



Engineers, Surveyors, Planners, Scientists

December 12, 2018

City of Columbus, Division of Sewerage & Drainage
Attn: Mr. Greg Fedner, P.E.
Private Development Section Manager
910 Dublin Road
Columbus, Ohio 43215

Subject: Greensward Road Type III Variance Request

Dear Greg,

This letter is provided in response to comments received during the meeting on December 4, 2018 and subsequent communication regarding the Type III variance request from the City of Columbus Stormwater Drainage Manual (SWDM) for the proposed Greensward Road residential development. This response to comments is being submitted on behalf of Romanelli & Hughes Building Company.

The City has indicated that additional information is necessary regarding how full compliance with the manual deprives Romanelli & Hughes of reasonable use of land and/or results in a substantial hardship. The following information is submitted for the Variance Committee's consideration:

- Revised Preferred Impact Plan
- Previous Preferred Design and Minimization Efforts
- Significance of Mitigation
- Additional Financial Information

Revised Preferred Plan

Since submittal of the variance request on September 28, 2018, the preferred development plan has been modified. The revised preferred plan is attached. Modifications were made in part to reflect further refinement of the preliminary design, and in part to address the City's request to minimize direct stream impacts and SCPZ encroachment and provide additional water quality benefits. The revised plan is still preliminary, and subject to change based on detailed design.

As shown on the revised plan, "non-permitted" impacts to Stream 2 have been reduced to 166 linear feet of direct stream impact and 0.21 acre of SCPZ. Impacts to the Stream 3 SCPZ have been eliminated. The overall impacts have been reduced by approximately 50% as compared to the impacts requested under the previous preferred plan (318 linear feet of direct channel impacts and 0.43 acre of SCPZ). Minimization of the impacts to Stream 2 result in the loss of one (1) housing lot as compared to the plan previous submitted.

In order to avoid the loss of an additional housing lot, Basin C (north of Greensward Road) has been modified. In addition to changing the geometry of this basin, the applicant intends to implement this basin as a wetland basin to be planted with native shrubs and herbaceous plants. Planting the basin will provide greater water quality and habitat benefits as compared to a standard dry-bottom basin by filtering pollutants and providing wildlife habitat. This improvement will help to offset the potential water quality impact associated with the impact to Stream 2 in addition to the extensive mitigation proposal (discussed below).

EMH&T has evaluated the City's suggestions to further reduce/eliminate the stream and SCPZ impacts and has determined that it is not feasible to further reduce the impacts while maintaining at least 21 lots. The site is constrained not only by the onsite SCPZ areas, but also by the floodplain and existing sanitary sewer easement. Provision of fewer than 21 lots on the site reduces the project return to the point that the project becomes financially unviable.

Previous Preferred Design and Minimization Efforts

Several iterations of conceptual site plans were considered prior to the submittal of the variance request. These conceptual plans all contemplated at least 24 lots on the property. However, in order to avoid impacts to the Sugar Run SCPZ, minimize floodplain fills, and comply with other requirements of the SWDM, it was necessary to reduce the preliminary plan to 22 lots. This minimization effort ensured that the Preferred Plan submitted with the variance request preserved the Sugar Run SCPZ in its entirety, and limited direct channel impacts only to a very small, ephemeral tributary.

The revised preferred plan (attached) results in the loss of one (1) additional lot, providing for 21 lots total. This represents a 12.5% reduction from the original 24-lot plan, and results in a financial impact of approximately \$750,000. A No Impact Plan would require the loss of two additional lots, providing for 19 lots. The loss of five (5) lots from the original 24-lot concept is roughly 20% of the project. This would reduce the project return to the point that the project would be financially unviable and would not be able to move forward.

Significance of Mitigation

The mitigation, as originally proposed, consists of two primary components: (1) removal of logjams and large, streamside standing dead trees that are likely to create future logjams; and (2) reforestation of approximately one acre of riparian floodplain. Although the stream and SCPZ impact have been reduced by approximately 50% under the revised plan, the applicant is maintaining the mitigation plan without modification. This mitigation is significant for the health of Sugar Run and provides real benefits to the City of Columbus.

At the project site, Sugar Run drains approximately 5 square miles, approximately 30% of which lies within the City of Columbus. The free flowing condition of Sugar Run is significantly impacted by several large logjams within the project area, which will exacerbate flooding and attendant impacts within this portion of the City. The logjams also pose a hazard to downstream bridges and culverts, should they be swept downstream during a large-scale flood event. Thus, removal of the logjams provides a significant benefit to the City and its infrastructure.

Moreover, the proposed mitigation will significantly benefit the water quality and in-stream habitat of Sugar Run. The logjams alter flow patterns during flood events, promoting bank erosion and sedimentation. The impoundment behind the logjams promotes the buildup of sediment and nutrients and reduces dissolved oxygen levels. Sedimentation behind the logjams negatively impacts the stream substrate, making it less hospitable to aquatic macroinvertebrates and fish, and the logjams serve as a barrier to fish passage. All of these negative impacts will be alleviated by the logjam removal. Indeed, the potential water quality and habitat improvements to be provided by the mitigation are demonstrably greater than the potential minor impacts associated with the loss of 166 linear feet of ephemeral stream channel.

In order to facilitate comparison of the proposed impacts and mitigation, EMH&T utilized the pre- and post-condition QHEI score for Stream 2 and Sugar Run. As mentioned in the variance request, the QHEI is not an appropriate metric for Stream 2, due to its small size and ephemeral flow regime, but it was utilized in order to provide an "apples to apples" comparison to Sugar Run. The proposed impacts and mitigation are summarized in Table 1.

Table 1. Comparison of Proposed Impacts and Mitigation

	Stream 2 (Impact)	Sugar Run (Mitigation)
Stream Length (ft)	166	1,472
Existing QHEI	28	52
Proposed QHEI	0	62
Net Change	-28	+10
Weighted Score	-4,648	+14,720

The proposed mitigation will provide a QHEI uplift of +10 points over 1,472 linear feet of perennial stream, compared to a loss of 166 linear feet of ephemeral stream with a QHEI score of 28. By weighting the change in QHEI score by the stream length to be either impacted or mitigated, this can be represented as a “credit” of +14,720 compared to a “debit” of -4,648. Thus, the mitigation exceeds the impacts by a factor of over 3.1 to 1. This mitigation is more than sufficient based upon the criteria in the SWDM. It will provide significant benefits to the stream health, water quality and functionality of Sugar Run.

Additional Financial Information

Romanelli & Hughes will invest significant resources toward complying with the City’s variance process and other aspects of the SWDM on this site. As discussed herein, the loss of three (3) lots from the original 24-lot results in a financial impact to the project of approximately \$750,000. Implementing retaining walls necessary in order to achieve required grade differentials under the revised plan will cost an additional \$15,000. Planting the wetland basin will cost an additional \$20,000. Additional storm sewer to bypass offsite stormwater flows will cost \$20,000. Moreover, EMH&T estimates that the proposed mitigation will cost approximately \$178,000. In total, the current cost of compliance is in excess of \$980,000. As stated previously, full compliance with the SWDM would reduce the project return to the point that the project would be financially unviable. Thus, Romanelli & Hughes respectfully requests approval of the variance for the revised Preferred Plan.

If you have any questions or require additional information, please contact me at (614) 775-4523 or hdarding@emht.com.

Sincerely,



Heather L. Dardinger
Senior Environmental Scientist

Enclosures:

Copies: Mr. Jim Ohlin, Romanelli & Hughes Building Company

WETLAND BASIN PLANTING TABLE			
COMMON NAME	SCIENTIFIC NAME	QUANTITY	MATERIAL
MICROPOOL (±0.06 ACRE)			
Water plantain	Alisma subcordatum	50	Bare root or #1 Cont.
Arrow arum	Peltandra virginica	50	Bare root or #1 Cont.
Pickereelweed	Pontederia cordata	50	Bare root or #1 Cont.
Arrowhead	Sagittaria latifolia	50	Bare root or #1 Cont.
Softstem bulrush	Schoenoplectus tabernaemontani	50	Bare root or #1 Cont.
ABOVE NORMAL POOL (±0.07 ACRE)			
Red osier dogwood	Cornus alba	10	5-Gal
Silky dogwood	Cornus amomum	10	5-Gal
Gray dogwood	Cornus racemosa	10	5-Gal
Peach-leaf willow	Salix amygdaloides	10	5-Gal
Sandbar willow	Salix interior	10	5-Gal
Arrow-wood viburnum	Viburnum dentatum	10	5-Gal
Smooth arrow-wood viburnum	Viburnum recognitum	10	5-Gal

LEGEND

- Ex Stream Channel
- Impacted Stream Channel 166 LF
- 000.00 FEMA Base Flood Elevation Line (BFLE)
- Floodway
- Floodplain
- Flood Plain Fill 0.11 Ac/350 CY
- Compensatory Cut Areas
- Stream Corridor Protection Zone 9.72 Ac
- Impacted Stream Corridor Protection Zone 0.21 Ac
- Permitted Use Stream Corridor Protection Zone 0.13 Ac

NOTES:

The total length of the cul-de-sac is 1,145 feet from the centerline of Greensward Road to the center of the cul-de-sac bulb.

All data shown is based on GIS information, To Be Confirmed during Final Engineering.

SITE STATISTICS:

Total Acreage	20.9± Ac
Number of Lots (68'x130' Min.)	21
Gross Density	1.00± Lot/Ac
Total Open Space	14.49± Ac (64.1%)

City of Columbus Stream Corridor Protection Zone Calculation (Section 1.3.1 of Stormwater Drainage Manual):

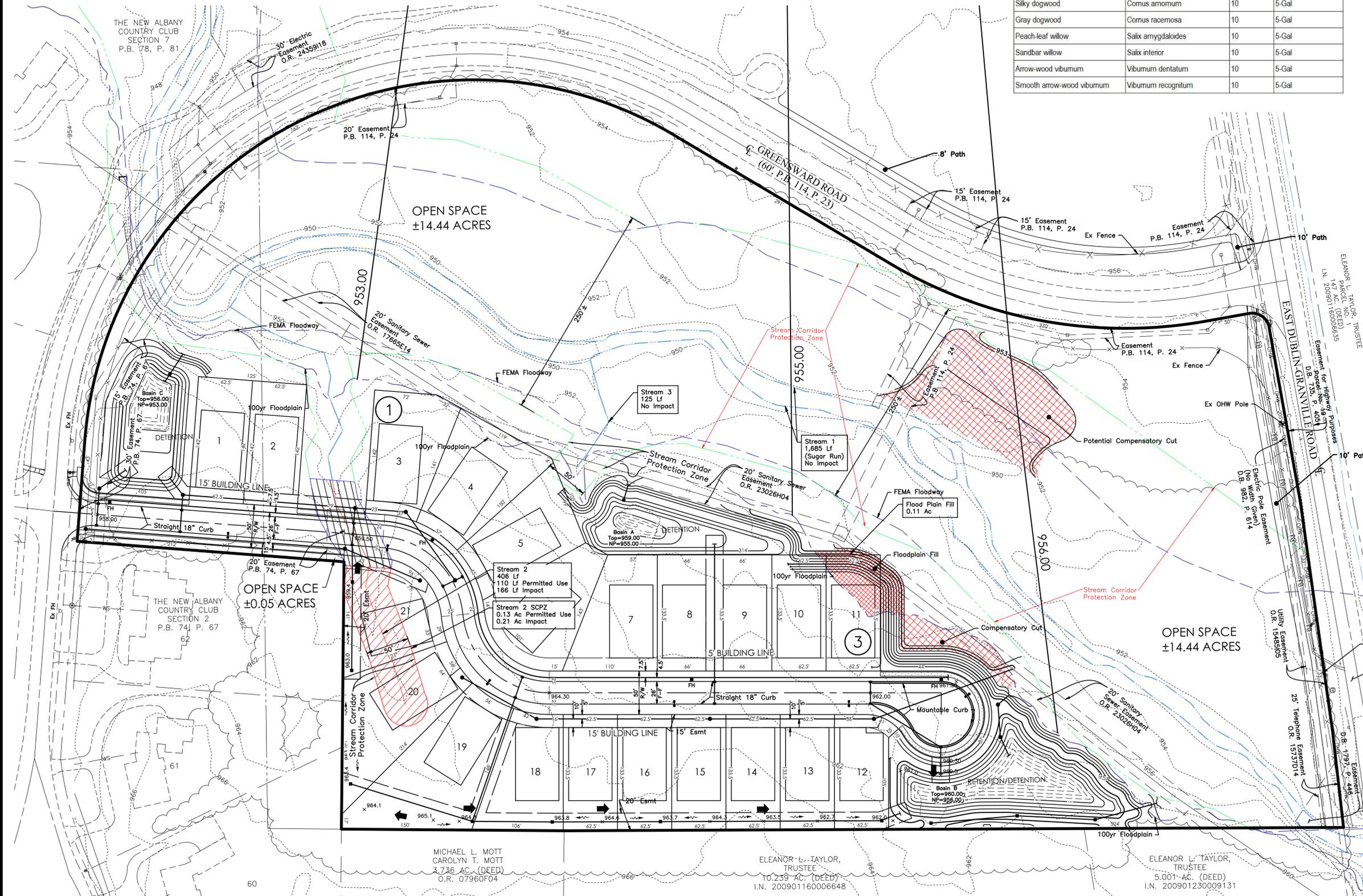
The total width of the Stream Corridor Protection Zone for streams shall be established using the following criteria, whichever is greater:

- The FEMA-designated floodway, or
- Using the equation below with a minimum of 50 feet to a maximum of 250 feet. The zone shall be centered on the stream valley generally located at the point where both zone boundaries intersect equal elevations on either side of the stream:

$$\text{Stream Corridor Protection Zone, in feet of width} = 147(DA)^{0.38}$$
 where DA=drainage area of the stream in square miles, or
- 50 feet from the top of each bank for fourth order streams or larger

Note: Where wetlands are located partially within the Stream Corridor Protection Zone, the Stream Corridor Protection Zone shall be extended to include the full extent of the wetland area.

Sugar Run:
 Drainage area at DA2 = 3,065.60 acres = 4,790 sq miles
 Stream Corridor Protection Zone Width = 250 feet or FEMA Floodway, whichever is greater



WETLAND BASIN PLANTING TABLE

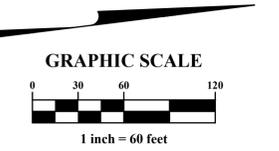
REVISIONS

MARK	DATE	DESCRIPTION

CITY OF COLUMBUS, FRANKLIN COUNTY, OHIO
 SCPZ VARIANCE FOR
GREENSWARD ROAD
 PREFERRED OPTION

EMHT
 Environmental Management & Technology, Inc.
 5300 New Albany Road, Columbus, OH 43254
 Phone: 614.775.6500 Fax: 614.775.3548
 emht.com

DATE	DECEMBER 11, 2018
SCALE	1" = 60'
JOB NO.	2018-0878
SHEET	1/1



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TREE RESTORATION PLANTING TABLE				
COMMON NAME	SCIENTIFIC NAME	QUANTITY	MATERIAL	MINIMUM SPACING
Red Oak	Quercus rubra	30	15-Gal	15 OC
Swamp White Oak	Quercus bicolor	30	15-Gal	15 OC
Sugar Maple	Acer saccharum	30	15-Gal	15 OC
Sycamore	Platanum accidentalis	30	15-Gal	15 OC
Gray Dogwood	Cornus racemosa	30	5-Gal	15 OC
Arrowwood Viburnum	Viburnum dentatum	30	5-Gal	15 OC
Serviceberry	Amelanchier sp	30	5-Gal	15 OC

LEGEND

- Dead Tree Removal Zone
- Proposed Environmental Conservation Easement 9.42 Ac
- 000.00 FEMA Base Flood Elevation Line (BFLE)
- XXX Stream Blockage Removal
- Tree Restoration 1.17 Ac

NOTES:

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SITE STATISTICS:

Total Acreage	20.9± Ac
Number of Lots (68'x130' Min.)	21
Gross Density	1.00± Lot/Ac
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- The FEMA-designated floodway, or
- Using the equation below with a minimum of 50 feet to a maximum of 250 feet. The zone shall be centered on the stream valley generally located at the point where both zone boundaries intersect equal elevations on either side of the stream:

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Note: Where wetlands are located partially within the Stream Corridor Protection Zone, the Stream Corridor Protection Zone shall be extended to include the full extent of the wetland area.

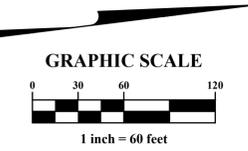
Sugar Run:
 Drainage area at DA2 = 3,065.60 acres = 4.790 sq miles
 Stream Corridor Protection Zone Width = 250 feet or FEMA Floodway, whichever is greater



MICHAEL L. MOTT
 CAROLYN T. MOTT
 3.736 AC. (DEED)
 O.R. 07960F04

ELEANOR L. TAYLOR, TRUSTEE
 10.239 AC. (DEED)
 I.N. 200901160006648

ELEANOR L. TAYLOR, TRUSTEE
 5.001-AC. (DEED)
 I.N. 200901230009131



REVISIONS

MARK	DATE	DESCRIPTION

CITY OF COLUMBUS, FRANKLIN COUNTY, OHIO
 SCPZ VARIANCE
GREENSWARD ROAD
 MITIGATION PLAN



DATE
 DECEMBER 11, 2018

SCALE
 1" = 60'

JOB NO.
 2018-0878

SHEET
 1/1

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