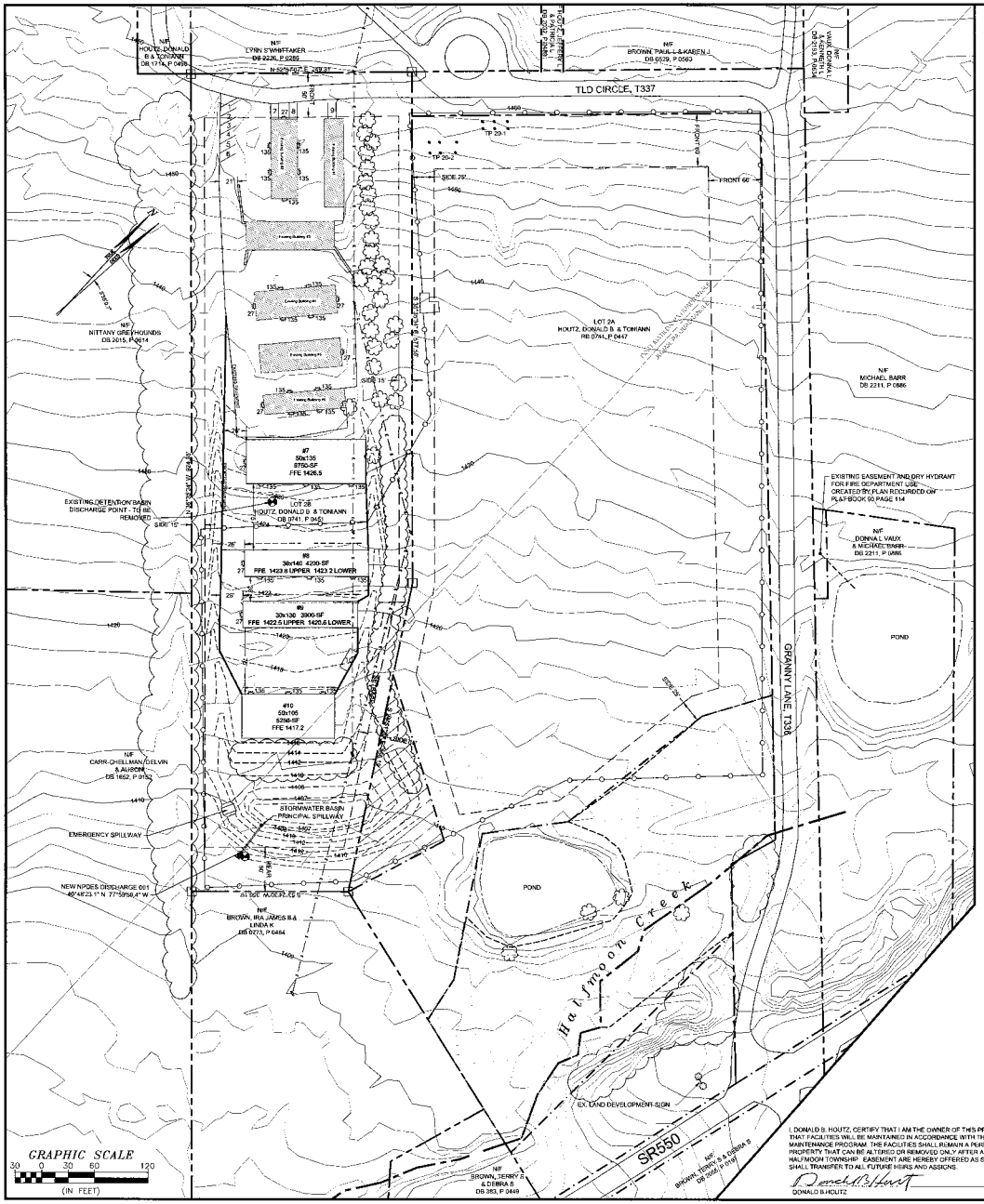


LEGEND

- EXISTING CONTOUR LINES (1430)
- FINISHED GRADE CONTOURS
- PROPERTY BOUNDARY
- EASEMENT BOUNDARY
- SETBACK
- UTILITY LINE (EX. & PROPOSED
- UTILITY LINE (TO BE ABANDONED)
- STREAM/POND
- EXISTING BUILDINGS
- FEMA FLOOD BOUNDARY
- EXISTING TREES AND SHRUBS
- EXISTING TREELINE
- NEW BUILDING
- WETLAND
- STORMWATER EASEMENT
- RIPARIAN BUFFER ENHANCEMENT
- PROPOSED NEW LIGHTS (WATTS) (#27)
- PROPOSED BUFFER PLANTING
- RUNOFF FLOW
- SOIL PERK SITE (TP 20-1)

PURPOSE

THE PURPOSE OF THIS PLAN IS TO PROVIDE FOR THE EXPANSION OF THE HOUTZ SELF STORAGE FACILITY LOCATED ON LOT 2B. FOUR NEW BUILDINGS ARE PROPOSED ALONG WITH REVISED STORMWATER MANAGEMENT AND BUFFER YARD LANDSCAPING. A RIPARIAN BUFFER EASEMENT HAS BEEN CREATED ON LOT 2A WITH TREE PLANTING TO ENHANCE THE RIPARIAN BUFFER. LOT 2A IS TO BECOME A RESIDENTIAL LOT THAT MUST MEET ALL THE REQUIREMENTS OF THE AGRICULTURAL DISTRICT (A-1) AS DEFINED IN HALFMOON TOWNSHIP ZONING ORDINANCE § 255-13 PRIOR TO CONSTRUCTION.

GENERAL NOTES

1. WATER SERVICE - THE FACILITY HAS NO WATER SERVICE.
2. SEWAGE SERVICE - THE FACILITY HAS NO SEWAGE SERVICE.
3. STREETS - THE FACILITY IS SERVED BY EXISTING TOWNSHIP STREETS. THERE ARE NO INTERNAL PUBLIC STREETS.
4. SIDEWALKS - THE FACILITY HAS NO SIDEWALKS.
5. OFF-STREET PARKING - THE NATURE OF THE FACILITY IS SUCH THAT MINIMAL TEMPORARY PARKING IS REQUIRED TO SERVE CUSTOMERS DURING PLACEMENT AND PICKUP OF STORED ITEMS, IN ACCORDANCE WITH THE PRE SUBMISSION MEETING, ONE (1) SPACE PER BUILDING OR TEN (10) PARKING SPACES HAVE BEEN PROVIDED.
6. BUFFER YARD - A BUFFER YARD HAS BEEN DESIGNED IN ACCORDANCE WITH TOWNSHIP ORDINANCES TO SCREEN THE FACILITY FROM NEIGHBORING PROPERTIES. PLEASE REFER TO SHEET LD-2 LANDSCAPE PLAN FOR DETAILS. THE EXISTING TREE LINE ALONG THE WESTERN PROPERTY BOUNDARY AND THE EXISTING BUFFER PLANTINGS ALONG THE EASTERN SIDE OF THE EXISTING STORAGE BUILDINGS ARE TO CONTINUE TO PROVIDE SUCH BUFFER AND SCREENING.
7. SCREENING - IN ACCORDANCE WITH INDUSTRIAL ZONE DESIGN STANDARDS, THE PROPOSED AND EXISTING BUFFER YARD AND PLANTINGS PROVIDE SCREENING AS REQUIRED BY ORDINANCE.
8. RIPARIAN BUFFER - WHILE NO RIPARIAN BUFFER IS PRESENT ON THE PROPERTY IN QUESTION, A RESTORATION OF THE HALFMOON CREEK RIPARIAN BUFFER HAS BEEN PROPOSED ON THE ADJACENT PROPERTY. THE PROPERTY IS OWNED BY THE SAME OWNER. THIS BUFFER IS WITHIN A PROPOSED CONSERVATION EASEMENT WHICH WILL REMAIN IN PERPETUITY. PLEASE SEE LD-2 LANDSCAPE PLAN AND LD-3 EASEMENT PLAN FOR ADDITIONAL DETAILS.
9. STORAGE - EXCEPT FOR VEHICLES PARKED DURING ACCESS BY PATRONS, NO VEHICLES OR LOOSE ITEMS SHALL BE STORED LONG TERM OUTSIDE BUILDINGS SO AS TO CREATE A NUISANCE.
10. LIGHTING - A LIGHTING PLAN FOR THE PROPOSED NEW BUILDINGS IS PROVIDED ON SHEET LD-4 LIGHTING PLAN. THE PLAN PROVIDES LED CUT-OFF LUMINAIRES FOR ALL NEW LIGHTING. THE EXISTING LIGHTING ON BUILDINGS WILL ALSO BE REPLACED WHEN THE NEW BUILDINGS ARE CONSTRUCTED. THE PROPOSED LIGHTS ARE SHOWN ON LD-4.
11. SIGNS - THE EXISTING PERMITTED SIGN LOCATED AT THE INTERSECTION OF GRANNY LANE AND SR550 IS TO REMAIN IN PLACE. NO NEW SIGNS ARE PROPOSED.
12. STORMWATER MANAGEMENT - THE STORMWATER MANAGEMENT PLAN HAS BEEN DEVELOPED TO MEET THE REQUIREMENTS OF THE HALFMOON TOWNSHIP STORMWATER MANAGEMENT PLAN AND WITH PADEP NATIONAL POLLUTANT DISCHARGE PERMITTING. PLEASE REFER TO PLAN SHEETS SW-1 STORMWATER MANAGEMENT PLAN, SW-2 SWMP NARRATIVE AND DETAILS, SW-3 DETENTION BASIN DETAILS AND SPECIFICATIONS AND SW-4 EROSION AND SEDIMENTATION CONTROL PLAN.
13. LANDSCAPE PLAN - PLAN SHEET LD-2 PROVIDES DETAILS FOR THE LANDSCAPING PLAN WHICH INCLUDES THE PLANTING DETAILS FOR THE BUFFER YARD SCREENING AND THE RIPARIAN BUFFER RESTORATION.
14. EASEMENTS - TWO EASEMENTS ARE PROPOSED ON THE ADJACENT PROPERTY OF THE OWNER. A STORMWATER MANAGEMENT EASEMENT PROVIDES PERPETUAL USE AND PROTECTION FOR THE CONSTRUCTION AND MAINTENANCE OF THE STORMWATER DETENTION BASIN. THE CONSERVATION EASEMENT PROVIDES ACCESS AND PERPETUAL PROTECTION FOR CONSTRUCTION AND MAINTENANCE OF THE RIPARIAN BUFFER RESTORATION. PLEASE SEE LD-3 EASEMENT PLAN FOR DETAILS.
15. FIRE MARSHALL REVIEW - PLAN SHEET LD-5 FIREMARSHALL REVIEW PLAN PROVIDES THE DETAILS FOR REVIEW BY THE FIRE MARSHALL.
16. THE OWNER HAS ALSO OBTAINED AN NPDES PERMIT WHICH INCLUDES A POST-CONSTRUCTION STORMWATER MANAGEMENT PLAN (PCSM) AND AN EROSION AND SEDIMENTATION CONTROL PLAN (ESC) PREPARED IN ACCORDANCE WITH CHAPTER 102 OF PA CODE. ALL PROVISIONS OF THE NPDES PERMIT SHALL ALSO BE MET IN ADDITION TO THE PROVISIONS OF HALFMOON TOWNSHIP ORDINANCES.
17. ONCE THIS PLAN HAS BEEN APPROVED BY HALFMOON TOWNSHIP AND RECORDED BY THE OWNER, LOT 2A WILL BECOME A VIABLE RESIDENTIAL LOT UNDER THE REQUIREMENTS OF THE AGRICULTURAL (A-1) DISTRICT AS DEFINED BY §255-13 OF THE HALFMOON TOWNSHIP ZONING CODE. NO BUILDING/ZONING/SEWER PERMIT SHALL BE ISSUED FOR LOT 2A UNTIL A COMPLETED COMPONENT 1 SEWAGE PLANNING MODULE HAS BEEN APPROVED BY PADEP.
18. ACCESS TO LOT 2A MAY BE FROM EITHER GRANNY LANE OR TLD CIRCLE WITH LOCATION OF SAID ACCESS TO BE DETERMINED BY THE OWNER WITH AGREEMENT FROM HALFMOON TOWNSHIP AT THE TIME OF BUILDING PERMIT APPLICATION. A BUILDING SETBACK OF 60-FT HAS BEEN SHOWN FROM BOTH STREETS.
19. ON LOT DISPOSAL TEST PITS 20-1 AND 20-2 ON LOT 2A SELECTED AND DESCRIBED IN THE FIELD 6/8/2020 BY SEWAGE ENFORCEMENT OFFICER, CORY WARNER. PERK TESTS WERE PERFORMED 7/14/2020, BOTH SITES WERE FOUND TO BE SUITABLE FOR ON-LOT DISPOSAL.

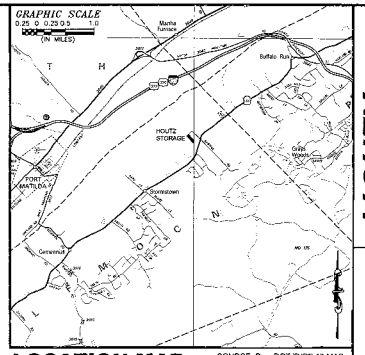
I, DONALD B. HOUTZ, CERTIFY THAT I AM THE OWNER OF THIS PROPERTY AND ACKNOWLEDGE THAT FACILITIES WILL BE MAINTAINED IN ACCORDANCE WITH THE APPROVED OWNERSHIP AND MAINTENANCE PROGRAM. THE FACILITIES SHALL REMAIN A PERMANENT FIXTURE ON THIS PROPERTY THAT CAN BE ALTERED OR REMOVED ONLY AFTER APPROVAL OF A REVISED PLAN BY HALFMOON TOWNSHIP. EASEMENT ARE HEREBY OFFERED AS SPECIFIED IN LD-3. THIS STATEMENT SHALL TRANSFER TO ALL FUTURE HEIRS AND ASSIGNS.

Donald B Houtz — 8/20/20
DONALD B HOUTZ — DATE

COMMONWEALTH OF PA
CENTRE COUNTY
THIS RECORD WAS ACKNOWLEDGED BEFORE ME ON 8/28/2020 BY DONALD B. HOUTZ

Amy M. Smith — 8/28/2020
NOTARY — DATE

Commonwealth of Pennsylvania - Notary Seal
Amy M. Smith, Notary Public
Centre County
My commission expires May 16, 2022
Commission number 1255942
Member, Pennsylvania Association of Notaries



LOCATION MAP

SOURCE: PennDOT TYPE 10 MAP
SCALE: 1"=1-MI.±

GENERAL INFORMATION

PROPERTY OWNER
HOUTZ, DONALD B. & TONIANN
31 TLD CIRCLE
PORT MATILDA, PA 16870
RB 0741, P 0451 (LOT 2B), RB 00741, P 0447 (LOT 2A)
TAX PARCELS: 17-001-,023 (LOT 2B), 17-001-,024 (LOT 2A)

PARCEL AREA: EXISTING: 4.990-AC (LOT 2B), 12.97-AC (LOT 2A)

ZONING DISTRICT: L-I, LIMITED INDUSTRIAL (LOT 2B), A, AGRICULTURAL (LOT 2A)

SETBACKS: 50-FT FRONT, 15-FT SIDE, 50-FT REAR (LOT 2B)
60-FT FRONT YARD, 25-FT SIDE AND REAR YARD (LOT 2A)

BUILDING COVERAGE (LOT 2B)
EX. BUILDING COVERAGE: 16,012-SF, 0.368-AC, 7.4%
NEW BUILDING COVERAGE: 20,100-SF, 0.461-AC
PROPOSED TOTAL BUILDING COVERAGE: 36,112-SF,0.829-AC, 15.8%
ALLOWABLE COVERAGE: 30%

IMPERVIOUS COVER (LOT 2B)
EX. IMPERVIOUS COVER: 55,465-SF, 1.273-AC, 25.5%
PROPOSED TOTAL IMPERVIOUS COVER: 106,981-SF, 2.456-AC, 46.7%

MAXIMUM BUILDING HEIGHT = 45-FEET

TEMPORARY CONSTRUCTION EASEMENT
83,388-SF (1.1914-AC) ADJACENT PROPERTY OWNER: HOUTZ, DONALD & TONIANN, R 0741, P 0451

PERMANENT STORMWATER MANAGEMENT EASEMENTS (LOT 2A)
11,757-SF (0.270-AC) OWNER: HOUTZ, DONALD & TONIANN, R 0741, P 0447 FOR DETENTION BASIN EMBANKMENT

74,881-SF (1.719-AC) OWNER: HOUTZ, DONALD & TONIANN, R 0741, P0447 FOR RIPARIAN BUFFER ZONE PLANTING AND MAINTENANCE.

TABLE OF CONTENTS

NOTE: DOCUMENTS AND PLANS WHICH MAKE UP THE NPDES PERMIT AS ISSUED BY PADEP SHALL ALSO BE USED DURING CONSTRUCTION AND AFTER CONSTRUCTION TO MEET ALL OF THE REQUIREMENTS OF PA CODE CHAPTER 102.

I, JOSEPH E. LICHTY, PE, HEREBY CERTIFY THAT THIS PLAN IS TRUE AND ACCURATE BASED ON CRITERIA OF THE HALFMOON SUBDIVISION AND LAND DEVELOPMENT ORDINANCE.

Joseph E Lichty — 08/17/20
JOSEPH E. LICHTY, PE — DATE

HALFMOON TOWNSHIP APPROVALS

Donald Dellar — 8/13/2020
CHAIRMAN, BOARD OF SUPERVISORS — DATE

Denise Gummerson — 8/13/2020
SECRETARY, BOARD OF SUPERVISORS — DATE

Cory Warner — 8/20/20
CHAIRMAN, PLANNING COMMISSION — DATE

8/19/2020
SECRETARY, PLANNING COMMISSION — DATE

P 00095-0166 Sep 09, 2020
HOUTZ SELF STORAGE EXPANSION
HALFMOON TOWNSHIP
08-02-2020 06:46:57
PLAN 9 pgs

LICHTY ENGINEERING
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DRAWN BY: JEL
05/12/2020

LD-1

REVISIONS
08/07/2020
08/20/2020
08/24/2020

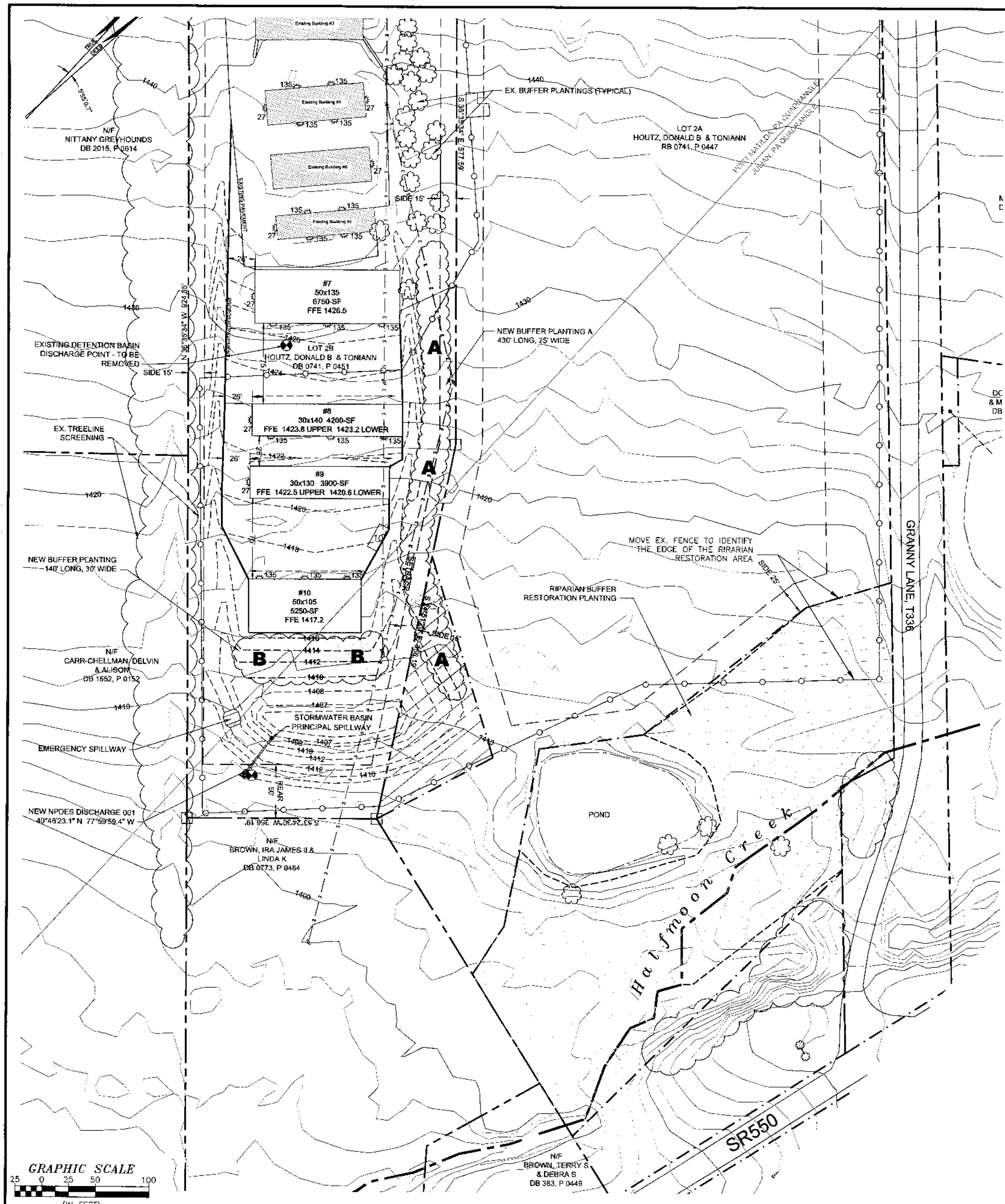
SOURCE:

SCALE: 1"=60'

JOSEPH EDWARD LICHTY — ENGINEER — 039627-E — PROFESSIONAL — PENNSYLVANIA

HOUTZ SELF STORAGE EXPANSION SITE PLAN
LAND DEVELOPMENT PLAN

Houtz Self Storage
Half Moon Township - Centre County - PA



LEGEND

- EXISTING CONTOUR LINES
- FINISHED GRADE CONTOURS
- PROPERTY BOUNDARY
- EASEMENT BOUNDARY
- SETBACK
- UTILITY LINE (EX. & PROPOSED
- UTILITY LINE (TO BE ABANDONED)
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- RIPARIAN BUFFER ENHANCEMENT
- PROPOSED NEW LIGHTS (WATTS)
- PROPOSED BUFFER PLANTING
- RUNOFF FLOW

RIPARIAN BUFFER RESTORATION PLAN

GENERAL
1.72-AC of land on the adjacent property has been identified as a riparian forest buffer restoration. The area is that land within 150-feet from Halfmoon Creek that is suitable for planting tree cover. The area is to be planted with seedlings by hand to eliminate earth disturbance in addition to the proposed project. The restoration is intended to provide tree cover near the stream on property owned by the developer.

PREPARATION
The area shall be mowed and cleared of large shrubs prior to planting seedlings. The existing pasture fence on the property shall be moved to delineate the boundary of the restoration area so that grazing animals are kept out of the restoration area.

PLANTING
The existing land is covered by native grasses which shall remain in place to help protect the seedlings. Tree seedlings shall be planted on approximately 10-feet centers within the area shown on the plan. The planting shall be done by hand utilizing a minimum of earth disturbance. It is estimated using the table on section 6.7.1 of the PaDEP Stormwater BMP Manual that approximately 436 seedlings will be needed per acre. Consequently, approximately a total of 724 seedlings will be required. Seedling species shall be selected from the following list (select at least three from each list):

Nearest to Halfmoon Creek
Silver Maple, Black Ash, Red Ash, Sycamore, and Willow Oak
Further from Halfmoon Creek
Red maple, American Beech, Sweet gum, Tuliptree, and Pin Oak.

When planting, care should be taken to refrain from planting invasive species listed on the Halfmoon Township Invasive Plants list provided in Section 255 Attachment 7, Appendix A. In addition, whenever possible use plants from the Township's Appendix B - Plants Native to Central Pennsylvania.

MAINTENANCE
The planted area shall be inspected at least biannually (spring and fall). The biannual inspections must continue for a minimum of five (5) years. The biannual inspections can only end after no remediation has been needed for three (3) consecutive inspections. After biannual inspections have ended, perpetual inspections shall occur after extreme precipitation events exceeding the 2-year/24-hour event. During the biannual inspection period, extreme event inspections shall be conducted in addition to regularily scheduled inspections. If at any time, the success rate of the planted species drops below 80% (20% or 145 seedlings) dead or missing, the dead or missing seedlings shall be restored. If evidence of animal predation is encountered, then plastic sleeves shall be installed to protect the seedlings. In addition, if non-native invasive or noxious plants are encountered during inspections, these species shall be killed, removed or both. The date and results of all inspections shall be maintained in a log book by the land owner. The log entries shall document the conditions at the site including photographs of the buffer and shall document any remediation work performed to maintain the buffer and when it was performed.

BUFFER YARD LANDSCAPING

GENERAL
The portion of the development that is not already shielded by previous buffer yard planting or by existing dense treeline has been designated for planting of a buffer yard in accordance with Chapter 255. The low use storage land use was deemed to be similar in nature as Class III cover (churches, offices, etc.). The adjacent property is agricultural/residential in nature (Class I). Table 2 provides for a Type C buffer yard planting in such conditions. From Table 5, two of the possible yard configurations were selected, Buffer Yard A, along the eastern boundary is 430-feet long and 30-feet wide and Buffer Yard B to the south is 140-feet wide and 30-feet wide. Using the formulas provided in Table 5, the plants required were calculated and are provided in the attached Table along with the species of plants to select from. At least two different canopy tree species, understory tree species and shrub species must be used. Other species found in the Township's "Native Plants of Central PA" may be used. To use plants not on this list, the owner must obtain written approval from the Township.

PLANTING
After all construction has been completed and after the area has been revegetated in accordance with the Erosion and Sedimentation Control Plan, the designated buffer yard areas will be planted with canopy trees, understory trees and shrubs during the next planting season (March 15 - April 15 and September 15 - October 15). Planting methods should follow techniques provided in PennDOT Publication 461 Roadside Planting Guidebook. The canopy trees shall be spaced throughout the buffer yard and understory trees and shrubs shall be planted in groupings in the open spaces between the canopy trees in such a way that maximum screening of the buildings to adjacent property is attained. Use Attachment 5 Table 5 of Chapter 255 as a guide.

Canopy trees shall have a minimum caliper diameter of 2" at a height of 6" above the rootball. Understory trees shall have a minimum caliper diameter of 1 ½" at a height of 6" above the rootball. Trees should be planted no more than 10-feet apart.

Shrubs shall be in a minimum 2-gallon container and at least 2-feet tall at planting. Shrubs should be nearest to the property boundary and planted in groups between trees, when looking towards the property. Shrubs should be planted at intervals of no more than 5-feet within each grouping. No more than 1/3 of shrubs may be deciduous. Evergreen shrubs may comprise more than 2/3 of the planted species/

When planting, care should be taken to refrain from planting invasive species listed on the Halfmoon Township Invasive Plants list provided in Section 255 Attachment 7, Appendix A. In addition, whenever possible use plants from the Township's Appendix B - Plants Native to Central Pennsylvania.

MAINTENANCE
The planted area shall be inspected every six months for two years. Dead or missing plants shall be restored immediately. If evidence of animal predation is encountered, then plastic sleeves shall be installed to protect the plants. After two years, the inspections may revert to annual.

BUFFER YARD SPECIES

BOTANICAL NAME	COMMON NAME
CANOPY TREES: 10 in Area A, 3 in Area B (Min. caliper 2" at 6" above rootball)	
Acer spp.	Maple excluding
Carpinus Caroliniana	American Hornbeam
Fagus grandiolia	American Beech
Liriodendron tulipifera	Tuliptree
Nyssa sylvatica	Black tupelo
Platanus occidentalis	American planetree
Quercus spp.	Black, white, northern red, scarlet, pin and chestnut oak
Sassafras albidum	Common sassafras
UNDERSTORY TREES: 21 in Area A and 5 in Area B (Min. Caliper 1-1/2" at 6" above rootball)	
Amelanchier spp.	Serviceberry species
Cercis canadensis	Eastern redbud
Cornus alternifolia	Pagoda dogwood
Cornus Florida	Flowering dogwood
Salix discolor; nigra	Pussy and Black Willow
SHRUBS: 31 in Area A and 8 in Area B (Min. 2-Gal. container. No more than 1/3 of shrubs may be deciduous)	
DECIDUOUS	
Cornus sericea	Redosier dogwood
Cornus Alba	Red stemmed dogwood
Lindera benzoin	Common spicebush
Viburnum spp.	Viburnum species
EVERGREEN	
Ilex x meserva	Blue girl holly
Ilex verticillata	Common winterberry holly
Juniper scop. spartan	Spartan juniper
Juniper scop. gray gleam	Gray gleam juniper
Other species may be substituted from the Halfmoon Township "Plants Native to Central PA" list or with other species if approved in writing by Halfmoon Township.	

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DRAWN BY: JEL
05/12/2020

LD-2

REVISIONS
08/05/2020
08/04/2020

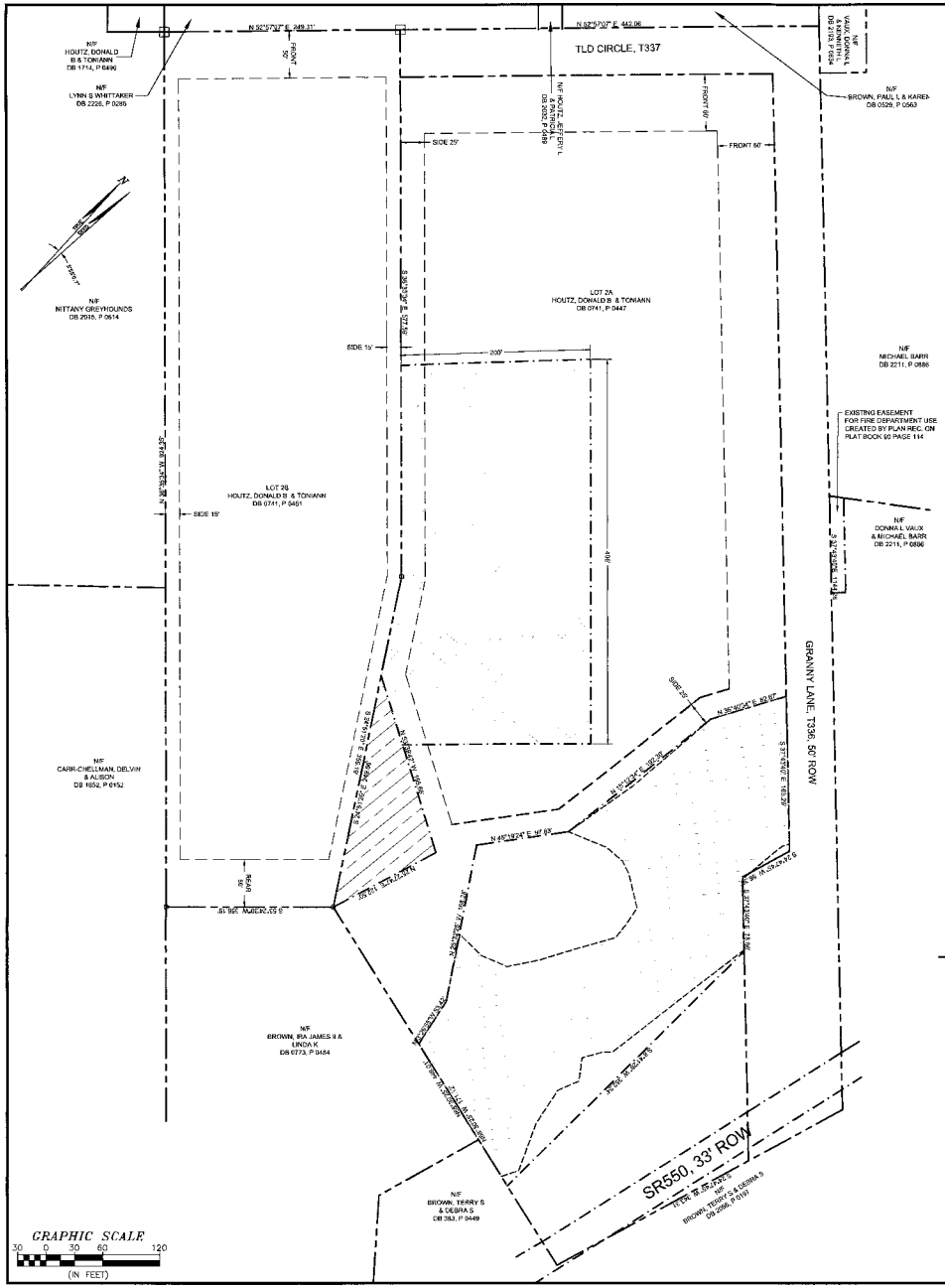
SOURCE:

SCALE: 1"=50'

COMMONWEALTH OF PENNSYLVANIA
PROFESSIONAL
JOSEPH EDWARD LICHTY
ENGINEER
PE

Houtz Self Storage
Half Moon Township - Centre County - PA

HOUTZ SELF STORAGE EXPANSION SITE PLAN LAND SCAPING AND RIPARIAN BUFFER RESTORATION PLAN



LEGEND

- PROPERTY BOUNDARY
- EASEMENT BOUNDARY
- SETBACK
- STORMWATER EASEMENT
- RIPARIAN BUFFER ENHANCEMENT
- TEMPORARY CONSTRUCTION EASEMENT

GENERAL INFORMATION

PROPERTY OWNER
HOUTZ, DONALD B. & TONIANN
31 TLD CIRCLE
PORT MATILDA, PA 16870
RB 0741, P 0451 (LOT 2B), RB 00741, P 0447 (LOT 2A)
TAX PARCELS: 17-001-,023 (LOT 2B), 17-001-,024 (LOT 2A)

PARCEL AREA: EXISTING: 4.980-AC (LOT 2B), 12.57-AC (LOT 2A)

ZONING DISTRICT: L-I, LIMITED INDUSTRIAL (LOT 2B), A, AGRICULTURAL (LOT 2A)

SETBACKS: 60-FT FRONT, 15-FT SIDE, 50-FT REAR (LOT 2B)
60-FT FRONT YARD, 25-FT SIDE AND REAR YARD (LOT 2A)

BUILDING COVERAGE (LOT 2B)
EX. BUILDING COVERAGE: 16,012-SF, 0.368-AC, 7.4%
NEW BUILDING COVERAGE: 20,100-SF, 0.461-AC
PROPOSED TOTAL BUILDING COVERAGE: 36,112-SF,0.828-AC, 15.8%
ALLOWABLE COVERAGE: 20%

IMPERVIOUS COVER (LOT 2B)
EX. IMPERVIOUS COVER: 55,465-SF, 1.273-AC, 25.5%
PROPOSED TOTAL IMPERVIOUS COVER: 106,981-SF, 2.456-AC, 46.7%

MAXIMUM BUILDING HEIGHT = 45-FEET

TEMPORARY CONSTRUCTION EASEMENT
83,388-SF (1.1914-AC) ADJACENT PROPERTY OWNER: HOUTZ, DONALD & TONIANN, R 0741, P 0451

PERMANENT STORMWATER MANAGEMENT EASEMENTS (LOT 2A)
11,757-SF (0.270-AC) OWNER: HOUTZ, DONALD & TONIANN, R 0741, P 0447
FOR DETENTION BASIN EMBANKMENT

74,881-SF (1.719-AC) OWNER: HOUTZ, DONALD & TONIANN, R 0741, P0447
FOR RIPARIAN BUFFER ZONE PLANTING AND MAINTENANCE.

EASEMENT NOTES

STORMWATER MANAGEMENT EASEMENT
1. THE STORMWATER MANAGEMENT EASEMENT ON LOT 2A IS INTENDED TO ALLOW FOR CONSTRUCTION AND FUTURE MAINTENANCE OF THE STORMWATER DETENTION BASIN
2. NO FUTURE MODIFICATION MAY BE MADE WITHIN THE EASEMENT WITHOUT PRIOR WRITTEN APPROVAL OF HALFMOON TOWNSHIP.
3. CURRENT AND ALL FUTURE OWNERS OF THE SELF STORAGE FACILITY AND ANY REPRESENTATIVES OF HALFMOON TOWNSHIP ARE GRANTED ACCESS TO THE EASEMENT IN PERPETUITY TO INSPECT AND MAINTAIN THE DETENTION BASIN AND EMBANKMENT.

CONSERVATION EASEMENT
4. THE CONSERVATION EASEMENT ON LOT 2A IS INTENDED TO PROVIDE PROTECTION FOR THE RIPARIAN BUFFER OF HALFMOON CREEK INCLUDING ALL DRAINAGE FEATURES AND THE ENHANCED RIPARIAN BUFFER BEING INSTALLED FOR THIS PROJECT.
5. NO FUTURE MODIFICATION TO THE LAND MAY BE MADE WITHOUT PRIOR WRITTEN APPROVAL OF HALFMOON TOWNSHIP.
6. CURRENT AND ALL FUTURE OWNERS OF THE SELF STORAGE FACILITY AND ANY REPRESENTATIVES OF HALFMOON TOWNSHIP ARE GRANTED ACCESS TO THE EASEMENT IN PERPETUITY TO INSPECT AND MAINTAIN THE RIPARIAN BUFFER.

TEMPORARY CONSTRUCTION EASEMENT
7. THE TEMPORARY CONSTRUCTION EASEMENT ON LOT 2A IS INTENDED TO PROVIDE SPACE DURING CONSTRUCTION TO STOCKPILE SOIL.
8. FOLLOWING CONSTRUCTION, THE AREA SHALL BE RETURNED APPROXIMATELY TO PRE CONSTRUCTION CONDITIONS BY GRADING AND REVETATING IN ACCORDANCE WITH THE EROSION AND SEDIMENTATION CONTROL PLAN.
9. ONCE THE AREA HAS BEEN RESTORED, THE EASEMENT SHALL CEASE TO EXIST.

GENERAL EASEMENT
10. IN ADDITION TO THE EASEMENTS LISTED ABOVE, REPRESENTATIVES OF HALFMOON TOWNSHIP ARE GRANTED RIGHT OF WAY ACROSS ANY PORTION OF LOT 2B IN ORDER TO INSPECT OR MAINTAIN STORMWATER MANAGEMENT FACILITIES.

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DRAWN BY: JEL
06/12/2020

LD-3

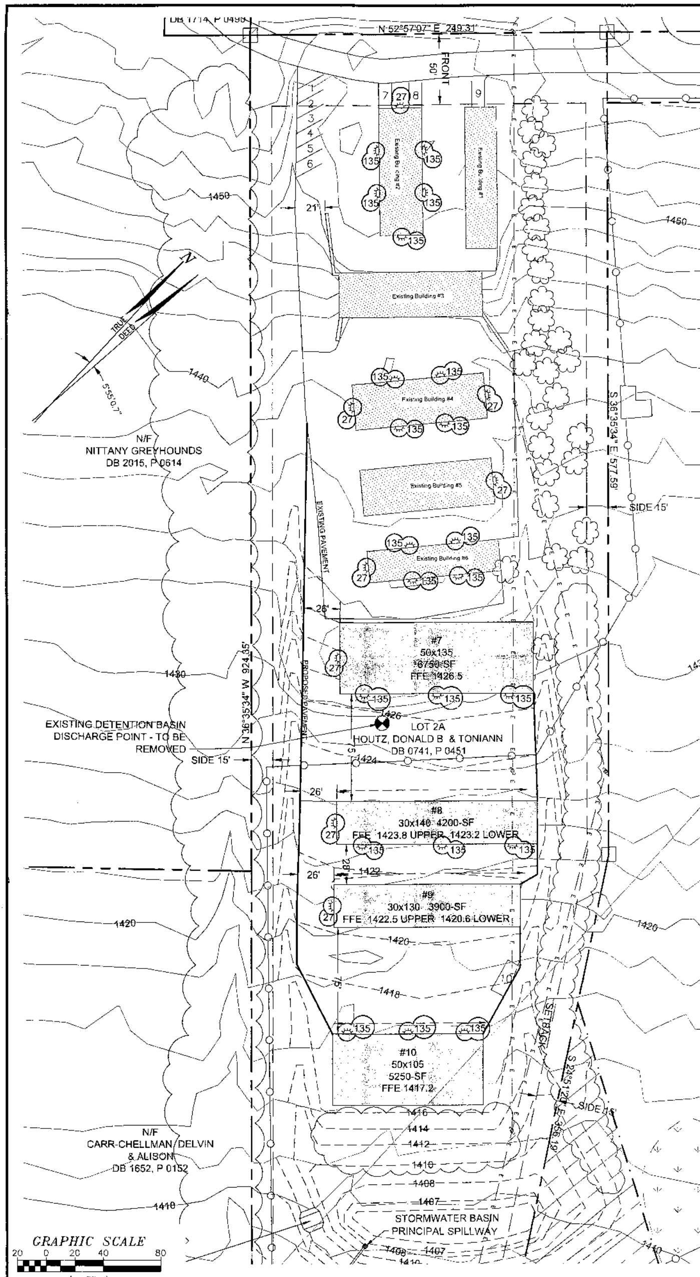
REVISIONS
08/03/2020
08/20/2020
08/04/2020

SOURCE:

SCALE: 1"=60'

Houtz Self Storage
Half Moon Township - Centre County - PA

HOUTZ SELF STORAGE EXPANSION SITE PLAN
EASEMENTS PLAN



LEGEND

- EXISTING CONTOUR LINES
- FINISHED GRADE CONTOURS
- PROPERTY BOUNDARY
- SETBACK
- UTILITY LINE (EX. & PROPOSED
- UTILITY LINE (TO BE ABANDONED)
- EXISTING BUILDINGS
- EXISTING TREES AND SHRUBS
- EXISTING TREELINE AND BUFFER YARD PLANTINGS
- NEW BUILDING
- EXISTING NON-CONFORMING LIGHTS
- PROPOSED NEW LIGHTS (WATTS)

LIGHTING NOTES

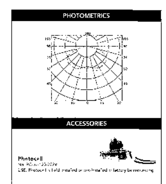
1. THE NEW BUILDINGS WILL BE LIGHTED USING LED WALL PACKS WITH FULL 90° CUTOFF AS SHOWN ON THE PLAN (SEE CUT SHEET BELOW). THE LUMINAIRES ARE MANUFACTURED IN SUCH A WAY AS TO THROW LIGHT DOWN AND NOT SHINE DIRECTLY OFF OF THE PROPERTY.
2. WALL PACKS MOUNTED ON THE SIDE OF BUILDINGS TOWARDS ADJACENT PROPERTIES WILL BE LIMITED TO 27 WATT UNITS.
3. WALL PACKS MOUNTED BETWEEN BUILDINGS WILL UTILIZE 135 WATT UNITS TO BETTER ILLUMINATE THE AREA BETWEEN BUILDINGS WHERE USERS NEED THE LIGHT.
4. THE EXISTING NON-CONFORMING LIGHTS SHALL BE REPLACED AS SHOWN ON THE PLAN WHEN THE NEW BUILDINGS ARE CONSTRUCTED AND FITTED WITH LIGHTS.
5. EXISTING AND PROPOSED BUFFER YARD PLANTINGS WILL ADDITIONALLY REDUCE THE POSSIBILITY OF LIGHT ESCAPING TO ADJACENT PROPERTIES.

PROPOSED NEW LIGHT CUT SHEET

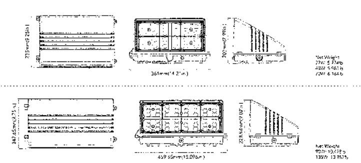
FULL CUTOFF WALL PACK(MWP02)

DESCRIPTION

SPECIFICATION FEATURES



DIMENSIONS



PERFORMANCE DATA

SYSTEM WATTS	VOLTAGE	CRI	LUMENS (4000K)	LPW (4000K)	LUMENS (5000K)	LPW (5000K)
27W	120-277VAC	70	3800lm	141 lm/W	3850lm	143 lm/W
45W	120-277V/347-480V AC	70	6300lm	140 lm/W	6350lm	141 lm/W
70W	120-277V/347-480V AC	70	9700lm	139 lm/W	9750lm	139 lm/W
90W	120-277V/347-480V AC	70	12200lm	136 lm/W	12300lm	137 lm/W
135W	120-277V/347-480V AC	70	18000lm	133 lm/W	18000lm	133 lm/W

ELECTRICAL DATA

Number Of Drivers	Driver Current (mA)	Nominal Power (W)	INPUT VOLTAGE (V)	CURRENT (Amps)
1	430	27	120	0.23
		27	208	0.13
		27	240	0.11
		27	277	0.10
1	770	45	120	0.38
		45	208	0.22
		45	240	0.19
		45	277	0.16
	1200	45	347	0.13
		45	480	0.09
1	1110	70	120	0.58
		70	208	0.34
		70	240	0.29
		70	277	0.25
	1850	70	347	0.20
		70	480	0.15
1	2220	90	120	0.75
		90	208	0.43
		90	240	0.38
		90	277	0.32
		90	347	0.26
		90	480	0.19
2	3260	135	120	1.13
		135	208	0.65
		135	240	0.56
		135	277	0.49
	3750	135	347	0.39
		135	460	0.29

ORDERING GUIDE

Example: MWP0245W27V40KDP0

Fixture Type	Wattage	Voltage	CCT	Finish	Sensor (Option)	Internal Code
MWP02 Wall Pack Series	27 27W	27V 120-277V	40K 4000K	D Dark Bronze	P0 120-277V Photocell	Blank
	45 40W	48V 347-480V	50K 5000K	B Black	Blank Without Sensor	Alphanumeric
	70 70W			W White		
	90 90W					
	135 135W					

WARELIGHT

Phone: 888-454-4480
info@warehouse-lighting.com

LICHTY ENGINEERING
687 Berkshire Drive
State College, PA 16803
(814)238-1141
Lichty.Engineering@comcast.net

DRAWN BY: JEL 05/12/2020

LD-4

REVISIONS 06/05/2020

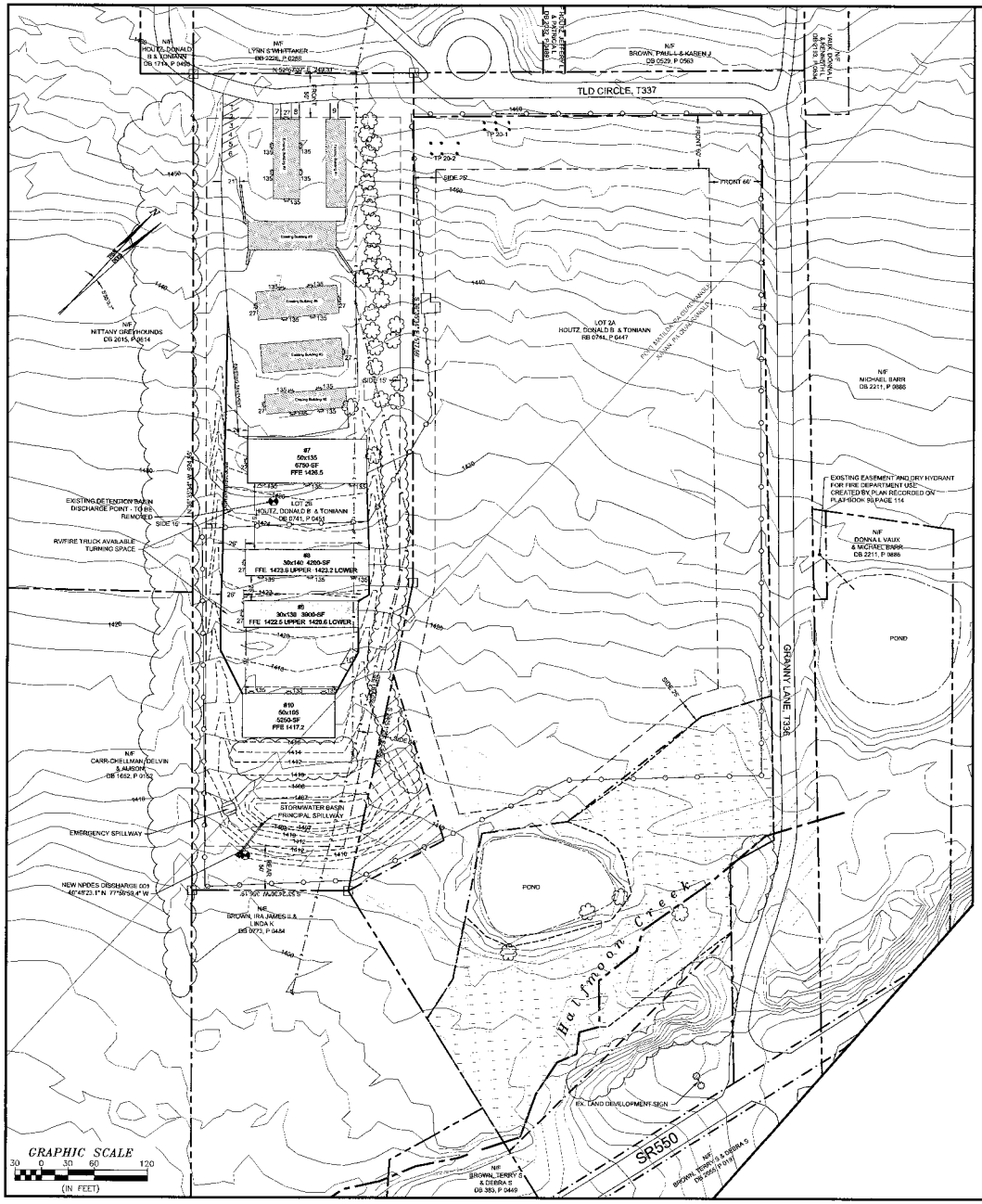
SOURCE:

SCALE: 1"=40'

JOSEPH EDWARD LICHTY
PROFESSIONAL ENGINEER

Houtz Self Storage
Half Moon Township - Centre County - PA

HOUTZ SELF STORAGE EXPANSION SITE PLAN
LIGHTING PLAN



LEGEND

- EXISTING CONTOUR LINES (1430)
- FINISHED GRADE CONTOURS
- PROPERTY BOUNDARY
- SETBACK
- UTILITY LINE (EX. & PROPOSED)
- UTILITY LINE (TO BE ABANDONED)
- STREAM/POND
- EXISTING BUILDINGS
- FEMA FLOOD BOUNDARY
- EXISTING TREES AND SHRUBS
- EXISTING TREELINE
- NEW BUILDING
- WETLAND
- STORMWATER EASEMENT
- RIPARIAN BUFFER ENHANCEMENT
- EXISTING NON-CONFORMING LIGHTS
- PROPOSED NEW LIGHTS (WATTS) (#57)

FIRE MARSHALL REVIEW

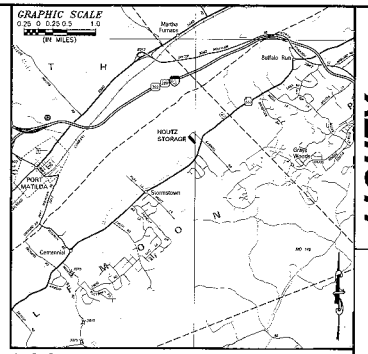
FIRE MARSHALL SHALL REVIEW PLAN IN ACCORDANCE WITH HALFMOON TOWNSHIP SUBDIVISION AND LAND DEVELOPMENT ORDINANCE SECTION 215-10 E.

1. BUILDING USE CODE S-1, MODERATE HAZARD STORAGE INCLUDING VEHICLES.
2. LARGEST BUILDING IS 6,750-SF, ALL BUILDINGS HAVE ONE STORY.
3. IBC 903.2.9 REQUIREMENTS FOR AUTOMATIC SPRINKLERS IS NOT MET BASED ON SQUARE FOOTAGE, NUMBER OF STORIES AND CONTENTS OF STORAGE.
4. WATER SUPPLY FOR FIRE FIGHTING IS AVAILABLE FROM A DRY HYDRANT IN A POND ON ADJACENT PROPERTY ALONG GRANNY LANE. ACCESS PROVIDED BY RECORDED PLAN AT PLAT BOOK 80, PAGE 114.
5. EXISTING AND PROPOSED STORAGE BUILDINGS DO NOT INCLUDE BUILT-IN SUPPRESSION OR FIRE DEPARTMENT CONNECTIONS (SEE ITEM 3).

PORT MATILDA FIRE COMPANY REVIEW WAS PROVIDED 8/17/2020 (DATE)

BY: Deputy Chief Robert Prior
PRINT NAME AND OFFICE OF FIRE CHIEF OR DESIGNATED OFFICIAL

SIGNATURE: Robert W Prior



LOCATION MAP

SOURCE: PennDOT TYPE 10 MAP
SCALE: 1"=1-MI.±

GENERAL INFORMATION

PROPERTY OWNER
HOUTZ, DONALD B. & TONIANN
31 TLD CIRCLE
PORT MATILDA, PA 16870
RB 0741, P 0451 (LOT 2B), RB 00741, P 0447 (LOT 2A)
TAX PARCELS: 17-001-,023 (LOT 2B), 17-001-,024 (LOT 2A)

PARCEL AREA: EXISTING: 4.990-AC (LOT 2B), 12.97-AC (LOT 2A)

ZONING DISTRICT: L-I, LIMITED INDUSTRIAL (LOT 2B), A, AGRICULTURAL (LOT 2A)

SETBACKS: 50-FT FRONT, 15-FT SIDE, 50-FT REAR (LOT 2B)
60-FT FRONT YARD, 25-FT SIDE AND REAR YARD (LOT 2A)

BUILDING COVERAGE (LOT 2B)
EX. BUILDING COVERAGE: 15,012-SF, 0.368-AC, 7.4%
NEW BUILDING COVERAGE: 20,100-SF, 0.461-AC
PROPOSED TOTAL BUILDING COVERAGE: 36,112-SF,0.829-AC, 15.8%
ALLOWABLE COVERAGE: 30%

IMPERVIOUS COVER (LOT 2B)
EX. IMPERVIOUS COVER: 55,465-SF, 1.273-AC, 25.5%
PROPOSED TOTAL IMPERVIOUS COVER: 106,861-SF, 2.456-AC, 46.7%

MAXIMUM BUILDING HEIGHT = 45-FEET

TEMPORARY CONSTRUCTION EASEMENT
83,388-SF (1.1914-AC) ADJACENT PROPERTY OWNER: HOUTZ, DONALD & TONIANN, R 0741, P 0451

PERMANENT STORMWATER MANAGEMENT EASEMENTS (LOT 2A)
11,757-SF (0.270-AC) OWNER: HOUTZ, DONALD & TONIANN, R 0741, P 0447
FOR DETENTION BASIN EMBANKMENT

74,881-SF (1.719-AC) OWNER: HOUTZ, DONALD & TONIANN, R 0741, P0447
FOR RIPARIAN BUFFER ZONE PLANTING AND MAINTENANCE.

LICHTY ENGINEERING
667 Berkshire Drive
State College, PA 16803
(814)308-1141
Larry.Engineering@comcast.net

DRAWN BY: JEL
04/08/2020

LD-5

REVISIONS
06/05/2020
06/23/2020
08/24/2020

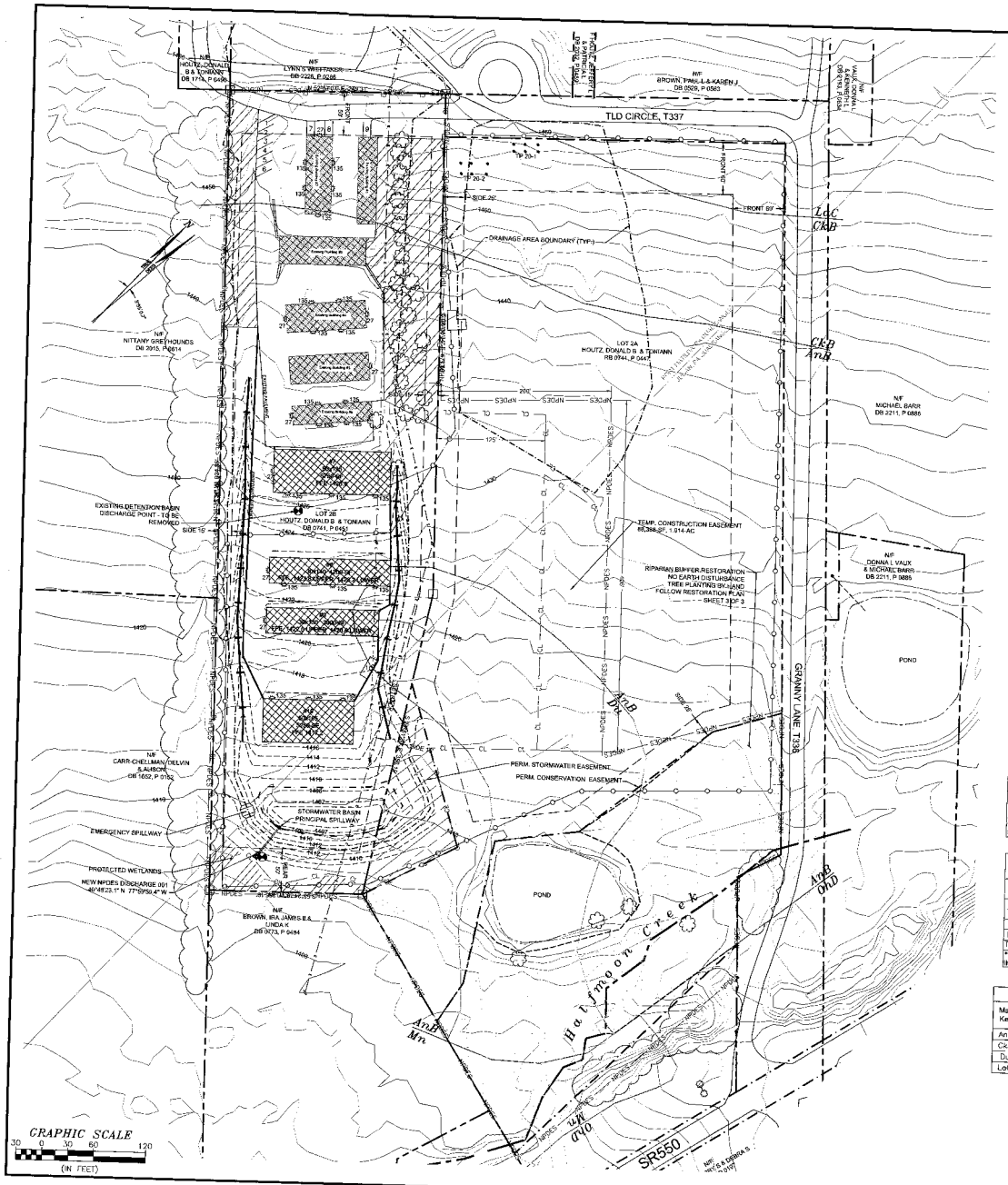
SOURCE:

SCALE: 1"=60'

COMMONWEALTH OF PENNSYLVANIA
PROFESSIONAL
JOSEPH EDWARD LICHTY
ENGINEER
039027-E

Houtz Self Storage
Half Moon Township - Centre County - PA

HOUTZ SELF STORAGE EXPANSION SITE PLAN
FIRE MARSHALL REVIEW PLAN



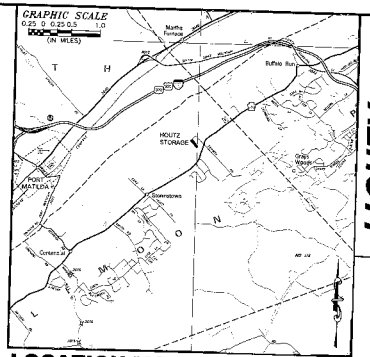
LEGEND

- EXISTING CONTOUR LINES (1430)
- FINISHED GRADE CONTOURS
- PROPERTY BOUNDARY
- EASEMENT BOUNDARY
- SETBACK
- SOIL GROUP BNDY/MAP KEY (CkB / AnB)
- UTILITY LINE (EX. & PROPOSED)
- UTILITY LINE (TO BE ABANDONED)
- STREAM/POND
- DRAINAGE BOUNDARY
- CONSTRUCTION LIMIT
- NPDES BOUNDARY
- EXISTING BUILDINGS
- FEMA FLOOD BOUNDARY
- EXISTING TREES AND SHRUBS
- EXISTING TREELINE
- NEW BUILDING
- WETLAND
- STORMWATER EASEMENT

PCSM BMPs

- RIPARIAN BUFFER ENHANCEMENT
- VEGETATED SWALE WITH CHECK DAMS
- ROOFTOP DISCONNECT
- NO EARTH DISTURBANCE
- PROTECTED WETLANDS
- WET POND

NOTE: ENTIRE PROJECT IS IN HALFMOON CR. WATERSHED (HQ-CWF)



LOCATION MAP

SOURCE: PennDOT TYPE 10 MAP
SCALE: 1"=1-Mile

GENERAL INFORMATION

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PORT MATILDA, PA 16870
RB 0741, P 0451 (LOT 2B), RB 00741, P 0447 (LOT 2A)
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IMPERVIOUS COVER (LOT 2B)
EX. IMPERVIOUS COVER: 55,465-SF, 1.273-AC, 25.5%
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TEMPORARY CONSTRUCTION EASEMENT
93,388-SF (1.1914-AC) ADJACENT PROPERTY OWNER: HOUTZ, DONALD & TONIANN, R 0741, P 0451

PERMANENT STORMWATER MANAGEMENT EASEMENTS (LOT 2A)
11,757-SF (0.270-AC) OWNER: HOUTZ, DONALD & TONIANN, R 0741, P 0447
FOR DETENTION BASIN EMBANKMENT

74,881-SF (1.719-AC) OWNER: HOUTZ, DONALD & TONIANN, R 0741, P0447
FOR RIPARIAN BUFFER ZONE PLANTING AND MAINTENANCE

Historical Property Land Use

All lands on the property as well as the adjacent property to the east, both owned by Don and Toni Houtz have been utilized for pasture/hay production since 1969, except where the existing storage facilities were constructed circa 2000. That portion has remained urban since the storage building construction.

Existing & Proposed Land Cover and Soil Types for Worksheet 4 Calculations

Cover Type	Soil Group	Existing*		Proposed	
		SF	AC	SF	AC
OPEN	CkB	18411	0.423	17380	0.399
OPEN	AnB	179657	4.124	120715	2.771
OPEN	Du	33211	0.762	30559	0.702
IMPERVIOUS	N/A	44364	1.018	106985	2.456
TOTAL		275643	6.327	275643	6.327

* EXISTING VALUES REFLECT A REDUCTION OF 20% OF EXISTING IMPERVIOUS COVER. THE 20% HAS BEEN APPLIED TO OPEN CONDITIONS.

Soil Characteristics and Limitations

Map Key	Name	Slope (%)	Hydrologic Soil Group	Depth to Restricting Layer (in)	Depth to Bedrock (in)	Depth to Seasonal Water (in)
AnB	Andover channery silt loam	0-8	D	16-28	48-99	<12
CkB	Clarksburg silt loam	3-8	C	20-36	60-99	18-36
Du	Dunning silty clay loam	-	C/D	72-99	>66	0-6
LoC	Laidig channery loam	8-15	C	28-35	>60	30-48

Pre- and Post-Development Peak Runoff Estimates By HydroCAD

Return Period (Years)	Pre-Development* (CFS)	Post-Development* (CFS)	Post-Develope. Detained (CFS)	IAF ANALYSIS+ (CFS)
1	0.1	4.8	0.1	0.3
2	0.3	6.7	0.2	0.3
10	1.8	11.4	0.7	1.8
25	3.6	15.2	2.8	3.1
50	5.0	18.0	3.3	3.6
100	7.0	21.4	4.1	4.0
100	Clogged Principal Spwy.		2.2	

* For the purpose of peak runoff analysis, pre-developed is based on conditions prior to the existing storage buildings and pavement. This is because the existing detention is to be eliminated and the new detention treats all runoff from the site.

+These values reflect a model that assumes that only the impervious areas are present. The time of concentration is also reduced to reflect this assumption.

THE STORMWATER MANAGEMENT PLAN INCLUDES THE FOLLOWING:
1. SW-1 24X36 PLAN SHEET.
2. SW-2 24X36 NARRATIVE AND DETAILS SHEET.
3. SW-3 24X36 DETENTION BASIN DETAIL SHEET.
4. SW-4 24X36 EROSION AND SEDIMENTATION CONTROL PLAN.
5. SUPPORTING DOCUMENTS AND CALCULATIONS SUBMITTED AS PART OF THE NPDES APPLICATION ARE PART AND PARCEL TO THE STORMWATER MANAGEMENT PLAN.
6. ALL OF THE PROVISIONS OF THE POST-CONSTRUCTION STORMWATER MANAGEMENT PLAN (PCSM PLAN) AND EROSION AND SEDIMENTATION CONTROL PLAN (ESC PLAN) ARE ALSO TO BE FOLLOWED.

I, DONALD B. HOUTZ, CERTIFY THAT I AM THE OWNER OF THIS PROPERTY AND ACKNOWLEDGE THAT THE STORMWATER MANAGEMENT SYSTEM WILL BE MAINTAINED IN ACCORDANCE WITH THE APPROVED OWNERSHIP AND MAINTENANCE PROGRAM AND THE NPDES PERMIT. THE FACILITIES SHALL REMAIN A PERMANENT FIXTURE ON THE PROPERTY THAT CAN BE ALTERED OR REMOVED ONLY AFTER APPROVAL OF A REVISED PLAN BY HALFMOON TOWNSHIP. THIS STATEMENT SHALL TRANSFER TO ALL FUTURE OWNERS AND ASSIGNS.

DONALD B. HOUTZ — DATE: 09/05/2020

I, JOSEPH E. LICHTY, PE, HEREBY CERTIFY THAT THE STORMWATER MANAGEMENT PLAN MEETS ALL DESIGN STANDARDS AND CRITERIA OF THE HALFMOON STORMWATER MANAGEMENT ORDINANCE.

JOSEPH E. LICHTY, PE — DATE: 9/1/2020

I, DONALD M. FRANSON, PE, HAVE REVIEWED THIS STORMWATER MANAGEMENT PLAN IN ACCORDANCE WITH THE DESIGN STANDARDS AND CRITERIA OF THE HALFMOON STORMWATER MANAGEMENT ORDINANCE.

DONALD M. FRANSON, PE — DATE: 9/19/2020

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687 Berkshire Drive
State College, PA 16803
(814) 867-1141
Lichty.Engineering@comcast.net

DRAWN BY: JEL
05/01/2020

REVISIONS
06/05/2020
08/24/2020
09/04/2020

SOURCE:

SCALE: 1"=60'

SW-1

JOSEPH EDWARD LICHTY — PROFESSIONAL ENGINEER — COMMONWEALTH OF PENNSYLVANIA

Houtz Self Storage
Half Moon Township - Centre County - PA

HOUTZ SELF STORAGE EXPANSION SITE PLAN
STORMWATER MANAGEMENT PLAN
SHEET 1 - PLAN

Houtz Self Storage: Post Constructiion Stormwater Management Plan

GENERAL INFORMATION

Equitable Owner

Donald & Tonianne Houtz
25 TDL Circle
Port Matilda, PA 16870-8748
814-692-8232

Designer

Joseph E. Lichty, PE
Lichty Engineering
687 Berkshire Dr.
State College, PA 16803-3342
814-238-1141
lichty.engineering@comcast.net

Project Acreages

Total Property Area - 15.5-AC Total Project Area - 10.66-AC

Total Disturbed Area - 6.28-AC Total Sensitive Area Protection - 0.104-AC

Project Location

Address - 25 TLD Circle, Port Matilda, 16870

Municipality/County - Half Moon Township, Centre County

Latitude/Longitude - 40°48'26"N / 78°00'01"W USGS Quad Maps - Port Matilda, PA and Julian, PA

Description of Access to Site - Traveling from State College on SR550, turn RT on Granny Ln approx. 2.5-mi from SR550/US322 intersection. Make first left onto TLD Circle. Site on LT.

Receiving Waters

Name of Stream of Watershed - Half Moon Creek Chapter 93 Classification - HQ-CWF, MF (Designated and No Existing Classification)

Wetlands Designation - No special designation

Sewerage and Water

Sewerage Disposal Method - No sewage disposal

Water Source - Private

Land Use Information

Existing and Past Land Uses - The project site has been pasture and cut for hay for at least 50-years. The existing storage buildings were constructed in the early approximately 20-years ago.

Proposed Land Use Changes - The proposed development will approximately double the existing storage area and will not be added to in the future.

TOPOGRAPHIC, SOILS AND GEOLOGIC FEATURES

Site Description

The project is located in the Ridge and Valley physiographic province of Pennsylvania. The project site does not include any natural drainage pathways or surface water bodies. The wetlands on the property are in the extreme southern portion of the property and will be protected from disturbance. The site proposed to approximately double the size of an existing self storage facility. Thew site impervious cover will increase by 1.44-acres.

Soils Information

Project soils were identified by utilizing the USDA NRCS Web Soil Survey. The survey was used to delineate the soil boundaries on the attached plan map and to obtain details about the soils. A table of characteristics is provided on the plan. A summary soils present on the site follows:

Andover channery silt loam - The soils underlie the areas of earth disturbance. The map unit is AnB (0-8%). The soils are characterized as poorly drained with high runoff potential. The soil is moderately deep and has a shallow seasonal water table. The soils are not listed as important farmlands. The Andover soils are considered to be potentially hydric. The soils are classified as hydrologic soil group D.

Clarksburg silt loam - These soils will not be disturbed. The map unit is CkB (3-8%). The soils are characterized as moderatly well drained with a moderate runoff potential and has a moderate seasonal water table. The soils are not listed as important farmlands. The Clarksburg soils are not considered to be potentially hydric. The soils are classified as hydrologic soil group C.

Dunning silty clay loam - These soils underlie the areas of earth disturbance. The map unit is Du (no slope specified). The soils are characterized as very poorly drained with negligible runoff potential and a shallow a shallow seasonal water table. The soils are listed as farmlands of Statewide importance. The Dunning soils are considered to be potentially hydric. The soils are classified as hydrologic soil group C/D.

Laidig channery loam - These soils will not be disturbed by the project. The map unit is LaC (8-15%). The soils are characterized as well drained with medium runoff potential and have a deep seasonal water table. The soils are listed as farmlands of Statewide importance. The Laidig soils are not considered to be potentially hydric. The soils are classified as hydrologic soil group B.

Karst Features Identification

The project is underlain by the Coburn through Loysburg formation, undivided. The formation consists of shaly limestone and is identified as a potentially Karst bedrock. There are no known Karst areas associated with this formation in the project area. Some Karst features have been identified as near as one-half mile from the site.

POST CONSTRUCTION STORMWATER MANAGEMENT PLAN

Description of Control Methodology

Stormwater management at Houtz Self Storage utilized a multi-directional approach to minimize the potential impacts of the proposed development on runoff volume and peak flows. The existing parcels encompass a total area of 15.5-AC, of which, 10.7-AC are included in the NPDES project area. Within the project area, 0.104-AC of wetlands are present, all of which will be protected from earth disturbance. In addition, where practical, runoff reducing stormwater BMPs are utilized. Rooftop runoff from the existing and proposed buildings and paved areas are directed to grassed swales which will also have check dams to further hold runoff back from leaving the site. Additionally, some areas of the project area have been identified as minimum soil compaction area where construction vehilces will be prohibited from traversing. A wet pond type stormwater retention basin is used to hold and reduce volume and peak flows from all of the developed site. Please see the Appendices provided with the NPDES permit package for more detailed analysis and calculations for the proposed facilities. The outlet structure also provides extended release of a volume of runoff greater than two times 1" over the new impervious area> This is to meet Halfmoon Township requirements since soil conditions do not allow for significant infiltration at the site. The volume between the permanent pool and the top of the principal spillway is released ove more than 6-days after an event. In addition, an adjacent riparian zone along Halfmoon Creek has been identified for restoration of a forested stream buffer. The restoration plan is provided on Sheet 3 of 3, PCSM-3.

Stormwater Calculations

The HydroCAD computer model was used to simulate the retention basin. HydroCAD utilizes the SCS TR-20 method for runoff estimation and detention basin calculations. It should be noted that existing conditions for the peak flow analysis was considered to be prior to all site development including the existing pavement and storage buildings. This is because an existing stormwater basin is being eliminated, so the new basin must mitigate peak flows from all of the existing and proposed development on the site. The model was created utilizing runoff curve numbers established in the Half Moon Township Stormwater Management Ordinancebecause the stormwater calculations must meet the Townships requirements.

The results of the HydroCAD model are summarized in the table on sheet 1 of the PCSM for the 1-, 2-, 10-, 25-, 50, and 100-yearstorm events. The results show that for all conditions, the peak discharge from the developed property is equal to or less than the undeveloped conditions.

Halfmoon Township stormwater management requirements also require the calculation of an Impervious Area Flash (IAF) analysis. In order to effect this analysis all pervious areas are eliminated from the post-developement conditions and the time of concentration is recalculated to assess the possibility of a flash flood condition created by the increased imperviouus cover. The analysis was performed and the results are shown in the table on plan sheet 1 of the PCSM. While the discharge from the detention basin is increased for all but the 100-year storm event, only the 1-year storm event has a higher discharge during the post-development conditions. The discharge values for the 1-year event are 0.1-cfs for pre-development conditions and 0.3-cfs during the post development IAF analysis. Even if this occured, 0.3-cfs would hardly exacerbate flooding in Halfmoon Creek downstream. For the 2-year storm event through the 100-year event, the basin discharge is predicted to be lower than pre-development conditions.

Additional water quality improvement is provided by designating areas of minimal compaction, disconnection of rooftop runoff where practical.

Supporting calculations are provided in Appendix E of the PCSM and ESC Plans included with the NPDES Permit Application..

Summary of Permanent Stormwater BMPs Including Construction and Maintenance Practices

Pave Parking Areas - As soon as practicable after rough grading the streets will be stabilized by placement of 2B or similar stone. As soon as practicable after final grading, the streets will be finalized with paving as specified.

Maintenance: The pavement will be repaired when potholes appear.

Vegetated Swales with Check Dams - All runoff from the developed site will drain into vegetated collection channels. These collection channels will include a series of check dams. The check dams will retain runoff from small storm events and allow for some infiltration and evapo-transpiration. This will help to reduce runoff volume as well as improve water quality.

Maintenance: The collection channels and check dams shall be inspected periodically for signs of erosion and sedimentation. Erosion areas shall be repaired and sediment shall be removed in accordance with the maintenance plan.

Stormwater Retention Basin - The retention basin includes a wet pond to provide extended retention and additional water quality benefits for the basin.

Maintenance: Just as when the basin is being maintained as a sedimentation basin, the stormwater retention basin must be monitored for signs of sedimentation which may reduce the runoff storage volume. If sedimentation should be observed, the sediment must be removed immediately and disposed of in a proper fill area.

Protection of Sensitive Areas - 0.104-AC of sensitive area (wetlands) have been designated to be protected by a conservation easement. .These wetlands are located along the southern property line at the base of the retention basin embankment. The discharge from the detention basin will flow into the wetlands to maintain hydrology. The wetlands will not be able to be developed in the future due to their location.

Maintenance: None required.

Minimizing Soil Compaction - Where possible, areas within the construction limit boundary have been identified as areas of minimized soil compaction. These areas shall remain free of heavy construction activities such as access roads, stockpiles, and clearing and grubbing. The areas shall be identified in the field with safety fence or silt fence boundaries in open areas or safety tape in wooded areas when construction is going on in the nearby areas.

Maintenance: All perimeter fences or safety tape shall be maintained at all times when construction is active in the area.

Rooftop/Pavement Disconnect All runoff from buildings and pavement on the site shall be directed to shallow flat swales or open grass areas.

Maintenance: The roof drains shall remain discharging to lawn and the lawn area shall be maintained in normal grassed condition.

Riparian Buffer Restoration - 1.67-AC of riparian zone on the adjacent property, owned by the project owner, has been identified asbeing available for restoration of riparian forested buffer. The restoration plan is provided on Sheet 3 of 3 (PCSM-3). The area will be planted by hand in order to minimize earth disturbance.

Maintenance: Please see the Restoration Plan on Sheet PCSM-3.

CRITICAL STAGES OF CONSTRUCTION

Several stages of construction have been identified as critical and must be overseen by a licensed professional on-site. These stages are as follows:

1) Project kick off meeting and identifying protected and minimum soil compaction areas in the field.
2) Preparation of as-built drawings of the stormwater BMPs.

OPERATION, INSPECTION AND MAINTENANCE PLAN

During construction, the developer and their designated contractor shall be responsible for operation and maintenance of all erosion and sedimentation control and stormwater BMPs in accordance with the details listed above. During this period, all facilities shall be inspected weekly or after significant precipitation events which occur in-between the weekly inspections. Reporting shall be completed using the inspection report form found in the Supplemental Information Document, Appendix F, Pages 4-117 and 4-118. All reports shall be maintained in a log book which shall be available for review at the site.

Once all construction is complete and the site has been stabilized with permanent vegetation, the responsibility for maintenance of stormwater BMPs will become the responsibility of the land owner. If at any time, maintenance is not performed, Half Moon Township has the right to perform the maintenance and invoice the responsible party for reimbursement of reasonable expenses.

After the construction phase, the stormwater BMPs shall at a minimum be inspected twice per year in the spring and fall of each year. These reports shall be maintained in a log book available for review by the County, Township or Commonwealth. Other site inspectious may be warranted by excessive precipitation events which may occur between the twice annual routine inspections. When issues are encountered, corrective actions must be taken immediately and be completed as quickly as possible. The monitoring reports shall detail the date and time of the inspections, any issues encountered, the corrective measures taken and the date and time of completion of corrective measures,

RECYCLING AND DISPOSAL METHODS

During construction, all contractors will make every effort to utilize recycling of materials and supplies when ever possible. When recycling is not possible, disposable items shall be transported to a certified land fill or disposal area sanctioned by the Commonwealth to receive such items. In no case shall non-native material be disposed of on site or in un-permitted disposal areas.

If the contractor decides to maintain fuel, oil, grease or other potential polluting items on the site, the contractor shall develop and maintain a PPC Plan in accordance with PaDEP and USEPA criteria. Safe and secure storage facilities must be maintained.

THERMAL IMPACT ANALYSIS

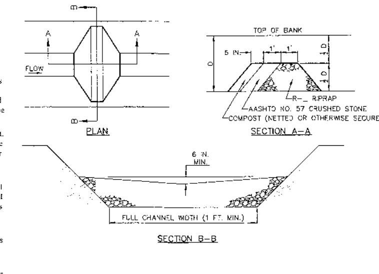
Thermal impacts are minimized by using only the areas necessary to provide the owner's needs are to be paved or roofed. The thermal impacts are mitigated in several ways: 1. all runoff from paved and roofed areas are drained to vegetated surfaces, 2. a wet pond is used to provide for a non-discharge during small precipitation events, and 3. shrub and tree buffer areas will be planted that will shade some areas reducing surface and runoff temperatures.

RIPARIAN FOREST BUFFER MANAGEMENT PLAN

An adjacent riparian zone along Halfmoon Creek has been identified for restoration of a forested stream buffer. The restoration plan is provided on Sheet 3 of 3, PCSM-3.

ANTIDEGRADATION

The project is located within the Halfmoom Creek watershed which is designated as HQ by PaDEP. As a result,water quality antidegradation must be encorporated in design. ABACT compatible BMPs have been included in the ESC Plan treating runoff from all disturbed areas, including compost sock and vegetated swales with compost improved check dams. PCSM BMPs have been shown using Worksheets 10 through 13 to provide acceptable water quality protection for the watershed by using vegetated swales, a wet pond, landscape restoration and riparian buffer restoration (see pages 3-21 to 3-25).



ROCK FILTER NO.	LOCATION	D (FT)	RIPRAP SIZE (R-_)
88	1234567890	88	8
ALL	ALL	2	3

FOR D ≥ 3 FT. – USE R-4
FOR D ≥ 2 FT. TO D < 3 FT. – USE R-3
NOT APPLICABLE FOR D < 2 FT.

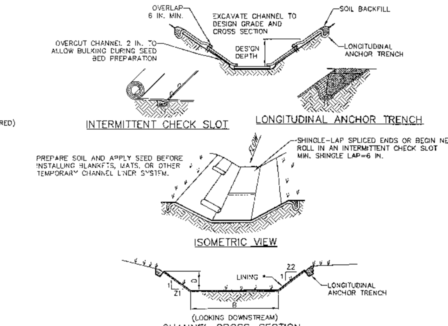
PLACE CHECK DAMS 40-FT APART IN THE EAST AND WEST COLLECTION CHANNELS. A TOTAL OF 16 CHECK DAMS, 9 IN WEST CHANNEL AND 7 IN EAST CHANNEL.

NOTES:

SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH 1/2 THE HEIGHT OF THE FILTERS.

IMMEDIATELY UPON STABILIZATION OF EACH CHANNEL, REMOVE ACCUMULATED SEDIMENT, REMOVE ROCK FILTER, AND STABILIZE DISTURBED AREAS.

STANDARD CONSTRUCTION DETAIL #4-14
ROCK FILTER (CHECK DAM)
NOT TO SCALE



* SEE MANUFACTURER'S LINING INSTALLATION DETAIL FOR STAPLE PATTERNS, VEGETATIVE STABILIZATION FOR SOIL AMENDMENTS, SEED MIXTURES AND MULCHING INFORMATION

CHANNEL NO.	STATIONS	BOTTOM WIDTH B (FT)	DEPTH D (FT)	TOP WIDTH W (FT)	Z1 (FT)	Z2 (FT)	LINING *
DIVERT	FULL LENGTH	1	1.5	7.0	2	2	NAG SC150
COLLECT	EAST AND WEST	3	2.0	11.0	2	2	NAG SC150

NOTES:

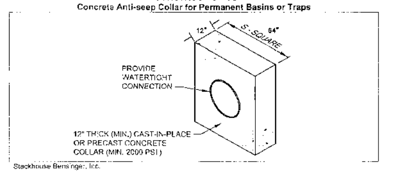
ANCHOR TRENCHES SHALL BE INSTALLED AT BEGINNING AND END OF CHANNEL IN THE SAME MANNER AS LONGITUDINAL ANCHOR TRENCHES.

CHANNEL DIMENSIONS SHALL BE CONSTANTLY MAINTAINED. CHANNEL SHALL BE CLEANED WHENEVER TOTAL CHANNEL DEPTH IS REDUCED BY 25% AT ANY LOCATION.
SEDIMENT DEPOSITS SHALL BE REMOVED WITHIN 24 HOURS OF DISCOVERY OR AS SOON AS SOIL CONDITIONS PERMIT ACCESS TO CHANNEL WITHOUT FURTHER DAMAGE. DAMAGED LINING SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS OF DISCOVERY.

NO MORE THAN ONE THIRD OF THE SHOOT (GRASS LEAF) SHALL BE REMOVED IN ANY MOWING. GRASS HEIGHT SHALL BE MAINTAINED BETWEEN 2 AND 3 INCHES UNLESS OTHERWISE SPECIFIED. EXCESS VEGETATION SHALL BE REMOVED FROM PERMANENT CHANNELS TO ENSURE SUFFICIENT CHANNEL CAPACITY.

STANDARD CONSTRUCTION DETAIL #6-1
VEGETATED CHANNEL
NOT TO SCALE

STANDARD CONSTRUCTION DETAIL # 7-16
Concrete Anti-seep Collar for Permanent Basins or Traps



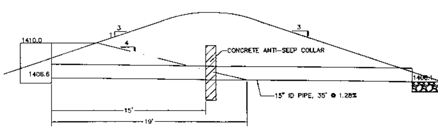
Stackhouse Bensinger, Inc.

All collars shall be installed so as to be watertight.

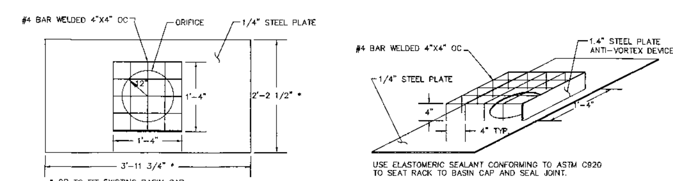
Collar size and spacing shall be as indicated below.

NOTE: This table is intentionally blank and should be filled in by the plan preparer.

Basin or Trap No.	Pipe Size (in)	S (in)	No. of Collars	Distance Riser to 1st Collar (ft)	Collar Spacing (ft)
1	15 ID	64	1	10	10



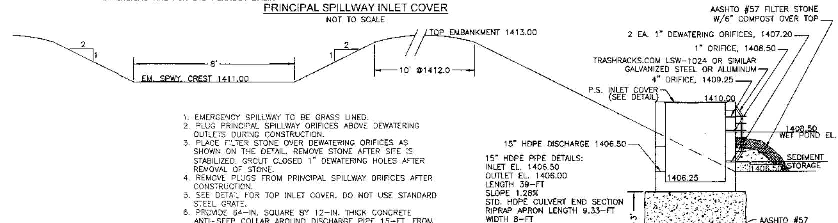
363-2134-008 / March 31, 2012 / Page 208



* OR TO FIT EXISTING BASIN CAP
DIMENSIONS ARE FOR STD PENNDOT BASIN

USE ELASTOMERIC SEALANT CONFORMING TO ASTM C920 TO SEAT RACK TO BASIN CAP AND SEAL JOINT.

PRINCIPAL SPILLWAY INLET COVER
NOT TO SCALE



1. EMERGENCY SPILLWAY TO BE GRASS LINED.
2. PLUG PRINCIPAL SPILLWAY ORIFICES ABOVE DEWATERING OUTLETS DURING CONSTRUCTION.
3. PLACE FILTER STONE OVER DEWATERING ORIFICES AS SHOWN ON THE DETAIL. REMOVE STONE AFTER SITE IS STABILIZED. GROUT CLOSED 1" DEWATERING HOLES AFTER REMOVAL OF STONE.
4. REMOVE PLUGS FROM PRINCIPAL SPILLWAY ORIFICES AFTER CONSTRUCTION.
5. SEE DETAIL FOR TOP INLET COVER. DO NOT USE STANDARD STEEL GRATE.
6. PROVIDE 64-IN. SQUARE BY 12-IN. THICK CONCRETE ANTI-SEEP COLLAR AROUND DISCHARGE PIPE 15-FT. FROM THE OUTLET STRUCTURE.

15" HDPE PIPE DETAILS:
INLET EL. 1406.50
OUTLET EL. 1406.00
LENGTH 39-FT
SLOPE 1.28%
STD. HDPE CULVERT END SECTION
RIPRAP APRON LENGTH 9.33-FT
WIDTH 8-FT
R-3 RIPRAP

RETENTION BASIN OUTLET STRUCTURES
NOT TO SCALE

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DRAWN BY: JEL 05/01/2020

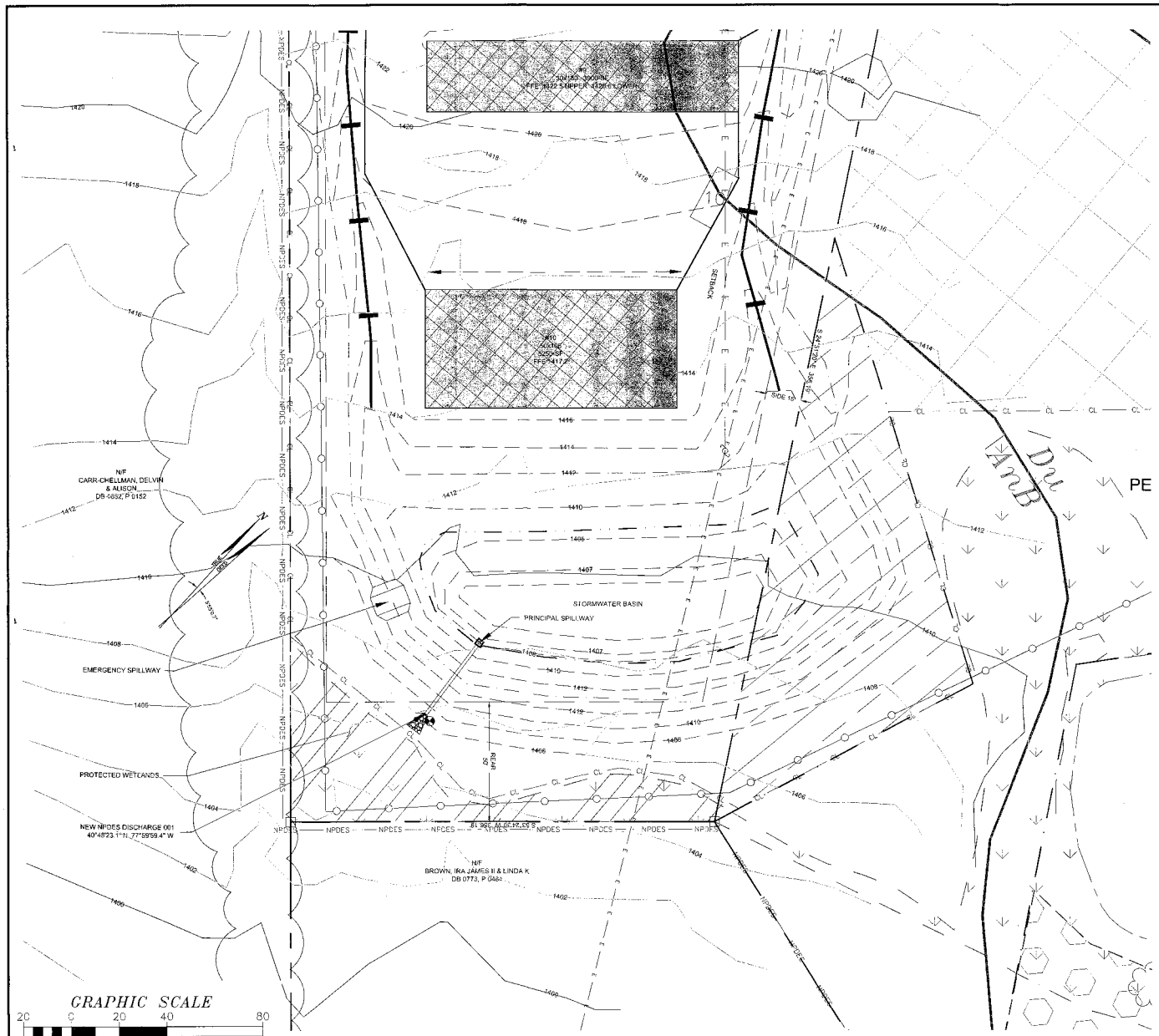
SW-2

REVISIONS 05/07/2020 06/05/2020

SCALE: AS SHOWN

SOURCE:

Houtz Self Storage
Half Moon Township - Centre County - PA
HOUTZ SELF STORAGE EXPANSION SITE PLAN
STORMWATER MANAGEMENT PLAN
SHEET 2 - NARRATIVE AND DETAILS



LEGEND

- EXISTING CONTOUR LINES
- FINISHED GRADE CONTOURS
- PROPERTY BOUNDARY
- SETBACK
- SOIL GROUP BNDY/MAP KEY
- UTILITY LINE (EX. & PROPOSED
- UTILITY LINE (TO BE ABANDONED)
- STREAM/POND
- DRAINAGE BOUNDARY
- CONSTRUCTION LIMIT
- NPDES BOUNDARY
- EXISTING BUILDINGS
- EXISTING TREES AND SHRUBS
- EXISTING TREELINE
- NEW BUILDING
- WETLAND
- STORMWATER EASEMENT

PCSM BMPs

- RIPARIAN BUFFER ENHANCEMENT
- VEGETATED SWALE WITH CHECK DAMS
- ROOFTOP DISCONNECT
- PROTECTED WETLANDS
- WET POND

DETENTION BASIN CONSTRUCTION AND QUALITY SPECIFICATIONS

The detention basin shall be installed prior to or concurrent with the earthmoving for any area tributary to the basin. All details and specifications as provided in the approved NPDES Post-Construction Stormwater Management Plan and Erosion and Sedimentation Control Plan shall be followed. The Municipal Engineer must be notified prior to initiation of construction and upon completion of critical steps of construction.

The earth embankment shall be constructed in accordance with the following specifications.

Earth Fill

Material - The fill material shall free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable materials. Fill material for the center of the embankment shall conform to Unified Soil Classification GC, SC, CH, or CL and must have at least 30% passing the #200 sieve. Soils used in the outer shell of the embankment must have the capability to support vegetation of the quality required to prevent erosion of the embankment. When rock is encountered during excavation, it shall be removed to an elevation 12 inches below the basin floor. All exposed cracks and fissures are to be structurally filled.

Placement - Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8 inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.

Compaction - The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of heavy equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble, yet not be so wet that water can be squeezed out. The minimum required density shall not be less than 95% of maximum dry density with a moisture content within 2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. In place densities shall be determined using ASTM D2937 and compaction is to be determined by ASTM D698 (Standard Proctor). Soil density and compaction test results shall be maintained on the site and be available to the Municipal Engineer upon request.

Structural Backfill

Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe.

Pipe Conduits

- Materials – N-12 Dual Wall HDPE pipe meeting AASHTO M252.
- Joints and connections to anti-seep collars shall be completely watertight.
- Bedding –The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.
- Backfilling shall conform to "Structure Backfill".

Rock Riprap

Rock riprap shall meet the requirements of PennDOT 408 Section 850 in the size and gradation noted on the plan. Geotextile shall be placed under all riprap and shall meet the requirements PennDOT Class 1 in accordance with Section 735.1(b) of Publication 408.

GENERAL NOTES

1. THE TOWNSHIP ENGINEER IS TO BE NOTIFIED PRIOR TO THE START OF BASIN CONSTRUCTION AND MAY INSPECT WORK AT ANY TIME.
2. PER NPDES PERMITTING CRITICAL PHASES OF CONSTRUCTION MUST BE INSPECTED.
3. HALFMOON TOWNSHIP, IT'S AGENTS AND ASSIGNS, ARE HEREBY EXPRESSLY AUTHORIZED WITH UNIMPEDED RIGHT-OF-WAY OVER AND THROUGH THE ENTIRE PROPERTY FOR THE PURPOSE OF INSPECTING ALL STORMWATER FACILITIES AND, IN THE CASE OF INACTIONON THE PART OF THE OWNER, TO REPAIR STORMWATER FACILITIES, WITH ALL COSTS BORNE BY THE OWNER.
4. AS-BUILT DRAWINGS OF ALL STORMWATER FACILITIES SHALL BE PREPARED AND SUBMITTED TO HALFMOON TOWNSHIP PRIOR TO OCCUPANCY OF THE NEW BUILDINGS.
5. ALL THE PROVISIONS OF THE NPDES PERMIT INCLUDING THE POST-CONSTRUCTION STORMWATER MANAGEMENT PLAN AND EROSION AND SEDIMENTATION CONTROL PLAN SHALL BE FOLLOWED DURING CONSTRUCTION.
6. DURING CONSTRUCTION INSPECTION ORDERS ISSUED BY PADEP, THE CENTRE COUNTY CONSERVATION DISTRICT OR HALFMOON TOWNSHIP ENGINEER SHALL BE FOLLOWED AS QUICKLY AS POSSIBLE.

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DRAWN BY: JEL 05/01/2020

REVISIONS 06/05/2020

SCALE: 1"=20

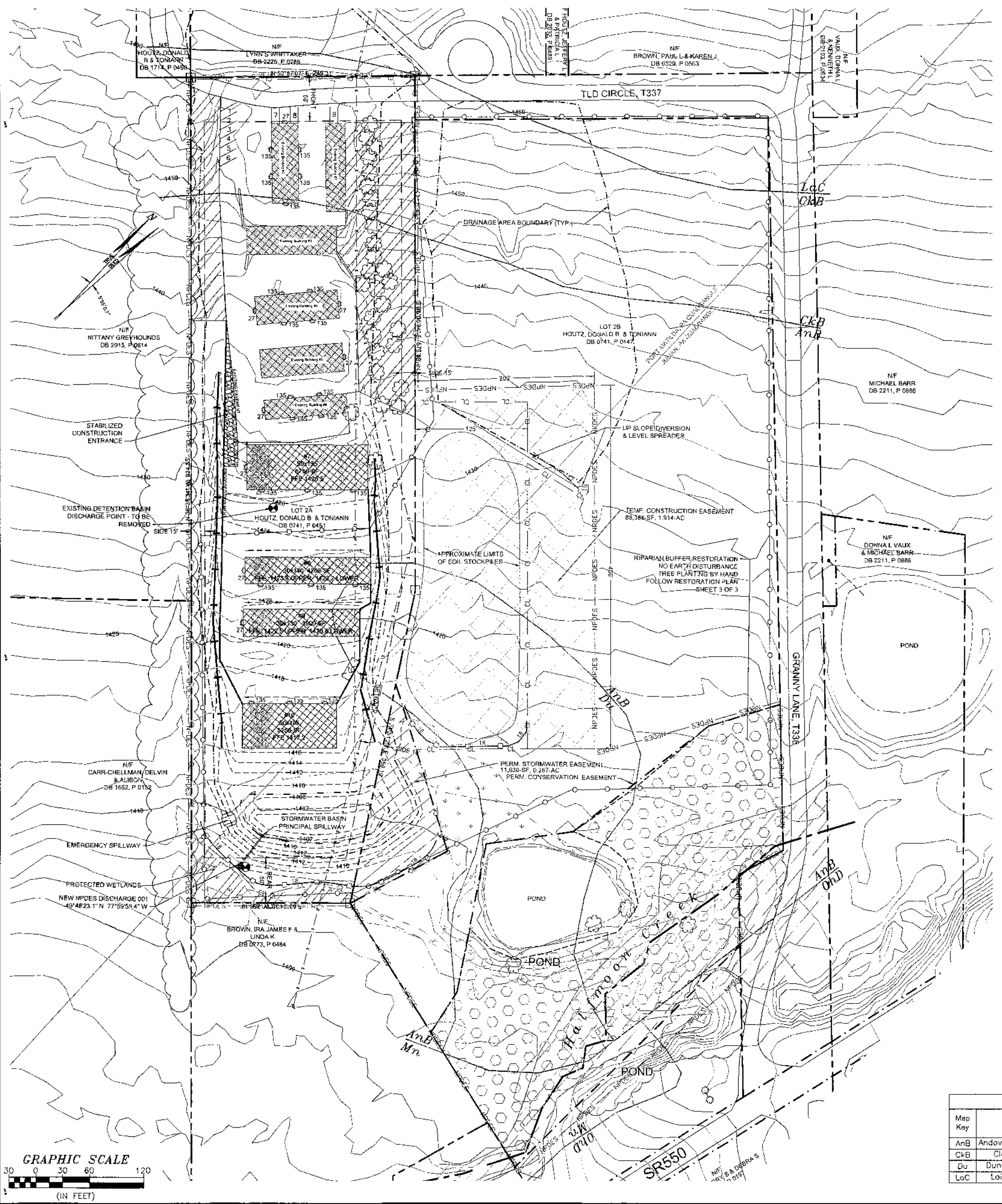
SOURCE:

SW-3

JOSEPH EDWARD LICHTY PROFESSIONAL ENGINEER 039627E

Houtz Self Storage
Half Moon Township - Centre County - PA

HOUTZ SELF STORAGE EXPANSION SITE PLAN
STORMWATER MANAGEMENT PLAN
SHEET 3 - DETENTION BASIN PLAN AND SPECS



LEGEND

- EXISTING CONTOUR LINES
- FINISHED GRADE CONTOURS
- PROPERTY BOUNDARY
- SETBACK
- SOIL GROUP BNDY/MAP KEY
- UTILITY LINE (EX. & PROPOSED
- UTILITY LINE (TO BE ABANDONED)
- STREAM/POND
- DRAINAGE BOUNDARY
- CONSTRUCTION LIMIT
- NPDES BOUNDARY
- EXISTING BUILDINGS
- FEMA FLOOD BOUNDARY
- EXISTING TREES AND SHRUBS
- EXISTING TREELINE
- NEW BUILDING
- WETLAND
- STORMWATER EASEMENT

PCSM BMPs

- RIPARIAN BUFFER ENHANCEMENT
- VEGETATED SWALE WITH CHECK DAMS
- ROOFTOP DISCONNECT
- MINIMUM SOIL COMPACTION
- PROTECTED WETLANDS
- WET POND
- EXISTING/PROPOSED DISCHARGE

ESC BMPs

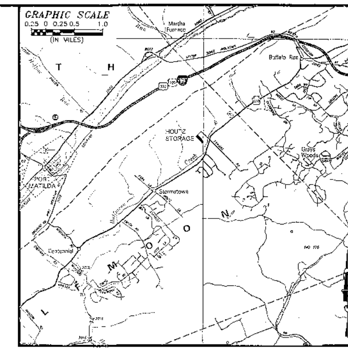
- FILTER SOCK/SIZE (IN)
- DIVERSION CHANNEL
- RIPRAP APRON/LEVEL SPREADER
- CHECK DAM

Pre- and Post-Development Peak Runoff Estimates By HydroCAD				
Return Period (Years)	Pre-Development* (CFS)	Post-Development* (CFS)	Post-Develope. Detained (CFS)	Post-Develope. No Pervious+ (CFS)
1	0.1	4.8	0.1	0.3
2	0.3	6.7	0.2	0.3
10	1.8	11.4	0.7	1.8
25	3.6	15.2	2.5	3.1
50	5.0	18.0	3.3	3.6
100	7.0	21.4	4.1	4.0
100	Clogged Principal Spwy.		2.2	

* For the purpose of peak runoff analysis, pre-developed is based on conditions prior to the existing storage buildings and pavement. This is because the existing detention is to be eliminated and the new detention treats all runoff from the site.

+These values reflect a model that assumes that only the impervious areas are present. The time of concentration is also reduced to reflect this assumption.

Soil Characteristics and Limitations						
Map Key	Name	Slope (%)	Hydrologic Soil Group	Depth to Restricting Layer (In)	Depth to Bedrock (In)	Depth to Seasonal Water (In)
AnB	Andover channery silt loam	0–8	D	16–28	48–99	<12
CkB	Clarksburg silt loam	3–8	C	20–36	60–99	18–36
Du	Dunning silty clay loam	–	C/D	72–99	>66	0–6
LoC	Laidig channery loam	8–15	C	28–35	>60	30–48



LOCATION MAP

SOURCE: PennDOT TYPE 10 MAP
SCALE: 1'=1-MI.±

GENERAL INFORMATION

PROPERTY OWNER
HOUTZ, DONALD B. & TONIANN
25 TDL CIRCLE
PORTMATILDA, PA 16870
RECORD BOOK 0741, PAGE 0451
TAX PARCEL 17-001-,023

PARCEL AREA: EXISTING: 4.990-AC

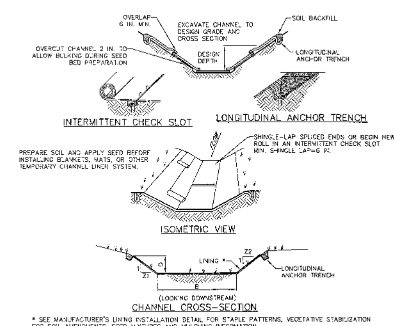
BUILDING COVERAGE
EX. BUILDING COVERAGE: 16,012-SF, 0.368-AC, 7.4%
NEW BUILDING COVERAGE: 20,100-SF, 0.461-AC
PROPOSED TOTAL BUILDING COVERAGE: 36,112-SF,0.829-AC, 15.8%

IMPERVIOUS COVER
EX. IMPERVIOUS COVER: 55,465-SF, 1.273-AC, 25.5%
PROPOSED TOTAL IMPERVIOUS COVER: 106,981-SF, 2.456-AC, 46.7%

TEMPORARY CONSTRUCTION EASEMENT
83,388-SF (1.1914-AC) ADJACENT PROPERTY OWNER: HOUTZ, DONALD & TONIANN, R 0741, P 0451

PERMANENT STORMWATER MANAGEMENT EASEMENT
11,630-SF (0.267-AC) ADJACENT PROPERTY OWNER: HOUTZ, DONALD & TONIANN, R 0741, P 0451

NOTE: PLEASE SEE NPDES EROSION AND SEDIMENTATION CONTROL PLAN SHEET ESC-2 FOR NARRATIVE AND DETAILS.



* SEE MANUFACTURER'S LINING INSTALLATION DETAIL FOR STAPLE PATTERNS, VEGETATIVE STABILIZATION FOR SOIL AMENDMENTS, SEED MIXTURES AND MULCHING INFORMATION

CHANNEL NO.	STATIONS	BOTTOM WIDTH B (FT)	DEPTH D (FT)	TOP WIDTH W (FT)	Z1 (FT)	Z2 (FT)	LINING *
DIVERT	FULL LENGTH	1	1.5	7.0	2	2	NAG SC150
COLLECT	EAST AND WEST	3	2.0	11.0	2	2	NAG SC150

NOTES:

ANCHOR TRENCHES SHALL BE INSTALLED AT BEGINNING AND END OF CHANNEL IN THE SAME MANNER AS LONGITUDINAL ANCHOR TRENCHES.

CHANNEL DIMENSIONS SHALL BE CONSTANTLY MAINTAINED. CHANNEL SHALL BE CLEANED WHENEVER TOTAL CHANNEL DEPTH IS REDUCED BY 25% AT ANY LOCATION.
SEDIMENT DEPOSITS SHALL BE REMOVED WITHIN 24 HOURS OF DISCOVERY OR AS SOON AS SOIL CONDITIONS PERMIT ACCESS TO CHANNEL WITHOUT FURTHER DAMAGE. DAMAGED LINING SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS OF DISCOVERY.

NO MORE THAN ONE THIRD OF THE SHOOT (GRASS LEAF) SHALL BE REMOVED IN ANY MOWING. GRASS HEIGHT SHALL BE MAINTAINED BETWEEN 2 AND 3 INCHES UNLESS OTHERWISE SPECIFIED. EXCESS VEGETATION SHALL BE REMOVED FROM PERMANENT CHANNELS TO ENSURE SUFFICIENT CHANNEL CAPACITY.

STANDARD CONSTRUCTION DETAIL #6-1
VEGETATED CHANNEL
NOT TO SCALE

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DRAWN BY: JEL 05/08/2020

REVISIONS 06/05/2020

SCALE: 1"=60'

SOURCE:

SW-4

JOSEPH EDWARD LICHTY PROFESSIONAL ENGINEER

Houtz Self Storage
Half Moon Township - Centre County - PA

HOUTZ SELF STORAGE EXPANSION SITE PLAN
STORMWATER MANAGEMENT PLAN
SHEET 4 - E & S CONTROL PLAN