minimal **0.2**	Moderate **1.0**	High **1.5**	Severe **2.0**	1.5

To Calculate the mitigation credits required, sum all Impact Factor row values and enter the result in Box 1.	Box 1. Sum of Impact Factors (I) =	7.1
Enter the proposed length of stream to be impacted into Box 2.	Box 2. Length of Impact (D) =	20
Multiply the values of Box 1 and Box 2 and enter the result in Box 3. The value of Box 3 equals the total number of stream impact debits for the assessed impacts.	Box 3. Total Stream Impact Debits (I x D) =	142

Ohio EPA 401 Water Quality Certification
FORM A. ADVERSE IMPACT WEIGHTING TABLE FOR STREAM IMPACTS

Project Name: OHIO RIVER CLEAN FUELS FACILITY Page ____ of ____

Stream Segment: RR-Aa Use Designation: CLASS I PHWH

Impact Summary: FILL FROM GRADING ACTIVITES

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Impact Factors	Options						Impact Factor Value
Existing Aquatic Life Use Section 5.2.1	LRW (Class I PHWH) Protection of Downstream Uses, skip remaining analysis	MWH Class II PHWH Enter 3.0 for (I) in Box 1 below, calculate mitigation credits needed	WWH 1.5	EWH 2.5	CWH Class III PHWH 3.0	SSH Add 0.2 to score for June-September Aquatic life Use	
Existing Habitat Quality Section 5.2.2	Analysis for these weighting factors is not necessary for default procedures (see Section 2.1.3.2)		Poor 0.2	Fair 0.6	Good 1.0	Excellent 1.5	
Priority Area Section 5.2.3			Tertiary 0.1	Secondary 0.5	Primary 1.0		
Existing Geo-morphic Integrity Section 5.2.4			Poor 0.2	Fair 0.5	Good 1.0	Excellent 1.5	
Existing Flood Plain Quality Section 5.2.5.1			Poor 0.2	Fair 0.8	Good 1.0	Excellent 1.5	
Impact Category Section 5.2.6			Minimal 0.2	Moderate 1.0	High 1.5	Severe 2.0	

To Calculate the mitigation credits required, sum all Impact Factor row values and enter the result in Box 1.	Box 1. Sum of Impact Factors (I) =	N/A
Enter the proposed length of stream to be impacted into Box 2.	Box 2. Length of Impact (D) =	64
Multiply the values of Box 1 and Box 2 and enter the result in Box 3. The value of Box 3 equals the total number of stream impact debits for the assessed impacts.	Box 3. Total Stream Impact Debits (I x D) =	N/A

Ohio EPA 401 Water Quality Certification
FORM A. ADVERSE IMPACT WEIGHTING TABLE FOR STREAM IMPACTS

Project Name: OHIO RIVER CLEAN FUELS FACILITY Page ____ of ____

Stream Segment: RIR - Ab Use Designation: CLASS I PHWH

Impact Summary: FILL FROM GRADING ACTIVITIES

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Impact Factors	Options						Impact Factor Value
Existing Aquatic Life Use Section 5.2.1	LRW (Class I PHWH) Protection of Downstream Uses, skip remaining analysis	MWH Class II PHWH Enter 3.0 for (I) in Box 1 below, calculate mitigation credits needed	WWH 1.5	EWH 2.5	CWH Class III PHWH 3.0	SSH Add 0.2 to score for June-September Aquatic life Use	
Existing Habitat Quality Section 5.2.2	Analysis for these weighting factors is not necessary for default procedures (see Section 2.1.3.2)		Poor 0.2	Fair 0.6	Good 1.0	Excellent 1.5	
Priority Area Section 5.2.3			Tertiary 0.1	Secondary 0.5	Primary 1.0		
Existing Geo-morphic Integrity Section 5.2.4			Poor 0.2	Fair 0.5	Good 1.0	Excellent 1.5	
Existing Flood Plain Quality Section 5.2.5.1			Poor 0.2	Fair 0.8	Good 1.0	Excellent 1.5	
Impact Category Section 5.2.6			Minimal 0.2	Moderate 1.0	High 1.5	Severe 2.0	

To Calculate the mitigation credits required, sum all Impact Factor row values and enter the result in Box 1.

Enter the proposed length of stream to be impacted into Box 2.

Multiply the values of Box 1 and Box 2 and enter the result in Box 3.

The value of Box 3 equals the total number of stream impact debits for the assessed impacts.

Box 1.	Sum of Impact Factors (I) =	N/A
Box 2.	Length of Impact (D) =	179
Box 3.	Total Stream Impact Debits (I x D) =	N/A

Ohio EPA 401 Water Quality Certification
FORM A. ADVERSE IMPACT WEIGHTING TABLE FOR STREAM IMPACTS

Project Name: OHIO RIVER CLEAN FUELS FACILITY Page ____ of ____

Stream Segment: RR - Ac Use Designation: CLASS I PHWH

Impact Summary: FILL FROM GRADING ACTIVITY

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Impact Factors	Options						Impact Factor Value
Existing Aquatic Life Use Section 5.2.1	LRW (Class I PHWH) Protection of Downstream Uses, skip remaining analysis	MWH Class II PHWH Enter **3.0** for (I) in Box 1 below, calculate mitigation credits needed	WWH **1.5**	EWH **2.5**	CWH Class III PHWH **3.0**	SSH Add **0.2** to score for June-September Aquatic life Use	
Existing Habitat Quality Section 5.2.2	Analysis for these weighting factors is not necessary for default procedures (see Section 2.1.3.2)		Poor **0.2**	Fair **0.6**	Good **1.0**	Excellent **1.5**	
Priority Area Section 5.2.3			Tertiary **0.1**	Secondary **0.5**	Primary **1.0**		
Existing Geo-morphic Integrity Section 5.2.4			Poor **0.2**	Fair **0.5**	Good **1.0**	Excellent **1.5**	
Existing Flood Plain Quality Section 5.2.5.1			Poor **0.2**	Fair **0.8**	Good **1.0**	Excellent **1.5**	
Impact Category Section 5.2.6			Minimal **0.2**	Moderate **1.0**	High **1.5**	Severe **2.0**	

To Calculate the mitigation credits required, sum all Impact Factor row values and enter the result in Box 1.	**Box 1.** Sum of Impact Factors (I) =	N/A
Enter the proposed length of stream to be impacted into Box 2.	**Box 2.** Length of Impact (D) =	840
Multiply the values of Box 1 and Box 2 and enter the result in Box 3. The value of Box 3 equals the total number of stream impact debits for the assessed impacts.	**Box 3.** Total Stream Impact Debits (I x D) =	N/A

Ohio EPA 401 Water Quality Certification
FORM A. ADVERSE IMPACT WEIGHTING TABLE FOR STREAM IMPACTS

Project Name: OHIO RIVER CLEAN FUELS FACILITY Page ____ of ____

Stream Segment: UAT-A Use Designation: CLASS II PHWH

Impact Summary: FILL FROM GRADING ACTIVITIES

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Impact Factors	Options						Impact Factor Value
Existing Aquatic Life Use Section 5.2.1	LRW Class I PHWH Protection of Downstream Uses, skip remaining analysis	MWH (Class II PHWH) Enter **3.0** for (I) in Box 1 below, calculate mitigation credits needed	WWH **1.5**	EWH **2.5**	CWH Class III PHWH **3.0**	SSH Add **0.2** to score for June-September Aquatic life Use	
Existing Habitat Quality Section 5.2.2	Analysis for these weighting factors is not necessary for default procedures (see Section 2.1.3.2)		Poor **0.2**	Fair **0.6**	Good **1.0**	Excellent **1.5**	
Priority Area Section 5.2.3			Tertiary **0.1**	Secondary **0.5**	Primary **1.0**		
Existing Geo-morphic Integrity Section 5.2.4			Poor **0.2**	Fair **0.5**	Good **1.0**	Excellent **1.5**	
Existing Flood Plain Quality Section 5.2.5.1			Poor **0.2**	Fair **0.8**	Good **1.0**	Excellent **1.5**	
Impact Category Section 5.2.6			Minimal **0.2**	Moderate **1.0**	High **1.5**	Severe **2.0**	

To Calculate the mitigation credits required, sum all Impact Factor row values and enter the result in Box 1.	Box 1. Sum of Impact Factors (I) =	3.0
Enter the proposed length of stream to be impacted into Box 2.	Box 2. Length of Impact (D) =	1231
Multiply the values of Box 1 and Box 2 and enter the result in Box 3. The value of Box 3 equals the total number of stream impact debits for the assessed impacts.	Box 3. Total Stream Impact Debits (I x D) =	3,693

Ohio EPA 401 Water Quality Certification
FORM A. ADVERSE IMPACT WEIGHTING TABLE FOR STREAM IMPACTS

Project Name: OHIO RIVER CLEAN FUELS FACILITY Page____ of ____

Stream Segment: UNT-Aa Use Designation: CLASS II PHWH

Impact Summary: FILL FROM GRADING ACTIVITIES

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Impact Factors	Options						Impact Factor Value
Existing Aquatic Life Use Section 5.2.1	LRW Class I PHWH Protection of Downstream Uses, skip remaining analysis	MWH (Class II PHWH) Enter **3.0** for (I) in Box 1 below, calculate mitigation credits needed	WWH **1.5**	EWH **2.5**	CWH Class III PHWH **3.0**	SSH Add **0.2** to score for June-September Aquatic life Use	
Existing Habitat Quality Section 5.2.2	Analysis for these weighting factors is not necessary for default procedures (see Section 2.1.3.2)	Poor **0.2**	Fair **0.6**	Good **1.0**	Excellent **1.5**		
Priority Area Section 5.2.3		Tertiary **0.1**	Secondary **0.5**	Primary **1.0**			
Existing Geo-morphic Integrity Section 5.2.4		Poor **0.2**	Fair **0.5**	Good **1.0**	Excellent **1.5**		
Existing Flood Plain Quality Section 5.2.5.1		Poor **0.2**	Fair **0.8**	Good **1.0**	Excellent **1.5**		
Impact Category Section 5.2.6		Minimal **0.2**	Moderate **1.0**	High **1.5**	Severe **2.0**		

To Calculate the mitigation credits required, sum all Impact Factor row values and enter the result in Box 1.	**Box 1.** **Sum of Impact Factors (I) =**	3.0
Enter the proposed length of stream to be impacted into Box 2.	**Box 2.** **Length of Impact (D) =**	131
Multiply the values of Box 1 and Box 2 and enter the result in Box 3. The value of Box 3 equals the total number of stream impact debits for the assessed impacts.	**Box 3.** **Total Stream Impact Debits (I x D) =**	393

Ohio EPA 401 Water Quality Certification
FORM A. ADVERSE IMPACT WEIGHTING TABLE FOR STREAM IMPACTS

Project Name: OHIO RIVER CLEAN FUELS FACILITY Page____ of ____

Stream Segment: UNT- B Use Designation: CLASS III PHWH

Impact Summary: WETLAND MITIGATION CREATION

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Impact Factors	Options						Impact Factor Value
Existing Aquatic Life Use Section 5.2.1	LRW Class I PHWH Protection of Downstream Uses, skip remaining analysis	MWH Class II PHWH Enter 3.0 for (I) in Box 1 below, calculate mitigation credits needed	WWH 1.5	EWH 2.5	CWH Class III PHWH 3.0	SSH Add 0.2 to score for June-September Aquatic life Use	3.0
Existing Habitat Quality Section 5.2.2	Analysis for these weighting factors is not necessary for default procedures (see Section 2.1.3.2)		Poor 0.2	Fair 0.6	Good 1.0	Excellent 1.5 75	1.5
Priority Area Section 5.2.3			Tertiary 0.1	Secondary 0.5	Primary 1.0		0.1
Existing Geo-morphic Integrity Section 5.2.4			Poor 0.2	Fair 0.5	Good 1.0	Excellent 1.5	1.0
Existing Flood Plain Quality Section 5.2.5.1			Poor 0.2	Fair 0.8	Good 1.0	Excellent 1.5	1.5
Impact Category Section 5.2.6			Minimal 0.2	Moderate 1.0	High 1.5	Severe 2.0	1.5

To Calculate the mitigation credits required, sum all Impact Factor row values and enter the result in Box 1.	Box 1. Sum of Impact Factors (I) =	8.6
Enter the proposed length of stream to be impacted into Box 2.	Box 2. Length of Impact (D) =	84
Multiply the values of Box 1 and Box 2 and enter the result in Box 3. The value of Box 3 equals the total number of stream impact debits for the assessed impacts.	Box 3. Total Stream Impact Debits (I x D) =	722

Ohio EPA 401 Water Quality Certification
FORM A. ADVERSE IMPACT WEIGHTING TABLE FOR STREAM IMPACTS

Project Name: OHIO RIVER CLEAN FUELS FACILITY Page ____ of ____

Stream Segment: UNT- B6 Use Designation: CLASS I PHWH

Impact Summary: WETLAND MITIGATION CREATION

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Impact Factors	Options						Impact Factor Value
Existing Aquatic Life Use Section 5.2.1	LRW (Class I PHWH) Protection of Downstream Uses, skip remaining analysis	MWH Class II PHWH Enter **3.0** for (I) in Box 1 below, calculate mitigation credits needed	WWH **1.5**	EWH **2.5**	CWH Class III PHWH **3.0**	SSH Add **0.2** to score for June-September Aquatic life Use	
Existing Habitat Quality Section 5.2.2	Analysis for these weighting factors is not necessary for default procedures (see Section 2.1.3.2)		Poor **0.2**	Fair **0.6**	Good **1.0**	Excellent **1.5**	
Priority Area Section 5.2.3			Tertiary **0.1**	Secondary **0.5**	Primary **1.0**		
Existing Geo-morphic Integrity Section 5.2.4			Poor **0.2**	Fair **0.5**	Good **1.0**	Excellent **1.5**	
Existing Flood Plain Quality Section 5.2.5.1			Poor **0.2**	Fair **0.8**	Good **1.0**	Excellent **1.5**	
Impact Category Section 5.2.6			Minimal **0.2**	Moderate **1.0**	High **1.5**	Severe **2.0**	

To Calculate the mitigation credits required, sum all Impact Factor row values and enter the result in Box 1.	**Box 1. Sum of Impact Factors (I) =**	N/A
Enter the proposed length of stream to be impacted into Box 2.	**Box 2. Length of Impact (D) =**	556
Multiply the values of Box 1 and Box 2 and enter the result in Box 3. **The value of Box 3 equals the total number of stream impact debits for the assessed impacts.**	**Box 3. Total Stream Impact Debits (I x D) =**	N/A

Ohio EPA 401 Water Quality Certification
FORM A. ADVERSE IMPACT WEIGHTING TABLE FOR STREAM IMPACTS

Project Name: OHIO RIVER CLEAN FUELS FACILITY Page ____ of ____

Stream Segment: UNT- Bc Use Designation: CLASS I PHWH

Impact Summary: WETLAND MITIGATION CREATION

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Impact Factors	Options						Impact Factor Value
Existing Aquatic Life Use Section 5.2.1	LRW (Class I PHWH) Protection of Downstream Uses, skip remaining analysis	MWH Class II PHWH Enter **3.0** for (I) in Box 1 below, calculate mitigation credits needed	WWH **1.5**	EWH **2.5**	CWH Class III PHWH **3.0**	SSH Add **0.2** to score for June-September Aquatic life Use	
Existing Habitat Quality Section 5.2.2	Analysis for these weighting factors is not necessary for default procedures (see Section 2.1.3.2)	Poor **0.2**	Fair **0.6**	Good **1.0**	Excellent **1.5**		
Priority Area Section 5.2.3		Tertiary **0.1**	Secondary **0.5**	Primary **1.0**			
Existing Geo-morphic Integrity Section 5.2.4		Poor **0.2**	Fair **0.5**	Good **1.0**	Excellent **1.5**		
Existing Flood Plain Quality Section 5.2.5.1		Poor **0.2**	Fair **0.8**	Good **1.0**	Excellent **1.5**		
Impact Category Section 5.2.6		Minimal **0.2**	Moderate **1.0**	High **1.5**	Severe **2.0**		

To Calculate the mitigation credits required, sum all Impact Factor row values and enter the result in Box 1.	**Box 1. Sum of Impact Factors (I) =**	N/A
Enter the proposed length of stream to be impacted into Box 2.	**Box 2. Length of Impact (D) =**	123
Multiply the values of Box 1 and Box 2 and enter the result in Box 3.	**Box 3. Total Stream Impact Debits (I x D) =**	N/A
The value of Box 3 equals the total number of stream impact debits for the assessed impacts.		

Ohio EPA 401 Water Quality Certification
FORM A. ADVERSE IMPACT WEIGHTING TABLE FOR STREAM IMPACTS

Project Name: OHIO RIVER CLEAN FUELS FACILITY Page____ of ____

Stream Segment: UNT-C (ISOLATED) Use Designation: CLASS I PHWH

Impact Summary: CUT FROM GRADING ACTIVITIES

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Impact Factors	Options						Impact Factor Value
Existing Aquatic Life Use Section 5.2.1	LRW (Class I PHWH) Protection of Downstream Uses, skip remaining analysis	MWH Class II PHWH Enter **3.0** for (I) in Box 1 below, calculate mitigation credits needed	WWH **1.5**	EWH **2.5**	CWH Class III PHWH **3.0**	SSH Add **0.2** to score for June-September Aquatic life Use	
Existing Habitat Quality Section 5.2.2	Analysis for these weighting factors is not necessary for default procedures (see Section 2.1.3.2)		Poor **0.2**	Fair **0.6**	Good **1.0**	Excellent **1.5**	
Priority Area Section 5.2.3			Tertiary **0.1**	Secondary **0.5**	Primary **1.0**		
Existing Geo-morphic Integrity Section 5.2.4			Poor **0.2**	Fair **0.5**	Good **1.0**	Excellent **1.5**	
Existing Flood Plain Quality Section 5.2.5.1			Poor **0.2**	Fair **0.8**	Good **1.0**	Excellent **1.5**	
Impact Category Section 5.2.6			Minimal **0.2**	Moderate **1.0**	High **1.5**	Severe **2.0**	

To Calculate the mitigation credits required, sum all Impact Factor row values and enter the result in Box 1.	**Box 1.** **Sum of Impact Factors (I) =**	N/A
Enter the proposed length of stream to be impacted into Box 2.	**Box 2.** **Length of Impact (D) =**	275
Multiply the values of Box 1 and Box 2 and enter the result in Box 3. **The value of Box 3 equals the total number of stream impact debits for the assessed impacts.**	**Box 3.** **Total Stream Impact Debits (I x D) =**	N/A

Ohio EPA 401 Water Quality Certification
FORM A. ADVERSE IMPACT WEIGHTING TABLE FOR STREAM IMPACTS

Project Name: OHIO RIVER CLEAN FUELS FACILITY Page ____ of ____

Stream Segment: UNT - Ca (ISOLATED) Use Designation: CLASS I PHWH

Impact Summary: CUT FROM GRADING ACTIVITIES

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Impact Factors	Options						Impact Factor Value
Existing Aquatic Life Use Section 5.2.1	LRW (Class I PHWH) Protection of Downstream Uses, skip remaining analysis	MWH Class II PHWH Enter **3.0** for (I) in Box 1 below, calculate mitigation credits needed	WWH **1.5**	EWH **2.5**	CWH Class III PHWH **3.0**	SSH Add **0.2** to score for June-September Aquatic life Use	
Existing Habitat Quality Section 5.2.2	Analysis for these weighting factors is not necessary for default procedures (see Section 2.1.3.2)		Poor **0.2**	Fair **0.6**	Good **1.0**	Excellent **1.5**	
Priority Area Section 5.2.3			Tertiary **0.1**	Secondary **0.5**	Primary **1.0**		
Existing Geo-morphic Integrity Section 5.2.4			Poor **0.2**	Fair **0.5**	Good **1.0**	Excellent **1.5**	
Existing Flood Plain Quality Section 5.2.5.1			Poor **0.2**	Fair **0.8**	Good **1.0**	Excellent **1.5**	
Impact Category Section 5.2.6			Minimal **0.2**	Moderate **1.0**	High **1.5**	Severe **2.0**	

To Calculate the mitigation credits required, sum all Impact Factor row values and enter the result in Box 1.	**Box 1.** **Sum of Impact Factors (I) =**	N/A
Enter the proposed length of stream to be impacted into Box 2.	**Box 2.** **Length of Impact (D) =**	50
Multiply the values of Box 1 and Box 2 and enter the result in Box 3.	**Box 3.** **Total Stream Impact Debits (I x D) =**	N/A

The value of Box 3 equals the total number of stream impact debits for the assessed impacts.

Ohio EPA 401 Water Quality Certification
FORM A. ADVERSE IMPACT WEIGHTING TABLE FOR STREAM IMPACTS

Project Name: OHIO RIVER CLEAN FUELS FACILITY Page____ of ____

Stream Segment: UNT - Cal (ISOLATED) Use Designation: CLASS I PHWH

Impact Summary: CUT FROM GRADING ACTIVITIES

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Impact Factors	Options						Impact Factor Value
Existing Aquatic Life Use Section 5.2.1	LRW (Class I PHWH) Protection of Downstream Uses, skip remaining analysis	MWH Class II PHWH Enter **3.0** for (I) in Box 1 below, calculate mitigation credits needed	WWH **1.5**	EWH **2.5**	CWH Class III PHWH **3.0**	SSH Add **0.2** to score for June-September Aquatic life Use	
Existing Habitat Quality Section 5.2.2	Analysis for these weighting factors is not necessary for default procedures (see Section 2.1.3.2)		Poor **0.2**	Fair **0.6**	Good **1.0**	Excellent **1.5**	
Priority Area Section 5.2.3			Tertiary **0.1**	Secondary **0.5**	Primary **1.0**		
Existing Geo-morphic Integrity Section 5.2.4			Poor **0.2**	Fair **0.5**	Good **1.0**	Excellent **1.5**	
Existing Flood Plain Quality Section 5.2.5.1			Poor **0.2**	Fair **0.8**	Good **1.0**	Excellent **1.5**	
Impact Category Section 5.2.6			Minimal **0.2**	Moderate **1.0**	High **1.5**	Severe **2.0**	

To Calculate the mitigation credits required, sum all Impact Factor row values and enter the result in Box 1.	**Box 1. Sum of Impact Factors (I) =**	N/A
Enter the proposed length of stream to be impacted into Box 2.	**Box 2. Length of Impact (D) =**	32
Multiply the values of Box 1 and Box 2 and enter the result in Box 3. **The value of Box 3 equals the total number of stream impact debits for the assessed impacts.**	**Box 3. Total Stream Impact Debits (I x D) =**	N/A

Ohio EPA 401 Water Quality Certification
FORM A. ADVERSE IMPACT WEIGHTING TABLE FOR STREAM IMPACTS

Project Name: OHIO RIVER CLEAN FUELS FACILITY Page ____ of ____

Stream Segment: UNT-D (ISOLATED) Use Designation: CLASS I PHWH

Impact Summary: CUT FROM GRADING ACTIVITIES

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Impact Factors	Options						Impact Factor Value
Existing Aquatic Life Use Section 5.2.1	LRW (Class I PHWH) Protection of Downstream Uses, skip remaining analysis	MWH Class II PHWH Enter **3.0** for (I) in Box 1 below, calculate mitigation credits needed	WWH **1.5**	EWH **2.5**	CWH Class III PHWH **3.0**	SSH Add **0.2** to score for June-September Aquatic life Use	
Existing Habitat Quality Section 5.2.2	Analysis for these weighting factors is not necessary for default procedures (see Section 2.1.3.2)		Poor **0.2**	Fair **0.6**	Good **1.0**	Excellent **1.5**	
Priority Area Section 5.2.3			Tertiary **0.1**	Secondary **0.5**	Primary **1.0**		
Existing Geo-morphic Integrity Section 5.2.4			Poor **0.2**	Fair **0.5**	Good **1.0**	Excellent **1.5**	
Existing Flood Plain Quality Section 5.2.5.1			Poor **0.2**	Fair **0.8**	Good **1.0**	Excellent **1.5**	
Impact Category Section 5.2.6			Minimal **0.2**	Moderate **1.0**	High **1.5**	Severe **2.0**	

To Calculate the mitigation credits required, sum all Impact Factor row values and enter the result in Box 1.	Box 1. Sum of Impact Factors (I) =	N/A
Enter the proposed length of stream to be impacted into Box 2.	Box 2. Length of Impact (D) =	828
Multiply the values of Box 1 and Box 2 and enter the result in Box 3. The value of Box 3 equals the total number of stream impact debits for the assessed impacts.	Box 3. Total Stream Impact Debits (I x D) =	N/A

Ohio EPA 401 Water Quality Certification
FORM A. ADVERSE IMPACT WEIGHTING TABLE FOR STREAM IMPACTS

Project Name: OHIO RIVER CLEAN FUELS FACILITY Page ____ of ____

Stream Segment: UNT-Da (ISOLATED) Use Designation: CLASS I PHWH

Impact Summary: CUT FROM GRADING ACTIVITIES

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Impact Factors	Options						Impact Factor Value
Existing Aquatic Life Use Section 5.2.1	LRW (Class I PHWH) Protection of Downstream Uses, skip remaining analysis	MWH Class II PHWH Enter **3.0** for (I) in Box 1 below, calculate mitigation credits needed	WWH **1.5**	EWH **2.5**	CWH Class III PHWH **3.0**	SSH Add **0.2** to score for June-September Aquatic life Use	
Existing Habitat Quality Section 5.2.2	Analysis for these weighting factors is not necessary for default procedures (see Section 2.1.3.2)		Poor **0.2**	Fair **0.6**	Good **1.0**	Excellent **1.5**	
Priority Area Section 5.2.3			Tertiary **0.1**	Secondary **0.5**	Primary **1.0**		
Existing Geo-morphic Integrity Section 5.2.4			Poor **0.2**	Fair **0.5**	Good **1.0**	Excellent **1.5**	
Existing Flood Plain Quality Section 5.2.5.1			Poor **0.2**	Fair **0.8**	Good **1.0**	Excellent **1.5**	
Impact Category Section 5.2.6			Minimal **0.2**	Moderate **1.0**	High **1.5**	Severe **2.0**	

To Calculate the mitigation credits required, sum all Impact Factor row values and enter the result in Box 1.

Enter the proposed length of stream to be impacted into Box 2.

Multiply the values of Box 1 and Box 2 and enter the result in Box 3.

The value of Box 3 equals the total number of stream impact debits for the assessed impacts.

Box 1.	Sum of Impact Factors (I) =	N/A
Box 2.	Length of Impact (D) =	33
Box 3.	Total Stream Impact Debits (I x D) =	N/A

Ohio EPA 401 Water Quality Certification
FORM A. ADVERSE IMPACT WEIGHTING TABLE FOR STREAM IMPACTS

Project Name: OHIO RIVER CLEAN FUELS FACILITY Page ____ of ____

Stream Segment: UNT - D10 (ISOLATED) Use Designation: CLASS I PHWH

Impact Summary: CUT FROM GRADING ACTIVITIES

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Impact Factors	Options						Impact Factor Value
Existing Aquatic Life Use Section 5.2.1	LRW (Class I PHWH) Protection of Downstream Uses, skip remaining analysis	MWH Class II PHWH Enter 3.0 for (I) in Box 1 below, calculate mitigation credits needed	WWH 1.5	EWH 2.5	CWH Class III PHWH 3.0	SSH Add 0.2 to score for June-September Aquatic life Use	
Existing Habitat Quality Section 5.2.2	Analysis for these weighting factors is not necessary for default procedures (see Section 2.1.3.2)	Poor 0.2	Fair 0.6	Good 1.0	Excellent 1.5		
Priority Area Section 5.2.3		Tertiary 0.1	Secondary 0.5	Primary 1.0			
Existing Geo-morphic Integrity Section 5.2.4		Poor 0.2	Fair 0.5	Good 1.0	Excellent 1.5		
Existing Flood Plain Quality Section 5.2.5.1		Poor 0.2	Fair 0.8	Good 1.0	Excellent 1.5		
Impact Category Section 5.2.6		Minimal 0.2	Moderate 1.0	High 1.5	Severe 2.0		

To Calculate the mitigation credits required, sum all Impact Factor row values and enter the result in Box 1.

Enter the proposed length of stream to be impacted into Box 2.

Multiply the values of Box 1 and Box 2 and enter the result in Box 3.

The value of Box 3 equals the total number of stream impact debits for the assessed impacts.

Box 1.	Sum of Impact Factors (I) =	N/A
Box 2.	Length of Impact (D) =	224
Box 3.	Total Stream Impact Debits (I x D) =	N/A

Ohio EPA 401 Water Quality Certification
FORM A. ADVERSE IMPACT WEIGHTING TABLE FOR STREAM IMPACTS

Project Name: OHIO RIVER CLEAN FUELS FACILITY Page ____ of ____

Stream Segment: UNT - Dc (ISOLATED) Use Designation: CLASS I PHWH

Impact Summary: CUT FROM GRADING ACTIVITIES

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Impact Factors	Options						Impact Factor Value
Existing Aquatic Life Use Section 5.2.1	LRW (Class I PHWH) Protection of Downstream Uses, skip remaining analysis	MWH Class II PHWH Enter **3.0** for (I) in Box 1 below, calculate mitigation credits needed	WWH **1.5**	EWH **2.5**	CWH Class III PHWH **3.0**	SSH Add **0.2** to score for June-September Aquatic life Use	
Existing Habitat Quality Section 5.2.2	Analysis for these weighting factors is not necessary for default procedures (see Section 2.1.3.2)	Poor **0.2**	Fair **0.6**	Good **1.0**	Excellent **1.5**		
Priority Area Section 5.2.3		Tertiary **0.1**	Secondary **0.5**	Primary **1.0**			
Existing Geo-morphic Integrity Section 5.2.4		Poor **0.2**	Fair **0.5**	Good **1.0**	Excellent **1.5**		
Existing Flood Plain Quality Section 5.2.5.1		Poor **0.2**	Fair **0.8**	Good **1.0**	Excellent **1.5**		
Impact Category Section 5.2.6		Minimal **0.2**	Moderate **1.0**	High **1.5**	Severe **2.0**		

To Calculate the mitigation credits required, sum all Impact Factor row values and enter the result in Box 1.

Enter the proposed length of stream to be impacted into Box 2.

Multiply the values of Box 1 and Box 2 and enter the result in Box 3.

The value of Box 3 equals the total number of stream impact debits for the assessed impacts.

Box 1.	Sum of Impact Factors (I) =	N/A
Box 2.	Length of Impact (D) =	56
Box 3.	Total Stream Impact Debits (I x D) =	N/A

Ohio EPA 401 Water Quality Certification
FORM A. ADVERSE IMPACT WEIGHTING TABLE FOR STREAM IMPACTS

Project Name: OHIO RIVER CLEAN FUELS FACILITY Page ____ of ____

Stream Segment: UNT - DC1 (ISOLATED) Use Designation: CLASS II PHWH

Impact Summary: CUT FROM GRADING ACTIVITIES

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Impact Factors	Options						Impact Factor Value
Existing Aquatic Life Use Section 5.2.1	LRW Class I PHWH Protection of Downstream Uses, skip remaining analysis	MWH (Class II PHWH) Enter 3.0 for (I) in Box 1 below, calculate mitigation credits needed	WWH 1.5	EWH 2.5	CWH Class III PHWH 3.0	SSH Add 0.2 to score for June-September Aquatic life Use	
Existing Habitat Quality Section 5.2.2	Analysis for these weighting factors is not necessary for default procedures (see Section 2.1.3.2)		Poor 0.2	Fair 0.6	Good 1.0	Excellent 1.5	
Priority Area Section 5.2.3			Tertiary 0.1	Secondary 0.5	Primary 1.0		
Existing Geo-morphic Integrity Section 5.2.4			Poor 0.2	Fair 0.5	Good 1.0	Excellent 1.5	
Existing Flood Plain Quality Section 5.2.5.1			Poor 0.2	Fair 0.8	Good 1.0	Excellent 1.5	
Impact Category Section 5.2.6			Minimal 0.2	Moderate 1.0	High 1.5	Severe 2.0	

To Calculate the mitigation credits required, sum all Impact Factor row values and enter the result in Box 1.

Enter the proposed length of stream to be impacted into Box 2.

Multiply the values of Box 1 and Box 2 and enter the result in Box 3.

The value of Box 3 equals the total number of stream impact debits for the assessed impacts.

Box 1.	Sum of Impact Factors (I) =	N/A
Box 2.	Length of Impact (D) =	162
Box 3.	Total Stream Impact Debits (I x D) =	N/A

Ohio EPA 401 Water Quality Certification
FORM A. ADVERSE IMPACT WEIGHTING TABLE FOR STREAM IMPACTS

Project Name: OHIO RIVER CLEAN FUELS FACILITY Page ____ of ____

Stream Segment: UNT-E Use Designation: CLASS II PHWH

Impact Summary: CUT & FILL FROM GRADING ACTIVITIES

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Impact Factors	Options						Impact Factor Value
Existing Aquatic Life Use Section 5.2.1	LRW Class I PHWH Protection of Downstream Uses, skip remaining analysis	MWH (Class II PHWH) Enter 3.0 for (I) in Box 1 below, calculate mitigation credits needed	WWH 1.5	EWH 2.5	CWH Class III PHWH 3.0	SSH Add 0.2 to score for June-September Aquatic life Use	
Existing Habitat Quality Section 5.2.2	Analysis for these weighting factors is not necessary for default procedures (see Section 2.1.3.2)		Poor 0.2	Fair 0.6	Good 1.0	Excellent 1.5	
Priority Area Section 5.2.3			Tertiary 0.1	Secondary 0.5	Primary 1.0		
Existing Geo-morphic Integrity Section 5.2.4			Poor 0.2	Fair 0.5	Good 1.0	Excellent 1.5	
Existing Flood Plain Quality Section 5.2.5.1			Poor 0.2	Fair 0.8	Good 1.0	Excellent 1.5	
Impact Category Section 5.2.6			Minimal 0.2	Moderate 1.0	High 1.5	Severe 2.0	

To Calculate the mitigation credits required, sum all Impact Factor row values and enter the result in Box 1.

Enter the proposed length of stream to be impacted into Box 2.

Multiply the values of Box 1 and Box 2 and enter the result in Box 3.

The value of Box 3 equals the total number of stream impact debits for the assessed impacts.

Box 1.	Sum of Impact Factors (I) =	N/A
Box 2.	Length of Impact (D) =	2,139
Box 3.	Total Stream Impact Debits (I x D) =	N/A

Ohio EPA 401 Water Quality Certification
FORM A. ADVERSE IMPACT WEIGHTING TABLE FOR STREAM IMPACTS

Project Name: OHIO RIVER CLEAN FUELS FACILITY Page ____ of ____

Stream Segment: UNT-Ea Use Designation: CLASS I PHWH

Impact Summary: CUT & FILL FROM GRADING ACTIVITIES

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Impact Factors	Options						Impact Factor Value
Existing Aquatic Life Use Section 5.2.1	LRW (Class I PHWH) Protection of Downstream Uses, skip remaining analysis	MWH Class II PHWH Enter **3.0** for (I) in Box 1 below, calculate mitigation credits needed	WWH **1.5**	EWH **2.5**	CWH Class III PHWH **3.0**	SSH Add **0.2** to score for June-September Aquatic life Use	
Existing Habitat Quality Section 5.2.2	Analysis for these weighting factors is not necessary for default procedures (see Section 2.1.3.2)		Poor **0.2**	Fair **0.6**	Good **1.0**	Excellent **1.5**	
Priority Area Section 5.2.3			Tertiary **0.1**	Secondary **0.5**	Primary **1.0**		
Existing Geo-morphic Integrity Section 5.2.4			Poor **0.2**	Fair **0.5**	Good **1.0**	Excellent **1.5**	
Existing Flood Plain Quality Section 5.2.5.1			Poor **0.2**	Fair **0.8**	Good **1.0**	Excellent **1.5**	
Impact Category Section 5.2.6			Minimal **0.2**	Moderate **1.0**	High **1.5**	Severe **2.0**	

To Calculate the mitigation credits required, sum all Impact Factor row values and enter the result in Box 1.

Enter the proposed length of stream to be impacted into Box 2.

Multiply the values of Box 1 and Box 2 and enter the result in Box 3.

The value of Box 3 equals the total number of stream impact debits for the assessed impacts.

Box 1.	Sum of Impact Factors (I) =	N/A
Box 2.	Length of Impact (D) =	371
Box 3.	Total Stream Impact Debits (I x D) =	N/A

Ohio EPA 401 Water Quality Certification
FORM A. ADVERSE IMPACT WEIGHTING TABLE FOR STREAM IMPACTS

Project Name: OHIO RIVER CLEAN FUELS FACILITY Page ____ of ____

Stream Segment: UNT- E6 Use Designation: CLASS I PHWH

Impact Summary: CUT & FILL FROM GRADING ACTIVITIES

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Impact Factors	Options						Impact Factor Value
Existing Aquatic Life Use Section 5.2.1	LRW (Class I PHWH) Protection of Downstream Uses, skip remaining analysis	MWH Class II PHWH Enter 3.0 for (I) in Box 1 below, calculate mitigation credits needed	WWH 1.5	EWH 2.5	CWH Class III PHWH 3.0	SSH Add 0.2 to score for June-September Aquatic life Use	
Existing Habitat Quality Section 5.2.2	Analysis for these weighting factors is not necessary for default procedures (see Section 2.1.3.2)	Poor 0.2	Fair 0.6	Good 1.0	Excellent 1.5		
Priority Area Section 5.2.3		Tertiary 0.1	Secondary 0.5	Primary 1.0			
Existing Geo-morphic Integrity Section 5.2.4		Poor 0.2	Fair 0.5	Good 1.0	Excellent 1.5		
Existing Flood Plain Quality Section 5.2.5.1		Poor 0.2	Fair 0.8	Good 1.0	Excellent 1.5		
Impact Category Section 5.2.6		Minimal 0.2	Moderate 1.0	High 1.5	Severe 2.0		

To Calculate the mitigation credits required, sum all Impact Factor row values and enter the result in Box 1.

Enter the proposed length of stream to be impacted into Box 2.

Multiply the values of Box 1 and Box 2 and enter the result in Box 3.

The value of Box 3 equals the total number of stream impact debits for the assessed impacts.

Box 1.	Sum of Impact Factors (I) =	N/A
Box 2.	Length of Impact (D) =	423
Box 3.	Total Stream Impact Debits (I x D) =	N/A

Ohio EPA 401 Water Quality Certification
FORM A. ADVERSE IMPACT WEIGHTING TABLE FOR STREAM IMPACTS

Project Name: OHIO RIVER CLEAN FUELS FACILITY Page ____ of ____

Stream Segment: UNT - Ec Use Designation: CLASS I PHWH

Impact Summary: CUT & FILL FROM GRADING ACTIVITIES

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Impact Factors	Options						Impact Factor Value
Existing Aquatic Life Use Section 5.2.1	LRW (Class I PHWH) Protection of Downstream Uses, skip remaining analysis	MWH Class II PHWH Enter 3.0 for (I) in Box 1 below, calculate mitigation credits needed	WWH 1.5	EWH 2.5	CWH Class III PHWH 3.0	SSH Add 0.2 to score for June-September Aquatic life Use	
Existing Habitat Quality Section 5.2.2	Analysis for these weighting factors is not necessary for default procedures (see Section 2.1.3.2)		Poor 0.2	Fair 0.6	Good 1.0	Excellent 1.5	
Priority Area Section 5.2.3			Tertiary 0.1	Secondary 0.5	Primary 1.0		
Existing Geo-morphic Integrity Section 5.2.4			Poor 0.2	Fair 0.5	Good 1.0	Excellent 1.5	
Existing Flood Plain Quality Section 5.2.5.1			Poor 0.2	Fair 0.8	Good 1.0	Excellent 1.5	
Impact Category Section 5.2.6			Minimal 0.2	Moderate 1.0	High 1.5	Severe 2.0	

To Calculate the mitigation credits required, sum all Impact Factor row values and enter the result in Box 1.

Enter the proposed length of stream to be impacted into Box 2.

Multiply the values of Box 1 and Box 2 and enter the result in Box 3.

The value of Box 3 equals the total number of stream impact debits for the assessed impacts.

Box 1.	Sum of Impact Factors (I) =	N/A
Box 2.	Length of Impact (D) =	251
Box 3.	Total Stream Impact Debits (I x D) =	N/A

Ohio EPA 401 Water Quality Certification
FORM A. ADVERSE IMPACT WEIGHTING TABLE FOR STREAM IMPACTS

Project Name: OHIO RIVER CLEAN FUELS FACILITY Page ____ of ____

Stream Segment: UNT-F Use Designation: CLASS II PHWH

Impact Summary: FILL FROM GRADING ACTIVITIES

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Impact Factors	Options						Impact Factor Value
Existing Aquatic Life Use Section 5.2.1	LRW Class I PHWH Protection of Downstream Uses, skip remaining analysis	MWH (Class II PHWH) Enter 3.0 for (I) in Box 1 below, calculate mitigation credits needed	WWH 1.5	EWH 2.5	CWH Class III PHWH 3.0	SSH Add 0.2 to score for June-September Aquatic life Use	
Existing Habitat Quality Section 5.2.2	Analysis for these weighting factors is not necessary for default procedures (see Section 2.1.3.2)		Poor 0.2	Fair 0.6	Good 1.0	Excellent 1.5	
Priority Area Section 5.2.3			Tertiary 0.1	Secondary 0.5	Primary 1.0		
Existing Geo-morphic Integrity Section 5.2.4			Poor 0.2	Fair 0.5	Good 1.0	Excellent 1.5	
Existing Flood Plain Quality Section 5.2.5.1			Poor 0.2	Fair 0.8	Good 1.0	Excellent 1.5	
Impact Category Section 5.2.6			Minimal 0.2	Moderate 1.0	High 1.5	Severe 2.0	

To Calculate the mitigation credits required, sum all Impact Factor row values and enter the result in Box 1.	Box 1. Sum of Impact Factors (I) =	N/A
Enter the proposed length of stream to be impacted into Box 2.	Box 2. Length of Impact (D) =	75
Multiply the values of Box 1 and Box 2 and enter the result in Box 3. The value of Box 3 equals the total number of stream impact debits for the assessed impacts.	Box 3. Total Stream Impact Debits (I x D) =	N/A

Ohio EPA 401 Water Quality Certification
FORM A. ADVERSE IMPACT WEIGHTING TABLE FOR STREAM IMPACTS

Project Name: OHIO RIVER CLEAN FUELS FACILITY Page ____ of ____

Stream Segment: UNT-H (ISOLATED) Use Designation: CLASS I PHWH

Impact Summary: CUT FROM GRADING ACTIVITIES

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Impact Factors	Options						Impact Factor Value
Existing Aquatic Life Use Section 5.2.1	LRW (Class I PHWH) Protection of Downstream Uses, skip remaining analysis	MWH Class II PHWH Enter **3.0** for (I) in Box 1 below, calculate mitigation credits needed	WWH **1.5**	EWH **2.5**	CWH Class III PHWH **3.0**	SSH Add **0.2** to score for June-September Aquatic life Use	
Existing Habitat Quality Section 5.2.2	Analysis for these weighting factors is not necessary for default procedures (see Section 2.1.3.2)		Poor **0.2**	Fair **0.6**	Good **1.0**	Excellent **1.5**	
Priority Area Section 5.2.3			Tertiary **0.1**	Secondary **0.5**	Primary **1.0**		
Existing Geo-morphic Integrity Section 5.2.4			Poor **0.2**	Fair **0.5**	Good **1.0**	Excellent **1.5**	
Existing Flood Plain Quality Section 5.2.5.1			Poor **0.2**	Fair **0.8**	Good **1.0**	Excellent **1.5**	
Impact Category Section 5.2.6			Minimal **0.2**	Moderate **1.0**	High **1.5**	Severe **2.0**	

To Calculate the mitigation credits required, sum all Impact Factor row values and enter the result in Box 1.	Box 1. Sum of Impact Factors (I) =	N/A
Enter the proposed length of stream to be impacted into Box 2.	Box 2. Length of Impact (D) =	541
Multiply the values of Box 1 and Box 2 and enter the result in Box 3. The value of Box 3 equals the total number of stream impact debits for the assessed impacts.	Box 3. Total Stream Impact Debits (I x D) =	N/A

Ohio EPA 401 Water Quality Certification
FORM A. ADVERSE IMPACT WEIGHTING TABLE FOR STREAM IMPACTS

Project Name: OHIO RIVER CLEAN FUELS FACILITY Page ____ of ____

Stream Segment: UNT-Ha (ISOLATED) Use Designation: CLASS I PHWH

Impact Summary: CUT FROM GRADING ACTIVITIES

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Impact Factors	Options						Impact Factor Value
Existing Aquatic Life Use Section 5.2.1	LRW Class I PHWH Protection of Downstream Uses, skip remaining analysis	MWH Class II PHWH Enter 3.0 for (I) in Box 1 below, calculate mitigation credits needed	WWH 1.5	EWH 2.5	CWH Class III PHWH 3.0	SSH Add 0.2 to score for June-September Aquatic life Use	
Existing Habitat Quality Section 5.2.2	Analysis for these weighting factors is not necessary for default procedures (see Section 2.1.3.2)		Poor 0.2	Fair 0.6	Good 1.0	Excellent 1.5	
Priority Area Section 5.2.3			Tertiary 0.1	Secondary 0.5	Primary 1.0		
Existing Geo-morphic Integrity Section 5.2.4			Poor 0.2	Fair 0.5	Good 1.0	Excellent 1.5	
Existing Flood Plain Quality Section 5.2.5.1			Poor 0.2	Fair 0.8	Good 1.0	Excellent 1.5	
Impact Category Section 5.2.6			Minimal 0.2	Moderate 1.0	High 1.5	Severe 2.0	

To Calculate the mitigation credits required, sum all Impact Factor row values and enter the result in Box 1.	Box 1. Sum of Impact Factors (I) =	N/A
Enter the proposed length of stream to be impacted into Box 2.	Box 2. Length of Impact (D) =	57
Multiply the values of Box 1 and Box 2 and enter the result in Box 3. The value of Box 3 equals the total number of stream impact debits for the assessed impacts.	Box 3. Total Stream Impact Debits (I x D) =	N/A

Ohio EPA 401 Water Quality Certification
Form B. STREAM MITIGATION WEIGHTING FACTORS

Project Name: OHIO RIVER CLEAN FUELS Page: ____ of ____

Stream Segment: ROCKY RUN Use Designation: WWH

Project Summary: ROCKY RUN RESTORATION / PRESERVATION

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Mitigation Factors	Options					Mitigation Factor Value
Stream Restoration/ Relocation Design (Section 5.2.7)	None (Preservation Only Projects) 0.0	Minimal (use limited-see text) 0.5	Moderate 1.0	Good (2.0)	Excellent 3.0	2.0
Riparian/ Floodplain Preservation (Section 5.2.5)	Minimal (Relocation Projects Only) 0.0	Low 0.2	Moderate 0.4	Good 0.7	Excellent (1.0)	1.0
Riparian Restoration and Enhancement (Section 5.2.8)	None 0.0	Minimal 0.2	Moderate 0.4	Good (0.7)	Excellent 1.0	0.7
Resulting Aquatic Life Use (Section 5.2.1)	MWH or Class II PHWH 0.1		WWH (0.6)	EWH 0.8	CWH or Class III PHWH 1.0	0.6
Resulting Habitat Quality (Section 5.2.2)	Fair (Relocation Projects Only) 0.1		Good (0.5)		Excellent 1.0	0.5
Priority Area (Section 5.2.3)	Tertiary (0.0)		Secondary 0.1		Primary 0.5	0.0
Watershed Location (Section 5.2.9)	Outside Watershed 0.0	Within HUC 8 Digit Watershed 0.3	Within HUC 11 Digit Watershed 0.5	Within HUC 14 Digit Watershed 0.8	Onsite (1.0)	1.0
Control (Section 5.2.10)	Deed Restriction 0.0		Conservation Easement (0.3)		Fee Simple 0.5	0.3
Impact/ Mitigation Relationship (Section 5.2.11)	Out-of-Kind (0.1)			In-Kind 0.5		0.1
Implementation Schedule (Section 5.2.12)	Schedule 5 -0.1	Schedule 4 0.0	Schedule 3 0.1	Schedule 2 (0.2)	Schedule 1 0.3	0.2
Supplemental Water Quality Activities (Section 5.2.13)	None 0.0	Moderate 0.1	Good (0.2)		Excellent 0.3	0.2
Threat to Stream Segment (section 5.2.14)	NA or Low (0.0)	Moderate 0.1	High 0.2		Very High 0.3	0.0

To calculate the preservation credits allocated, add all mitigation factor values in the right-hand column and enter the result in Box 1.
Enter the proposed length to be preserved into Box 2.
Multiply the values of Box 1 and Box 2 and enter the result in Box 3. The value in Box 3 equals the mitigation credits allocated for the assessed project. (Note: Preservation Credits can only equal 70% of the total mitigation credits required after the requirements of OAC 3745-1-05 are met.)

Box 1. Sum of Factor Values (P) =	6.6
Box 2. Mitigation Length (D) =	11,188
Box 3. Mitigation Credits (P x D) =	73,841

Ohio EPA 401 Water Quality Certification
Form B. STREAM MITIGATION WEIGHTING FACTORS

Project Name: OHIO RIVER CLEAN FUELS Page: ____ of ____

Stream Segment: RR-A Use Designation: CLASS II PHWH

Project Summary: ROCKY RUN RESTORATION/REHABILITATION

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Mitigation Factor	Options					Mitigation Factor Value
Stream Restoration/ Relocation Design (Section 5.2.7)	None (Preservation Only Projects) 0.0	Minimal (use limited-see text) 0.5	Moderate 1.0	Good 2.0	Excellent 3.0	0.0
Riparian/ Floodplain Preservation (Section 5.2.5)	Minimal (Relocation Projects Only) 0.0	Low 0.2	Moderate 0.4	Good 0.7	Excellent 1.0	0.7
Riparian Restoration and Enhancement (Section 5.2.8)	None 0.0	Minimal 0.2	Moderate 0.4	Good 0.7	Excellent 1.0	0.0
Resulting Aquatic Life Use (Section 5.2.1)	MWH or Class II PHWH 0.1	WWH 0.6	EWH 0.8	CWH or Class III PHWH 1.0		0.1
Resulting Habitat Quality (Section 5.2.2)	Fair (Relocation Projects Only) 0.1	Good 0.5	Excellent 1.0			0.5
Priority Area (Section 5.2.3)	Tertiary 0.0	Secondary 0.1	Primary 0.5			0.0
Watershed Location (Section 5.2.9)	Outside Watershed 0.0	Within HUC 8 Digit Watershed 0.3	Within HUC 11 Digit Watershed 0.5	Within HUC 14 Digit Watershed 0.8	Onsite 1.0	1.0
Control (Section 5.2.10)	Deed Restriction 0.0	Conservation Easement 0.3	Fee Simple 0.5			0.3
Impact/Mitigation Relationship (Section 5.2.11)	Out-of-Kind 0.1	In-Kind 0.5				0.5
Implementation Schedule (Section 5.2.12)	Schedule 5 -0.1	Schedule 4 0.0	Schedule 3 0.1	Schedule 2 0.2	Schedule 1 0.3	0.2
Supplemental Water Quality Activities (Section 5.2.13)	None 0.0	Moderate 0.1	Good 0.2	Excellent 0.3		0.0
Threat to Stream Segment (section 5.2.14)	NA or Low 0.0	Moderate 0.1	High 0.2	Very High 0.3		0.1

To calculate the preservation credits allocated, add all mitigation factor values in the right-hand column and enter the result in Box 1.
Enter the proposed length to be preserved into Box 2.
Multiply the values of Box 1 and Box 2 and enter the result in Box 3. The value in Box 3 equals the mitigation credits allocated for the assessed project. (Note: Preservation Credits can only equal 70% of the total mitigation credits required after the requirements of OAC 3745-1-05 are met.)

Box 1: Sum of Factor Values (P) =	3.4
Box 2: Mitigation Length (D) =	226
Box 3: Mitigation Credits (P x D) =	768

Ohio EPA 401 Water Quality Certification
Form B. STREAM MITIGATION WEIGHTING FACTORS

Project Name: OHIO RIVER CLEAN FUELS Page: ____ of ____

Stream Segment: RR- B Use Designation: CLASS II PHWH

Project Summary: ROCKY RUN RESTORATION/ REHABILITATION

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Mitigation Factors	Options					Mitigation Factor Value
Stream Restoration/ Relocation Design (Section 5.2.1)	None (Preservation Only Projects) (0.0)	Minimal (use limited-see text) 0.5	Moderate 1.0	Good 2.0	Excellent 3.0	0.6
Riparian/ Floodplain Preservation (Section 5.2.5)	Minimal (Relocation Projects Only) 0.0	Low 0.2	Moderate 0.4	Good (0.7)	Excellent 1.0	0.7
Riparian Restoration and Enhancement (Section 5.2.8)	None (0.0)	Minimal 0.2	Moderate 0.4	Good 0.7	Excellent 1.0	0.6
Resulting Aquatic Life Use (Section 5.2.1)	MWH or Class II PHWH (0.1)		WWH 0.6	EWH 0.8	CWH or Class III PHWH 1.0	0.1
Resulting Habitat Quality (Section 5.2.2)	Fair (Relocation Projects Only) 0.1		Good (0.5)		Excellent 1.0	0.5
Priority Area (Section 5.2.3)	Tertiary (0.0)		Secondary 0.1		Primary 0.5	0.0
Watershed Location (Section 5.2.9)	Outside Watershed 0.0	Within HUC 8 Digit Watershed 0.3	Within HUC 11 Digit Watershed 0.5	Within HUC 14 Digit Watershed 0.8	Onsite (1.0)	1.0
Control (Section 5.2.10)	Deed Restriction 0.0		Conservation Easement (0.3)		Fee Simple 0.5	0.3
Impact/Mitigation Relationship (Section 5.2.11)	Out-of-Kind 0.1			In-Kind (0.5)		0.5
Implementation Schedule (Section 5.2.12)	Schedule 5 -0.1	Schedule 4 0.0	Schedule 3 0.1	Schedule 2 (0.2)	Schedule 1 0.3	0.2
Supplemental Water Quality Activities (Section 5.2.13)	None (0.0)	Moderate 0.1	Good 0.2		Excellent 0.3	0.0
Threat to Stream Segment (section 5.2.14)	NA or Low 0.0	Moderate (0.1)	High 0.2		Very High 0.3	0.1

To calculate the preservation credits allocated, add all mitigation factor values in the right-hand column and enter the result in Box 1.
Enter the proposed length to be preserved into Box 2.
Multiply the values of Box 1 and Box 2 and enter the result in Box 3. The value in Box 3 equals the mitigation credits allocated for the assessed project. (Note: Preservation Credits can only equal 70% of the total mitigation credits required after the requirements of OAC 3745-1-05 are met.)

Box 1. Sum of Factor Values (P) =	3.4
Box 2. Mitigation Length (D) =	229
Box 3. Mitigation Credits (P x D) =	779

Ohio EPA 401 Water Quality Certification
Form B. STREAM MITIGATION WEIGHTING FACTORS

Project Name: OHIO RIVER CLEAN FUELS Page: ____ of ____

Stream Segment: RR - C Use Designation: CLASS II PHWH

Project Summary: ROCKY RUN RESTORATION/ PRESERVATION

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Mitigation Factor	Options					Mitigation Factor Value
Stream Restoration/ Relocation Design (Section 5.2.7)	None (Preservation Only Projects) 0.0	Minimal (use limited-see text) 0.5	Moderate 1.0	Good 2.0	Excellent 3.0	0.0
Riparian/ Floodplain Preservation (Section 5.2.5)	Minimal (Relocation Projects Only) 0.0	Low 0.2	Moderate 0.4	Good 0.7	Excellent 1.0	0.7
Riparian Restoration and Enhancement (Section 5.2.8)	None 0.0	Minimal 0.2	Moderate 0.4	Good 0.7	Excellent 1.0	0.0
Resulting Aquatic Life Use (Section 5.2.1)	MWH or Class II PHWH 0.1	WWH 0.6	EWH 0.8	CWH or Class III PHWH 1.0		0.1
Resulting Habitat Quality (Section 5.2.2)	Fair (Relocation Projects Only) 0.1	Good 0.5	Excellent 1.0			0.5
Priority Area (Section 5.2.4)	Tertiary 0.0	Secondary 0.1	Primary 0.5			0.0
Watershed Location (Section 5.2.9)	Outside Watershed 0.0	Within HUC 8 Digit Watershed 0.3	Within HUC 11 Digit Watershed 0.5	Within HUC 14 Digit Watershed 0.8	Onsite 1.0	1.0
Control (Section 5.2.10)	Deed Restriction 0.0	Conservation Easement 0.3	Fee Simple 0.5			0.3
Impact/Mitigation Relationship (Section 5.2.11)	Out-of-Kind 0.1	In-Kind 0.5				0.5
Implementation Schedule (Section 5.2.12)	Schedule 5 -0.1	Schedule 4 0.0	Schedule 3 0.1	Schedule 2 0.2	Schedule 1 0.3	0.2
Supplemental Water Quality Activities (Section 5.2.13)	None 0.0	Moderate 0.1	Good 0.2	Excellent 0.3		0.0
Threat to Stream Segment (section 5.2.14)	NA or Low 0.0	Moderate 0.1	High 0.2	Very High 0.3		0.1

To calculate the preservation credits allocated, add all mitigation factor values in the right-hand column and enter the result in Box 1.
Enter the proposed length to be preserved into Box 2.
Multiply the values of Box 1 and Box 2 and enter the result in Box 3. The value in Box 3 equals the mitigation credits allocated for the assessed project. (Note: Preservation Credits can only equal 70% of the total mitigation credits required after the requirements of OAC 3745-1-05 are met.)

Box 1. Sum of Factor Values (P) =	3.6
Box 2. Mitigation Length (D) =	148
Box 3. Mitigation Credits (P x D) =	533

Ohio EPA 401 Water Quality Certification
Form B. STREAM MITIGATION WEIGHTING FACTORS

Project Name: OHIO RIVER CLEAN FUELS Page: ____ of ____

Stream Segment: RR-D Use Designation: CLASS II PHWH

Project Summary: ROCKY RUN RESTORATION / PRESERVATION

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Mitigation Factors	Options					Mitigation Factor Value
Stream Restoration/ Relocation Design (Section 5.2.7)	None (Preservation Only Projects) 0.0	Minimal (use limited-see text) 0.5	Moderate 1.0	Good 2.0	Excellent 3.0	0.0
Riparian/ Floodplain Preservation (Section 5.2.5)	Minimal (Relocation Projects Only) 0.0	Low 0.2	Moderate 0.4	Good 0.7	Excellent 1.0	0.7
Riparian Restoration and Enhancement (Section 5.2.8)	None 0.0	Minimal 0.2	Moderate 0.4	Good 0.7	Excellent 1.0	0.0
Resulting Aquatic Life Use (Section 5.2.1)	MWH or Class II PHWH 0.1	WWH 0.6	EWH 0.8	CWH or Class III PHWH 1.0		0.1
Resulting Habitat Quality (Section 5.2.2)	Fair (Relocation Projects Only) 0.1	Good 0.5	Excellent 1.0			0.5
Priority Area (Section 5.2.3)	Tertiary 0.0	Secondary 0.1	Primary 0.5			0.0
Watershed Location (Section 5.2.9)	Outside Watershed 0.0	Within HUC 8 Digit Watershed 0.3	Within HUC 11 Digit Watershed 0.5	Within HUC 14 Digit Watershed 0.8	Onsite 1.0	1.0
Control (Section 5.2.10)	Deed Restriction 0.0	Conservation Easement 0.3	Fee Simple 0.5			0.3
Impact/ Mitigation Relationship (Section 5.2.11)	Out-of-Kind 0.1	In-Kind 0.5				0.5
Implementation Schedule (Section 5.2.12)	Schedule 5 -0.1	Schedule 4 0.0	Schedule 3 0.1	Schedule 2 0.2	Schedule 1 0.3	0.2
Supplemental Water Quality Activities (Section 5.2.13)	None 0.0	Moderate 0.1	Good 0.2	Excellent 0.3		0.0
Threat to Stream Segment (section 5.2.14)	NA or Low 0.0	Moderate 0.1	High 0.2	Very High 0.3		0.1

To calculate the preservation credits allocated, add all mitigation factor values in the right-hand column and enter the result in Box 1.
Enter the proposed length to be preserved into Box 2.
Multiply the values of Box 1 and Box 2 and enter the result in Box 3. The value in Box 3 equals the mitigation credits allocated for the assessed project. (Note: Preservation Credits can only equal 70% of the total mitigation credits required after the requirements of OAC 3745-1-05 are met.)

Box 1. Sum of Factor Values (P) =	3.4
Box 2. Mitigation Length (D) =	262
Box 3. Mitigation Credits (P x D) =	891

Ohio EPA 401 Water Quality Certification
Form B. STREAM MITIGATION WEIGHTING FACTORS

Project Name: OHIO RIVER CLEAN FUELS Page: ____ of ____

Stream Segment: RR-E Use Designation: CLASS II PHWH

Project Summary: ROCKY RUN RESTORATION / PRESERVATION

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Mitigation Factors	Options					Mitigation Factor Value
Stream Restoration/ Relocation Design (Section 5.2.7)	None (Preservation Only Projects) 0.0	Minimal (use limited-see text) 0.5	Moderate 1.0	Good 2.0	Excellent 3.0	0.0
Riparian/ Floodplain Preservation (Section 5.2.5)	Minimal (Relocation Projects Only) 0.0	Low 0.2	Moderate 0.4	Good 0.7	Excellent 1.0	0.7
Riparian Restoration and Enhancement (Section 5.2.8)	None 0.0	Minimal 0.2	Moderate 0.4	Good 0.7	Excellent 1.0	0.0
Resulting Aquatic Life Use (Section 5.2.1)	MWH or Class II PHWH 0.1	WWH 0.6	EWH 0.8	CWH or Class III PHWH 1.0		0.1
Resulting Habitat Quality (Section 5.2.2)	Fair (Relocation Projects Only) 0.1	Good 0.5	Excellent 1.0			0.5
Priority Area (Section 5.2.3)	Tertiary 0.0	Secondary 0.1	Primary 0.5			0.0
Watershed Location (Section 5.2.9)	Outside Watershed 0.0	Within HUC 8 Digit Watershed 0.3	Within HUC 11 Digit Watershed 0.5	Within HUC 14 Digit Watershed 0.8	Onsite 1.0	1.0
Control (Section 5.2.10)	Deed Restriction 0.0	Conservation Easement 0.3	Fee Simple 0.5			0.3
Impact/ Mitigation Relationship (Section 5.2.11)	Out-of-Kind 0.1	In-Kind 0.5				0.5
Implementation Schedule (Section 5.2.12)	Schedule 5 -0.1	Schedule 4 0.0	Schedule 3 0.1	Schedule 2 0.2	Schedule 1 0.3	0.2
Supplemental Water Quality Activities (Section 5.2.13)	None 0.0	Moderate 0.1	Good 0.2	Excellent 0.3		0.0
Threat to Stream Segment (section 5.2.14)	NA or Low 0.0	Moderate 0.1	High 0.2	Very High 0.3		0.1

To calculate the preservation credits allocated, add all mitigation factor values in the right-hand column and enter the result in Box 1.
Enter the proposed length to be preserved into Box 2.
Multiply the values of Box 1 and Box 2 and enter the result in Box 3. The value in Box 3 equals the mitigation credits allocated for the assessed project. (Note: Preservation Credits can only equal 70% of the total mitigation credits required after the requirements of OAC 3745-1-05 are met.)

Box 1. Sum of Factor Values (P) =	3.4
Box 2. Mitigation Length (D) =	146
Box 3. Mitigation Credits (P x D) =	496

Ohio EPA 401 Water Quality Certification
Form B. STREAM MITIGATION WEIGHTING FACTORS

Project Name: OHIO RIVER CLEAN FUELS Page: ____ of ____

Stream Segment: RR - F Use Designation: CLASS I PHWH

Project Summary: ROCKY RUN RESTORATION / PRESERVATION

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Mitigation Factors	Options					Mitigation Factor Value
Stream Restoration/ Relocation Design (Section 5.2.7)	None (Preservation Only Projects) 0.0	Minimal (use limited-see text) 0.5	Moderate 1.0	Good 2.0	Excellent 3.0	0.0
Riparian/ Floodplain Preservation (Section 5.2.5)	Minimal (Relocation Projects Only) 0.0	Low 0.2	Moderate 0.4	Good 0.7	Excellent 1.0	0.7
Riparian Restoration and Enhancement (Section 5.2.6)	None 0.0	Minimal 0.2	Moderate 0.4	Good 0.7	Excellent 1.0	0.0
Resulting Aquatic Life Use (Section 5.2.1)	MWH or Class II PHWH 0.1	WWH 0.6	EWH 0.8	CWH or Class III PHWH 1.0		0.1
Resulting Habitat Quality (Section 5.2.2)	Fair (Relocation Projects Only) 0.1	Good 0.5	Excellent 1.0			0.5
Priority Area (Section 5.2.3)	Tertiary 0.0	Secondary 0.1	Primary 0.5			0.0
Watershed Location (Section 5.2.9)	Outside Watershed 0.0	Within HUC 8 Digit Watershed 0.3	Within HUC 11 Digit Watershed 0.5	Within HUC 14 Digit Watershed 0.8	Onsite 1.0	1.0
Control (Section 5.2.10)	Deed Restriction 0.0	Conservation Easement 0.3	Fee Simple 0.5			0.3
Impact/ Mitigation Relationship (Section 5.2.11)	Out-of-Kind 0.1	In-Kind 0.5				0.5
Implementation Schedule (Section 5.2.12)	Schedule 5 -0.1	Schedule 4 0.0	Schedule 3 0.1	Schedule 2 0.2	Schedule 1 0.3	0.2
Supplemental Water Quality Activities (Section 5.2.13)	None 0.0	Moderate 0.1	Good 0.2	Excellent 0.3		0.0
Threat to Stream Segment (section 5.2.14)	NA or Low 0.0	Moderate 0.1	High 0.2	Very High 0.3		0.0

To calculate the preservation credits allocated, add all mitigation factor values in the right-hand column and enter the result in Box 1.
Enter the proposed length to be preserved into Box 2.
Multiply the values of Box 1 and Box 2 and enter the result in Box 3. The value in Box 3 equals the mitigation credits allocated for the assessed project. (Note: Preservation Credits can only equal 70% of the total mitigation credits required after the requirements of OAC 3745-1-05 are met.)

Box 1. Sum of Factor Values (P) =	3.3
Box 2. Mitigation Length (D) =	63
Box 3. Mitigation Credits (P x D) =	208.

Ohio EPA 401 Water Quality Certification
Form B. STREAM MITIGATION WEIGHTING FACTORS

Project Name: OHIO RIVER CLEAN FUELS Page: ____ of ____

Stream Segment: RR-G Use Designation: CLASS I PHWH

Project Summary: ROCKY RUN RESTORATION / PRESERVATION

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Mitigation Factors	Options					Mitigation Factor Value
Stream Restoration/ Relocation Design (Section 5.2.7)	None (Preservation Only Projects) 0.0	Minimal (use limited-see text) 0.5	Moderate 1.0	Good 2.0	Excellent 3.0	0.0
Riparian/ Floodplain Preservation (Section 5.2.5)	Minimal (Relocation Projects Only) 0.0	Low 0.2	Moderate 0.4	Good 0.7	Excellent 1.0	0.7
Riparian Restoration and Enhancement (Section 5.2.8)	None 0.0	Minimal 0.2	Moderate 0.4	Good 0.7	Excellent 1.0	0.0
Resulting Aquatic Life Use (Section 5.2.1)	MWH or Class II PHWH 0.1	WWH 0.6	EWH 0.8	CWH or Class III PHWH 1.0		0.1
Resulting Habitat Quality (Section 5.2.2)	Fair (Relocation Projects Only) 0.1	Good 0.5	Excellent 1.0			0.5
Priority Area (Section 5.2.3)	Tertiary 0.0	Secondary 0.1	Primary 0.5			0.0
Watershed Location (Section 5.2.9)	Outside Watershed 0.0	Within HUC 8 Digit Watershed 0.3	Within HUC 11 Digit Watershed 0.5	Within HUC 14 Digit Watershed 0.8	Onsite 1.0	1.0
Control (Section 5.2.10)	Deed Restriction 0.0	Conservation Easement 0.3	Fee Simple 0.5			0.3
Impact/ Mitigation Relationship (Section 5.2.11)	Out-of-Kind 0.1	In-Kind 0.5				0.5
Implementation Schedule (Section 5.2.12)	Schedule 5 -0.1	Schedule 4 0.0	Schedule 3 0.1	Schedule 2 0.2	Schedule 1 0.3	0.2
Supplemental Water Quality Activities (Section 5.2.13)	None 0.0	Moderate 0.1	Good 0.2	Excellent 0.3		0.0
Threat to Stream Segment (section 5.2.14)	NA or Low 0.0	Moderate 0.1	High 0.2	Very High 0.3		0.0

To calculate the preservation credits allocated, add all mitigation factor values in the right-hand column and enter the result in Box 1.
Enter the proposed length to be preserved into Box 2.
Multiply the values of Box 1 and Box 2 and enter the result in Box 3. The value in Box 3 equals the mitigation credits allocated for the assessed project. (Note: Preservation Credits can only equal 70% of the total mitigation credits required after the requirements of OAC 3745-1-05 are met.)

Box 1. Sum of Factor Values (P) =	3.2
Box 2. Mitigation Length (D) =	154
Box 3. Mitigation Credits (P x D) =	493

Ohio EPA 401 Water Quality Certification
Form B. STREAM MITIGATION WEIGHTING FACTORS

Project Name: OHIO RIVER CLEAN FUELS Page: ____ of ____

Stream Segment: BR-H Use Designation: CLASS I PHWH

Project Summary: ROCKY RUN RESTORATION / PRESERVATION

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Mitigation Factors	Options					Mitigation Factors Value
Stream Restoration/ Relocation Design (Section 5.2.7)	None (Preservation Only Projects) (0.0)	Minimal (use limited- see text) 0.5	Moderate 1.0	Good 2.0	Excellent 3.0	0.0
Broadening of Floodplain Preservation (Section 5.2.5)	Minimal (Relocation Projects Only) 0.0	Low 0.2	Moderate 0.4	Good (0.7)	Excellent 1.0	0.7
Riparian Restoration and Enhancement (Section 5.2.8)	None (0.0)	Minimal 0.2	Moderate 0.4	Good 0.7	Excellent 1.0	0.0
Resulting Aquatic Life Use (Section 5.2.1)	MWH or Class II PHWH (0.1)		WWH 0.6	EWH 0.8	CWH or Class III PHWH 1.0	0.1
Resulting Habitat Quality (Section 5.2.2)	Fair (Relocation Projects Only) 0.1		Good (0.5)		Excellent 1.0	0.5
Priority Area (Section 5.2.3)	Tertiary (0.0)		Secondary 0.1		Primary 0.5	0.0
Watershed Location (Section 5.2.9)	Outside Watershed 0.0	Within HUC 8 Digit Watershed 0.3	Within HUC 11 Digit Watershed 0.5	Within HUC 14 Digit Watershed 0.8	Onsite (1.0)	1.0
Control (Section 5.2.10)	Deed Restriction 0.0		Conservation Easement (0.3)		Fee Simple 0.5	0.3
Impact/ Mitigation Relationship (Section 5.2.11)	Out-of-Kind 0.1			In-Kind (0.5)		0.5
Implementation Schedule (Section 5.2.12)	Schedule 5 -0.1	Schedule 4 0.0	Schedule 3 0.1	Schedule 2 (0.2)	Schedule 1 0.3	0.2
Supplemental Water Quality Activities (Section 5.2.13)	None (0.0)	Moderate 0.1	Good 0.2		Excellent 0.3	0.0
Threat to Stream Segment (section 5.2.14)	NA or Low 0.0	Moderate (0.1)	High 0.2		Very High 0.3	0.1

To calculate the preservation credits allocated, add all mitigation factor values in the right-hand column and enter the result in Box 1.
Enter the proposed length to be preserved into Box 2.
Multiply the values of Box 1 and Box 2 and enter the result in Box 3. The value in Box 3 equals the mitigation credits allocated for the assessed project. (Note: Preservation Credits can only equal 70% of the total mitigation credits required after the requirements of OAC 3745-1-05 are met.)

Box 1. Sum of Factor Values (P) =	3.4
Box 2. Mitigation Length (D) =	107
Box 3. Mitigation Credits (P x D) =	364

Ohio EPA 401 Water Quality Certification
Form B. STREAM MITIGATION WEIGHTING FACTORS

Project Name: OHIO RIVER CLEAN FUELS Page: ____ of ____

Stream Segment: RR-1 Use Designation: CLASS II PHWH

Project Summary: ROCKY RUN RESTORATION / PRESERVATION

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Mitigation Factors	Options					Mitigation Factor Value
Stream Restoration/ Relocation Design (Section 5.2.7)	None (Preservation Only Projects) 0.0	Minimal (use limited-see text) 0.5	Moderate 1.0	Good 2.0	Excellent 3.0	0.0
Riparian/ Floodplain Preservation (Section 5.2.5)	Minimal (Relocation Projects Only) 0.0	Low 0.2	Moderate 0.4	Good 0.7	Excellent 1.0	0.7
Riparian Restoration and Enhancement (Section 5.2.8)	None 0.0	Minimal 0.2	Moderate 0.4	Good 0.7	Excellent 1.0	0.0
Resulting Aquatic Life Use (Section 5.2.1)	MWH or Class II PHWH 0.1	WWH 0.6	EWH 0.8	CWH or Class III PHWH 1.0		0.1
Resulting Habitat Quality (Section 5.2.2)	Fair (Relocation Projects Only) 0.1	Good 0.5	Excellent 1.0			0.5
Priority Area (Section 5.2.3)	Tertiary 0.0	Secondary 0.1	Primary 0.5			0.0
Watershed Location (Section 5.2.9)	Outside Watershed 0.0	Within HUC 8 Digit Watershed 0.3	Within HUC 11 Digit Watershed 0.5	Within HUC 14 Digit Watershed 0.8	Onsite 1.0	1.0
Control (Section 5.2.10)	Deed Restriction 0.0	Conservation Easement 0.3	Fee Simple 0.5			0.3
Impact/ Mitigation Relationship (Section 5.2.11)	Out-of-Kind 0.1	In-Kind 0.5				0.5
Implementation Schedule (Section 5.2.12)	Schedule 5 -0.1	Schedule 4 0.0	Schedule 3 0.1	Schedule 2 0.2	Schedule 1 0.3	0.2
Supplemental Water Quality Activities (Section 5.2.13)	None 0.0	Moderate 0.1	Good 0.2	Excellent 0.3		0.0
Threat to Stream Segment (section 5.2.14)	NA or Low 0.0	Moderate 0.1	High 0.2	Very High 0.3		0.0

To calculate the preservation credits allocated, add all mitigation factor values in the right-hand column and enter the result in Box 1.
Enter the proposed length to be preserved into Box 2.
Multiply the values of Box 1 and Box 2 and enter the result in Box 3. The value in Box 3 equals the mitigation credits allocated for the assessed project. (Note: Preservation Credits can only equal 70% of the total mitigation credits required after the requirements of OAC 3745-1-05 are met.)

Box 1. Sum of Factor Values (P) =	3.3
Box 2. Mitigation Length (D) =	171
Box 3. Mitigation Credits (P x D) =	564

Ohio EPA 401 Water Quality Certification
Form B. STREAM MITIGATION WEIGHTING FACTORS

Project Name: OHIO RIVER CLEAN FUELS Page: ____ of ____

Stream Segment: RR-K Use Designation: CLASS I PHWH

Project Summary: ROCKY RUN RESTORATION/PRESERVATION

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Mitigation Factors	Options					Mitigation Factor Value
Stream Restoration/ Relocation Design (Section 5.2.7)	None (Preservation Only Projects) (0.0)	Minimal (use limited-see text) 0.5	Moderate 1.0	Good 2.0	Excellent 3.0	0.0
Riparian/ Floodplain Preservation (Section 5.2.5)	Minimal (Relocation Projects Only) 0.0	Low 0.2	Moderate 0.4	Good (0.7)	Excellent 1.0	0.7
Riparian Restoration and Enhancement (Section 5.2.6)	None (0.0)	Minimal 0.2	Moderate 0.4	Good 0.7	Excellent 1.0	0.0
Resulting Aquatic Life Use (Section 5.2.1)	MWH or Class II PHWH (0.1)	WWH 0.6	EWH 0.8	CWH or Class III PHWH 1.0		0.1
Resulting Habitat Quality (Section 5.2.2)	Fair (Relocation Projects Only) 0.1	Good (0.5)	Excellent 1.0			0.5
Priority Area (Section 5.2.3)	Tertiary (0.0)	Secondary 0.1	Primary 0.5			0.0
Watershed Location (Section 5.2.9)	Outside Watershed 0.0	Within HUC 8 Digit Watershed 0.3	Within HUC 11 Digit Watershed 0.5	Within HUC 14 Digit Watershed 0.8	Onsite (1.0)	1.0
Control (Section 5.2.10)	Deed Restriction 0.0	Conservation Easement (0.3)	Fee Simple 0.5			0.3
Impact/Mitigation Relationship (Section 5.2.11)	Out-of-Kind 0.1	In-Kind (0.5)				0.5
Implementation Schedule (Section 5.2.12)	Schedule 5 -0.1	Schedule 4 0.0	Schedule 3 0.1	Schedule 2 (0.2)	Schedule 1 0.3	0.2
Supplemental Water Quality Activities (Section 5.2.13)	None (0.0)	Moderate 0.1	Good 0.2	Excellent 0.3		0.0
Threat to Stream Segment (section 5.2.14)	NA or Low 0.0	Moderate (0.1)	High 0.2	Very High 0.3		0.1

To calculate the preservation credits allocated, add all mitigation factor values in the right-hand column and enter the result in Box 1.
Enter the proposed length to be preserved into Box 2.
Multiply the values of Box 1 and Box 2 and enter the result in Box 3. The value in Box 3 equals the mitigation credits allocated for the assessed project. (Note: Preservation Credits can only equal 70% of the total mitigation credits required after the requirements of OAC 3745-1-05 are met.)

Box 1. Sum of Factor Values (P) =	3.4
Box 2. Mitigation Length (D) =	156
Box 3. Mitigation Credits (P x D) =	530

Ohio EPA 401 Water Quality Certification
Form B. STREAM MITIGATION WEIGHTING FACTORS

Project Name: OHIO RIVER CLEAN FUELS Page: ____ of ____

Stream Segment: RR-L Use Designation: CLASS I PHWH

Project Summary: ROCKY RUN RESTORATION / PRESERVATION

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Mitigation Factors	Options					Mitigation Factor Value
Stream Restoration/ Relocation Design (Section 5.2.7)	None (Preservation Only Projects) 0.0	Minimal (use limited-see text) 0.5	Moderate 1.0	Good 2.0	Excellent 3.0	0.0
Riparian/ Floodplain Preservation (Section 5.2.5)	Minimal (Relocation Projects Only) 0.0	Low 0.2	Moderate 0.4	Good 0.7	Excellent 1.0	0.7
Riparian Restoration and Enhancement (Section 5.2.8)	None 0.0	Minimal 0.2	Moderate 0.4	Good 0.7	Excellent 1.0	0.0
Resulting Aquatic Life Use (Section 5.2.1)	MWH or Class II PHWH 0.1	WWH 0.6	EWH 0.8	CWH or Class III PHWH 1.0		0.1
Resulting Habitat Quality (Section 5.2.2)	Fair (Relocation Projects Only) 0.1	Good 0.5	Excellent 1.0			0.5
Priority Area (Section 5.2.3)	Tertiary 0.0	Secondary 0.1	Primary 0.5			0.0
Watershed Location (Section 5.2.9)	Outside Watershed 0.0	Within HUC 8 Digit Watershed 0.3	Within HUC 11 Digit Watershed 0.5	Within HUC 14 Digit Watershed 0.8	Onsite 1.0	1.0
Control (Section 5.2.10)	Deed Restriction 0.0	Conservation Easement 0.3	Fee Simple 0.5			0.3
Impact/Mitigation Relationship (Section 5.2.11)	Out-of-Kind 0.1	In-Kind 0.5				0.5
Implementation Schedule (Section 5.2.12)	Schedule 5 -0.1	Schedule 4 0.0	Schedule 3 0.1	Schedule 2 0.2	Schedule 1 0.3	0.2
Supplemental Water Quality Activities (Section 5.2.13)	None 0.0	Moderate 0.1	Good 0.2	Excellent 0.3		0.0
Threat to Stream Segment (section 5.2.14)	NA or Low 0.0	Moderate 0.1	High 0.2	Very High 0.3		0.1

To calculate the preservation credits allocated, add all mitigation factor values in the right-hand column and enter the result in Box 1.
Enter the proposed length to be preserved into Box 2.
Multiply the values of Box 1 and Box 2 and enter the result in Box 3. The value in Box 3 equals the mitigation credits allocated for the assessed project. (Note: Preservation Credits can only equal 70% of the total mitigation credits required after the requirements of OAC 3745-1-05 are met.)

Box 1 Sum of Factor Values (P) =	3.4
Box 2 Mitigation Length (D) =	107
Box 3 Mitigation Credits (P x D) =	364

Ohio EPA 401 Water Quality Certification
Form B. STREAM MITIGATION WEIGHTING FACTORS

Project Name: OHIO RIVER CLEAN FUELS Page: ____ of ____

Stream Segment: RR-M Use Designation: CLASS I PHWH

Project Summary: ROCKY RUN RESTORATION / PRESERVATION

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Mitigation Factors	Options					Mitigation Factor Value
Stream Restoration/ Relocation Design (Section 5.2.7)	None (Preservation Only Projects) 0.0	Minimal (use limited-, see text) 0.5	Moderate 1.0	Good 2.0	Excellent 3.0	0.0
Riparian/ Floodplain Preservation (Section 5.2.5)	Minimal (Relocation Projects Only) 0.0	Low 0.2	Moderate 0.4	Good 0.7	Excellent 1.0	0.7
Riparian Restoration and Enhancement (Section 5.2.6)	None 0.0	Minimal 0.2	Moderate 0.4	Good 0.7	Excellent 1.0	0.0
Resulting Aquatic Life Use (Section 5.2.1)	MWH or Class II PHWH 0.1	WWH 0.6	EWH 0.8	CWH or Class III PHWH 1.0		0.1
Resulting Habitat Quality (Section 5.2.2)	Fair (Relocation Projects Only) 0.1	Good 0.5	Excellent 1.0			0.5
Priority Area (Section 5.2.3)	Tertiary 0.0	Secondary 0.1	Primary 0.5			0.0
Watershed Location (Section 5.2.9)	Outside Watershed 0.0	Within HUC 8 Digit Watershed 0.3	Within HUC 11 Digit Watershed 0.5	Within HUC 14 Digit Watershed 0.8	Onsite 1.0	1.0
Control (Section 5.2.10)	Deed Restriction 0.0	Conservation Easement 0.3	Fee Simple 0.5			0.3
Impact/ Mitigation Relationship (Section 5.2.11)	Out-of-Kind 0.1	In-Kind 0.5				0.5
Implementation Schedule (Section 5.2.12)	Schedule 5 -0.1	Schedule 4 0.0	Schedule 3 0.1	Schedule 2 0.2	Schedule 1 0.3	0.2
Supplemental Water Quality Activities (Section 5.2.13)	None 0.0	Moderate 0.1	Good 0.2	Excellent 0.3		0.0
Threat to Stream Segment (section 5.2.14)	NA or Low 0.0	Moderate 0.1	High 0.2	Very High 0.3		0.1

To calculate the preservation credits allocated, add all mitigation factor values in the right-hand column and enter the result in Box 1.
Enter the proposed length to be preserved into Box 2.
Multiply the values of Box 1 and Box 2 and enter the result in Box 3. The value in Box 3 equals the mitigation credits allocated for the assessed project. (Note: Preservation Credits can only equal 70% of the total mitigation credits required after the requirements of OAC 3745-1-05 are met.)

Box 1. Sum of Factor Values (P) =	3.4
Box 2. Mitigation Length (D) =	60
Box 3. Mitigation Credits (P x D) =	204

Ohio EPA 401 Water Quality Certification
Form B. STREAM MITIGATION WEIGHTING FACTORS

Project Name: OHIO RIVER CLEAN FUELS Page: ____ of ____

Stream Segment: BR-N Use Designation: CLASS I PHWH

Project Summary: ROCKY RUN RESTORATION / PRESERVATION

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Mitigation Factors	Options					Mitigation Factor Value
Stream Restoration/ Relocation Design (Section 5.2.7)	None (Preservation Only Projects) 0.0	Minimal (use limited-see text) 0.5	Moderate 1.0	Good 2.0	Excellent 3.0	0.0
Riparian/ Floodplain Preservation (Section 5.2.5)	Minimal (Relocation Projects Only) 0.0	Low 0.2	Moderate 0.4	Good 0.7	Excellent 1.0	0.7
Riparian Restoration and Enhancement (Section 5.2.8)	None 0.0	Minimal 0.2	Moderate 0.4	Good 0.7	Excellent 1.0	0.0
Resulting Aquatic Life Use (Section 5.2.1)	MWH or Class II PHWH 0.1	WWH 0.6	EWH 0.8	CWH or Class III PHWH 1.0		0.1
Resulting Habitat Quality (Section 5.2.2)	Fair (Relocation Projects Only) 0.1	Good 0.5	Excellent 1.0			0.5
Priority Area (Section 5.2.3)	Tertiary 0.0	Secondary 0.1	Primary 0.5			0.0
Watershed Location (Section 5.2.9)	Outside Watershed 0.0	Within HUC 8 Digit Watershed 0.3	Within HUC 11 Digit Watershed 0.5	Within HUC 14 Digit Watershed 0.8	Onsite 1.0	1.0
Control (Section 5.2.10)	Deed Restriction 0.0	Conservation Easement 0.3	Fee Simple 0.5			0.3
Impact/Mitigation Relationship (Section 5.2.11)	Out-of-Kind 0.1	In-Kind 0.5				0.5
Implementation Schedule (Section 5.2.12)	Schedule 5 -0.1	Schedule 4 0.0	Schedule 3 0.1	Schedule 2 0.2	Schedule 1 0.3	0.2
Supplemental Water Quality Activities (Section 5.2.13)	None 0.0	Moderate 0.1	Good 0.2	Excellent 0.3		0.0
Threat to Stream Segment (section 5.2.14)	NA or Low 0.0	Moderate 0.1	High 0.2	Very High 0.3		0.1

To calculate the preservation credits allocated, add all mitigation factor values in the right-hand column and enter the result in Box 1.
Enter the proposed length to be preserved into Box 2.
Multiply the values of Box 1 and Box 2 and enter the result in Box 3. The value in Box 3 equals the mitigation credits allocated for the assessed project. (Note: Preservation Credits can only equal 70% of the total mitigation credits required after the requirements of OAC 3745-1-05 are met.)

Box 1. Sum of Factor Values (P) =	3.4
Box 2. Mitigation Length (D) =	237
Box 3. Mitigation Credits (P x D) =	806

Ohio EPA 401 Water Quality Certification
Form B. STREAM MITIGATION WEIGHTING FACTORS

Project Name: OHIO RIVER CLEAN FUELS Page: ____ of ____

Stream Segment: RR- O Use Designation: CLASS II PHWH

Project Summary: ROCKY RUN RESTORATION / PRESERVATION

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Mitigation Factors	Options					Mitigation Factor Value
Stream Restoration/Enhancement Relocation Design (Section 5.2.7)	None (Preservation Only Projects) 0.0	Minimal (use limited- see text) 0.5	Moderate 1.0	Good 2.0	Excellent 3.0	0.0
Riparian/Floodplain Preservation (Section 5.2.8)	Minimal (Relocation Projects Only) 0.0	Low 0.2	Moderate 0.4	Good 0.7	Excellent 1.0	0.7
Riparian Restoration and Enhancement (Section 5.2.8)	None 0.0	Minimal 0.2	Moderate 0.4	Good 0.7	Excellent 1.0	0.0
Resulting Aquatic Life Use (Section 5.2.9)	MWH or Class II PHWH 0.1	WWH 0.6	EWH 0.8	CWH or Class III PHWH 1.0		0.1
Resulting Habitat Quality (Section 5.2.2)	Fair (Relocation Projects Only) 0.1	Good 0.5	Excellent 1.0			0.5
Priority Area (Section 5.2.3)	Tertiary 0.0	Secondary 0.1	Primary 0.5			0.0
Watershed Location (Section 5.2.9)	Outside Watershed 0.0	Within HUC 8 Digit Watershed 0.3	Within HUC 11 Digit Watershed 0.5	Within HUC 14 Digit Watershed 0.8	Onsite 1.0	1.0
Control (Section 5.2.10)	Deed Restriction 0.0	Conservation Easement 0.3	Fee Simple 0.5			0.3
Impact Mitigation Relationship (Section 5.2.11)	Out-of-Kind 0.1	In-Kind 0.5				0.5
Implementation Schedule (Section 5.2.12)	Schedule 5 -0.1	Schedule 4 0.0	Schedule 3 0.1	Schedule 2 0.2	Schedule 1 0.3	0.2
Supplemental Water Quality Activities (Section 5.2.13)	None 0.0	Moderate 0.1	Good 0.2	Excellent 0.3		0.0
Threat to Stream Segment (section 5.2.14)	NA or Low 0.0	Moderate 0.1	High 0.2	Very High 0.3		0.1

To calculate the preservation credits allocated, add all mitigation factor values in the right-hand column and enter the result in Box 1.
Enter the proposed length to be preserved into Box 2.
Multiply the values of Box 1 and Box 2 and enter the result in Box 3. The value in Box 3 equals the mitigation credits allocated for the assessed project. (Note: Preservation Credits can only equal 70% of the total mitigation credits required after the requirements of OAC 3745-1-05 are met.)

Box 1. Sum of Factor Values (P) =	3.4
Box 2. Mitigation Length (D) =	144
Box 3. Mitigation Credits (P x D) =	490

Ohio EPA 401 Water Quality Certification
Form B. STREAM MITIGATION WEIGHTING FACTORS

Project Name: OHIO RIVER CLEAN FUELS Page: ____ of ____

Stream Segment: RR- P Use Designation: CLASS II PHWH

Project Summary: ROCKY RUN RESTORATION/PRESERVATION

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Mitigation Factor	Options					Mitigation Factor Value
Stream Restoration/ Relocation Design (Section 5.2.7)	None (Preservation Only Projects) 0.0	Minimal (use limited- see text) 0.5	Moderate 1.0	Good 2.0	Excellent 3.0	0.0
Riparian/ Floodplain Preservation (Section 5.2.8)	Minimal (Relocation Projects Only) 0.0	Low 0.2	Moderate 0.4	Good 0.7	Excellent 1.0	0.7
Riparian/ Floodplain Restoration and Enhancement (Section 5.2.8)	None 0.0	Minimal 0.2	Moderate 0.4	Good 0.7	Excellent 1.0	0.0
Resulting Aquatic Life Use (Section 5.2.1)	MWH or Class II PHWH 0.1	WWH 0.6	EWH 0.8	CWH or Class III PHWH 1.0		0.1
Resulting Habitat Quality (Section 5.2.2)	Fair (Relocation Projects Only) 0.1	Good 0.5	Excellent 1.0			0.5
Priority Area (Section 5.2.3)	Tertiary 0.0	Secondary 0.1	Primary 0.5			0.0
Watershed Location (Section 5.2.9)	Outside Watershed 0.0	Within HUC 8 Digit Watershed 0.3	Within HUC 11 Digit Watershed 0.5	Within HUC 14 Digit Watershed 0.8	Onsite 1.0	1.0
Control (Section 5.2.10)	Deed Restriction 0.0	Conservation Easement 0.3	Fee Simple 0.5			0.3
Impact/ Mitigation Relationship (Section 5.2.11)	Out-of-Kind 0.1	In-Kind 0.5				0.5
Implementation Schedule (Section 5.2.12)	Schedule 5 -0.1	Schedule 4 0.0	Schedule 3 0.1	Schedule 2 0.2	Schedule 1 0.3	0.2
Supplemental Water Quality Activities (Section 5.2.13)	None 0.0	Moderate 0.1	Good 0.2	Excellent 0.3		0.0
Threat to Stream Segment (section 5.2.14)	NA or Low 0.0	Moderate 0.1	High 0.2	Very High 0.3		0.1

To calculate the preservation credits allocated, add all mitigation factor values in the right-hand column and enter the result in Box 1.
Enter the proposed length to be preserved into Box 2.
Multiply the values of Box 1 and Box 2 and enter the result in Box 3. The value in Box 3 equals the mitigation credits allocated for the assessed project. (Note: Preservation Credits can only equal 70% of the total mitigation credits required after the requirements of OAC 3745-1-05 are met.)

Box 1: Sum of Factor Values (P) =	3.4
Box 2: Mitigation Length (D) =	170
Box 3: Mitigation Credits (P x D) =	578

Ohio EPA 401 Water Quality Certification
Form B. STREAM MITIGATION WEIGHTING FACTORS

Project Name: OHIO RIVER CLEAN FUELS Page: ____ of ____

Stream Segment: BR-Q Use Designation: CLASS I PHWH

Project Summary: ROCKY RUN RESTORATION / PRESERVATION

Circle appropriate response for each of the factors listed below and enter the numerical value in the column on the right.

Mitigation Factors	Options					Mitigation Factor Value
Stream Restoration/ Relocation Design (Section 5.2.7)	None (Preservation Only Projects) 0.0	Minimal (use limited - see text) 0.5	Moderate 1.0	Good 2.0	Excellent 3.0	0.0
Riparian/ Floodplain Preservation (Section 5.2.8)	Minimal (Relocation Projects Only) 0.0	Low 0.2	Moderate 0.4	Good 0.7	Excellent 1.0	0.7
Riparian Restoration and Enhancement (Section 5.2.8)	None 0.0	Minimal 0.2	Moderate 0.4	Good 0.7	Excellent 1.0	0.0
Resulting Aquatic Life Uses (Section 5.2.1)	MWH or Class II PHWH 0.1	WWH 0.6	EWH 0.8	CWH or Class III PHWH 1.0		0.1
Resulting Habitat Quality (Section 5.2.2)	Fair (Relocation Projects Only) 0.1	Good 0.5	Excellent 1.0			0.5
Priority Area (Section 5.2.3)	Tertiary 0.0	Secondary 0.1	Primary 0.5			0.0
Watershed Location (Section 5.2.9)	Outside Watershed 0.0	Within HUC 8 Digit Watershed 0.3	Within HUC 11 Digit Watershed 0.5	Within HUC 14 Digit Watershed 0.8	Onsite 1.0	1.0
Control (Section 5.2.10)	Deed Restriction 0.0	Conservation Easement 0.3	Fee Simple 0.5			0.3
Impact/Mitigation Relationship (Section 5.2.11)	Out-of-Kind 0.1	In-Kind 0.5				0.5
Implementation Schedule (Section 5.2.12)	Schedule 5 -0.1	Schedule 4 0.0	Schedule 3 0.1	Schedule 2 0.2	Schedule 1 0.3	0.2
Supplemental Water Quality Activities (Section 5.2.13)	None 0.0	Moderate 0.1	Good 0.2	Excellent 0.3		0.0
Threat to Stream Segment (section 5.2.14)	NA or Low 0.0	Moderate 0.1	High 0.2	Very High 0.3		0.1

To calculate the preservation credits allocated, add all mitigation factor values in the right-hand column and enter the result in Box 1.
Enter the proposed length to be preserved into Box 2.
Multiply the values of Box 1 and Box 2 and enter the result in Box 3. The value in Box 3 equals the mitigation credits allocated for the assessed project. (Note: Preservation Credits can only equal 70% of the total mitigation credits required after the requirements of OAC 3745-1-05 are met.)

Box 1. Sum of Factor Values (P) =	3.4
Box 2. Mitigation Length (D) =	155
Box 3. Mitigation Credits (P x D) =	527

Ohio EPA 401 Water Quality Certification
Form C. STREAM IMPACT DEBIT AND MITIGATION CREDIT SUMMARY SHEET

INSTRUCTIONS: this form is for use in tallying mitigation debits and credits for projects where multiple stream segments are either impacted or proposed as mitigation sites. This form is to be completed after the completion of individual adverse impact weighting factor scoring sheets (Form A) and stream mitigation weighting factor sheets (Form B) have been completed for the proposed project. Complete the tables below using the values from the individual Form A sheets and Form B sheets in order to summarize all computed stream impact debits and stream mitigation credits proposed for the project.

Adverse Impacts (Information from Form A sheets):

Stream Segment/ Project Name	Impact Weighting Factor Score (Form A, Box 1)	Linear Feet of Impact (Form A, Box 2)	Stream Impact Debits (Form A, Box 3)
1. RR-A	7.1	20	142
2. RR-Aa	N/A	64	N/A
3. RR-Ab	N/A	179	N/A
4. RR-Ac	N/A	840	N/A
5. UNT-A	3.0	1231	3,693
6. UNT-Aa	3.0	131	393
7. UNT-B	8.6	84	722
8. UNT-Bb	N/A	556	N/A
9. UNT-Bc	N/A	123	N/A
10. UNT-C (ISOLATED)	N/A	275	N/A
Column Totals: CONTINUED	ON	ADDITIONAL	TABLE
TOTAL THIS PAGE	(21.7)	(3503)	(4950)

Stream Mitigation (Information from Form B or Form D sheets):

Stream Segment/ Project Name	Mitigation Weighting Factor Score (Form B, Box 1)	Linear Feet for Mitigation (Form B, Box 2)	Stream Mitigation Credits (Form B, Box 3 or Form D, Line 4)
1. ROCKY RUN	6.7	11,188	73,841
2. RR-A	3.4	226	768
3. RR-B	3.4	229	779
4. RR-C	3.6	148	533
5. RR-D	3.4	262	891
6. RR-E	3.4	146	496
7. RR-F	3.3	63	208
8. RR-G	3.2	154	493
9. RR-H	3.4	107	364
10. RR-I	3.3	171	564
Column Totals: CONTINUED	ON	ADDITIONAL	TABLE
TOTAL THIS PAGE	(37.1)	(12,694)	(80,055)

Stream Segment/Project Name	Impact Weighting Factor Score (Form A, Box 1)	Linear Feet of Impact (Form A, Box 2)	Stream Impact Debits (Form A, Box 3)
11. UNT-Ca (Isolated)	N/A	50	N/A
12. UNT-Ca1 (Isolated)	N/A	32	N/A
13. UNT-D (Isolated)	N/A	828	N/A
14. UNT-Da (Isolated)	N/A	33	N/A
15. UNT-Db (Isolated)	N/A	224	N/A
16. UNT-Dc (Isolated)	N/A	56	N/A
17. UNT-Dc1 (Isolated)	3.0	162	486
18. UNT-E	3.0	2,139	6,417
19. UNT-Ea	N/A	371	N/A
20. UNT-Eb	N/A	423	N/A
21. UNT-Ec	N/A	251	N/A
22. UNT-F	3.0	75	225
23. UNT-H (Isolated)	N/A	541	N/A
24. UNT-Ha (Isolated)	N/A	57	N/A
TOTAL	**30.7**	**8,745**	**12,078**

Stream Segment/Project Name	Mitigation Weighting Factor Score (Form B, Box 1)	Linear Feet for Mitigation (Form B, Box 2)	Stream Mitigation Credits (Form B, Box 3 or Form D, Line 4)
11. RR-K	3.4	156	530
12. RR-L	3.4	107	364
13. RR-M	3.4	60	204
14. RR-N	3.4	237	806
15. RR-O	3.4	144	490
16. RR-P	3.4	170	578
17. RR-Q	3.4	155	527
TOTAL	**60.8**	**13,723**	**83,554**