

**RECORDER OF DEEDS**  
MONTGOMERY COUNTY PENNSYLVANIA  
*Jeanne Sorg*

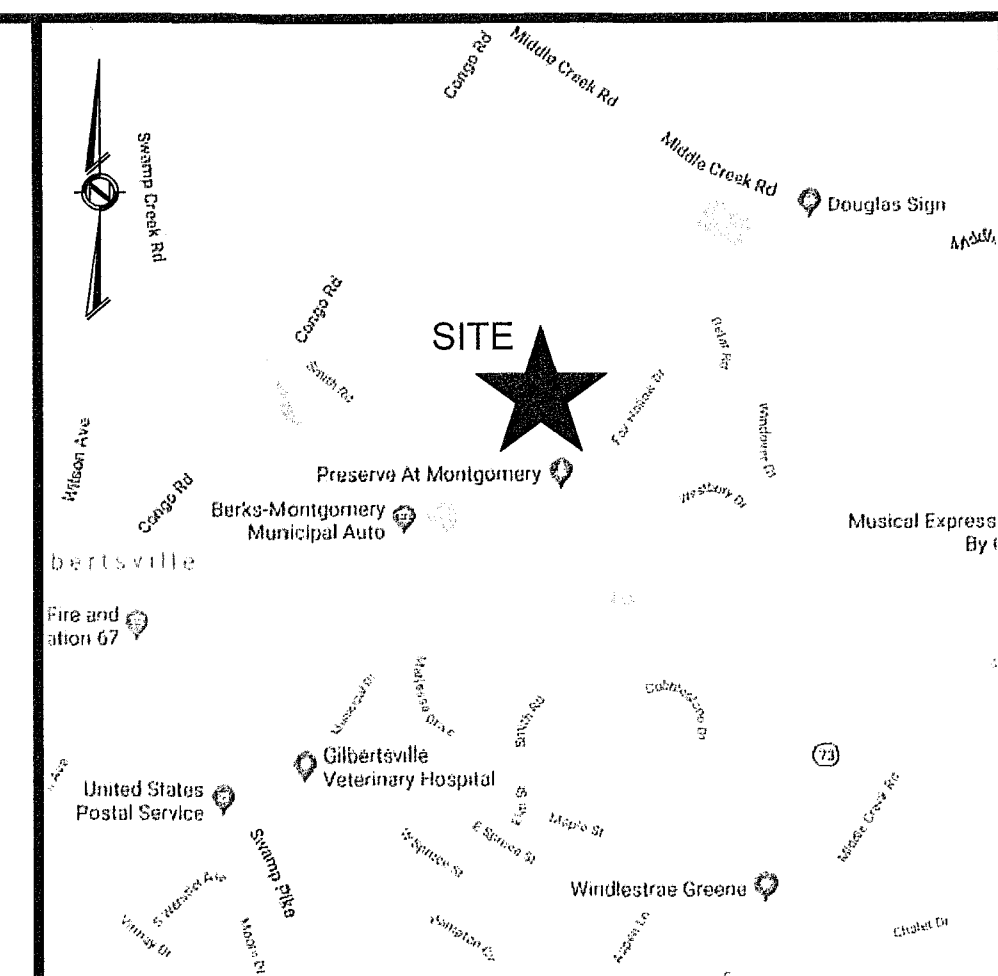
One Montgomery Plaza  
Swede and Airy Streets ~ Suite 303  
P.O. Box 311 ~ Norristown, PA 19404  
Office: (610) 278-3289 ~ Fax (610) 278-3869

**I hereby certify that the following is a true and correct  
copy of the original document  
recorded in Montgomery County, PA**



*Jeanne Sorg*  
\_\_\_\_\_  
Jeanne Sorg, Recorder of Deeds

Table with 2 columns: Description and Symbol. Includes entries for EXISTING PROPERTY LINE, LEGAL RIGHT-OF-WAY, EXISTING CENTERLINE, EXISTING EASEMENT, EXISTING EASEMENT TO BE REMOVED, ULTIMATE RIGHT-OF-WAY, PROPOSED LOT LINE, PROPOSED CENTERLINE, PROPOSED STORMWATER BASIN, PROPOSED BUILDING SETBACK, PROPOSED MONUMENT, and PROPOSED IRON PIN.



CALL BEFORE YOU DIG! PENNSYLVANIA LAW REQUIRE... 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORK DAYS IN DESIGN STAGE - STOP C/

R. A. GRAF PROFESSIONAL ENGINEER PENNSYLVANIA LICENSE NO. 14144-E

6. ZONING DATA: DOUGLASS TOWNSHIP, MONTGOMERY COUNTY, PA ZONED: R-2 RESIDENTIAL DISTRICT USE: 14 PROPOSED SINGLE FAMILY LOTS

Table with 3 columns: CRITERIA, REQUIRED, and PROPOSED. Lists specifications for MIN. LOT AREA, MIN. LOT WIDTH, MIN. FRONT YARD, MIN. SIDE YARD, MIN. REAR YARD, MAX. BUILDING COVERAGE, and MAX. BUILDING HEIGHT.

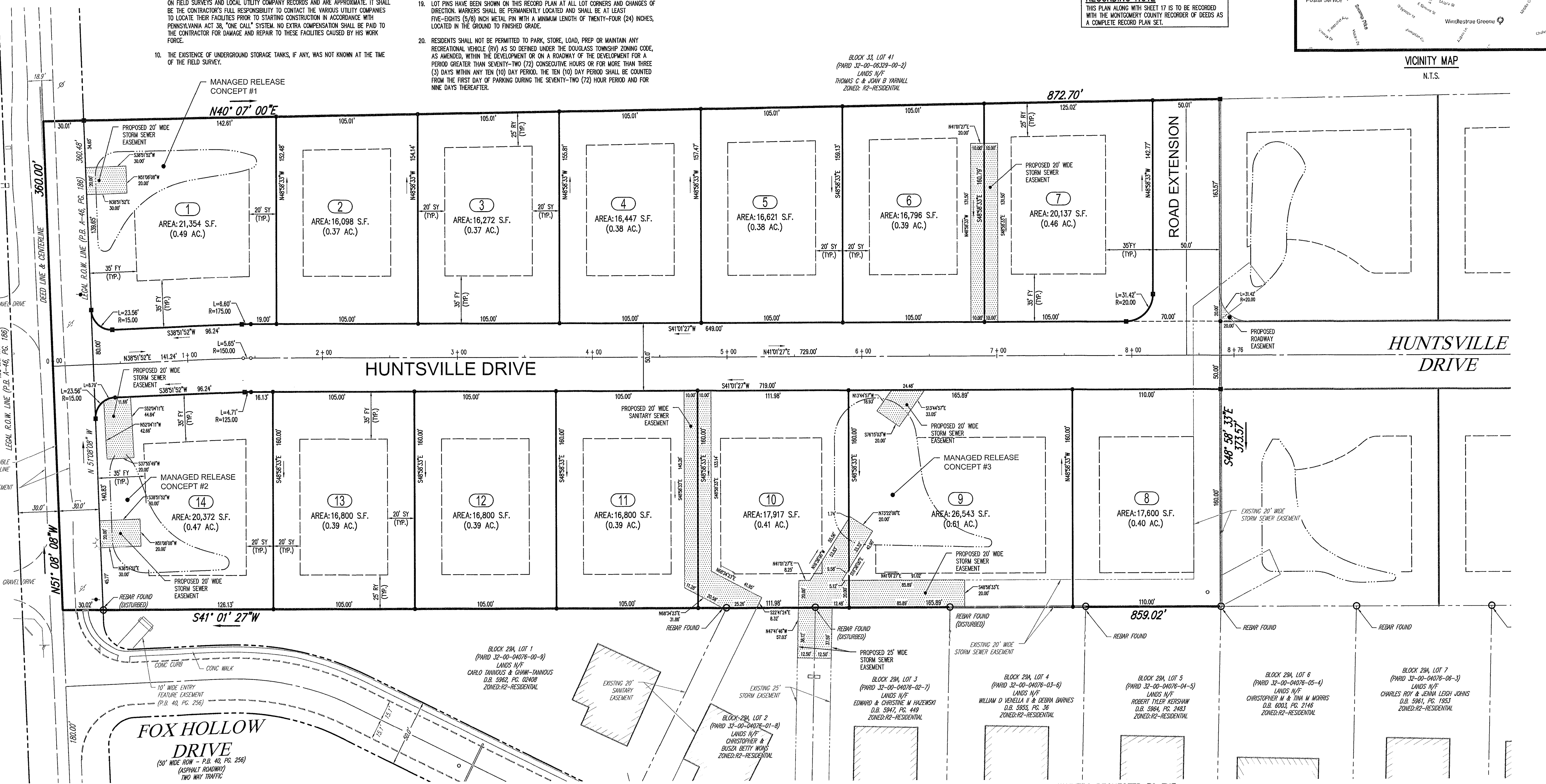
- 7. THIS PLAN IS BASED ON INFORMATION PROVIDED BY A SURVEY PREPARED IN THE FIELD BY BLUE MARSH ASSOCIATES, INC. AND OTHER REFERENCE MATERIAL AS LISTED HEREON. THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A TITLE COMMITMENT REPORT.
8. THE SITE IS TO BE SERVICED BY PUBLIC WATER AND PUBLIC SEWER.
9. THE LOCATIONS OF ALL EXISTING AND PROPOSED SERVICES SHOWN ON THIS PLAN ARE BASED ON FIELD SURVEYS AND LOCAL UTILITY COMPANY RECORDS AND ARE APPROXIMATE. IT SHALL BE THE CONTRACTOR'S FULL RESPONSIBILITY TO CONTACT THE VARIOUS UTILITY COMPANIES TO LOCATE THEIR FACILITIES PRIOR TO STARTING CONSTRUCTION IN ACCORDANCE WITH PENNSYLVANIA ACT 38, "ONE CALL" SYSTEM. NO EXTRA COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR DAMAGE AND REPAIR TO THESE FACILITIES CAUSED BY HIS WORK FORCE.

- 11. ELEVATIONS ARE BASED UPON (NAVD 88) DATUM ESTABLISHED ON SITE UTILIZING GLOBAL POSITIONING SYSTEM DATA COLLECTION.
12. ENCROACHMENTS AND VAULTS, IF ANY, BELOW SURFACE NOT SHOWN HEREON.
13. ALL DIMENSIONS AND GRADES SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY OWNER OR GRAD ENGINEERING IF ANY DISCREPANCIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION FOR NECESSARY PLAN OR GRADE CHANGES. NO EXTRA COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR WORK HAVING TO BE REDONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THESE PLANS IF SUCH NOTIFICATION HAS NOT BEEN GIVEN. ENGINEER RESERVES THE RIGHT TO CORRECT THESE DRAWINGS.
14. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT BUILDING DIMENSIONS.
15. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT BUILDING UTILITY CONNECTION LOCATIONS. SERVICE SIZES TO BE DETERMINED BY ARCHITECT.
16. THE PROPOSED ROADS ARE HEREBY OFFERED FOR DEDICATION TO THE AGENCY HAVING JURISDICTION.
17. THE PROPOSED SANITARY SEWER SYSTEM IS HEREBY OFFERED FOR DEDICATION TO THE BERKS-MONTGOMERY MUNICIPAL AUTHORITY.
18. LOT PINS HAVE BEEN SHOWN ON THIS RECORD PLAN AT ALL LOT CORNERS AND CHANGES OF DIRECTION. MARKERS SHALL BE PERMANENTLY LOCATED AND SHALL BE AT LEAST FIVE-DIGITS (5/8) INCH METAL PIN WITH A MINIMUM LENGTH OF TWENTY-FOUR (24) INCHES, LOCATED IN THE GROUND TO FINISHED GRADE.
19. RESIDENTS SHALL NOT BE PERMITTED TO PARK, STORE, LOAD, PREP OR MAINTAIN ANY RECREATIONAL VEHICLE (RV) AS SO DEFINED UNDER THE DOUGLASS TOWNSHIP ZONING CODE, AS AMENDED, WITHIN THE DEVELOPMENT OR ON A ROADWAY OR ON A ROADWAY FOR A PERIOD GREATER THAN SEVENTY-TWO (72) CONSECUTIVE HOURS OR FOR MORE THAN THREE (3) DAYS WITHIN ANY TEN (10) DAY PERIOD. THE TEN (10) DAY PERIOD SHALL BE COUNTED FROM THE FIRST DAY OF PARKING DURING THE SEVENTY-TWO (72) HOUR PERIOD AND FOR NINE DAYS THEREAFTER.

RECORDING NOTE: THIS PLAN ALONG WITH SHEET 17 IS TO BE EXISTING WITH THE MONTGOMERY COUNTY REORDER OF DEEDS AS A COMPLETE RECORD PLAN SET.

- 1. MIKELN, LLC 460 HERRISTOWN ROAD, SUITE 110 BLUE BELL, PA 19422
2. OWNER: 4046-A-B-ROAD-C-STAFFY MIKELN, LLC 165 Smith Rd, Gilbertsville, 166 SMITH ROAD, 166 Smith Rd, Gilbertsville, PA 19525
3. THIS PLAN REFERENCE A SURVEY BY: JOSEPH J. WRIGHT, PA L.S. # 037826-R BLUE MARSH ASSOCIATES, INC. 2385 TABATHA DRIVE WARRINGTON, PA 18976 PROJECT NO.: 15-A050-155 LAST DATED: 7/22/2016
4. PROPERTY KNOWN AS BLOCK 33, LOT 42 (PARO 32-00-06328-50-7) AS IDENTIFIED ON THE OFFICIAL TAX MAPS OF MONTGOMERY COUNTY, DOUGLASS TOWNSHIP, COMMONWEALTH OF PENNSYLVANIA.
5. AREA TO TITLE LINE = 317,500 S.F. OR 7.29 AC. AREA TO LEGAL R.O.W. LINE = 306,892 S.F. OR 7.04 AC.

MONTGOMERY COUNTY COMMISSIONERS REGISTRY 32-00-06328-50-7 DOUGLASS MIKELN, LLC 165 SMITH RD B 033 U 042 L 7 101. DATE: 11/09/2020



OWNER'S CERTIFICATION COMMONWEALTH OF PENNSYLVANIA

OWNER ACKNOWLEDGEMENT LEONARD DELGROSSO, JR. UNDERSIGNS, DULY AUTHORIZED BY OWNER, MIKELN, LLC, HAS LAID OUT UPON OWNER'S LAND STUATE IN DOUGLASS TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA, CERTAIN LOTS AND STREETS ACCORDING TO THE ACCOMPANYING PLANS WHICH ARE INTENDED TO BE RECORDED.

TOWNSHIP SUPERVISOR'S CERTIFICATION THIS PLAN HAS BEEN APPROVED BY THE DOUGLASS TOWNSHIP BOARD OF SUPERVISORS THIS 15th DAY OF October, A.D. 2020

SURVEYOR'S CERTIFICATION I HEREBY CERTIFY THAT THE PLAN SHOWN AND DESCRIBED HEREON, AS WELL AS ALL OTHER DRAWINGS WHICH ARE A PART OF THE PLAN SET, ARE TRUE AND CORRECT TO THE ACCURACY REQUIRED BY THE DOUGLASS TOWNSHIP SUBDIVISION AND LAND DEVELOPMENT ORDINANCE, AND WERE PREPARED BY ME OR UNDER MY DIRECTION FOR WHICH I ACCEPT FULL RESPONSIBILITY, AND REPRESENTS A FIELD SURVEY PERFORMED BY ME OR UNDER MY DIRECTION. THE EXISTING PERMETER MONUMENTS SHOWN HEREON HAVE BEEN LOCATED BY ME OR UNDER MY DIRECTION AND ALL OTHER PROPOSED PERMETER MONUMENTS SHALL BE SET

WAIVERS REQUESTED TO THE DOUGLASS TOWNSHIP BOARD OF SUPERVISORS SUBDIVISION AND LAND DEVELOPMENT ORDINANCE

RECORDER OF DEEDS MONTGOMERY COUNTY NOV 09 2020

ON the 5th DAY of October, 2020 BEFORE ME, THE UNDERSIGNED OFFICER, PERSONALLY APPEARED Leonard Delgrosso, Jr., who acknowledged him to be the duly authorized agent of MIKELN, LLC, a Pennsylvania limited liability company, and that he, as such, being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing the name of the company by him as its member. IN WITNESS WHEREOF, I HAVE HERETO SET MY HAND AND SEAL.

OWNER: MIKELN, LLC 10-8-2020

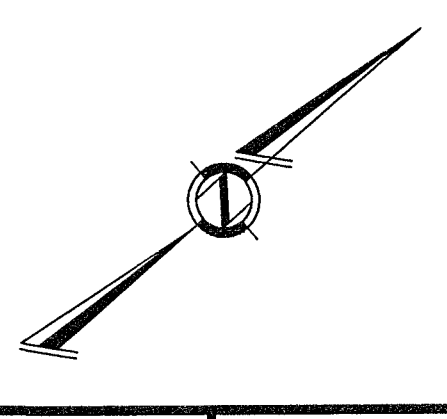
TOWNSHIP PLANNING AGENCY CERTIFICATION THIS PLAN HAS BEEN APPROVED BY THE DOUGLASS TOWNSHIP PLANNING AGENCY THIS 12th DAY OF December, A.D. 2020

APPLICANT'S ENGINEER'S CERTIFICATION I, ROLPH A. GRAF, A PENNSYLVANIA PROFESSIONAL ENGINEER, HEREBY CERTIFY THAT THE SUBDIVISION AND/OR LAND DEVELOPMENT SHOWN HEREON COMPLIES WITH ALL APPLICABLE REGULATIONS INCLUDING, BUT NOT LIMITED TO, THE TOWNSHIP ZONING AND SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.

SECTION 411-3.0: SIDE SLOPES OF THE STORMWATER MANAGEMENT FACILITY SHALL NOT BE GREATER THAN FIVE (5) HORIZONTAL TO ONE (1) VERTICAL.

MCPC No. 17-0007-005 Recorder of Deeds CERTIFIED ON THIS DATE Nov. 5, 2020

Table with 4 columns: REV., DATE, COMMENT, and PER. Lists revision history from 2 to 10.

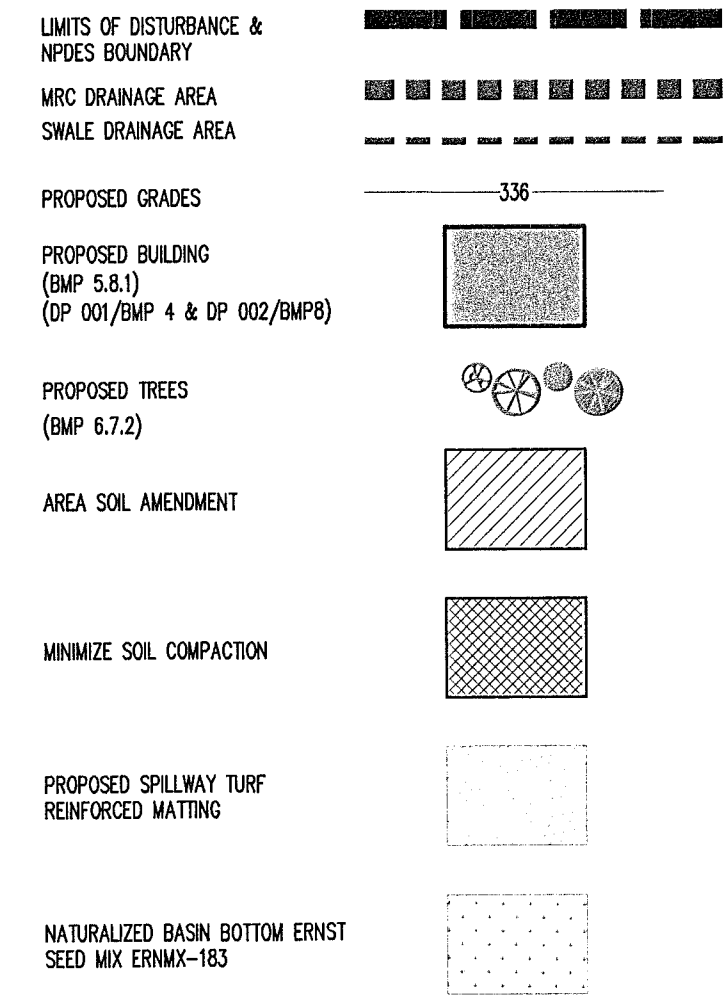
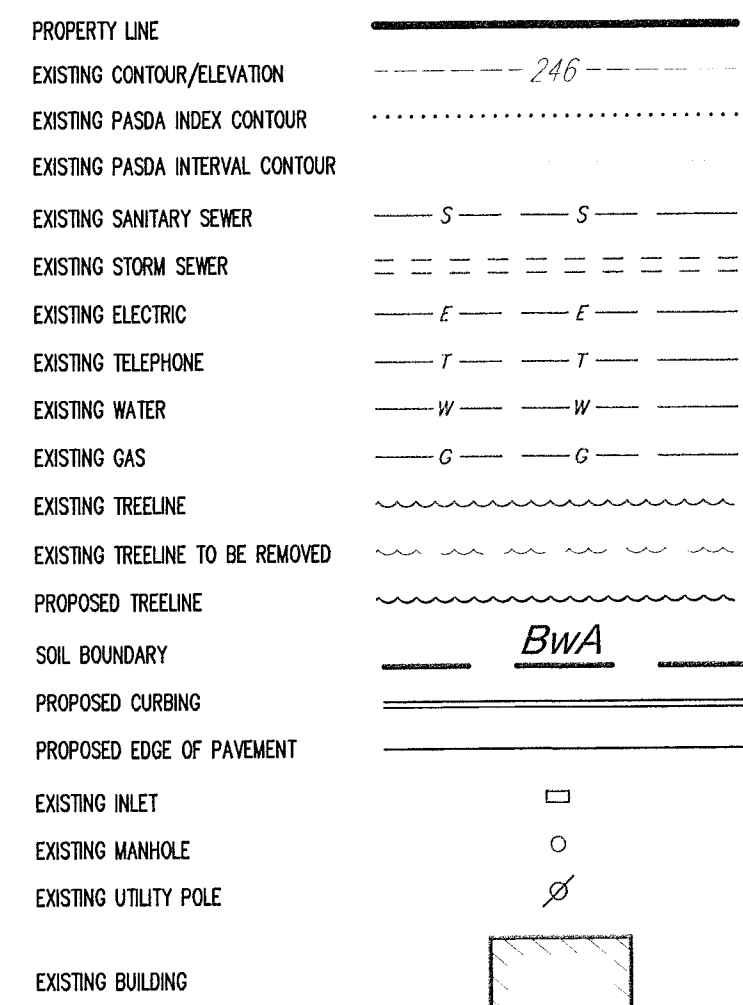


MIKELN, LLC

GRAF ENGINEERING, LLC LAND DEVELOPMENT CONSULTING 410 WEST MAIN STREET, SUITE 202 P.O. BOX 110 LANSDALE, PA 19446 TEL.: (267) 263-2034

RECORD PLAN STAFY TRACT II SCALE: 1" = 40' SHEET NO. 2

54-152,- 153



NOTE: PASDA CONTOURS AND ELEVATION DATA TAKEN FROM THE PENNSYLVANIA SPATIAL DATA ACCESS WEBSITE (www.pasda.pa.gov). PAMP LIDAR ELEVATION DATA WERE COLLECTED FROM 2006 THROUGH 2008.

**Owner Acknowledgement**  
Leonard DelGrosso, Jr. undersigned, duly authorized by owner, Mikelen, LLC, has laid out on owners land situated in Douglas Township, Montgomery County, Pennsylvania, certain lots and streets according to the accompanying plans which are intended to be recorded.

owner: Mikelen, LLC  
Date: 10-26-2020

**NONSTRUCTURAL BMP 5.8.1 DISCONNECT ROOF LEADERS**

UNITS FOR ROOFTOP DISCONNECT

ENTIRE BUILDING (1882 SF)	HALF OF BUILDING (941 SF)
1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13 & 14	4

	POI #1	POI #2	TOTAL
EXISTING	3.85 AC	3.69 AC	7.54 AC
DEVELOPED	3.75 AC	3.79 AC	7.54 AC

PLN BK 0054 - 00153 Land Site/Subdivision Plan  
202009077 11/09/2020 11:00:17 AM  
RCD Fees: \$100.00 Taxes: \$0.00

**GENERAL NOTES**

- APPLICANT/OWNER: MIKELLEN, LLC, 460 NORTHSTOWN ROAD, SUITE 110, BLUE BELT, PA 19422
- PROPERTY KNOWN AS BLOCK 33, LOT 42 (PARC 32-00-06328-50-7) AS IDENTIFIED ON THE OFFICIAL TAX MAPS OF MONTGOMERY COUNTY, DOUGLASS TOWNSHIP, COMMONWEALTH OF PENNSYLVANIA.

**PCSM PLANNING & DESIGN 102.8(b)**

- PCSM PLAN WILL PRESERVE THE INTEGRITY OF STREAM CHANNELS AND MAINTAIN AND PROTECT THE PHYSICAL, BIOLOGICAL AND CHEMICAL QUALITIES OF THE RECEIVING WATERCOURSE. BY AMENDMENT OF ALL DISTURBED AREAS TO REMAIN PERVIOUS AND TO ENCOURAGE INFILTRATION, THE SOILS WITHIN THE PROPOSED OPEN SPACES, ALONG SWALES, AND WITHIN BACK YARDS ARE TARGETED FOR AMENDMENT TO INCREASE THE INFILTRATION CAPACITY OF THE SOILS. ROOF DRAINS WILL PROVIDE CLEAN RUNOFF FROM IMPERVIOUS AREAS, WHICH IS FURTHER FILTERED BY MAINTAINED LAWNS AND AMENDED SOILS PRIOR TO ENTERING THE STREAM.
- PCSM PLAN WILL PREVENT AN INCREASE IN THE RATE OF STORMWATER RUNOFF.
  - BY ROOFTOP DISCONNECT (BMP 5.8.1), LANDSCAPE RESTORATION (BMP 6.7.2), SOIL AMENDMENTS (BMP 6.7.3), AND THREE MANAGED RELEASE BASINS (WITH RAIN GARDEN COMPONENT, BMP 6.4.5). THESE BMPs WILL HELP MINIMIZE CHANGES IN STORMWATER RUNOFF.
- PCSM PLAN WILL MINIMIZE ANY INCREASE IN STORMWATER RUNOFF VOLUME.
  - BY ROOFTOP DISCONNECT (BMP 5.8.1), LANDSCAPE RESTORATION (BMP 6.7.2), SOIL AMENDMENTS (BMP 6.7.3), AND THREE MANAGED RELEASE BASINS (WITH RAIN GARDEN COMPONENT, BMP 6.4.5).
- PCSM PLAN WILL MINIMIZE IMPERVIOUS AREAS.
  - BY IMPLEMENTING A CLUSTER-LIKE DEVELOPMENT, THEREFORE MAXIMIZING EXTRA LAND FOR LAWNS AND RECREATION.
- PCSM PLAN WILL MAXIMIZE THE PROTECTION OF EXISTING DRAINAGE FEATURES AND EXISTING VEGETATION.
  - BY MAINTAINING THE EXISTING FLOW PATH TO BOTH POINTS OF INTEREST, WITH THE MANAGED RELEASE BASIN COMBINED WITH RAIN GARDENS, THE CONVEYANCE SYSTEM ON SMITH ROAD AS WELL AS THE EXISTING CONVEYANCE SYSTEM IN THE ADJOINING NEIGHBORHOOD (DOUGLASS ESTATES) WILL EXPERIENCE LOWER RUNOFF VOLUMES, LOWER PEAK RATES, AND EXPERIENCE LONGER TIMES OF TRAVEL FOR THE OVERALL STORMWATER FLOW.
- PCSM PLAN WILL MINIMIZE LAND CLEARING AND GRADING.
  - BY KEEPING EXCESS CUTS AND FILLS TO A MINIMUM. CONSIDERABLE VEGETATION CONSISTING OF MAINTAINED LAWNS, DECIDUOUS AND EVERGREEN TREES, SHRUBS ARE PROPOSED TO BE PLANTED THROUGHOUT THE SITE WHICH WILL aid in INFESTING VEGETATION THAT WILL BE REMOVED.
- PCSM PLAN WILL MINIMIZE SOIL COMPACTION.
  - MINIMIZE COMPACTION IN AREAS THAT WILL NOT REQUIRE ANY EARTHMOVING OR CONSTRUCTION ACTIVITIES. AREAS DISTURBED WITHIN THE DEVELOPMENT FOOTPRINT HAVE BEEN PROPOSED FOR SOIL AMENDMENT TO MAXIMIZE THEIR INFILTRATION CAPACITY AND OFFSET ANY COMPACTION FROM CONSTRUCTION.
- PCSM PLAN WILL UTILIZE OTHER STRUCTURAL OR NONSTRUCTURAL BMPs THAT PREVENT OR MINIMIZE CHANGES IN STORMWATER RUNOFF.
  - BMP 5.8.1 ROOFTOP DISCONNECT, BMP 6.7.2 LANDSCAPE RESTORATION, BMP 6.7.3 SOIL AMENDMENT AND RESTORATION, AND THREE MANAGED RELEASE BASINS (WITH RAIN GARDEN COMPONENT, BMP 6.4.5) BY IMPLEMENTING IMMEDIATE SITE STABILIZATION FOR POLLUTION PREVENTION PURPOSES.

**POST CONSTRUCTION STORMWATER MANAGEMENT NOTES**

- ROOF DRAINS AND SUMP PUMPS SHALL DISCHARGE TO STORMWATER OR VEGETATIVE BMP.
- ALL STORMWATER FACILITIES ON THE SITE ARE THE RESPONSIBILITY OF THE HOA. SHOULD THE HOA FAIL TO MAINTAIN SUCH FACILITIES, DOUGLASS TOWNSHIP WILL HAVE THE RIGHT TO ENTER THE PROPERTY TO MAINTAIN/REPAIR THE FACILITIES AT THE HOA'S EXPENSE. THE GRADING AS SHOWN ON THE APPROVED PLAN CANNOT BE ALTERED IN THE FIELD DURING CONSTRUCTION OR AT ANY TIME IN THE FUTURE WITHOUT FIRST OBTAINING WRITTEN PERMISSION FROM THE TOWNSHIP.
- ALL DISTURBED AREAS WITHIN THE DEVELOPMENT SITE THAT ARE PROPOSED TO REMAIN PERVIOUS SHALL HAVE THE SOIL AMENDED PRIOR TO FINAL STABILIZATION WITH VEGETATION.
- NO PERSON SHALL MODIFY, REMOVE, FILL, LANDSCAPE, OR ALTER ANY EXISTING STORMWATER CONTROL OR BMP UNLESS IT IS A PART OF AN APPROVED MAINTENANCE PROGRAM WITHOUT THE WRITTEN APPROVAL OF THE MUNICIPALITY.
- NO PERSON SHALL PLACE ANY STRUCTURE, FILL, LANDSCAPING, OR VEGETATION INTO A STORMWATER CONTROL OR BMP OR WITHIN A DRAINAGE EASEMENT THAT WOULD LIMIT OR ALTER THE FUNCTIONING OF THE STORMWATER CONTROL OR BMP WITHOUT THE WRITTEN APPROVAL OF THE MUNICIPALITY.

**THERMAL IMPACTS**

DURING CONSTRUCTION, THE PRE-DEVELOPMENT CONDITION OF THE SITE GROUND COVER IS DENSE GRASS, MEADOW, AND FEW TREES WHICH PROVIDES SOME SHADE FOR GROUND RUNOFF TRAVELING ALONG IT. IN ORDER TO MINIMIZE THERMAL IMPACTS DURING CONSTRUCTION, THE CONSTRUCTION SEQUENCE CAN BE BROKEN DOWN INTO THREE SEQUENTS CONSISTING OF THE ROADWAY, UTILITY, AND DWELLING UNIT IMPROVEMENTS. BY BREAKING THE CONSTRUCTION SEQUENCE DOWN INTO THREE SEQUENTS, THE AMOUNT OF BARE EARTH AND DISTURBED SURFACE AT ANY GIVEN TIME WILL BE A FRACTION OF THE TOTAL PROPOSED DEVELOPMENT, THEREFORE REDUCING THERMAL CONDITIONS OF SITE RUNOFF. AFTER EACH ROADWAY, UTILITY, DWELLING UNIT IMPROVEMENT IS COMPLETED, THE DISTURBED AREA WILL IMMEDIATELY BE STABILIZED TO REDUCE SUN EXPOSURE TO THE DISTURBED AREA. IT IS IMPORTANT TO NOTE THE ROADWAY AND UTILITY IMPROVEMENTS INCLUDE THE INSTALLATION OF ALL STORM SEWER PIPING. THE COLLECTION OF RUNOFF VIA STORM SEWER PIPING WILL REDUCE THERMAL CONDITIONS BY TAKING RUNOFF UNDERGROUND, REDUCING SUN EXPOSURE, AND THEREFORE COOLING THE RUNOFF BEFORE TRAVELING OFFSITE OR TO THE SEDIMENT BASIN. ALSO, DWELLING UNIT IMPROVEMENTS INCLUDE THE STABILIZATION OF ALL SWALES. THE STABILIZATION OF ALL SWALES WILL MODERATE RUNOFF TEMPERATURES BEFORE REACHING THE STORM SEWER SYSTEM.

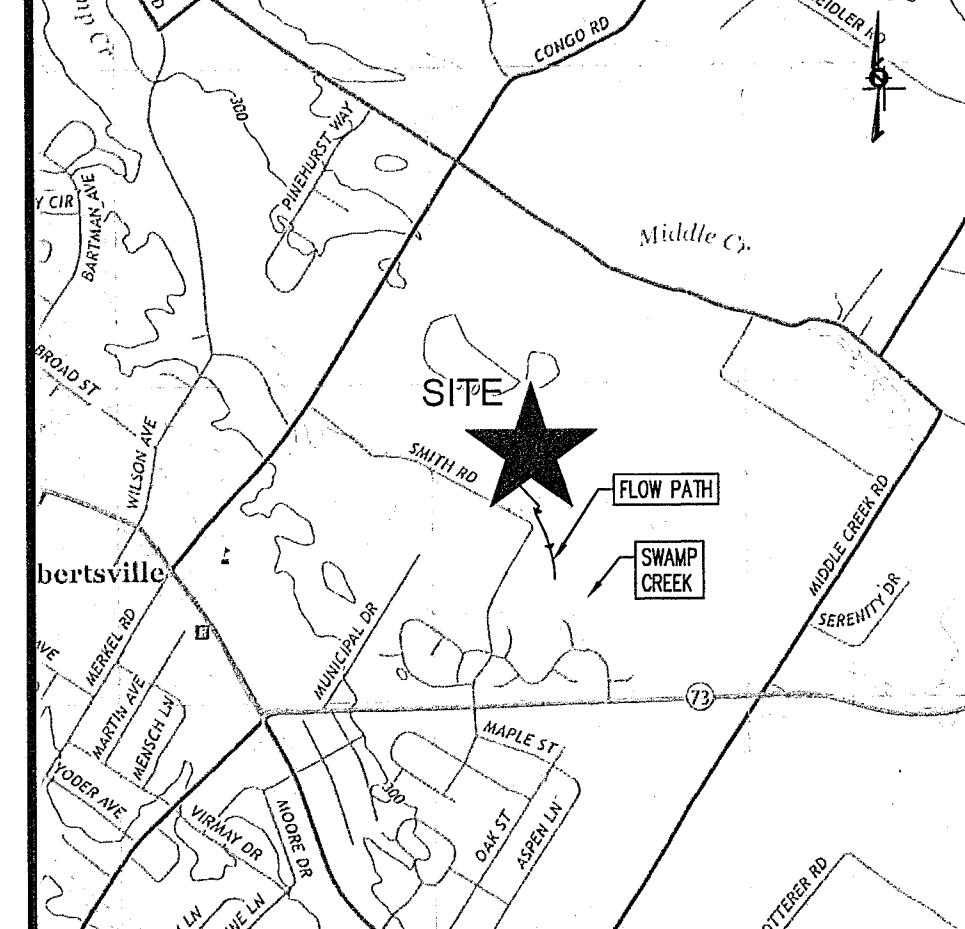
**POST CONSTRUCTION: THERMAL IMPACTS FOR THE PROPOSED DEVELOPMENT ARE BEING MINIMIZED BY THE INSTALLATION OF PERMANENT LANDSCAPING (INCLUDING MAINTAINED LAWNS), AND THREE MANAGED RELEASE BASINS (WITH RAIN GARDEN COMPONENT, BMP 6.4.5). THE PROPOSED VEGETATION WILL PROVIDE SHADING OF THE RUNOFF PRIOR TO REACHING THE STORM SYSTEM AND WILL PROVIDE AN OPPORTUNITY FOR INFILTRATION AND PLANT UPTAKE OF THE RUNOFF. THREE MANAGED RELEASE BASINS ARE PROPOSED FOR VOLUME MANAGEMENT TO REDUCE HOLDING OF RUNOFF THAT MAY HEAT UP BY AN EXTENDED EXPOSURE OF THE SUN.**

**DOUGLASS TOWNSHIP PCSM NOTES:**

ADHERENCE TO AN APPROVED STORMWATER CONTROL AND BMP OPERATIONS AND MAINTENANCE PLAN: IT SHALL BE UNLAWFUL TO ALTER OR REMOVE ANY PERMANENT STORMWATER CONTROL, AND BMP REQUIRED BY AN APPROVED STORMWATER CONTROL AND BMP OPERATIONS AND MAINTENANCE PLAN OR TO ALLOW THE PROPERTY TO REMAIN IN A CONDITION WHICH DOES NOT CONFORM TO AN APPROVED STORMWATER CONTROL AND BMP OPERATIONS AND MAINTENANCE PLAN.

**ALTERATION OF BMPs:**

- NO PERSON SHALL MODIFY, REMOVE, FILL, LANDSCAPE, OR ALTER ANY EXISTING STORMWATER CONTROL OR BMP UNLESS IT IS PART OF AN APPROVED MAINTENANCE PROGRAM WITHOUT THE WRITTEN APPROVAL OF DOUGLASS TOWNSHIP.
- NO PERSON SHALL PLACE ANY STRUCTURE, FILL, LANDSCAPING, OR VEGETATION INTO A STORMWATER CONTROL OR BMP OR WITHIN A DRAINAGE EASEMENT THAT WOULD LIMIT OR ALTER THE FUNCTIONING OF THE STORMWATER CONTROL OR BMP WITHOUT THE WRITTEN APPROVAL OF DOUGLASS TOWNSHIP.



**BMP MAINTENANCE PROGRAM**

GENERAL NOTES:  
- THE STORMWATER FACILITIES SHOWN HEREON ARE PERMANENT BMP STRUCTURES AND ARE NOT TO BE REMOVED, ALTERED OR RECONFIGURED IN ANY WAY WITHOUT THE APPROVAL OF THE APPLICABLE MUNICIPALITY AND/OR THE LOCAL COUNTY CONSERVATION DISTRICT AND PAEPD.  
- ALL BMPs SUCH AS THESE BASINS AND CONVEYANCE SYSTEMS REQUIRE YEARLY INSPECTION AND MAINTENANCE TO ENSURE THE BMPs ARE USED AS DESIGNED. MAINTENANCE OF THE SYSTEM WILL INCLUDE THE REMOVAL OF ANY DEBRIS AND FLUSHING OF THE SYSTEM. AN INSPECTION REPORT SHOULD BE PROVIDED BY A CREDIBLE ENGINEERING FIRM UNDER THE DIRECTION OF A LICENSED ENGINEER, THE HOA, THEIR SUCCESSORS, OR ITS ASSIGNS, SHALL ASSUME ALL RESPONSIBILITY FOR THE COST ASSOCIATED WITH THE INSPECTION, CLEANING OF THE SYSTEM, AND ULTIMATELY ANY COSTS ASSOCIATED WITH RECOMMENDED REPAIRS, AND/OR REPLACEMENT OF SAID FACILITIES. COPIES OF THE INSPECTION REPORT SHALL BE FORWARDED TO THE APPLICABLE MUNICIPALITY FOR REVIEW AND RECORD KEEPING WITH STATE REGULATIONS. FAILURE OF ANY LISTED BMP MAY REQUIRE CORRECTIVE ACTION AND REPAIRS.  
- INSPECTION AND MAINTENANCE OF ALL BMP FACILITIES ARE THE RESPONSIBILITY OF THE HOMEOWNERS VIA A SHARED MAINTENANCE AGREEMENT.

**MAINTENANCE NOTES & SCHEDULE:**

- A LICENSED PROFESSIONAL ENGINEER SHOULD PROVIDE AN APPROPRIATE LONG-TERM OPERATION AND MAINTENANCE SCHEDULE FOR THE MRC BMP. SCHEDULES SHOULD BE BASED ON THE STORMWATER BMP MANUAL TO THE GREATEST DEGREE POSSIBLE. THE LONG-TERM OPERATION AND MAINTENANCE SCHEDULE SHOULD BE PROJECT-SPECIFIC AT A MINIMUM, THE LONG-TERM OPERATION AND MAINTENANCE SCHEDULE MUST MEET 25 PA. CODE § 102.8(f)(10) AND INCLUDE THE FOLLOWING:
  - UPPERMOST BASIN AND INLETS SHOULD BE INSPECTED AND CLEANED ANNUALLY, OR MORE OFTEN IF HISTORICAL MAINTENANCE RECORDS SUGGEST A MORE FREQUENT CLEANING.
  - THE VEGETATION (FOR THE MRC BMP AND CONTRIBUTING DRAINAGE AREA) SHOULD BE MAINTAINED IN GOOD CONDITION, AND ANY BARE SPOTS REVEALED (SEE BELOW FOR DETAILED MAINTENANCE).
  - CARE SHOULD BE TAKEN TO AVOID EXCESSIVE COMPACTION BY MOWERS. MOW AS APPROPRIATE FOR VEGETATIVE SPECIES.
  - INSPECT AT LEAST TWO TIMES PER YEAR AFTER RUNOFF EVENTS GREATER THAN 0.8 INCH AND MAKE SURE THAT RUNOFF DRAINS DOWN WITHIN THE DESIGN PARAMETERS (A LICENSED PROFESSIONAL ENGINEER SHOULD CLEARLY IDENTIFY THESE PARAMETERS AREAS).
  - AT LEAST TWO TIMES PER YEAR, OR MORE IF HISTORICAL MAINTENANCE INDICATE IT IS NECESSARY, INSPECT FOR ACCUMULATION OF SEDIMENT, DAMAGE TO OUTLET CONTROL STRUCTURES, EROSION, SIGNS OF WATER CONTAMINATION/SPILLS, AND RESTURBULE LEAF LITTER NEEDS TO BE REMOVED ANNUALLY.
  - AS NEEDED, REMOVE ACCUMULATED SEDIMENT AS REQUIRED TO MAINTAIN INFILTRATION THROUGH THE MRCs SOIL MEDIA AND TO MAINTAIN WATER QUALITY FUNCTIONALITY, RESTORE ORIGINAL CROSS SECTION, PROPERLY DISPOSE OF SEDIMENT.
  - IF FROST PREVENTION IS INCLUDED IN THE DESIGN, VACUUM AT LEAST TWICE PER YEAR. VACUUM SHOULD HAVE SUFFICIENT SUCTION POWER AND BE DESIGNED FOR USE WITH POROUS PAVEMENTS.
  - ALL MRC BMP COMPONENTS SHOULD BE MAINTAINED AS INDICATED IN THE STORMWATER BMP MANUAL.

**AS NOTED ABOVE, IF THE MRC BMP WILL MAINTAIN PEAK FLOWS IN EXCESS OF THE 2-YEAR/24-HOUR STORMWATER EVENT, AN INCREASED INSPECTION AND MAINTENANCE FREQUENCY WILL TYPICALLY BE NECESSARY.**

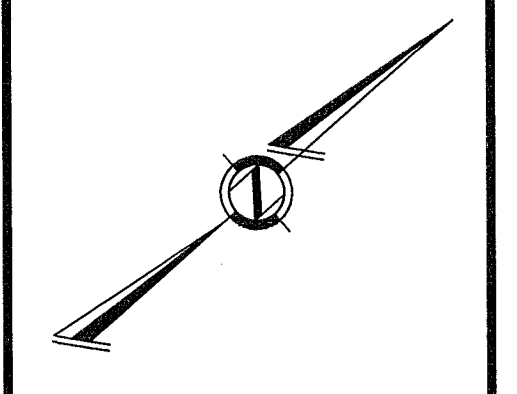
- MAINTENANCE OF THE MRC VEGETATION SHALL BE CONDUCTED AS PER THE FOLLOWING:
  - FIRST YEAR GROWING SEASON MAINTENANCE: WHENEVER VEGETATION REACHES A HEIGHT OF 16-24", USE A BRUSH HOG MOWER OR STRING TRIMMER TO TRIM THE MEADOW TO A HEIGHT OF 8". THIS WILL REDUCE COMPETITION BY FAST GROWING WEEDS FOR SUNLIGHT, WATER, AND NUTRIENTS. MOWING SHOULD NOT BE DONE WITH A LAWN MOWER AS THE MOWER WILL BE TOO LOW AND WATER SEEDS WILL BE KILLED. OFF-MOWING SHALL CEASE BY MID-SEPTEMBER. PROBLEM WEEDS SHALL BE HAND PULLED OR TREATED WITH AN APPROVED HERBICIDE.
  - SPECIAL CIRCUMSTANCES SECOND GROWING SEASON: PRIOR TO NEW SPRING GROWTH REACHING A HEIGHT OF 2" (I.E., SHORTLY AFTER FORTSYTHIA OR REDBUD BLOOMS), TRIM ANY MATERIAL STANDING FROM THE PREVIOUS YEAR CLOSE TO THE GROUND (APPROXIMATELY 2"). THIS WILL ALLOW THE SOIL TO WARM MORE QUICKLY WHICH WILL STIMULATE EMERGENCE AND GROWTH OF NATIVE SEEDLINGS. IT WILL ALSO REDUCE THE LIKELIHOOD OF THE MEADOW BEING INVADED BY SHRUBS. IF BIODEGRADING OR CONTAINERIZED WOODY MATERIALS WERE USED ON THE SITE OR SEED OF SHRUBS/TREES WERE PART OF THE MIX, THE SITE SHOULD NOT BE TRIMMED AFTER THE ESTABLISHMENT YEAR. PROBLEM WEEDS SHOULD BE SPOT SPRAYED OR HAND PULLED.
  - SPECIAL CIRCUMSTANCES SECOND GROWING SEASON: IF YOU NOTICE A HEAVY INFESTATION OF RAGWEED OR FORTALIX IN THE SECOND GROWING SEASON, TRIM THE MEADOW TO A HEIGHT OF 8". IF BIODEGRADING OR CONTAINERIZED WOODY MATERIALS WERE USED, TRIMMING SHOULD BE ABOVE OR AROUND NEW GROWTH OF THE PLANTS. TRIMMING SHOULD CEASE AFTER MID-SEPTEMBER.
  - GENERAL MAINTENANCE: IN ADDITION TO STRUCTURAL MAINTENANCE, SITUATION WEEDS TO BE REMOVED AS NEEDED. CLOSE MOWING OR EXTENSIVE CHEMICAL USE IS NOT CONDUVIVE TO WATER QUALITY IMPROVEMENT AND WILDLIFE HABITAT.

- MAINTENANCE OF BMP 6.4.5 RAIN GARDEN/BORIENTATION: CATCH BASINS AND INLETS SHOULD BE INSPECTED AND CLEANED AT LEAST 2 TIMES PER YEAR. THE VEGETATION ALONG THE SURFACE OF THE INFILTRATION TRENCH SHOULD BE MAINTAINED IN GOOD CONDITION, AND ANY BARE SPOTS REVEALED AS SOON AS POSSIBLE. VEHICLES SHOULD NOT BE TAKEN TO DRIVE ON A VEGETATED INFILTRATION TRENCH, AND CARE SHOULD BE TAKEN TO AVOID EXCESSIVE COMPACTION BY MOWERS.
- MAINTENANCE OF BMP 6.7.2 LANDSCAPE RESTORATION: MEADOWS AND FORESTS ARE LOW MAINTENANCE BUT NOT "NO MAINTENANCE". THEY USUALLY REQUIRE MORE FREQUENT MAINTENANCE IN THE FIRST FEW YEARS IMMEDIATELY FOLLOWING INSTALLATION. FOREST RESTORATION AREAS PLANTED WITH A PROPER COVER CROP CAN BE EXPECTED TO REQUIRE ANNUAL MOWING IN ORDER TO CONTROL INVASIVES. APPLICATION OF A CAREFULLY SELECTED HERBICIDE (ROUNDUP OR SIMILAR HERBICIDE) AROUND THE PERIPHERY OF PROTECTIVE TREE SHEDS/TREES MAY BE NECESSARY, REINFORCED BY SELECTIVE CUTTING/MANUAL REMOVAL, IF NECESSARY. THIS INITIAL MAINTENANCE ROUTINE IS NECESSARY FOR THE INITIAL 2 TO 3 YEARS OF GROWTH AND MAY BE NECESSARY FOR UP TO 5 YEARS UNTIL TREE GROWTH AND TREE CANOPY BEGINS TO FORM. NATURALLY INHERITING WEED GROWTH (ONCE SHADING IS ADEQUATE, GROWTH OF INVASIVES AND OTHER WEEDS WILL BE NATURALLY PREVENTED, AND THE WOODLAND BECOMES SELF-MANTAINING). REVIEW OF THE NEW WOODLAND SHOULD BE UNDERTAKEN INTERMITTENTLY TO DETERMINE IF REPLACEMENT TREES SHOULD BE PROVIDED (SOME MODERATE RATE OF PLANTING FAILURE IS USUAL). MEADOW MANAGEMENT IS SOMEWHAT MORE STRAIGHTFORWARD. A SEASONAL MOWING OR BURNING MAY BE REQUIRED. ALTHOUGH CARE MUST BE TAKEN TO MAKE SURE THAT ANY MANAGEMENT IS COORDINATED WITH ESSENTIAL RESEEDING AND OTHER IMPORTANT ASPECTS OF MEADOW REESTABLISHMENT. IN THE FIRST YEAR WEEDS MUST BE CAREFULLY CONTROLLED AND CONSISTENTLY MOVED BACK TO 4-6 INCHES TALL WHEN THEY REACH 12 INCHES IN HEIGHT. IN THE SECOND YEAR, WEEDS SHOULD CONTINUE TO MONITORED AND MOVED AND RHIZOMATOUS WEEDS SHOULD BE HAND TREATED WITH HERBICIDE. WEEDS SHOULD NOT BE SPRAYED WITH HERBICIDE AS THE DRIFT FROM THE SPRAY MAY KILL LARGE PATCHES OF DESIRABLE PLANTS, ALLOWING WEEDS TO MOVE IN TO THESE NEW OPEN AREAS. IN THE BEGINNING OF THE THIRD SEASON, THE YOUNG MEADOW SHOULD BE BURNED OFF IN MID-SPRING. IF BURNING IS NOT POSSIBLE, THE MEADOW SHOULD BE MOWED VERY CLOSELY TO THE GROUND INSTEAD. THE MOWED MATERIAL SHOULD BE REMOVED FROM THE SITE TO EXPOSE THE SOIL TO THE SUN. THIS HELPS ENCOURAGE RAPID SOIL WARMING WHICH FAVORS THE ESTABLISHMENT OF "WARM SEASON" PLANTS OVER "COOL SEASON" WEEDS.
- MAINTENANCE OF BMP 6.7.3 SOIL AMENDMENT: THE SOIL RESTORATION PROCESS MAY NEED TO BE REPEATED OVER TIME, DUE TO COMPACTION BY USE AND/OR SETTLING (FOR EXAMPLE, PLAY FIELDS OR PARK AREA WILL BE COMPACTED BY FOOT TRAFFIC).
- MAINTENANCE OF THE BASIN OUTLET STRUCTURES (AFTER EACH RUNOFF EVENT): THE OWNER, OR ITS ASSIGNS, SHALL BE RESPONSIBLE TO ENSURE THAT THE BASIN OUTLET STRUCTURE IS FREE AND CLEAR OF ANY DEBRIS THAT WOULD IMPED EUTFLOW FROM THE BASIN. THE OUTLET STRUCTURE SHALL BE INSPECTED AFTER EACH RUNOFF EVENT AND CLEANED AS REQUIRED.
- MAINTENANCE OF THE STORM SEWER COLLECTION SYSTEM (AFTER EACH RUNOFF EVENT): THE OWNER, OR ITS ASSIGNS, SHALL BE RESPONSIBLE TO ENSURE THAT THE STORM SEWER COLLECTION SYSTEM IS FREE AND CLEAR OF ANY DEBRIS. THE SYSTEM SHALL BE INSPECTED AFTER EACH RUNOFF EVENT AND CLEANED IF REQUIRED.
- MAINTENANCE OF THE DOWNSPOUT & ROOF LEADER COLLECTION SYSTEM (QUARTERLY): THE OWNER, OR ITS ASSIGNS, SHALL BE RESPONSIBLE TO ENSURE THAT THE DOWNSPOUT AND ROOF LEADER COLLECTION SYSTEM IS FREE AND CLEAR OF ANY DEBRIS. THE SYSTEM SHALL BE INSPECTED AFTER EACH RUNOFF EVENT AND CLEANED IF REQUIRED. QUARTERLY FLUSHING OF THE SYSTEM SHALL BE DONE TO ENSURE THE SYSTEM IS FREE AND CLEAR OF ANY SEDIMENT AND DEBRIS.
  - ANNUALLY FOR THE FIRST 5 YEARS FOLLOWING CONSTRUCTION.
  - ONCE EVERY 3 YEARS THEREAFTER.
  - DURING OR IMMEDIATELY AFTER CESSATION OF A 10-YEAR OR GREATER STORM.
- STORMWATER MANAGEMENT BMPs SHOULD BE INSPECTED BY THE LANDOWNER OR THE OWNER'S DESIGNEE ACCORDING TO THE FOLLOWING LIST OF MINIMUM FREQUENCIES:
  - ANNUALLY FOR THE FIRST 5 YEARS FOLLOWING CONSTRUCTION.
  - ONCE EVERY 3 YEARS THEREAFTER.
  - DURING OR IMMEDIATELY AFTER CESSATION OF A 10-YEAR OR GREATER STORM.

**CALL BEFORE YOU DIG!**  
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - ST01-C  
PA  
PROFESSIONAL ENGINEER  
PENNSYLVANIA LICENSE NO. 041814-E  
1-800-242-1776

**R. A. GRAF**  
PROFESSIONAL ENGINEER  
PENNSYLVANIA LICENSE NO. 041814-E

REV.	DATE	COMMENTS
1	08/13/2019	PER TOWNSHIP ENGINEER COMMENTS
2	07/22/2019	PER INPERS SUBMISSION
3	06/16/2019	PER TOWNSHIP STAFF COMMENTS
4	09/09/2019	PER MDCD STAFF COMMENTS
5	10/07/2019	PER TOWNSHIP STAFF COMMENTS
6	11/18/2019	PER MDCD AND TOWNSHIP STAFF COMMENTS
7	03/06/2020	PER TOWNSHIP STAFF COMMENTS
8	05/13/2020	PER MDCD STAFF COMMENTS



**MIKELLEN, LLC**  
PARCEL 32-00-06328-50-7  
DOUGLASS TOWNSHIP,  
MONTGOMERY COUNTY,  
PENNSYLVANIA.

**GRAF ENGINEERING, LLC**  
LAND DEVELOPMENT CONSULTING  
410 WEST MAIN STREET, SUITE 202  
P.O. BOX 110  
LANSDALE, PA 19446  
TEL: (267) 263-2054

SHEET TITLE: **OVERALL POST-CONSTRUCTION STORMWATER MANAGEMENT PLAN**  
SHEET No. **17**  
SCALE: 1" = 40'  
DRAWN BY: LEM  
CHECKED BY: RAG  
DATE: 02/28/2019  
PROJECT No.: G019.002 OF 20

