CITY OF BLOOMINGTON

BOARD OF ZONING APPEALS

March 24, 2022 @ 5:30 p.m.

https://bloomington.zoom.us/j/87327685091?pwd=QnY2UE41NVhNaW1KeS9IS3hKcnBmdz09

Meeting ID: 873 2768 5091

Passcode: 837504

CITY OF BLOOMINGTON
BOARD OF ZONING APPEALS
March 24, 2022 at 5:30 p.m.

❖**Virtual Meeting:**

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Meeting ID: 873 2768 5091

Passcode: 837504

Map Link: https://arcg.is/1H0HbC0

ROLL CALL

APPROVAL OF MINUTES: None at this time

PETITIONS CONTINUED TO: April 21, 2022

V-04-22 **Southern Indiana Medical Park (Staley Signs)**
2810 S. Deborah Dr.
Request: Variance from sign regulation development standards. One request is to allow the installation of one freestanding sign in front of Southern Indiana Medical Park, the other request is to allow the installation of three wayfinding signs within the medical park.
Case Manager: Karina Pazos

PETITIONS:

V-05-22 **Hiren Patel (Overlook on 46, LLC)**
4500 E. 3rd St.
Request: Variance from tree preservation standards.
Case Manager: Eric Greulich

V-06-22 **Jerico Management, LLC**
1111 W. 17th St.
Request: Variance from development standards to allow vehicular drive access to be located on N. Monroe Street.
Case Manager: Karina Pazos

****Next Meeting: April 21, 2022**

Auxiliary aids for people with disabilities are available upon request with adequate notice. Please call 812-349-3429 or e-mail human.rights@bloomington.in.gov.

BLOOMINGTON BOARD OF ZONING APPEALS **CASE #: V-05-22**
STAFF REPORT **DATE: March 24, 2022**
Location: 4500 E. 3rd Street

PETITIONER: Hiren Patel (45 Overlook LLC)
1220 Brookville Way
Indianapolis, IN 46239

CONSULTANT: American Structurepoint (Josh Rodgers)
9025 River Road
Indianapolis, IN 46240

REQUEST: The petitioner is requesting a variance from tree preservation standards.

REPORT: This 10.6 acre property is zoned Mixed-Use Corridor (MC) and located at the southwest corner of E. 3rd St. and State Road 446. The properties to the north are also zoned MC. The properties to the east that are east of State Road 446 are zoned a residential PUD. The properties to the south are zoned as Residential Multifamily (RM) and Residential High Density (RH). The properties to the west are zoned as MC and RH. The property has frontage along E. 3rd Street to the north and S. SR 446 to the east. The site is currently undeveloped and sits vacant. There is a large stand of mature trees in the southeast portion of the site that are subject to the Tree Preservation standards of the UDO.

The petitioner received major site plan approval under case #SP-18-21 for a new 176-unit multifamily development with a separate self-storage facility. However, since the Plan Commission approval, the petitioner has modified the proposed site plan to remove the self-storage facility. As a result of removing the self-storage facility, the site plan must be modified to include a Type 2 buffer yard for the sections of property that are adjacent to commercial uses. The proposed site plan features three multifamily buildings that contain a mix of one and two-bedroom units for a total of 176 units and 236 bedrooms. Approximately 203 parking spaces will be provided within surface parking lots and "on-street" parking spaces on a private driveway through the site. Vehicular access to the site will come from a proposed private driveway that connects through the site from the 3rd Street frontage to the SR 446 frontage. Two new bus shelters will be constructed along the driveway so that Bloomington Transit can serve this development as well as the adjacent multifamily use (Knightridge Apartments) to the south. Bloomington Transit Route #6 currently uses the parking lot of the Knightridge Apartments in order to turn around and with this new development they will be able to use the new private driveway to access 3rd Street/E SR 46 and SR 446 instead of turning around in the Knightridge Apartments parking lot. This new service route through the site was viewed very favorably by Bloomington Transit. The connection of the driveway and site to both 3rd Street and SR 446 was also desired by Emergency Services since it provides two different ways into the site.

The property currently has approximately 44,135 square feet of tree canopy coverage which consists of approximately 9.6% of the property. The UDO requires that 90% of the existing trees be preserved which allows for only 4,413 square feet of disturbance. The proposed internal driveway was shown

at the Plan Commission hearing to go through a portion of the tree preservation area. However, during the review of the grading plans for the project it was determined that it was not possible to construct the driveway through the property and meet the tree preservation standards outlined in Section 20.04.030(i). The petitioner is therefore requesting a variance from the 4,413 square feet of maximum disturbance allowed to allow for an additional 5,716 square feet of disturbance. The petitioner has submitted a proposed 2:1 mitigation plan to offset the requested variance to plant an additional 11,432 square foot area. The existing stand of trees bisects the property in the southeast portion of the site and due to its location, it is not possible to construct the driveway through the site without encroaching into the required preservation area. The proposed driveway has been located as far from the trees as possible and the driveway was approved to only have a sidewalk along the south side of the road in order to minimize disturbance to the extent practical.

CRITERIA AND FINDINGS FOR DEVELOPMENT STANDARDS VARIANCE

20.06.080(b)(3)(E) Standards for Granting Variances from Development Standards:

A variance from the development standards of the Unified Development Ordinance may be approved only upon determination in writing that each of the following criteria is met:

1) *The approval will not be injurious to the public health, safety, morals, and general welfare of the community.*

   PROPOSED FINDING:

   The granting of the variance to allow disturbance within the tree preservation area will allow for a through connection of the site by the driveway which greatly increases public health and safety. The planting of additional trees to offset the requested variance will increase the morals and general welfare of the community.

2) *The use and value of the area adjacent to the property included in the Development Standards Variance will not be affected in a substantially adverse manner.*

   PROPOSED FINDING:

   No adverse impacts to the use and value of surrounding properties as a result of the requested variance are found. In contrast, the granting of the variance would allow for better access for Bloomington Transit users and thereby increasing use of public transit. This would improve the use and value of the areas adjacent to the property.

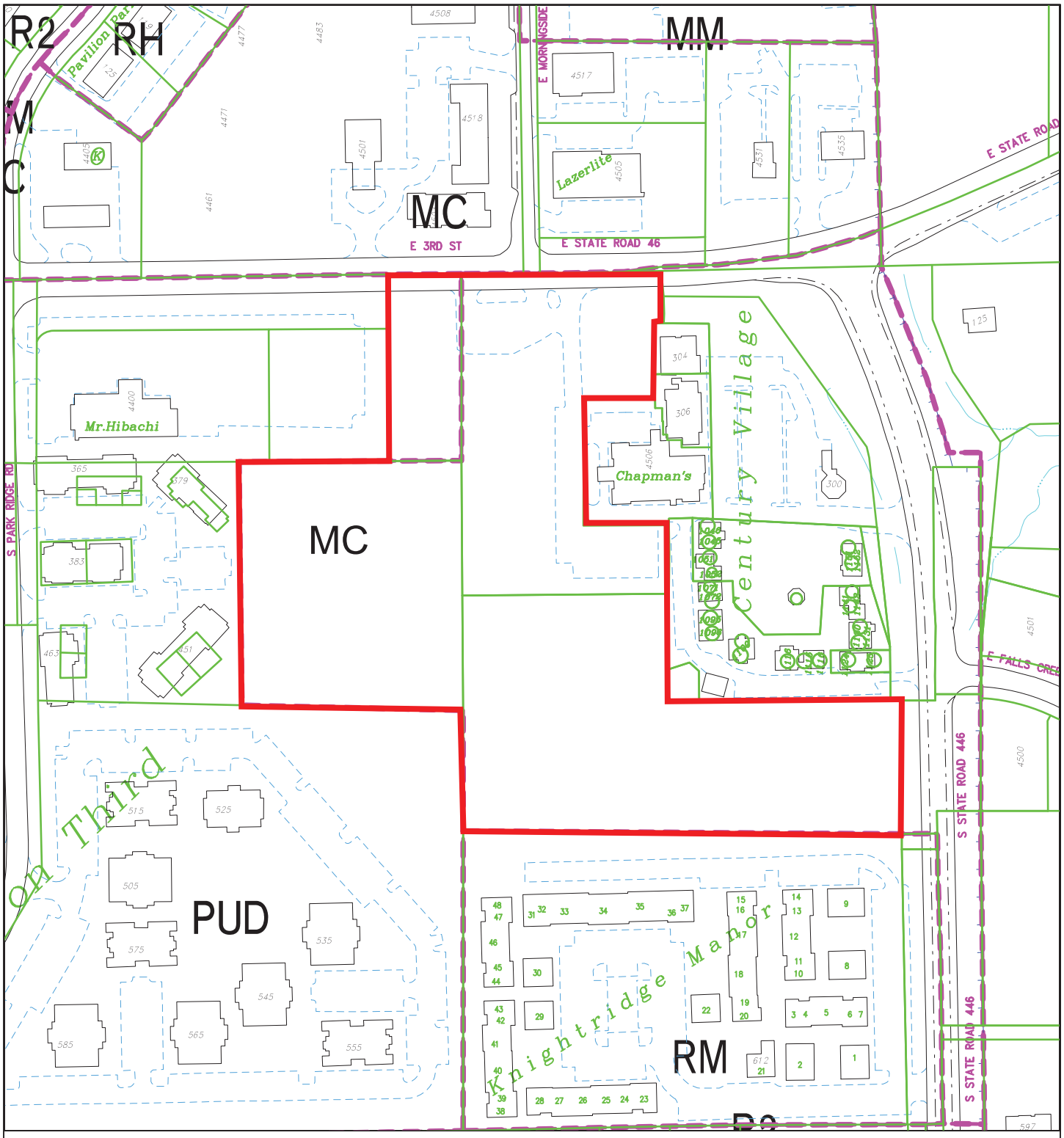
3) *The strict application of the terms of the Unified Development Ordinance will result in practical difficulties in the use of the property; that the practical difficulties are peculiar to the property in question; that the Development Standards Variance will relieve the practical difficulties.*

   PROPOSED FINDING:

The Department finds that the strict application of the terms of the Unified Development Ordinance will result in practical difficulties in the use of the property as they would not allow for the driveway to connect through the property to connect to the adjacent road frontages. The practical difficulties are peculiar to the property in question because the location of the stand of trees bisects the property and does not allow for any connection through that area to be able to meet the tree preservation standards, and the connection is common and desired. The petitioner has designed the road profile and location to minimize the amount of disturbance required. The construction of the road through the site greatly increases accessibility to public transit services to the area as well as improves access to the site by emergency services. The granting of the variance allows for the road to be constructed through the site, which benefits both the residents of this site as well as residents to the south and the community as a whole.

RECOMMENDATION: The Department recommends that the Board of Zoning Appeals adopt the proposed findings and approve V-05-22 with the following condition:

1. This variance is for the driveway location and cross section as submitted. Any new road design or placement will require a new variance.
2. All trees shown for mitigation must be planted prior to recommendation of issuance of final occupancy.
3. All trees shown for mitigation must be a minimum of 2” DBH.
4. A tree preservation easement is required for the area to be preserved, including the mitigation area. This must be recorded prior to recommendation of issuance of final occupancy.



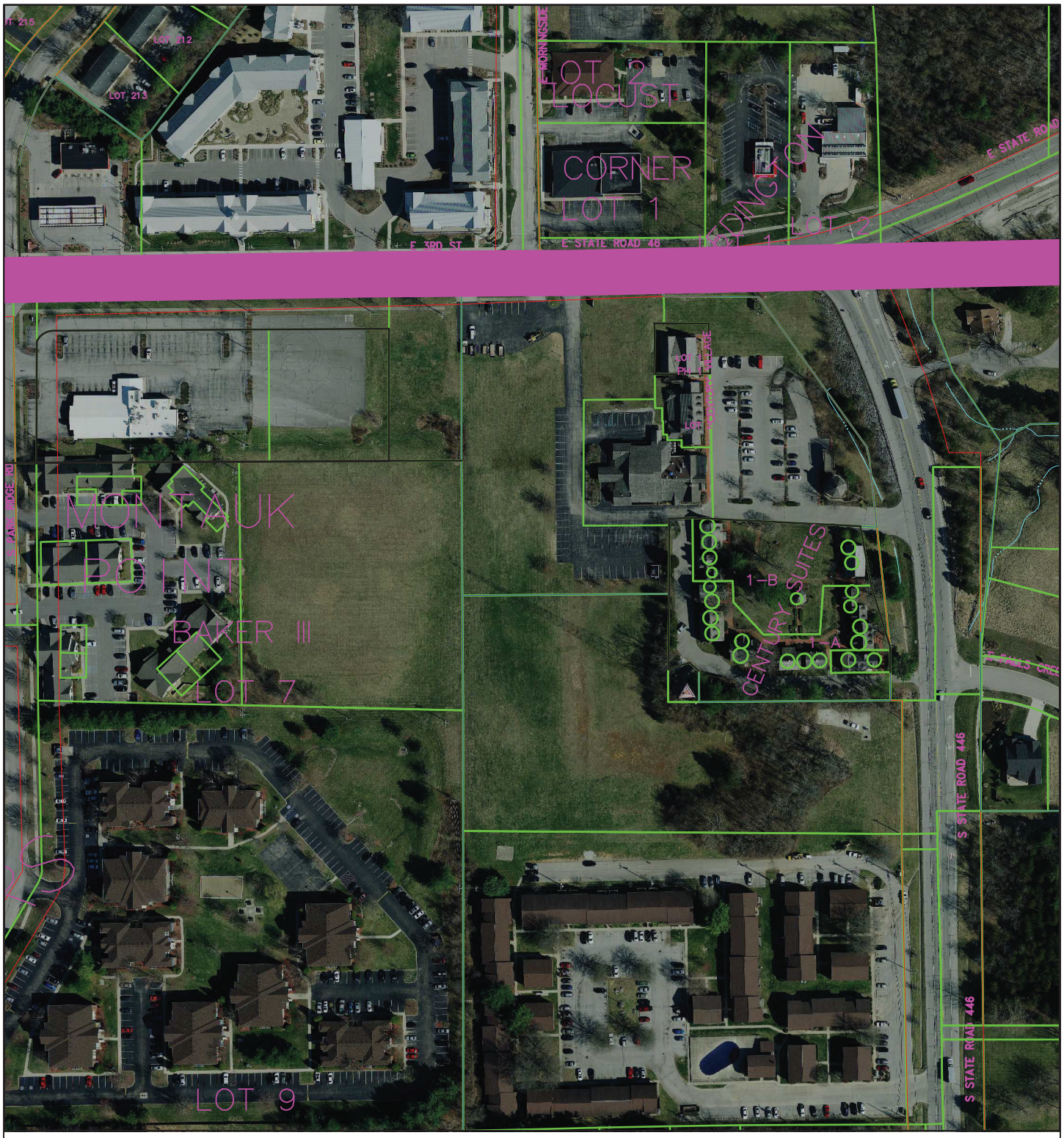
City of Bloomington

By: keegan.gulick
10 Sep 21

200 0 200 400 600

Scale: 1" = 200'

For reference only; map information NOT warranted.



City of Bloomington
Planning

By: keegan.gulick
10 Sep 21

200 0 200 400 600

Scale: 1" = 200'

For reference only; map information NOT warranted.

AMERICAN STRUCTUREPOINT INC.

9025 RIVER ROAD, SUITE 200
INDIANAPOLIS, INDIANA 46240
TEL 317.547.5580
FAX 317.543.0270

February 24th, 2022

Mr. Eric Greulich
City of Bloomington
Planning & Transportation
401 N Morton St Suite 130
Bloomington IN 47404

Re: Board of Zoning Adjustments – Variance Request - Petitioner's Statement

Mr. Greulich,

On behalf of Overlook on 46, LLC, we are pleased to submit the following packet for a Variance of Development Standard 20.04.030.i.2 Retention of Existing Canopy. Overlook on 46 is a proposed multi-family development zoned MC at the southwest corner of the intersection of SR 46 & SR446. Adjacent to the site is the former Chapmans Restaurant & Century Village Suites. Montauk point sits to the west of the site. The site is approximately 10.6 acres with an existing canopy coverage of 44,132 SF as calculated via surveyed drip line. This results in an existing baseline Tree Canopy cover of 9.6%.

In this instance, section 20.04.030.i.2 permits a removal of up to 10% of the existing baseline coverage or 4,413 SF. Overlook on 46, LLC is proposing to remove 10,129 SF of the existing canopy which is 5,716 SF above the permitted removal area. The removal of the excess area is primarily due to grading requirements, necessary stormwater conveyance extensions, and overall constructability of the proposed infrastructure.

Overlook on 46, LLC is proposing to mitigate the excess removal by planting new hardwood & native species at a ratio of 2:1 for a mitigation area of at least 11,432 SF. The proposed area strives to reestablish the excess area removed as well as add to the canopy by filling in areas adjacent to the existing canopy.

The approval of this variance will allow for increased established canopy adding environmental value to the site. While every effort has been made to preserve the trees on this site the practical constraints of construction require the removal of areas above and beyond the maximum permitted. The construction plans provided with this letter illustrate and provide detail for the proposed plantings. Thank you for your consideration.

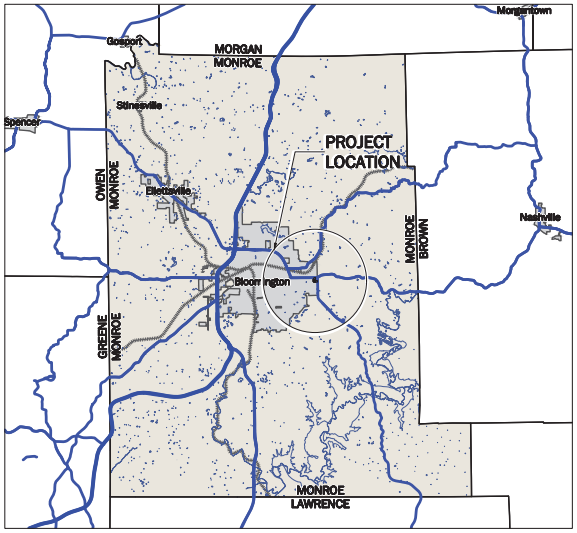
AMERICAN
STRUCTUREPOINT
INC.

9025 RIVER ROAD, SUITE 200
INDIANAPOLIS, INDIANA 46240
TEL 317.547.5580
FAX 317.543.0270

Very truly yours,
American Structurepoint, Inc.

Josh Rodgers, PE

CONSTRUCTION PLANS
FOR
OVERLOOK ON 46
E. 3RD STREET & SR 446
BLOOMINGTON, IN



LOCATION MAP
NOT TO SCALE

VICINITY MAP
NOT TO SCALE

Br	Brookston silty clay loam, 0 to 2 percent slopes
CrA	Crosby silt loam, 0 to 2 percent slopes

SOILS MAP
NOT TO SCALE

FEMA MAP
NOT TO SCALE

INDEX

DECSRIPTION	SHEET NO.
TITLE SHEET	C001
GENERAL NOTES	C002
SPECIFICATIONS	C003
EXISTING TOPOGRAPHY	C100
DEMOLITON PLAN	C110
OVERALL SITE PLAN	C200
SITE PLAN	C201
SITE PLAN	C202
SITE PLAN	C203
SITE PLAN	C204
SITE PLAN	C205
OVERALL GRADING PLAN	C300
GRADING PLAN	C301
GRADING PLAN	C302
GRADING PLAN	C303
GRADING PLAN	C304
GRADING PLAN	C305
STORM STRUCTURE DATA TABLE	C310
OVERALL UTILITY PLAN	C400
UTILITY PLAN	C401
UTILITY PLAN	C402
UTILITY PLAN	C403
UTILITY PLAN	C404
UTILITY PLAN	C405
STORM PLAN AND PROFILES	C410
STORM PLAN AND PROFILES	C411
STORM PLAN AND PROFILES	C412
STORM PLAN AND PROFILES	C413
STORM PLAN AND PROFILES	C414
STORM PLAN AND PROFILES	C415
STORM PLAN AND PROFILES	C416
SANITARY PLAN AND PROFILES	C420
SANITARY PLAN AND PROFILES	C421
WATER PLAN AND PROFILES	C430
WATER PLAN AND PROFILES	C431
EROSION CONTROL PLAN	C500
STORMWATER POLLUTION PREVENTION PLAN	C510
EROSION CONTROL DETAILS	C520
EROSION CONTROL DETAILS	C521
SITE DETAILS	C600
SITE DETAILS	C601
SITE DETAILS	C602
SITE DETAILS	C603
SITE DETAILS	C604
SITE DETAILS	C605
SITE DETAILS	C606
OVERALL LANDSCAPE	L100
NE LANDSCAPE	L101
NW LANDSCAPE	L102
SW LANDSCAPE	L103
SC LANDSCAPE	L104
SE LANDSCAPE	L105
LANDSCAPE DETAILS	L110

UTILITY CONTACTS

UTILITY	COMPANY	CONTACT	PHONE NO.
CABLE TELEVISION	COMCAST	SCOTT TEMPLETON	(317) 516-2356
ELECTRIC	DUKE ENERGY	PRESLEY PAGE	(812) 375-2020
FIBER OPTIC	AT&T	RUSS OWEN	(XXX) XXX-XXXX
GAS	VECTREN	JONATHAN EASTHAM	(317) 776-5573
SANITARY SEWER	CITY OF BLOOMINGTON UTILITIES	TROY POWELL	(812) 349-3632
STORM SEWER	CITY OF BLOOMINGTON UTILITIES	PHIL PEDEN	(812) 349-3634
TELEPHONE	AT&T	RUSS OWEN	(XXX) XXX-XXXX
WATER	CITY OF BLOOMINGTON UTILITIES	TROY POWELL	(812) 349-3632

(REV. 06/29/21)

GENERAL NOTES:

1. CONTRACTOR SHALL PROTECT AND NOT DESTROY THE PROPERTY CORNER MONUMENTS DURING CONSTRUCTION.
2. CONTRACTOR TO VERIFY LOCATION, SIZE AND DEPTH OF EXISTING UTILITIES PRIOR TO COMMENCING ANY CONSTRUCTION. CONTACT ENGINEER IF VARIATION EXISTS.
3. SEE SHEET C002 GENERAL NOTES FOR MORE INFORMATION.

!! CAUTION !!

THE LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE BASED UPON ABOVE GROUND EVIDENCE (including, but not limited to, manholes, inlets, valves, and marks made upon the ground by others) AND ARE SPECULATIVE IN NATURE. THERE MAY ALSO BE OTHER EXISTING UNDERGROUND UTILITIES FOR WHICH THERE IS NO ABOVE GROUND EVIDENCE OR FOR WHICH NO ABOVE GROUND EVIDENCE WAS OBSERVED. THE EXACT LOCATIONS OF SAID EXISTING UNDERGROUND UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO ANY AND ALL CONSTRUCTION.

CALL TOLL FREE
"811" OR 1-800-382-5544
– INDIANA UNDERGROUND –

MHG HOTELS, LLC

AMERICAN STRUCTUREPOINT INC
9025 River Road, Suite 200 | Indianapolis, Indiana 46240
TEL 317.547.5580 | FAX 317.543.0270
www.structurepoint.com

OVERLOOK ON 46 & CENTURY VILLAGE STORAGE

Bloomington, IN

APPROVAL PENDING
NOT FOR CONSTRUCTION
IN SUBMITTING BIDS IN RELIANCE ON THESE PLANS THE CONTRACTOR ASSUMES ALL RISKS OF ADDITIONAL COSTS OF REVISIONS DUE TO REQUIREMENTS OF THE OWNER OR GOVERNMENTAL AUTHORITIES AND MATERIAL REVISIONS IN THE COURSE OF COMPLETING THE FINAL DESIGN.

CERTIFIED BY

ISSUANCE INDEX
DATE:
11/02/2021
PROJECT PHASE:
PRELIMINARY DOCUMENTS

REVISION SCHEDULE		
NO.	DESCRIPTION	DATE
1	CITY COMMENTS	01/07/22
2	CBU/INDOT COMMENTS	01/28/22
3	DETENTION COORDINATION	02/07/22
4	UTILITY COORD./TREE PRESERVATION	02/24/22

Project Number 2020.01173

TITLE SHEET

C001 10

PLOT DATE: 2/24/2022 10:54 AM
PLOT SCALE: 1:2.5859 EDIT DATE: 2/24/2022 ENTERED BY: JRODGERS DRAWING FILE: P:\2020\01173\D. Drawings\CivilCad\Construction Documents\C000.01173.CS.C001.TS.dwg

GENERAL NOTES

1. ALL WORK TO CONFORM TO STATE AND LOCAL REGULATIONS.
2. CONTRACTOR SHALL KEEP ADJOINING PROPERTIES CLEAN OF CONSTRUCTION DEBRIS AND CONSTRUCTION TRAFFIC AT ALL TIMES.
3. THE CONTRACTOR SHALL PROTECT AND NOT DESTROY THE BASE SURVEY CONTROL POINTS DURING DEMOLITION AND CONSTRUCTION.
4. ALL UTILITY INFORMATION SHALL BE VERIFIED BY THE CONTRACTOR. CONTACT ENGINEER IMMEDIATELY IF ANY VARIATION EXISTS.
5. MAINTAIN EXISTING UTILITIES TO REMAIN IN SERVICE AND PROTECT AGAINST DAMAGE DURING DEMOLITION AND CONSTRUCTION OPERATIONS.
6. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FIELD DIMENSIONS. IF ANY DISCREPANCIES ARE FOUND IN THESE PLANS FROM ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY.

EXISTING TOPOGRAPHY NOTES

1. EXISTING TOPOGRAPHY IS PROVIDED BY: SMITH BREHOB & ASSOCIATES, INC., PROJECT: FOUNTAIN SQUARE 4500 E. 3RD STREET DATED: 05/16/2018

DEMOLITION NOTES

1. CLEAR AND GRUB ALL TREES AND VEGETATION NECESSARY FOR CONSTRUCTION.
2. PROTECT TREES TO REMAIN DURING CONSTRUCTION.
3. PLANT MATERIALS TO REMAIN, TO BE PROTECTED BY TREE FENCE WHICH ENCOMPASSES IT'S DRIP LINE. NO CONSTRUCTION EQUIPMENT, MATERIALS OR DEBRIS SHALL BE LOCATED WITHIN TREE PROTECTION BOUNDARIES. NO DEMOLITION CAN OCCUR UNTIL TREE PROTECTION IS APPROVED BY THE OWNER.
4. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING STRUCTURES, FENCES, CONCRETE, ASPHALT PAVEMENT AND OTHER MISCELLANEOUS APPURTENANCES OFF SITE, UNLESS NOTED TO REMAIN ON THE CONTRACT DRAWINGS.
5. DEMOLISH FOUNDATIONS AND OTHER BELOW-GRADE CONSTRUCTION, INCLUDING CONCRETE SLABS, TO A DEPTH OF NOT LESS THAN 48 INCHES BELOW LOWEST FOUNDATION LEVEL.
6. COMPLETELY FILL BELOW-GRADE AREAS AND VOIDS RESULTING FROM DEMOLITION OF STRUCTURES, WITH COMPACTED GRANULAR BACKFILL.
7. THE USE OF ANY TYPE OF EXPLOSIVES WILL NOT BE PERMITTED.
8. CONDUCT DEMOLITION AND CONSTRUCTION OPERATIONS TO ENSURE MINIMAL INTERFERENCE WITH STREETS, WALKS AND OTHER ADJACENT OCCUPIED FACILITIES.
9. DO NOT CLOSE OR OBSTRUCT STREETS, WALKS OR OTHER OCCUPIED FACILITIES WITHOUT PERMISSION FROM THE LOCAL AUTHORITIES HAVING JURISDICTION. PROVIDE ALTERNATE ROUTES AROUND CLOSED OR OBSTRUCTED TRAFFIC WAYS, IF REQUIRED BY GOVERNING AUTHORITIES.
10. ENSURE SAFE PASSAGE OF PERSONS AROUND AREAS OF DEMOLITION AND CONSTRUCTION. CONDUCT OPERATIONS TO PREVENT DAMAGE TO ADJACENT STRUCTURES AND OTHER FACILITIES AND INJURY TO PERSONS.
11. PROMPTLY REPAIR DAMAGE TO ADJACENT FACILITIES CAUSED BY DEMOLITION AND CONSTRUCTION OPERATIONS.
12. ALL UTILITIES TO BE REMOVED SHALL BE DISCONNECTED AND CAPPED AT THE NEAREST CONNECTION POINT.
13. NO ON-SITE BURNING IS PERMITTED.
14. CONTRACTOR SHALL USE MEASURES TO CONTROL DUST AT ALL TIMES.
15. DEMOLITION ITEMS INCLUDE BUT ARE NOT LIMITED TO DEMOLITION ITEMS INDICATED ON THIS PLAN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REMOVE OR RELOCATE ITEMS WHICH INTERFERE WITH NEW CONSTRUCTION.
16. ALL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO COMMENCING DEMOLITION.

SITE NOTES

1. ALL PARKING STRIPES ARE TO BE 4" PAINTED (WHITE). ADA ACCESSIBLE PARKING STRIPES SHALL BE 4" PAINTED (BLUE).
2. ALL DIMENSIONS ARE TO THE EDGE OF PAVEMENT OR FACE OF CURB, UNLESS NOTED OTHERWISE.
3. ALL DIMENSIONS ARE TO FACE OF BRICK OR FACING MATERIAL, WHERE APPLICABLE.
4. ALL DIMENSIONS ARE PARALLEL WITH, OR PERPENDICULAR TO BASE LINES, PROPERTY LINES OR BUILDING LINES, UNLESS OTHERWISE NOTED.
5. PROVIDE SMOOTH TRANSITIONS FROM NEW AREAS TO EXISTING FEATURES AS NECESSARY.
6. RESURFACE OR RECONSTRUCT AT LEAST TO ORIGINAL CONDITIONS ALL AREAS WHERE THE EXISTING PAVEMENT OR LAWNS ARE DAMAGED DURING CONSTRUCTION FROM TRAFFIC BY CONTRACTORS, SUBCONTRACTORS OR SUPPLIERS AFTER CONSTRUCTION WORK IS COMPLETE.
7. EXISTING PAVEMENT TO BE SAW CUT IN ALL AREAS WHERE INDICATED NEW PAVEMENT TO JOIN EXISTING.
8. THE EDGE OF THE EXISTING ASPHALT PAVEMENT SHALL BE PROPERLY SEALED WITH A TACK COAT MATERIAL IN ALL AREAS WHERE NEW ASPHALT PAVEMENT IS INDICATED TO JOIN EXISTING ASPHALT.
9. CONCRETE SAW CUTTING SHALL BE DONE AS SOON AS POURED CONCRETE HAS CURED AND CAN SUPPORT WEIGHT. PROVIDE A NEAT CUT WHICH IS TRUE IN ALIGNMENT.
10. ALL JOINTS ARE TO CONTINUE THROUGH THE CURB.
11. RADIAL JOINTS SHALL BE NO SHORTER THAN 1.5'.
12. CONTRACTOR SHALL USE A THICKENED EXPANSION JOINT AROUND THE PERIMETER OF ANY BLOCK OUT IN THE CONCRETE PAVING.
13. ALL CONSTRUCTION JOINTS SHALL BE SAWN, CLEANED OF DEBRIS, BLOWN DRY AND IMMEDIATELY SEALED WITH THE APPROPRIATE SEALANT ACCORDING TO MANUFACTURER'S DIRECTIONS.
14. ALL MATERIALS TO BE IN ACCORDANCE WITH LOCAL DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS RELATIVE TO MATERIAL, MIX, PLACEMENT AND WORKMANSHIP.
15. ALL SIDEWALKS SHALL COMPLY WITH ADA STANDARDS. MAXIMUM CROSS SLOPE OF 1:50 AND MAXIMUM LONGITUDINAL SLOPE OF 1:20.
16. CHAMFER ALL ENDS OF CURBS.

GRADING NOTES

1. SITE GRADING SHALL NOT PROCEED UNTIL EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
2. THE EXCAVATING CONTRACTOR MUST TAKE PARTICULAR CARE WHEN EXCAVATING IN AND AROUND EXISTING UTILITY LINES AND EQUIPMENT. VERIFY COVER REQUIREMENTS BY UTILITY CONTRACTORS AND/OR UTILITY COMPANIES SO AS NOT TO CAUSE DAMAGE.
3. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES 72 HOURS BEFORE CONSTRUCTION IS TO START TO VERIFY IF ANY UTILITIES ARE PRESENT ON SITE. ALL VERIFICATIONS (LOCATION, SIZE AND DEPTH), SHALL BE MADE BY THE APPROPRIATE UTILITY COMPANIES. WHEN EXCAVATING AROUND OR OVER EXISTING UTILITIES, THE CONTRACTOR MUST NOTIFY THE UTILITY COMPANY SO A REPRESENTATIVE OF THAT UTILITY COMPANY CAN BE PRESENT TO INSTRUCT AND OBSERVE DURING CONSTRUCTION. SUBCONTRACTORS ARE RESPONSIBLE FOR LOCATIONS OF UTILITIES FOR THEIR OWN WORK.
4. CONTRACTOR TO ADJUST ALL EXISTING SURFACE INFRASTRUCTURE (HYDRANTS, VALVES, HANDHOLES, CASTINGS, IRRIGATION SYSTEM, UTILITY PEDESTALS, ETC.) AS REQUIRED TO MEET PROPOSED GRADE AT HIS/HER OWN COST.
5. AFTER STRIPPING TOPSOIL MATERIAL, PROOFROLL SHALL BE PERFORMED BY A LOADED TANDEM PNEUMATIC TIRE DUMP TRUCK MINIMUM GROSS VEHICLE WEIGHT OF 15 TONS. THE TIRES SHALL BE OPERATED AT INFLATION PRESSURES BETWEEN 70-80 PSI UNLESS OTHERWISE NOTED BY THE GEOTECHINICAL ENGINEER. THE TIRES SHALL BE INFLATED WITH AIR ONLY, NO LIQUID SHALL BE USED. THE PROOFROLL SHALL BE COMPLETED UNDER INSPECTION OF SOILS FIRM TO DETERMINE LOCATIONS OF ANY POCKETS OF UNSUITABLE MATERIAL. THE NECESSITY FOR SUBDRAINS AND/OR REMOVAL OF ANY UNSUITABLE MATERIAL WILL BE DETERMINED AT THE TIME OF CONSTRUCTION.
6. PROVIDE POSITIVE DRAINAGE WITHOUT PONDING IN ALL AREAS. AFTER INSTALLATION, CONTRACTOR TO TEST FOR, AND CORRECT, IF ANY, STANDING WATER CONDITIONS.
7. ALL PROPOSED SPOT ELEVATIONS OR CONTOURS ARE THE FINAL PAVEMENT AND FINAL GRADE ELEVATIONS.
8. SEE APPROPRIATE DETAILS TO DETERMINE SUBGRADE ELEVATIONS BELOW FINISH GRADE ELEVATIONS INDICATED.
9. TRENCHES FOR ALL STORM DRAIN LINES SHALL BE BACKFILLED COMPLETELY WITH SELECT GRANULAR MATERIAL IF WITHIN 5 FEET OF PAVEMENT.
10. CONTRACTOR TO PERPETUATE ANY SUBSURFACE DRAIN TILES OR PIPES ENCOUNTERED DURING CONSTRUCTION AND PROVIDE POSITIVE OUTLET TO DOWNSTREAM RECEIVING SYSTEM. CONTRACTOR TO NOTIFY THE ENGINEER WITH ANY CIRCUMSTANCES WHERE THIS CANNOT BE ACCOMPLISHED.
11. DUE TO SITE CONSTRAINTS, THE EARTHWORK FOR THE SITE AS DESIGNED MAY OR MAY NOT BALANCE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW THE EXISTING CONDITIONS AND INCLUDE IN THEIR BID ALL EARTHWORK COSTS INCLUDING IMPORTS AND/OR EXPORTS NECESSARY TO MAKE THE SITE BALANCE.
12. CONTRACTOR TO STABILIZE EXPOSED EARTH AS INDICATED BY THE STORMWATER POLLUTION PREVENTION PLAN OR GOVERNING AUTHORITY.

UTILITY NOTES

1. SITE UTILITIES SHALL NOT PROCEED UNTIL EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
2. THE EXCAVATING CONTRACTOR MUST TAKE PARTICULAR CARE WHEN EXCAVATING IN AND AROUND EXISTING UTILITY LINES AND EQUIPMENT. VERIFY COVER REQUIREMENTS BY UTILITY CONTRACTORS AND/OR UTILITY COMPANIES SO AS NOT TO CAUSE DAMAGE.
3. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES 72 HOURS BEFORE CONSTRUCTION IS TO START TO VERIFY IF ANY UTILITIES ARE PRESENT ON SITE. ALL VERIFICATIONS (LOCATION, SIZE AND DEPTH), SHALL BE MADE BY THE APPROPRIATE UTILITY COMPANIES. WHEN EXCAVATING AROUND OR OVER EXISTING UTILITIES, THE CONTRACTOR MUST NOTIFY THE UTILITY COMPANY SO A REPRESENTATIVE OF THAT UTILITY COMPANY CAN BE PRESENT TO INSTRUCT AND OBSERVE DURING CONSTRUCTION. SUBCONTRACTORS ARE RESPONSIBLE FOR LOCATIONS OF UTILITIES FOR THEIR OWN WORK.
4. CONTRACTOR TO ADJUST ALL EXISTING SURFACE INFRASTRUCTURE (HYDRANTS, VALVES, HANDHOLES, CASTINGS, IRRIGATION SYSTEM, UTILITY PEDESTALS, ETC.) AS REQUIRED TO MEET PROPOSED GRADE.
5. ALL UTILITY MATERIALS AND INSTALLATION SHALL CONFORM TO LOCAL STANDARDS FOR EACH UTILITY AGENCY HAVING JURISDICTION.
6. TRENCHES FOR ALL UTILITY LINES SHALL BE BACKFILLED COMPLETELY WITH SELECT GRANULAR MATERIAL IF THE TOP OF THE TRENCH IS WITHIN 5 FEET OF PAVEMENT.
7. CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES AND CONDUITS TO AVOID CONFLICTS AND PROVIDE REQUIRED MINIMUM DEPTHS OF COVER. THE CONTRACTOR SHALL PROVIDE ANY ADDITIONAL BENDS WITH THRUST BLOCKS REQUIRED TO ASSURE PROPER INSTALLATION OF WATER MAINS AND LATERALS.
8. IN THE EVENT OF A CONFLICT BETWEEN WATER LINES AND STORM DRAINS, THE CONTRACTOR SHALL EITHER ADJUST THE WATER LINE DOWNWARD IN SUCH A MANNER SO THAT THE PIPE MANUFACTURER'S RECOMMENDATIONS ON PIPE DEFLECTION AND JOINT STRESS ARE NOT EXCEEDED OR THE CONTRACTOR SHALL PROVIDE APPROPRIATE BENDS AND CROSSINGS.
9. ALL COORDINATES AND DIMENSIONS ARE TO THE CENTERLINE OF UTILITIES AND STRUCTURES.
10. ALL PROPOSED STORM SEWER AND DRAINAGE APPURTENANCES SHALL BE IN CONFORMANCE WITH THE CITY OF BLOOMINGTON STORMWATER SPECIFICATIONS, LATEST EDITION. DISCREPANCIES BETWEEN THE PLANS AND THE STORMWATER SPECIFICATIONS SHALL NOT ALLEVIATE THE CONTRACTOR FROM ADHERING TO THE REQUIREMENTS AS SET FORTH IN THE STORMWATER SPECIFICATIONS.

EROSION CONTROL NOTES

1. CONTRACTOR SHALL INSTALL ALL PERIMETER SILT FENCE AND SEDIMENT CONTROL BARRIERS PRIOR TO CLEARING AND GRADING.
2. THIS PLAN SHALL NOT BE CONSIDERED ALL INCLUSIVE AS THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SOIL SEDIMENT FROM LEAVING THE SITE.
3. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IF DEEMED NECESSARY BY ON SITE INSPECTION.
4. LAND ALTERATION WHICH STRIPS THE LAND OF VEGETATION, INCLUDING RE-GRADING, SHALL BE DONE IN A WAY THAT WILL MINIMIZE EROSION.
5. SEDIMENT LADEN WATER SHALL BE DETAINED BY EROSION CONTROL PRACTICES AS NEEDED TO MINIMIZE SEDIMENTATION IN RECEIVING WATER. NO STORM WATER SHALL BE DISCHARGED FROM THE SITE IN A MANNER THAT CAUSES EROSION AT THE POINT OF DISCHARGE.
6. WASTE AND UNUSED BUILDING MATERIALS SHALL NOT BE ALLOWED TO BE CARRIED FROM THE SITE BY STORM WATER RUNOFF. PROPER DISPOSAL OF ALL WASTE AND UNUSED BUILDING MATERIALS IS REQUIRED.
7. SEDIMENT BEING TRACKED ONTO PUBLIC OR PRIVATE ROADWAYS SHALL BE MINIMIZED. CLEARING OF ACCUMULATED SEDIMENT SHALL NOT INCLUDE FLUSHING WITH WATER. CLEARED SEDIMENT SHALL BE RETURNED TO THE SITE FOR DISPOSAL.
8. SOIL WHICH HAS ACCUMULATED NEXT TO EROSION CONTROL DEVICES SHALL BE COLLECTED AND RE-DISTRIBUTED ON SITE AFTER EACH RAINFALL EVENT, AND AT LEAST ONCE A WEEK.
9. IF INSTALLATION OF STORM DRAINAGE SYSTEM SHOULD BE INTERRUPTED BY WEATHER OR NIGHTFALL, THE PIPE ENDS SHALL BE COVERED WITH FILTER FABRIC.
10. THE SITE IS NOT LOCATED WITHIN ANY FLOODPLAIN, FLOODWAY OR FLOODWAY FRINGE AS INDICATED ON THE FLOOD INSURANCE RATE MAP (FIRM) FOR MONROE COUNTY, IN, MAP NUMBER 18105C0161D DATED DECEMBER 17, 2010.
11. SCHEDULE OF EARTHWORK ACTIVITIES:
    a. THE DURATION OF TIME WHICH AN AREA REMAINS EXPOSED SHALL BE KEPT TO A PRACTICAL MINIMUM. THE AREA SHALL BE STABILIZED AS SOON AS POSSIBLE. UN-VEGETATED AREAS THAT ARE SCHEDULED OR LIKELY TO BE LEFT INACTIVE FOR FIFTEEN (15) DAYS OR MORE MUST BE TEMPORARILY OR PERMANENTLY STABILIZED WITH MEASURES APPROPRIATE FOR THE SEASON TO MINIMIZE EROSION POTENTIAL. ALTERNATIVE MEASURES TO SITE STABILIZATION ARE ACCEPTABLE IF THE PROJECT SITE OWNER OR THEIR REPRESENTATIVE CAN DEMONSTRATE THEY HAVE IMPLEMENTED EROSION AND SEDIMENT CONTROL MEASURES ADEQUATE TO PREVENT SEDIMENT DISCHARGE.
    b. TOPSOIL REPLACEMENT SHALL TAKE PLACE FROM MARCH 1 TO OCTOBER 31. STOCKPILE TOPSOIL AT ALL OTHER TIMES OF THE YEAR. PERMANENT AND FINAL VEGETATION AND STRUCTURAL EROSION CONTROL DEVICES SHALL BE INSTALLED WITHIN SEVEN (7) DAYS AFTER FINAL GRADING OR AS SOON AS POSSIBLE.
    c. INSTALL INLET PROTECTION AROUND INLETS IMMEDIATELY UPON COMPLETION OF THE STRUCTURE. REMOVE INLET PROTECTION FOR PAVING OPERATION. REPLACE INLET PROTECTION AFTER PAVING IS COMPLETE. INLET PROTECTION SHALL REMAIN IN PLACE UNTIL VEGETATION IS ESTABLISHED ON SEEDED AREAS BEHIND THE CURB.
12. PRIOR TO COMPLETION OF THE PROJECT, CONTRACTOR SHALL CLEAN OUT ALL STORM DRAINAGE STRUCTURES AND RESTORE ALL DITCHES AND PONDS TO DESIGNED GRADES.
13. CONTRACTOR SHALL REMOVE ALL SEDIMENT CONTROL BARRIERS ONCE CONSTRUCTION IS COMPLETE AND THE SITE HAS BEEN STABILIZED.
14. ALL PROPOSED EROSION AND SEDIMENT CONTROL SHALL BE IN CONFORMANCE WITH THE CITY OF BLOOMINGTON STORMWATER SPECIFICATIONS, LATEST EDITION. DISCREPANCIES BETWEEN THE PLANS AND THE STORMWATER SPECIFICATIONS SHALL NOT ALLEVIATE THE CONTRACTOR FROM ADHERING TO THE REQUIREMENTS AS SET FORTH IN THE STORMWATER SPECIFICATIONS.
15. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES MAY BE REQUIRED BY THE INSPECTOR.

UTILITY CONTACTS

UTILITY	COMPANY	CONTACT	PHONE NO.
CABLE TELEVISION	COMCAST	SCOTT TEMPLETON	(317) 516-2356
ELECTRIC	DUKE ENERGY	PRESLEY PAGE	(812) 375-2020
FIBER OPTIC	AT&T	RUSS OWEN	(XXX) XXX-XXXX
GAS	VECTREN	JONATHAN EASTHAM	(317) 776-5573
SANITARY SEWER	CITY OF BLOOMINGTON UTILITIES	TROY POWELL	(812) 349-3632
STORM SEWER	CITY OF BLOOMINGTON UTILITIES	PHIL PEDEN	(812) 349-3634
TELEPHONE	AT&T	RUSS OWEN	(XXX) XXX-XXXX
WATER	CITY OF BLOOMINGTON UTILITIES	TROY POWELL	(812) 349-3632

(REV. 06/29/21)

EXISTING LEGEND

- Clean Out
- Combination Pole
- Curb Inlet
- Drainage Inlet
- Drainage MH
- Electric Box
- Electric Handhole
- Electric Meter Box
- Fire Hydrant
- Fire Plug
- FVSO Fire Valve Shut Off
- GV Gas Valve
- WV Water Valve
- Yard Light
- —e— Buried Electric Line
- Transformer
- Tree
- ADA Parking
- Light Pole
- Mail Box
- Manhole
- Pine Tree
- Post
- Power Pole
- Right of Way Marker
- Sanitary MH
- Sign
- Stand Pipe
- Sub Surface Drain
- Telephone Box
- Telephone Handhole
- Telephone MH
- Telephone Pedestal
- Traffic MH
- —w— Buried Water Line

BENCHMARK DATA

(DATUM: NAVD 88)

TBM – CUT 'X'
N:1426808.523
E:3125390.779
EL=863.29

GEOTECHNICAL & ENVIRONMENTAL NOTE:

1. CONTRACTOR SHALL REFER TO THE GEOTECHNICAL ENGINEERING REPORT FOR INFORMATION ABOUT SOIL CONDITIONS.
2. CONTRACTOR SHALL REFER TO THE ENVIRONMENTAL REPORT FOR INFORMATION ON ENVIRONMENTAL FINDINGS ON THE SITE.

GENERAL NOTES:

1. CONTRACTOR SHALL PROTECT AND NOT DESTROY THE PROPERTY CORNER MONUMENTS DURING CONSTRUCTION.
2. CONTRACTOR TO VERIFY LOCATION, SIZE AND DEPTH OF EXISTING UTILITIES PRIOR TO COMMENCING ANY CONSTRUCTION. CONTACT ENGINEER IF VARIATION EXISTS.
3. SEE SHEET C002 GENERAL NOTES FOR MORE INFORMATION.

!! CAUTION !!

THE LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE BASED UPON ABOVE GROUND EVIDENCE (including, but not limited to, manholes, inlets, valves, and marks made upon the ground by others) AND ARE SPECULATIVE IN NATURE. THERE MAY ALSO BE OTHER EXISTING UNDERGROUND UTILITIES FOR WHICH THERE IS NO ABOVE GROUND EVIDENCE OR FOR WHICH NO ABOVE GROUND EVIDENCE WAS OBSERVED. THE EXACT LOCATIONS OF SAID EXISTING UNDERGROUND UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO ANY AND ALL CONSTRUCTION.

CALL TOLL FREE
"811" OR 1-800-382-5544
– INDIANA UNDERGROUND –

MHG HOTELS, LLC

AMERICAN STRUCTUREPOINT INC.
9025 River Road, Suite 200 | Indianapolis, Indiana 46240
TEL 317.547.5580 | FAX 317.543.0270
www.structurepoint.com

OVERLOOK ON 46 & CENTURY VILLAGE STORAGE

Bloomington, IN

APPROVAL PENDING
NOT FOR CONSTRUCTION
IN SUBMITTING BIDS IN RELIANCE ON THESE PLANS THE CONTRACTOR ASSUMES ALL RISKS OF ADDITIONAL COSTS OF REVISIONS DUE TO REQUIREMENTS OF THE OWNER OR GOVERNMENTAL AUTHORITIES AND MATERIAL REVISIONS IN THE COURSE OF COMPLETING THE FINAL DESIGN.

CERTIFIED BY

ISSUANCE INDEX
DATE:
11/02/2021
PROJECT PHASE:
PRELIMINARY DOCUMENTS

REVISION SCHEDULE		
NO.	DESCRIPTION	DATE
1	CITY COMMENTS	01/07/22
2	CBU/INDOT COMMENTS	01/28/22

Project Number 2020.01173

GENERAL NOTES

PLOT DATE: 1/28/2022 3:15 PM
PLOT SCALE: 1:2.5849
EDIT DATE: 1/4/2022
EDITED BY: KBRIGHT
DRAWING FILE: P:\2020\01173\D. Drawings\Civil\Construction Documents\2020.01173.CE.C002.GN.dwg

EARTHWORK:

A. GENERAL

1. EARTHWORK INCLUDES CLEARING, GRUBBING, SUBGRADE PREPARATION, REMOVAL OF TREES AND VEGETATION (INCLUDING STUMPS), PROTECTION OF TREES TO REMAIN, STRIPPING AND STORAGE OF TOPSOIL, FILL COMPACTION AND ROUGH GRADING OF ENTIRE SITE AS INDICATED ON DRAWINGS.

2. THE CONTRACTOR SHALL NOTIFY ENGINEER IN WRITING OF ANY CHANGES, ERRORS, OR OMISSIONS FOUND ON THE PLANS OR IN THE FIELD, BEFORE WORK IS STARTED OR RESUMED.

3. CONTRACTOR SHALL PROVIDE AND PLACE ANY ADDITIONAL FILL MATERIAL FROM OFF THE SITE AS MAY BE NECESSARY TO PRODUCE THE GRADES REQUIRED AS SHOWN ON THE DRAWINGS. FILL OBTAINED FROM OFF SITE MUST BE SUITABLE SOIL AS DEFINED IN THE SPECIFICATIONS OR AS OTHERWISE APPROVED BY OWNER.

4. THE CONTRACTOR SHALL ACCEPT THE SITE IN ITS CURRENT STATE AND SHALL REMOVE ALL TRASH, RUBBISH, AND DEBRIS FROM THE SITE PRIOR TO STARTING EXCAVATION.

5. EXCEPT FOR STRIPPED TOPSOIL AND OTHER MATERIALS INDICATED TO BE STOCKPILED OR OTHERWISE REMAIN OWNER'S PROPERTY, CLEARED MATERIALS SHALL BECOME CONTRACTOR'S PROPERTY AND SHALL BE REMOVED FROM PROJECT SITE.

6. DO NOT CLOSE OR OBSTRUCT STREETS, WALKS, DRIVES, FACILITIES, ETC. WITHOUT OWNER PERMISSION OR AUTHORITY HAVING JURISDICTION.

7. ALL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO COMMENCING EARTHWORK AND CLEARING OPERATIONS. EROSION CONTROL MEASURES SHOULD BE PROTECTED AND MAINTAINED THROUGHOUT CONSTRUCTION.

8. CONTRACTOR SHALL CAREFULLY MAINTAIN ALL BENCHMARKS, MONUMENTS, AND OTHER REFERENCE POINTS. IF DISTURBED, CONTRACTOR SHALL ENGAGE LICENSED LAND SURVEY FOR REPLACEMENT OF REFERENCE POINTS.

9. WHERE THESE SPECIFICATIONS CONFLICT WITH CITY OF BLOOMINGTON STANDARDS, THE STANDARDS OF THE JURISDICTION HAVING AUTHORITY SHALL PREVAIL.

B. MATERIALS

1. CONTRACTOR TO PROVIDE BORROW SOIL MATERIALS WHEN SUFFICIENT SATISFACTORY SOIL MATERIALS ARE NOT AVAILABLE FROM EXCAVATIONS.

2. SATISFACTORY (OR SUITABLE) SOILS: SOIL CLASSIFICATION GROUPS GW, GP, GM, SW, SP, AND SM ACCORDING TO ASTM D2487, OR A COMBINATION OF THESE GROUPS; FREE OF ROCK OR GRAVEL LARGER THAN 3 INCHES IN ANY DIMENSION, DEBRIS, WASTE, FROZEN MATERIALS, VEGETATION AND OTHER DELETERIOUS MATERIAL.

3. UNSATISFACTORY (OR UNSUITABLE) SOILS: SOIL CLASSIFICATION GROUPS GC, SC, CL, ML, OL, CH, MH, OH, AND PT ACCORDING TO ASTM D 2487, OR A COMBINATION OF THESE GROUPS. UNSATISFACTORY SOILS ALSO INCLUDES SATISFACTORY SOILS NOT MAINTAINED WITHIN 2 PERCENT OF OPTIMUM MOISTURE CONTENT AT TIME OF COMPACTION.

C. EXECUTION

1. CONTRACTOR SHALL LOCATE, IDENTIFY, DISCONNECT, AND SEAL OR CAP UTILITIES INDICATED TO BE REMOVED OR ABANDONED IN PLACE. DO NOT INTERRUPT UTILITIES SERVING FACILITIES OCCUPIED BY OWNER UNLESS PERMISSION IS GRANTED. NOTIFY OWNER AT LEAST TWO DAYS IN ADVANCE OF PROPOSED UTILITY INTERRUPTIONS.

2. REMOVE OBSTRUCTIONS, TREES, SHRUBS, AND OTHER VEGETATION AS REQUIRED FOR NEW CONSTRUCTION. STRIP TOPSOIL TO DEPTH AS REQUIRED IN THE FIELD TO PREVENT INTERMINGLING WITH UNDERLYING SUBSOIL OR OTHER WASTE MATERIALS. STOCKPILE TOPSOIL AWAY FROM EXCAVATIONS WITHOUT INTERMIXING WITH SUBSOIL AND GRADE STOCKPILES TO DRAIN SURFACE WATER.

3. REMOVE EXISTING ABOVE AND BELOW-GRADE IMPROVEMENTS AS INDICATED AND NECESSARY TO FACILITATE NEW CONSTRUCTION.

4. PROTECT SUBGRADES AND FOUNDATION SOILS FROM FREEZING TEMPERATURES, FROST, AND PONDING WATER.

5. EXCAVATE TO INDICATED ELEVATIONS AND DIMENSIONS FOR ALL STRUCTURES, WALKS, PAVEMENTS, AND UTILITY TRENCHES.

6. CONTRACTOR SHALL FURNISH AND OPERATE ALL DEWATERING MEASURES REQUIRED TO FACILITATE NEW CONSTRUCTION AND IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.

6. PROOF ROLL SUBGRADE BELOW BUILDING PAVEMENTS WITH A PNEUMATIC-TIRED DUMP TRUCK TO IDENTIFY SOFT POCKETS AND AREAS OF EXCESS YIELDING. DO NOT PROOF ROLL WET OR SATURATED SUBGRADES. RECONSTRUCT SUBGRADES DAMAGED BY FREEZING TEMPERATURES, FROST, RAIN, ACCUMULATED WATER, OR CONSTRUCTION ACTIVITIES AS DIRECTED BY ENGINEER OR OWNER REPRESENTATIVE, WITHOUT ADDITIONAL COMPENSATION.

7. BACKFILL ALL UTILITY TRENCHES BENEATH PAVEMENT (AND WITHIN 5') WITH GRANULAR MATERIAL.

8. SOIL FILL: USE SATISFACTORY SOIL MATERIAL UNDER ALL WALKS, PAVEMENTS, STEPS, RAMPS, BUILDING SLABS, FOOTINGS, AND FOUNDATIONS.

9. UNIFORMLY MOISTEN OR AERATE SUBGRADE AND EACH SUBSEQUENT FILL OR BACKFILL SOIL LAYER BEFORE COMPACTION TO WITHIN 2 PERCENT OF OPTIMUM MOISTURE CONTENT. DO NOT PLACE BACKFILL OR FILL SOIL MATERIAL ON SURFACES THAT ARE MUDDY, FROZEN, OR CONTAIN FROST OR ICE. REMOVE AND REPLACE, OR SCARIFY AND AIR DRY, OTHERWISE SATISFACTORY SOIL MATERIAL THAT EXCEEDS OPTIMUM MOISTURE CONTENT BY 2 PERCENT AND IS TOO WET TO COMPACT TO SPECIFIED UNIT WEIGHT.

10. COMPACTION OF SOIL BACKFILLS AND FILLS ARE TO BE IN ACCORDANCE WITH GEOTECHNICAL RECOMMENDATIONS. WHERE NO GEOTECHNICAL REPORT EXISTS, COMPACT ALL FILL MATERIAL BELOW STRUCTURES, PAVEMENTS, WALKS, UTILITY TRENCHES AND STEPS (AND WITHIN 5 FEET OF SAID AREAS) TO 98 PERCENT OF THE MAXIMUM DRY UNIT WEIGHT ACCORDING TO ASTM D-698 (STANDARD PROCTOR DENSITY) . COMPACT ALL FILL MATERIALS BELOW TURF OR UNPAVED AREAS TO 90 PERCENT OF THE MAXIMUM DRY UNIT WEIGHT ACCORDING TO ASTM D-698 (STANDARD PROCTOR DENSITY). ALL FILL MATERIALS TO BE COMPACTED IN MAXIMUM 8-INCH LIFTS.

11. SITE ROUGH GRADING: SLOPE GRADES TO DIRECT WATER AWAY FROM BUILDINGS AND TO PREVENT PONDING. FINISH SUBGRADES TO REQUIRED ELEVATIONS WITHIN THE FOLLOWING TOLERANCES:
   i. TURF OR UNPAVED AREAS: PLUS OR MINUS 1 INCH
   ii. WALKS: PLUS OR MINUS 1/2 INCH.
   iii. PAVEMENTS: PLUS OR MINUS 1/2 INCH
   iv. INSIDE BUILDING LINES: FINISH SUBGRADE TO A TOLERANCE OF 1/2 INCH WHEN TESTED WITH A 10-FOOT STRAIGHTEDGE.

12. QUALITY CONTROL: QUALIFIED GEOTECHNICAL ENGINEER TO BE ENGAGED AS TESTING AGENCY AS DIRECTED BY OWNER.

13. REPAIR AND REESTABLISH GRADES TO SPECIFIED TOLERANCES WHERE COMPLETED OR PARTIALLY COMPLETED SURFACES BECOME ERODED, RUTTED, SETTLED, OR WHERE THEY LOSE COMPACTION DUE TO SUBSEQUENT CONSTRUCTION OPERATIONS OR WEATHER

STORM SEWER:

A. GENERAL

1. STORM SEWER INCLUDES ALL PIPES, FITTINGS, MANHOLES, CLEANOUTS, TRANSITION COUPLINGS, CATCH BASINS, INLETS, END SECTIONS, AND OUTLETS.

2. THE CONTRACTOR SHALL NOTIFY ENGINEER IN WRITING OF ANY CHANGES, ERRORS, OR OMISSIONS FOUND ON THE PLANS OR IN THE FIELD, BEFORE WORK IS STARTED OR RESUMED.

3. CONTRACTOR SHALL LOCATE, IDENTIFY, DISCONNECT, AND SEAL OR CAP UTILITIES INDICATED TO BE REMOVED OR ABANDONED IN PLACE. DO NOT INTERRUPT UTILITIES SERVING FACILITIES OCCUPIED BY OWNER UNLESS PERMISSION IS GRANTED. NOTIFY OWNER AT LEAST TWO DAYS IN ADVANCE OF PROPOSED UTILITY INTERRUPTIONS.

B. PRODUCTS

1. PE PIPE AND FITTINGS: PE DRAINAGE PIPE AND FITTINGS NP 3 TO NPS 10, AASHTO M 252M, TYPE S, WITH SMOOTH WATERWAY FOR COUPLING JOINTS. PE DRAINAGE PIPE AND FITTINGS NPS 12 TO NPS 60, AASHTO M 294M, TYPE S, WITH SMOOTH WATERWAY FOR COUPLING JOINTS.

2. PVC PIPE AND FITTINGS: PIPE: ASTM F 949, PVC, OR ASTM 0-3034, F-1336, F-679, CORRUGATED PIPE WITH BELL AND SPIGOT ENDS FOR GASKETED JOINTS. FITTINGS: ASTM 949, PVC MOLDED OR FABRICATED, SOCKET TYPE. GASKETS: ASTM F 477, ELASTOMERIC SEALS.

3. CONCRETE PIPE AND FITTINGS: REINFORCED CONCRETE SEWER PIPE AND FITTINGS MEETING ASTM C 76 WITH BELL AND SPIGOT ENDS AND GASKETED JOINTS WITH ASTM C 443 RUBBER GASKETS. PIPE TO BE CLASS III UNLESS OTHERWISE INDICATED ON PLANS.

4. COMPLY WITH ASTM C 1173, ELASTOMERIC SLEEVE-TYPE REDUCING OR TRANSITION COUPLING, FOR JOINTING UNDERGROUND NON-PRESSURE PIPING. INCLUDE ENDS OF SAME SIZES AS PIPING TO BE JOINED, AND CORROSION-RESISTANT METAL TENSION BAND AND TIGHTENING MECHANISM ON EACH END.

5. CLEANOUTS: CAST IRON CLEANOUTS: ASME A112.36.2M ROUND, GRAY-IRON HOUSING WITH CLAMPING DEVICE AND ROUND, SECURED, SCORIATED, GRAY-IRON COVER. HEAVY DUTY TOP LOADING IS REQUIRED. PLASTIC CLEANOUTS: PVC BODY WITH PVC THREADED PLUG.

6. MANHOLES AND CATCH BASINS: STANDARD REINFORCED PRECAST CONCRETE MANHOLES MEETING ASTM C 478. MINIMUM 48-INCH DIAMETER UNLESS OTHERWISE INDICATED. BASE SECTION TO BE MINIMUM 6-INCH THICKNESS AND 4-INCH THICKNESS FOR WALLS AND BASE RISER SECTION. REINFORCED CONCRETE GRADE RINGS, 6-9 INCH TOTAL THICKNESS, TO MATCH DIAMETER OF MANHOLE FRAME AND COVER. MANHOLE FRAMES AND COVERS AS INDICATED ON DRAWINGS. PIPE CONNECTORS SHOULD BE PROVIDED TO MEET ASTM C293, RESILIENT, OF SIZE REQUIRED, FOR EACH PIPE CONNECTING TO THE BASE SECTION.

7. CONCRETE: CAST-IN-PLACE CONCRETE ACCORDING TO ACI 318 AND ACI 350/350R AND IN ACCORDANCE WITH THE FOLLOWING:
   i. CEMENT: ASTM C 150, TYPE III
   ii. FINE AGGREGATE: ASTM C 33, SAND
   iii. COARSE AGGREGATE: ASTM C 33, CRUSHED GRAVEL
   iv. WATER: POTABLE

8. PORTLAND CEMENT DESIGN MIX: 4,000 PSI MINIMUM WITH 0.45 MAXIMUM WATER/CEMENTIOUS MATERIALS RATIO. REINFORCING FABRIC TO MEET ASTM A 185/A 185M, STEEL, WELDED WIRE FABRIC, PLAIN. REINFORCING BARS TO MEET ASTM A 615/A 615M, GRADE 60 DEFORMED STEEL.

9. MANHOLE CHANNELS TO BE FORMED WITH AN INVERT SLOPE OF 2 PERCENT THROUGH THE MANHOLE AND BENCHES AT 4 PERCENT, SLOPED TO DRAIN INTO CHANNEL.

10. INLETS: PROVIDE INLETS WITH HEAVY DUTY CASTINGS AS SHOWN ON DRAWINGS.

11. OUTLETS: CONCRETE END SECTION SHOULD BE PROVIDED AT ALL PIPE ENDS AND AS INDICATED ON DRAWINGS. RIP RAP APRONS TO BE INSTALLED AT ALL END SECTIONS TO DIMENSIONS INDICATED. AVERAGE RIP-RAP SIZE TO BE 6-INCHES UNLESS OTHERWISE INDICATED ON DRAWINGS.

STORM SEWER (CONT.):

C. EXECUTION

1. INSTALL PIPING BEGINNING AT LOW POINT, TRUE TO GRADES AND ALIGNMENT INDICATED WITH UNBROKEN CONTINUITY OF INVERT. PLACE BELL ENDS OF PIPING FACING UPSTREAM. INSTALL GASKETS, SEALS, SLEEVES, AND OTHER COUPLINGS ACCORDING TO MANUFACTURERS WRITTEN INSTRUCTIONS.

2. WHEN INSTALLING PIPE UNDER STREETS OR OTHER OBSTRUCTIONS THAT CANNOT BE DISTURBED, USE PIPE-JACKING PROCESS OF MICRO-TUNNELING.

3. INSTALL PIPING PITCHED DOWN IN DIRECTION OF FLOW. INSTALL PE CORRUGATED SEWER PIPING IN ACCORDANCE WITH ASTM D 2231. INSTALL PVC PIPING ACCORDING TO ASTM D 2321 AND ASTM F 1668. INSTALL REINFORCED CONCRETE SEWER PIPING IN ACCORDANCE WITH ASTM C 1479 AND ACPA'S "CONCRETE PIPE INSTALLATION MANUAL."

4. PIPE JOINT CONSTRUCTION: JOIN CORRUGATED PE PIPE ACCORDING TO ASTM D 3212 FOR PUSH ON JOINTS. JOIN PVC CORRUGATED SEWER PIPING IN ACCORDANCE WITH ASTM D 2321 FOR ELASTOMERIC-SEAL JOINTS. JOIN REINFORCED CONCRETE PIPE ACCORDING TO ACPA'S "CONCRETE PIPE INSTALLATION MANUAL" FOR RUBBER-GASKETED JOINTS. JON DISSIMILAR PIPE MATERIALS WITH NON-PRESSURE TYPE FLEXIBLE COUPLINGS.

5. CONTRACTOR TO INSPECT INTERIOR OF PIPING AND MANHOLES FOR DEFECTS. DEFECTS REQUIRING CORRECTION INCLUDE THE FOLLOWING:
   i. ALIGNMENT: LESS THAN FULL DIAMETER OF INSIDE OF PIPE IS VISIBLE BETWEEN STRUCTURES.
   ii. DEFLECTION: FLEXIBLE PIPING WITH DEFLECTION THAT PREVENTS PASSAGE OF BALL OR CYLINDER OF SIZE NOT LESS THAN 92.5 PERCENT OF PIPING DIAMETER.
   iii. DAMAGE: CRUSHED, BROKEN, CRACKED, OR OTHERWISE DAMAGED PIPING.
   iv. INFILTRATION: WATER LEAKAGE INTO PIPING.
   v. EXFILTRATION: WATER LEAKAGE FROM OR AROUND PIPING
   REPLACE DEFECTIVE PIPING USING NEW MATERIALS, AND REPEAT INSPECTION UNTIL DEFECTS ARE WITHIN ALLOWANCES SPECIFIED.

6. TEST NEW PIPING SYSTEMS, AND PARTS OF EXISTING SYSTEMS THAT HAVE BEEN ALTERED, EXTENDED, REPAIRED, FOR LEAKS AND DEFECTS. FOR GRAVITY FLOW STORM DRAINAGE PIPING: TEST ACCORDING TO REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION, UNI-B-6, AND THE FOLLOWING:
   i. EXCEPTION: PIPING WITH SOILTIGHT JOINTS UNLESS REQUIRED BY AUTHORITIES HAVING JURISDICTION.
   ii. OPTION: TEST PLASTIC PIPING ACCORDING TO ASTM F 1417
   iii. OPTION: TEST CONCRETE PIPING ACCORDING TO ASTM C 924

7. SUBMIT TESTING REPORTS AS REQUIRED BY OWNER OR AUTHORITY HAVING JURISDICTION.

ASPHALT PAVING:

A. GENERAL

1. THE CONTRACTOR SHALL NOTIFY ENGINEER IN WRITING OF ANY CHANGES, ERRORS, OR OMISSIONS FOUND ON THE PLANS OR IN THE FIELD, BEFORE WORK IS STARTED OR RESUMED.

2. USE MATERIALS AND GRADATIONS THAT HAVE PERFORMED SATISFACTORILY IN PREVIOUS INSTALLATIONS.

B. PRODUCTS

1. AGGREGATES
   i. COURSE AGGREGATE: ASTM D 692/D92M, SOUND; ANGULAR CRUSHED STONE, CRUSHED GRAVEL, OR CURED, CRUSHED BLAST-FURNACE SLAG.
   ii. FINE AGGREGATE: ASTM D 1073 OR AASHTO M 29, SHARP-EDGED NATURAL SAND OR SAND PREPARED FROM STONE, GRAVEL, CURED BLAST-FURNANCE SLAG, OR COMBINATIONS THEREOF.
      a. FOR HOT-MIX ASPHALT, LIMIT NATURAL SAND TO A MAXIMUM OF 20 PERCENT BY WEIGHT OF THE TOTAL AGGREGATE MASS.
   iii. MINERAL FILLER: ASTM D 242 OR AASHTO M 17, ROCK OR SLAG DUST, HYDRAULIC CEMENT, OR OTHER INERT MATERIAL.

2. ASPHALT MATERIALS
   i. ASPHALT BINDER: AASHTO M 320, PG 64-22 (OR AS OTHERWISE RECOMMENDED BY INDOT STANDARDS)
   ii. ASPHALT CEMENT: PER INDOT STANDARDS
   iii. CUTBACK PRIME COAT: PER INDOT STANDARDS
   iv. EMULSIFIED ASPHALT PRIME COAT: PER INDOT STANDARDS
   v. TACK COAT: PER INDOT STANDARDS
   vi. WATER: POTABLE.
   vii. UNDERSEALING ASPHALT: ASTM D 3141; PUMPING CONSISTENCY.

3. AUXILIARY MATERIALS
   i. RECYCLED MATERIALS FOR HOT-MIX ASPHALT MIXES: RECLAIMED ASPHALT PAVEMENT; RECLAIMED, UNBOUND AGGREGATE BASE MATERIAL; AND RECYCLED ASPHALT SHINGLES FROM SOURCES AND GRADATIONS THAT HAVE PERFORMED SATISFACTORILY IN PREVIOUS INSTALLATIONS, EQUAL TO PERFORMANCE OF REQUIRED HOT-MIX ASPHALT PAVING PRODUCED FROM ALL NEW MATERIALS.
   ii. HERBICIDE: COMMERCIAL CHEMICAL FOR WEED CONTROL, REGISTERED BY THE EPA, AND NOT CLASSIFIED AS "RESTRICTED USE" FOR LOCATIONS AND CONDITIONS OF APPLICATION. PROVIDE IN GRANULAR, LIQUID, OR WETTABLE POWDER FORM.
   iii. SAND: ASTM D 1073 OR AASHTO M 29, GRADE NO. 2 OR NO. 3.

4. MIXES
   i. RECYCLED CONTENT OF HOT-MIX ASPHALT: PER INDOT STANDARDS
   ii. HOT-MIX ASPHALT: DENSE-GRADED, HOT-LAID, HOT-MIX ASPHALT PLANT MIXES APPROVED BY INDOT AND COMPLYING WITH THE FOLLOWING REQUIREMENTS:
      a. PROVIDE MIXES WITH A HISTORY OF SATISFACTORY PERFORMANCE IN GEOGRAPHICAL AREA WHERE PROJECT IS LOCATED.
      b. BASE COURSE: 25.0 MM OR 19.0 MM (AS INDICATED ON DRAWINGS)
      c. SURFACE COURSE: 9.5MM

C. EXECUTION

1. EXAMINATION
   i. VERIFY THAT SUBGRADE IS DRY AND IN SUITABLE CONDITION TO BEGIN PAVING.
   ii. PROOF-ROLL SUBGRADE BELOW PAVEMENTS WITH HEAVY PNEUMATIC-TIRED EQUIPMENT TO IDENTIFY SOFT POCKETS AND AREAS OF EXCESS YIELDING. DO NOT PROOF-ROLL WET OR SATURATED SUBGRADES. PROOFROLL TO BE PERFORMED BY QUALIFIED GEOTECHNICAL ENGINEER.
      a. COMPLETELY PROOF-ROLL SUBGRADE IN ONE DIRECTION LIMIT VEHICLE SPEED TO 3 MPH.
      b. PROOF ROLL WITH A LOADED 10-WHEEL, TANDEM-AXLE DUMP TRUCK WEIGHING NOT LESS THAN 15 TONS
      c. EXCAVATE SOFT SPOTS, UNSATISFACTORY SOILS, AND AREAS OF EXCESSIVE PUMPING OR RUTTING, AS DETERMINED BY ENGINEER, AND REPLACE WITH COMPACTED BACKFILL OR FILL AS DIRECTED.
      d. PROCEED WITH PAVING ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.

2. SURFACE PREPARATION
   i. GENERAL: IMMEDIATELY BEFORE PLACING ASPHALT MATERIALS, REMOVE LOOSE AND DELETERIOUS MATERIAL FROM SUBSTRATE SURFACES. ENSURE THAT PREPARED SUBGRADE IS READY TO RECEIVE PAVING.
   ii. HERBICIDE TREATMENT: APPLY HERBICIDE ACCORDING TO MANUFACTURER'S RECOMMENDED RATES AND WRITTEN APPLICATION INSTRUCTIONS. APPLY TO DRY, PREPARED SUBGRADE OR SURFACE OF COMPACTED-AGGREGATE BASE BEFORE APPLYING PAVING MATERIALS.
      a. MIX HERBICIDE WITH PRIME COAT IF FORMULATED BY MANUFACTURER FOR THAT PURPOSE2
   iii. CUTBACK PRIME COAT: APPLY UNIFORMLY OVER SURFACE OF COMPACTED UNBOUND-AGGREGATE BASE COURSE AT A RATE OF 0.15 TO 0.50 GAL./SQ. YD. APPLY ENOUGH MATERIAL TO PENETRATE AND SEAL, BUT NOT FLOOD, SURFACE. ALLOW PRIME COAT TO CURE.
      a. IF PRIME COAT IS NOT ENTIRELY ABSORBED WITHIN 24 HOURS AFTER APPLICATION, SPREAD SAND OVER SURFACE TO BLOT EXCESS ASPHALT. USE ENOUGH SAND TO PREVENT PICKUP UNDER TRAFFIC. REMOVE LOOSE SAND BY SWEEPING BEFORE PAVEMENT IS PLACED AND AFTER VOLATILES HAVE EVAPORATED.
      b. PROTECT PRIMED SUBSTRATE FROM DAMAGE UNTIL READY TO RECEIVE PAVING.
   iv. TACK COAT: APPLY UNIFORMLY TO SURFACES OF EXISTING PAVEMENT AT A RATE OF 0.05 TO 0.15 GAL./SQ. YD.
      a. ALLOW TACK COAT TO CURE UNDISTURBED BEFORE APPLYING HOT-MIX ASPHALT PAVING.
      b. AVOID SMEARING OR STAINING ADJOINING SURFACES, APPURTENANCES, AND SURROUNDINGS. REMOVE SPILLAGES AND CLEAN AFFECTED SURFACES.

3. PLACING HOT-MIX ASPHALT
   i. MACHINE PLACE HOT-MIX ASPHALT ON PREPARED SURFACE, SPREAD UNIFORMLY, AND STRIKE OFF. PLACE ASPHALT MIX BY HAND IN AREAS INACCESSIBLE TO EQUIPMENT IN A MANNER THAT PREVENTS SEGREGATION OF MIX. PLACE EACH COURSE TO REQUIRED GRADE, CROSS SECTION, AND THICKNESS WHEN COMPACTED.
      a. PLACE HOT-MIX ASPHALT BASE COURSE IN NUMBER OF LIFTS AND THICKNESSES INDICATED.
      b. PLACE HOT-MIX ASPHALT SURFACE COURSE IN SINGLE LIFT.
      c. SPREAD MIX AT A MINIMUM TEMPERATURE OF 250 DEG F
      d. BEGIN APPLYING MIX ALONG CENTERLINE OF CROWN FOR CROWNED SECTIONS AND ON HIGH SIDE OF ONE-WAY SLOPES UNLESS OTHERWISE INDICATED.
      e. REGULATE PAVER MACHINE SPEED TO OBTAIN SMOOTH, CONTINUOUS SURFACE FREE OF PULLS AND TEARS IN ASPHALT-PAVING MAT.
   ii. PLACE PAVING IN CONSECUTIVE STRIPS NOT LESS THAN 10 FEET WIDE UNLESS INFILL EDGE STRIPS OF A LESSER WIDTH ARE REQUIRED.
      a. AFTER FIRST STRIP HAS BEEN PLACED AND ROLLED, PLACE SUCCEEDING STRIPS AND EXTEND ROLLING TO OVERLAP PREVIOUS STRIPS. OVERLAP MIX PLACEMENT ABOUT 1 TO 1-1/2 INCHES FROM STRIP TO STRIP TO ENSURE PROPER COMPACTION OF MIX ALONG LONGITUDINAL JOINTS.
      b. COMPLETE A SECTION OF ASPHALT BASE COURSE BEFORE PLACING ASPHALT SURFACE COURSE.
   iii. PROMPTLY CORRECT SURFACE IRREGULARITIES IN PAVING COURSE BEHIND PAVER. USE SUITABLE HAND TOOLS TO REMOVE EXCESS MATERIAL FORMING HIGH SPOTS. FILL DEPRESSIONS WITH HOT-MIX ASPHALT TO PREVENT SEGREGATION OF MIX; USE SUITABLE HAND TOOLS TO SMOOTH SURFACE.

4. JOINTS
   i. CONSTRUCT JOINTS TO ENSURE A CONTINUOUS BOND BETWEEN ADJOINING PAVING SECTIONS. CONSTRUCT JOINTS FREE OF DEPRESSIONS, WITH SAME TEXTURE AND SMOOTHNESS AS OTHER SECTIONS OF HOT-MIX ASPHALT COURSE.
      a. CLEAN CONTACT SURFACES AND APPLY TACK COAT TO JOINTS.
      b. OFFSET LONGITUDINAL JOINTS, IN SUCCESSIVE COURSES, A MINIMUM OF 6 INCHES
      c. OFFSET TRANSVERSE JOINTS, IN SUCCESSIVE COURSES, A MINIMUM OF 24 INCHES
      d. CONSTRUCT TRANSVERSE JOINTS AT EACH POINT WHERE PAVER ENDS A DAY'S WORK AND RESUMES WORK AT A SUBSEQUENT TIME. CONSTRUCT THESE JOINTS USING EITHER "BULKHEAD" OR "PAPERED" METHOD ACCORDING TO AI MS-22, FOR BOTH "ENDING A LANE" AND "RESUMPTION OF PAVING OPERATIONS."
      e. COMPACT JOINTS AS SOON AS HOT-MIX ASPHALT WILL BEAR ROLLER WEIGHT WITHOUT EXCESSIVE DISPLACEMENT.
      f. COMPACT ASPHALT AT JOINTS TO A DENSITY WITHIN 2 PERCENT OF SPECIFIED COURSE DENSITY.

ASPHALT PAVING (CONT.):

5. COMPACTION
   i. GENERAL: BEGIN COMPACTION AS SOON AS PLACED HOT-MIX PAVING WILL BEAR ROLLER WEIGHT WITHOUT EXCESSIVE DISPLACEMENT. COMPACT HOT-MIX PAVING WITH HOT, HAND TAMPERS OR WITH VIBRATORY-PLATE COMPACTORS IN AREAS INACCESSIBLE TO ROLLERS.
      a. COMPLETE COMPACTION BEFORE MIX TEMPERATURE COOLS TO 185 DEG F
   ii. BREAKDOWN ROLLING: COMPLETE BREAKDOWN OR INITIAL ROLLING IMMEDIATELY AFTER ROLLING JOINTS AND OUTSIDE EDGE. EXAMINE SURFACE IMMEDIATELY AFTER BREAKDOWN ROLLING FOR INDICATED CROWN, GRADE, AND SMOOTHNESS. CORRECT LAYDOWN AND ROLLING OPERATIONS TO COMPLY WITH REQUIREMENTS.
   iii. INTERMEDIATE ROLLING: BEGIN INTERMEDIATE ROLLING IMMEDIATELY AFTER BREAKDOWN ROLLING WHILE HOT-MIX ASPHALT IS STILL HOT ENOUGH TO ACHIEVE SPECIFIED DENSITY. CONTINUE ROLLING UNTIL HOT-MIX ASPHALT COURSE HAS BEEN UNIFORMLY COMPACTED TO THE FOLLOWING DENSITY:
      a. AVERAGE DENSITY: 96 PERCENT OF REFERENCE LABORATORY DENSITY ACCORDING TO ASTM D 6927 OR AASHTO T 245, BUT NOT LESS THAN 94 PERCENT OR GREATER THAN 100 PERCENT.
      b. AVERAGE DENSITY: 92 PERCENT OF REFERENCE MAXIMUM THEORETICAL DENSITY ACCORDING TO ASTM D 2041, BUT NOT LESS THAN 90 PERCENT OR GREATER THAN 96 PERCENT.
   iv. FINISH ROLLING: FINISH ROLL PAVED SURFACES TO REMOVE ROLLER MARKS WHILE HOT-MIX ASPHALT IS STILL WARM.
   v. EDGE SHAPING: WHILE SURFACE IS BEING COMPACTED AND FINISHED, TRIM EDGES OF PAVEMENT TO PROPER ALIGNMENT. BEVEL EDGES WHILE ASPHALT IS STILL HOT; COMPACT THOROUGHLY.
   vi. REPAIRS: REMOVE PAVED AREAS THAT ARE DEFECTIVE OR CONTAMINATED WITH FOREIGN MATERIALS AND REPLACE WITH FRESH, HOT-MIX ASPHALT. COMPACT BY ROLLING TO SPECIFIED DENSITY AND SURFACE SMOOTHNESS.
   viii. PROTECTION: AFTER FINAL ROLLING, DO NOT PERMIT VEHICULAR TRAFFIC ON PAVEMENT UNTIL IT HAS COOLED AND HARDENED.
   viiii. ERECT BARRICADES TO PROTECT PAVING FROM TRAFFIC UNTIL MIXTURE HAS COOLED ENOUGH NOT TO BECOME MARKED.

6. INSTALLATION TOLERANCES
   i. PAVEMENT THICKNESS: COMPACT EACH COURSE TO PRODUCE THE THICKNESS INDICATED WITHIN THE FOLLOWING TOLERANCES:
      a. BASE COURSE: PLUS OR MINUS 1/2 INCH
      b. SURFACE COURSE: PLUS 1/4 INCH NO MINUS.
   ii. PAVEMENT SURFACE SMOOTHNESS: COMPACT EACH COURSE TO PRODUCE A SURFACE SMOOTHNESS WITHIN THE FOLLOWING TOLERANCES AS DETERMINED BY USING A 10-FOOT STRAIGHTEDGE APPLIED TRANSVERSELY OR LONGITUDINALLY TO PAVED AREAS:
      a. BASE COURSE: 1/4 INCH
      b. SURFACE COURSE: 1/8 INCH
      c. CROWNED SURFACES: TEST WITH CROWNED TEMPLATE CENTERED AND AT RIGHT ANGLE TO CROWN. MAXIMUM ALLOWABLE VARIANCE FROM TEMPLATE IS 1/4 INCH

7. FIELD QUALITY CONTROL
   i. TESTING AGENCY: CONTRACTOR TO ENGAGE A QUALIFIED TESTING AGENCY TO PERFORM TESTS AND INSPECTIONS.
   ii. THICKNESS: IN-PLACE COMPACTED THICKNESS OF HOT-MIX ASPHALT COURSES WILL BE DETERMINED ACCORDING TO ASTM D 3549.
   iii. SURFACE SMOOTHNESS: FINISHED SURFACE OF EACH HOT-MIX ASPHALT COURSE WILL BE TESTED FOR COMPLIANCE WITH SMOOTHNESS TOLERANCES.
   iv. IN-PLACE DENSITY: TESTING AGENCY WILL TAKE SAMPLES OF UNCOMPACTED PAVING MIXTURES AND COMPACTED PAVEMENT ACCORDING TO ASTM D 979 OR AASHTO T 168.
      a. REFERENCE MAXIMUM THEORETICAL DENSITY WILL BE DETERMINED BY AVERAGING RESULTS FROM FOUR SAMPLES OF HOT-MIX ASPHALT-PAVING MIXTURE DELIVERED DAILY TO SITE, PREPARED ACCORDING TO ASTM D 2041, AND COMPACTED ACCORDING TO JOB-MIX SPECIFICATIONS.
      b. IN-PLACE DENSITY OF COMPACTED PAVEMENT WILL BE DETERMINED BY TESTING CORE SAMPLES ACCORDING TO ASTM D 1188 OR ASTM D 2726.
   v. ONE CORE SAMPLE WILL BE TAKEN FOR EVERY 1000 SQ. YD. OR LESS OF INSTALLED PAVEMENT, WITH NO FEWER THAN THREE CORES TAKEN.
   vi. FIELD DENSITY OF IN-PLACE COMPACTED PAVEMENT MAY ALSO BE DETERMINED BY NUCLEAR METHOD ACCORDING TO ASTM D 2950 AND CORRELATED WITH ASTM D 1188 OR ASTM D 2726.
   vii. REPLACE AND COMPACT HOT-MIX ASPHALT WHERE CORE TESTS WERE TAKEN.
   viii. REMOVE AND REPLACE OR INSTALL ADDITIONAL HOT-MIX ASPHALT WHERE TEST RESULTS OR MEASUREMENTS INDICATE THAT IT DOES NOT COMPLY WITH SPECIFIED REQUIREMENTS.

CONCRETE PAVING:

A. GENERAL

1. CONCRETE PAVING SECTION INCLUDES DRIVEWAYS, ROADWAYS, PARKING LOTS, CURBS AND GUTTERS, WALKS, AND CONCRETE APRONS.

2. ACTION SUBMITTALS
   i. PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED.
   ii. OTHER ACTION SUBMITTALS
      a. DESIGN MIXTURES: FOR EACH CONCRETE PAVING MIXTURE. INCLUDE ALTERNATE DESIGN MIXTURES WHEN CHARACTERISTICS OF MATERIALS PROJECT CONDITIONS, WEATHER, TEST RESULTS, OR OTHER CIRCUMSTANCES WARRANT ADJUSTMENTS.
      b. MATERIAL TEST REPORTS: FROM A QUALIFIED TESTING AGENCY INDICATING AND INTERPRETING TEST RESULTS FOR COMPLIANCE OF THE FOLLOWING WITH REQUIREMENTS INDICATED, BASED ON COMPREHENSIVE TESTING OF CURRENT MATERIALS.

3. QUALITY ASSURANCE
   i. READY-MIX-CONCRETE MANUFACTURER QUALIFICATIONS: A FIRM EXPERIENCED IN MANUFACTURING READY-MIXED CONCRETE PRODUCTS AND THAT COMPLIES WITH ASTM C 94/C 94M REQUIREMENTS FOR PRODUCTION FACILITIES AND EQUIPMENT.
   ii. ACI PUBLICATIONS: COMPLY WITH ACI 301 (ACI 301M) UNLESS OTHERWISE INDICATED.
   iii. HANDICAP STANDARDS: PROVIDE RAMPS INDICATED FOR HANDICAP ACCESS IN ACCORDANCE WITH ANSI A117 AND FEDERAL AMERICANS WITH DISABILITIES ACT (ADA).

B. PRODUCTS

1. STEEL REINFORCEMENT
   i. RECYCLED CONTENT: POST CONSUMER RECYCLED CONTENT PLUS ONE-HALF OF PRECONSUMER RECYCLED CONTENT NOT LESS THAN 25 PERCENT.
   ii. PLAIN-STEEL WELDED WIRE REINFORCEMENT: ASTM A 185/A 185M, FABRICATED FROM AS-DRAWN STEEL WIRE INTO FLAT SHEETS.
   iii. DEFORMED-STEEL WELDED WIRE REINFORCEMENT: ASTM A 497/A 497M, FLAT SHEET.
   iv. REINFORCING BARS: ASTM A 615/A 615M, GRADE 60 (GRADE 420); DEFORMED.
   v. PLAIN-STEEL WIRE: ASTM A 82/A 82M, AS DRAWN.
   vi. DEFORMED-STEEL WIRE: ASTM A 496/A 496M.
   vii. DOWEL BARS: ASTM A 615/A 615M, GRADE 60 (GRADE 420) PLAIN-STEEL BARS; ZINC COATED (GALVANIZED) AFTER FABRICATION ACCORDING TO ASTM A 767/A 767M, CLASS I COATING. CUT BARS TRUE TO LENGTH WITH ENDS SQUARE AND FREE OF BURRS.
   viii. BAR SUPPORTS: BOLSTERS, CHAIRS, SPACERS, AND OTHER DEVICES FOR SPACING, SUPPORTING, AND FASTENING REINFORCING BARS, WELDED WIRE REINFORCEMENT, AND DOWELS IN PLACE. MANUFACTURE BAR SUPPORTS ACCORDING TO CRSI'S "MANUAL OF STANDARD PRACTICE" FROM STEEL WIRE, PLASTIC, OR PRECAST CONCRETE OF GREATER COMPRESSIVE STRENGTH THAN CONCRETE SPECIFIED.

2. CONCRETE MATERIALS
   i. CEMENTITIOUS MATERIAL: USE THE FOLLOWING CEMENTITIOUS MATERIALS, OF SAME TYPE, BRAND, AND SOURCE THROUGHOUT PROJECT:
      a. PORTLAND CEMENT: ASTM C 150, PORTLAND CEMENT TYPE I.
      b. FLY ASH: ASTM C 618, CLASS C OR CLASS F.
      c. GROUND GRANULATED BLAST-FURNACE SLAG: ASTM C 989, GRADE 100 OR 120.
   ii. NORMAL-WEIGHT AGGREGATES: ASTM C 33,UNIFORMLY GRADED, AND AS FOLLOWS:
      a. COMBINED AGGREGATE GRADATION: WELL GRADED FROM COARSEST TO FINEST WITH NOT MORE THAN 18 PERCENT AND NOT LESS THAN 8 PERCENT RETAINED ON A INDIVIDUAL SIEVE, EXPECT THAT LESS THAN 8 PERCENT MAY BE RETAINED ON COARSEST SIEVE AND ON NO. 50 SIEVE, AND LESS THAN 8 PERCENT MAY BE RETAINED ON SIEVES FINER THAN NO. 50.
      b. USE CRUSHED LIMESTONE COARSE AGGREGATE FOR CONCRETE EXPOSED TO WEATHER.
   iii. WATER: POTABLE AND COMPLYING WITH ASTM C 94/C 94M.
   iv. AIR-ENTRAINING ADMIXTURE: ASTM C 260.
   v. CHEMICAL ADMIXTURES: ADMIXTURES CERTIFIED BY MANUFACTURER TO BE COMPATIBLE WITH OTHER ADMIXTURES AND TO CONTAIN NOT MORE THAN 0.1 PERCENT WATER-SOLUBLE CHLORIDE IONS BY MASS OF CEMENTITIOUS MATERIAL.
   vi. NOTE: WHERE CLASS A, B, OR C CONCRETE IS REFERENCE IN PLANS OR SPECIFICATIONS, THE CLASS IS AS DEFINED IN ACI 347-04.

3. CURING MATERIALS
   i. ABSORPTIVE COVER: AASHTO M 182, CLASS 3, BURLAP CLOTH MADE FROM JUTE OR KENAF, WEIGHING APPROXIMATELY 9 OZ./SQ. YD. (305 G/SQ. M) DRY.
   ii. MOISTURE-RETAINING COVER: ASTM C 171, POLYETHYLENE FILM OR WHITE BURLAP-POLYETHYLENE SHEET.
   iii. WATER: POTABLE.
   iv. EVAPORATION RETARDER: WATERBORNE, MONOMOLECULAR, FILM FORMING, MANUFACTURED FOR APPLICATION TO FRESH CONCRETE.
   v. CLEAR, WATERBORNE, MEMBRANE-FORMING CURING COMPOUND: ASTM C 309, TYPE 1, CLASS B, DISSIPATING.
   vi. WHITE, WATERBORNE, MEMBRANE-FORMING CURING COMPOUND: ASTM C 309, TYPE 2, CLASS B, DISSIPATING.

4. FIBER REINFORCEMENT
   i. FIBROUS REINFORCEMENT: 100% VIRGIN HOMOPOLYMER POLYPROPYLENE MULTIFILAMENT FIBERS FOR SECONDARY REINFORCEMENT OF CONCRETE, ASTM C 116, TYPE III. SHALL CONTAIN NO REPROCESSED OLEFIN MATERIALS.
      a. PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE ONE OF THE FOLLOWING: FIBERMESH 150; PROPEX CONCRETE SYSTEMS CORP., STEALTH FIBER MICRO REINFORCEMENT; SI CONCRETE SYSTEMS, OR APPROVED EQUAL

5. RELATED MATERIALS
   i. JOINT FILLERS: ASTM D 1751, ASPHALT-SATURATED CELLULOSIC FIBER OR ASTM D 1752, CORK OR SELF-EXPANDING CORK IN PREFORMED STRIPS.
   ii. PENETRATING ANTI-SPALLING SEALER: THE SEALER SHALL BE A SILANE WATER BASED COMPOUND WHICH HAS A 96% CHLORIDE-ION SCREEN AND A REPELLENCY FACTOR OF 92% WHEN TESTED IN ACCORDANCE WITH NCHRP #244, TEST METHOD. IN ADDITION, THE SEALER-TREATED CONCRETE MUST EXHIBIT NO SCALING WHEN EXPOSED TO 120 CYCLES OF FREEZING-AND-THAWING IN ACCORDANCE WITH ASTM C 672.
      a. PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE ONE OF THE FOLLOWING: "WEATHER WORKER HEAVY-DUTY WB (J-27 WB)"; DAYTON SUPERIOR CORP., "ENVIROSEAL 20"; HYDROZO INCORP., "PENTANE WB"; L & M CONSTRUCTION CHEMICALS, INC.

6. CONCRETE MIXTURES
   i. PREPARE DESIGN MIXTURES, PROPORTIONED ACCORDING TO ACI 301 (ACI 301M), WITH THE FOLLOWING PROPERTIES:
      a. COMPRESSIVE STRENGTH (28 DAYS): 4000 PSI (27.6 MPA).

CONCRETE PAVING (CONT.):

      b. MAXIMUM WATER-CEMENTITIOUS MATERIALS RATIO AT POINT OF PLACEMENT: 0.45.
      c. SLUMP LIMIT: 5 INCHES (125 MM), PLUS OR MINUS 1 INCH (25 MM).
      d. AIR CONTENT: 6.5 PERCENT PLUS OR MINUS 1.5 PERCENT.
   ii. CHEMICAL ADMIXTURES: USE ADMIXTURES ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.

7. CONCRETE MIXING
   i. READY-MIXED CONCRETE: MEASURE, BATCH, AND MIX CONCRETE MATERIALS AND CONCRETE ACCORDING TO ASTM C 94/C 94M. FURNISH BATCH CERTIFICATES FOR EACH BATCH DISCHARGED AND USED IN THE WORK.

B. EXECUTION

1. EXAMINATION AND PREPARATION
   i. PROOF-ROLL PREPARED SUBBASE SURFACE BELOW CONCRETE PAVING TO IDENTIFY SOFT POCKETS AND AREAS OF EXCESS YIELDING.
   ii. REMOVE LOOSE MATERIAL FROM COMPACTED SUBBASE SURFACE IMMEDIATELY BEFORE PLACING CONCRETE.

2. EDGE FORMS AND SCREED CONSTRUCTION
   i. SET, BRACE, AND SECURE EDGE FORMS, BULKHEADS, AND INTERMEDIATE SCREED GUIDES TO REQUIRED LINES, GRADES, AND ELEVATIONS. INSTALL FORMS TO ALLOW CONTINUOUS PROGRESS OF WORK AND SO FORMS CAN REMAIN IN PLACE AT LEAST 24 HOURS AFTER CONCRETE PLACEMENT.
   ii. CLEAN FORMS AFTER EACH USE AND COAT WITH FORM-RELEASE AGENT TO ENSURE SEPARATION FROM CONCRETE WITHOUT DAMAGE.

3. STEEL REINFORCEMENT
   i. GENERAL: COMPLY WITH CRSI'S "MANUAL OF STANDARD PRACTICE" FOR FABRICATING, PLACING, AND SUPPORTING REINFORCEMENT.

4. JOINTS
   i. GENERAL: FORM CONSTRUCTION, ISOLATION, AND CONTRACTION JOINTS AND TOOL EDGES TRUE TO LINE, WITH FACES PERPENDICULAR TO SURFACE PLANE OF CONCRETE. CONSTRUCT TRANSVERSE JOINTS AT RIGHT ANGLES TO CENTERLINE UNLESS OTHERWISE INDICATED.
   ii. CONSTRUCTION JOINTS: SET CONSTRUCTION JOINTS AT SIDE AND END TERMINATIONS OF PAVING AND AT LOCATIONS WHERE PAVING OPERATIONS ARE STOPPED FOR MORE THAN ONE-HALF HOUR UNLESS PAVING TERMINATES AT ISOLATION JOINTS.
   iii. ISOLATION JOINTS: FORM ISOLATION JOINTS OF PREFORMED JOINT-FILLER STRIPS ABUTTING CONCRETE CURBS, CATCH BASINS, MANHOLES, INLETS, STRUCTURES, OTHER FIXED OBJECTS, AND WHERE INDICATED.
   iv. CONTRACTION JOINTS: FORM WEAKENED-PLANE CONTRACTION JOINTS, SECTIONING CONCRETE INTO AREAS AS INDICATED. CONSTRUCT CONTRACTION JOINTS FOR A DEPTH EQUAL TO AT LEAST ONE-FOURTH OF THE CONCRETE THICKNESS.
   v. EDGING: AFTER INITIAL FLOATING, TOOL EDGES OF PAVING, GUTTERS, CURBS, AND JOINTS IN CONCRETE WITH AN EDGING TOOL TO A 1/4-INCH (6-MM) RADIUS. REPEAT TOOLING OF EDGES AFTER APPLYING SURFACE FINISHES. ELIMINATE EDGING-TOOL MARKS ON CONCRETE SURFACES.

5. CONCRETE PLACEMENT
   i. MOISTEN SUBBASE TO PROVIDE A UNIFORM DAMPENED CONDITION AT TIME CONCRETE IS PLACED.
   ii. COMPLY WITH ACI 301 (ACI 301M) REQUIREMENTS FOR MEASURING, MIXING, TRANSPORTING, PLACING, AND CONSOLIDATING CONCRETE.
   iii. DEPOSIT AND SPREAD CONCRETE IN A CONTINUOUS OPERATION BETWEEN TRANSVERSE JOINTS. DO NOT PUSH OR DRAG CONCRETE INTO PLACE OR USE VIBRATORS TO MOVE CONCRETE INTO PLACE.
   iv. SCREED PAVING SURFACE WITH A STRAIGHTEDGE AND STRIKE OFF.
   v. COMMENCE INITIAL FLOATING USING BULL FLOATS OR DARBIES TO IMPART AN OPEN-TEXTURED AND UNIFORM SURFACE PLANE BEFORE EXCESS MOISTURE OR BLEED WATER APPEARS ON THE SURFACE. DO NOT FURTHER DISTURB CONCRETE SURFACES BEFORE BEGINNING FINISHING OPERATIONS OR SPREADING SURFACE TREATMENTS.

6. CONCRETE PROTECTION AND CURING
   i. GENERAL: PROTECT FRESHLY PLACED CONCRETE FROM PREMATURE DRYING AND EXCESSIVE COLD OR HOT TEMPERATURES.
   ii. COMPLY WITH ACI 306.1 FOR COLD-WEATHER PROTECTION.
   iii. EVAPORATION RETARDER: APPLY EVAPORATION RETARDER TO CONCRETE SURFACES IF HOT, DRY, OR WINDY CONDITIONS CAUSE MOISTURE LOSS APPROACHING 0.2 LB/SQ. FT. X H (1 KG/SQ. M X H) BEFORE AND DURING FINISHING OPERATIONS. APPLY ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS AFTER PLACING, SCREEDING, AND BULL FLOATING OR DARBYING CONCRETE BUT BEFORE FLOAT FINISHING.
   iv. BEGIN CURING AFTER FINISHING CONCRETE BUT NOT BEFORE FREE WATER HAS DISAPPEARED FROM CONCRETE SURFACE.
   v. CURING METHODS: CURE CONCRETE BY MOISTURE CURING, MOISTURE-RETAINING-COVER CURING, CURING COMPOUND, OR A COMBINATION OF THESE.
   vi. PENETRATING, ANTI-SPALLING SEALER TREATMENT: APPLY COMPOUNDS TO CLEAN, DRY CONCRETE SURFACES FREE OF OIL, DIRT, AND OTHER FOREIGN MATERIAL ACCORDING TO MANUFACTURER'S SPECIFICATIONS. SEALER TO BE APPLIED TO ALL EXTERIOR CONCRETE PAVING AND CURBS AFTER CONCRETE HAS CURED 28 DAYS.

7. PAVING TOLERANCES
   i. COMPLY WITH TOLERANCES IN ACI 117 AND AS FOLLOWS:
      a. ELEVATION: 3/4 INCH (19 MM).
      b. THICKNESS: PLUS 3/8 INCH (10 MM), MINUS 1/4 INCH (6 MM).
      c. SURFACE: GAP BELOW 10-FOOT- (3-M-) LONG, UNLEVELED STRAIGHTEDGE NOT TO EXCEED 1/2 INCH (13 MM).
      d. JOINT SPACING: 3 INCHES (75 MM).
      e. CONTRACTION JOINT DEPTH: PLUS 1/4 INCH (6 MM), NO MINUS.
      f. JOINT WIDTH: PLUS 1/8 INCH (3 MM), NO MINUS.
   ii. APPLY PAINT WITH MECHANICAL EQUIPMENT TO PRODUCE MARKINGS OF DIMENSIONS INDICATED WITH UNIFORM, STRAIGHT EDGES. APPLY AT MANUFACTURER'S RECOMMENDED RATES TO PROVIDE A MINIMUM WET FILM THICKNESS OF 15 MILS (0.4 MM).

8. REPAIRS AND PROTECTION
   i. REMOVE AND REPLACE CONCRETE PAVING THAT IS BROKEN, DAMAGED, OR DEFECTIVE OR THAT DOES NOT COMPLY WITH REQUIREMENTS IN THIS SECTION. REMOVE WORK IN COMPLETE SECTIONS FROM JOINT TO JOINT UNLESS OTHERWISE APPROVED BY ENGINEER.
   ii. PROTECT CONCRETE PAVING FROM DAMAGE. EXCLUDE TRAFFIC FROM PAVING FOR AT LEAST 14 DAYS AFTER PLACEMENT. WHEN CONSTRUCTION TRAFFIC IS PERMITTED, MAINTAIN PAVING AS CLEAN AS POSSIBLE BY REMOVING SURFACE STAINS AND SPILLAGE OF MATERIALS AS THEY OCCUR.
   iii. MAINTAIN CONCRETE PAVING FREE OF STAINS, DISCOLORATION, DIRT, AND OTHER FOREIGN MATERIAL. SWEEP PAVING NOT MORE THAN TWO DAYS BEFORE DATE SCHEDULED FOR SUBSTANTIAL COMPLETION INSPECTIONS.

DEMOLITION:

A. GENERAL

THE CONTRACTOR SHALL REMOVE AND DISPOSE OFF SITE, ALL EXISTING STRUCTURES, FENCES, CONCRETE AND PAVEMENT ON SITE, UNLESS NOTED TO REMAIN ON THE CONTRACT DRAWINGS.

THE CONTRACTOR SHALL PROTECT AND NOT DESTROY PROPERTY CORNER MONUMENTS DURING CONSTRUCTION.

B. SUMMARY
THIS SECTION REQUIRES REMOVAL AND DISPOSAL, OFF SITE, OF THE FOLLOWING:
1. ASPHALT PARKING LOT.
2. MISCELLANEOUS CONCRETE, STORM SEWER, PLANT MATERIAL, UNDERGROUND CONDUITS, SITE LIGHTS, ETC., LOCATED ON SITE.

C. SUBMITTALS
SUBMIT THE FOLLOWING IN ACCORDANCE WITH CONDITIONS OF CONTRACT AND DIVISION 1 SPECIFICATION SECTIONS.
1. A PROPOSED SCHEDULE OF OPERATIONS COORDINATION FOR SHUTOFF, CAPPING, AND CONTINUATION OF UTILITY SERVICES AS REQUIRED.
2. PROVIDE A DETAILED SEQUENCE AND SCHEDULE OF DEMOLITION AND REMOVAL WORK TO BE COMPLETED.

D. JOB CONDITIONS
1. SALVAGED MATERIALS: ITEMS OF SALVAGEABLE VALUE TO CONTRACTOR MAY BE REMOVED FROM STRUCTURE AS WORK PROGRESSES. TRANSPORT SALVAGED ITEMS FROM THE SITE AS THEY ARE REMOVED.
   i. STORAGE OR SALE OF REMOVED ITEMS WILL NOT BE PERMITTED ON SITE.
2. EXPLOSIVES: USE OF ANY TYPE OF EXPLOSIVES WILL NOT BE PERMITTED.
3. TRAFFIC: CONDUCT DEMOLITION OPERATIONS AND REMOVAL OF DEBRIS TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKS AND OTHER ADJACENT OCCUPIED AND USED FACILITIES.
   i. DO NOT CLOSE OR OBSTRUCT ROADS, STREETS, WALKS OR OTHER OCCUPIED OR USED FACILITIES WITHOUT PERMISSION FROM THE LOCAL AUTHORITIES HAVING JURISDICTION. PROVIDE ALTERNATE ROUTES AROUND CLOSED OR OBSTRUCTED TRAFFIC WAYS, IF REQUIRED BY GOVERNING AUTHORITIES.
4. PROTECTIONS: ENSURE SAFE PASSAGE OF PERSONS AROUND AREAS OF DEMOLITION. CONDUCT OPERATIONS TO PREVENT DAMAGE TO ADJACENT BUILDINGS, STRUCTURES, AND OTHER FACILITIES AND INJURY TO PERSONS.
5. DAMAGES: PROMPTLY REPAIR ANY DAMAGES CAUSED TO ADJACENT FACILITIES BY DEMOLITION OPERATIONS.
6. UTILITY SERVICES: MAINTAIN EXISTING UTILITIES TO STAY IN SERVICE AND PROTECT AGAINST DAMAGE DURING DEMOLITION OPERATIONS. DISCONNECT, CAP AND REMOVE UTILITY SERVICES PER LOCAL REQUIREMENTS. DO NOT START DEMOLITION WORK UNTIL UTILITY DISCONNECTIONS HAVE BEEN COMPLETED TO THE SATISFACTION OF LOCAL UTILITIES.

E. DEMOLITION
1. BELOW-GRADE CONSTRUCTION: DEMOLISH FOUNDATION WALLS AND OTHER BELOW-GRADE CONSTRUCTION, INCLUDING CONCRETE SLABS, TO A DEPTH OF NOT LESS THAN 48 INCHES BELOW LOWEST FOUNDATION LEVEL.
2. FILLING VOIDS: COMPLETELY FILL BELOW-GRADE AREAS AND VOIDS RESULTING FROM DEMOLITION STRUCTURES.

F. DISPOSAL OF DEMOLISHED MATERIALS
1. GENERAL: REMOVE WEEKLY FROM SITE ACCUMULATED DEBRIS, RUBBISH AND OTHER MATERIALS RESULTING FROM DEMOLITION OPERATIONS.
2. REMOVAL: TRANSPORT MATERIALS REMOVED FROM DEMOLITION OPERATIONS AND LEGALLY DISPOSE OF OFF-SITE.

WATER:

A. ALL WATER MATERIALS AND INSTALLATION SHALL BE IN ACCORDANCE WITH CITY OF BLOOMINGTON STANDARDS AND SPECIFICATIONS, LATEST EDITION.

SANITARY:

A. ALL SANITARY MATERIALS AND INSTALLATION SHALL BE IN ACCORDANCE WITH CITY OF BLOOMINGTON STANDARDS AND SPECIFICATIONS, LATEST EDITION.

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OVERLOOK ON 46 & CENTURY VILLAGE STORAGE

Bloomington, IN

APPROVAL PENDING
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IN SUBMITTING BIDS IN RELIANCE ON THESE PLANS THE CONTRACTOR ASSUMES ALL RISKS OF ADDITIONAL COSTS OF REVISIONS DUE TO REQUIREMENTS OF THE OWNER OR GOVERNMENTAL AUTHORITIES AND MATERIAL REVISIONS IN THE COURSE OF COMPLETING THE FINAL DESIGN.

CERTIFIED BY

ISSUANCE INDEX
DATE:
11/02/2021
PROJECT PHASE:
PRELIMINARY DOCUMENTS

REVISION SCHEDULE

NO.	DESCRIPTION	DATE
1	CITY COMMENTS	01/07/22
2	CBU/INDOT COMMENTS	01/28/22

Project Number 2020.01173

SPECIFICATIONS

C003 12

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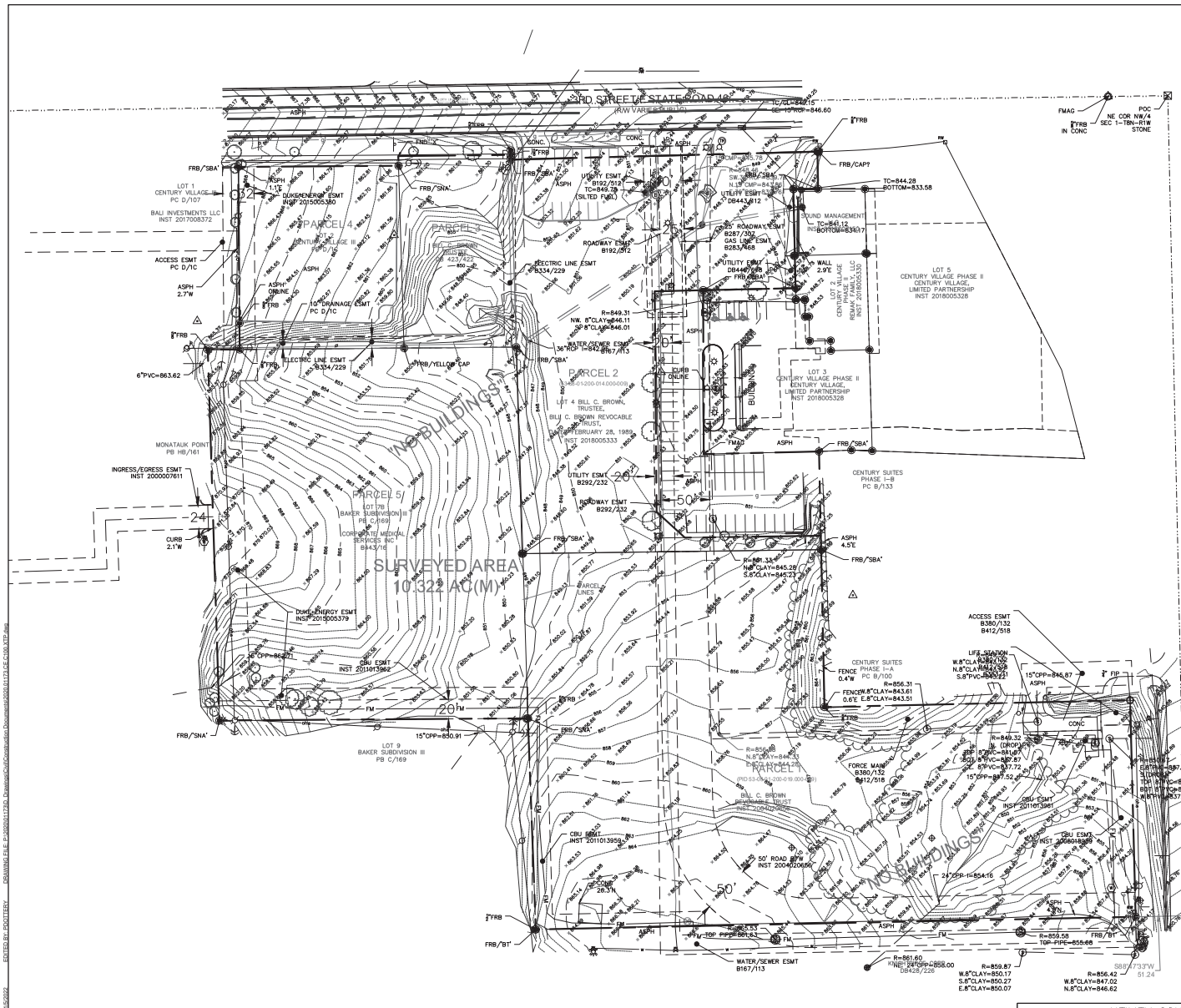

UTILITY CONTACTS

UTILITY	COMPANY	CONTACT	PHONE NO.
CABLE TELEVISION	COMCAST	SCOTT TEMPLETON	(317) 516-2356
ELECTRIC	DUKE ENERGY	PRESLEY PAGE	(812) 375-2020
FIBER OPTIC	AT&T	RUSS OWEN	(XXX) XXX-XXXX
GAS	VECTREN	JONATHAN EASTHAM	(317) 776-5573
SANITARY SEWER	CITY OF BLOOMINGTON UTILITIES	TROY POWELL	(812) 349-3632
STORM SEWER	CITY OF BLOOMINGTON UTILITIES	PHIL PEDEN	(812) 349-3634
TELEPHONE	AT&T	RUSS OWEN	(XXX) XXX-XXXX
WATER	CITY OF BLOOMINGTON UTILITIES	TROY POWELL	(812) 349-3632

(REV. 06/29/21)

EXISTING LEGEND

- Clean Out
- Combination Pole
- Curb Inlet
- Drainage Inlet
- Drainage MH
- Electric Box
- Electric Handhole
- Electric Meter Box
- Fire Hydrant
- Fire Plug
- Fire Valve Shut Off
- Gas Valve
- Water Valve
- Yard Light
- Buried Electric Line
- Transformer
- Tree
- ADA Parking
- Light Pole
- Mail Box
- Manhole
- Pine Tree
- Post
- Power Pole
- Right of Way Marker
- Sanitary MH
- Sign
- Stand Pipe
- Sub Surface Drain
- Telephone Box
- Telephone Handhole
- Telephone MH
- Telephone Pedestal
- Traffic MH
- Buried Water Line

BENCHMARK DATA

(DATUM: NAVD 88)

TBM – CUT 'X'
N:1426808.523
E:3125390.779
EL=863.29

LEGAL DESCRIPTION

A PART OF THE NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 1, TOWNSHIP 8 NORTH, RANGE 1 WEST, MONROE COUNTY, INDIANA, MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF SAID NORTHWEST QUARTER; THENCE SOUTH 01 DEGREES 15 MINUTES 21 SECONDS EAST (INDIANA STATE PLANE, WEST ZONE), ALONG THE EAST LINE OF SAID QUARTER SECTION 837.82 FEET; THENCE SOUTH 89 DEGREES 47 MINUTES 33 WEST 51.24 FEET TO A 5/8 REBAR WITH CAP ON THE WEST RIGHT OF WAY OF STATE ROAD 446 AND THE POINT OF BEGINNING; THENCE CONTINUING SOUTH 89 DEGREES 47 MINUTES 33 SECONDS WEST ALONG THE NORTH LINE OF A TRACT OF LAND (I.B. 426, P. 226), 612.68 FEET TO A POINT ON THE EAST LINE OF LOT 9 OF BAKER SUBDIVISION (P.C. "C", ENV. 15); THENCE ALONG SAID EAST LINE, NORTH 02 DEGREES 06 MINUTES 11 SECONDS WEST 215.78 FEET TO A 5/8 REBAR AT THE SOUTHEAST CORNER OF LOT 7B, BAKER SUBDIVISION III (P.C. "C", ENV. 169); THENCE ALONG THE SOUTH LINE OF SAID LOT, NORTH 89 DEGREES 36 MINUTES 08 SECONDS WEST 315.00 FEET TO THE SOUTHWEST CORNER OF SAID LOT; THENCE ALONG THE WEST LINE OF SAID LOT, NORTH 01 DEGREES 47 MINUTES 57 SECONDS WEST 378.90 TO THE NORTHWEST CORNER OF SAID LOT AND A 5/8 REBAR AND THE SOUTH LINE OF LOT 1 OF CENTURY VILLAGE II (P.C. "D", 107); THENCE NORTH 89 DEGREES 33 MINUTES 51 SECONDS EAST ALONG SAID SOUTH LINE 32.54 FEET TO THE WEST LINE OF LOT 2 IN SAID PLAT; THENCE NORTH 00 DEGREES 28 MINUTES 27 SECONDS WEST ALONG SAID WEST LINE 186.45 FEET TO THE SOUTH RIGHT OF WAY LINE OF STATE ROAD 46, THE NEXT (5) COURSES ARE ALONG SAID RIGHT OF WAY; (1) THENCE NORTH 89 DEGREES 32 MINUTES 22 SECONDS EAST 163.78 FEET; (2) THENCE NORTH 01 DEGREES 34 MINUTES 55 SECONDS WEST 9.92 FEET; (3) THENCE NORTH 89 DEGREES 26 MINUTES 22 SECONDS EAST 114.84 FEET; (4) THENCE SOUTH 01 DEGREES 37 MINUTES 36 SECONDS EAST 4.79 FEET; (5) THENCE NORTH 88 DEGREES 30 MINUTES 02 SECONDS EAST 35.14 FEET TO THE NORTHEAST OF LOT 4 OF CENTURY VILLAGE PHASE II AND AMENDMENT TO CENTURY VILAGE LOT 2, PHASE I (INST). THE NEXT (5) COURSES ARE ALONG THE PERIMETER OF SAID LOT 4; (1) THENCE SOUTH 00 DEGREES 08 MINUTES 58 SECONDS EAST 38.25 FEET; (2) THENCE SOUTH 89 DEGREES 58 MINUTES 41 SECONDS WEST 25.29 FEET; (3) THENCE SOUTH 01 DEGREES 15 MINUTES 53 SECONDS EAST 101.23 FEET; (4) THENCE SOUTH 89 DEGREES 44 MINUTES 07 SECONDS WEST 94.36 FEET; (5) THENCE SOUTH 00 DEGREES 12 MINUTES 21 SECONDS WEST 257.51 FEET; THENCE NORTH 89 DEGREES 10 MINUTES 30 SECONDS EAST 119.35 FEET TO THE WEST LINE OF CENTURY SUITES PHASE I-A AND I-B (P.C. "B", ENV. 100 AND 133); THE NEXT (2) COURSES ARE ALONG THE PERIMETER OF SAID PLATS; (1) THENCE SOUTH 01 DEGREES 13 MINUTES 33 SECONDS EAST 169.98 FEET; (2) THENCE NORTH 88 DEGREES 42 MINUTES 44 SECONDS EAST 312.16 FEET TO THE WEST RIGHT OF WAY LINE OF STATE ROAD 446; THENCE SOUTH 01 DEGREES 27 MINUTES 47 SECONDS EAST ALONG SAID RIGHT OF WAY 221.31 FEET TO THE POINT OF BEGINNING, CONTAINING 10.322 ACRES, MORE OR LESS.

GENERAL NOTES:

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3. SEE SHEET C002 GENERAL NOTES FOR MORE INFORMATION.

!! CAUTION !!

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1	CITY COMMENTS	01/07/22
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Project Number 2020.01173

EXISTING TOPOGRAPHY

C100 13

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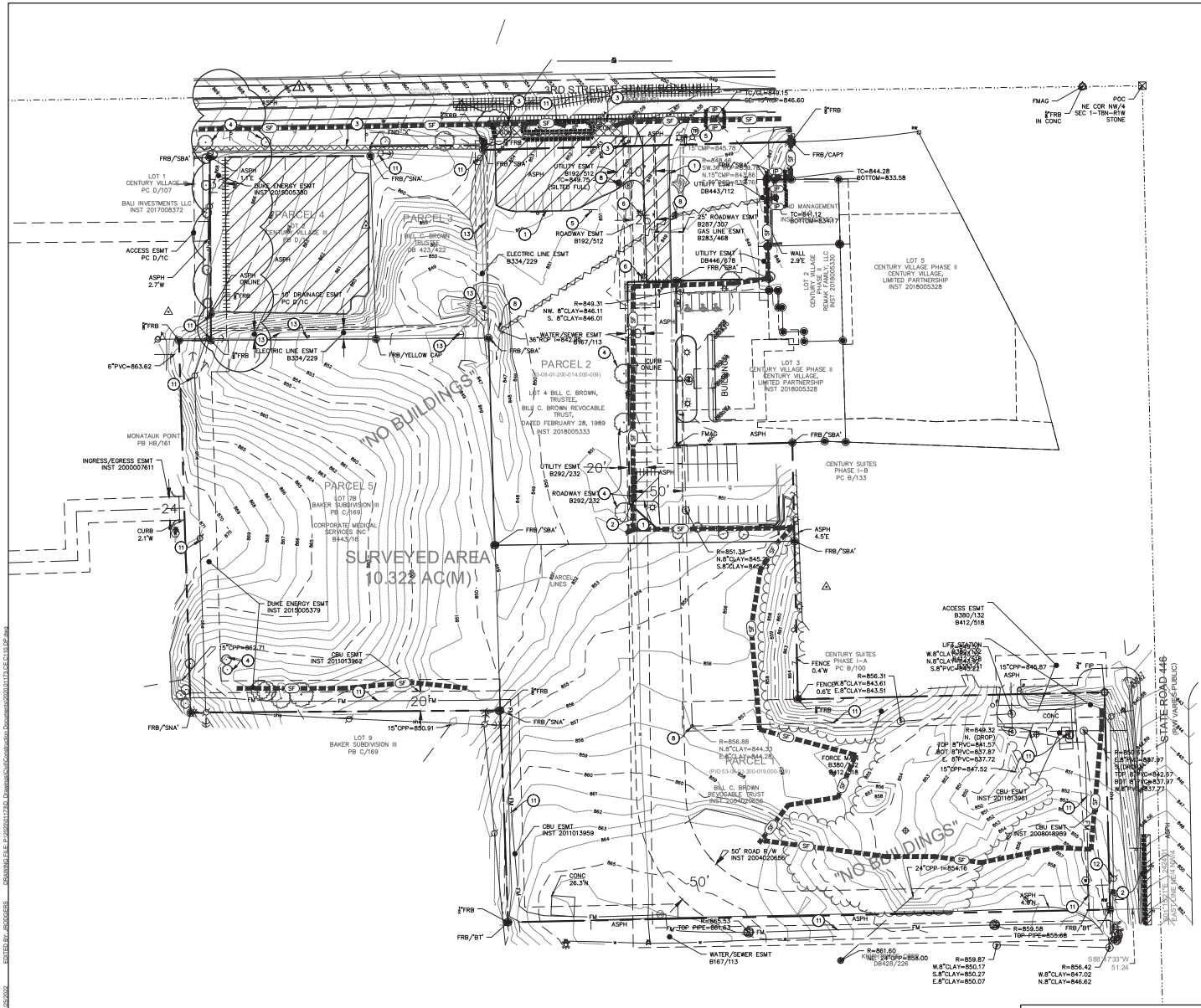

SCALE: 1"=50'

EXISTING LEGEND

- Clean Out
- Combination Pole
- Curb Inlet
- Drainage Inlet
- Drainage MH
- Electric Box
- Electric Handhole
- Electric Meter Box
- Fire Hydrant
- Fire Plug
- Fire Valve Shut Off
- Gas Valve
- Water Valve
- Yard Light
- Buried Electric Line
- Transformer
- Tree
- ADA Parking
- Light Pole
- Mail Box
- Manhole
- Pine Tree
- Post
- Power Pole
- Right of Way Marker
- Sanitary MH
- Sign
- Stand Pipe
- Sub Surface Drain
- Telephone Box
- Telephone Handhole
- Telephone MH
- Telephone Pedestal
- Traffic MH
- Buried Water Line

DEMOLITION LEGEND

- EXISTING UTILITY TO BE REMOVED
- PAVEMENT TO BE SAWCUT
- EXISTING CURB TO BE REMOVED
- EXISTING ASPHALT TO BE REMOVED
- EXISTING CONCRETE AND BASE TO BE REMOVED

KEYNOTES

1. EXISTING ASPHALT PAVEMENT AND BASE MATERIAL TO BE REMOVED (SAWCUT FOR CLEAN EDGE).
2. EXISTING CONCRETE CURB TO BE REMOVED.
3. REMOVE EXISTING CONCRETE, BASE, CONCRETE PADS AND OTHER MISCELLANEOUS CONCRETE MATERIAL (SAWCUT FOR CLEAN EDGE).
4. EXISTING TREES TO BE REMOVED.
5. EXISTING SIGN TO BE REMOVED.
6. EXISTING LIGHT POLE TO BE REMOVED.
7. EXISTING HYDRANT TO BE REMOVED.
8. EXISTING STRUCTURE TO BE REMOVED.
9. ADJUST CASTING TO PROPOSED GRADE.
10. PROTECT EXISTING INLET / MANHOLE. EXISTING CASTING TO BE REPLACED WITH APPROPRIATE FLAT CASTING. CONTRACTOR TO VERIFY EXISTING INLET / MANHOLE TYPE AND PROVIDE SUBSTITUTE CASTING REPLACEMENT.
11. PROTECT EXISTING UTILITY THROUGHOUT DURATION OF CONSTRUCTION.
12. EXISTING POWER POLE TO BE RELOCATED. CONTRACTOR TO COORDINATE WITH DUKE ENERGY.
13. EXISTING COMMUNICATIONS POLE AND LINE TO BE RELOCATED. COORDINATE WITH AT&T.

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Project Number 2020.01173

****PLEASE STAKE THE BOUNDARIES OF THE TREE PRESERVATION EASEMENT, INSTALL TREE PROTECTION FENCING, AND CALL PLANNING & TRANSPORTATION FOR AN INSPECTION BEFORE ANY DEMOLITION OR GRADING BEGINS****

GENERAL NOTES:

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3. SEE SHEET C002 GENERAL NOTES FOR MORE INFORMATION.

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"811" OR 1-800-382-5544
– INDIANA UNDERGROUND –

UTILITY CONTACTS

UTILITY	COMPANY	CONTACT	PHONE NO.
CABLE TELEVISION	COMCAST	SCOTT TEMPLETON	(317) 516-2356
ELECTRIC	DUKE ENERGY	PRESLEY PAGE	(812) 375-2020
FIBER OPTIC	AT&T	RUSS OWEN	(XXX) XXX-XXXX
GAS	VECTREN	JONATHAN EASTHAM	(317) 776-5573
SANITARY SEWER	CITY OF BLOOMINGTON UTILITIES	TROY POWELL	(812) 349-3632
STORM SEWER	CITY OF BLOOMINGTON UTILITIES	PHIL PEDEN	(812) 349-3634
TELEPHONE	AT&T	RUSS OWEN	(XXX) XXX-XXXX
WATER	CITY OF BLOOMINGTON UTILITIES	TROY POWELL	(812) 349-3632

(REV. 06/29/21)

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OVERLOOK ON 46 & CENTURY VILLAGE STORAGE

Bloomington, IN

DEMOLITON PLAN

C110

14

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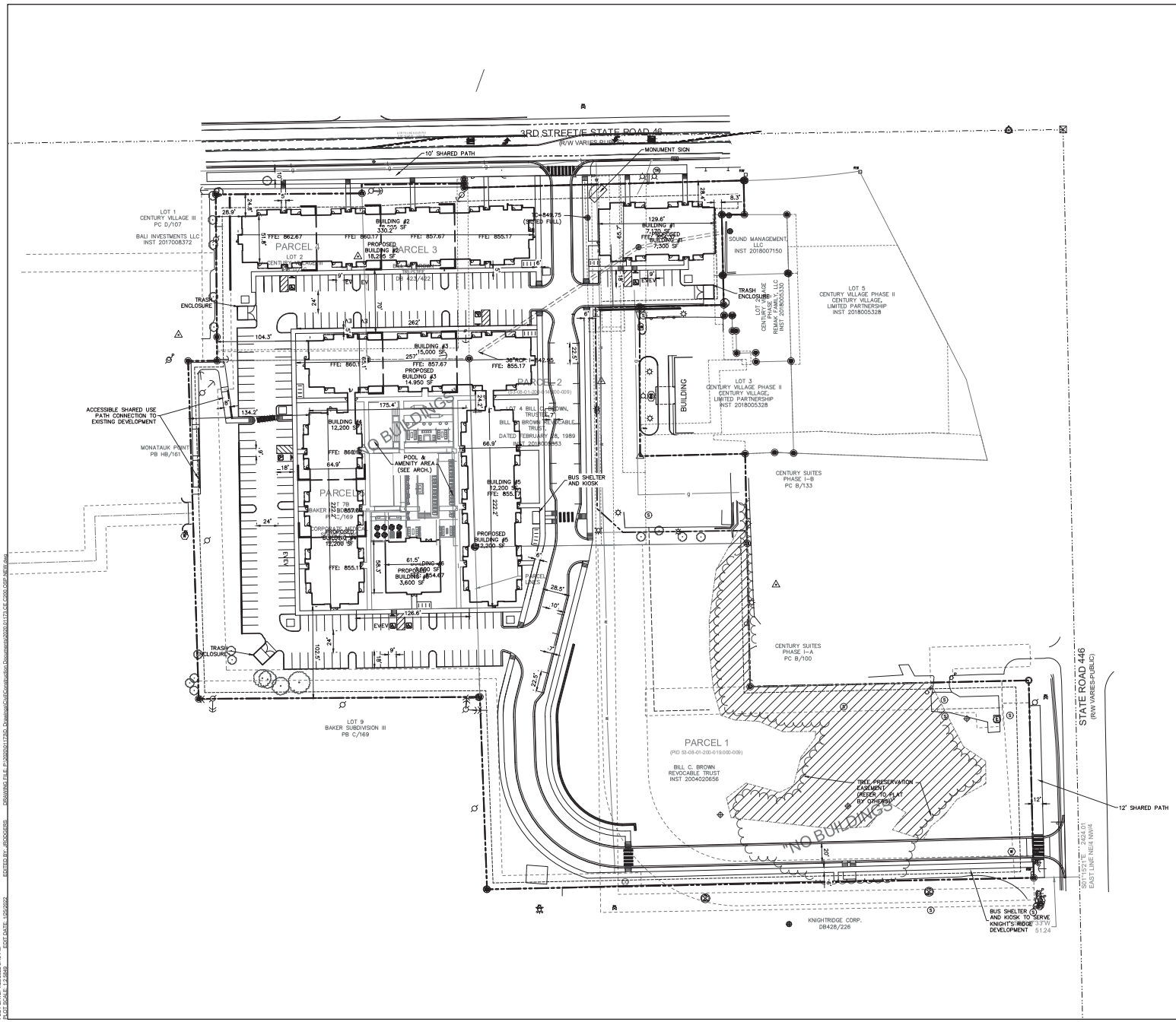

SCALE: 1"=50'

SITE DATA TABLE

SITE ZONING:	MC
PROJECT AREA:	10.05± ACRES
BUILDING AREA:	106,612 SF
SITE IMPERVIOUS AREA:	5.34 ± ACRES
STANDARD PARKING (9'x18'):	179
ADDITIONAL STREET PARKING (7'X22.5'):	17
ADA PARKING:	7
TOTAL PROPOSED PARKING:	203

GENERAL NOTES:

1. CONTRACTOR SHALL PROTECT AND NOT DESTROY THE PROPERTY CORNER MONUMENTS DURING CONSTRUCTION.
2. CONTRACTOR TO VERIFY LOCATION, SIZE AND DEPTH OF EXISTING UTILITIES PRIOR TO COMMENCING ANY CONSTRUCTION. CONTACT ENGINEER IF VARIATION EXISTS.
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Project Number 2020.01173

OVERALL SITE PLAN

C200

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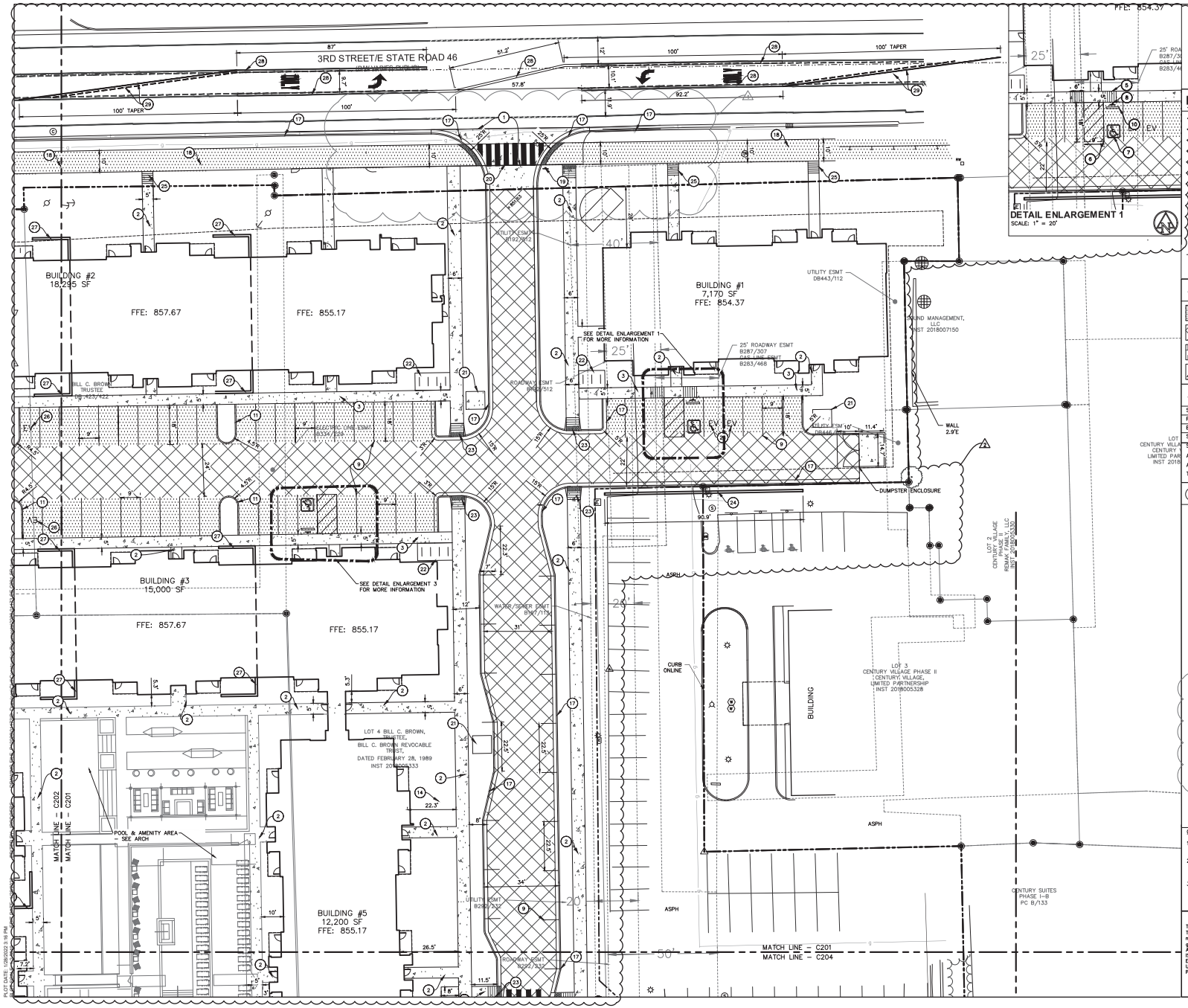

SCALE: 1"=50'

EXISTING LEGEND

- Clean Out
- Combination Pole
- Curb Inlet
- Drainage Inlet
- Drainage MH
- Electric Box
- Electric Handhole
- Electric Meter Box
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- Fire Plug
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- Sanitary MH
- Sign
- Stand Pipe
- Sub Surface Drain
- Telephone Box
- Telephone Handhole
- Telephone MH
- Telephone Pedestal
- Traffic MH
- Buried Water Line

SITE LEGEND

- LIGHT DUTY ASPHALT PAVEMENT
- HEAVY DUTY ASPHALT PAVEMENT
- RIGHT OF WAY ASPHALT PAVEMENT
- CONCRETE PAVEMENT

SITE DATA TABLE

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TOTAL PROPOSED PARKING:	203	

KEYNOTES

1. PEDESTRIAN TABLE (REFER TO DETAIL AND GRADING PLAN)
2. CONCRETE SIDEWALK
3. COMBINED CONCRETE CURB & WALK
4. CONCRETE STOOP (REFER TO CONCRETE SIDEWALK DETAIL)
5. ADA ACCESSIBLE RAMP TYPE 'K'
6. ADA PARKING SPACE (4" BLUE PAINT STRIPE)
7. ADA PARKING SYMBOL
8. ADA ACCESSIBLE PARKING SIGN (REFER TO SHEET C600)
9. PARKING SPACE (4" WHITE PAINT STRIPE)
10. CONCRETE WHEEL STOP
11. 6" CONCRETE CURB
12. CURB TAPER
13. CURB TURNOUT
14. BUS SHELTER
15. CONCRETE BOLLARD
16. HEAVY DUTY CONCRETE PAVEMENT
17. 24" CONCRETE CURB & GUTTER
18. PUBLIC SIDEWALK
19. STOP SIGN
20. PEDESTRIAN CROSSWALK STRIPING (REFER TO DETAIL ON SHEET C602)
21. TRANSFORMER PAD
22. BIKE RACKS AND PAD
23. TYPE "C" ADA RAMP
24. RETAINING WALL (REFER TO GRADING PLAN FOR ELEVATIONS AND SITE STRUCTURAL FOR WALL SECTIONS)
25. STAIR RISERS AND HAND RAIL
26. ELECTRIC VEHICLE PREFERRED PARKING SPACE
27. CHEEK WALL (REFER TO CURB WALL DETAIL)
28. 12" CURB MEDIAN PER INDOT STANDARD DRAWING CENTER CURB TYPE C & D".
29. 4" YELLOW ROAD STRIPING PER INDOT STANDARDS
30. ACCESSIBLE RAMP WITH HANDRAIL

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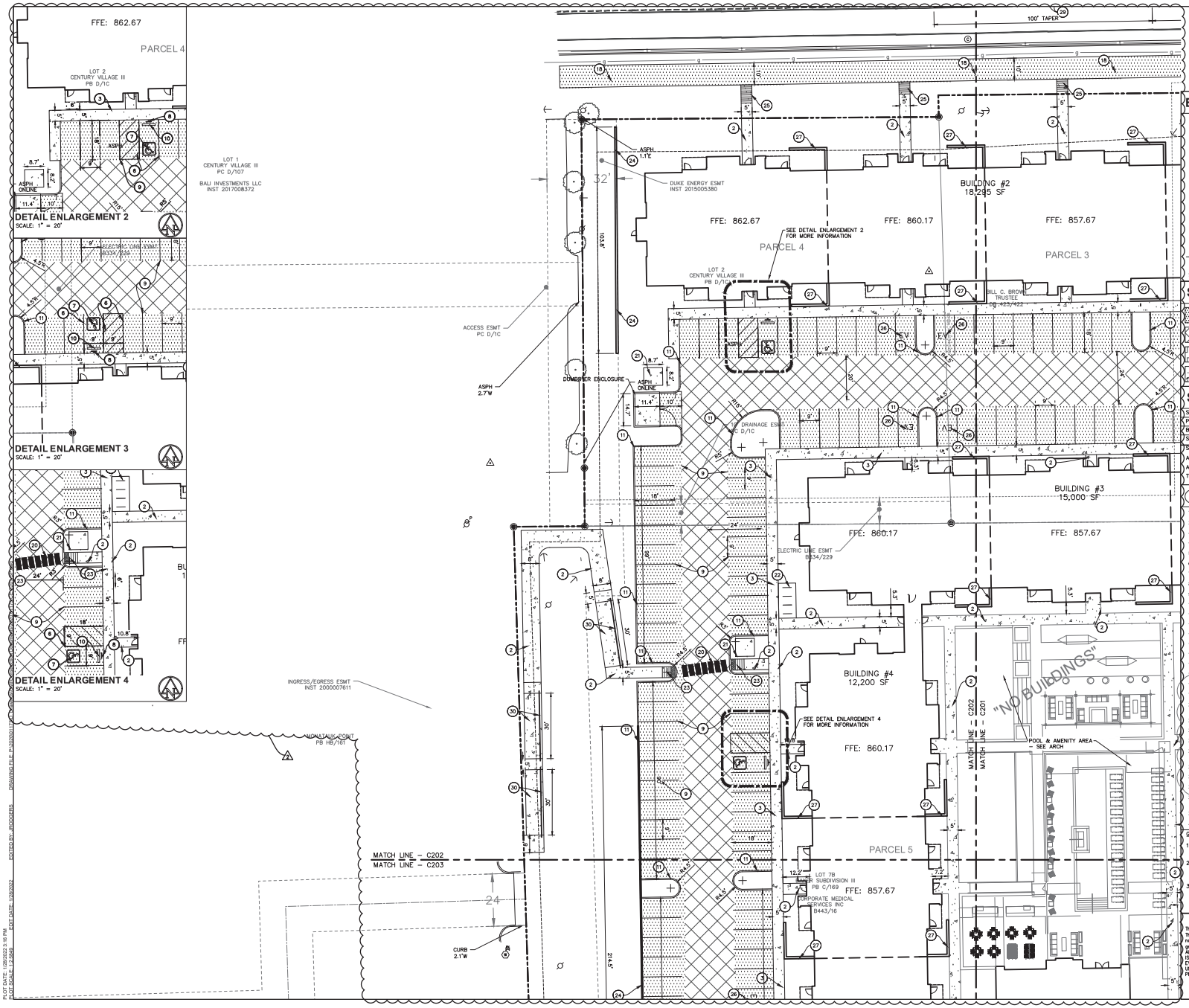
SITE PLAN

C201

16

PLOT DATE: 1/28/2022 3:16 PM



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- Fire Hydrant
- Fire Plug
- Fire Valve Shut Off
- Gas Valve
- Water Valve
- Yard Light
- Buried Electric Line
- Transformer
- Tree
- ADA Parking
- Light Pole
- Mail Box
- Manhole
- Pine Tree
- Post
- Power Pole
- Right of Way Marker
- Sanitary MH
- Sign
- Stand Pipe
- Sub Surface Drain
- Telephone Box
- Telephone Handhole
- Telephone MH
- Telephone Pedestal
- Traffic MH
- Buried Water Line

SITE LEGEND

- LIGHT DUTY ASPHALT PAVEMENT
- HEAVY DUTY ASPHALT PAVEMENT
- RIGHT OF WAY ASPHALT PAVEMENT
- CONCRETE PAVEMENT

SITE DATA TABLE

SITE ZONING:	MC	
PROJECT AREA:	10.05±	ACRES
BUILDING AREA:	106,612	SF
SITE IMPERVIOUS AREA:	5.34 ±	ACRES
STANDARD PARKING (9'x18'):	179	
ADDITIONAL STREET PARKING (7'X22.5'):	17	
ADA PARKING:	7	
TOTAL PROPOSED PARKING:	203	

KEYNOTES

1. PEDESTRIAN TABLE (REFER TO DETAIL AND GRADING PLAN)
2. CONCRETE SIDEWALK
3. COMBINED CONCRETE CURB & WALK
4. CONCRETE STOOP (REFER TO CONCRETE SIDEWALK DETAIL)
5. ADA ACCESSIBLE RAMP TYPE "K"
6. ADA PARKING SPACE (4" BLUE PAINT STRIPE)
7. ADA PARKING SYMBOL
8. ADA ACCESSIBLE PARKING SIGN (REFER TO SHEET C600)
9. PARKING SPACE (4" WHITE PAINT STRIPE)
10. CONCRETE WHEEL STOP
11. 6" CONCRETE CURB
12. CURB TAPER
13. CURB TURNOUT
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16. HEAVY DUTY CONCRETE PAVEMENT
17. 24" CONCRETE CURB & GUTTER
18. PUBLIC SIDEWALK
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24. RETAINING WALL (REFER TO GRADING PLAN FOR ELEVATIONS AND SITE STRUCTURAL FOR WALL SECTIONS)
25. STAIR RISERS AND HAND RAIL
26. ELECTRIC VEHICLE PREFERRED PARKING SPACE
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28. 12" CURB MEDIAN PER INDOT STANDARD "DRAWING CENTER CURB TYPE C & D".
29. 4" YELLOW ROAD STRIPING PER INDOT STANDARDS
30. ACCESSIBLE RAMP WITH HANDRAIL

GENERAL NOTES:

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– INDIANA UNDERGROUND –

MHG HOTELS, LLC

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OVERLOOK ON 46 & CENTURY VILLAGE STORAGE

Bloomington, IN

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CERTIFIED BY

ISSUANCE INDEX	
DATE:	11/02/2021
PROJECT PHASE:	PRELIMINARY DOCUMENTS

REVISION SCHEDULE

NO.	DESCRIPTION	DATE
1	CITY COMMENTS	01/07/22
2	CBU/INDOT COMMENTS	01/28/22

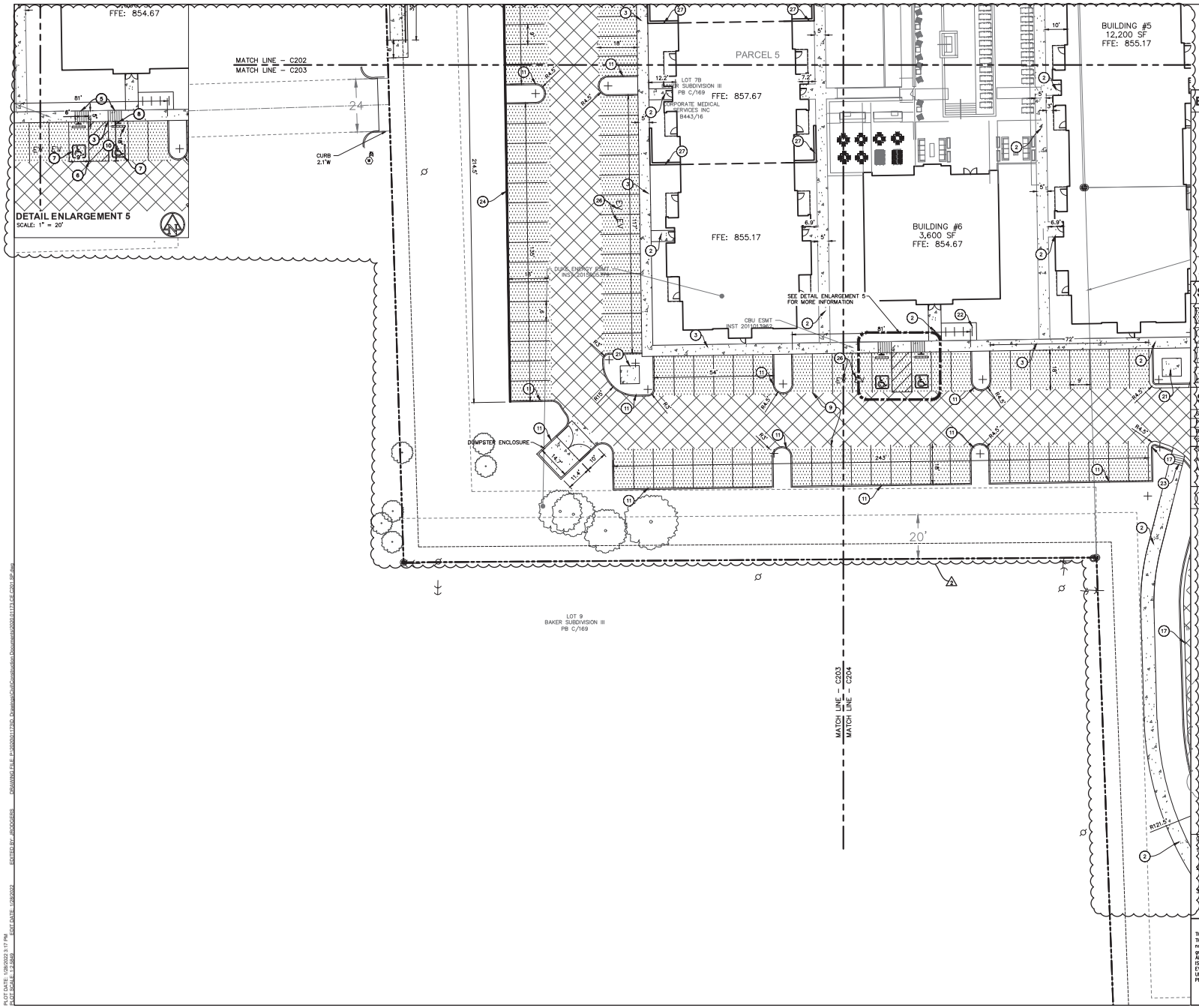
Project Number 2020.01173

SITE PLAN

C202

17

PLOT DATE: 1/28/2022 3:16 PM
PLOT SCALE: 1:2.5001
EDIT DATE: 1/28/2022
EDITED BY: JRODGERS
DRAWING FILE: P:\2020\2020.01173\



EXISTING LEGEND

- Clean Out
- Combination Pole
- Curb Inlet
- Drainage Inlet
- Drainage MH
- Electric Box
- Electric Handhole
- Electric Meter Box
- Fire Hydrant
- Fire Plug
- Fire Valve Shut Off
- Gas Valve
- Water Valve
- Yard Light
- Buried Electric Line
- Transformer
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- Light Pole
- Mail Box
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- Right of Way Marker
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- Sub Surface Drain
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- Telephone Handhole
- Telephone MH
- Telephone Pedestal
- Traffic MH
- Buried Water Line

SITE LEGEND

- LIGHT DUTY ASPHALT PAVEMENT
- HEAVY DUTY ASPHALT PAVEMENT
- RIGHT OF WAY ASPHALT PAVEMENT
- CONCRETE PAVEMENT

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REVISION SCHEDULE

NO.	DESCRIPTION	DATE
1	CITY COMMENTS	01/07/22
2	CBU/INDOT COMMENTS	01/28/22

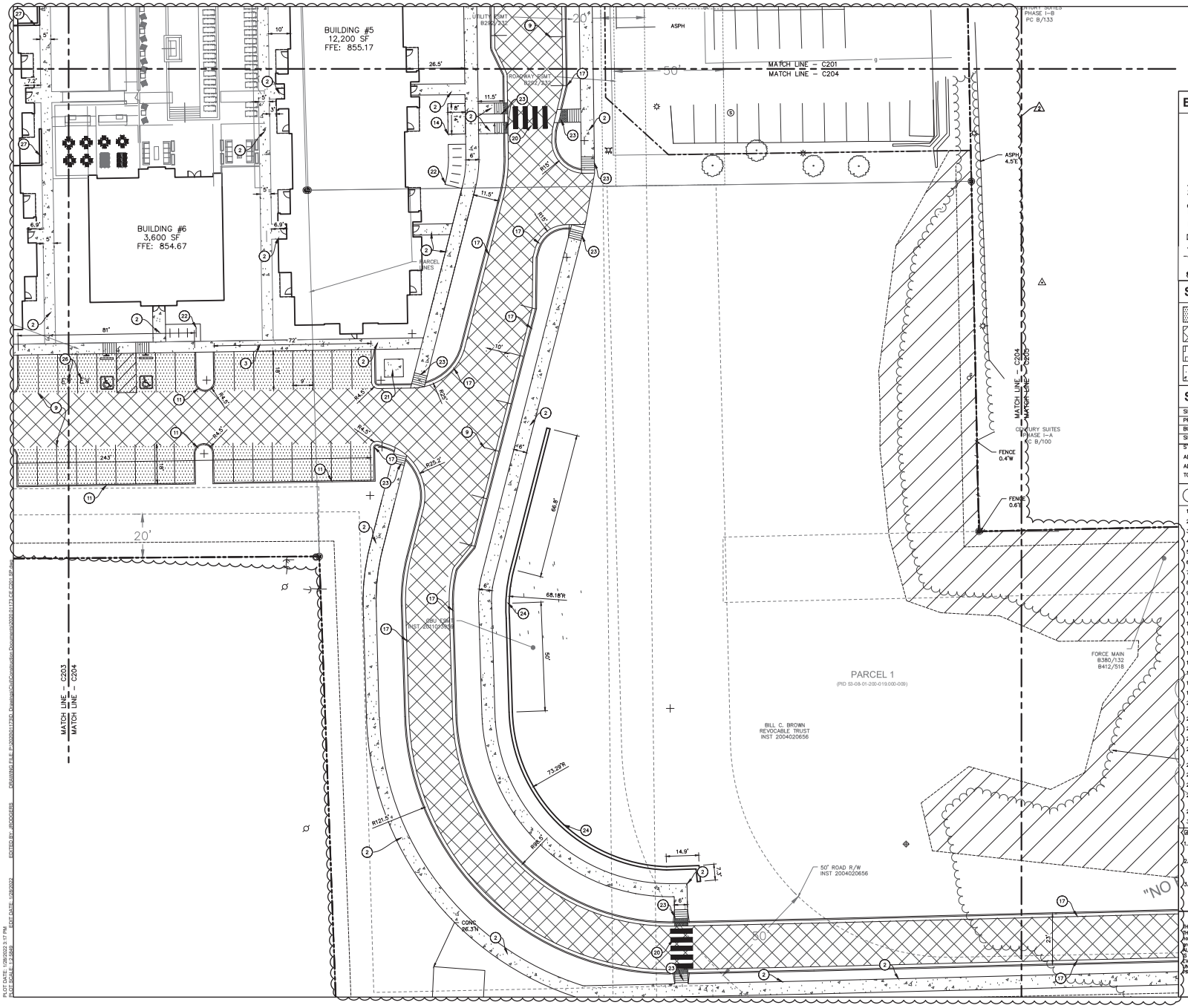
Project Number 2020.01173

SITE PLAN

C203

18

PLOT DATE: 1/28/2022 3:17 PM
PLOT SCALE: 1:2.5851
EDIT DATE: 1/28/2022
EDITED BY: JRODGERS
DRAWING FILE: P:\2020\01173\D Drawings\CivilCad\Construction Documents\C000-01173-CE-C203_SP.dwg



SCALE: 1"=50'

EXISTING LEGEND

- Clean Out
- Combination Pole
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- RIGHT OF WAY ASPHALT PAVEMENT
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REVISION SCHEDULE

NO.	DESCRIPTION	DATE
1	CITY COMMENTS	01/07/22
2	CBU/INDOT COMMENTS	01/28/22

Project Number 2020.01173

SITE PLAN

C204

19

PLOT DATE: 1/28/2022 3:17 PM
PLOT SCALE: 1:2.5001
EDIT DATE: 1/28/2022
EDITED BY: JRODGERS
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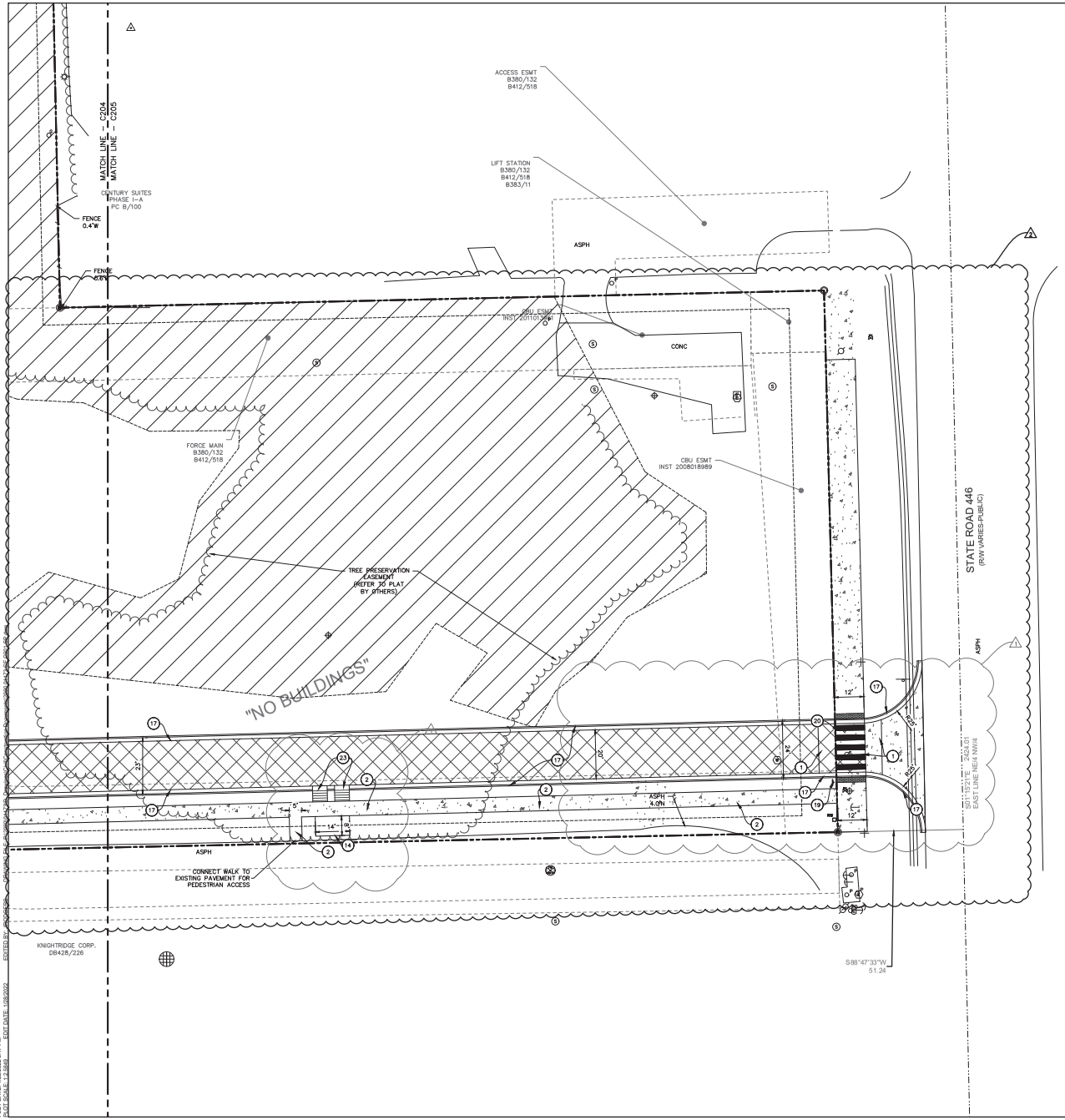

SCALE: 1"=50'

EXISTING LEGEND

- Clean Out
- Combination Pole
- Curb Inlet
- Drainage Inlet
- Drainage MH
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- Electric Handhole
- Electric Meter Box
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REVISION SCHEDULE

NO.	DESCRIPTION	DATE
1	CITY COMMENTS	01/07/22
2	CBU/INDOT COMMENTS	01/28/22

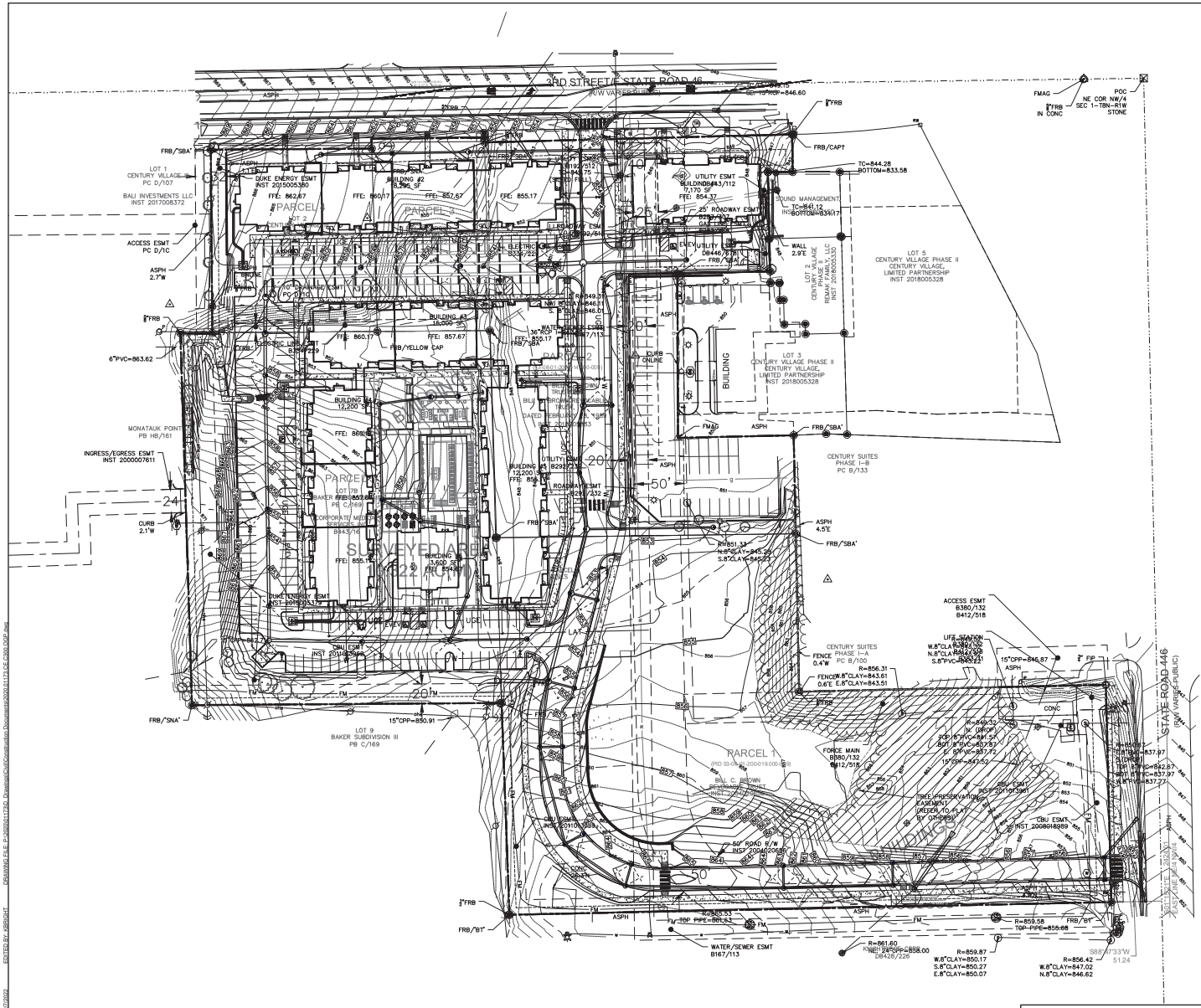
Project Number 2020.01173

SITE PLAN

C205

20

PLOT DATE: 1/28/2022 3:17 PM
PLOT SCALE: 1:2.5000
EDIT DATE: 1/28/2022
EDITED BY: JRODGERS



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- Telephone Handhole
- Telephone MH
- Telephone Pedestal
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- Buried Water Line

TBM – CUT "X"
N:1426808.523
E:3125390.779
EL=863.29

GRADING LEGEND

ME	MATCH EXISTING
FL	FLOWLINE
BC	BOTTOM OF CURB
TC	TOP OF CURB
HP	HIGH POINT
LP	LOW POINT
000	CONTOURS
	SWALE
TC 000.50 BC 000.00	CURB ELEVATIONS
000.00	SPOT ELEVATIONS
	FLOW ARROW
	STORM SEWER LINE
	PAVEMENT UNDERDRAIN
	STRUCTURES
	RIDGE LINE

GRADING WALL DETAIL
NOT TO SCALE

TW: TOP OF WALL
FGU: FINISH GRADE AT UPPER SIDE OF WALL
FGL: FINISH GRADE AT LOWER SIDE OF WALL

PLEASE STAKE THE BOUNDARIES OF THE TREE PRESERVATION EASEMENT, INSTALL TREE PROTECTION FENCING, AND CALL PLANNING & TRANSPORTATION FOR AN INSPECTION BEFORE ANY DEMOLITION OR GRADING BEGINS

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UTILITY CONTACTS

UTILITY	COMPANY	CONTACT	PHONE NO.
CABLE TELEVISION	COMCAST	SCOTT TEMPLETON	(317) 516-2356
ELECTRIC	DUKE ENERGY	PRESLEY PAGE	(812) 375-2020
FIBER OPTIC	AT&T	RUSS OWEN	(XXX) XXX-XXXX
GAS	VECTREN	JONATHAN EASTHAM	(317) 776-5573
SANITARY SEWER	CITY OF BLOOMINGTON UTILITIES	TROY POWELL	(812) 349-3632
STORM SEWER	CITY OF BLOOMINGTON UTILITIES	PHIL PEDEN	(812) 349-3634
TELEPHONE	AT&T	RUSS OWEN	(XXX) XXX-XXXX
WATER	CITY OF BLOOMINGTON UTILITIES	TROY POWELL	(812) 349-3632

(REV. 06/29/21)

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1	CITY COMMENTS	01/07/22
2	CBU/INDOT COMMENTS	01/28/22
3	DETENTION COORDINATION	02/07/22

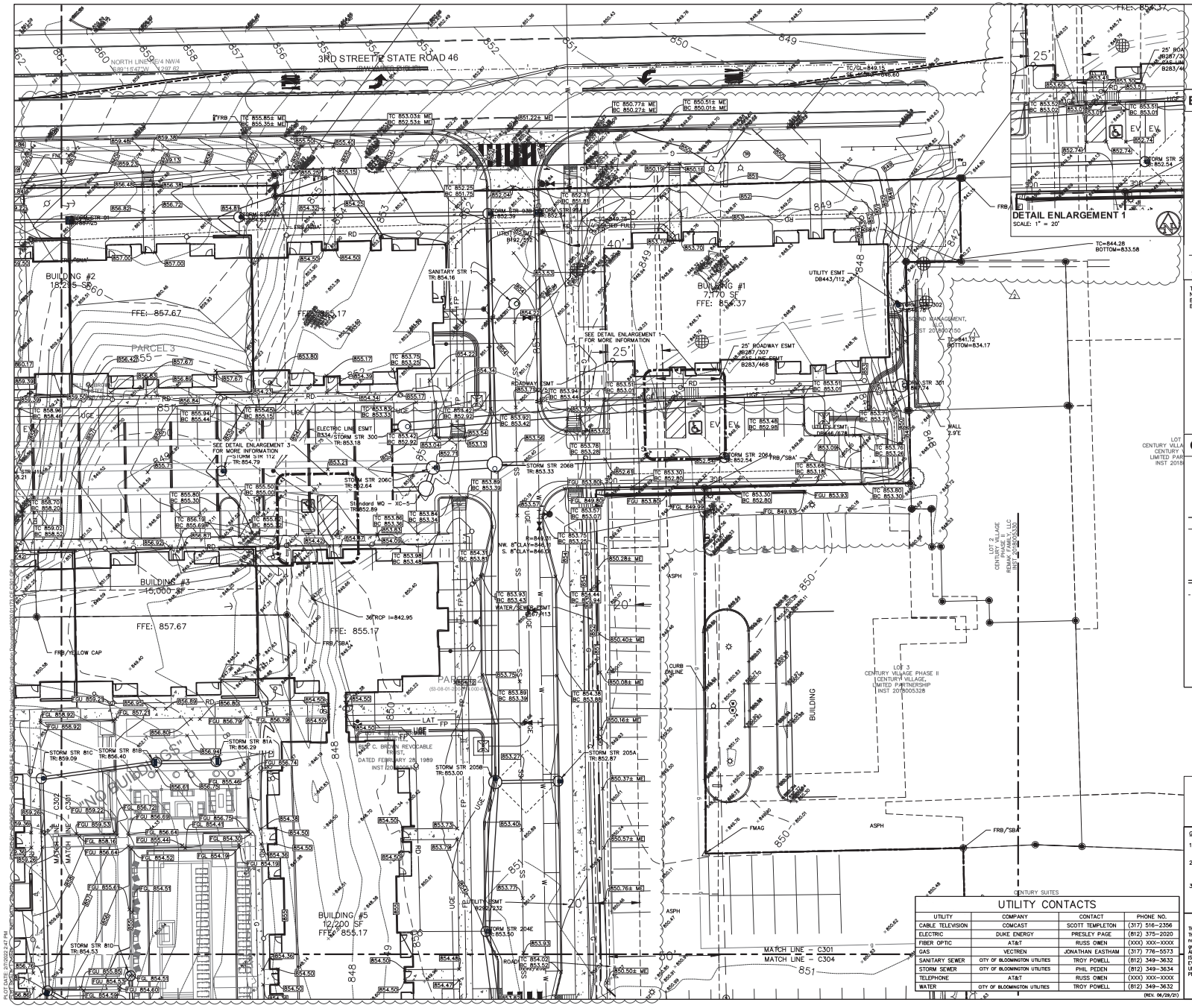
Project Number 2020.01173

OVERALL GRADING PLAN

C300

21

PLOT DATE: 2/7/2022 2:55 PM
PLOT SCALE: 1:2.5639
EDIT DATE: 2/7/2022
EDITED BY: HSHORT
DRAWING FILE: P:\2020\01173\3. Drawings\Grading\Grading Documents\2020-01173-CF-C300-GRP.dwg



SCALE: 1"=50'

EXISTING LEGEND

- Clean Out
- Combination Pole
- Curb Inlet
- Drainage Inlet
- Drainage MH
- Electric Box
- Electric Handhole
- Electric Meter Box
- Fire Hydrant
- Fire Plug
- Fire Valve Shut Off
- Gas Valve
- Water Valve
- Yard Light
- Buried Electric Line
- Transformer
- Tree
- ADA Parking
- Light Pole
- Mail Box
- Manhole
- Pine Tree
- Post
- Power Pole
- Right of Way Marker
- Sanitary MH
- Sign
- Stand Pipe
- Sub Surface Drain
- Telephone Box
- Telephone Handhole
- Telephone MH
- Telephone Pedestal
- Traffic MH
- Buried Water Line

TBM – CUT "X"
N:1426808.523
E:3125390.779
EL=863.29

GRADING LEGEND

ME	MATCH EXISTING
FL	FLOWLINE
BC	BOTTOM OF CURB
TC	TOP OF CURB
HP	HIGH POINT
LP	LOW POINT
000	CONTOURS
	SWALE
TC 000.50 BC 000.00	CURB ELEVATIONS
000.00	SPOT ELEVATIONS
	FLOW ARROW
	STORM SEWER LINE
	PAVEMENT UNDERDRAIN
	STRUCTURES
	RIDGE LINE

GRADING WALL DETAIL
NOT TO SCALE

TW: TOP OF WALL
FGU: FINISH GRADE AT UPPER SIDE OF WALL
FGL: FINISH GRADE AT LOWER SIDE OF WALL

PLEASE STAKE THE BOUNDARIES OF THE TREE PRESERVATION EASEMENT, INSTALL TREE PROTECTION FENCING, AND CALL PLANNING & TRANSPORTATION FOR AN INSPECTION BEFORE ANY DEMOLITION OR GRADING BEGINS

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(REV. 06/29/21)

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ISSUANCE INDEX
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REVISION SCHEDULE

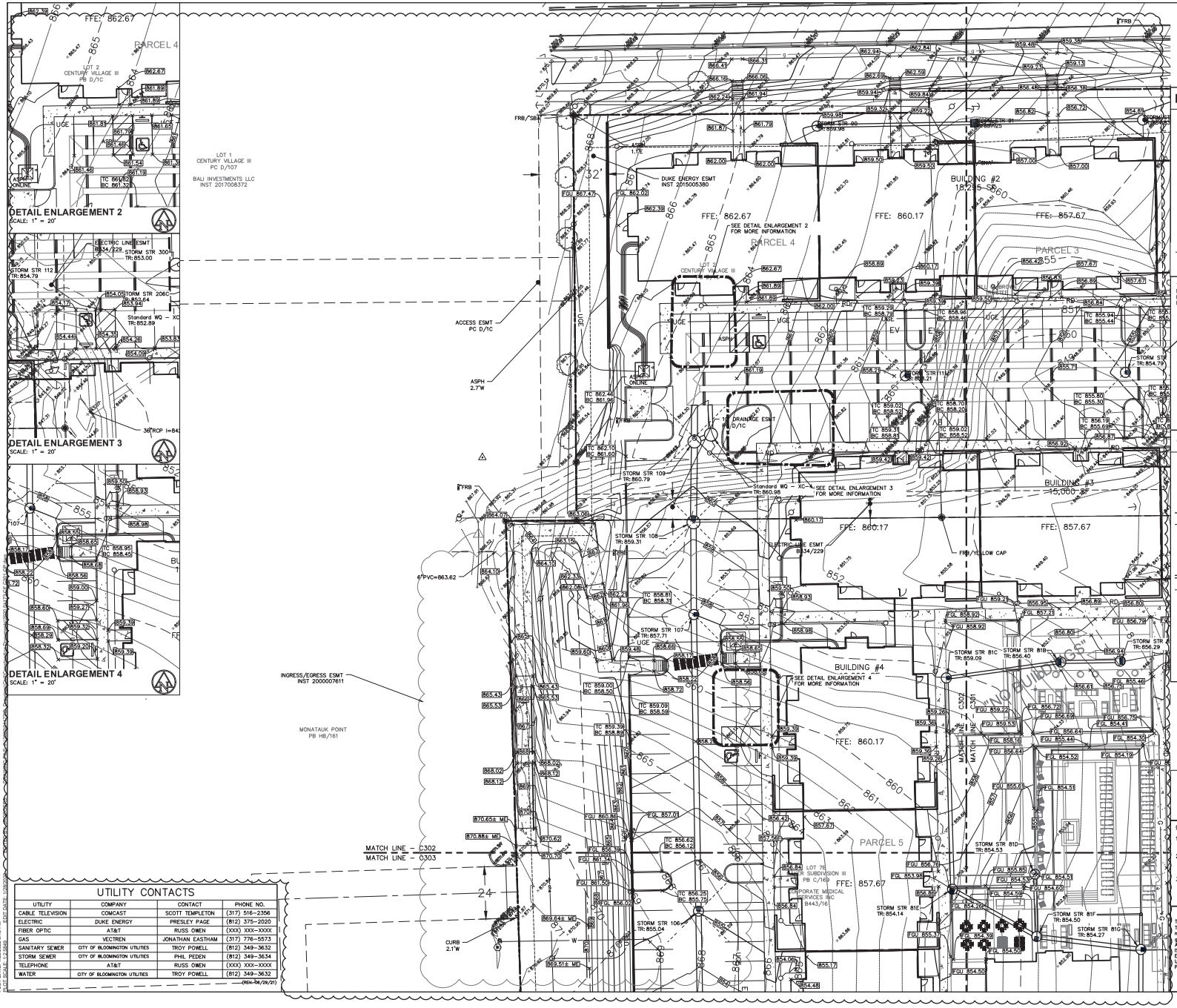
NO.	DESCRIPTION	DATE
1	CITY COMMENTS	01/07/22
2	CBU/INDOT COMMENTS	01/28/22
3	DETENTION COORDINATION	02/07/22

Project Number 2020.01173

GRADING PLAN

C301

22



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(REV-08/29/21)

SCALE: 1"=50'

EXISTING LEGEND

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NO.	DESCRIPTION	DATE
1	CITY COMMENTS	01/07/22
2	CBU/INDOT COMMENTS	01/28/22

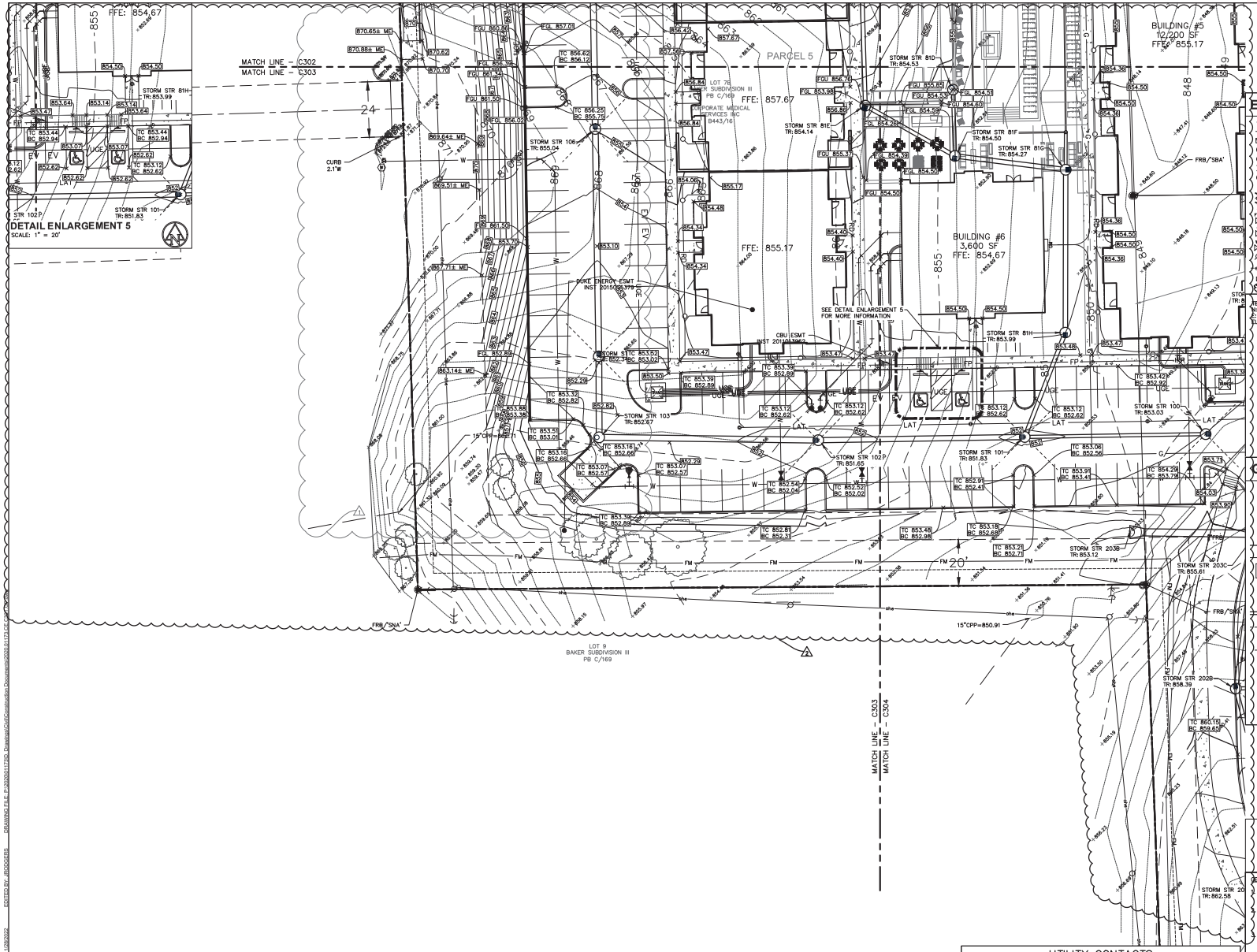
Project Number 2020.01173

GRADING PLAN

C302

23

PLOT DATE: 1/28/2022 3:18 PM
PLOT SCALE: 1:2.5000
EDIT DATE: 1/28/2022



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(rev. 06/29/21)

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NO.	DESCRIPTION	DATE
1	CITY COMMENTS	01/07/22
2	CBU/INDOT COMMENTS	01/28/22

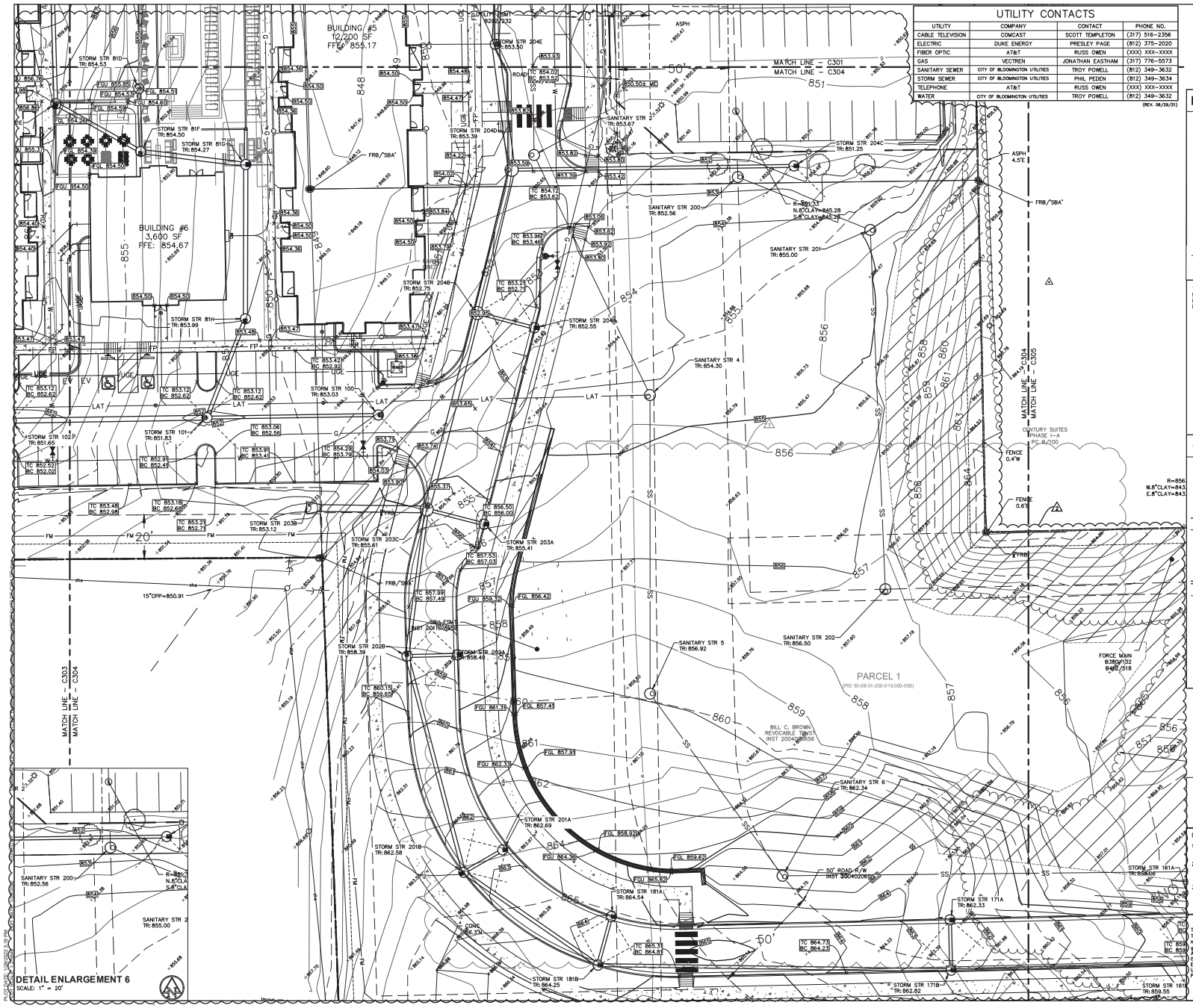
Project Number 2020.01173

GRADING PLAN

C303

24

PLOT DATE: 1/28/2022 3:18 PM
PLOT SCALE: 1:2.5000
EDIT DATE: 1/28/2022
EDITED BY: JRODGERS
DRAWING FILE: P:\2020\01173\5. Drawings\Grading\Grading Documents\2020.01173-C-GRADING.dwg



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TELEPHONE	AT&T	RUSS OWEN	(XXX) XXX–XXXX
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(REV. 08/29/21)

0' 50' 100'
SCALE: 1"=50'

EXISTING LEGEND

- Clean Out
- Combination Pole
- Curb Inlet
- Drainage Inlet
- Drainage MH
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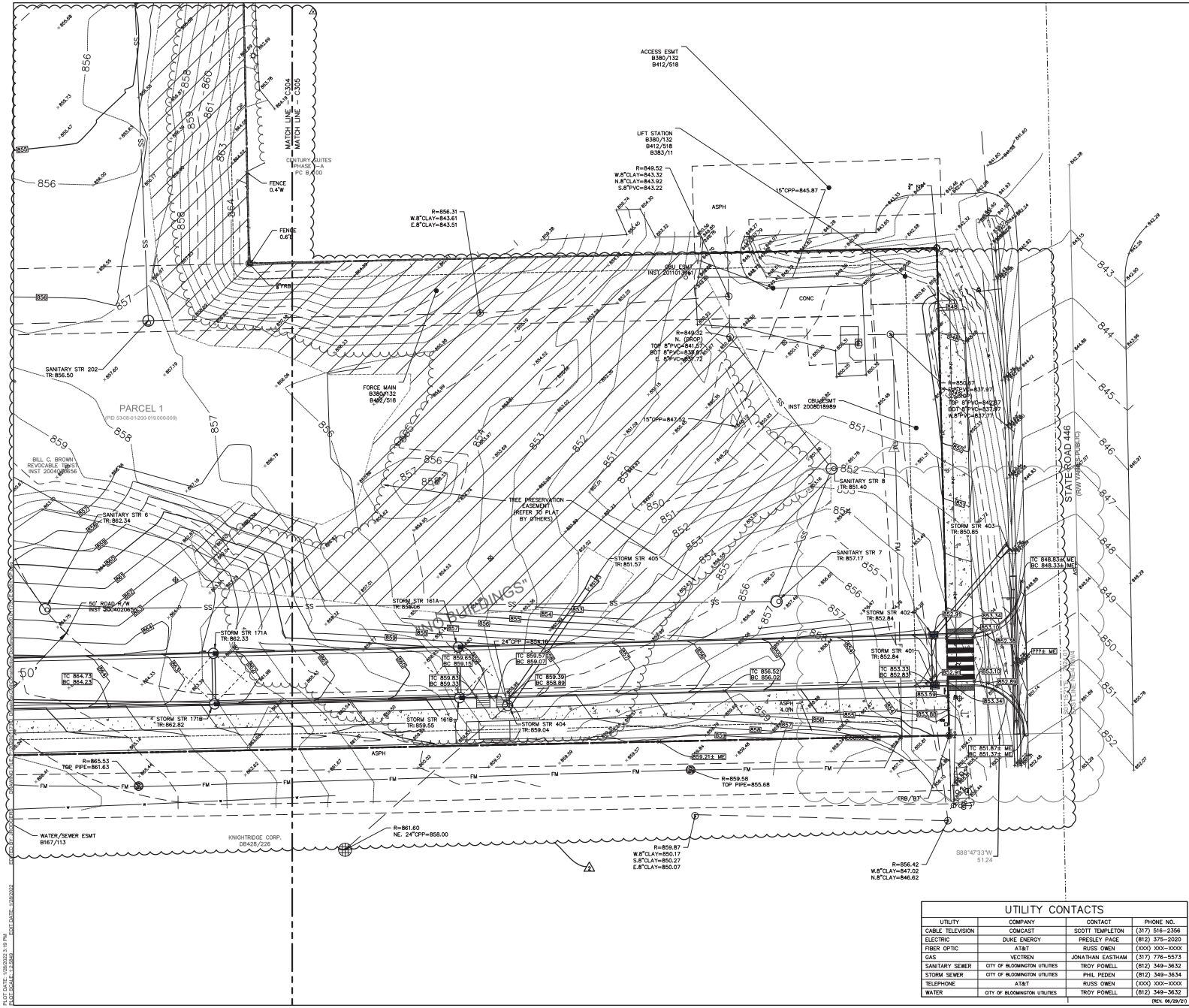
2	CBU/INDOT COMMENTS	01/28/22

Project Number 2020.01173

GRADING PLAN

25

C304



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Project Number 2020.01173

GRADING PLAN

C305

26

PLOT DATE: 1/28/2022 3:19 PM
PLOT SCALE: 1:2.5001
EDIT DATE: 1/28/2022

STORM STRUCTURE DATA TABLE

NOTE: ALL CASTINGS SHALL BE LABELED "DUMP NO WASTE–DRAINS TO WATERWAY"

STR. NO.	STRUCTURE TYPE	CASTING TYPE	TOP OF RIM	INCOMING PIPE DATA (DIRECTION) [FROM STR]	OUTGOING PIPE DATA (DIRECTION) [TO STR]	OUTGOING PIPE L.F.	OUTGOING PIPE SIZE	OUTGOING GRADE (%)	CONNECT TO STRUCT	REMARKS
81A	TYPE "C" MH	R–3287–SB10	856.29		12" RCP 851.19 (W) [81B]	27'	12"	0.35%	81B	
81B	TYPE "C" MH	R–3287–SB10	856.40	12" RCP 851.10 (E) [81A]	12" RCP 851.00 (W) [81C]	53'	12"	0.35%	81C	
81C	TYPE "C" MH	R–4342	859.09	12" RCP 850.81 (E) [81B]	15" RCP 849.71 (S) [81E]	97'	15"	0.25%	81E	
81D	TYPE "C" MH	R–1772	854.53		12" RCP 848.34 (S) [81F]	29'	12"	0.35%	81F	
81E	TYPE "C" MH	R–3501–M	854.14	15" RCP 849.47 (N) [81C]	15" RCP 849.37 (SE) [81F]	44'	15"	0.30%	81F	
81F	TYPE "C" MH	R–3472	854.50	15" RCP 849.24 (NW) [81E] 12" RCP 848.24 (N) [81D]	18" RCP 849.14 (E) [81G]	48'	18"	0.18%	81G	
81G	TYPE "C" MH	R–3405	854.27	18" RCP 849.05 (W) [81F]	18" RCP 847.95 (S) [81H] 12" HDPE 849.11 (N) [120]	70' 16'	18" 12"	0.35% 0.35%	81H 120	
81H	TYPE "C" MH	R–3010	853.99	18" RCP 847.70 (N) [81G]	15" RCP 847.60 (S) [101]	48'	15"	0.35%	101	
90	TYPE "C" MH	R–4342	859.98		12" RCP 853.62 (E) [91]	72'	12"	0.35%	91	
91	TYPE "F" INLET	R–4215–C	857.25	12" RCP 853.37 (W) [90]	12" RCP 850.27 (E) [92]	77'	12"	0.35%	92	
92	TYPE "C" MH	R–4342	854.83	12" RCP 850.00 (W) [91]	15" RCP 847.90 (E) [93B]	114'	15"	0.25%	93B	
93A	TYPE "J" INLET	R–3287–10V	852.34		15" RCP 847.67 (W) [93B]	23'	15"	0.25%	93B	
93B	TYPE "C" MH	R–3010	852.39	15" RCP 847.61 (W) [92] 15" RCP 847.61 (E) [93A]	18" RCP 847.51 (S) [206B]	115'	18"	0.18%	206B	
100	TYPE "C" MH	R–3472	853.03		12" RCP 847.71 (W) [101]	78'	12"	0.35%	101	
101	TYPE "C" MH	R–3472	851.83	12" RCP 847.43 (E) [100] 15" RCP 847.43 (N) [81H]	21" RCP 847.33 (W) [102]	89'	21"	0.30%	102	
102	TYPE "C" MH	R–3472	851.65	21" RCP 847.06 (E) [101]	24" RCP 846.96 (W) [103]	95'	24"	0.20%	103	
103	TYPE "C" MH	R–1772	852.67	24" RCP 846.78 (E) [102]	24" RCP 846.68 (N) [105]	35'	24"	0.20%	105	
105	TYPE "C" MH	R–3472	852.34	24" RCP 846.61 (S) [103]	24" RCP 846.51 (N) [106]	98'	24"	0.35%	106	
106	TYPE "C" MH	R–3472	855.04	24" RCP 846.16 (S) [105]	24" RCP 846.06 (N) [107]	136'	24"	0.35%	107	
107	TYPE "C" MH	R–3472	857.71	24" RCP 845.58 (S) [106]	24" RCP 845.48 (N) [108]	42'	24"	0.35%	108	
108	TYPE "J" MH	R–3472	859.31	24" RCP 845.34 (S) [107]	27" RCP 845.24 (N) [109]	37'	27"	0.25%	109	
109	TYPE "J" MH	R–1772	860.79	27" RCP 845.14 (S) [108]	18" RCP 845.04 (NE) [WQ – XC–4] 27" RCP 845.04 (N) []	8' 17'	18" 27"	0.32% 0.25%	WQ – XC–4	
111	TYPE "C" MH	R–3472	858.21							
112	TYPE "C" MH	R–3472	854.79							
120	???	???	–3.27	12" HDPE 849.05 (S) [81G]						
161A	TYPE "C" MH	R–3010	859.06		12" RCP 853.53 (S) [161B]	23'	12"	0.35%	161B	
161B	TYPE "C" MH	R–3010	859.55	12" RCP 853.44 (N) [161A]	12" RCP 853.34 (W) [171B]	111'	12"	0.35%	171B	
171A	TYPE "C" MH	R–3010	862.33		12" RCP 858.04 (S) [171B]	23'	12"	0.35%	171B	
171B	TYPE "C" MH	R–3010	862.82	12" RCP 857.96 (N) [171A] 12" RCP 852.96 (E) [161B]	12" RCP 852.86 (W) [181B]	161'	12"	0.35%	181B	
181A	TYPE "C" MH	R–3010	864.54		12" RCP 860.37 (S) [181B]	23'	12"	0.35%	181B	
181B	TYPE "C" MH	R–3010	864.25	12" RCP 860.29 (N) [181A] 12" RCP 852.29 (E) [171B]	15" RCP 852.19 (NW) [201B]	74'	15"	0.30%	201B	
201A	TYPE "C" MH	R–3010	862.69		12" RCP 858.04 (SW) [201B]	21'	12"	0.35%	201B	
201B	TYPE "C" MH	R–3010	862.58	12" RCP 857.97 (NE) [201A] 15" RCP 851.97 (SE) [181B]	15" RCP 851.87 (N) [202B]	102'	15"	0.35%	202B	
202A	TYPE "C" MH	R–3010	858.40		12" RCP 853.59 (W) [202B]	23'	12"	0.35%	202B	
202B	TYPE "C" MH	R–3010	858.39	15" RCP 851.51 (S) [201B] 12" RCP 853.51 (E) [202A]	15" RCP 851.41 (N) [203C]	68'	15"	0.35%	203C	
203A	TYPE "C" MH	R–3010	855.41		12" RCP 851.27 (W) [203C]	27'	12"	0.35%	203C	
203B	30" CONCRETE END SECTION	–	853.12		30" RCP 850.33 (E) [203C]	55'	30"	0.30%	203C	
203C	TYPE "J" MH	R–3010	855.61	15" RCP 851.17 (S) [202B] 12" RCP 851.17 (E) [203A] 30" RCP 850.17 (W) [203B]	27" RCP 847.07 (N) [204B]	93'	27"	0.35%	204B	
204A	TYPE "C" MH	R–3010	852.55		12" RCP 846.84 (W) [204B]	27'	12"	0.35%	204B	
204B	TYPE "J" MH	R–3287–SB10	852.75	12" RCP 846.75 (E) [204A] 27" RCP 846.75 (S) [203C]	30" RCP 846.65 (N) [204D]	67'	30"	0.30%	204D	
204C	TYPE "C" MH	R–3010	851.25		12" RCP 846.90 (W) [204D]	129'	12"	0.35%	204D	
204D	TYPE "J" MH	R–1772	853.39	12" RCP 846.45 (E) [204C] 30" RCP 846.45 (S) [204B]	30" RCP 846.35 (N) [204E]	58'	30"	0.30%	204E	
204E	TYPE "C" MH	R–3472	853.50	30" RCP 846.17 (S) [204D]	30" RCP 846.07 (N) [205B]	68'	30"	0.30%	205B	
205A	TYPE "C" MH	R–3010	852.87		12" RCP 847.97 (W) [205B]	29'	12"	0.35%	205B	
205B	TYPE "J" MH	R–3010	853.00	30" RCP 845.87 (S) [204E] 12" RCP 847.87 (E) [205A]	30" RCP 845.77 (N) [206B]	145'	30"	0.32%	206B	
206A	TYPE "C" MH	R–3472	852.54		15" RCP 848.12 (W) [206B]	105'	15"	0.30%	206B	
206B	TYPE "K" MH	R–1772	853.33	18" RCP 847.30 (N) [93B] 15" RCP 847.80 (E) [206A] 30" RCP 845.30 (S) [205B]	36" RCP 845.20 (W) [206C]	28'	36"	0.20%	206C	
206C	TYPE "J" MH	R–3472	852.64	36" RCP 845.15 (E) [206B]	36" RCP 845.05 (W) [] 18" RCP 845.05 (S) [WQ – XC–5]	19' 10'	36" 18"	0.22% 0.29%	WQ – XC–5	
300	TYPE "J" MH	R–1772	853.18	18" CMP 840.72 (W) [] 24" CMP 844.81 (W) []	36" RCP 839.81 (E) [301]	228'	36"	0.27%	301	
301	TYPE "J" MH	R–1772	847.74	36" RCP 839.20 (W) [300]	36" RCP 835.10 (N) [302]	36'	36"	0.27%	302	
302	TYPE "C" MH	R–4342	846.78	36" RCP 835.00 (S) [301]						
401	TYPE "J" INLET	R–3287–10V	852.84		18" RCP 847.56 (N) [402]	23'	18"	0.15%	402	
402	TYPE "J" INLET	R–3287–10V	852.84	18" RCP 847.53 (S) [401]	18" RCP 847.43 (NE) [403]	52'	18"	0.15%	403	
403	18" CONCRETE END SECTION	–	850.85	18" RCP 847.35 (SW) [402]						
404	TYPE "C" MH	R–1772	859.04		24" RCP 849.56 (NE) [405]	70'	24"	0.35%	405	
405	24" CONCRETE END SECTION	–	851.57	24" RCP 849.32 (SW) [404]						
501	15" CONCRETE END SECTION	–	0.00		15" CMP 851.47 (N) [502]	72'	15"	4.43%	502	
502	15" CONCRETE END SECTION	–	0.00	15" CMP 848.29 (S) [501]						
WQ – XC–4	Standard	Standard	860.98	18" RCP 845.02 (SW) [109]	18" RCP 845.02 (N) []	14'	18"	0.25%		
WQ – XC–5	Standard	Standard	852.89	18" RCP 845.02 (N) [206C]	18" RCP 845.02 (W) []	15'	18"	0.12%		

SCALE: 1"=50'

0' 50' 100'

EXISTING LEGEND

- Clean Out
- Combination Pole
- Curb Inlet
- Drainage Inlet
- Drainage MH
- Electric Box
- Electric Handhole
- Electric Meter Box
- Fire Hydrant
- Fire Plug
- FVSO Fire Valve Shut Off
- GV Gas Valve
- WV Water Valve
- Yard Light
- —e— Buried Electric Line
- Transformer
- Tree
- ADA Parking
- Light Pole
- Mail Box
- Manhole
- Pine Tree
- Post
- Power Pole
- Right of Way Marker
- Sanitary MH
- Sign
- Stand Pipe
- Sub Surface Drain
- Telephone Box
- Telephone Handhole
- Telephone MH
- Telephone Pedestal
- Traffic MH
- —w— Buried Water Line

TBM – CUT 'X'
N:1426808.523
E:3125390.779
EL=863.29

PLEASE STAKE THE BOUNDARIES OF THE TREE PRESERVATION EASEMENT, INSTALL TREE PROTECTION FENCING, AND CALL PLANNING & TRANSPORTATION FOR AN INSPECTION BEFORE ANY DEMOLITION OR GRADING BEGINS

GENERAL NOTES:

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3. SEE SHEET C002 GENERAL NOTES FOR MORE INFORMATION.

UTILITY CONTACTS

UTILITY	COMPANY	CONTACT	PHONE NO.
CABLE TELEVISION	COMCAST	SCOTT TEMPLETON	(317) 516–2356
ELECTRIC	DUKE ENERGY	PRESLEY PAGE	(812) 375–2020
FIBER OPTIC	AT&T	RUSS OWEN	(XXX) XXX–XXXX
GAS	VECTREN	JONATHAN EASTHAM	(317) 776–5573
SANITARY SEWER	CITY OF BLOOMINGTON UTILITIES	TROY POWELL	(812) 349–3632
STORM SEWER	CITY OF BLOOMINGTON UTILITIES	PHIL PEDEN	(812) 349–3634
TELEPHONE	AT&T	RUSS OWEN	(XXX) XXX–XXXX
WATER	CITY OF BLOOMINGTON UTILITIES	TROY POWELL	(812) 349–3632

(REV. 06/29/21)

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www.structurepoint.com

OVERLOOK ON 46 & CENTURY VILLAGE STORAGE

Bloomington, IN

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CERTIFIED BY

ISSUANCE INDEX

DATE:
11/02/2021
PROJECT PHASE:
PRELIMINARY DOCUMENTS

REVISION SCHEDULE

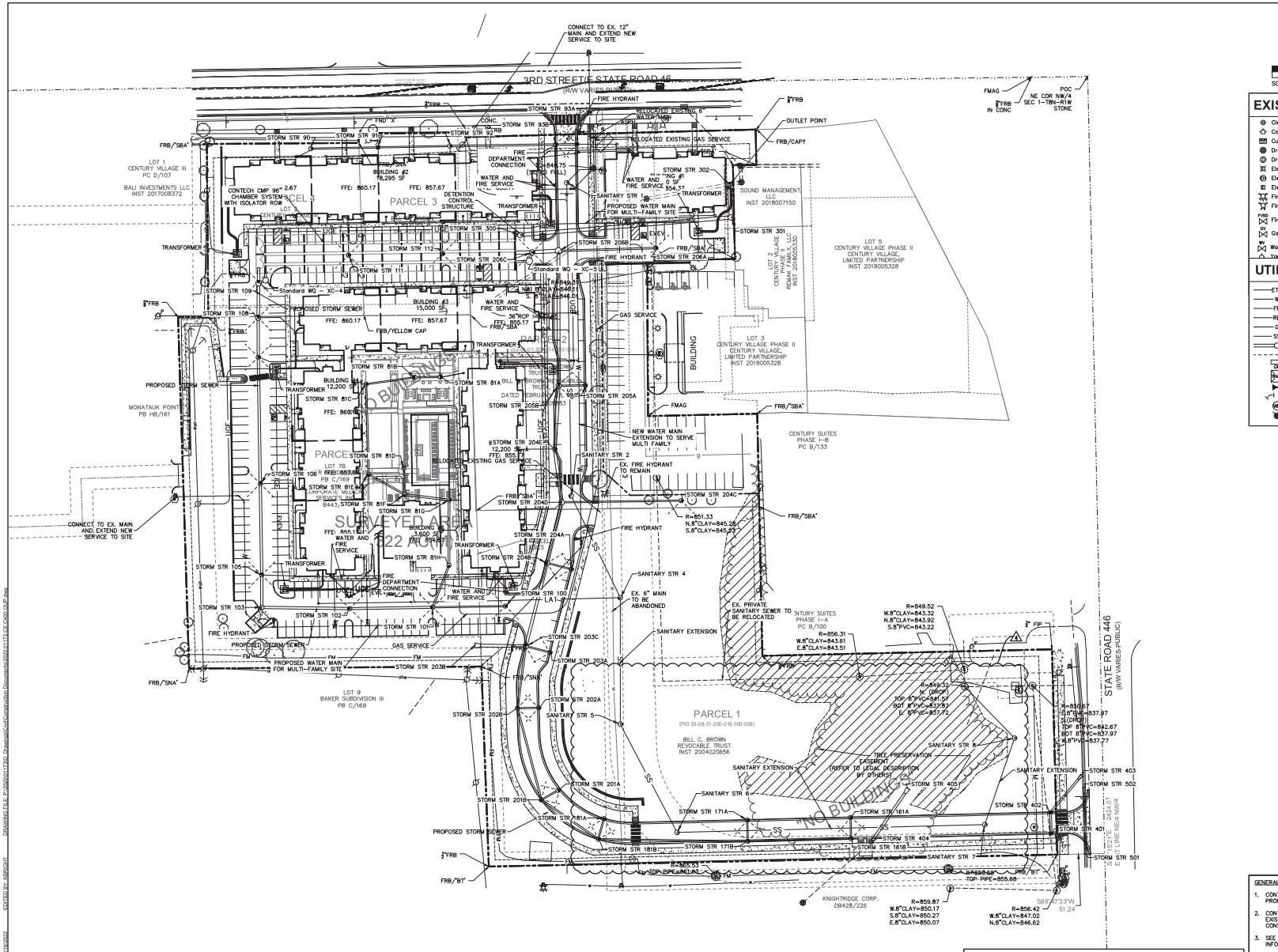
NO.	DESCRIPTION	DATE
1	CITY COMMENTS	01/07/22
2	CBU/INDOT COMMENTS	01/28/22
3	DETENTION COORDINATION	02/07/22

Project Number 2020.01173

STORM STRUCTURE DATA TABLE

C310

PLOT DATE: 2/7/2022 2:46 PM PLOT SCALE: 1:2.5849 EDIT DATE: 2/4/2022 EDITED BY: JRODGERS DRAWING FILE: P:\2020\01173\D. Drawings\Civil\Construction Documents\2020.01173.CE.C301.GP.dwg



EXISTING LEGEND

Clean Out	ADA Parking
Combination Pole	Light Pole
Curb Inlet	Mail Box
Drainage Inlet	Manhole
Drainage MH	Pine Tree
Electric Box	Post
Electric Handhole	Power Pole
Electric Meter Box	Right of Way Marker
Fire Hydrant	Sanitary MH
Fire Plug	Sign
Fire Valve Shut Off	Stand Pipe
Gas Valve	Sub Surface Drain
Water Valve	Telephone Box
Yard Light	Telephone Handhole
	Telephone MH

UTILITY LEGEND

ETC	ELECTRIC / TELECOMMUNICATIONS LINE
W	WATER LINE
FP	FIRE PROTECTION LINE
RD	ROOF DRAIN LINE
G	GAS LINE
SS	SANITARY SEWER LINE
	STORM SEWER LINE
	PAVEMENT UNDERDRAIN
GM	GAS METER
	ELECTRICAL TRANSFORMER
	VALVE
	WATER FITTINGS
WM	WATER METER PIT
	FIRE HYDRANT W/ ASSEMBLY

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ISSUANCE INDEX
DATE:
11/02/2021
PROJECT PHASE:
PRELIMINARY DOCUMENTS

REVISION SCHEDULE		
NO.	DESCRIPTION	DATE
1	CITY COMMENTS	01/07/22
2	CBU/INDOT COMMENTS	01/28/22
3	DETENTION COORDINATION	02/07/22
4	UTILITY COORD./TREE PRESERVATION	02/24/22

Project Number 2020.01173

OVERALL UTILITY PLAN

C400

28

PLOT DATE: 2/24/2022 10:51 AM
PLOT SCALE: 1:2.5859
EDIT DATE: 2/23/2022
EDITED BY: HSCHMIDT
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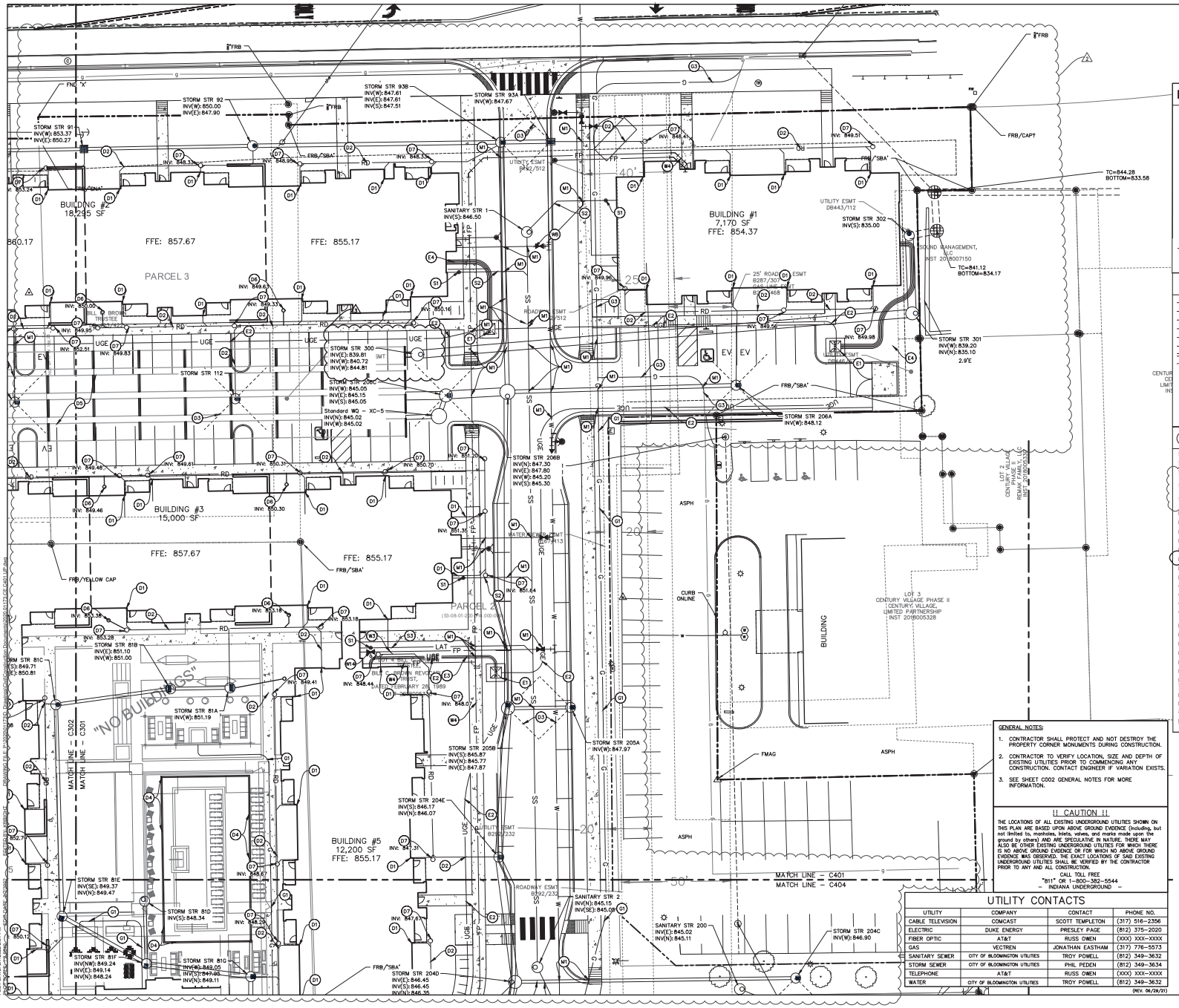

SCALE: 1"=50'

EXISTING LEGEND

- Clean Out
- Combination Pole
- Curb Inlet
- Drainage Inlet
- Drainage MH
- Electric Box
- Electric Handhole
- Electric Meter Box
- Fire Hydrant
- Fire Plug
- Fire Valve Shut Off
- Gas Valve
- Water Valve
- Yard Light
- Buried Electric Line
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- Right of Way Marker
- Sanitary MH
- Sign
- Stand Pipe
- Sub Surface Drain
- Telephone Box
- Telephone Handhole
- Telephone MH
- Telephone Pedestal
- Traffic MH
- Buried Water Line

UTILITY LEGEND

- ETC — ELECTRIC / TELECOMMUNICATIONS LINE
- W — WATER LINE
- FP — FIRE PROTECTION LINE
- RD — ROOF DRAIN LINE
- G — GAS LINE
- SS — SANITARY SEWER LINE
- STORM SEWER LINE
- PAVEMENT UNDERDRAIN
- GAS METER
- ELECTRICAL TRANSFORMER
- VALVE
- WATER FITTINGS
- WATER METER PIT
- FIRE HYDRANT W/ ASSEMBLY

KEYNOTES

SANITARY SEWER

S1. SANITARY CLEANOUT

S2. 6" PVC SDR-26 SANITARY LATERAL @ 1.04% MIN. SLOPE

S3. 4" PVC SDR-26 SANITARY LATERAL @ 1.04% MIN. SLOPE

S4. 8" PVC SDR-26 SANITARY SEWER. REFER TO SANITARY PLAN AND PROFILE SHEETS

DRAINAGE/STORM SEWER

D1. 8" DOWNSPOUT BOOT CONNECTION

D2. 12" HDPE DOWNSPOUT DRAIN @ 1.0% MIN. SLOPE

D3. PAVEMENT UNDER DRAIN

D4. 6" HDPE CAST-IN-PLACE TRENCH DRAIN

D5. CONTECH 96" CMP CHAMBER SYSTEM

D6. 7' INCH GRATE INLET

D7. STORM CLEANOUT

GAS

G1. GAS SERVICE LINE

G2. GAS METER

G3. RELOCATED GAS MAIN. CONTRACTOR TO COORDINATE WITH CENTER POINT.

ELECTRIC \ TELECOMMUNICATIONS

E1. ELECTRIC TRANSFORMER

E2. ELECTRIC PRIMARY SERVICE LINE 1–4" CONDUIT

E3. SECONDARY ELECTRIC SERVICE LINE 3–4" CONDUITS

E4. SECONDARY ELECTRIC SERVICE LINE 5–4" CONDUITS

MISCELLANEOUS

M1. POTENTIAL UTILITY CONFLICT (ALL WATER / SANITARY / STORM CROSSINGS TO HAVE A MINIMUM OF 18" VERTICAL CLEARANCE. CONTACT ENGINEER IF CONFLICTS EXIST. RELOCATE EXISTING UTILITIES AS REQUIRED.

M2. CONTRACTOR TO FIELD VERIFY LOCATION, DEPTH AND SIZE OF EXISTING TIE LINES TO ENSURE CONFLICTS DO NOT EXIST WITH PROPOSED UTILITIES.

M3. CONTRACTOR TO COORDINATE UTILITY CONNECTION WITH UTILITY PROVIDER.

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TELEPHONE	AT&T	RUSS OWEN	(XXX) XXX–XXXX
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(REV. 06/29/21)

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CERTIFIED BY

ISSUANCE INDEX
DATE:
11/02/2021
PROJECT PHASE:
PRELIMINARY DOCUMENTS

REVISION SCHEDULE

NO.	DESCRIPTION	DATE
1	CITY COMMENTS	01/07/22
2	CBU/INDOT COMMENTS	01/28/22
3	DETENTION COORDINATION	02/07/22

Project Number 2020.01173

UTILITY PLAN

C401

29

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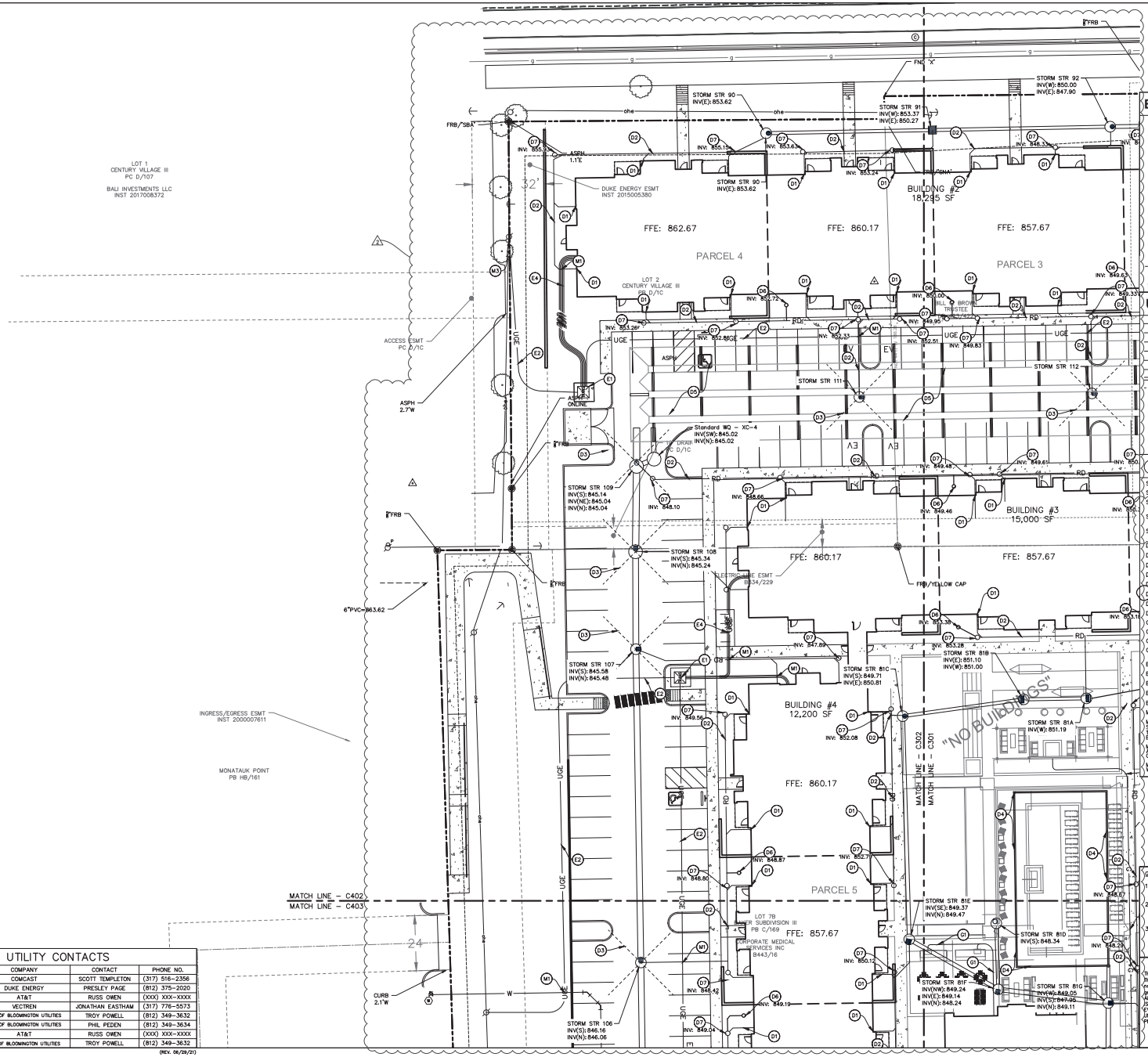
PLOTTED BY: Jeremy Gilliland



EXISTING LEGEND

- Clean Out
- Combination Pole
- Curb Inlet
- Drainage Inlet
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- Electric Box
- Electric Handhole
- Electric Meter Box
- Fire Hydrant
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- Telephone Handhole
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- Telephone Pedestal
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- Buried Water Line

UTILITY LEGEND

- ETC — ELECTRIC / TELECOMMUNICATIONS LINE
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- RD — ROOF DRAIN LINE
- G — GAS LINE
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- S — STORM SEWER LINE
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- GAS METER
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- VALVE
- WATER FITTINGS
- WATER METER PIT
- FIRE HYDRANT W/ ASSEMBLY

KEYNOTES

SANITARY SEWER

S1. SANITARY CLEANOUT

S2. 6" PVC SDR-26 SANITARY LATERAL @ 1.04% MIN. SLOPE

S3. 4" PVC SDR-26 SANITARY LATERAL @ 1.04% MIN. SLOPE

S4. 8" PVC SDR-26 SANITARY SEWER. REFER TO SANITARY PLAN AND PROFILE SHEETS

DRAINAGE/STORM SEWER

D1. 8" DOWNSPOUT BOOT CONNECTION

D2. 12" HDPE DOWNSPOUT DRAIN @ 1.0% MIN. SLOPE

D3. PAVEMENT UNDER DRAIN

D4. 6" HDPE CAST-IN-PLACE TRENCH DRAIN

D5. CONTECH 96" CMP CHAMBER SYSTEM

D6. 12" NYLOPLAST BASIN

D7. STORM CLEANOUT

GAS

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G2. GAS METER

G3. RELOCATED GAS MAIN. CONTRACTOR TO COORDINATE WITH CENTER POINT.

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MISCELLANEOUS

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APPROVAL PENDING
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CERTIFIED BY

ISSUANCE INDEX
DATE:
11/02/2021
PROJECT PHASE:
PRELIMINARY DOCUMENTS

REVISION SCHEDULE

NO.	DESCRIPTION	DATE
1	CITY COMMENTS	01/07/22
2	CBU/INDOT COMMENTS	01/28/22
3	DETENTION COORDINATION	02/07/22

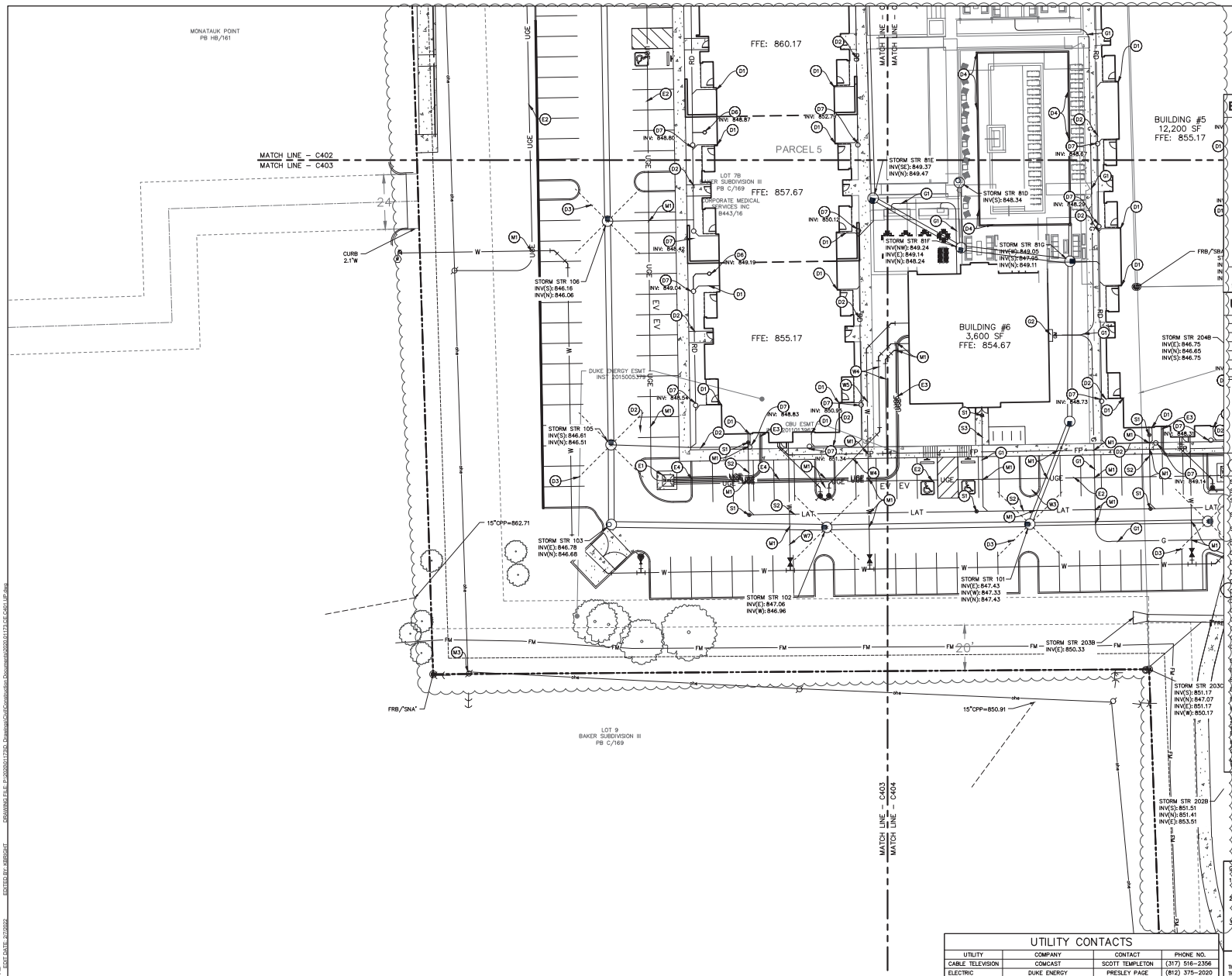
Project Number 2020.01173

UTILITY PLAN

C402

30

PLOT DATE: 2/7/2022 12:32 PM
PLOT SCALE: 1:2.5859
EDIT DATE: 2/7/2022
EDITED BY: HSHORT
DRAWING FILE: P:\2020\01173\0. Drawings\CivilCad\Construction Documents\C000-01173-CE-C401-UP.dwg



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REV. 06/29/21

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Project Number 2020.01173

UTILITY PLAN

31

C403

PLOT DATE: 2/7/2022 12:32 PM
PLOT SCALE: 1:2.5667
EDIT DATE: 2/7/2022
EDITED BY: HBRIGHT
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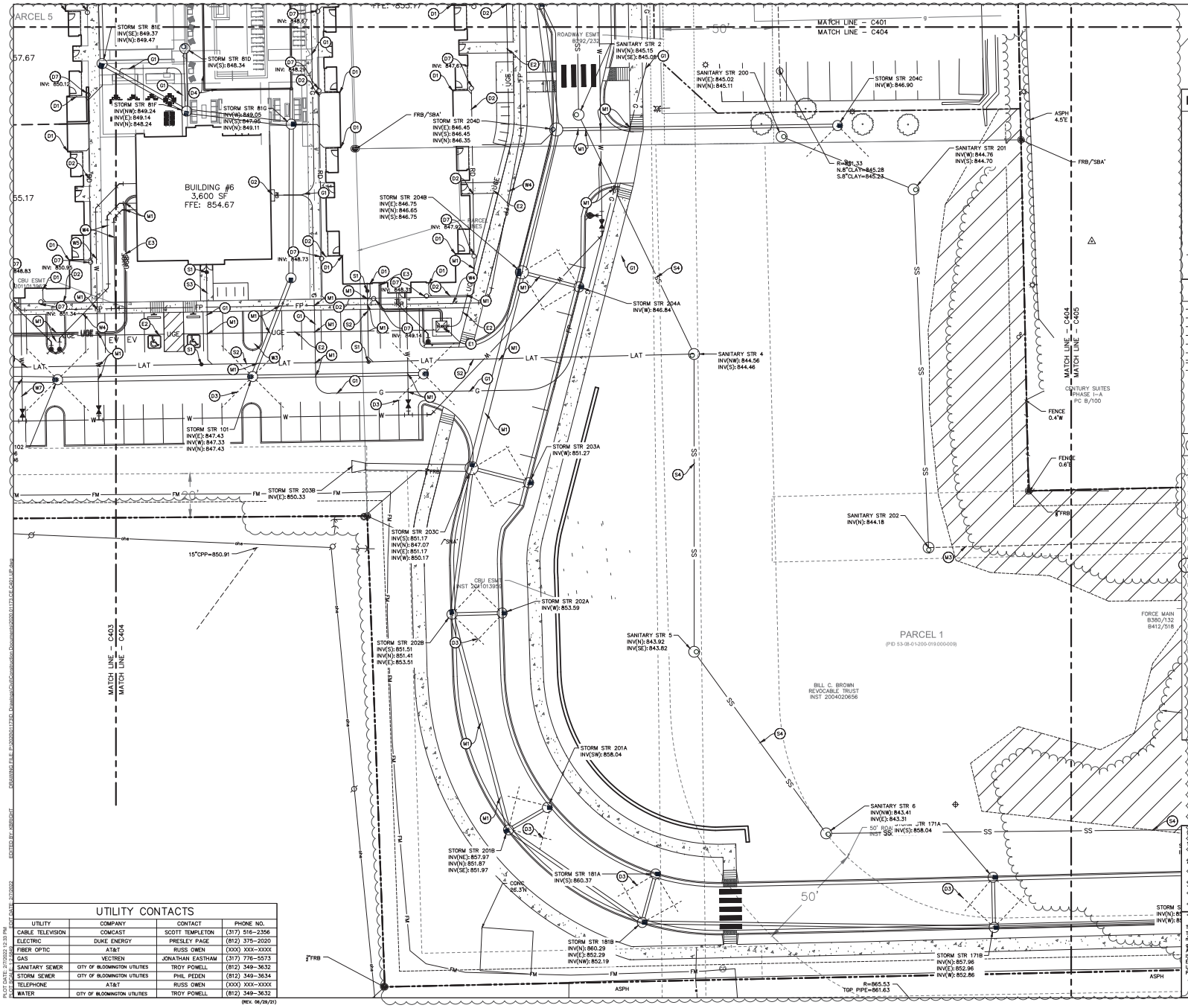

SCALE: 1"=50'

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Project Number 2020.01173

UTILITY PLAN

C404

32

PLOT DATE: 2/7/2022 12:33 PM
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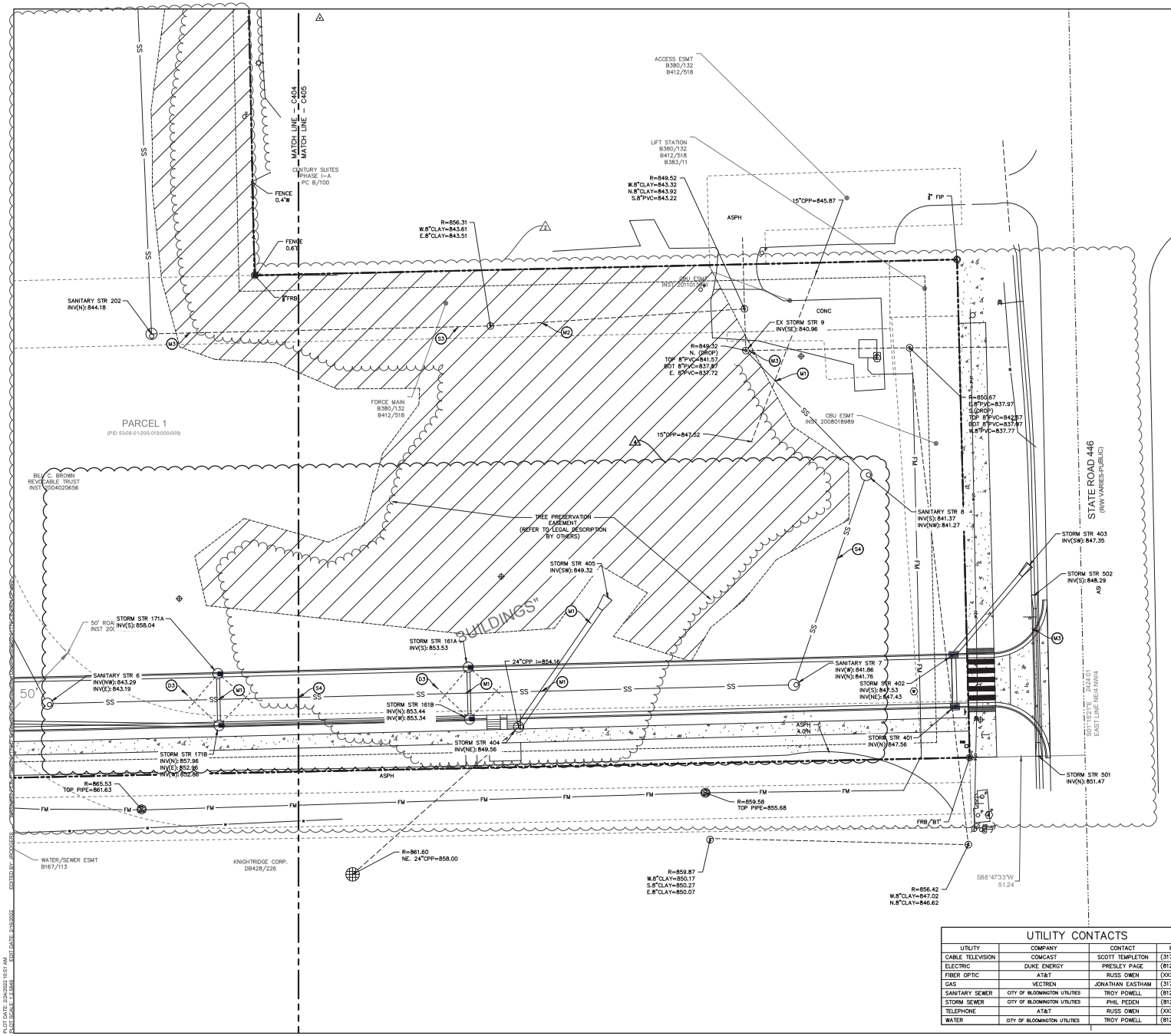
EDITED BY: HSHEIGHT



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4	UTILITY COORD./TREE PRESERVATION	02/24/22

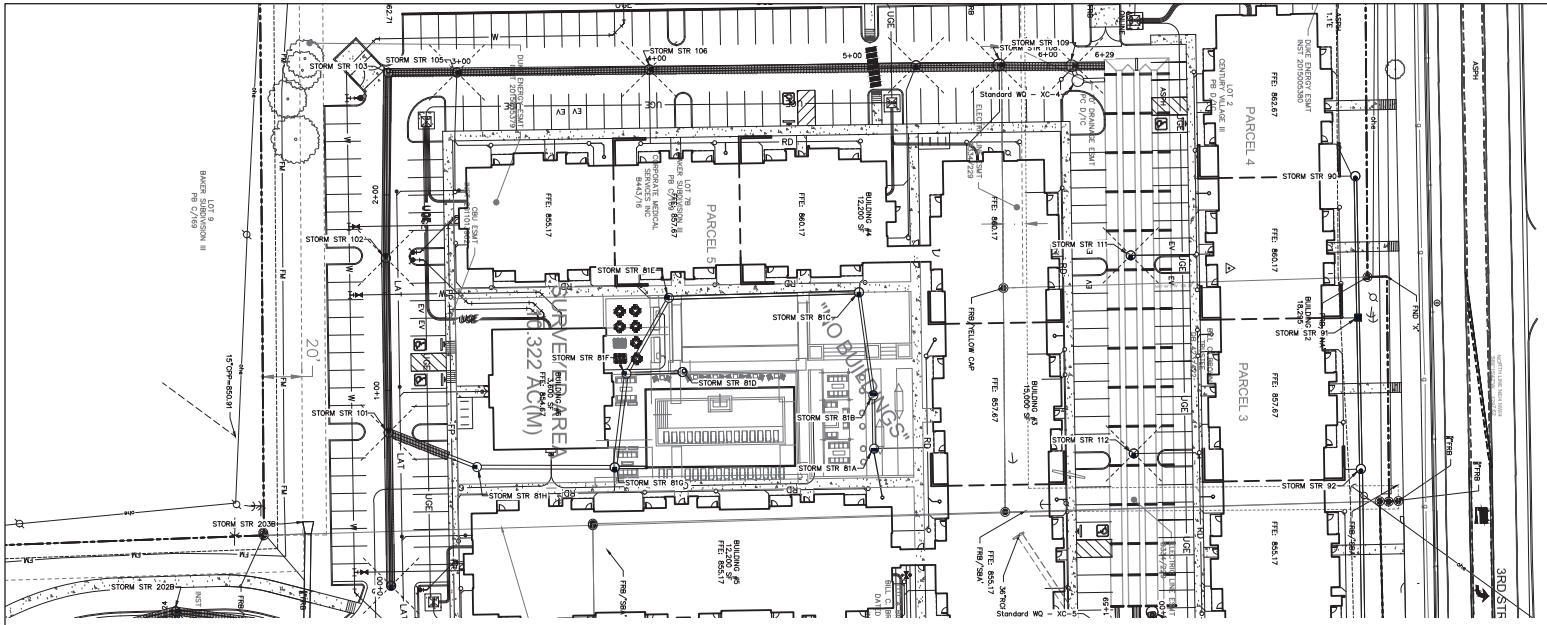
Project Number 2020.01173

UTILITY PLAN

C405

33

PLOT DATE: 2/24/2022 10:51 AM
PLOT SCALE: 1:2.5591 EDIT DATE: 2/23/2022 EDITED BY: JRODGERS



SCALE: HORZ. 1"=30'
VERT. 1"=5'

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- Fire Valve Shut Off
- Gas Valve
- Water Valve
- Yard Light
- Buried Electric Line
- Transformer
- Tree
- ADA Parking
- Light Pole
- Mail Box
- Manhole
- Pine Tree
- Post
- Power Pole
- Right of Way Marker
- Sanitary MH
- Sign
- Stand Pipe
- Sub Surface Drain
- Telephone Box
- Telephone Handhole
- Telephone MH
- Telephone Pedestal
- Traffic MH
- Buried Water Line

TBM – CUT "X"
N:1426808.523
E:3125590.779
EL=863.29

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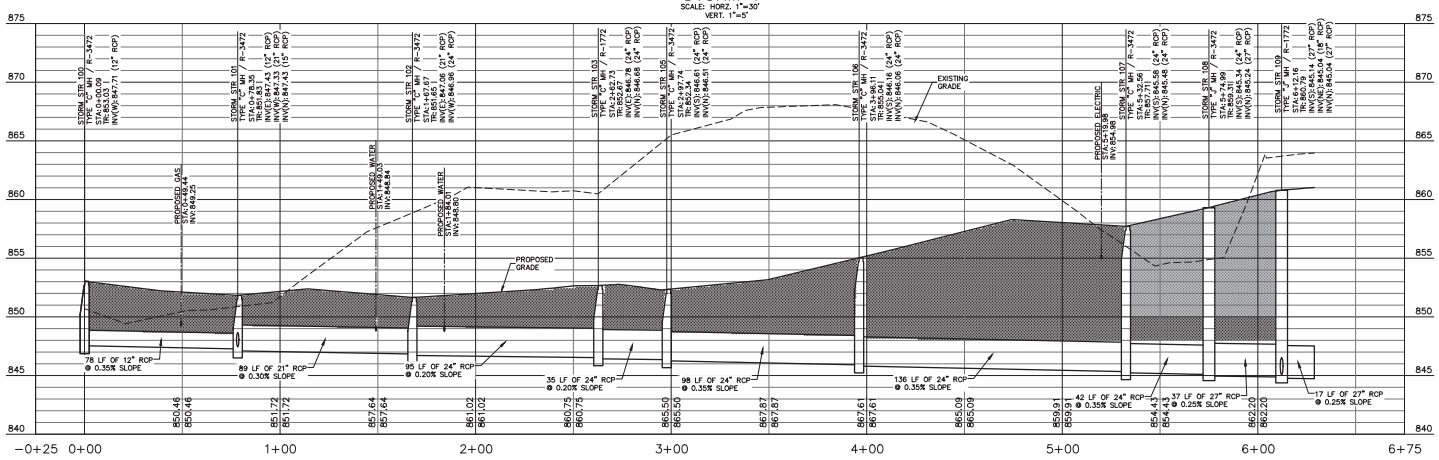
GRANULAR BACKFILL REQUIRED

STORM 1

SCALE: HORZ. 1"=30'
VERT. 1"=5'



UTILITY CONTACTS

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CABLE TELEVISION	COMCAST	SCOTT TEMPLETON	(317) 516–2356
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(REV. 06/29/21)

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9025 River Road, Suite 200 | Indianapolis, Indiana 46240
TEL 317.547.5580 | FAX 317.543.0270
www.structurepoint.com

OVERLOOK ON 46 & CENTURY VILLAGE STORAGE

Bloomington, IN

APPROVAL PENDING
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CERTIFIED BY

ISSUANCE INDEX
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11/02/2021
PROJECT PHASE:
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NO.	DESCRIPTION	DATE
1	CITY COMMENTS	01/07/22
2	CBU/INDOT COMMENTS	01/28/22

Project Number 2020.01173

STORM PLAN AND PROFILES

C410

34

PLOT DATE: 1/28/2022 3:21 PM
PLOT SCALE: 1:2.5591
EDIT DATE: 1/28/2022
EDITED BY: JRODGERS
DRAWING FILE: P:\2020\01173\0. Drawings\CivilCad\Construction Documents\C000-01173-CD-C410-STMPP.dwg

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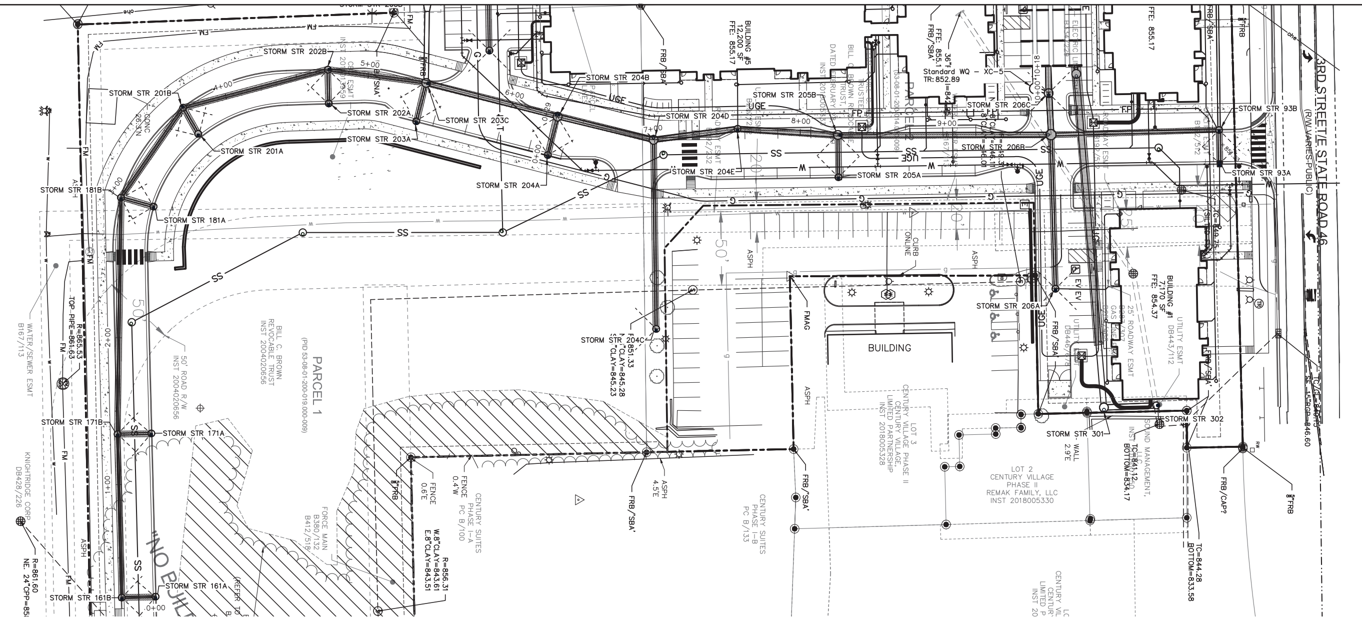
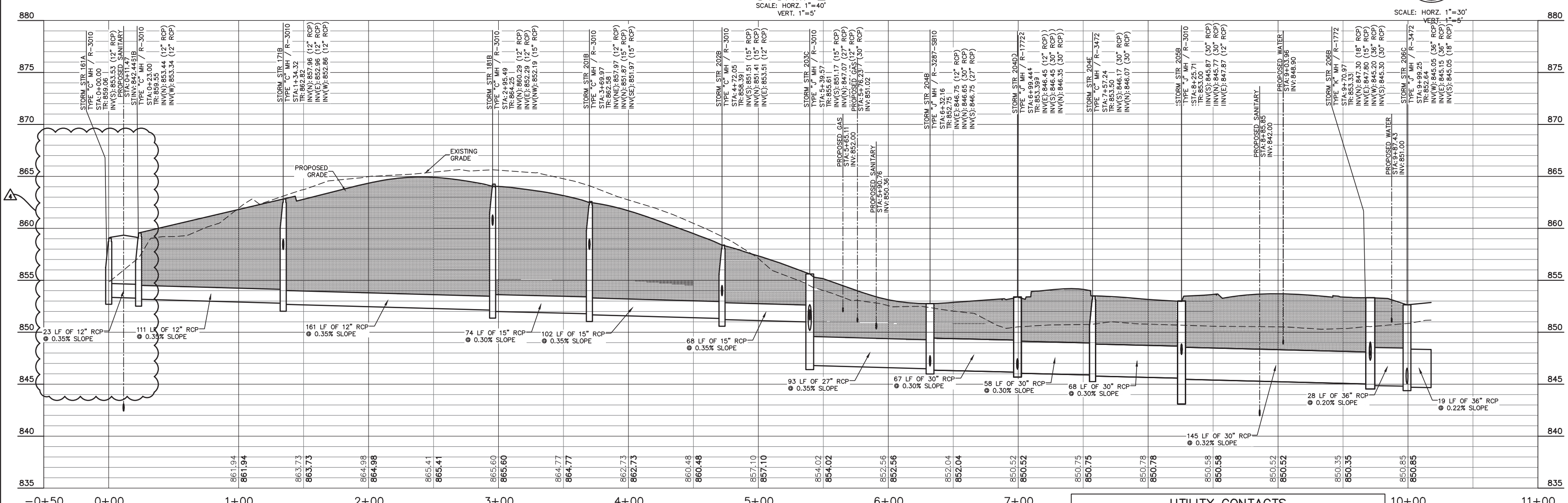


STORM 2

SCALE: HORZ. 1"=40'
VERT. 1"=5'



SCALE: HORZ. 1"=30'
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EXISTING LEGEND

- Clean Out
- Combination Pole
- Curb Inlet
- Drainage Inlet
- Drainage MH
- Electric Box
- Electric Handhole
- Electric Meter Box
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E:3125390.779
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Project Number 2020.01173

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(REV. 06/29/21)

GRANULAR BACKFILL REQUIRED

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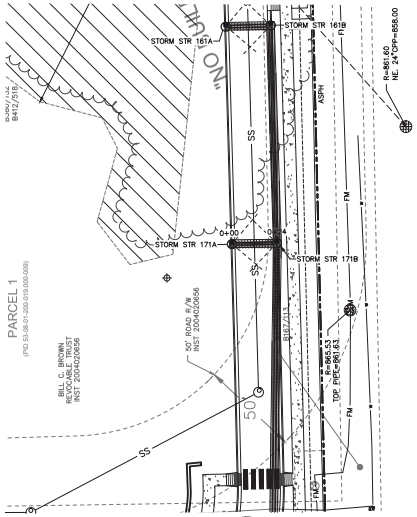
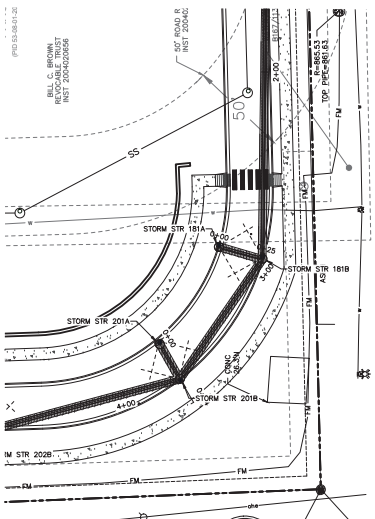
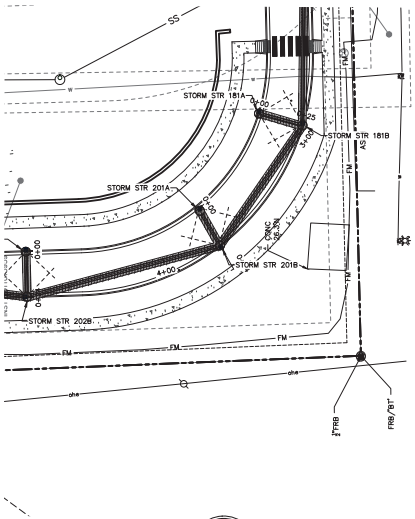
STORM PLAN AND PROFILES

C411

35

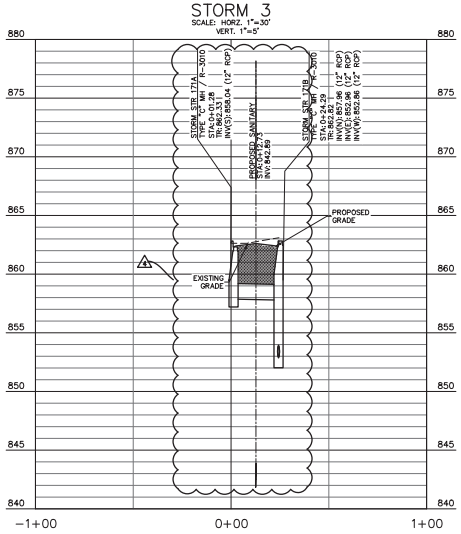






STORM 3

SCALE: HORZ. 1"=30'
VERT. 1"=5'



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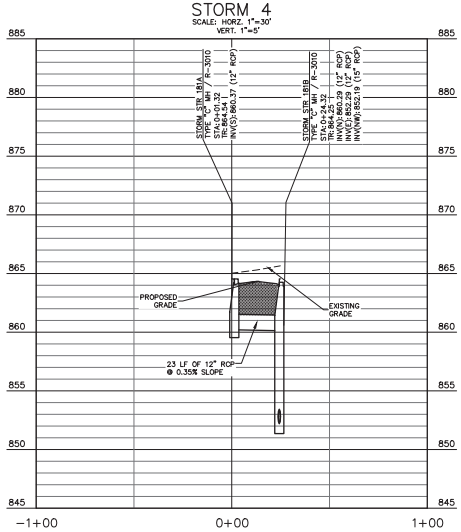
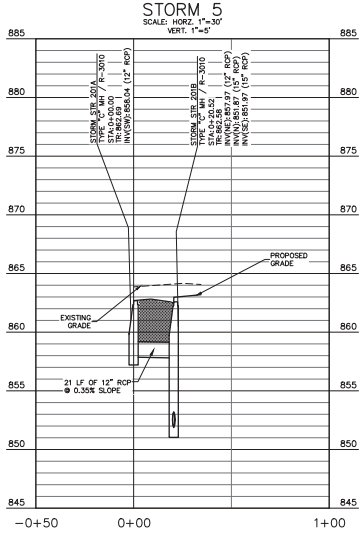
SCALE: HORZ. 1"=30'
VERT. 1"=5'



STORM 5

SCALE: HORZ. 1"=30'
VERT. 1"=5'



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(REV. 06/29/21)

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- Drainage Inlet
- Drainage MH
- Electric Box
- Electric Handhole
- Electric Meter Box
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- Fire Plug
- Fire Valve Shut Off
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Project Number 2020.01173

STORM PLAN AND PROFILES

C412

36

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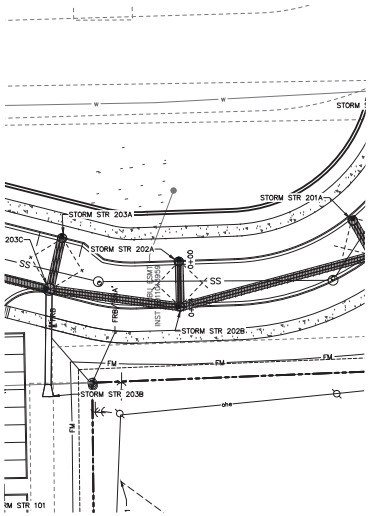

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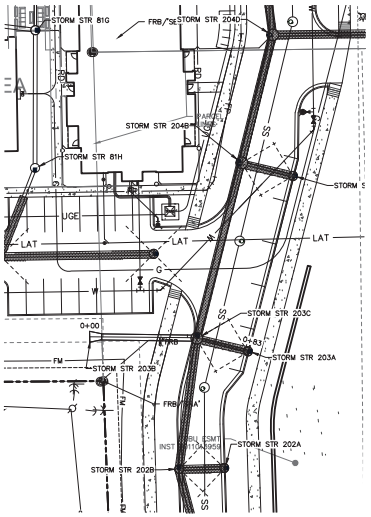

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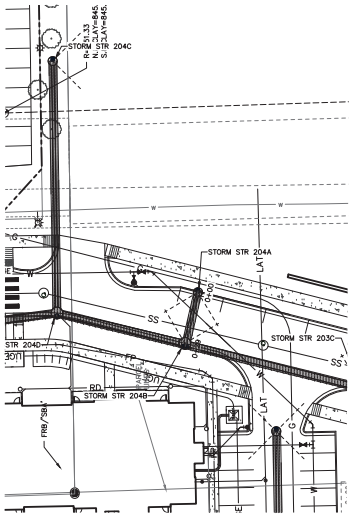

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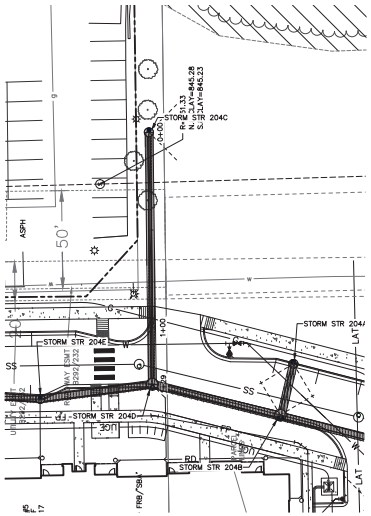

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GRANULAR BACKFILL REQUIRED

STORM 6

SCALE: HORZ. 1"=30'
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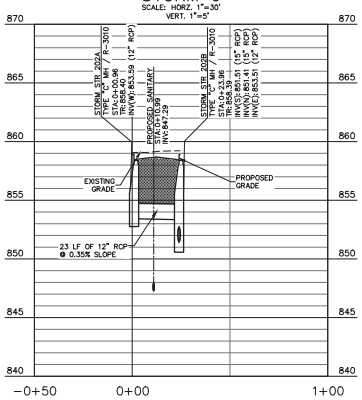

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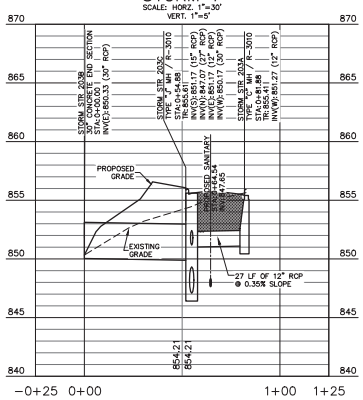
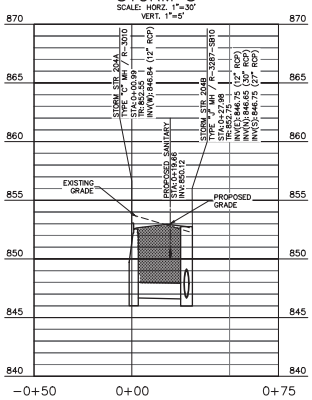


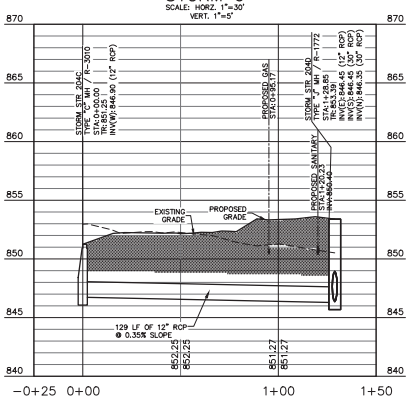
STORM 8

SCALE: HORZ. 1"=30'
VERT. 1"=5'



STORM 9

SCALE: HORZ. 1"=30'
VERT. 1"=5'



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Project Number 2020.01173

STORM PLAN AND PROFILES

37

C413

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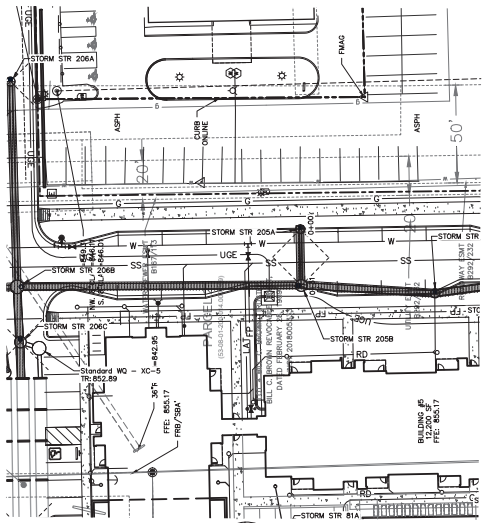
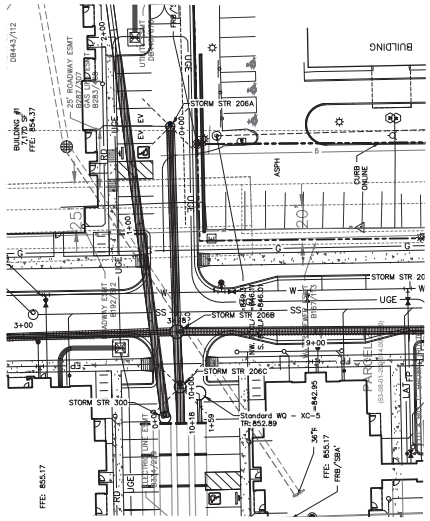


SCALE: HORZ. 1"=30'
VERT. 1"=5'



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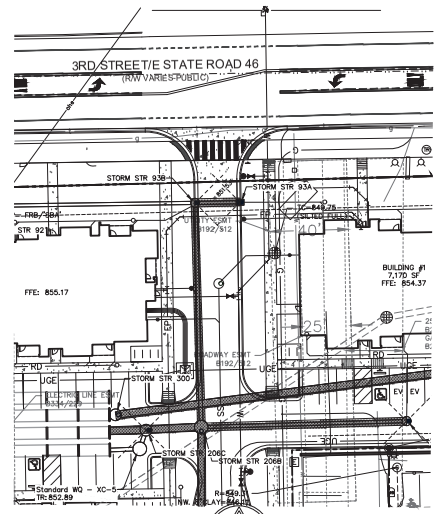
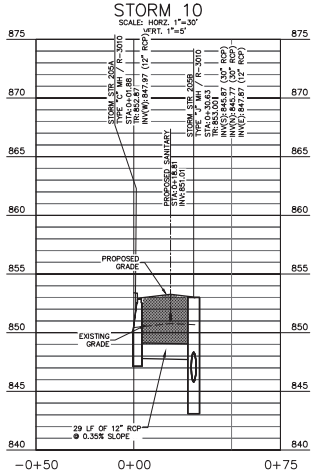
VERT. 1"=5'



SCALE: HORZ. 1"=30'
VERT. 1"=5'

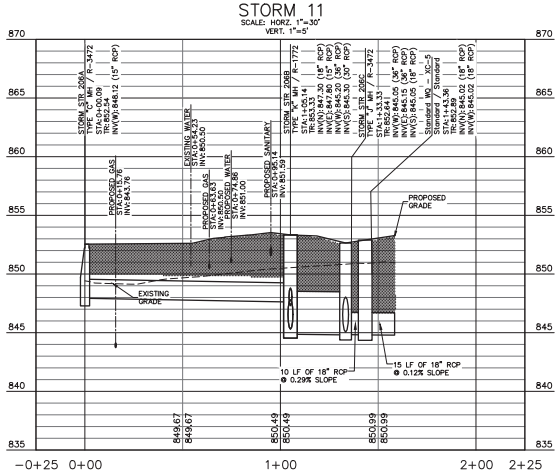
STORM 10

SCALE: HORZ. 1"=30'
VERT. 1"=5'



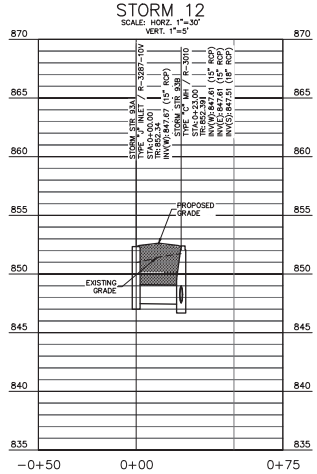
STORM 11

SCALE: HORZ. 1"=30'
VERT. 1"=5'



STORM 12

SCALE: HORZ. 1"=30'
VERT. 1"=5'



UTILITY CONTACTS

UTILITY	COMPANY	CONTACT	PHONE NO.
CABLE TELEVISION	COMCAST	SCOTT TEMPLETON	(317) 516–2356
ELECTRIC	DUKE ENERGY	PRESLEY PAGE	(812) 375–2020
FIBER OPTIC	AT&T	RUSS OWEN	(XXX) XXX–XXXX
GAS	VECTREN	JONATHAN EASTHAM	(317) 776–5573
SANITARY SEWER	CITY OF BLOOMINGTON UTILITIES	TROY POWELL	(812) 349–3632
STORM SEWER	CITY OF BLOOMINGTON UTILITIES	PHIL PEDEN	(812) 349–3634
TELEPHONE	AT&T	RUSS OWEN	(XXX) XXX–XXXX
WATER	CITY OF BLOOMINGTON UTILITIES	TROY POWELL	(812) 349–3632

(REV. 06/29/21)

GENERAL NOTES:

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CALL TOLL FREE
"811" OR 1–800–382–5544
– INDIANA UNDERGROUND –

EXISTING LEGEND

- Clean Out
- Combination Pole
- Curb Inlet
- Drainage Inlet
- Drainage MH
- Electric Box
- Electric Handhole
- Electric Meter Box
- Fire Hydrant
- Fire Plug
- Fire Valve Shut Off
- Gas Valve
- Water Valve
- Yard Light
- Buried Electric Line
- Transformer
- Tree
- ADA Parking
- Light Pole
- Mail Box
- Manhole
- Pine Tree
- Post
- Power Pole
- Right of Way Marker
- Sanitary MH
- Sign
- Stand Pipe
- Sub Surface Drain
- Telephone Box
- Telephone Handhole
- Telephone MH
- Telephone Pedestal
- Traffic MH
- Buried Water Line

TBM – CUT "X"
N:1426808.523
E:3125590.779
EL=863.29

STORM SEWER NOTES:

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2. MANNINGS COEFFICIENT
   n = 0.013
3. THE GRANULAR BACKFILL AREAS SHOWN IN PLAN VIEW ARE AN ESTIMATE PROVIDED BY THE ENGINEER. EXACT LIMITS OF GRANULAR BACKFILL ARE TO BE DETERMINED IN THE FIELD BY THE CONTRACTOR BASED ON TRENCH WIDTH AND AS DIRECTED BY THE AUTHORITY HAVING JURISDICTION.

GRANULAR BACKFILL REQUIRED

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AMERICAN STRUCTUREPOINT INC
9025 River Road, Suite 200 | Indianapolis, Indiana 46240
TEL 317.547.5580 | FAX 317.543.0270
www.structurepoint.com

OVERLOOK ON 46 & CENTURY VILLAGE STORAGE

Bloomington, IN

APPROVAL PENDING
NOT FOR CONSTRUCTION
IN SUBMITTING BIDS IN RELIANCE ON THESE PLANS THE CONTRACTOR ASSUMES ALL RISKS OF ADDITIONAL COSTS OF REVISIONS DUE TO REQUIREMENTS OF THE OWNER OR GOVERNMENTAL AUTHORITIES AND MATERIAL REVISIONS IN THE COURSE OF COMPLETING THE FINAL DESIGN.

CERTIFIED BY

ISSUANCE INDEX
DATE:
11/02/2021
PROJECT PHASE:
PRELIMINARY DOCUMENTS

REVISION SCHEDULE

NO.	DESCRIPTION	DATE
1	CITY COMMENTS	01/07/22
2	CBU/INDOT COMMENTS	01/28/22

Project Number 2020.01173

STORM PLAN AND PROFILES

38

C414

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EDIT DATE: 1/28/2022
EDITED BY: JRODGERS
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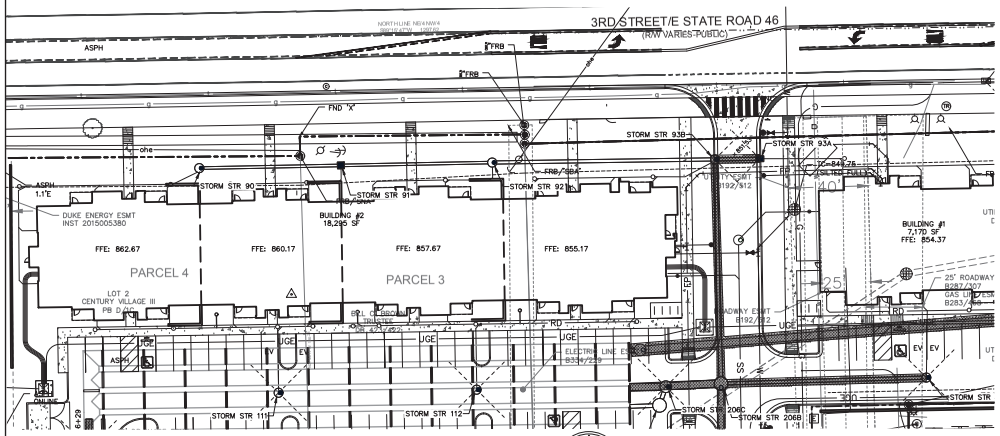

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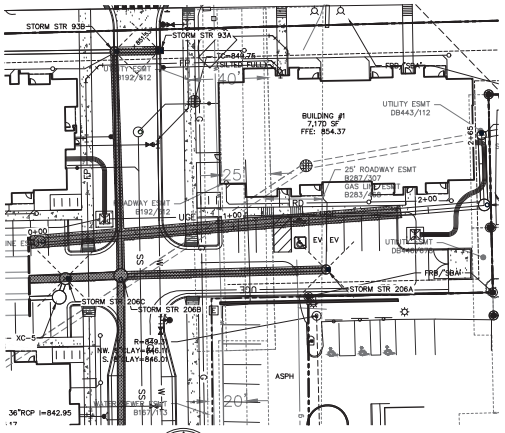
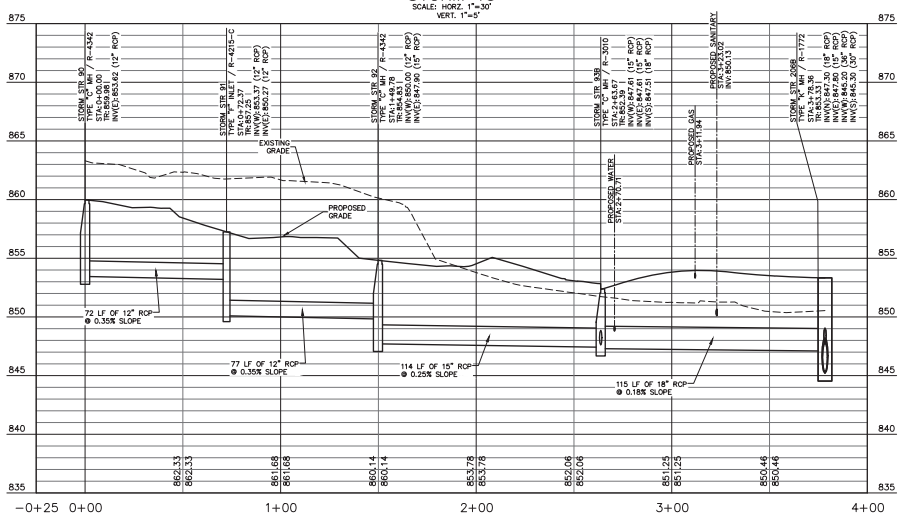
VERT. 1"=5'



SCALE: HORZ. 1"=30'
VERT. 1"=5'

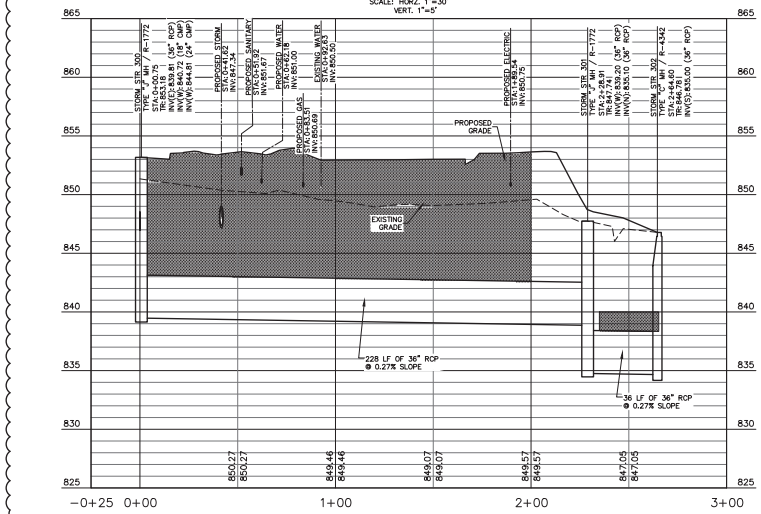
STORM 13

SCALE: HORZ. 1"=30'
VERT. 1"=5'



STORM 14

SCALE: HORZ. 1"=30'
VERT. 1"=5'



GRANULAR BACKFILL REQUIRED

EXISTING LEGEND

- Clean Out
- Combination Pole
- Curb Inlet
- Drainage Inlet
- Drainage MH
- Electric Box
- Electric Handhole
- Electric Meter Box
- Fire Hydrant
- Fire Plug
- Fire Valve Shut Off
- Gas Valve
- Water Valve
- Yard Light
- Buried Electric Line
- Transformer
- Tree
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- Light Pole
- Mail Box
- Manhole
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- Power Pole
- Right of Way Marker
- Sanitary MH
- Sign
- Stand Pipe
- Sub Surface Drain
- Telephone Box
- Telephone Handhole
- Telephone MH
- Telephone Pedestal
- Traffic MH
- Buried Water Line

TBM – CUT 'X'
N:1426808.523
E:3125390.779
EL=863.29

STORM SEWER NOTES:
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www.structurepoint.com

OVERLOOK ON 46 & CENTURY VILLAGE STORAGE

Bloomington, IN

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CERTIFIED BY

ISSUANCE INDEX
DATE:
11/02/2021
PROJECT PHASE:
PRELIMINARY DOCUMENTS

REVISION SCHEDULE

NO.	DESCRIPTION	DATE
1	CITY COMMENTS	01/27/22
2	CBU/INDOT COMMENTS	01/28/22
3	DETENTION COORDINATION	02/07/22

Project Number 2020.01173

STORM PLAN AND PROFILES

C415

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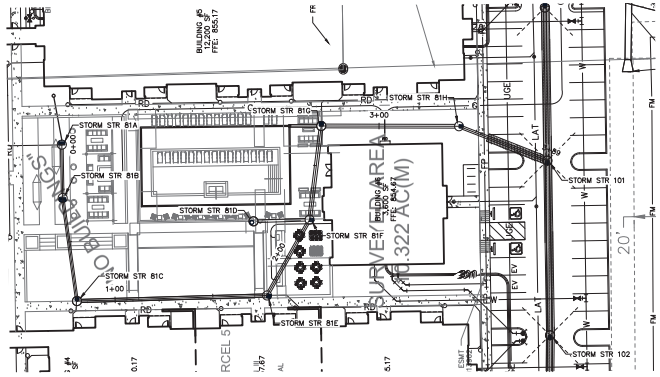
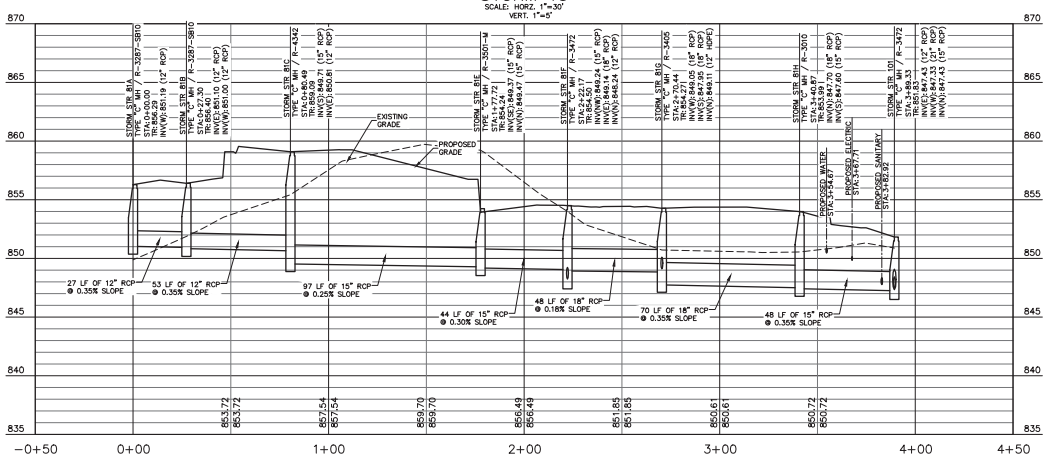


SCALE: HORZ. 1"=30'
VERT. 1"=5'

STORM 15

SCALE: HORZ. 1"=30'
VERT. 1"=5'



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WATER	CITY OF BLOOMINGTON UTILITIES	TROY POWELL	(812) 349–3632

(REV. 06/29/21)

EXISTING LEGEND

- Clean Out
- Combination Pole
- Curb Inlet
- Drainage Inlet
- Drainage MH
- Electric Box
- Electric Handhole
- Electric Meter Box
- Fire Hydrant
- Fire Plug
- Fire Valve Shut Off
- Gas Valve
- Water Valve
- Yard Light
- Buried Electric Line
- Transformer
- Tree
- ADA Parking
- Light Pole
- Mail Box
- Manhole
- Pine Tree
- Post
- Power Pole
- Right of Way Marker
- Sanitary MH
- Sign
- Stand Pipe
- Sub Surface Drain
- Telephone Box
- Telephone Handhole
- Telephone MH
- Telephone Pedestal
- Traffic MH
- Buried Water Line

TBM – CUT "X"
N:1426808.523
E:3125590.779
EL=863.29

STORM SEWER NOTES:

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OVERLOOK ON 46 & CENTURY VILLAGE STORAGE

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CERTIFIED BY

ISSUANCE INDEX
DATE:
11/02/2021
PROJECT PHASE:
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REVISION SCHEDULE		
NO.	DESCRIPTION	DATE
1	CITY COMMENTS	01/07/22
2	CBU/INDOT COMMENTS	01/28/22

Project Number 2020.01173

STORM PLAN AND PROFILES

C416

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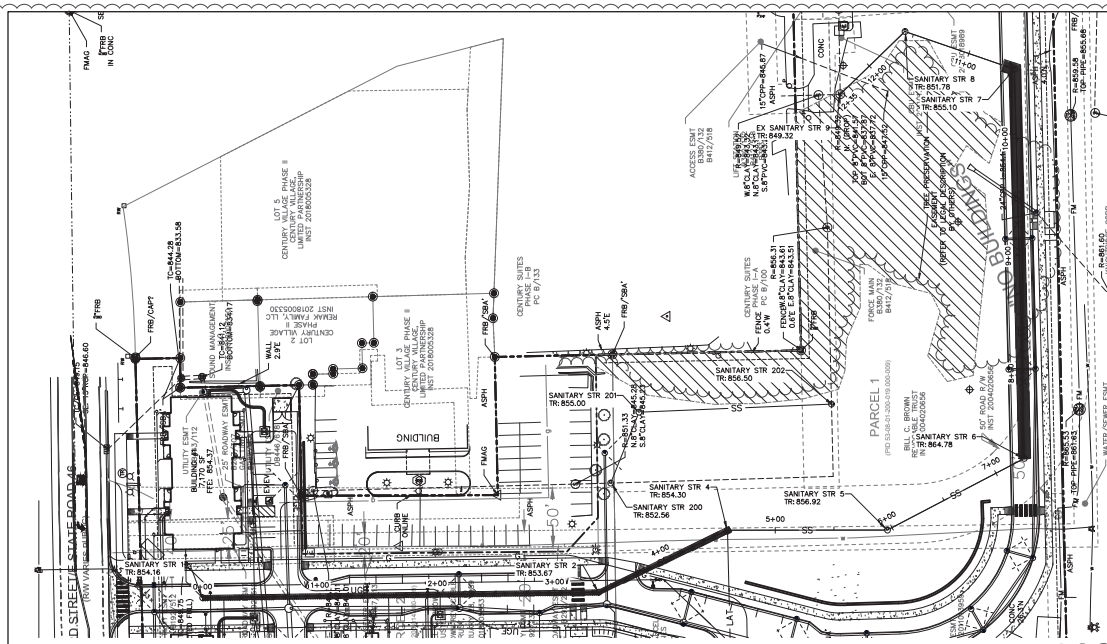
PLOT SCALE: 1:2.5859 EDIT DATE: 1/28/2022 EDITED BY: JRODGERS DRAWING FILE: P:\2020\01173\D Drawings\CivilCad\Design Documents\C000-01173-CE-C416-STMPP.dwg



SCALE: 1"=50'

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(REV. 06/29/21)

EXISTING LEGEND

- Clean Out
- Combination Pole
- Curb Inlet
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- Drainage MH
- Electric Box
- Electric Handhole
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N:1426808.523
E:3125590.779
EL=863.29

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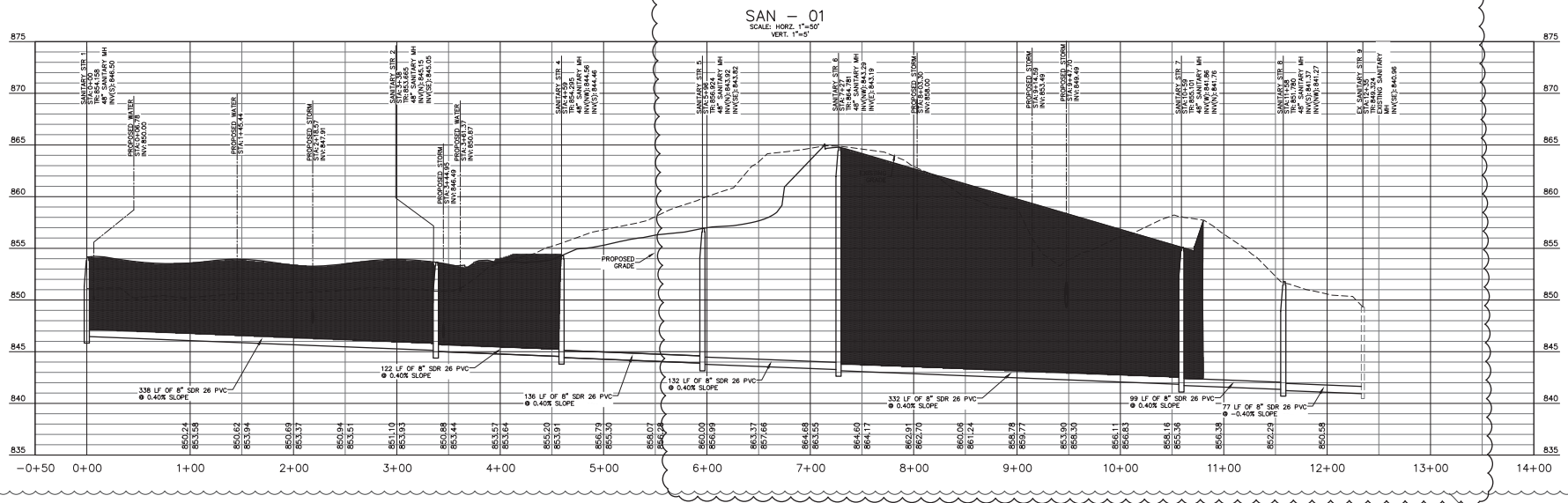
GRANULAR BACKFILL REQUIRED



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CERTIFIED BY

ISSUANCE INDEX
DATE:
11/02/2021
PROJECT PHASE:
PRELIMINARY DOCUMENTS

REVISION SCHEDULE		
NO.	DESCRIPTION	DATE
1	CITY COMMENTS	01/07/22
2	CBU/INDOT COMMENTS	01/28/22
3	DETENTION COORDINATION	02/07/22
4	UTILITY COORD./TREE PRESERVATION	02/24/22

Project Number 2020.01173

SANITARY PLAN AND PROFILES

41

C420

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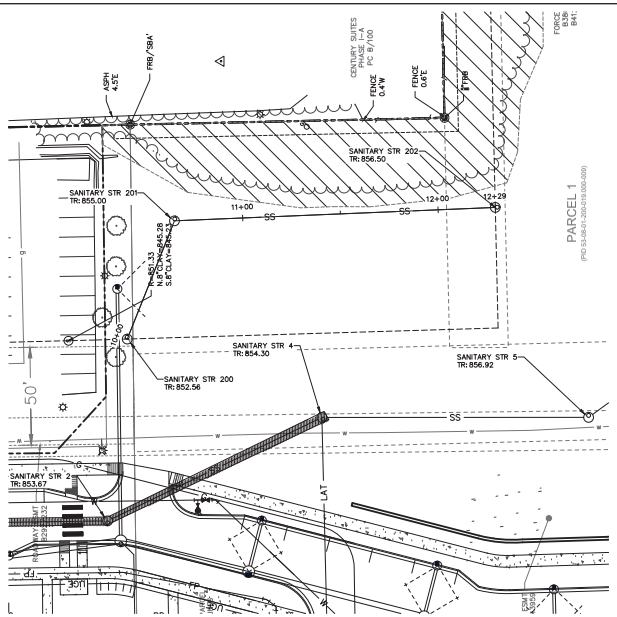
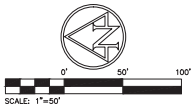
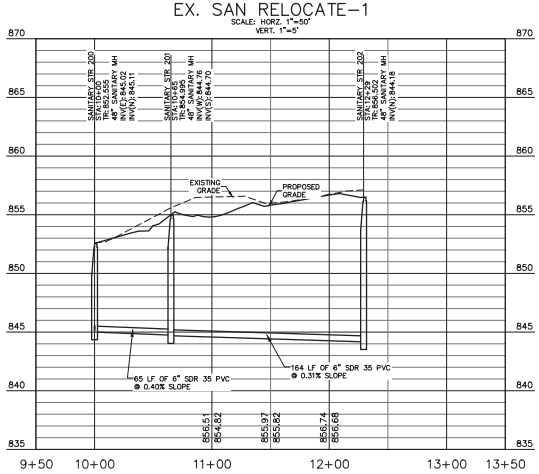




EX. SAN RELOCATE-1

SCALE: HORZ. 1"=50'
VERT. 1"=5'



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CALL TOLL FREE
"811" OR 1-800-382-5544
– INDIANA UNDERGROUND –

UTILITY CONTACTS

UTILITY	COMPANY	CONTACT	PHONE NO.
CABLE TELEVISION	COMCAST	SCOTT TEMPLETON	(317) 516-2356
ELECTRIC	DUKE ENERGY	PRESLEY PAGE	(812) 375-2020
FIBER OPTIC	AT&T	RUSS OWEN	(XXX) XXX-XXXX
GAS	VECTREN	JONATHAN EASTHAM	(317) 776-5573
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(REV. 06/29/21)

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- Telephone Handhole
- Telephone MH
- Telephone Pedestal
- Traffic MH
- Buried Water Line

TBM – CUT "X"
N:1426808.523
E:3125590.779
EL=863.29

STORM SEWER NOTES:

1. ALL CASTINGS SHALL BE LABELED "DUMP NO WASTE – DRAINS TO WATERWAY"
2. MANNINGS COEFFICIENT
   n = 0.013
3. THE GRANULAR BACKFILL AREAS SHOWN IN PLAN VIEW ARE AN ESTIMATE PROVIDED BY THE ENGINEER. EXACT LIMITS OF GRANULAR BACKFILL ARE TO BE DETERMINED IN THE FIELD BY THE CONTRACTOR BASED ON TRENCH WIDTH AND AS DIRECTED BY THE AUTHORITY HAVING JURISDICTION.

GRANULAR BACKFILL REQUIRED

MHG HOTELS, LLC

AMERICAN STRUCTUREPOINT INC
9025 River Road, Suite 200 | Indianapolis, Indiana 46240
TEL 317.547.5580 | FAX 317.543.0270
www.structurepoint.com

OVERLOOK ON 46 & CENTURY VILLAGE STORAGE

Bloomington, IN

APPROVAL PENDING
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11/02/2021
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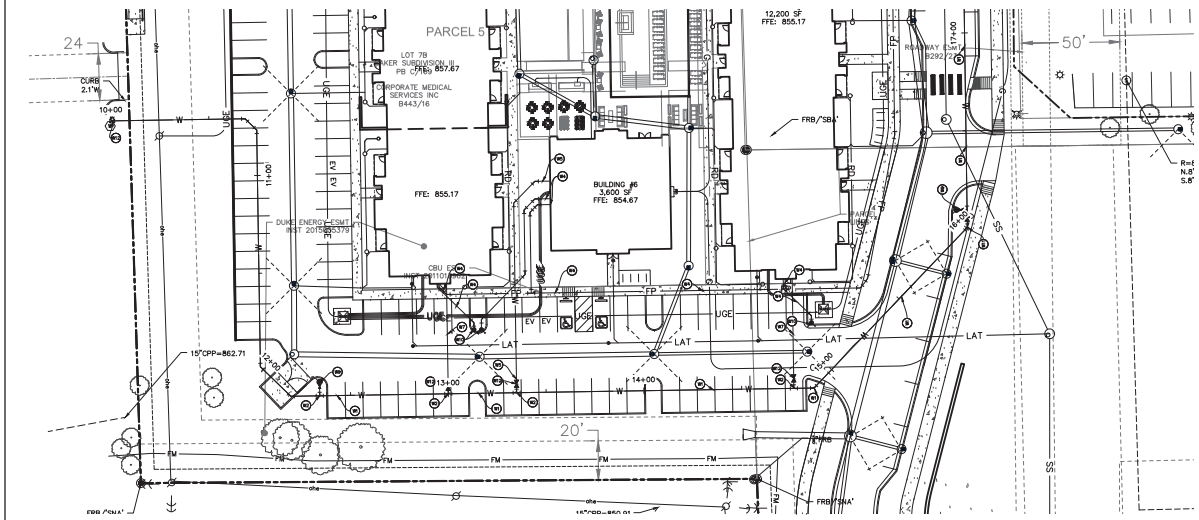
1	CITY COMMENTS	01/07/22
2	CBU/INDOT COMMENTS	01/28/22

Project Number 2020.01173

SANITARY PLAN AND PROFILES

C421



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KEYNOTES

WATERLINE

W1. 8" C900 DR14 PVC WATER LINE

W2. TAPPING SLEEVE AND VALVE PER CITY OF BLOOMINGTON UTILITIES STANDARDS

W3. 6" D.I.P. FIRE PROTECTION LINE

W4. 4" D.I.P. FIRE PROTECTION LINE

W5. 2" CR900 DOMESTIC SERVICE LINE

W6. 2.5" CR900 DOMESTIC SERVICE LINE

W7. 3" CR900 DOMESTIC SERVICE LINE

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W9. FIRE HYDRANT W/ ASSEMBLY

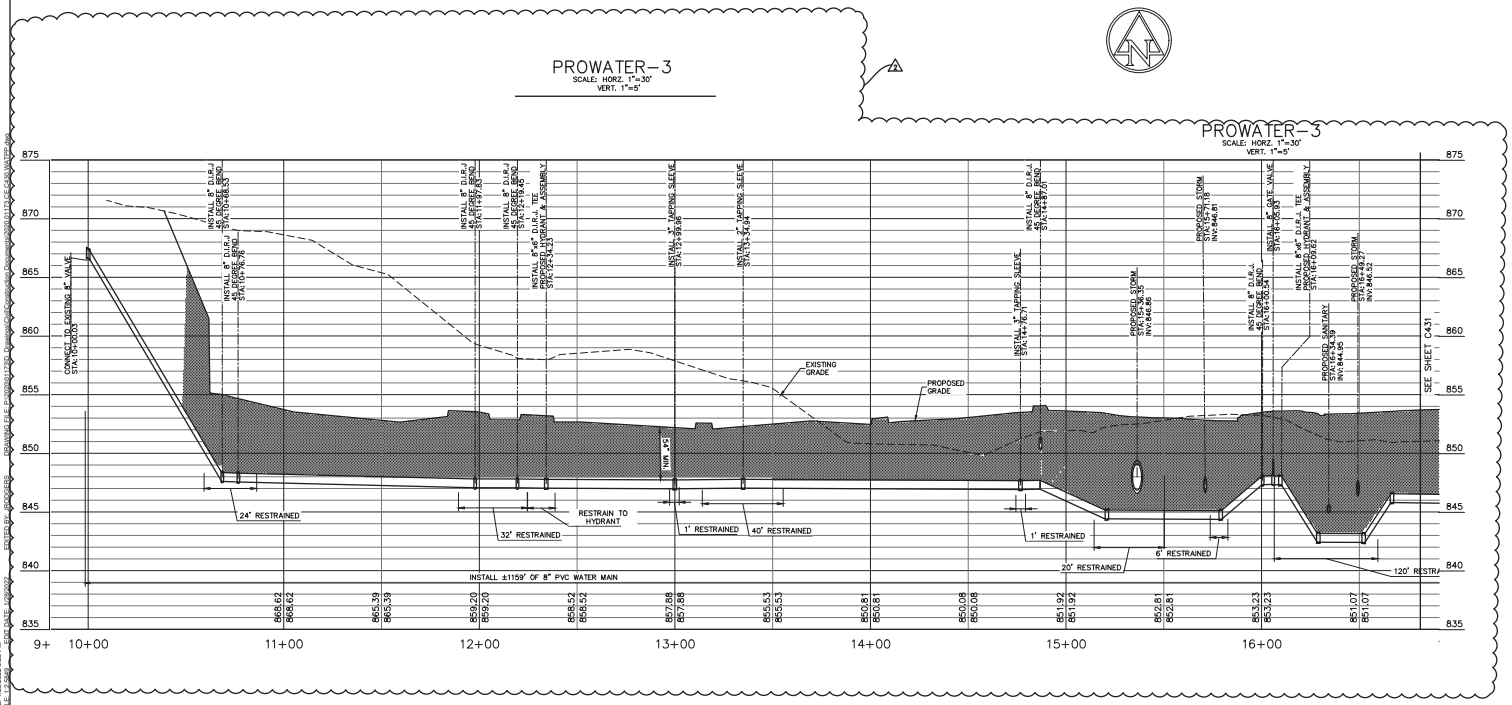
W10. FIRE DEPARTMENT CONNECTION

W11. VERTICAL WATER BEND

W12. WATER VALVE

W13. WATER METER

W14. POST INDICATOR VALVE



EXISTING WATER METERS MUST REMAIN IN SERVICE UNTIL THEY ARE TRANSFERRED TO THE NEW MAIN

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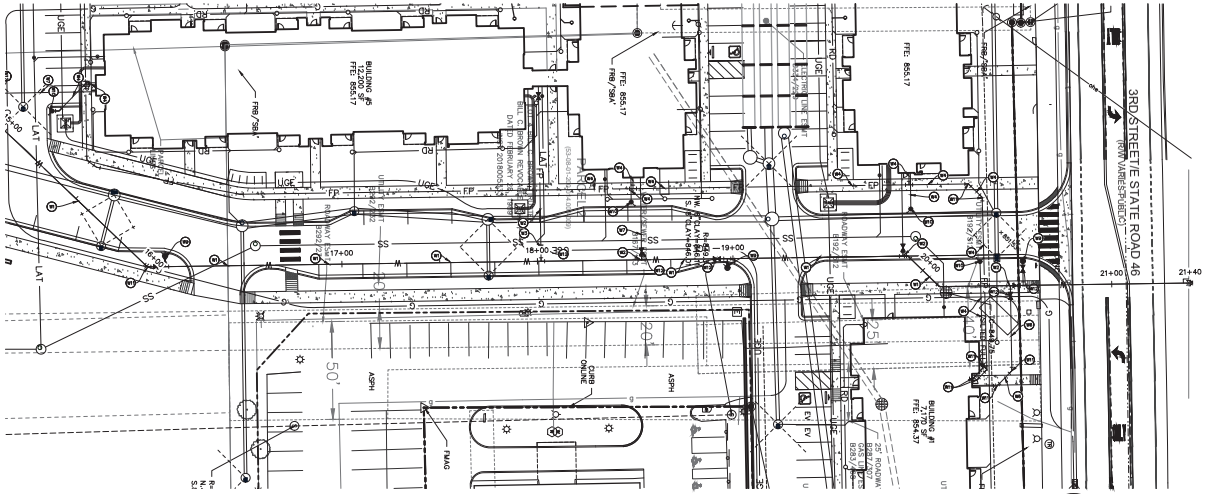
Project Number 2020.01173

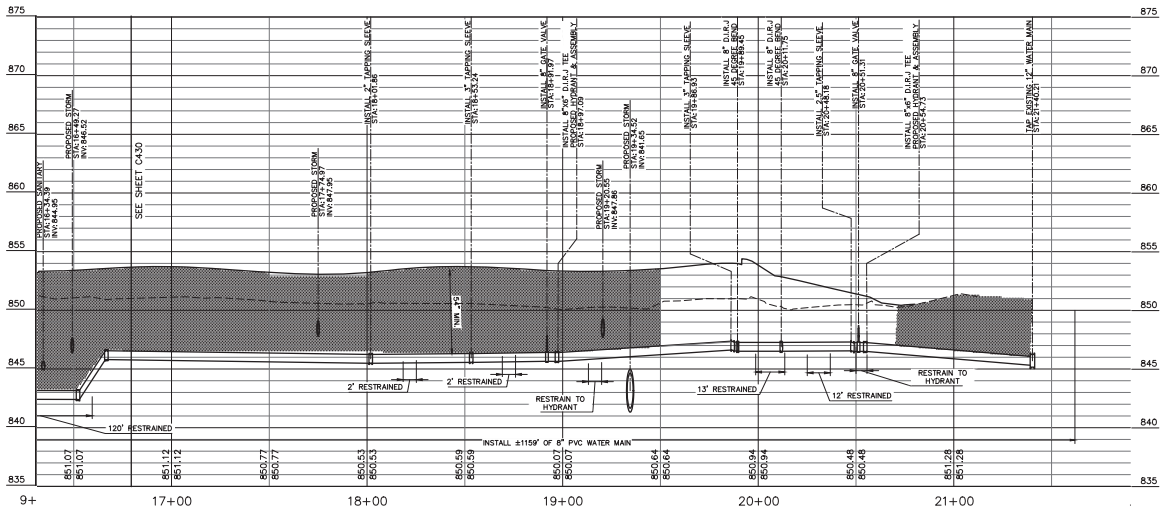
WATER PLAN AND PROFILES

C430

PLOT DATE: 1/28/2022 3:23 PM
PLOT SCALE: 1:1
PLOTTED BY: JRODGERS
FILENAME: P:\2020\2020.01173\C-Engineering\Drawings\Site\Grading\Prowater\C430 C-431 C-432 WATER.dwg



PROWATER-3
SCALE: HORZ. 1"=30'
VERT. 1"=5'



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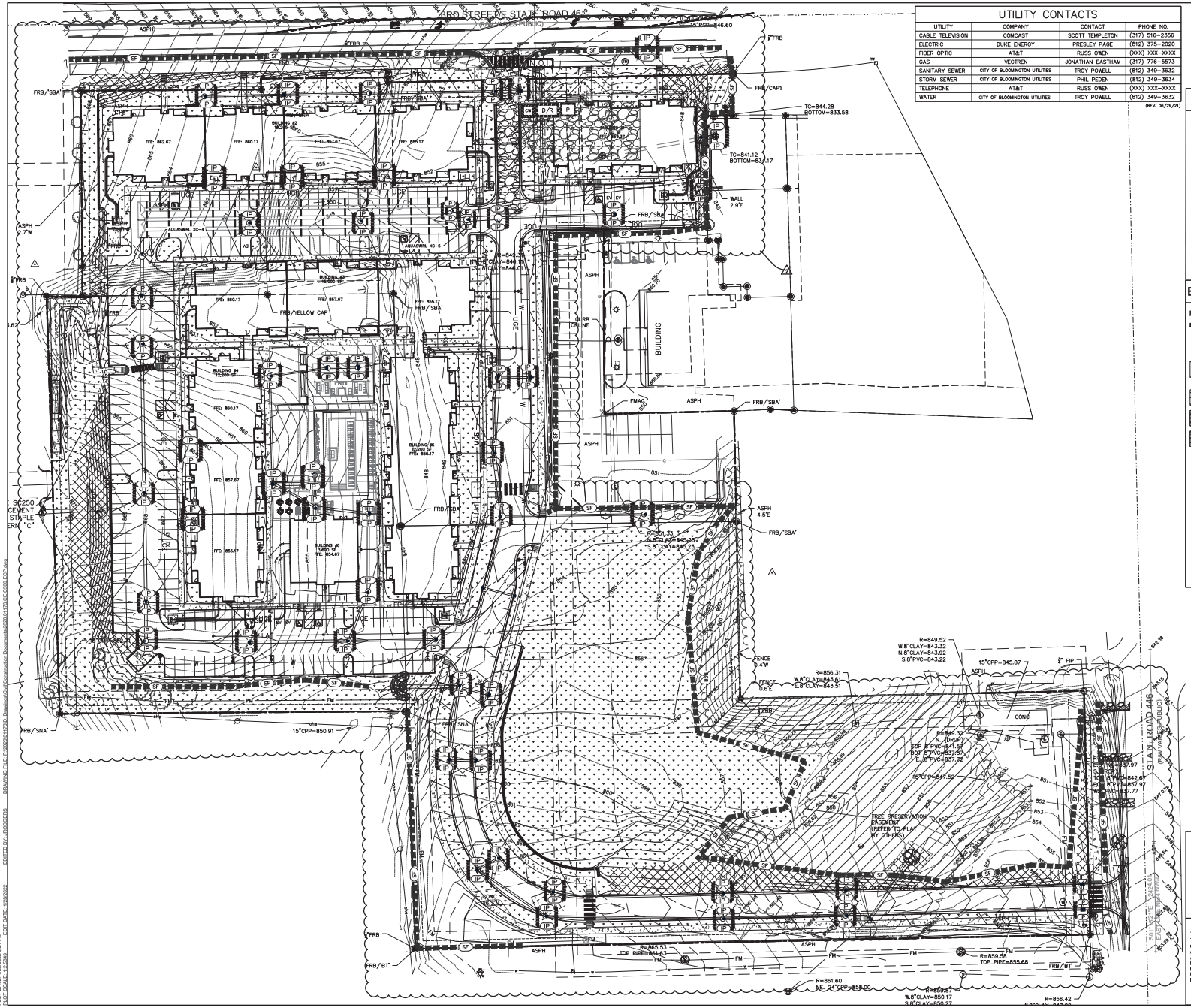
WATER PLAN AND PROFILES

C431

PLOT DATE: 1/28/2022 3:24 PM
PLOT SCALE: 1:2.5859
EDIT DATE: 1/28/2022
EDITED BY: JRODGERS
DRAWING FILE: P:\2020\01173\D. Drawings\Civil\Construction Documents\2020 01173 C-C430-WATER.dwg



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(REV. 06/29/21)

SCALE: 1"=40'

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EROSION CONTROL LEGEND

- SILT FENCE
- CONSTRUCTION LIMITS
- INLET PROTECTION
- AREA SUBJECT TO TEMPORARY SEEDING DURING CONSTRUCTION AND PERMANENT SEEDING AFTER CONSTRUCTION IS COMPLETE (REFER TO LANDSCAPE PLANS)
- EROSION CONTROL BLANKET WITH SEEDING
- GRAVEL CONSTRUCTION ENTRANCE
- STAGING AREA
- CONCRETE WASHOUT
- DUMPSTER / RECYCLING AREA
- PORT-O-LET
- N.O.I. SIGN POSTING
- OUTLET PROTECTION
- ROCK DONUT
- ROCK CHECK DAM

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EROSION CONTROL PLAN

C500

PLOT DATE: 1/28/2022 3:24 PM
PLOT SCALE: 1:2.5859
EDIT DATE: 1/28/2022
EDITED BY: JRODGERS
DRAWING FILE: P:\2020\2020\11730\Drawings\Construction Documents\2020-01173-C-C500-EC.dwg

SITE NAME

The area scheduled for construction is known as "Overlook on 46" (hereinafter referred to as the "Project").

PROJECT LOCATION

The property is located in the southwest quadrant of the E. 3rd Street and State Road 446 intersection in Bloomington, Indiana, at a latitude of 39.16339 and a longitude of −86.47413.

OWNER'S INFORMATION

Name: Overlook on 46, LLC
Address: 1220 Brookville Way
Representative: Hiren Patel
Title: Vice President
Telephone: (317) 356−4000

OPERATOR'S INFORMATION

Name: Letap Construction
Address: 1220 Brookville Way
Representative: Damien Brown
Title: Project Manager
Telephone: (317) 356−4000

NOTICE OF INTENT

All parties defined as owners or operators must submit a Notice of Intent (NOI) at least 48 hours prior to commencement of on−site construction activities. Submittal of late NOI's is not prohibited; however, authorization under the construction general permit is only for discharges that occur after permit coverage is granted. Unpermitted discharges may be subject to enforcement actions by the EPA. For the purposes of this permit, an operator is defined as any party meeting either of the following requirements:

a) The party has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications.
b) The party has day−to−day operational control of those activities at a project that are necessary to ensure compliance with a stormwater pollution prevention plan for the site or other permit conditions.

A2 11" x 17" PLAT

Refer to the Site Plan.

A3 PROJECT NARRATIVE

Refer to Sheet C100 − Existing Topography for legal description.

A4 VICINITY MAP

Refer to Title Sheet.

A5 LEGAL DESCRIPTION OF THE PROJECT SITE

Refer to Sheet C100 − Existing Topography.

A6 LOCATION OF ALL LOTS AND PROPOSED SITE IMPROVEMENTS

The site will not be subdivided; therefore, there are no individual lots on the property. The proposed site improvements are shown on Sheet C200.

A7 HYDROLOGIC UNIT CODE (HUC)

051202080500090

A8 STATE AND FEDERAL WATER QUALITY PERMITS

Rule 5 NOI

A9 SPECIFIC POINT WHERE STORMWATER DISCHARGE WILL LEAVE THE SITE

Stormwater drainage from the site will be conveyed by a proposed storm sewer to a proposed underground detention facility along the north side of the site. The underground detention facility will discharge to an existing storm sewer along the east edge of the project site.

A10 LOCATION AND NAME OF ALL WETLANDS, LAKES, AND WATERCOURSES ON AND ADJACENT TO THE SITE

No wetlands, lakes or watercourses have been identified on the site that may be impacted by stormwater discharges as a result of the proposed construction activities.

A11 IDENTIFICATION OF ALL RECEIVING WATERS

Stephens Creek is the ultimate receiving water for the project area.

A12 IDENTIFICATION OF ALL POTENTIAL DISCHARGES TO GROUND WATER

There are no locations on site where surface water may be discharged into ground water.

A13 100−YEAR FLOODPLAINS, FLOODWAYS, AND FLOODWAY FRINGES

The lot is located in an unshaded Zone "X" (areas determined to be outside the 0.2 percent annual chance floodplain) as indicated on the Monroe County, Indiana Flood Insurance Rate Map 18105C0161D dated December 17, 2010.

A14 PRE−CONSTRUCTION AND POST−CONSTRUCTION ESTIMATE OF PEAK DISCHARGE

Pre−construction 10−year discharge: 17.21 cfs
Post−construction 10−year discharge: 16.63 cfs

A15 ADJACENT LAND USE

North: Multi−Family
East: Commercial/Residential
South: Multi−Family
West: Commercial

A16 LOCATIONS AND APPROXIMATE BOUNDARIES OF ALL DISTURBED AREAS

Approximate boundaries of disturbed areas are as identified on the Erosion Control Plan.

A17 IDENTIFICATION OF EXISTING VEGETATIVE COVER

Approximate areas of existing vegetative cover are as shown on the Existing Topography Plan. The existing vegetation is mostly grass cover.

A18 SOILS MAP INCLUDING SOIL DESCRIPTION AND LIMITATIONS

The Natural Resources Conservation Service (NRCS) Web Soil Survey of Monroe County, Indiana, indicates Crider−Urban land complex (CtC), Crider silt loam (CrC), Hosmer−Urban land complex (HtB), Bedford silt loam (BdB), and Hagerstown silt loam (HaD) are located on the site.

Per the geotechnical report these soils appear to be fill materials and native clays with high plasticity. The "fill" nature of soils found on site indicate consolidation may occur overt time. This poses a settlemen risk and as such should be remediated or accounted for in designs. The on−site shall will be treated as recommended by the geotechnical engineer if the conditions are unsuitable for the proposed construction. Remedial treatments may include, but are not limited to, removal of unsuitable soil and backfilling with engineered material, installation of a geofabric within or under the pavement system, or treatment of the subgrade with lime.

A19 LOCATIONS, SIZE, AND DIMENSIONS FOR PROPOSED STORMWATER SYSTEMS

Locations of stormwater systems: Refer to the Utility Plan
Locations of AquaSwirls: Refer to the Storm Sewer Plan and Profiles
Size of storm sewer: Storm Sewer Plan and Profiles
Details of storm inlets and manholes: Refer to Site Details

A20 PLANS FOR ANY OFF−SITE CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS PROJECT

No off−site construction is expected to occur.

A21 LOCATIONS OF PROPOSED SOIL STOCKPILES AND/OR BORROW/DISPOSAL

Excess soil shall be immediately stockpiled, surrounded with silt fence and seeded and/or removed from the construction site in accordance with all applicable laws. If topsoil stockpiles are anticipated for this project, they are shown on the Erosion Control Plan.

A22 EXISTING SITE TOPOGRAPHY

Refer to the Existing Topography Plan.

A23 PROPOSED FINAL SITE TOPOGRAPHY

Refer to the Grading Plan.

B1 DESCRIPTION OF POTENTIAL POLLUTANT SOURCES ASSOCIATED WITH CONSTRUCTION ACTIVITIES

The following potential pollutant sources may be associated with construction activities on site:

1. Material storage areas (more specifically described below)
2. Construction waste material
3. Fuel storage areas and fueling stations
4. Exposed soils
5. Leaking vehicles and equipment
6. Sanitary waste from temporary toilet facilities
7. Litter
8. Windblown dust
9. Soil tracking off site from construction equipment

The following construction materials may be staged or stored on site at various points during development of the site:

1. Structural fill
2. Pavement Base Stone
3. HDPE, PVC, RCP or Ductile Iron pipe
4. Precast concrete, HDPE or PVC drainage and sanitary structures
5. Rock rip−rap

B2 SEQUENCE DESCRIBING STORMWATER QUALITY MEASURE IMPLEMENTATION RELATIVE TO LAND−DISTURBING ACTIVITIES

Preconstruction Activity
- The exact locations of all existing utilities within the project limits are to be verified prior to construction.
- Schedule pre−construction meeting with local stormwater authority.
- Install protection fencing for existing trees to remain in place within the project limits.
- Install protection fencing for existing karst in areas adjacent to project limits.

Construction Site Access
- Install gravel construction entrance.
- Post the NOI at the construction entrance.
- Install construction staging pads, fueling station, material storage areas, concrete washout, construction parking areas and stabilize construction routes.

Perimeter Controls
- Utilize the gravel construction entrance for installation of the perimeter silt fence. Add stone if needed.

Initial Land Clearing and Grading Activities
- Add protection measures to existing inlets.
- Strip the topsoil and stabilize the topsoil stockpile. Location to be determined by Contractor. Install silt fence a base of stock pile as necessary

Secondary Land Grading Activities
- Begin site grading/construction of detention system and stabilize any soil stockpiles that will be left dormant for more than 10 days.
- Complete the cut and fills on the site. Final grade and seed the pond slopes. Install check dams and stabilize slopes with erosion control blankets.
- Install storm sewer system and install inlet protection immediately upon completion of the inlet and install riprap outlet protection prior to installing outlets.

Surface Stabilization
- Apply temporary seeding and stabilize slopes in areas where rough grading has been completed.
- Apply permanent seeding and stabilize slopes in areas where final grading has been completed.

Building Construction
- Prior to building construction install stone surface for paved areas.
- Building pads left dormant for more than 10 days, must be temporarily seeded.
- Start building construction. Install staging area for building materials and stabilize.

Final Shaping/Landscaping
- Utilize topsoil salvage in applicable areas and apply permanent seeding.
- Apply permanent seeding the perimeter of the site.
- Complete utility installation, curbs, paving and building construction.
- Install landscaping plant material and stabilize all disturbed areas.
- Remove all erosion and sediment control practices when areas have a uniform grass cover.

B3 STABLE CONSTRUCTION ENTRANCE LOCATIONS AND SPECIFICATIONS

Construction entrances will be in place prior to any site construction or demolition. Entrances are shown on the Erosion Control Plan, refer to the Erosion Control Details for details.

B4 SEDIMENT CONTROL MEASURES FOR SHEET FLOW AREAS

Sheet flow areas will be protected by seed and mulch or hydroseeding. Erosion control blankets will be installed on sloped areas where the slope exceeds 3:1 (horizontal to vertical). Silt Fencing will be utilized to prevent sedimentation from leaving the site. Refer to the Erosion Control Plan for locations and the Erosion Control Details for details. **Biodegradable blankets only**

B5 SEDIMENT CONTROL MEASURES FOR CONCENTRATED FLOW AREAS

Proposed swales will be stabilized with erosion control blankets, and rock donuts will be installed to slow runoff to inlets. Straw bales and silt fences will not be allowed as concentrated flow protection measures. Refer to the Erosion Control Plan for locations and the Erosion Control Details for details.

B6 STORM SEWER INLET PROTECTION MEASURE LOCATIONS AND SPECIFICATIONS

The contractor shall install appropriate inlet protection measures at each inlet. Refer to the Erosion Control Plan for locations and the Erosion Control Details for details. Straw bales will not be allowed as inlet protection measures.

B7 RUNOFF CONTROL MEASURES

Erosion Control Blanket
Temporary and Permanent Seeding

B8 STORMWATER OUTLET PROTECTION SPECIFICATIONS

Stormwater outlets will be protected by riprap aprons to prevent scour erosion. Refer to the Erosion Control Plan for locations and the Erosion Control Details for details.

B9 GRADE STABILIZATION STRUCTURE LOCATIONS AND SPECIFICATIONS

Rip rap aprons at outlets will be utilized to prevent grade destabilization. Refer to the Erosion Control Plan for locations and the Erosion Control Details for details.

B10 LOCATION, DIMENSIONS, SPECIFICATIONS, AND CONSTRUCTION DETAILS OF EACH STORMWATER QUALITY MEASURE

Refer to Sheet C500 − Erosion Control Plan for locations of each stormwater quality measure and the Site Details.

B11 TEMPORARY SURFACE STABILIZATION METHODS APPROPRIATE FOR EACH SEASON

Surface stabilization is required on any bare or thinly vegetated area that is scheduled or likely to remain inactive for a period of 15 days or more.
Refer to the Temporary Seeding Detail within Erosion Control Details for specifics on soil amendments, seed mixtures and mulching.

B12 PERMANENT SURFACE STABILIZATION SPECIFICATIONS

A. Loosen lawn area to a minimum depth of 6 inches. Mix soil amendments and fertilizers with topsoil at rates specified. Organic soil amendments such as peat, compost or manure shall be applied at 2" depth evenly over soil and incorporated into the top 6" of topsoil. Provide fertilizer with percentage of nitrogen required to provide not less than 1 pound of actual nitrogen per 1,000 sq. ft. of lawn area and not less than 4 percent phosphoric acid and 2 percent potassium. At least 50 percent of nitrogen to be organic form. Delay mixing of fertilizer if planting will not follow placing of planting soil within a few days.
B. Fertilizer for lawns: provide a fast release fertilizer with a composition of 1 lb per 1,000 sq. ft. of actual nitrogen, 4 percent phosphorous, and 2 percent potassium by weight. Only apply if necessary after soil test.
C. Slow−release fertilizer for trees and shrubs: granular fertilizer consisting of 50 percent water−insoluble nitrogen, phosphorous and potassium made up of a composition by weight of 5 percent
D. Grade lawn and grass areas to a smooth, even surface with loose, uniformly fine texture. Limit fine grading to areas that can be planted within immediate future. Remove trash, debris, stones larger than 1 inch diameter, and other objects that may interfere with planting or maintenance operations. Sow seed using a spreader or seeding machine. Do not seed when wind velocity exceeds 5 miles per hour.
E. Distribute seed evenly over entire area by sowing equal quantity in 2 directions at right angles to each other.
F. Rake seed lightly into top 1/8 inch of soil, roll lightly, and water with a fine spray.
G. Install erosion control blankets as indicated on the plan.
H. Protect seeded areas against erosion by spreading clean, seed−free, crimped straw mulch after completion of seeding operations. Spread uniformly to form a continuous blanket not less than 1−1/2 inches loose measurements over seeded areas.
I. Water newly planted lawn areas and keep moist until new grass is established. Immediately repair any lawn areas disturbed by construction activities including tree and shrub installation.
J. Refer to the Permanent Seeding Details within the Erosion Control Detail Sheet, for timing of permanent seeding, grass seed specifications and mulching specifications.

B13 MATERIAL HANDLING AND SPILL PREVENTION PLAN

Solid Waste Disposal
No solid material, including building materials, is permitted to be discharged to surface waters or buried on site. All solid waste materials, including disposable materials incidental to the construction activity, must be collected in containers or closed dumpsters. The collection containers must be emptied periodically and the collected material hauled to a landfill permitted by the State and/or appropriate local municipality to accept the waste for disposal.

A foreman or supervisor should be designated in writing to oversee, enforce, and instruct construction workers on proper solid waste procedures.

Hazardous Waste
Whenever possible, minimize the use of hazardous materials and generation of hazardous wastes. All hazardous waste materials will be disposed in the manner specified by federal, state, or local regulations or by the manufacturer.

Use containment berms in fueling and maintenance areas and where potential for spills is high.

A foreman or supervisor should be designated in writing to oversee, enforce and instruct construction workers on proper hazardous waste procedures. The location of any hazardous waste storage areas should be indicated on the stormwater pollution prevention plan by the operator following on−site location of the facility.

Dust Control/Off−Site Vehicle Tracking
During construction, water trucks should be used, as needed, by each contractor or subcontractor to reduce dust. After construction, the site should be stabilized to reduce dust.

Construction traffic should enter and exit the site at a Construction Entrance with a rock pad or equivalent device. The purpose of the rock pad is to minimize the amount of soil and mud that is tracked onto existing streets. If sediment escapes the construction site, off−site accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts.

Sanitary/Septic
Contractors and subcontractors must comply with all state and local sanitary sewer, portable toilet, or septic system regulations. Sanitary facilities shall be provided at the site by each contractor or subcontractor throughout construction activities. The sanitary facilities should be utilized by all construction personnel and be serviced regularly. All expenses associated with providing sanitary facilities are the responsibility of the contractors and subcontractors. The location of any sanitary facilities should be indicated on the stormwater pollution prevention plan by the operator following on−site location of said facilities.

Water Source
Water used to establish and maintain grass, to control dust, and for other construction purposes must originate from a public water supply or private well approved by the State or local health department.

Equipment Fueling and Storage Areas
Equipment fueling, maintenance, and cleaning should only be completed in protected areas (i.e., bermed area). Leaking equipment and maintenance fluids will be collected and not allowed to discharge onto soil where they may be washed away during a rain event.

Equipment wash down (except for wheel washes) should take place within an area surrounded by a berm. The use of detergents is prohibited.

Hazardous Material Storage
Chemicals, paints, solvents, fertilizers, and other toxic or hazardous materials should be stored in their original containers (if original container is not resealable, store the products in clearly labeled, waterproof containers). Except during application, the containers should be kept in trucks or in bermed areas within covered storage facilities. Runoff containing such materials shall be collected, removed from the site, and disposed of in accordance with the federal, state, and local regulations.

As may be required by federal, state or local regulations, the Contractor should have a Hazardous Materials Management Plan and/or Hazardous Materials Spill and Prevention Program in place. A foreman or supervisor should be designated in writing to oversee, enforce, and instruct construction workers on proper hazardous materials storage and handling procedures. The location of any hazardous material storage areas should be indicated on the stormwater pollution prevention plan by the operator following on−site location of the storage areas.

Material Handling and Spill Prevention
Discharge of hazardous substances or oil into stormwater is subject to reporting requirements. In the event of a spill of a hazardous substance, the operator is required to notify the National Response Center (1−800−424−8802) to properly report the spill. In addition, the operator shall submit a written description of the release (including the type and amount of material released, the date of the release, the circumstances of the release, and the steps to be taken to prevent future spills) to the local governing authority. The SWPPP must be revised within 14 calendar days after the release to reflect the release, stating the information above along with modifications to minimize the possibility of future occurrences. Each contractor and subcontractor is responsible for complying with these reporting requirements.

Concrete Washout
All concrete trucks waste material shall be completely contained and disposed in accordance with all local, state, and federal regulations. A pit or container is required when cleaning concrete chutes.

Spill Response Plan
Minor − Small spills that typically involve oil, gasoline, paint, hydraulic fluid, etc., can be controlled by the first responder at the discovery of the spill.
- Contain spill to prevent material from entering storm or ground water. Do not flush with water or bury.
- Use absorbent material to clean−up spill material and any subsequently contaminated soil and dispose of properly.

Semi−Significant Spills − Approximately ten gallons or less of pollutant with no contamination of ground or surface waters. Minor spills can be generally controlled by the first responder with help from other site personnel. This response may require other operations to stop to make sure the spill is quickly and safely addressed. At the discovery of the spill:
- Contain spill to prevent material from entering storm or ground water. Do not flush with water or bury.
- Use absorbent material to clean−up spills and dispose of properly. Spills on impervious surfaces should be disposed of as soon as possible to prevent migration deeper into the soil and groundwater. Dispose of contaminated soils or absorbents properly.
- Contact 911 if the spill could be a safety issue.
- Contact supervisors and designated site inspectors immediately.
- Contaminated solids are to be removed to an approved landfill.

Major or Hazardous Spills − More than ten gallons, there is the potential for death, injury or illness to humans or animals, or has the potential for surface or groundwater pollution.
- Control or contain the spill without risking bodily harm. Temporarily plug storm drains if possible to prevent migration of the spill into the stormwater system.
- Immediately contact the local Fire Department at 911 to report any hazardous material spill.
- Contact supervisors and designated site inspectors immediately. Governing authorities responsible for storm water facilities should be contacted as well. The contractor is responsible for having these contact numbers available at the job site. A written report should be submitted to the owner as soon as possible.
- As soon as possible but within 2 hours of discovery, contact the local agency responsible for spill management. The following information should be noted for future reports to the agency:
  - Name, address and phone number of person making the spill report
  - The location of the spill
  - The time of the spill
  - Identification of the spilled substance
  - Approximate quantity of the substance that has been spilled or may be further spilled
  - The duration and source of the spill
  - Name and location of the damaged waters
  - Name of spill response organization
  - What measures were taken in the spill response
  - Other information that may be significant

Additional regulations or requirements may be present. A spill response professional should be consulted to make sure all appropriate and required steps have been taken. Contaminated solids should only be removed from the site after approval is given by the appropriate agency. Please contact the local MS4 in the event of a spill.

B14 MONITORING AND MAINTENANCE GUIDELINES FOR EACH PROPOSED STORMWATER QUALITY MEASURE

Inspection Schedule/Reporting
All impacted areas, as well as all erosion and sediment control devices, will be inspected every seven (7) calendar days and within 24 hours after a rainfall of 0.5 inch or greater. Where sites have been final or temporarily stabilized or on sites where runoff is unlikely due to winter conditions (e.g., site is covered with snow, ice, or frozen ground exists), such inspections shall be conducted at least once every month.

Inspections shall be conducted and a written report prepared, by a designated and qualified person familiar with the USEPA NPDES Storm Water General Permit, this SWPPP, and the Project.

Inspection reports shall be completed including scope of the inspection, name(s) and qualifications of personnel making the inspection, the date of the inspection, observations relating to the implementation of the SWPPP, and any actions taken as a result of incidents of noncompliance noted during the inspection. The inspection report should state whether the site was in compliance or identify any incidents of noncompliance. The contractor shall keep a copy of the inspection reports on site and permanently for a period of two years following construction. The on−site reports may be requested by inspections conducted by the local governing authority.

Construction Entrance
Locations where vehicles exit the site shall be inspected for evidence of off−site sediment tracking. Each contractor and subcontractor shall be responsible for maintaining the Construction Entrance and other controls as described in this SWPPP.

Material Storage Inspections
Inspectors must evaluate areas used for storage of materials that are exposed to precipitation. The purpose is to ensure that materials are protected and/or impounded so that pollutants cannot discharge from storage areas. Off−site material storage areas used solely by the subject project are considered to be part of the project and must be included in the erosion control plans and the site inspection reports.

Soil Stabilization Inspections
Seeded areas will be inspected to confirm that a healthy stand of vegetation is maintained. The site has achieved final stabilization once all areas are covered with pavement or have a stand of vegetation with at least 70% of the background vegetation density. The density of 70% or greater must be maintained to be considered as stabilized. The operator or their representative will water, fertilize, and reseed disturbed areas as needed to achieve this goal.

Erosion and Sediment Control Inspections
All controls should be inspected at least once every seven (7) calendar days and following any storm event of 0.5 inch or greater. The following is a list of inspection/maintenance practices that will be used for specific controls:

1. Geotextiles/Erosion Control Mats: Missing or loose matting must be replaced or re−anchored.
2. Inlet Protection: If silt fence inlet protection is to be used, sediment should be removed when it reaches approximately one−half the height of the fence. If a sump is used, sediment should be removed when the volume of the basin is reduced by 50%.
3. Diversion Swales: Clean debris or other obstructions as needed. Damage from storms or normal construction activities (i.e., tire ruts) shall be repaired immediately.
4. Mulching: Inspect for thin or bare spots caused by natural decomposition or weather−related events. Mulch in high traffic areas should be replaced on a regular basis to maintain uniform protection.
5. Sediment Trap: Accumulated silt shall be removed and the basin shall be re−graded to its original dimensions at such point that the capacity of the impoundment has been reduced to one−half of its original storage capacity. The removed sediment shall be stockpiled or redistributed in areas that are protected from erosion.
6. Sediment Basin: Inspect frequently to check for damage and to ensure obstructions are not diminishing the effectiveness of the structures. Sediment shall be removed and the basin shall be re−graded to its original dimensions at such point that the capacity of the impoundment has been reduced to 20% of its original storage capacity. The removed sediment shall be stockpiled or redistributed in areas that are protected from erosion.
7. Silt Fence: Removal of built−up sediment will occur when the sediment reaches one−third the height of the fence.
8. Stabilized Construction Entrance: Periodic re−grading and top dressing with additional stone.
9. Straw Bales: Replace straw bales that show signs of deterioration.
10. Vegetation: Protect newly seeded areas from excessive runoff and traffic until vegetation is established. Establish a watering and fertilizing schedule.
11. Good Housekeeping: Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges through screening of outfalls and daily pickup of litter.

In the event that sediment escapes the construction site, off−site accumulations of sediment must be removed at a frequency sufficient to minimize adverse impacts. An example of this may be the situation where sediment has washed into the street and could be carried into the storm sewers by the next rainfall and/or pose a safety hazard to users of public streets. Modifications/Revisions to SWPPP.

Based on inspection results, any necessary modification to this SWPPP shall be implemented within seven calendar days of the inspection. A modification is necessary if a control measure or operational procedure does not provide adequate pollutant control. All revisions shall be recorded on a Record of Revisions within seven calendar days of the inspection.

It is the responsibility of the operator to maintain effective pollutant discharge controls. Physical site conditions or contractor/subcontractor practices could make it necessary to install more controls than were originally planned. For example, localized concentrations of surface runoff or unusually steep areas could require additional silt barrier or other structural controls. Assessing the need for and installing additional controls will be a continuing contractor/subcontractor responsibility until final stabilization is achieved. Contractors and subcontractors implementing this SWPPP must remain alert to the need to periodically refine and update this SWPPP in order to accomplish the intended goals.

Notice of Termination
Compliance of the site with the General Construction Permit remains the responsibility of all operators that have submitted an NOI until such time as they have submitted a Notice of Termination (NOT). The permittee's authorization to discharge under the General Construction Permit terminates at midnight of the day the NOT is signed.

All permittees must submit an NOT within thirty (30) days after one or more of the following conditions have been met:

1. Final stabilization has been achieved on all portions of the site for which the permittee was responsible.
2. Another operator/permittee has assumed control over all areas of the site that have not been finally stabilized.
3. In residential construction operations, temporary stabilization has been completed and the residence has been transferred to the homeowner.

B15 EROSION AND SEDIMENT CONTROL SPECIFICATIONS FOR INDIVIDUAL BUILDING LOTS

Since the entire site is under a single ownership, there are not any individual building lots.

C1 DESCRIPTION OF POLLUTANTS AND THEIR SOURCES ASSOCIATED WITH THE PROPOSED LAND USE

The proposed land use is a multi−use facility. The pollutants and sources of each pollutant normally expected from this type of land use are listed below:

Pollutant Source: Passenger vehicles, delivery vehicles.
Type of Pollutant: Oil, gasoline, diesel fuel, any hydrocarbon associated with vehicular fuels and lubricants, grease, antifreeze, windshield cleaner solution, brake fluid, brake dust, rubber, glass, metal and plastic fragments, grit, road de−icing materials.

Pollutant Source: Building
Type of Pollutant: Cleaning solutions or solvents, leaks from HVAC equipment, grit from roof drainage, aggregate or rubber fragments from roofing system.

Pollutant Source: Trash dumpster
Type of Pollutant: Cleaning solutions or solvents, litter (paper, plastic, general refuse associated with distribution operations), uneaten food products, bacteria.

Pollutant Source: Parking lot
Type of Pollutant: Any pollutant associated with vehicular sources, grit from asphalt wearing surface, bituminous compounds from periodic maintenance (sealing, resurfacing and patching), pavement de−icing materials, paint fragments from parking stall stripes, concrete fragments, wind−blown litter from off−site sources, elevated water temperatures from contact with impervious surfaces.

Pollutant Source: Lawn and landscape areas
Type of Pollutant: Fertilizers, soil, organic material (leaves, mulch, grass clippings)

Pollutant Source: Pool
Type of Pollutant: Excess chlorine and other treatment chemicals, oil from pumps

C2 SEQUENCE DESCRIBING STORMWATER QUALITY MEASURE IMPLEMENTATION

The underground detention pond and AquaSwirl units will remain in place as permanent features after construction is completed. The purpose of the these measures is to restrict stormwater discharges and provide a sediment removal function.

C3 DESCRIPTION OF PROPOSED POST−CONSTRUCTION STORMWATER QUALITY MEASURES

Permanent Vegetation
Topsoil will be placed in lawn areas and seeded with grass, and graded not to exceed 3:1 slopes. Proposed landscape trees and shrubs will also be added. These Bio areas will act as a natural filter strip to help improve storm water quality. The vegetated areas will slow the velocities of storm water runoff, reduce sediment runoff, and reduce problems associated with mud or dust from bare soils.

Good Housekeeping Measures
Good Housekeeping measures such as regular street sweeping, installation of trash receptacles, and reduction in fertilizer overspray can be incorporated by the owner and/or occupant.

C4 LOCATION, DIMENSIONS, SPECIFICATIONS, AND CONSTRUCTION DETAILS OF EACH STORMWATER QUALITY MEASURE

The following items are stormwater quality measures that will be installed during construction. These items will remain in place after construction is completed and are considered to serve an incidental function as post−construction stormwater quality BMPs.

Underground Detention System
Refer to Sheet C400 − Utility Plan for the location and Sheets D1−D4 for the details on the proposed system.

C5 DESCRIPTION OF MAINTENANCE GUIDELINES FOR POST−CONSTRUCTION STORMWATER QUALITY MEASURES

Maintenance requirements for the stormwater quality measures which will remain in place after construction is complete, are described below. Refer to the BMP Operations and Maintenance Manual for more detailed maintenance requirements.

Underground Detention Systems
Inspect periodically as needed or at least every six months. Sediment shall be disposed of off site in accordance with all applicable laws. Recommended inspection and maintenance schedules vary with each manufacturer.

Mechanical BMP
Frequent inspection and cleanout is critical for proper operation. Recommended inspection and maintenance schedules vary with each manufacturer.

MHG HOTELS, LLC

AMERICAN STRUCTUREPOINT INC.
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www.structurepoint.com

OVERLOOK ON 46 & CENTURY VILLAGE STORAGE

Bloomington, IN

APPROVAL PENDING
NOT FOR CONSTRUCTION
IN SUBMITTING BIDS IN RELIANCE ON THESE PLANS THE CONTRACTOR ASSUMES ALL RISKS OF ADDITIONAL COSTS OF REVISIONS DUE TO REQUIREMENTS OF THE OWNER OR GOVERNMENTAL AUTHORITIES AND MATERIAL REVISIONS IN THE COURSE OF COMPLETING THE FINAL DESIGN.

CERTIFIED BY

ISSUANCE INDEX
DATE:
11/02/2021
PROJECT PHASE:
PRELIMINARY DOCUMENTS

REVISION SCHEDULE

NO.	DESCRIPTION	DATE
1	CITY COMMENTS	01/07/22
2	CBU/INDOT COMMENTS	01/28/22

Project Number 2020.01173

STORMWATER POLLUTION PREVENTION PLAN

C510

DRAWING FILE: P:\2020\01173\D. Drawings\Civil\Construction Documents\2020.01173.CE.C510.SWPPP.dwg
EDITED BY: JRODGERS
EDIT DATE: 1/28/2022
PLOT DATE: 1/28/2022 3:24 PM
PLOT SCALE: 1:2.5849

SPECIFICATIONS
CONTRIBUTING DRAINAGE AREA
* TWO ACRES MAXIMUM..

RIPRAP CHECK DAM
* DAM HEIGHT – TWO FEET MAXIMUM; CENTER OF THE DAM TO BE AT LEAST NINE INCHES LOWER THAN THE POINTS OF CONTACT BETWEEN THE UPPERMOST POINTS OF THE RIPRAP DAM AND CHANNEL BANKS.
* SIDE SLOPE – RATIO OF 2:1 OR FLATTER.
* SPACING – TOE OF THE UPSTREAM DAM AT SAME ELEVATION AS OVERFLOW WEIR OF THE DOWNSTREAM DAM.

OVERFLOW AREAS
* STABILIZED TO REDUCE SCOUR/EROSION ALONG SIDES AND BELOW THE DAM.

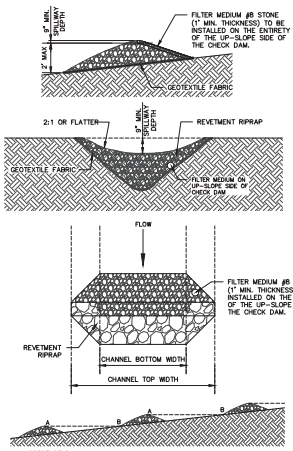
FILTER MEDIUM
* PLACED ON UP–SLOPE SIDE OF DAM.
* HEIGHT – TO BASE OF OVERFLOW WEIR NOTCH.

MATERIALS
* GEOTEXTILE FABRIC (8 OUNCE OR HEAVIER; NON–WOVEN).
* INDIANA DEPARTMENT OF TRANSPORTATION REVETMENT RIPRAP FOR DAM.
* INDOT CA NO. 5 AGGREGATE FOR USE AS FILTER MEDIUM (AGGREGATE MUST BE WELL–GRADED).

NOTE: INDOT CA NO. 8 AGGREGATE IS ACCEPTABLE IF NO. 5 IS NOT AVAILABLE. THE USE OF NO. 8 AGGREGATE MAY RESULT IN MORE FREQUENT OVERTOPPING OF THE STRUCTURE AND WILL INCREASE THE FREQUENCY OF STRUCTURE MAINTENANCE.

INSTALLATION
1. LAY OUT THE LOCATION OF THE CHECK DAM.
2. EXCAVATE A CUTOFF TRENCH INTO THE CHANNEL BOTTOM AND DITCH BANKS, EXTENDING IT A MINIMUM OF 18 INCHES BEYOND THE TOP OF THE DITCH BANK.
3. INSTALL AND ANCHOR FILTER FABRIC IN THE CHANNEL AND CUTOFF TRENCH.
4. PLACE RIPRAP IN THE CUTOFF TRENCH AND CHANNEL TO THE LINES AND DIMENSIONS SHOWN IN THE CONSTRUCTION PLANS. THE CENTER OF EACH DAM MUST BE AT LEAST NINE INCHES LOWER THAN THE UPPERMOST POINTS OF CONTACT BETWEEN THE RIPRAP DAM AND CHANNEL BANKS.
5. EXTEND THE RIPRAP AT LEAST 18 INCHES BEYOND THE TOP OF THE CHANNEL BANKS TO KEEP OVERFLOW FROM ERODING AREAS ADJACENT TO THE CHANNEL BANKS BEFORE IT RE–ENTERS THE CHANNEL.
6. PLACE FILTER MEDIUM (INDOT CA NO. 5 AGGREGATE) ON THE UP–SLOPE SIDE OF THE DAM. PLACE FILTER MEDIUM OVER THE ENTIRE FACE OF THE DAM UP TO THE BASE OF THE OVERFLOW WEIR NOTCH.
7. STABILIZE THE CHANNEL ABOVE THE UPPERMOST DAM.
8. INSTALL AN EROSION–RESISTANT LINING IN THE CHANNEL BELOW THE LOWERMOST DAM. THE LINING SHOULD EXTEND A MINIMUM DISTANCE OF SIX FEET BELOW THE DAM.
9. ADDITIONAL SEDIMENT STORAGE CAN BE PROVIDED BY EXCAVATING A SMALL SEDIMENT TRAP ON THE UPSTREAM SIDE OF THE CHECK DAM.

MAINTENANCE
* INSPECT WITHIN 24 HOURS OF EACH RAIN EVENT AND AT LEAST ONCE EVERY SEVEN CALENDAR DAYS.
* IF SIGNIFICANT EROSION OCCURS BETWEEN DAMS, INSTALL AN EROSION–RESISTANT LINER IN THAT PORTION OF THE CHANNEL.
* REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES ONE–HALF THE HEIGHT OF THE DAM TO MAINTAIN CHANNEL CAPACITY, ALLOW DRAINAGE THROUGH THE DAM, AND PREVENT LARGE FLOW FROM DISPLACING SEDIMENT.
* ADD RIPRAP AND AGGREGATE AS NEEDED TO MAINTAIN DESIGN HEIGHT AND CROSS SECTION OF THE DAMS.
* WHEN DAMS ARE NO LONGER NEEDED, REMOVE THE RIPRAP AND AGGREGATE AND STABILIZE THE CHANNEL USING AN EROSION–RESISTANT LINING IF NECESSARY. (RIPRAP AND AGGREGATE FROM THE DAM MAY BE REMOVED OR UTILIZED TO STABILIZE THE CHANNEL.)



NOTE: DO NOT USE CHECK DAMS IN PERENNIAL STREAMS.

ROCK CHECK DAM
NOT TO SCALE (REV. 03/18)

SPECIFICATIONS
DRAINAGE AREA
* LIMITED TO ONE–QUARTER ACRE PER 100 LINEAR FEET OF FENCE.
* FURTHER RESTRICTED BY SLOPE STEEPNESS (SEE TABLE 1).

EFFECTIVE LIFE
* SIX MONTHS (MAXIMUM).

LOCATION
* INSTALLED PARALLEL TO THE SLOPE CONTOUR.
* MINIMUM OF 10 FEET BEYOND THE TOE OF THE SLOPE TO PROVIDE A BROAD, SHALLOW SEDIMENT POOL.
* ACCESSIBLE FOR MAINTENANCE (REMOVAL OF SEDIMENT AND SILT FENCE REPAIR).

SPACING
TABLE 1. SLOPE STEEPNESS RESTRICTIONS

PERCENT SLOPE	MAXIMUM DISTANCE
< 2%	< 50:1	100 FEET
2% – 5%	50:1 TO 20:1	75 FEET
5% – 10%*	20:1 TO 10:1	50 FEET
10% – 20%*	10:1 TO 5:1	25 FEET
> 20%	> 5:1	15 FEET

*CONSIDER OTHER ALTERNATIVES.
NOTE: MULTIPLE ROWS OF SILT FENCE ARE NOT RECOMMENDED ON THE SAME SLOPE.

TRENCH
* DEPTH: EIGHT INCHES MINIMUM.
* WIDTH: FOUR INCHES MINIMUM.
* AFTER INSTALLING THE FENCE, BACKFILL WITH SOIL MATERIAL AND COMPACT (TO BURY AND ANCHOR THE LOWER PORTION OF THE FENCE FABRIC).

NOTE: AN ALTERNATIVE TO TRENCHING IS TO USE MECHANICAL EQUIPMENT TO FLOW IN THE SILT FENCE.

MATERIALS AND SILT FENCE SPECIFICATIONS
* FABRIC – WOVEN OR NON–WOVEN GEOTEXTILE FABRIC, MEETING SPECIFIED MINIMUMS OUTLINED IN TABLE 2.

TABLE 2. GEOTEXTILE FABRIC SPECIFICATIONS FOR SILT FENCE (MINIMUM)

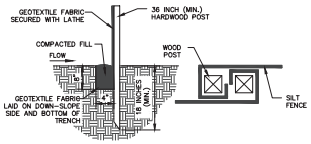
PHYSICAL PROPERTY	WOVEN GEOTEXTILE FABRIC	NON–WOVEN GEOTEXTILE FABRIC
FILTERING EFFICIENCY	85%	85%
TEXTILE STRENGTH AT 20% ELONGATION STANDARD STRENGTH EXTRA STRENGTH	 30 LBS. PER LINEAL INCH 50 LBS. PER LINEAL INCH	 50 LBS. PER LINEAL INCH 70 LBS. PER LINEAL INCH
SLURRY FLOW RATE	0.3 GAL./MIN./SQUARE FOOT	4.5 GAL./MIN./SQUARE FOOT
WATER FLOW RATE	15 GAL./MIN./SQUARE FOOT	220 GAL./MIN./SQUARE FOOT
UV RESISTANCE	70%	85%
POST SPACING	7 FEET	5 FEET

NOTE: SILT FENCES CAN BE PURCHASED COMMERCIALLY.
* HEIGHT – A MINIMUM OF 18 INCHES ABOVE GROUND LEVEL (30 INCHES MAXIMUM).
* REINFORCEMENT – FABRIC SECURELY FASTENED TO POSTS WITH WOOD LATHE.
* SUPPORT POSTS – 2x2 INCH HARDWOOD POSTS. STEEL FENCE POSTS MAY BE SUBSTITUTED FOR HARDWOOD POSTS (STEEL POSTS SHOULD HAVE PROJECTIONS FOR FASTENING FABRIC).
* SPACING – EIGHT FEET MAXIMUM IS FENCE IS SUPPORTED BY WIRE MESH FENCING, SIX FEET MAXIMUM FOR EXTRA–STRENGTH FABRIC WITHOUT WIRE BACKING.

INSTALLATION
1. LAY OUT THE LOCATION OF THE FENCE SO THAT IS IS PARALLEL TO THE CONTOUR OF THE SLOPE AND AT LEAST 10 FEET BEYOND THE TOE OF THE SLOPE TO PROVIDE A SEDIMENT STORAGE AREA. TURN THE ENDS OF THE FENCE UP SLOPE SUCH THAT THE POINT OF CONTACT BETWEEN THE GROUND AND THE BOTTOM OF THE FENCE END TERMINATES AT A HIGHER ELEVATION THAN THE TOP OF THE FENCE AT ITS LOWEST POINT.
2. EXCAVATE AN EIGHT–INCH DEEP BY FOUR–INCH WIDE TRENCH ALONG THE ENTIRE LENGTH OF THE FENCE LINE. INSTALLATION BY PLOWING IS ALSO ACCEPTABLE.
3. INSTALL THE SILT FENCE WITH THE FILTER FABRIC LOCATED ON THE UP–SLOPE SIDE OF THE EXCAVATED TRENCH AND THE SUPPORT POSTS ON THE DOWN–SLOPE SIDE OF THE TRENCH.
4. DRIVE THE SUPPORT POSTS AT LEAST 18 INCHES INTO THE GROUND, TIGHTLY STRETCHING THE FABRIC BETWEEN THE POSTS AS EACH IS DRIVEN INTO THE SOIL. A MINIMUM OF 12 INCHES OF THE FILTER FABRIC SHOULD EXTEND INTO THE TRENCH. (IF IT IS NECESSARY TO JOIN THE ENDS OF TWO FENCES, USE THE JOINT METHOD SHOWN.
5. LAY THE FOUR INCHES OF FILTER FABRIC ON THE BOTTOM OF THE TRENCH AND EXTEND IT TOWARD THE UP–SLOPE SIDE OF THE TRENCH.
6. BACKFILL THE TRENCH WITH SOIL MATERIAL AND COMPACT IT IN PLACE.

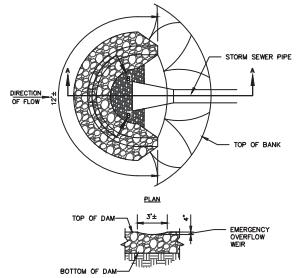
NOTE: IF THE SILT FENCE IS BEING CONSTRUCTED ON–SITE, ATTACH THE FILTER FABRIC TO THE SUPPORT POSTS (REFER TO TABLES 1 AND 2 FOR SPACING AND GEOTEXTILE SPECIFICATIONS) AND ATTACH WOODEN LATHE TO SECURE THE FABRIC TO THE POSTS. ALLOW FOR AT LEAST 12 INCHES OF FABRIC BELOW GROUND LEVEL. COMPLETE THE SILT FENCE INSTALLATION, FOLLOWING STEPS 1 THROUGH 6 ABOVE.

MAINTENANCE
* INSPECT WITHIN 24 HOURS OF A RAIN EVENT AND AT LEAST ONCE EVERY SEVEN CALENDAR DAYS.
* IF FENCE FABRIC TEARS, STARTS TO DECOMPOSE, OR IN ANY WAY BECOMES INEFFECTIVE, REPLACE THE AFFECTED PORTION IMMEDIATELY. ALL REPAIRS SHOULD MEET SPECIFICATIONS AS OUTLINED WITHIN THIS MEASURE.
* REMOVE DEPOSITED SEDIMENT WHEN IT IS CAUSING THE FILTER FABRIC TO BULGE OR WHEN IT REACHES ON–HALF THE HEIGHT OF THE FENCE AT ITS LOWEST POINT; WHEN CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE THE FENCE AND SEDIMENT DEPOSITS, GRADE THE SITE TO BLEND WITH THE SURROUNDING AREA, AND STABILIZE.



NOTE: SILT FENCE IS NOT RECOMMENDED FOR USE AS A DIVERSION AND SHOULD NOT BE USED ACROSS A STREAM, CHANNEL, DITCH, SWALE, OR ANYWHERE THAT CONCENTRATED FLOW IS ANTICIPATED.

SILT FENCE CONSTRUCTION
NOT TO SCALE (REV. 01/17)



MAINTENANCE
* INSPECT WITHIN 24 HOURS OF A RAIN EVENT AND AT LEAST ONCE EVERY SEVEN CALENDAR DAYS.
* WHEN THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE AND PROPERLY DISPOSE OF ANY UNSTABLE SEDIMENT AND CONSTRUCTION MATERIAL, AND RE–STABILIZE.

ROCK DONUT DETAIL
NOT TO SCALE (REV. 01/17)

MHG HOTELS, LLC

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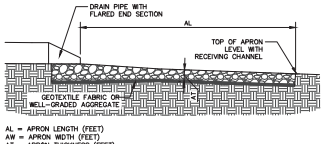
OVERLOOK ON 46 & CENTURY VILLAGE STORAGE

Bloomington, IN



NOTE: AW IS THE APRON WIDTH AT THE NARROW END OF THE APRON.

SPECIFICATIONS
CAPACITY
* PEAK RUNOFF FROM A 10–YEAR FREQUENCY, 24–HOUR STORM EVENT OR THE DESIGN DISCHARGE OF THE WATER CONVEYANCE STRUCTURE, WHICHEVER IS GREATER.

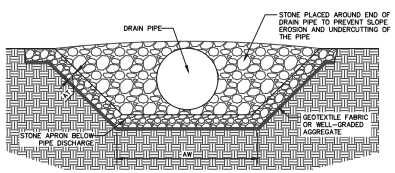
MAXIMUM VELOCITY
* TEN FEET PER SECOND.

APRON
* ALIGNED STRAIGHT WITH CHANNEL FLOW. IF A CURVE IS NECESSARY TO ALIGN THE APRON WITH THE RECEIVING STREAM, LOCATE THE CURVE IN THE UPSTREAM SECTION OF THE APRON.
* THICKNESS
** 1.2 TIMES THE MAXIMUM STONE DIAMETER FOR A d_{50}STONE SIZE OF 15 INCHES OR LARGER.
** 1.5 TIMES THE MAXIMUM STONE DIAMETER FOR A d_{50}STONE SIZE OF 15 INCHES OR LESS.

TABLE 1. SIZING FOR FLOW DISSIPATERS AT CULVERT PIPE OUTLETS

PIPE SIZE	MEDIAN RIPRAP DIAMETER	APRON WIDTH*	APRON LENGTH**
8 IN.	6 IN. MIN.	2 TO 3 FT.	5 TO 7 FT.
12 IN.	6 IN. MIN.	3 TO 4 FT.	6 TO 10 FT.
15 IN.	6 IN. MIN.	4 TO 6 FT.	6 TO 12 FT.
18 IN.	6 IN. MIN.	4 TO 6 FT.	8 TO 16 FT.
21 IN.	6 IN. MIN.	6 TO 8 FT.	8 TO 16 FT.
24 IN.	9 IN. MIN.	6 TO 8 FT.	12 TO 18 FT.
30 IN.	9 IN. MIN.	8 TO 10 FT.	14 TO 20 FT.
36 IN.	9 IN. MIN.	10 TO 12 FT.	16 TO 22 FT.
42 IN.	9 IN. MIN.	12 TO 14 FT.	18 TO 24 FT.
48 IN.	12 IN. MIN.	12 TO 14 FT.	18 TO 26 FT.
54 IN.	12 IN. MIN.	14 TO 16 FT.	22 TO 28 FT.
60 IN.	12 IN. MIN.	15 TO 17 FT.	22 TO 32 FT.
66 IN.	12 IN. MIN.	17 TO 19 FT.	24 TO 36 FT.
72 IN.	12 IN. MIN.	18 TO 20 FT.	26 TO 40 FT.
84 IN.	18 IN. MIN.	21 TO 23 FT.	30 TO 44 FT.

*APRON WIDTH AT THE NARROW END OF APRON (PIPE OR CHANNEL OUTLET).
**SELECT LENGTH TAKING INTO CONSIDERATION THE LOW FLOW (NO PRESSURE HEAD) OR HIGH FLOW (PRESSURE HEAD) CONDITIONS OF THE CULVERT PIPE.



MATERIALS
* RIPRAP
** HARD, ANGULAR, HIGHLY WEATHER RESISTANT.
** SPECIFIC GRAVITY OF AT LEAST 2.5.
** SIZE AND GRADATION THAT WILL WITHSTAND VELOCITIES OF STORM WATER DISCHARGE FLOW DESIGN.
** WELL–GRADED MIXTURE OF STONE WITH 50 PERCENT OF THE STONE PIECES, BY WEIGHT, LARGER THAN THE d_{50}SIZE AND THE DIAMETER OF THE LARGEST STONE EQUAL TO 1.5 TIMES THE d_{50}SIZE.
* GEOTEXTILE FABRIC OR WELL–GRADED AGGREGATE (INDOT CA NO. 9, 11, OR 12).

INSTALLATION
1. DIVERT SURFACE WATER RUNOFF AROUND THE STRUCTURE DURING CONSTRUCTION SO THAT THE SITE CAN BE PROPERLY DEWATERED FOR FOUNDATION PREPARATION.
2. EXCAVATE FOUNDATION AND APRON AREA SUBGRADES BELOW DESIGN ELEVATION TO ALLOW FOR THIS THICKNESS OF FILTER MEDIUM AND RIPRAP.
3. COMPACT ANY FILL USED IN SUBGRADE PREPARATION TO THE DENSITY OF SURROUNDING UNDISTURBED SOIL MATERIAL.
4. SMOOTH SUBGRADE ENOUGH TO PROTECT GEOTEXTILE FABRIC FROM TEARING.
5. PLACE GEOTEXTILE FABRIC OR AGGREGATE BEDDING MATERIAL (FOR STABILIZATION AND FILTRATION) ON THE COMPACTED AND SMOOTHED FOUNDATION.
6. INSTALL RIPRAP TO THE LINES AND ELEVATIONS SHOWN IN THE CONSTRUCTION PLANS. BLEND RIPRAP SMOOTHLY TO SURROUNDING GRADE. IF THE CHANNEL IS WELL DEFINED, EXTEND THE APRON ACROSS THE CHANNEL BOTTOM AND UP THE CHANNEL BANKS TO AN ELEVATION OF SIX INCHES ABOVE THE MAXIMUM TAILWATER DEPTH OR THE TOP OF THE BANK, WHICHEVER IS LESS.
7. IF GEOTEXTILE FABRIC TEARS WHEN PLACING RIPRAP, REPAIR IMMEDIATELY BY LAYING AND STAPLING A PIECE OF FABRIC OVER DAMAGED AREA, OVERLAPPING THE UNDAMAGED AREAS BY AT LEAST 12 INCHES.
8. CONSTRUCT A SMALL PLUNGE POOL WITHIN THE OUTLET APRON. (RIPRAP APRONS MUST BE LEVEL WITH OR SLIGHTLY LOWER THAN THE RECEIVING CHANNEL AND SHOULD NOT PRODUCE AN OVERFALL OR RESTRICT FLOW OF THE WATER CONVEYANCE STRUCTURE.)

MAINTENANCE
* INSPECT WITHIN 24 HOURS OF A RAIN EVENT AND AT LEAST ONCE EVERY SEVEN CALENDAR DAYS.
* INSPECT FOR STONE DISPLACEMENT; REPLACE STONES ENSURING PLACEMENT AT FINISHED GRADE.
* CHECK FOR EROSION OR SCOURING AROUND SIDES OF THE APRON; REPAIR IMMEDIATELY.
* CHECK FOR PIPING OR UNDERCUTTING; REPAIR IMMEDIATELY.

RIPRAP OUTLET PROTECTION
NOT TO SCALE (REV. 12/17)

SEEDING SPECIFICATIONS
SEEDBED PREPARATION
* GRADE AND APPLY SOIL AMENDMENTS.

SEEDING FREQUENCY
* SEED ROUGH GRADED AREAS DAILY WHILE SOIL IS STILL LOOSE AND MOIST.

DENSITY OF VEGETATIVE COVER
* EIGHTY PERCENT OR GREATER OVER THE SOIL SURFACE.

MATERIALS
* SOIL AMENDMENTS – SELECT MATERIALS AND RATES AS DETERMINED BY A SOIL TEST (CONTACT YOUR COUNTY SOIL AND WATER CONSERVATION DISTRICT OR COOPERATIVE EXTENSION OFFICE FOR ASSISTANCE AND SOIL INFORMATION, INCLUDING AVAILABLE SOIL TESTING SERVICES) OR 400 TO 600 POUNDS OF 12–12–12 ANALYSIS FERTILIZER, OR EQUIVALENT. CONSIDER THE USE OF REDUCED PHOSPHOROUS APPLICATION WHERE SOIL TESTS INDICATE ADEQUATE PHOSPHOROUS LEVELS IN THE SOIL PROFILE.
* SEED – SELECT APPROPRIATE PLANT SPECIES SEED OR SEED MIXTURES ON THE BASIS OF QUICK GERMINATION, GROWTH, AND TIME OF YEAR TO BE SEEDED (SEE TABLE 1).
* MULCH – STRAW, HAY, WOOD FIBER, ETC. (TO PROTECT SEEDBED, RETAIN MOISTURE, AND ENCOURAGE PLANT GROWTH). ANCHORED TO PREVENT REMOVAL BY WIND OR WATER OR COVERED WITH MANUFACTURED EROSION CONTROL BLANKETS.

TABLE 1. SLOPE STEEPNESS RESTRICTIONS

SEED SPECIES*	RATE PER ACRE	PLANTING DEPTH	OPTIMUM DATES**
WHEAT OR RYE	150 LBS.	1 TO 1–1/2 INCHES	SEPT. 15–OCT. 30
SPRING OATS	100 LBS.	1 INCH	MARCH 1–APRIL 15
ANNUAL RYEGRASS	40 LBS.	1/4 INCH	MARCH 1–MAY 1 AUG. 1–SEPT. 1
GERMAN MILLET	40 LBS.	1 TO 2 INCHES	MAY 1–JUNE 1
SUDANGRASS	35 LBS.	1 TO 2 INCHES	MAY 1–JULY 30
BUCKWHEAT	60 LBS.	1 TO 2 INCHES	APRIL 15–JUNE 1
CORN (BROADCAST)	300 LBS.	1 TO 2 INCHES	MAY 11–AUG. 10
SORGHUM	35 LBS.	1 TO 2 INCHES	MAY 1–JULY 15

*PERENNIAL SPECIES MAY BE USED AS A TEMPORARY COVER, ESPECIALLY IF THE AREA TO BE SEEDED WILL REMAIN IDLE FOR MORE THAN ONE YEAR.
**SEEDING DONE OUTSIDE THE OPTIMUM SEEDING DATES INCREASES THE CHANCES OF SEEDING FAILURE. DATES MAY BE EXTENDED OR SHORTENED BASED ON THE LOCATION OF THE PROJECT WITHIN THE STATE.

NOTES:
MULCH ALONE IS AN ACCEPTABLE TEMPORARY COVER AND MAY BE USED IN LIEU OF TEMPORARY SEEDING, PROVIDED THAT IT IS APPROPRIATELY ANCHORED.

A HIGH POTENTIAL FOR FERTILIZER, SEED, AND MULCH TO WASH EXISTS ON STEEP BANKS, CUTS, AND IN CHANNELS AND AREAS OF CONCENTRATED FLOW.

SEEDING APPLICATION
SEEDBED PREPARATION
1. TEST SOIL TO DETERMINE pH AND NUTRIENT LEVELS.
2. APPLY SOIL AMENDMENTS AS RECOMMENDED BY THE SOIL TEST. IF TESTING IS NOT DONE, APPLY 400 TO 600 POUNDS PER ACRE OF 12–12–12 ANALYSIS FERTILIZER, OR EQUIVALENT.
3. WORK THE SOIL AMENDMENTS INTO THE UPPER TWO TO FOUR INCHES OF THE SOIL WITH A DISK OR RAKE OPERATED ACROSS THE SLOPE.

SEEDING
1. SELECT A SEED SPECIES OR AN APPROPRIATE SEED MIXTURE AND APPLICATION RATE FROM TABLE 1.
2. APPLY SEED UNIFORMLY WITH A DRILL OR CULTIPACKER SEEDER OR BY BROADCASTING. PLANT OR COVER SEED TO THE DEPTH SHOWN IN TABLE 1.

NOTES:
1. IF DRILLING OR BROADCASTING THE SEED, ENSURE GOOD SEED–TO–SOIL CONTACT BY FIRMING THE SEEDBED WITH A ROLLER OR CULTIPACKER AFTER COMPLETING SEED OPERATIONS.
2. DAILY SEEDING WHEN THE SOIL IS MOIST IS USUALLY MOST EFFECTIVE.
3. IF SEEDING IS DONE WITH A HYDROSEEDER, FERTILIZER AND MULCH CAN BE APPLIED WITH THE SEED IN A SLURRY MIXTURE.

3. APPLY MULCH AND ANCHOR IT IN PLACE.

SEEDING MAINTENANCE
* INSPECT WITHIN 24 HOURS OF EACH RAIN EVENT AND AT LEAST ONCE EVERY SEVEN CALENDAR DAYS.
* CHECK FOR EROSION OR MOVEMENT OF MULCH AND REPAIR IMMEDIATELY.
* MONITOR FOR EROSION DAMAGE AND ADEQUATE COVER (80 PERCENT DENSITY); RESEED, FERTILIZE, AND APPLY MULCH WHERE NECESSARY.
* IF NITROGEN DEFICIENCY IS APPARENT, TOP–DRESS FALL SEEDED WHEAT OR RYE SEEDING WITH 50 POUNDS PER ACRE OF NITROGEN IN FEBRUARY OR MARCH.

MULCH SPECIFICATIONS
MATERIALS
TABLE 1. SLOPE STEEPNESS RESTRICTIONS

MATERIAL*	RATE PER ACRE	COMMENTS
STRAW OR HAY	2 TONS	SHOULD BE DRY, FREE OF UNDESIRABLE SEEDS. SPREAD BY HAND OR MACHINE. MUST BE CRIMPED OR ANCHORED (SEE TABLE 2).
WOOD FIBER OR CELLULOSE	1 TON	APPLY WITH A HYDRAULIC MULCH MACHINE AND USE WITH TACKING AGENT.

*MULCHING IS NOT RECOMMENDED IN CONCENTRATED FLOWS. CONSIDER EROSION CONTROL BLANKETS OR OTHER STABILIZATION METHODS.

COVERAGE
* THE MULCH SHOULD HAVE A UNIFORM DENSITY OF AT LEAST 75 PERCENT OVER THE SOIL SURFACE.

ANCHORING
TABLE 2. MULCH ANCHORING METHODS

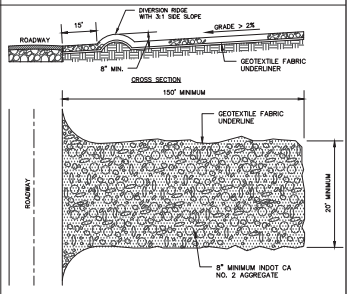
ANCHORING METHOD*	HOW TO APPLY
MULCH ANCHORING TOOL OR FARM DISK (DULL, SERRATED, AND BLADES SET STRAIGHT)	CRIMP OR PUNCH THE STRAW OR HAY TWO TO FOUR INCHES INTO THE SOIL. OPERATE MACHINERY ON THE CONTOUR OF THE SLOPE.
CLEATING WITH DOZER TRACKS	OPERATE DOZER UP AND DOWN SLOPE TO PREVENT FORMATION OF RILLS BY DOZER CLEATS.
WOOD HYDROMULCH FIBERS	APPLY ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
SYNTHETIC TACKIFIERS, BINDERS, OR SOIL STABILIZERS	APPLY ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
NETTING (SYNTHETIC OR BIODEGRADABLE MATERIAL)	INSTALL NETTING IMMEDIATELY AFTER APPLYING MULCH. ANCHOR NETTING WITH STAPLES. EDGES OF NETTING STRIPS SHOULD OVERLAP WITH EACH UP–SLOPE STRIP OVERLAPPING FOUR TO SIX INCHES OVER THE ADJACENT DOWN–SLOPE STRIP. BEST SUITED TO SLOPE APPLICATIONS. IN MOST INSTANCES, INSTALLATION DETAILS ARE SITE SPECIFIC. SO MANUFACTURER'S RECOMMENDATIONS SHOULD BE FOLLOWED.

*ALL FORMS OF MULCH MUST BE ANCHORED TO PREVENT DISPLACEMENT BY WIND AND/OR WATER.

MULCH APPLICATION
1. APPLY MULCH AT THE RECOMMENDED RATE SHOWN IN TABLE 1.
2. SPREAD THE MULCH MATERIAL UNIFORMLY BY HAND, HAYFORK, MULCH BLOWER, OR HYDRAULIC MULCH MACHINE. AFTER SPREADING, NO MORE THAN 25 PERCENT OF THE GROUND SHOULD BE VISIBLE.
3. ANCHOR STRAW OR HAY MULCH IMMEDIATELY AFTER APPLICATION. THE MULCH CAN BE ANCHORED USING ONE OF THE METHODS LISTED BELOW:
   a. CRIMP WITH A MULCH ANCHORING TOOL, A WEIGHTED FARM DISK WITH DULL SERRATED BLADES SET STRAIGHT, OR TRACK CLEATS OF A BULLDOZER.
   b. APPLY HYDRAULIC MULCH WITH SHORT CELLULOSE FIBERS.
   c. APPLY A LIQUID TACKIFIER, OR
   d. COVER WITH NETTING SECURED BY STAPLES.

MULCH MAINTENANCE
* INSPECT WITHIN 24 HOURS OF EACH RAIN EVENT AND AT LEAST ONCE EVERY SEVEN CALENDAR DAYS.
* CHECK FOR EROSION OR MOVEMENT OF MULCH; REPAIR DAMAGED AREAS, RESEED, APPLY NEW MULCH AND ANCHOR THE MULCH IN PLACE.
* CONTINUE INSPECTIONS UNTIL VEGETATION IS FIRMLY ESTABLISHED.
* IF EROSION IS SEVER OR RECURRING, USE EROSION CONTROL BLANKETS OR OTHER MORE SUBSTANTIAL STABILIZATION METHODS TO PROTECT THE AREA.

TEMPORARY SEEDING WITH MULCH
NOT TO SCALE (REV. 01/17)



SPECIFICATIONS
LOCATION
* AVOID LOCATING ON STEEP SLOPES OR AT CURVES IN PUBLIC ROADS.

DIMENSIONS
* WIDTH: TWENTY (20) FEET MINIMUM OR FULL WIDTH OF ENTRANCE/EXIT ROADWAY, WHICHEVER IS GREATER.
* LENGTH: ONE–HUNDRED FIFTY (150) FEET MINIMUM (LENGTH CAN BE SHORTER FOR SMALLER SITES).
* THICKNESS: EIGHT (8) INCHES MINIMUM.

MATERIALS
* ONE (1) TO TWO AND ONE–HALF (2–1/2) INCH DIAMETER WASHED AGGREGATE (INDOT CA NO. 2).
* ONE–HALF (1/2) TO ONE AND ONE–HALF (1–1/2) INCH WASHED AGGREGATE (INDOT CA NO. 53); OPTIONAL, USED PRIMARILY WHERE THE PURPOSE OF THE PAD IS TO KEEP SOIL FROM ADHERING TO VEHICLE TIRES.
* GEOTEXTILE FABRIC UNDERLAYMENT (USED AS A SEPARATE LAYER TO PREVENT INTERMIXING OF AGGREGATE AND THE UNDERLYING SOIL MATERIAL AND TO PROVIDE GREATER BEARING STRENGTH WHEN ENCOUNTERING WET CONDITIONS OR SOILS WITH SEASONAL HIGH WATER TABLE LIMITATIONS).

INSTALLATION
1. REMOVE ALL VEGETATION AND OTHER OBJECTIONABLE MATERIAL FROM THE FOUNDATION AREA.
2. GRADE FOUNDATION AND CROWN FOR POSITIVE DRAINAGE. IF THE SLOPE OF THE CONSTRUCTION ENTRANCE IS TOWARD A PUBLIC ROAD AND EXCEEDS TWO (2) PERCENT, CONSTRUCT AN EIGHT (8) INCH HIGH DIVERSION RIDGE WITH A RATIO OF 3–TO–1 SIDE SLOPES ACROSS THE FOUNDATION AREA ABOUT 15 FEET FROM THE ENTRANCE TO DIVERT RUNOFF AWAY FROM THE ROAD (SEE CROSS–SECTION VIEW ABOVE).
3. INSTALL A CULVERT PIPE UNDER THE PAD IF NEEDED TO MAINTAIN PROPER PUBLIC ROAD DRAINAGE.
4. IF WET CONDITIONS ARE ANTICIPATED, PLACE GEOTEXTILE FABRIC ON THE GRADED FOUNDATION TO IMPROVE STABILITY.
5. PLACE AGGREGATE (INDOT CA NO. 2) TO THE DIMENSIONS AND GRADE SHOWN IN THE CONSTRUCTION PLANS, LEAVING THE SURFACE SMOOTH AND SLOPED FOR DRAINAGE.
6. WHERE POSSIBLE, DIVERT ALL STORM WATER RUNOFF AND DRAINAGE FROM THE TEMPORARY CONSTRUCTION INGRESS/EGRESS PAD TO A SEDIMENT TRAP OR BASIN.

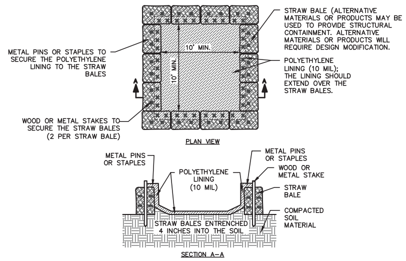
MAINTENANCE
* INSPECT DAILY.
* RESHAPE PAD AS NEEDED FOR DRAINAGE AND RUNOFF CONTROL.
* TOP–DRESS WITH CLEAN AGGREGATE AS NEEDED.
* IMMEDIATELY REMOVE MUD AND SEDIMENT TRACKED OR WASHED ONTO PUBLIC ROADS.
* FLUSHING SHOULD ONLY BE USED IF THE WATER FROM THE CONSTRUCTION DRIVE CAN BE CONVEYED INTO A SEDIMENT TRAP OR BASIN.

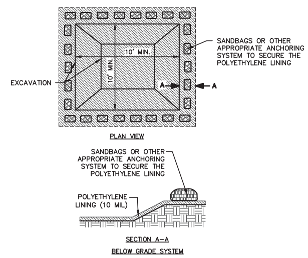
GRAVEL CONSTRUCTION ENTRANCE (SITES LARGER THAN TWO ACRES)
NOT TO SCALE (REV. 01/17)

APPROVAL PENDING
NOT FOR CONSTRUCTION
IN SUBMITTING BIDS IN RELIANCE ON THESE PLANS THE CONTRACTOR ASSUMES ALL RISKS OF ADDITIONAL COSTS OF REVISIONS DUE TO REQUIREMENTS OF THE OWNER OR GOVERNMENTAL AUTHORITIES AND MATERIAL REVISIONS IN THE COURSE OF COMPLETING THE FINAL DESIGN.

CERTIFIED BY

ISSUANCE INDEX
DATE:
11/02





MATERIALS
- MINIMUM OF TEN MIL POLYETHYLENE SHEETING THAT IS FREE OF HOLES, TEARS, AND OTHER DEFECTS. THE SHEETING SELECTED SHOULD BE OF AN APPROPRIATE SIZE TO FIT THE WASHOUT SYSTEM WITHOUT SEAMS OR OVERLAP OF THE LINING (DESIGNED AND INSTALLED SYSTEMS).
- SIGNAGE.
- ORANGE SAFETY FENCING OR EQUIVALENT.
- STRAW BALES, SANDBAGS (BAGS SHOULD BE ULTRAVIOLET–STABILIZED GEOTEXTILE FABRIC), SOIL MATERIAL, OR OTHER APPROPRIATE MATERIALS THAT CAN BE USED TO CONSTRUCT A CONTAINMENT SYSTEM (ABOVE GRADE SYSTEMS).
- METAL PINS OR STAPLES AT A MINIMUM OF SIX INCHES IN LENGTH, SANDBAGS, OR ALTERNATIVE FASTENER TO SECURE POLYETHYLENE LINING TO THE CONTAINMENT SYSTEM.
- NON–COLLAPSING AND NON–WATER HOLDING COVER FOR USE DURING RAIN EVENTS (OPTIONAL).

INSTALLATION
PREFABRICATED WASHOUT SYSTEMS/CONTAINERS
- INSTALL AND LOCATE ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

DESIGNED AND INSTALLED SYSTEMS
- UTILIZE AND FOLLOW THE DESIGN IN THE STORM WATER POLLUTION PREVENTION PLAN TO INSTALL THE SYSTEM.
- DEPENDENT UPON THE TYPE OF SYSTEM, EITHER EXCAVATE THE PIT OR INSTALL THE CONTAINMENT SYSTEM.
- A BASE SHALL BE CONSTRUCTED AND PREPARED THAT IS FREE OF ROCKS AND OTHER DEBRIS THAT MAY CAUSE TEARS OR PUNCTURES IN THE POLYETHYLENE LINING.
- INSTALL THE POLYETHYLENE LINING. FOR EXCAVATED SYSTEMS, THE LINING SHOULD EXTEND OVER THE ENTIRE EXCAVATION. THE LINING FOR BERMED SYSTEMS SHOULD BE INSTALLED OVER THE POOLING AREA WITH ENOUGH MATERIAL TO EXTEND THE LINING OVER THE BERM OR CONTAINMENT SYSTEM. THE LINING SHOULD BE SECURED WITH PINS, STAPLES, OR OTHER FASTENERS.
- PLACE FLAGS, SAFETY FENCING, OR EQUIVALENT TO PROVIDE A BARRIER TO CONSTRUCTION EQUIPMENT AND OTHER TRAFFIC.
- PLACE A NON–COLLAPSING, NON–WATER HOLDING COVER OVER THE WASHOUT FACILITY PRIOR TO A PREDICTED RAINFALL EVENT TO PREVENT ACCUMULATION OF WATER AND POSSIBLE OVERFLOW OF THE SYSTEM (OPTIONAL).
- INSTALL SIGNAGE THAT IDENTIFIES CONCRETE WASHOUT AREAS.
- POST SIGNS DIRECTING CONTRACTORS AND SUPPLIERS TO DESIGNATED LOCATIONS.
- WHERE NECESSARY, PROVIDE STABLE INGRESS AND EGRESS OR ALTERNATIVE APPROACH PAD FOR CONCRETE WASHOUT SYSTEMS.

MAINTENANCE
- INSPECT DAILY AND AFTER EACH STORM EVENT.
- INSPECT THE INTEGRITY OF THE OVERALL STRUCTURE INCLUDING, WHERE APPLICABLE, THE CONTAINMENT SYSTEM.
- INSPECT THE SYSTEM FOR LEAKS, SPILLS, AND TRACKING OF SOIL BY EQUIPMENT.
- INSPECT THE POLYETHYLENE LINING FOR FAILURE, INCLUDING TEARS AND PUNCTURES.
- ONCE CONCRETE WASTES HARDEN, REMOVE AND DISPOSE OF THE MATERIAL.
- EXCESS CONCRETE SHOULD BE REMOVED WHEN THE WASHOUT SYSTEM REACHES 50 PERCENT OF THE DESIGN CAPACITY. USE OF THE SYSTEM SHOULD BE DISCONTINUED UNTIL APPROPRIATE MEASURES CAN BE INITIATED TO CLEAN THE STRUCTURE. PREFABRICATED SYSTEMS SHOULD ALSO UTILIZE THIS CRITERION, UNLESS THE MANUFACTURER HAS ALTERNATE SPECIFICATIONS.
- UPON REMOVAL OF THE SOLIDS, INSPECT THE STRUCTURE. REPAIR THE STRUCTURE AS NEEDED OR CONSTRUCT A NEW SYSTEM.
- DISPOSE OF ALL CONCRETE IN A LEGAL MANNER. REUSE THE MATERIAL ON SITE, RECYCLE OR HAUL THE MATERIAL TO AN APPROVED CONSTRUCTION/DEMOLITION LANDFILL SITE. RECYCLING OF MATERIAL IS ENCOURAGED. THE WASTE MATERIAL CAN BE USED FOR MULTIPLE APPLICATIONS INCLUDING BUT NOT LIMITED TO ROADBEDS AND BUILDING. THE AVAILABILITY FOR RECYCLING SHOULD BE CHECKED LOCALLY.
- THE PLASTIC LINER SHOULD BE REPLACED AFTER EVERY CLEANING; THE REMOVAL OF MATERIAL WILL USUALLY DAMAGE THE LINING.
- THE CONCRETE WASHOUT SYSTEM SHOULD BE REPAIRED OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE.
- CONCRETE WASHOUT SYSTEMS ARE DESIGNED TO PROMOTE EVAPORATION. HOWEVER, IF THE LIQUIDS DO NO EVAPORATE AND THE SYSTEM IS NEAR CAPACITY IT MAY BE NECESSARY TO VACUUM OR REMOVE THE LIQUIDS AND DISPOSE OF THEM IN AN ACCEPTABLE METHOD. DISPOSAL MAY BE ALLOWED AT THE LOCAL SANITARY SEWER AUTHORITY PROVIDED THEIR NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMITS ALLOW FOR ACCEPTANCE OF THIS MATERIAL. ANOTHER OPTION WOULD BE TO UTILIZE A SECONDARY CONTAINMENT SYSTEM OR BASIN FOR FUTURE DEWATERING.
- PREFABRICATED UNITS ARE OFTEN PUMPED AND THE COMPANY SUPPLYING THE UNIT PROVIDES THIS SERVICE.
- INSPECT CONSTRUCTION ACTIVITIES ON A REGULAR BASIS TO ENSURE SUPPLIERS, CONTRACTORS, AND OTHERS ARE UTILIZING DESIGNATED WASHOUT AREAS. IF CONCRETE WASTE IS BEING DISPOSED OF IMPROPERLY, IDENTIFY THE VIOLATORS AND TAKE APPROPRIATE ACTION.
- WHEN CONCRETE WASHOUT SYSTEMS ARE NO LONGER REQUIRED, THE CONCRETE WASHOUT SYSTEMS SHALL BE CLOSED. DISPOSE OF ALL HARDENED CONCRETE AND OTHER MATERIALS USED TO CONSTRUCT THE SYSTEM.
- HOLES, DEPRESSIONS AND OTHER LAND DISTURBANCES ASSOCIATED WITH THE SYSTEM SHOULD BE BACKFILLED, GRADED, AND STABILIZED.

SPECIFICATIONS
SITE MANAGEMENT
- COMPLETE CONSTRUCTION/INSTALLATION OF THE SYSTEM AND HAVE WASHOUT LOCATIONS OPERATIONAL PRIOR TO CONCRETE DELIVERY.
- DO NOT WASH OUT CONCRETE TRUCKS OR EQUIPMENT INTO STORM DRAINS, WETLANDS, STREAMS, RIVERS, CREEKS, DITCHES, OR STREETS.
- NEVER WASH OUT INTO A STORM SEWER DRAINAGE SYSTEM. THESE SYSTEMS ARE TYPICALLY CONNECTED TO A NATURAL CONVEYANCE SYSTEM.
- WHERE NECESSARY, PROVIDE STABLE INGRESS AND EGRESS.
- IT IS RECOMMENDED THAT WASHOUT SYSTEMS BE RESTRICTED TO WASHING CONCRETE FROM MIXER AND PUMP TRUCKS AND NOT USED TO DISPOSE OF EXCESS CONCRETE OR RESIDUAL LOADS DUE TO THE POTENTIAL TO EXCEED THE DESIGN CAPACITY OF THE WASHOUT SYSTEM. SMALL AMOUNTS OF EXCESS OR RESIDUAL CONCRETE (NOT WASHOUT WATER) MAY BE DISPOSED OF IN AREAS THAT WILL NOT RESULT IN FLOW TO AN AREA THAT IS TO BE PROTECTED.
- INSTALL SYSTEMS AT STRATEGIC LOCATIONS THAT ARE CONVENIENT AND IN CLOSE PROXIMITY TO WORK AREAS AND IN SUFFICIENT NUMBER TO ACCOMMODATE THE DEMAND FOR DIPOSAL.
- INSTALL SIGNAGE IDENTIFYING THE LOCATION OF CONCRETE WASHOUT SYSTEMS.

LOCATION
- LOCATE CONCRETE WASHOUT SYSTEMS AT LEAST 50 FEET FROM ANY CREEKS, WETLANDS, DITCHEST, KARST FEATURES, OR STORM DRAINS/MANMADE CONVEYANCE SYSTEMS.
- TO THE EXTENT PRACTICAL, LOCATE CONCRETE WASHOUT SYSTEMS IN RELATIVELY FLAT AREAS THAT HAVE ESTABLISHED VEGETATIVE COVER AND DO NOT RECEIVE RUNOFF FROM ADJACENT LAND AREAS.
- LOCATE IN AREAS THAT PROVIDE EASY ACCESS FOR CONCRETE TRUCKS AND OTHER CONSTRUCTION EQUIPMENT.
- LOCATE AWAY FROM OTHER CONSTRUCTION TRAFFIC TO REDUCE THE POTENTIAL FOR DAMAGE TO THE SYSTEM.

GENERAL DESIGN CONSIDERATIONS
- THE STRUCTURE OR SYSTEM SHALL BE DESIGNED TO CONTAIN THE ANTICIPATED WASHOUT WATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES.
- THE SYSTEM SHALL BE DESIGNED, TO THE EXTENT PRACTICAL, TO ELIMINATE RUNOFF FROM ENTERING THE WASHOUT SYSTEM.
- RUNOFF FROM A RAINSTORM OR SNOWMELT SHOULD NOT CARRY WASTES AWAY FROM THE WASHOUT LOCATION.
- WASHOUT WILL NOT IMPACT FUTURE LAND USES (I.E., OPEN SPACES, LANDSCAPED AREAS, HOME SITES, PARKS).
- WASHOUT SYSTEMS/CONTAINMENTS MEASURES MAY ALSO BE UTILIZED ON SMALLER INDIVIDUAL BUILDING SITES. THE DESIGN AND SIZE OF THE SYSTEM CAN BE ADJUSTED TO ACCOMMODATE THE EXPECTED CAPACITY.

PREFABRICATED WASHOUT SYSTEMS/CONTAINERS
- SELF–CONTAINED STURDY CONTAINMENT SYSTEMS THAT ARE DELIVERED TO A SITE AND LOCATED AT STRATEGIC LOCATIONS FOR CONCRETE DISPOSAL.
- THESE SYSTEMS ARE MANUFACTURED TO RESIST DAMAGE FROM CONSTRUCTION EQUIPMENT AND PROTECT AGAINST LEAKS OR SPILLS.
- MANUFACTURER OR SUPPLIER PROVIDES THE CONTAINERS. THE PROJECT SITE MANAGER MAINTAINS THE SYSTEM OR THE SUPPLIER PROVIDES COMPLETE SERVICE THAT INCLUDES MAINTENANCE AND DISPOSAL.
- UNITS ARE OFTEN AVAILABLE WITH OR WITHOUT RAMPS. UNITS WITH RAMPS LEND THEMSELVES TO ACCOMMODATE PUMP TRUCKS.
- MAINTAIN ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

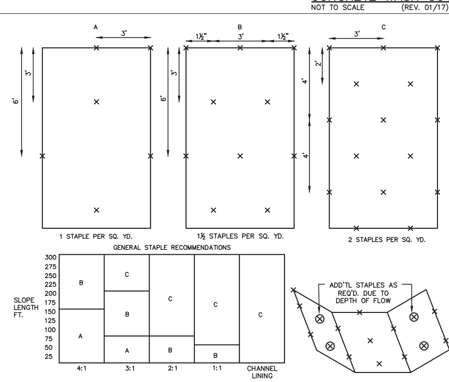
DESIGNED AND INSTALLED UNITS
THESE UNITS ARE DESIGNED AND INSTALLED ON SITE. THEY TEND TO BE LESS RELIABLE THAN PREFABRICATED SYSTEMS ARE OFTEN PRONE TO FAILURE. CONCRETE WASHOUT SYSTEMS CAN BE CONSTRUCTED ABOVE OR BELOW GRADE. IT IS NOT UNCOMMON TO HAVE A SYSTEM THAT IS PARTLY BELOW GRADE WITH AN ADDITIONAL CONTAINMENT STRUCTURE ABOVE GRADE.
- WASHOUT SYSTEMS SHALL UTILIZE A PIT OR BERMED AREA DESIGNED AND MAINTAINED AT A CAPACITY TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS.
- THE VOLUME OF THE SYSTEM MUST ALSO BE DESIGNED TO CONTAIN RUNOFF THAT DRAINS TO THE SYSTEM AND RAINFALL THAT ENTERS THE SYSTEM FOR A TWO–YEAR FREQUENCY, 24–HOUR STORM EVENT.

BELOW GRADE SYSTEM
- A WASHOUT SYSTEM INSTALLED BELOW GRADE SHOULD BE A MINIMUM OF TEN FEET WIDE BY TEN FEET LONG, BUT SIZED TO CONTAIN ALL LIQUID AND WASTE THAT IS EXPECTED TO BE GENERATED BETWEEN SCHEDULED CLEANOUT PERIODS. THE SIZE OF THE PIT MAY BE LIMITED BY THE SIZE OF THE POLYETHYLENE AVAILABLE. THE POLYETHYLENE LINING SHOULD BE ADEQUATE SIZE TO EXTEND OVER THE ENTIRE EXCAVATION.
- INCLUDE A MINIMUM 12–INCH FREEBOARD TO REASONABLY ENSURE THAT THE STRUCTURE WILL NOT OVERTOP DURING A RAIN EVENT.
- LINE THE PIT WITH TEN MIL POLYETHYLENE LINING TO CONTROL SEEPAGE.
- THE BOTTOM OF EXCAVATED PIT SHOULD BE ABOVE THE SEASONAL HIGH WATER TABLE.

ABOVE GRADE SYSTEM
- A SYSTEM DESIGNED AND BUILT ABOVE GRADE SHOULD BE A MINIMUM OF TEN FEET WIDE BY TEN FEET LONG, BUT SIZED TO CONTAIN ALL LIQUID AND WASTE THAT IS EXPECTED TO BE GENERATED BETWEEN SCHEDULED CLEANOUT PERIODS. THE SIZE OF THE CONTAINMENT SYSTEM MAY BE LIMITED BY THE SIZE OF POLYETHYLENE AVAILABLE. THE POLYETHYLENE LINING SHOULD BE OF ADEQUATE SIZE TO EXTEND OVER THE BERM OR CONTAINMENT SYSTEM.
- THE SYSTEM DESIGN MAY UTILIZE AN EARTHEN BERM, STRAW BALES, SANDBAGS, OR OTHER ACCEPTABLE BARRIERS THAT WILL MAINTAIN ITS SHAPE AND INTEGRITY AND SUPPORT THE POLYETHYLENE LINING.
- INCLUDE A MINIMUM FOUR–INCH FREEBOARD AS PART OF THE DESIGN.

WASHOUT PROCEDURES
- DO NOT LEAVE EXCESS MUD IN THE CHUTES OR HOPPER AFTER THE POUR. EVERY EFFORT SHOULD BE MADE TO EMPTY THE CHUTES AND HOPPER AT THE POUR. THE LESS MATERIAL LEFT IN THE CHUTES AND HOPPER, THE QUICKER AND EASIER THE CLEANOUT. SMALL AMOUNTS OF EXCESS CONCRETE (NOT WASHOUT WATER) MAY BE DISPOSED OF IN AREAS THAT WILL NOT RESULT IN FLOW TO AN AREA THAT IS TO BE PROTECTED.
- AT THE WASHOUT LOCATION, SCRAPE AS MUCH MATERIAL FROM THE CHUTES AS POSSIBLE BEFORE WASHING THEM. USE NON–WATER CLEANING METHODS TO MINIMIZE THE CHANCE FOR WASTE TO FLOW OFF SITE.
- REMOVE AS MUCH MUD AS POSSIBLE WHEN WASHING OUT.
- STOP WASHING OUT IN AN AREA IF YOU OBSERVE WATER RUNNING OFF THE DESIGNATED AREA OR IF THE CONTAINMENT SYSTEM IS LEAKING OR OVERFLOWING AND INEFFECTIVE.
- DO NOT BACK FLUSH EQUIPMENT AT THE PROJECT SITE. BACK FLUSHING SHOULD BE RESTRICTED TO THE PLANT AS IT GENERATES LARGE VOLUMES OF WASTE THAT MORE THAN LIKELY WILL EXCEED THE CAPACITY OF MOST WASHOUT SYSTEMS. IF AN EMERGENCY ARISES, BACK FLUSH SHOULD ONLY BY PERFORMED WITH THE PERMISSION OF AN ON–SITE MANAGER FOR THE PROJECT.
- DO NOT USE ADDITIVES WITH WASH WATER. DO NOT USE SOLVENTS OR ACIDS THAT MAY BE USED AT THE TARGET PLANT.

CONCRETE WASH OUT
NOT TO SCALE (REV. 01/17)



SPECIFICATIONS
EFFECTIVE LIFE
- THE FUNCTIONAL LIFE OF AN EROSION CONTROL BLANKET IS DEPENDENT ON THE MATERIALS USED.

ANCHORING
- STAPLES, PINS OR STAKES USED TO PREVENT MOVEMENT OR DISPLACEMENT OF BLANKET. (FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR SPECIFIC APPLICATIONS.)

MATERIALS
- ORGANIC (STRAW, EXCELSIOR, WOVEN PAPER, COCONUT FIBER, ETC.) MULCH INCORPORATED WITH A POLYPROPYLENE, NATURAL FIBER OR SIMILAR NETTING MATERIAL. (THE NETTING MAY BE BIODEGRADABLE, PHOTODEGRADABLE OR PERMANENT.)

NOTE: SOME EROSION CONTROL BLANKET NETTINGS MAY POSE A THREAT TO CERTAIN SPECIES OF WILDLIFE IF THEY BECOME ENTANGLED IN THE NETTING MATRIX.

- SIX TO 12–INCH STAPLES, PINS, OR STAKES.

INSTALLATION
1. SELECT THE TYPE AND WEIGHT OF EROSION CONTROL BLANKET TO FIT THE SITE CONDITIONS (E.G., SLOPE, CHANNEL, FLOW VELOCITY) PER THE MANUFACTURER'S RECOMMENDATIONS.
2. PREPARE THE SEEDBED, ADD SOIL AMENDMENTS, AND PERMANENTLY SEED THE AREA IMMEDIATELY FOLLOWING SEEDBED PREPARATION.
3. LAY EROSION CONTROL BLANKETS ON THE SEEDED AREA SO THAT THEY ARE IN CONTINUOUS CONTACT WITH THE SOIL WITH EACH UP–SLOPE OR UP–STREAM BLANKET OVERLAPPING THE DOWN–SLOPE OR DOWN–STREAM BLANKET BY AT LEAST EIGHT INCHES, OR FOLLOW MANUFACTURER'S RECOMMENDATIONS.
4. TUCK THE UPPERMOST EDGE OF THE UPPER BLANKETS INTO A CHECK SLOT (SLIT TRENCH), BACKFILL WITH SOIL AND TAMP DOWN. IN CERTAIN APPLICATIONS, THE MANUFACTURER MAY REQUIRE ADDITIONAL CHECK SLOTS AT SPECIFIC LOCATIONS DOWN SLOPE FROM THE UPPERMOST EDGE OF THE UPPER BLANKETS.
5. ANCHOR THE BLANKETS IN PLACE BY DRIVING STAPLES, PINS, OR STAKES THROUGH THE BLANKET AND INTO THE UNDERLYING SOIL. FOLLOW AN ANCHORING PATTERN APPROPRIATE FOR THE SITE CONDITIONS AND AS RECOMMENDED BY THE MANUFACTURER.

MAINTENANCE
- INSPECT WITHIN 24 HOURS OF EACH RAIN EVENT AND AT LEAST ONCE EVERY SEVEN CALENDAR DAYS.
- CHECK FOR EROSION OR DISPLACEMENT OF THE BLANKET.
- IF ANY AREA SHOWS EROSION, PULL BACK THAT PORTION OF THE BLANKET COVERING THE ERODED AREA, ADD SOIL AND TAMP, RESEED THE AREA, REPLACE AND STAPLE THE BLANKET.

NOTES
CHANNEL LININGS UTILIZE STAPLE PATTERN "C" WITH ADDITIONAL STAPLES ON SIDE SLOPES AT PROJECTED WATER LINE.

STAPLE PATTERNS APPLY TO ALL NORTH AMERICAN GREEN EROSION CONTROL BLANKETS. STAPLE PATTERNS MAY VARY DEPENDING UPON SOIL TYPE AND AVERAGE RAINFALL.

AT SLOPE LENGTHS GREATER THAN 300 FEET OR WHERE DRAINAGE OVER LARGE AREAS IS DIRECTED ONTO THE BLANKETS, STAPLE PATTERN "C" SHOULD BE UTILIZED.

EROSION CONTROL BLANKET
NOT TO SCALE (REV. 01/17)

SEEDING SPECIFICATIONS
SEEDBED PREPARATION
- GRADE AND APPLY SOIL AMENDMENTS.

SEEDING FREQUENCY
- SEED FINAL GRADED AREAS DAILY WHILE SOIL IS STILL LOOSE AND MOIST.

DENSITY OF VEGETATIVE COVER
- NINETY PERCENT OR GREATER OVER THE SOIL SURFACE.

MATERIALS
- SOIL AMENDMENTS – SELECT MATERIALS AND RATES AS DETERMINED BY A SOIL TEST (CONTACT YOUR COUNTY SOIL AND WATER CONSERVATION DISTRICT OR COOPERATIVE EXTENSION OFFICE FOR ASSISTANCE AND SOIL INFORMATION, INCLUDING AVAILABLE SOIL TESTING SERVICES) OR 400 TO 600 POUNDS OF 12–12–12 ANALYSIS FERTILIZER, OR EQUIVALENT. CONSIDER THE USE OF REDUCED PHOSPHOROUS APPLICATION WHERE SOIL TESTS INDICATE ADEQUATE PHOSPHOROUS LEVELS IN THE SOIL PROFILE.
- SEED – SELECT APPROPRIATE PLANT SPECIES SEED OR SEED MIXTURES ON THE BASIS OF SOIL TYPE, SOIL pH, REGION OF THE STATE, TIME OF YEAR, AND INTENDED LAND USE OF THE AREA TO BE SEEDED (SEE TABLE 1).
- MULCH – STRAW, HAY, WOOD FIBER, ETC. (TO PROTECT SEEDBED, RETAIN MOISTURE, AND ENCOURAGE PLANT GROWTH). ANCHORED TO PREVENT REMOVAL BY WIND OR WATER OR COVERED WITH PREMANUFACTURED EROSION CONTROL BLANKETS.

SEEDING APPLICATIONS
SITE PREPARATION
1. GRADE THE SITE TO ACHIEVE POSITIVE DRAINAGE.
2. ADD TOPSOIL TO ACHIEVE NEEDED DEPTH FOR ESTABLISHMENT OF VEGETATION. (COMPOST MATERIAL MAY BE ADDED TO IMPROVE SOIL MOISTURE HOLDING CAPACITY, SOIL FRIABILITY, AND NUTRIENT AVAILABILITY.)

SEEDBED PREPARATION
1. TEST SOIL TO DETERMINE pH AND NUTRIENT LEVELS.
2. APPLY SOIL AMENDMENTS AS RECOMMENDED BY THE SOIL TEST AND WORK INTO THE UPPER TWO TO FOUR INCHES OF SOIL. IF TESTING IS NOT DONE, APPLY 400 TO 600 POUNDS PER ACRE OF 12–12–12 ANALYSIS FERTILIZER, OR EQUIVALENT.
3. TILL THE SOIL TO OBTAIN A UNIFORM SEEDBED. USE A DISK OR RAKE, OPERATED ACROSS THE SLOPE, TO WORK THE SOIL AMENDMENTS INTO THE UPPER TWO TO FOUR INCHES OF THE SOIL.

SEEDING
OPTIMUM SEEDING DATES ARE MARCH 1 TO MAY 10 AND AUGUST 10 TO SEPTEMBER 30. PERMANENT SEEDING DONE BETWEEN MAY 10 AND AUGUST 10 MAY NEED TO BE IRRIGATED. SEEDING OUTSIDE OR BEYOND OPTIMUM SEEDING DATES IS STILL POSSIBLE WITH THE UNDERSTANDING THAT RESEEDING OR OVERSEEDING MAY BE REQUIRED IF ADEQUATE SURFACE COVER IS NOT ACHIEVED. RESEEDING OR OVERSEEDING CAN BE EASILY ACCOMPLISHED IF THE SOIL SURFACE REMAINS WELL PROTECTED WITH MULCH.
1. SELECT A SEEDING MIXTURE AND RATE FROM TABLE 1. SELECT SEED MIXTURE BASED ON SITE CONDITIONS, SOIL pH, INTENDED LAND USE, AND EXPECTED LEVEL OF MAINTENANCE.
2. APPLY SEED UNIFORMLY WITH A DRILL OR CULTIPACKER SEEDER OR BY BROADCASTING. PLANT OR COVER THE SEED TO A DEPTH OF ONE–FOURTH TO ONE–HALF INCH. IF DRILLING OR BROADCASTING THE SEED, ENSURE GOOD SEED–TO–SOIL CONTACT BY FIRMING, THE SEEDBED WITH A ROLLER OR CULTIPACKER AFTER COMPLETING SEEDING OPERATIONS. (IF SEEDING IS DONE WITH A HYDROSEEDER, FERTILIZER AND MULCH CAN BE APPLIED WITH THE SEED IN A SLURRY MIXTURE.)
3. MULCH ALL SEEDED AREAS AND USE APPROPRIATE METHODS TO ANCHOR THE MULCH IN PLACE. CONSIDER USING EROSION CONTROL BLANKETS ON SLOPING AREAS AND CONVEYANCE CHANNELS.

SEEDING MAINTENANCE
- INSPECT WITHIN 24 HOURS OF EACH RAIN EVENT AND AT LEAST ONCE EVERY SEVEN CALENDAR DAYS UNTIL THE VEGETATION IS SUCCESSFULLY ESTABLISHED.
- CHARACTERISTICS OF A SUCCESSFUL STAND INCLUDE VIGOROUS DARK GREEN OR BLUISH–GREEN SEEDLINGS WITH A UNIFORM VEGETATIVE COVER DENSITY OF 90 PERCENT OR MORE.
- CHECK FOR EROSION OR MOVEMENT OF MULCH.
- REPAIR DAMAGED, BARE, GULLIED, OR SPARSELY VEGETATED AREAS AND THEN FERTILIZE, RESEED, AND APPLY AND ANCHOR MULCH.
- IF PLANT COVER IS SPARSE OR PATCHY, EVALUATE THE PLANT MATERIALS CHOSEN, SOIL FERTILITY, MOISTURE CONDITION, AND MULCH APPLICATION; REPAIR AFFECTED AREAS EITHER BY OVERSEEDING OR PREPARING A NEW SEEDBED AND RESEEDING. APPLY AND ANCHOR MULCH ON THE NEWLY SEEDED AREAS.
- IF VEGETATION FAILS TO GROW, CONSIDER SOIL TESTING TO DETERMINE SOIL pH OR NUTRIENT DEFICIENCY PROBLEMS. (CONTACT YOUR SOIL AND WATER CONSERVATION DISTRICT OR COOPERATIVE EXTENSION OFFICE FOR ASSISTANCE.)
- IF ADDITIONAL FERTILIZATION IS NEEDED TO GET A SATISFACTORY STAND, DO SO ACCORDING TO SOIL TEST RECOMMENDATIONS.
- ADD FERTILIZER THE FOLLOWING GROWING SEASON. FERTILIZE ACCORDING TO SOIL TEST RECOMMENDATIONS.
- FERTILIZE TURF AREAS ANNUALLY. APPLY FERTILIZER IN A SPLIT APPLICATION. FOR COOL–SEASON GRASSES, APPLY ONE–HALF OF THE FERTILIZER IN LATE SPRING AND ONE–HALF IN EARLY FALL. FOR WARM–SEASON GRASSES, APPLY ONE–THIRD IN EARLY SPRING, ONE–THIRD IN LATE SPRING, AND THE REMAINING ONE–THIRD IN MIDDLE SUMMER.

TABLE 1. PERMANENT SEEDING RECOMMENDATIONS

THIS TABLE PROVIDES SEVERAL SEED MIXTURE OPTIONS. ADDITIONAL SEED MIXTURES ARE AVAILABLE COMMERCIALLY. WHEN SELECTING A MIXTURE, CONSIDER INTENDED LAND USE AND SITE CONDITIONS, INCLUDING SOIL PROPERTIES (E.G., SOIL pH AND DRAINAGE), SLOPE ASPECT, AND THE TOLERANCE OF EACH SPECIES TO SHADE AND DROUGHT.

OPEN LOW–MAINTENANCE AREAS
(REMAINING IDLE MORE THAN SIX MONTHS)

SEED MIXTURES	RATE PER ACRE PURE LIVE SEED	OPTIMUM SOIL pH
1. PERENNIAL RYEGRASS WHITE CLOVER*	70 LBS. 2 LBS.	5.6 TO 7.0
2. PERENNIAL RYEGRASS	70 LBS. 50 LBS.	5.6 TO 7.0
3. WHITE CLOVER*	70 LBS. 2 LBS.	5.5 TO 7.5

STEEP BANKS AND CUTS, LOW–MAINTENANCE AREAS
(NOT MOWED)

SEED MIXTURES	RATE PER ACRE PURE LIVE SEED	OPTIMUM SOIL pH
1. SMOOTH BROME GRASS RED CLOVER*	35 LBS. 20 LBS.	5.5 TO 7.0
2. WHITE CLOVER*	50 LBS. 2 LBS.	5.5 TO 7.5
4. ORCHARD GRASS RED CLOVER* WHITE CLOVER*	30 LBS. 20 LBS. 2 LBS.	5.6 TO 7.0
5. CROWNVETCH* TALL FESCUE**	12 LBS. 30 LBS.	5.6 TO 7.0

LAWNS AND HIGH–MAINTENANCE AREAS

SEED MIXTURES	RATE PER ACRE PURE LIVE SEED	OPTIMUM SOIL pH
1. BLUEGRASS	140 LBS.	5.5 TO 7.0
2. PERENNIAL RYEGRASS (TURF TYPE)	60 LBS. 90 LBS.	5.6 TO 7.0

SEED MIXTURES	RATE PER ACRE PURE LIVE SEED	OPTIMUM SOIL pH
1. PERENNIAL RYEGRASS WHITE*	150 LBS. 2 LBS.	5.5 TO 7.0
2. KENTUCKY BLUEGRASS SMOOTH BROMEGRASS SWITCHGRASS TIMOTHY PERENNIAL RYEGRASS WHITE CLOVER**	20 LBS. 10 LBS. 3 LBS. 4 LBS. 10 LBS. 2 LBS.	5.5 TO 7.5
3. WHITE CLOVER**	150 LBS. 2 LBS.	5.5 TO 7.5

*FOR BEST RESULTS: (A) LEGUME SEED SHOULD BE INOCULATED; (B) SEEDING MIXTURES CONTAINING LEGUMES SHOULD PREFERABLY BE SPRING–SEEDED, ALTHOUGH THE GRASS MAY BE FALL–SEEDED AND THE LEGUME FROST–SEEDED; AND (C) IF LEGUMES ARE FALL–SEEDED, DO SO IN EARLY FALL.

NOTES:
1. AN OAT OR WHEAT COMPANION OR NURSE CROP MAY BE USED WITH ANY OF THE ABOVE PERMANENT SEEDING MIXTURES, AT THE FOLLOWING RATES:
   A. SPRING OATS – ONE–FOURTH TO THREE–FOURTHS BUSHEL PER ACRE
   B. WHEAT – NO MORE THAN ONE–HALF BUSHEL PER ACRE
2. A HIGH POTENTIAL FOR FERTILIZER, SEED, AND MULCH TO WASH EXISTS ON STEEP BANKS, CUTS, AND IN CHANNELS AND AREAS OF CONCENTRATED FLOW.

MULCH SPECIFICATIONS
MATERIALS
TABLE 1. SLOPE STEEPNESS RESTRICTIONS

MATERIAL*	RATE PER ACRE	COMMENTS
STRAW OR HAY	2 TONS	SHOULD BE DRY, FREE OF UNDESIRABLE SEEDS. SPREAD BY HAND OR MACHINE. MUST BE CRIMPED OR ANCHORED (SEE TABLE 2).
WOOD FIBER OR CELLULOSE	1 TON	APPLY WITH A HYDRAULIC MULCH MACHINE AND USE WITH TACKING AGENT.

*MULCHING IS NOT RECOMMENDED IN CONCENTRATED FLOWS. CONSIDER EROSION CONTROL BLANKETS OR OTHER STABILIZATION METHODS.
COVERAGE
- THE MULCH SHOULD HAVE A UNIFORM DENSITY OF AT LEAST 75 PERCENT OVER THE SOIL SURFACE.

ANCHORING
TABLE 2. MULCH ANCHORING METHODS

ANCHORING METHOD*	HOW TO APPLY
MULCH ANCHORING TOOL OR FARM DISK (DULL, SERRATED, AND BLADES SET STRAIGHT)	CRIMP OR PUNCH THE STRAW OR HAY TWO TO FOUR INCHES INTO THE SOIL. OPERATE MACHINERY ON THE CONTOUR OF THE SLOPE.
CLEATING WITH DOZER TRACKS	OPERATE DOZER UP AND DOWN SLOPE TO PREVENT FORMATION OF RILLS BY DOZER CLEATS
WOOD HYDROMULCH FIBERS	APPLY ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
SYNTHETIC TACKIFIERS, BINDERS, OR SOIL STABILIZERS	APPLY ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
NETTING (BIODEGRADABLE MATERIAL)	INSTALL NETTING IMMEDIATELY AFTER APPLYING MULCH. ANCHOR NETTING WITH STAPLES. EDGES OF NETTING STRIPS SHOULD OVERLAP WITH EACH UP–SLOPE STRIP OVERLAPPING FOUR TO SIX INCHES OVER THE ADJACENT DOWN–SLOPE STRIP. BEST SUITED TO SLOPE APPLICATIONS. IN MOST INSTANCES, INSTALLATION DETAILS ARE SITE SPECIFIC, SO MANUFACTURER'S RECOMMENDATIONS SHOULD BE FOLLOWED.

*ALL FORMS OF MULCH MUST BE ANCHORED TO PREVENT DISPLACEMENT BY WIND AND/OR WATER.

MULCH APPLICATION
1. APPLY MULCH AT THE RECOMMENDED RATE SHOWN IN TABLE 1.
2. SPREAD THE MULCH MATERIAL UNIFORMLY BY HAND, HAYFORK, MULCH BLOWER, OR HYDRAULIC MULCH MACHINE. AFTER SPREADING, NO MORE THAN 25 PERCENT OF THE GROUND SHOULD BE VISIBLE.
3. ANCHOR STRAW OR HAY MULCH IMMEDIATELY AFTER APPLICATION. THE MULCH CAN BE ANCHORED USING ONE OF THE METHODS LISTED BELOW:
   a. CRIMP WITH A MULCH ANCHORING TOOL, A WEIGHTED FARM DISK WITH DULL SERRATED BLADES SET STRAIGHT, OR TRACK CLEATS OF A BULLDOZER,
   b. APPLY HYDRAULIC MULCH WITH SHORT CELLULOSE FIBERS,
   c. APPLY A LIQUID TACKIFIER, OR
   d. COVER WITH NETTING SECURED BY STAPLES.

MULCH MAINTENANCE
- INSPECT WITHIN 24 HOURS OF EACH RAIN EVENT AND AT LEAST ONCE EVERY SEVEN CALENDAR DAYS.
- CHECK FOR EROSION OR MOVEMENT OF MULCH; REPAIR DAMAGED AREAS, RESEED, APPLY NEW MULCH AND ANCHOR THE MULCH IN PLACE.
- CONTINUE INSPECTIONS UNTIL VEGETATION IS FIRMLY ESTABLISHED.
- IF EROSION IS SEVER OR RECURRING, USE EROSION CONTROL BLANKETS OR OTHER MORE SUBSTANTIAL STABILIZATION METHODS TO PROTECT THE AREA.

PERMANENT SEEDING WITH MULCH
NOT TO SCALE (REV. 01/17)

SPECIFICATIONS

NOTE: ALTERNATIVE SUPPORT SYSTEMS MAY BE SUBSTITUTED FOR HARDWOOD POSTS AND CROSS BRACES.

CONTRIBUTING DRAINAGE AREA
- ONE ACRE MAXIMUM.

EFFECTIVE LIFE
- SIX MONTHS (MAXIMUM).

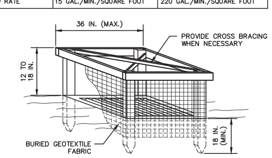
CAPACITY
- RUNOFF FROM A TWO–YEAR FREQUENCY, 24–HOUR STORM EVENT ENTERING A STORM DRAIN WITHOUT BYPASS FLOW.

GEOTEXTILE STRUCTURE
- HEIGHT – 12 TO 18 INCHES, MEASURED FROM THE TOP OF STORM DRAIN INLET.
- POST SPACING – 36–INCH MAXIMUM SPACING BETWEEN POSTS.
- FRAME SUPPORT – BRACING TO STRENGTHEN INTEGRITY OF THE STRUCTURE. (STRUCTURE MUST WITHSTAND 1½–FOOT HEAD OF WATER AND SEDIMENT WITHOUT COLLAPSING OR WITHSTANDING.)

MATERIALS
- SUPPORT POSTS
  - 2 x 2 INCH OR 2 x4 INCH HARDWOOD POSTS.
  - THREE FEET LENGTH, MINIMUM.
- 1 x 2 INCH OR 1 x 3 INCH HARDWOOD CROSS BRACING LUMBER.
- LATHE.
- STAPLES OR NAILS.
- GEOTEXTILE FABRIC.

TABLE 2. GEOTEXTILE FABRIC SPECIFICATIONS FOR SILT FENCE (MINIMUM)

PHYSICAL PROPERTY	WOVEN GEOTEXTILE FABRIC	NON–WOVEN GEOTEXTILE FABRIC
FILTERING EFFICIENCY	85%	85%
UV RESISTANCE (INHIBITORS AND STABILIZERS TO ENSURE SIX MONTH MINIMUM LIFE AT TEMPERATURES 0° TO 120° F)	70%	85%
TEXTILE STRENGTH AT 20% ELONGATION STANDARD STRENGTH EXTRA STRENGTH	30 LBS. PER LINEAL INCH 50 LBS. PER LINEAL INCH	50 LBS. PER LINEAL INCH 70 LBS. PER LINEAL INCH
SLURRY FLOW RATE	0.3 GAL./MIN./SQUARE FOOT	4.5 GAL./MIN./SQUARE FOOT
WATER FLOW RATE	15 GAL./MIN./SQUARE FOOT	220 GAL./MIN./SQUARE FOOT



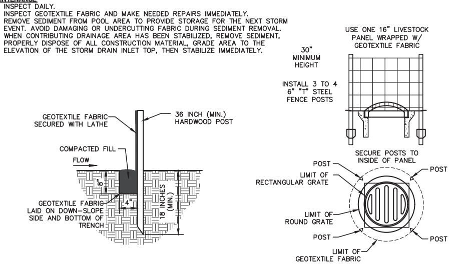
INSTALLATION
1. DIG AN EIGHT–INCH DEEP, FOUR–INCH WIDE TRENCH AROUND THE PERIMETER OF THE INLET.
2. IF USING PRE–ASSEMBLED GEOTEXTILE FABRIC AND POSTS, DRIVE THE POSTS INTO THE SOIL, TIGHTLY STRETCHING THE GEOTEXTILE FABRIC BETWEEN POSTS AS EACH IS DRIVEN. (POSTS MUST BE PLACED ON THE INLET SIDE OF THE ANCHOR TRENCH WITH THE GEOTEXTILE FABRIC ON THE SIDE OF THE TRENCH FARTHEST FROM THE INLET.)

   NOTE: IF ASSEMBLING THE GEOTEXTILE FABRIC AND POSTS ON–SITE, DRIVE THE POSTS INTO THE SOIL AND THEN SECURE THE GEOTEXTILE FABRIC TO THE POSTS BY PLACING A PIECE OF LATHE OVER THE FABRIC AND FASTENING IT TO THE POST (STRETCHING THE FABRIC BETWEEN POSTS AS IT IS FASTENED).

3. USE THE WRAP JOIN METHOD WHEN JOINING POSTS.
4. PLACE THE BOTTOM 12 INCHES OF GEOTEXTILE FABRIC INTO THE EIGHT–INCH DEEP TRENCH, LAYING THE REMAINING FOUR INCHES IN THE BOTTOM OF THE TRENCH AND EXTENDING AWAY FROM THE INLET.
5. BACKFILL THE TRENCH WITH SOIL MATERIAL AND COMPACT IT IN PLACE.
6. BRACE THE POSTS BY NAILING BRACES INTO EACH CORNER POST OR UTILIZE RIGID PANELS TO SUPPORT FABRIC.

   NOTE: IN SITUATIONS WHERE STORM WATER MAY BYPASS THE STRUCTURE, EITHER:
   - SET THE TOP OF THE GEOTEXTILE FABRIC FILTER AT LEAST SIX INCHES LOWER THAN THE GROUND ELEVATION ON THE DOWN–SLOPE SIDE OF THE STORM DRAIN INLET,
   - BUILD A TEMPORARY DIKE, COMPACTED TO SIX INCHES HIGHER THAN THE FABRIC, ON THE DOWN–SLOPE SIDE OF THE STORM DRAIN INLET, AND/OR
   - USE IN CONJUNCTION WITH EXCAVATED DROP INLET PROTECTION.

MAINTENANCE
- INSPECT DAILY.
- INSPECT GEOTEXTILE FABRIC AND MAKE NEEDED REPAIRS IMMEDIATELY.
- REMOVE SEDIMENT FROM POOL AREA TO PROVIDE STORAGE FOR THE NEXT STORM EVENT. AVOID DAMAGING OR UNDERCUTTING FABRIC DURING SEDIMENT REMOVAL.
- WHEN CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE SEDIMENT, PROPERLY DISPOSE OF ALL CONSTRUCTION MATERIAL, GRADE AREA TO THE ELEVATION OF THE STORM DRAIN INLET TOP, THEN STABILIZE IMMEDIATELY.



NOTE: THIS MEASURE IS NOT RECOMMENDED FOR PAVED SURFACES DUE TO INABILITY TO ENTRENCH THE FABRIC AND LACK OF AN ANCHORING SYSTEM.

SILT FENCE INLET PROTECTION
NOT TO SCALE (REV. 01/17)

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CERTIFIED BY

ISSUANCE INDEX
DATE:
11/02/2021
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REVISION SCHEDULE

NO.	DESCRIPTION	DATE
1	CITY COMMENTS	01/07/22
2	CBU/INDOT COMMENTS	01/28/22

Project Number 2020.01173

EROSION CONTROL DETAILS

C521 48

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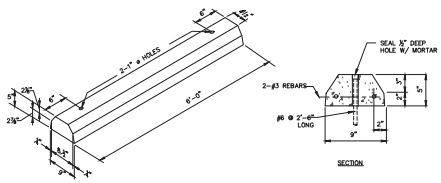
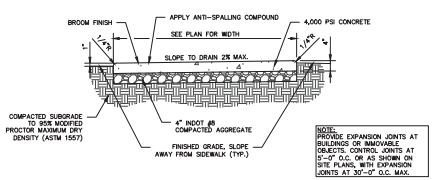


CONCRETE WHEEL STOPS
NOT TO SCALE (REV. 01/17)



CONCRETE SIDEWALK
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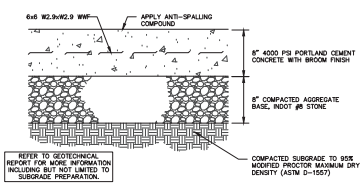
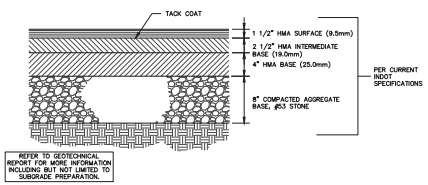
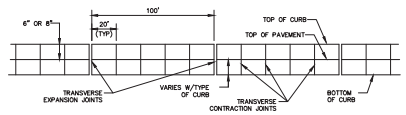


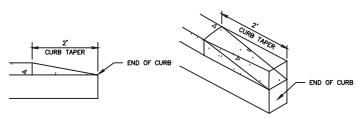
HEAVY DUTY CONCRETE PAVEMENT
NOT TO SCALE (REV. 06/17)



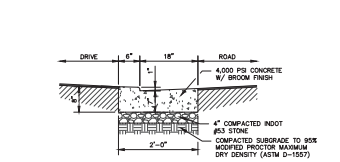
RIGHT OF WAY PAVEMENT SECTION
NOT TO SCALE (REV. 06/17)



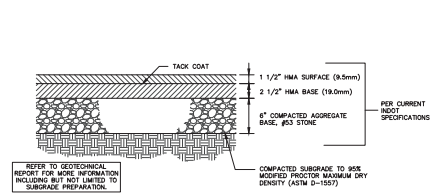
CURB JOINT DETAIL
NOT TO SCALE (REV. 01/17)



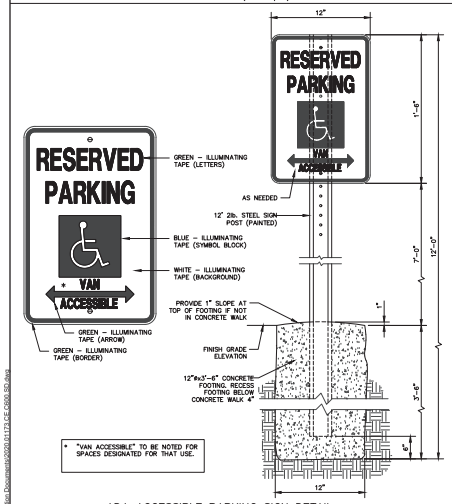
CURB TAPER DETAIL
NOT TO SCALE (REV. 01-17)



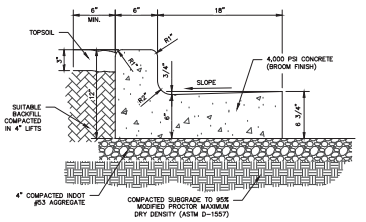
24" DEPRESSED CONCRETE CURB
NOT TO SCALE (REV. 5/18)



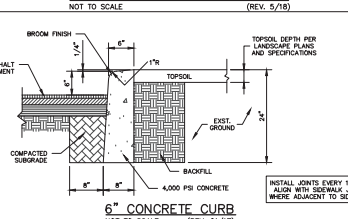
LIGHT DUTY ASPHALT PAVEMENT
NOT TO SCALE (REV. 09/19)



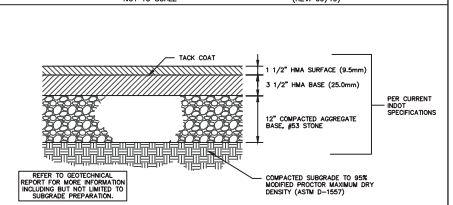
ADA ACCESSIBLE PARKING SIGN DETAIL
NOT TO SCALE (REV. 01/17)



24" CONCRETE CURB & GUTTER
NOT TO SCALE (REV. 02/20)



6" CONCRETE CURB
NOT TO SCALE (REV. 01/17)



HEAVY DUTY ASPHALT PAVEMENT
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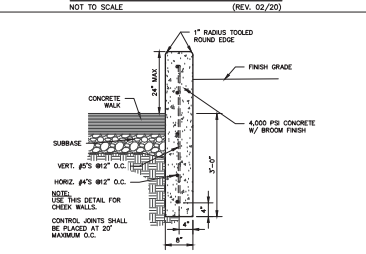
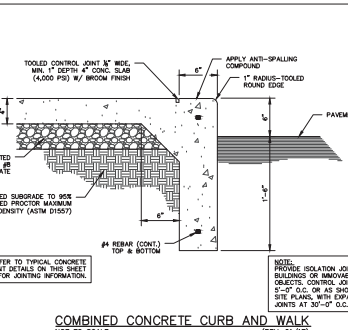
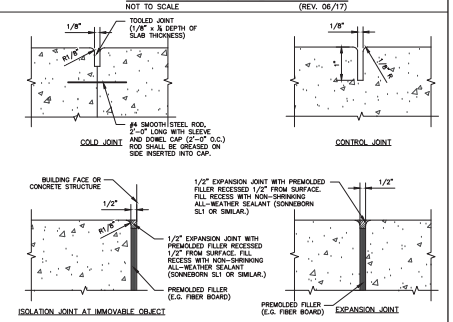


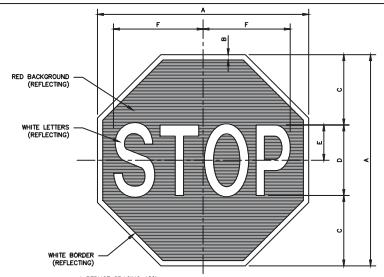
CONCRETE CURB WALL DETAIL
NOT TO SCALE (REV. 08/17)



COMBINED CONCRETE CURB AND WALK
NOT TO SCALE (REV. 01/17)



TYPICAL CONCRETE JOINT DETAILS
NOT TO SCALE (REV. 01/17)

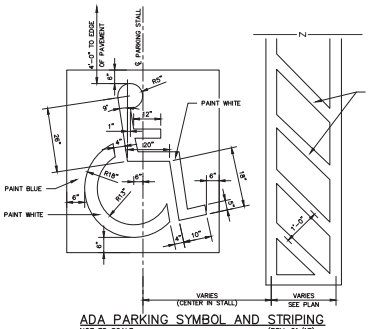


SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
STD.	30	2"	10	10C	5	12½"

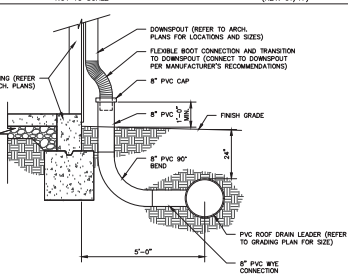
NOTES:
MOUNTING HEIGHT – 7' ABOVE GRADE.

COLORS
LEGEND – WHITE (REFLECTIVE)
BACKGROUND – RED (REFLECTIVE)

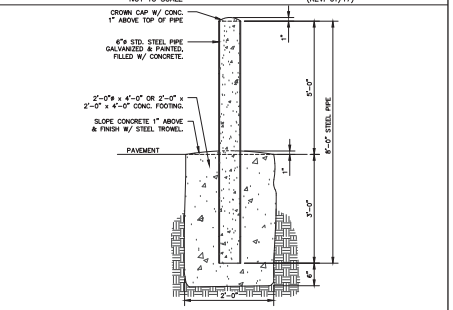
STOP SIGN DETAIL
NOT TO SCALE (REV. 05/18)



ADA PARKING SYMBOL AND STRIPING
NOT TO SCALE (REV. 01/17)



DOWNSPOUT BOOT CONNECTION DETAIL
NOT TO SCALE (REV. 06/17)



CONCRETE BOLLARD DETAIL
NOT TO SCALE (REV. 02/20)

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OVERLOOK ON 46 & CENTURY VILLAGE STORAGE

Bloomington, IN

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ISSUANCE INDEX
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REVISION SCHEDULE

NO.	DESCRIPTION	DATE
1	CITY COMMENTS	01/07/22
2	CBU/INDOT COMMENTS	01/28/22

Project Number 2020.01173

SITE DETAILS

C600

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EDITED BY: JRODGERS
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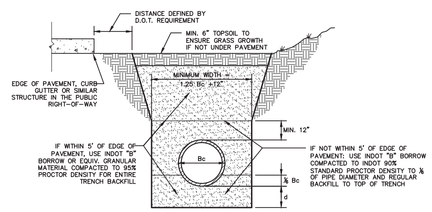


LEGEND
Bc= OUTSIDE DIAMETER
D= INSIDE DIAMETER
d= DEPTH OF BEDDING MATERIAL BELOW PIPE

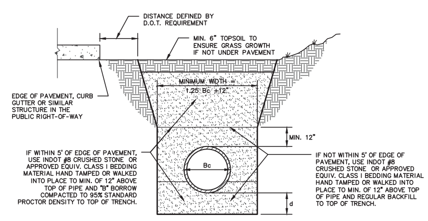
NOTE:
ALL INITIAL BACKFILL SHALL BE INSTALLED IN 6" TO 12" BALANCED LIFTS.

A MINIMUM 9" OF CLEARANCE SHALL BE PROVIDED ON EACH SIDE OF THE INSTALLED PIPE.

DEPTH OF BEDDING MATERIAL BELOW PIPE

D	d (MIN)
27" & SMALLER	3"
30" TO 60"	4"
66" & LARGER	6"

REINFORCED CONCRETE PIPE (RCP) BEDDING DETAIL
NOT TO SCALE (REV. 12/17)



LEGEND
Bc= OUTSIDE DIAMETER
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d= DEPTH OF BEDDING MATERIAL BELOW PIPE

NOTE:
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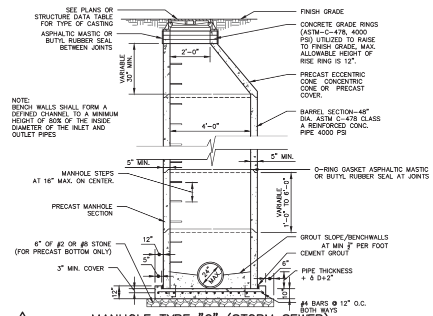
A MINIMUM 9" OF CLEARANCE SHALL BE PROVIDED ON EACH SIDE OF THE INSTALLED PIPE.

DEPTH OF BEDDING MATERIAL BELOW PIPE

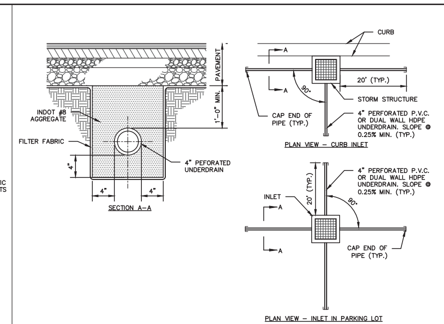
D	d (MIN)
27" & SMALLER	4"
30" TO 60"	4"
66" & LARGER	4"

PLASTIC PIPE (PVC & HDPE) BEDDING DETAIL
NOT TO SCALE (REV. 12/17)

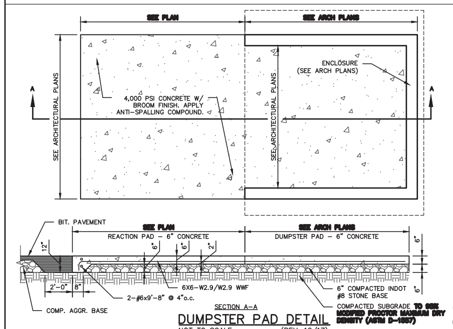


NOTE:
BENCH WALLS SHALL FORM A DEFINED CHANNEL TO A MINIMUM HEIGHT OF 80% OF THE INSIDE DIAMETER OF THE INLET AND OUTLET PIPES

MANHOLE TYPE "C" (STORM SEWER)
NOT TO SCALE (REV. 06/17)



PAVEMENT UNDERDRAIN DETAIL
NOT TO SCALE (REV. 07/18)



DUMPSTER PAD DETAIL
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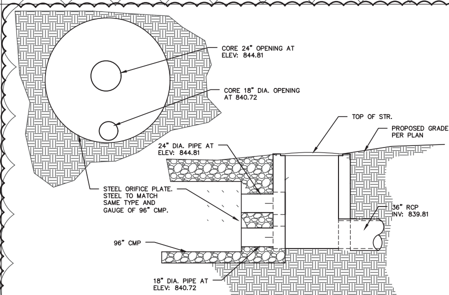
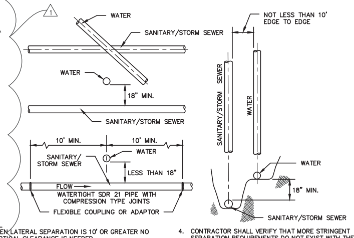
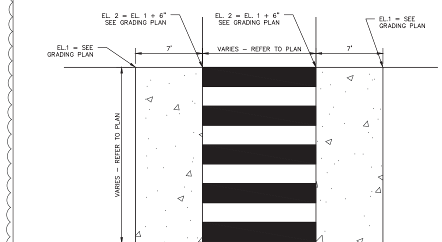


POND OUTLET STRUCTURE DETAIL
NOT TO SCALE (REV. 06/18)

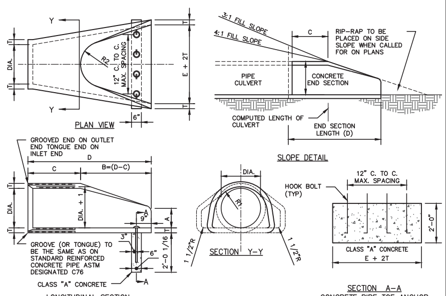


NOTES:
1. WHEN LATERAL SEPARATION IS 10' OR GREATER NO VERTICAL CLEARANCE IS NEEDED
2. ALL CROSSINGS AND SEPARATIONS TO BE 327 IAC, ARTICLES 3 & 8
3. WHEN HORIZONTAL SEPARATION IS LESS THAN 10' OR VERTICAL SEPARATION IS LESS THAN 18", SANITARY PIPE MUST BE WATERTIGHT SDR 21 WITH COMPRESSION TYPE JOINTS.
4. CONTRACTOR SHALL VERIFY THAT MORE STRINGENT SEPARATION REQUIREMENTS DO NOT EXIST WITH THE JURISDICTIONAL WATER UTILITY. IF THEY DO EXIST, CONTRACTOR SHALL FOLLOW THE MORE STRINGENT REQUIREMENTS.

MIN CROSSOVER & SEPARATION REQUIREMENTS FOR WATER & SANITARY/STORM SEWERS
NOT TO SCALE (REV. 01/17)



PEDESTRIAN TABLE
NOT TO SCALE (REV. 01/22)



NOTES:
CONCRETE IN THESE END SECTIONS SHALL BE THE SAME GRADE AND STRENGTH AS SPECIFIED FOR REINFORCED CONCRETE PIPE, A.S.T.M. DESIGNATION C-76

REINFORCEMENT IN THE "C" PORTION SHALL BE THE SAME AS SPECIFIED FOR REINFORCED CONCRETE, A.S.T.M. DESIGNATION C-76 FOR THE SIZE OF CONNECTING PIPE.

REINFORCEMENT IN THE "B" PORTION SHALL HAVE A CROSS SECTIONAL AREA EQUAL TO THAT OF ONE LAYER OF STEEL IN THE "C" PORTION.

THE END OF THE PIPE CULVERT SHALL BE PLACED IN THE CONCRETE END SECTION SO THAT THE FLOW LINES ARE FLUSH. THE JOINT SHALL BE COMPLETELY FILLED WITH MORTAR.

IN 3:1 OR 4:1 FILL SLOPE, CHANGE TO THE SLOPE OF THE END SECTION IN A SMOOTH, PLEASING TRANSITION APPROXIMATELY 10'-0" IN LENGTH.

VARIATIONS IN DIMENSIONS - THE THICKNESS OR THE CONCRETE, THE POSITION OF STEEL, AND THE INTERNAL DIAMETER OF THE PIPE SHALL CONFORM WITH THE VARIATIONS IN DIMENSIONS AS PROVIDED IN THE SPECIFICATIONS FOR REINFORCED CONCRETE CULVERT, STORM DRAIN, AND SEWER PIPE, A.S.T.M. DESIGNATION C-76.

CONCRETE PIPE TOE ANCHORS SHALL BE REQUIRED ON ALL CONCRETE PIPE END SECTIONS.

DIA.	T (MIN.)	A*	C*	D*	E*	R1	R2
12"	2"	5"	4'-3"	6'-2"	2'-0"	10 1/8"	9"
15"	2 1/4"	7"	4'-0"	6'-3"	2'-6"	12 1/2"	11"
18"	2 1/2"	11"	4'-1"	6'-2"	3'-0"	15 1/2"	12"
21"	2 3/4"	11"	3'-6"	6'-3"	3'-6"	16 1/8"	13"
24"	3"	12"	2'-8"	6'-3"	4'-0"	16 3/16"	14"
27"	3 1/4"	13"	2'-5"	6'-3"	4'-6"	18 3/16"	14 1/2"
30"	3 1/2"	14"	1'-10"	6'-3"	5'-0"	18 1/2"	15"
33"	3 3/4"	15"	3'-6"	8'-3"	5'-6"	23 3/4"	17 1/2"
36"	4"	17"	3'-1"	8'-3"	6'-0"	24 3/16"	20"
42"	4 1/2"	21"	2'-11"	8'-2"	7'-0"	27 1/2"	22"
48"	5"	24"	2'-2"	8'-2"	8'-0"	28 1/2"	22"
54"	5 1/2"	27"	2'-9"	8'-2"	9'-0"	33 1/8"	24"
60	6"	30"	3'-3"	8'-3"	10'-0"	36 11/16"	24"
66"	6 1/2"	30"	2'-3"	8'-3"	11'-0"	36 1/8"	24"
72"	7"	36"	1'-5"	8'-3"	9'-0"	*	*
84"	8"	36"	1'-5"	9'-3 1/2"	10'-0"	*	*

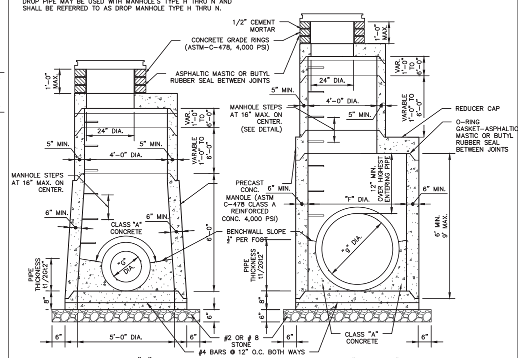
* RADIUS COMES FURNISHED BY MANUFACTURER

PRECAST CONCRETE END SECTION DETAIL
NOT TO SCALE (REV. 06/18)

MANHOLE

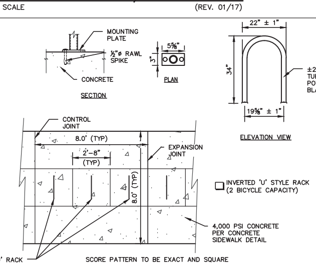
TYPE	"G"	"F"	MAXIMUM PIPE SIZE RT. ANGLE TO MAINLINE	MAXIMUM PIPE SIZE FOR MAINLINE
H	24"to36"		30"	36"
J	24"to36"	60"	33"	36"
K	36"x48"	72"	36"	48"
L	48"x54"	96"	48"	54"
M	54"x72"	102"	66"	72"
N	72"x84"	108"	72"	84"

NOTES:
DROP PIPE MAY BE USED WITH MANHOLE'S TYPE H THRU N AND SHALL BE REFERRED TO AS DROP MANHOLE TYPE H THRU N.



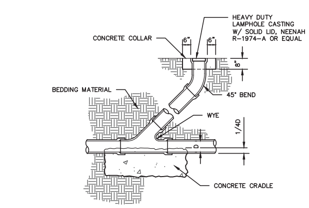
NOTE: BENCH WALLS SHALL FORM A DEFINED CHANNEL TO A MINIMUM HEIGHT OF 80% OF THE INSIDE DIAMETER OF THE INLET AND OUTLET PIPES

MANHOLES TYPE "H,J,K,L,M & N" DETAIL
NOT TO SCALE (REV. 06/17)



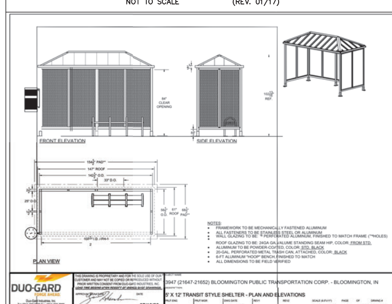
NOTES:
1. INSTALL BIKE RACKS ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
2. U RACKS TO BE POWDER COATED BLACK
3. SEE SITE PLAN FOR LOCATION.
4. RACK TO BE SURFACE MOUNTED TO CONCRETE PAD PER MANUFACTURER'S RECOMMENDATIONS.

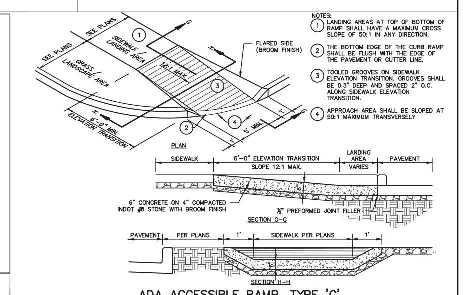
BIKE RACK ('U' STYLE)
NOT TO SCALE (REV. 01/17)



NOTE:
BEDDING MATERIAL TO BE IN ACCORDANCE WITH PLASTIC PIPE (PVC AND HDPE) BEDDING DETAIL.

CLEANOUT DETAIL
NOT TO SCALE (REV. 01/17)





NOTES:
1. LANDING AREAS AT TOP OF BOTTOM OF RAMP SHALL HAVE A MAXIMUM CROSS SLOPE OF 50:1 IN ANY DIRECTION.
2. THE BOTTOM EDGE OF THE CURB RAMP SHALL BE FLUSH WITH THE EDGE OF THE PAVEMENT OR GUTTER LINE.
3. TOOLED GROOVES ON SIDEWALK ELEVATION TRANSITION. GROOVES SHALL BE 0.3" DEEP AND SPACED 2" O.C. ALONG SIDEWALK ELEVATION TRANSITION.
4. APPROACH AREA SHALL BE SLOPED AT 50:1 MAXIMUM TRANSVERSELY

ADA ACCESSIBLE RAMP, TYPE 'G'
NOT TO SCALE (REV. 12/17)

APPROVAL PENDING
NOT FOR CONSTRUCTION
IN SUBMITTING BIDS IN RELIANCE ON THESE PLANS THE CONTRACTOR ASSUMES ALL RISKS OF ADDITIONAL COSTS OF REVISIONS DUE TO REQUIREMENTS OF THE OWNER OR GOVERNMENTAL AUTHORITIES AND MATERIAL REVISIONS IN THE COURSE OF COMPLETING THE FINAL DESIGN.

CERTIFIED BY

ISSUANCE INDEX
DATE: 11/02/2021
PROJECT PHASE: PRELIMINARY DOCUMENTS

REVISION SCHEDULE

NO.	DESCRIPTION	DATE
1	CITY COMMENTS	01/07/22
2	CBU/INDOT COMMENTS	01/28/22
3	DETENTION COORDINATION	02/07/22

Project Number 2020.01173

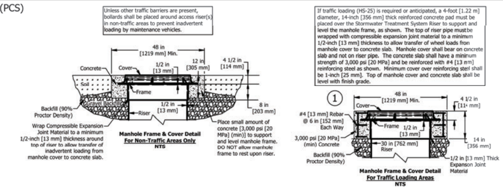
SITE DETAILS

C601

PLOT DATE: 2/7/2022 2:40 PM PLOT SCALE: 1:2.5849 EDIT DATE: 2/7/2022 EDITED BY: KBRIGHT DRAWING FILE: P:\2020\01173\D. Drawings\Civil\Construction Documents\2020.01173.CE.C600 SD.dwg

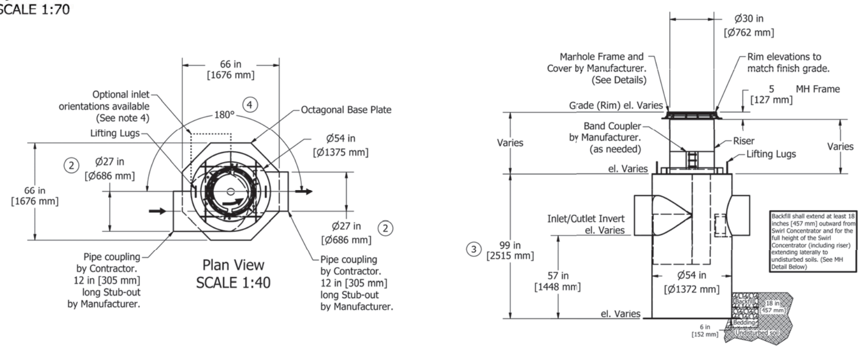
Aqua-Swirl® Polymer Coated Steel (PCS) Stormwater Treatment System

Projected View
SCALE 1:70



Please see accompanied Aqua-Swirl® specification notes. See Site Plan for actual System orientation. Approximate dry (pick) weight: 2000 lbs [900 kg].

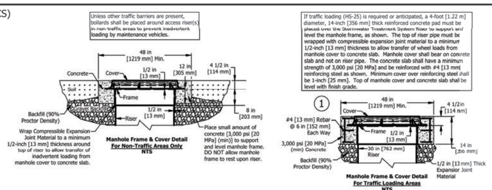
1. As an alternative, 42 in [1067 mm] diameter, HS-20/25 rated precast concrete rings may be substituted. 14 in [356 mm] thickness must be maintained.
2. XC-4 inlet/outlet pipe size ranges up to 27 in [686 mm].
3. XC-4 chamber height may vary up to 99 in [2515 mm], depending on inlet/outlet pipe size.
4. Orientation may vary from a minimum of 90° to a maximum of 180°. Clockwise or counterclockwise orientation as needed.



AquaShield™ 2733 Kanasita Drive, Suite 111, Chattanooga, TN 37343 Phone (888) 344-9044 Fax (423) 826-2112 www.aquashieldinc.com	Aqua-Swirl® XCelerator XC-4 CCW	Structure #: XC-4 STD	Rvwed	Rvw. Date
	Standard Detail	Drawn By: OFlores		
		Scale: As Shown		
		Date: 2/25/2021		
		U.S. Patent No. 6524473 and other Patent Pending		

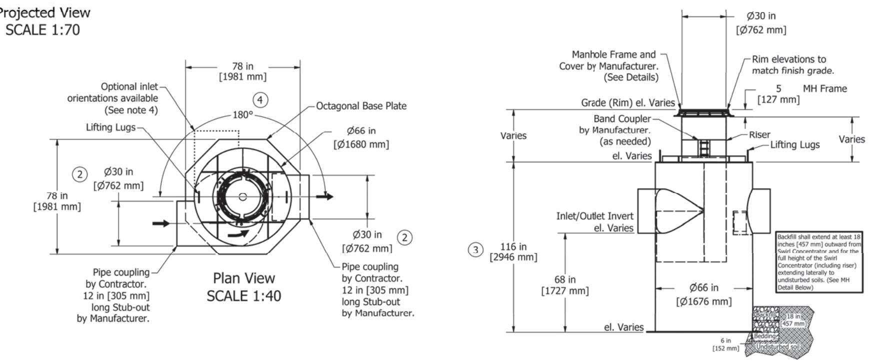
Aqua-Swirl® Polymer Coated Steel (PCS) Stormwater Treatment System

Projected View
SCALE 1:70

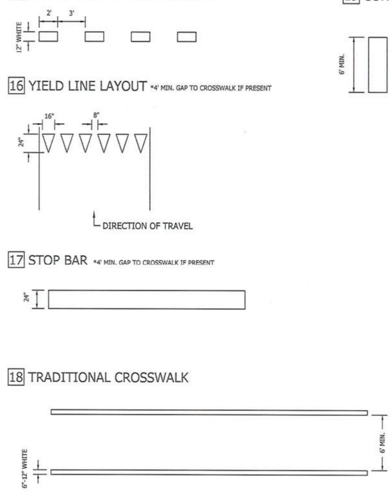


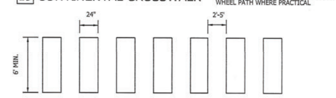
Please see accompanied Aqua-Swirl® specification notes. See Site Plan for actual System orientation. Approximate dry (pick) weight: 2200 lbs [1000 kg].

1. As an alternative, 42 in [1067 mm] diameter, HS-20/25 rated precast concrete rings may be substituted. 14 in [356 mm] thickness must be maintained.
2. XC-5 inlet/outlet pipe size ranges up to 30 in [762 mm].
3. XC-5 chamber height may vary up to 116 in [2946 mm], depending on inlet/outlet pipe size.
4. Orientation may vary from a minimum of 90° to a maximum of 180°. Clockwise or counterclockwise orientation as needed.



AquaShield™ 2733 Kanasita Drive, Suite 111, Chattanooga, TN 37343 Phone (888) 344-9044 Fax (423) 826-2112 www.aquashieldinc.com	Aqua-Swirl® XCelerator XC-5 CCW	Structure #: XC-5 STD	Rvwed	Rvw. Date
	Standard Detail	Drawn By: OFlores		
		Scale: As Shown		
		Date: 2/25/2021		
		U.S. Patent No. 6524473 and other Patent Pending		

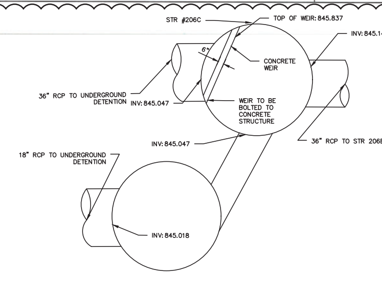




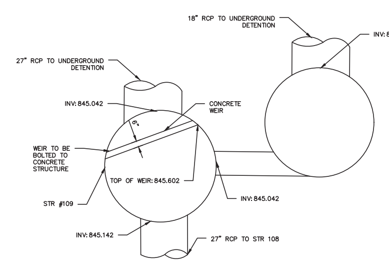
NOTES:
1. BASIC COLOR RULE: WHITE LINES SEPARATE TRAFFIC IN THE SAME DIRECTION; YELLOW LINES SEPARATE TRAFFIC IN OPPOSING DIRECTIONS.
2. BLACK MARKINGS MAY BE USED TO OUTLINE WHITE OR YELLOW MARKINGS WHERE A LIGHT COLORED SURFACE DOES NOT PROVIDE SUFFICIENT CONTRAST.
3. SHOWN DIMENSIONS ASSUME FRESH SURFACES, MATCH EXISTING DIMENSIONS IF MAINTENANCE EFFORT.

CITY OF BLOOMINGTON
STANDARD TRAFFIC PAVEMENT MARKING DETAILS
STANDARD DRAWING NO.- PM-3

ANDREW SCOTT CIBOR REGISTERED No. 11500386 STATE OF INDIANA PROFESSIONAL ENGINEER
ENGINEER
8/21/2018
DATE



DIVERSION STRUCTURE #206C DETAIL
NOT TO SCALE



DIVERSION STRUCTURE #109 DETAIL
NOT TO SCALE

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9025 River Road, Suite 200 | Indianapolis, Indiana 46240
TEL 317.547.5580 | FAX 317.543.0270
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OVERLOOK ON 46 & CENTURY VILLAGE STORAGE

Bloomington, IN

APPROVAL PENDING NOT FOR CONSTRUCTION
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CERTIFIED BY

ISSUANCE INDEX
DATE:
11/02/2021
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PRELIMINARY DOCUMENTS

REVISION SCHEDULE

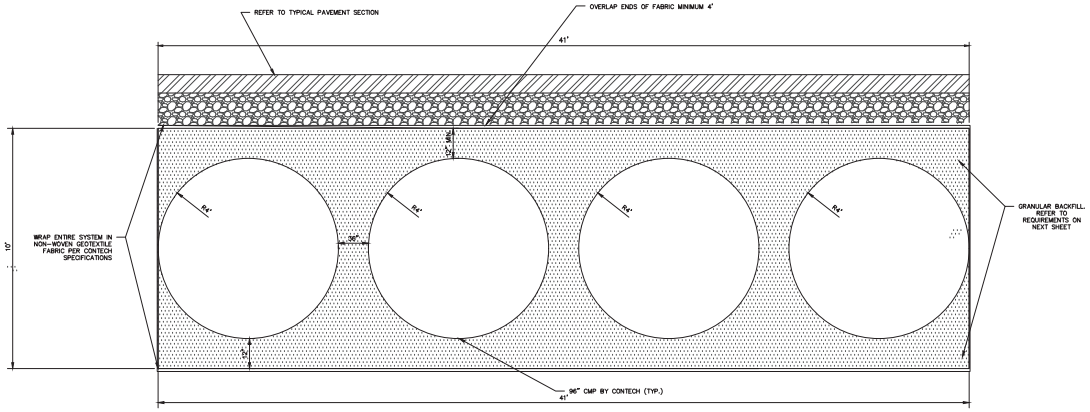
NO.	DESCRIPTION	DATE
1	CITY COMMENTS	01/07/22
2	CBU/INDOT COMMENTS	01/28/22
3	DETENTION COORDINATION	02/07/22
4	UTILITY COORD./TREE PRESERVATION	02/24/22

Project Number 2020.01173

SITE DETAILS

C602

PLOT DATE: 2/24/2022 10:53 AM PLOT SCALE: 1:2.5849 EDIT DATE: 2/16/2022 EDITED BY: KBRIGHT DRAWING FILE: P:\2020\01173\D. Drawings\Civil\Construction Documents\2020.01173.CE.C600 SD.dwg



TYPICAL POND SECTION
NOT TO SCALE (REV. 01/22)

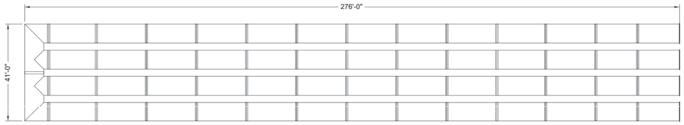
PROJECT SUMMARY

CALCULATION DETAILS
- LOADING = HS20 & HS25
- APPROX. LINEAR FOOTAGE = 1,113 lf.

STORAGE SUMMARY
- STORAGE VOLUME REQUIRED = N/A
- PIPE STORAGE VOLUME = 55,945 cf.
- BACKFILL STORAGE VOLUME = 0 cf.
- TOTAL STORAGE PROVIDED = 55,945 cf.

PIPE DETAILS
- DIAMETER = 96 IN.
- CORRUGATION = 5x1
- GAGE = 16
- COATING = ALT2
- WALL TYPE = Solid
- BARRELL SPACING = 36 IN.

BACKFILL DETAILS
- WIDTH AT ENDS = 0 IN.
- ABOVE PIPE = 0 IN.
- WIDTH AT SIDES = 0 IN.
- BELOW PIPE = 0 IN.



NOTES

- ALL RISER AND STUB DIMENSIONS ARE TO CENTERLINE. ALL ELEVATIONS, DIMENSIONS, AND LOCATIONS OF RISERS AND INLETS, SHALL BE VERIFIED BY THE ENGINEER OF RECORD PRIOR TO RELEASING FOR FABRICATION.
- ALL FITTINGS AND REINFORCEMENT COMPLY WITH ASTM A998.
- ALL RISERS AND STUBS ARE 2⅔" x ½" CORRUGATION AND 16 GAGE UNLESS OTHERWISE NOTED.
- RISERS TO BE FIELD TRIMMED TO GRADE.
- QUANTITY OF PIPE SHOWN DOES NOT PROVIDE EXTRA PIPE FOR CONNECTING THE SYSTEM TO EXISTING PIPE OR DRAINAGE STRUCTURES. OUR SYSTEM AS DETAILED PROVIDES NOMINAL INLET AND/OR OUTLET PIPE STUB FOR CONNECTION TO EXISTING DRAINAGE FACILITIES. IF ADDITIONAL PIPE IS NEEDED IT IS THE RESPONSIBILITY OF THE CONTRACTOR.
- BAND TYPE TO BE DETERMINED UPON FINAL DESIGN.
- THE PROJECT SUMMARY IS REFLECTIVE OF THE DYODS DESIGN, QUANTITIES ARE APPROX. AND SHOULD BE VERIFIED UPON FINAL DESIGN AND APPROVAL. FOR EXAMPLE, TOTAL EXCAVATION DOES NOT CONSIDER ALL VARIABLES SUCH AS SHORING AND ONLY ACCOUNTS FOR MATERIAL WITHIN THE ESTIMATED EXCAVATION FOOTPRINT.
- THESE DRAWINGS ARE FOR CONCEPTUAL PURPOSES AND DO NOT REFLECT ANY LOCAL PREFERENCES OR REGULATIONS. PLEASE CONTACT YOUR LOCAL CONTECH REP FOR MODIFICATIONS.

ASSEMBLY
SCALE: 1" = 30'

C:\EXPORTS\TEMP\AUTOSAVE\DYO10455_V2.DWG 10/18/2019 10:00 AM

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9025 Centre Pointe Dr, Suite 400, West Chester, OH 45069
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CONTECH® CMP DETENTION SYSTEMS
DYOWEN DYODS DRAWING

DYO10455 Bloomington Mixed-Use
Underground Storage
Bloomington, IN
DETENTION SYSTEM

PROJECT No.: 6508	SEQ. No.: 10455	DATE: 2/7/2022
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: D1		

MHG HOTELS, LLC

STRUCTUREPOINT LLC
9025 River Road, Suite 200 | Indianapolis, Indiana 46240
TEL 317.547.5580 | FAX 317.543.0270
www.structurepoint.com

OVERLOOK ON 46 & CENTURY VILLAGE STORAGE

Bloomington, IN

APPROVAL PENDING
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1	CITY COMMENTS	01/07/22
2	CBU/INDOT COMMENTS	01/28/22
3	DETENTION COORDINATION	02/07/22

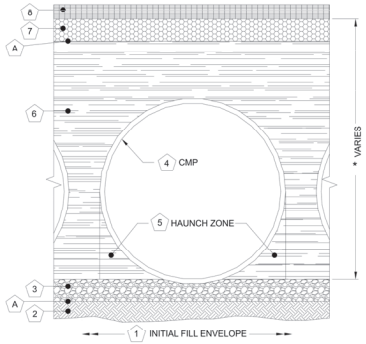
Project Number 2020.01173

SITE DETAILS

C603

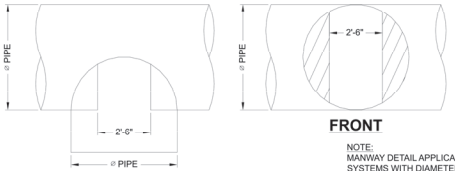
52

PLOT DATE: 2/7/2022 12:42 PM



DETENTION SYSTEMS - CMP DETENTION / CMP DRAINAGE

	Material Location	Description	Material Designation	Designation
8	Rigid or Flexible Pavement (if applicable)			
7	Road Base (if applicable)			
A	Geotextile Layer	Non-Woven Geotextile	CONTECH C-40 or C-45	Engineer Decision for consideration to prevent soil migration into varying soil types
6	Backfill	Well graded granular material which may contain small amounts of silt or clay.	AASHTO M 145- A-1, A-2, A-3	Placed in 8" +/- loose lifts and compacted to 90% Standard Proctor Per AASHTO T 99
3	Bedding Stone	Well graded granular bedding material w/maximum particle size of 3"	AASHTO M43 - 3,357,4,467, 5, 56, 57	Engineer to determine if bedding is required. Pipe may be placed on the trench bottom of a relatively loose, native suitable well graded & granular material. For Arch pipes it is recommended to be shaped to a relatively flat bottom or fine-grade the foundation to a slight v-shape. Unsuitable material should be over-excavated and re-placed with a 4"-6" layer of well graded & granular stone per the material designation. See AASHTO 26.3.8.1 / 26.5.3 Bedding info.
A	Geotextile Layer	Non-Woven Geotextile	CONTECH C-40 or C-45	Engineer Decision for consideration to prevent soil migration into varying soil types
*	*Note: Backfill using controlled low-strength material (CLSM, "flash fill" or "flowable fill") when the spacing between the pipes will not allow for placement and adequate compaction of the backfill.*			



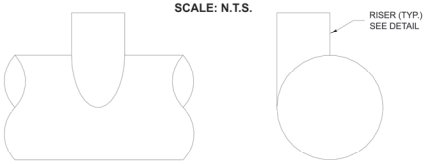
PLAN

FRONT

TYPICAL MANWAY DETAIL

SCALE: N.T.S.

NOTE:
MANWAY DETAIL APPLICABLE FOR CMP SYSTEMS WITH DIAMETERS 48" AND LARGER. MANWAYS MAY BE REQUIRED ON SMALLER SYSTEMS DEPENDING ON ACTUAL SITE SPECIFIC CONDITIONS.



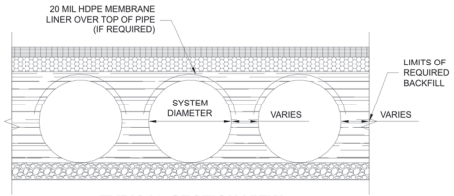
ELEVATION

END

TYPICAL RISER DETAIL

SCALE: N.T.S.

NOTE:
LADDERS ARE OPTIONAL AND ARE NOT REQUIRED FOR ALL SYSTEMS.



TYPICAL SECTION VIEW

LINER OVER ROWS
SCALE: N.T.S.

NOTE: IF SALTING AGENTS FOR SNOW AND ICE REMOVAL ARE USED ON OR NEAR THE PROJECT, AN HDPE MEMBRANE LINER IS RECOMMENDED WITH THE SYSTEM. THE IMPERMEABLE LINER IS INTENDED TO HELP PROTECT THE SYSTEM FROM THE POTENTIAL ADVERSE EFFECTS THAT MAY RESULT FROM A CHANGE IN THE SURROUNDING ENVIRONMENT OVER A PERIOD OF TIME. PLEASE REFER TO THE CORRUGATED METAL PIPE DETENTION DESIGN GUIDE FOR ADDITIONAL INFORMATION.

1 MINIMUM WIDTH DEPENDS ON SITE CONDITIONS AND ENGINEERING JUDGEMENT

FOUNDATION/BEDDING PREPARATION

2 PRIOR TO PLACING THE BEDDING, THE FOUNDATION MUST BE CONSTRUCTED TO A UNIFORM AND STABLE GRADE. IN THE EVENT THAT UNSUITABLE FOUNDATION MATERIALS ARE ENCOUNTERED DURING EXCAVATION, THEY SHALL BE REMOVED AND BROUGHT BACK TO THE GRADE WITH A FILL MATERIAL AS APPROVED BY THE ENGINEER.

5 HAUNCH ZONE MATERIAL SHALL BE PLACED AND UNIFORMALLY COMPACTED WITHOUT SOFT SPOTS.

BACKFILL

WHEN PLACING THE FIRST LIFTS OF BACKFILL IT IS IMPORTANT TO MAKE SURE THAT THE BACKFILL IS PROPERLY COMPACTED UNDER AND AROUND THE PIPE HAUNCHES. BACKFILL SHALL BE PLACED SUCH THAT THERE IS NO MORE THAN A TWO LIFT (16") DIFFERENTIAL BETWEEN ANY OF THE PIPES AT ANY TIME DURING THE BACKFILL PROCESS. THE BACKFILL SHALL BE ADVANCED ALONG THE LENGTH OF THE DETENTION SYSTEM AT THE SAME RATE TO AVOID DIFFERENTIAL LOADING ON THE PIPE.

OTHER ALTERNATE BACKFILL MATERIAL MAY BE ALLOWED DEPENDING ON SITE SPECIFIC CONDITIONS, AS APPROVED BY SITE ENGINEER.

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CONTECH® CMP DETENTION SYSTEMS

CONTECH
DYODS
DRAWING

DYO10455 Bloomington Mixed-Use
Underground Storage
Bloomington, IN
DETENTION SYSTEM

PROJECT No.: 6506	SEQ. No.: 10455	DATE: 12/28/2021
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: D2		

C:\EXPORTSTEMPLATES\CMP_FLDWG 10/18/2019 10:02 AM

PLOT DATE: 2/7/2022 11:53 AM
PLOT SCALE: 1:2.5858
EDITED BY: HSRIGHT
DRAWING FILE: P:\2020\2020\1730_Downtown\Civil\Construction Documents\2020\01173-CF-C604-SD.dwg
EDIT DATE: 2/7/2022

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OVERLOOK ON 46 & CENTURY VILLAGE STORAGE

Bloomington, IN

APPROVAL PENDING
NOT FOR CONSTRUCTION
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NO.	DESCRIPTION	DATE
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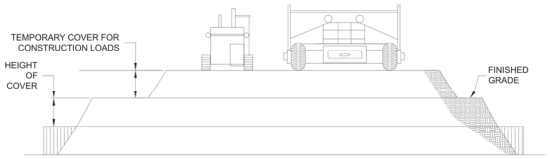
2	CBU/INDOT COMMENTS	01/28/22

Project Number 2020.01173

SITE DETAILS

C604

53



CONSTRUCTION LOADS

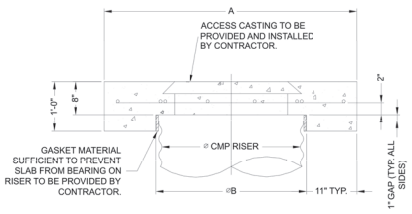
FOR TEMPORARY CONSTRUCTION VEHICLE LOADS, AN EXTRA AMOUNT OF COMPACTED COVER MAY BE REQUIRED OVER THE TOP OF THE PIPE. THE HEIGHT-OF-COVER SHALL MEET THE MINIMUM REQUIREMENTS SHOWN IN THE TABLE BELOW. THE USE OF HEAVY CONSTRUCTION EQUIPMENT NECESSITATES GREATER PROTECTION FOR THE PIPE THAN FINISHED GRADE COVER MINIMUMS FOR NORMAL HIGHWAY TRAFFIC.

PIPE SPAN, INCHES	AXLE LOADS (kips)			
	18-50	50-75	75-110	110-150
	MINIMUM COVER (FT)			
12-42	2.0	2.5	3.0	3.0
48-72	3.0	3.0	3.5	4.0
78-120	3.0	3.5	4.0	4.0
126-144	3.5	4.0	4.5	4.5

*MINIMUM COVER MAY VARY, DEPENDING ON LOCAL CONDITIONS. THE CONTRACTOR MUST PROVIDE THE ADDITIONAL COVER REQUIRED TO AVOID DAMAGE TO THE PIPE. MINIMUM COVER IS MEASURED FROM THE TOP OF THE PIPE TO THE TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE.

CONSTRUCTION LOADING DIAGRAM

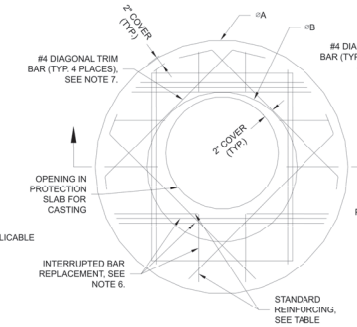
SCALE: N.T.S.



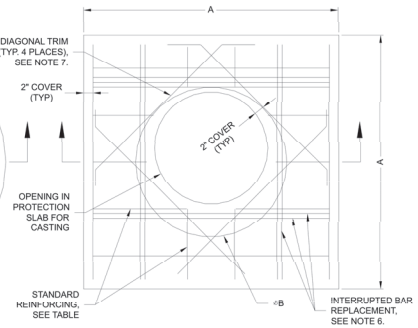
SECTION VIEW

REINFORCING TABLE				
⌀ CMP RISER	A	⌀ B	REINFORCING	**BEARING PRESSURE (PSF)
24"	⌀ 4' 4'X4'	26"	#5 @ 12" OCEW #5 @ 12" OCEW	2,410 1,780
30"	⌀ 4'-6" 4' 6" X 4' 6"	32"	#5 @ 12" OCEW #5 @ 12" OCEW	2,120 1,830
36"	⌀ 5' 5' X 5'	38"	#5 @ 10" OCEW #5 @ 10" OCEW	1,890 1,350
42"	⌀ 5'-6" 5'-6" X 5'-6"	44"	#5 @ 10" OCEW #5 @ 9" OCEW	1,720 1,210
48"	⌀ 6' 6' X 6'	50"	#5 @ 9" OCEW #5 @ 8" OCEW	1,600 1,100

** ASSUMED SOIL BEARING CAPACITY



ROUND OPTION PLAN VIEW



SQUARE OPTION PLAN VIEW

SPECIFICATION FOR DESIGNED DETENTION SYSTEM:

SCOPE
THIS SPECIFICATION COVERS THE MANUFACTURE AND INSTALLATION OF THE DESIGNED DETENTION SYSTEM DETAILED IN THE PROJECT PLANS.

MATERIAL
THE MATERIAL SHALL CONFORM TO THE APPLICABLE REQUIREMENTS LISTED BELOW:

ALUMINIZED TYPE 2 STEEL COILS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M-274 OR ASTM A-92.

THE GALVANIZED STEEL COILS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M-218 OR ASTM A-929.

THE POLYMER COATED STEEL COILS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M-246 OR ASTM A-742.

THE ALUMINUM COILS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M-197 OR ASTM B-744.

CONSTRUCTION LOADS
CONSTRUCTION LOADS MAY BE HIGHER THAN FINAL LOADS. FOLLOW THE MANUFACTURER'S OR NCSPA GUIDELINES.

NOTE:
THESE DRAWINGS ARE FOR CONCEPTUAL PURPOSES AND DO NOT REFLECT ANY LOCAL PREFERENCES OR REGULATIONS. PLEASE CONTACT YOUR LOCAL CONTECH REP FOR MODIFICATIONS.

PIPE
THE PIPE SHALL BE MANUFACTURED IN ACCORDANCE TO THE APPLICABLE REQUIREMENTS LISTED BELOW:

ALUMINIZED TYPE 2: AASHTO M-36 OR ASTM A-760

GALVANIZED: AASHTO M-36 OR ASTM A-760

POLYMER COATED: AASHTO M-245 OR ASTM A-762

ALUMINUM: AASHTO M-196 OR ASTM B-745

HANDLING AND ASSEMBLY
SHALL BE IN ACCORDANCE WITH NCSP'S (NATIONAL CORRUGATED STEEL PIPE ASSOCIATION) FOR ALUMINIZED TYPE 2, GALVANIZED OR POLYMER COATED STEEL. SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS FOR ALUMINUM PIPE.

INSTALLATION
SHALL BE IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SECTION 26, DIVISION II DIVISION II OR ASTM A-798 (FOR ALUMINIZED TYPE 2, GALVANIZED OR POLYMER COATED STEEL) OR ASTM B-788 (FOR ALUMINUM PIPE) AND IN CONFORMANCE WITH THE PROJECT PLANS AND SPECIFICATIONS. IF THERE ARE ANY INCONSISTENCIES OR CONFLICTS THE CONTRACTOR SHOULD DISCUSS AND RESOLVE WITH THE SITE ENGINEER.

IT IS ALWAYS THE RESPONSIBILITY OF THE CONTRACTOR TO FOLLOW OSHA GUIDELINES FOR SAFE PRACTICES.

NOTES:

1. DESIGN IN ACCORDANCE WITH AASHTO, 17th EDITION.
2. DESIGN LOAD HS25.
3. EARTH COVER = 1' MAX.
4. CONCRETE STRENGTH = 3,500 psi
5. REINFORCING STEEL = ASTM A615, GRADE 60.
6. PROVIDE ADDITIONAL REINFORCING AROUND OPENINGS EQUAL TO THE BARS INTERRUPTED, HALF EACH SIDE. ADDITONAL BARS TO BE IN THE SAME PLANE.
7. TRIM OPENING WITH DIAGONAL #4 BARS, EXTEND BARS A MINIMUM OF 12" BEYOND OPENING, BEND BARS AS REQUIRED TO MAINTAIN BAR COVER.
8. PROTECTION SLAB AND ALL MATERIALS TO BE PROVIDED AND INSTALLED BY CONTRACTOR.
9. *DETAIL DESIGN BY DELTA ENGINEERING, BINGHAMTON, NY.*

MANHOLE CAP DETAIL

SCALE: N.T.S.

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CONTECH® CMP DETENTION SYSTEMS
CONTECH DYODS DRAWING

DYO10455 Bloomington Mixed-Use
Underground Storage
Bloomington, IN
DETENTION SYSTEM

PROJECT No.: 6506	SEQ. No.: 10455	DATE: 12/28/2021
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: D3		

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PLOT SCALE: 1:2.5859 EDIT DATE: 1/28/2022 EDITED BY: JRODGERS DRAWING FILE: P:\2020\2011730_Bloomington\Civil\Construction Documents\2020\01173-CF-0000-SD.dwg

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OVERLOOK ON 46 & CENTURY VILLAGE STORAGE

Bloomington, IN

APPROVAL PENDING NOT FOR CONSTRUCTION
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ISSUANCE INDEX
DATE: 11/02/2021
PROJECT PHASE: PRELIMINARY DOCUMENTS

REVISION SCHEDULE		
NO.	DESCRIPTION	DATE
1	CITY COMMENTS	01/07/22
2	CBU/INDOT COMMENTS	01/28/22

Project Number 2020.01173

SITE DETAILS

C605

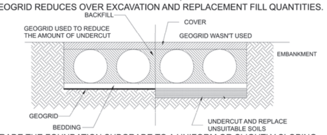
CMP DETENTION INSTALLATION GUIDE

PROPER INSTALLATION OF A FLEXIBLE UNDERGROUND DETENTION SYSTEM WILL ENSURE LONG-TERM PERFORMANCE. THE CONFIGURATION OF THESE SYSTEMS OFTEN REQUIRES SPECIAL CONSTRUCTION PRACTICES THAT DIFFER FROM CONVENTIONAL FLEXIBLE PIPE CONSTRUCTION. CONTECH ENGINEERED SOLUTIONS STRONGLY SUGGESTS SCHEDULING A PRE-CONSTRUCTION MEETING WITH YOUR LOCAL SALES ENGINEER TO DETERMINE IF ADDITIONAL MEASURES, NOT COVERED IN THIS GUIDE, ARE APPROPRIATE FOR YOUR SITE.

FOUNDATION

CONSTRUCT A FOUNDATION THAT CAN SUPPORT THE DESIGN LOADING APPLIED BY THE PIPE AND ADJACENT BACKFILL WEIGHT AS WELL AS MAINTAIN ITS INTEGRITY DURING CONSTRUCTION.

IF SOFT OR UNSUITABLE SOILS ARE ENCOUNTERED, REMOVE THE POOR SOILS DOWN TO A SUITABLE DEPTH AND THEN BUILD UP TO THE APPROPRIATE ELEVATION WITH A COMPETENT BACKFILL MATERIAL. THE STRUCTURAL FILL MATERIAL GRADATION SHOULD NOT ALLOW THE MIGRATION OF FINES, WHICH CAN CAUSE SETTLEMENT OF THE DETENTION SYSTEM OR PAVEMENT ABOVE. IF THE STRUCTURAL FILL MATERIAL IS NOT COMPATIBLE WITH THE UNDERLYING SOILS AN ENGINEERING FABRIC SHOULD BE USED AS A SEPARATOR. IN SOME CASES, USING A STIFF REINFORCING GEOGRID REDUCES OVER EXCAVATION AND REPLACEMENT FILL QUANTITIES.

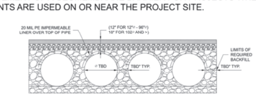


GRADE THE FOUNDATION SUBGRADE TO A UNIFORM OR SLIGHTLY SLOPING GRADE. IF THE SUBGRADE IS CLAY OR RELATIVELY NON-POROUS AND THE CONSTRUCTION SEQUENCE WILL LAST FOR AN EXTENDED PERIOD OF TIME, IT IS BEST TO SLOPE THE GRADE TO ONE END OF THE SYSTEM. THIS WILL ALLOW EXCESS WATER TO DRAIN QUICKLY, PREVENTING SATURATION OF THE SUBGRADE.

GEOMEMBRANE BARRIER

A SITE'S RESISTIVITY MAY CHANGE OVER TIME WHEN VARIOUS TYPES OF SALTING AGENTS ARE USED, SUCH AS ROAD SALTS FOR DEICING AGENTS. IF SALTING AGENTS ARE USED ON OR NEAR THE PROJECT SITE, A GEOMEMBRANE BARRIER IS RECOMMENDED WITH THE SYSTEM. THE GEOMEMBRANE LINER IS INTENDED TO HELP PROTECT THE SYSTEM FROM THE POTENTIAL ADVERSE EFFECTS THAT MAY RESULT FROM THE USE OF SUCH AGENTS INCLUDING PREMATURE CORROSION AND REDUCED ACTUAL SERVICE LIFE.

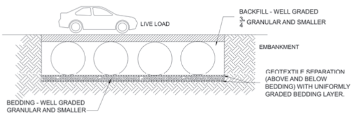
THE PROJECT'S ENGINEER OF RECORD IS TO EVALUATE WHETHER SALTING AGENTS WILL BE USED ON OR NEAR THE PROJECT SITE, AND USE HIS/HER BEST JUDGEMENT TO DETERMINE IF ANY ADDITIONAL PROTECTIVE MEASURES ARE REQUIRED. BELOW IS A TYPICAL DETAIL SHOWING THE PLACEMENT OF A GEOMEMBRANE BARRIER FOR PROJECTS WHERE SALTING AGENTS ARE USED ON OR NEAR THE PROJECT SITE.



IN-SITU TRENCH WALL

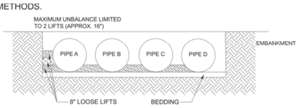
IF EXCAVATION IS REQUIRED, THE TRENCH WALL NEEDS TO BE CAPABLE OF SUPPORTING THE LOAD THAT THE PIPE SHEDS AS THE SYSTEM IS LOADED. IF SOILS ARE NOT CAPABLE OF SUPPORTING THESE LOADS, THE PIPE CAN DEFLECT. PERFORM A SIMPLE SOIL PRESSURE CHECK USING THE APPLIED LOADS TO DETERMINE THE LIMITS OF EXCAVATION BEYOND THE SPRING LINE OF THE OUTER MOST PIPES.

IN MOST CASES THE REQUIREMENTS FOR A SAFE WORK ENVIRONMENT AND PROPER BACKFILL PLACEMENT AND COMPACTION TAKE CARE OF THIS CONCERN.



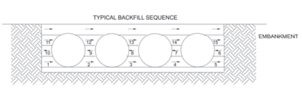
BACKFILL PLACEMENT

MATERIAL SHALL BE WORKED INTO THE PIPE HAUNCHES BY MEANS OF SHOVEL-SLICING, RODDING, AIR TAMPER, VIBRATORY ROD, OR OTHER EFFECTIVE METHODS.

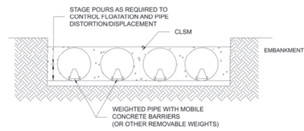


IF AASHTO T99 PROCEDURES ARE DETERMINED INFEASIBLE BY THE GEOTECHNICAL ENGINEER OF RECORD, COMPACTION IS CONSIDERED ADEQUATE WHEN NO FURTHER YIELDING OF THE MATERIAL IS OBSERVED UNDER THE COMPACTOR, OR UNDER FOOT, AND THE GEOTECHNICAL ENGINEER OF RECORD (OR REPRESENTATIVE THEREOF) IS SATISFIED WITH THE LEVEL OF COMPACTION.

FOR LARGE SYSTEMS, CONVEYOR SYSTEMS, BACKHOES WITH LONG REACHES OR DRAGLINES WITH STONE BUCKETS MAY BE USED TO PLACE BACKFILL. ONCE MINIMUM COVER FOR CONSTRUCTION LOADING ACROSS THE ENTIRE WIDTH OF THE SYSTEM IS REACHED, ADVANCE THE EQUIPMENT TO THE END OF THE RECENTLY PLACED FILL, AND BEGIN THE SEQUENCE AGAIN UNTIL THE SYSTEM IS COMPLETELY BACKFILLED. THIS TYPE OF CONSTRUCTION SEQUENCE PROVIDES ROOM FOR STOCKPILED BACKFILL DIRECTLY BEHIND THE BACKHOE, AS WELL AS THE MOVEMENT OF CONSTRUCTION TRAFFIC. MATERIAL STOCKPILES ON TOP OF THE BACKFILLED DETENTION SYSTEM SHOULD BE LIMITED TO 8- TO 10-FEET HIGH AND MUST PROVIDE BALANCED LOADING ACROSS ALL BARRELS. TO DETERMINE THE PROPER COVER OVER THE PIPES TO ALLOW THE MOVEMENT OF CONSTRUCTION EQUIPMENT SEE TABLE 1, OR CONTACT YOUR LOCAL CONTECH SALES ENGINEER.



WHEN FLOWABLE FILL IS USED, YOU MUST PREVENT PIPE FLOATATION. TYPICALLY, SMALL LIFTS ARE PLACED BETWEEN THE PIPES AND THEN ALLOWED TO SET-UP PRIOR TO THE PLACEMENT OF THE NEXT LIFT. THE ALLOWABLE THICKNESS OF THE CLSM LIFT IS A FUNCTION OF A PROPER BALANCE BETWEEN THE UPLIFT FORCE OF THE CLSM, THE OPPOSING WEIGHT OF THE PIPE, AND THE EFFECT OF OTHER RESTRAINING MEASURES. THE PIPE CAN CARRY LIMITED FLUID PRESSURE WITHOUT PIPE DISTORTION OR DISPLACEMENT, WHICH ALSO AFFECTS THE CLSM LIFT THICKNESS. YOUR LOCAL CONTECH SALES ENGINEER CAN HELP DETERMINE THE PROPER LIFT THICKNESS.

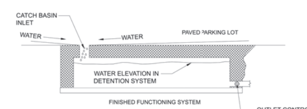


CONSTRUCTION LOADING

TYPICALLY, THE MINIMUM COVER SPECIFIED FOR A PROJECT ASSUMES H-20 LIVE LOAD. BECAUSE CONSTRUCTION LOADS OFTEN EXCEED DESIGN LIVE LOADS, INCREASED TEMPORARY MINIMUM COVER REQUIREMENTS ARE NECESSARY. SINCE CONSTRUCTION EQUIPMENT VARIES FROM JOB TO JOB, IT IS BEST TO ADDRESS EQUIPMENT SPECIFIC MINIMUM COVER REQUIREMENTS WITH YOUR LOCAL CONTECH SALES ENGINEER DURING YOUR PRE-CONSTRUCTION MEETING.

ADDITIONAL CONSIDERATIONS

BECAUSE MOST SYSTEMS ARE CONSTRUCTED BELOW-GRADE, RAINFALL CAN RAPIDLY FILL THE EXCAVATION; POTENTIALLY CAUSING FLOATATION AND MOVEMENT OF THE PREVIOUSLY PLACED PIPES. TO HELP MITIGATE POTENTIAL PROBLEMS, IT IS BEST TO START THE INSTALLATION AT THE DOWNSTREAM END WITH THE OUTLET ALREADY CONSTRUCTED TO ALLOW A ROUTE FOR THE WATER TO ESCAPE. TEMPORARY DIVERSION MEASURES MAY BE REQUIRED FOR HIGH FLOWS DUE TO THE RESTRICTED NATURE OF THE OUTLET PIPE.



CMP DETENTION SYSTEM INSPECTION AND MAINTENANCE

UNDERGROUND STORMWATER DETENTION AND INFILTRATION SYSTEMS MUST BE INSPECTED AND MAINTAINED AT REGULAR INTERVALS FOR PURPOSES OF PERFORMANCE AND LONGEVITY.

INSPECTION

INSPECTION IS THE KEY TO EFFECTIVE MAINTENANCE OF CMP DETENTION SYSTEMS AND IS EASILY PERFORMED. CONTECH RECOMMENDS ONGOING, ANNUAL INSPECTIONS. SITES WITH HIGH TRASH LOAD OR SMALL OUTLET CONTROL ORIFICES MAY NEED MORE FREQUENT INSPECTIONS. THE RATE AT WHICH THE SYSTEM COLLECTS POLLUTANTS WILL DEPEND MORE ON SITE SPECIFIC ACTIVITIES RATHER THAN THE SIZE OR CONFIGURATION OF THE SYSTEM.

INSPECTIONS SHOULD BE PERFORMED MORE OFTEN IN EQUIPMENT WASHDOWN AREAS, IN CLIMATES WHERE SANDING AND/OR SALTING OPERATIONS TAKE PLACE, AND IN OTHER VARIOUS INSTANCES IN WHICH ONE WOULD EXPECT HIGHER ACCUMULATIONS OF SEDIMENT OR ABRASIVE/ CORROSIVE CONDITIONS. A RECORD OF EACH INSPECTION IS TO BE MAINTAINED FOR THE LIFE OF THE SYSTEM

MAINTENANCE

CMP DETENTION SYSTEMS SHOULD BE CLEANED WHEN AN INSPECTION REVEALS ACCUMULATED SEDIMENT OR TRASH IS CLOGGING THE DISCHARGE ORIFICE.

ACCUMULATED SEDIMENT AND TRASH CAN TYPICALLY BE EVACUATED THROUGH THE MANHOLE OVER THE OUTLET ORIFICE. IF MAINTENANCE IS NOT PERFORMED AS RECOMMENDED, SEDIMENT AND TRASH MAY ACCUMULATE IN FRONT OF THE OUTLET ORIFICE. MANHOLE COVERS SHOULD BE SECURELY SEATED FOLLOWING CLEANING ACTIVITIES. CONTECH SUGGESTS THAT ALL SYSTEMS BE DESIGNED WITH AN ACCESS/INSPECTION MANHOLE SITUATED AT OR NEAR THE INLET AND THE OUTLET ORIFICE. SHOULD IT BE NECESSARY TO GET INSIDE THE SYSTEM TO PERFORM MAINTENANCE ACTIVITIES, ALL APPROPRIATE PRECAUTIONS REGARDING CONFINED SPACE ENTRY AND OSHA REGULATIONS SHOULD BE FOLLOWED.

ANNUAL INSPECTIONS ARE BEST PRACTICE FOR ALL UNDERGROUND SYSTEMS. DURING THIS INSPECTION, IF EVIDENCE OF SALTING/DE-ICING AGENTS IS OBSERVED WITHIN THE SYSTEM, IT IS BEST PRACTICE FOR THE SYSTEM TO BE RINSED, INCLUDING ABOVE THE SPRING LINE SOON AFTER THE SPRING THAW AS PART OF THE MAINTENANCE PROGRAM FOR THE SYSTEM.

MAINTAINING AN UNDERGROUND DETENTION OR INFILTRATION SYSTEM IS EASIEST WHEN THERE IS NO FLOW ENTERING THE SYSTEM. FOR THIS REASON, IT IS A GOOD IDEA TO SCHEDULE THE CLEANOUT DURING DRY WEATHER.

THE FOREGOING INSPECTION AND MAINTENANCE EFFORTS HELP ENSURE UNDERGROUND PIPE SYSTEMS USED FOR STORMWATER STORAGE CONTINUE TO FUNCTION AS INTENDED BY IDENTIFYING RECOMMENDED REGULAR INSPECTION AND MAINTENANCE PRACTICES. INSPECTION AND MAINTENANCE RELATED TO THE STRUCTURAL INTEGRITY OF THE PIPE OR THE SOUNDNESS OF PIPE JOINT CONNECTIONS IS BEYOND THE SCOPE OF THIS GUIDE.

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CONTECH® CMP DETENTION SYSTEMS
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DYO10455 Bloomington Mixed-Use
Underground Storage
Bloomington, IN
DETENTION SYSTEM

PROJECT No.: 6506	SEQ. No.: 10455	DATE: 12/28/2021
DESIGNED: DYO		DRAWN: DYO
CHECKED: DYO		APPROVED: DYO
SHEET NO.: D4		

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OVERLOOK ON 46 & CENTURY VILLAGE STORAGE

Bloomington, IN

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ISSUANCE INDEX
DATE:
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REVISION SCHEDULE

NO.	DESCRIPTION	DATE
1	CITY COMMENTS	01/07/22
2	CBU/INDOT COMMENTS	01/28/22

Project Number 2020.01173

SITE DETAILS

C606

PLOT DATE: 1/28/2022 3:25 PM PLOT SCALE: 1:2.5849 EDIT DATE: 1/28/2022 EDITED BY: JRODGERS DRAWING FILE: P:\2020\01173\D. Drawings\Civil\Construction Documents\2020.01173.CE.C600.SD.dwg

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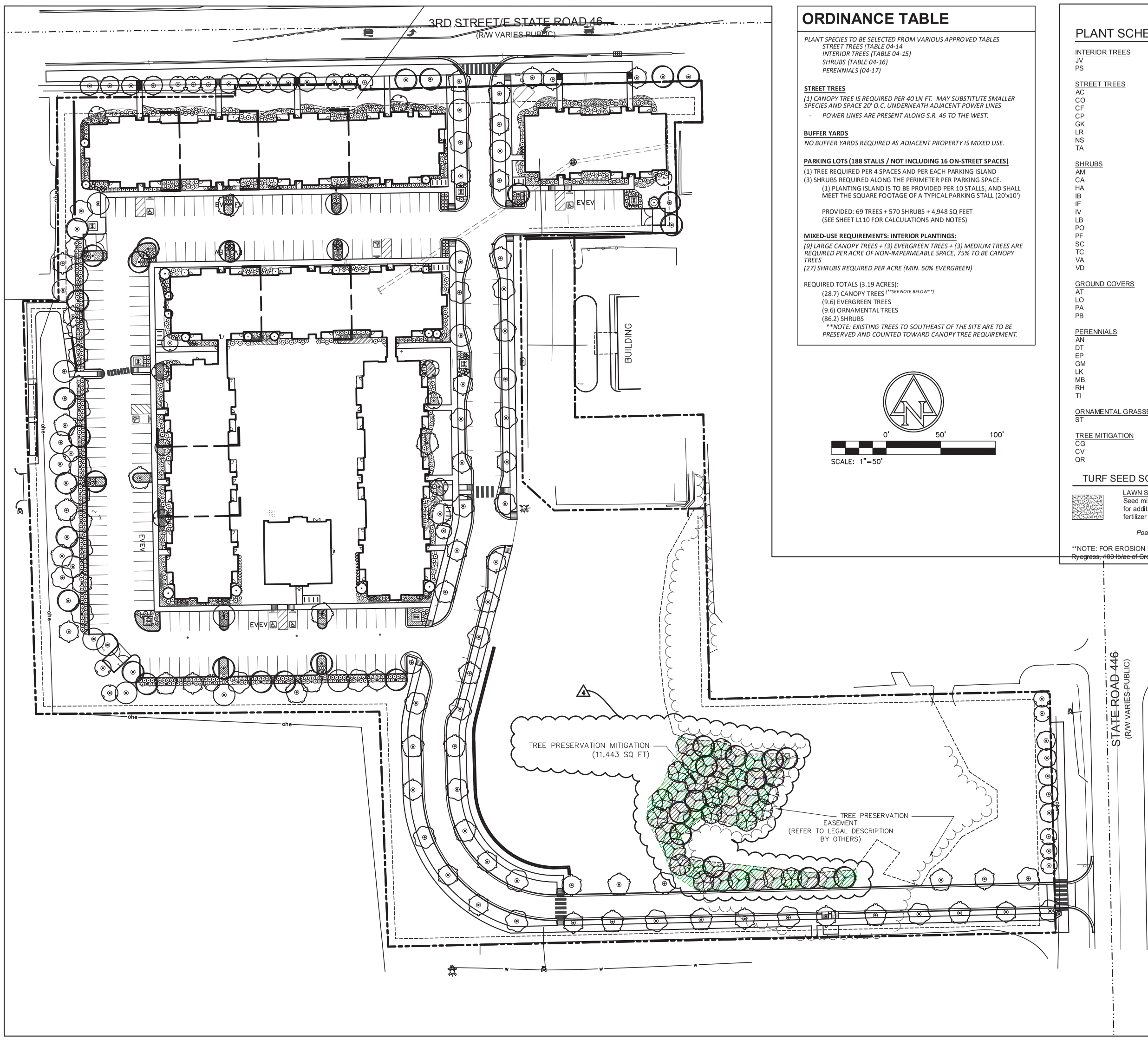
OVERLOOK ON 46 & CENTURY VILLAGE STORAGE

Bloomington, IN



ORDINANCE TABLE

PLANT SPECIES TO BE SELECTED FROM VARIOUS APPROVED TABLES
STREET TREES (TABLE 04-14
INTERIOR TREES (TABLE 04-15)
SHRUBS (TABLE 04-16)
PERENNIALS (04-17)

STREET TREES
(1) CANOPY TREE IS REQUIRED PER 40 LN FT. MAY SUBSTITUTE SMALLER SPECIES AND SPACE 20' O.C. UNDERNEATH ADJACENT POWER LINES
- *POWER LINES ARE PRESENT ALONG S.R. 46 TO THE WEST.*

BUFFER YARDS
NO BUFFER YARDS REQUIRED AS ADJACENT PROPERTY IS MIXED USE.

PARKING LOTS (188 STALLS / NOT INCLUDING 16 ON-STREET SPACES)
(1) TREE REQUIRED PER 4 SPACES AND PER EACH PARKING ISLAND
(3) SHRUBS REQUIRED ALONG THE PERIMETER PER PARKING SPACE.
(1) PLANTING ISLAND IS TO BE PROVIDED PER 10 STALLS, AND SHALL MEET THE SQUARE FOOTAGE OF A TYPICAL PARKING STALL (20'x10')

PROVIDED: 69 TREES + 570 SHRUBS + 4,948 SQ FEET
(SEE SHEET L110 FOR CALCULATIONS AND NOTES)

MIXED-USE REQUIREMENTS: INTERIOR PLANTINGS:
(9) LARGE CANOPY TREES + (3) EVERGREEN TREES + (3) MEDIUM TREES ARE REQUIRED PER ACRE OF NON-IMPERMEABLE SPACE, 75% TO BE CANOPY TREES
(27) SHRUBS REQUIRED PER ACRE (MIN. 50% EVERGREEN)

REQUIRED TOTALS (3.19 ACRES):
(28.7) CANOPY TREES (**SEE NOTE BELOW**)
(9.6) EVERGREEN TREES
(9.6) ORNAMENTAL TREES
(86.2) SHRUBS
***NOTE: EXISTING TREES TO SOUTHEAST OF THE SITE ARE TO BE PRESERVED AND COUNTED TOWARD CANOPY TREE REQUIREMENT.*

0' 50' 100'
SCALE: 1"=50'

PLANT SCHEDULE

INTERIOR TREES	QTY	BOTANICAL / COMMON NAME	CONT	CAL	SIZE		NATIVE SPECIES	NECTAR / POLLINATOR
JV	10	Juniperus virginiana 'Cupressifolia' / Hillspire Juniper	B & B	6` Ht (min)	As shown		X	
PS	6	Pinus strobus 'Pendula' / Pendulous White Pine	B & B	6` Ht (min)	As shown		X	
STREET TREES	**QTY**	**BOTANICAL / COMMON NAME**	**CONT**	**CAL**	**SIZE**			
AC	20	Amelanchier canadensis / Canadian Serviceberry	B & B	2" Cal.	As shown			X
CO	21	Celtis occidentalis / Common Hackberry	B & B	2" Cal.	As shown		X	X
CF	6	Cornus florida rubra / Pink Flowering Dogwood	B & B	2" Cal.	As shown		X	X
CP	14	Crataegus phaenopyrum 'Lustre' / Washington Lustre Hawthorn	B & B	2" Cal.	As shown			
GK	30	Gymnocladus dioica / Kentucky Coffeetree	B & B	2" Cal.	As shown		X	
LR	28	Liquidambar styraciflua `Rotundiloba` / Round-Lobed Sweet Gum	B & B	2" Cal.	As shown		X	
NS	26	Nyssa sylvatica / Tupelo	B & B	2" Cal.	As shown		X	X
TA	30	Tilia americana / American Linden	B & B	2" Cal.	As shown		X	X
SHRUBS	**QTY**	**BOTANICAL / COMMON NAME**	**CONT**	**SIZE**	**SPACING**			
AM	74	Aronia melanocarpa 'Autumn Magic' / Autumn Magic Black Chokeberry	CONT.	5 GAL	48" O.C.		X	X
CA	45	Ceanothus americanus / New Jersey Tea	CONT.	5 GAL	48" O.C.		X	X
HA	158	Hydrangea arborescens 'Annabelle' / Annabelle Hydrangea	CONT.	5 GAL	48" O.C.		X	
IB	36	Ilex verticillata 'Berry Poppins' / Winterberry	CONT.	5 GAL	48" O.C.		X	
IF	24	Ilex verticillata 'FarrowMrP' TM / Mr. Poppins Winterberry	CONT.	5 GAL	48" O.C.		X	
IV	108	Itea virginica 'Little Henry' / Little Henry Sweetspire	CONT.	3 GAL.	36" O.C.		X	X
LB	5	Lindera benzoin / Spicebush	CONT.	5 GAL	As Shown		X	X
PO	166	Physocarpus opulifolius 'Monlo' TM / Diabolo Ninebark	CONT.	5 GAL	48" O.C.		X	X
PF	98	Potentilla fruticosa Happy Face® Yellow / Happy Face® Yellow Cinquefoil	CONT.	3 GAL.		36" O.C.	X	
SC	33	Sambucus canadensis 'Aurea' / Golden American Elderberry	CONT.	5 GAL	48" O.C.		X	
TC	76	Taxus canadensis / American Yew	CONT.	3 GAL.	48" O.C.		X	
VA	123	Viburnum acerifolium / Mapleleaf viburnum	CONT.	5 GAL	48" O.C.		X	X
VD	163	Viburnum dentatum 'Blue Muffin' / Blue Muffin Arrowwood Viburnum	CONT.	5 GAL	48" O.C.		X	
GROUND COVERS	**QTY**	**BOTANICAL / COMMON NAME**	**CONT**	**SIZE**	**SPACING**			
AT	148	Asclepias tuberosa / Butterfly Milkweed	CONT	1 Gal or 4" Pot	24" O.C.		X	X
LO	137	Lobelia siphilitica / Great Lobelia	CONT.	1 GAL	18" O.C.		X	X
PA	56	Phlox subulata 'Apple Blossom' / Apple Blossom Creeping Phlox	CONT	1 Gal or 4" Pot	18" O.C.		X	X
PB	152	Phlox subulata 'Blue' / Blue Creeping Phlox	CONT	1 Gal or 4" Pot	18" O.C.		X	X
PERENNIALS	**QTY**	**BOTANICAL / COMMON NAME**	**CONT**	**SIZE**	**SPACING**			
AN	100	Anemone canadensis / Canadian Anemone	CONT	1 GAL	24" OC		X	
DT	127	Delphinium tricorne / Dwarf Larkspur	CONT	4" Pot	18" O.C.		X	X
EP	107	Echinacea purpurea 'PAS702918' TM / PowWow White Coneflower	CONT	1 GAL	15" O.C.		X	X
GM	159	Geranium maculatum / Spotted Geranium	CONT	1 GAL	18" O.C.		X	X
LK	187	Liatris spicata 'Kobold' / Kobold Spike Gayfeather	CONT	4" Pot	18" O.C.			X
MB	82	Monarda fistulosa / Bergamot	CONT	1 GAL	24" O.C.		X	X
RH	111	Rudbeckia hirta 'Indian Summer' / Indian Summer Black-eyed Susan	CONT	1 GAL	12" O.C.		X	X
TI	51	Tiarella cordifolia / Foamflower	CONT	1 GAL	24" OC			
ORNAMENTAL GRASSES	**QTY**	**BOTANICAL / COMMON NAME**	**CONT**	**SIZE**	**SPACING**			
ST	122	Sporobolus heterolepis `Tara` / Tara Prairie Dropseed	CONT	4" Pot	24" O.C.		X	
TREE MITIGATION	**QTY**	**BOTANICAL / COMMON NAME**	**CONT**	**CAL**	**SIZE**			
CG	16	Carya glabra / Pignut Hickory	B & B	2" Cal.	As shown			
CV	13	Cary ovata / Shagbark Hickory	B & B	2" Cal.	As shown			
QR	16	Quercus rubra / Red Oak	B & B	2" Cal.	As shown			

- NATIVE SPECIES BASED ON USDA PLANT DATA (NATURAL RESOURCES CONSERVATION SERVICE), HTTPS://PLANTS.SC.EGOV.USDA.GOV
- NECTAR/POLLINATOR SPECIES ARE AS NOTED FROM THE INDIANA DNR, DIVISION OF ENTOMOLOGY & GARDENIA.NET
- 79% OF TREES, SHRUBS, AND PERENNIALS ARE FROM NATIVE SPECIES / 66.7% OF SPECIES ARE POLLINATOR OR NECTAR SPECIES
3,724 TOTAL PLANTS / 2,974 NATIVE PLANTINGS / 2,186 NECTAR OR POLLINATOR SPECIES

TURF SEED SCHEDULE

LAWN SEED - SUN AND PARTIAL SHADE MIX — 98,730 sf
Seed mixes to be include hybrid varieties that are drought tolerant and winter hardy. See general notes for additional lawn seed information and installation requirements. Contractor to apply appropriate starter fertilizer and secure seed using hay or straw mat for maximum germination and coverage.

Poa pratensis / Kentucky Bluegrass (100% mix of hybrid varieties)

NOTE: FOR EROSION CONTROL TEMPORARY GRASS SEED: mixture shall be applied at the rate of 200 lb/ac consisting of 100 lb/ac of turf type Annual Ryegrass, 100 lb/ac of Creeping Red Fescue. Seed used in this mixture shall be drought tolerant. See Erosion Control Plans for location

GENERAL NOTES:

1. CONTRACTOR TO VERIFY ALL UTILITY LOCATIONS IN THE FIELD PRIOR TO BEGINNING WORK. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO UTILITIES ASSOCIATED WITH WORK. UTILITIES SHALL BE REPAIRED TO SATISFACTION OF THE UTILITY OWNER AND/OR OPERATING AUTHORITY AT NO ADDITIONAL COST.
2. A MINIMUM OF 4" OF TOPSOIL (⅔ TOPSOIL, ⅓ MULCH AND SOIL CONDITIONER) SHALL BE PLACED ON ALL AREAS TO BE SEEDED, SODDED AND PLANTED. PLANTING SOIL MIX SHALL BE FREE FROM SUBSOIL, VEGETATION, WEEDS OR ANY EXTRANEOUS OR DELETERIOUS MATERIALS LARGER THAN 1". REMOVE ANY UNSUITABLE AND EXCESS TOPSOIL, AS DETERMINED BY SOILS ENGINEER, FROM THE SITE. FURNISH ANY ADDITIONAL TOPSOIL NEEDED AT NO ADDITIONAL COST. ADDED TOPSOIL SHALL BE INCORPORATED INTO EXISTING SOIL.
3. IN CASE OF DISCREPANCIES BETWEEN THE PLAN AND THE PLANT LIST, THE PLAN SHALL DICTATE. IF IN QUESTION, CONTACT THE LANDSCAPE ARCHITECT.
4. ALL PLANTING BEDS SHALL HAVE A 3" THICK LAYER OF SHREDDED HARDWOOD BARK MULCH. NO UTILITY MULCH OR PROCESSED TREE TRIMMINGS WILL BE ALLOWED. ALL PLANTING BEDS SHALL HAVE PRE-EMERGENT HERBICIDE APPLIED AS PER MANUFACTURER'S RECOMMENDATION, AFTER INSTALLATION IS COMPLETE.
5. FINAL PLACEMENT OF PLANT MATERIALS, ETC. SHALL BE APPROVED BY LANDSCAPE ARCHITECT BEFORE PLANTING OPERATIONS ARE TO PROCEED. ALL TREE LOCATIONS SHALL BE MARKED WITH A WOODEN STAKE INDICATING VARIETY AND SIZE OF TREE.
6. NO SUBSTITUTIONS OF PLANT MATERIAL WILL BE ALLOWED. IF PLANTS ARE SHOWN TO BE UNAVAILABLE, THE CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT PRIOR TO BID DATE IN WRITING. ALL PLANTS SHALL BE INSPECTED AND TAGGED WITH PROJECT IDENTIFICATION AT NURSERY OR CONTRACTOR'S OPERATION PRIOR TO MOVING TO JOB SITE. PLANTS MAY ALSO BE INSPECTED AND APPROVED OR REJECTED ON THE JOB SITE.
7. ALL PLANTS ARE TO MEET OR EXCEED AMERICAN STANDARDS FOR NURSERY STOCK, CURRENT EDITION, AS SET FORTH BY AMERICAN ASSOCIATION OF NURSERYMEN.
8. PLANTINGS SHOULD BE INSTALLED BETWEEN APRIL 1ST AND MAY 31ST, OR BETWEEN SEPTEMBER 1ST AND OCTOBER 31ST TO AVOID UNFAVORABLE WEATHER CONDITIONS. LANDSCAPE AND TURF PLANTED OUTSIDE OF THESE PERIODS WILL REQUIRE ADDITIONAL MEASURES TO MAINTAIN ACCEPTABLE HEALTH.
9. PLANTS AND ALL OTHER MATERIALS TO BE STORED ON SITE WILL BE PLACED WHERE THEY WILL NOT CONFLICT WITH CONSTRUCTION AND AS DIRECTED BY OWNER.
10. ALL NEW LANDSCAPE PLANTINGS SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FOLLOWING FINAL INSPECTION BY LANDSCAPE ARCHITECT. AT END OF THIS PERIOD, PLANT MATERIAL TERMED DEAD OR UNSATISFACTORY BY LANDSCAPE ARCHITECT SHALL BE REPLACED AT NO ADDITIONAL CHARGE BY THE LANDSCAPE CONTRACTOR.
11. ALL DISTURBED LAWN AREAS SHALL BE SEEDED OR SODDED AS SHOWN PER THE LANDSCAPE AND EROSION CONTROL PLANS.
12. LAWN AND SOD AREAS ARE TO BE GRADED UNIFORMLY WITHOUT ANY UNDULATIONS OR IRREGULARITIES IN THE SURFACE PRIOR TO ANY SEED OR SOD WORK.
13. ALL LAWN IS TO BE A BLEND PER THE PLANT SCHEDULE. SEED AREAS ARE TO HAVE 0% NOXIOUS WEED AND FREE OF DISEASE.
14. PROTECT LAWN SEEDED AREAS WITH STRAW MULCH. SPREAD MULCH UNIFORMLY AT A MINIMUM RATE OF 2 TONS PER ACRE TO FORM A CONTINUOUS BLANKET 1½ INCHES IN LOOSE THICKNESS OVER SEEDED AREAS.

LANDSCAPE LEGEND

- DECIDUOUS SHADE TREE
- EVERGREEN TREE
- SHRUBS AND ORNAMENTAL GRASSES
- MULCH BED/ TREE RING (DOUBLE-SHREDDED HARDWOOD BARK MULCH)
- TURF SEEDING
- SPADE EDGE, SEE DETAIL ON SHEET L110

** NOTE: FOR FULL PLANT & TURF SCHEDULE, SEE SHEET L110**

APPROVAL PENDING
NOT FOR CONSTRUCTION
IN SUBMITTING BIDS IN RELIANCE ON THESE PLANS THE CONTRACTOR ASSUMES ALL RISKS OF ADDITIONAL COSTS OF REVISIONS DUE TO REQUIREMENTS OF THE OWNER OR GOVERNMENTAL AUTHORITIES AND MATERIAL REVISIONS IN THE COURSE OF COMPLETING THE FINAL DESIGN.

CERTIFIED BY

ISSUANCE INDEX
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11/02/2021
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REVISION SCHEDULE

NO.	DESCRIPTION	DATE
1	CITY COMMENTS	01/07/22
2	CBU/INDOT COMMENTS	01/28/22
3	DETENTION COORDINATION	02/07/22
4	UTILITY COORD./TREE PRESERVATION	02/24/22

Project Number 2020.01173

OVERALL LANDSCAPE PLAN

L100

56

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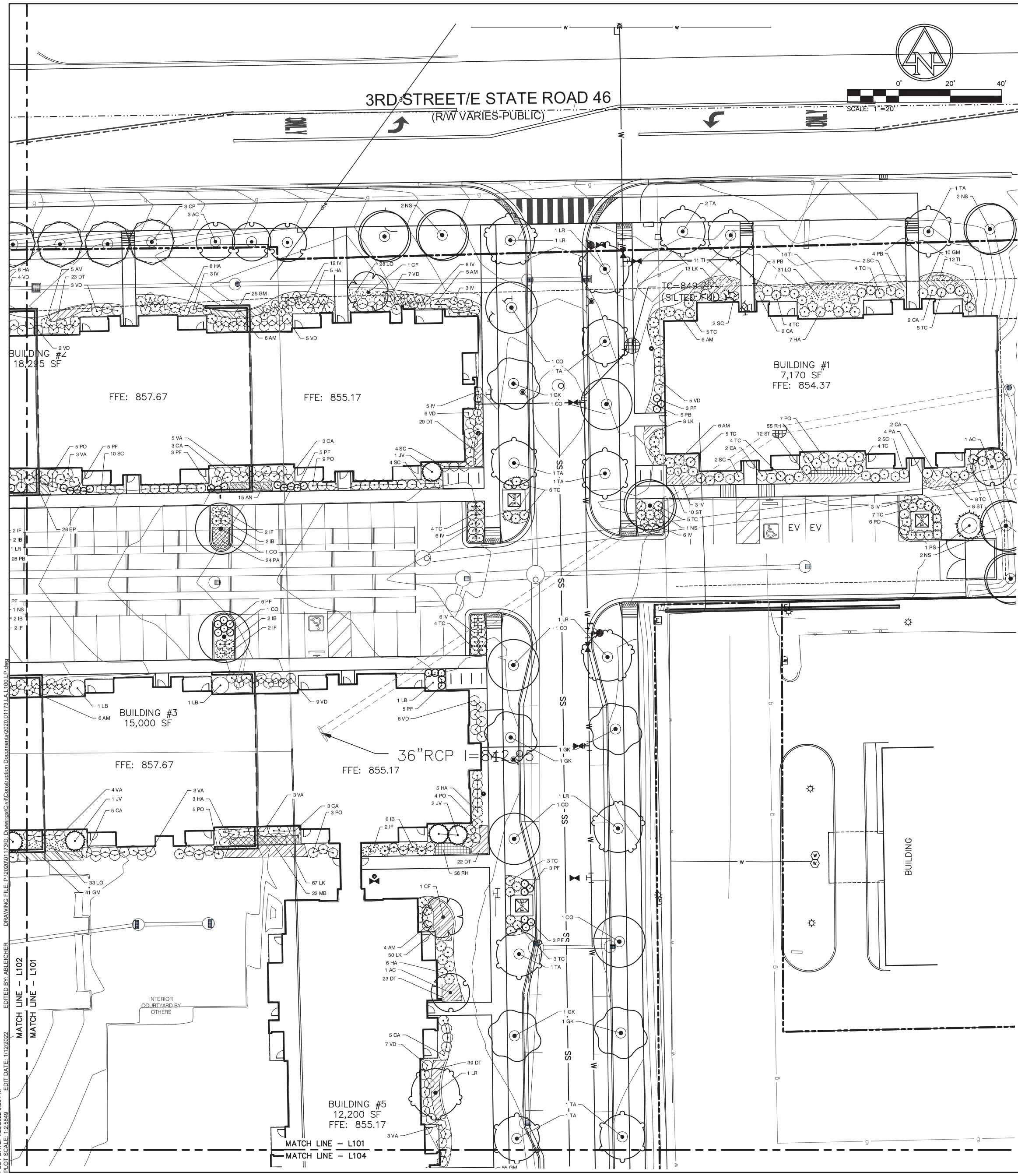

PLANT SCHEDULE

INTERIOR TREES	QTY	BOTANICAL / COMMON NAME	CONT	CAL	SIZE	NATIVE SPECIES	NECTAR / POLLINATOR
JV	10	Juniperus virginiana 'Cupressifolia' / Hillspire Juniper	B & B	6` Ht (min)	As shown	X	
PS	5	Pinus strobus 'Pendula' / Pendulous White Pine	B & B	6` Ht (min)	As shown	X	
STREET TREES	**QTY**	**BOTANICAL / COMMON NAME**	**CONT**	**CAL**	**SIZE**		
AC	21	Amelanchier canadensis / Canadian Serviceberry	B & B	2" Cal.	As shown		X
CO	28	Celtis occidentalis / Common Hackberry	B & B	2" Cal.	As shown	X	X
CF	12	Cornus florida rubra / Pink Flowering Dogwood	B & B	2" Cal.	As shown	X	X
CP	14	Crataegus phaenopyrum 'Lustre' / Washington Lustre Hawthorn	B & B	2" Cal.	As shown		
GK	30	Gymnocladus dioica / Kentucky Coffeetree	B & B	2" Cal.	As shown	X	
LR	28	Liquidambar styraciflua `Rotundiloba` / Round-Lobed Sweet Gum	B & B	2" Cal.	As shown	X	
NS	28	Nyssa sylvatica / Tupelo	B & B	2" Cal.	As shown	X	X
TA	30	Tilia americana / American Linden	B & B	2" Cal.	As shown	X	X
SHRUBS	**QTY**	**BOTANICAL / COMMON NAME**	**CONT**	**SIZE**	**SPACING**		
AM	81	Aronia melanocarpa 'Autumn Magic' / Autumn Magic Black Chokeberry	CONT.	5 GAL	48" O.C.	X	X
CA	55	Ceanothus americanus / New Jersey Tea	CONT.	5 GAL	48" O.C.	X	X
HA	158	Hydrangea arborescens 'Annabelle' / Annabelle Hydrangea	CONT.	5 GAL	48" O.C.	X	
IB	56	Ilex verticillata 'Berry Poppins' / Winterberry	CONT.	5 GAL	48" O.C.	X	
IF	29	Ilex verticillata 'FarrowMrP' TM / Mr. Poppins Winterberry	CONT.	5 GAL	48" O.C.	X	
IV	122	Itea virginica 'Little Henry' / Little Henry Sweetspire	CONT.	3 GAL.	36" O.C.	X	X
LB	13	Lindera benzoin / Spicebush	CONT.	5 GAL	As Shown	X	X
PO	181	Physocarpus opulifolius 'Monlo' TM / Diabolo Ninebark	CONT.	5 GAL	48" O.C.	X	X
PF	108	Potentilla fruticosa Happy Face® Yellow / Happy Face® Yellow Cinquefoil	CONT.	3 GAL.	36" O.C.	X	
SC	33	Sambucus canadensis 'Aurea' / Golden American Elderberry	CONT.	5 GAL	48" O.C.	X	
TC	116	Taxus canadensis / American Yew	CONT.	3 GAL.	48" O.C.	X	
VA	123	Viburnum acerifolium / Mapleleaf viburnum	CONT.	5 GAL	48" O.C.	X	X
VD	163	Viburnum dentatum 'Blue Muffin' / Blue Muffin Arrowwood Viburnum	CONT.	5 GAL	48" O.C.	X	
GROUND COVERS	**QTY**	**BOTANICAL / COMMON NAME**	**CONT**	**SIZE**	**SPACING**		
AT	148	Asclepias tuberosa / Butterfly Milkweed	CONT	1 Gal or 4" Pot	24" O.C.	X	X
LO	186	Lobelia siphilitica / Great Lobelia	CONT.	1 GAL	18" O.C.	X	X
PA	56	Phlox subulata 'Apple Blossom' / Apple Blossom Creeping Phlox	CONT	1 Gal or 4" Pot	18" O.C.	X	X
PB	152	Phlox subulata 'Blue' / Blue Creeping Phlox	CONT	1 Gal or 4" Pot	18" O.C.	X	X
PERENNIALS	**QTY**	**BOTANICAL / COMMON NAME**	**CONT**	**SIZE**	**SPACING**		
AN	100	Anemone canadensis / Canadian Anemone	CONT	1 GAL	24" OC	X	
DT	140	Delphinium tricorne / Dwarf Larkspur	CONT	4" Pot	18" O.C.	X	X
EP	107	Echinacea purpurea 'PAS702918' TM / PowWow White Coneflower	CONT	1 GAL	15" O.C.	X	X
GM	236	Geranium maculatum / Spotted Geranium	CONT	1 GAL	18" O.C.	X	X
LK	187	Liatris spicata 'Kobold' / Kobold Spike Gayfeather	CONT	4" Pot	18" O.C.		X
MB	108	Monarda fistulosa / Bergamot	CONT	1 GAL	24" O.C.	X	X
RH	172	Rudbeckia hirta 'Indian Summer' / Indian Summer Black-eyed Susan	CONT	1 GAL	12" O.C.	X	X
TI	78	Tiarella cordifolia / Foamflower	CONT	1 GAL	24" OC		
ORNAMENTAL GRASSES	**QTY**	**BOTANICAL / COMMON NAME**	**CONT**	**SIZE**	**SPACING**		
ST	160	Sporobolus heterolepis `Tara` / Tara Prairie Dropseed	CONT	4" Pot	24" O.C.	X	

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  3,724 TOTAL PLANTS / 2,974 NATIVE PLANTINGS / 2,186 NECTAR OR POLLINATOR SPECIES

TURF SEED SCHEDULE

LAWN SEED - SUN AND PARTIAL SHADE MIX — 98,730 sf
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Poa pratensis / Kentucky Bluegrass (100% mix of hybrid varieties)

NOTE: FOR EROSION CONTROL TEMPORARY GRASS SEED: mixture shall be applied at the rate of 200 lb/ac consisting of 100 lb/ac of turf type Annual Ryegrass, 100 lb/ac of Creeping Red Fescue. Seed used in this mixture shall be drought tolerant. See Erosion Control Plans for location

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7. ALL PLANTS ARE TO MEET OR EXCEED AMERICAN STANDARDS FOR NURSERY STOCK, CURRENT EDITION, AS SET FORTH BY AMERICAN ASSOCIATION OF NURSERYMEN.
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ORDINANCE TABLE

PLANT SPECIES TO BE SELECTED FROM VARIOUS APPROVED TABLES
STREET TREES (TABLE 04-14
INTERIOR TREES (TABLE 04-15)
SHRUBS (TABLE 04-16)
PERENNIALS (04-17)

STREET TREES
(1) CANOPY TREE IS REQUIRED PER 40 LN FT. MAY SUBSTITUTE SMALLER SPECIES AND SPACE 20' O.C. UNDERNEATH ADJACENT POWER LINES
- *POWER LINES ARE PRESENT ALONG S.R. 46 TO THE WEST.*

BUFFER YARDS
NO BUFFER YARDS REQUIRED AS ADJACENT PROPERTY IS MIXED USE.

PARKING LOTS (188 STALLS / NOT INCLUDING 16 ON-STREET SPACES)
(1) TREE REQUIRED PER 4 SPACES AND PER EACH PARKING ISLAND
(3) SHRUBS REQUIRED ALONG THE PERIMETER PER PARKING SPACE.
(1) PLANTING ISLAND IS TO BE PROVIDED PER 10 STALLS, AND SHALL MEET THE SQUARE FOOTAGE OF A TYPICAL PARKING STALL (20'x10')

PROVIDED: 69 TREES + 570 SHRUBS + 4,948 SQ FEET
(SEE SHEET L110 FOR CALCULATIONS AND NOTES)

MIXED-USE REQUIREMENTS: INTERIOR PLANTINGS:
(9) LARGE CANOPY TREES + (3) EVERGREEN TREES + (3) MEDIUM TREES ARE REQUIRED PER ACRE OF NON-IMPERMEABLE SPACE, 75% TO BE CANOPY TREES
(27) SHRUBS REQUIRED PER ACRE (MIN. 50% EVERGREEN)

REQUIRED TOTALS (3.19 ACRES):
(28.7) CANOPY TREES (**SEE NOTE BELOW**)
(9.6) EVERGREEN TREES
(9.6) ORNAMENTAL TREES
(86.2) SHRUBS
***NOTE: EXISTING TREES TO SOUTHEAST OF THE SITE ARE TO BE PRESERVED AND COUNTED TOWARD CANOPY TREE REQUIREMENT.*

LANDSCAPE LEGEND

- DECIDUOUS SHADE TREE
- EVERGREEN TREE
- SHRUBS AND ORNAMENTAL GRASSES
- MULCH BED/ TREE RING (DOUBLE-SHREDDED HARDWOOD BARK MULCH)
- TURF SEEDING
- SPADE EDGE, SEE DETAIL ON SHEET L110

** NOTE: FOR FULL PLANT & TURF SCHEDULE, SEE SHEET L110**

MHG HOTELS, LLC

AMERICAN STRUCTUREPOINT INC.
9025 River Road, Suite 200 | Indianapolis, Indiana 46240
TEL 317.547.5580 | FAX 317.543.0270
www.structurepoint.com

OVERLOOK ON 46 & CENTURY VILLAGE STORAGE

Bloomington, IN

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2	CBU/INDOT COMMENTS	01/28/22

Project Number 2020.01173

NE LANDSCAPE

L101

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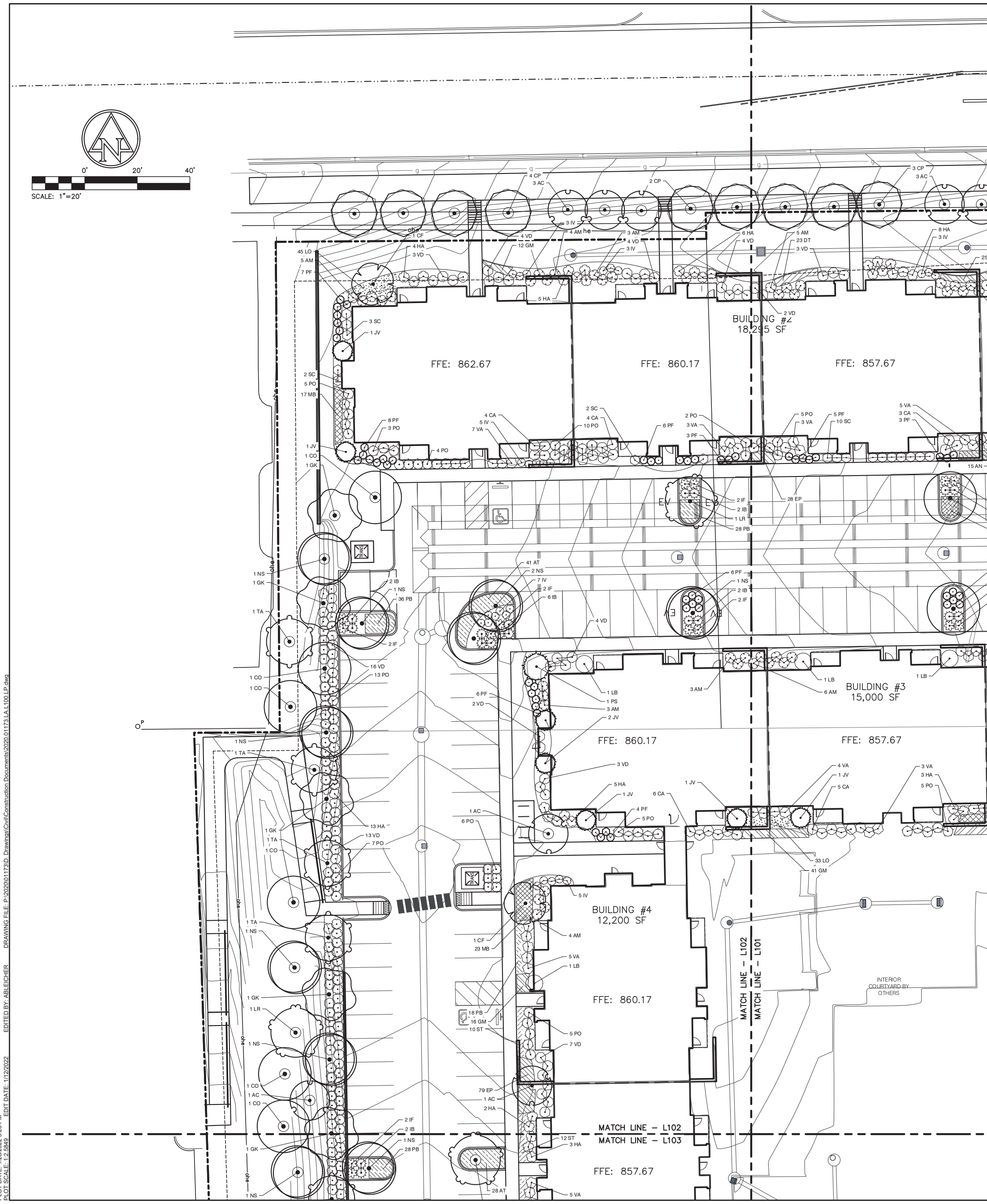

PLANT SCHEDULE

INTERIOR TREES	QTY	BOTANICAL / COMMON NAME	CONT	CAL	SIZE	NATIVE SPECIES	NECTAR / POLLINATOR
JV	10	Juniperus virginiana 'Cupressifolia' / Hillspire Juniper	B & B	6` Ht (min)	As shown	X	
PS	5	Pinus strobus 'Pendula' / Pendulous White Pine	B & B	6` Ht (min)	As shown	X	

STREET TREES	QTY	BOTANICAL / COMMON NAME	CONT	CAL	SIZE	NATIVE SPECIES	NECTAR / POLLINATOR
AC	21	Amelanchier canadensis / Canadian Serviceberry	B & B	2" Cal.	As shown		X
CO	28	Celtis occidentalis / Common Hackberry	B & B	2" Cal.	As shown	X	X
CF	12	Cornus florida rubra / Pink Flowering Dogwood	B & B	2" Cal.	As shown	X	X
CP	14	Crataegus phaenopyrum 'Lustre' / Washington Lustre Hawthorn	B & B	2" Cal.	As shown		
GK	30	Gymnocladus dioica / Kentucky Coffeetree	B & B	2" Cal.	As shown	X	
LR	28	Liquidambar styraciflua `Rotundiloba` / Round-Lobed Sweet Gum	B & B	2" Cal.	As shown	X	
NS	28	Nyssa sylvatica / Tupelo	B & B	2" Cal.	As shown	X	X
TA	30	Tilia americana / American Linden	B & B	2" Cal.	As shown	X	X

SHRUBS	QTY	BOTANICAL / COMMON NAME	CONT	SIZE	SPACING	NATIVE SPECIES	NECTAR / POLLINATOR
AM	81	Aronia melanocarpa 'Autumn Magic' / Autumn Magic Black Chokeberry	CONT.	5 GAL	48" O.C.	X	X
CA	55	Ceanothus americanus / New Jersey Tea	CONT.	5 GAL	48" O.C.	X	X
HA	158	Hydrangea arborescens 'Annabelle' / Annabelle Hydrangea	CONT.	5 GAL	48" O.C.	X	
IB	56	Ilex verticillata 'Berry Poppins' / Winterberry	CONT.	5 GAL	48" O.C.	X	
IF	29	Ilex verticillata 'FarrowMrP' TM / Mr. Poppins Winterberry	CONT.	5 GAL	48" O.C.	X	
IV	122	Itea virginica 'Little Henry' / Little Henry Sweetspire	CONT.	3 GAL.	36" O.C.	X	X
LB	13	Lindera benzoin / Spicebush	CONT.	5 GAL	As Shown	X	X
PO	181	Physocarpus opulifolius 'Monlo' TM / Diabolo Ninebark	CONT.	5 GAL	48" O.C.	X	X
PF	108	Potentilla fruticosa Happy Face® Yellow / Happy Face® Yellow Cinquefoil	CONT.	3 GAL.	36" O.C.	X	
SC	33	Sambucus canadensis 'Aurea' / Golden American Elderberry	CONT.	5 GAL	48" O.C.	X	
TC	116	Taxus canadensis / American Yew	CONT.	3 GAL.	48" O.C.	X	
VA	123	Viburnum acerifolium / Mapleleaf viburnum	CONT.	5 GAL	48" O.C.	X	X
VD	163	Viburnum dentatum 'Blue Muffin' / Blue Muffin Arrowwood Viburnum	CONT.	5 GAL	48" O.C.	X	

GROUND COVERS	QTY	BOTANICAL / COMMON NAME	CONT	SIZE	SPACING	NATIVE SPECIES	NECTAR / POLLINATOR
AT	148	Asclepias tuberosa / Butterfly Milkweed	CONT	1 Gal or 4" Pot	24" O.C.	X	X
LO	186	Lobelia siphilitica / Great Lobelia	CONT.	1 GAL	18" O.C.	X	X
PA	56	Phlox subulata 'Apple Blossom' / Apple Blossom Creeping Phlox	CONT	1 Gal or 4" Pot	18" O.C.	X	X
PB	152	Phlox subulata 'Blue' / Blue Creeping Phlox	CONT	1 Gal or 4" Pot	18" O.C.	X	X

PERENNIALS	QTY	BOTANICAL / COMMON NAME	CONT	SIZE	SPACING	NATIVE SPECIES	NECTAR / POLLINATOR
AN	100	Anemone canadensis / Canadian Anemone	CONT	1 GAL	24" OC	X	
DT	140	Delphinium tricorne / Dwarf Larkspur	CONT	4" Pot	18" O.C.	X	X
EP	107	Echinacea purpurea 'PAS702918' TM / PowWow White Coneflower	CONT	1 GAL	15" O.C.	X	X
GM	236	Geranium maculatum / Spotted Geranium	CONT	1 GAL	18" O.C.	X	X
LK	187	Liatris spicata 'Kobold' / Kobold Spike Gayfeather	CONT	4" Pot	18" O.C.		X
MB	108	Monarda fistulosa / Bergamot	CONT	1 GAL	24" O.C.	X	X
RH	172	Rudbeckia hirta 'Indian Summer' / Indian Summer Black-eyed Susan	CONT	1 GAL	12" O.C.	X	X
TI	78	Tiarella cordifolia / Foamflower	CONT	1 GAL	24" OC		

ORNAMENTAL GRASSES	QTY	BOTANICAL / COMMON NAME	CONT	SIZE	SPACING	NATIVE SPECIES	NECTAR / POLLINATOR
ST	160	Sporobolus heterolepis `Tara` / Tara Prairie Dropseed	CONT	4" Pot	24" O.C.	X	

- * NATIVE SPECIES BASED ON USDA PLANT DATA (NATURAL RESOURCES CONSERVATION SERVICE), HTTPS://PLANTS.SC.EGOV.USDA.GOV
- * NECTAR/POLLINATOR SPECIES ARE AS NOTED FROM THE INDIANA DNR, DIVISION OF ENTOMOLOGY & GARDENIA.NET
- * 79% OF TREES, SHRUBS, AND PERENNIALS ARE FROM NATIVE SPECIES / 66.7% OF SPECIES ARE POLLINATOR OR NECTAR SPECIES
  3,724 TOTAL PLANTS / 2,974 NATIVE PLANTINGS / 2,186 NECTAR OR POLLINATOR SPECIES

TURF SEED SCHEDULE

LAWN SEED - SUN AND PARTIAL SHADE MIX — 98,730 sf

Seed mixes to be include hybrid varieties that are drought tolerant and winter hardy. See general notes for additional lawn seed information and installation requirements. Contractor to apply appropriate starter fertilizer and secure seed using hay or straw mat for maximum germination and coverage.

Poa pratensis / Kentucky Bluegrass (100% mix of hybrid varieties)

NOTE: FOR EROSION CONTROL TEMPORARY GRASS SEED: mixture shall be applied at the rate of 200 lb/ac consisting of 100 lb/ac of turf type Annual Ryegrass, 100 lb/ac of Creeping Red Fescue. Seed used in this mixture shall be drought tolerant. See Erosion Control Plans for location

GENERAL NOTES:

1. CONTRACTOR TO VERIFY ALL UTILITY LOCATIONS IN THE FIELD PRIOR TO BEGINNING WORK. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO UTILITIES ASSOCIATED WITH WORK. UTILITIES SHALL BE REPAIRED TO SATISFACTION OF THE UTILITY OWNER AND/OR OPERATING AUTHORITY AT NO ADDITIONAL COST.
2. A MINIMUM OF 4" OF TOPSOIL ($\frac{2}{3}$ TOPSOIL, $\frac{1}{3}$ MULCH AND SOIL CONDITIONER) SHALL BE PLACED ON ALL AREAS TO BE SEEDED, SODDED AND PLANTED. PLANTING SOIL MIX SHALL BE FREE FROM SUBSOIL, VEGETATION, WEEDS OR ANY EXTRANEOUS OR DELETERIOUS MATERIALS LARGER THAN 1". REMOVE ANY UNSUITABLE AND EXCESS TOPSOIL, AS DETERMINED BY SOILS ENGINEER, FROM THE SITE. FURNISH ANY ADDITIONAL TOPSOIL NEEDED AT NO ADDITIONAL COST. ADDED TOPSOIL SHALL BE INCORPORATED INTO EXISTING SOIL.
3. IN CASE OF DISCREPANCIES BETWEEN THE PLAN AND THE PLANT LIST, THE PLAN SHALL DICTATE. IF IN QUESTION, CONTACT THE LANDSCAPE ARCHITECT.
4. ALL PLANTING BEDS SHALL HAVE A 3" THICK LAYER OF SHREDDED HARDWOOD BARK MULCH. NO UTILITY MULCH OR PROCESSED TREE TRIMMINGS WILL BE ALLOWED. ALL PLANTING BEDS SHALL HAVE PRE-EMERGENT HERBICIDE APPLIED AS PER MANUFACTURER'S RECOMMENDATION, AFTER INSTALLATION IS COMPLETE.
5. FINAL PLACEMENT OF PLANT MATERIALS, ETC. SHALL BE APPROVED BY LANDSCAPE ARCHITECT BEFORE PLANTING OPERATIONS ARE TO PROCEED. ALL TREE LOCATIONS SHALL BE MARKED WITH A WOODEN STAKE INDICATING VARIETY AND SIZE OF TREE.
6. NO SUBSTITUTIONS OF PLANT MATERIAL WILL BE ALLOWED. IF PLANTS ARE SHOWN TO BE UNAVAILABLE, THE CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT PRIOR TO BID DATE IN WRITING. ALL PLANTS SHALL BE INSPECTED AND TAGGED WITH PROJECT IDENTIFICATION AT NURSERY OR CONTRACTOR'S OPERATION PRIOR TO MOVING TO JOB SITE. PLANTS MAY ALSO BE INSPECTED AND APPROVED OR REJECTED ON THE JOB SITE.
7. ALL PLANTS ARE TO MEET OR EXCEED AMERICAN STANDARDS FOR NURSERY STOCK, CURRENT EDITION, AS SET FORTH BY AMERICAN ASSOCIATION OF NURSERYMEN.
8. PLANTINGS SHOULD BE INSTALLED BETWEEN APRIL 1ST AND MAY 31ST, OR BETWEEN SEPTEMBER 1ST AND OCTOBER 31ST TO AVOID UNFAVORABLE WEATHER CONDITIONS. LANDSCAPE AND TURF PLANTED OUTSIDE OF THESE PERIODS WILL REQUIRE ADDITIONAL MEASURES TO MAINTAIN ACCEPTABLE HEALTH.
9. PLANTS AND ALL OTHER MATERIALS TO BE STORED ON SITE WILL BE PLACED WHERE THEY WILL NOT CONFLICT WITH CONSTRUCTION AND AS DIRECTED BY OWNER.
10. ALL NEW LANDSCAPE PLANTINGS SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FOLLOWING FINAL INSPECTION BY LANDSCAPE ARCHITECT. AT END OF THIS PERIOD, PLANT MATERIAL TERMED DEAD OR UNSATISFACTORY BY LANDSCAPE ARCHITECT SHALL BE REPLACED AT NO ADDITIONAL CHARGE BY THE LANDSCAPE CONTRACTOR.
11. ALL DISTURBED LAWN AREAS SHALL BE SEEDED OR SODDED AS SHOWN PER THE LANDSCAPE AND EROSION CONTROL PLANS.
12. LAWN AND SOD AREAS ARE TO BE GRADED UNIFORMLY WITHOUT ANY UNDULATIONS OR IRREGULARITIES IN THE SURFACE PRIOR TO ANY SEED OR SOD WORK.
13. ALL LAWN IS TO BE A BLEND PER THE PLANT SCHEDULE. SEED AREAS ARE TO HAVE 0% NOXIOUS WEED AND FREE OF DISEASE.
14. PROTECT LAWN SEEDED AREAS WITH STRAW MULCH. SPREAD MULCH UNIFORMLY AT A MINIMUM RATE OF 2 TONS PER ACRE TO FORM A CONTINUOUS BLANKET 1 $\frac{1}{2}$ INCHES IN LOOSE THICKNESS OVER SEEDED AREAS.

ORDINANCE TABLE

PLANT SPECIES TO BE SELECTED FROM VARIOUS APPROVED TABLES
STREET TREES (TABLE 04-14
INTERIOR TREES (TABLE 04-15)
SHRUBS (TABLE 04-16)
PERENNIALS (04-17)

STREET TREES

(1) CANOPY TREE IS REQUIRED PER 40 LN FT. MAY SUBSTITUTE SMALLER SPECIES AND SPACE 20' O.C. UNDERNEATH ADJACENT POWER LINES

- *POWER LINES ARE PRESENT ALONG S.R. 46 TO THE WEST.*

BUFFER YARDS

NO BUFFER YARDS REQUIRED AS ADJACENT PROPERTY IS MIXED USE.

PARKING LOTS (188 STALLS / NOT INCLUDING 16 ON-STREET SPACES)

(1) TREE REQUIRED PER 4 SPACES AND PER EACH PARKING ISLAND
(3) SHRUBS REQUIRED ALONG THE PERIMETER PER PARKING SPACE.
(1) PLANTING ISLAND IS TO BE PROVIDED PER 10 STALLS, AND SHALL MEET THE SQUARE FOOTAGE OF A TYPICAL PARKING STALL (20'x10')

PROVIDED: 69 TREES + 570 SHRUBS + 4,948 SQ FEET
(SEE SHEET L110 FOR CALCULATIONS AND NOTES)

MIXED-USE REQUIREMENTS: INTERIOR PLANTINGS:

(9) LARGE CANOPY TREES + (3) EVERGREEN TREES + (3) MEDIUM TREES ARE REQUIRED PER ACRE OF NON-IMPERMEABLE SPACE, 75% TO BE CANOPY TREES
(27) SHRUBS REQUIRED PER ACRE (MIN. 50% EVERGREEN)

REQUIRED TOTALS (3.19 ACRES):
(28.7) CANOPY TREES (**SEE NOTE BELOW**)
(9.6) EVERGREEN TREES
(9.6) ORNAMENTAL TREES
(86.2) SHRUBS
***NOTE: EXISTING TREES TO SOUTHEAST OF THE SITE ARE TO BE PRESERVED AND COUNTED TOWARD CANOPY TREE REQUIREMENT.*

LANDSCAPE LEGEND

- DECIDUOUS SHADE TREE
- EVERGREEN TREE
- SHRUBS AND ORNAMENTAL GRASSES
- MULCH BED/ TREE RING (DOUBLE-SHREDDED HARDWOOD BARK MULCH)
- TURF SEEDING
- SPADE EDGE, SEE DETAIL ON SHEET L110

** NOTE: FOR FULL PLANT & TURF SCHEDULE, SEE SHEET L110**

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OVERLOOK ON 46 & CENTURY VILLAGE STORAGE

Bloomington, IN

APPROVAL PENDING NOT FOR CONSTRUCTION
IN SUBMITTING BIDS IN RELIANCE ON THESE PLANS THE CONTRACTOR ASSUMES ALL RISKS OF ADDITIONAL COSTS OF REVISIONS DUE TO REQUIREMENTS OF THE OWNER OR GOVERNMENTAL AUTHORITIES AND MATERIAL REVISIONS IN THE COURSE OF COMPLETING THE FINAL DESIGN.

CERTIFIED BY

ISSUANCE INDEX
DATE:
11/02/2021
PROJECT PHASE:
PRELIMINARY DOCUMENTS

REVISION SCHEDULE

NO.	DESCRIPTION	DATE
1	CITY COMMENTS	01/07/22
2	CBU/INDOT COMMENTS	01/28/22

Project Number 2020.01173

NW LANDSCAPE

L102

PLOT DATE: 1/28/2022 3:26 PM PLOT SCALE: 1:2.5849 EDIT DATE: 1/13/2022 EDITED BY: ABLEICHER DRAWING FILE: P:\2020\01173\D. Drawings\Civil\Construction Documents\2020.01173 LA L100 LP.dwg

GENERAL NOTES:

1. CONTRACTOR TO VERIFY ALL UTILITY LOCATIONS IN THE FIELD PRIOR TO BEGINNING WORK. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO UTILITIES ASSOCIATED WITH WORK. UTILITIES SHALL BE REPAIRED TO SATISFACTION OF THE UTILITY OWNER AND/OR OPERATING AUTHORITY AT NO ADDITIONAL COST.
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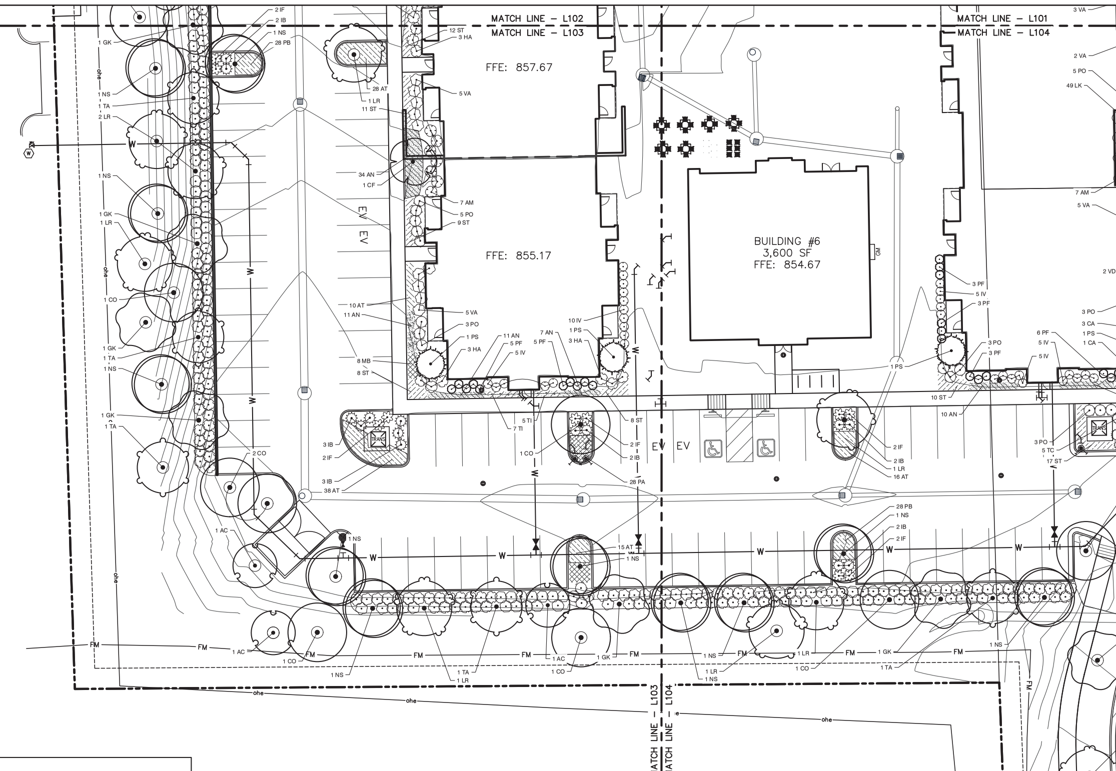

PLANT SCHEDULE

	QTY	BOTANICAL / COMMON NAME	CONT	CAL / SIZE	SIZE / SPACING	NATIVE SPECIES	NECTAR / POLLINATOR
INTERIOR TREES	QTY	BOTANICAL / COMMON NAME	CONT	CAL	SIZE		
JV	10	Juniperus virginiana 'Cupressifolia' / Hillspire Juniper	B & B	6' Ht (min)	As shown	X	
PS	5	Pinus strobus 'Pendula' / Pendulous White Pine	B & B	6' Ht (min)	As shown	X	
STREET TREES	QTY	BOTANICAL / COMMON NAME	CONT	CAL	SIZE		
AC	21	Amelanchier canadensis / Canadian Serviceberry	B & B	2" Cal.	As shown		X
CO	28	Celtis occidentalis / Common Hackberry	B & B	2" Cal.	As shown	X	X
CF	12	Cornus florida rubra / Pink Flowering Dogwood	B & B	2" Cal.	As shown	X	X
CP	14	Crataegus phaenopyrum 'Lustre' / Washington Lustre Hawthorn	B & B	2" Cal.	As shown		
GK	30	Gymnocladus dioica / Kentucky Coffeetree	B & B	2" Cal.	As shown	X	
LR	28	Liquidambar styraciflua 'Rotundiloba' / Round-Lobed Sweet Gum	B & B	2" Cal.	As shown	X	
NS	28	Nyssa sylvatica / Tupelo	B & B	2" Cal.	As shown	X	X
TA	30	Tilia americana / American Linden	B & B	2" Cal.	As shown	X	X
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CA	55	Ceanothus americanus / New Jersey Tea	CONT.	5 GAL	48" O.C.	X	X
HA	158	Hydrangea arborescens 'Annabelle' / Annabelle Hydrangea	CONT.	5 GAL	48" O.C.	X	
IB	56	Ilex verticillata 'Berry Poppins' / Winterberry	CONT.	5 GAL	48" O.C.	X	
IF	29	Ilex verticillata 'FarrowMrP' TM / Mr. Poppins Winterberry	CONT.	5 GAL	48" O.C.	X	
IV	122	Itea virginica 'Little Henry' / Little Henry Sweetspire	CONT.	3 GAL	36" O.C.	X	X
LB	13	Lindera benzoin / Spicebush	CONT.	5 GAL	As Shown	X	X
PO	181	Physocarpus opulifolius 'Monlo' TM / Diabolo Ninebark	CONT.	5 GAL	48" O.C.	X	X
PF	108	Potentilla fruticosa Happy Face® Yellow / Happy Face® Yellow Cinquefoil	CONT.	3 GAL	36" O.C.	X	
SC	33	Sambucus canadensis 'Aurea' / Golden American Elderberry	CONT.	5 GAL	48" O.C.	X	
TC	116	Taxus canadensis / American Yew	CONT.	3 GAL	48" O.C.	X	
VA	123	Viburnum acerifolium / Mapleleaf viburnum	CONT.	5 GAL	48" O.C.	X	X
VD	163	Viburnum dentatum 'Blue Muffin' / Blue Muffin Arrowwood Viburnum	CONT.	5 GAL	48" O.C.	X	
GROUND COVERS	QTY	BOTANICAL / COMMON NAME	CONT	SIZE	SPACING		
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PA	56	Phlox subulata 'Apple Blossom' / Apple Blossom Creeping Phlox	CONT	1 Gal or 4" Pot	18" O.C.	X	X
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EP	107	Echinacea purpurea 'PAS702918' TM / PowWow White Coneflower	CONT	1 GAL	15" O.C.	X	X
GM	236	Geranium maculatum / Spotted Geranium	CONT	1 GAL	18" O.C.	X	X
LK	187	Liatris spicata 'Kobold' / Kobold Spike Gayfeather	CONT	4" Pot	18" O.C.		X
MB	108	Monarda fistulosa / Bergamot	CONT	1 GAL	24" O.C.	X	X
RH	172	Rudbeckia hirta 'Indian Summer' / Indian Summer Black-eyed Susan	CONT	1 GAL	12" O.C.	X	X
TI	78	Tiarella cordifolia / Foamflower	CONT	1 GAL	24" OC		
ORNAMENTAL GRASSES	QTY	BOTANICAL / COMMON NAME	CONT	SIZE	SPACING		
ST	160	Sporobolus heterolepis 'Tara' / Tara Prairie Dropseed	CONT	4" Pot	24" O.C.	X	

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TURF SEED SCHEDULE

LAWN SEED - SUN AND PARTIAL SHADE MIX — 98,730 sf

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Poa pratensis / Kentucky Bluegrass (100% mix of hybrid varieties)

NOTE: FOR EROSION CONTROL TEMPORARY GRASS SEED: mixture shall be applied at the rate of 200 lb/ac consisting of 100 lb/ac of turf type Annual Ryegrass, 100 lb/ac of Creeping Red Fescue. Seed used in this mixture shall be drought tolerant. See Erosion Control Plans for location

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INTERIOR TREES (TABLE 04-15)
SHRUBS (TABLE 04-16)
PERENNIALS (04-17)

STREET TREES
(1) CANOPY TREE IS REQUIRED PER 40 LN FT. MAY SUBSTITUTE SMALLER SPECIES AND SPACE 20' O.C. UNDERNEATH ADJACENT POWER LINES
- *POWER LINES ARE PRESENT ALONG S.R. 46 TO THE WEST.*

BUFFER YARDS
NO BUFFER YARDS REQUIRED AS ADJACENT PROPERTY IS MIXED USE.

PARKING LOTS (188 STALLS / NOT INCLUDING 16 ON-STREET SPACES)
(1) TREE REQUIRED PER 4 SPACES AND PER EACH PARKING ISLAND
(3) SHRUBS REQUIRED ALONG THE PERIMETER PER PARKING SPACE.
(1) PLANTING ISLAND IS TO BE PROVIDED PER 10 STALLS, AND SHALL MEET THE SQUARE FOOTAGE OF A TYPICAL PARKING STALL (20'x10')

PROVIDED: 69 TREES + 570 SHRUBS + 4,948 SQ FEET
(SEE SHEET L110 FOR CALCULATIONS AND NOTES)

MIXED-USE REQUIREMENTS: INTERIOR PLANTINGS:
(9) LARGE CANOPY TREES + (3) EVERGREEN TREES + (3) MEDIUM TREES ARE REQUIRED PER ACRE OF NON-IMPERMEABLE SPACE, 75% TO BE CANOPY TREES
(27) SHRUBS REQUIRED PER ACRE (MIN. 50% EVERGREEN)

REQUIRED TOTALS (3.19 ACRES):
(28.7) CANOPY TREES (**SEE NOTE BELOW**)
(9.6) EVERGREEN TREES
(9.6) ORNAMENTAL TREES
(86.2) SHRUBS
***NOTE: EXISTING TREES TO SOUTHEAST OF THE SITE ARE TO BE PRESERVED AND COUNTED TOWARD CANOPY TREE REQUIREMENT.*

LANDSCAPE LEGEND

- DECIDUOUS SHADE TREE
- EVERGREEN TREE
- SHRUBS AND ORNAMENTAL GRASSES
- MULCH BED/ TREE RING (DOUBLE-SHREDDED HARDWOOD BARK MULCH)
- TURF SEEDING
- SPADE EDGE, SEE DETAIL ON SHEET L110

** NOTE: FOR FULL PLANT & TURF SCHEDULE, SEE SHEET L110**

0' 20' 40'
SCALE: 1"=20'

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CERTIFIED BY

ISSUANCE INDEX
DATE: 11/02/2021
PROJECT PHASE: PRELIMINARY DOCUMENTS

REVISION SCHEDULE

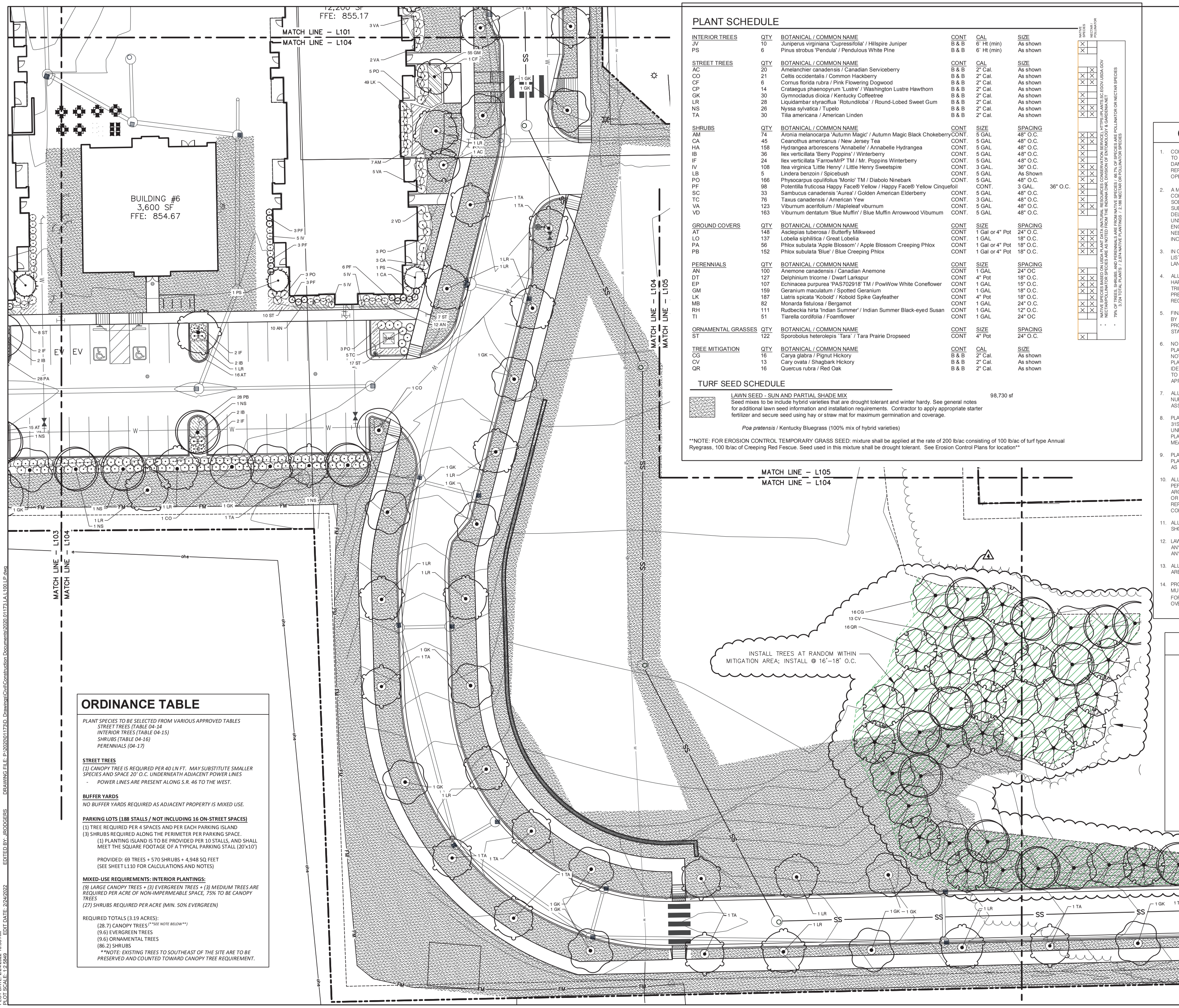
NO.	DESCRIPTION	DATE
1	CITY COMMENTS	01/07/22
2	CBU/INDOT COMMENTS	01/28/22

Project Number 2020.01173

SW LANDSCAPE

L103

PLOT DATE: 1/28/2022 3:26 PM PLOT SCALE: 1:2.5849 EDIT DATE: 1/12/2022 EDITED BY: ABLEICHER DRAWING FILE: P:\2020\01173\D. Drawings\Civil\Construction Documents\2020.01173.LA.L100.LP.dwg



PLANT SCHEDULE

INTERIOR TREES	QTY	BOTANICAL / COMMON NAME	CONT	CAL	SIZE	NATIVE SPECIES	NECTAR / POLLINATOR
JV	10	Juniperus virginiana 'Cupressifolia' / Hillspire Juniper	B & B	6` Ht (min)	As shown	X	
PS	6	Pinus strobus 'Pendula' / Pendulous White Pine	B & B	6` Ht (min)	As shown	X	

STREET TREES	QTY	BOTANICAL / COMMON NAME	CONT	CAL	SIZE	NATIVE SPECIES	NECTAR / POLLINATOR
AC	20	Amelanchier canadensis / Canadian Serviceberry	B & B	2" Cal.	As shown		X
CO	21	Celtis occidentalis / Common Hackberry	B & B	2" Cal.	As shown	X	X
CF	6	Cornus florida rubra / Pink Flowering Dogwood	B & B	2" Cal.	As shown	X	X
CP	14	Crataegus phaenopyrum 'Lustre' / Washington Lustre Hawthorn	B & B	2" Cal.	As shown		
GK	30	Gymnocladus dioica / Kentucky Coffeetree	B & B	2" Cal.	As shown	X	
LR	28	Liquidambar styraciflua `Rotundiloba` / Round-Lobed Sweet Gum	B & B	2" Cal.	As shown	X	
NS	26	Nyssa sylvatica / Tupelo	B & B	2" Cal.	As shown	X	X
TA	30	Tilia americana / American Linden	B & B	2" Cal.	As shown	X	X

SHRUBS	QTY	BOTANICAL / COMMON NAME	CONT	SIZE	SPACING	NATIVE SPECIES	NECTAR / POLLINATOR
AM	74	Aronia melanocarpa 'Autumn Magic' / Autumn Magic Black Chokeberry	CONT.	5 GAL	48" O.C.	X	X
CA	45	Ceanothus americanus / New Jersey Tea	CONT.	5 GAL	48" O.C.	X	X
HA	158	Hydrangea arborescens 'Annabelle' / Annabelle Hydrangea	CONT.	5 GAL	48" O.C.	X	
IB	36	Ilex verticillata 'Berry Poppins' / Winterberry	CONT.	5 GAL	48" O.C.	X	
IF	24	Ilex verticillata 'FarrowMrP' TM / Mr. Poppins Winterberry	CONT.	5 GAL	48" O.C.	X	
IV	108	Itea virginica 'Little Henry' / Little Henry Sweetspire	CONT.	3 GAL.	36" O.C.	X	X
LB	5	Lindera benzoin / Spicebush	CONT.	5 GAL	As Shown	X	X
PO	166	Physocarpus opulifolius 'Monlo' TM / Diabolo Ninebark	CONT.	5 GAL	48" O.C.	X	X
PF	98	Potentilla fruticosa Happy Face® Yellow / Happy Face® Yellow Cinquefoil	CONT.	3 GAL.	36" O.C.	X	
SC	33	Sambucus canadensis 'Aurea' / Golden American Elderberry	CONT.	5 GAL	48" O.C.	X	
TC	76	Taxus canadensis / American Yew	CONT.	3 GAL.	48" O.C.	X	
VA	123	Viburnum acerifolium / Mapleleaf viburnum	CONT.	5 GAL	48" O.C.	X	X
VD	163	Viburnum dentatum 'Blue Muffin' / Blue Muffin Arrowwood Viburnum	CONT.	5 GAL	48" O.C.	X	

GROUND COVERS	QTY	BOTANICAL / COMMON NAME	CONT	SIZE	SPACING	NATIVE SPECIES	NECTAR / POLLINATOR
AT	148	Asclepias tuberosa / Butterfly Milkweed	CONT	1 Gal or 4" Pot	24" O.C.	X	X
LO	137	Lobelia siphilitica / Great Lobelia	CONT.	1 GAL	18" O.C.	X	X
PA	56	Phlox subulata 'Apple Blossom' / Apple Blossom Creeping Phlox	CONT	1 Gal or 4" Pot	18" O.C.	X	X
PB	152	Phlox subulata 'Blue' / Blue Creeping Phlox	CONT	1 Gal or 4" Pot	18" O.C.	X	X

PERENNIALS	QTY	BOTANICAL / COMMON NAME	CONT	SIZE	SPACING	NATIVE SPECIES	NECTAR / POLLINATOR
AN	100	Anemone canadensis / Canadian Anemone	CONT	1 GAL	24" OC	X	
DT	127	Delphinium tricorne / Dwarf Larkspur	CONT	4" Pot	18" O.C.	X	X
EP	107	Echinacea purpurea 'PAS702918' TM / PowWow White Coneflower	CONT	1 GAL	15" O.C.	X	X
GM	159	Geranium maculatum / Spotted Geranium	CONT	1 GAL	18" O.C.	X	X
LK	187	Liatris spicata 'Kobold' / Kobold Spike Gayfeather	CONT	4" Pot	18" O.C.		X
MB	82	Monarda fistulosa / Bergamot	CONT	1 GAL	24" O.C.	X	X
RH	111	Rudbeckia hirta 'Indian Summer' / Indian Summer Black-eyed Susan	CONT	1 GAL	12" O.C.	X	X
TI	51	Tiarella cordifolia / Foamflower	CONT	1 GAL	24" OC		

ORNAMENTAL GRASSES	QTY	BOTANICAL / COMMON NAME	CONT	SIZE	SPACING	NATIVE SPECIES	NECTAR / POLLINATOR
ST	122	Sporobolus heterolepis 'Tara' / Tara Prairie Dropseed	CONT	4" Pot	24" O.C.	X	

TREE MITIGATION	QTY	BOTANICAL / COMMON NAME	CONT	CAL	SIZE
CG	16	Carya glabra / Pignut Hickory	B & B	2" Cal.	As shown
CV	13	Cary ovata / Shagbark Hickory	B & B	2" Cal.	As shown
QR	16	Quercus rubra / Red Oak	B & B	2" Cal.	As shown

- NATIVE SPECIES BASED ON USDA PLANT DATA (NATURAL RESOURCES CONSERVATION SERVICE), HTTPS://PLANTS.SC.EGOV.USDA.GOV
- NECTAR/POLLINATOR SPECIES ARE AS NOTED FROM THE INDIANA DNR, DIVISION OF ENTOMOLOGY & GARDENIA.NET
- 79% OF TREES, SHRUBS, AND PERENNIALS ARE FROM NATIVE SPECIES / 66.7% OF SPECIES ARE POLLINATOR OR NECTAR SPECIES
  3,724 TOTAL PLANTS / 2,974 NATIVE PLANTINGS / 2,186 NECTAR OR POLLINATOR SPECIES

TURF SEED SCHEDULE

LAWN SEED - SUN AND PARTIAL SHADE MIX — 98,730 sf
Seed mixes to be include hybrid varieties that are drought tolerant and winter hardy. See general notes for additional lawn seed information and installation requirements. Contractor to apply appropriate starter fertilizer and secure seed using hay or straw mat for maximum germination and coverage.

Poa pratensis / Kentucky Bluegrass (100% mix of hybrid varieties)

NOTE: FOR EROSION CONTROL TEMPORARY GRASS SEED: mixture shall be applied at the rate of 200 lb/ac consisting of 100 lb/ac of turf type Annual Ryegrass, 100 lb/ac of Creeping Red Fescue. Seed used in this mixture shall be drought tolerant. See Erosion Control Plans for location

SCALE: 1"=20' (0' 20' 40')

GENERAL NOTES:

1. CONTRACTOR TO VERIFY ALL UTILITY LOCATIONS IN THE FIELD PRIOR TO BEGINNING WORK. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO UTILITIES ASSOCIATED WITH WORK. UTILITIES SHALL BE REPAIRED TO SATISFACTION OF THE UTILITY OWNER AND/OR OPERATING AUTHORITY AT NO ADDITIONAL COST.
2. A MINIMUM OF 4" OF TOPSOIL (⅔ TOPSOIL, ⅓ MULCH AND SOIL CONDITIONER) SHALL BE PLACED ON ALL AREAS TO BE SEEDED, SODDED AND PLANTED. PLANTING SOIL MIX SHALL BE FREE FROM SUBSOIL, VEGETATION, WEEDS OR ANY EXTRANEOUS OR DELETERIOUS MATERIALS LARGER THAN 1". REMOVE ANY UNSUITABLE AND EXCESS TOPSOIL, AS DETERMINED BY SOILS ENGINEER, FROM THE SITE. FURNISH ANY ADDITIONAL TOPSOIL NEEDED AT NO ADDITIONAL COST. ADDED TOPSOIL SHALL BE INCORPORATED INTO EXISTING SOIL.
3. IN CASE OF DISCREPANCIES BETWEEN THE PLAN AND THE PLANT LIST, THE PLAN SHALL DICTATE. IF IN QUESTION, CONTACT THE LANDSCAPE ARCHITECT.
4. ALL PLANTING BEDS SHALL HAVE A 3" THICK LAYER OF SHREDDED HARDWOOD BARK MULCH. NO UTILITY MULCH OR PROCESSED TREE TRIMMINGS WILL BE ALLOWED. ALL PLANTING BEDS SHALL HAVE PRE-EMERGENT HERBICIDE APPLIED AS PER MANUFACTURER'S RECOMMENDATION, AFTER INSTALLATION IS COMPLETE.
5. FINAL PLACEMENT OF PLANT MATERIALS, ETC. SHALL BE APPROVED BY LANDSCAPE ARCHITECT BEFORE PLANTING OPERATIONS ARE TO PROCEED. ALL TREE LOCATIONS SHALL BE MARKED WITH A WOODEN STAKE INDICATING VARIETY AND SIZE OF TREE.
6. NO SUBSTITUTIONS OF PLANT MATERIAL WILL BE ALLOWED. IF PLANTS ARE SHOWN TO BE UNAVAILABLE, THE CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT PRIOR TO BID DATE IN WRITING. ALL PLANTS SHALL BE INSPECTED AND TAGGED WITH PROJECT IDENTIFICATION AT NURSERY OR CONTRACTOR'S OPERATION PRIOR TO MOVING TO JOB SITE. PLANTS MAY ALSO BE INSPECTED AND APPROVED OR REJECTED ON THE JOB SITE.
7. ALL PLANTS ARE TO MEET OR EXCEED AMERICAN STANDARDS FOR NURSERY STOCK, CURRENT EDITION, AS SET FORTH BY AMERICAN ASSOCIATION OF NURSERYMEN.
8. PLANTINGS SHOULD BE INSTALLED BETWEEN APRIL 1ST AND MAY 31ST, OR BETWEEN SEPTEMBER 1ST AND OCTOBER 31ST TO AVOID UNFAVORABLE WEATHER CONDITIONS. LANDSCAPE AND TURF PLANTED OUTSIDE OF THESE PERIODS WILL REQUIRE ADDITIONAL MEASURES TO MAINTAIN ACCEPTABLE HEALTH.
9. PLANTS AND ALL OTHER MATERIALS TO BE STORED ON SITE WILL BE PLACED WHERE THEY WILL NOT CONFLICT WITH CONSTRUCTION AND AS DIRECTED BY OWNER.
10. ALL NEW LANDSCAPE PLANTINGS SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FOLLOWING FINAL INSPECTION BY LANDSCAPE ARCHITECT. AT END OF THIS PERIOD, PLANT MATERIAL TERMED DEAD OR UNSATISFACTORY BY LANDSCAPE ARCHITECT SHALL BE REPLACED AT NO ADDITIONAL CHARGE BY THE LANDSCAPE CONTRACTOR.
11. ALL DISTURBED LAWN AREAS SHALL BE SEEDED OR SODDED AS SHOWN PER THE LANDSCAPE AND EROSION CONTROL PLANS.
12. LAWN AND SOD AREAS ARE TO BE GRADED UNIFORMLY WITHOUT ANY UNDULATIONS OR IRREGULARITIES IN THE SURFACE PRIOR TO ANY SEED OR SOD WORK.
13. ALL LAWN IS TO BE A BLEND PER THE PLANT SCHEDULE. SEED AREAS ARE TO HAVE 0% NOXIOUS WEED AND FREE OF DISEASE.
14. PROTECT LAWN SEEDED AREAS WITH STRAW MULCH. SPREAD MULCH UNIFORMLY AT A MINIMUM RATE OF 2 TONS PER ACRE TO FORM A CONTINUOUS BLANKET 1 ½ INCHES IN LOOSE THICKNESS OVER SEEDED AREAS.

LANDSCAPE LEGEND

- DECIDUOUS SHADE TREE
- EVERGREEN TREE
- SHRUBS AND ORNAMENTAL GRASSES
- MULCH BED/ TREE RING (DOUBLE-SHREDDED HARDWOOD BARK MULCH)
- TURF SEEDING
- SPADE EDGE, SEE DETAIL ON SHEET L110

** NOTE: FOR FULL PLANT & TURF SCHEDULE, SEE SHEET L110**

ORDINANCE TABLE

PLANT SPECIES TO BE SELECTED FROM VARIOUS APPROVED TABLES
STREET TREES (TABLE 04-14
INTERIOR TREES (TABLE 04-15)
SHRUBS (TABLE 04-16)
PERENNIALS (04-17)

STREET TREES
(1) CANOPY TREE IS REQUIRED PER 40 LN FT. MAY SUBSTITUTE SMALLER SPECIES AND SPACE 20' O.C. UNDERNEATH ADJACENT POWER LINES
- *POWER LINES ARE PRESENT ALONG S.R. 46 TO THE WEST.*

BUFFER YARDS
NO BUFFER YARDS REQUIRED AS ADJACENT PROPERTY IS MIXED USE.

PARKING LOTS (188 STALLS / NOT INCLUDING 16 ON-STREET SPACES)
(1) TREE REQUIRED PER 4 SPACES AND PER EACH PARKING ISLAND
(3) SHRUBS REQUIRED ALONG THE PERIMETER PER PARKING SPACE.
(1) PLANTING ISLAND IS TO BE PROVIDED PER 10 STALLS, AND SHALL MEET THE SQUARE FOOTAGE OF A TYPICAL PARKING STALL (20'x10')

PROVIDED: 69 TREES + 570 SHRUBS + 4,948 SQ FEET
(SEE SHEET L110 FOR CALCULATIONS AND NOTES)

MIXED-USE REQUIREMENTS: INTERIOR PLANTINGS:
(9) LARGE CANOPY TREES + (3) EVERGREEN TREES + (3) MEDIUM TREES ARE REQUIRED PER ACRE OF NON-IMPERMEABLE SPACE, 75% TO BE CANOPY TREES
(27) SHRUBS REQUIRED PER ACRE (MIN. 50% EVERGREEN)

REQUIRED TOTALS (3.19 ACRES):
(28.7) CANOPY TREES(**SEE NOTE BELOW**)
(9.6) EVERGREEN TREES
(9.6) ORNAMENTAL TREES
(86.2) SHRUBS
***NOTE: EXISTING TREES TO SOUTHEAST OF THE SITE ARE TO BE PRESERVED AND COUNTED TOWARD CANOPY TREE REQUIREMENT.*

MHG HOTELS, LLC

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www.structurepoint.com

OVERLOOK ON 46 & CENTURY VILLAGE STORAGE

Bloomington, IN

APPROVAL PENDING NOT FOR CONSTRUCTION
IN SUBMITTING BIDS IN RELIANCE ON THESE PLANS THE CONTRACTOR ASSUMES ALL RISKS OF ADDITIONAL COSTS OF REVISIONS DUE TO REQUIREMENTS OF THE OWNER OR GOVERNMENTAL AUTHORITIES AND MATERIAL REVISIONS IN THE COURSE OF COMPLETING THE FINAL DESIGN.

CERTIFIED BY

ISSUANCE INDEX
DATE:
11/02/2021
PROJECT PHASE:
PRELIMINARY DOCUMENTS

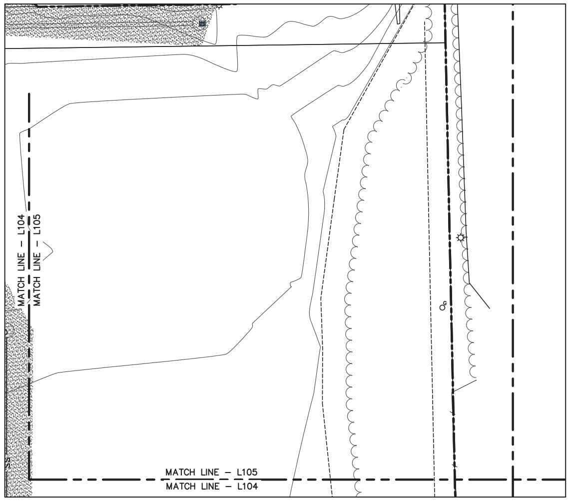
REVISION SCHEDULE		
NO.	DESCRIPTION	DATE
1	CITY COMMENTS	01/07/22
2	CBU/INDOT COMMENTS	01/28/22
3	DETENTION COORDINATION	02/07/22
4	UTILITY COORD./TREE PRESERVATION	02/24/22

Project Number 2020.01173

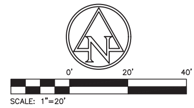
SC LANDSCAPE

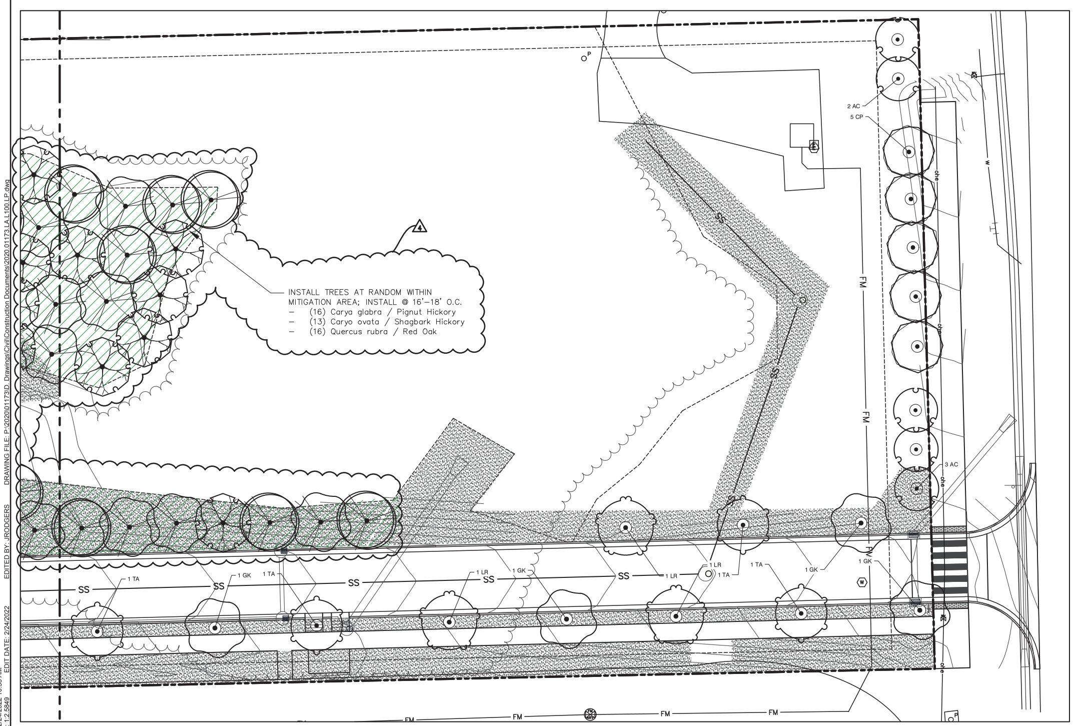
L104

PLOT DATE: 2/24/2022 10:53 AM PLOT SCALE: 1:2.5849 EDIT DATE: 2/24/2022 EDITED BY: JRODGERS DRAWING FILE: P:\2020\01173\D. Drawings\Civil\Construction Documents\2020.01173.LA.L100.LP.dwg



STORAGE BUILDING: PARKING LOT





SOUTHEAST ENTRANCE DRIVE

PLANT SCHEDULE

INTERIOR TREES	QTY	BOTANICAL / COMMON NAME	CONT	CAL	SIZE	NATIVE SPECIES	NECTAR / POLLINATOR
JV	10	Juniperus virginiana 'Cupressifolia' / Hillspire Juniper	B & B	6` Ht (min)	As shown	X	
PS	6	Pinus strobus 'Pendula' / Pendulous White Pine	B & B	6` Ht (min)	As shown	X	
STREET TREES	**QTY**	**BOTANICAL / COMMON NAME**	**CONT**	**CAL**	**SIZE**		
AC	20	Amelanchier canadensis / Canadian Serviceberry	B & B	2" Cal.	As shown		X
CO	21	Celtis occidentalis / Common Hackberry	B & B	2" Cal.	As shown	X	X
CF	6	Cornus florida rubra / Pink Flowering Dogwood	B & B	2" Cal.	As shown	X	X
CP	14	Crataegus phaenopyrum 'Lustre' / Washington Lustre Hawthorn	B & B	2" Cal.	As shown		
GK	30	Gymnocladus dioica / Kentucky Coffeetree	B & B	2" Cal.	As shown	X	
LR	28	Liquidambar styraciflua `Rotundiloba` / Round-Lobed Sweet Gum	B & B	2" Cal.	As shown	X	
NS	26	Nyssa sylvatica / Tupelo	B & B	2" Cal.	As shown	X	X
TA	30	Tilia americana / American Linden	B & B	2" Cal.	As shown	X	X
SHRUBS	**QTY**	**BOTANICAL / COMMON NAME**	**CONT**	**SIZE**	**SPACING**		
AM	74	Aronia melanocarpa 'Autumn Magic' / Autumn Magic Black Chokeberry	CONT.	5 GAL	48" O.C.	X	X
CA	45	Ceanothus americanus / New Jersey Tea	CONT.	5 GAL	48" O.C.	X	X
HA	158	Hydrangea arborescens 'Annabelle' / Annabelle Hydrangea	CONT.	5 GAL	48" O.C.	X	
IB	36	Ilex verticillata 'Berry Poppins' / Winterberry	CONT.	5 GAL	48" O.C.	X	
IF	24	Ilex verticillata 'FarrowMrP' TM / Mr. Poppins Winterberry	CONT.	5 GAL	48" O.C.	X	
IV	108	Itea virginica 'Little Henry' / Little Henry Sweetspire	CONT.	3 GAL.	36" O.C.	X	X
LB	5	Lindera benzoin / Spicebush	CONT.	5 GAL	As Shown	X	X
PO	166	Physocarpus opulifolius 'Monlo' TM / Diabolo Ninebark	CONT.	5 GAL	48" O.C.	X	X
PF	98	Potentilla fruticosa Happy Face® Yellow / Happy Face® Yellow Cinquefoil	CONT.	3 GAL.	36" O.C.	X	
SC	33	Sambucus canadensis 'Aurea' / Golden American Elderberry	CONT.	5 GAL	48" O.C.	X	
TC	76	Taxus canadensis / American Yew	CONT.	3 GAL.	48" O.C.	X	
VA	123	Viburnum acerifolium / Mapleleaf viburnum	CONT.	5 GAL	48" O.C.	X	X
VD	163	Viburnum dentatum 'Blue Muffin' / Blue Muffin Arrowwood Viburnum	CONT.	5 GAL	48" O.C.	X	
GROUND COVERS	**QTY**	**BOTANICAL / COMMON NAME**	**CONT**	**SIZE**	**SPACING**		
AT	148	Asclepias tuberosa / Butterfly Milkweed	CONT	1 Gal or 4" Pot	24" O.C.	X	X
LO	137	Lobelia siphilitica / Great Lobelia	CONT.	1 GAL	18" O.C.	X	X
PA	56	Phlox subulata 'Apple Blossom' / Apple Blossom Creeping Phlox	CONT	1 Gal or 4" Pot	18" O.C.	X	X
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LK	187	Liatris spicata 'Kobold' / Kobold Spike Gayfeather	CONT	4" Pot	18" O.C.		X
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ORNAMENTAL GRASSES	**QTY**	**BOTANICAL / COMMON NAME**	**CONT**	**SIZE**	**SPACING**		
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TREE MITIGATION	**QTY**	**BOTANICAL / COMMON NAME**	**CONT**	**CAL**	**SIZE**		
CG	16	Carya glabra / Pignut Hickory	B & B	2" Cal.	As shown		
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3,724 TOTAL PLANTS / 2,974 NATIVE PLANTINGS / 2,186 NECTAR OR POLLINATOR SPECIES

TURF SEED SCHEDULE

LAWN SEED - SUN AND PARTIAL SHADE MIX — 98,730 sf

Seed mixes to be include hybrid varieties that are drought tolerant and winter hardy. See general notes for additional lawn seed information and installation requirements. Contractor to apply appropriate starter fertilizer and secure seed using hay or straw mat for maximum germination and coverage.

Poa pratensis / Kentucky Bluegrass (100% mix of hybrid varieties)

NOTE: FOR EROSION CONTROL TEMPORARY GRASS SEED: mixture shall be applied at the rate of 200 lb/ac consisting of 100 lb/ac of turf type Annual Ryegrass, 100 lb/ac of Creeping Red Fescue. Seed used in this mixture shall be drought tolerant. See Erosion Control Plans for location

GENERAL NOTES:

1. CONTRACTOR TO VERIFY ALL UTILITY LOCATIONS IN THE FIELD PRIOR TO BEGINNING WORK. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO UTILITIES ASSOCIATED WITH WORK. UTILITIES SHALL BE REPAIRED TO SATISFACTION OF THE UTILITY OWNER AND/OR OPERATING AUTHORITY AT NO ADDITIONAL COST.
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ORDINANCE TABLE

PLANT SPECIES TO BE SELECTED FROM VARIOUS APPROVED TABLES
STREET TREES (TABLE 04-14
INTERIOR TREES (TABLE 04-15)
SHRUBS (TABLE 04-16)
PERENNIALS (04-17)

STREET TREES
(1) CANOPY TREE IS REQUIRED PER 40 LN FT. MAY SUBSTITUTE SMALLER SPECIES AND SPACE 20' O.C. UNDERNEATH ADJACENT POWER LINES
- *POWER LINES ARE PRESENT ALONG S.R. 46 TO THE WEST.*

BUFFER YARDS
NO BUFFER YARDS REQUIRED AS ADJACENT PROPERTY IS MIXED USE.

PARKING LOTS (188 STALLS / NOT INCLUDING 16 ON-STREET SPACES)
(1) TREE REQUIRED PER 4 SPACES AND PER EACH PARKING ISLAND
(3) SHRUBS REQUIRED ALONG THE PERIMETER PER PARKING SPACE.
(1) PLANTING ISLAND IS TO BE PROVIDED PER 10 STALLS, AND SHALL MEET THE SQUARE FOOTAGE OF A TYPICAL PARKING STALL (20'x10')

PROVIDED: 69 TREES + 570 SHRUBS + 4,948 SQ FEET
(SEE SHEET L110 FOR CALCULATIONS AND NOTES)

MIXED-USE REQUIREMENTS: INTERIOR PLANTINGS:
(9) LARGE CANOPY TREES + (3) EVERGREEN TREES + (3) MEDIUM TREES ARE REQUIRED PER ACRE OF NON-IMPERMEABLE SPACE, 75% TO BE CANOPY TREES
(27) SHRUBS REQUIRED PER ACRE (MIN. 50% EVERGREEN)

REQUIRED TOTALS (3.19 ACRES):
(28.7) CANOPY TREES (**SEE NOTE BELOW**)
(9.6) EVERGREEN TREES
(9.6) ORNAMENTAL TREES
(86.2) SHRUBS
***NOTE: EXISTING TREES TO SOUTHEAST OF THE SITE ARE TO BE PRESERVED AND COUNTED TOWARD CANOPY TREE REQUIREMENT.*

LANDSCAPE LEGEND

- DECIDUOUS SHADE TREE
- EVERGREEN TREE
- SHRUBS AND ORNAMENTAL GRASSES
- MULCH BED/ TREE RING (DOUBLE-SHREDDED HARDWOOD BARK MULCH)
- TURF SEEDING
- SPADE EDGE, SEE DETAIL ON SHEET L110

** NOTE: FOR FULL PLANT & TURF SCHEDULE, SEE SHEET L110**

MHG HOTELS, LLC

AMERICAN STRUCTUREPOINT INC.
9025 River Road, Suite 200 | Indianapolis, Indiana 46240
TEL 317.547.5580 | FAX 317.543.0270
www.structurepoint.com

OVERLOOK ON 46 & CENTURY VILLAGE STORAGE

Bloomington, IN

APPROVAL PENDING
NOT FOR CONSTRUCTION
IN SUBMITTING BIDS IN RELIANCE ON THESE PLANS THE CONTRACTOR ASSUMES ALL RISKS OF ADDITIONAL COSTS OF REVISIONS DUE TO REQUIREMENTS OF THE OWNER OR GOVERNMENTAL AUTHORITIES AND MATERIAL REVISIONS IN THE COURSE OF COMPLETING THE FINAL DESIGN.

CERTIFIED BY

ISSUANCE INDEX
DATE:
11/02/2021
PROJECT PHASE:
PRELIMINARY DOCUMENTS

REVISION SCHEDULE

NO.	DESCRIPTION	DATE
1	CITY COMMENTS	01/07/22
2	CBU/INDOT COMMENTS	01/28/22
3	DETENTION COORDINATION	02/07/22
4	UTILITY COORD./TREE PRESERVATION	02/24/22

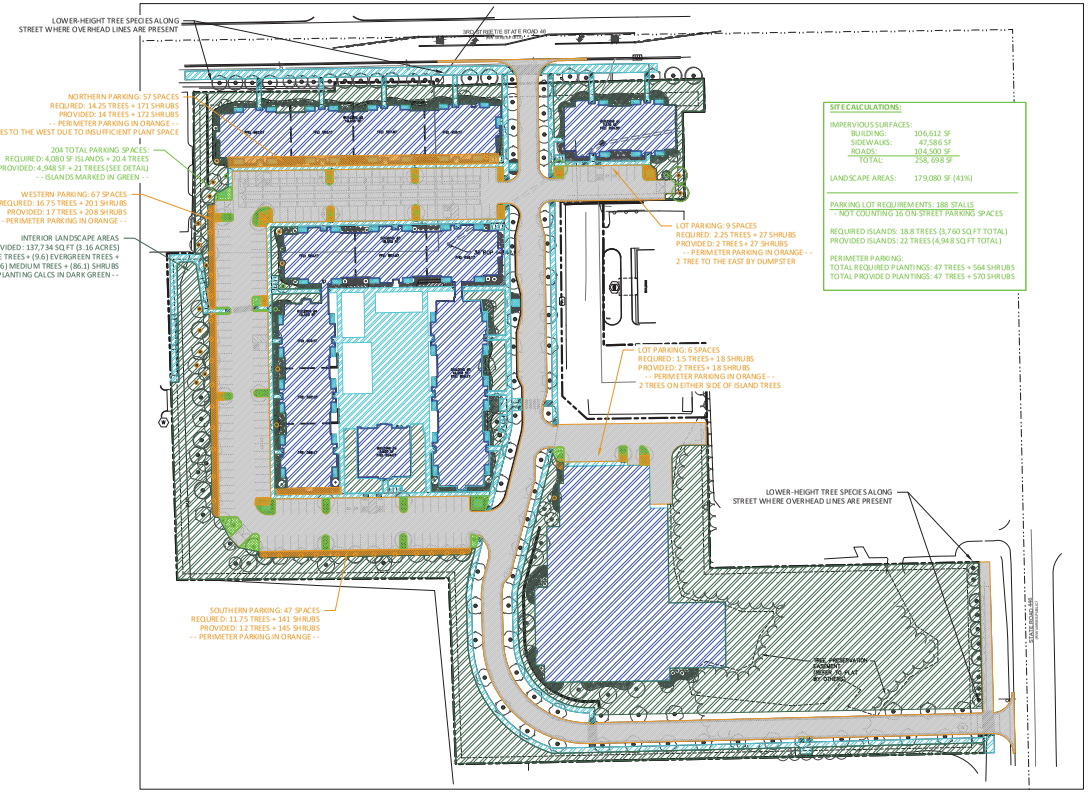
Project Number 2020.01173

SE LANDSCAPE

L105

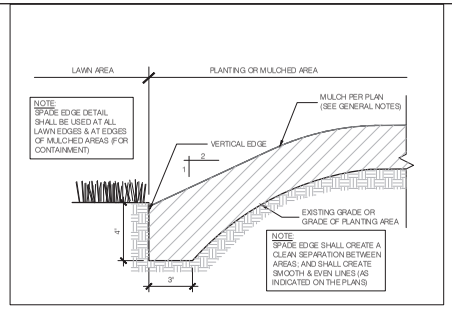
61

PLOT DATE: 2/24/2022 10:53 AM
PLOT SCALE: 1:2.5849
EDIT DATE: 2/24/2022
EDITED BY: JRODGERS
DRAWING FILE: P:\2020\01173\D. Drawings\Civil\Construction Documents\2020.01173.LA.L100.LP.dwg



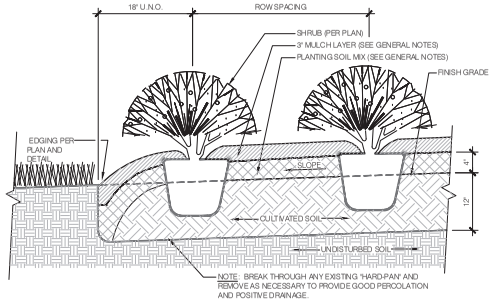
05 PARKING CALCS AND NOTES

SCALE: NTS



03 SPADE EDGE DETAIL

SCALE: 3" = 1'-0"

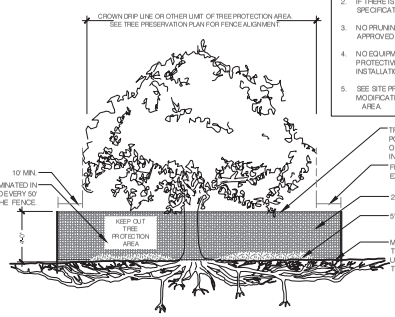


PLANTING PROCEDURE

1. LAYOUT BED AND OUTLINE WITH SPADE EDGE. PLACE SOIL FROM SPADE EDGE WITHIN BED.
2. ROTOTILL BED TO 12" DEPTH. SPREAD 4" MIN. LAYER OF PLANTING SOIL MIX OVER BED. ROTOTILL PLANTING SOIL MIX INTO TOP OF BED.
3. INSTALL PLANTS, MULCH AND WATER THOROUGHLY. DO NOT ALLOW AIR POCKETS TO FORM WHEN BACKFILLING.

02 SHRUB PLANTING DETAIL

SCALE: 1" = 1'-0"



NOTES:
1. SEE SPECIFICATIONS FOR ADDITIONAL TREE PROTECTION REQUIREMENTS.
2. IF THERE IS NO EXISTING IRRIGATION, SEE SPECIFICATIONS FOR WATERING REQUIREMENTS.
3. NO PRUNING SHALL BE PERFORMED EXCEPT BY APPROVED ARBORIST.
4. NO EQUIPMENT SHALL OPERATE INSIDE THE PROTECTIVE FENCING INCLUDING DURING FENCE INSTALLATION AND REMOVAL.
5. SEE SITE PREPARATION PLAN FOR ANY MODIFICATIONS WITH THE TREE PROTECTION AREA

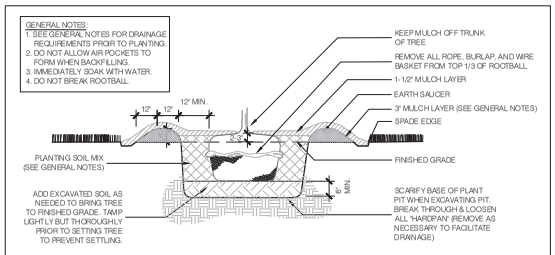
PRESERVATION NOTES:

CONSERVANCY OR TREE PRESERVATION EASEMENT: WHERE CONTIGUOUS AREAS OF AT LEAST ONE-HALF ACRE OF TREE COVER ARE REQUIRED TO BE PRESERVED, A CONSERVANCY AND/OR TREE PRESERVATION EASEMENT SHALL BE REQUIRED PER SECTION 20.05.040 (EASEMENTS). THE EDGES OF SUCH EASEMENTS SHALL BE DELINEATED TEN FEET BEYOND THE DRIPLINES OF THE TREES TO BE PRESERVED.

TREE PROTECTION DURING CONSTRUCTION: ALL TREES REQUIRED TO BE PROTECTED BY THIS SECTION 20.04.030(I) (TREE AND FOREST PRESERVATION) SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION ACTIVITIES BY THE INSTALLATION OF PROTECTIVE FENCING LOCATED NO CLOSER TO THE TRUNK THAN TEN FEET BEYOND THE DRIPLINE OF THE CLOSED-CANOPY WOODED AREA REQUIRED TO BE PRESERVED, AND NO CONSTRUCTION ACTIVITY, STORAGE, OR DISTURBANCE OF ANY SORT SHALL OCCUR WITHIN SUCH FENCED AREA.

04 TREE PRESERVATION DETAIL

SCALE: 1/2" = 1'-0"



PLANTING PROCEDURE

1. EXCAVATE ROOTBALL PIT
2. ADD EXCAVATED SOIL & TAMP. SET TREE SUCH THAT TOP OF ROOTBALL IS 2-3" HIGHER THAN FINISH GRADE
3. REMOVE ALL TWINE, ROPE, WIRE BASKET, AND BURLAP FROM TOP 1/3 OF ROOTBALL & EXPOSE ROOT FLARE.
4. BACKFILL WITH SOIL MIX & "WATER IN"
5. COMPLETE BACKFILLING, CONSTRUCT SAUCER, SPADE EDGE & ADD MULCH
6. STAKE & GUY SECURELY (AS REQUIRED)

01 TREE PLANTING DETAIL

SCALE: 1/2" = 1'-0"

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Project Number 2020.01173

LANDSCAPE DETAILS

L110

62

PLOT DATE: 1/28/2022 3:27 PM
PLOT SCALE: 1:2.5859
EDIT DATE: 1/12/2022
EDITED BY: ABE FISCHER
DRAWING FILE: P:\2020\01173\3. Drawings\CadCam\Landscape Documents\2020.01173 LA L100 LP.dwg

BLOOMINGTON BOARD OF ZONING APPEALS **CASE #: V-06-22**
STAFF REPORT **DATE: March 24, 2022**
Location: 1111 W 17th Street

PETITIONER: Jerico Management, LLC
PO Box 7016, Bloomington, IN 47407

CONSULTANT: Bynum Fanyo and Associates, Inc
528 N Walnut Street, Bloomington IN 47404

REQUEST: A variance from development standards to allow drive access to be located on North Monroe Street.

REPORT: This 2.98 acre property is located in the southwest corner at the intersection of W 17th Street and N Monroe Street. The property is currently zoned Mixed-Use Neighborhood Scale (MN). The properties to the north are zoned MN and Residential Multifamily (RM). The properties to the south are also zoned MN. The properties to the east are zoned Mixed-Use Institutional (MI). The properties to the west are zoned Residential Medium Lot (R2).

The property is being redeveloped and full compliance with the Unified Development Ordinance has been triggered. The petitioner is proposing to continue to use the existing drive access location on N Monroe Street. The UDO requires that for nonresidential corner lots, drive access shall be located on the street with the lower functional classification in the Transportation Plan. W 17th Street is currently assigned the lower functional classification, as the classifications were designated before the expansion of 17th Street. The road classification for 17th Street will likely change to reflect a higher classification than N Monroe Street due to the completion of the Trinitas multifamily development and expansion of the road to the west of this site. The width of the existing drive along N Monroe Street is allowed through approval of the City Engineer and would allow for manufacturing shipping and deliveries necessary for the proposed upgrade of the existing facility. The current driveway was upgraded when the roundabout at 17th and Monroe Streets was constructed. The Department has worked with the Engineering Department to insure that the existing location can continue to be used safely. The petitioner is requesting a variance to allow the drive access to be located on N Monroe Street.

CRITERIA AND FINDINGS FOR DEVELOPMENT STANDARDS VARIANCE

20.06.080(b)(3)(E)(i)(1) Standards for Granting Variances from Development Standards: Pursuant to Indiana Code 36-7-4-918.5, the Board of Zoning Appeals or Hearing Officer may grant a variance from the development standards of this UDO if, after a public hearing, it makes findings of fact in writing, that:

(1) The approval will not be injurious to the public health, safety, morals, and general welfare of the community; and

PROPOSED FINDING: No injury is found with the allowance of drive access to be located on N Monroe Street, as the design of the street functions as the lower classification, which the UDO prefers.

(2) The use and value of the area adjacent to the property included in the development standards variance will not be affected in a substantially adverse manner; and

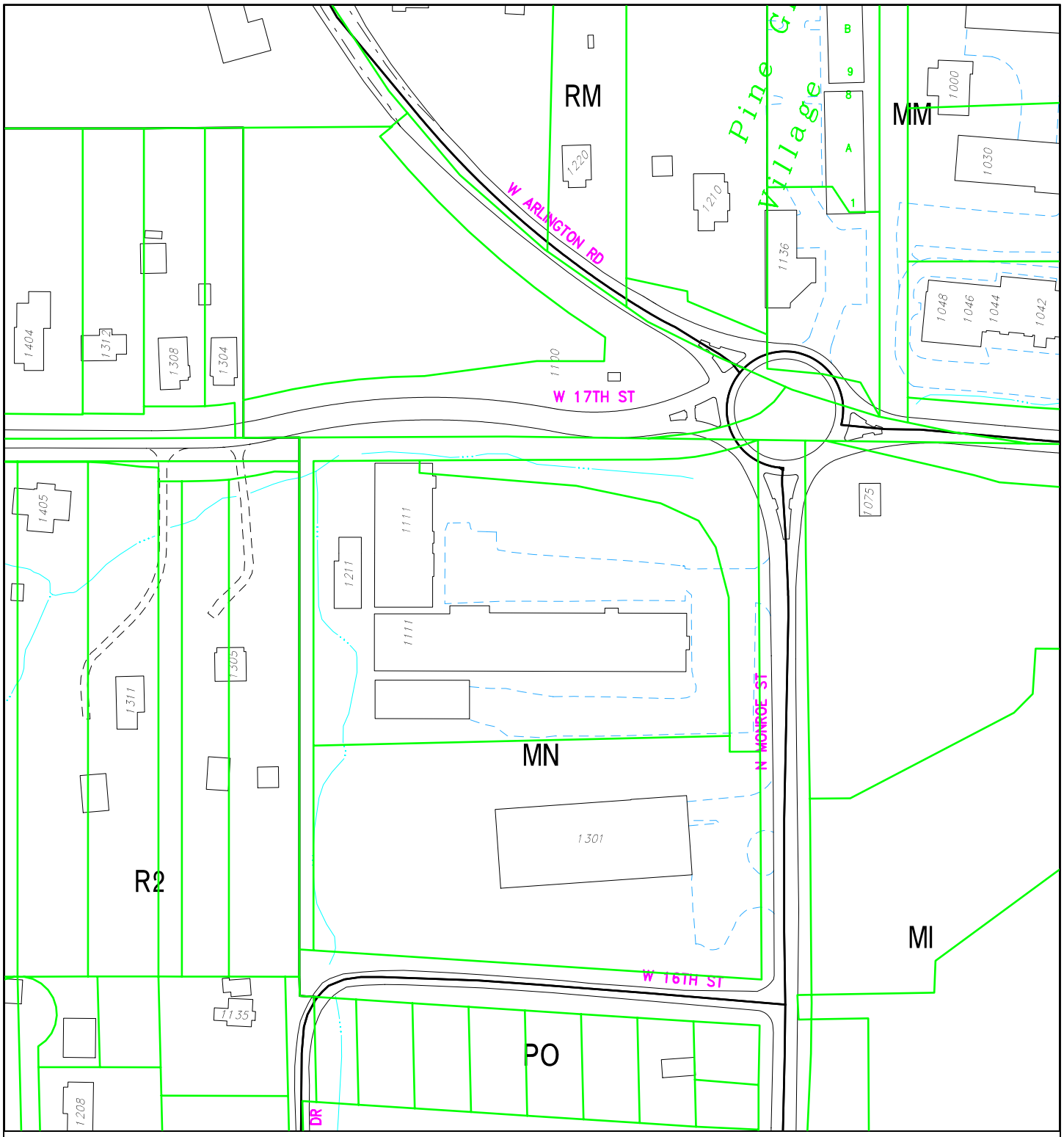
PROPOSED FINDING: No adverse impacts to the use and value of the surrounding area associated with the proposed variance are found. The variance is not expected to have off-site negative consequences, as it will continue the existing design that was determined in conjunction with the Engineering Department.

(3) The strict application of the terms of the Unified Development Ordinance will result in practical difficulties in the use of the property; that the practical difficulties are peculiar to the property in questions; that the development standards variance will relieve the practical difficulties; and

PROPOSED FINDING: Practical difficulties are found in the use of the property. The property has a significant change in elevation along W 17th Street that would require a 12% drive slope, which is in excess of a safe access parameter. Because of the adjacency to the roundabout, the property has unique access issues, and access from Monroe Street at the current location is the safest location to locate a driveway. Additionally, because the property is immediately adjacent to a roadway that was greatly upgraded recently, holding the property to the requirements set before the upgrade is burdensome. The petitioner has supplied sufficient data or reasoning indicating that there are practical difficulties in the use of the site and that a variance is necessary for relief.

RECOMMENDATION: Based upon the written report and findings of fact above, the Department recommends that the Board of Zoning Appeals adopts the proposed findings and approves V-06-22.

1. This variance approves allowing one vehicular entrance on N. Monroe Street. No other variance is approved.



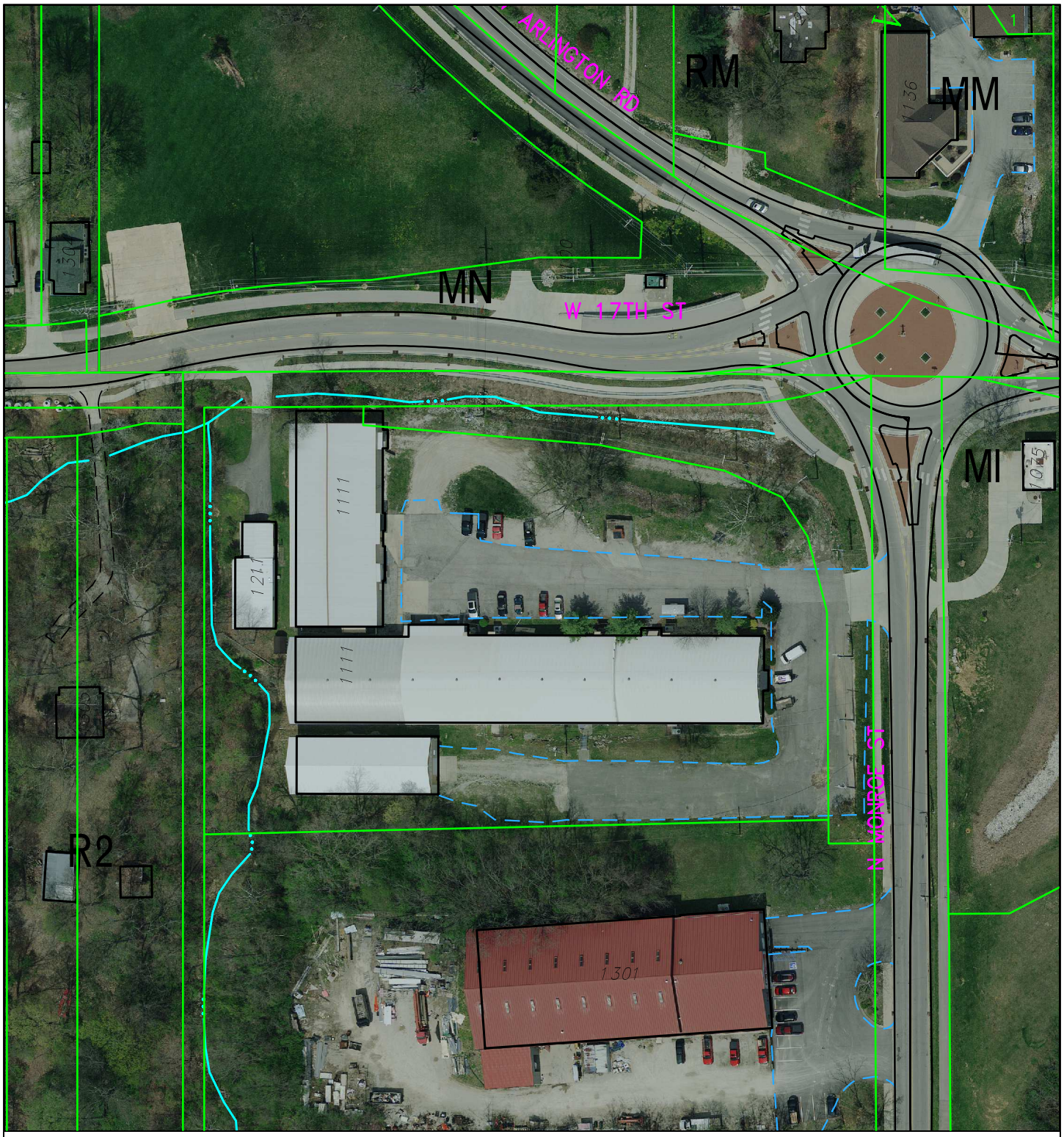
City of Bloomington
Planning

By: karina.pazos
18 Mar 22

150 0 150 300 450

Scale: 1" = 150'

For reference only; map information NOT warranted.



City of Bloomington
Planning

By: karina.pazos
18 Mar 22

100 0 100 200 300

Scale: 1" = 100'

For reference only; map information NOT warranted.

BYNUM FANYO & ASSOCIATES, INC.

Architecture
Civil Engineering
Planning

February 19, 2022

City of Bloomington Board of Zoning Appeals
401 N. Morton Street
Bloomington, IN 47403

Re: Variance to 20.04.050 (c)(2)(A) ii Location and Separation of Drives

Our Client, Jerico Management LLC, located at 1111 W 17th Street Bloomington, IN 47404, respectively request variance from the referenced UDO requirement. The property is located at the Southwest corner of W 17th Street and Monroe Street. The UDO requires that a corner lot access the street of lesser classification, which would be 17th Street. The property currently is using a commercial drive with access to Monroe Street. This drive was upgraded when the roundabout was constructed recently. In discussions with the staff, it is believed that 17th Street's classification will be upgraded now that the construction is complete and when the Trinitas multi-family project west of this location will begin occupancy in June of this year.

Jerico Management, LLC's current operation requires the drive in the existing location to receive deliveries for their artisan metalworking manufacturing operation. They are in the process of designing an upgrade of their existing facility and the proposed operation will require this drive to service their manufacturing shipping and deliveries.

Jerico Management, LLC believes that the approval of this request *will not be injurious to the public health, safety, morals, and general welfare of the community.* The current condition has been in place for decades with no adverse effect to the public.

They do not believe the *approval of this request will have any adverse impact of the use and value of the area adjacent to the property included in the development standards variance will not be affected in a substantially adverse manner.* As stated above the current condition has been in existence for decades with no adverse impact.

Strict application of the terms of the UDO will result in practical difficulties in the use of the property; that the practical difficulties are peculiar to the property in question; that the Development Standards Variance will relieve the practical difficulties. The property has significant change in elevation sloping from south the to north. The finish floor elevation of the existing and proposed facility is at approximately elevation 793. The grade of Monroe Street at the existing drive is at elevation 792, which allows a very safe slope for entering and exiting vehicles. The grade of 17th Street is at an elevation of 786. If 17th Street had to be used for access, there would be 6' of elevation change in approximately 50' yielding a dangerous 12% drive slope. Approval of this variance request will alleviate the practical difficulty of having to access 17th Street.

528 North Walnut Street
812-332-8030

Bloomington, Indiana 47404
FAX 812-339-2990

BYNUM FANYO & ASSOCIATES, INC.

Architecture
Civil Engineering
Planning

After review of our petition please contact us at any time with questions or request for additional information.

Sincerely,

Jeffrey S. Fanyo P.E. CFM

Bynum Fanyo and Associates, Inc.

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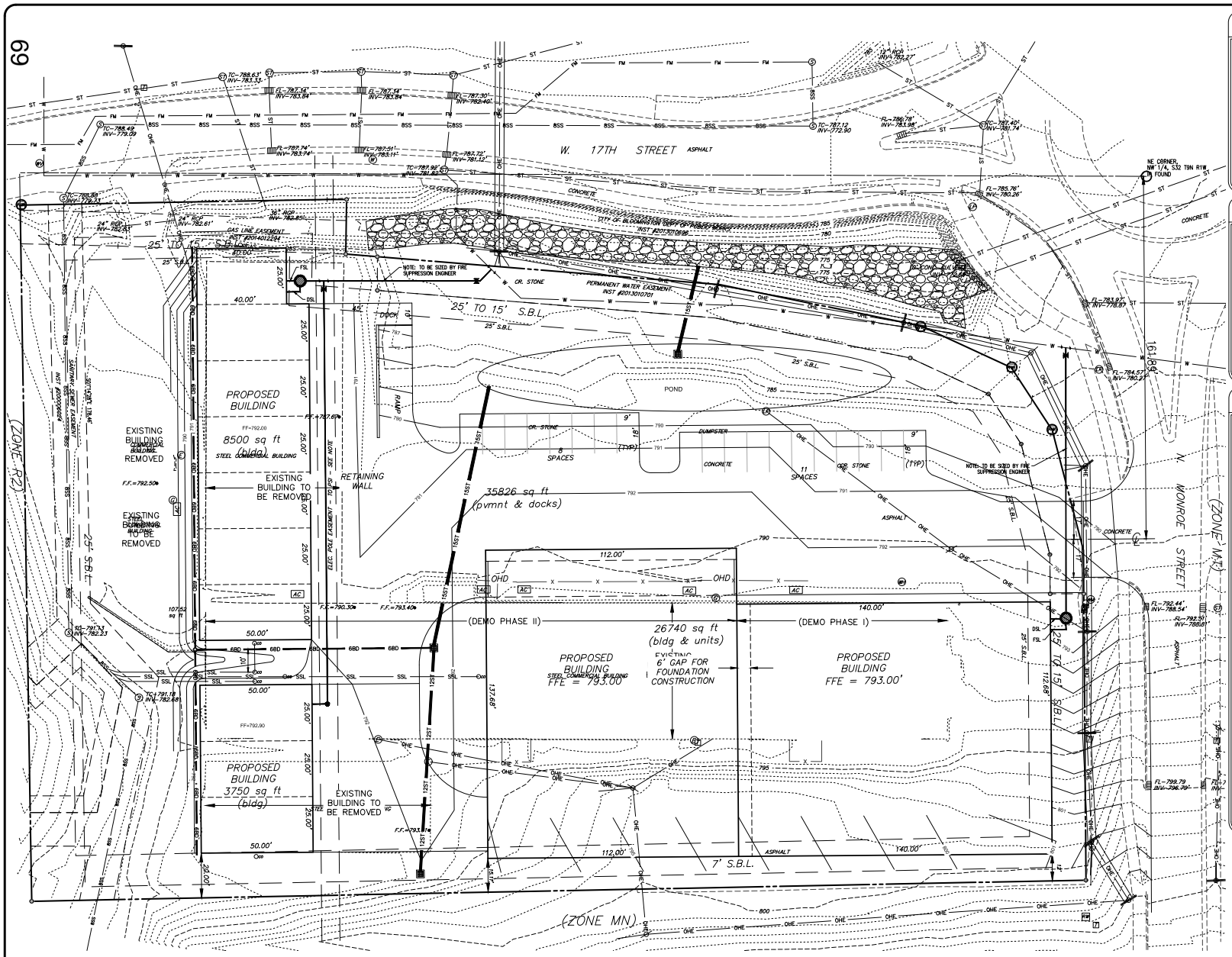
FAX 812-339-2990



EXISTING LEGEND

	PROPERTY LINE
X	FENCE
XW	WATER LINE PIPE
XXX	CONTOUR & ELEVATION
XSS	SANITARY SEWER PIPE
XST	STORM SEWER PIPE
XOHE	OVERHEAD ELECTRIC LINES
XUGE	UNDERGROUND ELECTRIC LINES
XOHT	OVERHEAD TELEPHONE LINES
XUGT	UNDERGROUND TELEPHONE LINE
XGAS	GAS LINE PIPE
	EXISTING DRAINAGE PATTERN (FLOW DIRECTION)

GRADING LEGEND

XXX	ELEVATION CONTOUR
FL>	FLOWLINE
XXX.XX	SPOT GRADE ELEVATION
XXX.XX / XXX.XX	TOP OF CURB ELEVATION OVER PAVEMENT ELEVATION
FF=XXX.XX	FINISH FLOOR ELEVATION
FG=XXX.XX	FINISH EARTH GRADE ELEVATION
FGH=XXX.XX	FINISH GRADE ELEVATION ON HIGH SIDE OF RETAINING WALL
FGL=XXX.XX	FINISH GRADE ELEVATION ON LOW SIDE OF RETAINING WALL
FW=XXX.XX	FINISH TOP OF SIDEWALK ELEVATION
TC=XXX.XX	FINISH TOP OF CASTING AT FLOWLINE
TW=XXX.XX	FINISH TOP OF RETAINING WALL ELEV.

UTILITY LEGEND

D.S.	DOWNSPOUT
4BD	4" SDR 35 PVC BUILDING/DOWNSPOUT DRAIN PIPE (PRIVATELY OWNED)
6BD	6" SDR 35 PVC BUILDING/DOWNSPOUT DRAIN PIPE (PRIVATELY OWNED)
12BD	12" SDR 35 PVC BUILDING/DOWNSPOUT DRAIN PIPE (PRIVATELY OWNED)
6UD	6 DUAL WALL TYPE "S" PERFORATED HDPE PIPE WRAPPED IN A FILTER SOCK (PRIVATELY OWNED)
3W	3" SDR-21 (PR200) PVC DOMESTIC WATER SERVICE PIPE W/ TRACER WIRE (PRIVATELY OWNED)
4W	4" POLYETHYLENE ENCASED DIP WATER LINE TO FIRE DEPT. CONNECTION F.D.C. (PRIVATELY OWNED)
6W	6" POLYETHYLENE ENCASED DIP WATER LINE TO FIRE HYDRANT (PRIVATELY OWNED)
8W	8" C900 DR14 PVC WATER MAIN W/ TRACER WIRE (PRIVATELY OWNED).
DSL	DOMESTIC WATER SERVICE PIPE W/ TRACER WIRE (PRIVATELY OWNED)
FSL	6" POLYETHYLENE ENCASED DIP FIRE SERVICE LINE (PRIVATELY OWNED).
.75G	3/4" GAS LINE
1G	1" GAS LINE
1.25G	1-1/4" GAS LINE
1.5G	1-1/2" GAS LINE
2G	2" GAS LINE
	WATER LINE GATE VALVE
F.D.C.	FIRE DEPARTMENT "STORZ" CONNECTION
P.I.V.	POST INDICATING VALVE
12ST	12" ADS BRAND SERIES N-12 HDPE STORM SEWER PIPE (PRIVATELY OWNED)
15ST	15" ADS BRAND SERIES N-12 HDPE STORM SEWER PIPE (PRIVATELY OWNED)
18ST	18" ADS BRAND SERIES N-12 HDPE STORM SEWER PIPE (PRIVATELY OWNED)
24ST	24" ADS BRAND SERIES N-12 HDPE STORM SEWER PIPE (PRIVATELY OWNED)
42ST	42" ADS BRAND SERIES N-12 HDPE STORM SEWER PIPE (PRIVATELY OWNED)
8SS	8" SDR 35 PVC SANITARY SEWER MAIN W/ TRACER WIRE (PRIVATELY OWNED)
6SL	6" SDR 35 PVC SANITARY SEWER LATERAL W/ TRACER WIRE (PRIVATELY OWNED)
G-SSL	6" SDR 35 PVC GREASE LATERAL (PRIVATELY OWNED)
E1	1" SCH. 40 PVC ELECTRICAL CONDUIT
E1.5	1-1/2" SCH. 40 PVC ELECTRICAL CONDUIT
E4	4" SCH. 40 PVC ELECTRICAL CONDUIT

NOTE TO CONTRACTOR

CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS & DEPTHS AND NOTIFY ENGINEER OF ANY INACCURACIES IN LOCATION OR ELEVATION OR ANY CONFLICTS PRIOR TO & AFTER ANY EXCAVATION. NO PAYMENT SHALL BE MADE TO CONTRACTOR FOR UTILITY DESTRUCTION OR UNDERGROUND CHANGES REQUIRED DUE TO CONFLICTING ELEVATIONS.

revisions:

SCALE: 1"=20'

ARCHITECTURE
CIVIL ENGINEERING
PLANNING
BYNUM FANYO & ASSOCIATES, INC.
528 north walnut street
bloomington, indiana
(812) 332-8030
(812) 339-2990 (fax)

certified by:

PROPOSED
JERICO METALS

1111 WEST 17TH STREET
BLOOMINGTON, IN

title: GRADING & DRAINAGE PLAN

designed by: JBT
drawn by: JBT
checked by: JSF
sheet no: C401
project no.: 402134