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March 21, 2023

City of Columbus, Division of Sewerage & Drainage
111 N. Front Street
Columbus, Ohio 43215

ATTN: Mr. Greg Fedner, P.E.
PR/SRM Section Manager

RE: Ohio State University Book Depository – 2700 Kenny Road
PID# 010-204024
CC-19630

Mr. Fedner,

We would like to request a Type III Variance from the City of Columbus' Storm Water Drainage Manual (SWDM), for the referenced project. Using the formula in the Columbus Stormwater Drainage Manual section 1.3.1 and the drainage area from StreamStats of 0.0443 square miles, it was determined the proposed development site has a 50' Stream Corridor Protection Zone (SCPZ) centered on the unnamed stream located south of the OSU Book Depository building and north of the OSU Stores and Receiving Building. The limits of the SCPZ are creating a hardship for the University as they look to expand the Book Depository building and a portion of the SCPZ is already encompassed by a dry detention basin BMP associated with the Stores and Receiving building.

The stream originally ran from west to east across the site, conveying drainage from the separated storm sewer associated with Kenny Road. When the site was first developed in 1988 with the construction of the Stores and Receiving building on the south side of the stream, the stream was relocated north to be outside of the proposed building footprint. A dry detention basin was also constructed in conjunction with the Stores and Receiving building to manage runoff from the development site. As part of the relocation of the stream, the stream discharged directly into the detention basin before releasing to the railroad right-of-way on the east side of the site.

The Stores and Receiving building was expanded in 1991 with an addition on the east side of the building that impacted the stream and detention basin. The eastern portion of the stream was relocated again and the detention basin expanded east and north to accommodate the addition. The stream still drained into the detention basin and the basin discharged directly to the 30" culvert that runs under the railroad tracks.

In 1996, the Book Depository building was constructed on the north side of the stream and relocated the western portion of the stream. The storm sewer from Kenny Road was extended to provide vehicular access to the Book Depository building and the western section of the ditch relocated to accommodate the proposed parking area. The building was planned to be expanded in the future, through additions on the west side of the building and continued truck access from the south portion of the site.

Since the site was developed prior to the establishment of the SCPZ requirement in 2006, there is a large area of maintained lawn space within the SCPZ. It is our understanding that since this area is regularly mowed and maintained, it is considered an encroachment within the SCPZ, see Plan Sheet 1. As part of the mitigation of this



area, detailed in a later section, we propose to reseed this area with native no-mow type grasses and/or meadow type grasses.

The proposed development will not disturb the bed or banks of the existing stream. We are seeking a Type III Variance to remove existing dumpsters, honeysuckle and other invasive plants currently inside of the SCPZ and to construct asphalt parking for delivery trucks to the Book Depository addition. We are also seeking to adjust the SCPZ limits to allow for mitigation of disturbance within the SCPZ. The existing dry detention basin, installed prior to 2006, is allowed to remain within the SCPZ as part of full compliance and the owner will continue to perform regular maintenance activities for the Stores and Receiving building.

Guidance from the Army Corp of Engineers Ohio Interagency Review Team for Stream Mitigation was reviewed to determine the suggested mitigation ratio for the proposed disturbances within the SCPZ. Based on the proposed improvements within the SCPZ, the project would fall within Mitigation Type 3, Buffer Work Only. Re-establishment of the SCPZ, as a form of mitigation, provides a credit ratio of 1:2. Additionally, the area of encroachment by the proposed improvements will be offset by expanding the SCPZ limits to allow for additional mitigation on a 1:1 ratio.

Photos of the stream prior to construction are included in the attached Exhibit A.

Fully Compliant Alternative (See Plan Sheet 2)

A fully compliant alternative would maintain the area within the SCPZ on the property. An existing dumpster enclosure sits on the south side of the asphalt drive for the Book Depository building and would need to be relocated to be entirely outside the SCPZ. The existing asphalt drive is located entirely outside the SCPZ. The existing dry detention BMP serving the Stores and Receiving building is allowable for the fully compliant alternative since it was installed prior to 2006.

The fully compliant alternative produces a significant hardship for the operations of the Book Depository building. Existing loading docks are present on the south side of the building for loading and unloading archives for storage. Access does not currently exist around the north side of the building due to the presence of another stream, SCPZ, and substantial grade change. The proposed building addition provides supplementary storage for University archives and requires a dedicated at-grade loading space. Given the geometry of the existing building, addition, and skew of the stream, expansion of the asphalt drive is necessary to be able to back a truck into the loading area. The fully compliant alternative would not allow for the asphalt expansion and truck turn around, thus rendering the building addition unusable for its intended purpose. A retaining wall would also be necessary along the asphalt edge to accommodate the grade change from the loading area to the existing grade without encroaching into the SCPZ. Given the use of the area for vehicle maneuvering, additional protections would be needed for the wall to prevent vehicles from going over the edge into the SCPZ, further elevating project costs and ongoing maintenance requirements for the University.

Reducing the footprint of the addition or expanding further east to free up space on the south side is not an option for the University due to the size of their storage needs, existing 10" sanitary sewer located approximately 12 feet east of the proposed addition, and stream with corresponding SCPZ on the north side of the addition. The 10" sanitary sewer serves the Central Sterile Supply building north of the Book Depository and is currently run at a minimum slope of 0.25% per the City of Columbus Sanitary Design Manual. Relocating the sewer would incur significant costs for upsizing downstream lines in order to run the sewer further east of the addition and maintain minimum allowable slopes.



Minimal Impact Alternative (See Plan Sheet 3)

A minimal impact alternative would minimize the encroachment of the proposed asphalt drive and loading access within the SCPZ. The encroachment would vary in width from 0 feet to 11 feet along the 280 foot length, resulting in a total encroachment area of 1,606 SF. The encroachment would allow for trucks to back up into the dock for the Book Depository addition and require installation of a retaining wall due to grade differences. Grade changes would be as much as 4 feet for the retaining wall height and require the use of a barrier to block vehicles from driving over the wall and into the stream. Runoff from the proposed asphalt areas will be captured by curb inlets and detained through a proposed underground Stormtech Chamber system with isolator row to capture sediments prior to releasing to the stream. This will improve the quality of the runoff being directly drained to stream thus improving the overall water quality of the watershed.

The proposed mitigation for the Minimal Impact Alternative would reestablish the buffer zone along the south side of the stream that is currently maintained as lawn adjacent to the Stores and Receiving building. 3,225 SF (215 feet long x 15 feet wide) would be reseeded with native no-mow type grasses and/or meadow type grasses. The SCPZ is also proposed to be expanded by 1,720 SF (215 feet long x 8 feet wide), to exceed the encroachment area and be utilized for mitigation. The total mitigation area would exceed the 1:2 credit ratio required.

The existing detention basin for the Stores and Receiving building would remain in place but the SCPZ would stop when it reaches the basin. Given the need for continual maintenance activities for the dry detention basin, location outside the scope of the project work, and costs associated with relocating the basin we do not propose to impact the current conditions.

Preferred Alternative (See Plan Sheet 4)

The preferred alternative for the development of this site would impact 4,580 SF of the existing SCPZ. Similar to the Minimal Impact Alternative, a portion of the proposed asphalt drive and loading area would be installed within the SCPZ to allow for full access to the proposed building addition as part of the Preferred Alternative. In lieu of the retaining wall proposed in the Minimal Impact Alternative, the Preferred Alternative would tie in the new grades with 4:1 slopes back to existing which accounts for the additional impact area. The Preferred Alternative is to grade back to existing in order to eliminate the costs associated with constructing a retaining wall, maintain the wall, and additional safety provisions associated with the wall. The existing detention basin for the Stores and Receiving building would also remain in place and the SCPZ would stop when it reaches the basin as explained in the Minimal Impact Alternative.

The proposed mitigation for the Preferred Alternative would reestablish buffer zone along the north and south sides of the stream. Along the north side, the 3,280 SF disturbed as part of the grading tie in from the proposed asphalt drive would be reestablished. The south side would reestablish 6,000 SF (400 feet long x 15 feet wide) that is currently maintained lawn. The SCPZ is also proposed to be expanded by 4,800 SF (400 feet long x 12 feet wide), to exceed the encroachment area and be utilized for mitigation. All mitigation areas would be reseeded with native no-mow type grasses and/or meadow type grasses for a total mitigation area of 14,080 SF. The mitigation area would exceed the 1:2 credit ratio required.

Runoff from the proposed asphalt areas will be captured by curb inlets and detained through a proposed underground Stormtech Chamber system with isolator row to capture sediments prior to releasing to the stream.



This will improve the quality of the runoff being directly drained to stream thus improving the overall water quality of the watershed.

Proposed Mitigation Plan (See Plan Sheet 5)

As part of the proposed project, 9,280 SF within the calculated SCPZ and 4,800 SF of the expanded SCPZ will be mitigated. This area is located within the streamside buffer area on each side of the stream. The proposed plan is to reestablish the buffer area that is currently being maintained as lawn. Using the 1:2 credit ratio described earlier, 7,040 SF of mitigation credits will be created with this reestablishment. This will account for the 4,580 SF of proposed encroachments in the SCPZ. The 14,080 SF of area being mitigated is currently being used as a maintained lawn area. The maintained lawn was constructed prior to the establishment of the SCPZ in 2006 and are considered existing encroachments. To mitigate these existing encroachments, the existing maintained lawn area will be replaced with native grasses.

The mitigation area will be seeded with a no-mow seed mix that will create an open space between the proposed building and the stream corridor but provide a naturalistic appearance. No-mow seed mixes do not need to be maintained like a traditional lawn and can be grown wild. This seed mix will create a natural, undulating appearance, with enough height on it for smaller animals to hide and provide habitat for insects. Once established, the grasses will limit the use of natural resources in maintaining this area such as fertilizers and weed killer. The proposed mitigation area on the south side of the SCPZ is positioned to help reduce erosion incurred by the existing storm sewer outlet as higher flow velocities exit the pipe and are more prone to bank erosion and stream migration. The seed mix used for this project will be the "Native Short Grass Seed Mix" (item #MSG03) Manufactured by Ohio Prairie Nursery or approved equal. Species include schizocyrium scoparium, elymus virginicus, elymus canadensis, bouteloua curtipendula, tridens flavus, sporobolus heterolepis and agrostis perennans. The variety of species promotes a diverse range of root depths to promote infiltration and prevent erosion.

One (1) deciduous tree is being removed as part of the new construction. One (1) 2.5" caliper tree is being installed as mitigation for the tree removed per zoning requirements and the City of Columbus Tree replacement policy, as follows:

Quercus bicolor (Swamp White Oak)

After construction, the mitigation area and the remainder of the SCPZ on site will be placed in a conservation easement per Section 1.3.2 of the City of Columbus Stormwater Drainage Manual. This will ensure that the area remains in a natural state and performs its inherent function of erosion protection, flood storage, and water quality protection.

Overall, we are seeking a Type III Variance from the City of Columbus' Storm Water Drainage Manual (SWDM) for the purpose of removing existing lawn within the SCPZ, creating a buffer between the proposed asphalt drive, existing building, and the stream to allow for operation of the Book Depository addition. The proposed encroachments into the SCPZ will be mitigated by returning the encroachment area back to its natural state. Due to the size of the existing encroachment, the SCPZ will be drastically improved through the mitigation plan even with the proposed encroachments. If the variance is not granted, a sufficient hardship will be created that will

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require the University to reconsider their plans to expand the existing Book Depository and incur greater costs to relocate the entire facility to a site of sufficient size to accommodate the University's archives.

We appreciate your consideration. Should you have any additional questions or clarifications, please feel free to contact us.

Sincerely,

THE KLEINGERS GROUP

A handwritten signature in blue ink, appearing to read "Michael J. Couvreur".

Michael J. Couvreur, P.E., CPESC, LEED AP
Senior Engineer

cc: FILE

Exhibit A

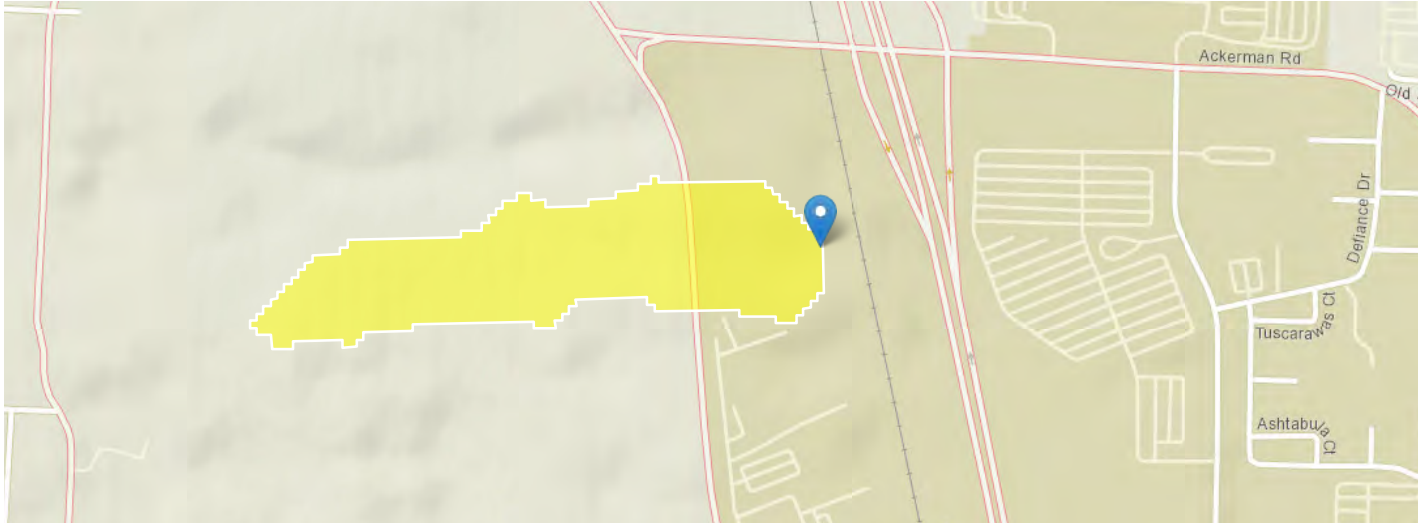


Existing Conditions – 04/27/2021

South side of the existing building looking east

StreamStats Report

Region ID: OH
Workspace ID: OH20220613152213575000
Clicked Point (Latitude, Longitude): 40.01608, -83.03518
Time: 2022-06-13 11:22:35 -0400



[+ Collapse All](#)

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CSL1085LFP	Change in elevation divided by length between points 10 and 85 percent of distance along the longest flow path to the basin divide, LFP from 2D grid	103	feet per mi
DRNAREA	Area that drains to a point on a stream	0.0443	square miles
LC92STOR	Percentage of water bodies and wetlands determined from the NLCD	0	percent
OHREGA	Ohio Region A Indicator	1	dimensionless
OHREGC	Ohio Region C Indicator	0	dimensionless

Peak-Flow Statistics

Peak-Flow Statistics Parameters [Peak Flow Full Model Reg A SIR2019 5018]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.0443	square miles	0.04	5989
OHREGC	Ohio Region C Indicator 1 if in C else 0	0	dimensionless	0	1
OHREGA	Ohio Region A Indicator 1 if in A else 0	1	dimensionless	0	1
CSL1085LFP	Stream Slope 10 and 85 Longest Flow Path	103	feet per mi	1.53	516
LC92STOR	Percent Storage from NLCD1992	0	percent	0	25.35

Peak-Flow Statistics Flow Report [Peak Flow Full Model Reg A SIR2019 5018]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PII	Plu	ASEp
50-percent AEP flood	11.6	ft ³ /s	6.08	22.1	40.1
20-percent AEP flood	22.8	ft ³ /s	12.5	41.7	37.2
10-percent AEP flood	32.6	ft ³ /s	17.7	60	37.6

Statistic	Value	Unit	PII	Plu	ASEp
4-percent AEP flood	47.6	ft ³ /s	25.7	88.3	38.1
2-percent AEP flood	60.5	ft ³ /s	32.2	114	37.8
1-percent AEP flood	74.8	ft ³ /s	39.3	142	39.6
0.2-percent AEP flood	114	ft ³ /s	59.2	220	40.3

Peak-Flow Statistics Citations

Koltun, G.F.,2019, Flood-frequency estimates for Ohio streamgages based on data through water year 2015 and techniques for estimating flood-frequency characteristics of rural, unregulated Ohio streams: U.S. Geological Survey Scientific Investigations Report 2019–5018, 25 p. (<https://dx.doi.org/10.3133/sir20195018>)

USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and completeness and approved for release by the U.S. Geological Survey (USGS), no warranty expressed or implied is made regarding the display or utility of the data for other purposes, nor on all computer systems, nor shall the act of distribution constitute any such warranty.

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USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

Application Version: 4.9.0

StreamStats Services Version: 1.2.22

NSS Services Version: 2.2.0

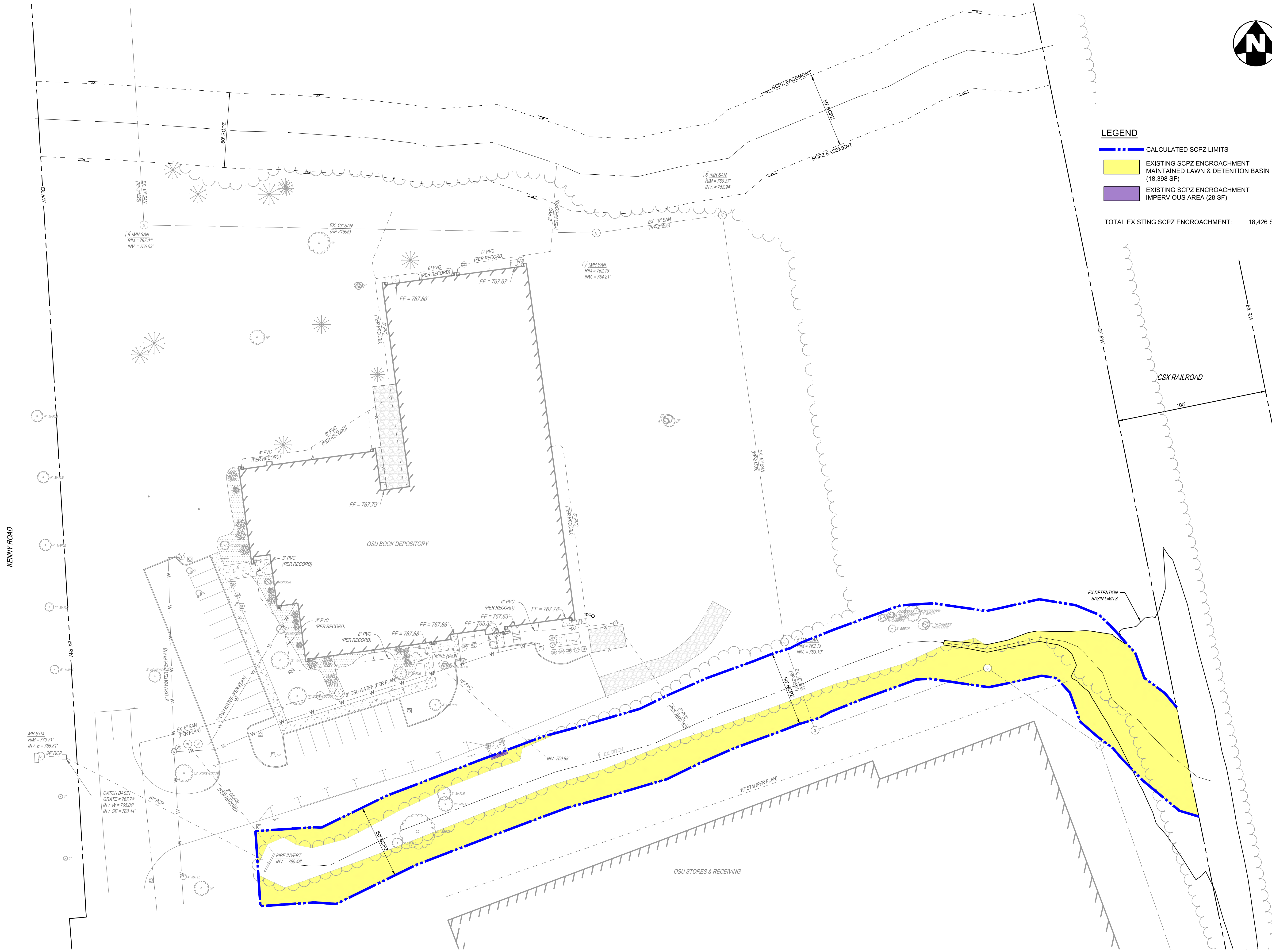


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LEGEND

- · — · — CALCULATED SCPZ LIMITS
- EXISTING SCPZ ENCROACHMENT MAINTAINED LAWN & DETENTION BASIN (18,398 SF)
- EXISTING SCPZ ENCROACHMENT IMPERVIOUS AREA (28 SF)

TOTAL EXISTING SCPZ ENCROACHMENT: 18,426 SF



SEAL:

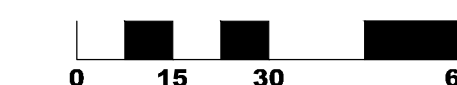
NO.	DATE	DESCRIPTION

THE OHIO STATE UNIVERSITY
BOOK DEPOSITORY PHASE 3
 2700 KENNY ROAD
 COLUMBUS, OH 43210

PROJECT NO: 200011.000

DATE: 03/21/2023

SCALE:



SHEET NAME:

EXISTING ENCROACHMENTS

SHEET NO:

1 OF 5

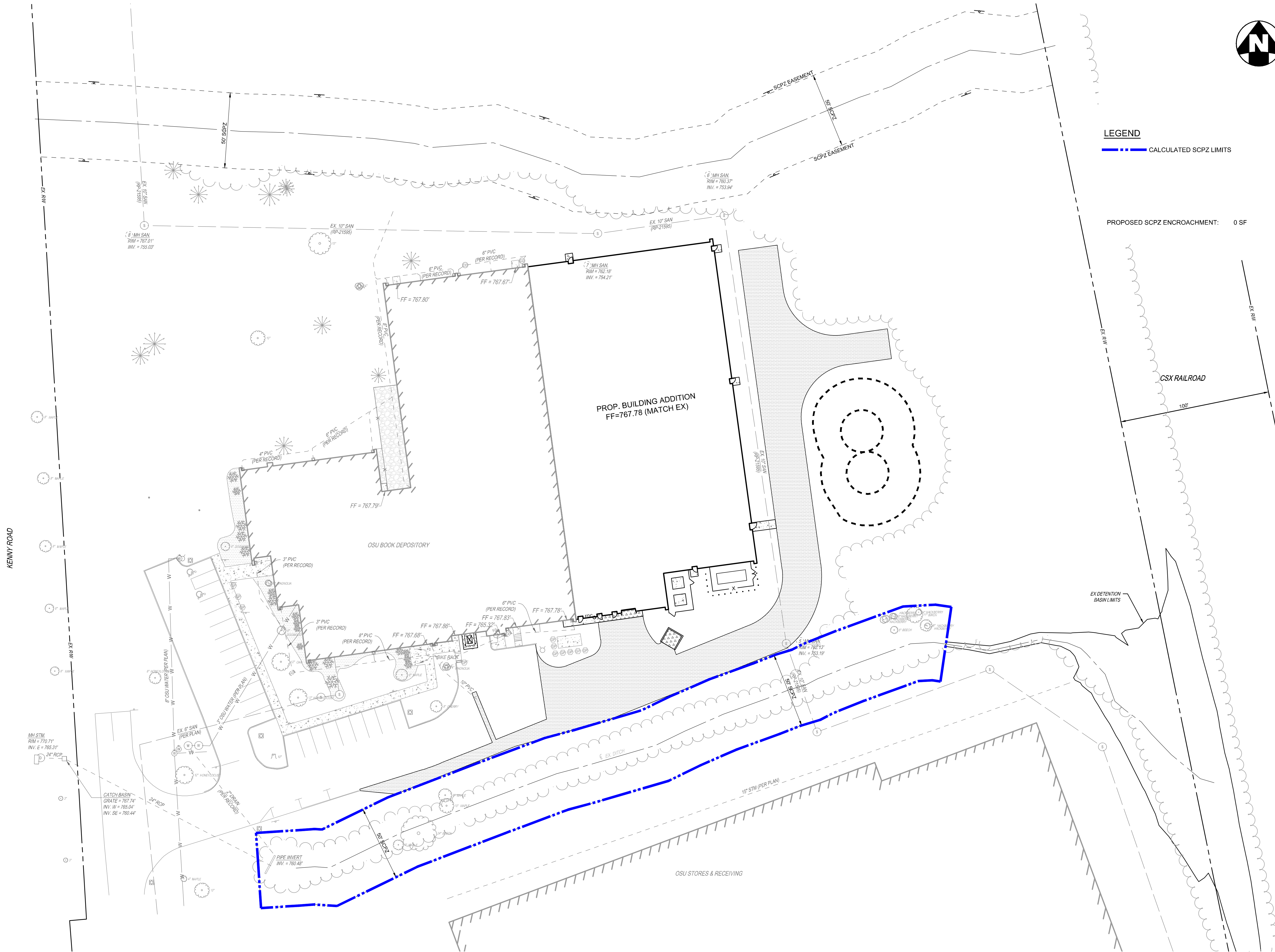


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LEGEND

— CALCULATED SCPZ LIMITS

PROPOSED SCPZ ENCROACHMENT: 0 SF



SEAL:

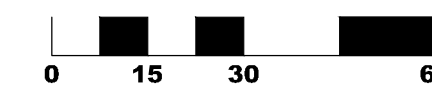
NO.	DATE	DESCRIPTION

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 COLUMBUS, OH 43210

PROJECT NO: 200011.000

DATE: 03/21/2023

SCALE:



SHEET NAME:

FULLY COMPLIANT ALTERNATIVE

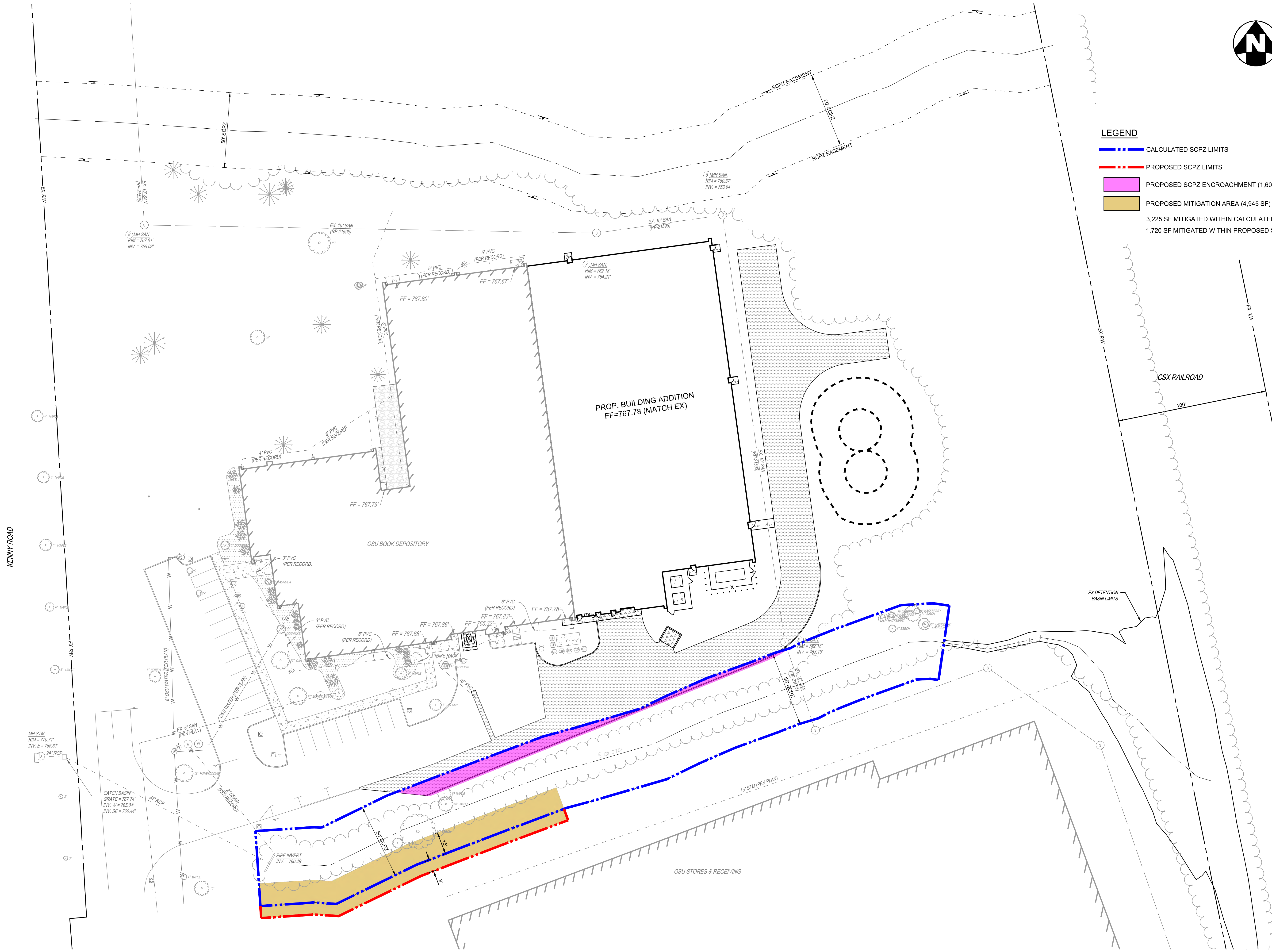
SHEET NO:

2 OF 5



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- LEGEND**
- · — · — CALCULATED SCPZ LIMITS
 - · — · — PROPOSED SCPZ LIMITS
 - PROPOSED SCPZ ENCROACHMENT (1,606 SF)
 - PROPOSED MITIGATION AREA (4,945 SF)
- 3,225 SF MITIGATED WITHIN CALCULATED SCPZ
 1,720 SF MITIGATED WITHIN PROPOSED SCPZ

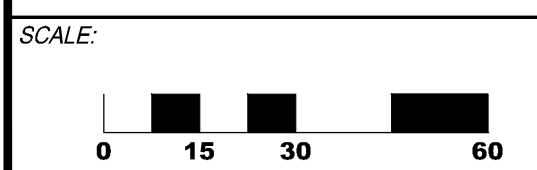


SEAL:

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 2700 KENNY ROAD
 COLUMBUS, OH 43210

PROJECT NO: 200011.000
 DATE: 03/21/2023



SHEET NAME:
MINIMAL IMPACT ALTERNATIVE

SHEET NO.
3 OF 5

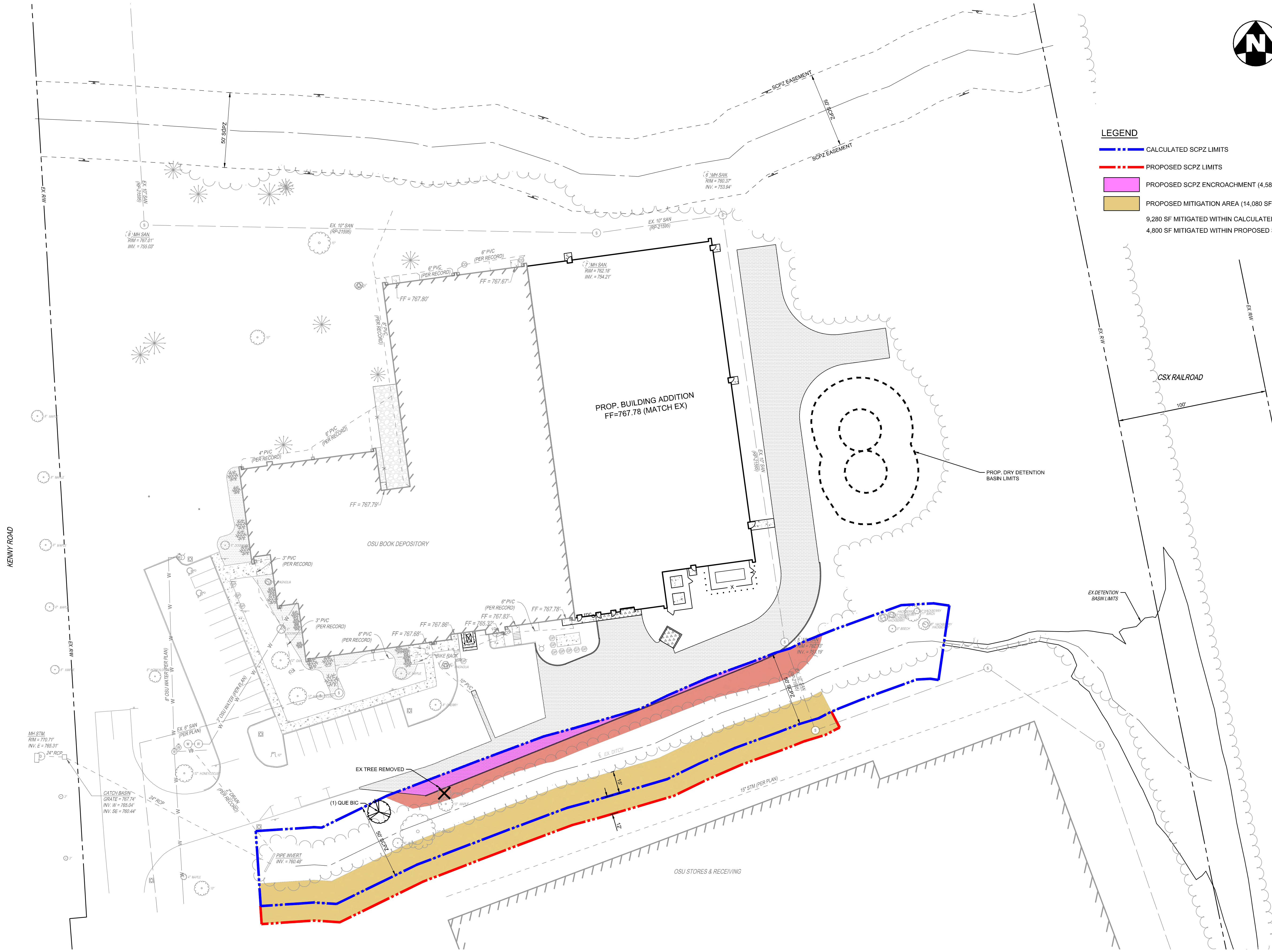
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LEGEND

- · — · — CALCULATED SCPZ LIMITS
 - · — · — PROPOSED SCPZ LIMITS
 - PROPOSED SCPZ ENCROACHMENT (4,580 SF)
 - PROPOSED MITIGATION AREA (14,080 SF)
- 9,280 SF MITIGATED WITHIN CALCULATED SCPZ
 4,800 SF MITIGATED WITHIN PROPOSED SCPZ



SEAL:

NO.	DATE	DESCRIPTION

THE OHIO STATE UNIVERSITY
BOOK DEPOSITORY PHASE 3
 2700 KENNY ROAD
 COLUMBUS, OH 43210

PROJECT NO: 200011.000
 DATE: 03/21/2023

SCALE:

SHEET NAME:
PREFERRED ALTERNATIVE

SHEET NO:
4 OF 5

