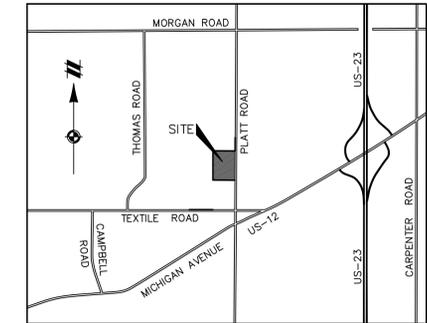


Monarch Estates

PITTSFIELD TOWNSHIP, WASHTENAW COUNTY, MICHIGAN SINGLE-FAMILY RESIDENTIAL SITE CONDOMINIUM SECTION 22, PRELIMINARY SITE PLAN



LOCATION MAP
NOT TO SCALE

PROJECT CONTACTS

DEVELOPER / APPLICANT
DIVERSE REAL ESTATE, LLC
13001 23 MILE ROAD, SUITE 200
SHELBY TOWNSHIP, MI 48315
(586) 232-9098 (PHONE)
ATTN: COSIMO LOMBARDO (COSIMO@LOMBARDOHOMES.COM)

ENGINEER / LANDSCAPE ARCHITECT
ATWELL, LLC
TWO TOWNE SQUARE, SUITE 700
SOUTHFIELD, MICHIGAN 48076
PHONE: (248) 447-2000
FAX: (248) 447-2001
CONTACT: MR. ERIC LORD, P.E. (ELORD@ATWELL-GROUP.COM)
MR. JOHN ACKERMAN, RLA (JACKERMAN@ATWELL-GROUP.COM)

LEGAL DESCRIPTION

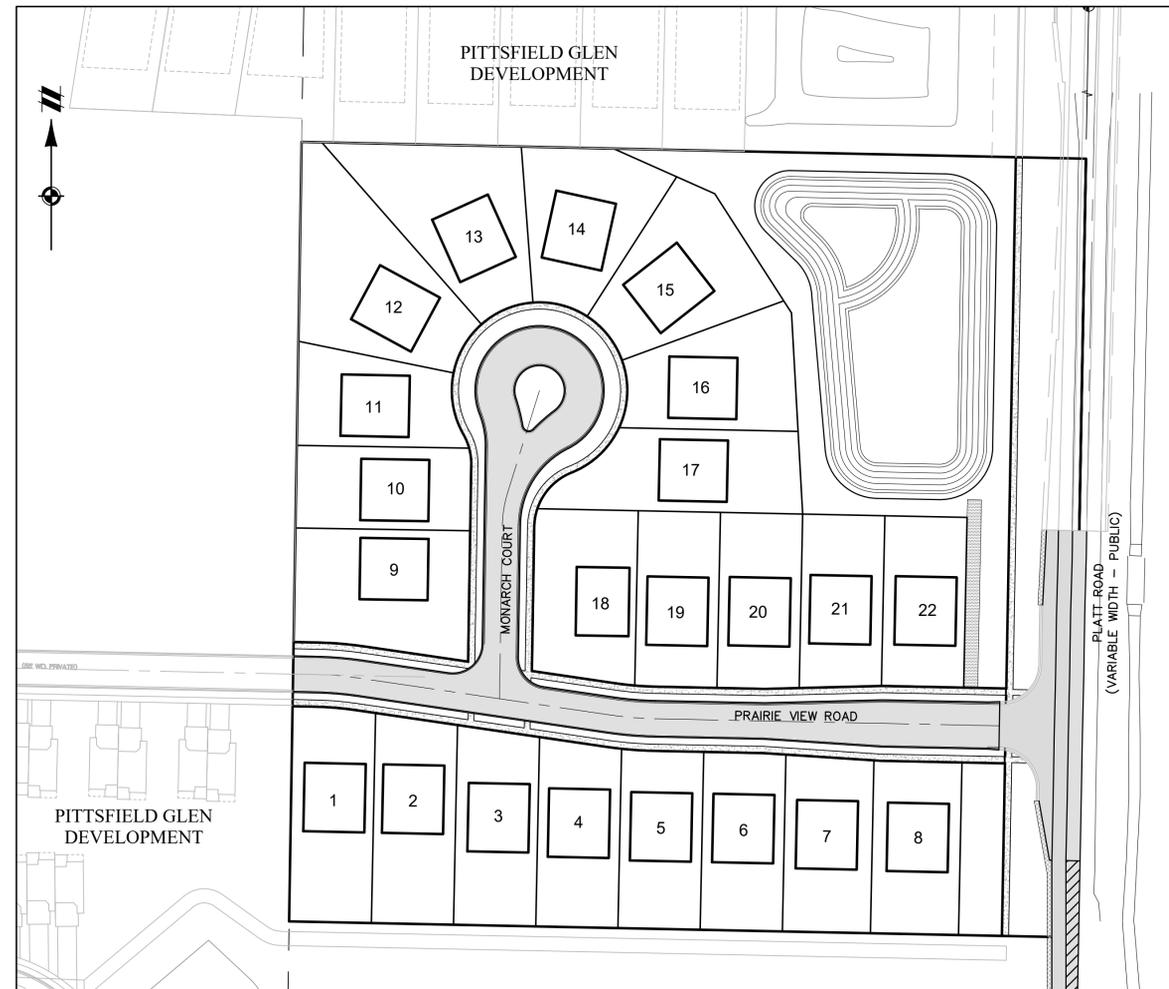
PART OF THE SOUTHEAST 1/4 OF SECTION 22, T3S, R6E, PITTSFIELD TOWNSHIP, WASHTENAW COUNTY, MICHIGAN, DESCRIBED AS: COMMENCING AT THE EAST 1/4 CORNER OF SAID SECTION 22; THENCE SOUTHERLY ALONG THE EAST LINE OF SAID SECTION 22 AND THE CENTERLINE OF PLATT ROAD 912.0 FEET TO THE POINT OF BEGINNING; THENCE CONTINUING SOUTHERLY ALONG SAID EAST LINE AND THE CENTERLINE OF PLATT ROAD 660.0 FEET; THENCE WESTERLY DEFLECTING 89D 57' TO THE RIGHT 660.0 FEET; THENCE NORTHERLY DEFLECTING 90° 03' TO THE RIGHT 660.0 FEET; THENCE EASTERLY DEFLECTING 89° 57' TO THE RIGHT 660.0 FEET TO THE POINT OF BEGINNING.

PERMITS REQUIRED

WCRC ROAD & DRAINAGE
WCRC FINAL SITE PLAN / DRAINAGE DISTRICT
MDEQ SANITARY SEWER
MDEQ WATERMAIN
MDEQ WETLAND/FLOODPLAIN
NPDES
SESC PITTSFIELD TOWNSHIP

SITE DATA

	REQUIRED	PROPOSED (TOTAL SITE)
SITE ZONING	R-1B	R-1B
SITE USE	SINGLE FAMILY SUBURBAN RESIDENTIAL	SINGLE FAMILY SUBURBAN RESIDENTIAL
SITE AREA		
GROSS	N/A	10.12 AC. (440,630 SF.)
EXISTING R.O.W.	N/A	0.50 AC. (21,781 SF.)
PROPOSED R.O.W.	N/A	0.91 AC. (39,602 SF.)
EXISTING DRAINAGE EASMENTS	N/A	0.87 AC. (37,905 SF.)
NET	N/A	8.98 AC. (391,196 SF.)
LOT WIDTH	70 FT. MIN.	70 FT. MIN.
LOT SETBACKS		
FRONT	35 FT. MIN.	35 FT. MIN.
SIDE	5 FT. MIN. / 15 FT. MIN. TOTAL	5 FT. / 15 FT.
REAR	35 FT. MIN.	35 FT.
LOT AREA	10,000 SF. MIN.	10,000 SF. MIN. / 0.23 AC. MIN.
OVERALL LOT AREA	N/A	5.79 AC.
AVERAGE LOT AREA	N/A	12,023 SF.
NUMBER OF LOTS	28 MAX.	22
SITE DENSITY (NET)	4 D.U. / AC. (ALLOWED)	2.45 D.U. / AC.
HOME HEIGHT	2.5 STORIES MAX. (35 FT.)	2.5 STORIES MAX. (35 FT.)
LOT COVERAGE (NET)	30% MAX.	30% MAX.
IMPERVIOUS SURFACE RATIO	40% MAX.	29%
OPEN SPACE	N/A	1.72 AC.



OVERALL SITE SKETCH
NOT TO SCALE

SITE NOTES

- TRASH REMOVAL WILL BE BY CURBSIDE PICK-UP.
- PROPOSED ROADS WILL BE PRIVATE.
- ROOF AND SUMP DRAINAGE MUST BE DIRECTLY DISCHARGED TO GRADE OR STORM SEWER MANHOLE IF POSSIBLE.
- OPEN SPACE AREAS WILL BE GENERAL COMMON ELEMENTS.
- THE PUBLIC ROAD IMPROVEMENTS SHOWN ON THESE PLANS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE 2003 MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
- MAILBOXES WILL BE LOCATED AT EACH UNIT.

SH.#	SHEET TITLE
1	COVER SHEET
2	EXISTING CONDITIONS & NATURAL FEATURES PROTECTION PLAN
3	SOIL BORINGS
4	LAYOUT PLAN
5	GRADING PLAN
6	UTILITY PLAN
7	STORM WATER MANAGEMENT PLAN
8	DETENTION BASIN CALCULATIONS
9	LANDSCAPE PLAN
10	FIRE PROTECTION PLAN

CSPA 19-17 Monarch Estates
Preliminary Site Plan
Rec'd 2019-08-09



Know what's below.
Call before you dig.

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SECTION 22
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

SE MICHIGAN LAND DEVELOPMENT LLC
MONARCH ESTATES
PRELIMINARY SITE PLAN
COVER SHEET

DATE
JULY 26, 2019

REVISIONS
NA NA NA N/A

DRAWN BY: KS
CHECKED BY: JK
P.M.: J. ACKERMAN
JOB #: 12002004
FILE CODE: -
SHEET NO. 1

MONARCH ESTATES

NOT FOR CONSTRUCTION



McDOWELL & ASSOCIATES
Geotechnical, Environmental, & Hydrogeologic Services
21355 Hatcher Avenue • Ferndale, MI 48220
Phone: (248) 399-2066 • Fax: (248) 399-2157

LOG OF SOIL BORING NO. 1
PROJECT Proposed 9.8 Acre Subdivision
LOCATION Hesham Property
Platt Road and Potomac Court
Pittsfield Township, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blow ft/F	Moisture %	Natural Wt. P.C.F.	Dry Den Wt. P.C.F.	Unc. Comp. Strength PSF	St. %
	0'8"		Wet dark brown silty sandy clayey TOPSOIL with vegetation (farm field)						
A	2			4	23.1	120		3330	
UL	3		Stiff moist variegated silty CLAY with sand and pebbles	9				(4500)	
	4			7					
B	5			19	16.4	125		(9000+)	
UL	6								
	7			12					
C	7			17					
UL	8								
	9			15					
D	10		Extremely stiff moist brown silty CLAY with sand and pebbles	26					
UL	10								
	11								
	12								
	13								
	14			12					
E	15			17					
UL	15								
	16								
	17								
	18								
	19		Very stiff moist brown silty CLAY with sand and pebbles and wet sand seams	8					
F	20			8					
UL	20			9					
	21								
	22								
	23								
	24								
	25								

REMARKS: * Calibrated Penetrometer
GROUND WATER OBSERVATIONS: G.W. ENCOUNTERED AT 17 FT. 2 INS. G.W. ENCOUNTERED AT 17 FT. 2 INS. G.W. AFTER COMPLETION dry FT. INS. G.W. AFTER HRS. FT. INS. G.W. VOLUMES light



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LOG OF SOIL BORING NO. 3
PROJECT Proposed 9.8 Acre Subdivision
LOCATION Hesham Property
Platt Road and Potomac Court
Pittsfield Township, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blow ft/F	Moisture %	Natural Wt. P.C.F.	Dry Den Wt. P.C.F.	Unc. Comp. Strength PSF	St. %
	1'4"		Moist dark brown silty sandy clayey TOPSOIL with vegetation (farm field)						
A	2			3	21.5	123		1040	
UL	3		Firm to stiff moist variegated silty CLAY with sand and pebbles, traces of vegetation and sand lenses	6				(3000)	
	4			5					
B	5			9	17.0	125		12750	
UL	5			14				(9000+)	
	6								
	7			12					
C	7			18					
UL	8		Stiff to extremely stiff moist brown silty CLAY with sand and pebbles						
	9								
	10			10					
D	10			22					
UL	10								
	11								
	12								
	13								
	14		Extremely stiff moist blue silty CLAY with traces of sand and pebbles	8					
E	15			15					
UL	15								
	16								
	17								
	18								
	19								
	20		Extremely compact wet brown SAND with trace of pebbles	12					
F	20			20					
UL	20								
	21								
	22								
	23								
	24								
	25								

REMARKS: * Calibrated Penetrometer
GROUND WATER OBSERVATIONS: G.W. ENCOUNTERED AT 17 FT. 0 INS. G.W. ENCOUNTERED AT 15 FT. 2 INS. G.W. AFTER COMPLETION 15 FT. 2 INS. G.W. AFTER HRS. FT. INS. G.W. VOLUMES heavy cave in @ 15'



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21355 Hatcher Avenue • Ferndale, MI 48220
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LOG OF SOIL BORING NO. 2
PROJECT Proposed 9.8 Acre Subdivision
LOCATION Hesham Property
Platt Road and Potomac Court
Pittsfield Township, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blow ft/F	Moisture %	Natural Wt. P.C.F.	Dry Den Wt. P.C.F.	Unc. Comp. Strength PSF	St. %
	0'8"		Wet dark brown silty sandy clayey TOPSOIL with vegetation (farm field)						
A	2			4	21.1	125		4475	
UL	3		Stiff to very stiff moist variegated silty CLAY with sand and pebbles	10				(5000)	
	4								
B	5			8					
UL	5			14	16.2	127		12270	
	6							(9000+)	
	7								
C	7			10					
UL	8			24					
	9								
	10			10					
D	10			17					
UL	10		Extremely stiff moist brown silty CLAY with sand and pebbles						
	11								
	12								
	13								
	14								
	15			12					
E	15			18					
UL	15								
	16								
	17								
	18								
	19								
	20								
	21								
	22								
	23								
	24								
	25								

REMARKS: * Calibrated Penetrometer
GROUND WATER OBSERVATIONS: G.W. ENCOUNTERED AT surface FT. INS. G.W. ENCOUNTERED AT surface FT. INS. G.W. AFTER COMPLETION none FT. INS. G.W. AFTER HRS. FT. INS. G.W. VOLUMES



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LOG OF SOIL BORING NO. 5
PROJECT Proposed 9.8 Acre Subdivision
LOCATION Hesham Property
Platt Road and Potomac Court
Pittsfield Township, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blow ft/F	Moisture %	Natural Wt. P.C.F.	Dry Den Wt. P.C.F.	Unc. Comp. Strength PSF	St. %
	0'3"		Moist discolored brown fine SAND with pebbles and vegetation, fill						
A	2			4	15.5				
UL	3		Very compact moist dark brown and black fine SAND with slag and discolored brown gravelly sand seams, fill	12					
	4			3	24.5	121		3545	
B	5		Very compact moist to wet brown fine SAND, fill	7				(3500)	
UL	5								
	6								
	7			7					
C	7		Stiff moist dark brown silty clayey TOPSOIL with sand and pebbles and vegetation	16	15.8	124		(9000+)	
UL	8								
	9			9					
D	10			19					
UL	10								
	11								
	12								
	13								
	14								
	15			12					
E	15			19					
UL	15		Extremely stiff moist brown silty CLAY with sand and pebbles						
	16								
	17								
	18								
	19								
	20								
	21								
	22								
	23								
	24								
	25								

REMARKS: * Calibrated Penetrometer
GROUND WATER OBSERVATIONS: G.W. ENCOUNTERED AT 4 FT. 0 INS. G.W. ENCOUNTERED AT 4 FT. 0 INS. G.W. AFTER COMPLETION dry FT. INS. G.W. AFTER HRS. FT. INS. G.W. VOLUMES light



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21355 Hatcher Avenue • Ferndale, MI 48220
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LOG OF SOIL BORING NO. 4
PROJECT Proposed 9.8 Acre Subdivision
LOCATION Hesham Property
Platt Road and Potomac Court
Pittsfield Township, Michigan

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blow ft/F	Moisture %	Natural Wt. P.C.F.	Dry Den Wt. P.C.F.	Unc. Comp. Strength PSF	St. %
	0'9"		Wet dark brown silty sandy clayey TOPSOIL with vegetation (farm field)						
A	2			3	22.8	112		2630	
UL	3		Firm to stiff moist variegated silty CLAY with sand and pebbles	7				(3500)	
	4								
B	5			7					
UL	5			16	17.2	122		(9000+)	
	6								
	7								
C	7			14					
UL	8		Extremely stiff moist brown silty CLAY with sand and pebbles						
	9								
	10			10					
D	10			19					
UL	10								
	11								
	12								
	13								
	14								
	15			11					
E	15			12					
UL	15			19					
	16								
	17								
	18								
	19								
	20								
	21								
	22								
	23								
	24								
	25								



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SECTION 22
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

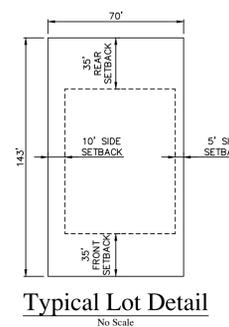
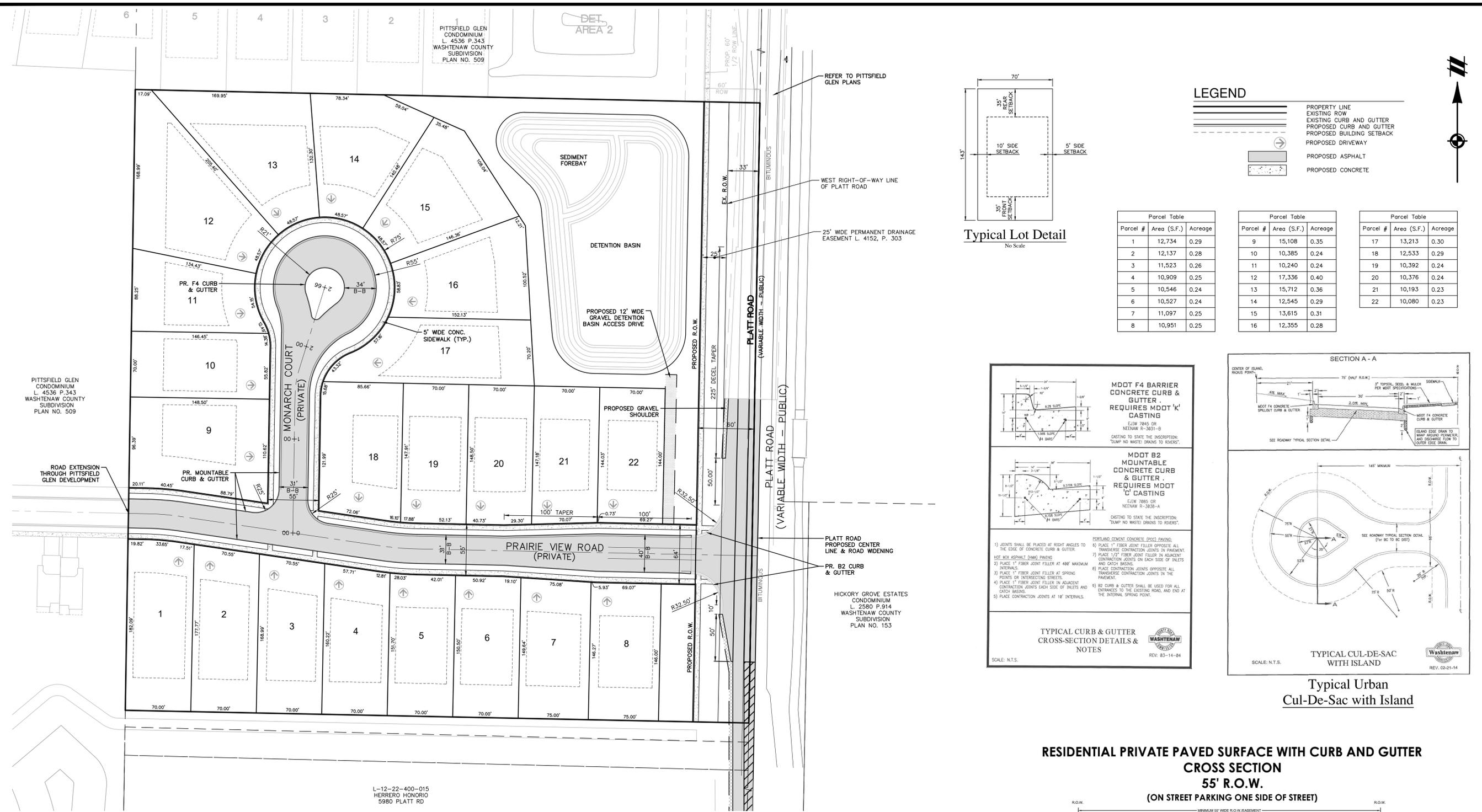
SE MICHIGAN LAND DEVELOPMENT LLC
MONARCH ESTATES
PRELIMINARY SITE PLAN
LAYOUT PLAN

DATE
JULY 26, 2019

Table with 2 columns: REVISIONS, SHEET NO. 4

SCALE: 1" = 50 FEET
DRAWN BY: KS
CHECKED BY: JK
P.M.: J. ACKERMAN
JOB #: 12002004
FILE CODE: -
SHEET NO. 4

NOT FOR CONSTRUCTION

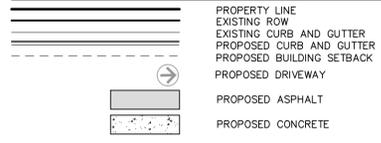


Parcel Table with columns: Parcel #, Area (S.F.), Acreage. Rows 1-8.

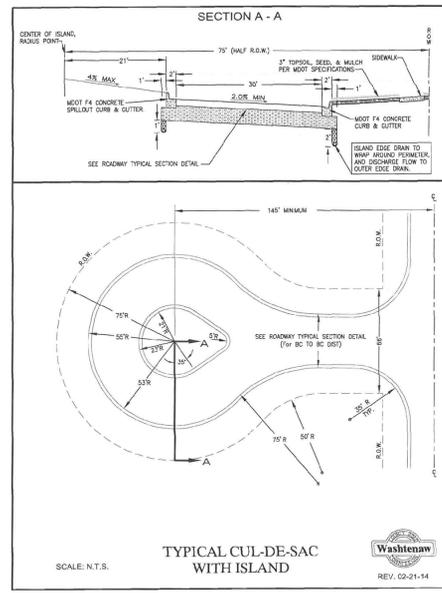
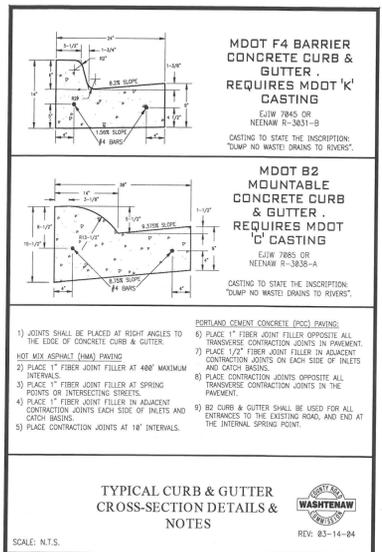
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Parcel Table with columns: Parcel #, Area (S.F.), Acreage. Rows 17-22.

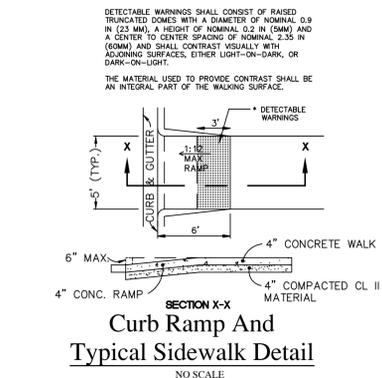
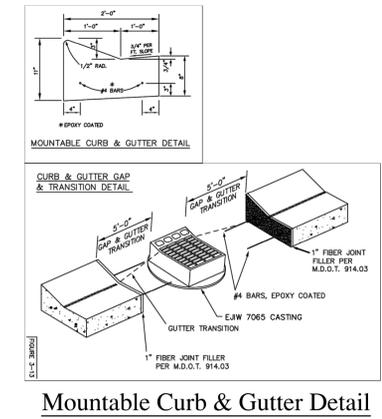
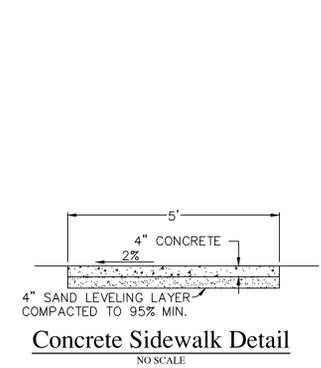
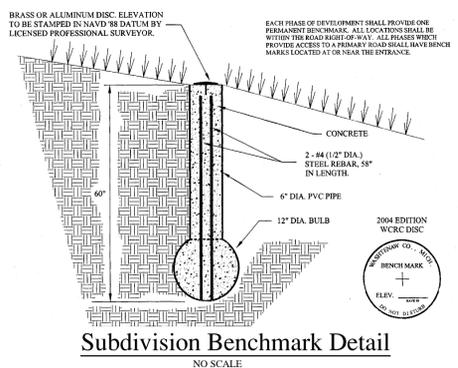
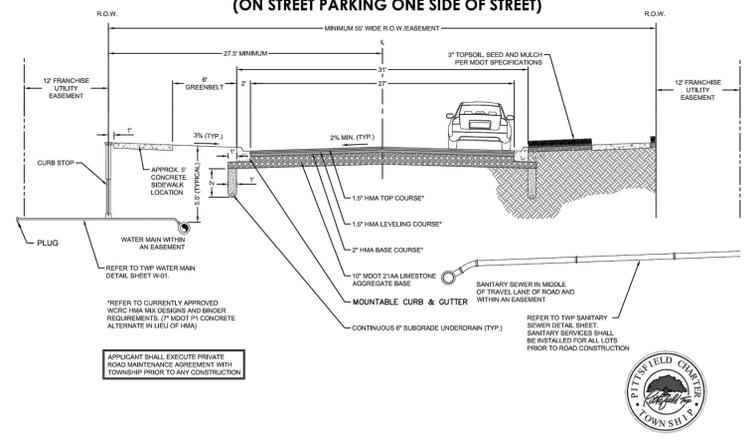
LEGEND



Typical Lot Detail
No Scale



RESIDENTIAL PRIVATE PAVED SURFACE WITH CURB AND GUTTER
CROSS SECTION
55' R.O.W.
(ON STREET PARKING ONE SIDE OF STREET)



K:\12002004\DWG\PLAN SETS\SITE-PRELIMINARY\12002004SP-03-L.DWG 7/29/2019 9:19 AM KEVIN SULLIVAN



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TWO TOWNE SQUARE, SUITE 700
SOUTHFIELD, MI 48076
248.447.2000

SECTION 22
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

SE MICHIGAN LAND DEVELOPMENT LLC
MONARCH ESTATES
PRELIMINARY SITE PLAN
GRADING PLAN

DATE
JULY 26, 2019

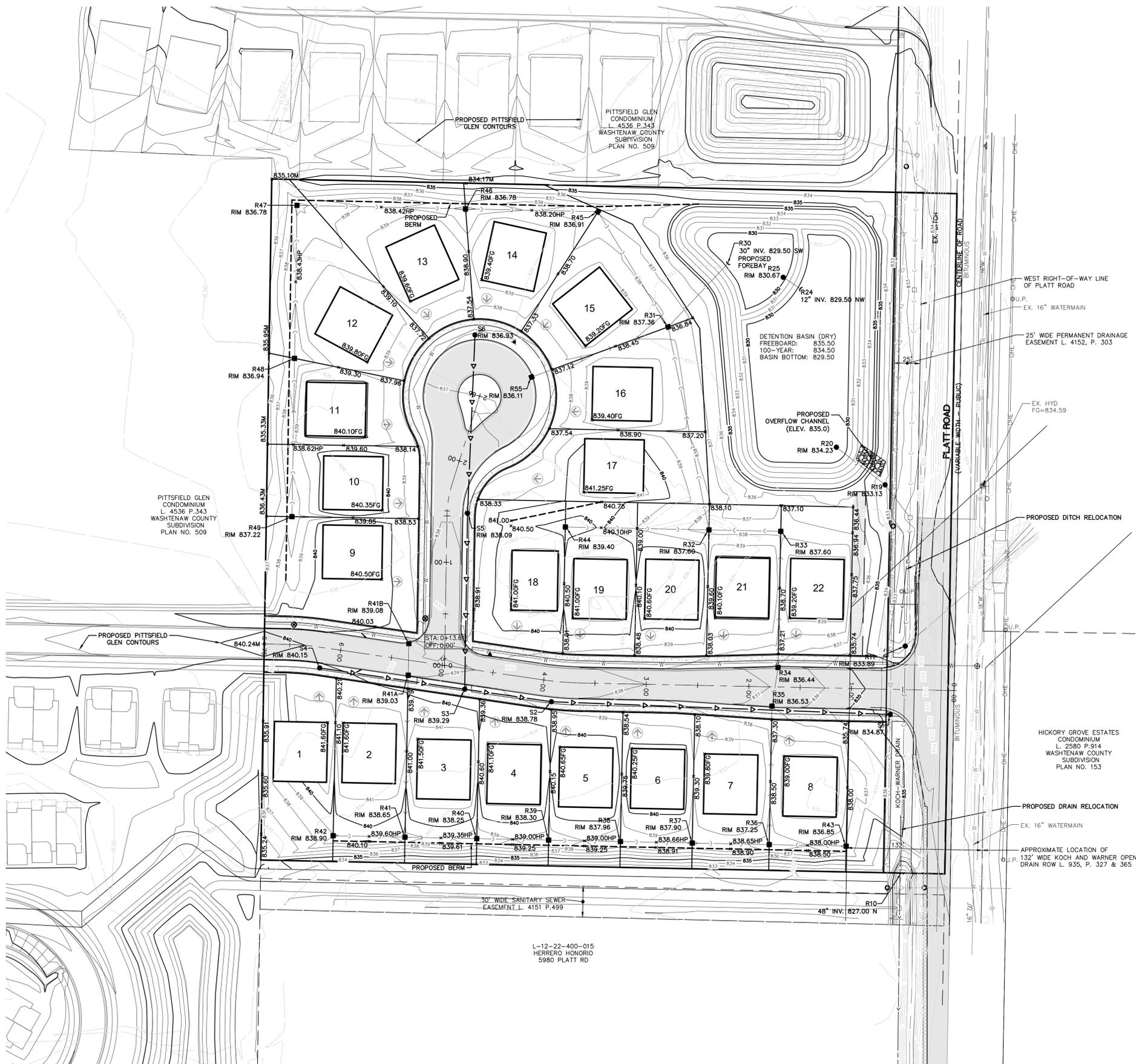
NO.	DATE	REVISIONS

SCALE: 1" = 50 FEET
DRAWN BY: KS
CHECKED BY: JK
P.M.: J. ACKERMAN
JOB #: 12002004
FILE CODE: -
SHEET NO. 5

LEGEND

- 588 — PROPOSED 1' CONTOUR
- 590 — PROPOSED 5' CONTOUR
- 588 — EXISTING 1' CONTOUR
- 590 — EXISTING 5' CONTOUR
- — PROPERTY LINE
- — PROPOSED R.O.W. LINE
- — RIDGE LINE
- — EXISTING STORM SEWER
- — PROPOSED STORM SEWER
- — EXISTING MANHOLE/CATCH BASIN/END SECTION
- — PROPOSED MANHOLE/CATCH BASIN/END SECTION
- — EXISTING WATER MAIN
- — PROPOSED WATER MAIN
- — EXISTING HYDRANT
- — PROPOSED HYDRANT
- — EXISTING GATE VALVE & WELL
- — PROPOSED GATE VALVE & WELL
- — EXISTING SANITARY SEWER
- — PROPOSED SANITARY SEWER
- — EXISTING SANITARY SEWER MANHOLE
- — PROPOSED SANITARY SEWER MANHOLE
- — PROPOSED ASPHALT
- — PROPOSED CONCRETE
- — PROPOSED DRIVEWAY

SPOT GRADE DESIGNATIONS
FG = FINISH GRADE / FLANGE
RIM = RIM GRADE / FLOW LINE
HP = HIGH POINT



K:\12002004\DWG\PLAN SET\15 SITE-PRELIMINARY\12002004SP-04-C.DWG 7/26/2019 9:20 AM KEVIN SULLIVAN

NOT FOR CONSTRUCTION

CAD FILE: 12002004SP-04-C.DWG

TR-55 - Worksheet: Runoff Curve Number and Runoff						
Project:		Monarch Estates		Date:		7/12/2017
Location:		Pittsfield Township, Washtenaw County				
Description:		Detention Basin				
W1 Determining Post-Development Cover Types, Areas, Curve Numbers and runoff coefficients						
Total Contributing Drainage Area =				9.53 Acres		
Total Disturbed Area =				9.53 Acres		
Rational Method Variables	Cover Type	Soil Type	Area (sf)	Area (ac)	Runoff Coef	(c)(Area)
	Paved Parking Lots, roofs, driveways		120,154	2.76	0.95	114,146
	Water Surfaces		43,560	1.00	1.00	43,560
	Developed Open Space, Good Condition	C	167,270	3.84	0.30	50,181
	Developed Open Space, Good Condition	D	66,211	1.52	0.45	29,795
	Developed Open Space, Good Condition	D/C	17,931	0.41	0.45	8,069
Total - Sum (c)(Area) =				245,752		
Area Total (sf) =				415,127		
Weighted C-Sum(c)(Area)/Sum(ac) or Sum(sf) =				0.59		
NRCS Variables	Pervious Cover Type	Soil Type	Area (sf)	Area (ac)	Curve Number	(CN)(Area)
	Developed Open Space, Good Condition	C	167,270	3.84	74	12,378,010
	Developed Open Space, Good Condition	D	66,211	1.52	80	5,296,896
	Developed Open Space, Good Condition	D/C	17,931	0.41	80	1,434,496
	Total - Sum (CN)(Area) =				19,109,402	
Area Total - Sum(ac) of Sum(sf) =				251,413		
Weighted CN-Sum(CN)(Area)/Sum(ac) or Sum(sf) =				76		
NRCS Variables	Impervious Cover Type	Soil Type	Area (sf)	Area (ac)	Curve Number	(CN)(Area)
	Paved Parking Lots, roofs, driveways	D/C, C, D	120,154	2.76	98	11,775,092
	Impervious, Ponds	D/C, C, D	43,560	1.00	98	4,268,880
	Total - Sum (CN)(Area) =				16,043,972	
Area Total - Sum(ac) of Sum(sf) =				163,714		
Weighted CN-Sum(CN)(Area)/Sum(ac) or Sum(sf) =				98		
W2 First Flush Runoff Calculations (Vff)						
A.		Vff = (1") (1/12) (43560/1) (C) AC =		20,410 cf		
W3 Predevelopment Bankfull Runoff Calculations (Vbf-pre)						
A.		2 year/24 hour storm event		P = 2.35 in		
B.		Pervious Cover CN (good condition woods or meadow)		CN = 74		
C.		S = (1000/CN) - 10		S = 3.51 in		
D.		Q = (P - 0.25) * 2 / (P + 0.85)		Q = 0.53 in		
E.		Pervious Cover Area		Area = 415,127 sf		
F.		Vbf-pre = Q(1/12)Area		Vbf-pre = 18,190 cf		
W4 Pervious Cover Post-development Bankfull Runoff Calculations (Vbf-per-post)						
A.		2 year/24 hour storm event		P = 2.35 in		
B.		Pervious Cover CN		CN = 76		
C.		S = (1000/CN) - 10		S = 3.16 in		
D.		Q = (P - 0.25) * 2 / (P + 0.85)		Q = 0.61 in		
E.		Pervious Cover Area		Area = 251,413 sf		
F.		Vbf-per-post = Q(1/12)Area		Vbf-per-post = 12,696 cf		
W5 Impervious Cover Post-development Bankfull Runoff Calculations (Vbf-imp-post)						
A.		2 year/24 hour storm event		P = 2.35 in		
B.		Impervious Cover CN		CN = 98		
C.		S = (1000/CN) - 10		S = 0.20 in		
D.		Q = (P - 0.25) * 2 / (P + 0.85)		Q = 2.12 in		
E.		Pervious Cover Area		Area = 163,714 sf		
F.		Vbf-imp-post = Q(1/12)Area		Vbf-imp-post = 28,946 cf		
W6 Pervious Cover Post-development 100-year Storm Runoff Calculations (V100-per-post)						
A.		100 year storm event		P = 5.11 in		
B.		Pervious Cover CN		CN = 76		
C.		S = (1000/CN) - 10		S = 3.16 in		
D.		Q = (P - 0.25) * 2 / (P + 0.85)		Q = 2.63 in		
E.		Pervious Cover Area		Area = 251,413 sf		
F.		V100-per-post = Q(1/12)Area		V100-per-post = 55,045 cf		
W7 Impervious Cover Post-development 100-year Storm Runoff Calculations (V100-imp-post)						
A.		100 year storm event		P = 5.11 in		
B.		Pervious Cover CN		CN = 98		
C.		S = (1000/CN) - 10		S = 0.20 in		
D.		Q = (P - 0.25) * 2 / (P + 0.85)		Q = 4.87 in		
E.		Pervious Cover Area		Area = 163,714 sf		
F.		V100-imp-post = Q(1/12)Area		V100-imp-post = 66,482 cf		
W8 Determine Time of Concentration (Tc-hrs)						
User specified; assume 15 minutes						
Total Time of Concentration (hrs) =				0.25		

Predevelopment Pervious Cover CN Calculation				
Soil Type	CN	Area (Ac.)	CNxArea	
Bb(B/C)	71	3.84	272.64	
Na(B/D)	78	1.52	118.56	
Pe(D/C)	78	0.41	32.11	
Average:			73.34	

W9 Runoff Summary & Onsite Infiltration Requirement						
A.		Runoff Summary from Previous Worksheets				
		V _H =		20,410 cf*		
		V _{bf-pre} =		18,190 cf		
		V _{bf-per-post} =		12,696 cf		
		V _{bf-imp-post} =		28,946 cf		
Total BF Volume (V _{bf-post}) =				41,642 cf		
		V _{100-per-post} =		55,045 cf		
		V _{100-imp-post} =		66,482 cf		
Total 100-year Volume (V ₁₀₀) =				121,527 cf		
B. Determine Onsite Infiltration Requirement						
		V _{bf-post} =		41,642 cf		
		V _{bf-pre} =		18,190 cf		
		Bankfull Volume Difference =		23,452 cf*		
Onsite Infiltration Requirement (V _{inf}) =				23,452 cf		
W10 Detention / Retention Requirement						
A.		Q _b = 238.6 (T _c) ^{-0.82}		743.63		cfs/in-mi ²
B.		Total Site Area		9.53		ac
C.		Q ₁₀₀ = Q _{100-per} + Q _{100-imp}		7.50		in
D.		Peak Flow (PF) = (Q _b * Q ₁₀₀) / 640		83.052		cfs
E.		Delta = PF - 0 (ZERO OUTLET CONDITION)		83.052		cfs
F.		V _{det} = (Delta/PF) x V ₁₀₀ - V _{inf} *		121,527		cf
* V _{inf} refers to total infiltration provided per worksheet W11						
W11 Determine Applicable BMPs and Associated Volume Credits						
Proposed BMP	Area (ft ²)	Storage Depth (ft)	Storage Volume	Ave. Design Infil. Rate	Infil. During Storm (ft ³)	Total Volume Reduction (ft ³)
Infiltration Basin	0	0.0	0	0	0	0
Total Volume Reduction Credit by Proposed Structural BMPs (V _{inf}) =				0 cf		
* Per Geotechnical investigation, includes a factor of safety of 2. Another factor of safety of 2 added due to high rate.						
Proposed BMP	Ave. Design Infil. Rate (ft/hr)*	Volume Rate (cf/hr)	Estimated Drawdown Time (hrs)	#DIV/0!		
Infiltration Basin	0.0000	0				
W12 Infiltration / Detention Summary						
Total Infiltration Required per WCWR Rules:				23,452 cf		
Total Infiltration Provided:				0 cf		
Difference:				(23,452) cf		
% Deficiency:				100.0%		
Pro-Rated 20% Detention Penalty:				20.0%		
Total Detention Required				121,527 cf		
Total Detention Required w/ Pro-Rated Penalty				145,832 cf		
Basin Stage-Storage Summary:						
Elev.	Area	Avg. Area	Depth	Volume		
834.5	39393	38,380	0.5	146,714		
834.0	37,367	35,400	1.0	127,524		
833.0	33,433	31,545	1.0	92,124		
832.0	29,657	27,528	1.0	60,579		
831.0	25,399	23,131	1.0	33,051		
830.0	20,863	19,839	0.5	9,920		
829.5	18,815	0	-	0 Detention		
Total Detention Provided:				146,714 cf		
		Vff Elev. =		830.45		
		Vbf Elev. =		831.31		
		V100 Elev. =		834.48		
		Vprovided Elev. =		835.48 (1' freeboard)		
Forebay Sizing						
Required Volume (Vfb) = 0.05 * V100				6,076 cf		
Forebay Stage-Storage Summary:						
Elev.	Area	Avg. Area	Depth	Volume		
831.0	5,512	4,736	1.0	6,559		
830.0	3,959	3,647	0.5	1,823		
829.5	3,334			Vfb Elev. = 830.90		



Know what's below.
Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MUST BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE: CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK OF PERSONS ENGAGED IN THE WORK OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

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SECTION 22
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

SE MICHIGAN LAND DEVELOPMENT LLC
MONARCH ESTATES
PRELIMINARY SITE PLAN
DETENTION BASIN CALCULATIONS

DATE: JULY 26, 2019

REVISIONS

SCALE: 1" = 50 FEET
DRAWN BY: KS
CHECKED BY: JK
P.M.: J. ACKERMAN
JOB #: 1202004
FILE CODE: -
SHEET NO. 8



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SECTION 22
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

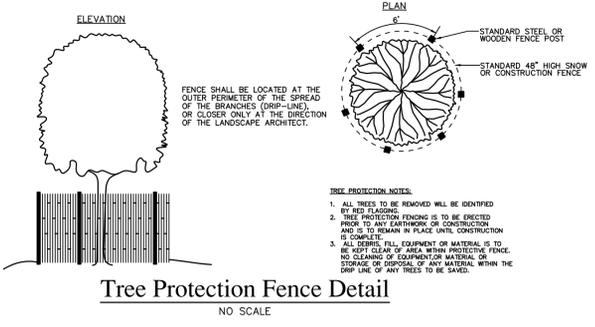
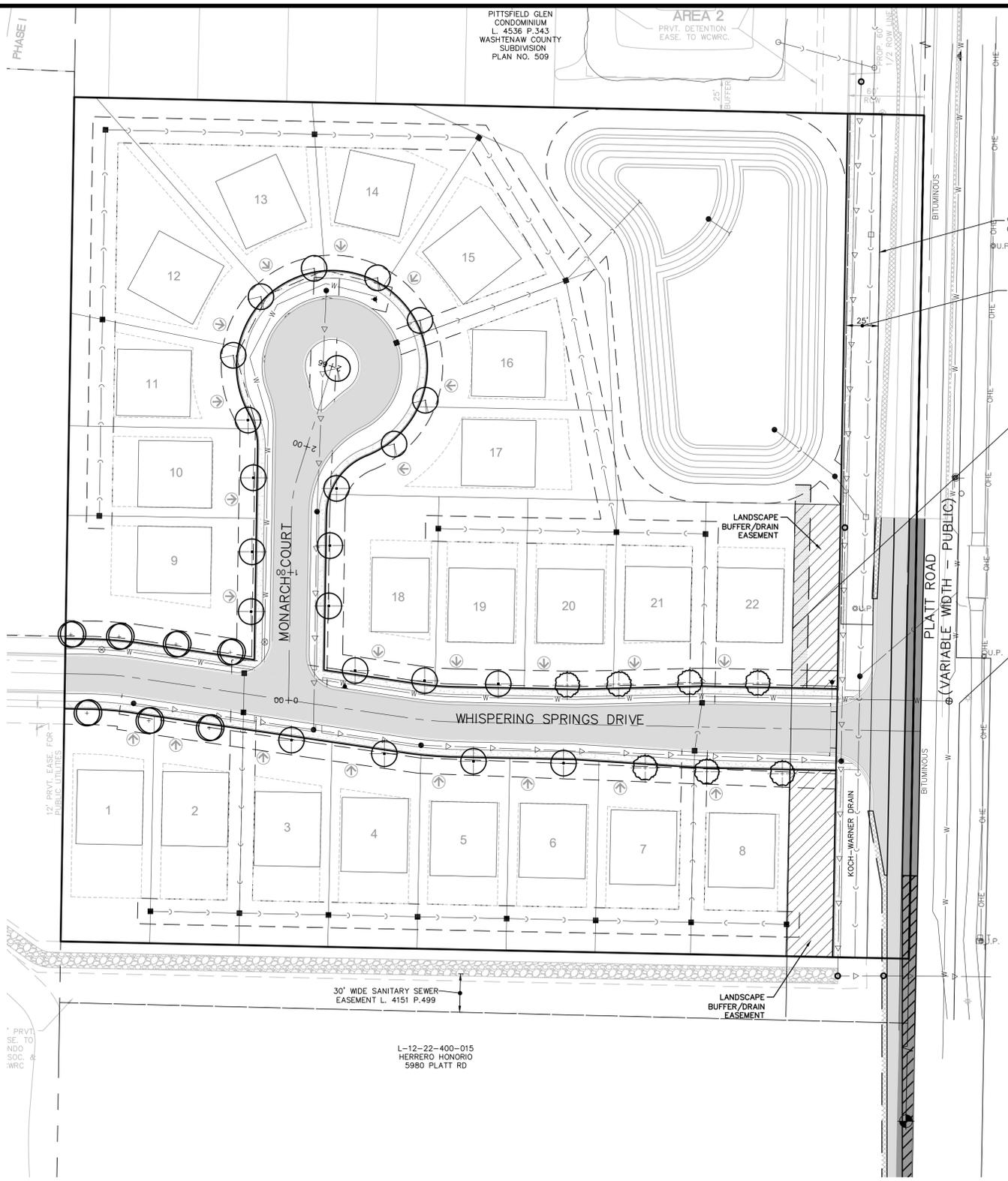
SE MICHIGAN LAND DEVELOPMENT LLC
MONARCH ESTATES
PRELIMINARY SITE PLAN
LANDSCAPE PLAN

DATE
JULY 26, 2019

Table with 2 columns: REVISIONS, SCALE: 1" = 50 FEET

DRAWN BY: KS
CHECKED BY: JK
P.M.: J. ACKERMAN
JOB #: 12002004
FILE CODE: -
SHEET NO. 9

CAD FILE: 12002004SP-07-LS.DWG



Tree Protection Fence Detail
NO SCALE

Landscape Calculations

13.02 G1 - 1 TREE PER 50' FOR INTERNAL STREETS REQUIRED.
1753 L.F. OF LOT SIDE CURB IS PROPOSED 1753/50 = 36 STREET TREES REQUIRED

Landscape Notes

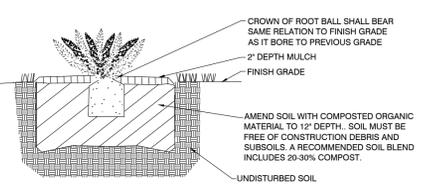
- 1. Sizes specified are minimum sizes to which the plants are to be installed.
2. All landscaping shall be installed and maintained in accordance with Pittsfield Township standards...
3. The landscape contractor shall be responsible for verification of all underground and overhead utilities...
4. Prior to any land clearing or construction, tree protection fencing is to be installed...
5. No plant material is to be planted closer than 4 feet from any property line.
6. Plant trees and shrubs at the same grade level at which they were grown at the nursery...
7. Remove all twine, wire, nursery tree guards, tags and inorganic material from root balls.
8. Peel back the top 1/3 of burlap from earth balls and remove any burlap around tree trunks.
9. All landscape areas shall be excavated of all building/construction material and poor soils...
10. Backfill directly behind all curbs and along sidewalks and compact to top of curb or walk...
11. Any plant substitutions shall have prior Township approval.
12. Ground mounted mechanical equipment shall be screened where visible from the public right of way...
13. Trees shall not be placed in sight distance triangles.
14. All trees shall be located a minimum of 10' from all utility structures.
15. All trees outside of the roadway corridor shall be located a minimum of 10' from all utility structures and utility lines.
16. Street trees shall be located 4' behind the back of curb where the trees are located in the green space between back of curb and face of walk...

Detention Area Plantings

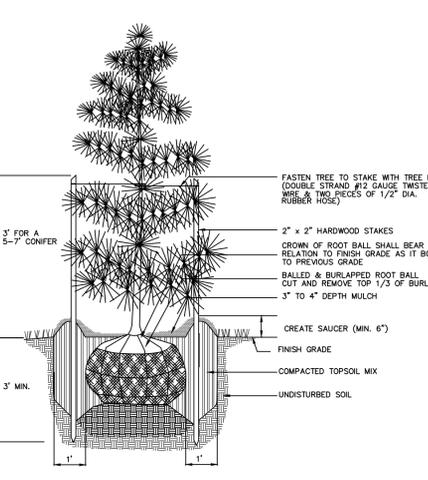
- 1. Within areas below the first flush elevation of the proposed stormwater system, only live plantings are allowed...
2. Plantings should be locally adapted and appropriate to the hydric conditions proposed...
3. Plantings should be spaced according to each species size and growth potential to allow for sufficient coverage as required by the soil erosion permit.

Stormwater Seed Mix (rate & location to be provided in final site plans)

Table with columns for Permanent Grasses/Sedges/Rushes, Forbs, and Botanical/Common Names. Includes species like Crested Oval Sedge, Bottlebrush Sedge, Brown Fox Grass, etc.

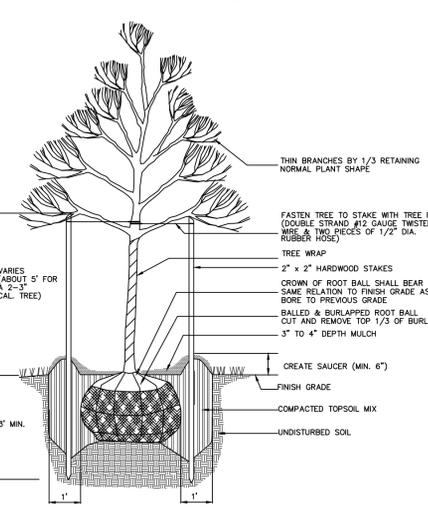


Soil Amendments Within The Stormwater System



- NOTES:
1. DO NOT ALLOW AIR POCKETS TO FORM WHEN BACKFILLING
2. DO NOT DAMAGE MAIN ROOTS OR DESTROY ROOT BALL WHEN INSTALLING TREE STAKE
3. REMOVE TREE RINGS AND STAKES TWO YEARS AFTER INSTALLATION
4. WATER TREE THOROUGHLY SUBSEQUENT TO INSTALLATION

Coniferous Tree Planting Detail Balled And Burlapped



- NOTES:
1. DO NOT ALLOW AIR POCKETS TO FORM WHEN BACKFILLING
2. DO NOT DAMAGE MAIN ROOTS OR DESTROY ROOT BALL WHEN INSTALLING TREE STAKE
3. REMOVE TREE RINGS, TREE WRAP AND STAKES TWO YEARS AFTER INSTALLATION
4. WATER TREE THOROUGHLY SUBSEQUENT TO INSTALLATION

Deciduous Tree Planting Detail Balled And Burlapped



Street Trees

Table with columns: Symbol, Common Name, Scientific Name, Size, Specs. Lists trees like October Glory Red Maple, Sugar Maple, Shademaster Honeylocust, Red Oak, Greenspire Littleleaf Linden.

K:\12002004\DWG\PLAN SETS\SITE-PRELIMINARY\12002004SP-07-LS.DWG 7/26/2019 8:22 AM KEVIN SULLIVAN

NOT FOR CONSTRUCTION

