814 DEVELOPMENT
Pittsfield Township, Washtenaw County, MI
Preliminary Site Plan Prepared For Rainbow Rascals MI - Pittsfield LLC

OWNER

Rainbow Rascals MI - Pittsfield LLC
3221 W. Big Beaver Rd.
Ste. 111
Troy, Michigan 48084

Contact: Reed Fenton
phone: 248-817-1522

CIVIL ENGINEER

Orman Engineering, LLC
5476 Vivian Lane
Waterford, MI 48327
Phone (248) 682-6001
E: alex@ormanengineering.com
Contact:
Mr. Alexander Orman, P.E.

LANDSCAPE ARCHITECT

Hagenbuch Weikal Landscape Architecture
33203 Biddestone Lane
Farmington Hills, Mi 48334

Phone (248) 477-3600
Contact: Kenneth Weikal

ARCHITECT FOR RAINBOW CHILD CARE BUILDING

Strang
6411 Mineral Point Road
Madison, WI 53705

Tel: (608) 276-9200
Contact: Jonathon R. Nelson AIA

ARCHITECT FOR RETAIL BUILDINGS

MBA Architects
30150 Telegraph Road, Suite 150
Bingham Farms, MI 48025

Tel: (248) 258-5155
Contact: Michael A. Boggio Jr. AIA

ARCHITECT FOR GOODWILL BUILDING

Curran Architecture
6925 East 96th St., Suite 105
Indianapolis, IN 46250

Tel: (317) 288-0681
Contact: Shawn W. Curran AIA

N

Location Map
N.T.S.

LEGAL DESCRIPTION

Commencing at the Northeast corner of Section 32, T3S, R6E, Pittsfield Township, Washtenaw County, Michigan; thence South 00°55'26" East 2678.94 feet along the East line of Section 32 to the East $\frac{1}{4}$ corner of Section 32; thence South 88°31'00" West 352.51 feet along the East-West $\frac{1}{4}$ line of Section 32; thence North 00°55'45" West 1924.17 feet for a Place of Beginning; thence South 88°59'55" West 589.72 feet; thence North 00°55'26" West 187.63 feet; thence North 58°28'26" East 685.08 feet along the Southeasterly right of way line of Michigan Avenue (100.00 feet wide); thence South 00°55'45" East 535.59 feet to the Place of Beginning, being part of the Northeast $\frac{1}{4}$ of Section 32, exceptng therefrom portion conveyed to the Michigan Department of Transportation in Liber 4688, Page 148, Washtenaw County Records.

Together with easements set forth in Easement Grant as recorded in Liber 4487, Page 662, Washtenaw County Records.

RZ 17-01 814 Development Proect (FKA Rainbow Rascals

2019-01-03

SHEET INDEX

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2.	SP-2	EXISTING CONDITIONS & DEMOLITION PLAN
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20.		ARCHITECTURAL BUILDING ELEVATIONS & FLOOR PLAN FOR RAINBOW CHILD CARE BUILDING
21.		ARCHITECTURAL BUILDING ELEVATIONS & FLOOR PLANS FOR RETAIL BUILDINGS
22.		ARCHITECTURAL BUILDING ELEVATIONS & FLOOR PLAN FOR GOODWILL BUILDING

SUBMITTAL DATES :

03/12/2018	SITE PLAN SUBMITTAL
08/08/2018	SITE PLAN APPROVAL
10/16/2018	SITE PLAN REVISION PER PLANNING COMMISSION
11/30/2018	REVISED PER STORM WATER ENGINEER

SITE DATA

	REQUIRED		PROPOSED
ZONING	C-2	PUD (EXISTING)	PUD
LOT AREA (NET AND GROSS)	20,000 S.F. MIN.	213,444 S.F. (4.90 ACRES)	196,669 S.F./4.518 BUILDING AREA
(ALL ONE STORY)			
DAY CARE FACITLY	--	--	10,782 S.F.
RETAIL BUSINESS	--	--	13,000 S.F.
RESTAURANT	--	--	5,220 S.F.
GOODWILL INDUSTRIES	--	--	10,300 S.F.
TOTAL BUILDING AREA	--	34,631 S.F.	38,132 S.F.
PAVEMENT AREA	--	71,818 S.F.	99,773 S.F.
TOTAL IMPERVIOUS AREA	--	129,151 S.F.	137,905 S.F.
LOT COVERAGE AREA	35%	13.4%	19%
NET LOT COVERAGE AREA	80%	16.2%	70%
FLOOR AREA RATIO	--		%
SETBACKS			
FRONT (MICHIGAN AVENUE)	35 FT.	125 FT. FROM ℄	89.90' FROM ℄
SIDE (MOON ROAD)	25 FT.	110' FROM ℄	115.31 ' FROM ℄
SIDE	10 FT.	43 FT.	54.78 FT.
REAR	35 FT.	71.9 FT.	31.05 FT.
BUILDING HEIGHTS			
RAINBOW CHILD CARE:	3 STORY - 45' MAX	2 STORY - 35' MAX	1 STORY - 26'
RETAIL STORES:	3 STORY - 45' MAX	2 STORY - 35' MAX	1 STORY - 24'
RESTAURANT:	3 STORY - 45' MAX	2 STORY - 35' MAX	1 STORY - 24'
GOODWILL INDUSTRIES:	3 STORY - 45' MAX	2 STORY - 35' MAX	1 STORY - 27'

PARKING

PARKING REQUIRED:	NUMBER OF SPACES
CHILD CARE FACILITY: 2 + 1 PER 8 STUDENTS = 2 + (100/8) =	15
RETAILS STORES: 1 PER 250 S.F. = 13,000/250 =	52
RESTAURANT: 1 PER 2 SEATS = 174/2 =	87
GOODWILL INDUSTRIES (WAREHOUSE & RETAIL)	
RETAIL STORE: 1 PER 250 S.F. = (7,000/250)	28
WAREHOUSE: 1 PER 1,500 S.F. + 1 PER EMPLOYEE ON LARGEST SHIFT = (3,300/1,500) +8 =	11
NUMBER OF SPACES REQUIRED:	193
NUMBER OF SPACES PROVIDED:	167 (22 SPACES WILL BE SHARED WITH OTHER BUSINESSES PER TRAFFIC STUDY DATED JULY 17, 2018 IN ADDITION TO THE 4 SPACE DEFICIENCY APPROVED BY THE PLANNING COMMISION ON OCTOBER 4, 2018, FOR THE CONSOLIDATION OF THE PARKING LOT WEST OF THE PROPOSED RESTAURANT)
INCLUDING 4 HANDICAP ACCESSIBLE SPACES & 3 VAN ACCESSIBLE SPACES	
BICYCLE PARKING REQUIRED: 2 PER BUILDING = 4 BUILDINGS X 2 =	8 SPACES
BICYCLE PARKING PROVIDED: 2 PER BUILDING	8 SPACES

LOADING ZONES

CHILD CARE CENTER WILL NOT REQUIRE A LOADING ZONE PER USE
RETAIL STORES WILL REQUIRE A LOADING ZONE OF 55' X 10'.
RESTAURANT WILL REQUIRE A LOADING ZONE OF 55' X 10'. THE RESTAURANT AND RETAIL STORES WILL SHARE A 57'X18' LOADING ZONE.
GOODWILL INDUSTRIES HAS A TRUCK LOADING DOCK AND A DROP OFF ZONE W/ 4 STACKING SPACES.

Civil Engineers • Land Planning
Land Surveying

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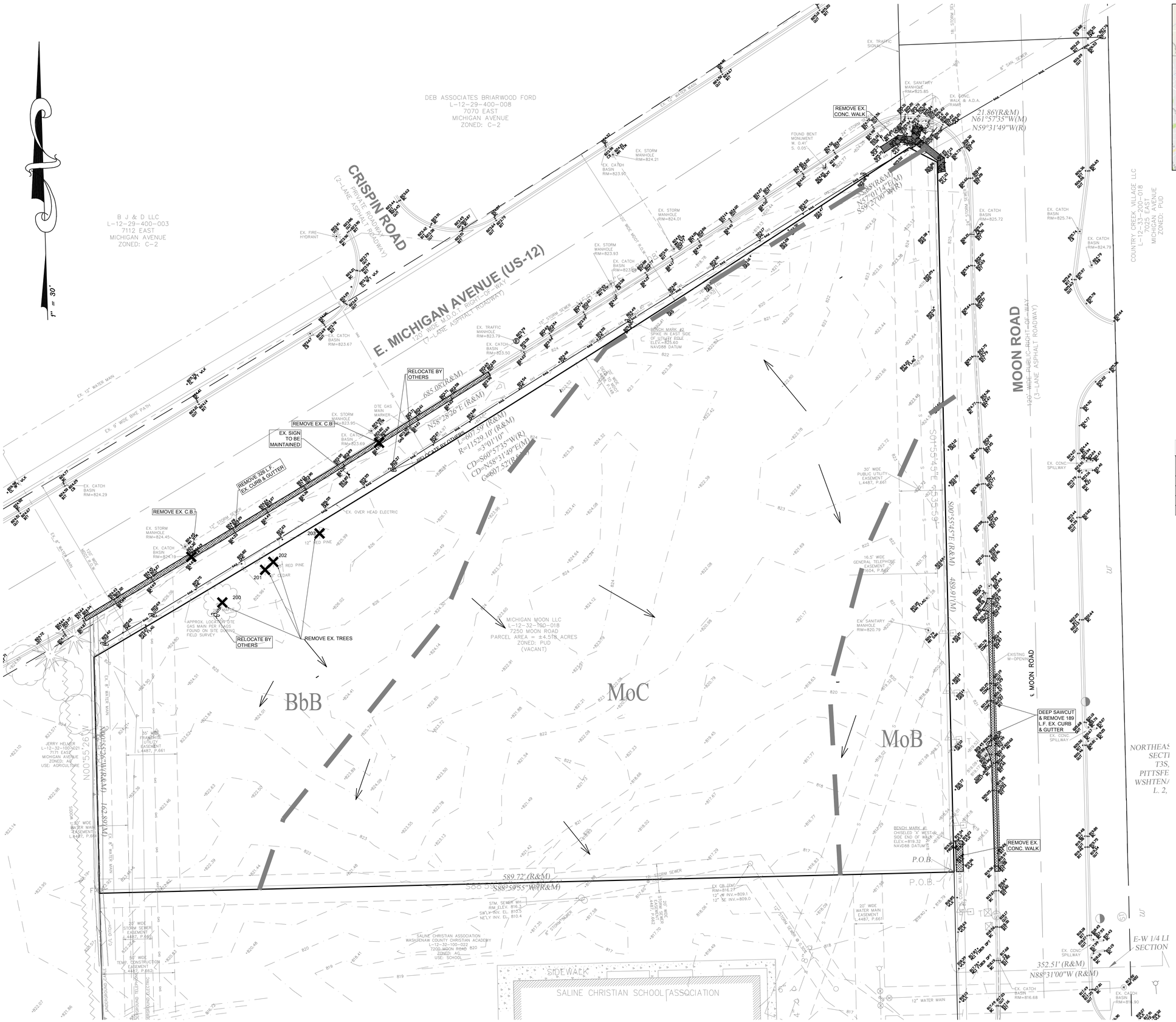

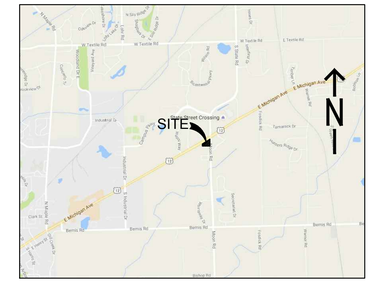

LOCATION MAP

N.T.S.

ZONING CODES

C-2: GENERAL COMMERCIAL

AG: AGRICULTURAL

SITE NOTES:

1. One heritage tree exists on site.
2. No regulated wetlands exist on site.
3. Per FEMA firm map, panel number 260623 0020c, no 100 year floodplains exist on site.
4. According to the Washtenaw Soil Survey, site soils are primarily Morley loam with some Blount loam along Michigan Avenue.

SOILS LEGEND:

BbB - Blount Loam 2% - 6% slopes. Somewhat poorly drained clay loam.

MoB - Morley Loam 2% - 6% slopes. Moderately well drained clay loam.

MoC - Morley Loam 6% - 12% slopes. Moderately well drained clay loam.

Tree List

Tag #	Tree Type	Tree Size	Trunks	Heritage	Woodland	To Be Removed
200	Maple	24"		X		X
201	Cedar	10"		X		X
202	Red Pine	8"				X
203	Red Pine	12"				X

DEMOLITION LEGEND

✕ PROPOSED ITEM REMOVAL

PROPOSED REMOVAL

EXISTING

GAS
SANITARY (SAN)
STORM (STM)
WATERMAIN (WM)
OVERHEAD WIRE
UNDERGROUND CABLE
DITCH
SWALE CENTERLINE
EASEMENTS
CHAIN LINK FENCE

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SEAL

SHEET

Existing Conditions & Demolition Plan

PROJECT LOCATION

Michigan Ave. & Moon Rd., Pittsfield Township, Washtenaw County, MI

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REVISIONS

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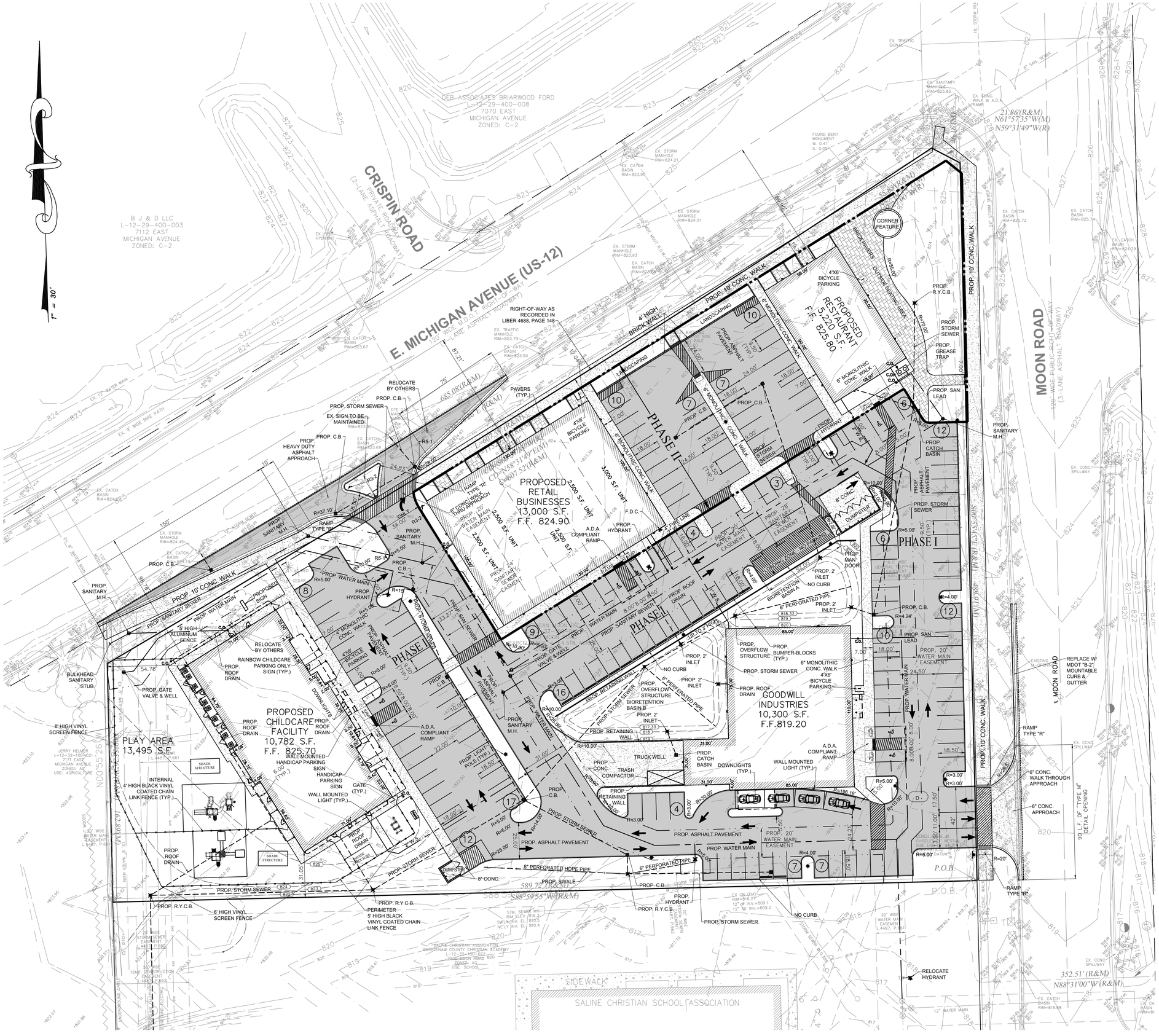
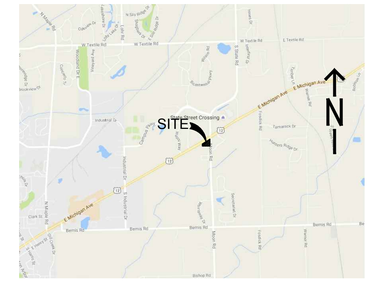
Designed by:	Drawn by:
A.O.	S.D.M.
Approved by:	**Date:**
A.O.	10-26-2017

Scale: 1" = 30'

Job No.: 1094

Sheet: SP-2





LOCATION MAP

N.T.S.

TYPICAL STACKING SPACE

NOTE:

ALL WALKWAYS ON THIS PROJECT SHALL BE A.D.A. COMPLIANT

LAYOUT NOTE

ALL DIMENSIONS ARE TO THE OUTSIDE BUILDING WALL, BACK OF CURB, OR TO THE FACE OF SIDEWALK UNLESS OTHERWISE NOTED.

LEGEND

	AMERITECH		SIGNAL POLE
	WATER SHUT OFF		PUBLIC LIGHTING MH.
	TELEPHONE RISER		ELECTRIC RISER OR METER
	TELEPHONE		CATHODIC PROTECTION
C.O.	SEWER CLEAN OUT		GUY WIRE
	GAS METER		HIGH TENSION TOWER
	GAS VALVE /GAS MARKER		FLAG POLE
	MANHOLE		GUARD/METAL POST
	CATCH BASIN		STEEL COLUMN
GVW	GATE VALVE IN WELL (G.V.W)		MAILBOX
	FIRE HYDRANT		SIGN
	STORM MANHOLE (ST. MH.)	TRANS	ELECTRIC TRANSFORMER
	FENCE POST	EX.	EXISTING
	UTILITY POLE	PROP.	PROPOSED
	UTILITY POLE W/ LAMP EXTENSION		WATER FLOW INDICATOR

Engineering

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PROJECT

814 Development

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SEAL

SHEET

Site Plan

PROJECT LOCATION

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1" = 30'	
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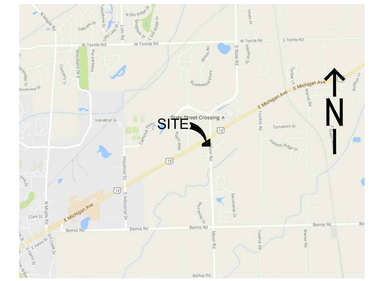
1094	SP-3



LOCATION MAP

N.T.S.

Ⓔ INGRESS/EGRESS POINTS
Ⓜ METER ROOMS

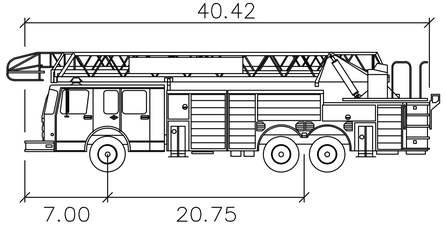
FIRE PROTECTION LEGEND

FIRE TRUCK ROUTE W/ DIRECTION INDICATOR

300 FOOT FIRE HOSE LAY LINE EXTENTS

EXISTING		PROPOSED
GAS		GAS
SAN	SANITARY (SAN)	SAN
STM	STORM (STM)	STM
WM	WATERMAIN (WM)	WM
OHW	OVERHEAD WIRE	OHW
OH	UNDERGROUND CABLE	OH
	DITCH	
	SWALE CENTERLINE	
	EASEMENTS	
	CHAIN LINK FENCE	

TRUCK TEMPLATE USED



Pittsfield Fire feet

Width	:	8.00
Track	:	8.00
Lock to Lock Time	:	6.0
Steering Angle	:	33.0

PITTSFIELD TOWNSHIP FIRE TRUCK TEMPLATE

AS PROVIDED BY STANTEC
NOT TO SCALE

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SEAL

SHEET

Fire Protection Plan

PROJECT LOCATION

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Scale: 1" = 40'

Job No.:	Sheet:
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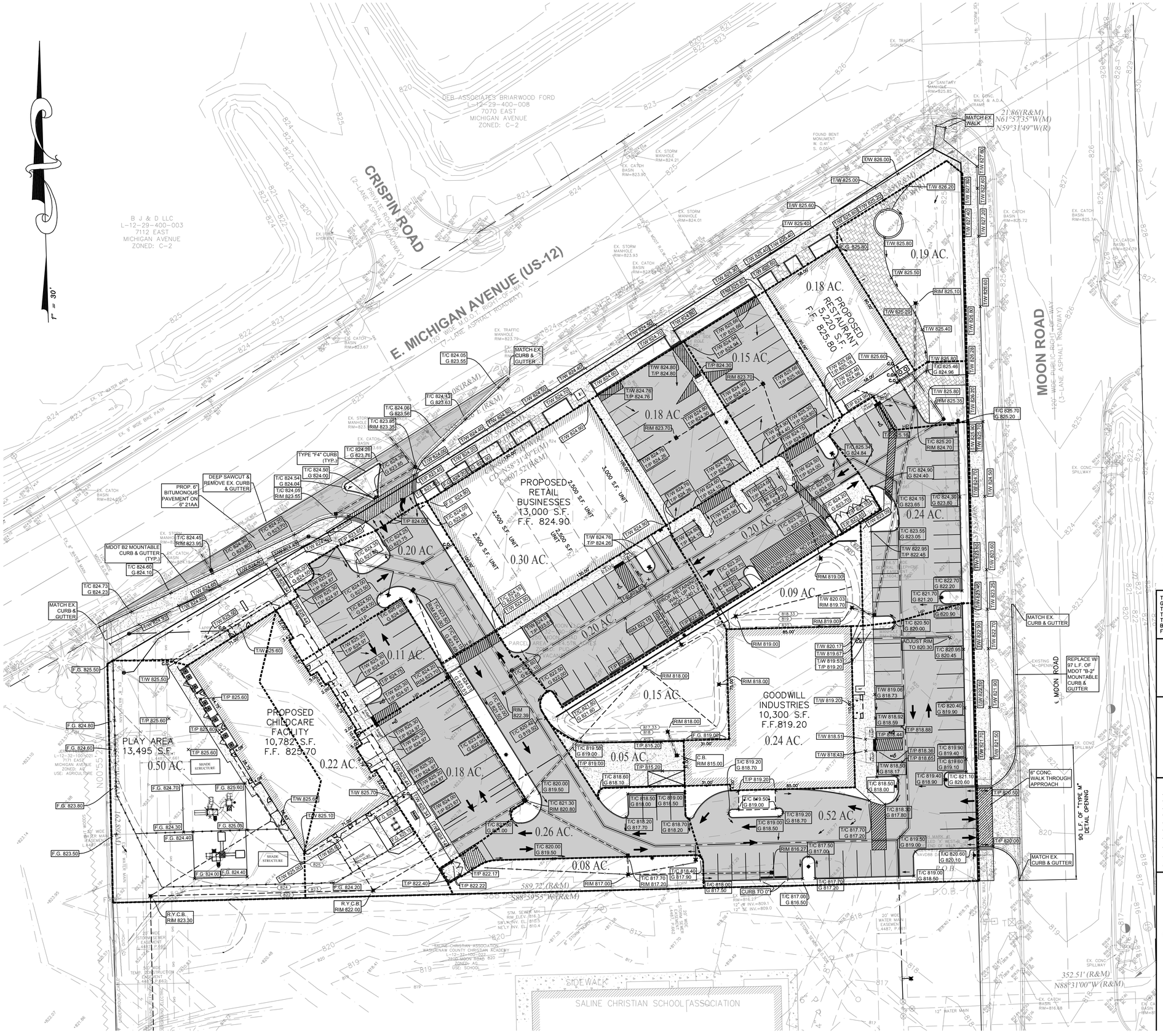

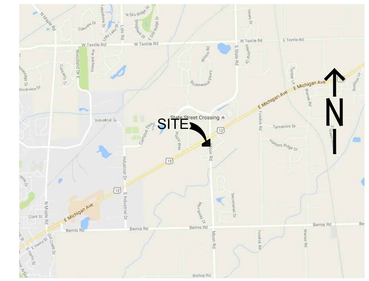

LOCATION MAP

N.T.S.

LAYOUT NOTE

ALL DIMENSIONS ARE TO THE OUTSIDE BUILDING WALL, BACK OF CURB, OR TO THE FACE OF SIDEWALK UNLESS OTHERWISE NOTED.

T/C 888.88	TOP OF CURB GRADE
G 888.88	GUTTER GRADE
T/P 888.88	TOP OF PAVEMENT GRADE
T/W 888.88	TOP OF WALK GRADE
TOW 888.88	TOP OF WALL GRADE
B/W 888.88	BOTTOM OF WALL GRADE
F.G. 888.88	FINISHED GRADE

DRAINAGE MAP LEGEND

----------	DRAINAGE AREA LIMITS
2.22 AC.	DRAINAGE AREA IN ACRES

PAVING LEGEND

	PROPOSED CONCRETE PAVEMENT
	PROPOSED ASPHALT PAVEMENT
CURB / GUTTER	PROPOSED CURB & GUTTER

EXISTING		PROPOSED
GAS	GAS	GAS
SANITARY (SAN)	SAN	SAND BACKFILL
STORM (STM)	STM	
WATERMAIN (WM)	GV&W	GV&W
OVERHEAD WIRE	OH	OH
UNDERGROUND CABLE		
DITCH		
SWALE CENTERLINE		
EASEMENTS		
CHAIN LINK FENCE		

LEGEND

	AMERITECH		SIGNAL POLE
	WATER SHUT OFF		PUBLIC LIGHTING MH.
	TELEPHONE RISER		ELECTRIC RISER OR METER
	TELEPHONE		CATHODIC PROTECTION
C.O.	SEWER CLEAN OUT		GUY WIRE
	GAS METER		HIGH TENSION TOWER
	GAS VALVE /GAS MARKER		FLAG POLE
	MANHOLE		GUARD/METAL POST
	CATCH BASIN		STEEL COLUMN
	GATE VALVE IN WELL (G.V.W)		MAILBOX
	FIRE HYDRANT		SIGN
	STORM MANHOLE (ST. MH.)	TRANS	ELECTRIC TRANSFORMER
	FENCE POST	EX.	EXISTING
	UTILITY POLE	PROP.	PROPOSED
	UTILITY POLE W/ LAMP EXTENSION		WATER FLOW INDICATOR

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SEAL

SHEET

Paving & Grading Plan

PROJECT LOCATION

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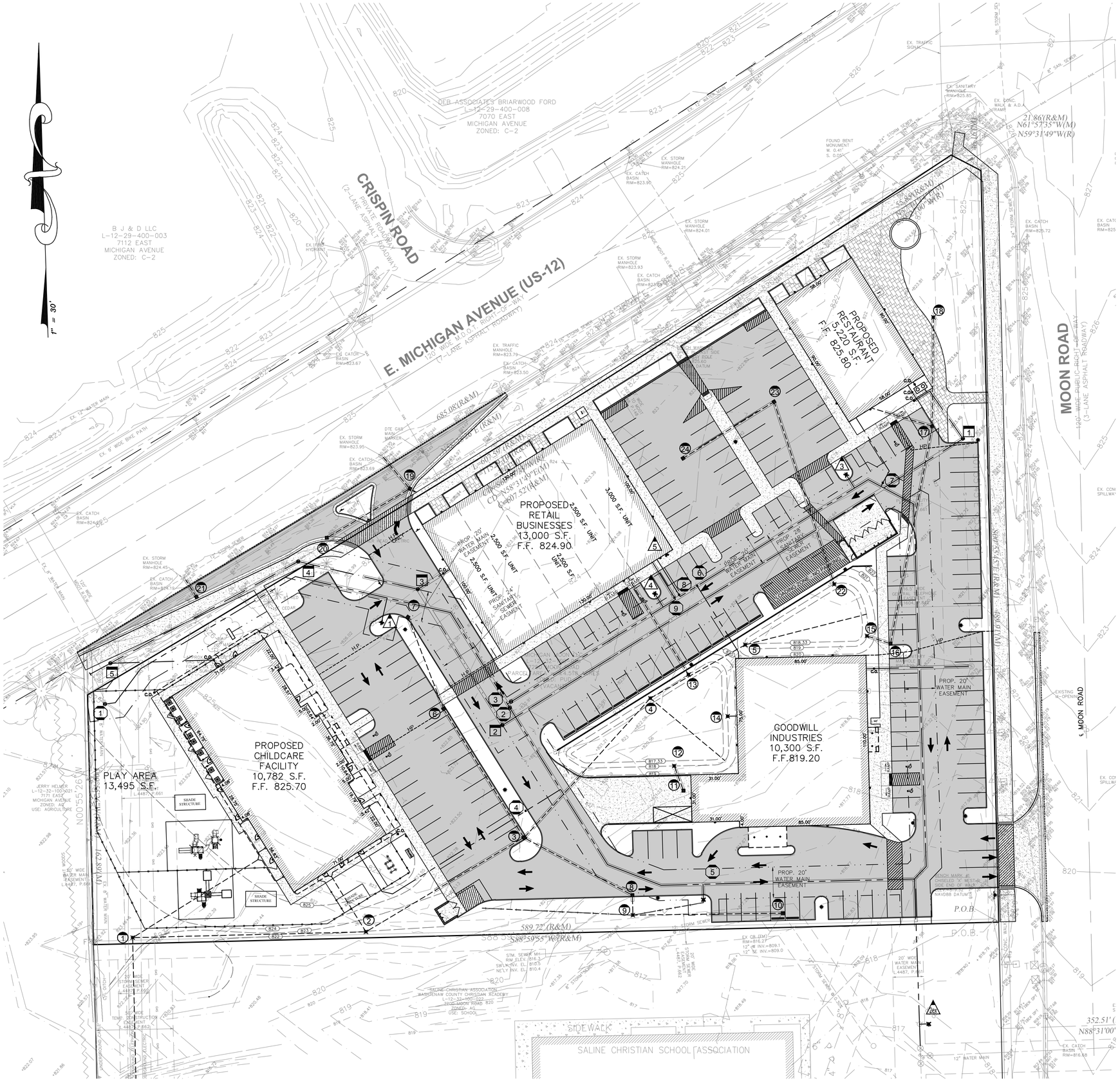

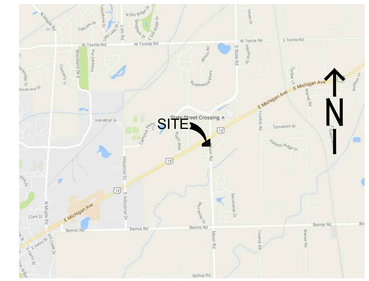

LOCATION MAP

N.T.S.

STRUCTURE SCHEDULE

STORM SEWER

1. PROP. 5' DIA. R.Y.C.B. W/ 2' SUMP RIM 823.30
2. PROP. 4' DIA. R.Y.C.B. W/ 2' SUMP RIM 822.00
3. PROP. 5' DIA. C.B. W/ 2' SUMP RIM 820.80
4. PROP. 4' DIA. OVERFLOW STRUCTURE RIM 818.00
5. PROP. 4' DIA. OVERFLOW STRUCTURE RIM 819.00
6. PROP. 4' DIA. C.B. W/ 2' SUMP RIM 823.70
7. PROP. 4' DIA. C.B. W/ 2' SUMP RIM 823.00
8. PROP. 4' DIA. C.B. W/ 2' SUMP RIM 817.20
9. PROP. 4' DIA. R.Y.C.B. W/ 2' SUMP RIM 817.00
10. EX. C.B. REPLACE COVER W/ EJIW 1040 TYPE "M" RIM 816.27'
11. PROP. 4' DIA. C.B. W/ 2' SUMP RIM 815.00
12. PROP. 2' DIA. INLET RIM 818.00
13. PROP. 2' DIA. INLET RIM 818.00
14. PROP. 2' DIA. INLET RIM 818.00
15. PROP. 2' DIA. INLET RIM 819.00
16. PROP. 4' DIA. C.B. W/ 2' SUMP RIM 819.70
17. PROP. 4' DIA. C.B. W/ 2' SUMP RIM 824.80
18. PROP. 2' DIA. R.Y.C.B. W/ 2' SUMP RIM 825.10 INV S 822.10
19. PROP. 4' DIA. C.B. W/ 2' SUMP RIM 823.35
20. PROP. 4' DIA. C.B. W/ 2' SUMP RIM 823.55
21. PROP. 4' DIA. C.B. W/ 2' SUMP RIM 823.95
22. PROP. 2' DIA. INLET RIM 819.00
23. PROP. 4' DIA. C.B. W/ 2' SUMP RIM 823.70
24. PROP. 2' DIA. C.B. W/ 2' SUMP RIM 823.70
25. PROP. 4' DIA. M.H. RIM 817.50
26. PROP. 4' DIA. M.H. RIM 817.30
27. PROP. 4' DIA. M.H. RIM 810.50
28. PROP. 4' DIA. M.H. RIM 807.20
29. PROP. 4' DIA. M.H. RIM 808.00
30. PROP. END SECTION 24" INV E 804.00

WATER MAIN

1. 8" T.S. W/ GATE VALVE IN WELL
2. 8" GATE VALVE IN WELL
3. 8" GATE VALVE IN WELL
4. 2" STOP VALVE IN BOX
5. 4" STOP VALVE IN BOX
6. 2" STOP VALVE IN BOX
7. 2" STOP VALVE IN BOX
8. 2" STOP VALVE IN BOX
9. 4" STOP VALVE IN BOX

1. PROP. 6" HYDRANT ASS.
2. RELOCATE EX. HYDRANT ASSEMBLY & ATTACH PROP. 8" W.M. TO EX. G.V.
3. PROP. 6" FIRE HYDRANT ASSEMBLY
4. PROP. 6" FIRE HYDRANT ASSEMBLY
5. PROP. WALL MOUNTED F.D.C.

SANTIARY SEWER

1. PROP. 4' M.H. OVER EX. 8" EX. SAN. SEWER RIM 825.35 EX. 8" INV N&S 810.48 PROP. 10" IN 815.80
2. PROP. 4' DIA. M.H. RIM 822.50 PROP. 10" E INV 816.78 PROP. 10" N INV 816.88
3. PROP. 4' DIA. M.H. RIM 823.18 PROP. 10" S INV 817.17 PROP. 10" NW INV 817.27
4. PROP. 4' DIA. M.H. RIM 824.45 PROP. 10" SE INV 817.49 PROP. 10" W INV 817.59
5. PROP. 4' DIA. M.H. RIM 825.00 PROP. 10" E&W INV 817.98

Engineering

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SEAL

SHEET

Utility Plan

PROJECT LOCATION

Michigan Ave. & Moon Rd.,
Pittsfield Township,
Washtenaw County, MI

811 Know what's below Call before you dig.

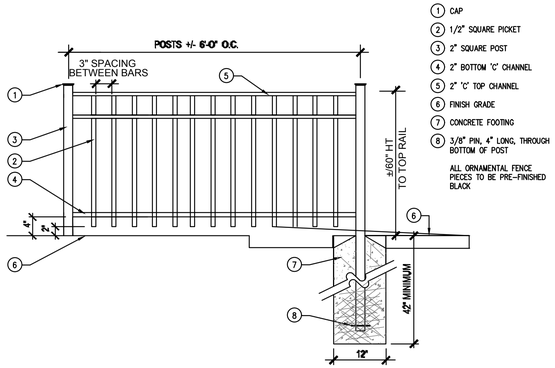
REVISIONS

Date	Description
11-30-2018	REV. PER STORM WATER ENGINEER
10-16-2018	SITE PLAN REV. PER PLANNING COMMISION
08-08-2018	SITE PLAN APPROVAL
03-12-2018	SITE PLAN SUBMITTAL
11-09-2017	PRELIMINARY REVIEW

Designed by:	Drawn by:
A.O.	S.D.M.
Approved by:	**Date:**
A.O.	10-26-2017

Scale: 1" = 30'

Job No.:	Sheet:
1094	SP-6



5' ALUMINUM FENCE DETAIL

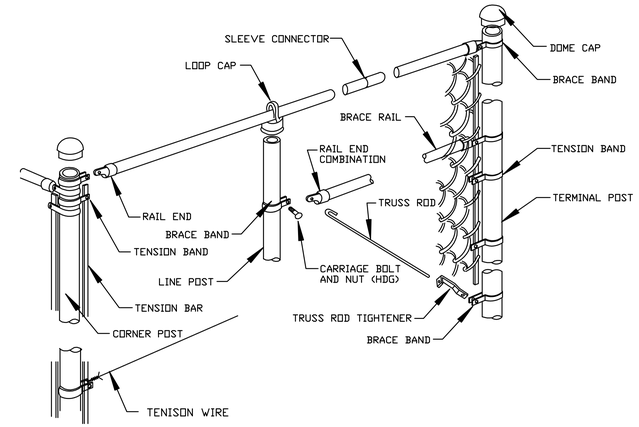
NOT TO SCALE

BLACK VINYL COATED FENCE & GATE DETAIL

SCALE: 1" = 5'

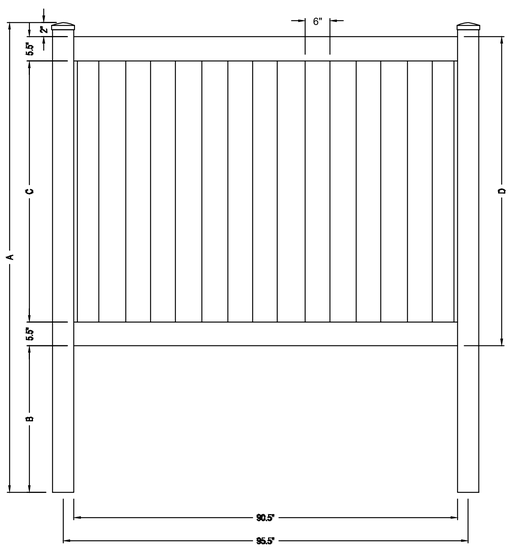
NOTE:

1. THE FENCE DEPICTED IN THIS DETAIL IS TO BE 5' HIGH IN PERIMETER AREAS AND 4' HIGH IN INTERIOR PLAY YARD AREAS.
2. LATCH TYPE: MAGNA LATCH.
3. BOLTS CANNOT BE MORE THAN 1/2" PAST NUTS.
4. NO GAPS LARGER THAN 3" IN FENCING & GATES.
5. IF ORNAMENTAL STEEL FENCE IS REQUIRED BY CITY OR OTHER REGULATORY ENTITY, FENCE SHALL BE POWDER COATED.



TYPICAL FENCE SECTION

TOP RAIL / TRUSSED BRACE RAIL WITH BOTTOM TENSION WIRE DETAILS



FRONT ELEVATION

A		B		C		D	
H(FT)	INCHES	H(FT)	INCHES	H(FT)	INCHES	H(FT)	INCHES
3	60	3	22	3	25	3	36
4	84	4	34	4	37	4	48
5	96	5	34	5	49	5	60
6	108	6	34	6	61	6	72

6' VINYL PRIVACY FENCE DETAIL

NOT TO SCALE

Engineering

Orman Engineering, LLC
5476 Vivian Lane
Waterford, MI 48327
P: 248.682.6001
E: alex@ormanengineering.com

PROJECT

814 Development

City of Pittsfield,
Washtenaw County, MI

CLIENT

Rainbow Rascals MI - Pittsfield LLC
3221 W. Big Beaver Rd.
Ste. 111
Troy, Michigan 48084

Contact: Reed Fenton
phone: 248-817-1522

SEAL

SHEET

SITE DETAILS

PROJECT LOCATION

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Date	Description
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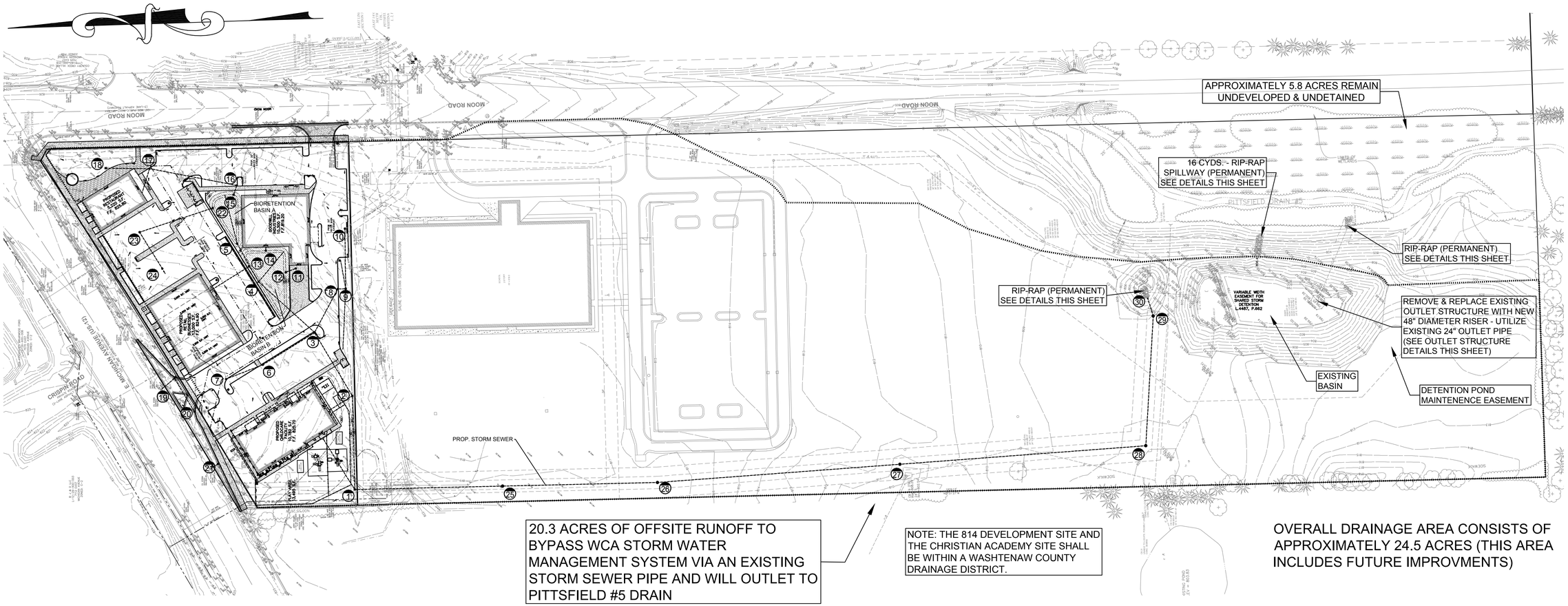
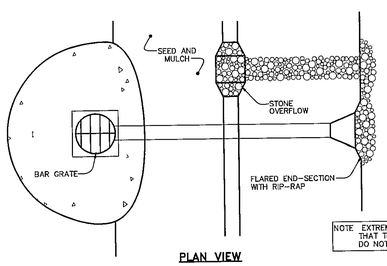
10-16-2018	SITE PLAN REV. PER PLANNING COMMISION
08-08-2018	SITE PLAN APPROVAL
03-12-2018	SITE PLAN SUBMITTAL

Designed by:	Drawn by:
A.O.	S.D.M.
Approved by:	**Date:**
A.O.	09-06-2016

Scale:
1" = 30'

Job No.:	Sheet:
1094	SP-7

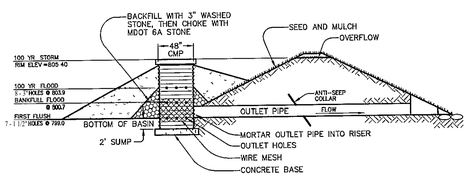




PLAN VIEW

NOTE EXTREME CARE MUST BE EXERCISED TO INSURE THAT THE OUTLET HOLES IN THE STANDPIPE DO NOT BECOME CLOGGED WITH SEDIMENT

PERFORATED RISER
NO SCALE



PROFILE VIEW

STORM WATER DRAINAGE NARRATIVE

Site Location

The proposed site consists of approximately 4.518 acres in Pittsfield Township. The property is located at the Southwest corner of the Michigan Avenue / Moon Road intersection.

Existing Drainage

The topography survey indicates the highest existing site elevation on the subject property lies along the North property boundary near Michigan Ave. Refer to the Existing Conditions Plan. From this high point the grade falls from Northwest to Southeast. The elevations on teh site range from 827 at the Northwest corner to 816 at the Southeast corner (NAVD 88). A vast majority of the existing site drains to an existing sotrm structure located on teh Washtenaw Christian Academy property. The runoff is then conveyed through the WCA storm sewer network to a regional detention basin which utlimately outlets to Pittsfield Drain #5.

Proposed Drainage

The proposed project will convey storm runoff to 2 different locations. Runoff from the site will be collected and conveyed to the existing WCA regional detention basin via the proposed storm sewer system. The proposed storm sewer conveyance system will be designed and constructed in accordance with local and county requirements. The proposed storm sewer will access the existing regional detention basin by way of existing 20 ft. wide easement along the West side of the WCA property.

The WCA regional detention basin currently provide approximately 200,000 c.f. of storage The current WCA site and the proposed 814 development site will only require a combined total volume of approximately 150,000 c.f. of storage. Therefore, no additional grading is necessary to expand the existing regional detention basin. Refer to the Storm Water Management Plan.

The easement agreement for storm sewer and shared detention pond established between Saline Christian School Association and Michigan Moon LLC, recorded on 06/24/2005 as Liber 4487, Page 662, maintenance of the storm sewer and detention facility will be the shared responsibility of the parcel owners.

Test Pit Log

McDowell & Associates

Test Pit #: 3

Job Number: 16-144
Project: East Michigan Ave. & Moon Rd.
Location: Pittsfield Twp., Washtenaw County, MI

Date: 5/17/2016
Weather: Cloudy T~55°
Ground Elv.: N/A

Soil Stratigraphy:

0" - 5" Moist dark brown clayey topsoil
5" - 5'10" Moist brown silty clay with traces of sand and gravel
5'10" - 9'4" Moist brown medium sand with traces of silt and clay

Groundwater Depth: Not Encountered
Groundwater Volume:

Pipe Installation #1

Soil Depth: 6'3"
Inner Pipe Dia.: 6"
Outer Pipe Dia. 10"
Embedment: 2"
Stick-up: 5"

Pipe Installation #2

Soil Depth: 6'3"
Inner Pipe Dia.: 6"
Outer Pipe Dia. 10"
Embedment: 2"
Stick-up: 5"

Pipe Distance: 3'1"

Soak Period (Pipe #1)

Start Date: 5/17/2016 Start Time: 8:45 AM
Notes: Started with pipes full (0" of Water Drop)
Time: 1 min 21 sec Water Drop: 4.00 inches
Notes: Refilled pipes
Time: 1 min 23 sec Water Drop: 4.00 inches
Notes: Refilled pipes

Soak Period (Pipe #2)

Start Date: 5/17/2016 Start Time: 8:45 AM
Notes: Started with pipes full (0" of Water Drop)
Time: 5 min 5 sec Water Drop: 4.00 inches
Notes: Refilled pipes
Time: 5 min 20 sec Water Drop: 4.00 inches
Notes: Refilled pipes

Test Period (Pipe #1)

Time: 1 min 25 sec Water Drop: 4.00 inches
Notes: Refilled pipes
Time: 1 min 25 sec Water Drop: 4.00 inches
Notes: Refilled pipes
Time: 1 min 26 sec Water Drop: 4.00 inches
Notes: Refilled pipes
Time: 1 min 25 sec Water Drop: 4.00 inches
Notes: Refilled pipes
Time: 1 min 26 sec Water Drop: 4.00 inches
Notes:

Average Time for 4" of Water Drop: 1 min 25 sec
Notes:

Test Period (Pipe #2)

Time: 5 min 19 sec Water Drop: 4.00 inches
Notes: Refilled pipes
Time: 5 min 23 sec Water Drop: 4.00 inches
Notes: Refilled pipes
Time: 5 min 26 sec Water Drop: 4.00 inches
Notes: Refilled pipes
Time: 5 min 30 sec Water Drop: 4.00 inches
Notes: Refilled pipes
Time: 5 min 28 sec Water Drop: 4.00 inches
Notes:

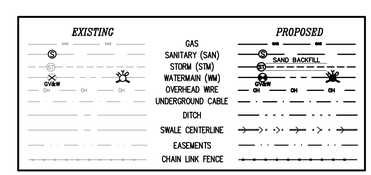
Average Time for 4" of Water Drop: 5 min 25 sec
Notes:

McDowell & Associates

16-144
E Michigan Ave. & Moon Rd.
Pittsfield Twp., Washtenaw County, Michigan

Infiltration Rate Computations

Test Pit No.	Infiltrometer #1: Average Percolation (inches)	Percolation Time (Minutes)	Average Percolation Rate (inches/hour)	Test Pit No.	Infiltrometer #2: Average Percolation (inches)	Percolation Time (Minutes)	Average Percolation Rate (inches/hour)	Combined Average per Test Pit (in/hr)
1	0.06	30	0.1	1	0.06	30	0.1	0.1
2	0.02	30	0.0	2	0.08	30	0.2	0.1
3	4.00	1.42	169.0	3	4.00	5.42	44.3	106.6
4	4.00	0.42	571.4	4	4.00	0.50	480.0	525.7
5	4.00	0.45	533.3	5	4.00	0.62	387.1	460.2
6	0.06	30	0.1	6	0.03	30	0.1	0.1



Orman Engineering

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3221 W. Big Beaver Rd.
Ste. 111
Troy, Michigan 48084

Contact: Reed Fenton
phone: 248-817-1522

SEAL

SHEET

STORM WATER MANAGMENT PLAN

PROJECT LOCATION

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REVISIONS

Date	Description
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Designed by:	Drawn by:
A.O.	S.D.M.
Approved by:	**Date:**
A.O.	09-06-2016
Scale:	
1" = 30'	
Job No.:	**Sheet:**
1094	SP-8

Total Existing Flow to Washtenaw County Storm Sewer- 100 Year Storm Event

Determine Existing Site Runoff Coefficient:

Existing Land Use	Runoff Coefficient	Drainage Area	
Pavement	0.95	2.837	Acres
Building	0.95	1.277	Acres
Detention Pond	1.00	0.689	Acres
Landscape/ Open Space	0.35	19.640	Acres
Total Acreage:		**24.443**	**Acres**
Weighted Runoff Coefficient "C" Factor =		**0.469**	

Total Existing Runoff Calculation-Washtenaw County Method-100 Year Event

FORMULA:

Q = C x I x A I = 275 / (T + 25) T = 20 Minutes

Contributing Acreage, A =	**24.443**	**Acres**
Runoff Coefficient, C =	**0.469**	**Imperviousness**
Intensity, I =	**6.111**	**In/Hour**
Existing Discharge, Q =	**70.102**	**CFS**

Proposed Flow From 814 Site to Washtenaw County Storm System-100 Event

Determine Proposed Site Runoff Coefficient:

Proposed Land Use	Runoff Coefficient	Drainage Area	
Pavement	0.95	2.076	Acres
Building	0.95	0.973	Acres
Landscape/ Open Space	0.25	1.469	Acres
Total Acreage:		**4.518**	**Acres**
Weighted Runoff Coefficient "C" Factor =		**0.722**	

Detention Volume Calculations:

FORMULA:

Qo = Qa / (A x C) Vs = (16,500 x T)/(T + 25) - (40 x Qo x T)

T = -25 + (10,312.5 / Qo)^0.5 Vt = Vs x A x C

Contributing Acreage:	**4.518**	**Acres**
Allowable Discharge Rate:	**0.150**	**CFS / Acre**
Allowable Outflow, Qo.:	**0.678**	**CFS**
Runoff Coefficient, C:	**0.722**	**Imperviousness**
Maximum Allowable Outflow, Qo:	**0.208**	**CFS / (Acre * Imperv.)**
Ts Storage Time (100 Year):	**197.856**	**Minutes**
Vs Storage Volume (100 Year):	**13,005.71**	**CFS / (Acre * Imperv.)**
Vt Total Volume (100 Year):	**42,448.02**	**Cubic Feet**
Volume Required:	**42,448**	**Cubic Feet**

Existing Flow From WCA Site to Washtenaw County Storm System-100 Event

Determine Existing Site Runoff Coefficient:

Existing Land Use	Runoff Coefficient	Drainage Area	
Pavement	0.95	2.837	Acres
Building	0.95	1.277	Acres
Detention Pond	1.00	0.689	Acres
Landscape/ Open Space	0.35	15.122	Acres
Total Acreage:		**19.925**	**Acres**
Weighted Runoff Coefficient "C" Factor =		**0.496**	

Proposed Detention For WCA Site to Washtenaw County Method-100 Year Event

FORMULA:

Qo = Qa / (A x C) Vs = (16,500 x T)/(T + 25) - (40 x Qo x T)

T = -25 + (10,312.5 / Qo)^0.5 Vt = Vs x A x C

Contributing Acreage:	**19.925**	**Acres**
Allowable Discharge Rate:	**0.150**	**CFS / Acre**
Allowable Outflow, Qo.:	**2.989**	**CFS**
Runoff Coefficient, C:	**0.496**	**Imperviousness**
Maximum Allowable Outflow, Qo:	**0.302**	**CFS / (Acre * Imperv.)**
Ts Storage Time (100 Year):	**159.729**	**Minutes**
Vs Storage Volume (100 Year):	**12,336.20**	**CFS / (Acre * Imperv.)**
Vt Total Volume (100 Year):	**122,005.0**	**Cubic Feet**
Volume Required:	**122,005**	**Cubic Feet**

Existing Storage Volume Provided (As-Built):

Sediment Volume Provided:

Elevation	Area	Avg. Area	Depth	Volume
807.00	4,661			
		3,989	1.00	3,989
806.00	3,318			
		2,747	1.00	2,747
805.00	2,177			
		1,717	1.00	1,717
804.00	1,257			
		851	1.00	851
803.00	445			
		Total Sediment Volume:		**9,304 CF**

Basin Volume Provided:

Elevation	Area	Avg. Area	Depth	Volume
806.40	44,443			
		41,517	0.40	16,604
806.00	38,592			
		36,603	1.00	36,603
805.00	34,614			
		32,680	1.00	32,680
804.00	30,746			
		28,886	1.00	28,886
803.00	27,026			
		25,257	1.00	25,257
802.00	23,488			
		21,777	1.00	21,777
801.00	20,066			
		17,951	1.00	17,951
800.00	15,835			
		10,852	1.00	10,852
799.00	5,868			
		Total Basin Volume:		**190,610 CF**

Total Existing Detention Pond Volume:	**199,914**	**CF**
Extra Detention Pond Volume Available:	**35,451**	**CF**

Existing Vs. Runoff Rate Summary

Existing Discharge to Existing Detention Pond:	**70.102**	**CFS**
Total Required On-Site Detention Volume:	**164,453**	**CF**

Detention Storage Elevations - Washtenaw County Method -100 Year Event

Outlet Elevation:	**799.00**	**Feet**
First Flush Elevation:	**800.70**	**Feet**
Bank Full Elevation:	**803.90**	**Feet**
100-Year Storage Elevation:	**805.40**	**Feet**

Outlet Control Structure - Washtenaw County Method - 100 Year Storm Event

First Flush Runoff:

FORMULA: a = (Qff) / ((0.62)(2 x g x have)^0.5)

Qff = Vol.ff / T24 g = 32.2 ft/sec Vol.ff = 3630 x A x Cave

have = (2/3)(elev.ff - elev.bot) Tff = Vff / Qff

Weighted Runoff Coefficient "Cave" Factor:	**0.5381**	**CFS**
Allowable Release Rate, Qff:	**0.5526**	**CFS**
Average Head, have:	**1.1333**	**Feet**
Orifice Area Required, ar	**0.1043**	**Square Feet**
Area of 1-1/2" Dia. Hole:	**0.0123**	**Square Feet**
Calculated # of 1-1/2" Dia. Holes Required:	**8.51**	**Holes**
Provided # of 1-1/2" Dia. Holes:	**7.00**	**Holes**
Elevation of 1-1/2" Dia. Holes:	**799.00**	**Feet**
Calculated First Flush Release Rate: Qff act:	**0.4546**	**CFS**
Calculated Detention Time, Tff new:	**27.98**	**Hours >24 hours**

Bank Full Flood:

FORMULA:

Qbf = 0.62 x (#orif)(Aact.orif) x (2 x g x hbfave)^0.5 g = 32.2 ft/sec

hbfave = (2/3)(elev.bf - elev.bot) T = Vbf / Qbf

Average Head, have:	**3.267**	**Feet**
Discharge - First Flush Hole(s), Qbf:	**0.7717**	**CFS**
Detention Time - First Flush Hole(s), Tbf:	**40.38**	**Hours**

***Additional holes not required at FF Elevation - Detention time is between 36 and 48 Hours.**

100 Year Flood:

FORMULA:

Qff + Qbf = (0.62 * Aff)*((2 * g * htot)^0.5) + (0.62 * Abf)*((2 * g * hbf/tot)^0.5)

Q100 = Qa - (Qff + Qbf)

A100 = Q100 / ((0.62(2 * g * h100)^0.5))

Allowable Release Rate Qa:	**3.6665**	**CFS**
Qff + Qbf:	**1.0802**	**CFS**
Discharge - 100 Year Storm, Q100:	**2.5862**	**CFS**
Orifice Area Required, A100:	**0.4244**	**SF**
Area of 3" Dia. Hole:	**0.0491**	**SF**
Calculated # of 3" Holes Required	**8.64**	**Holes**
Provided # of 3" Holes=	**8**	**Holes**
Elevation of 3" Dia. Hole:	**803.90**	**Feet**

Allowable Flow Rate Check:

FORMULA:

Total Discharge = Qff + Qbf + Q100

Qff + Qbf = (0.62 * Aff)*((2 * g * htot)^0.5) + (0.62 * Abf)*((2 * g * hbf/tot)^0.5)

Q100 = (0.62*A100)((2 * g * h100)^0.5)

Actual FF and BF Discharge (Qff + Qbf)	**1.0802**	**CFS**
Discharge Through BF at 100 Yr Storage	**2.3936**	**CFS**
Total Actual Release Rate, Qactual*	**3.4738**	**CFS**

***The actual release rate during the 100-year storm is less than the allowable release rate.**

Dischrge Time Check:

FORMULA:

Hall = (2/3)*(elev.100-elev.bf)+(elev.bf-elev.bot)

H100 = (2/3)*(elev.100-elev.bf)

Vrem = V100-Vbf

Trem = (Vrem) / (Qall+Q100,ave)

T100 = Tbf + Trem

Average Head, Hall	**5.90**	**Feet**
Qall	**1.0372**	**CFS**
Average Head, H100	**1.00**	**Feet**
Q100,Ave	**1.4242**	**CFS**
Vrem	**-112179**	**CF**
Trem	**-12.6599**	**Hours**
Tbf	**40.38**	**Hours**
T100*	**27.72**	**Hours**

***The actual total 100-year discharge time is less than the 72 hour maximum.**

814 DEVELOPMENT
STORM WATER DETENTION CALCULATIONS

DETENTION BASIN DESIGN
WASHTENAW COUNTY METHOD

POST DEVELOPMENT
PART E
W1 (Post Development)

Cover	Soil Type	Area (sf)	Area (ac)	Runoff Coefficient	CxA
PAVING	NA	90,452.00	2.076	0.95	1.973
BUILDING	NA	42,382.00	0.973	0.95	0.924
Green Space*	MmB/MmC	63,990.00	1.469	0.25	0.367
				Total CxA	3.264
				Total Site Area	4.518
				Weighted C	0.722

Cover	Soil Type	Area (sf)	Area (ac)	CN	CNxA
PAVING	NA	90,452.00	2.076	98	203.496
BUILDING	NA	42,382.00	0.973	98	95.350
Green Space*	MmB/MmC	63,990.00	1.469	61	89.610
				Total CNxA	388.456
				Total Site Area	4.518 (Area to be stored)
				Weighted CN	85.97

*Soil types MmB and MmC exist on site per the USDA web soil survey. Both soil types belong to Hydrologic Soil Group B, and typically exist and/or are proposed at slopes exceeding <4%.

PRE- DEVELOPMENT
PART E
W1(Pre-Development)

Cover	Soil Type	Area (sf)	Area (ac)	Runoff Coefficient	CxA
PAVING	NA	0.00	0.000	0.95	0.000
BUILDING	NA	0.00	0.000	0.95	0.000
Green Space*	BbB/MoB/MoC	196,804.00	4.518	0.35	1.581
				Total CxA	1.581
				Total Site Area	4.518
				Weighted C	0.350

Cover	Soil Type	Area (sf)	Area (ac)	CN	CNxA
PAVING	NA	0.00	0.000	98	0.000
BUILDING	NA	0.00	0.000	98	0.000
Green Space*	BbB/MoB/MoC	196,804.00	4.518	74	334.332
				Total CNxA	334.332
				Total Site Area	4.518 (Total existing site)
				Weighted CN	74.00

*Soil types BbB/MoB/MoC exist on site per the USDA web soil survey. All three soil types belong to Hydrologic Soil Group C, and typically exist and/or are proposed at slopes exceeding 4%-8%

W2
First Flush Volume (First 1" of rain over entire watershed)
Vff = (1 in)*(1 ft/12 in)*(43560 ft^2 / 1 acre) *A*C
Vff = 11,849.15 cf

W3-PRE-DEVELOPMENT-Bankfull
P= 2.35 in
CN= 71.00
S= 1000/CN-10
S= 4.085 in
Q= (P-0.2*S)^2/(P+0.8*S)
Q= 0.418 in
A= 196,824.000 Total Site Area Excluding Self Crediting BMP SF
Vbf-pre = Q(1/12)Area
Vbf-pre = 6862.55 cf

W4-Pervious Post-Development-Bankfull
P= 2.35 in
CN (Pervious)= 61
S= 1000/CN-10
S= 6.393 in
Q= (P-0.2*S)^2/(P+0.8*S)
Q= 0.154 in
A= 63,990.000 Pervious Cover Area Post Dev. SF
Vbf-per-post = Q(1/12)Area
Vbf-per-post = 819.874 cf

W5-Impervious Post-Development-Bankfull
P= 2.35 in
CN(Impervious)= 98
S= 1000/CN-10
S= 0.204 in
Q= (P-.2*S)^2/(P+0.8*S)
Q= 2.122 in
A= 132,834.000 Impervious Cover Area Post Dev. SF
Vbf-imp-post = Q(1/12)Area
Vbf-imp-post = 23485.869 cf

W6-Pervious Post-Development-100 Year
P100= 5.11 in
CN (Pervious)= 61
S= 1000/CN-10
S= 6.393 in
Q= (P-0.2*S)^2/(P+0.8*S)
Q= 1.436 in
A= 63,990.000 Pervious Cover Area Post Dev. SF
V100-per-post Q(1/12)Area
V100-per-post = 7655.489 cf

W7-Impervious Post-Development-100 Year
P100= 5.11 in
CN(Impervious)= 98
S= 1000/CN-10
S= 0.204 in
Q= (P-.2*S)^2/(P+0.8*S)
Q= 4.873 in
A= 132,834.000 Pervious Cover Area Post Dev. SF
V100-imp-post = Q(1/12)Area
V100-imp-post = 53941.676 cf

W8 Time of Concentration

Flow Type	K	Delta Elev.	L	Slope (%) (S)	S^.5	V=K(S^(1/2)	Tc-hrs =L/(V*3600)
Sheet Flow	0.48	3	300	1	1.000	0.480	0.17

W9 Runoff Summary
Vff = 11,849.15 cf
Vbf-pre = 6862.553 cf
Vbf-per-post = 819.874 cf
Vbf-imp-post = 23485.869 cf
V100-per-post = 7655.489 cf
V100-imp-post = 53941.676 cf

Total BF Volume (Vbf-post) 24305.742 cf
Total 100 Year Volume 61597.165 cf

Total BF Volume (Vbf-post) 24305.742 cf
Total BF Volume (Vbf-pre) 6862.553 cf
Bankfull Volume Difference 17443.189

Bankfull Volume Difference 17443.189 cf
Onsite Infiltration Req. 17443.189 cf (Greater Bankfull Volume Difference OR First Flush Volume)

W10 Detention /Retention Requirements
Qp= 238.6*Tc^0-.82
Qp= 1002.806 cfs/in-mi^2
AreaTotal= 4.518
Q100= Q100per+Q100-imp
Q100= 6.309
Peak Flow (PF)= Qp*Q100*A/640
PF= 44.664 cfs
Delta= pf- 15*Area
Delta= 43.987 cfs
Vdet= Delta/pf*V100
Vdet= 60662.448 cfs

W11 Applicable BMP's-INFILTRATION BASIN *6 hr. period

Bio-retention Basin A

Infiltration Area=	1838 sf	Average Area Betweet 819.00 and 818.33
Surface Storage Volume=	1231 cf	8" Ponded Water Depth
Soil Storage Volume =	649 cf	30% Void Ratio, Area 2160 SF
Bed Bottom Area=	1515 sf	
Ave.Design Infiltration Rate=	10 in/hr	
Infiltration Volume During Storm=	7575 cf	
Total Volume Reduction=	9454 cf	

Bio-retention Basin B

Infiltration Area=	3947 sf	Average Area Betweet 818.00 and 817.33
Surface Storage Volume=	2644 cf	8" Ponded Water Depth
Soil Storage Volume =	1325	30% Void Ratio, Area 4418 SF
Bed Bottom Area=	3476 sf	
Ave.Design Infiltration Rate=	10 in/hr	
Infiltration Volume During Storm=	17380 cf	
Total Volume Reduction=	20024 cf	

Total Bio-Retention System Reduction= 29479 cf

W13 SITE SUMMARY OF INFILTRATION & DETENTION
Vinf= 17443 cf
Total Volume Reduction= 29479 cf
% Min. Req. Inf. Provided= -69 %
Vdet= 60662 cf
Net Req. Detention= 31184 cf
%Req. Inf. Not Provided= 169 %
Net % Penalty= 33.8 %
Total Req. Detention= 41724 cf

Available storage volume in the existin Detention Pond = 77,909 cf

Engineering

Orman Engineering, LLC
5476 Vivian Lane
Waterford, MI 48327
P: 248.682.6001
E: alex@ormanengineering.com

PROJECT
814 Development

City of Pittsfield,
Washtenaw County, MI

CLIENT
Rainbow Rascals MI -
Pittsfield LLC
3221 W. Big Beaver Rd.
Ste. 111
Troy, Michigan 48084

Contact: Reed Fenton
phone: 248-817-1522

SEAL

SHEET
STORM WATER MANAGEMENT CALCULATIONS

PROJECT LOCATION

Know what's **below**
Call before you dig.

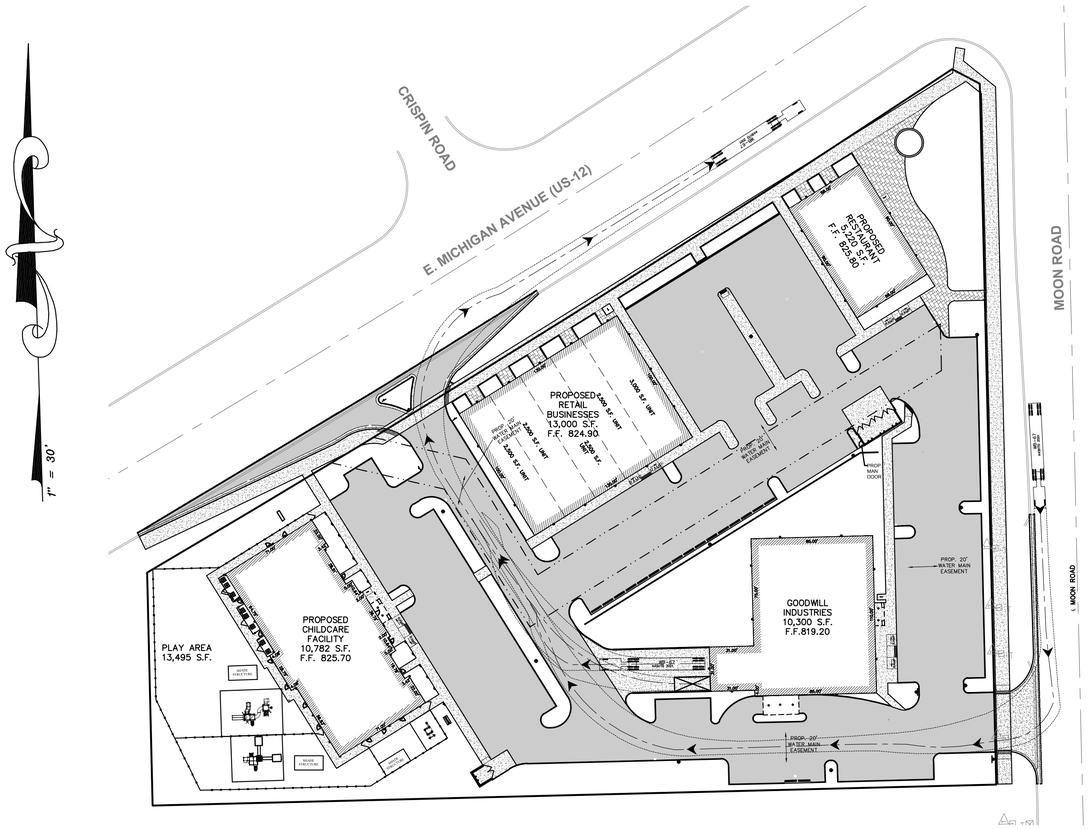
REVISIONS

Date	Description
11-30-2018	REV. PER STORM WATER ENGINEER
10-16-2018	SITE PLAN REV. PER PLANNING COMMISION
08-08-2018	SITE PLAN APPROVAL
03-12-2018	SITE PLAN SUBMITTAL

Designed by:	Drawn by:
A.O.	S.D.M.
Approved by:	**Date:**
A.O.	09-06-2016

Scale:
1" = 30'

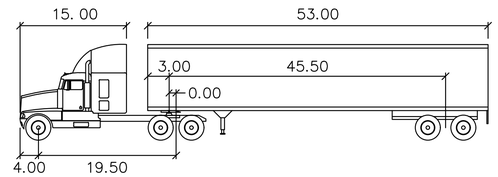
Job No.:	Sheet:
1094	SP-9



TRUCK ROUTE LEGEND

DELIVERY TRUCK ROUTE W/ DIRECTION INDICATOR

DUMPSTER TRUCK ROUTE W/ DIRECTION INDICATOR



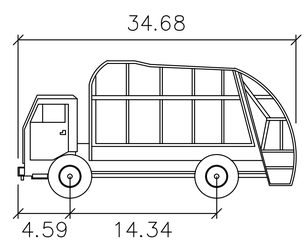
WB−67 feet

Tractor Width	:8.00	Lock to Lock Time	:6.0
Trailer Width	:8.50	Steering Angle	:28.4
Tractor Track	:8.00	Articulating Angle	:75.0
Trailer Track	:8.50		

DELIVERY TRUCK WITH 53' SEMI TRAILER

NOT TO SCALE

WB−67 AASHTO 2001 — TRUCK TEMPLATE USED



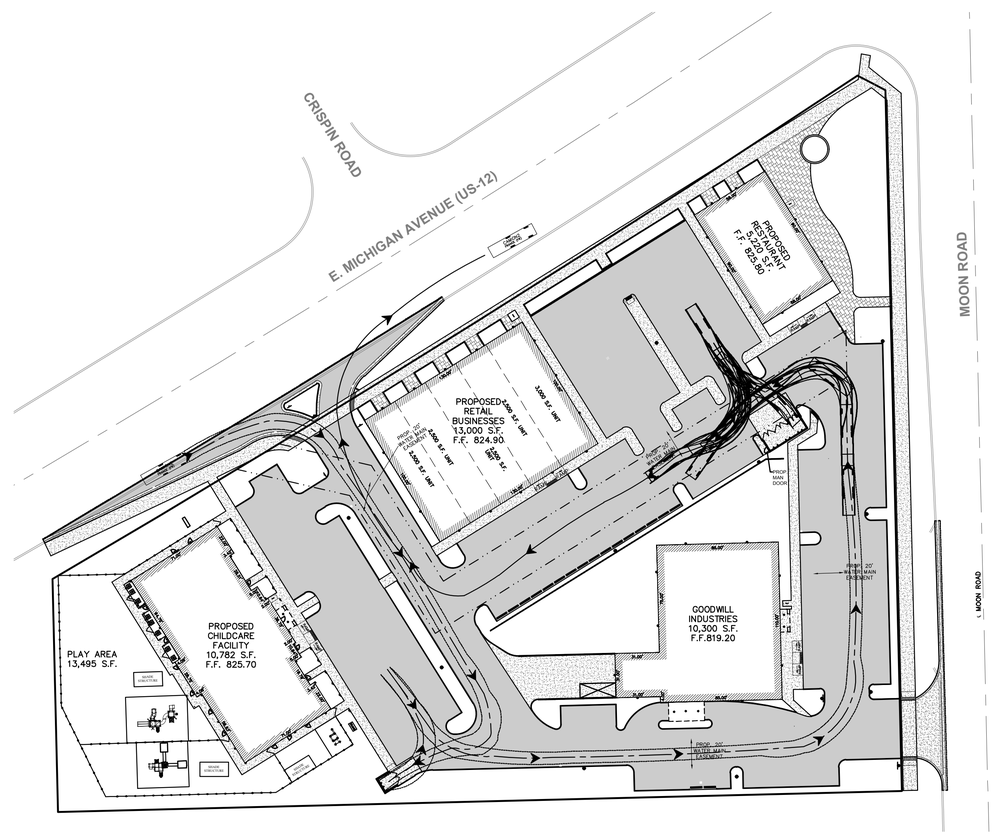
CAMION2 feet

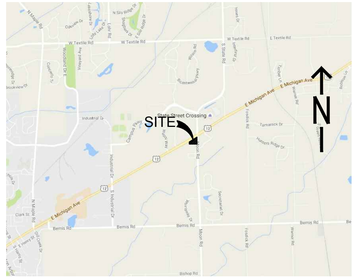
Width	:8.20
Track	:7.84
Lock to Lock Time	:6.0
Steering Angle	:41.8

DUMPSTER TRUCK

NOT TO SCALE

CAMION2 AASHTO 2001 — TRUCK TEMPLATE USED





LOCATION MAP

N.T.S.

Engineering

Orman Engineering, LLC
5476 Vivian Lane
Waterford, MI 48327
P: 248.682.6001
E: alex@ormanengineering.com

PROJECT

814 Development

Township of Pittsfield,
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3221 W. Big Beaver Rd.
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Troy, Michigan 48084

Contact: Reed Fenton
phone: 248-817-1522

SEAL

SHEET

TRUCK ROUTE PLAN

PROJECT LOCATION

Michigan Ave. & Moon Rd.,
Pittsfield Township,
Washtenaw County, MI

811 Know what's below Call before you dig.

REVISIONS

Date	Description
11-30-2018	REV. PER STORM WATER ENGINEER
10-16-2018	SITE PLAN REV. PER PLANNING COMMISION
08-08-2018	SITE PLAN APPROVAL
03-12-2018	SITE PLAN SUBMITTAL
11-09-2017	PRELIMINARY REVIEW

Designed by:	Drawn by:
A.O.	S.D.M.
Approved by:	**Date:**
A.O.	10-26-2017

Scale: 1" = 50'

Job No.:	Sheet:
1094	SP-10

Long Term Storm water Maintenace Plan

TO BE PERFORMED BY OWNER OR OWNER'S REP

TASKS	PAVED AREAS	DITCHES & SWALES	PERVIOUS AREAS	RIP-RAP	INFILTRATION BASINS	CATCH BASIN SUMPS	CATCH BASIN INLET CASTING	PERFORATED RISER	SEDIMENT FOREBAY	DETENTION AREAS	EMERGENCY OVERFLOW	SCHEDULE	ANNUAL COST REQUIRED TO PAY BY OWNER
INSPECTION OF INFILTRATION BASIN					X							FOLLOWING STORMS 1" OR MORE	$100.00
INSPECT FOR SEDIMENT ACCUMULATION		X		X	X	X			X	X		ANNUALLY	$100.00
REMOVAL OF SEDIMENT ACCUMULATION		X		X	X	X			X	X		EVERY 2 YEARS/AS NEEDED*	$500.00
INSPECT FOR FLOATABLES AND DEBRIS		X			X	X	X	X	X	X		ANNUALLY	$100.00
CLEANING FOR FLOATABLES AND DEBRIS		X			X	X	X	X	X	X		ANNUALLY	$150.00
INSPECTION FOR EROSION		X	X	X	X				X	X	X	ANNUALLY	$100.00
REESTABLISH PERMANENT VEGETATION ON ERODES SLOPES		X	X		X				X	X		AS NEEDED	$350.00
REPLACEMENT OF STONE								X				EVERY 3-5 YEARS/AS NEEDED*	$100.00
CLEAN DRIVES AND PARKING LOTS	X											SEMI ANNUALLY	$300.00
MOWING		X	X		X					X		0-2 TIMES PER YEAR	$400.00
INSPECT STRUCTURAL ELEMENTS DURING WET WEATHER AND COMPARE TO AS-BUILT PLANS (BY A PROFESSIONAL ENGINEER REPORTING TO THE OWNER)		X		X	X	X	X	X	X	X	X	ANNUALLY	$150.00
MAKE ADJUSTMENTS OR REPLACEMENTS AS DETERMINED BY ANNUAL WET WEATHER INSPECTIONS		X		X	X	X	X	X	X	X	X	AS NEEDED	$400.00
KEEP RECORDS OF ALL INSPECTIONS AND MAINTENANCE ACTIVITIES AND REPORT TO PROPERTY OWNER												ANNUALLY	$50.00
KEEP RECORDS OF ALL COSTS FOR INSPECTIONS, MAINTENANCE AND REPAIRS. REPORT TO PROPERY OWNER												ANNUALLY	$50.00
PROPERTY OWNER REVIEWS COST EFFECTIVENESS OF THE PREVENTIVE MAINTENANCE PROGRAM AND MAKES NECESSARY ADJUSTMENTS												ANNUALLY	$50.00
OWNER TO HAVE A PROFESSIONAL ENGINEER CARRY OUT INSPECTIONS UPON IDENTIFICATION OF SEVERE PROBLEMS												AS NEEDED	$200.00

* AS NEEDED MEANS WHEN SEDIMENT HAS ACCUMULATED TO A MAXIMUM OF ONE FOOT DEPTH

NOTE: NO CHEMICALS ARE ALLOWED IN STORM WATER FEATURES OR BUFFER ZONES WITH THE FOLLOWING EXCEPTION: INVASIVE SPECIES MAY BE TREATED WITH CHEMICALS BY A CERTIFIED APPLICATOR.

TOTAL ANNUAL BUDGET: $3100.00

CONSTRUCTION SEQUENCE / TIMING SCHEDULE

1. INSTALL SILT FABRIC FENCING AND TREE PROTECTION FENCING PRIOR TO ANY GRADING OPERATION	MAR. 2019
2. INSTALL MUD TRACKING PAD	MAR. 2019
3. ROUGH GRADES SITE, STOCK PILE TOPSOIL & BEGIN BUILDING CONSTRUCTION	MAR. 2019
4. INSTALL STORM DRAINAGE SYSTEM INCLUDING RIPRAP AND PARKING LOT INLET FILTERS, INFILTRATION BASINS & DETENTION BASIN STANDPIPE.	MAR./APR. 2019
5. MAINTAIN EROSION AND SEDIMENTATION CONTROL MEASURES, AS REQUIRED.	THROUGHOUT PROJECT
6. INSTALL SANITARY SEWER AND WATER SYSTEMS.	APR. 2019
7. BRING PAVEMENT AREAS TO SUB-BASE GRADE, PLACE SUB-BASE AND BITUMINOUS PAVEMENT	APR. 2019
8. INSTALL FRANCHISE UTILITIES.	APR. 2019
9. FINISH GRADE, REDISTRIBUTE TOPSOIL, SEED AND MULCH ALL DISTRUBED AREAS.	MAY 2019
10. REMOVE ANY ACCUMULATED SEDIMENT WITHIN THE FOREBAY.	JUNE 2019
11. COMPLETE CONSTRUCTION OF SITE.	JUNE 2019
12. INSURE ALL SOIL IS STABILIZED. REMOVE ALL TEMPORARY SOIL EROSION CONTROL MEASURES.	JUNE 2019

Maintenance Tasks and Schedule During Construction

TO BE PERFORMED BY OWNER & CONTRACTOR

TASKS	STORM SEWER SYSTEM	CATCH BASIN SUMPS	CATCH BASIN INLET FILTERS	DITCHES & SWALES	OUTFLOW CONTROL STRUCTURES	RIP - RAP	FILTRATION BASIN	STORM DETENTION AREAS	EMERGENCY OVERFLOW	SCHEDULE
INSPECT FOR SEDIMENT ACCUMULATION	X	X	X	X	X		X	X		WEEKLY
REMOVAL OF SEDIMENT ACCUMULATION	X	X	X	X	X		X	X		AS NEEDED * AND PRIOR TO TURNOVER
INSPECT FOR FLOATABLES AND DEBRIS			X	X	X		X	X		QUARTERLY
CLEANING FOR FLOATABLES AND DEBRIS			X	X	X		X	X		QUARTERLY AND AT TURNOVER
INSPECTION FOR EROSION				X	X		X	X		WEEKLY
REESTABLISH PERMANENT VEGETATION ON ERODES SLOPES				X			X	X		AS NEEDED AND PRIOR TO TURN OVER
REPLACEMENT OF STONE					X	X			X	AS NEEDED *
MOWING				X			X	X		0-2 TIME PER YEAR
INSPECT STRUCTURAL ELEMENTS DURING WET WEATHER AND COMPARE TO AS-BUILT PLANS (BY A PROFESSIONAL ENGINEER REPORTING TO THE OWNER)				X	X		X	X		ANNUALLY AND AT TURNOVER
MAKE ADJUSTMENTS OR REPLACEMENTS AS DETERMINED	X	X	X	X	X	X	X	X	X	AS NEEDED

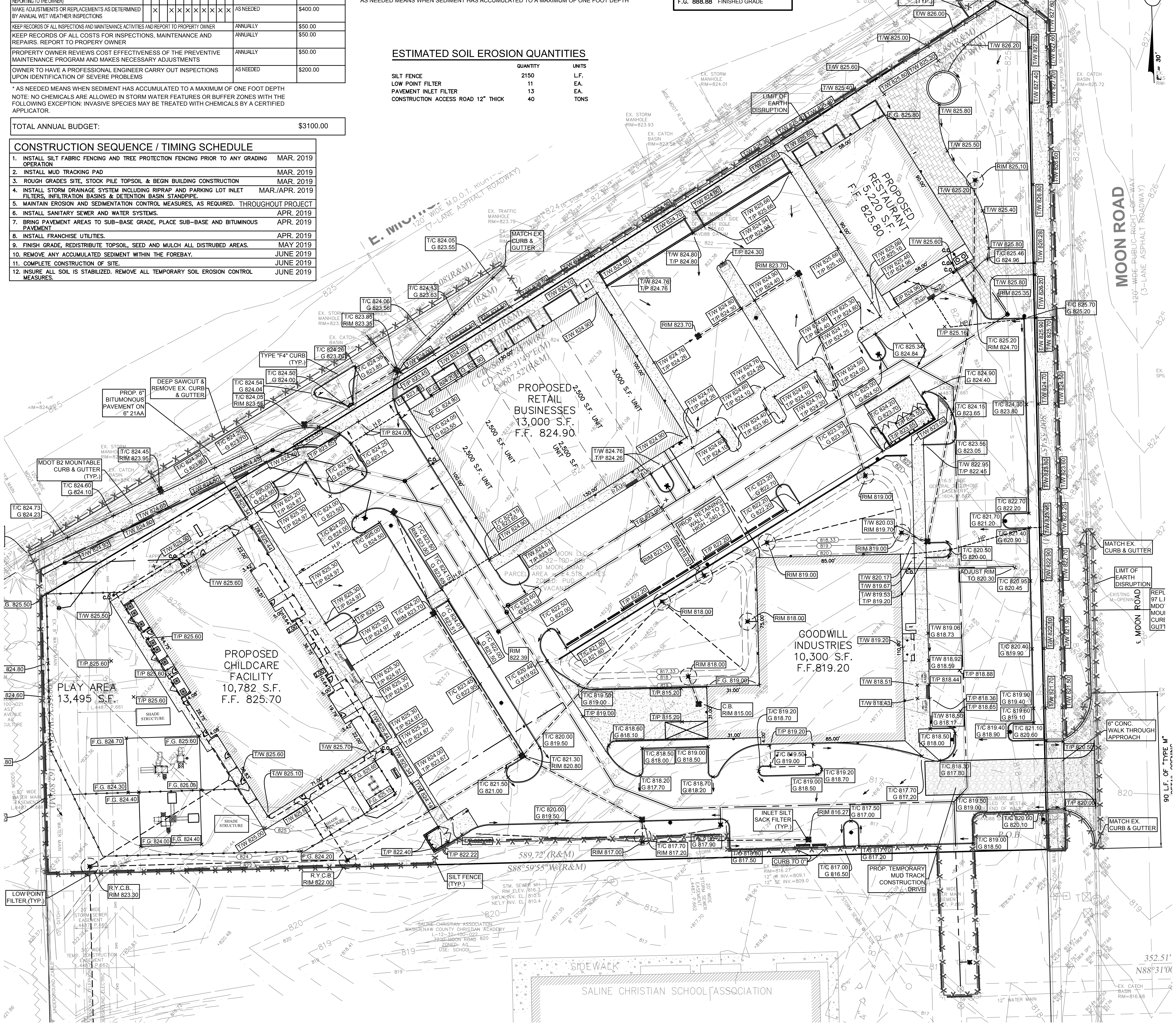
* AS NEEDED MEANS WHEN SEDIMENT HAS ACCUMULATED TO A MAXIMUM OF ONE FOOT DEPTH

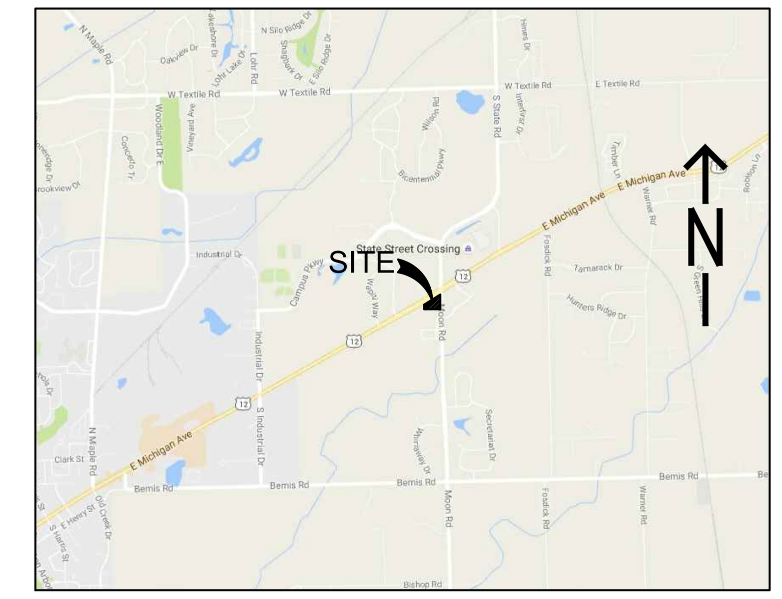
ESTIMATED SOIL EROSION QUANTITIES

	QUANTITY	UNITS
SILT FENCE	2150	L.F.
LOW POINT FILTER	11	EA.
PAVEMENT INLET FILTER	13	EA.
CONSTRUCTION ACCESS ROAD 12" THICK	40	TONS

SILT FENCE
LIMIT OF EARTH DISRUPTION
PAVEMENT INLET FILTER
LOW POINT FILTER
TEMPORARY ACCESS ROAD

T/C 888.88	TOP OF CURB GRADE
G 888.88	GUTTER GRADE
T/P 888.88	TOP OF PAVEMENT GRADE
T/W 888.88	TOP OF WALK GRADE
TOW 888.88	TOP OF WALL GRADE
B/W 888.88	BOTTOM OF WALL GRADE
F.G. 888.88	FINISHED GRADE





LOCATION MAP

N.T.S.

PITTSFIELD CHARTER TOWNSHIP SOIL EROSION AND SEDIMENTATION CONTROL NOTES GENERAL

1. The contractor shall implement and maintain the soil erosion control measures as shown on the plans at all times during construction on this project. Any modifications or additions to the soil erosion control measures due to construction or changed conditions, shall be complied with as required or directed by the owner, project engineer or Pittsfield Township.
2. All soil erosion and sedimentation control work shall conform to the permit requirements of Pittsfield Township and the laws of the State of Michigan.
3. A NPDES construction activity permit is required for all sites greater than 5 acres.
4. Daily inspections shall be made by the contractor. Periodic inspections may be made by the owner/project engineer/Township to determine the effectiveness of erosion and sedimentation control measures. Any necessary corrections shall be made without delay.
5. Erosion and sedimentation from work on the site shall be contained on the site and not be allowed to collect on any off-site areas or in waterways.
6. All mud/dirt tracked onto roads from the site due to construction, shall be promptly removed by the contractor.
7. Restoration of all disturbed areas, including placement of topsoil, seed, fertilizer and mulch and/or sod shall be done within 5 days of the completion of final grade.
8. Construction operations shall be scheduled and perfonned so that preventative soil erosion control measures are in place prior to excavation in critical areas and temporary stabilization measures are in place immediately following backfilling operations.
9. Special precautions will be taken in the use of construction equipment to prevent situations that promote erosion.
10. Proper dust control shall be maintained during construction by use of water trucks and/or chloride as required.
11. The contractor shall be responsible for maintaining all temporary soil erosion control measures and removal of same upon authorized completion of project. Completion of project will not be authorized until all site work, home building, road work and utility construction is complete and all soils are stabilized.
12. The contractor shall not grade in existing wetland or conservation areas to be protected. Silt fence shall be installed and maintained adjacent to existing wetland and conservation areas to prevent grading, erosion and sedimentation into them.
13. Tree protection fencing must remain intact until restoration of the site is complete.

SEQUENCE OF CONSTRUCTION

1. Install sediment fence and tree protection fencing prior to any grading operation.
2. Install mud-tracking pad.
3. Construct temporary sediment/detention basin.
4. Place topsoil, fertilizer, seed and mulch over the entire detention basin area.
5. Rough grade site, stockpile topsoil and begin building construction.
6. Install storm drainage system including rip-rap and parking lot inlet filters and detention basin standpipe.
7. Maintain erosion and sedimentation control measures, as required.
8. Install sanitary sewer and water systems.
9. Bring pavement areas to sub-base grade, place sub-base and bituminous pavement.
10. Install franchised utilities.
11. Finish grade, redistribute topsoil, seed and mulch all disturbed areas.
12. Remove any accumulated sediment within the detention basin and replace clean washed stone around standpipe.
13. Complete construction of site.
14. Insure all soil is stabilized. Remove all temporary soil erosion control measures.

SEEDING/SOD

1. Seed or sod in accordance with project specifications.
2. All areas of disturbed earth that are not to be paved or sodded shall have 4 inches of topsoil, seed, fertilizer and mulch.
3. Immediately after seeding, mulch all seeded areas with unweathered small grain straw (preferably wheat) or hay spread. Spread uniformly at the rate of 1 1/2 to 2 tons or 100 pounds (2 to 3 bales) per 1,000 square foot. This mulch should be anchored with a disc-type mulch-anchoring tool.
4. Any disturbed area not paved, seeded or mulched, sodded or built upon by November 15, is to be mulched in the manner as specified above, in order to provide soil erosion protection during the winter and early spring.
5. All erosion and sedimentation control prevention procedures and structures are to comply with the Standards and Specifications for soil erosion and sediment control of the Washtenaw County Soil Conservation District.
6. Drainage ditches and slopes steeper than 1:4 (25%) shall be stabilized with erosion control blankets.
7. Steep slopes that do not take upon initial seeding must be re-seeded and stabilized with erosion control blankets.
8. Where excavation has been through lawn areas, the CONTRACTOR shall restore the disturbed area by placing topsoil and seeding or sodding over the final backfill material.

CATCH BASIN/MANHOLE PROTECTION

1. Protect storm sewer catch basins with Silt sack. or approved equivalent as follows:

ROADS

1. During construction, all roads shall be protected from unvegetated areas washing onto road surfaces by placement of silt fence behind curb or a 10 foot wide straw mulch bank behind the curb or other approved method and/or as shown on the plans.
2. During construction of any portion of the project, roads shall be maintained free of dirt, silt and construction debris.

NOTES

1. ALL SPOT ELEVATIONS ARE SHOWN AT TOP OF CURB UNLESS NOTED OTHERWISE.
2. REFER TO THE EXISTING CONDITIONS PLAN FOR EXISTING SOIL TYPES. SOIL TYPES PER USDA SOIL SURVEY MAPS.
3. CONTRACTOR IS RESPONSIBLE FOR UNDERCUTTING EXISTING POOR SOILS AND REPLACEING WITH APPROVED FILL.
4. CONTRACTOR IS RESPONSIBLE TO INSTALL ALL PARKING, SIDEWALK AND BUILDING ENTRANCES TO MEET ALL LOCAL, STATE AND FEDERAL LAWS PERTAINING TO THE A.D.A.
5. PERMANENT BENCHMARK SHALL BE ESTABLISHED ON-SITE PRIOR TO CLEARING AND DEMOLITION
6. SEE STANDARD DETAILS FOR TOWNSHIP GRADING SPECIFICATIONS
7. RIP-RAP SHALL MEET THE REQUIREMENTS OF MDOT SPEC 8 19 02 WASHED AND CONTAINING NO CONCRETE
8. SILT FENCE SHALL BE INSTALLED AROUND SOIL STOCK PILE AREAS
9. CONTINUED MAINTENANCE FOR PERMANENT SOIL EROSION CONTROL MEASURES TO BE CARRIED OUT BY THE PROPERTY OWNER

   Rainbow Rascals MI - Pittsfield LLC
   1732 Crooks Road
   Troy, Michigan 48084

   Contact: Joe Bianchini
   814 Development, LLC
   1734 N. Crooks Rd.
   Troy, MI 48084
   248 953-8439

10. PROPER DUST CONTROL SHALL BE MAINTAINED DURING CONSTRUCTION BY USE OF WATER TRUCKS AND/OR CHLORIDE AS REQUIRED
11. A FIELD PRE-CONSTRUCTION MEETING MUST BE HELD PRIOR TO ANY EARTH CHANGE ACTIVITY
12. WHERE EXCAVATION HASS BEEN THROUGH LAWN AREAS, THE CONTRACTOR SHALL RESTORE THE DISTURBED AREA BY PLACING TOPSOIL AND SEEDING OR SODDING OVER THE FINAL BACKFILL MATERIAL
13. DURING CONSTRUCTION OF ANY PORTION OF THE PROJECT, ROADS SHALL BE MAINTAINED FREE OF DIRT, SILT AND CONSTRUCTION DEBRIS
14. FOREBAY SEED AND STABILIZE IMMEDIATELY UPON ACHIEVING FINAL GRADE AND FOLLOW WCWRC APPROVED SPECS

555.55 EXISTING CONTOURS
555.55 PROPOSED CONTOURS

EXISTING		PROPOSED
GAS	GAS	GAS
	SANITARY (SAN)	SAND BACKFILL
	STORM (STM)	
GV&W	WATERMAIN (WM)	GV&W
OH	OVERHEAD WIRE	OH
	UNDERGROUND CABLE	
	DITCH	
	SWALE CENTERLINE	
	EASEMENTS	
	CHAIN LINK FENCE	

Orman Engineering, LLC
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P: 248.682.6001
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PROJECT
814 Development

Township of Pittsfield, Washtenaw County, MI

CLIENT
Rainbow Rascals MI - Pittsfield LLC
3221 W. Big Beaver Rd.
Ste. 111
Troy, Michigan 48084

Contact: Reed Fenton
phone: 248-817-1522

SEAL

SHEET
Soil Erosion & Sedimentation Control Plan

PROJECT LOCATION
Michigan Ave. & Moon Rd., Pittsfield Township, Washtenaw County, MI

Know what's **below** Call before you dig.

REVISIONS

Date	Description
11-30-2018	REV. PER STORM WATER ENGINEER
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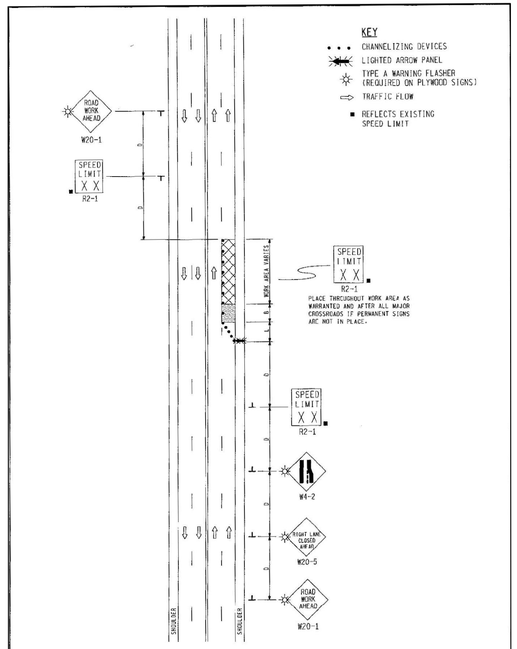
08-08-2018	SITE PLAN APPROVAL
03-12-2018	SITE PLAN SUBMITTAL
11-09-2017	PRELIMINARY REVIEW

Designed by:	Drawn by:
A.O.	S.D.M.

Approved by:	Date:
A.O.	10-26-2017

Scale: 1" = 30'

Job No.:	Sheet:
1094	SP-11

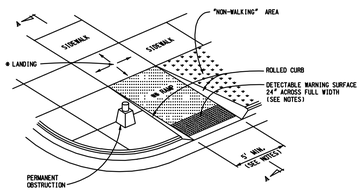


NOT TO SCALE

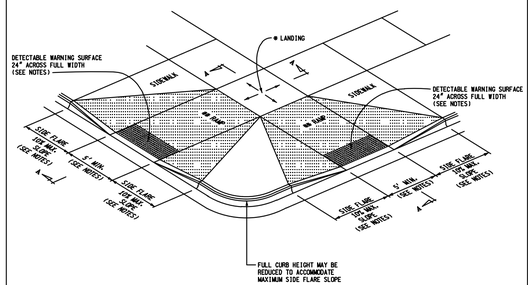
MDOT Michigan Department of Transportation — OPERATIONS	ONE-LANE CLOSURE ON AN UNDIVIDED MULTI-LANE ROADWAY. NO SPEED REDUCTION	DURATION: SHORT-TERM STATIONARY	
		01/01/07 REV. DATE:	MD - 23a / PAGE A14

* MAXIMUM LANDING SLOPE IS 2.0% IN EACH DIRECTION OF TRAVEL. LANDING MINIMUM DIMENSIONS 5' X 5'. SEE NOTES. IF THE RAMP RUNNING SLOPE IS LESS THAN 5%, IT IS CONSIDERED A "BLENDED TRANSITION" AND DOES NOT REQUIRE A LANDING.

** MAXIMUM RAMP CROSS SLOPE IS 2.0%. RUNNING SLOPE 5% - 7% (8.3% MAXIMUM). SEE NOTES.

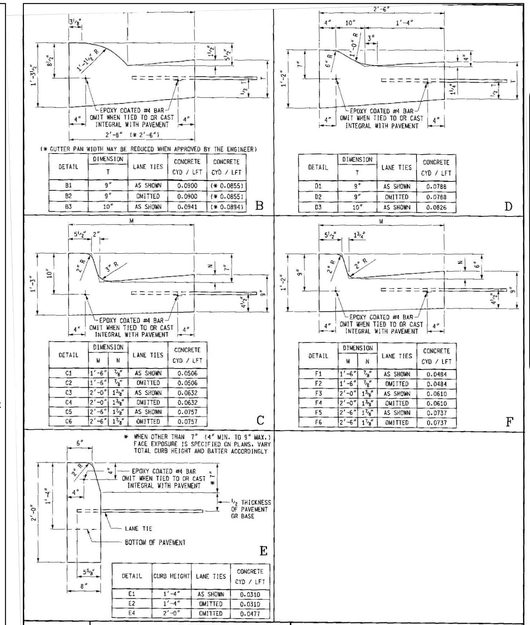


SIDEWALK RAMP TYPE R
(ROLLED SIDES)



SIDEWALK RAMP TYPE F
(FLARED SIDES, TWO RAMPS SHOWN)

MDOT Michigan Department of Transportation — PREPARED BY DESIGN DIVISION	DEPARTMENT DIRECTOR Kirk T. Steudle	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN FOR	
DRAWN BY: D.L.T. / CHECKED BY: W.K.P.	APPROVED BY: DIRECTOR, BUREAU OF FIELD SERVICES / APPROVED BY: DIRECTOR, BUREAU OF DEVELOPMENT	SIDEWALK RAMP AND DETECTABLE WARNING DETAILS	
	F.H.W.A. APPROVAL	9-13-2017 PLAN DATE	R-28-J / SHEET 1 OF 7



DETAIL	DIMENSION T	LANE TIES	CONCRETE CYD / LFT	CONCRETE CYD / LFT
B1	9"	AS SHOWN	0.0900	(* 0.0855)
B2	9"	OMITTED	0.0900	(* 0.0855)
B3	10"	AS SHOWN	0.0941	(* 0.0894)

DETAIL	DIMENSION T	LANE TIES	CONCRETE CYD / LFT
D1	9"	AS SHOWN	0.0788
D2	9"	OMITTED	0.0788
D3	10"	AS SHOWN	0.0826

DETAIL	DIMENSION W	DIMENSION H	LANE TIES	CONCRETE CYD / LFT
C1	1'-6" 1/8"	AS SHOWN	0.0506
C2	1'-6" 1/8"	OMITTED	0.0506
C3	2'-0" 1 3/8"	AS SHOWN	0.0632
C4	2'-0" 1 3/8"	OMITTED	0.0632
C5	2'-6" 1 3/8"	AS SHOWN	0.0757
C6	2'-6" 1 3/8"	OMITTED	0.0757

DETAIL	DIMENSION W	DIMENSION H	LANE TIES	CONCRETE CYD / LFT
F1	1'-6" 1/8"	AS SHOWN	0.0484
F2	1'-6" 1/8"	OMITTED	0.0484
F3	2'-0" 1 3/8"	AS SHOWN	0.0610
F4	2'-0" 1 3/8"	OMITTED	0.0610
F5	2'-6" 1 3/8"	AS SHOWN	0.0737
F6	2'-6" 1 3/8"	OMITTED	0.0737

DETAIL	CURB HEIGHT	LANE TIES	CONCRETE CYD / LFT
E1	1'-4"	AS SHOWN	0.0310
E2	1'-4"	OMITTED	0.0310
E4	2'-0"	OMITTED	0.0477

MDOT Michigan Department of Transportation — PREPARED BY DESIGN DIVISION	DEPARTMENT DIRECTOR Kirk T. Steudle	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN FOR	
DRAWN BY: D.L.T. / CHECKED BY: W.K.P.	APPROVED BY: DIRECTOR, BUREAU OF FIELD SERVICES / APPROVED BY: DIRECTOR, BUREAU OF DEVELOPMENT	CONCRETE CURB AND CONCRETE CURB & GUTTER	
	9-30-2014 F.H.W.A. APPROVAL	2-6-2014 PLAN DATE	R-30-G / SHEET

R3-2
LEFT TURN PROHIBITION

R5-1a
WRONG WAY

NOTES:

All traffic control devices and their usage must conform to the Michigan Manual of Uniform Traffic Control Devices (MMUTCD), 2011 edition.

All sign materials and supports must meet NCHRP-350 crash worthy or MASH requirements.

All existing pavement markings that are removed for traffic control or obliterated during construction operations must be replaced with Waterborne markings. This includes the special pavement markings which must be replaced with polyurea (Stop Bars, arrows, etc.).

Any impacts to the MOOT sign or supports during construction, the sign and/or supports will need to be replaced in kind per MOOT standards at the contractor's and/or permit applicant's expense.

During the lane closures, access for emergency vehicles (fire, ambulance, police) must be maintained to adjacent homes, businesses and subdivisions at all times.

No work will be allowed, or lane closures permitted on US-12 during the Memorial Day, Labor Day, Independence Day, Thanksgiving, Christmas and New Year's holiday periods and any other designed state holiday as defined by the Engineer. In addition, no lane closures will be permitted during Michigan International Race weekends; (MIS) race weekends; (June 6 to 11, 2019) and August 8-13, 2019) or the weekends during the Saline Community Fair (2019).

Temporary warning, regulatory, and guide signs not required for a particular lane or shoulder closure must be removed, covered or laid down with the legs removed.

Undercuts or excavations in the area immediately adjacent to active traffic must be restored to no less than a 1-on-3 slope at the end of each work day.

Engineering

Orman Engineering, LLC
5476 Vivian Lane
Waterford, MI 48327
P: 248.682.6001
E: alex@ormanengineering.com

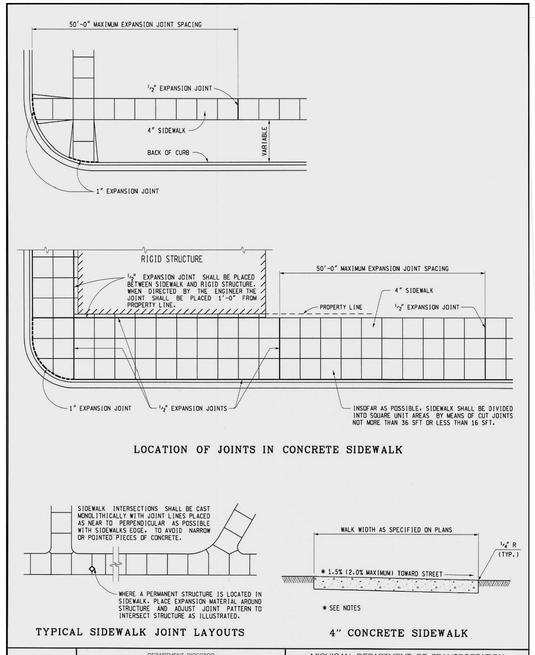
PROJECT
814 Development

City of Pittsfield,
Washtenaw County, MI

CLIENT
Rainbow Rascals MI - Pittsfield LLC
3221 W. Big Beaver Rd.
Ste. 111
Troy, Michigan 48084

Contact: Reed Fenton
phone: 248-817-1522

SEAL

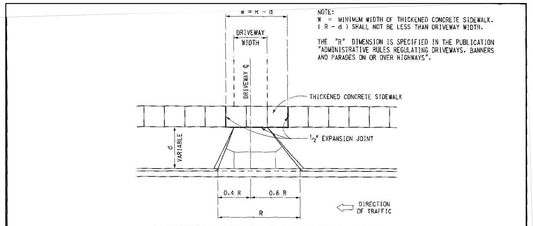


LOCATION OF JOINTS IN CONCRETE SIDEWALK

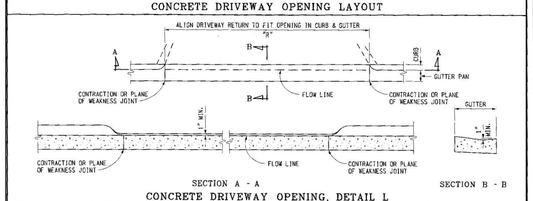
TYPICAL SIDEWALK JOINT LAYOUTS

4" CONCRETE SIDEWALK

MDOT Michigan Department of Transportation — PREPARED BY DESIGN DIVISION	DEPARTMENT DIRECTOR Kirk T. Steudle	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR	
DRAWN BY: D.L.T. / CHECKED BY: W.K.P.	APPROVED BY: DIRECTOR, BUREAU OF FIELD SERVICES / APPROVED BY: DIRECTOR, BUREAU OF HIGHWAY DEVELOPMENT	DRIVEWAY OPENINGS & APPROACHES, AND CONCRETE SIDEWALK	
	9-30-2014 F.H.W.A. APPROVAL	7-1-2014 PLAN DATE	R-29-I / SHEET 1 OF 4



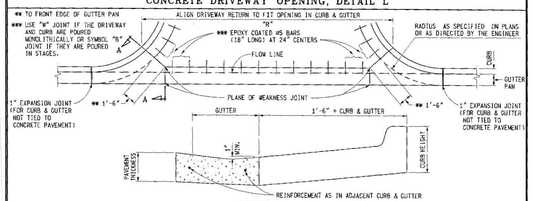
CONCRETE DRIVEWAY OPENING LAYOUT



SECTION A - A

SECTION B - B

CONCRETE DRIVEWAY OPENING, DETAIL L

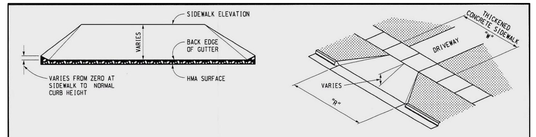


SECTION A - A

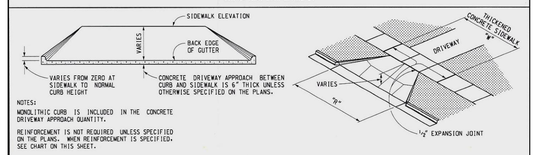
CONCRETE DRIVEWAY OPENING, DETAIL M

NOTES:
FOR ROADWAYS WITH CONCRETE PAVEMENTS, LONGITUDINAL LANE TIES WILL BE CONTINUED THROUGH THE DRIVEWAY OPENING AND THE SPACING OF THE #5 BARS IN CONCRETE DRIVEWAYS SHALL BE ADJUSTED TO AVOID CONFLICT WITH THE LONGITUDINAL LANE TIES.

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR			
DRIVEWAY OPENINGS & APPROACHES, AND CONCRETE SIDEWALK			
9-30-2014 F.H.W.A. APPROVAL	7-1-2014 PLAN DATE	R-29-I	SHEET 2 OF 4

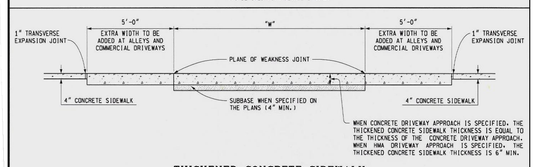


HMA DRIVEWAY APPROACH
(TO BE USED WITH DETAIL L)

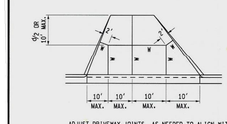


NOTES:
MONOLITHIC CURB IS INCLUDED IN THE CONCRETE DRIVEWAY APPROACH QUANTITY.
REINFORCEMENT IS NOT REQUIRED UNLESS SPECIFIED ON THE PLANS. WHEN REINFORCEMENT IS SPECIFIED, SEE CHART ON THIS SHEET.

CONCRETE DRIVEWAY APPROACH
(TO BE USED WITH DETAIL L OR W)



THICKENED CONCRETE SIDEWALK



ADJUST DRIVEWAY JOINTS AS NEEDED TO ALIGN WITH ANY COINCIDING TRANSVERSE PAVEMENT JOINTS.

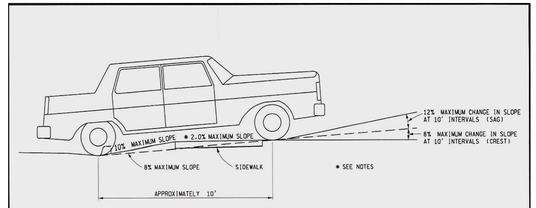
JOINT LAYOUT IS AS INDICATED OR AS DIRECTED BY THE ENGINEER.

INTERMEDIATE DRIVEWAY JOINT DETAILS

REINFORCEMENT FOR CONCRETE DRIVEWAYS

CONCRETE DRIVEWAY THICKNESS	WIRE SIZE (6" x 6" MESH)	AVERAGE WEIGHT (LBS/100 SFT)
LESS THAN 8"	W1.4	21
	W2.9	42
8" OR GREATER	USE WIRE FABRIC REINFORCEMENT SPECIFIED ON STANDARD PLAN R-37-SERIES	

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR			
DRIVEWAY OPENINGS & APPROACHES, AND CONCRETE SIDEWALK			
9-30-2014 F.H.W.A. APPROVAL	7-1-2014 PLAN DATE	R-29-I	SHEET 3 OF 4



LOW VOLUME COMMERCIAL OR RESIDENTIAL DRIVEWAY SLOPES

COMMERCIAL DRIVEWAY PROFILE FOR MAJOR TRAFFIC GENERATORS

NOTES:
FOR DRIVEWAY DESIGN REFER ALSO TO "ADMINISTRATIVE RULES REGULATING DRIVEWAYS, BANNERS, AND PARADES ON OR OVER HIGHWAYS" AND GEOMETRIC DESIGN G-680-SERIES, COMMERCIAL DRIVEWAYS.
FOR CURB AND GUTTER DETAILS, SEE STANDARD PLAN R-30-SERIES.
TRANSVERSE SIDEWALK SLOPES ARE TYPICALLY 1.5% (2.0% MAXIMUM). IN ORDER TO MEET SITE CONDITIONS, IF THE TRANSVERSE SLOPE IS REQUIRED TO BE LESS THAN 1.5%, LONGITUDINAL DRAINAGE MUST BE PROVIDED.
WHEN SETTING GRADES FOR COMMERCIAL DRIVES, THE TYPES OF VEHICLES USING THE DRIVE SHOULD BE CONSIDERED.

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR			
DRIVEWAY OPENINGS & APPROACHES, AND CONCRETE SIDEWALK			
9-30-2014 F.H.W.A. APPROVAL	7-1-2014 PLAN DATE	R-29-I	SHEET 4 OF 4

SHEET
M.D.O.T. NOTES & DETAILS

PROJECT LOCATION

811 Know what's below Call before you dig.

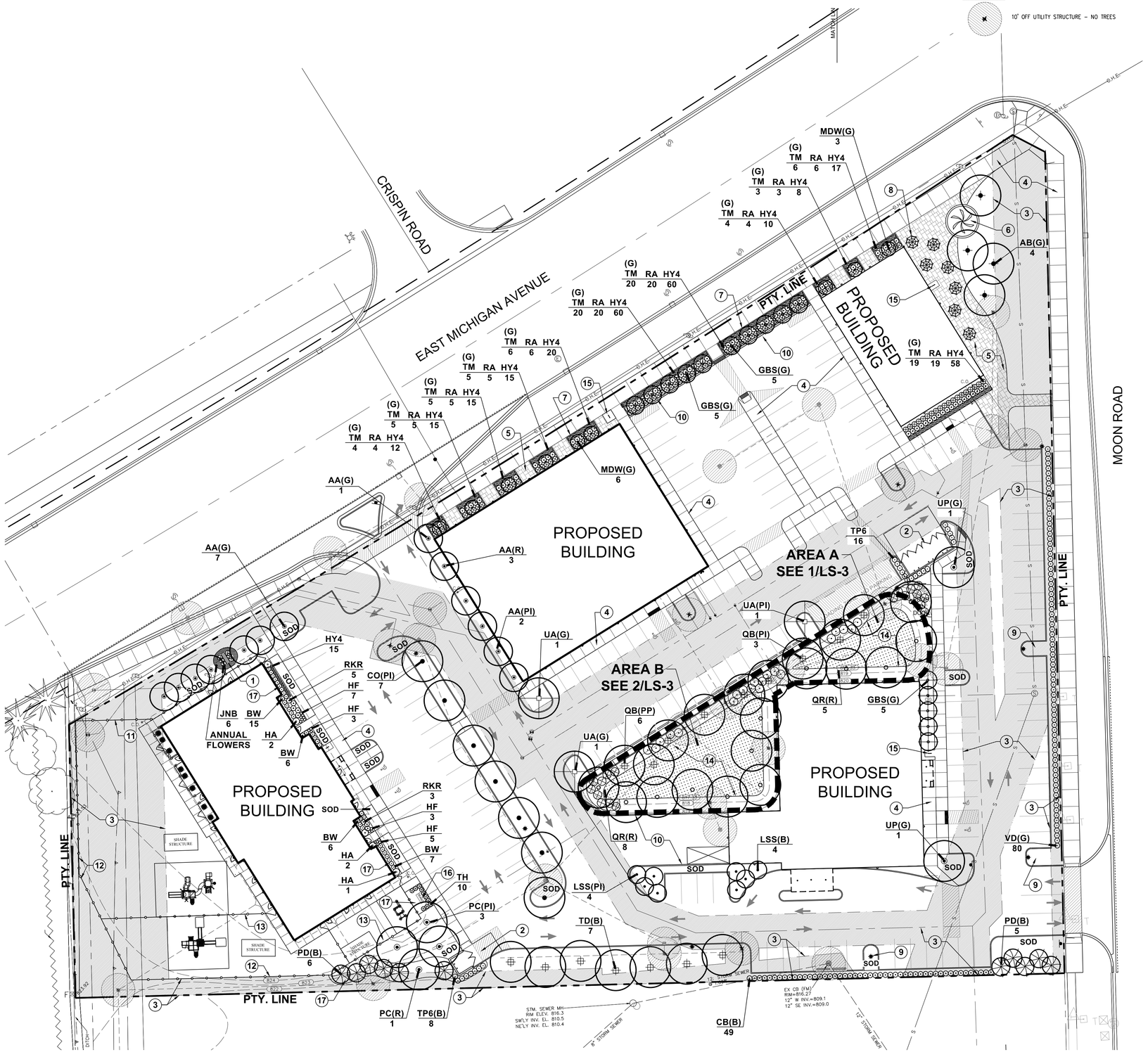
REVISIONS

Date	Description
11-30-2018	REV. PER STORM WATER ENGINEER
10-16-2018	SITE PLAN REV. PER PLANNING COMMISION
08-08-2018	SITE PLAN APPROVAL
03-12-2018	SITE PLAN SUBMITTAL

Designed by:	Drawn by:
A.O.	S.D.M.
Approved by:	**Date:**
A.O.	09-06-2016

Scale:
1" = 30'

Job No.:	Sheet:
1094	SP-12



NO TREE ZONES

EXISTING AND PROPOSED ONSITE UTILITY EASEMENT AREAS – NO TREES

10' OFF UTILITY STRUCTURE – NO TREES

NOTE KEY:

1. PROJECT SIGN
2. DUMPSTER AREA
3. UTILITY EASEMENT(S)
4. CONCRETE WALKS
5. PAVER AREA
6. FOCAL POINT
7. PLANTER CURB
8. UMBRELLA TABLES AND CHAIRS
9. LIGHT POLE, TYP.
10. PROPOSED 4" HT. DECORATIVE BRICK WALL – SEE CIVIL PLAN
11. 5' HT. ORNAMENTAL FENCE – SEE CIVIL PLANS
12. 6' HT. SCREEN FENCE – SEE CIVIL PLANS
13. CHAIN LINK FENCE – SEE CIVIL PLANS
14. BIORETENTION AREA
15. BICYCLE PARKING AREA
16. TRANSFORMER – SEE CIVIL PLAN
17. CONTINUOUS MULCH BED

GENERAL PLANTING NOTES:

A. ALL TREES TO HAVE CLAY OR LOAM BALLS, TREES WITH SAND BALLS WILL BE REJECTED.

B. ALL SINGLE STEM SHADE TREES TO HAVE STRAIGHT TRUNKS AND SYMMETRICAL CROWNS.

C. ALL SINGLE TRUNK SHADE TREES TO HAVE A CENTRAL LEADER, TREES WITH FORKED OR IRREGULAR TRUNKS WILL NOT BE ACCEPTED.

D. ALL MULTI-STEM TREES SHALL BE HEAVILY BRANCHED AND HAVE SYMMETRICAL CROWNS. ONE SIDED TREES OR THOSE WITH THIN OR OPEN CROWNS SHALL NOT BE ACCEPTED.

E. ALL EVERGREEN TREES SHALL BE HEAVILY BRANCHED AND FULL TO THE GROUND, SYMMETRICAL IN SHAPE AND NOT SHEARED FOR THE LAST FIVE GROWING SEASONS.

F. NO MACHINERY IS TO BE USED WITHIN THE DRIPLINE OF EXISTING TREES. HAND GRADE ALL LAWN AREAS WITHIN DRIPLINE OF EXISTING TREES.

G. ALL TREE LOCATIONS SHALL BE STAKED BY LANDSCAPE CONTRACTOR AND ARE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION OF THE PLANT MATERIAL.

H. IT IS MANDATORY THAT POSITIVE DRAINAGE IS PROVIDED AWAY FROM ALL BUILDINGS, WALKS AND PAVED AREAS.

I. ALL PLANTING BEDS SHALL RECEIVE SHREDDED BARK MULCH. SEE PLANTING DETAILS FOR DEPTH.

J. SEE SPECIFICATIONS FOR ADDITIONAL COMMENTS, REQUIREMENTS, PLANTING PROCEDURES AND WARRANTY STANDARDS.

LAWNS:

ALL PROPOSED LAWN AREAS TO BE IRRIGATED SOD.

TOPSOIL

CONTRACTOR TO TILL OR DISK SUBGRADE TO 6" DEPTH AND INSTALL 4" COMPACTED DEPTH TOPSOIL IN ALL LAWN AREAS – FROM ONSITE STOCKPILE OR PROVIDED TO COMPLETE THE PROJECT

PLANT MIX

EXCAVATE PLANT BEDS TO DEPTH SHOWN ON DETAILS – DISPOSE OF SPOILS OFF SITE.

PLANTING BEDS AND PLANT PITS TO RECEIVE MIXTURE OF: 70% LOAM TOPSOIL, 10% COMPOST, 20% SAND;

ADDITIONALLY – HAND TILL INTO EVERY 150 SQ. FT. BED AREA AND/OR ADD TO EVERY ONE CUBIC YARD OF PLANT PIT MIX:

(1) 6 CU. FT. BALE ORGANIC COMPOST

HAND TILL INTO BED TO MINIMUM DEPTH OF 12"

MULCH

MULCH TO BE DOUBLE SHREDDED HARDWOOD BARK MULCH

NO GROUND WOOD PALETTE MULCH PERMITTED

LANDSCAPE EDGING

ALL LANDSCAPE EDGES ARE SHOVEL CUT

IRRIGATION SYSTEM

PROVIDE UNDERGROUND AUTOMATIC IRRIGATION SYSTEM. PROVIDE SHOP DRAWING INCLUDING SEPARATE ZONES FOR LAWNS, SHRUBS, PERENNIALS AND ANNUAL FLOWERS. INCLUDE QUICK COUPLERS FOR HAND WATERING AREAS IF NECESSARY. SUBMIT SHOP DRAWING TO LANDSCAPE ARCHITECT FOR REVIEW AND APPROVAL.

PLANTING KEY:

TREE SYMBOL
TREE TYPE KEY
FAS
PLANT LIST – SEE SHEET LS-2
PLANTING DETAILS – SEE SHEET LS-2
QUANTITY

1 LS-1 **PLANTING PLAN**

SCALE 1" = 30'

NORTH

GRAPHIC SCALE 0 10 30 60

HWLA HAGENBUCH WEIKAL LANDSCAPE ARCHITECTURE

248 477 3600 TEL
WWW.KW-LA.COM
33203 BIDDESTONE LANE, FARMINGTON HILLS, MI 48334

Orman Engineering

Orman Engineering, LLC
5476 Vivian Lane
Waterford, MI 48327
P: 248.682.6001
E: alex@ormanengineering.com

PROJECT

Proposed Development

Township of Pittsfield,
Washtenaw County, MI

CLIENT

Rainbow Rascals MI - Pittsfield LLC
1732 Crooks Road
Troy, Michigan 48084

Contact: Reed Fenton
t. 248-519-9281
f. 248-569-2100

SEAL

STATE OF MICHIGAN
KENNETH S. WEIKAL
LANDSCAPE ARCHITECT
No. 1022
REGISTERED LANDSCAPE ARCHITECT

SHEET

Planting Plan

PROJECT LOCATION

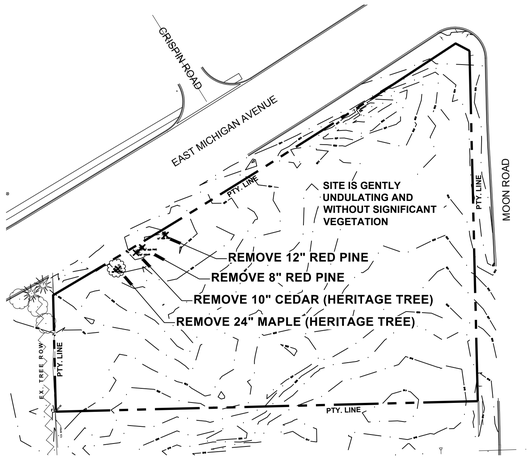
Pittsfield Township,
Washtenaw County,
MI

811 Know what's below Call before you dig.

REVISIONS

Date	Description
11.30.18	REVISED PER STORM WATER ENGINEER
10.16.18	SITE PLAN APPROVAL
08.08.18	SITE PLAN APPROVAL
03.12.18	SITE PLAN APPROVAL
12.05.17	REVIEW
11.09.17	PRELIMINARY REVIEW

Designed by:	Drawn by:
K.W.	K.M.W.
Approved by:	**Date:**
K.W.	10-27-2017
Scale:	
As Noted	
Job No.:	**Sheet:**
1094	LS-1



1 SITE INVENTORY MAP

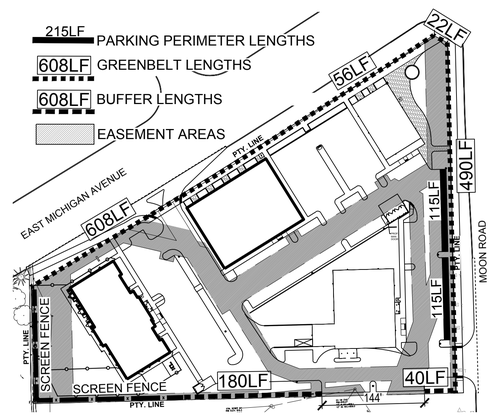
LS-2

SCALE 1" = 100'

0 50 100 200

NORTH

TREE LIST					
TAG #	TREE TYPE	TREE SIZE	HERITAGE	CONDITION	TO BE REMOVED
200	SILVER MAPLE	24"	X	STRESSED	X
201	CEDAR	10"	X	STRESSED	X
202	RED PINE	8"		STRESSED	X
203	RED PINE	12"		STRESSED	X



2 LANDSCAPE REQUIREMENTS PLAN

LS-2

SCALE 1" = 100'

0 50 100 200

NORTH

LANDSCAPE REQUIREMENTS:

(R) REPLACEMENT HERITAGE TREE - REQUIREMENTS

HERITAGE TREE (R) REPLACEMENTS:
150% OF TOTAL CAL. INCH REMOVED MUST BE REPLACED

TOTAL HERITAGE TREE INCHES REMOVED:	34 INCHES
34 INCHES REMOVED X 150% =	51 REPLACEMENT INCHES REQUIRED
51 INCHES / 3 INCH CAL. REPLACE TREE =	17 TREES
TOTAL HERITAGE TREE REPLACEMENT REQUIRED:	17 TREES
3" CAL. DECIDUOUS TREES PROVIDED:	**17 TREES**
NON-HERITAGE TREES REMOVED:	2 TREES
REPLACEMENT TREES REQUIRED:	0 TREES
REPLACEMENT TREES PROVIDED:	**0 TREES**

(B) SCREENING / BUFFER TREE - REQUIREMENTS

TOTAL WEST PROPERTY LINE LENGTH:	**188 LN .FT.**
SCREENED BY A 6' HT. PRIVACY FENCE:	188 LF. FT.
TOTAL SOUTH PROPERTY LINE LENGTH:	**590 LN .FT.**
SCREENED BY A 6' HT. PRIVACY FENCE:	226 LN. FT.
REQUEST FOR **DEVIATION #1** / PARKING AREA:	144 LN. FT.
(REQUEST NO FENCE /ALLOW DECIDUOUS SHRUBS)	
REMAINING LENGTH OF SOUTH PROPERTY LINE:	220 LF. FT
LANDSCAPE SCREEN / BUFFER ALTERNATE #2:	
REQUEST FOR **DEVIATION #2** / PARKING AREA:	144 LN. FT.
TREES EVERGREEN REQ. (220/ 10 LN. FT.):	22 TREES
TREES PROVIDED:	**22 TREES**

DEVIATION REQUEST #1:
A DEVIATION FROM THE BUFFER ORDINANCE IS BEING REQUESTED FOR THE 144LF BETWEEN THE PROPOSED PARKING AREAS ALONG THE SOUTH PROPERTY LINE, AND THE PROPERTY LINE. THIS AREA IS TOO NARROW FOR PLANTING EVERGREEN TREES AND IS GRADED TO DIRECT STORMWATER FROM THE PROPERTY TO THE SOUTH AND THE PROJECT PROPERTY, INTO AN EXISTING CATCH BASIN ON THE PROJECT PROPERTY. (49) DECIDUOUS SHRUBS ARE PROPOSED ALONG THIS AREA TO PROVIDE SCREENING OF THE PARKING AREA FROM THE SOUTH. DUE TO THE ANTICIPATED WET SOILS, EVERGREEN PLANTS WILL NOT SURVIVE IN THIS LOCATION. ADDITIONALLY (4) DECIDUOUS TREES ARE PROPOSED ALONG THE SOUTH FACE OF THE SOUTHERLY BUILDING.

DEVIATION REQUEST #2:
A DEVIATION FROM THE BUFFER ORDINANCE IS BEING REQUESTED FOR 180 LF OF THE PLANTED BUFFER AREA DUE TO THE PROPOSED DRAINAGE SWALE IN THAT AREA. THIS SWALE WILL DIRECT STORMWATER FROM THE PROPERTY TO THE SOUTH AND THE PROJECT PROPERTY, INTO AN EXISTING CATCH BASIN ON THE PROJECT PROPERTY. EVERGREEN TREES WILL NOT THRIVE IN WET SOILS. WATER TOLERANT DECIDUOUS CONIFER TREES ARE PROPOSED IN THEIR PLACE. EVERGREEN TREES AND SHRUBS ARE PROPOSED IN AREAS OUTSIDE OF THE SWALE, IN THE BUFFER ZONE.

(PI) PARKING LOT - INTERIOR- REQUIREMENTS

TOTAL PARKING SPACES:	**158 SPACES**
TREES CANOPY REQ. (1 TREE / 8 SPACES):	20 TREES
TREES CANOPY PROVIDED:	**20 TREES**

(PP) PARKING LOT - PERIMETER - REQUIREMENTS

TOTAL PARKING LOTS PERIMETER LENGTH:	230 LN .FT.
TREES CANOPY REQ. (1/ 40 LN. FT.):	6 TREES
TREES CANOPY PROVIDED:	**6 TREES**

(G) GREENBELT - REQUIREMENTS

TOTAL GREENBELT LENGTH (608+56+22+490)	1,176 LN .FT.
TREES DECIDUOUS REQ. (1/ 30 LN. FT.):	39 TREES
TREES DECIDUOUS PROVIDED:	**39 TREES**
SHRUBS REQ.:	0 SHRUBS
SHRUBS PROVIDED:	**243 SHRUBS**

GREENBELT PLANTINGS DO NOT MEET THE TYPICAL REQUIREMENTS DUE TO UTILITY EASEMENTS AND THE URBAN STREETSCAPE PLANTING DESIGN.

DEVIATION REQUEST #3
A DEVIATION FROM THE GREENBELT ORDINANCE IS REQUESTED TO ALLOW SUBSTITUTIONS OF PLANT MATERIALS WHICH WILL BE BOTH FUNCTIONAL AND AESTHETICALLY ATTRACTIVE IN THIS ENVIRONMENT. THE REQUIRED QUANTITY OF TREES WILL BE PROVIDED; 564 SHRUBS AND PERENNIALS ARE ALSO PROPOSED.

(S) SITE LANDSCAPE - REQUIREMENTS

OVERALL SITE AREA:	**196,667 SQ. FT.**
TOTAL IMPERVIOUS AREA:	146,184 SQ. FT.
REQUIRED SITE LANDSCAPE AREA:	20%
NET LOT COVERAGE:	76%
SITE LANDSCAPE AREA PROVIDED:	**24%**

(D) DETENTION BASIN LANDSCAPING - REQUIREMENTS

DETENTION AREA REQUIREMENTS:	N/A
DETENTION PLANTS TO BE "NATIVE"	

Elm Summary

The Elms specified are not American elm trees, which we all know have been decimated over the past 100 years in the American landscape, but special hybrids developed to replace the American Elm.

The 'Accolade' Elm - is a cross of the Japanese elm and Chinese elm, (Ulmus japonica x Ulmus wilsoniana)- and was developed by the Morton Arboretum in Chicago

It is an elm cultivar derived from an elm hybrid planted at the Morton Arboretum in 1924, which itself originated as seed collected from a tree at the Arnold Arboretum in Massachusetts.

Accolade Elm is a cross of Japanese and Chinese species selected for its vase shape, vigorous growth, excellent drought tolerance and good strong yellow fall color. It has excellent disease resistance to both Elm Yellows and to the dreaded Dutch Elm Disease. Mayor Daley of Chicago chose the Accolade Elm to bring elms back to Chicago's Grant Park in 2002.

The original tree at the Morton Arboretum is noted for its resemblance to the American Elm (*Ulmus americana*), its upright-arching branches creating the familiar vase-shape. Moreover, in its 80+ years it has survived three epidemics of Dutch Elm Disease there unscathed.

PLANT LIST - (R) REPLACEMENT

QUAN.	KEY	COMMON/ BOTANICAL NAME	SIZE	SPEC.	
3	AA	Armstrong Columnar Maple *Acer x. fremanii 'Armstrong'*	3" Cal.	B&B	
1	PC	Bloodgood Plane Tree *Platanus x. acerifolia 'Columbia'*	3" Cal.	B&B	
13	QR	Northern Red Oak *Quercus rubra*	3" Cal.	B&B	17 TREES

PLANT LIST - (B) SCREENING / BUFFER

QUAN.	KEY	COMMON/ BOTANICAL NAME	SIZE	SPEC.	
4	LSS	Silhouette Sweetgum *Liquidambar styraciflua 'Slender Silhouette'*	2.5" Cal.	B&B	
7	TD	Bald Cypress *Taxodium distichum*	2.5" Cal.	B&B	
11	PD	Black Hills Spruce *Picea g. 'Densata'*	8' Ht.	B&B	22 TREES
49	CB	Buttonbush *Cephalanthus occidentalis*	30" Ht.	B&B	
8	TP6	West Coast Arborvitae *Thuja plicata*	6' Ht.	B&B	

PLANT LIST - (PI) PARKING INTERIOR

QUAN.	KEY	COMMON/ BOTANICAL NAME	SIZE	SPEC.	
2	AA	Armstrong Columnar Maple *Acer x. fremanii 'Armstrong'*	2.5" Cal.	B&B	
7	CO	Hackberry *Celtis occidentalis*	2.5" Cal.	B&B	
4	LSS	Silhouette Sweetgum *Liquidambar styraciflua 'Slender Silhouette'*	2.5" Cal.	B&B	
3	PC	Bloodgood Plane Tree *Platanus x. acerifolia 'Columbia'*	3" Cal.	B&B	
3	QB	Swamp White Oak *Quercus bicolor*	2.5" Cal.	B&B	
1	UA	Accolade Elm *Ulmus parvifiora 'Morton'*	2.5" Cal.	B&B	20 TREES

PLANT LIST - (PP) PARKING PERIMETER

QUAN.	KEY	COMMON/ BOTANICAL NAME	SIZE	SPEC.	
6	QB	Swamp White Oak *Quercus bicolor*	2.5" Cal.	B&B	6 TREES

PLANT LIST - (G) GREENBELT

QUAN.	KEY	COMMON/ BOTANICAL NAME	SIZE	SPEC.	
8	AA	Armstrong Columnar Maple *Acer x. fremanii 'Armstrong'*	2.5" Cal.	B&B	
4	AB	Autumn Blaze Maple *Acer x. fremanii 'Autumn Blaze'*	2.5" Cal.	B&B	
0	GD	Kentucky Coffee Tree *Gymnocladus dioicus*	2.5" Cal.	B&B	
15	GBS	Sentry Ginkgo *Ginkgo biloba 'Princeton Sentry'*	3" Cal.	B&B	
2	UA	Accolade Elm *Ulmus parvifiora 'Morton'*	2.5" Cal.	B&B	
2	UP	Princeton Elm *Ulmus americana 'Princeton'*	2.5" Cal.	B&B	
9	MDW	Pink Columnar Crab Apple *Malus 'Dream Weaver'*	2" Cal.	B&B	40 TREES
97	RA	Gro-low Fragrant Sumac *Rhus aromatica 'Gro-low'*	24" Spr.	Cont.	
97	TM	Dense Yew *Taxus x. m. 'Densiformis'*	24" Ht.	B&B	
80	VD	Arrowood Viburnum *Viburnum dentatum*	30" Ht.	Cont.	
290	HY4	Stella D'Oro Daylilies *Hemerocallis 'Stella D'Oro'*	3 Fan min.	Cont.	

57 TOTAL

Native

PLANT LIST - SITE LANDSCAPING

QUAN.	KEY	COMMON/ BOTANICAL NAME	SIZE	SPEC.
34	BW	Green Velvet Boxwood *Buxus m. 'Green Velvet'*	24" Ht.	Cont.
5	HA	Annabelle Hydrangea *Hydrangea a. 'Annabelle'*	24" Ht.	Cont
6	JNB	New Blue Tams Juniper *Juniperus t. 'New Blue'*	24" Spr.	Cont.
8	RKR	Knockout Rose *Rosa 'Knockout'*	24" spr.	Cont.
10	TH	Hicks Yew *Taxus 'Hicksi'*	24" Ht.	B&B
16	TP6	West Coast Arborvitae *Thuja plicata*	6' Ht.	B&B
18	HF	Francee Hosta *Hosta 'Francee'*	1 Gal.	Cont.
15	HY4	Stella D'Oro Daylilies *Hemerocallis 'Stella D'Oro'*	3 Fan min.	Cont.

105 TOTAL TREES

21 = Total Allowed per Species

for 20% Max. per Species

ENVIRONMENTAL IMPACT STATEMENT:

THE PROPOSED PROJECT IS A MIXED USE DEVELOPMENT INCLUDING A CHILD CARE FACILITY, A GOODWILL CENTER AND A VARIETY OF COMMERCIAL ENTERPRISES.

THE EXISTING SITE IS GENTLY UNDULATING AND WITHOUT SIGNIFICANT VEGETATION WITH THE EXCEPTION OF (2) HERITAGE TREES (24" MAPLE & 10" CEDAR) AND 2 NON-HERITAGE TREES. ALL (4) TREES APPEAR TO BE UNDER STRESS.

THE PROPERTY TO THE SOUTH IS A SCHOOL OPEN LAWN AREAS. THE PROPERTY TO THE WEST HAS A MIX OF EVERGREEN AND DECIDUOUS VEGETATION (TREES AND UNDERSTORY GROWTH) ALONG THE PROPERTY LINE WITH ADDITIONAL TREES FURTHER TO THE WEST.

THE (4) EXISTING SITE TREES ARE TO BE REMOVED DUE TO THEIR PROXIMITY TO THE PROPOSED CHILD CARE CENTER BUILDING AND INSTALLATION OF REQUIRED UTILITIES.

REFER TO PLAN #1 THIS SHEET FOR THE LOCATION OF THE EXISTING TREES AND THOSE WITHIN 100 FEET OF THE PROPERTY LINE.

PLANT COMPOSITION CALCULATION:

TOTAL PROPOSED TREES:	104
20% OF TOTAL PROPOSED TREES:	21
NO QUANTITY OF A SINGLE TREE SPECIES EXCEEDS:	21
PROPOSED NATIVE TREES:	64
PROPOSED NON-NATIVE TREES:	40

>50% OF PROPOSED TREES TO BE NATIVE

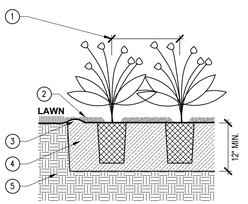
HWLA
HAGENBUCH WEIKAL
LANDSCAPE ARCHITECTURE

248 477 3600 TEL
WWW.KW-LA.COM
33203 BIDDESTONE LANE, FARMINGTON HILLS, MI 48334

PRUNE BRANCHES TO THIN OR MATCH, RETAIN NORMAL PLANT SHAPE. PRUNE DEAD BRANCHES

SHRUBS SHALL BEAR THE SAME RELATIONSHIP TO FINISH GRADE AS THEY BORE TO ORIGINAL GRADE.

CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO INSTALLATION



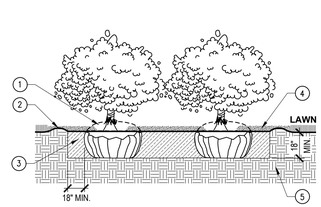
REMOVE ALL FIBER, PLASTIC OR METAL CONTAINERS

KNIFE SLIT SIDE OF ROOT BALL 6 TIMES, 1" DEEP EACH

1. IRREGULAR PLANT SPACING
2. 4" DEPTH DOUBLE PROCESSED SHREDDED BARK MULCH; DO NOT BURY CROWN OF PLANT, PROVIDE 4" DIAMETER CLEAR AREA AROUND PLANT CROWN
3. MOUND TO FORM SAUCER – FORM SOIL SAUCER WITH 3" HT. CONTINUOUS RIM – SEE PLAN
4. EXCAVATE EXISTING SOIL 12" DEEP FILL WITH PLANT MIX (SEE SPECS.)
5. UNDISTURBED SUBGRADE

3 PERENNIAL / GROUNDCOVER PLANTING DETAIL

NOT TO SCALE



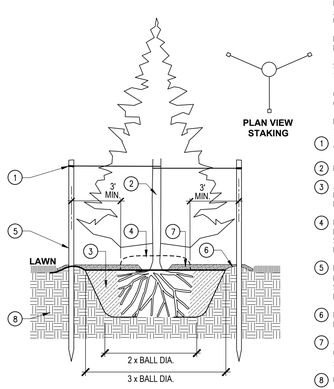
REMOVE ALL FIBER, PLASTIC OR METAL CONTAINERS.

KNIFE SLIT SIDE OF ROOT BALL 6 TIMES, 1" DEEP EACH

1. REMOVE ALL OF BURLAP FROM ROOTBALL
2. MOUND TO FORM SAUCER – FORM SOIL SAUCER WITH 3" HT. CONTINUOUS RIM
3. SPECIFIED PLANTING MIX – WATER & TAMP TO REMOVE AIR POCKETS – 18" MIN. DEPTH OR DEPTH OF ROOT BALL.
4. 4" DEPTH MULCH – DO NOT BURY CROWN OF PLANT, PROVIDE A 4" DIAMETER CLEAR AREA AROUND PLANT CROWN
5. UNDISTURBED SUBSOIL

4 SHRUB BED PLANTING DETAIL

NOT TO SCALE



REMOVE ALL TAGS, STRINGS, PLASTICS AND OTHER MATERIALS WHICH ARE UNSIGHTLY OR COULD CAUSE GIRDLING

PLANT SO THAT TOP OF ROOT FLARE IS EVEN WITH THE FINISHED GRADE

STAKE ALL EVERGREEN TREES UNDER 12' HT.

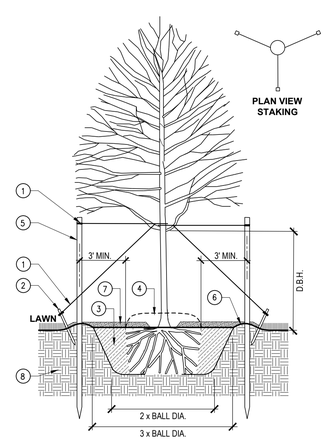
GUY ALL EVERGREEN TREES 12' HT. AND OVER

KNIFE SLIT SIDE OF ROOT BALL 6 TIMES, 1" DEEP EACH

1. 'ARBORTIE' NYLON STRAPS
2. NEVER CUT LEADER
3. AMEND SOIL PER SPECIFICATION REQUIREMENTS, WATER AND TAMP TO REMOVE AIR POCKETS
4. REMOVE ±4"–8" OF SOIL FROM TOP OF ROOT BALL TO EXPOSE ROOT FLARE. SOIL CAN BE USED IN PLANT MIX. REMOVE ALL OF BASKET AND BURLAP
5. HARDWOOD STAKES (3) STAKES 2"x2" DRIVEN (MIN. 18") FIRMLY INTO SUBGRADE PRIOR TO BACKFILLING. REMOVE AFTER 1 YEAR
6. FORM SOIL SAUCER 3" HT., AT EDGE OF PLANT PIT
7. 4" DEEP SHREDDED BARK MULCH LEAVE 6" DIA. CIRCLE OF BARE SOIL AT TRUNK – DO NOT BURY TRUNK BASE
8. UNDISTURBED SUBSOIL

5 EVERGREEN TREE PLANTING

NOT TO SCALE



STAKE ALL TREES UNDER 4" GUY ALL TREES 4" AND OVER

PRUNE ONLY TO REMOVE BROKEN OR DAMAGED BRANCHES

PLANT SO THAT TOP OF ROOT FLARE IS EVEN WITH THE FINISHED GRADE

NEVER CUT LEADER

KNIFE SLIT SIDE OF ROOT BALL 6 TIMES, 1" DEEP EACH

1. 'ARBORTIE' NYLON STRAPS

STAKE ABOVE FIRST BRANCHES OR AS NECESSARY FOR FIRM SUPPORT

2. FOR TREES OVER 4" CAL., (3) 2"x4"x24" PRESS. TREATED STAKES TOP OF STAKE 6" ABOVE GROUND
3. AMEND SOIL PER SPECIFICATION REQUIREMENTS, WATER AND TAMP TO REMOVE AIR POCKETS
4. REMOVE ±4"–8" OF SOIL FROM TOP OF ROOT BALL TO EXPOSE ROOT FLARE. SOIL CAN BE USED IN PLANT MIX. REMOVE ALL OF BASKET AND BURLAP
5. HARDWOOD STAKES (3) STAKES 2"x2" DRIVEN (MIN. 18") FIRMLY INTO SUBGRADE PRIOR TO BACKFILLING. REMOVE AFTER 1 YEAR
6. FORM SAUCER 3" HT. AT EDGE OF PLANT PIT
7. 4" DEEP SHREDDED BARK MULCH LEAVE 6" DIA. CIRCLE OF BARE SOIL AT TRUNK – DO NOT BURY TRUNK BASE
8. UNDISTURBED SUBSOIL

6 DECIDUOUS TREE PLANTING

NOT TO SCALE

OE Engineering

Orman Engineering, LLC
5476 Vivian Lane
Waterford, MI 48327
P: 248.682.6001
E: alex@ormanengineering.com

PROJECT

Proposed Development

Township of Pittsfield,
Washtenaw County, MI

CLIENT

Rainbow Rascals MI - Pittsfield LLC
1732 Crooks Road
Troy, Michigan 48084

Contact: Reed Fenton
t. 248-519-9281
f. 248-569-2100

SEAL

STATE OF MICHIGAN
KENNETH S. WEIKAL
LANDSCAPE ARCHITECT
No. 1022
REGISTERED LANDSCAPE ARCHITECT

SHEET

Plant List & Details

PROJECT LOCATION

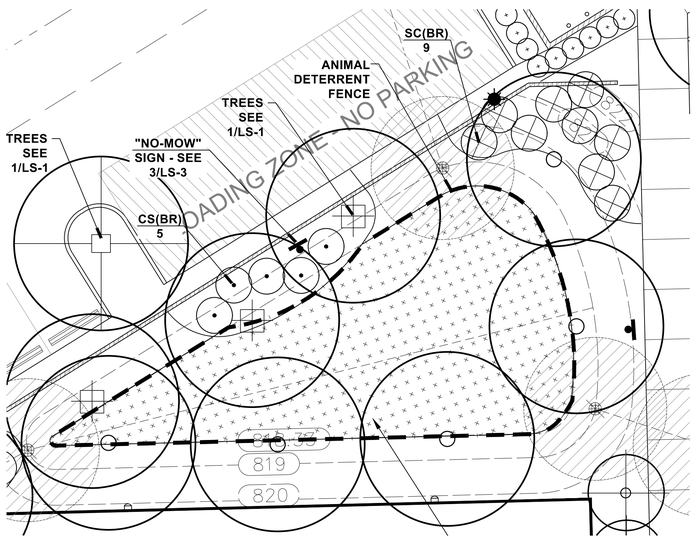
Pittsfield Township,
Washtenaw County,
MI

811 Know what's below Call before you dig.

REVISIONS

Date	Description
11.30.18	REVISED PER STORM WATER ENGINEER
10.16.18	SITE PLAN APPROVAL
08.08.18	SITE PLAN APPROVAL
03.12.18	SITE PLAN APPROVAL
12.05.17	REVIEW
11.09.17	PRELIMINARY REVIEW

Designed by:	Drawn by:
K.W.	K.M.W.
Approved by:	**Date:**
K.W.	10-27-2017
Scale:	
As Noted	
Job No.:	**Sheet:**
1094	LS-2



1 LS-1 BIORETENION AREA A

SCALE 1" = 10'

NORTH

GRAPHIC SCALE 0 5 10 20

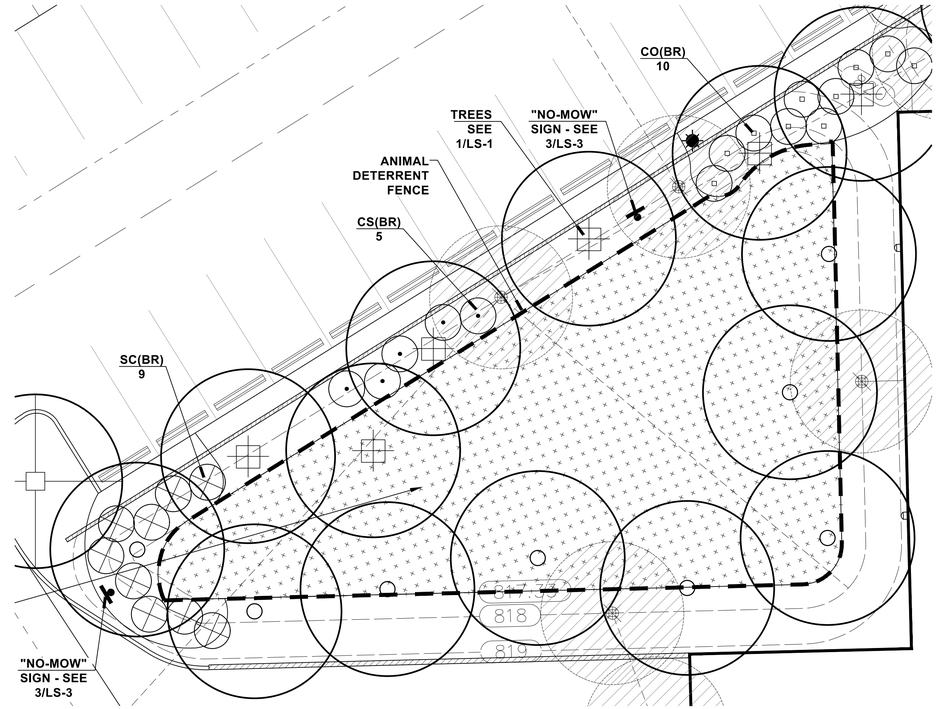
BIORETENTION AREA A'

1,515 SF AREA
1,515 SF X 2FT O.C. = 380 PLUGS

380 PLUGS / 5 PLUG TYPES =76 PLUGS PER TYPE

PLUGS TO BE EQUALLY DISTRIBUTED AND PLANTED AT MAX. 2' O.C.

Emergent Plugs



2 LS-1 BIORETENION AREA B

SCALE 1" = 10'

NORTH

GRAPHIC SCALE 0 5 10 20

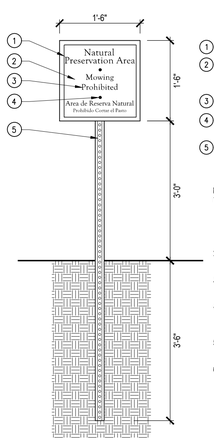
BIORETENTION AREA B'

3,500 SF AREA
3,500 SF X 2FT O.C. = 875 PLUGS

875 PLUGS / 5 PLUG TYPES = 175 PLUGS PER TYPE

PLUGS TO BE EQUALLY DISTRIBUTED AND PLANTED AT MAX. 2' O.C.

Emergent Plugs



1. MARKER BORDER. COLOR TO BE WHITE
2. ALUMINUM MARKER PANEL. .063 FACE WITH VINYL COPY/DIGITAL PRINT. FROG GREEN – SUBMIT SAMPLE
3. MARKER LETTERING. COLOR – WHITE
4. 5/16" STAINLESS BOLTS, WASHERS AND LOCKNUTS
5. GREEN U-CHANNEL POST DRIVEN INTO VIRGIN SOIL

NOTES:

1. INSTALL MARKER PER MANUF. REC. SUBMIT FULL SHOP DRAWINGS INCLUDING MANUF. TECHNIQUES, FASTENERS, COLOR SAMPLES AND FONT SIZES FOR APPROVAL PRIOR TO FABRICATION.
2. LETTER SIZES TO BE DETERMINED BY MARKER MANUF.
3. ALL COLORS TO BE CONFIRMED BY OWNER PRIOR TO FABRICATION.
4. MARKER LOCATION TO BE FIELD VERIFIED BY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
5. BACK OF MARKER TO BE BARE ALUMINUM
6. NO MOW SIGNS TO BE PLACED AROUND THE STORMWATER BASIN, RAIN GARDENS, AND AT THE SOD EDGE ON THE NORTH END OF THE DISTURBANCE LIMITS AT 100' INTERVALS MAX. OR PER LANDSCAPE ARCHITECT. ALL LOCATIONS TO BE STAKED AND FIELD VERIFIED BY LANDSCAPE ARCHITECT

3 LS-3 NATURE AREA - "NO MOW" MARKER

NOT TO SCALE

= MARKER

ANIMAL DETERRENT FENCING

3' HT. CHICKEN WIRE, 2X2" WOOD STAKES 6' O.C., CONTINUOUS AROUND TOP BANK OF POND AS SHOWN ON DETAIL 2/ L.102. REMOVE AT END OF WARRANTY PERIOD AS DIRECTED BY LANDSCAPE ARCHITECT.

BIORETENTION PLANTS

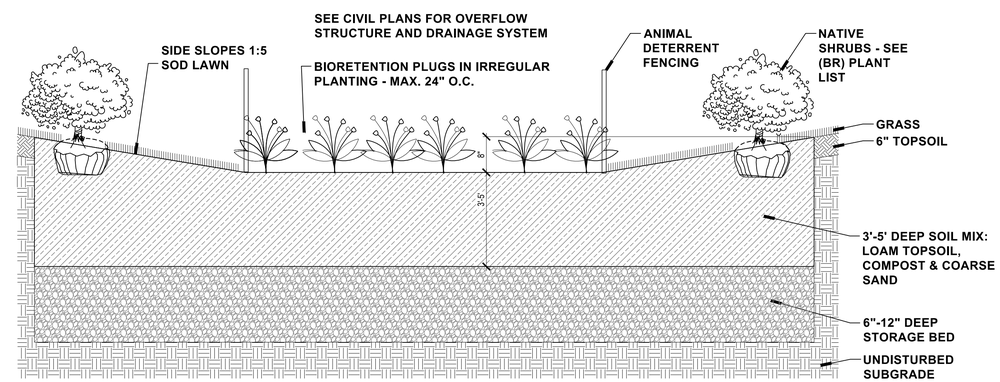
SYM.	QTY. A + B=	BOTANICAL NAME	COMMON NAME	ROOT	SIZE
Emergent Plugs	76 + 175= 251	ACORUS CALAMUS	SWEET FLAG	PLUG	2"-3"
	76 + 175= 251	ASCLEPIAS INCARNATA	SWAMP MILKWEED	PLUG	2"-3"
	76 + 175= 251	IRIS VIRGINICA	BLUE FLAG IRIS	PLUG	2"-3"
	76 + 175= 251	PELTANDRA VIRGINICA	ARROW ARUM	PLUG	2"-3"
	76 + 175= 251	VERBENA HASTATA	BLUE VERVAIN	PLUG	2"-3"

3,500 SF +
1,515 SF
5,015 SF
X 2 PER SF = 1,255 PLUGS

PLANT LIST - (BR) BIORETENTION

QUAN.	KEY	COMMON/ BOTANICAL NAME	SIZE	SPEC.
10	CO	Buttonbush *Chephalacanthus occidentalis*	36" Ht.	B&B
18	SC	Common Elderberry *Sambucus canadensis*	36" Ht.	B&B
10	CS	Red-Osier Dogwood *Cornus sericea*	36" Ht.	B&B

4 LS-3 PLANT LISTS



5 LS-3 TYPICAL RAIN GARDEN SECTION

NOT TO SCALE

HWLA
HAGENBUCH WEIKAL
LANDSCAPE ARCHITECTURE

248 477 3600 TEL
WWW.KW-LA.COM
33203 BIDDESTONE LANE, FARMINGTON HILLS, MI 48334

Orman Engineering

Orman Engineering, LLC
5476 Vivian Lane
Waterford, MI 48327
P: 248.682.6001
E: alex@ormanengineering.com

PROJECT
Proposed Development

Township of Pittsfield,
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CLIENT
Rainbow Rascals MI - Pittsfield LLC
1732 Crooks Road
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SEAL

STATE OF MICHIGAN
KENNETH S. WEIKAL
LANDSCAPE ARCHITECT
No. 1022
REGISTERED LANDSCAPE ARCHITECT

SHEET
Bioretention Areas
Plans and Details

PROJECT LOCATION
Pittsfield Township,
Washtenaw County,
MI

811
Know what's below
Call before you dig.

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Designed by:	Drawn by:
K.W.	K.M.W.
Approved by:	**Date:**
K.W.	10-27-2017

Scale:
As Noted

Job No.: 1094
Sheet: LS-3

D-Series Size 1
LED Wall Luminaire

d-series

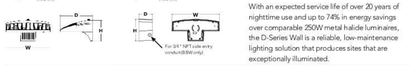
Specifications

Luminaire

Width: 13-3/4" (34.9 cm) Weight: 12 lbs (5.4 kg)
Depth: 10" (25.4 cm)
Height: 6-3/8" (16.2 cm)

Back Box (BBW, ELCW)

Width: 13-3/4" (34.9 cm) Weight: 5 lbs (2.3 kg)
Depth: 4" (10.2 cm) ELCW Weight: 10 lbs (4.5 kg)
Height: 6-3/8" (16.2 cm)



Catalog Number
Notes
Type

Specifications subject to change without notice.

Introduction

The D-Series Wall luminaire is a stylish, fully integrated LED solution for building-mount applications. It features a sleek, modern design and is carefully engineered to provide long-lasting, energy-efficient lighting with a variety of optical and control options for customized performance.

With an expected service life of over 20 years of nighttime use and up to 74% in energy savings over comparable 250W metal halide luminaires, the D-Series Wall is a reliable, low-maintenance lighting solution that produces sites that are exceptionally illuminated.

Ordering Information EXAMPLE: DSXW1 LED 20C 1000 40K T3M MVOLT DDBTXD

DSXW1 LED

Series	LEDs	Drive Current	Color temperature	Distribution	Voltage	Mounting	Control Options
DSXW1 LED	10C 10 LEDs (one engine)	350 350 mA	30K 3000K	T1S Type I short	MVOLT[1,2]	**Shipped included**	**Shipped installed**
	20C 20 LEDs (two engines)	530 530 mA	40K 4000K	T2S Type II short	120[3]	PE Photocell or dusk/dawn	PNMPC Motion/ambient sensor, 8-15 mounting height, ambient sensor enabled at 1fc [7,8]
		700 700 mA	50K 5000K	T2M Type II medium	208[3]	DMG 0-10V dimming driver (no controls; wires capped outside fixture)	PNMPCDCSW Motion/ambient sensor, 8-15 mounting height, ambient sensor enabled at 1fc [7,8]
		1000 1000 mA (1A)[1]	AMBPC Amber phosphor converted	T3S Type III short	240[3]	PIR 180° motion/ambient light sensor, <17 ft mtg ht [7]	PNRFCSW Motion/ambient sensor, 8-15 mounting height, ambient sensor enabled at 1fc [7,8]
				T3M Type III medium	277[3]	PIRH 180° motion/ambient light sensor, 15-30 mtg ht [7]	ELCW Emergency battery backup (includes external components enclosed, non-CE compliant)[9]
				T4M Type IV medium	347[4,5]	PIRHCSW Motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 1fc [7,8]	
				TFTM Forward Throw medium	480[4,5]		
				ASYM Asymmetric diffuse			

Other Options

Shipped installed	Shipped separately[10]	Finish (required)
SF Single fuse (120, 277 or 347V)[6]	BSW Bird-deterrent spikes	DDBXD Dark bronze
DF Double fuse (208, 240 or 480V)[6]	WG Wire guard	DBLXD Black
BS House-side shield[7]	VG Vandal guard	DNAXD Natural aluminum
SPD Surge protective device	DDL Diffused drop lens	DWHXD White
		DDBTXD Textured dark bronze
		DBLBXD Textured black
		DNATXD Textured natural aluminum
		DWHGXD Textured white
		DSTXD Textured sandstone

Accessories
Ordered and shipped separately.

DSXW1LA Wall mounting plate (lightgray)
DSXW1WLA Wall dimming plate
DSXW1WLG Wireless gateway
DSXW1WLS Wireless gateway service

NOTES
1 24V, 1000ma not available with PIR, PIRH, PIRHCSW or PIRHCFC2V.
2 MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
3 Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage options.
4 Only available with 20C, 700mA or 1000mA. Not available with PIR or PIRH.
5 Not to be distributed on Nature, Concrete Field Installed. Cannot be ordered as an accessory.
6 Not recommended for houseside shield. Not available with motion/ambient light sensors PIR or PIRH.
7 Photocell or dusk/dawn not available with PE.
8 Cold weather (-20C) rated. Not compatible with conduit entry applications. Not available with BBW mounting option. Not available with fusing. Not available with 347 or 480 voltage options. Emergency components located in back box housing. Emergency mode IES files located on product page at www.lithonia.com
9 Not available with ELCW.
10 Also available as a separate accessory; see Accessories information.

LITHONIA LIGHTING. One Lithonia Way • Conyers, Georgia 30012 • Phone: 800.279.8041 • www.lithonia.com
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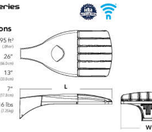
DSXW1 LED Rev. 3/13/18

D-Series Size 0
LED Area Luminaire

d-series

Specifications

EPA: 0.95 ft² (.09m²)
Length: 26" (66.0cm)
Width: 13" (33.0cm)
Height: 7" (17.8cm)
Weight (max): 16 lbs (7.3kg)



Catalog Number
Notes
Type

Specifications subject to change without notice.

A+ Capable Luminaire

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and system-level interoperability.

- All configurations of this luminaire meet the Acuity Brands' specification for chromatic consistency.
- This luminaire is A+ Certified when ordered with DTL® controls marked by a shaded background. DTL DLL equipped luminaires meet the A+ specification for luminaire to photocontrol interoperability!
- This luminaire is part of an A+ Certified solution for ROAM® or XPoint™ Wireless control networks, providing out-of-the-box control compatibility with simple commissioning, when ordered with drivers and control options marked by a shaded background.

To learn more about A+, visit www.acuitybrands.com/aplus.

1. See ordering tree for details.
2. A+ Certified Solutions for ROAM require the order of one ROAM node per luminaire. Sold Separately. Link to Roamj Link to DTL DLL.

A+ Capable options indicated by this color background.

Ordering Information EXAMPLE: DSX0 LED P6 40K T3M MVOLT SPA DDBXD

DSX0 LED

Series	LEDs	Color temperature	Distribution	Voltage	Mounting
DSX0 LED	**Forward optics** P1 P4 P7 P2 P5 P3 P6 **Rotated optics** P10[2] P12[2] P11[2] P13[2]	30K 3000K 40K 4000K 50K 5000K AMBPC Amber phosphor converted[1]	T1S Type I short T2S Type II short T2M Type II medium T3S Type III short T3M Type III medium T4M Type IV medium TFTM Forward Throw medium ASYM Type V very short	MVOLT[3,4] 120[4] 208[4,5] 240[4,5] 277[4,5] 347[4,5,6] 480[4,5,6]	**Shipped included** SPA Square pole mounting RPA Round pole mounting WBA Wall bracket SPUMBA Square pole universal mounting adapter[7] RPUMBA Round pole universal mounting adapter[7] **Shipped separately** KMA8 DDBXD U Matching pole mounting bracket adapter (specify finish)[7]

Control options

Shipped installed	PNMPCSW Bi-level, motion/ambient sensor, 15-30 mounting height, ambient sensor enabled at 1fc[7,8,9]	**Other options**	**Finish** (required)
NLTAIR2 nLight AIR generation 2 enabled[10]	BL30 Bi-level switched dimming, 30% ON[9,11]	**Shipped installed**	DDBXD Dark bronze
PIR 180° motion sensor, for use with dusk to dawn sensor[7]	BL50 Bi-level switched dimming, 50% ON[9,11]	HS House-side shield[12]	DBLXD Black
PIR1FC3V Bi-level, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 1fc[7,8,9]	PNMTD2S Part-night, dim 2 hrs[7,9]	SF Single fuse (120, 277, 347V)[6]	DNAXD Natural aluminum
PIRH Bi-level, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 1fc[7,8,9]	PNMTD3S Part-night, dim 3 hrs[7,9]	DF Double fuse (208, 240, 480V)[6]	DWHXD White
PIRHN Network, Bi-level motion/ambient sensor[9]	PNMTD4S Part-night, dim 4 hrs[7,9]	LWR Left rotated optics[2]	DSSTXD Textured dark bronze
PIR1FC3V Bi-level, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 1fc[7,8,9]	PNMTD6S Part-night, dim 6 hrs[7,9]	RWR Right rotated optics[2]	DBLBTXD Textured black
	PNMT8S Part-night, dim 8 hrs[7,9]	DDL Diffused drop lens[14]	DNATXD Textured natural aluminum
	PNMT10S Part-night, dim 10 hrs[7,9]	**Shipped separately**	DWHGXD Textured white
	PNMT12S Part-night, dim 12 hrs[7,9]	BS Bird spikes[14]	
	DWD Wireless dimming wall switch[9]	EGS External glare shield[14]	

LITHONIA LIGHTING. One Lithonia Way • Conyers, Georgia 30012 • Phone: 800.279.8041 • www.lithonia.com
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DSX0LED Rev. 03/21/18 Page 1 of 7

gotham

Luminaire Type: Catalog Number (autopopulates)

Gotham Architectural Downlighting
LED Downlights

4" Evo® Downlight

Solid-State Lighting

FEATURES

OPTICAL SYSTEM
- Self-flanged or flangeless semi-specular, matte-diffuse or specular finishing trim
- Patented Bounding Ray™ optical designs (U.S. Patent No. 9,800,050)
- 45° cutoff to source and source image
- Top-down flash characteristic
- Polycarbonate lens integral to light engine

MECHANICAL SYSTEM
- 16-gauge galvanized steel construction; maximum 1-1/2" ceiling thickness
- Adjustable downlight aiming to maximum of 30° and maximum of 15°, presetabled, 4° vertical adjustment
- Toolless adjustments post installation
- Junction box capacity: 8 (4 in, 4 out) | 12AWG rated for 90°C
- Light engine and driver accessible through aperture
- Injection molded mud ring included with flangeless trims. Ships separately. Installs independently of the mounting frame to reduce cracks in plaster due to vibration.

ELECTRICAL SYSTEM
- Fully serviceable and upgradeable lensed LED light engine
- 70% lumen maintenance at 60,000 hours
- Tested according to LM-79 and LM-80 standards
- Overload and short circuit protected
- 2.5 SDCM, 85 CRI typical, 90+ CRI optional

LISTINGS
- Fixtures are CSA certified to meet US and Canadian standards; wet location, insulation contacting ENERGY STAR® certified product.

WARRANTY
- 5-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

Note: Actual performance may differ as a result of end user environment and application. All values are design or typical values, measured under laboratory conditions at 25° C.

ORDERING INFORMATION

A+ Capable options indicated by this color background.

EXAMPLE: EVD 35/50 4AR WWB LS5 MVOLT EZ1

Series	Color temperature	Nominal lumen values	Aperture/Trim color	Trim Style	Distribution	Finish	Voltage
EVD	**27/** 2700 K	**07** 750 lumens	**4AR** Clear	(blank) Self-flanged	**WD** Medium (8-9 cents)	**LSS** Semi-specular	**MVOLT**
	30/ 3000 K	**10** 1000 lumens	**4PR** Pewter	**FL** Flangeless	**WWD** Medium wide (1.8-2 cents)	**LS** Matte-diffuse	**120**
	35/ 3500 K	**15** 1500 lumens	**4WTR** Wheat			**LS** Specular	**277**
	40/ 4000 K	**20** 2000 lumens	**4GR** Gold		**WD** Wide (1.2-1.4 cents)		**347V**
	50/ 5000 K	**25** 2500 lumens	**4WH** White				
		30 3000 lumens	**4BK*** Black				
			4WBANR* White anti-microbial				

Driver[1]	Options
EZ10 eldoLED 0-10V IEC Driver. Linear dimming to 10% min.	**SF** Single fuse. Specify 120V or 277V
EZ1 eldoLED 0-10V IEC Driver. Linear dimming to 1% min.	**TRM*** White painted flange
EZ0 eldoLED 0-10V IEC Driver. Logarithmic dimming to <1%.	**TRBL*** Black painted flange
EDB6 eldoLED IEC Driver DALI. Logarithmic dimming to <1%.	**CL*** Emergency battery pack with integral test switch
EDB8 eldoLED POWERdrive DALI with B2M (remote device management). Square Law dimming to <1%. Includes termination resistor. Refer to DALI2 Manual.	**CLP*** Emergency battery pack with remote test switch
EN1 XPoint Wireless. eldoLED 0-10V IEC Driver. Linear dimming to 1%. Refer to XPoint tech sheet.	**WP-SDCZ*** nLight® dimming pack controls 0-10V eldoLED drivers.
EN0 XPoint Wireless. eldoLED 0-10V IEC Driver. Logarithmic dimming to <1%. Refer to XPoint tech sheet.	**WP-SDCZCR*** nLight® dimming pack controls 0-10V eldoLED drivers. CR zone-binds fixtures on emergency circuit.
ECOS2[2,3] Lutron® EcoSystem® 2-wire forward phase driver. Minimum dimming level 1%. Minimum lumen 1000/Maximum lumen 3000.	**WSG*** nLight® Lumen Compensation
ECOS5[2,3] Lutron® EcoSystem® 5-wire or EcoSystem® 0-10V forward phase driver. Minimum dimming level 1%. Minimum lumen 1000/Maximum lumen 4500.	**BDTD** Bedline generator transfer device. Specify 120V or 277V.
	CRHSG High CRI (96+). Specify 120V or 277V.
	CP[1,2] Chicago plenum
	RTA_ RELUX® ready luminaire connection enable a simple and consistent factory-installed option across all ARB, luminaire brands. Refer to RTA for complete nomenclature.

EVD-4-OPEN PAGE 1 OF 4
GOTHAM ARCHITECTURAL DOWNLIGHTING | P 800.315.4982 | gothamlighting.com
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Rev: 2017/08/08

OW1301 – AVATAR™ VISA LIGHTING

Type: Project: VisaLighting.com/products/Avatar

Fill in shaded boxes using information listed below

Order Code: OW1301 - - - - - -
MODEL ❶ SOURCE ❷ VOLTAGE ❸ FRAME ❹ ACCENT BAR AND END CAP ❺ OPTIONS(s)
Finishes

❶ SOURCE (Select one) ❷ VOLTAGE
MVOLT fixture accepts 120 through 277 input voltage.
LED sources are 80CRI, within 3-step MacAdam and are dimmable 0-10V to 1%

LED Sources	CCT	Delivered Lumens	Power (Watts)	Voltage
* L30K-L	3000K	800	9	MVOLT
L35K-L	3500K			
* L40K-L	4000K			
* L30K-H	3000K	1200	15	
L35K-H	3500K			
* L40K-H	4000K			

FINISHES (Select one ❸ Frame Finish and one ❹ Accent Bar and End Cap Finish See page 2 for color chart

Powder Coat Painted Finishes (Standard) for Frame or Accent Bar and End Cap.

AGT038	Agate Grey	**CVBL**	Cove Blue	**GWH002**	Grey White	**PB1035**	Pearl Beige
BMAT	Bronze Matte	**CWH001**	Cream	**HTHR**	Heather	**RUST**	Rust
BRNZ	Bronze	**GLBK**	Glimmer	**JBK005**	Jet Black	**SLNG**	Sungold
BSIL	Blade Silver	**GSIL**	Graphite Silver	**OBRZ**	Old Bronze	**TWH016**	Traffic White

Metals (Premium) for Accent Bar and End Cap only

BSS Brushed Stainless Steel	**PSS** Polished Stainless Steel

The options available in this series provide a variety of visual compositions; this rugged die-cast and extruded fixture stands up to the elements.

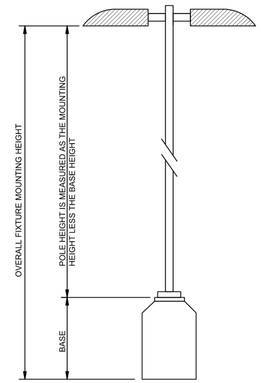
DIMENSIONS
Depth is measured from wall to front of fixture
L = Length D = Depth W = Width HC = Mounting Center

L	19-3/4" (502 mm)
D	4" (102 mm)
W	7-1/4" (184 mm)
HC	9-7/8" (251 mm)

❺ OPTIONS (Multiple Selections Allowed)
- Option availability may be interdependent with Voltage, Source or Other Options
- **HM** Horizontal mount (vertical is standard)
- **XPS** Express 10 day shipping. Items marked with a bullet ★ are not available with XPS

ADA XPS LED ETL Listed 5 Year Warranty

800-788-VISA VisaLighting.com Page 1



Drawing Note

THIS DRAWING WAS GENERATED FROM AN ELECTRONIC IMAGE FOR ESTIMATION PURPOSE ONLY. LAYOUT TO BE VERIFIED IN FIELD BY OTHERS.

Mounting Height Note

MOUNTING HEIGHT IS MEASURED FROM GRADE TO FACE OF FIXTURE. POLE HEIGHT SHOULD BE CALCULATED AS THE MOUNTING HEIGHT LESS BASE HEIGHT

Ordering Note

FOR INQUIRIES CONTACT GASSER BUSH AT QUOTES@GASSERBUSH.COM OR 734-266-6705.

Schedule

Symbol	Label	QTY	Manufacturer	Description	Lamp	Mounting Height
	A	2	Lithonia Lighting	DSX0	LED	25'-0"
	A2	1	Lithonia Lighting	DSX0	LED	25'-0"
	B2	2	Lithonia Lighting	DSX0	LED	25'-0"
	C	25	Lithonia Lighting	DSXW1	LED	12'-0"
	D	7	Lithonia Lighting	DSXW1	LED	12'-0"
	E	7	Gotham Architectural Lighting	EVO 4	LED	9'-0"
	F	5	Lithonia Lighting	DSX0	LED	25'-0"
	G	14	VISA LIGHTING	OW1301	LED	6'-0"

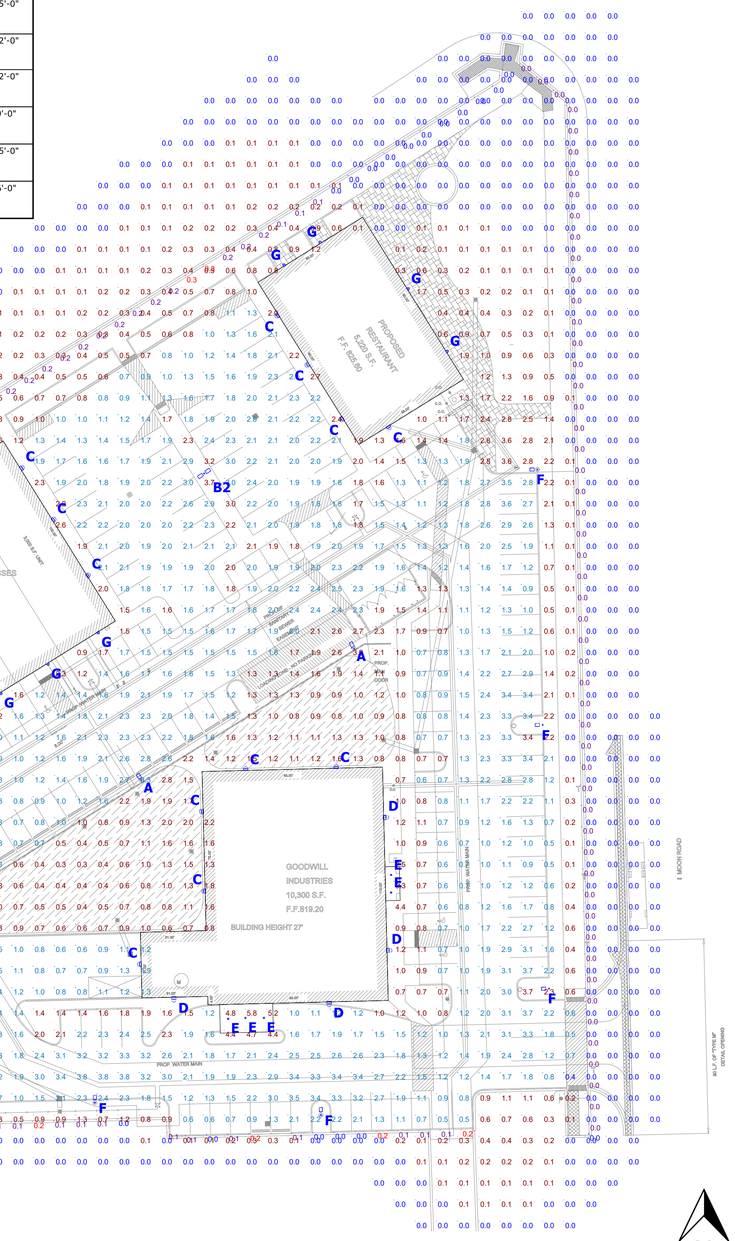
General Note

1. SEE SCHEDULE FOR LUMINAIRE MOUNTING HEIGHT.
2. SEE LUMINAIRE SCHEDULE FOR LIGHT LOSS FACTOR.
3. CALCULATIONS ARE SHOWN IN FOOTCANDLES AT GRADE ON SITE & 5'-0" AFG ALONG PROPERTY LINE.

THE ENGINEER AND/OR ARCHITECT MUST DETERMINE APPLICABILITY OF THE LAYOUT TO EXISTING / FUTURE FIELD CONDITIONS. THIS LIGHTING LAYOUT REPRESENTS ILLUMINATION LEVELS CALCULATED FROM LABORATORY DATA TAKEN UNDER CONTROLLED CONDITIONS IN ACCORDANCE WITH ILLUMINATING ENGINEERING SOCIETY APPROVED METHODS. ACTUAL PERFORMANCE OF ANY MANUFACTURER'S LUMINAIRE MAY VARY DUE TO VARIATION IN ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, AND OTHER VARIABLE FIELD CONDITIONS. MOUNTING HEIGHTS INDICATED ARE FROM GRADE AND/OR FLOOR UP.

THESE LIGHTING CALCULATIONS ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM SUITABILITY AND SAFETY. THE ENGINEER AND/OR ARCHITECT IS RESPONSIBLE TO REVIEW FOR MICHIGAN ENERGY CODE AND LIGHTING QUALITY COMPLIANCE.

UNLESS EXEMPT, PROJECT MUST COMPLY WITH LIGHTING CONTROLS REQUIRMENTS DEFINED IN ASHRAE 90.1 2013. FOR SPECIFIC INFORMATION CONTACT GBA CONTROLS GROUP AT ASG@GASSERBUSH.COM OR 734-266-6705.



Plan View
Scale - 1" = 40ft

Statistics							
Description	**Symbol**	**Avg**	**Max**	**Min**	**Max/Min**	**Avg/Min**	**Avg/Max**
EAST PROPERTY LINE - 5' AFG	■	0.0 fc	0.0 fc	0.0 fc	N/A	N/A	N/A
NORTH PROPERTY LINE - 5' AFG	■	0.1 fc	0.3 fc	0.0 fc	N/A	N/A	0.3:1
PARKING & DRIVE AREAS	✕	1.7 fc	3.9 fc	0.4 fc	9.8:1	4.3:1	0.4:1
SOUTH PROPERTY LINE - 5' AFG	■	0.1 fc	0.2 fc	0.0 fc	N/A	N/A	0.5:1
WEST PROPERTY LINE - 5' AFG	■	0.0 fc	0.0 fc	0.0 fc	N/A	N/A	N/A

RAINBOW - PITTSFIELD
PHOTOMETRIC SITE PLAN
PREPARED FOR: ORMAN ENGINEERING
GASSER BUSH ASSOCIATES
WWW.GASSERBUSH.COM

Designer	BW/JB/KB
Date	7/20/2018 rev. 10/11/2018
Scale	Not to Scale
Drawing No.	#18-11347-V4
	1 of 1

MATCHLINE - SHEET 2

SCHOOL
2 STORY
FF = 818.0

CB 1 (4' DIA.)
RIM 814.50
IE 21" SE 807.95
IE 18" N 808.15

SIDEWALK

DUMPSTER ENCLOSURE

BITUMINOUS

MH 2 (4' DIA.)
RIM 815.80
IE 21" NW 807.07
IE 21" S 806.97

CB 5 (4' DIA.)
RIM 814.10
IE 15" S 807.80

CB 10 (FM)
RIM=812.23
18" N INV=805.8
21" SE INV=805.8

CB 11 (FM)
RIM=810.83
21" NW INV=805.
24" S INV=804.7

CB 3 (4' DIA.)
RIM 811.50
IE 21" N 806.00
IE 24" S 805.80

CB 6 (4' DIA.)
RIM 811.50
IE 15" N 806.11
IE 18" S 805.91

CB 4 (5' DIA.)
RIM 811.50
IE 24" N 805.75
IE 27" E 805.55

CB 7 (5' DIA.)
RIM 811.50
IE 27" W 805.16
IE 18" N 805.91
IE 30" E 805.01

MH 12 (FM)
RIM=812.73
24" N INV=804.2
36" S INV=804.0
30" W INV=804.2

MH 13 (FM)
RIM=810.64
36" N INV=804.0
36" SW INV=804.0

CB 19 (FM)
RIM=808.28
24" S
INV=802.54

CONC CURB & GUTTER

EXISTING 20' WD
STORM SEWER EASEMENT
(L-4487, P-662)

SALINE CHRISTIAN SCHOOL
ASSOCIATION
7200 MOON RD
SALINE, MI 48176

AG

STEVEN & TAMMY
SINDLINGER
989 COUNTRY CREEK DR
SALINE, MI 48176

PUD
COUNTRY CREEK ESTATES

MCI FO

TELE

MATCHLINE - SHEET 4

Legend

835	EXIST CONTOUR
× 854.6	EXIST SPOT ELEVATION
	EXIST STORM SEWER
	EXIST MANHOLE
	EXIST CATCH BASIN
	EXIST INLET
	EXIST WATER MAIN
	EXIST HYDRANT
	EXIST GATE VALVE IN BOX
	EXIST GATE VALVE IN MANHOLE
	EXIST SANITARY SEWER
∘C.O	EXIST CLEANOUT
	GUY WIRE
∘U.P	EXIST UTILITY POLE
	EXIST UTILITY UNSPECIFIED
	EXIST UNDERGROUND TELEPHONE
	EXIST OVERHEAD TELEPHONE
□t	EXIST TELEPHONE RISER
	EXIST EASEMENT
	SECTION CORNER
	SECTION LINE
	EXIST UNDERGROUND ELECTRIC
	EXIST OVERHEAD ELECTRIC
	EXIST ELECTRIC TRANSFORMER
	EXIST GAS
	EXIST GAS RISER
	EDGE OF WETLAND BOUNDARY
	CENTERLINE OF DITCH OR EDGE OF WATER
	EXIST DECIDUOUS TREE
	EXIST TREE LINE
	PROPERTY LINE
	ADJ PROPERTY LINE
	EXIST SIGN
	EXIST LIGHT POLE
	EXIST CURB AND GUTTER
	EXIST USDA SOIL BOUNDARY LINE
	TREE MARKED FOR REMOVAL

(FM) - DENOTES STORM SEWER THAT WAS FIELD MEASURED BY ATWELL ON DECEMBER 10, 2009 AND RE-VERIFIED BY ATWELL ON FEBRUARY 18, 2010

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

CLIENT
MICHIGAN MOON, LLC.
HARVEST CROSSING
FINAL SITE PLAN/CONSTRUCTION PLANS
EXISTING CONDITIONS & DEMOLITION PLAN

DATE
1/30/09

FINAL S.P. 3-10-09
MDOT RESUBMITTAL 3-30-09
WCDC RESUBMITTAL 4-22-09
MDOT RESUBMITTAL 5-4-09
TOWNSHIP SUBMITTAL 11-12-09
TOWNSHIP RESUBMITTAL 2-11-10
TOWNSHIP RESUBMITTAL 4-15-10

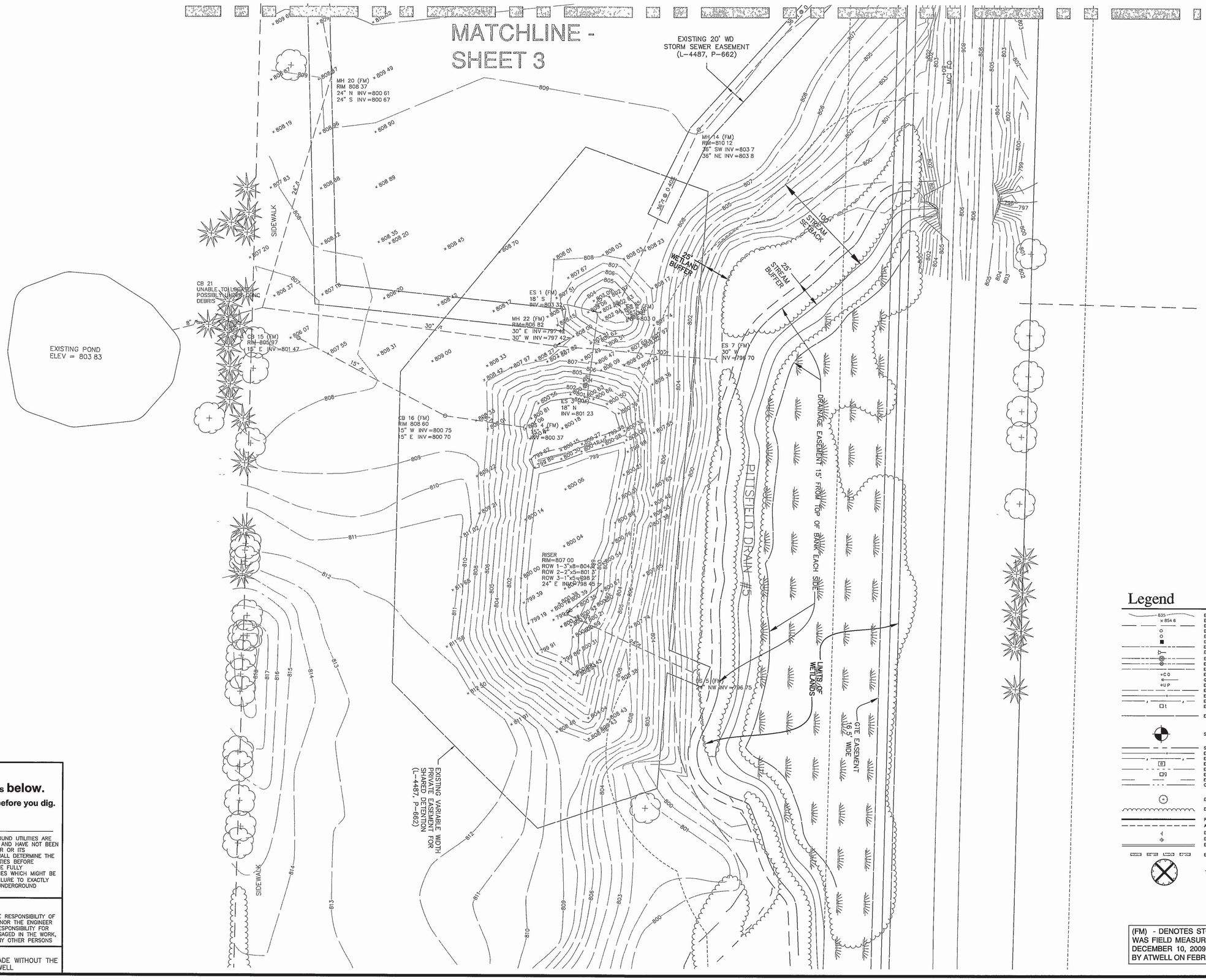
REVISIONS

ATWELL

SCALE 0 20 40
1" = 40 FEET

DR	JVR	CH	TP

P.M. T. COVERT
BOOK --
CAD FILE 100697SF-02-EC.dwg
JOB 100697
FILE CODE SF-0-1
SHEET NO 03



Legend

- EXIST CONTOUR
- EXIST SPOT ELEVATION
- EXIST STORM SEWER
- EXIST MANHOLE
- EXIST CATCH BASIN
- EXIST INLET
- EXIST WATER MAIN
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TOWNSHIP RESUBMITTAL 2-11-10
TOWNSHIP RESUBMITTAL 4-15-10

REVISIONS

ATWELL

SCALE 0 20 40
1" = 40 FEET

DR	JVR	CH	TP

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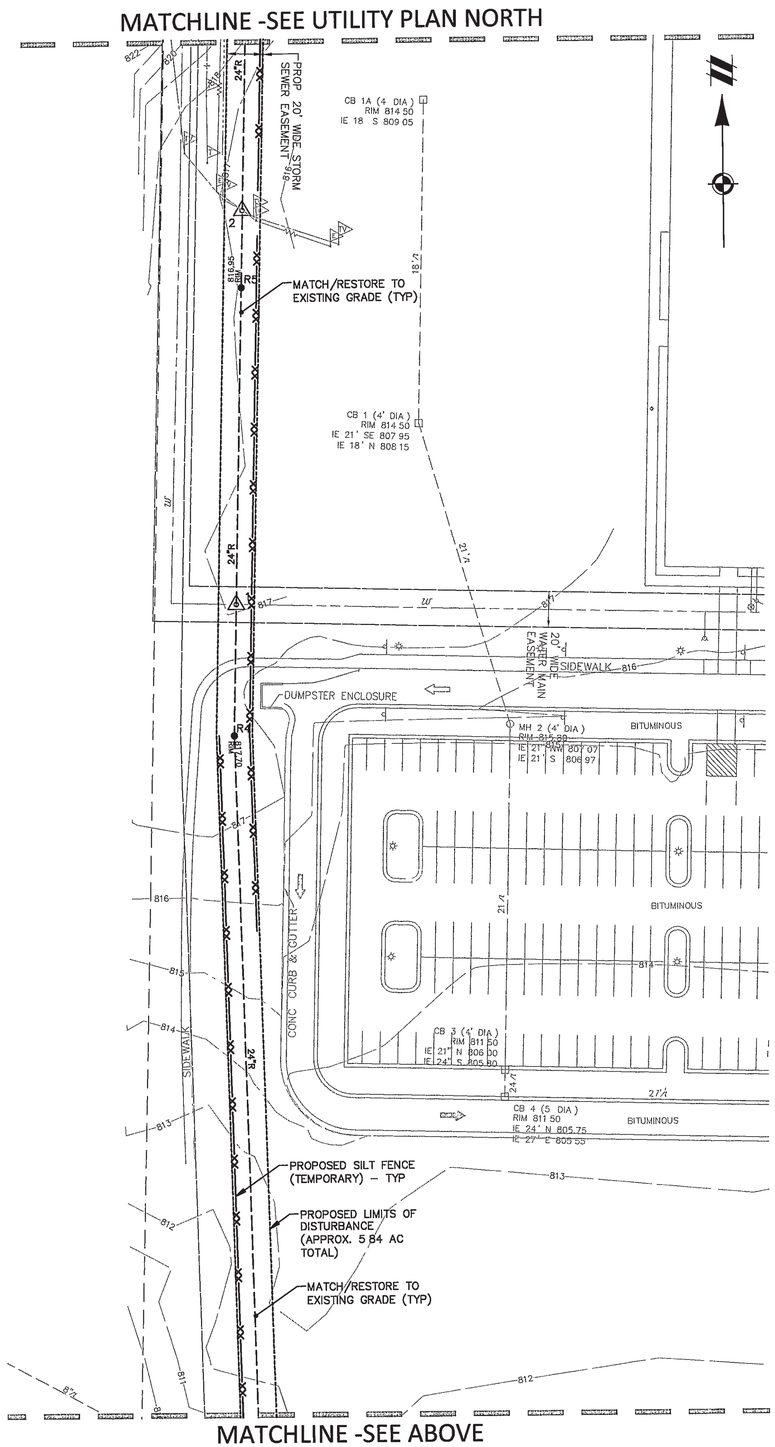
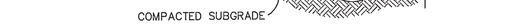
CAD FILE 100697SF-02-EC dwg
JOB 100697
FILE CODE. SF-O-1
SHEET NO 04

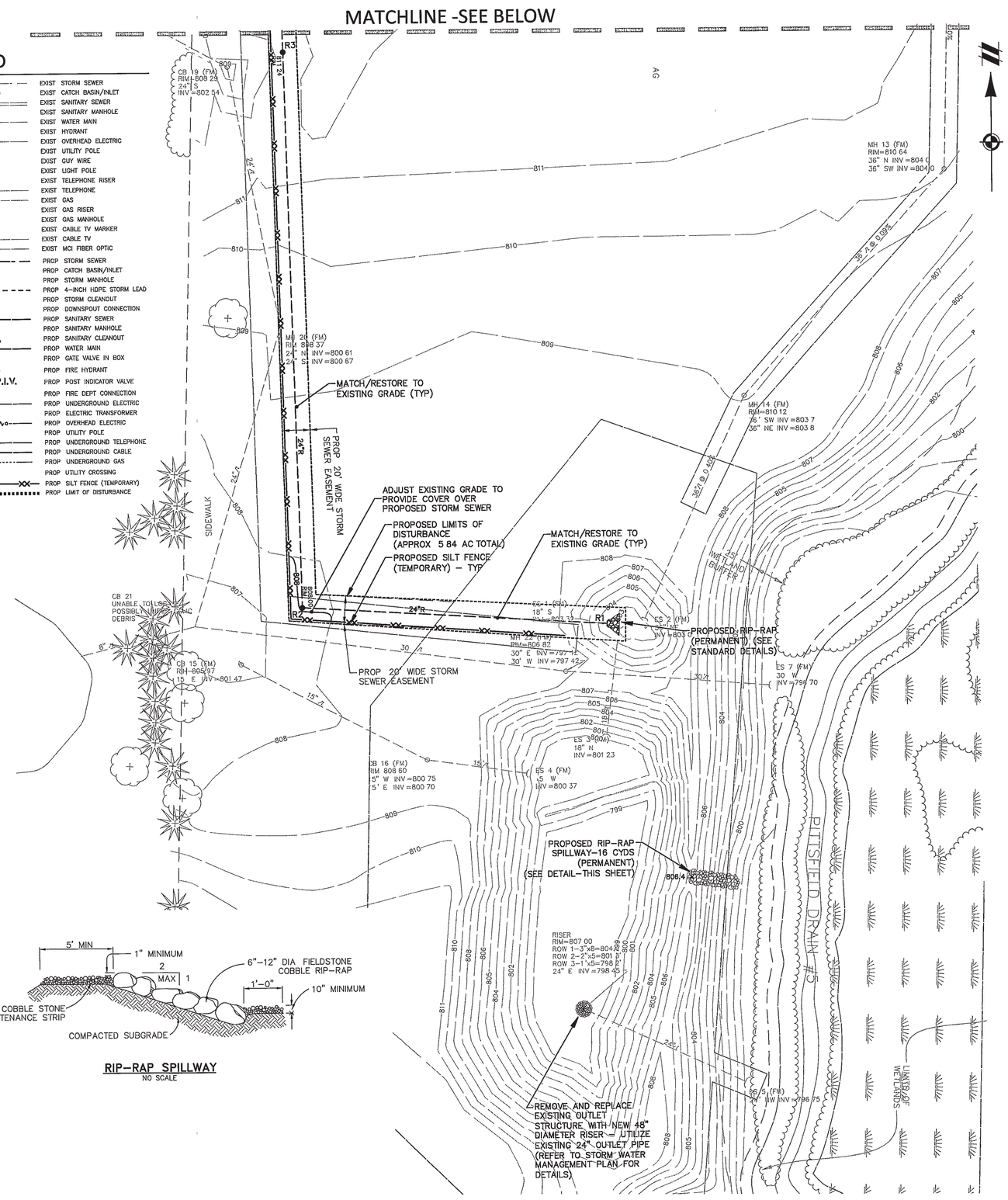


LEGEND

EXIST	STORM SEWER
EXIST	CATCH BASIN/INLET
EXIST	SANITARY SEWER
EXIST	SANITARY MANHOLE
EXIST	WATER MAIN
EXIST	HYDRANT
EXIST	OVERHEAD ELECTRIC
EXIST	UTILITY POLE
EXIST	GUY WIRE
EXIST	LIGHT POLE
EXIST	TELEPHONE RISER
EXIST	TELEPHONE
EXIST	GAS
EXIST	GAS RISER
EXIST	GAS MANHOLE
EXIST	CABLE TV MARKER
EXIST	CABLE TV
EXIST	MCI FIBER OPTIC
PROP	STORM SEWER
PROP	CATCH BASIN/INLET
PROP	STORM MANHOLE
PROP	4-INCH HDPE STORM LEAD
PROP	STORM CLEANOUT
PROP	DOWNSPOUT CONNECTION
PROP	SANITARY SEWER
PROP	SANITARY MANHOLE
PROP	SANITARY CLEANOUT
PROP	WATER MAIN
PROP	GATE VALVE IN BOX
PROP	FIRE HYDRANT
PROP	POST INDICATOR VALVE
PROP	FIRE DEPT CONNECTION
PROP	UNDERGROUND ELECTRIC
PROP	ELECTRIC TRANSFORMER
PROP	OVERHEAD ELECTRIC
PROP	UTILITY POLE
PROP	UNDERGROUND TELEPHONE
PROP	UNDERGROUND CABLE
PROP	UNDERGROUND GAS
PROP	UTILITY CROSSING
PROP	SILT FENCE (TEMPORARY)
PROP	LIMIT OF DISTURBANCE



RIP–RAP SPILLWAY
NO SCALE



SEE UTILITY PLAN - NORTH FOR NOTES AND LEGEND

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 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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SECTION 32 TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
MICHIGAN MOON, LLC.
HARVEST CROSSING
FINAL SITE PLAN/CONSTRUCTION PLANS
UTILITY PLAN & SOIL EROSION CONTROL PLAN – SOUTH

DATE 1/30/09

FINAL S P 3-10-09
MDOT RESUBMITTAL 3-30-09
WCDC RESUBMITTAL 4-22-09
MDOT RESUBMITTAL 5-4-09
TOWNSHIP SUBMITTAL 11-12-09
TOWNSHIP RESUBMITTAL 2-11-10
TOWNSHIP RESUBMITTAL 4-15-10

REVISIONS

ATWELL

SCALE 0 20 40
1" = 40 FEET

DR JVR	CH TP
P M T. COVERT	
BOOK ---	
CAD FILE 1006975F-05-06-U dwg	
JOB 100697	
FILE CODE SF-0-1	
SHEET NO 08	

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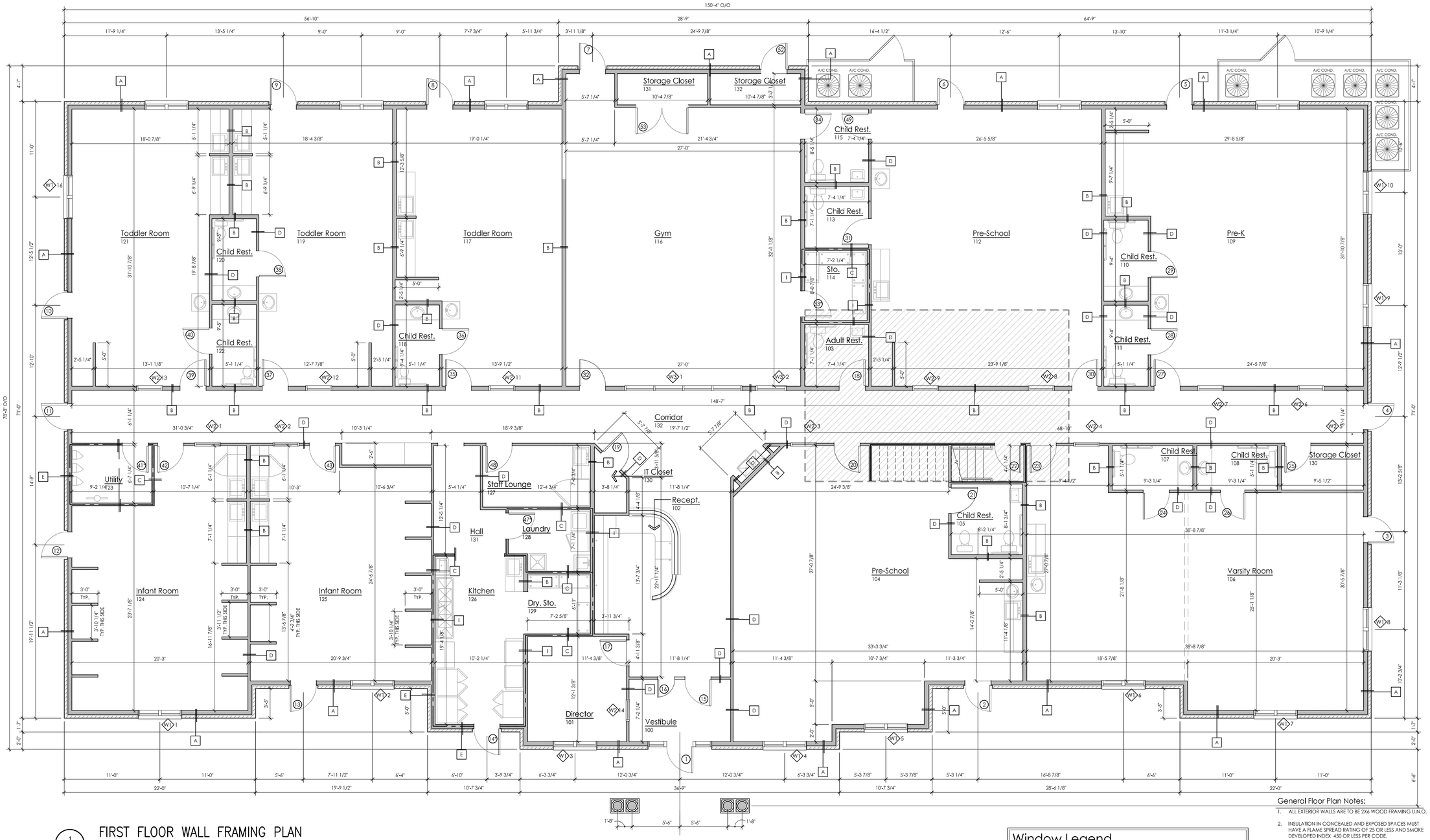

1 A.100

FIRST FLOOR WALL FRAMING PLAN

SCALE: 3/16"=1'-0"

Framing Plan Note:

ALL DIMENSIONS ON FRAMING PLANS ARE TAKEN FROM STUD TO STUD AND DO NOT INCORPORATE THE DRYWALL.

Wall Legend X

A	EXTERIOR WALL (BRICK): EXTERIOR BEARING WALL: BRICK VENEER EXTERIOR FINISH W/ 1" AIR SPACE ON TYVEK AIR INFILTRATION BARRIER ON 1/2" APA RATED PLYWOOD SHEATHING ON 2X6 WOOD STUDS @ 16" O.C. W/ R-21 KRAFT FACED BATT INSUL. W/ 5/8" GYPSUM BOARD FINISH
B	2X6 INTERIOR PARTITION WALL: 5/8" GYPSUM BOARD EACH SIDE OF 2X6 WOOD STUDS @ 16" O.C. PROVIDE ACOUSTICAL SOUND BATT INSULATION @ ALL INTERIOR WALLS AS DIRECTED BY OWNER
C	INTERIOR PARTITION WALL: 1 LAYER TYPE 'X' 5/8" GYPSUM BOARD EACH SIDE OF 2X4 WOOD STUDS @ 16" O.C. PROVIDE ACOUSTICAL SOUND BATT INSULATION @ ALL INTERIOR WALLS AS DIRECTED BY OWNER NOTE: ALL OPENINGS, DOORS AND WINDOW FRAMES ARE TO BE FIRE CAULKED
D	TYPICAL INTERIOR PARTITION WALL: 2X4 STUDS @ 16" O.C. WITH 5/8" GYP. BOARD EACH SIDE. PROVIDE ACOUSTICAL SOUND BATT INSULATION @ ALL INTERIOR WALLS AS DIRECTED BY OWNER
E	EXTERIOR WALL: EXTERIOR BEARING WALL - BRICK VENEER EXTERIOR FINISH W/ 1" AIR SPACE ON TYVEK AIR INFILTRATION BARRIER ON 1/2" APA RATED PLYWOOD SHEATHING ON 2X6 WOOD STUDS @ 16" O.C. W/ R-21 KRAFT FACED BATT INSUL. W/ TYPE 'X' 5/8" GYPSUM BOARD FINISH
F	INTERIOR MEZZANINE WALL: PROVIDE (2) LAYERS TYPE 'X' 5/8" GYPSUM BOARD ON ONE SIDE OF 2X_ STUDS UP TO CEILING.
G	DRAFTSTOPPING WALL: 3/8" PLYWOOD ON ONE SIDE OF PRE-ENG. ROOF TRUSS. RUN UP TO UNDER SIDE OF ROOF SHEATHING (SEE TYPICAL DETAIL ON SHEET A.305 FOR ADDITIONAL INFORMATION)
H	EXTERIOR WALL (VINYL SIDING): GEORGIA PACIFIC (OR EQUIV.) DOUBLE 5" SIDING ON AIR INFILTRATION BARRIER ON 1/2" APA RATED SHEATHING ON 2X6 STUDS @ 16" O.C. W/ R-21 BATT INSULATION ON (2) LAYERS OF 5/8" TYPE 'X' GYP. BRD.
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Window Legend

W1	SINGLE HUNG VINYL WINDOWS **(2 WIDE)** W/ 1" INSULATED CLEAR GLASS. JELD-WEN OR OWNER APPROVED EQUAL. UPPER OPERABLE - SASH TO HAVE SCREEN APPROXIMATE SIZE: 5'-0" WIDE (OVERALL) X 5'-0" HIGH - MANUFACTURER TO USE STANDARD SIZES. VERIFY ARCHITECT OF ANY DISCREPANCIES. PROVIDE TEMPERED GLASS FOR ALL WINDOWS WITHIN 24 INCHES OF A DOOR SWING & LESS THAN 18 INCHES FROM FINISH FLOOR
W2	36" X 36" TEMPERED GLASS LAMINATED WINDOW IN HOLLOW METAL PAINTED FRAME
W3	42" X 36" TEMPERED GLASS LAMINATED WINDOW IN HOLLOW METAL PAINTED FRAME @ GYMNASIUM

Floorplan Height Notes:

1. ALL FIRST FLOOR DOOR, WINDOW, AND HEADER HEIGHTS ARE TO BE 6'-8" UNLESS OTHERWISE NOTED. (NOTE: WINDOWS AND DOORS ARE TO LINE-UP IN THE FINISH. ALL ROUGH FRAMING HEIGHTS ARE TO MATCH)
2. ALL FIRST FLOOR CEILING HEIGHTS ARE TO BE 8'-0" EXCEPT FOR OPEN STAIRWELL, GYM & KITCHEN. KITCHEN TO RECEIVE 9'-0" CEILING HEIGHT, GYM TO RECEIVE 12'-0" CEILING HEIGHT
3. MECHANICAL EQUIPMENT ENCLOSURE CEILING HEIGHTS ARE TO BE 8'-0" UNLESS NOTED OTHERWISE (ATTIC FLOOR PLAN)
4. UNLESS NOTED OTHERWISE ON THE CONSTRUCTION DOCUMENTS, LOCATE ALL DOORS MINIMUM 4" FROM ADJACENT WALLS ON HINGE SIDE. IF A CASING LARGER THEN 2 1/4" IS SELECTED, ADJUST AS NECESSARY. IF DOORS ARE NOT LOCATED NEXT TO ADJACENT WALL, CENTER ON SPACE THEY ENTER INTO.

General Floor Plan Notes:

1. ALL EXTERIOR WALLS ARE TO BE 2X6 WOOD FRAMING U.N.O.
2. INSULATION IN CONCEALED AND EXPOSED SPACES MUST HAVE A FLAME SPREAD RATING OF 25 OR LESS AND SMOKE DEVELOPED INDEX 450 OR LESS PER CODE.
3. ANY OCCUPANT SUSPECTED OF HAVING AN ILLNESS OR DISEASE SHALL BE TAKEN TO THE DIRECTOR'S OFFICE WHERE THEY CAN BE ISOLATED FROM THE OTHER OCCUPANTS AND CARED FOR. IN THE DIRECTOR'S OFFICE THERE SHALL BE A COT FOR THIS PURPOSE.
4. PROVIDE EXTERIOR FROST FREE HOSE BIBS @ LOCATIONS DIRECTED BY M.E.P. AND OWNER
5. PROVIDE SOLID BLOCKING IN WALLS FOR ALL WALL MOUNTED ITEMS NOT LIMITED TO THE FOLLOWING:
   - 5.1.1.1. DOOR STOPS
   - 5.1.1.2. TOWEL BARS
   - 5.1.1.3. TOILET TISSUE DISPENSER
   - 5.1.1.4. MISC. WALL MOUNTED ACCESSORIES
   - 5.1.1.5. MIRRORS
6. ALL WOOD AND WOOD BASED PRODUCTS WITHIN 8" OF GRADE MUST BE PRESSURE TREATED AS REQUIRED PER CODE
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8. PROVIDE MAGNETIC CHILD LOCKS ON ALL CABINET DOORS AND DRAWERS
9. GC TO COORDINATE ALL ROUGH CARPENTRY WITH MEP
10. GC TO COORDINATE CONTROL JOINTS IN DRYWALL WITH MANUFACTURERS RECOMMENDATION TO PREVENT CRACKING.
11. A/C CONDENSING UNIT - VER. EXACT SIZE, LOCATION, AND CLEARANCES W/ M.E.P. ENGINEER
12. SEE CIVIL DRAWINGS (BY OTHERS) FOR EXTERIOR WALK LOCATION & DETAILS

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REVISIONS	
DRAWN	JN
CHECKED	JN
DATE	03-05-2018
PROJECT NO.	2017057_08

PROJECT TITLE

RAINBOW CHILD CARE CENTER - PITTSFIELD TOWNSHIP

MICHIGAN AVE. & MOON ROAD
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MI

SHEET TITLE

FIRST FLOOR WALL FRAMING PLAN

SHEET NO.

A.100

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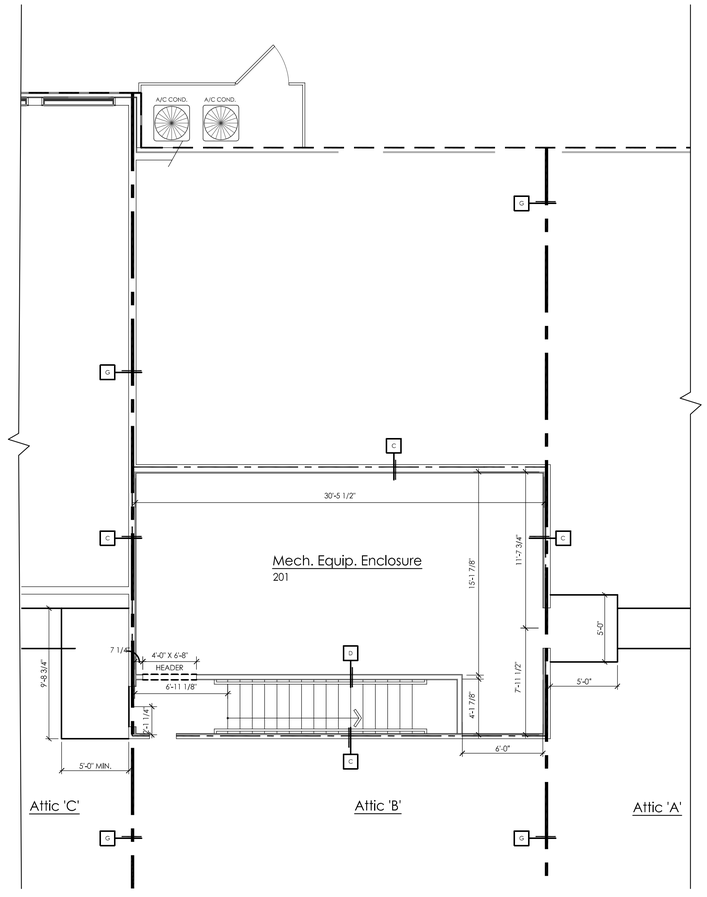

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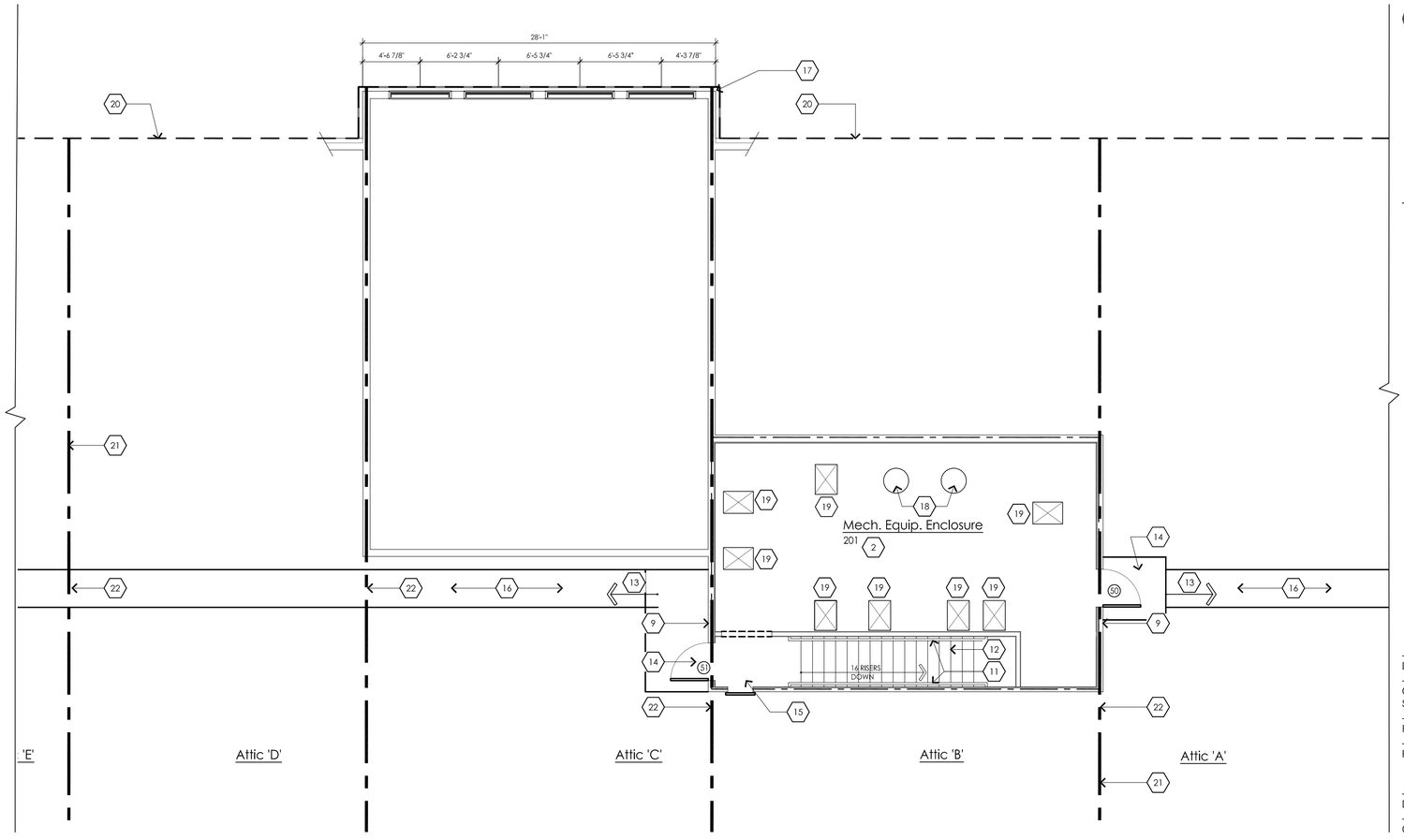
ATTICE FRAMING PLAN

SCALE: 3/16"=1'-0"



2
A.103

ATTICE FLOOR PLAN

SCALE: 3/16"=1'-0"

Wall Legend X

A	EXTERIOR WALL (BRICK): EXTERIOR BEARING WALL: BRICK VENEER EXTERIOR FINISH W/ 1" AIR SPACE ON TYVEK AIR INFILTRATION BARRIER ON 1/2" APA RATED PLYWOOD SHEATHING ON 2X6 WOOD STUDS @ 16" O.C. W/ R-21 KRAFT FACED BATT INSUL. W/ 5/8" GYPSUM BOARD FINISH	
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General Wall Type Notes:

1. ALL INTERIOR WALLS ARE ASSUMED WALL TYPE "D" U.N.O.
2. ALL EXTERIOR WALLS ARE ASSUMED WALL TYPE "A" U.N.O.

General Attic Plan Notes:

1. SEE SHEET MECHANICAL DRAWINGS FOR EXACT LOCATION OF FURNACES
2. SEE SHEET A.101 FOR LOCATION OF MECHANICAL ROOM IN RELATION TO FIRST FLOOR-INDICATED BY DASHED LINE

Keyed Attic Plan Notes: X

1. ~~PROVIDE 12" X 12" OPEN FLOOR SINK (FLUSH) - VERIFY CLEARANCE OF SINK AND TRAP WITH HEIGHT ALLOWED IN FLOOR SYSTEM - COORDINATE WITH MECHANICAL DRAWINGS~~
2. PROVIDE (2) LAYERS OF 5/8" GYP. BRD. @ CEILING FOR 1 HR. RATING
3. ~~PRE-FIN BREAK MTL. CAP W/DRIP EDGE~~
4. ~~PRIMARY ROOF SUMP (VER. EXACT LOCATION W/ MEP ENGINEER)~~
5. ~~EMERGENCY OVERFLOW ROOF SUMP (VER. EXACT LOCATION W/MEP ENGINEER)~~
6. ~~SINGLE PLY - 60 MIL EPDM ROOF ON TAPERED INSULATION~~
7. ~~PITCHED TO DRAIN (TYP.~~
8. NOT USED
9. NOTE: THESE WALLS ARE TO BE DETERMINED BY TRUSS MANUF. INTENT IS TO HAVE SIMILAR CONSTRUCTION TO WALL TYPE "C" W/1-HR FIRE RATING (NOTIFY ARCHITECT OF ANY DISCREPANCIES)
10. ~~FLOOR DRAIN (VER. EXACT LOCATION W/MEP ENGINEER)~~
11. 34" HIGH HANDRAIL PER CODE EACH SIDE
12. PROVIDE METAL NOSING ON STAIR W/PAINTED TREADS & RISERS (GREY)
13. 7" (MAX.) STEP DOWN (VER. W/TRUSS MANUF.)
14. PROVIDE LANDING THAT IS FLUSH W/MEZZANINE LEVEL
15. 3'-0" X 6'-8" ACCESS DOOR - COORDINATE EXACT LOCATION IN FIELD W/MECHANICAL, ELECTRICAL AND PLUMBING TRADES TO AVOID INTERFERENCE WITH FURNACES, WATER HEATERS, ETC. (1-HR. RATED)
16. 3/4" THICK X 3'-0" WIDE PLYWOOD T&G CAT WALK GLUED & NAILED TO PRE-ENG. TRUSSES - RUN ENTIRE LENGTH OF BUILDING
17. CAST STONE SILL (BELOW)
18. WATER HEATER (VER. EXACT SIZE, LOCATION & CLEARANCES REQ'D. W/MEP ENGINEER) - PROVIDE METAL DRAIN PAN @ EACH W.H. (TYP.)
19. FURNACE (VER. EXACT SIZE, LOCATION AND CLEARANCES REQ'D. W/MEP ENGINEER)
20. LINE OF FIRST FLOOR WALL (BELOW)
21. LINE OF DRAFTSTOPPING - VER. LOCATION W/TRUSS MANUF.
22. PROVIDE 3'-0" X 6'-8" SELF-CLOSING ACCESS DOOR TO EACH DRAFT STOPPING AREA W/AUTOMATIC LATCHES - REFER TO A.305 FOR ADDITIONAL DETAIL

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CHECKED	JN
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PROJECT NO.	2017057_08

PROJECT TITLE

RAINBOW CHILD CARE CENTER - PITTSFIELD TOWNSHIP

MICHIGAN AVE. & MOON ROAD
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MI

SHEET TITLE

ATTIC PLAN PLAN

SHEET NO.

A.103

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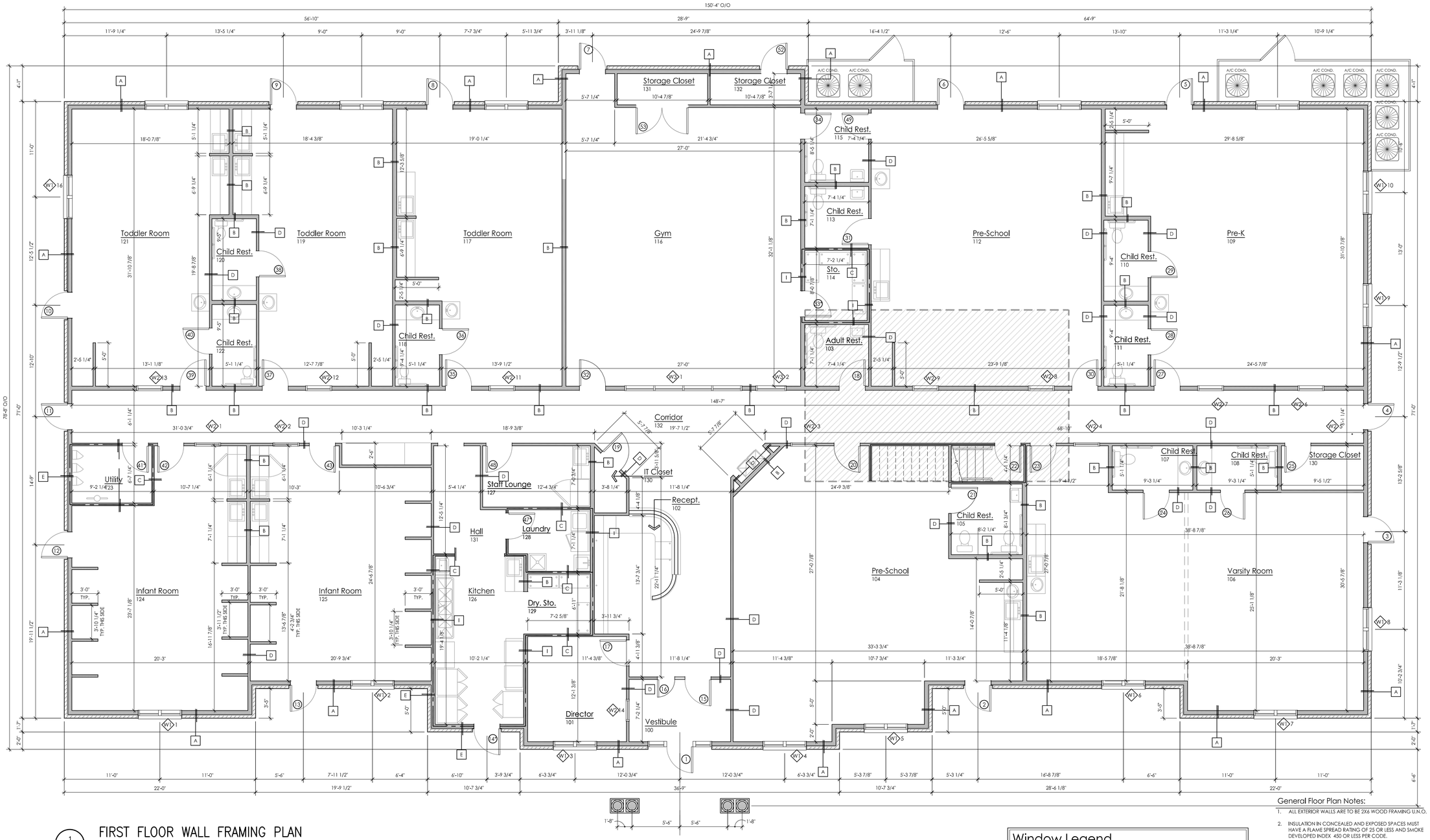

1 A.100

FIRST FLOOR WALL FRAMING PLAN

SCALE: 3/16"=1'-0"

Framing Plan Note:

ALL DIMENSIONS ON FRAMING PLANS ARE TAKEN FROM STUD TO STUD AND DO NOT INCORPORATE THE DRYWALL.

Wall Legend X

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MICHIGAN AVE. & MOON ROAD
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MI

SHEET TITLE

FIRST FLOOR WALL FRAMING PLAN

SHEET NO.

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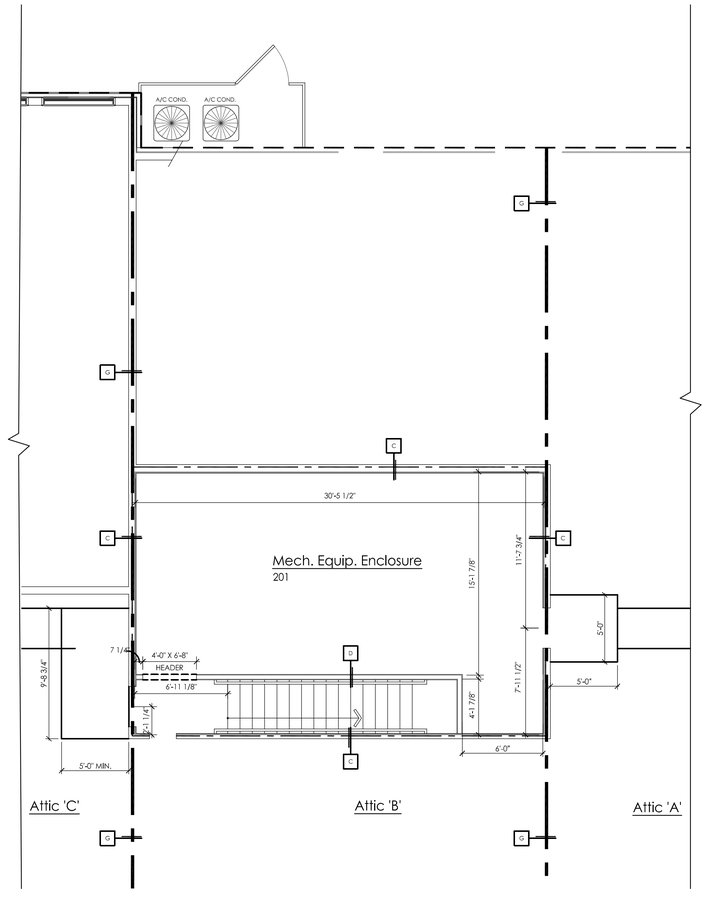

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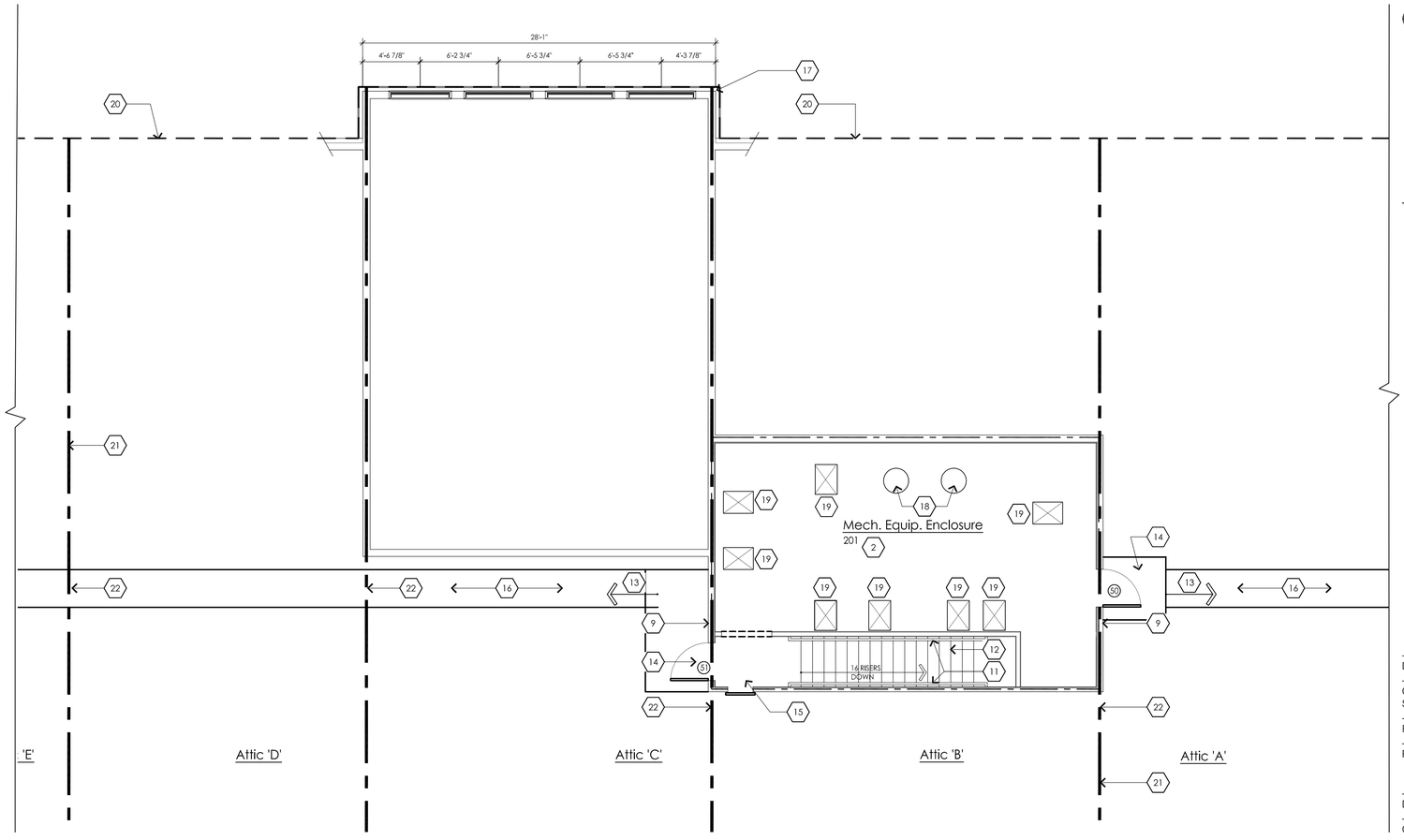
A.103

ATTICE FRAMING PLAN

SCALE: 3/16"=1'-0"



2
A.103

ATTICE FLOOR PLAN

SCALE: 3/16"=1'-0"

Wall Legend X

A	EXTERIOR WALL (BRICK): EXTERIOR BEARING WALL: BRICK VENEER EXTERIOR FINISH W/ 1" AIR SPACE ON TYVEK AIR INFILTRATION BARRIER ON 1/2" APA RATED PLYWOOD SHEATHING ON 2X6 WOOD STUDS @ 16" O.C. W/ R-21 KRAFT FACED BATT INSUL. W/ 5/8" GYPSUM BOARD FINISH	
B	2X6 INTERIOR PARTITION WALL: 5/8" GYPSUM BOARD EACH SIDE OF 2X6 WOOD STUDS @ 16" O.C. PROVIDE ACOUSTICAL SOUND BATT INSULATION @ ALL INTERIOR WALLS AS DIRECTED BY OWNER	
C	INTERIOR PARTITION WALL: 1 LAYER TYPE 'X' 5/8" GYPSUM BOARD EACH SIDE OF 2X4 WOOD STUDS @ 16" O.C. PROVIDE ACOUSTICAL SOUND BATT INSULATION @ ALL INTERIOR WALLS AS DIRECTED BY OWNER NOTE: ALL OPENINGS, DOORS AND WINDOW FRAMES ARE TO BE FIRE CAULKED	
D	TYPICAL INTERIOR PARTITION WALL: 2X4 STUDS @ 16" O.C. WITH 5/8" GYP. BOARD EACH SIDE. PROVIDE ACOUSTICAL SOUND BATT INSULATION @ ALL INTERIOR WALLS AS DIRECTED BY OWNER	
E	EXTERIOR WALL: EXTERIOR BEARING WALL - BRICK VENEER EXTERIOR FINISH W/ 1" AIR SPACE ON TYVEK AIR INFILTRATION BARRIER ON 1/2" APA RATED PLYWOOD SHEATHING ON 2X6 WOOD STUDS @ 16" O.C. W/ R-21 KRAFT FACED BATT INSUL. W/ TYPE 'X' 5/8" GYPSUM BOARD FINISH	
F	INTERIOR MEZZANINE WALL: PROVIDE (2) LAYERS TYPE 'X' 5/8" GYPSUM BOARD ON ONE SIDE OF 2X_ STUDS UP TO CEILING.	
G	DRAFTSTOPPING WALL: 3/8" PLYWOOD ON ONE SIDE OF PRE-ENG. ROOF TRUSS. RUN UP TO UNDER SIDE OF ROOF SHEATHING (SEE TYPICAL DETAIL ON SHEET A.305 FOR ADDITIONAL INFORMATION)	
H	EXTERIOR WALL (VINYL SIDING): GEORGIA PACIFIC (OR EQUIV.) DOUBLE 5" SIDING ON AIR INFILTRATION BARRIER ON 1/2" APA RATED SHEATHING ON 2X6 STUDS @ 16" O.C. W/ R-21 BATT INSULATION ON (2) LAYERS OF 5/8" TYPE 'X' GYP. BRD.	
I	INTERIOR PARTITION WALL: 1 LAYER TYPE 'X' 5/8" GYPSUM BOARD EACH SIDE OF 2X6 WOOD STUDS @ 16" O.C. PROVIDE ACOUSTICAL SOUND BATT INSULATION @ ALL INTERIOR WALLS AS DIRECTED BY OWNER NOTE: ALL OPENINGS, DOORS AND WINDOW FRAMES ARE TO BE FIRE CAULKED	
J	INTERIOR PARTITION WALL: 5/8" GYPSUM BOARD EA SIDE ON 2X6 WOOD STUDS ON 2x4 WOOD STUDS @ 16" O.C. PROVIDE ACOUSTICAL SOUND BATT INSULATION @ ALL INTERIOR WALLS AS DIRECTED BY OWNER	

General Wall Type Notes:

1. ALL INTERIOR WALLS ARE ASSUMED WALL TYPE "D" U.N.O.
2. ALL EXTERIOR WALLS ARE ASSUMED WALL TYPE "A" U.N.O.

General Attic Plan Notes:

1. SEE SHEET MECHANICAL DRAWINGS FOR EXACT LOCATION OF FURNACES
2. SEE SHEET A.101 FOR LOCATION OF MECHANICAL ROOM IN RELATION TO FIRST FLOOR-INDICATED BY DASHED LINE

Keyed Attic Plan Notes: X

1. ~~PROVIDE 12" X 12" OPEN FLOOR SINK (FLUSH) - VERIFY CLEARANCE OF SINK AND TRAP WITH HEIGHT ALLOWED IN FLOOR SYSTEM - COORDINATE WITH MECHANICAL DRAWINGS~~
2. PROVIDE (2) LAYERS OF 5/8" GYP. BRD. @ CEILING FOR 1 HR. RATING
3. ~~PRE-FIN BREAK MTL. CAP W/DRIP EDGE~~
4. ~~PRIMARY ROOF SUMP (VER. EXACT LOCATION W/ MEP ENGINEER)~~
5. ~~EMERGENCY OVERFLOW ROOF SUMP (VER. EXACT LOCATION W/MEP ENGINEER)~~
6. ~~SINGLE PLY - 60 MIL EPDM ROOF ON TAPERED INSULATION~~
7. ~~PITCHED TO DRAIN (TYP.~~
8. NOT USED
9. NOTE: THESE WALLS ARE TO BE DETERMINED BY TRUSS MANUF. INTENT IS TO HAVE SIMILAR CONSTRUCTION TO WALL TYPE "C" W/1-HR FIRE RATING (NOTIFY ARCHITECT OF ANY DISCREPANCIES)
10. ~~FLOOR DRAIN (VER. EXACT LOCATION W/MEP ENGINEER)~~
11. 34" HIGH HANDRAIL PER CODE EACH SIDE
12. PROVIDE METAL NOSING ON STAIR W/PAINTED TREADS & RISERS (GREY)
13. 7" (MAX.) STEP DOWN (VER. W/TRUSS MANUF.)
14. PROVIDE LANDING THAT IS FLUSH W/MEZZANINE LEVEL
15. 3'-0" X 6'-8" ACCESS DOOR - COORDINATE EXACT LOCATION IN FIELD W/MECHANICAL, ELECTRICAL AND PLUMBING TRADES TO AVOID INTERFERENCE WITH FURNACES, WATER HEATERS, ETC. (1-HR. RATED)
16. 3/4" THICK X 3'-0" WIDE PLYWOOD T&G CAT WALK GLUED & NAILED TO PRE-ENG. TRUSSES - RUN ENTIRE LENGTH OF BUILDING
17. CAST STONE SILL (BELOW)
18. WATER HEATER (VER. EXACT SIZE, LOCATION & CLEARANCES REQ'D. W/MEP ENGINEER) - PROVIDE METAL DRAIN PAN @ EACH W.H. (TYP.)
19. FURNACE (VER. EXACT SIZE, LOCATION AND CLEARANCES REQ'D. W/MEP ENGINEER)
20. LINE OF FIRST FLOOR WALL (BELOW)
21. LINE OF DRAFTSTOPPING - VER. LOCATION W/TRUSS MANUF.
22. PROVIDE 3'-0" X 6'-8" SELF-CLOSING ACCESS DOOR TO EACH DRAFT STOPPING AREA W/AUTOMATIC LATCHES - REFER TO A.305 FOR ADDITIONAL DETAIL

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DATE	03-05-2018
PROJECT NO.	2017057_08

PROJECT TITLE

RAINBOW CHILD CARE CENTER - PITTSFIELD TOWNSHIP

MICHIGAN AVE. & MOON ROAD
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MI

SHEET TITLE

ATTIC PLAN PLAN

SHEET NO.

A.103

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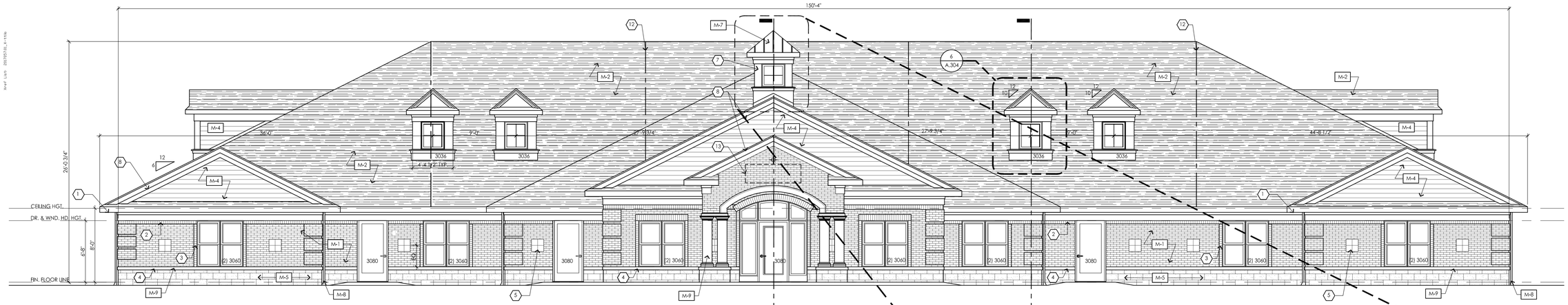


1 A.200

FRONT ELEVATION

SCALE: 3/16"=1'-0"

Front Elevation Material Calculations:

Glass/Wind./Door =	304 sq.ft. (18%)
Stone =	46 sq.ft. (3%)
Brick =	603 sq.ft. (35%)
CMU =	218 sq.ft. (13%)
Siding =	535 sq.ft. (31%)
Total =	1,706 sq.ft.

Exterior Elevation Materials

ITEM	MANUFACTURER	MODEL	COLOR / FINISH	NOTES
BRICK	BRAMPTON BRICK	CROSSROADS SERIES	COLOR - JASPER	IF BRICK IS NOT READILY AVAILABLE PROVIDE OPTIONS FOR OWNER TO APPROVE
ASPHALT SHINGLES	GAF ROOFING	TIMBERLINE HD - LIFETIME SHINGLES	COLOR - WEATHERED WOOD	-
BREAK METAL TRIM	QUALITY EDGE	TRULINE EMBOSSED TRIM COIL	COLOR - 807 (CLAY)	-
VINYL SIDING	GEORGIA PACIFIC	FOREST RIDGE DOUBLE 5" SIDING	MIST	-
SPLITFACE C.M.U.	MICHIGAN CERTIFIED CONCRETE	SPLIT FACED	-	IF BRICK IS NOT READILY AVAILABLE PROVIDE OPTIONS FOR OWNER TO APPROVE
8X8 DECORATIVE TILES	DAL TILE	NATURAL HUES CERAMIC FLOORS & WALL	QH67 REGENCY BLUE, QH77 SCARLET, QH76 CITRUS, QH29 SPRING GREEN	-
STANDING SEAM METAL ROOF	MCELROY METAL	INSTALOC STANDING SEAM SYSTEM STYLE - PLANK PROFILE	COLOR - COPPER	-
PRE-FIN ALUMINUM GUTTER	MASTIC HOME EXTERIORS	6" GUTTER COIL - 27 GAUGE	COLOR - ROYAL BROWN (VERIFY W/OWNER)	-

NOTE:
VERIFY ALL MATERIAL SPECIFICATIONS W/ OWNER

JELD-WEN WINDOWS TO BE PRE-FINISHED W/DESERT SAND

Keyed Elevation Notes: (X)

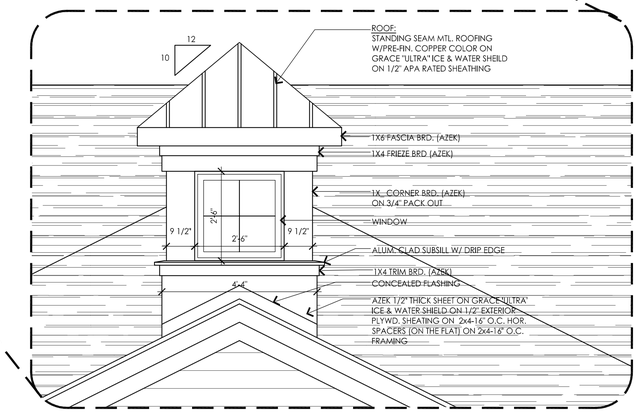
1. TYPICAL EAVE - SEE DETAIL FOR MORE INFORMATION
2. BRICK SOLDIER COURSE (TYP.)
3. BRICK ROWLOCK COURSE
4. SILL SLOPED TO ALLOW WATER RUNOFF WITH DRIP EDGE
5. (4) 8"x8" DECORATIVE TILES PROVIDED AND INSTALLED BY CONTRACTOR - SEE DETAIL #8 ON A.303 (TYP.)
6. PRE-FINISHED BREAK METAL CAP
7. CUPOLA - SEE ENLARGED CUPOLA ELEVATION
8. 1X2 TRIM BRD ON 1X6 RACK BRD. WITH PRE-FINISHED ALUMINUM WRAP
9. 1/2" AZEK PANEL (PAINT)
10. PRE-FINISHED ALUMINUM GUTTER AND DOWNSPOUT - VERIFY CONNECTION DETAIL AND LOCATION WITH CIVIL ENGINEER
11. PROVIDE LOUVERED DORMERS FOR MECHANICAL INTAKE (VER. W/MECHANICAL DRAWINGS)
12. LINE OF DRAFT STOPPING
13. SIGNAGE INSTALLED BY GC
14. LINE OF BUILDING BEYOND
15. STOREFRONT WINDOW SYSTEM W/ OPAQUE GLASS & LIMESTONE SILL
16. SINGLE-PLY 60 MIL. EPDM W/ PRE-FIN. METAL EDGE

ELEVATION NOTES:

1). ALL TRIM BOARDS (U.N.O.) WILL BE CLAD IN PRE-FIN. ALUM. - DETERMINE GAUGE PER RAINBOW CHILD CARE CENTER SPEC'S.

2). EXTERIOR BRICK IS TO BE STANDARD SIZE - COURSE OUT QUOIN CORNERS

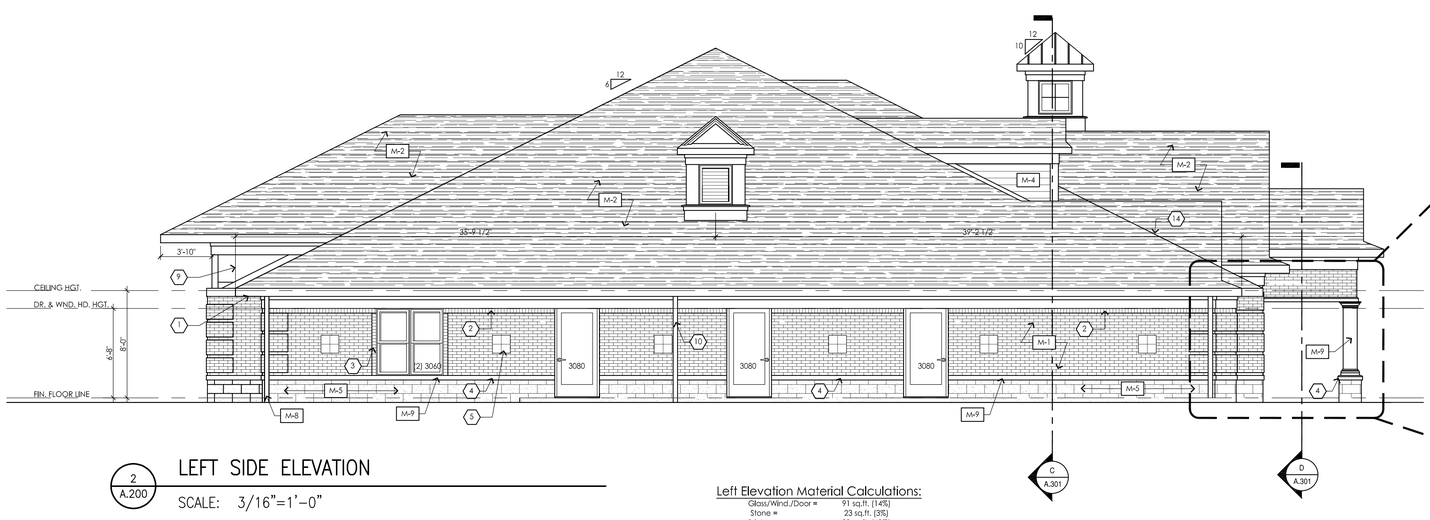
3). EXTERIOR WINDOWS ARE JELDWEN. THEY ARE OPERABLE AND HAVE SCREENS. SCREENS ARE TO BE 16 MESH OR BETTER.



3 A.200

ENLARGED CUPOLA ELEVATION

SCALE: 1/2"=1'-0"



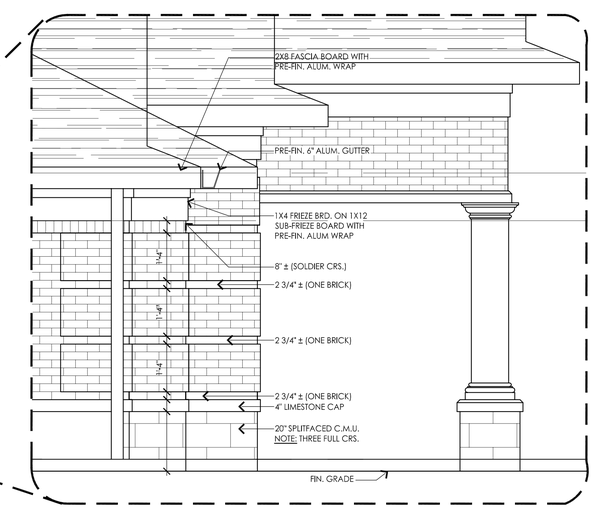
2 A.200

LEFT SIDE ELEVATION

SCALE: 3/16"=1'-0"

Left Elevation Material Calculations:

Glass/Wind./Door =	91 sq.ft. (14%)
Stone =	23 sq.ft. (3%)
Brick =	439 sq.ft. (68%)
CMU =	102 sq.ft. (15%)
Total =	655 sq.ft.



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ENLARGED ELEVATION – QUOIN DETAIL

SCALE: 1/2"=1'-0"

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PROJECT NO.	2017057_08

PROJECT TITLE

RAINBOW CHILD CARE CENTER - PITTSFIELD TOWNSHIP

MICHIGAN AVE. & MOON ROAD
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MI

SHEET TITLE

EXTERIOR ELEVATIONS

SHEET NO.

A.200

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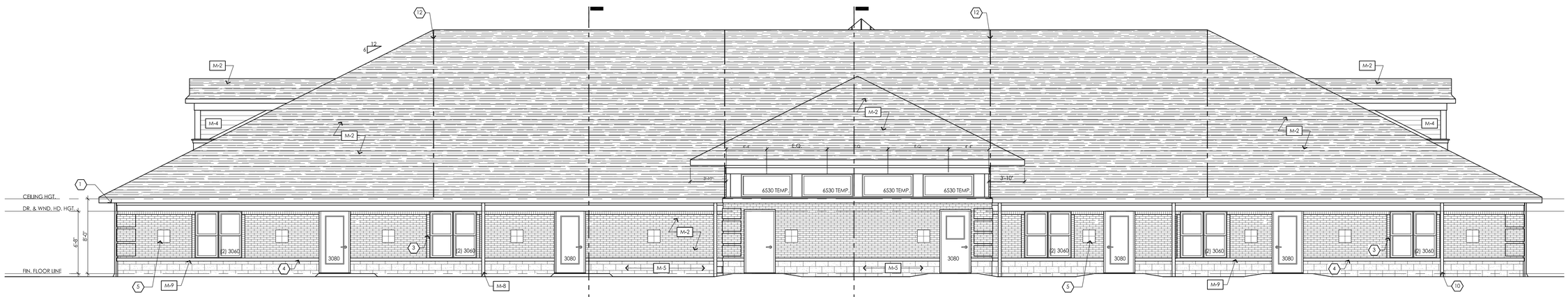

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A.201

REAR ELEVATION

SCALE: 3/16"=1'-0"

Rear Elevation Material Calculations:

Glass/Wind./Door =	291 sq.ft. (23%)
Stone =	44 sq.ft. (3%)
Brick =	733 sq.ft. (57%)
CMU =	217 sq.ft. (17%)
Total =	1,285 sq.ft.

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Exterior Elevation Materials

ITEM	MANUFACTURER	MODEL	COLOR / FINISH	NOTES
BRICK	BRAMPTON BRICK	CROSSROADS SERIES	COLOR - JASPER	IF BRICK IS NOT READILY AVAILABLE PROVIDE OPTIONS FOR OWNER TO APPROVE
ASPHALT SHINGLES	GAF ROOFING	TIMBERLINE HD - LIFETIME SHINGLES	COLOR - WEATHERED WOOD	-
BREAK METAL TRIM	QUALITY EDGE	TRULINE EMBOSSED TRIM COIL	COLOR - 807 (CLAY)	-
VINYL SIDING	GEORGIA PACIFIC	FOREST RIDGE DOUBLE 5" SIDING	MIST	-
SPLITFACE C.M.U.	MICHIGAN CERTIFIED CONCRETE	SPLIT FACED	-	IF BRICK IS NOT READILY AVAILABLE PROVIDE OPTIONS FOR OWNER TO APPROVE
8X8 DECORATIVE TILES	DAL TILE	NATURAL HUES CERAMIC FLOORS & WALL	QH67 REGENCY BLUE, QH77 SCARLET, QH76 CITRUS, QH29 SPRING GREEN	-
STANDING SEAM METAL ROOF	MCELROY METAL	INSTALOC STANDING SEAM SYSTEM STYLE - PLANK PROFILE	COLOR - COPPER	-
PRE-FIN ALUMINUM GUTTER	MASTIC HOME EXTERIORS	6" GUTTER COIL - 27 GAUGE	COLOR - ROYAL BROWN (VERIFY W/OWNER)	-

NOTE:
VERIFY ALL MATERIAL SPECIFICATIONS W/ OWNER

JELD-WEN WINDOWS TO BE PRE-FINISHED W/DESERT SAND

Keyed Elevation Notes:

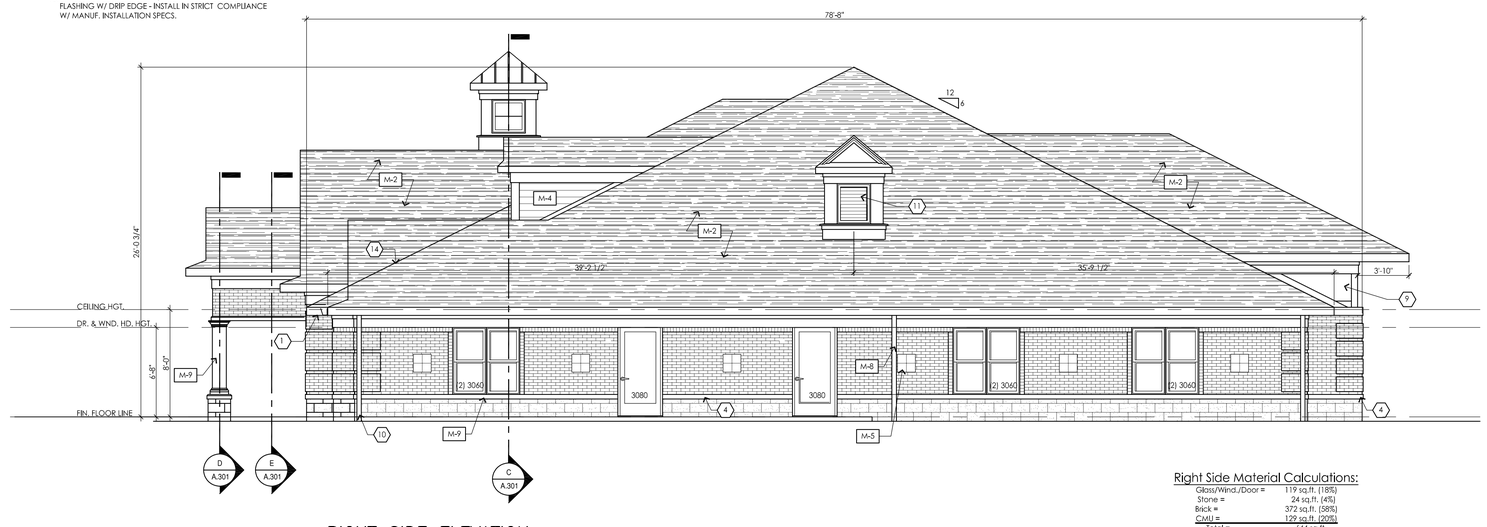
1. TYPICAL EAVE - SEE DETAIL FOR MORE INFORMATION
2. BRICK SOLDIER COURSE (TYP.)
3. BRICK ROWLOCK COURSE
4. SILL SLOPED TO ALLOW WATER RUNOFF WITH DRIP EDGE
5. (4) 8"x8" DECORATIVE TILES PROVIDED AND INSTALLED BY CONTRACTOR - SEE DETAIL #8 ON A.303 (TYP.)
6. PRE-FINISHED BREAK METAL CAP
7. CUPOLA - SEE ENLARGED CUPOLA ELEVATION
8. 1X2 TRIM BRD ON 1X6 RACK BRD. WITH PRE-FINISHED ALUMINUM WRAP
9. 1/2" AZEK PANEL (PAINT)
10. PRE-FINISHED ALUMINUM GUTTER AND DOWNSPOUT - VERIFY CONNECTION DETAIL AND LOCATION WITH CIVIL ENGINEER
11. PROVIDE LOUVERED DORMERS FOR MECHANICAL INTAKE (VER. W/MECHANICAL DRAWINGS)
12. LINE OF DRAFT STOPPING
13. SIGNAGE INSTALLED BY GC
14. LINE OF BUILDING BEYOND
15. STOREFRONT WINDOW SYSTEM W/ OPAQUE GLASS & LIMESTONE SILL
16. SINGLE-PLY 60 MIL. EPDM W/ PRE-FIN. METAL EDGE FLASHING W/ DRIP EDGE - INSTALL IN STRICT COMPLIANCE W/ MANUF. INSTALLATION SPECS.

ELEVATION NOTES:

1). ALL TRIM BOARDS (U.N.O.) WILL BE CLAD IN PRE-FIN. ALUM. - DETERMINE GAUGE PER RAINBOW CHILD CARE CENTER SPEC'S.

2). EXTERIOR BRICK IS TO BE STANDARD SIZE - COURSE OUT QUOIN CORNERS

3). EXTERIOR WINDOWS ARE JELDWEN. THEY ARE OPERABLE AND HAVE SCREENS. SCREENS ARE TO BE 16 MESH OR BETTER.



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A.201

RIGHT SIDE ELEVATION

SCALE: 3/16"=1'-0"

Right Side Material Calculations:

Glass/Wind./Door =	119 sq.ft. (18%)
Stone =	24 sq.ft. (4%)
Brick =	372 sq.ft. (58%)
CMU =	129 sq.ft. (20%)
Total =	644 sq.ft.

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PROJECT TITLE

RAINBOW CHILD CARE CENTER - PITTSFIELD TOWNSHIP

MICHIGAN AVE. & MOON ROAD
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MI

SHEET TITLE

EXTERIOR ELEVATIONS

SHEET NO.

A.201

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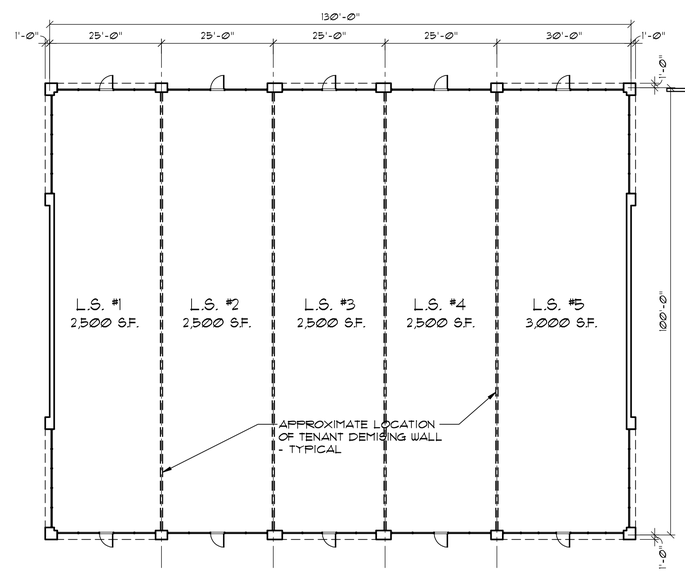
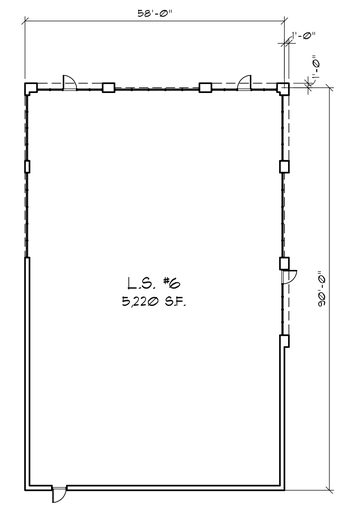


FLOOR PLAN - BLDG. A

1/16"=1'-0"

NORTH



FLOOR PLAN - BLDG. B

1/16"=1'-0"

NORTH

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PROPOSED:

RETAIL BUILDING

MICHIGAN AVE. AND
MOON ROAD
PITTSFIELD TWP., MI

Sheet Title:

FLOOR PLAN
BUILDING A & B

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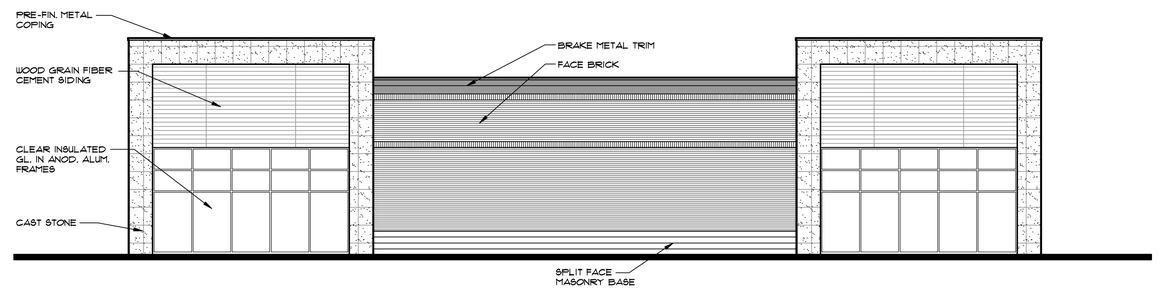
Sheet No.

A-1

NORTHWEST ELEVATION

1/8"=1'-0"

EXTERIOR ELEVATION MATERIALS			
ITEM	MANUFACTURER	MODEL	COLOR/FINISH
BRICK	BRAMPTON BRICK	CROSSROADS SERIES	COLOR - JASPER
CAST STONE	ROYAL STONEWORKS	SMOOTH LIMESTONE FACE	STANDARD BUFF
BREAK METAL TRIM	QUALITY EDGE	TRUELINE EMBOSSED TRIM COIL	COLOR - 807 (CLAY)
SIDING	NICHIHA	VINTAGE WOOD	CEDAR
SPLIT FACE C.M.U.	MICHIGAN CERTIFIED CONCRETE	SPLIT FACED	

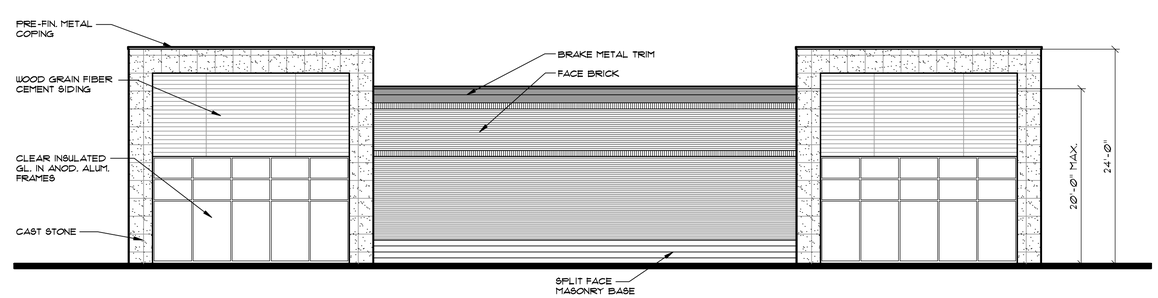


SOUTHWEST ELEVATION

1/8"=1'-0"

SOUTHEAST ELEVATION

1/8"=1'-0"



NORTHEAST ELEVATION

1/8"=1'-0"

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PROPOSED:

RETAIL BUILDING

MICHIGAN AVE. AND
MOON ROAD
PITTSFIELD TWP., MI

Sheet Title:

ELEVATIONS
BUILDING A

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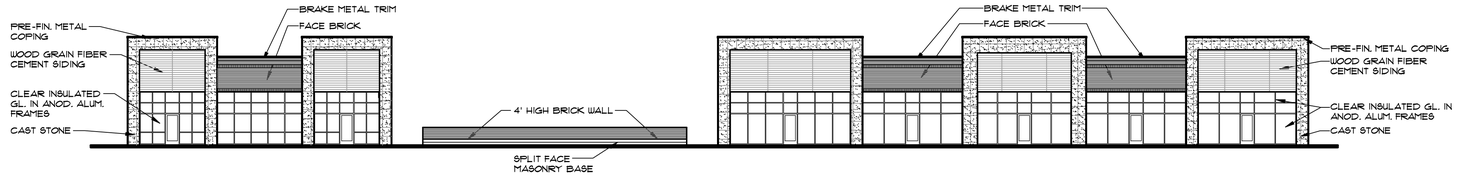
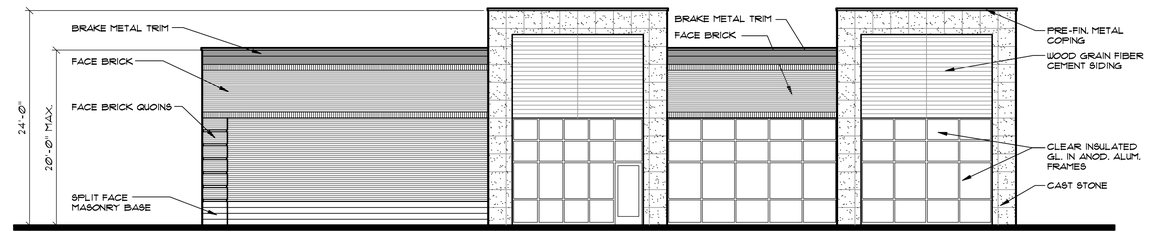


COMPOSITE ELEVATION

1/16"=1'-0"



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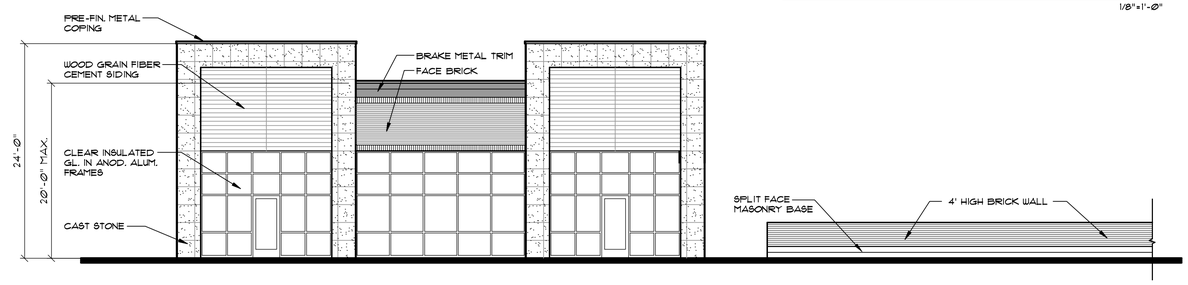
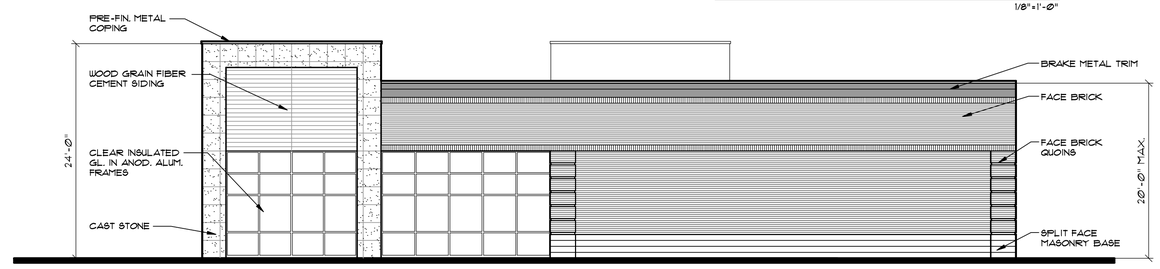
1/8"=1'-0"



NORTHWEST ELEVATION

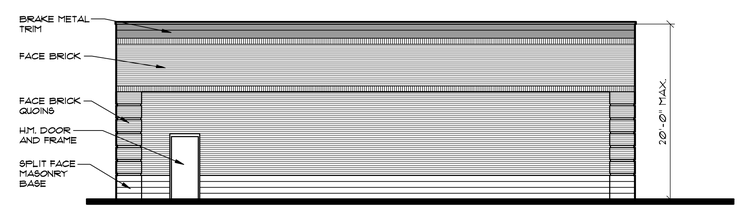
1/8"=1'-0"



SOUTHWEST ELEVATION

1/8"=1'-0"

EXTERIOR ELEVATION MATERIALS			
ITEM	MANUFACTURER	MODEL	COLOR/FINISH
BRICK	BRAMPTON BRICK	CROSSROADS SERIES	COLOR - JASPER
CAST STONE	ROYAL STONEWORKS	SMOOTH LIMESTONE FACE	STANDARD BUFF
BREAK METAL TRIM	QUALITY EDGE	TRUELINE EMBOSSED TRIM COIL	COLOR - 807 (CLAY)
SIDING	NICHIHA	VINTAGE WOOD	CEDAR
SPLIT FACE C.M.U.	MICHIGAN CERTIFIED CONCRETE	SPLIT FACED	



SOUTHEAST ELEVATION

1/8"=1'-0"

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PROPOSED:

RETAIL BUILDING

MICHIGAN AVE. AND MOON ROAD
PITTSFIELD TWP., MI

Sheet Title:

ELEVATIONS
BUILDING B

Issued For:

03-12-18
07-31-18 REV.

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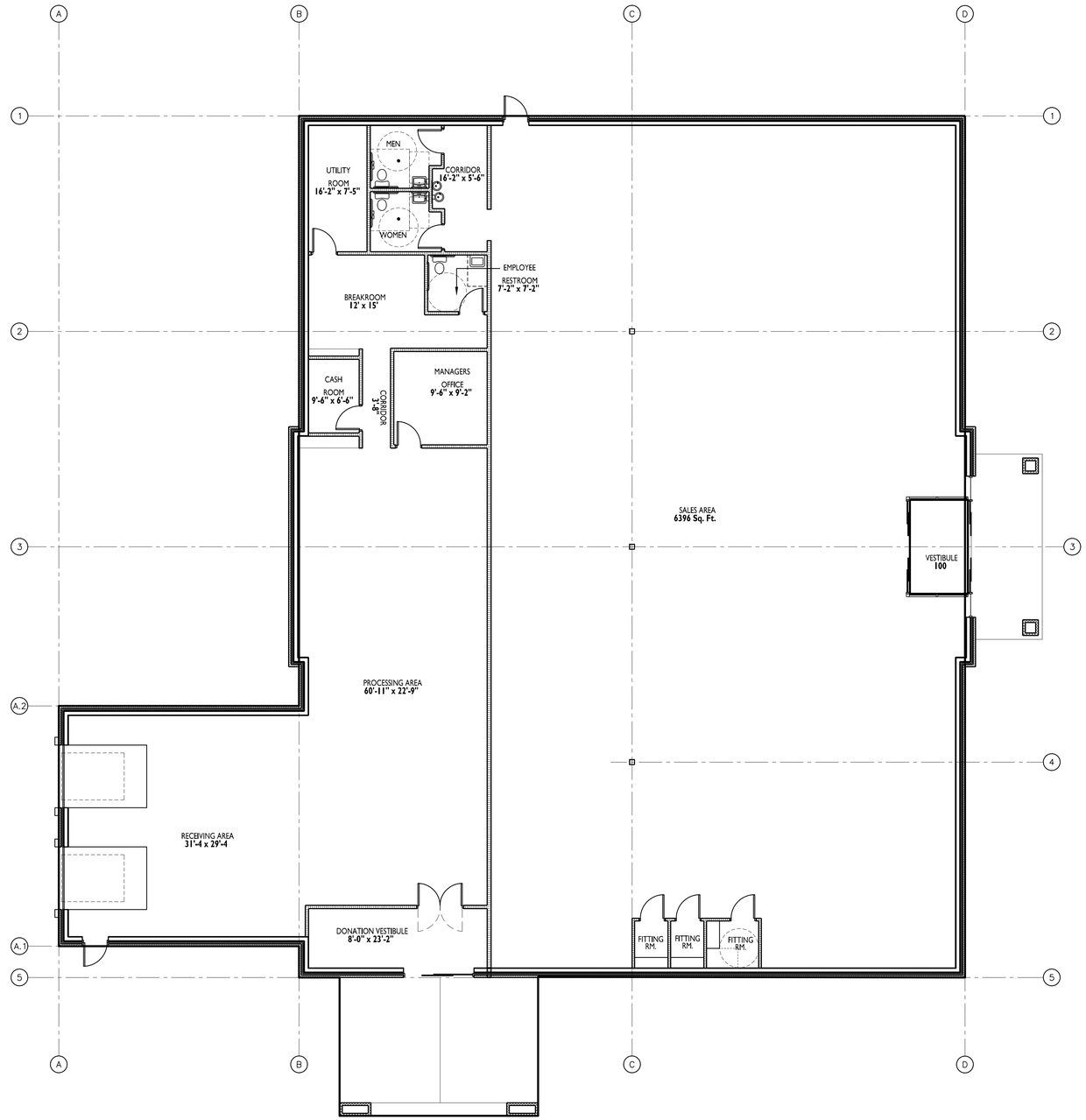
Sheet No.

A-3



FLOOR PLAN 1

1/8"=1'-0"

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PROJECT INFORMATION

SULLIVAN COMMERCIAL GOODWILL STORE

SALINE, MICHIGAN

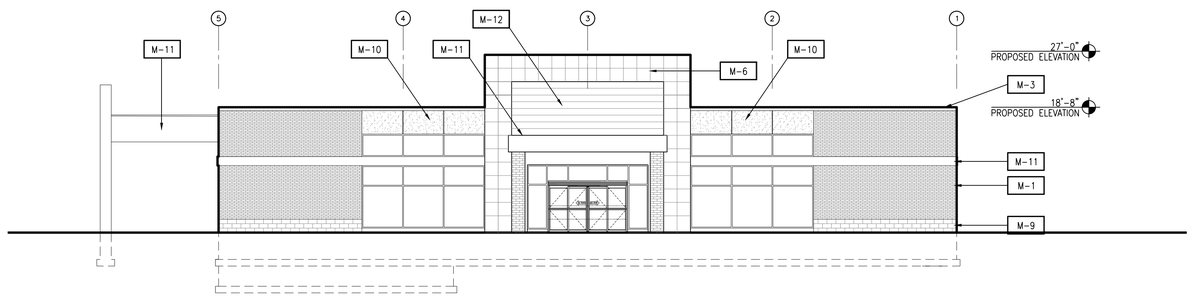
ISSUE DATES

PRELIM. PLAN & ELEVATIONS 07.06.2018

180191

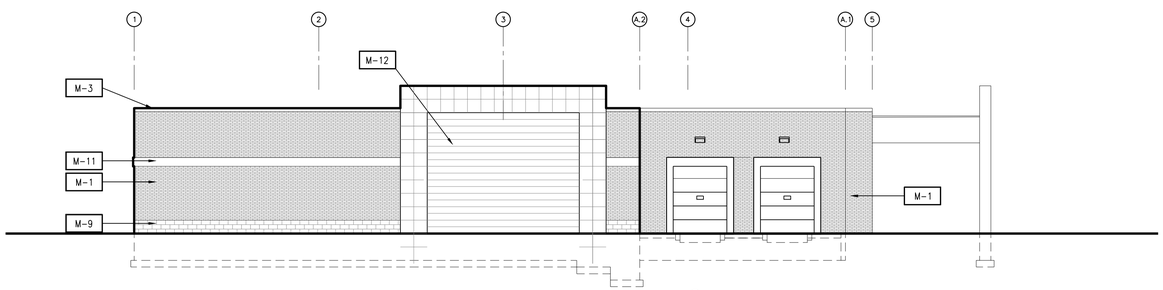
FLOOR PLAN

A1.1



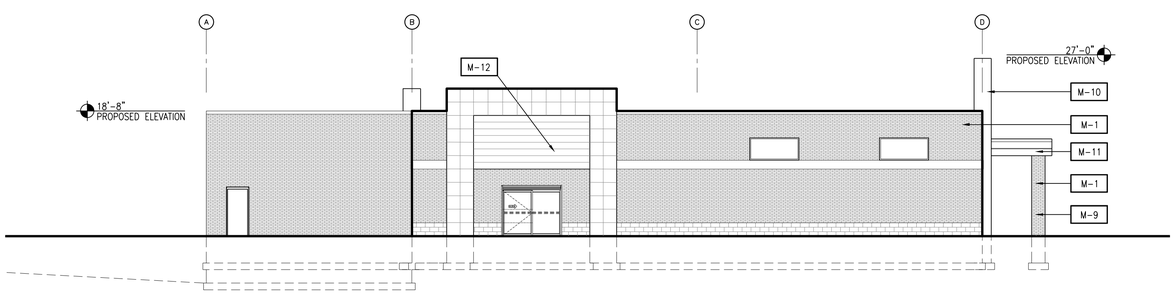
EAST ELEVATION **4**

3/32"=1'-0"



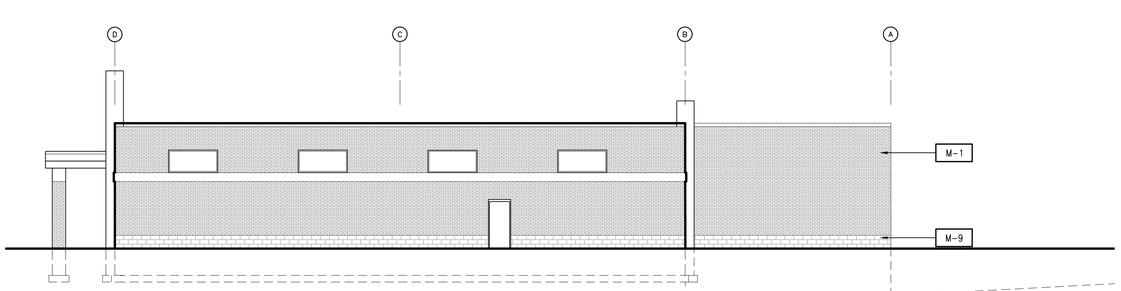
WEST ELEVATION **3**

3/32"=1'-0"



SOUTH ELEVATION **2**

3/32"=1'-0"



NORTH ELEVATION **1**

3/32"=1'-0"

EXTERIOR MATERIALS SCHEDULE

	MATERIAL	MANUFACTURER	COLOR	MODEL	REMARKS
M-1	BRICK	BRAMPTON BRICK	JASPER	CROSSROAD SERIES	IF BRICK NOT READILY AVAILABLE PROVIDE OPTIONS FOR OWNER TO APPROVE.
M-3	BREAK METAL TRIM	QUALITY EDGE	CLAY - 807	TRUELINE EMBOSSED TRIM CORE	-- --
M-6	CAST STONE	ROYAL STONE WORKS	SMOOTH LIMESTONE STANDARD BUFF	-- --	-- --
M-9	SPLITFACE CMU	MICHIGAN CERTIFIED CONRETE	--	SPLIT FACED	-- --
M-10	EIFS	DRYVIT	DV113	--	AMARILLO WHITE --
M-11	BREAK METAL TRIM	QUALITY EDGE	GOODWILL BLUE	TRUELINE EMBOSSED TRIM CORE	-- --
M-12	FIBER CEMENT	TBD	TBS	-- --	WOOD GRAIN FIBER CEMENT TO MATCH ADJACENT BUILDINGS

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A3.1