

Preliminary Site Plan State Street Crossing Units 4, 5, and 6

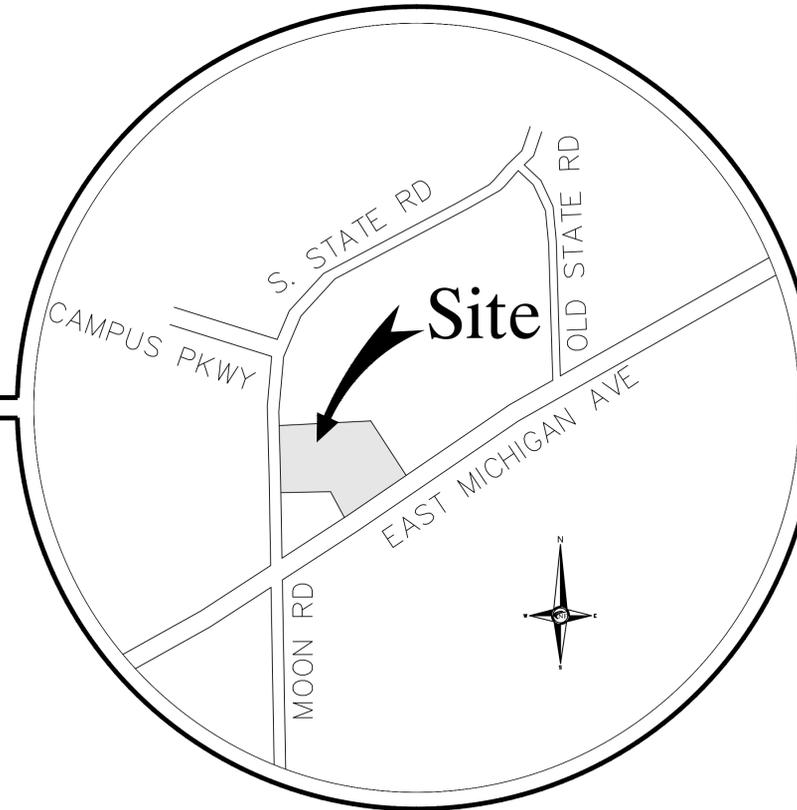
Prepared For
Commercial Properties Services LLC
42690 Woodward Avenue Suite 225 Bloomfield Hills, MI 48304

LEGAL DESCRIPTION

UNITS 4, 5 AND 6 OF STATE STREET CROSSING CONDOMINIUM, A CONDOMINIUM ACCORDING TO THE MASTER DEED RECORDED IN LIBER 4603, PAGE 304, WASHTENAW COUNTY RECORDS AND DESIGNATED AS WASHTENAW COUNTY CONDOMINIUM SUBDIVISION PLAN NO. 543, TOGETHER WITH RIGHTS IN GENERAL COMMON ELEMENTS AND LIMITED COMMON ELEMENTS AS SET FORTH IN SAID MASTER DEED AND PURSUANT TO ACT 59 OF THE PUBLIC ACTS OF 1978, AS AMENDED.

UNIT 4 GROSS LAND AREA: 70,723 SQUARE FEET OR 1.62 ACRES.
UNIT 5 GROSS LAND AREA: 56,275 SQUARE FEET OR 1.29 ACRES.
UNIT 6 GROSS LAND AREA: 50,702 SQUARE FEET OR 1.16 ACRES.

TOTAL GROSS LAND AREA: 177,700 SQUARE FEET OR 4.07 ACRES



Location Map
N.T.S.

REVISIONS:

June 27th, 2018 - Submitted to WCWRC for Conceptual Approval
July 27th, 2018 - Revised Per WCWRC Comments
November 15th, 2018 - Submitted for Preliminary Site Plan Review
July 8, 2019 - Submitted for Preliminary Site Plan Review
August 24, 2019 - Revised per Preliminary Site Plan Review
September 30, 2019 - Revised per Preliminary Site Plan Review

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Owner / Developer

BBRB I LLC c/o
Commercial Properties
Services LLC
42690 Woodward Avenue
Suite 225
Bloomfield Hills, MI 48304

Contact: Bill Orlando
Phone: (248) 454-1010

Architect

Jarratt Architecture
108 North Lafayette
South Lyon, MI 48178

Contact: Bill Jarratt
Phone: (248) 446-1100
EXT. 42

Civil Engineer

Nowak & Fraus Engineers
46777 Woodward Avenue
Pontiac, Michigan 48342

Contact: Mr. Patrick Williams, P.E.
Phone: (248) 332-7931
Fax: (248) 332-8257

Landscape Architect

Nowak & Fraus Engineers
46777 Woodward Avenue
Pontiac, Michigan 48342

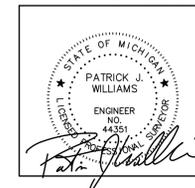
Contact: Mr. George Ostrowski, LLA, LEED AP
Phone: (248) 332-7931
Fax: (248) 332-8257

PROJECT NARRATIVE

The project includes the development of Units 4, 5 and 6 of the State Street Crossing Condominium, and contains 177,700 square feet or 4.07 acres. The proposed development will include a mix of restaurants, retail/service and urgent care facility, containing approximately 33,000 gross square feet, featuring enhanced architectural facades, public space, pedestrian walkability and enhanced landscape throughout the site. In addition to a unified architectural appearance, the project will incorporate green technologies and practices to the extent possible. The proposed development is fully consistent with the vision of Pittsfield Township, and will enhance the dining and retail corridor.

STATE STREET CROSSING
UNITS 4, 5, AND 6
C.S.P.A. #18-26

NFE JOB # K182



CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS

NOWAK & FRAUS ENGINEERS
46777 WOODWARD AVE.
PONTIAC, MI 48342-5032
TEL. (248) 332-7931
FAX. (248) 332-8257

SEAL

PROJECT
Vacant Lots

CLIENT
BBRB I LLC c/o
Commercial Properties
Services LLC
42690 Woodward Avenue
Suite 225
Bloomfield Hills, MI 48304
Contact: Jerry McKindles
Ph-248-454-1010

PROJECT LOCATION
Part of the West 1/4
of Section 28, T.3S, R.6E
Pittsfield Township,
Washtenaw County, Michigan

SHEET
Boundary / Topographic /
Tree Survey



Know what's below
Call before you dig.

DATE ISSUED/REVISED
JUNE 27, 2018 - WCVR CONCEPTUAL APPROVAL
JULY 30, 2019 - UPDATE COMCAST LOCATION

DRAWN BY:
D. McConkey

DESIGNED BY:
N/A

APPROVED BY:
K. Navaroli

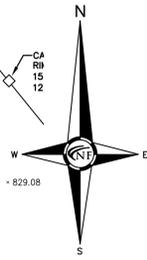
DATE:
May 10, 2018

SCALE: 1" = 30'

NFE JOB NO. SHEET NO.

K182

C2



LEGAL DESCRIPTION
UNITS 3, 4, 5 AND 6 OF STATE STREET CROSSING CONDOMINIUM, A CONDOMINIUM ACCORDING TO THE MASTER DEED RECORDED IN LIBER 4603, PAGE 304, WASHTENAW COUNTY RECORDS AND DESIGNATED AS WASHTENAW COUNTY CONDOMINIUM SUBDIVISION PLAN NO. 543, TOGETHER WITH RIGHTS IN GENERAL COMMON ELEMENTS AND LIMITED COMMON ELEMENTS AS SET FORTH IN SAID MASTER DEED AND PURSUANT TO ACT 59 OF THE PUBLIC ACTS OF 1978, AS AMENDED.

FLOOD HAZARD NOTE
THE PROPERTY DESCRIBED ON THIS SURVEY DOES NOT LIE WITHIN A SPECIAL FLOOD HAZARD AREA AS DEFINED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY; THE PROPERTY LIES WITHIN ZONE X OF THE FLOOD INSURANCE RATE MAP IDENTIFIED AS MAP NO. 261610415E BEARING AN EFFECTIVE DATE OF 04/03/2012.

MISS DIG / UTILITY DISCLAIMER NOTE
A MISS DIG TICKET NUMBER A91190682, PURSUANT TO MICHIGAN PUBLIC ACT 174 WAS ENTERED FOR THE SURVEYED PROPERTY, DUE TO THE EXTENDED REPORTING PERIOD FOR UNDERGROUND FACILITY OWNERS TO PROVIDE THEIR RECORDS, THE SURVEY MAY NOT REFLECT ALL THE UTILITIES AT THE TIME THE SURVEY WAS ISSUED ON 05-18-2019. THE SURVEY ONLY REFLECTS THOSE UTILITIES WHICH COULD BE OBSERVED BY THE SURVEYOR IN THE FIELD OR AS DEPICTED BY THE UTILITY COMPANY RECORDS FURNISHED PRIOR TO THE DATE THIS SURVEY WAS ISSUED. THE CLIENT AND/OR THEIR AUTHORIZED AGENT SHALL VERIFY WITH THE FACILITY OWNERS AND/OR THEIR AUTHORIZED AGENTS, THE COMPLETENESS AND EXACTNESS OF THE UTILITIES LOCATION.

TOPOGRAPHIC SURVEY NOTES
ALL ELEVATIONS ARE EXISTING ELEVATIONS, UNLESS OTHERWISE NOTED.
UTILITY LOCATIONS WERE OBTAINED FROM MUNICIPAL OFFICIALS AND RECORDS OF UTILITY COMPANIES, AND NO GUARANTEE CAN BE MADE TO THE COMPLETENESS, OR EXACTNESS OF LOCATION.

THIS SURVEY MAY NOT SHOW ALL EASEMENTS OF RECORD UNLESS AN UPDATED TITLE POLICY IS FURNISHED TO THE SURVEYOR BY THE OWNER.

LEGEND

	EXISTING SANITARY SEWER
	EXISTING SAN. CLEAN OUT
	EXISTING WATER MAIN
	EXISTING STORM SEWER
	EX. R.Y. CATCH BASIN
	EXISTING BURIED CABLES
	OVERHEAD LINES
	LIGHT POLE
	SIGN
	EXISTING GAS MAIN



CERTIFICATE OF SURVEY
WE HEREBY CERTIFY THAT WE HAVE SURVEYED THE PROPERTY HEREIN DESCRIBED AND THAT WE HAVE PLACED MARKER IRONS AT THE CORNERS OF THE PARCEL OR AS INDICATED IN THE ABOVE SKETCH.

KEVIN NAVAROLI, PLS
NO. 53503

DATE: 01-25-2018

Condition Description Notes:
"Good" - no observed structural defects
"Fair" - minor structural defects, marginal form, some insect activity noted
"Poor" - major structural defects, poor form, insect infestation

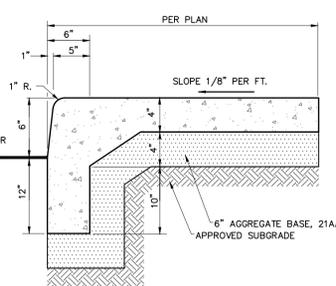
*Structural defects may include decayed wood, cracks, root problems, weak branch unions, cankers, poor tree architecture, dead/failed branches due to various causes.

Tree #	Botanical Name	Common Name	Dia.	Type	Other Dia.	Condition	Notes/Comments
1268	Quercus bicolor	Swamp White Oak	23	Poor		Fair	Vines, Epicormic Branching
1267	Quercus bicolor	Swamp White Oak	23	Fair		Fair	Enclosed Metal Fence, Vines
1268	Ulmus americana	American Elm	10	mbn		Poor	Epicormic Branching, Enclosed Metal Fence, Suppression
1269	Quercus bicolor	Swamp White Oak	28	Fair		Fair	Competition
1270	Quercus bicolor	Swamp White Oak	12	Poor		Fair	Epicormic Branching, Dieback, Suppression
1271	Quercus bicolor	Swamp White Oak	27	Fair		Fair	Dieback, Competition, Enclosed Metal Fence
1272	Quercus bicolor	Swamp White Oak	14	Fair		Fair	Epicormic Branching, Suppression
1273	Quercus bicolor	Swamp White Oak	30	mbn	00	Fair	Enclosed Metal Fence
1274	Quercus bicolor	Swamp White Oak	27	Fair		Fair	Competition, Epicormic Branching
1275	Quercus bicolor	Swamp White Oak	29	Poor		Poor	Mechanical Damage, Epicormic Branching, Enclosed Metal Fence
1276	Quercus bicolor	Swamp White Oak	26	Fair		Fair	Mechanical Damage, Epicormic Branching, Enclosed Metal Fence
1277	Sargis-ovata	Shepherd-Hickory	14	mbn	11	Fair	Lean
1278	Acer platanoides	Norway Maple	14	mbn	10	Fair	Mowing Damage
1279	Tilia americana	Blisswood	10	mbn	10	Poor	Rot
1280	Acer negundo	Boxelder	8	mult	7.6	Fair	Vines
1281	Acer platanoides	Norway Maple	8	mbn	8	Fair	Mowing Damage
1282	Acer platanoides	Norway Maple	8	mbn	8	Fair	Mowing Damage
1283	Acer platanoides	Norway Maple	15	mbn	15	Fair	Mowing Damage

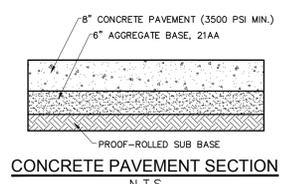
JONATHAN NEVENDORFF
FOREST STEWARDSHIP PLANNER
MI FORESTER #3301046108

DETAIL	DIMENSIONS	LANE TIES	CONCRETE CU. YD./LIN. FT.
F1	1'-6"	AS SHOWN	0.0484
F2	1'-6"	OMITTED	0.0484
F3	2'-0"	AS SHOWN	0.0610
F4	2'-0"	OMITTED	0.0610
F5	2'-6"	AS SHOWN	0.0737
F6	2'-6"	OMITTED	0.0737

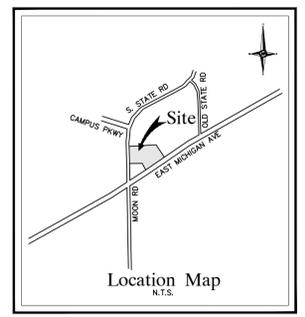
MDOT CURB AND GUTTER DETAIL F
N.T.S.



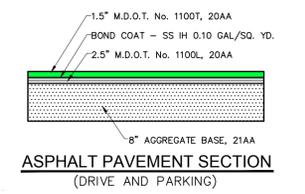
6" MONOLITHIC CURB AND WALK
N.T.S.



CONCRETE PAVEMENT SECTION
N.T.S.



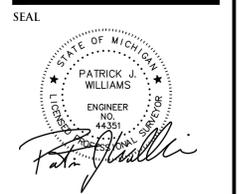
Location Map
N.T.S.



ASPHALT PAVEMENT SECTION
(DRIVE AND PARKING)

NF ENGINEERS
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS

NOWAK & FRAUS ENGINEERS
46777 WOODWARD AVE.
PONTIAC, MI 48342-5032
TEL (248) 332-7931
FAX (248) 332-8257



PROJECT
State Street Crossing
Units 4, 5, and 6

CLIENT
BBRB I LLC c/o
Commercial Properties
Services LLC
42690 Woodward Avenue
Suite 225
Bloomfield Hills, MI 48304
Contact: Bill Orlando
Ph-248-454-1010

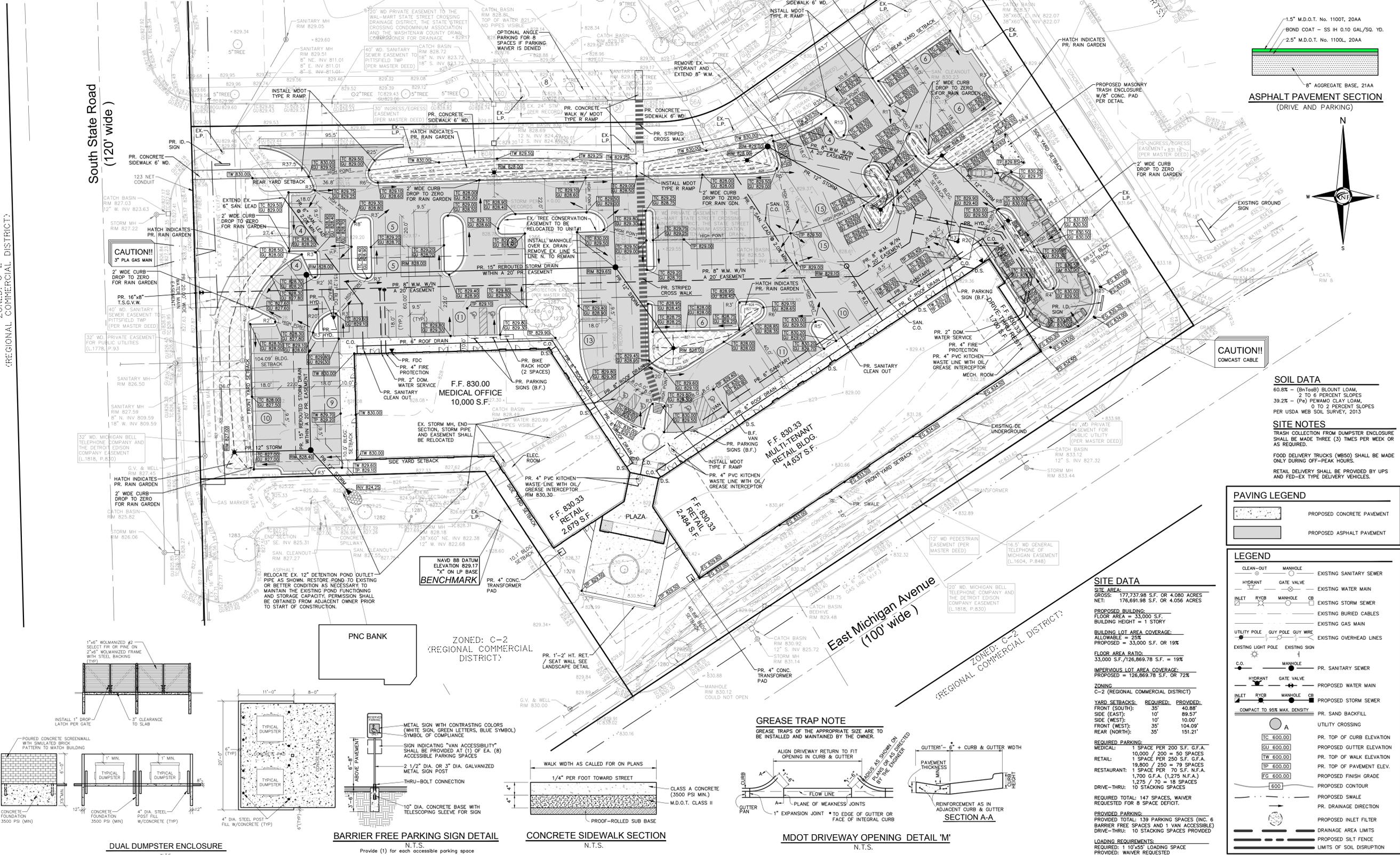
PROJECT LOCATION
Part of the West 1/4
of Section 28, T.3S, R.6E
Pittsfield Township,
Washtenaw County, Michigan

SHEET
Pr. Site Plan



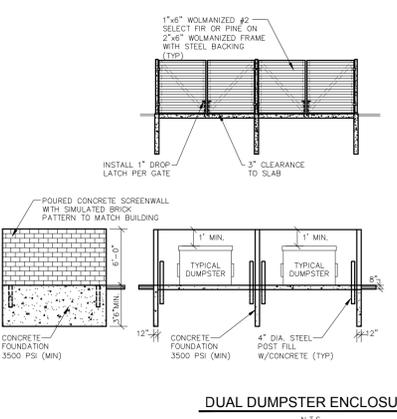
DATE 07-08-19
ISSUED/REVISED Prelim S.P.
08-24-19 Per Twp. Review
09-30-19 Per Eng. Review
10-07-19 Per Eng. Review
10-28-19 Per Twp. Review

DRAWN BY: A. Wiseman
DESIGNED BY: A. Wiseman
APPROVED BY: P. Williams
DATE: March 18th, 2019
SCALE: 1" = 30'
30 15 0 15 30 45
NFE JOB NO. K182 **SHEET NO.** C3

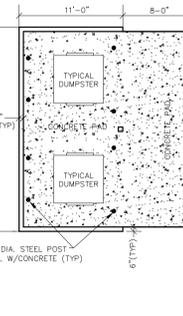


REGIONAL COMMERCIAL DISTRICT

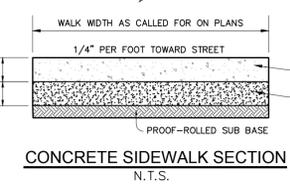
REGIONAL COMMERCIAL DISTRICT



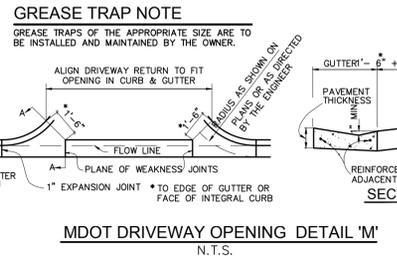
DUAL DUMPSTER ENCLOSURE
N.T.S.



BARRIER FREE PARKING SIGN DETAIL
N.T.S.



CONCRETE SIDEWALK SECTION
N.T.S.



MDOT DRIVEWAY OPENING DETAIL 'M'
N.T.S.

SITE DATA
SITE AREA:
GROSS: 177,737.98 S.F. OR 4.080 ACRES
NET: 176,691.98 S.F. OR 4.056 ACRES
PROPOSED BUILDING:
FLOOR AREA = 33,000 S.F.
NET AREA = 33,000 S.F.
BUILDING HEIGHT = 1 STORY
BUILDING LOT AREA COVERAGE:
ALLOWABLE = 25%
PROPOSED = 33,000 S.F. OR 19%
FLOOR AREA RATIO:
33,000 S.F./126,869.78 S.F. = 19%
IMPERVIOUS LOT AREA COVERAGE:
PROPOSED = 126,869.78 S.F. OR 72%
ZONING
C-2 (REGIONAL COMMERCIAL DISTRICT)
YARD SETBACKS: REQUIRED: PROVIDED:
FRONT (SOUTH): 35' 40.88'
SIDE (EAST): 10' 89.57'
SIDE (WEST): 10' 10.00'
FRONT (WEST): 35' 104.09'
REAR (NORTH): 35' 151.21'
REQUIRED PARKING:
MEDICAL: 1 SPACE PER 200 S.F. G.F.A.
15,000 / 200 = 75 SPACES
RETAIL: 1 SPACE PER 250 S.F. G.F.A.
19,800 / 250 = 79 SPACES
RESTAURANT: 1 SPACE PER 70 S.F. N.F.A.
1,700 G.F.A. (1,275 N.F.A.)
1,275 / 70 = 18 SPACES
10 STACKING SPACES
DRIVE-THRU:
REQUIRED TOTAL: 147 SPACES, WAIVER
REQUESTED FOR 8 SPACE DEFICIT.
PROVIDED PARKING:
PROVIDED TOTAL: 139 PARKING SPACES (INC. 6
BARRIER FREE SPACES AND 1 VAN ACCESSIBLE)
DRIVE-THRU: 10 STACKING SPACES PROVIDED
LOADING REQUIREMENTS:
REQUIRED: 1 10'x45' LOADING SPACE
PROVIDED: WAIVER REQUESTED

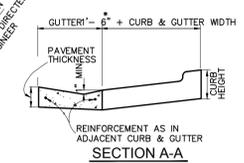
PAVING LEGEND

	PROPOSED CONCRETE PAVEMENT
	PROPOSED ASPHALT PAVEMENT

LEGEND

	CLEAN-OUT		EXISTING SANITARY SEWER
	HYDRANT		EXISTING WATER MAIN
	INLET		EXISTING STORM SEWER
	MANHOLE		EXISTING BURIED CABLES
	UTILITY POLE		EXISTING GAS MAIN
	GUY POLE		EXISTING OVERHEAD LINES
	EXISTING LIGHT POLE		EXISTING SIGN
	MANHOLE		PROPOSED SANITARY SEWER
	HYDRANT		PROPOSED WATER MAIN
	INLET		PROPOSED STORM SEWER
	COMPACT TO 95% MAX. DENSITY		PR. SAND BACKFILL
	1/2" MANHOLE		UTILITY CROSSING
	6" MANHOLE		PR. TOP OF CURB ELEVATION
	18" MANHOLE		PR. TOP OF WALK ELEVATION
	30" MANHOLE		PR. TOP OF PAVEMENT ELEV.
	42" MANHOLE		PR. TOP OF FINISH GRADE
	60" MANHOLE		PROPOSED CONTOUR
	72" MANHOLE		PR. DRAINAGE DIRECTION
	84" MANHOLE		PROPOSED INLET FILTER
	96" MANHOLE		DRAINAGE AREA LIMITS
	108" MANHOLE		PROPOSED SILT FENCE
	120" MANHOLE		LIMITS OF SOIL DISRUPTION

GREASE TRAP NOTE
GREASE TRAPS OF THE APPROPRIATE SIZE ARE TO BE INSTALLED AND MAINTAINED BY THE OWNER.



SECTION A-A

PNC BANK
ZONED: C-2
(REGIONAL COMMERCIAL DISTRICT)

F.F. 830.00 MEDICAL OFFICE
10,000 S.F.

F.F. 830.33 RETAIL
2,679 S.F.

F.F. 830.33 MULTI-TENANT RETAIL BLDG.
14,657 S.F.

SOIL DATA
60.8% - (B₁) BLUNT LOAM
2 TO 6 PERCENT SLOPES
39.2% - (P₁) PEWAW CLAY LOAM,
0 TO 2 PERCENT SLOPES
PER USDA WEB SOIL SURVEY, 2013

SITE NOTES
TRASH COLLECTION FROM DUMPSTER ENCLOSURE SHALL BE MADE THREE (3) TIMES PER WEEK OR AS REQUIRED.
FOOD DELIVERY TRUCKS (WBS) SHALL BE MADE ONLY DURING OFF-PEAK HOURS.
RETAIL DELIVERY SHALL BE PROVIDED BY UPS AND FED-EX TYPE DELIVERY VEHICLES.

CAUTION!!
COMCAST CABLE

CAUTION!!
PLA GAS MAN

DETENTION CALCULATIONS OF PROPOSED SITE (UNITS 3-5) UNDER CURRENT WCWR STANDARDS

STORM WATER DETENTION CALCULATIONS - DETENTION BASIN DESIGN - WASHTENAW COUNTY METHOD W7 Impervious Cover Post-Development 100-Year Runoff Calculations

W1 Determine Post-Development Cover Types, Areas, Curve Numbers, and Runoff Coefficients

A- $P = 5.11in$

Cover Type	Soil Type	Area (sf)	Area (ac)	Runoff Coefficient	CNA
Roof	N/A	33000	0.758	0.95	0.720
Pavement	N/A	96960	2.226	0.95	2.115
Semi-Perious (Lawn) (24%)	C	31031	0.712	0.30	0.214
Semi-Perious (Lawn) (0-2%)	D	16709	0.384	0.45	0.173
Total CNA					3.221
Total Area					4.079
Weighted C					0.789

B- Impervious Cover CN From V CN = 98.000

C- $S = \frac{1000}{CN} - 10$ $S = 0.204$ (Inches)

D- $Q = \frac{(P - 0.25)^2}{(P + 0.85)}$ $Q = 4.873$ (Inches)

E- Impervious Area = 129960 (Square Feet)

F- $V_{100-imp-post} = Q \frac{1}{12} A$ $V_{100-imp-post} = 52774.593$ (Cubic Feet)

W2 First Flush Runoff Calculations

$V_{FF} = 1 - \left(\frac{1}{12}\right) \left(\frac{43560ft^2}{1acre}\right) AC$ $V_{FF} = 11690.842$ (Cubic Feet)

W3 Pre-Development Bankfull Runoff Calculations

A- $P = 2.35in$

B- Pre-Development Calcs

Cover Type	Soil Type	Area (sf)	Area (ac)	Runoff Coefficient	CNA
Good Cover Meadow	C	119010.31	2.732	0.71	193.979
Good Cover Meadow	D	47263.92	1.085	0.78	84.632
Total CNA					278.611
Total Site Area					3.817
Weighted CN					72.990

C- $S = \frac{1000}{CN} - 10$ $S = 3.701$ (Inches)

D- $Q = \frac{(P - 0.25)^2}{(P + 0.85)}$ $Q = 0.488$ (Inches)

E- Total Area Excluding BMP = 17700 (Square Feet)

F- $V_{ff-pre} = Q \frac{1}{12} A$ $V_{ff-pre} = 7227.166$ (Cubic Feet)

W4 Previous Cover Post-Development Bankfull Runoff Calculations

A- $P = 2.35in$

B- Previous Cover CN From W1 CN = 76.100

C- $S = \frac{1000}{CN} - 10$ $S = 3.141$ (Inches)

D- $Q = \frac{(P - 0.25)^2}{(P + 0.85)}$ $Q = 0.610$ (Inches)

E- Previous Area = 47740 (Square Feet)

F- $V_{ff-per-post} = Q \frac{1}{12} A$ $V_{ff-per-post} = 2425.763$ (Cubic Feet)

W5 Impervious Cover Post-Development Bankfull Runoff Calculations

A- $P = 2.35in$

B- Impervious Cover CN From V CN = 98.000

C- $S = \frac{1000}{CN} - 10$ $S = 0.204$ (Inches)

D- $Q = \frac{(P - 0.25)^2}{(P + 0.85)}$ $Q = 2.122$ (Inches)

E- Impervious Area = 129960 (Square Feet)

F- $V_{ff-imp-post} = Q \frac{1}{12} A$ $V_{ff-imp-post} = 22977.728$ (Cubic Feet)

W6 Previous Cover Post-Development 100-Year Runoff Calculations

A- $P = 5.11in$

B- Previous Cover CN From W1 CN = 76.100

C- $S = \frac{1000}{CN} - 10$ $S = 3.141$ (Inches)

D- $Q = \frac{(P - 0.25)^2}{(P + 0.85)}$ $Q = 2.635$ (Inches)

E- Previous Area = 47740 (Square Feet)

F- $V_{100-per-post} = Q \frac{1}{12} A$ $V_{100-per-post} = 10483.950$ (Cubic Feet)

AS-BUILT DETENTION POND VOLUME CALCULATIONS

Elevation	Area (Square Feet)		Depth (Feet)	Volume (Cubic Feet)	
	Pond 1	Pond 2		Incremental	Cumulative
819	-	-	0.10	-	-
819.1	-	-	0.10	-	-
819.2	-	-	0.10	-	-
819.3	-	-	0.10	-	-
819.4	-	-	0.10	-	-
819.5	-	8,093.00	0.10	809.30	809.30
819.6	-	8,308.60	0.10	830.86	1,640.16
819.7	-	8,524.20	0.10	852.42	2,492.58
819.8	-	8,739.80	0.10	873.98	3,366.56
819.9	-	8,955.40	0.10	895.54	4,262.10
820	-	9,171.00	0.10	917.10	5,179.20
820.1	32,965.90	9,402.50	0.10	4,236.84	9,416.04
820.2	33,836.80	9,634.00	0.10	4,347.08	13,763.12
820.3	34,707.70	9,865.50	0.10	4,457.32	18,220.44
820.4	35,578.60	10,097.00	0.10	4,567.56	22,788.00
820.5	36,449.50	10,328.50	0.10	4,677.80	27,465.80
820.6	37,320.40	10,560.00	0.10	4,788.04	32,253.84
820.7	38,191.30	10,791.50	0.10	4,898.28	37,152.12
820.8	39,062.20	11,023.00	0.10	5,008.52	42,160.64
820.9	39,933.10	11,254.50	0.10	5,118.76	47,279.40
821	40,804.00	11,486.00	0.10	5,229.00	52,508.40
821.1	41,674.90	11,717.50	0.10	5,339.24	57,847.64
821.2	42,545.80	11,949.00	0.10	5,449.48	63,297.12
821.3	43,416.70	12,180.50	0.10	5,559.72	68,846.84
821.4	44,287.60	12,412.00	0.10	5,669.96	74,516.80
821.5	44,864.50	12,643.50	0.10	5,751.20	80,228.00
821.6	45,676.60	12,880.00	0.10	5,855.70	86,073.70
821.7	46,488.70	13,112.00	0.10	5,960.15	92,033.85
821.8	47,300.80	13,345.00	0.10	6,064.60	98,100.60
821.9	48,112.90	13,577.00	0.10	6,169.05	104,269.65
822	48,925.00	13,810.00	0.10	6,273.50	110,543.15
822.1	49,737.10	14,042.00	0.10	6,409.10	116,952.25
822.2	51,061.60	14,385.00	0.10	6,544.70	123,496.95
822.3	52,129.90	14,673.10	0.10	6,680.30	130,177.25
822.4	53,198.20	14,960.20	0.10	6,815.90	136,993.15
822.5	54,266.50	15,248.30	0.10	6,951.50	143,944.65
822.6	55,334.80	15,536.40	0.10	7,087.10	151,031.75
822.7	56,403.10	15,824.50	0.10	7,222.70	158,254.45
822.8	57,471.40	16,112.60	0.10	7,358.30	165,612.75
822.9	58,539.70	16,399.70	0.10	7,493.90	173,106.65
823	59,608.00	16,687.00	0.10	7,629.50	180,736.15
823.1	60,676.30	16,974.10	0.10	7,765.10	188,501.25
823.2	61,650.80	17,301.40	0.10	7,895.20	196,396.45
823.3	62,625.30	17,628.70	0.10	8,025.30	204,421.75
823.4	63,600.00	17,956.00	0.10	8,160.90	212,582.65
823.5	64,574.70	18,283.30	0.10	8,296.50	220,879.15
823.6	65,549.40	18,610.60	0.10	8,432.10	229,311.25
823.7	66,524.10	18,937.90	0.10	8,567.70	237,878.95
823.8	67,498.80	19,265.20	0.10	8,698.30	246,577.25
823.9	68,473.50	19,592.50	0.10	8,828.90	255,406.15
824	69,448.20	19,919.80	0.10	8,959.50	264,365.65
824.1	70,422.90	20,247.10	0.10	9,101.68	273,467.33
824.2	71,397.60	20,574.40	0.10	9,243.86	282,711.19
824.3	72,372.30	20,901.70	0.10	9,386.04	292,097.23
824.4	73,347.00	21,229.00	0.10	9,528.22	301,625.45
824.5	74,321.70	21,556.30	0.10	9,670.40	311,295.85
824.6	75,296.40	21,883.60	0.10	9,812.58	321,108.43
824.7	76,271.10	22,210.90	0.10	9,954.76	331,063.69
824.8	77,245.80	22,538.20	0.10	10,106.94	341,170.63
824.9	78,220.50	22,865.50	0.10	10,259.12	351,429.75
825	79,195.20	23,192.80	0.10	10,399.30	361,829.05
825.1	80,169.90	23,520.10	0.10	10,539.48	372,368.53
825.2	81,144.60	23,847.40	0.10	10,679.66	383,048.19
825.3	82,119.30	24,174.70	0.10	10,819.84	393,868.03
825.4	83,094.00	24,502.00	0.10	10,959.99	404,827.02
825.5	84,068.70	24,829.30	0.10	11,099.14	415,926.16
825.6	85,043.40	25,156.60	0.10	11,238.29	427,164.45
825.7	86,018.10	25,483.90	0.10	11,377.44	438,541.89
825.8	87,000.00	25,811.20	0.10	11,516.59	450,058.48
825.9	88,000.00	26,138.50	0.10	11,655.74	461,714.22
826	89,000.00	26,465.80	0.10	11,794.89	473,509.11
826.1	90,000.00	26,793.10	0.10	11,934.04	485,443.15
826.2	91,000.00	27,120.40	0.10	12,073.19	497,516.34
826.3	92,000.00	27,447.70	0.10	12,212.34	509,728.68
826.4	93,000.00	27,775.00	0.10	12,351.49	522,080.17
826.5	94,000.00	28,102.30	0.10	12,490.64	534,570.81
826.6	95,000.00	28,429.60	0.10	12,629.79	547,190.60
826.7	96,000.00	28,756.90	0.10	12,768.94	559,949.54
826.8	97,000.00	29,084.20	0.10	12,908.09	572,857.63
826.9	98,000.00	29,411.50	0.10	13,047.24	585,914.87
827	99,000.00	29,738.80	0.10	13,186.39	599,101.26

Ex. Storage Elev. 825.86

Pr. Storage Elev. 826.5

EX. POND - ALLOCATED DETENTION VOLUME

Detention Volume Allocated to Units 4, 5, & 6 (Old WCWR Standards)

Weighted C Calculations

$(70724 * 0.452) + (56723 * 0.349) + (50704 * 0.421) = 0.410$

Required Detention Under Old Standards

$Q_a = area * 0.15 = 0.6135 CFS$

$Q_0 = \frac{Q_a}{(a + c)} = 0.366 \frac{cfs}{impervious\ area}$

$T = -25 + \sqrt{\frac{10312.5}{Q_0}} = 142.89\ minutes$

$V_s = \frac{16500T}{T + 25} - 40Q_0T = 11951.14 \frac{cf}{impervious\ area}$

$V_t = V_s + c * area = 20040.87\ cf$

$V_{ff} = 1815 * area * c = 3043.57\ cf$

$V_{bf} = 8170 * area * c = 13700.27\ cf$

$Sediment\ Storage = 5\%\ of\ V_s = 1002.04\ cf$

$Total\ Allocated\ Volume = 21,042.91\ cf$

DETENTION NARRATIVE

THE AIM OF THESE CALCULATIONS ARE AS FOLLOWS:

1-CALCULATE THE DETENTION VOLUME ALLOCATED TO UNITS 4, 5, AND 6 IN THE ORIGINAL DESIGN PLANS UNDER THE OLD WCWR STANDARDS (ORIGINAL CALCULATIONS ARE INCLUDED)

2-CALCULATE THE REQUIRED DETENTION FOR THE SAME AREA WITH THE PROPOSED SITE LAYOUT AND THE CURRENT WCWR STANDARDS.

3-CALCULATE THE ELEVATIONS OF BOTH THE EXISTING DETENTION NEEDS, AND THE PROPOSED DETENTION NEEDS, USING AN AS-BUILT SURVEY OF THE DETENTION PONDS.

THE RESULT OF THESE CALCULATIONS IS AN INCREASE IN THE REQUIRED STORAGE VOLUME OF 54,021 CUBIC FEET. THE REQUIRED VOLUME SHALL BE MET BY RAISING THE 100-YEAR STORAGE ELEVATION FROM 825.86 TO 826.50. THIS WILL REQUIRE ADJUSTING THE RIM OF THE EXISTING OUTLET RISER STRUCTURE FROM 825.86 TO 826.50. THE NEW FREEBOARD ELEVATION WILL BE PROVIDED AT AN ELEVATION OF 827.50.

NO MODIFICATION TO THE SHAPE OF THE EXISTING DETENTION PONDS SHALL BE NECESSARY AS BOTH THE NEW STORAGE ELEVATION AND NEW FREEBOARD ELEVATION SHALL BE CONTAINED WITHIN THE BANKS OF THE EXISTING PONDS.

THE ADJUSTED OUTLET RISER RIM ELEVATION OF 826.50 SHALL PROVIDE 535,361 CUBIC FEET OF STORAGE VOLUME IN THE EXISTING POND OR, 104% OF THE REQUIRED 517,068 CUBIC FEET. THIS REQUIRED STORAGE VOLUME TAKES INTO CONSIDERATION THE FUTURE BUILD-OUT OF UNITS 1 AND 2.

THE EXISTING STRUCTURES ADJACENT TO LOTS 4, 5, & 6 WILL BE TAPPED IN ORDER FOR SITE STORM WATER TO DRAIN INTO THE EXISTING DETENTION BASIN. THIS IS ONLY TO MODIFY EXISTING SURFACE FLOWS ON-SITE, AS NECESSARY.

PROPOSED STORAGE AND FREEBOARD ELEVATION CONTOURS AND PROPOSED ADJUSTMENTS TO THE OUTLET RISER STRUCTURE ARE SHOWN ON SHEET C7.

REFER TO THE WAL MART STORE STORM WATER MANAGEMENT PLAN AND CALCULATIONS ON SHEETS C16 AND C17 FOR REFERENCE.

UPDATE OF EX. DETENTION POND AND OUTLET CONTROL

Developed Runoff Coefficient - Washtenaw County Method - 100 Year Storm Event

On-Site Developed areas contributing Runoff Coefficient:

Surface	Runoff Coefficient:	Drainage Area:	Weighted "C":
Walmart (Existing Development)	0.788	1,165,269	0.524
State Street Crossing - Unit 1 (Future Development)	0.780	108,064	0.048
State Street Crossing - Unit 2 (Future Development)	0.780	39,914	0.018
State Street Crossing - Unit 3 (Existing Development)	0.747	199,321	0.085
State Street Crossing - Unit 4 (Proposed Development)	0.790	70,724	0.032
State Street Crossing - Unit 5 (Proposed Development)	0.790	56,723	0.026
State Street Crossing - Unit 6 (Proposed Development)	0.790	50,704	0.023

Off-Site PNC Bank areas contributing Runoff Coefficient:

Surface	Runoff Coefficient:	Drainage Area:	Weighted "C":
Building	0.950	3,500	0.002
Paving	0.950	26,241	0.014
Perious	0.450	15,137	0.004

Michigan Avenue area contributing Runoff Coefficient:

Surface	Runoff Coefficient:	Drainage Area:	Weighted "C":
Pavement and Ditch	0.750	17,881	0.008
Total:		1,753,498	0.782

Weighted Runoff Coefficient "C" Factor = 0.78

Developed Detention Calculation - Washtenaw County Method - 100 Year Storm Event

FORMULA: $V_s = (16,500 * T) + (25) * (40 * Q_0 * T)$

Go = Qa / (A * C)

Qa = a * 0.15 cfs/acre - restriction of 2.82 cfs

T = -25 + (10,312.5 / Qo)^0.5

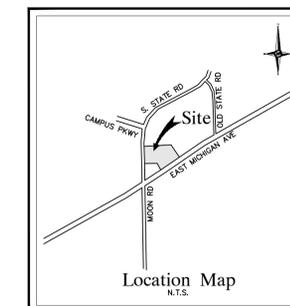
Contributing Acreage:	40.25	Acres
Maximum Allowable Runoff, Qa (local reqmts):	3.22	CFS / Acre
Allowable Outflow, Qa:	0.15	CFS / Acre
Runoff Coefficient, C:	0.78	Imperviousness
Maximum Allowable Outflow, Qo = (local reqmts):	0.10	CFS / (Acre * Imperv)
Ts Storage Time (100 Year):	292.68	Minutes
Vs Storage Volume (100 Year):	14,005.26	CFS / (Acre * Imperv)
Vt Storage Required (100 Year):	440,997.25	Cubic Feet
Sediment Forebay (5% of 100 Yr Storage Required):	22,049.86	Cubic Feet
Vt Volume (100 Year)+ 5% Sediment Forebay:	463,047.11	Cubic Feet
Vt Total Volume (100 Year + Diff. between detention required and currently provided):	517,068.08	Cubic Feet
Total Volume Provided:	535,360.95	Cubic Feet

First Flush Calculation - Washtenaw County Method - 100 Year Storm Event

FORMULA: $V_{ff} = 1,815 * A * C$

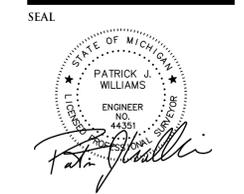
Contributing Acreage:	40.25	Acres
Runoff Coefficient, C:	0.78	Imperviousness
Volume Required:	57,054.98	Cubic Feet

Bank Full Flood Calculation - Was



NF
ENGINEERS
 CIVIL ENGINEERS
 LAND SURVEYORS
 LAND PLANNERS

NOWAK & FRAUS ENGINEERS
 46777 WOODWARD AVE.
 PONTIAC, MI 48342-5032
 TEL. (248) 332-7931
 FAX. (248) 332-8257



PROJECT
 State Street Crossing
 Units 4, 5, and 6

CLIENT
 BRRB I LLC c/o
 Commercial Properties
 Services LLC
 42690 Woodward Avenue
 Suite 225
 Bloomfield Hills, MI 48304
 Contact: Bill Orlando
 Ph-248-454-1010

PROJECT LOCATION
 Part of the West 1/4
 of Section 28, T.3S, R.6E
 Pittsfield Township,
 Washtenaw County, Michigan

SHEET
 Truck Maneuvering Plan



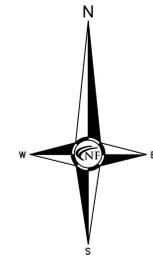
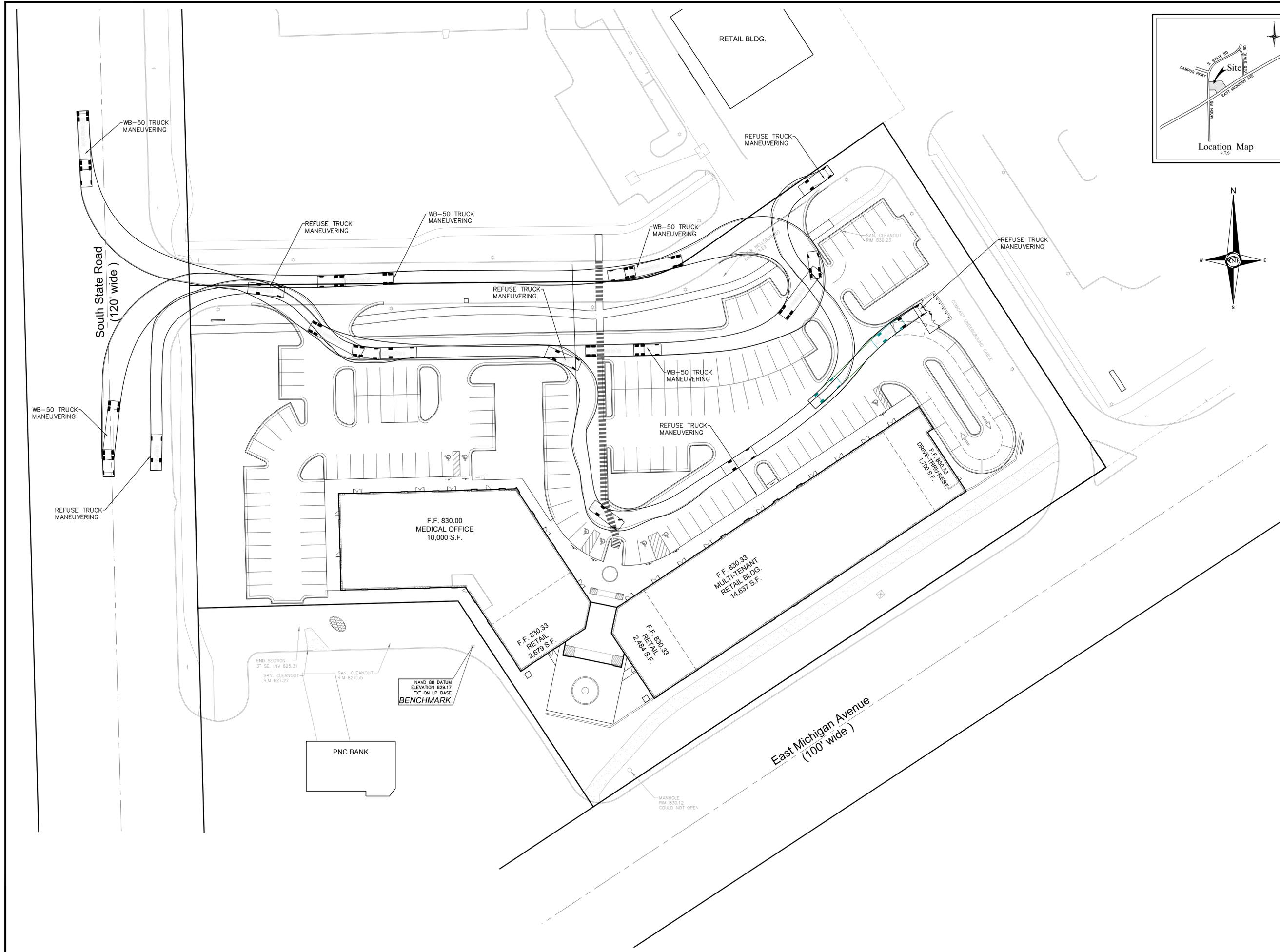
DATE	ISSUED/REVISED
07-08-19	Prelim S.P.
08-24-19	Per Twp. Review
09-30-19	Per Twp. Review
10-07-19	Per Eng. Review
10-28-19	Per Twp. Review

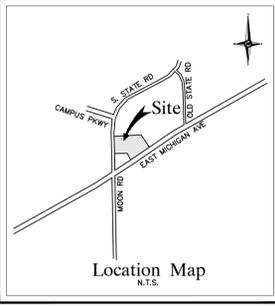
DRAWN BY:
 A. Wiseman
 DESIGNED BY:
 A. Wiseman
 APPROVED BY:
 P. Williams

DATE:
 March 18th, 2019

SCALE: 1" = 30'

NFE JOB NO. SHEET NO.
K182 C5





NF
ENGINEERS
 CIVIL ENGINEERS
 LAND SURVEYORS
 LAND PLANNERS

NOWAK & FRAUS ENGINEERS
 46777 WOODWARD AVE.
 PONTIAC, MI 48342-5032
 TEL. (248) 332-7931
 FAX. (248) 332-8257



PROJECT
 State Street Crossing
 Units 4, 5, and 6

CLIENT
 BRRB I LLC c/o
 Commercial Properties
 Services LLC
 42690 Woodward Avenue
 Suite 225
 Bloomfield Hills, MI 48304
 Contact: Bill Orlando
 Ph-248-454-1010

PROJECT LOCATION
 Part of the West 1/4
 of Section 28, T.3S, R.6E
 Pittsfield Township,
 Washtenaw County, Michigan

SHEET
 Fire Protection Plan



DATE	ISSUED/REVISED
07-08-19	Prelim S.P.
08-24-19	Per Twp. Review
09-30-19	Per Twp. Review
10-07-19	Per Eng. Review
10-28-19	Per Twp. Review

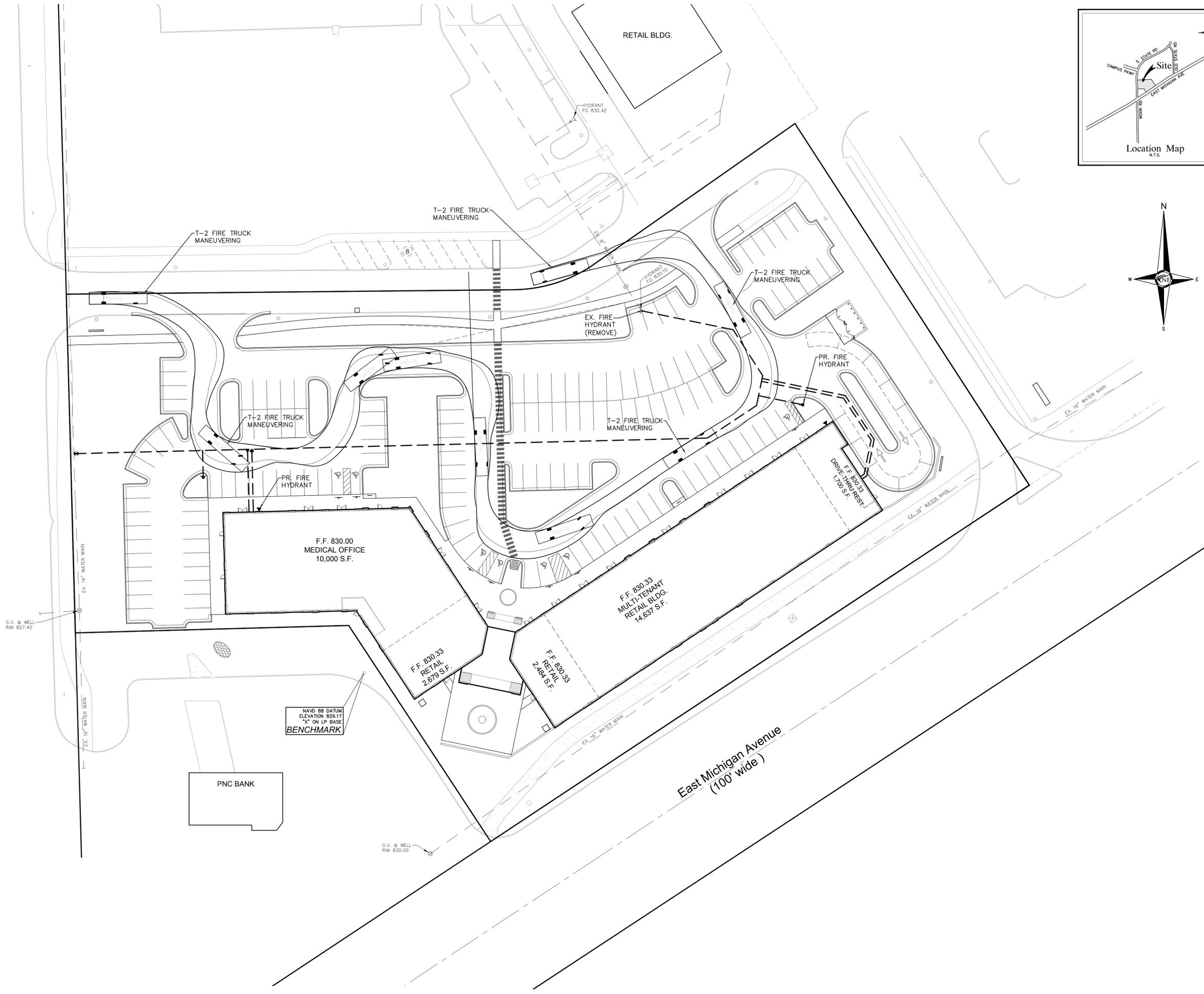
DRAWN BY:
 A. Wiseman
 DESIGNED BY:
 A. Wiseman
 APPROVED BY:
 P. Williams

DATE:
 March 18th, 2019

SCALE: 1" = 30'

NFE JOB NO. SHEET NO.
K182 C6

South State Road
 (120' wide)



NAVD 88 DATUM
 ELEVATION 829.17
 "X" ON LP BASE
BENCHMARK

PNC BANK

East Michigan Avenue
 (100' wide)

RETAIL BLDG.

HYDRANT
 FG 830.42

HYDRANT
 FG 830.10

EX. FIRE
 HYDRANT
 (REMOVE)

PR. FIRE
 HYDRANT

T-2 FIRE TRUCK
 MANEUVERING

PR. FIRE
 HYDRANT

F.F. 830.33
 DRIVE-TENANT
 REST.
 1,705 S.F.

F.F. 830.00
 MEDICAL OFFICE
 10,000 S.F.

F.F. 830.33
 MULTI-TENANT
 RETAIL BLDG.
 14,657 S.F.

F.F. 830.33
 RETAIL
 2,670 S.F.

F.F. 830.35
 RETAIL
 2,484 S.F.

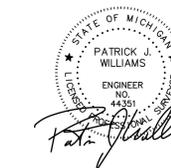
G.V. & WELL
 RM 827.45

G.V. & WELL
 RM 830.00

EX. 16" WATER MAIN



SEAL



PROJECT
State Street Crossing
Units 4, 5, and 6

CLIENT
BBRB I LLC c/o
Commercial Properties
Services LLC
42690 Woodward Avenue
Suite 225
Bloomfield Hills, MI 48304
Contact: Bill Orlando
Ph-248-454-1010

PROJECT LOCATION
Part of the West 1/4
of Section 28, T.3S, R.6E
Pittsfield Township,
Washtenaw County, Michigan

SHEET
As-Built Detention Pond
/ Pr. Storage and Freeboard



Know what's below
Call before you dig.

DATE	ISSUED/REVISED
07-08-19	Prelim S.P.
08-24-19	Per Twp. Review
09-30-19	Per Twp. Review
10-07-19	Per Eng. Review
10-28-19	Per Twp. Review

DRAWN BY:
M Huhta

DESIGNED BY:
M Huhta

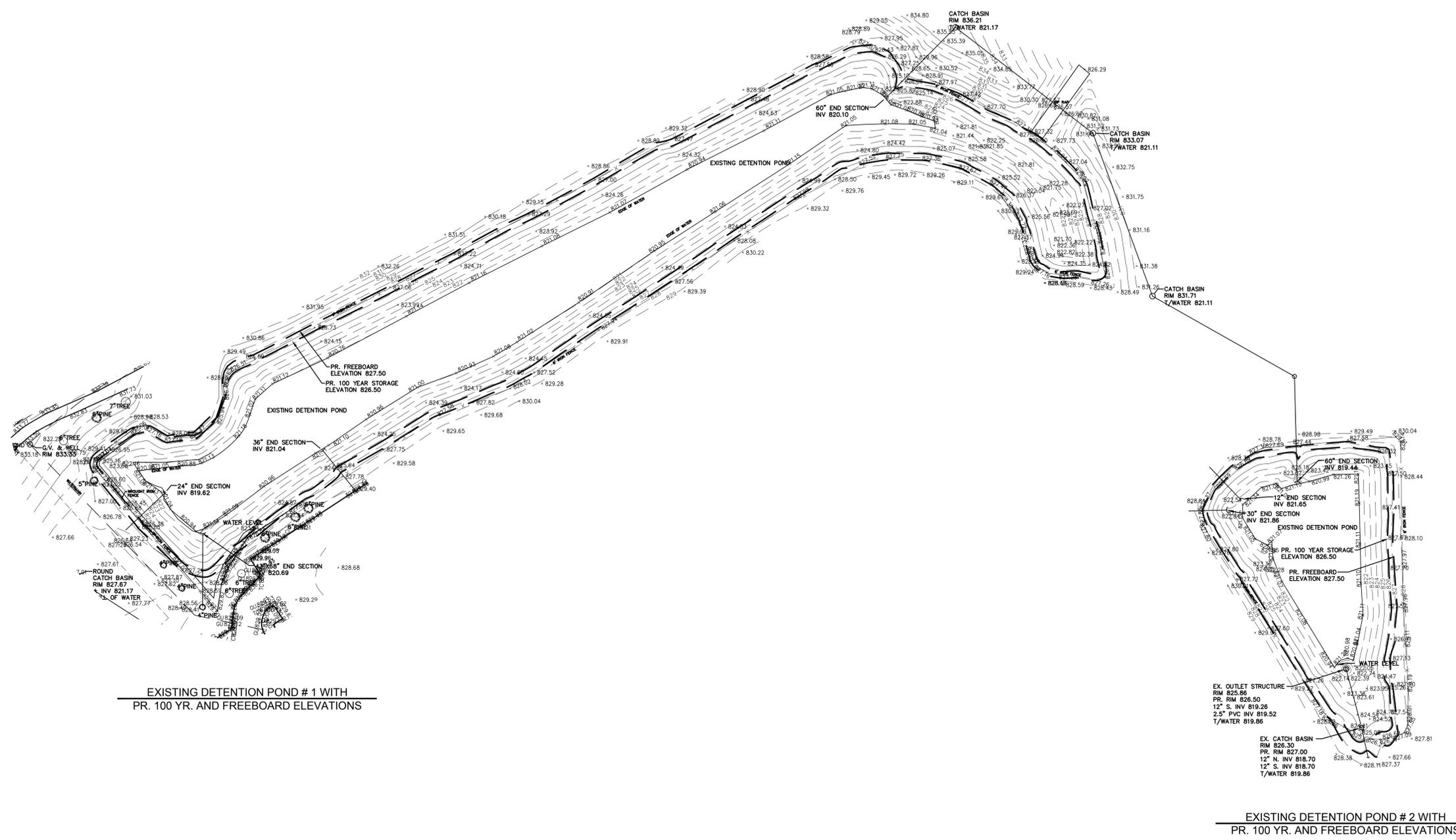
APPROVED BY:
M Collins

DATE:
March 18th, 2019

SCALE: 1" = 50'



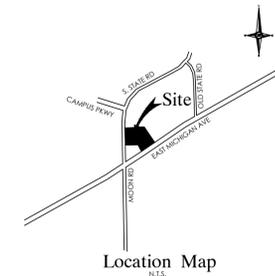
NFE JOB NO. SHEET NO.
K182 C7





GROUND COVER KEY

- 1 TYPICAL SOD LAWN AREAS, SOWN ON 3" TOPSOIL
- 2 RESTORE EXISTING LAWN AREAS W/ HYDROSEED AND MULCH
- 3 4" DIA SPADE CUT EDGE W/ 3" SHREDDED BARK MULCH
- 4 3" DEPTH DOUBLE SHREDDED HARDWOOD BARK MULCH
- 5 3/4" - 1 1/2" STONE MULCH, 3-4" DEPTH ON WEED BARRIER
- 6 RAIN GARDEN SEED MIX, SOWN AT A RATE OF 50 LBS/ACRE



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WWW.NOWAKFRAUS.COM

LANDSCAPE REQUIREMENTS

EXISTING SITE AREA: 176,691.98 S.F. OR 4.06 ACRES
 SITE LANDSCAPE AREA
 20% SITE SHALL BE LANDSCAPE
 REQUIRED: 176,691.98 S.F. X 20% = 35,338 S.F.
 PROVIDED: 37,892.30 S.F. (21.4%)

GREENBELT ABUTTING A.R.O.W.
 1 TREE PER 50 L.F. OF ROAD FRONTAGE
 SOUTH STATE STREET: 233 L.F.
 REQUIRED: 233 L.F. OF FRONTAGE / 30 L.F. = 7.76 OR 8 TREES REQUIRED
 EAST MICHIGAN AVE: 241 L.F.
 REQUIRED: 241 L.F. OF FRONTAGE / 30 L.F. = 8.0 OR 9 TREES REQUIRED
 PROVIDED: 9 TREES AND HEDGE IN LIEU OF BERM

PARKING LOT INTERIOR REQUIREMENTS
 1 TREE PER 8 SPACES, 5% OF PARKING LOT SHALL BE LANDSCAPED
 PARKING LOT AREA: 14,393.74 S.F.
 REQUIRED AREA: 14,393.74 S.F. X 5% = 747 S.F.
 PROVIDED AREA: 1,280 S.F.
 TREES REQUIRED: 139 SPACES / 8 = 17.4 OR 18 TREES REQUIRED
 PROVIDED: 18 TREES

PARKING LOT PERIMETER REQUIREMENTS
 1 TREE PER 50 L.F. OF PARKING LOT PERIMETER
 REQUIRED: 338 L.F. / 40 = 8 TREES
 PROVIDED: 8 TREES

TREE REPLACEMENTS
 REQUIRED: 180.5' OF REPLACEMENT
 PROVIDED: 182' OF REPLACEMENT
 SEE SHEET C7A FOR REMAINDER OF REPLACEMENT TREES AND RELOCATED CONSERVATION EASEMENT

PROPOSED GROUND SIGN LOCATION. ALL SIGNS ARE SUBJECT TO SEPARATE REVIEW AND APPROVAL

PROPOSED RETAINING WALL

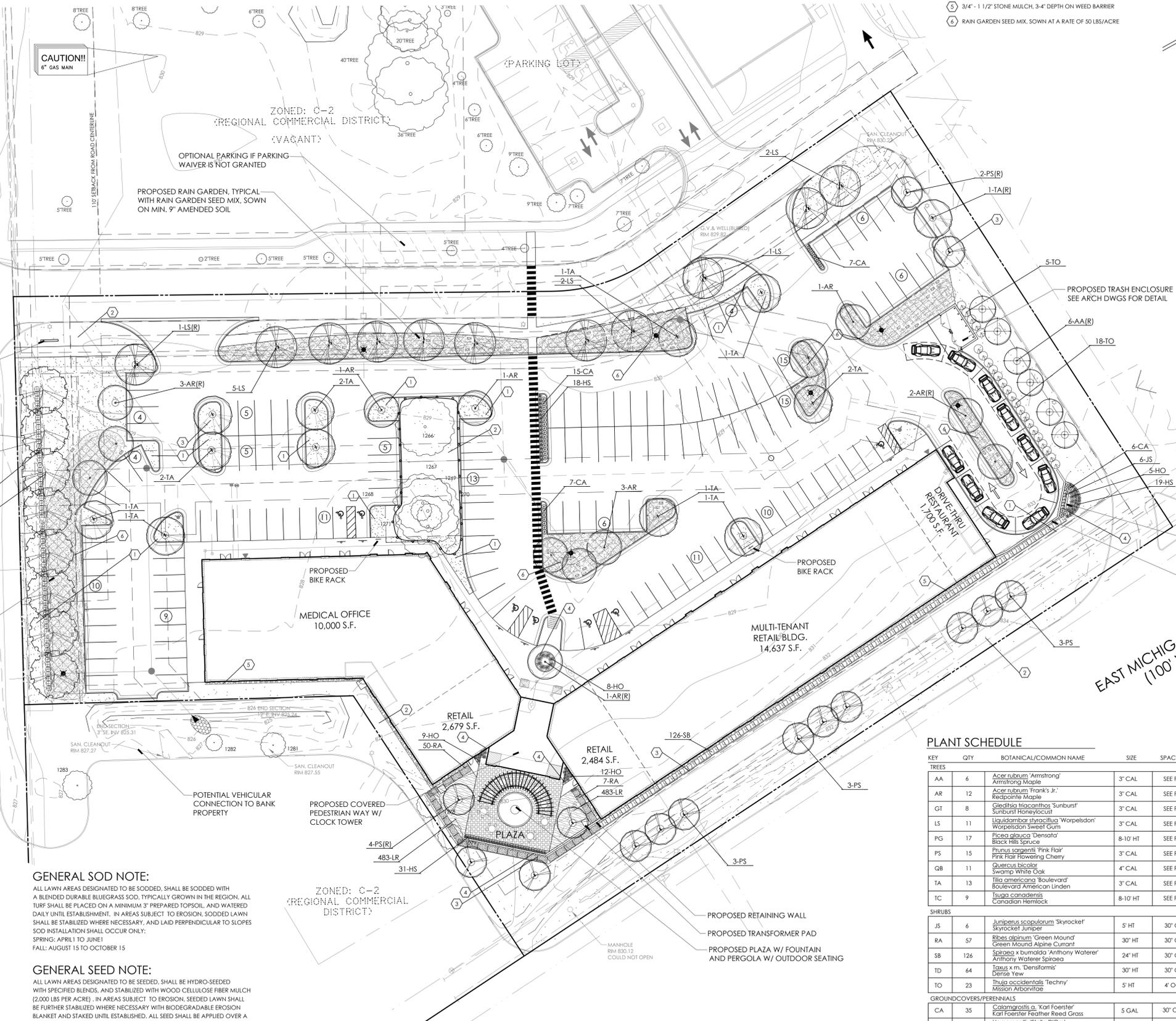
CAUTION!!

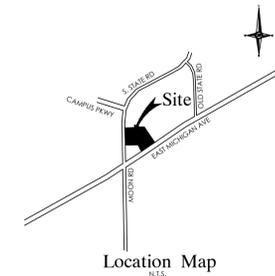
6" GAS MAN

CAUTION!!
3" PLA GAS MAN

SOUTH STATE ROAD
(120' WIDE)

EAST MICHIGAN AVENUE
(100' WIDE)





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SEAL



PROJECT
State Street Crossing

CLIENT
BBRB I LLC c/o
Commercial Properties
Services LLC
42690 Woodward Avenue
Suite 225
Bloomfield Hills, MI 48304
Contact: William Orlando
Ph-248-454-1010

PROJECT LOCATION
Part of the West 1/4
of Section 28, T.3S, R.6E
Pittsfield Township,
Washtenaw County, Michigan

SHEET
Tree Mitigation Plan



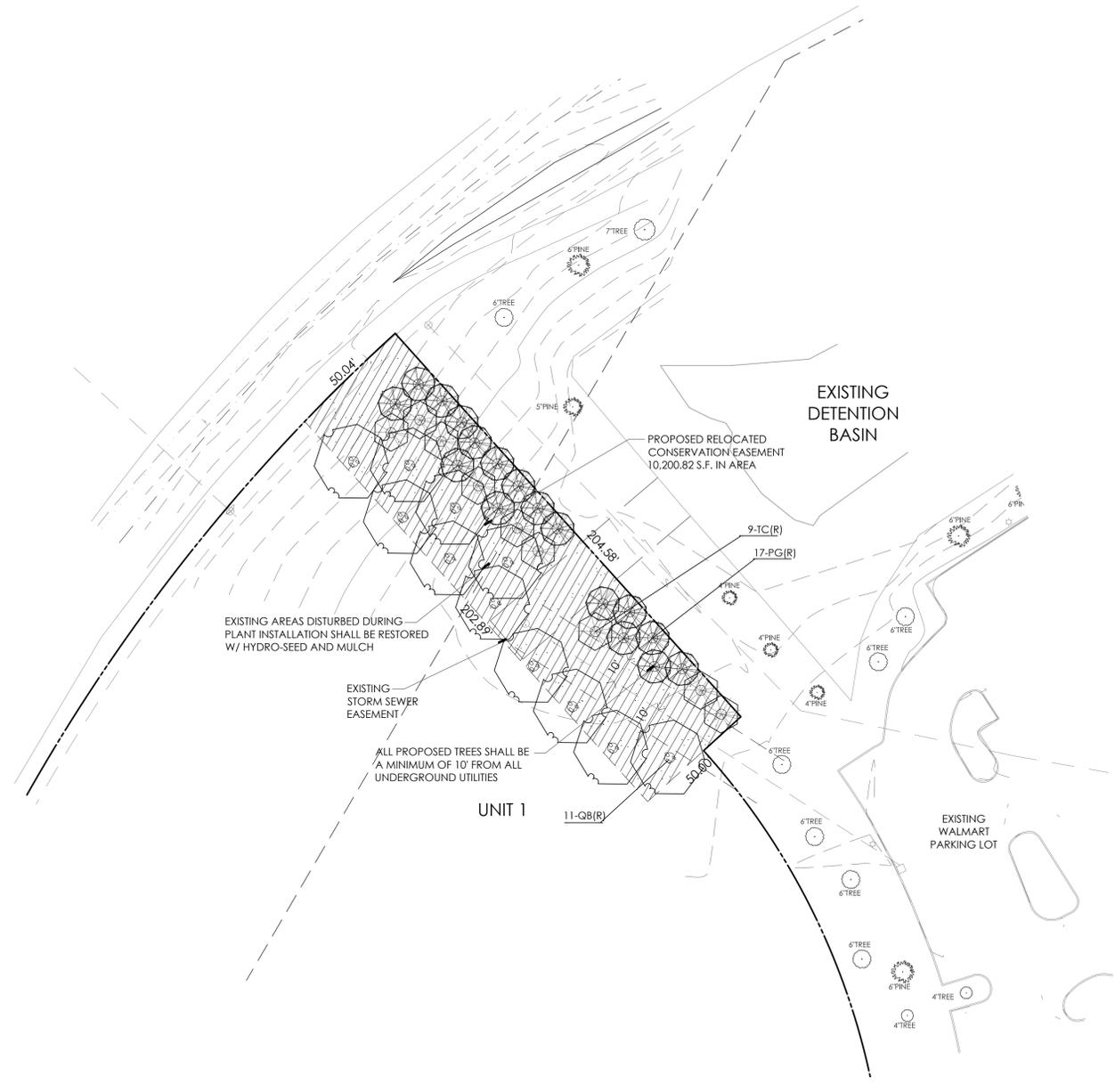
DATE	ISSUED / REVISED
07/08/19	ISSUED FOR PRELIMINARY SITE PLAN REVIEW
08/24/19	REVISED PER TWP REVIEW
09/30/19	REVISED PER TWP REVIEW
10/28/19	REVISED PER TWP P.C. REVIEW

DRAWN BY:
G. Ostrowski
DESIGNED BY:
G. Ostrowski
APPROVED BY:
G. Ostrowski

DATE:
12-21-2018

SCALE: 1" = 30'

NFE JOB NO. SHEET NO.
K182 C9A



EXISTING AREAS DISTURBED DURING PLANT INSTALLATION SHALL BE RESTORED W/ HYDRO-SEED AND MULCH

EXISTING STORM SEWER EASEMENT

ALL PROPOSED TREES SHALL BE A MINIMUM OF 10' FROM ALL UNDERGROUND UTILITIES

PROPOSED RELOCATED CONSERVATION EASEMENT 10,200.82 S.F. IN AREA

EXISTING DETENTION BASIN

EXISTING WALMART PARKING LOT

UNIT 1

11-QB(R)

9-TC(R)
17-PG(R)

50.04

204.59

322.60

50.60

7'TREE

6'TREE

5'PINE

6'PINE

4'PINE

6'TREE

4'PINE

6'TREE

6'TREE

6'TREE

6'PINE

4'TREE

6'TREE

4'TREE

6'TREE

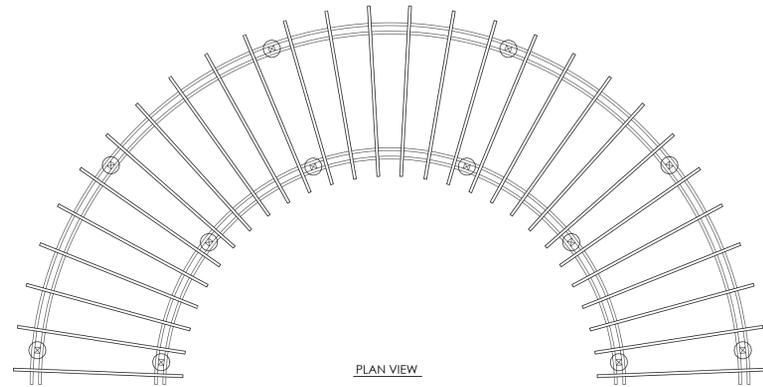
4'TREE

6'TREE

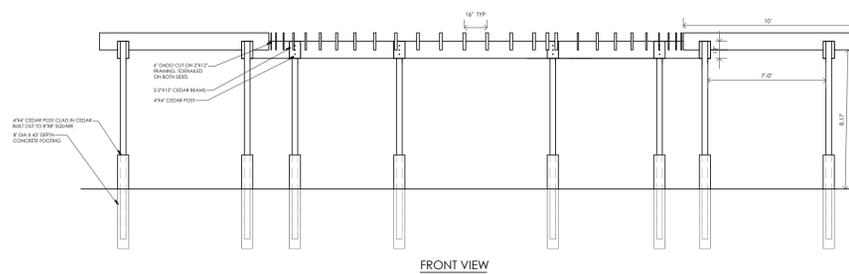
4'TREE

6'TREE

4'TREE

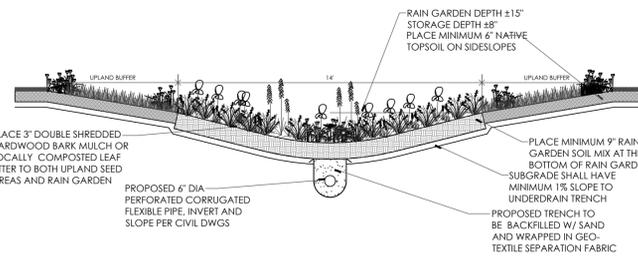


PLAN VIEW



FRONT VIEW

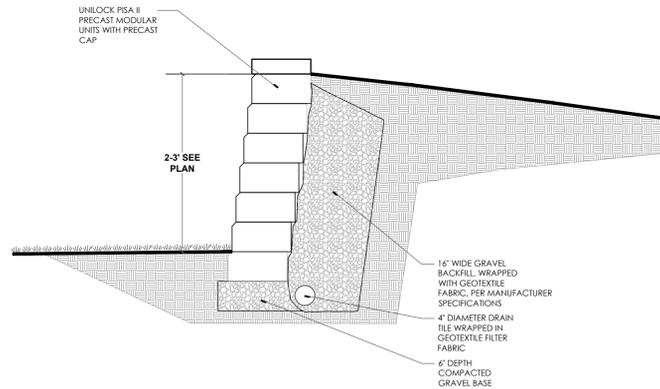
PROPOSED PERGOLA STRUCTURE



TYPICAL RAIN GARDEN CROSS-SECTION

RAIN GARDEN SPECIFICATIONS

ALL RAIN GARDEN SEED MIXES SHALL BE LOCALLY SOURCED.
 ALL FINISHING SHALL BE PLACED AROUND THE ENTIRE PERIMETER OF RAIN GARDEN UPON DEMONSTRATION AND DEVELOPMENT OCCUR.
 RAIN GARDEN SOIL MIX SHALL BE COMPOSED OF A WELL-AERED BLEND OF 50% WASHED SAND, 30% ORGANIC COMPOST, AND 20% NATIVE TOPSOIL FROM ON-SITE, SPREAD TO A DEPTH AS INDICATED IN DETAIL.
 INSTALL SEED BETWEEN MAY 1 AND JUNE 15, OR OCTOBER 1 THROUGH NOVEMBER 30, OR AS CONDITIONS PERMIT. IF SEEDING OCCURS BETWEEN JUNE 15 AND OCTOBER 1, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE WATER, AS NEEDED UNTIL SEED GERMINATION AND ESTABLISHMENT.
 THE SPECIFIED SEED SHALL BE UNIFORMLY BROADCAST AT THE RATE SPECIFIED ON DRAWING AND/OR SPECIFICATION. A CHERRY BLACK-CHERRY SHALL BE USED TO ENSURE UNIFORM DISTRIBUTION.
 DOUBLE-PROCESSED HARDWOOD BARK MULCH OR LOCALLY COMPOSTED LEAF LITTER SHALL BE APPLIED AT A DEPTH OF 2\"/>



PROPOSED RETAINING WALL

RAIN GARDEN SEED MIX

*CONTAINS 30% WILDFLOWERS, 10% NATIVE GRASSES AND 60% TEMPORARY GRASSES

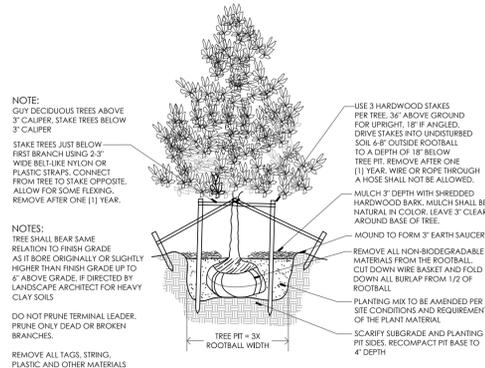
WILDFLOWERS	GRASSES
NEW ENGLAND ASTER	BIG BLUESTEM
HEATH ASTER	CANADA WILD RYE
OX EYE SUNFLOWER	DARK GREEN BULRUSH
DENSE BLAZINGSTAR	INDIAN GRASS
GREAT BLUE LOBELIA	WETLAND SEDGES
CARDINAL FLOWER	FOWL MANNA GRASS
BERGAMOT (BEEBALM)	PRAIRIE CORD GRASS
SMOOTH PENSTEMON	DEER TONGUE
MOUNTAIN MINT	
YELLOW CONEFLOWER	
BLACK-EYED SUSAN	
PRAIRIE DOCK	
LANCE-LEAVED GOLDENROD	
OHIO GOLDENROD	
GOLDEN ALEXANDERS	

RECOMMENDED SEEDING RATE:

50-55 LBS/ACRE

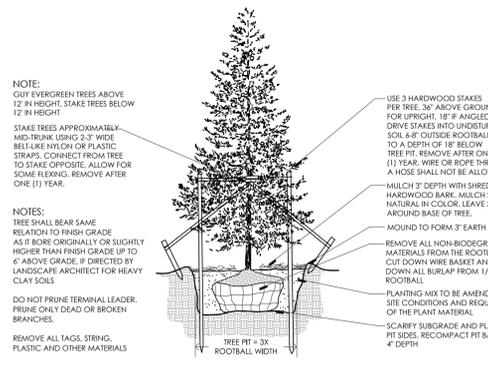
SEED MIX AVAILABLE:
 NATIVESCAPE, LLC
 PO BOX 122
 MANCHESTER, MI 48158
 T 517.456.9696

DECIDUOUS TREE PLANTING DETAIL



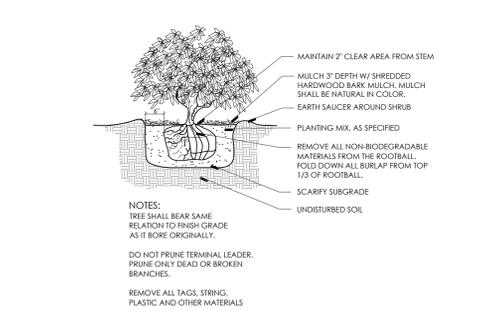
NOTE:
 GUY DECIDUOUS TREES ABOVE 3\"/>

EVERGREEN TREE PLANTING DETAIL



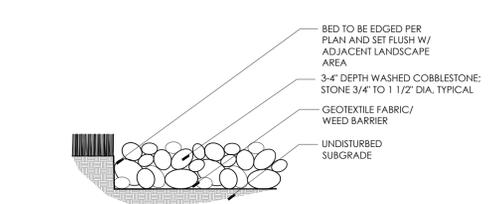
NOTE:
 GUY EVERGREEN TREES ABOVE 12\"/>

SHRUB PLANTING DETAIL

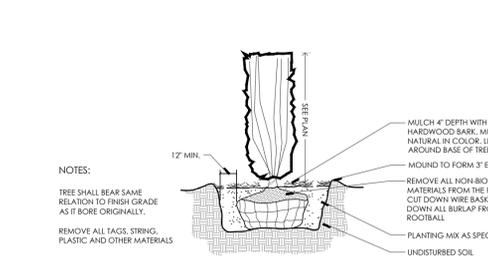


NOTE:
 TREE SHALL BEAR SAME RELATION TO FINISH GRADE AS IT BORE ORIGINALLY.

COBBLESTONE MULCH DETAIL

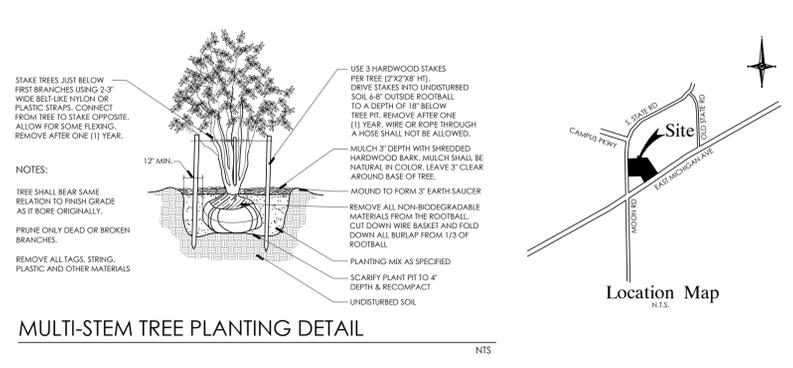


UPRIGHT EVERGREEN PLANTING DETAIL



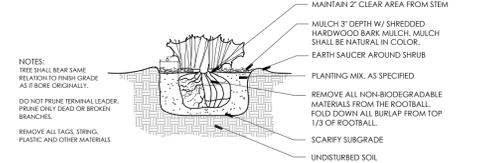
NOTE:
 TREE SHALL BEAR SAME RELATION TO FINISH GRADE AS IT BORE ORIGINALLY.

MULTI-STEM TREE PLANTING DETAIL



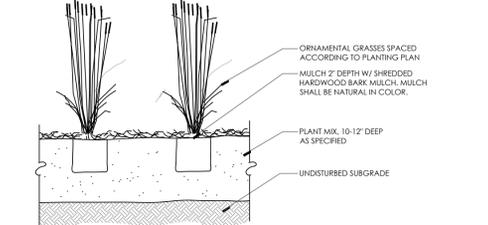
NOTE:
 TREE SHALL BEAR SAME RELATION TO FINISH GRADE AS IT BORE ORIGINALLY.

HEDGE PLANTING DETAIL



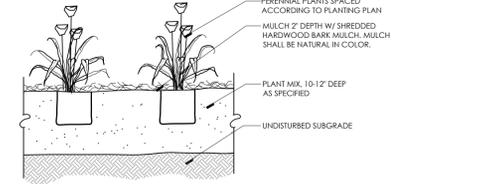
NOTE:
 TREE SHALL BEAR SAME RELATION TO FINISH GRADE AS IT BORE ORIGINALLY.

ORNAMENTAL GRASS PLANTING DETAIL



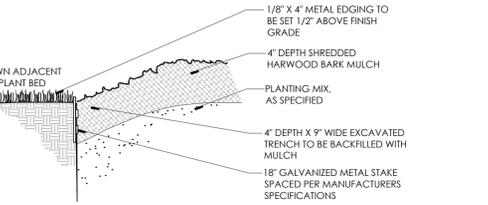
NOTE:
 TREE SHALL BEAR SAME RELATION TO FINISH GRADE AS IT BORE ORIGINALLY.

PERENNIAL PLANTING DETAIL



NOTE:
 TREE SHALL BEAR SAME RELATION TO FINISH GRADE AS IT BORE ORIGINALLY.

METAL EDGING DETAIL



NOWAK & FRAUS ENGINEERS

CIVIL ENGINEERS
 LAND SURVEYORS
 LAND PLANNERS

NOWAK & FRAUS ENGINEERS
 46777 WOODWARD AVE.
 PONTIAC, MI 48342-5032
 TEL. (248) 332-7931
 FAX. (248) 332-8257
 WWW.NOWAKFRAUS.COM

PROJECT



State Street Crossing

CLIENT
 BBRB I LLC c/o
 Commercial Properties
 Services LLC
 42690 Woodward Avenue
 Suite 225
 Bloomfield Hills, MI 48304
 Contact: William Orlando
 Ph-248-454-1010

PROJECT LOCATION
 Part of the West 1/4
 of Section 28, T.3S, R.6E
 Pittsfield Township,
 Washtenaw County, Michigan

SHEET

Landscape Notes and
 Details



DATE	ISSUED / REVISED
07/08/19	ISSUED FOR PRELIMINARY SITE PLAN REVIEW
08/24/19	REVISED PER TWP REVIEW
09/30/19	REVISED PER TWP REVIEW
10/28/19	REVISED PER TWP P.C REVIEW

DRAWN BY:
 G. Ostrowski
 DESIGNED BY:
 G. Ostrowski
 APPROVED BY:
 G. Ostrowski

DATE:
 12-21-2018

SCALE: 1" = 30'

NFE JOB NO. **K182** SHEET NO. **C10**



**CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS**

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PONTIAC, MI 48342-5032
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FAX. (248) 332-8257

SEAL



PROJECT
State Street Crossing
Units 4, 5, and 6

CLIENT
BBR B I LLC c/o
Commercial Properties
Services LLC
42690 Woodward Avenue
Suite 225
Bloomfield Hills, MI 48304
Contact: Bill Orlando
Ph-248-454-1010

PROJECT LOCATION
Part of the West 1/4
of Section 28, T.3S, R.6E
Pittsfield Township,
Washtenaw County, Michigan

SHEET
A.H. - Soil Erosion
Control Site Map
w/Existing Soil Cond.



Know what's below
Call before you dig.

DATE ISSUED/REVISED
07-08-19 Prelim S.P.
08-24-19 Per Twp. Review
09-30-19 Per Twp. Review

DATE
OCTOBER 12, 2006

DRAWN BY:
A. Wiseman
DESIGNED BY:
A. Wiseman
APPROVED BY:
P. Williams

DATE
March 18th, 2019

SCALE:

NFE JOB NO. SHEET NO.
K182 C12

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MICHIGAN ILLINOIS OHIO

SECTION 28
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
WAL-MART STORE #5472-00
SALINE, MICHIGAN
AMENDMENT TO
FINAL SITE PLAN
WAL-MART SOIL EROSION
CONTROL SITE MAP - STAGE 1

CAD FILE
100778FC-03-SE

REVISIONS

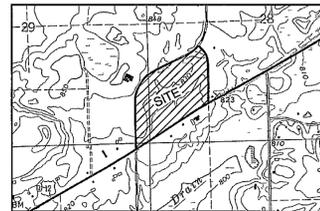


SCALE 0 50 100
1" = 100 FEET

DR B UG GH JAM
P M N MILLER
BOOK X1077
JOB 100778
FILE NO 438-644-03
SHEET NO 03



Vicinity Map
Not to Scale



USGS QUADRANGLE MAP
Not to Scale

SEQUENCE OF CONSTRUCTION

UPON IMPLEMENTATION AND INSTALLATION OF THE FOLLOWING AREAS: TRAILER, PARKING, LAY DOWN PORTA POTTIES, WHEEL WASH, CONCRETE WASHOUT MASON'S AREA, FUEL AND MATERIAL STORAGE CONTAINERS, SOLID WASTE CONTAINERS, ETC. IMMEDIATELY DEDICATE THEM ON THE SITE MAPS AND NOTE ANY CHANGES IN LOCATION AS THEY OCCUR THROUGHOUT THE CONSTRUCTION PROCESS.

1. INSTALL STABILIZED CONSTRUCTION EXIT(S) AND SWPPP ENTRANCE SIGN
2. INSTALL SILT FENCES ON THE SITE (CLEAR ONLY THOSE AREAS NECESSARY TO INSTALL SILT FENCES)
3. PREPARE TEMPORARY PARKING AND STORAGE AREA

HALT ALL ACTIVITIES AND CONTACT THE CIVIL ENGINEERING CONSULTANT TO PERFORM INSPECTION AND CERTIFICATION OF BMP'S. GENERAL CONTRACTOR SHALL SCHEDULE AND CONDUCT STORM WATER PRE-CONSTRUCTION MEETING WITH ENGINEER AND ALL GROUND-DISTURBING CONTRACTORS BEFORE PROCEEDING WITH CONSTRUCTION.

4. CONSTRUCT AND STABILIZE SEDIMENT BASINS AND SEDIMENT TRAPS WITH APPROPRIATE OUTFALL STRUCTURES (CLEAR ONLY THOSE AREAS NECESSARY TO INSTALL BASINS AND TRAPS)
5. INSTALL AND STABILIZE HYDRAULIC CONTROL STRUCTURES (DIKES, SWALES, CHECK DAMS, ETC.)
6. BEGIN GRADING AND CHUBBING THE SITE
7. START CONSTRUCTION OF BUILDING PAD AND STRUCTURES

8. TEMPORARILY SEED, THROUGHOUT CONSTRUCTION, DENuded AREAS THAT WILL BE INACTIVE FOR 14 DAYS OR MORE
9. INSTALL UTILITIES UNDER DRAIN, STORM SEWERS, CURBS AND GUTTERS
10. INSTALL RIP RAP AROUND OUTFALL STRUCTURES AS EACH OUTFALL STRUCTURE IS INSTALLED
11. INSTALL INLET PROTECTION AT ALL STORM SEWER STRUCTURES AS EACH INLET STRUCTURE IS INSTALLED
12. PERMANENTLY STABILIZE AREAS TO BE VEGETATED AS THEY ARE BROUGHT TO FINAL GRADE
13. PREPARE SITE FOR PAVING
14. PAVE SITE
15. INSTALL APPROPRIATE INLET PROTECTION DEVICES FOR PAVED AREAS AS WORK PROGRESSES
16. COMPLETE GRADING AND INSTALLATION OF PERMANENT STABILIZATION OVER ALL AREAS INCLUDING OUT LOTS
17. CALL WAL-MART'S CIVIL ENGINEERING CONSULTANT (CEO) AFTER THE SITE APPEARS TO BE FULLY STABILIZED FOR AN INSPECTION
18. REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES AFTER APPROVAL OF THE CEO AND STABILIZE ANY AREAS
19. DISTURBED BY THE REMOVAL OF THE BMP
20. CONTINUE DAILY INSPECTION REPORTS UNTIL THE FINAL DAILY INSPECTION IS SIGNED OFF BY THE CONSTRUCTION MANAGER THAT THE SITE IS FULLY STABILIZED AND THE PERMIT MAY BE TERMINATED

NOTE: THE GENERAL CONTRACTOR MAY COMPLETE CONSTRUCTION RELATED ACTIVITIES CONCURRENTLY ONLY IF ALL PRECEDING BMP'S HAVE BEEN COMPLETELY INSTALLED. BMP RELATED STEPS IN THE ABOVE SEQUENCE ARE ITALICIZED FOR CLARITY.

LEGEND

- 835 EXIST CONTOUR
- 835 PROP CONTOUR
- XX SILT FENCE
- WETLAND LIMITS
- EXISTING STORM SEWER
- PROTECTIVE TREE FENCE
- LANDMARK TREES TO BE SAVED
- EXIST CURB AND GUTTER
- CENTERLINE OF DITCH OR EDGE OF WATER
- FOREBAY WALL
- FILTER SACK INLET PROTECTION
- CURB CASTING FILTER INLET PROTECTION
- SILT FENCE INLET PROTECTION

MAINTENANCE

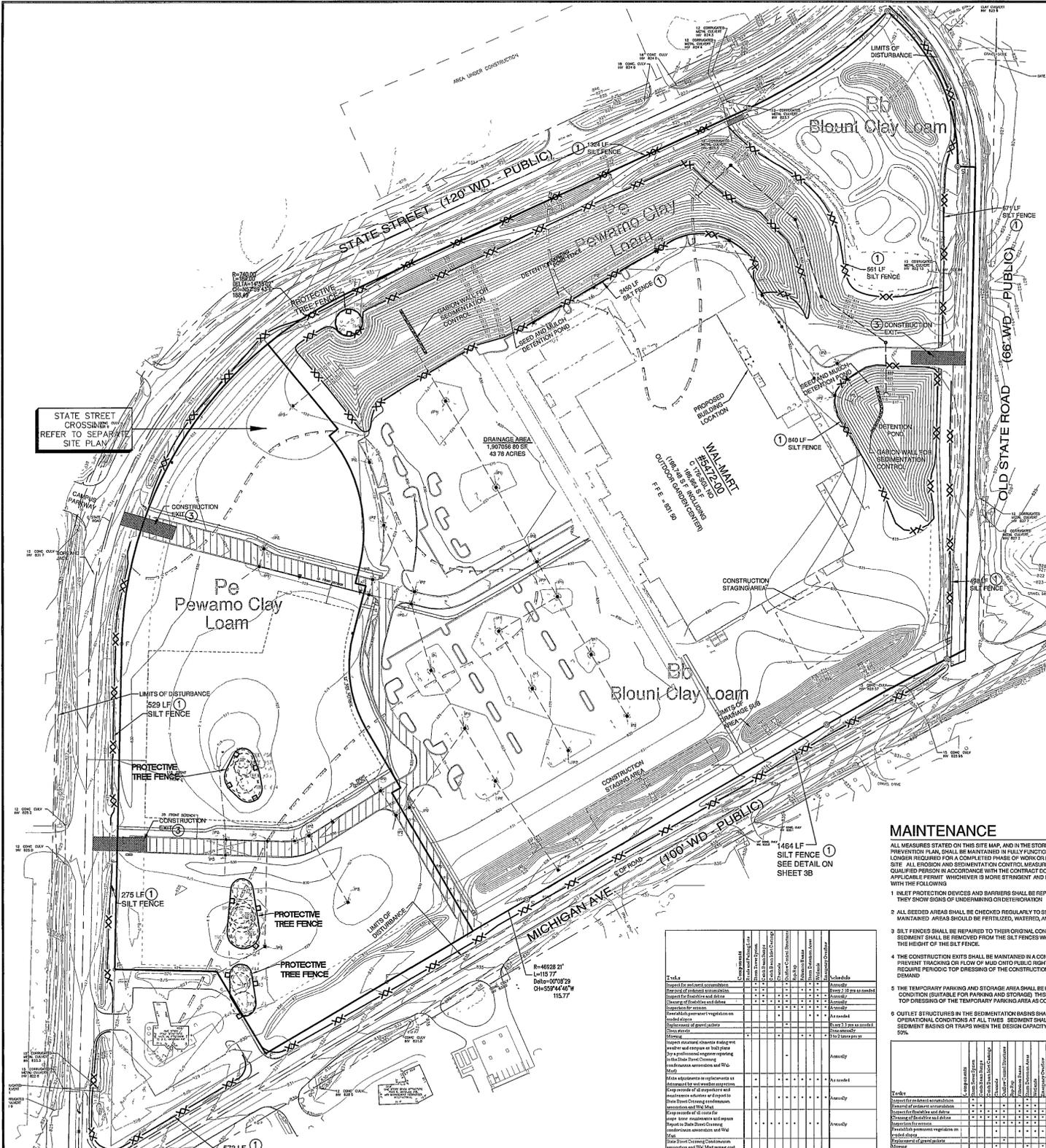
ALL MEASURES STATED ON THIS SITE MAP AND IN THE STORM WATER POLLUTION PREVENTION PLAN, SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL NO LONGER REQUIRED FOR A COMPLETED PHASE OF WORK OR FINAL STABILIZATION OF THE SITE. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED BY A QUALIFIED PERSON IN ACCORDANCE WITH THE CONTRACT DOCUMENTS IN THE APPLICABLE PERMIT, WHICHEVER IS MORE STRINGENT, AND REPAIRED IN ACCORDANCE WITH THE FOLLOWING:

1. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING OR DETRIORATION.
2. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED, WATERED, AND RESEED AS NEEDED.
3. SILT FENCES SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE SILT FENCES WHEN IT REACHES ONE HALF THE HEIGHT OF THE SILT FENCE.
4. THE CONSTRUCTION EXITS SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING ON FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSINGS OF THE CONSTRUCTION EXITS AS CONDITIONS DEMAND.
5. THE TEMPORARY PARKING AND STORAGE AREA SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING AND STORAGE). THIS MAY REQUIRE PERIODIC TOP DRESSINGS OF THE TEMPORARY PARKING AREA AS CONDITIONS DEMAND.
6. OUTFALL STRUCTURES IN THE SEDIMENTATION BASINS SHALL BE MAINTAINED IN OPERATIONAL CONDITIONS AT ALL TIMES. SEDIMENT SHALL BE REMOVED FROM SEDIMENT BASINS OR TRAPS WHEN THE DESIGN CAPACITY HAS BEEN REDUCED BY 50%.

Task	Frequency	Responsible Party	Notes
Inspect and maintain sediment basins	Weekly	Contractor	Remove sediment as needed
Inspect and maintain silt fences	Weekly	Contractor	Remove sediment as needed
Inspect and maintain rip rap	Weekly	Contractor	Replace as needed
Inspect and maintain check dams	Weekly	Contractor	Remove sediment as needed
Inspect and maintain erosion control blankets	Weekly	Contractor	Replace as needed
Inspect and maintain vegetation	Weekly	Contractor	Water and fertilize as needed
Inspect and maintain construction exits	Weekly	Contractor	Top dress as needed
Inspect and maintain storm sewers	Weekly	Contractor	Clear as needed
Inspect and maintain inlets	Weekly	Contractor	Install and maintain as needed
Inspect and maintain wetlands	Weekly	Contractor	Protect and restore as needed
Inspect and maintain landmarks	Weekly	Contractor	Protect and restore as needed
Inspect and maintain ditches	Weekly	Contractor	Clear and maintain as needed
Inspect and maintain forebay walls	Weekly	Contractor	Install and maintain as needed
Inspect and maintain filter sacks	Weekly	Contractor	Install and maintain as needed
Inspect and maintain curb casting filters	Weekly	Contractor	Install and maintain as needed
Inspect and maintain silt fence inlets	Weekly	Contractor	Install and maintain as needed

Maintenance Tasks and Schedule Post Construction

Maintenance Tasks and Schedule During Construction



3 WORKING DAYS BEFORE YOU DIG CALL MISS DIG 1-800-482-7171
FOR THE LOCATION OF UNDERGROUND UTILITIES

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 MIGHT 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 REPRESENTATIVE SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OR OF NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.
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4:100778fcplanwalmart.ctb (13/03/2006 10:07:19 AM) 5/25/2009 1:06:07 PM



ENGINEERS

CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS

NOWAK & FRAUS ENGINEERS
46777 WOODWARD AVE.
PONTIAC, MI 48342-5032
TEL. (248) 332-7931
FAX. (248) 332-8257

SEAL



PROJECT

State Street Crossing
Units 4, 5, and 6

CLIENT

BBRB I LLC c/o
Commercial Properties
Services LLC
42690 Woodward Avenue
Suite 225
Bloomfield Hills, MI 48304
Contact: Bill Orlando
Ph-248-454-1010

PROJECT LOCATION

Part of the West 1/4
of Section 28, T.3S, R.6E
Pittsfield Township,
Washtenaw County, Michigan

SHEET

A.H. - West Utility Plan



Know what's below
Call before you dig.

DATE ISSUED/REVISED
07-08-19 Prelim S.P.
08-24-19 Per Twp. Review
09-30-19 Per Twp. Review

DRAWN BY:
A. Wiseman

DESIGNED BY:
A. Wiseman

APPROVED BY:
P. Williams

DATE:
March 18th, 2019

SCALE:

NFE JOB NO.
K182

SHEET NO.
C14

Legend

- Legend items including: EXIST CONDUIT, EXIST SPOT ELEVATION, PROP SPOT ELEVATION, TOP OF CURB, TOP OF PARAPET, EXIST STORM SEWER, PROP STORM SEWER, EXIST MANHOLE, PROP MANHOLE, EXIST CATCH BASIN/LET, PROP CATCH BASIN/LET, END SECTION, CULVERT, EXIST SANITARY SEWER, PROP SANITARY SEWER, EXIST CLEANOUT, PROP CLEANOUT, EXIST WATER MAIN, PROP WATER MAIN, EXIST HYDRANT, PROP HYDRANT, EXIST POST INDICATOR VALVE, PROP POST INDICATOR VALVE, EXIST SHUTOFF OR CURB BOX, PROP SHUTOFF OR CURB BOX, EXIST GATE VALVE IN BOX, PROP GATE VALVE IN BOX, EXIST GATE VALVE IN MANHOLE, PROP GATE VALVE IN MANHOLE, EXIST UNDERGROUND ELECTRIC, PROP UNDERGROUND ELECTRIC, EXIST LIGHT POLE, PROP LIGHT POLE, EXIST UTILITY POLE, PROP UTILITY POLE, EXIST ELECTRIC TRANSFORMER, PROP ELECTRIC TRANSFORMER, EXIST OVERHEAD TELEPHONE, PROP OVERHEAD TELEPHONE, EXIST UNDERGROUND TELEPHONE, PROP UNDERGROUND TELEPHONE, EXIST GAS, PROP GAS, EXIST GAS RISER, PROP GAS RISER, EXIST TELEPHONE RISER, PROP TELEPHONE RISER, EXIST CURB AND GUTTER, PROP CURB AND GUTTER, CENTERLINE OF DITCH OR EDGE OF WATER, EDGE OF WETLAND, FENCE, PROPERTY LINE, CENTERLINE, EXIST SIGN, PROP SIGN, DRAINAGE DIRECTION, SECTION, FINISH FLOOR ELEV, FINISH GRADE, VIEWPORT BASEMENT, WALKOUT BASEMENT, BASEMENT FLOOR, CHANGE FLOOR, SILL FENCE, SECTION CORNER, CONTROL POINT, FOUND IRON PIPE, SET CONCRETE MONUMENT, FOUND CONCRETE MONUMENT, FOUND PK NAIL, SET PK NAIL, FOUND LEADED CHISEL HOLE, SET LEADED CHISEL HOLE, FOUND HOLE, APPROX LOCATION OF MONITORING WELL, APPROX LOCATION OF FENCING TEST, EXIST DECIDUOUS TREE, EXIST CONIFEROUS TREE, EXIST TREE OR BRUSH LIMIT, PROPOSED EASEMENT, PROPOSED TREE PROTECTION FENCE, STATE STREET CROSSING REFER TO SEPARATE SITE PLAN

Notes

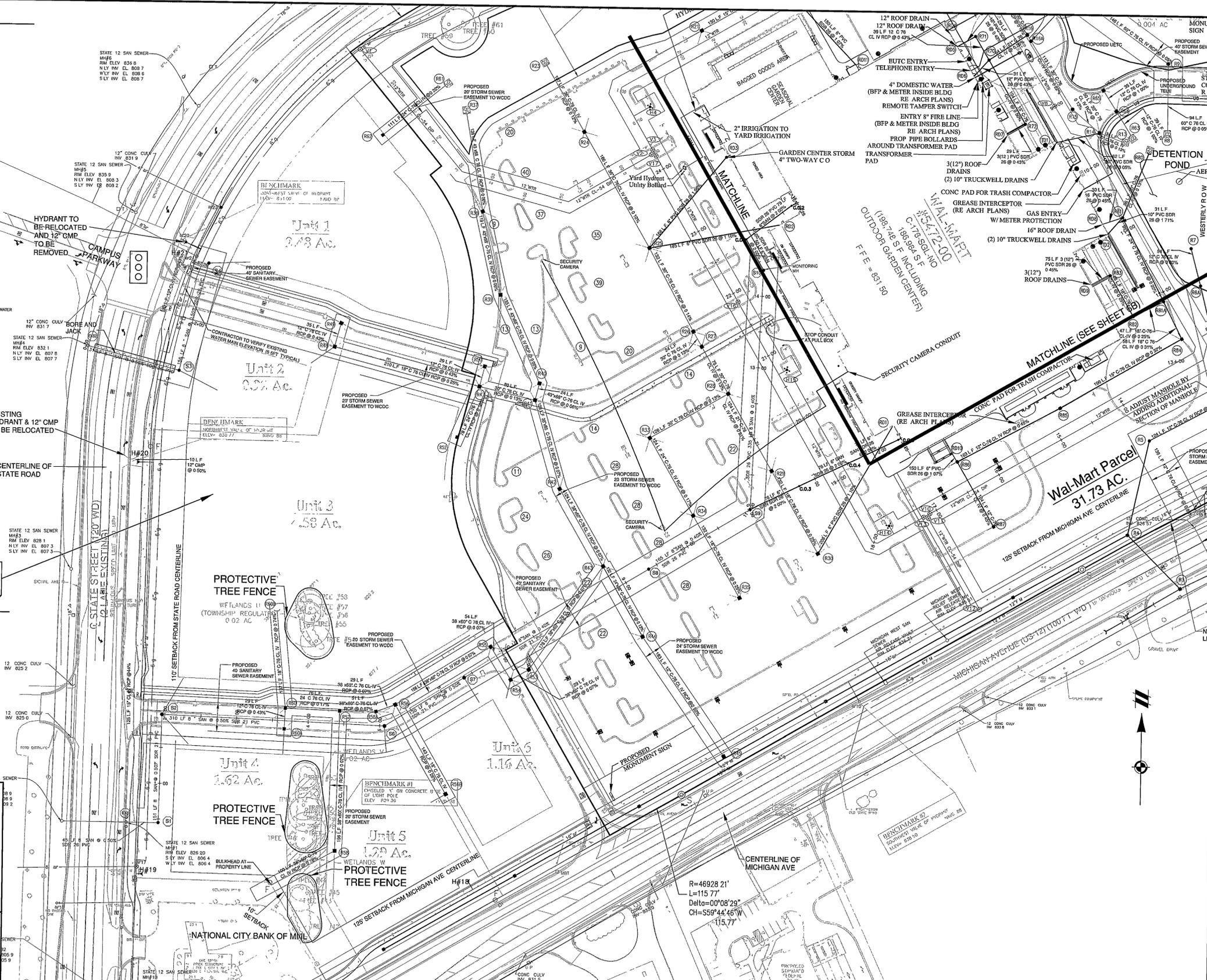
- 1 CONTRACTOR TO VERIFY DEPTH AND LOCATION OF EXISTING UTILITIES
2 SANITARY SEWER AND WATERMAIN WITHIN STATE STREET CROSSING TO BE REVIEWED WITH THE STATE STREET CROSSING FINAL SITE PLAN
3 SANITARY SEWER WITHIN STATE STREET CROSSING TO BE CONSTRUCTED BY WAL-MART
4 ALL UTILITIES WITHIN A 11 INFLUENCE OF PAVEMENT SHALL BE SAND BACK FILLED USING MDT CLASS II SAND BACKFILL COMPACTED TO 95% MAXIMUM DENSITY
5 FRANCHISE UTILITY LOCATIONS SHALL BE COORDINATED WITH THE UTILITY COMPANIES AND ARCHITECT



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 MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

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MICHIGAN ILLINOIS OHIO

CLIENT
WAL-MART STORE #5472-00
SALINE, MICHIGAN
AMENDMENT TO
FINAL SITE PLAN
WEST UTILITY PLAN

CAD FILE
10077BFC-06-U

DATE
OCTOBER 12, 2006

SCALE
0 30 60
1" = 60 FEET

DR B/J CH JAM
P/M N MILLER
BOOK X1077
JOB 10077B
FILE NO 436-544-06A
SHEET NO 06A



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LAND SURVEYORS
LAND PLANNERS

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PONTIAC, MI 48342-5032
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FAX. (248) 332-8257

SEAL



PROJECT
State Street Crossing
Units 4, 5, and 6

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BBRB I LLC c/o
Commercial Properties
Services LLC
42690 Woodward Avenue
Suite 225
Bloomfield Hills, MI 48304
Contact: Bill Orlando
Ph-248-454-1010

PROJECT LOCATION
Part of the West 1/4
of Section 28, T.35, R.6E
Pittsfield Township,
Washtenaw County, Michigan

SHEET
A.H. - East Utility Plan



Know what's below
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DATE ISSUED/REVISED
07-08-19 Prelim S.P.
08-24-19 Per Twp. Review
09-30-19 Per Twp. Review

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www.atwell-hicks.com
MICHIGAN ILLINOIS OHIO

CLIENT
WAL * MART STORE #5472-00
SALINE, MICHIGAN
AMENDMENT TO
FINAL SITE PLAN
EAST UTILITY PLAN

CAD FILE
100778FC-06-U

REVISIONS
05-08-07 PER TWP
03-10-07 PER TWP / M/S
02-08-07 PER TWP
01-11-07 PER TWP
10-12-06 PER TWP BLDG CHANGES

DATE
OCTOBER 12, 2006



SCALE 0 30 60
1" = 60 FEET
DR BJC CH JAM
P.M. N MILLER
BOOK X1077
JOB 100778
FILE NO 436-544-06B
SHEET NO
06B

DRAWN BY:
A. Wiseman

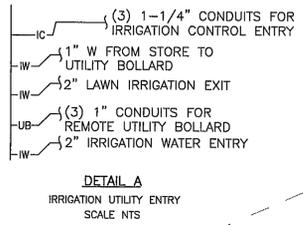
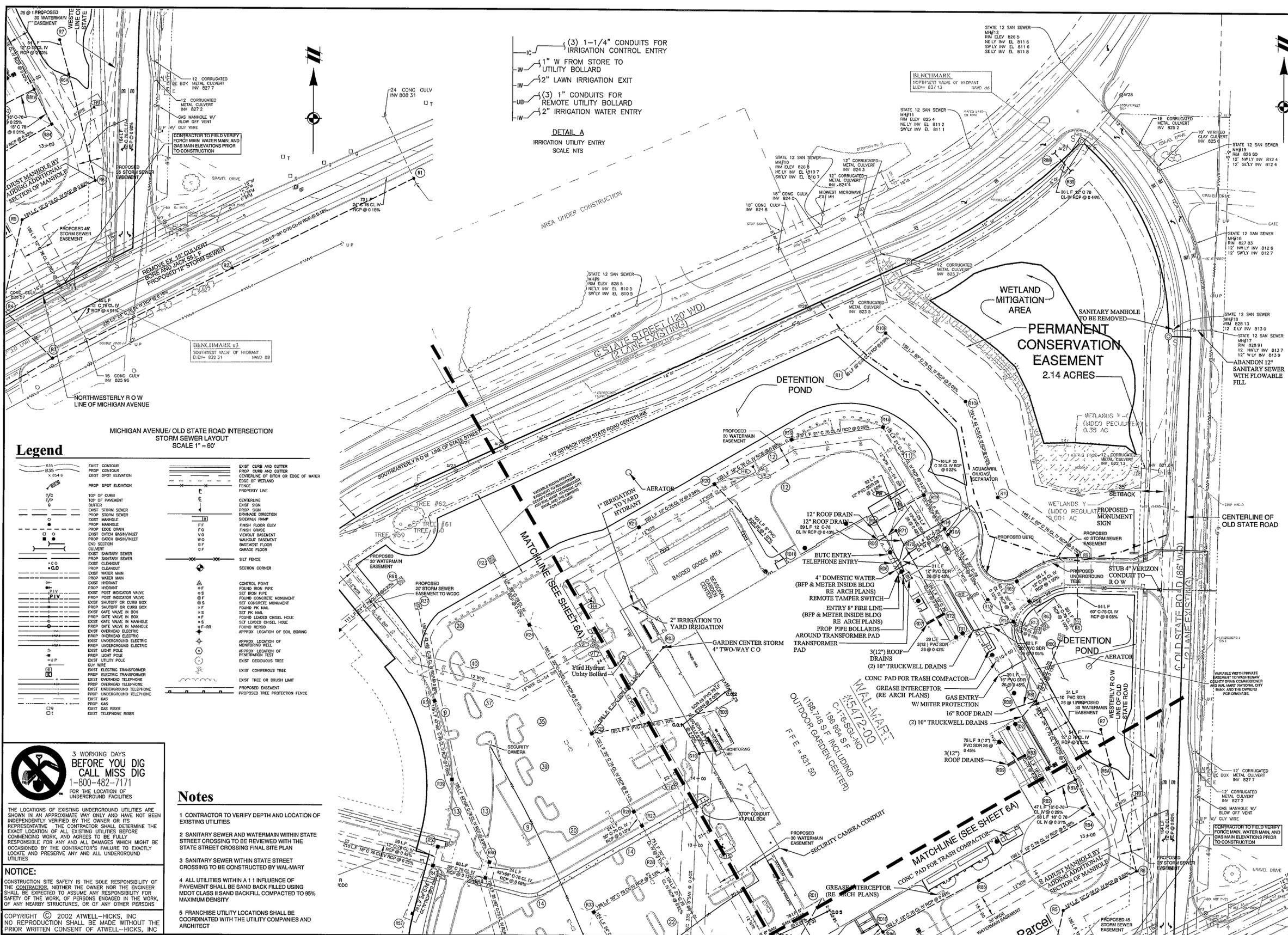
DESIGNED BY:
A. Wiseman

APPROVED BY:
P. Williams

DATE:
March 18th, 2019

SCALE:

NFE JOB NO. SHEET NO.
K182 C15



Legend table with symbols for various utility features like storm sewer, sanitary sewer, water main, and electrical lines.

MICHIGAN AVENUE/ OLD STATE ROAD INTERSECTION
STORM SEWER LAYOUT
SCALE 1" = 60'

Notes

- 1 CONTRACTOR TO VERIFY DEPTH AND LOCATION OF EXISTING UTILITIES
2 SANITARY SEWER AND WATERMAIN WITHIN STATE STREET CROSSING TO BE REVIEWED WITH THE STATE STREET CROSSING FINAL SITE PLAN
3 SANITARY SEWER WITHIN STATE STREET CROSSING TO BE CONSTRUCTED BY WAL-MART
4 ALL UTILITIES WITHIN A 11 INFLUENCE OF PAVEMENT SHALL BE SAND BACK FILLED USING MDOT CLASS II SAND BACKFILL COMPACTED TO 95% MAXIMUM DENSITY
5 FRANCHISE UTILITY LOCATIONS SHALL BE COORDINATED WITH THE UTILITY COMPANIES AND ARCHITECT

3 WORKING DAYS BEFORE YOU DIG CALL MISS DIG 1-800-482-7171 FOR THE LOCATION OF UNDERGROUND FACILITIES. NOTICE: CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR...

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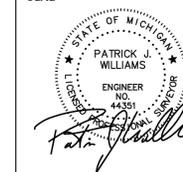


ENGINEERS

CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS

NOWAK & FRAUS ENGINEERS
46777 WOODWARD AVE.
PONTIAC, MI 48342-5032
TEL. (248) 332-7931
FAX. (248) 332-8257

SEAL



PROJECT

State Street Crossing
Units 4, 5, and 6

CLIENT

BBRB I LLC c/o
Commercial Properties
Services LLC
42690 Woodward Avenue
Suite 225
Bloomfield Hills, MI 48304
Contact: Bill Orlando
Ph-248-454-1010

PROJECT LOCATION

Part of the West 1/4
of Section 28, T.35, R.6E
Pittsfield Township,
Washtenaw County, Michigan

SHEET

A.H. - Storm water
Management Plan



Know what's below
Call before you dig.

DATE ISSUED/REVISED
07-08-19 Prelim S.P.
08-24-19 Per Twp. Review
09-30-19 Per Twp. Review

DRAWN BY:
A. Wiseman
DESIGNED BY:
A. Wiseman

APPROVED BY:
P. Williams
DATE:
March 18th, 2019

SCALE:

NFE JOB NO. SHEET NO.
K182 C16

Drainage Narrative

INTRODUCTION

The proposed Wal-Mart is a commercial retail sales business, proposed to be located at the northeast corner of State Street and Michigan Avenue in Section 28 of Pittsfield Township. The site is bounded to the north and west by State Street, to the east by Old State Street, and to the south by Michigan Avenue. The site is proposed to incorporate the proposed Wal-Mart site with planned storm water detention for the entire parent parcel of 38.93 acres. Additionally, the existing bank parcel has been relegated to be incorporated into the proposed drainage system at the time the subject parcel was developed.

EXISTING CONDITIONS

The existing site is currently and historically used for agricultural purposes and in general slopes from the perimeter to a center swale sloping to the northeast into a ditch discharging to the east under Old State Street. Off-site storm water drains onto the site from one watershed located to the north. Two twelve inch diameter corrugated metal pipes drain roughly 40 acres from the north onto the subject parcel (located approximately 400 feet south, along the State Street centerline, from the Old State and State Street Intersection). Once on site the storm water traverses the site via an open ditch flowing to the southeast for roughly 500 feet before crossing under Old State Street and eventually into "Pittsfield Drain No. 5". The existing soils are Pewamo Clay Loam and Blount Clay Loam.

OVERALL DEVELOPMENT

Runoff from the developed site will drain to two proposed detention basins (Basin #1 and Basin #2 will be connected) spanning the northeastern and northwestern borders of the Wal-Mart store and parking lot. These basins will accommodate the total gross acreage of the site, including the Wal-Mart store, its parking lot, State Street Crossing Condominium, and the existing bank to the southwest corner of the site.

The detention basins have been sized to handle the full development of the site. However, the outlet structures will initially be designed to accommodate only the Wal-Mart site development and State Street Crossing Unit 3.

A portion of the existing bank will still run off to the Briarwood Ford detention pond undetained. To offset this, a portion of Michigan Avenue that drains to the Briarwood Ford detention pond, producing the same quantity of runoff as the undetained portion of the bank, will be routed through the proposed on-site detention basin. No other off-site area will be routed through the detention basin as a portion of Michigan Avenue. A portion of runoff from the property to the north will enter the wetland on site, but will bypass any developed areas. The northeast portion of the site (east of the wetland) will flow to the wetland undetained. A 25-foot vegetative buffer is proposed to provide water quality treatment prior to the undetained runoff entering the wetland.

The outlet from the detention ponds will be over-restricted to a rate of 3.17 cfs and outlet to a proposed storm sewer system on the south side of the site. The storm sewer flows under Michigan Avenue, then along storm sewer under Michigan Avenue, eventually draining to the Pittsfield #5 Drain. During a major storm event, the overflow for Pond #1 will be into the wetland on site. The overflow for Pond #2 will be through an overflow structure downstream of the outlet. The overflow elevation of the detention pond will be several feet below the finish floor of the proposed Wal-Mart store.

CONCLUSION

Off-site drainage is currently designed to follow the existing drainage course through the site. The proposed detention facilities will accommodate the subject site, remaining parent parcel and existing bank. The detention facility will ultimately discharge at an agricultural rate and empty into the Pittsfield #5 Drain. In conclusion the detention pond and sediment forebays will provide adequate storage and water quality filtration for the proposed development.

Storm Water Management Notes

1. ALL DRAINAGE FROM THE PROJECT, INCLUDING THE PROPOSED ROAD DRAINAGE, WILL BE DIRECTED INTO THE DETENTION PONDS.
2. THE DETENTION PONDS WILL HAVE RESTRICTED DISCHARGES.
3. ALL OFF-SITE DRAINAGE ENTERING THE SITE WILL BE ACCOMMODATED IN ON-SITE DETENTION POND.
4. NO ON-SITE DRAINAGE WILL BE DIRECTED OFF-SITE UNDETAINED.
5. ALL ROOF AND SUMP DRAINAGE WILL BE DIRECTED INTO THE STORM SYSTEM.
6. SURFACE DRAINAGE WILL BE MAINTAINED AT A 2% SWALE SLOPE.
7. THIS PROJECT SHALL ADHERE TO THE CURRENT WDCD DRAINAGE RULES.
8. THIS PROJECT SHALL ADHERE TO THE WDCD GUIDELINES. WRITTEN APPROVAL BY THE WDCD MUST BE PROVIDED TO THE TOWNSHIP.
9. NO WATERMANS, SANITARY SEWERS, STORM SEWERS OR APURFANCES SHALL BE CONSTRUCTED OR ALLOWED TO REMAIN UNDER OR WITHIN 20 FEET OF STRUCTURAL IMPROVEMENTS.
10. FEMA MAP (PANEL NO. 20023 0015 C) INDICATES THAT THE SITE DOES NOT LIE WITHIN FLOODPLAIN.
11. THE PERMANENT WET PORTION OF BOTH PONDS WILL BE AERATED.

NOTE
A DRAINAGE DISTRICT WILL BE CREATED GIVING WDCD STATUTORY RESPONSIBILITY FOR ULTIMATE MAINTENANCE. THIS WILL INCLUDE WAL-MART, STATE STREET CROSSING, AND NATIONAL CITY BANK.



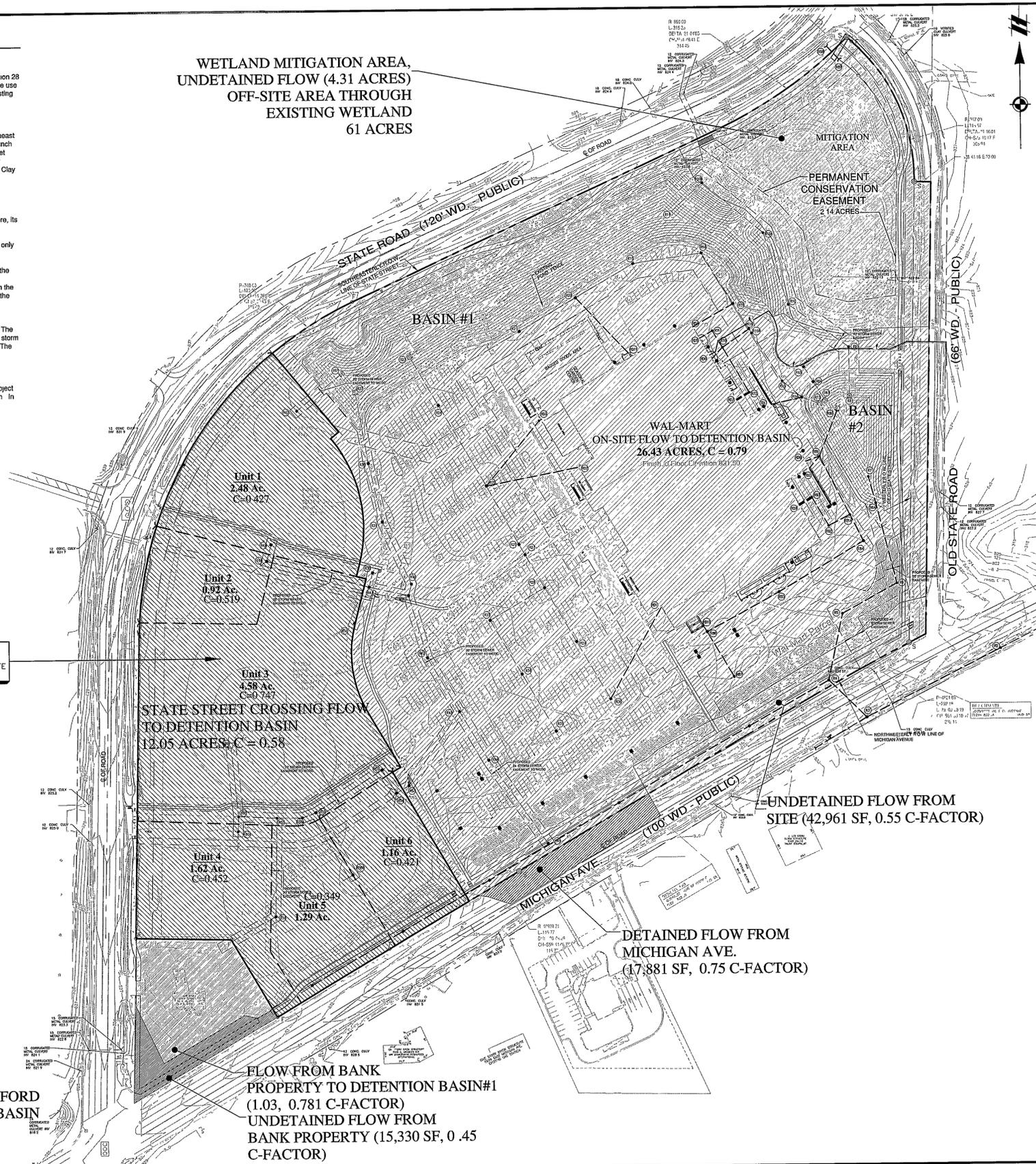
3 WORKING DAYS BEFORE YOU DIG CALL MISS DIG 1-800-482-7171 FOR THE LOCATION OF UNDERGROUND FACILITIES

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 MIGHT 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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WETLAND MITIGATION AREA, UNDETAINED FLOW (4.31 ACRES) OFF-SITE AREA THROUGH EXISTING WETLAND 61 ACRES



STATE STREET CROSSING REFER TO SEPARATE SITE PLAN

EXISTING BRIARWOOD FORD DETENTION BASIN

FLOW FROM BANK PROPERTY TO DETENTION BASIN#1 (1.03, 0.781 C-FACTOR)
UNDETAINED FLOW FROM BANK PROPERTY (15,330 SF, 0.45 C-FACTOR)

STATE STREET CROSSING FLOW TO DETENTION BASIN 12.05 ACRES, C = 0.58

WAL-MART ON-SITE FLOW TO DETENTION BASIN 26.43 ACRES, C = 0.79

UNDETAINED FLOW FROM SITE (42,961 SF, 0.55 C-FACTOR)

DETAINED FLOW FROM MICHIGAN AVE. (17,881 SF, 0.75 C-FACTOR)

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SECTION 28
CLIENT: WAL-MART STORE #5472-00
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

AMENDMENT TO FINAL SITE PLAN
STORM WATER MANAGEMENT PLAN

CAD FILE: 100778FC-10-SM

DATE: OCTOBER 12, 2005

SCALE: 0 50 100
1" = 100 FEET

DR: BJG | CH: JAM
P: M. N. MILLER
BOOK: X1077
JOB: 100778
FILE NO: 438-544-10
SHEET NO: 10



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SEAL



PROJECT
State Street Crossing
Units 4, 5, and 6

CLIENT
BBRB I LLC c/o
Commercial Properties
Services LLC
42690 Woodward Avenue
Suite 225
Bloomfield Hills, MI 48304
Contact: Bill Orlando
Ph-248-454-1010

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Part of the West 1/4
of Section 28, T.3S, R.6E
Pittsfield Township,
Washtenaw County, Michigan

SHEET
A.H. - Storm water
Management Calcs.



Know what's below
Call before you dig.

DATE ISSUED/REVISED
07-08-19 Prelim S.P.
08-24-19 Per Twp. Review
09-30-19 Per Twp. Review

DRAWN BY:
A. Wiseman
DESIGNED BY:
A. Wiseman
APPROVED BY:
P. Williams

DATE:
March 18th, 2019

SCALE:

NFE JOB NO. SHEET NO.
K182 C17

INDIVIDUAL DRAINAGE AREAS

STORM WATER MANAGEMENT CALCULATIONS

Pittsfield Township, Washtenaw County
Wal-Mart, Unit 3 of State Street Crossing

Design Basis Use the Washtenaw County Drain Commission standards, including "first flush", bankfull & 100 year storm event design measures

Table with columns: On-Site Drainage Areas, Surface, area, c factor, weighted c. Rows include Walmart, Unit 1 State Street Crossing, Unit 2 State Street Crossing, Unit 3 State Street Crossing, Unit 4 State Street Crossing, Unit 5 State Street Crossing, Unit 6 State Street Crossing, Off-Site Existing Bank, and Michigan Avenue.

COMBINED DETENTION POND 1 & 2 (WAL-MART & STATE STREET CROSSING FULLY DEVELOPED)

STORM WATER MANAGEMENT CALCULATIONS

Pittsfield Township, Washtenaw County
Wal-Mart, Unit 3 of State Street Crossing

Design Basis Use the Washtenaw County Drain Commission standards, including "first flush", bankfull & 100 year storm event design measures

Table with columns: I Total Volume of Detention Basin 100 Year storm, II Storage volume to detain "first flush" runoff, III Storage volume to control "bankfull" flood, IV Detention Basin Volume Provided. Includes sub-tables for surface area and elevation data.

COMBINED DETENTION POND 1 & 2 (WAL-MART & STATE STREET CROSSING - UNIT 3 DEVELOPED)

STORM WATER MANAGEMENT CALCULATIONS

Pittsfield Township, Washtenaw County
Wal-Mart, Unit 3 of State Street Crossing

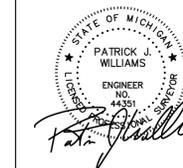
Design Basis Use the Washtenaw County Drain Commission standards, including "first flush", bankfull & 100 year storm event design measures

Table with columns: I Total Volume of Detention Basin 100 Year storm, II Storage volume to detain "first flush" runoff, III Storage volume to control "bankfull" flood, IV Required Sediment Forebay, IV Detention Basin Volume Provided. Includes sub-tables for surface area and elevation data.

Vertical sidebar containing project information: CLIENT (WAL-MART STORE #5472-00), SECTION (28), TOWN (3 SOUTH, RANGE 6 EAST), COUNTY (MICHIGAN), and a large 'AI' logo at the bottom.

11/07/2019 10:00 AM C:\Users\ADMINISTRATOR\Desktop\100778FC\03a.dwg, 10/26/2019 10:01 AM bjoan@nf.com

SEAL



PROJECT

State Street Crossing
Units 4, 5, and 6

CLIENT

BBRB I LLC c/o
Commercial Properties
Services LLC
42690 Woodward Avenue
Suite 225
Bloomfield Hills, MI 48304
Contact: Bill Orlando
Ph-248-454-1010

PROJECT LOCATION

Part of the West 1/4
of Section 28, T.3S, R.6E
Pittsfield Township,
Washtenaw County, Michigan

SHEET

Jarratt Architecture -
Floor Plan



Know what's below
Call before you dig.

DATE	ISSUED/REVISED
07-08-19	Prelim S.P.
08-24-19	Per Twp. Review
09-30-19	Per Twp. Review

www.JarrattArchitecture.com

State Street
Crossing
Pittsfield Township, MI

7-5-19

SHEET TITLE

First Floor Plan

DRAWN BY:
A. Wiseman

DESIGNED BY:
A. Wiseman

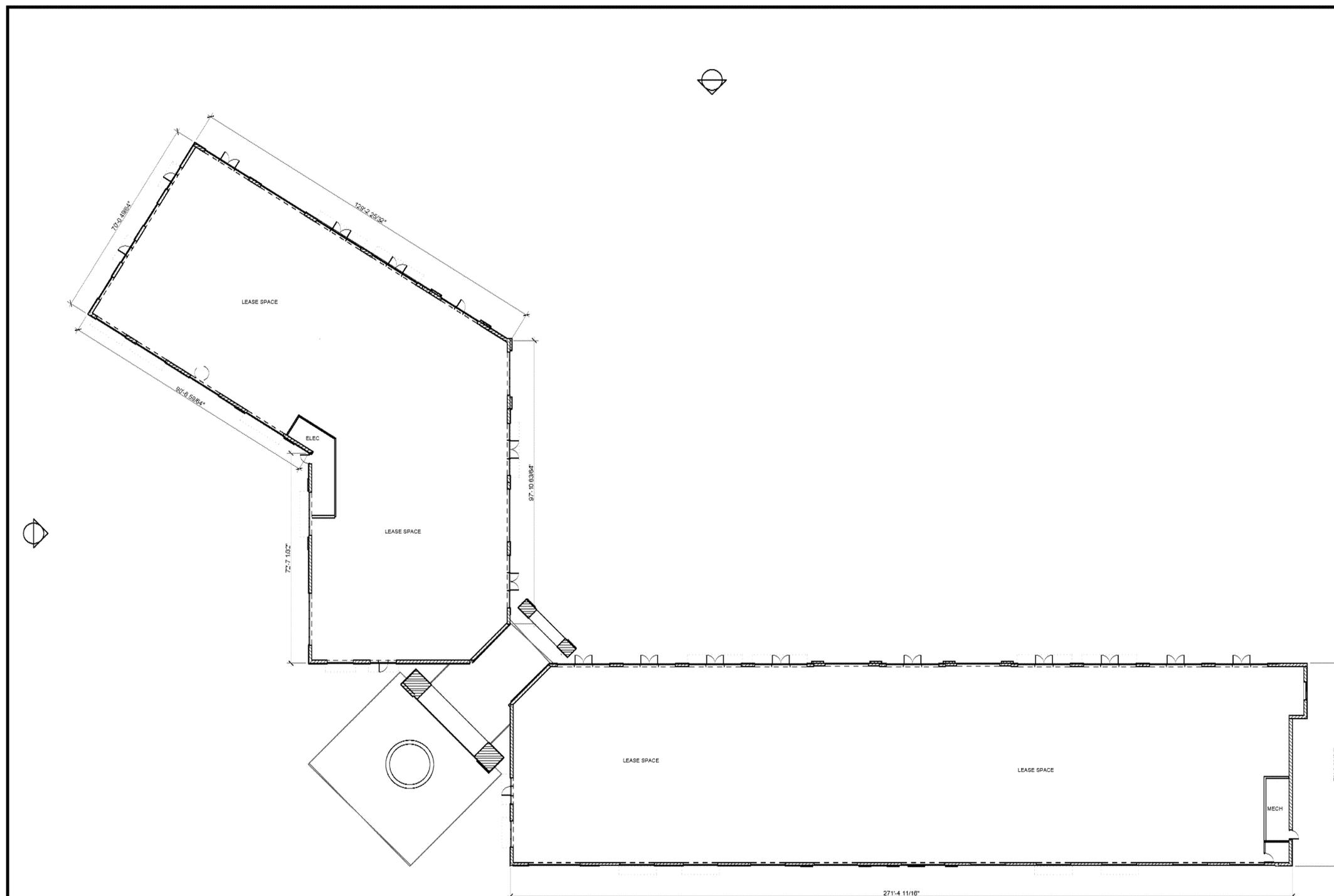
APPROVED BY:
P. Williams

DATE:
March 18th, 2019

SCALE:

NFE JOB NO.
K182

SHEET NO.
C18



FLOOR PLAN

SCALE: 1/16" = 1'-0"

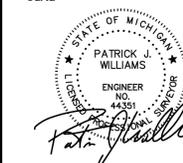


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SEAL



PROJECT
State Street Crossing
Units 4, 5, and 6

CLIENT
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PROJECT LOCATION
Part of the West 1/4
of Section 28, T.3S, R.6E
Pittsfield Township,
Washtenaw County, Michigan

SHEET
Jarratt Architecture -
Elevations



Know what's below
Call before you dig.

DATE	ISSUED/REVISED
07-08-19	Prelim S.P.
08-24-19	Per Twp. Review
09-30-19	Per Twp. Review

DRAWN BY:
A. Wiseman
DESIGNED BY:
A. Wiseman
APPROVED BY:
P. Williams
DATE:
March 18th, 2019

SCALE:
NFE JOB NO. SHEET NO.
K182 C19

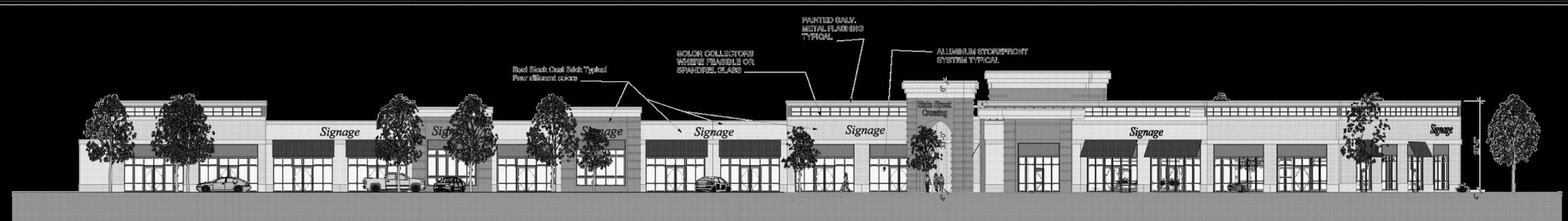
www.JarrattArchitecture.com

State Street Crossing
Pittsfield Township, MI

9-30-19

SHEET TITLE
Elevations and Image

A102



North Elevation
SCALE: 1/8" = 1'-0"



East Elevation
SCALE: 1/8" = 1'-0"



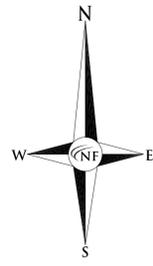
West Elevation
SCALE: 1/8" = 1'-0"

Note: Windows that front on Michigan Ave. and State Street will remain clear of screening and will look into a principal use of tenant space and not look into back of house operations. This is per Township and Owner requirements.



South Elevation
SCALE: 1/8" = 1'-0"

Note: Windows that front on Michigan Ave. and State Street will remain clear of screening and will look into a principal use of tenant space and not look into back of house operations. This is per Township and Owner requirements.



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SEAL



PROJECT
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PROJECT LOCATION
Part of the West 1/4
of Section 28, T.3S, R.6E
Pittsfield Township,
Washtenaw County, Michigan

SHEET
Landscape Plan



DATE ISSUED / REVISED

DATE	ISSUED / REVISED
07/08/19	ISSUED FOR PRELIMINARY SITE PLAN REVIEW
08/24/19	REVISED PER TWP REVIEW
09/30/19	REVISED PER TWP REVIEW
10/28/19	REVISED PER TWP PC REVIEW

DRAWN BY:
G. Ostrowski

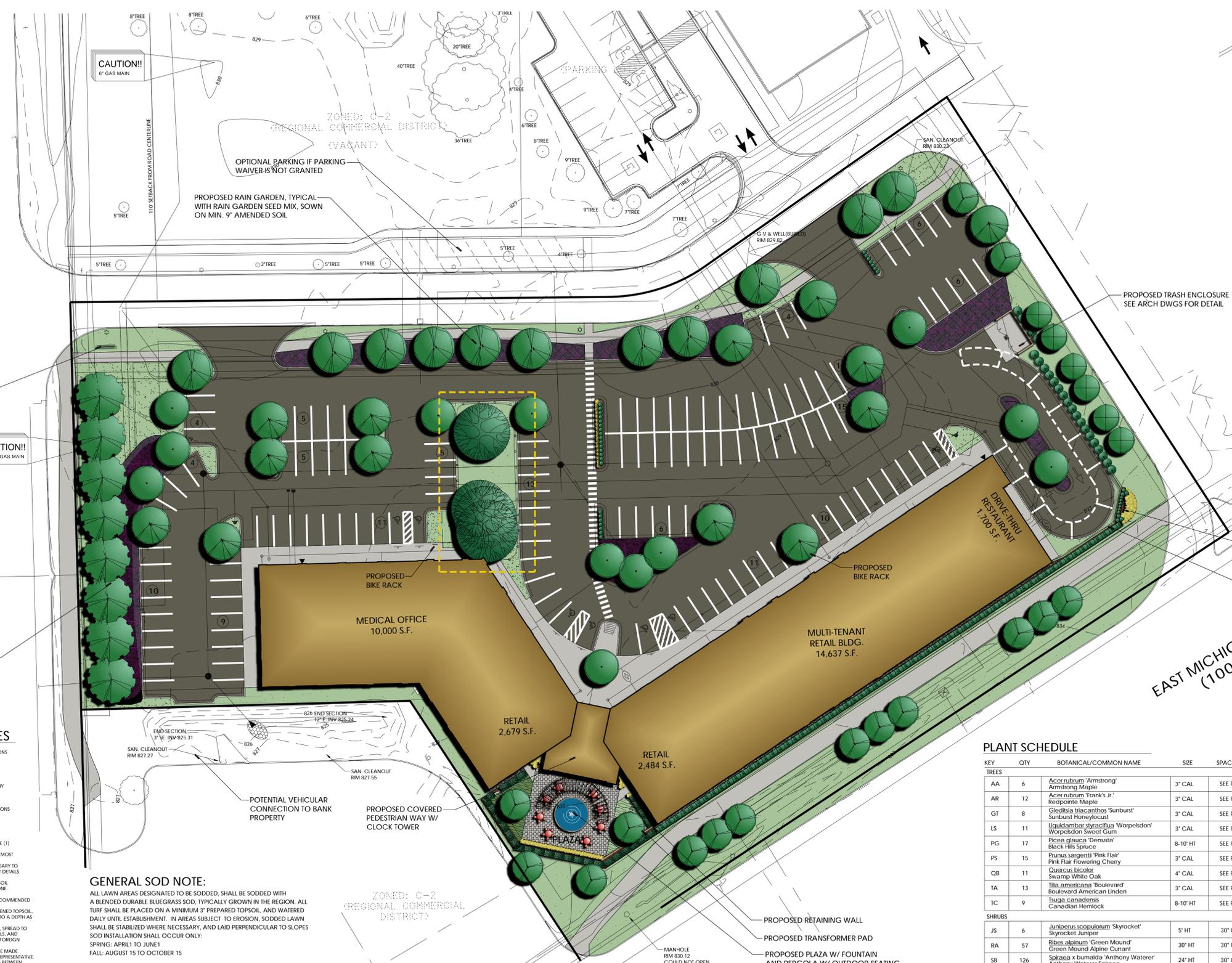
DESIGNED BY:
G. Ostrowski

APPROVED BY:
G. Ostrowski

DATE:
12-21-2018

SCALE: 1" = 30'

NFE JOB NO. SHEET NO.
K182 C9



LANDSCAPE REQUIREMENTS

EXISTING SITE AREA: 176,691.98 S.F. OR 4.06 ACRES

SITE LANDSCAPE AREA
20% SITE SHALL BE LANDSCAPE
REQUIRED: 176,691.98 S.F. X 20% = 35,338 S.F.
PROVIDED: 27,852.52 S.F. (21.4%)

GREENBELT ABUTTING A.R.O.W.
1 TREE PER 30 L.F. OF ROAD FRONTAGE
SOUTH STATE STREET: 233 L.F.
REQUIRED: 8 TREES AND HEDGE IN LIEU OF BERM
EAST MICHIGAN AVE.: 241 L.F.
REQUIRED: 261 L.F. OF FRONTAGE / 30 L.F. = 8.7 OR 9 TREES REQUIRED
PROVIDED: 9 TREES AND HEDGE IN LIEU OF BERM

PARKING LOT INTERIOR REQUIREMENTS
1 TREE PER 8 SPACES; 5% OF PARKING LOT SHALL BE LANDSCAPED
PARKING LOT AREA: 14,393.74 S.F.
REQUIRED AREA: 14,393.74 S.F. X 5% = 719.69 S.F.
PROVIDED AREA: 1,280 S.F.
TREES REQUIRED: 139 SPACES / 8 = 17.4 OR 18 TREES REQUIRED
PROVIDED: 18 TREES

PARKING LOT PERIMETER REQUIREMENTS
1 TREE PER 30 L.F. OF PARKING LOT PERIMETER
REQUIRED: 338 L.F. / 40 = 8 TREES
PROVIDED: 8 TREES

TREE REPLACEMENTS
REQUIRED: 180 S.F. OF REPLACEMENT
PROVIDED: 187 S.F. OF REPLACEMENT
SEE SHEET C-9A FOR REMANDED OR REPLACEMENT TREES AND RELOCATED CONSERVATION EASEMENT

PROPOSED GROUND SIGN LOCATION. ALL SIGNS ARE SUBJECT TO SEPARATE REVIEW AND APPROVAL

PROPOSED RETAINING WALL

GENERAL LANDSCAPE NOTES

- LANDSCAPE CONTRACTOR SHALL VISIT SITE, INSPECT EXISTING CONDITIONS AND REVIEW PROPOSED PLANNING AND RELATED WORK. IN CASE OF DISCREPANCY BETWEEN PLAN AND PLANT LIST, THE PLAN SHALL GOVERN UNLESS OTHERWISE NOTED. CONTACT THE LANDSCAPE ARCHITECT WITH ANY CONCERNS.
- THE CONTRACTOR SHALL VERIFY LOCATIONS OF ALL ON-SITE UTILITIES PRIOR TO BEGINNING CONSTRUCTION ON HIS/HER PHASE OF WORK. ANY DAMAGE OR INTERFERENCE OF SERVICES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- THE CONTRACTOR SHALL COORDINATE ALL RELATED ACTIVITIES WITH OTHER TRADES, AND SHALL NOTIFY ANY UNLICENSED PERSONS OR UNLICENSED CONTRACTORS OF THE CONTRACTOR'S PRESENTATION PRIOR TO COMMENCEMENT.
- PLANTS SHALL BE FULL, WELL-BRANCHED, AND IN HEALTHY VIGOROUS GROWING CONDITION.
- PLANTS SHALL BE WATERED BEFORE AND AFTER PLANTING IS COMPLETE. ALL TREES MUST BE STAKED, FERTILIZED AND MULCHED AND SHALL BE GUARANTEED TO EXHIBIT A NORMAL GROWTH CYCLE FOR AT LEAST ONE (1) YEAR FOLLOWING PLANTING.
- ALL MATERIAL SHALL CONFORM TO THE GUIDELINES ESTABLISHED IN THE MOST RECENT EDITION OF THE AMERICAN STANDARDS FOR NURSERY STOCK. CONTRACTOR WILL SUPPLY FRESH GRASS AND LOCALS AS NECESSARY TO SUPPLY PLANT MIX DEPTH IN ALL PLANTING BEDS AS INDICATED IN PLANT DETAILS AND A DEPTH OF 4" IN ALL LAWN AREAS.
- PROVIDE CLEAN BACKFILL SOIL, USING MATERIAL STOCKPILED ON-SITE. SOIL SHALL BE SCREENED AND FREE OF DEBRIS, FOREIGN MATERIAL, AND STONE. SLOW-RELEASE FERTILIZER SHALL BE ADDED TO THE PLANT PITS BEFORE BEING BACKFILLED. APPLICATION SHALL BE AT THE MANUFACTURER'S RECOMMENDED RATES.
- AMENDED PLANT MIX (PREPARED TOPSOIL) SHALL CONSIST OF 1/3 SCREENED TOPSOIL, 1/2 SAND, AND 1/3 "DUMPSY" COMPOST. MIXED WELL AND SPREAD TO A DEPTH AS INDICATED IN PLANTING DETAILS.
- ALL PLANTINGS SHALL BE MULCHED WITH SHREDDED HARDWOOD BARK, SPREAD TO A DEPTH OF 3" FOR TREES AND SHRUBS, AND 2" ON ANNUALS, PERENNIALS, AND GROUNDCOVER PLANTINGS. MULCH SHALL BE FREE FROM DEBRIS AND FOREIGN MATERIAL, AND PICES ON CONSISTENT SIZE.
- NO SUBSTITUTIONS OR CHANGES OF LOCATION, OR PLANT TYPE SHALL BE MADE WITHOUT THE APPROVAL OF THE LANDSCAPE ARCHITECT OR OWNER'S REPRESENTATIVE. THE LANDSCAPE ARCHITECT SHALL BE NOTIFIED OF ANY DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS PRIOR TO INSTALLATION.
- THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL PLANT MATERIAL IN A VERTICAL CONDITION THROUGHOUT THE GUARANTEED PERIOD.
- THE LANDSCAPE ARCHITECT OR OWNER'S REPRESENTATIVE SHALL HAVE THE RIGHT TO REJECT ANY WORK OR MATERIAL THAT DOES NOT MEET THE REQUIREMENTS OF THE PLANS AND/OR SPECIFICATIONS.
- THE LANDSCAPE CONTRACTOR SHALL SEED AND MULCH OR SOO (AS INDICATED ON PLANS) ALL AREAS DESIGNATED AS SUCH ON THE PLANS. THROUGHOUT THE CONTRACT LIMITS. FURTHER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING AREAS DISTURBED DURING CONSTRUCTION, NOT IN THE CONTRACT LIMITS, TO EQUAL OR GREATER CONDITION.
- ALL LANDSCAPE AREAS SHALL HAVE PROPER DRAINAGE THAT PREVENTS EXCESSIVE WATER FROM PONDING ON LAWN AREAS OR AROUND TREES AND SHRUBS.
- ALL LANDSCAPE AREAS SHALL BE BRIGGATED WITH AN AUTOMATIC UNDERGROUND SYSTEM.

GENERAL SOD NOTE:

ALL LAWN AREAS DESIGNATED TO BE SODDED, SHALL BE SODDED WITH A BLENDED DURABLE BLUEGRASS SOD, TYPICALLY GROWN IN THE REGION. ALL TURF SHALL BE PLACED ON A MINIMUM 3" PREPARED TOPSOIL, AND WATERED DAILY UNTIL ESTABLISHMENT. IN AREAS SUBJECT TO EROSION, SODDED LAWN SHALL BE STABILIZED WHERE NECESSARY, AND LAID PERPENDICULAR TO SLOPES. SOD INSTALLATION SHALL OCCUR ONLY:
SPRING: APRIL 1 TO JUNE 1
FALL: AUGUST 15 TO OCTOBER 15

GENERAL SEED NOTE:

ALL LAWN AREAS DESIGNATED TO BE SEED, SHALL BE HYDRO-SEEDED WITH SPECIFIC BLENDS, AND STABILIZED WITH WOOD CELLULOSE FIBER MULCH (2,000 LBS PER ACRE). IN AREAS SUBJECT TO EROSION, SEEDED LAWN SHALL BE FURTHER STABILIZED WHERE NECESSARY WITH BIODEGRADABLE EROSION BLANKET AND STAKED UNTIL ESTABLISHED. ALL SEED SHALL BE APPLIED OVER A MINIMUM 3" PREPARED TOPSOIL, AND SHALL BE KEPT MOIST AND WATERED DAILY UNTIL ESTABLISHED.
SEEDING INSTALLATION SHALL OCCUR ONLY:
SPRING: APRIL 1 TO JUNE 1
FALL: AUGUST 15 TO OCTOBER 15

PLANT SCHEDULE

KEY	QTY	BOTANICAL/COMMON NAME	SIZE	SPACING	ROOT	COMMENT
TREES						
AA	6	Acer rubrum 'Armstrong'	3" CAL	SEE PLAN	B&B	FULLY BRANCHED HEADS
AR	12	Acer rubrum 'Frank's Jr.'	3" CAL	SEE PLAN	B&B	FULLY BRANCHED HEADS
GT	8	Gleditsia triacanthos 'Sunburst'	3" CAL	SEE PLAN	B&B	FULLY BRANCHED HEADS
LS	11	Liquidambar styraciflua 'Worpelodon'	3" CAL	SEE PLAN	B&B	FULLY BRANCHED HEADS
PG	17	Picea glauca 'Densata'	8-10' HT	SEE PLAN	B&B	FULL TO GROUND
PS	15	Prunus sargentii 'Pink Flair'	3" CAL	SEE PLAN	B&B	FULLY BRANCHED HEADS
OB	11	Quercus bicolor	4" CAL	SEE PLAN	B&B	FULLY BRANCHED HEADS
TA	13	Tilia americana 'Boulevard'	3" CAL	SEE PLAN	B&B	FULLY BRANCHED HEADS
TC	9	Tsuga canadensis	8-10' HT	SEE PLAN	B&B	FULL TO GROUND
SHRUBS						
JS	6	Juniperus scopulorum 'Skyrocket'	5' HT	30" OC	B&B	SHEAR AT UNIFORM 5' HT
RA	57	Ribes alpinum 'Green Mound'	30" HT	30" OC	B&B	
SB	126	Spiraea x bumalda 'Anthony Waterer'	24" HT	30" OC	B&B	MAINTAIN AS HEDGE
TD	64	Taxus x m. 'Densiformis'	30" HT	30" OC	B&B	MAINTAIN AS HEDGE
TO	23	Thuja occidentalis 'Techny'	5' HT	4" OC	B&B	
GROUNDCOVERS/PERENNIALS						
CA	35	Calamagrostis a. 'Karl Foerster'	5 GAL	30" OC	CONT	
HS	68	Hemerocallis 'Stella D'Oro'	2 GAL	24" OC	CONT	
HO	34	Hosta 'Halcyon'	2 GAL	24" OC	CONT	
LR	966	Liriodendron tulipifera	1 GAL	12" OC	CONT	TRIANGULAR SPACING

*TREES DESIGNATED WITH (R) REPRESENT REPLACEMENT TREE, SEE SHEET 9A



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