Architect

GAV ASSOCIATES 24001 Orchard Lake Rd Suite 180A Farmington, MI 48336

Contact: Al Valentine Ph: (248) 985-9101

Civil Engineer

NOWAK & FRAUS ENGINEERS 46777 Woodward Ave. Pontiac, MI 48342-5032 Tel. (248) 332-7931 Fax. (248) 332-8257

CONTACT: Patrick Williams, P.E. Ph: (248) 332-7931 Fax: (248) 332-8257

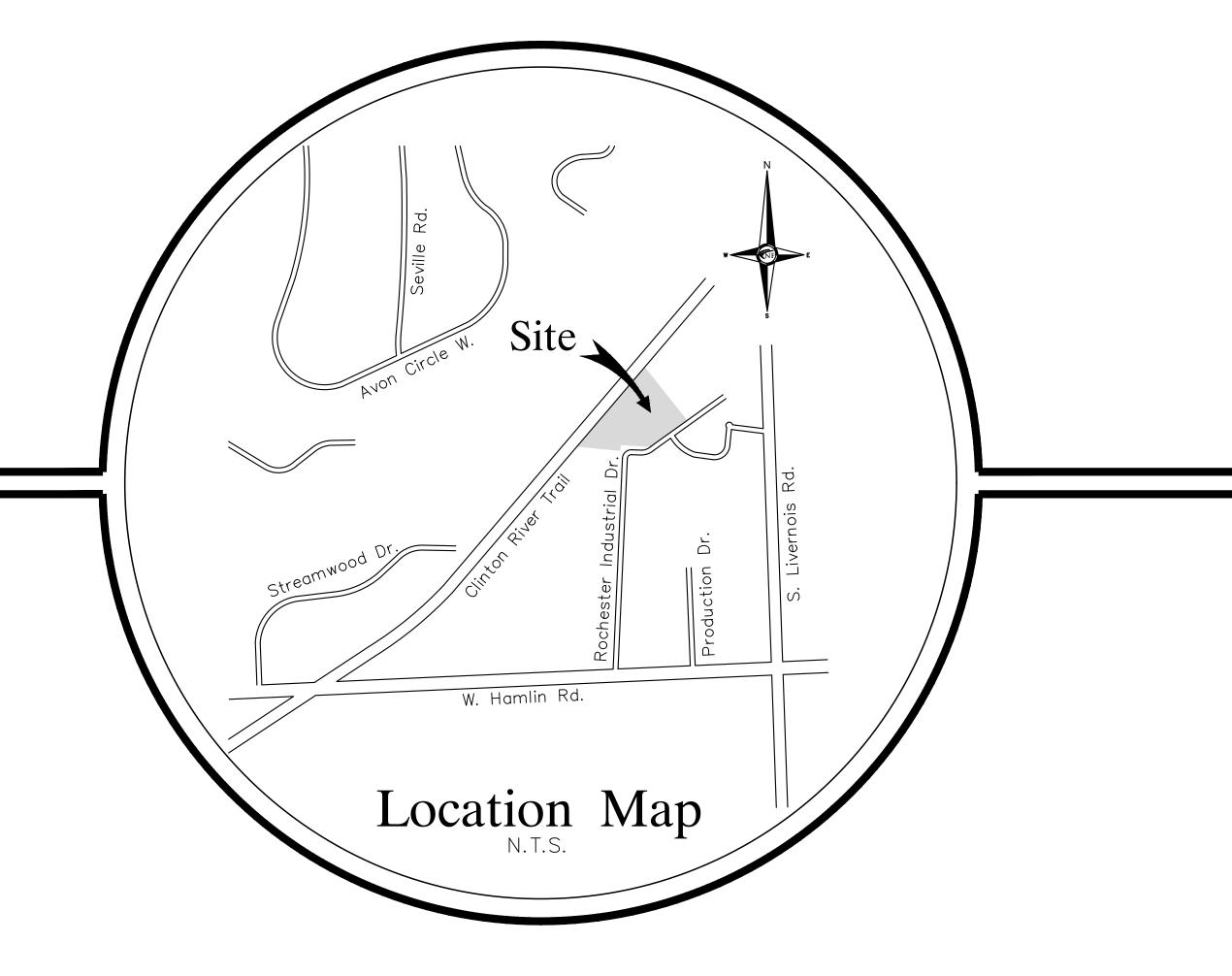
LEGAL DESCRIPTION

A PART OF THE NORTHEAST 1/4 OF SECTION 21, TOWN 3 NORTH, RANGE 11 EAST, CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN, MORE PARTICULARLY DESCRIBED AS: COMMENCING AT THE EAST 1/4 CORNER OF SAID SECTION 21; THENCE NORTH 02 DEGREES 27 MINUTES 24 SECONDS WEST, 358.71 FEET ALONG THE EAST LINE OF SECTION 21 (LIVERNOIS ROAD), TO THE POINT OF BEGINNING; THENCE NORTH 84 DEGREES 53 MINUTES 32 SECONDS WEST, 353.90 FEET; THENCE ALONG A CURVE TO THE RIGHT 73.30 FEET, SAID CURVE HAVING A RADIUS OF 70.00 FEET CENTRAL ANGLE OF 60 DEGREES 00 MINUTES 00 SECONDS AND A LONG CHORD BEARING OF NORTH 54 DEGREES 53 MINUTES 32 SECONDS WEST, 70.00 FEET; THENCE ALONG A CURVE TO THE LEFT 183.26 FEET, SAID CURVE HAVING A RADIUS OF 70.00 FEET, CENTRAL ANGLE OF 150 DEGREES 00 MINUTES 00 SECONDS AND A LONG CHORD BEARING OF SOUTH 80 DEGREES 06 MINUTES 30 SECONDS WEST, 135.23 FEET; THENCE NORTH 84 DEGREES 53 MINUTES 32 SECONDS WEST, 109.96 FEET; THENCE ALONG A NON-TANGENT CURVE TO THE LEFT 109.96 FEET, SAID CURVE HAVING A RADIUS OF 70.00 FEET, CENTRAL ANGLE OF 90 DEGREES 00 MINUTES 00 SECONDS AND A LONG CHORD BEARING NORTH 80 DEGREES 25 MINUTES 11 SECONDS WEST, 98.99 FEET; THENCE SOUTH 54 DEGREES 34 MINUTES 50 SECONDS WEST, 28.48 FEET TO THE POINT OF BEGINNING; THENCE CONTINUING SOUTH 54 DEGREES 34 MINUTES 50 SECONDS WEST, 514.25 FEET; THENCE NORTH 84 DEGREES 53 MINUTES 32 SECONDS WEST, 206.16 FEET; THENCE SOUTH 01 DEGREES 49 MINUTES 58 SECONDS WEST, 70.11 FEET TO A POINT OF THE NORTH LINE OF "ROCHESTER INDUSTRIAL PARK SUB" AS RECORDED IN LIBER 178, PAGE 11 OF PLATS, OAKLAND COUNTY RECORDS; THENCE NORTH 84 DEGREES 53 MINUTES 32 SECONDS WEST 420.50 FEET, IN PART ALONG THE NORTH LINE OF SAID SUBDIVISION; THENCE NORTH 39 DEGREES 54 MINUTES 26 SECONDS EAST, 1067.23 FEET; THENCE SOUTH 35 DEGREES 28 MINUTES 25 SECONDS EAST, TO THE POINT OF BEGINNING.

CONTAINING 9.616 ACRES.

City of Rochester Hills, Oakland County, Michigan SITE PLAN DOCUMENTS

PART OF THE NE 1/4 OF SECTION 21, TOWN 3 NORTH. RANGE 11 EAST



Project Name

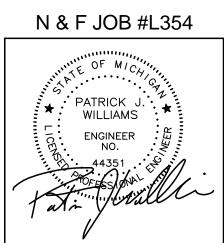
Auburn Pharmaceutical

SHEET INDEX

<u>•··</u> ·	
SP-0	Cover Sheet
SP-1	Overall Site Survey
SP-2	Boundary / Topographic / Tree Survey
SP-3	Boundary / Topographic / Tree Survey
SP-4	List of Surveyed Trees
SP-5	Dimensional Site Plan
SP-5a	Overall Site Plan
SP-6	Engineering Site Plan
SP-6a	Site Details
SP-7	Stormwater Management Plan
SP-7a	Stormwater Calculations and Details
SP-8	Road Paving Plan
L1	Tree Protection Plan
L2	Landscape Plan
4 - 5 4	
1 of 1	Photometric Site Plan
A101	Floor Plan
A201	Exterior Elevations
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REVISI	ONS:
01-24-20	ISSUED FOR SITE PLAN REVIEW
02-04-20 03-02-20	REVISED PER CLIENT REVISED PER CITY
04-01-20	REVISED PER CITY ENGINEERS
	N & F JOB #1 354

City File # 20-033 Section 21

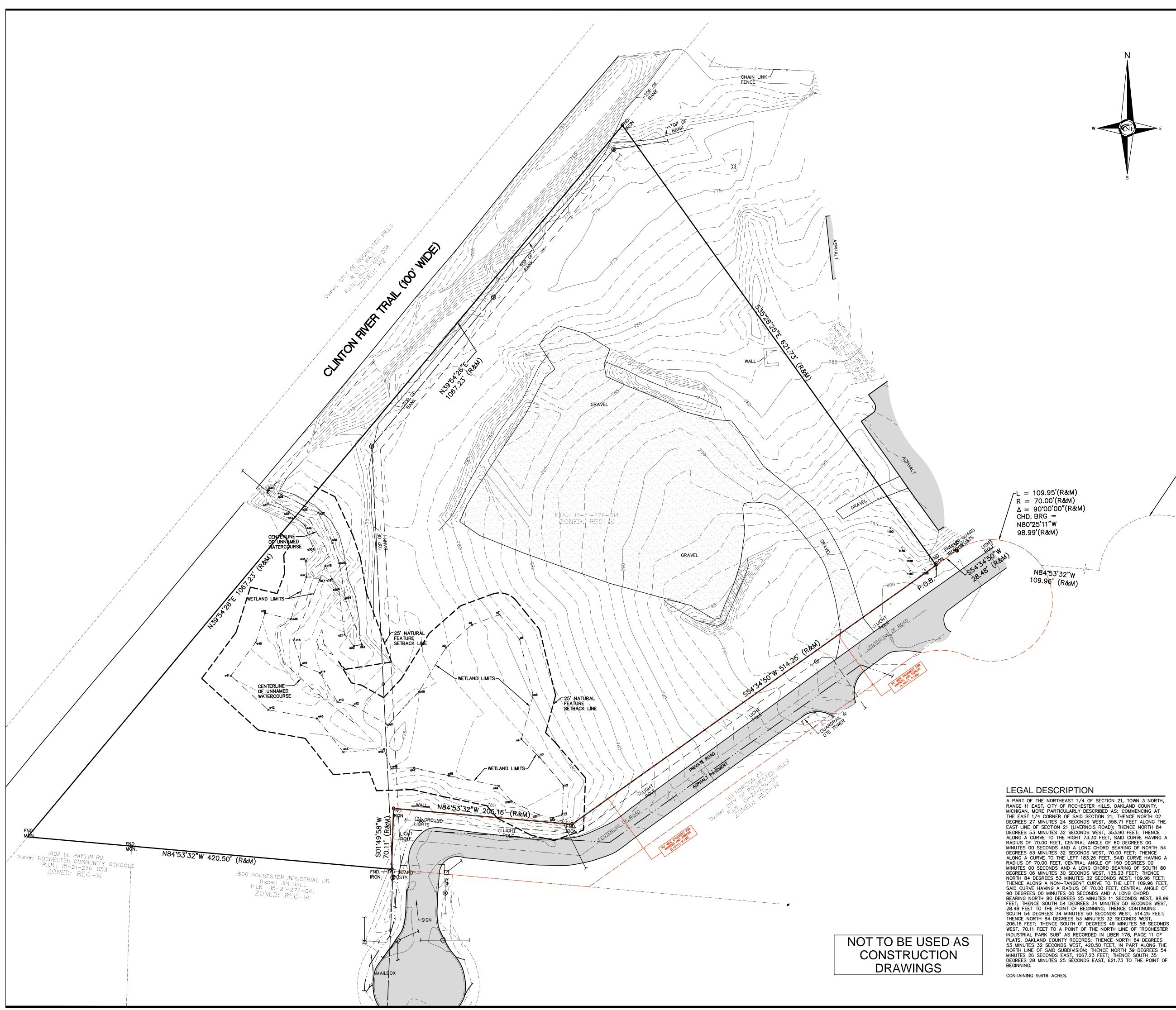


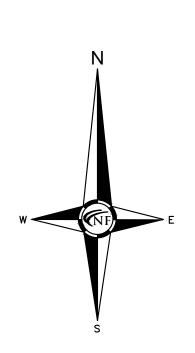


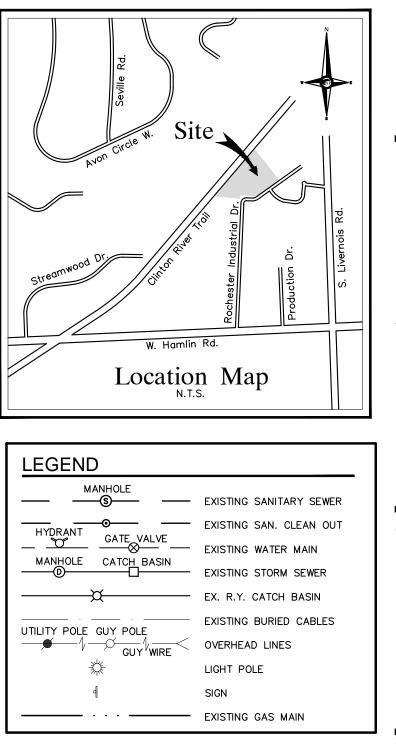


CIVIL ENGINEERS LAND SURVEYORS LAND PLANNERS

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







-L = 183.26'(R&M)R = 70.00'(R&M) $\Delta = 150'00'00''(R\&M)$ CHD. BRG = S80°06'30"W 135.23'(R&M) L = 73.30'(R&M)R = 70.00'(R&M) $\Delta = 60^{\circ}00'00''(R\&M)$ CHD. BRG =N54*****53'32"W 70.00'(R&M) N84•53'32"W 353.90' (R&M) 2 2

WETLAND NOTE

WETLAND DELINEATION WAS COMPLETED JUNE 21, 2017 BY THERESA PARDINGTON.

E. 1/4 CORNER SECTION 21 T.3N, R.11E

FLOOD HAZARD NOTE

THE PROPERTY DESCRIBED ON THIS SURVEY DOES NOT LIE WITHIN A SPECIAL FLOOD HAZARD AREA AS DEFINED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY; THE PROPERTY LIES WITHIN ZONE X OF THE FLOOD INSURANCE RATE MAP IDENTIFIED AS MAP NO. 26125C0391F BEARING AN EFFECTIVE DATE OF 09/29/2006.

MISS DIG / UTILITY DISCLAIMER NOTE A MISS DIG TICKET NUMBER BO93400740, PURSUANT TO MICHIGAN PUBLIC ACT 174 WAS ENTERED FOR THE SURVEYED PROPERTY. DUE TO THE EXTENDED REPORTING PERIOD FOR UNDERGROUND FACILITY OWNERS TO PROVIDE THEIR RECORDS, THE SURVEY MAY NOT REFLECT ALL THE UTILITIES AT THE TIME THE SURVEY WAS ISSUED ON DECEMBER 17, 2019. THE SURVEY ONLY REFLECTS THOSE UTILITIES WHICH COULD BE OBSERVED BY THE SURVEYOR IN THE FIELD OR AS DEPICTED BY THE UTILITY COMPANY RECORDS FURNISH PRIOR TO THE DATE THIS SURVEY WAS ISSUED. THE CLIENT AND/OR THEIR AUTHORIZED AGENT SHALL VERIEY WITH THE AND/OR THEIR AUTHORIZED AGENT SHALL VERIFY WITH THE FACILITY OWNERS AND/OR THEIR AUTHORIZED AGENTS, THE COMPLETENESS AND EXACTNESS OF THE UTILITIES LOCATION.

TOPOGRAPHIC SURVEY NOTES ALL ELEVATIONS ARE EXISTING ELEVATIONS, UNLESS OTHERWISE

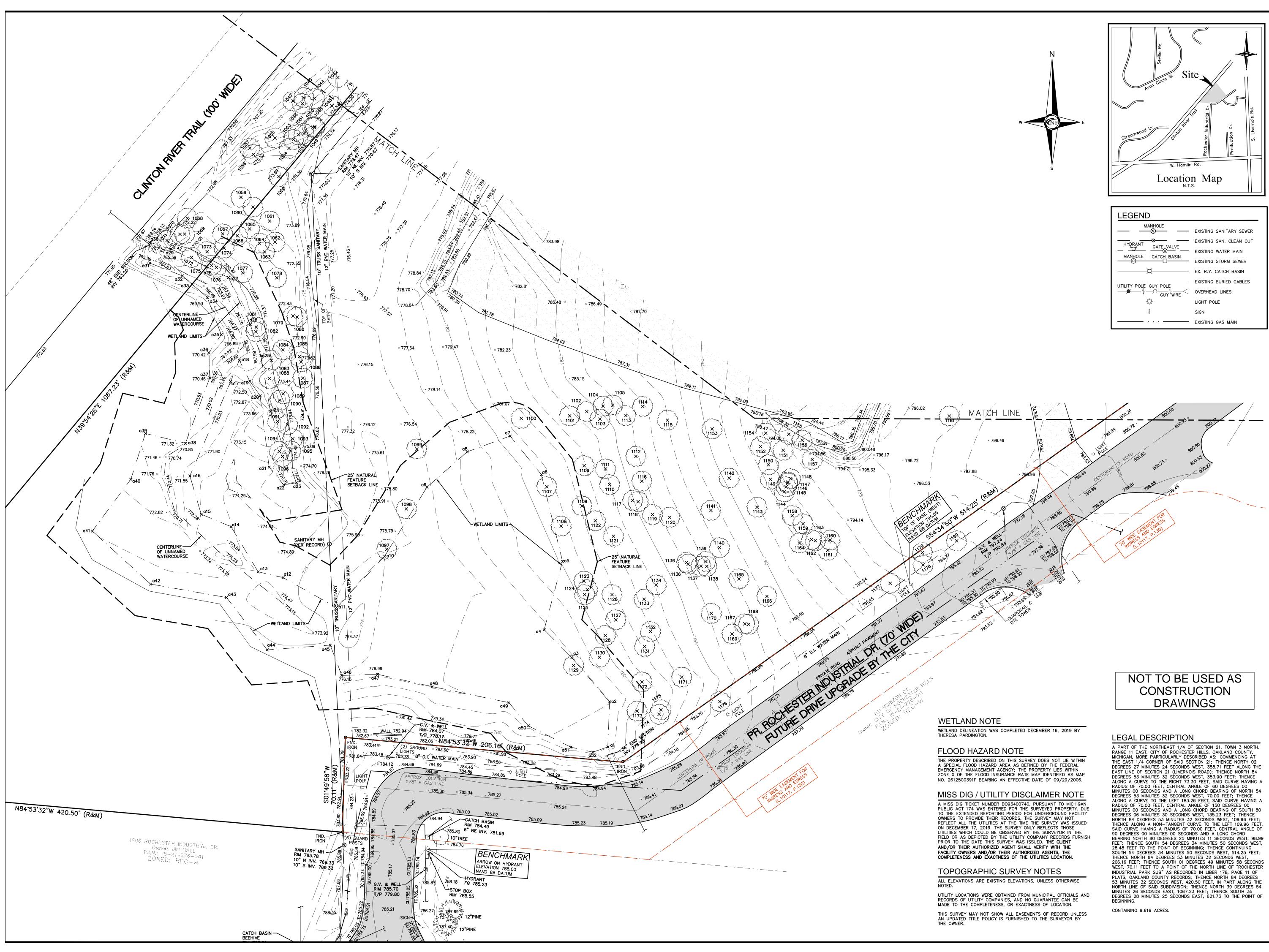
UTILITY LOCATIONS WERE OBTAINED FROM MUNICIPAL OFFICIALS AN RECORDS OF UTILITY COMPANIES, AND NO GUARANTEE CAN BE MADE TO THE COMPLETENESS, OR EXACTNESS OF LOCATION. THIS SURVEY MAY NOT SHOW ALL EASEMENTS OF RECORD UNLESS AN UPDATED TITLE POLICY IS FURNISHED TO THE SURVEYOR BY THE OWNER.

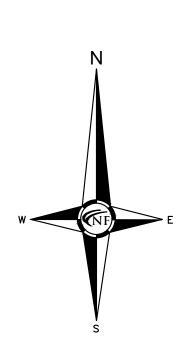
	CIVIL ENGINEERS AND SURVEYORS LAND SURVEYORS LAND PLANNERS NOWAK & FRAUS ENGINEERS 46777 WOODWARD AVE. PONTIAC, MI 48342-5032 TEL. (248) 332-7931 FAX. (248) 332-8257 WWW.NOWAKFRAUS.COM
-	SEAL PATRICK J. WILLIAMS ENGINEER NO. H44351 WILLIAMS PATRICK J. WILLIAMS PATRICK J. WILLIAMS PATRI
	CLIENT General Development Two Towne Square Suite 850 Southfield, MI 48076 Contact: Bruce Brickman Ph: (248) 357-3777
	PROJECT LOCATION Part of the Northeast ¹ / ₄ of Section 21 T. 3 North, R. 11 East City of Rochester Hills, Oakland County, Michigan SHEET Overall Boundary / Topographic Survey
	DateIssued/revised02-04-20REVISED02-02-20
IN NP	
AN DUE ITY ED SNISH	DRAWN BY: A. Eizember DESIGNED BY: APPROVED BY: P. Williams DATE:
_	January 24, 2020 SCALE: $1'' = 50'$
AND	50 25 0 25 50 75
SS	City File #20-003 Section 21

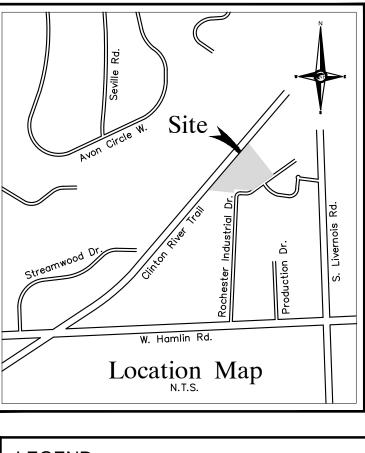
SHEET NO. **SP-1**

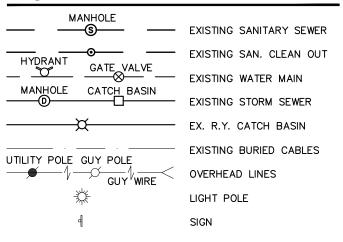
NFE JOB NO.

L354









NOWAK & FRAUS Engineers
CIVIL ENGINEERS Land Surveyors Land Planners
NOWAK & FRAUS ENGINEERS 46777 WOODWARD AVE. Pontiac, mi 48342-5032 Tel. (248) 332-7931 Fax. (248) 332-8257 WWW.Nowakfraus.com
SEAL
PATRICK J. PATRICK J. WILLIAMS ENGINEER NO. 44351 MOFESSION AMA
PROJECT Auburn Pharmaceutical Rochester Industrial Drive

 $^{1}969 - 2019$

CLIENT

General Development Two Towne Square Suite 850 Southfield, MI 48076

Contact: Bruce Brickman Ph: (248) 357-3777

PROJECT LOCATION

Part of the Northeast $\frac{1}{4}$ of Section 21 T. 3 North, R. 11 East City of Rochester Hills, Oakland County, Michigan

SHEET

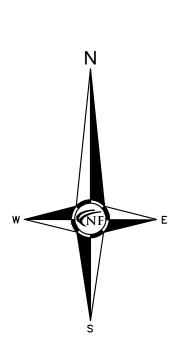
Boundary / Topographic / Tree Survey

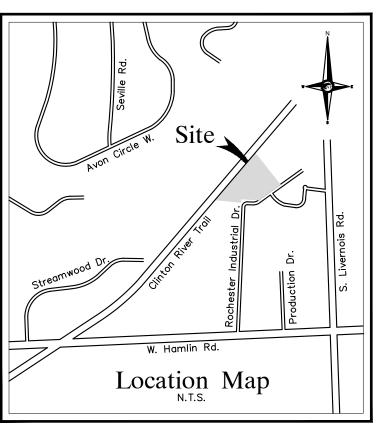


Know what's **below Call** before you dig.

DATE	ISSUED/I	REVISED
02-04-20 RI	EVISED PER CLIEN	IT
03-02-20 RE	EVISED PER CITY	
04-01-20 RE	EVISED PER CITY	
DRAWN	BY:	
A. Eize	ember	
DESIGN		
DESIGN		
APPROV	-	
P. Will	lams	
DATE:		
Januar	y 24, 2020	
	1" = 30'	
SCALE:		
0 15	0 1	15 30
City Eil	La #20.002	
•	le #20-003	
Section	121	
NFE JOB	NO.	SHEET NO.
L354		SP-2





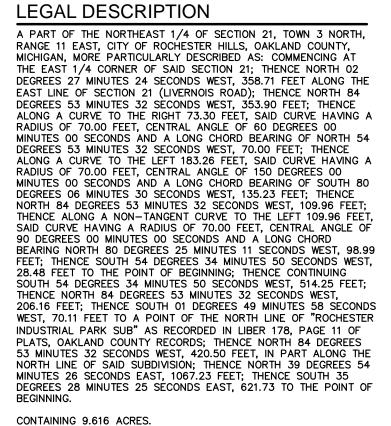


LEGEND MANHOLE ----- EXISTING SANITARY SEWER HYDRANT ____O____ ------ EXISTING SAN. CLEAN OUT GATE VALVE _____ EXISTING WATER MAIN MANHOLE CATCH BASIN EXISTING STORM SEWER — (D)-EX. R.Y. CATCH BASIN - EXISTING BURIED CABLES UTILITY POLE GUY POLE **____**1-OVERHEAD LINES GUY^VWIRE -ŬF LIGHT POLE

SIGN

EXISTING GAS MAIN

.



FLOOD HAZARD NOTE

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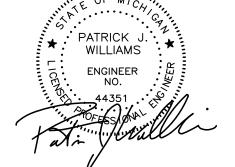
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WETLAND NOTE

WETLAND DELINEATION WAS COMPLETED DECEMBER 16, 2019 BY THERESA PARDINGTON.

NOT TO BE USED AS CONSTRUCTION DRAWINGS





PROJECT Auburn Pharmaceutical Rochester Industrial Drive

CLIENT

General Development Two Towne Square Suite 850 Southfield, MI 48076

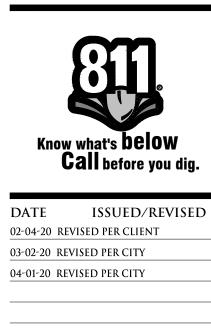
Contact: Bruce Brickman Ph: (248) 357-3777

PROJECT LOCATION

Part of the Northeast $\frac{1}{4}$ of Section 21 T. 3 North, R. 11 East City of Rochester Hills, Oakland County, Michigan

SHEET

Boundary / Topographic / Tree Survey



DRAWN BY:
A. Eizember
DESIGNED BY:

APPROVED BY: P. Williams DATE:

January 24, 2020 SCALE: 1'' = 30'30 15 0 15 30

 City File #20-003

 Section 21

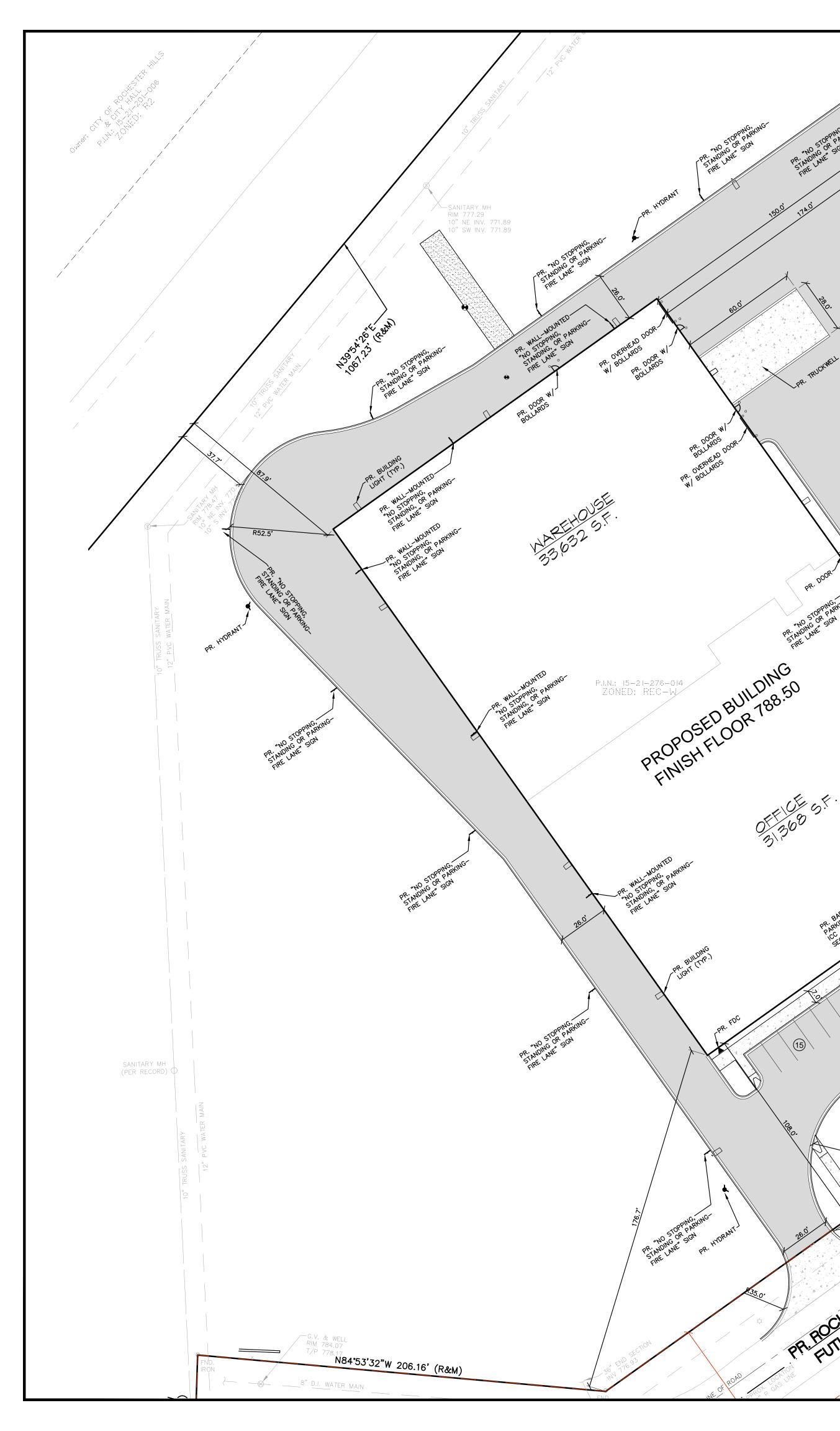
 NFE JOB NO.

 SHEET NO.

 L354

				Tree Inventory List					1090 1091	Save Save		N V	Ulmus americana	American Elm Black Walnut
Job Number:			L354						1091	Save		n N	Juglans nigra Ulmus americana	American Elm
Job Location	1:		1111 Horizon Court, Roch						1093	Save		N	Ulmus americana	American Elm
Date: Performed B	W.		Thursday, Alexander Kriebel	December 12, 2019 Forestry Registration No.					1094 1095	Save Save		N N	Ulmus americana Ulmus americana	American Elm American Elm
r olloliniou b	J .			r orodry rogiosadon no.					1096	Save		N	Ulmus americana	American Elm
	scription Notes: bserved structural defects*								1097	Save		N	Ulmus americana	American Elm
	structural defects, marginal form, some ins	sect activity noted	*						1098 1099	Save Remove	Y	N N	Fraxinus pennsylvanica Ulmus americana	Green Ash American Elm
"Poor" - major	structural defects, poor form, insect infest	sted*							1100	Remove	N	N	Ulmus americana	American Elm
*Structural de	efects may include decayed wood, crack	ks, root problem	s, weak branch unions						1101 1102	Remove Remove	Y	N N	Ulmus americana Ulmus americana	American Elm American Elm
	tree architecture, dead failed branches								1103	Remove	Ŷ	N	Ulmus americana	American Elm
Tree #	<u>Remove/Save</u> Replace (Y/N) S	Specimen (Y/N)	Botanical Name	Common Name	Dia.	Other Dia.	<u>Conditio</u>	n Comments	1104 1105	Remove Remove	Y V	N N	Acer nigrum Acer nigrum	Black Maple Black Maple
1001	Save	N.	Prunus serotina	Black Cherry	9	<u></u>	Poor	Rotting Out Base, Competition, Climbing Vines, Minor Lean	1106	Remove	Ň	N	Fraxinus pennsylvanica	Green Ash
1002 1003	Save Save	N N	Prunus serotina Ulmus americana	Black Cherry American Ehn	13 7		Fair Poor	Moderate Lean, Competition Bent Lead, Competition	1107 1108	Save Save		N N	Acer rubrum Acer saccharinum	Red Maple Silver Maple
1005	Save	N	Ulmus americana	American Elm	, 9		Fair	Bent Lead, Competition	1108	Save		N	Ulmus americana	American Elm
1005 1006	Save Save	N	Acer saccharinum Prunus serotina	Silver Maple Black Cherry	12 10	7,6, 6, 4	Fair	Competing Leads, Minor Leans, Competition Bent Lead, Competition, Major Canopy Die-Back	1110	Remove	Y	N	Ulmus americana	American Elm
1008	Save	N N	Ulmus americana	American Elm	6		Poor Poor	Bent Lead, Competition	 1 12	Remove Remove	N Y	N N	Fraxinus pennsylvanica Ulmus americana	Green Ash American Elm
1008	Save	N	Robinia pseudoacacia	Black Locust	7		Good		1113	Remove	Y	N	Juniperus virginiana	Eastern Red Cedar
1009 1010	Save Save	N N	Prunus serotina Prunus serotina	Black Cherry Black Cherry	12 10	9	Poor Poor	Bent Lead, Competition, Canopy Die-Back Twin, Canopy Die-Back, Moderate Leans, Competing Leads	1114 1115	Remove Remove	Y N	N N	Ulmus americana Fraxinus pennsylvanica	American Elm Green Ash
1011	Save	N	Fraxinus pennsylvanica	Green Ash	6		Poor	Bent Lead, Competition	1116	Remove	Y	N	Ulmus americana	American Elm
1012 1013	Save Remove Y	N N	Prunus serotina Populus deltoides	Black Cherry Eastern Cottonwood	14 15		Good	Competing Leads, Climbing Vines, Competition	1117 1118	Remove Remove	N V	N N	Fraxinus pennsylvanica Prunus serotina	Green Ash Black Cherry
1014	Save	N	Ulmus americana	American Elm	9		Fair	Bent Lead, Climbing Vines, Competition	1119	Remove	Ŷ	N	Ulmus americana	American Elm
1015 1016	Save Save	N N	Acer saccharinum Fraxinus pennsylvanica	Silver Maple Green Ash	8 7	7, 6, 4	Fair Fair	Multiple Stemmed, Competing Leads, Competition Competition, Minor Lean	1120 1121	Remove Save	Y	N N	Uhnus americana Juniperus virginiana	American Elm Eastern Red Cedar
1010	Save	N	Prunus serotina	Black Cherry	, 17	15	Poor	Twin, Major Canopy Die-Back, Rotting Burls, Climbing Vines	1121	Save		N	Fraxinus pennsylvanica	Green Ash
1018 1019	Save	N N	Juglans nigra Acer saccharinum	Black Walnut Silver Maple	11 10	9, 9, 5, 4, 3	Good Fair	Multiple Storymond, Compating Lands, Minor Lange	1123	Save		N	Ulmus americana	American Elm
1019	Save Save	N	Ulmus americana	American Elm	10	9, 9, 5, 4, 5 3	Fair	Multiple Stemmed, Competing Leads, Minor Leans Twin, Competing Leads, Competition	1124 1125	Save Save		N N	Fraxinus pennsylvanica Ulmus americana	Green Ash American Elm
1021	Save	N	Ulmus americana	American Elm	9		Poor	Climbing Vines, Competition, Major Canopy Die-Back, Minor Lean	1126	Save		N	Ulmus americana	American Elm
1022 1023	Save Save	N N	Juglans nigra Juglans nigra	Black Walnut Black Walnut	8 10		Fair Good	Bent Lead, Competition	1127 1128	Save Save		N N	Fraxinus pennsylvanica Ulmus americana	Green Ash American Elm
1024	Save	N	Prunus serotina	Black Cherry	9		Fair	Climbing Vines, Competition	1129	Save		N	Fraxinus pennsylvanica	Green Ash
1025 1026	Save Save	N N	Malus domestica Prunus serotina	Domestic Apple Black Cherry	6 8	5	Fair Poor	Twin, Climbing Vines, Competition Bent Lead, Competition	1130 1131	Save Save		N N	Fraxinus pennsylvanica Ulmus americana	Green Ash American Elm
1027	Save	N	Prunus serotina	Black Cherry	9		Fair	Bent Lead. Competition	1132	Save		N	Fraxinus pennsylvanica	Green Ash
1028 1029	Save Save	N N	Juglans nigra Juglans nigra	Black Walnut Black Walnut	10 10		Good Good		1133	Save		N	Fraxinus pennsylvanica	Green Ash American Elm
1030	Save	N	Ulmus americana	American Elm	14		Fair	Bent Lead, Competition	1134 1135	Save Remove	Y	N	Ulmus americana Ulmus americana	American Elm
1031 1032	Save Save	N N	Ulmus americana	American Elm Black Maple	16 14		Fair Poor	Bent Lead, Competition Split Running Down Main Lead	1136	Remove	Y	N	Ulmus americana	American Elm
1032	Save	N N	Acer nigrum Ulmus americana	American Ehn	6		Fair	Competition	1137 1138	Remove Remove	N N	N N	Fraxinus pennsylvanica Fraxinus pennsylvanica	Green Ash Green Ash
1034	Save	N	Acer nigrum	Black Maple	8	17	Fair	Competition, Minor Lean	1139	Remove	Y	N	Ulmus americana	American Elm
1035 1036	Save Save	Y N	Prunus serotina Ulmus americana	Black Cherry American Elm	27 6	16	Fair Fair	Twin, Poor Seaming, Dying Lead, Competition, Competing Leads Bent Lead, Competition	1140 1141	Remove Remove	N N	N N	Fraxinus pennsylvanica Fraxinus pennsylvanica	Green Ash Green Ash
1037	Save	N	Ulmus americana	American Elm	6		Poor	Canopy Die-Back, Bent Lead, Competition	1142	Remove	N	N	Fraxinus pennsylvanica	Green Ash
1038 1039	Save Save	N N	Ulmus americana Ulmus americana	American Elm American Elm	9 15	12	Fair Fair	Climbing Vines Competition Bent Lead, Competition, Competing Leads	1143 1144	Remove Remove	Y	N N	Juniperus virginiana Fraxinus pennsylvanica	Eastern Red Cedar Green Ash
1040	Save	N	Ulmus americana	American Elm	8		Poor	Suppression, Competition, Canopy Die-Back, Climbing Vines	1144	Remove	Y	N	Ulmus americana	American Elm
1041 1042	Save Save	N N	Ulmus americana Prunus serotina	American Elm Black Cherry	10 6		Poor Poor	Bent Lead, Competition, Canopy Die-Back, Climbing Vines Nearly Dead, Little Too No Canopy, Climbing Vines	1146	Remove	Y	N	Ulmus americana	American Elm
1042	Save	Y	Juglans nigra	Black Walnut	21		Good	reary Dead, Enter 100 110 Canopy, Canonig Vines	1147 1148	Remove Remove	Y Y	N N	Ulmus americana Prunus scrotina	American Elm Black Cherry
1044 1045	Save Save	N N	Fraxinus pennsylvanica Prunus serotina	Green Ash Black Cherry	7		Poor Poor	Insect Activity, Climbing Vines, Competition Heavy Lean, Competition	1149	Remove	Y	N	Malus domestica	Domestic Apple
1045	Save	N	Prunus serotina	Black Cherry	10		Fair	Competition	1150 1151	Remove Remove	Y Y	N N	Ulmus americana Ulmus americana	American Elm American Elm
1047 1048	Save	N	Prunus scrotina	Black Cherry	8		Poor Foir	A-Typical Growth Pattern, Little Too No Canopy, Competition	1152	Remove	Ŷ	N	Juniperus virginiana	Eastern Red Cedar
1048	Save Save	N	Ulmus americana Ulmus americana	American Elm American Elm	7		Fair Fair	Bent Lead, Climbing Vines, Competition Competition, Minor Lean	1153 1154	Remove Remove	Y V	N N	Ulmus americana Ulmus americana	American Elm American Elm
1050	Save	N	Prunus serotina	Black Cherry	6		Poor	Competition, Little Too No Canopy, Climbing Vines	1155	Remove	Ŷ	N	Ulmus americana	American Elm
1051 1052	Save Save	N N	Tilia americana Quercus rubra	American Basswood Northern Red Oak	12 14		Fair Fair	Bent Lead, Competition Competition, Minor Lean	1156 1157	Remove Remove	Y N	N N	Ulmus americana Fraxinus pennsylvanica	American Elm Green Ash
1053	Save	N	Prunus serotina	Black Cherry	12	• •	Fair	Competition, Canopy Die-Back, Minor Lean	1158	Remove	Y	N	Acer rubrum	Red Maple
1054 1055	Save Save	N N	Prunus serotina Quercus rubra	Black Cherry Northern Red Oak	11 10	10	Fair Fair	Twin, Competing Leads, Competition, Canopy Die-Back Moderate Lean, Competition	1159 1160	Remove Remove	N	N N	Fraxinus pennsylvanica Ulmus americana	Green Ash American Elm
1056	Save	N	Juglans nigra	Black Walnut	12		Fair	Climbing Vines, Competing Leads, Competition	1161	Remove	Y	N	Ulinus americana	American Elm
1057 1058	Save Save	N N	Ulmus americana Prunus serotina	American Elm Black Cherry	6 8		Poor Poor	Suppression, Competition, Bent Lead Competition, Little Too No Canopy, Climbing Vines	1162	Remove	Y	N	Ulmus americana	American Elm
1059	Save	N	Acer nigrum	Black Maple	9		Fair	Competition	1163 1164	Remove Remove	Y N	N N	Ulmus americana Ulmus americana	American Elm American Elm
1060 1061	Save Save	N V	Prunus serotina Prunus serotina	Black Cherry Black Cherry	14 26	13, 8 (Dead)	Fair Fair	Multiple Stemmed, Competing Leads, Competition, Canopy Die-Back Poor Seaming, Minor Lean, Competition	1165	Remove	N	N	Fraxinus pennsylvanica	Green Ash
1062	Save	Ň	Ulmus americana	American Elm	10		Poor	Competition, Canopy Die-Back, Dead Lead	1166 1167	Remove Remove	N Y	N N	Fraxinus pennsylvanica Ulmus americana	Green Ash American Elm
1063 1064	Save Save	N N	Ulmus americana Carya glabra	American Elm Pignut Hickory	9		Fair Fair	Competition Competition	1168	Remove	Y	N	Ulmus americana	American Elm
1065	Save	N	Quercus rubra	Northern Red Oak	7		Fair	Competition	1169 1170	Remove Remove	N Y	N N	Fraxinus pennsylvanica Ulmus americana	Green Ash American Elm
1066	Save	N	Quercus bicolor	Swamp White Oak	16	9	Good	Tuin Compating Londo, Compatition	1171	Save	-	N	Acer saccharinum	Silver Maple
1067 1068	Save Save	N N	Quercus bicolor Fraxinus pennsylvanica	Swamp White Oak Green Ash	10 6	9	Fair Poor	Twin, Competing Leads, Competition Numerous Cankers, Insect Activity, Competition	1172 1173	Save Save		N N	Fraxinus pennsylvanica Carya glabra	Green Ash Pignut Hickory
1069	Save	N	Juglans nigra	Black Walnut	15	6 H	Fair	Competition	1173	Remove	Y	N	Acer negundo	Boxelder Maple
1070 1071	Save Save	N N	Tilia americana Fraxinus pennsylvanica	American Basswood Green Ash	11 6	9,7	Fair Fair	Multiple Stemmed, Competing Leads, Competition Competition, Flaking Bark, Minor Lean	1175 1176	Remove	N	N	Fraxinus pennsylvanica	Green Ash Russian Olive
1072	Save	N	Juglans nigra	Black Walnut	17		Good		1170	Remove Remove	Y	N N	Elaeagnus angustifolia Elaeagnus angustifolia	Russian Olive
1073 1074	Save Save	N N	Tilia americana Tilia americana	American Basswood American Basswood	8 9		Poor Fair	Heavy Lean, Numerous Burls, Competition Competition	1178	Remove	Y	N	Elaeagnus angustifolia	Russian Olive
1075	Save	N	Acer nigrum	Black Maple	7		Fair	Competition, Minor Lean	1179 1180	Remove Remove	Y Y	N N	Elaeagnus angustifolia Elaeagnus angustifolia	Russian Olive Russian Olive
1076 1077	Save Save	Y N	Quercus rubra Tilia americana	Northern Red Oak American Basswood	20 15		Fair Good	Canopy Die-Back, Minor Lean	1181	Remove	Y	N	Uhnus thomasii	Rock Elm
1078	Save	Ŷ	Ulmus americana	American Elm	24		Fair	Insect Activity, Canopy Die-Back, Competition	1182 1183	Remove Save	Ŷ	N N	Acer negundo Malus sp.	Boxelder Maple Crabapple
1079 1080	Save Save	N N	Prunus serotina A cer nizum	Black Cherry Black Maple	16 7	14	Poor Poor	Twin, Moderate Lean, Inosculation, Insect Activity, Rotting Lead Inosculation, Competition, Bent Lead	1184	Save		N	Matus sp.	Crabapple
1080	Save	N	Acer nigrum Ulmus americana	American Elm	12		Poor Fair	Competition, Competition, Bent Lead	1185 1186	Save Save		N N	Malus sp. Pinus nigra	Crabapple Austian Pine
1082	Save	N	Quercus alba	White Oak Black Maple	15 10		Fair Fair	Minor Lean, Competition	1187	Save		N	Picea pungens	Colorado Blue Spruce
1083 1084	Save Save	N N	Acer nigrum Carya glabra	Black Maple Pignut Hickory	10 6		Fair Fair	Competition Bent Lead, Competition, A-Typical Growth Pattern	1188	Save		N	Pinus nigra Picea puncens	Austian Pine Colorado Blue Spruce
1085	Save	N	Prunus serotina	Black Cherry	6		Poor	Bent Lead, Climbing Vines, Competition, Major Canopy Die-Back	1189 1190	Save Save		N	Pícea pungens Pinus nigra	Colorado Blue Spruce Austian Pine
1086 1087	Save Save	N N	Ulmus americana Ulmus americana	American Elm American Elm	12 8		Poor Poor	Bent Lead, Climbing Vines, Competition, Moderate Lean Competition, A-Typical Growth Pattern, Climbing Vines, Bent Lead	1191	Remove	Y	N	Elaeagnus angustifolia	Russian Olive
1088	Save	N	Prunus serotina	Black Cherry	11		Fair	Competition, Little Too No Canopy, Canopy Die-Back	1192 1193	Remove Remove	Y Y	N N	Populus deltoides Populus deltoides	Eastern Cottonwood Eastern Cottonwood
1089	Save	Y	Prunus serotina	Black Cherry	18		Fair	Canopy Die-Back, Competition	1194	Remove	Y	N	Elacagnus angustifolia	Russian Olive

			F (NF)
			¹ 969 - 2019
3	Fair Good	Twin, Competition, Minor Leans, Competing Leads	
	Poor	Eroding Base, Heavy Lean, Competition, Climbing Vines	NOWAK & FRAU
	Poor Fair	Heavy Lean, Uprooting At Base Moderate Lean, Competition	ENGINEERS
	Poor	Dead Lead, Major Canopy Die-Back, Competiton	CIVIL ENGINEERS
	Poor Fair	Major Canopy Die-Back, Competiton, Bent Lead Dead Tree Leaning On It, Minor Lean, Competiton	LAND SURVEYORS
	Good		LAND PLANNERS
	Fair Poor	Insect Activity Insect Activity, Missing Bark, Competition	
	Fair	Bent Lead, Competition	NOWAK & FRAUS ENGINE 46777 Woodward Ave
	Good Fair	Competiton, Canopy Die-Back	PONTIAC, MI 48342-5032
	Good	·····	TEL. (248) 332-7931
	Good Poor	Insect Activity, Minor Lean, Competition	FAX. (248) 332-8257 WWW.NOWAKFRAUS.CO/
	Fair	Minor Lean, Competition	
	Fair Poor	Comptition Climbing Vines, Competition	
6	Fair	Twin, Competiton, Competing Leads	
	Poor Good	Insect Activity, Competition	SEAL
	Fair	Competition, Canker, Canopy Die-Back	OF MICH
	Good Good		•••• A F = •••••••••••••••••••••••••••••
	Fair	Competition, Canopy Die-Back	♦ PATRICK J. WILLIAMS
	Good Poor	Competition, Major Canopy Die-Back	
	Fair	Competition, Canopy Die-Back	
	Fair Fair	Competition Competition, Canopy Die-Back, Climbing Vines	The fisher with
	Poor	Heavy Insect Activity, Competition	1 an your
•	Poor Poor	Competition, Canopy Die-Back, Minor Lean Insect Activity, Competition	V
	Fair	Competition	PROJECT
	Fair Poor	Competition, Minor Lean Heavy Insect Activity, Competition, Minor Lean	Auburn Pharmaceutical
	Fair	Competition, Climbing Vines	Rochester Industrial Drive
	Good Fair	Competition, Insect Activity	
	Fair	Competition, Elimbing Vines	
	Good Good		CLIENT
	Fair	Competition, Canopy Die-Back	General Development Two Towne Square
	Fair Fair	Competition Competition, Canopy Die-Back	Suite 850
	Fair	Competing Leads, Competition	Southfield, MI 48076
	Fair	Competition	
	Fair Fair	Competition Competition, Insect Activity	Contact: Bruce Brickman
	Good		Ph: (248) 357-3777
	Good Poor	Competition, Minor Lean	
	Good	Madanata Laura Darit Laura Communitien	
	Fair Fair	Moderate Lean, Bent Lead, Competition Competition, Canopy Die-Back	PROJECT LOCATION
	Fair	Competition	Part of the Northeast $\frac{1}{4}$ of Section 21
5	Fair Fair	Competition, Minor Lean Twin, Competition, Competing Leads, Bent Lead	T. 3 North, R. 11 East
)	Fair	Competition, Canopy Die-Back	City of Rochester Hills,
	Fair Good	Bent Lead, Minor Lean, Competition	Oakland County, Michigan
	Fair Fair	Competition	
i	Good	Bent Lead, Competition	SHEET
	Good		List of Surveyed Trees
4,4	Good Fair	Multiple Stemmed, Competing Leads, Competition	
	Good		
	Fair Fair	Bent Lead, Competition Bent Lead, Competition	
	Fair	Competition	
Dead)	Fair) Poor	Competition Twin, Insect Activity, Competition, Canopy Die-Back	}! 4 6 1
	Poor	Insect Activity, Competition	
	Poor Poor	Climbing Vines, Competition, Heavy Insect Activity Dead Tree Leaning On It, Moderate Lean, Competition	
	Fair Poor	Bent Lead, Competition, Climbing Vines	Know what's below
4	Poor Fair	Heavy Lean, Competition, Bent Lead Twin, Competition, Competing Leads	Call before you dig.
	Good Fair		DATE ISSUED/REVISED
	Fair Fair	Competition Competition	DATE ISSUED/REVISED 02-04-20 REVISED PER CLIENT
6 (Dead)	Poor	Horizontal Lean, Competition	03-02-20 REVISED PER CITY
6 (Dead) 8) Poor Fair	Poor Seaming, Canker, Competition, Dead Rotting Wood Twin, Moderate Leans, Competition, Competing Leads	04-01-20 REVISED PER CITY
5, 5, 4, 4 8	,3 Fair	Multiple Stemmed, Competing Leads	
8 6	Fair Fair	Twin, Moderate Leans, Competing Leads Twin, Competition, Competing Leads	
и	Good		
14 15	Good Fair	Twin, Competing Leads, A-Typical Growth Pattern, Poor Seaming	
	Good		DRAWN BY:
	Fair Good	Split Running Up Lead, Suckering	A. Eizember
	Good		DESIGNED BY:
	Good Good		
i	Good		APPROVED BY:
	Good Good		P. Williams
7	Fair	Twin, Competition, Competing Leads	DATE:
10	Good Fair	Twin Heavy Lean, Competition	January 24, 2020
			SCALE: N.T.S.
		NOT TO BE USED AS	
		CONSTRUCTION	
		DRAWINGS	City File #20-003
		DRAVINGS	Section 21
			NFE JOB NO. SHEET N
			L354 SP-4



PR-ANDING OR SIGN

"NO STOP +

PR: BUILDIN'S

PR-ANDING (

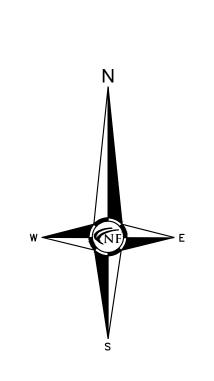
PR-ROCHESTERINDUSTRIAL DR. TO WIDE) PR-ROCHESTERINDUSTRIAL DR. THE OTH PR-ROCHESTERING UPGRADE BY THE OTH

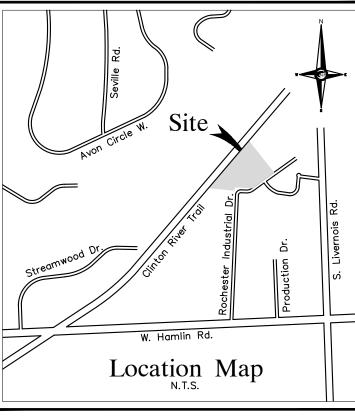
BUILDING NOTES

CONSTRUCTION TYPE: IIB FIRE SUPPRESSION: FULLY SUPPRESSED

FIRE DEPARTMENT NOTES CONSTRUCTION SITE SHALL BE SAFGUARDED IN ACCORDANCE WITH

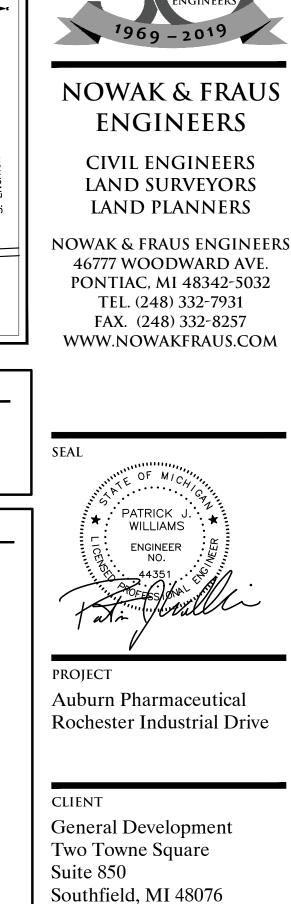
FOR PERMIT INFORMATION.





PAVING LEGEND PROPOSED CONCRETE PAVEMENT PROPOSED ASPHALT PAVEMENT

LEGEND MANHOLE - EXISTING SANITARY SEWER _____ _____S___ HYDRANT SAN. CLEAN OUT - EXISTING WATERMAIN MANHOLE CATCH BASIN - EXISTING STORM SEWER – EX. R. Y. CATCH BASIN EXISTING BURIED CABLES UTILITY POLE GUY POLE GUY OVERHEAD LINES -ŬF-LIGHT POLE SIGN EXISTING GAS MAIN PR. SANITARY SEWER HYDRAN GATE VALVE PR. WATER MAIN MANHOLE PR. STORM SEWER - PR. R. Y. CATCH BASIN PROPOSED LIGHT POLE -05-



Contact: Bruce Brickman Ph: (248) 357-3777

PROJECT LOCATION

Part of the Northeast $\frac{1}{4}$ of Section 21 T. 3 North, R. 11 East City of Rochester Hills, Oakland County, Michigan

SHEET Dimensional Site Plan



		, ,	
DATE	ISSUED/	REVISED	
02-04-20 RE	VISED PER CLIEN	NT	
03-02-20 REV	/ISED PER CITY		
04-01-20 REV	/ISED PER CITY		
			_
DRAWN	BY:		
A. Eize	mber		
DESIGNE	D BY:		
P. Willi	ams		
APPROVE	D BY:		
P. Willi	ams		
DATE:			
	y 24, 2020)	
JOINEL.	1'' = 30'		
30 15	0	15 30	
City Fil	e #20-003	3	
Section		-	
NFE JOB		SHEET NO	
,			•
L354		SP-5	

USE CLASSIFICATION: B / S-1, MIXED-USE NON-SEPARATED (S-1 IS MOST RESTRICTIVE AND WILL BE USED FOR BUILDING ANALYSIS)

~554.54°50° kini

OPEN BURNING IS NOT PERMITTED, INCLUDING THE BURNING OF TRASH, DEBRIS, OR LAND CLEARING MATERIALS. OPEN BURNING FOR WARMING OF SAND AND/OR WATER FOR THE PREPARATION OF MORTAR SHALL BE WITHIN CITY OF ROCHESTER HILLS BURN PERMIT GUIDELINES. CONTACT ROCHESTER HILLS FIRE DEPARTMENT FOR PERMIT INFORMATION

A "KNOX" KEY SYSTEM MAY BE REQUIRED IN A LOCATION APPROVED BY THE FIRE CODE OFFICIAL. ORDERING INFORMATION IS AVAILABLE FROM THE FIRE DEPARTMENT.

FIRE LANES SHALL BE DESIGNATED BY THE FIRE CODE OFFICIAL AND SHALL BE CONSPICUOUSLY POSTED ON BOTH SIDES OF THE FIRE LANE, WITH FIRE SIGNS, SPACED NOT MORE THAN 100 FEET APART. FIRE LANE SIGNS SHALL READ "NO STOPPING, STANDING, PARKING, FIRE LANE" AND SHALL CONFORM TO THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

SIGN NOTE

PROPOSED SIGNAGE IS CURRENTLY UNKNOWN AND WILL BE APPLIED FOR UNDER A SEPARATE PERMIT.

SITE DATA

ZONED: REC-W (REGIONAL EMPLOYMENT CENTER WORKPLACE) SITE AREA: 418,886 S.F. OR 9.62 ACRES MAX. BUILDING HEIGHT ALLOWED: 42 FEET

<u>SETBACKS</u> FRONT (SOUTH): REQUIRED 10'

SIDE (WEST): SIDE (EAST): 25' 25' 30' REAR (NORTH):

<u>PROVIDED</u> 108.0' 176.7' 174.0' 87.9**'**

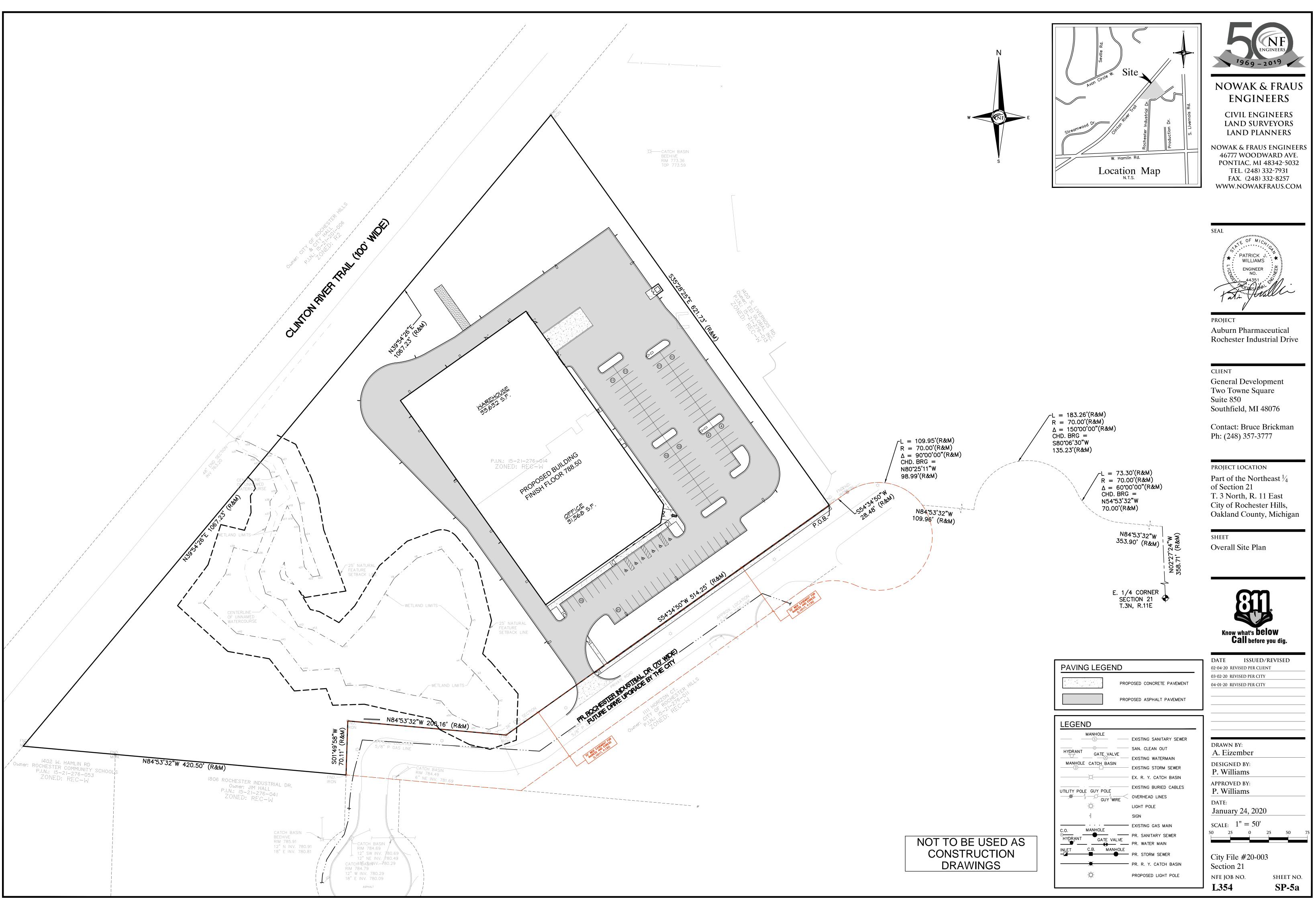
PROPOSED BUILDING AREA: OFFICE: 31,450 S.F. WAREHOUSE: 33,550 S.F.

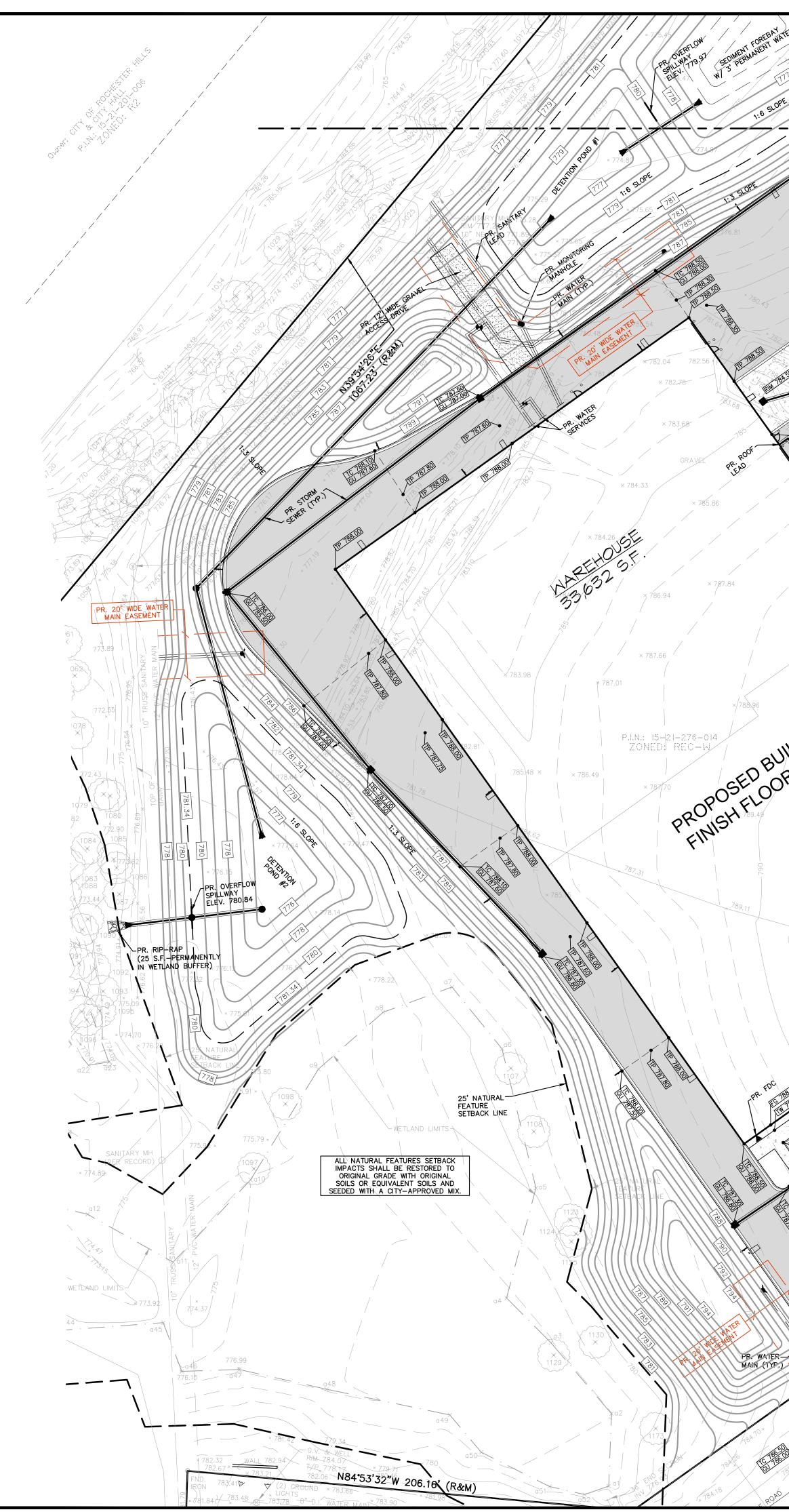
PARKING REQUIRED: OFFICE: 1 SPACE PER 350 S.F. FLOOR AREA 31,368 S.F. / 350 S.F. = 90 SPACES WAREHOUSE: 1 SPACE PER 1,700 S.F. FLOOR AREA 33,632 S.F. / 1,700 S.F. = 20 SPACES

TOTAL PARKING REQUIRED: 110 SPACES

PARKING PROVIDED: 110 SPACES INCLUDING 5 BARRIER-FREE SPACES (1 VAN ACCESSIBLE)

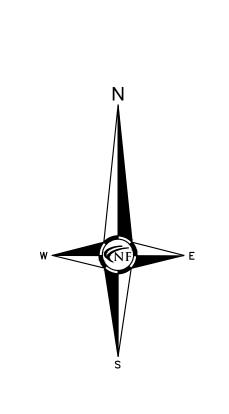


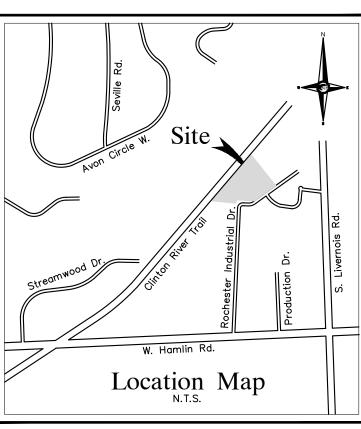




ENT FORFER WATER	SAM	NITARY S	EWER BASIS OF DESIGN	fuere g
ERMA TITLES	Pr. Office = Unit Factor =		S.F. Per 1,000 S.F.	
	Total REU Units in district =			
1:6 SLOPE 113	Pr. Warehouse/Storage = Unit Factor =		Fixtures Per Fixture	
MATCH LINE	Total REU Units in district =			
× to the second se	Equivalent Population = Total Population (Whole Bldg) =		People Per Unit People	
Stope Freedom President Provide Andread Andrea	Average Flow		100 Gal/Per/Day * Population=	3,413 GPD
PREWER C	Average Flow =		7.48*60*60*24	0.005 CFS
	Peak Flow		18 + (# of Persons/1000) ^ 0.50 =	4.247 CFS
× 80.41 × WESTER	Peak Flow =		4 + (# of Persons/1000) ^ 0.50 =	2.009 CFS 0.023 CFS
PRICOSURE * 180	Proposed Sanitary Lead =		In. Dia. @ 1.00 % =	0.561 CFS
× 782.	Waste Generated:	1	CFS * 646,272 (Gallons/Day)/CFS =	3,413 GPD - Ave
		1	CFS * 646,272 (Gallons/Day)/CFS =	14,831 GPD - Pe
ED BUIL 188.50 PR. TRANSEL 16 18 20 1 1 20 20 1 20 20 20 20 20 20 20 20 20 20 20 20 20		The second se		
A TOP OF CALL A TOP		198-0.18 0-198-18 0-198-18	1932 1932 1939 19 19 19 19 19 19 19 19 19 19 19 19 19 1	800.80 800.80 800.93* 800.93* 800.93* 800.93* 800.93*
PE WITER MAN (THE BURNAL ENDER RECEIPTINE DRIVE UP ON A DE DUIT ENDER RECEIPTINE DRIVE UP ON A DE DUIT ENDER RECEIPTINE DRIVE UP ON A DE DUIT ENDER RECEIPTINE DRIVE UP ON A DE DUIT RECEIPTINE DRIVE DRIVE DRIVE DRIVE DRIVE DRIVE DRIVE DRIVE RECEIPTINE DRIVE DRIV				







PAVING LEGEND PROPOSED CONCRETE PAVEMENT

PROPOSED ASPHALT PAVEMENT LEGEND MANHOLE ------ EXISTING SANITARY SEWER HYDRANT - SAN. CLEAN OUT - EXISTING WATERMAIN MANHOLE CATCH BASIN - EXISTING STORM SEWER – EX. R. Y. CATCH BASIN —Q— - EXISTING BURIED CABLES UTILITY POLE GUY POLE GUY C OVERHEAD LINES ** LIGHT POLE SIGN - EXISTING GAS MAIN C.O. MANHOLE PR. SANITARY SEWER **—●**— GATE VALVE PR. WATER MAIN MANHOLE ------- PR. STORM SEWER - PR. R. Y. CATCH BASIN

SOIL DATA

-ŬF

THIS AREA OF WORK CONSISTS OF 79.9% (10B) — MARLETTE SANDY LOAM, 1 TO 6 PERCENT SLOPES 20.1% (BntadB) — BLOUNT LOAM, 0 TO 4 PERCENT SLOPES BASED ON DATA PROVIDED BY THE UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE.

PROPOSED LIGHT POLE

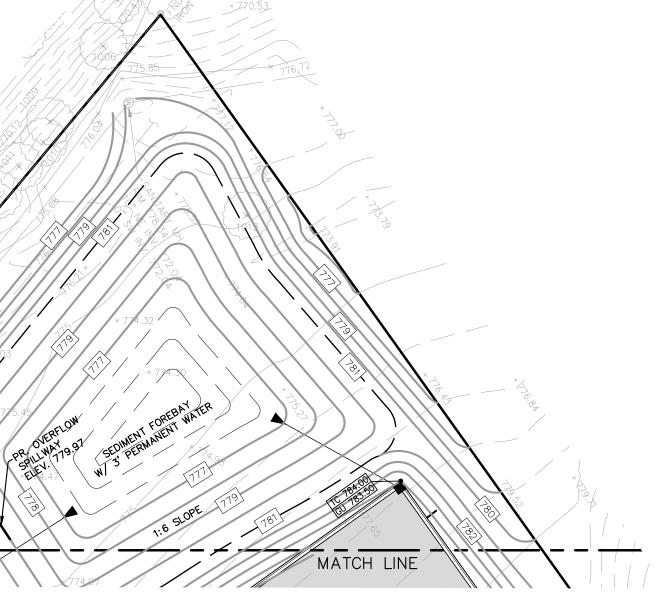
EASEMENT NOTE

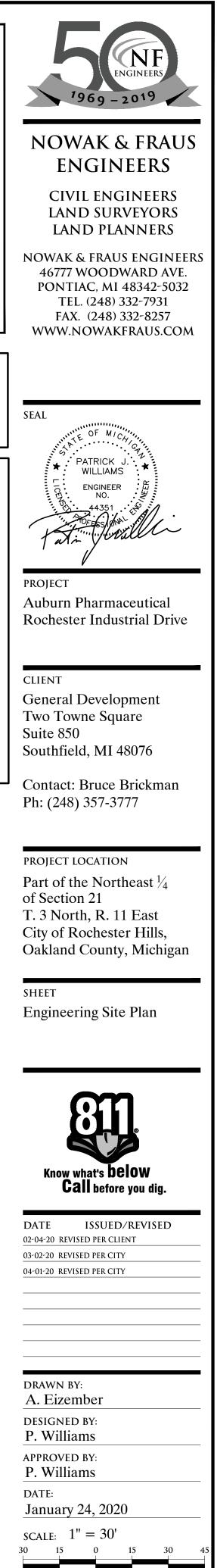
EASEMENTS WILL BE PROVIDED FOR EXISTING AND PROPOSED PUBLIC UTILITIES ON SITE.

DETENTION POND NOTE

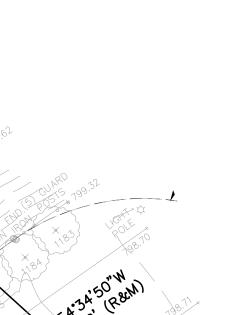
A MINIMUM SLOPE OF 0.50% MUST BE PROVIDED BETWEEN THE INLET AND OUTLET OF BOTH DRY DETENTION PONDS FOR MAINTENANCE PURPOSES.







City File #20-003 Section 21 NFE JOB NO.	SHEET NO.
L354	SP-6



GENERAL PAVING NOTES

PAVEMENT SH PLANS AND A	HALL BE OF THE TYPE, THICKNESS AND CROSS SECTION AS INDICATED ON THE AS FOLLOWS:
CONCRETE:	PORTLAND CEMENT TYPE IA (AIR-ENTRAINED) WITH A MINIMUM CEMENT CONTENT OF SIX SACKS PER CUBIC YARD, MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3,500 PSI AND A SLUMP OF 1 1/2 TO 3 INCHES.

ASPHALT: BASE COURSE – MDOT BITUMINOUS MIXTURE NO. 1100L, 20AA; SURFACE COURSE – MDOT BITUMINOUS MIXTURE NO. 1100T, 20AA; ASPHALT CEMENT PENETRATION GRADE 85–100, BOND COAT – MDOT SS–1H EMULSION AT 0.10 GALLON PER SQUARE YARD; MAXIMUM 2 INCH LIFT.

PAVEMENT BASE SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY (MODIFIED PROCTOR) PRIOR TO PLACEMENT OF PROPOSED PAVEMENT. EXISTING SUB-BASE SHALL BE PROOF-ROLLED IN THE PRESENCE OF THE ENGINEER TO DETERMINE STABILITY. ALL CONCRETE PAVEMENT, DRIVEWAYS, CURB & GUTTER, ETC., SHALL BE SPRAY CURED WITH WHITE MEMBRANE CURING COMPOUND IMMEDIATELY FOLLOWING FINISHING OPERATION. ALL CONCRETE PAVEMENT JOINTS SHALL BE FILLED WITH HOT POURED RUBBERIZED ASPHALT JOINT SEALING COMPOUND IMMEDIATELY AFTER SAWCUT OPERATION. FEDERAL SPECIFICATION SS-S164.

ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND SPECIFICATIONS OF THE MUNICIPALITY AND THE MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, CURRENT EDITION. ALL TOP OF CURB ELEVATIONS, AS SHOWN ON THE PLANS, ARE CALCULATED FOR A 6" CONCRETE CURB UNLESS OTHERWISE NOTED.

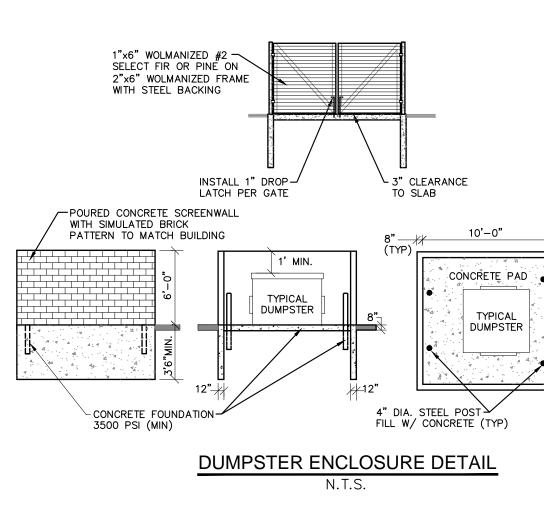
ALL SIDEWALK RAMPS, CONFORMING TO PUBLIC ACT NO. 8, 1993, SHALL BE INSTALLED AS INDICATED ON THE PLANS. CONSTRUCTION OF A NEW OR RECONSTRUCTED DRIVE APPROACH CONNECTING TO AN

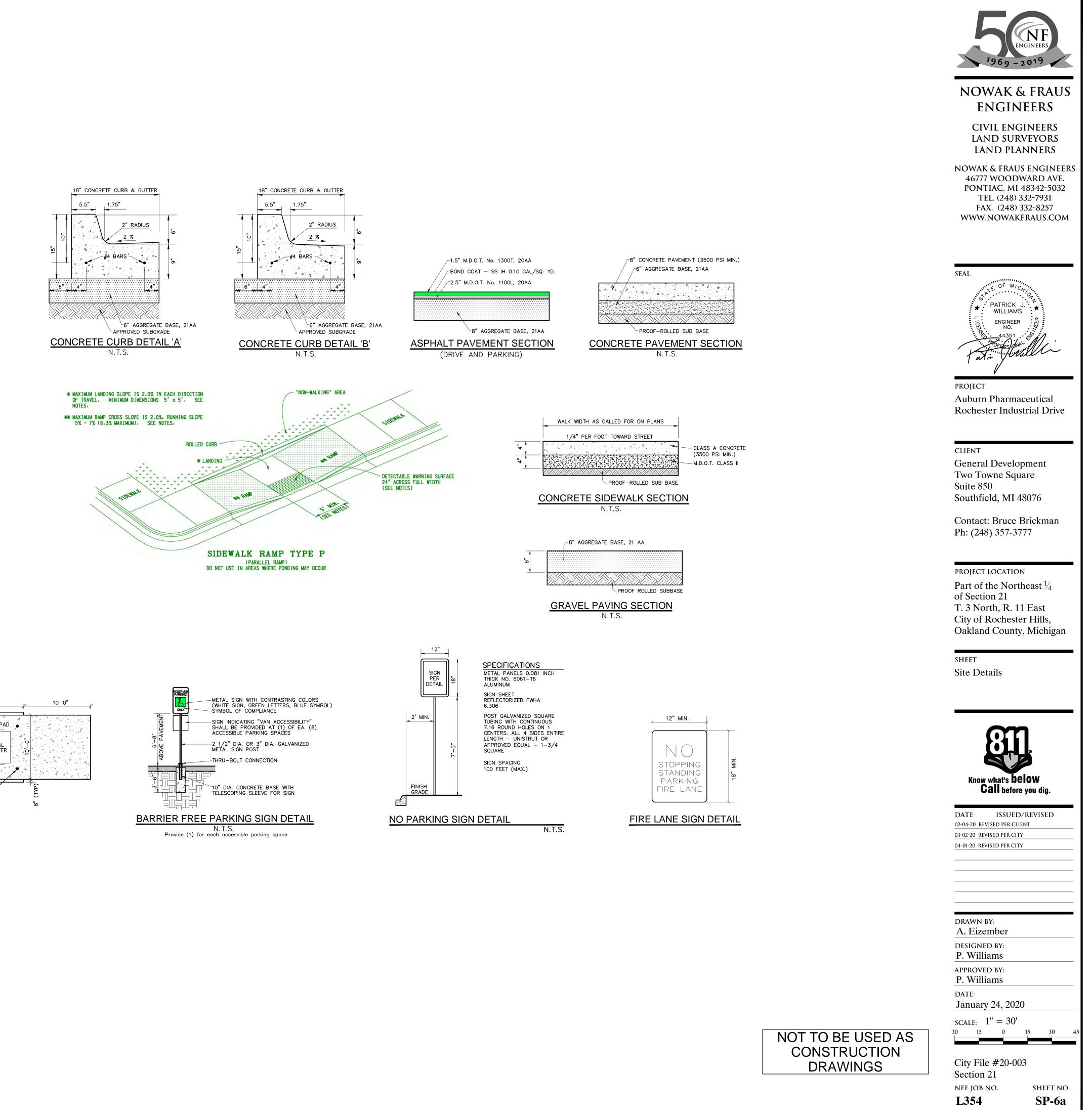
EXISTING STATE OR COUNTY ROADWAY SHALL BE ALLOWED ONLY AFTER AN APPROVED PERMIT HAS BEEN SECURED FROM THE AGENCY HAVING JURISDICTION OVER SAID ROADWAY. FOR ANY WORK WITHIN THE PUBLIC RIGHT-OF-WAY, THE CONTRACTOR SHALL PAY FOR AND SECURE ALL NECESSARY PERMITS AND LIKEWISE ARRANGE FOR ALL INSPECTION. EXISTING TOPSOIL, VEGETATION AND ORGANIC MATERIALS SHALL BE STRIPPED AND REMOVED FROM PROPOSED PAVEMENT AREA PRIOR TO PLACEMENT OF BASE MATERIALS. EXPANSION JOINTS SHOULD BE INSTALLED AT THE END OF ALL INTERSECTION RADII.

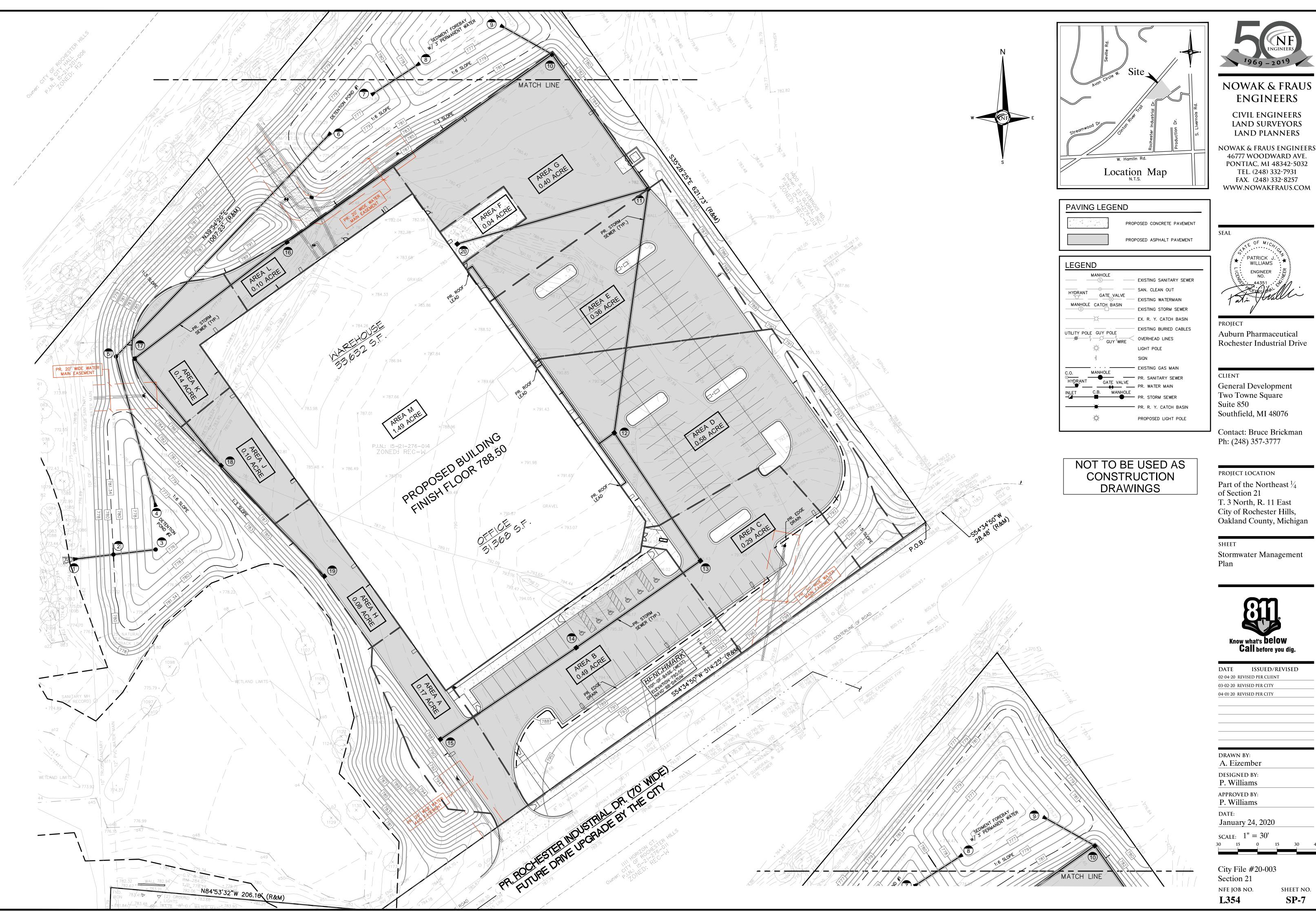
SIDEWALK RAMPS, CONFORMING TO PUBLIC ACT NO. 8, 1973, SHALL BE INSTALLED AS SHOWN AT ALL STREET INTERSECTIONS AND AT ALL BARRIER FREE PARKING AREAS AS INDICATED ON THE PLANS.

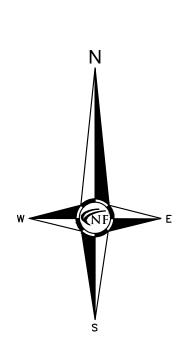
ALL PAVEMENT AREAS SHALL BE PROOF-ROLLED UNDER THE SUPERVISION OF A GEOTECHNICAL ENGINEER PRIOR TO THE PLACEMENT OF BASE MATERIALS AND PAVING MATERIALS. FILL AREAS SHALL BE MACHINE COMPACTED IN UNIFORM LIFTS NOT EXCEEDING 9 INCHES

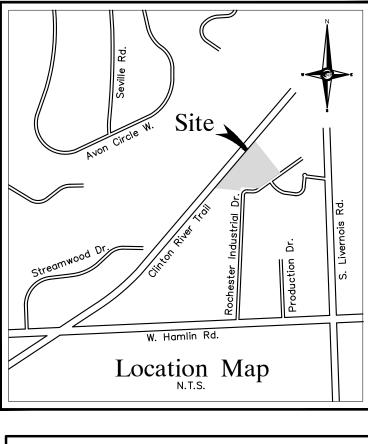
FILL AREAS SHALL BE MACHINE COMPACIED IN UNIFORM LIFTS NOT EXCEEDING 9 INCHES THICK TO 98% OF THE MAXIMUM DENSITY (MODIFIED PROCTOR) PRIOR TO PLACEMENT OF PROPOSED PAVEMENT.

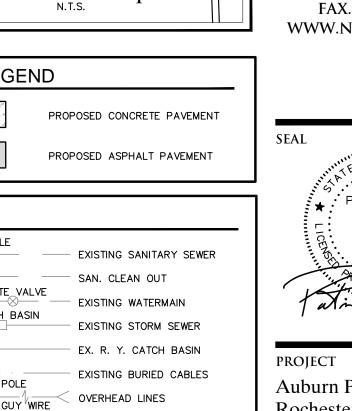


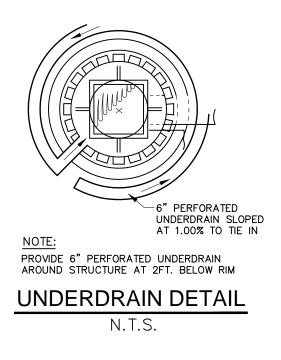












Storage	Elevation = 780	.00	
Bottom E	Elevation = 777.0	00	
Contour	Surface Area sf.	Incr. Vol. cf.	Cumu. Vol. cf.
780.00	4,235		
		3,481	3,481
779.00	2,727		
		2,112	5,593
778.00	1,497		
		1,028	6,621
777.00	559		
VOLUM	E PROVIDED (Cubic Feet):	6,621

		T=	15 Minu	tes	Time of	Concent	ration			City of	Rochest	er Hills	, Oaklan	d Count	, Michig	an			Project N	o:	L354		1 1	
	1=		175 / (T+	-25)	100 Yea	r Storm E	vent Intens	ity			100 CT 10 CT 1	CARRY CONTRACTOR	wer Calc	1.1					Project N	ame:	Auburn F	harm		
		n (Conc.)	0.013		Manning	g's Rough	ness Coeff	icient						1					Location		Rochest	er Industria	al Dr.	
		n (Pvc)	0.011				ness Coeff												Dated:		January	14, 2020		
																			Revised:		02/27/20			
Drainage	From	То	Drainage	Runoff	Equivalent	Total	Time of	Rainfall	Actual	Pipe	Pipe	Pipe	Flow Full	Time of	Full Pipe	H. G. Elev.	H. G. Elev.	H. G.	Theoretical	Ground	Change in	Invert Elev.	Invert Elev.	Upper Rim
Area	Struc.	Struc.	Area	Coefficient	Area	Area	Concentration	Intensity	Discharge	Size	Slope	Length	Velocity	Flow	Capacity	Upper End	Lower End	Slope	Velocity	Elevation	Elevation	Upper End	Lower End	to HGL
	No.	No.	(Acres)	(C)	(C * A)	(Sum C * A)	(Minutes)	(Inches/Hr.)	(CFS)	(Inches)	(% Slope)	(Feet)	(Ft / Sec)	(Minutes)	(CFS)	(Feet)	(Feet)	(% Slope)	(Ft / Sec)	(Upper)	(Feet)	(Feet)	(Feet)	(Feet)
А	15	14	0.170	0.64	0.109	0.109	15.00	4.375	0.476	12	0.32	126	3.033	0.69	2.382	783.02	783.00	0.018	0.61	786.80	0.40	782.60	782.20	3.78
В	14	13	0.490	0.63	0.309	0.418	15.69	4.301	1.795	12	0.32	116	3.033	0.64	2.382	782.92	782.63	0.254	2.29	786.20	0.37	782.20	781.83	3.28
С	13	12	0.290	0.60	0.174	0.592	16.33	4.234	2.505	12	0.48	118	3.714	0.53	2.917	782.64	782.06	0.494	3.19	787.20	0.57	781.83	781.26	4.56
М	ROOF	12	1.490	0.90	1.341	1.341	15.00	4.375	5.867	18	0.34	15	4.096	0.06	7.239	784.15	784.10	0.312	3.32	788.50	0.05	782.95	782.90	4.35
D	12	11	0.580	0.73	0.423	2.356	16.86	4.181	9.849	24	0.20	188	3.806	0.82	11.956	782.84	782.48	0.190	3.14	786.90	0.38	781.26	780.88	4.06
F	20	11	0.040	0.90	0.036	0.036	15.00	4.375	0.158	12	0.32	152	3.033	0.84	2.382	780.82	780.81	0.002	0.20	784.50	0.49	780.50	780.01	3.68
Е	11	10	0.360	0.81	0.292	2.684	17.68	4.100	11.002	24	0.24	127	4.169	0.51	13.098	779.90	779.60	0.237	3.50	786.00	0.30	778.30	778.00	6.10
																	-							
Н	19	18	0.080	0.90	0.072	0.072	15.00	4.375	0.315	12	0.32	116	3.033	0.64	2.382	782.64	782.63	0.008	0.40	787.00	0.37	782.20	781.83	4.36
J	18	17	0.100	0.90	0.090	0.162	15.64	4.306	0.698	12	0.32	105	3.033	0.58	2.382	782.33	782.29	0.038	0.89	786.50	0.34	781.83	781.49	4.17
ĸ	17	16	0.140	0.90	0.126	0.288	16.21	4.246	1.223	12	0.32	147	3.033	0.81	2.382	782.00	781.82	0.118	1.56	785.50	0.47	781.49	781.02	3.50
L	16	10	0.100	0.90	0.090	0.378	17.02	4.164	1.574	12	0.32	249	3.033	1.37	2.382	779.79	779.30	0.195	2.00	787.00	0.80	779.30	778.50	7.21
G	10	SED	0.400	0.90	0.360	3.422	18.39	4.033	13.799	24	0.38	36	5.246	0.11	16.481	779.59	779.46	0.372	4.39	783.50	0.14	778.00	777.86	3.91

Weighted Run-

Contributing Area : 1. Pavement /Building 2. Lawn Sum of Individual Areas Area No. 1 - Coefficient Area No. 2 - Coefficient "C" (Average) = "C" (Average) =

Forebay (1) Year Storm Event - With Outlet (Orifice)

Hole capacity must be such that a period of at leas		year storm event volume.
Contributing Area:	5.66	Acres
Runoff Coefficient, C :	0.74	Imperviousness
Volume Required, Vr :	18,094	Cubic Feet

DETENTION CALCULATIONS - 25 YEAR STORM EVENT

CONTRIBUTING ACREAGE: Qa ALLOWABLE OUTFLOW C RUNOFF COEFFICIENT: Qo MAXIMUM ALLOWABLE Ts STORAGE TIME (100 YEA Vs STORAGE VOLUME: Vt TOTAL VOLUME (25 YR.

VOLUME REQUIRED (2

TOTAL VOLUME REQU

"C" by Areas							
							1
Area A:	Pavement:	4754.85	S.F.	0.109	Acres		
	Grass:	2824.31	S.F.	0.065	Acres	C=	0.64
	Total:	7579.16	S.F.	0.17	Acres		
Area B:	Pavement:	12952.61	S.F.	0.297	Acres		
	Grass:	8297.01	S.F.	0.190	Acres	C=	0.63
	Total:	21249.62	S.F.	0.49	Acres		
Area C:	Pavement:	7077.34	S.F.	0.162	Acres		
	Grass:	5399.76	14.00	1	Acres	C=	0.60
	Total:	12477.1		-	Acres		
Area D:	Pavement:	19109.45	e E	0 430	Acres		
Aled D.						C=	0.72
	Grass: Total:	5952.82 25062.27			Acres	~	0.73
Area E:	Pavement:	13679.2	S.F.	0.314	Acres		
	Grass:	1973.41	S.F.	0.045	Acres	C=	0.81
	Total:	15652.61	S.F.	0.36	Acres		
Area F:	Pavement:	1800	La la contra de la		Acres		
	Grass:		S.F.	and the second	Acres	C=	0.90
	Total:	1800	S.F.	0.04	Acres		
Area G:	Pavement:	17453.84	S.F.	0.401	Acres		
	Grass:	64.63	S.F.	0.001	Acres	C=	0.90
	Total:	17518.47	S.F.	0.40	Acres		-
Area H:	Pavement:	3303.81	S.F.	0.076	Acres		
	Grass:	21.1.1	S.F.		Acres	C=	0.90
	Total:	3303.81			Acres		
Area J:	Pavement:	4205.92	e e	0.097	Acres		-
Alea J.	Grass:		S.F.		Acres	C=	0.90
	Total:	4205.92	1.0.0	1	Acres		0.00
	Total.	4200.02	0.1 .	0.10	A CICC		
Area K:	Pavement:	6195.21	S.F.	0.142	Acres		
	Grass:	0	S.F.	0.000	Acres	C=	0.90
	Total:	6195.21	S.F.	0.14	Acres		
Area L:	Pavement:	4280.15	° E	0.009	Aeros		
Area L:				1	Acres	~	0.00
	Grass: Total:	4280.15	S.F.		Acres	C=	0.90
Area M:	Pavement:	64855.46	S.F.	1.489	Acres		
1.1	Grass:	0	S.F.	0.000	Acres	C=	0.90
	Total:	64855.46	S.F.	1.49	Acres		

Provided

Bottom Ele	vation = 777.00		
Contour	Surface Area sf.	Incr. Vol. cf.	Cumu. Vol. cf.
780.00	9,216		
		8,093	8,093
779.00	6,970		
		6,001	14,094
778.00	5,032		
		4,214	18,308
777.00	3,396		

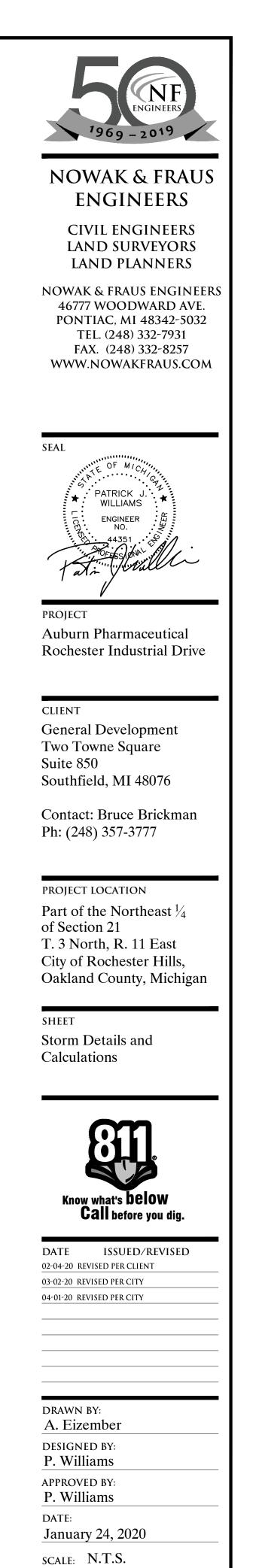
VOLUME PROVIDED (Cubic Feet): 18,308

Detention	Volume	Provided	-South
			1

Contour	Surface Area sf.	Incr. Vol. cf.	Cumu. Vol. cl
780.00	7,604		
	direct of the second	6,436	6,436
779.00	5,267		
		4,322	10,757
778.00	3,376		
		2,638	13,395
777.00	1,900		
		1,378	14,773
776.00	855		
VOLUM	E PROVIDED (Cubic Feet):	14,773

-off Coef	246,351.50		-	5 6 5 5	Aaraa	
•	240,351.50	S.F.	01	5.055	Acres	
	161,936.22	S.F.	or	3.718	Acres	66%
	84,415.28	S.F.	or	1.938	Acres	34%
IS:	246,351.50	S.F.	ог	5.655	Acres	100%
nt:	0.95					
nt:	0.35		-			
Area 1 * C1	+ Area 2 * C2					
Area 1	+ Area 2					
0.74						

5.66	ACRES	
0.20	CFS/ACRE	
0.74	IMPERVIOUSNESS	
0.270	CFS/(ACRE*IMPER.)	
147.717	MINUTES	
9,435.84	CF/(ACRE*IMPER.)	
39,521.09	CUBIC FEET	
39,521	CUBIC FEET	
39,521	CUBIC FEET	
	0.20 0.74 0.270 147.717 9,435.84 39,521.09 39,521	5.66 ACRES 0.20 CFS/ACRE 0.74 IMPERVIOUSNESS 0.270 CFS/(ACRE*IMPER.) 147.717 MINUTES 9,435.84 CF/(ACRE*IMPER.) 39,521.09 CUBIC FEET 39,521 CUBIC FEET 39,521 CUBIC FEET



City File #20-003

SHEET NO.

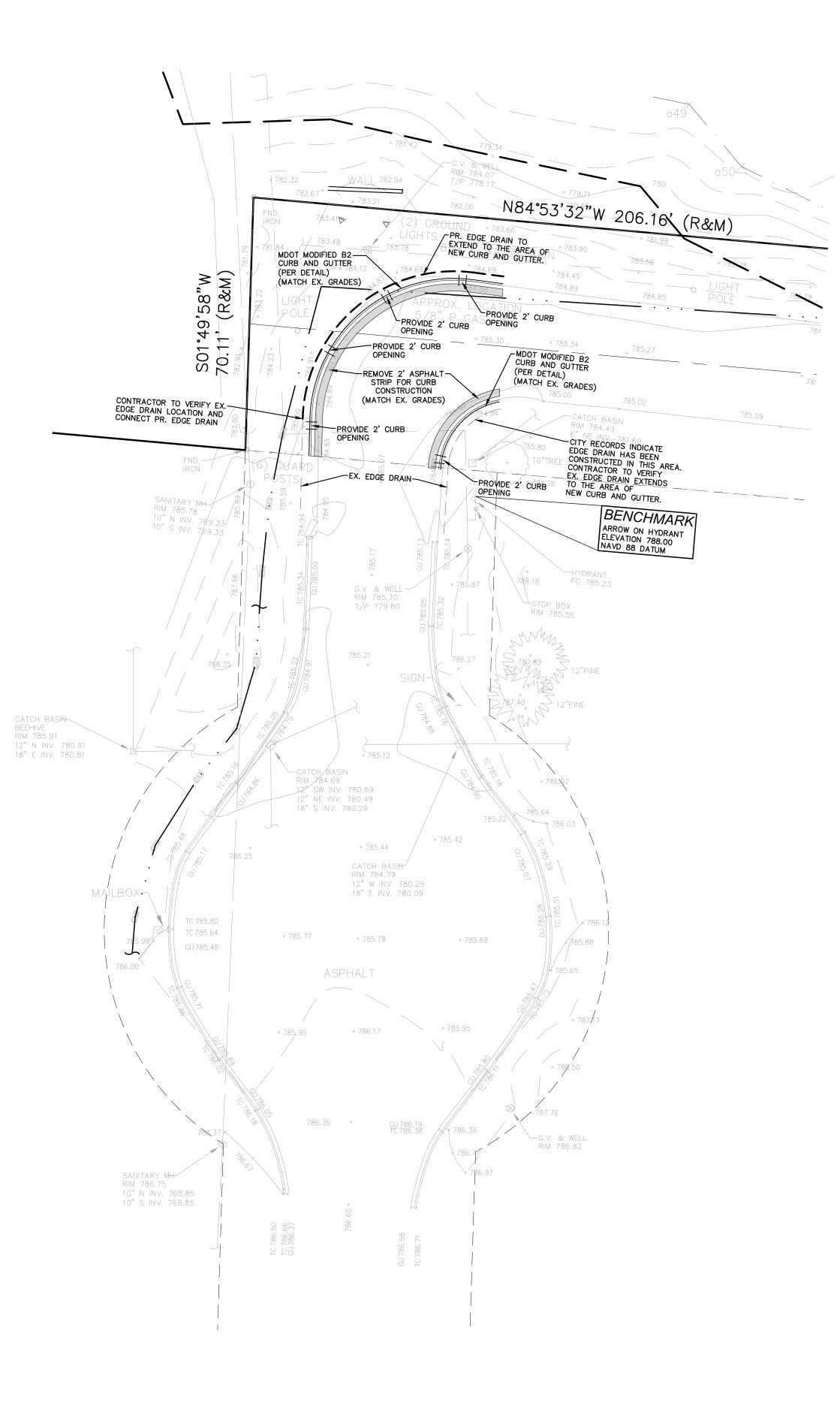
SP-7a

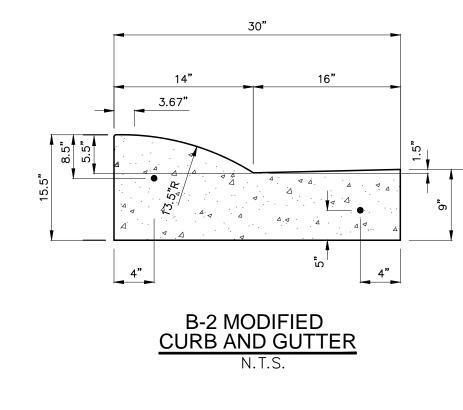
Section 21

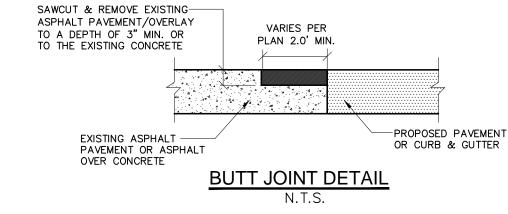
NFE JOB NO.

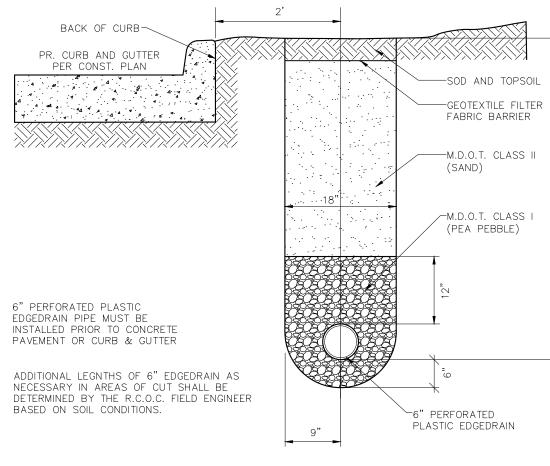
L354

NOT TO BE USED AS CONSTRUCTION DRAWINGS

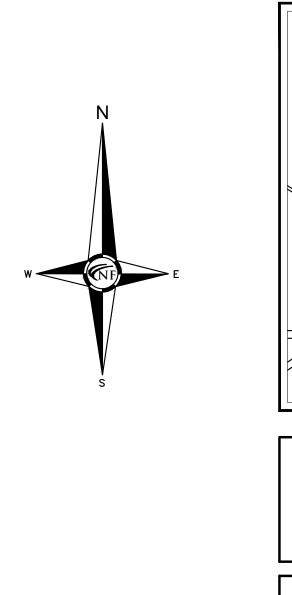


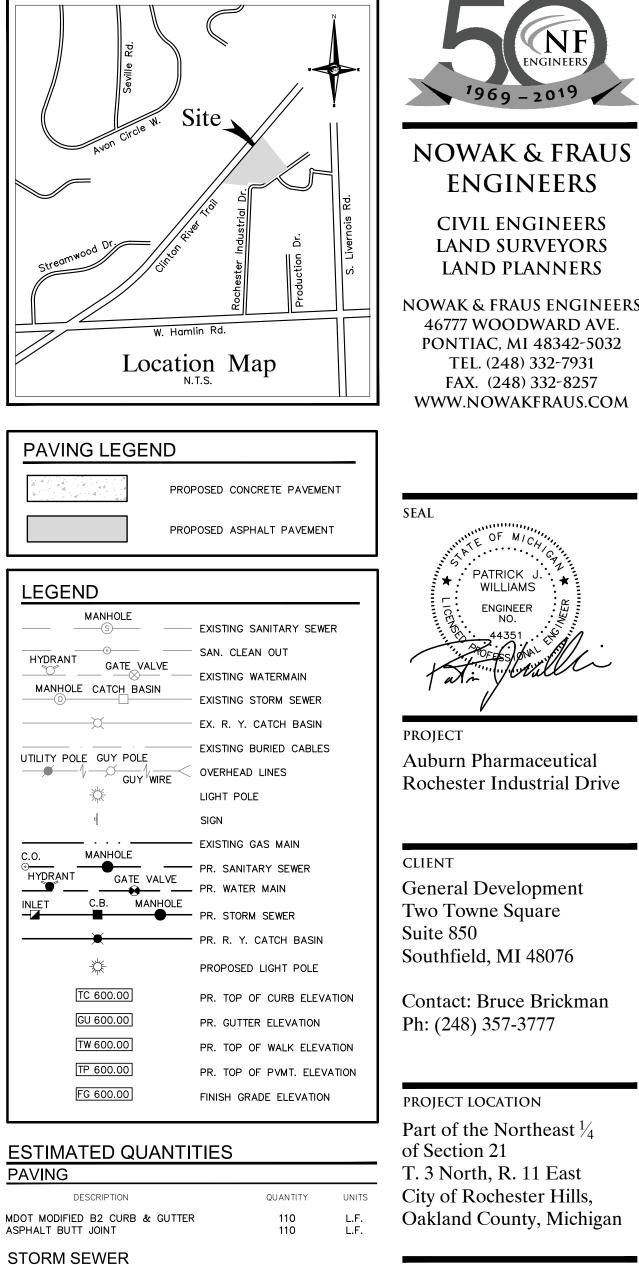






UNDERDRAIN DETAIL N.T.S.





DESCRIPTION 6" EDGE DRAIN

UNITS QUANTITY 70 L.F.

SHEET

Road Paving Plan

GENERAL PAVING NOTES

PAVEMENT SHALL BE OF THE TYPE, THICKNESS AND CROSS SECTION AS INDICATED ON THE PLANS AND AS FOLLOWS:

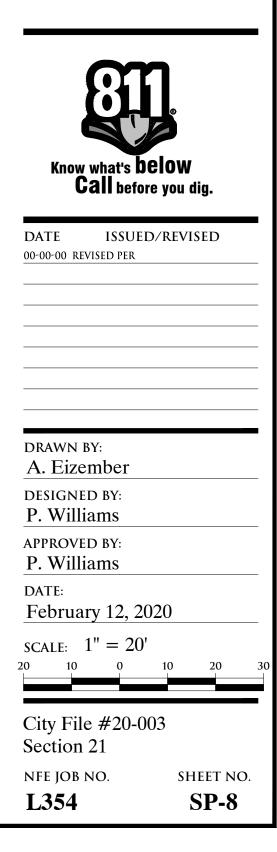
CONCRETE: PORTLAND CEMENT TYPE IA (AIR-ENTRAINED) WITH A MINIMUM CEMENT CONTENT OF SIX SACKS PER CUBIC YARD, MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3,500 PSI AND A SLUMP OF 1 1/2 TO 3 INCHES. BASE COURSE – MDOT BITUMINOUS MIXTURE NO. 1100L, 20AA; SURFACE ASPHALT: COURSE - MDOT BITUMINOUS MIXTURE NO. 1100T, 20AA; ASPHALT CEMENT PENETRATION GRADE 85-100, BOND COAT - MDOT SS-1H EMULSION AT 0.10 GALLON PER SQUARE YARD; MAXIMUM 2 INCH LIFT.

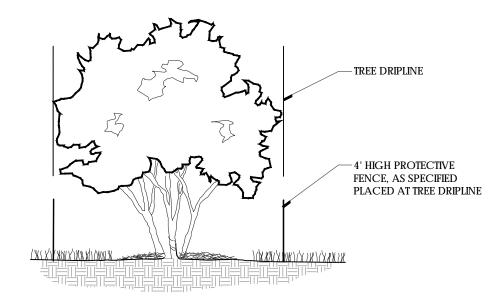
PAVEMENT BASE SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY (MODIFIED PROCTOR) PRIOR TO PLACEMENT OF PROPOSED PAVEMENT. EXISTING SUB-BASE SHALL BE PROOF-ROLLED IN THE PRESENCE OF THE ENGINEER TO DETERMINE STABILITY. ALL CONCRETE PAVEMENT, DRIVEWAYS, CURB & GUTTER, ETC., SHALL BE SPRAY CURED WITH WHITE MEMBRANE CURING COMPOUND IMMEDIATELY FOLLOWING FINISHING OPERATION. ALL CONCRETE PAVEMENT JOINTS SHALL BE FILLED WITH HOT POURED RUBBERIZED ASPHALT JOINT SEALING COMPOUND IMMEDIATELY AFTER SAWCUT OPERATION. FEDERAL SPECIFICATION SS-S164.

ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND SPECIFICATIONS OF THE MUNICIPALITY AND THE MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, CURRENT EDITION. ALL TOP OF CURB ELEVATIONS, AS SHOWN ON THE PLANS, ARE CALCULATED FOR A 6" CONCRETE CURB UNLESS OTHERWISE NOTED. ALL SIDEWALK RAMPS, CONFORMING TO PUBLIC ACT NO. 8, 1993, SHALL BE INSTALLED AS INDICATED ON THE PLANS. CONSTRUCTION OF A NEW OR RECONSTRUCTED DRIVE APPROACH CONNECTING TO AN EXISTING STATE OR COUNTY ROADWAY SHALL BE ALLOWED ONLY AFTER AN APPROVED PERMIT HAS BEEN SECURED FROM THE AGENCY HAVING JURISDICTION OVER SAID ROADWAY. FOR ANY WORK WITHIN THE PUBLIC RIGHT-OF-WAY, THE CONTRACTOR SHALL PAY FOR AND SECURE ALL NECESSARY PERMITS AND LIKEWISE ARRANGE FOR ALL INSPECTION. EXISTING TOPSOIL, VEGETATION AND ORGANIC MATERIALS SHALL BE STRIPPED AND REMOVED FROM PROPOSED PAVEMENT AREA PRIOR TO PLACEMENT OF BASE MATERIALS. EXPANSION JOINTS SHOULD BE INSTALLED AT THE END OF ALL INTERSECTION RADII. SIDEWALK RAMPS, CONFORMING TO PUBLIC ACT NO. 8, 1973, SHALL BE INSTALLED AS SHOWN AT ALL STREET INTERSECTIONS AND AT ALL BARRIER FREE PARKING AREAS AS INDICATED ON THE PLANS.

ALL PAVEMENT AREAS SHALL BE PROOF-ROLLED UNDER THE SUPERVISION OF A GEOTECHNICAL ENGINEER PRIOR TO THE PLACEMENT OF BASE MATERIALS AND PAVING MATERIALS.

FILL AREAS SHALL BE MACHINE COMPACTED IN UNIFORM LIFTS NOT EXCEEDING 9 INCHES THICK TO 98% OF THE MAXIMUM DENSITY (MODIFIED PROCTOR) PRIOR TO PLACEMENT OF PROPOSED PAVEMENT.





TREE PROTECTION DETAIL-SECTION

TREE PROTECTION DETAIL-PLAN

GENERAL TREE PROTECTION NOTES

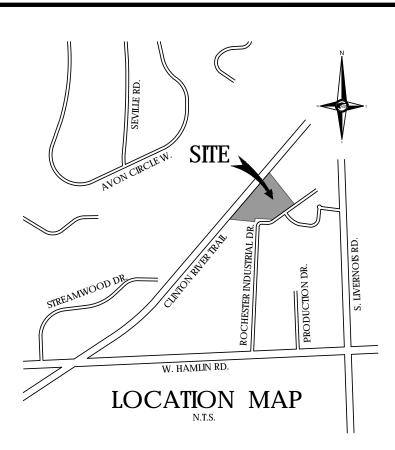
- 1. APPROVED TREE PROTECTION SHALL BE ERECTED PRIOR TO THE START OF CONSTRUCTION ACTIVITIES, AND SHALL REMAIN IN PLACE UNTIL THE
- IN PLACE UNTIL CONSTRUCTION IS COMPLETE. 2. ALL UNDERSTORY VEGETATION WITHIN THE LIMITS OF PROTECTIVE FENCING
- SHALL BE PRESERVED. 3. NO PERSON MAY CONDUCT ANY ACTIVITY WITHIN THE DRIP LINE OF ANY
- TREE DESIGNATED TO REMAIN, INCLUDING BUT NOT LIMITED TO, PLACING SOLVENTS, BUILDING MATERIALS, CONSTRUCTION EQUIPMENT, OR SOIL DEPOSITS WITHIN THE DRIP LINE.
- 4. WHERE GROUPINGS OF TREES ARE TO REMAIN, TREE FENCING SHALL BE PLACED AT THE LIMITS OF GRADING LINE.
- 5. DURING CONSTRUCTION, NO PERSON SHALL ATTACH ANY DEVICE OR WIRE TO ANY TREE, SCHEDULED TO REMAIN.
- 6. ALL UTILITY SERVICE REQUESTS MUST INCLUDE NOTIFICATION TO THE INSTALLER THAT PROTECTED TREES MUST BE AVOIDED. ALL TRENCHING SHALL
- OCCUR OUTSIDE OF THE PROTECTIVE FENCING. 7. SWALES SHALL BE ROUTED TO AVOID THE AREA WITHIN THE DRIP LINES OF
- PROTECTED TREES. 8. TREES LOCATED ON ADJACENT PROPERTIES THAT MAY BE AFFECTED BY CONSTRUCTION ACTIVITIES MUST BE PROTECTED.
- 9. ROOT ZONES OF PROTECTED TREES SHOULD BE SURROUNDED WITH RIGIDLY STAKED FENCING.
- 10. THE PARKING OF IDLE AND RUNNING EQUIPMENT SHALL BE PROHIBITED UNDER THE DRIP LINE OF PROTECTED TREES.
- THE STRIPPING OF TOPSOIL FROM AROUND PROTECTED TREES SHALL BE PROHIBITED.
 ALL TREES TO BE REMOVED SHALL BE CUT AWAY FROM TREES TO REAMIN.
 THE GRUBBING OF UNDERSTORY VEGETATION WITHIN CONSTRUCTION AREAS SHOULD
- BE CLEARED BY CUTTING VEGETATION AT THE GROUND WITH A CHAIN SAW OR MINIMALLY WITH A HYDRO-AXE.
- 14. THE CONTRACTOR IS RESPONSIBLE FOR THE REPLACEMENT PER ORDINANCE GUIDELINES, FOR THE DAMAGE OR REMOVAL OF ANY TREE DESIGNATED TO REMAIN.
 15. TREES TO BE REMOVED SHALL BE FIELD VERIFIED, EVALUATED AND FLAGGED FOR REMOVAL, BY THE LANDSCAPE ARCHITECT OR FORESTER, ONLY AS DIRECTED
- BY THE OWNER OR OWNERS REPRESENTATIVE.

CITY TREE PROTECTION NOTES

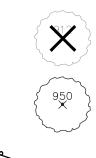
- TREES PROPOSED TO BE SAVED WILL BE IDENTIFIED WITH CHALK BASE FLUORESCENT ORANGE PAINT, OR RED FLAGGING TAPE.
 TREES TO BE PRESERVED WILL BE PROTECTED WITH 4' HIGH SNOW FENCE WITH
- METAL 'T'-POSTS EVERY 5 FEET. 3. PROTECTIVE BARRIERS ARE TO BE ERECTED PRIOR TO CLEARING OR GRUBBING
- ON THE SITE, AND BARRIERS ARE TO REMAIN IN TACT UNTIL APPROVED BY THE CITY TO BE REMOVED, OR WHEN A CERTIFICATE OF OCCUPANCY IS ISSUED. 4. NO FILL OR DEBRIS IS ALLOWED WITHIN THE PROTECTED AREA.
- DURING CONSTRUCTION, THE OWNER, DEVELOPER, OR AGENT SHALL NOT CAUSE OR PERMIT ANY ACTIVITY WITHIN THE DRIP LINE OF ANY PROTECTED TREE OR GROUP OF TREES INCLUDING, BUT NOT LIMITED TO, THE STORAGE OF EQUIPMENT, DUMPSTERS, DIRT, AND EXCAVATED MATERIAL, BUILDING WASTE OR MATERIAL, OR ANY OTHER MATERIAL HARMFUL TO THE LIFE OF A TREE.
- 6. NO DAMAGING ATTACHMENT, WIRES (OTHER THAN CABLES FOR TREES), SIGNS, OR PERMITS MAY BE FASTENED TO ANY TREE PROTECTED BY THIS ORDINANCE.

TREE PROTECTION FENCING TO BE PLACED MIN 1' OUTSIDE THE LIMITS OF GRADING LINE OR TREE DRIPLINE, SHOWN PER PLAN AND COORDINATED W/ PROPOSED GRADING ACCORDING TO CIVIL DWGS





LEGEND:



TREES TO BE REMOVED

TREES TO REMAIN

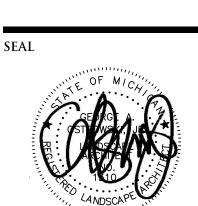
TREE PROTECTION FENCING

NOTE:

NO DIGGING, GRADING (CUT OR FILL), TRENCHING OR ANY OTHER CONSTRUCTION OPERATION IS PERMITED WITHIN THE DRIPLINE OF ANY TREE DESIGNATED FOR PRESERVATION.

NOTE:

SEE SHEET L2, LANDSCAPE PLAN FOR PROPOSED TREE REPLACEMENT LOCATIONS



 $^{1969} - 2019$

NOWAK & FRAUS

ENGINEERS

CIVIL ENGINEERS

LAND SURVEYORS

LAND PLANNERS

NOWAK & FRAUS ENGINEERS

46777 WOODWARD AVE.

PONTIAC, MI 48342-5032

TEL. (248) 332-7931

FAX. (248) 332-8257

WWW.NOWAKFRAUS.COM

PROJECT Auburn Pharmaceutical Rochester Industrial Drive

CLIENT

General Development Two Towne Square Suite 850 Southfield, MI 48076

Contact: Bruce Brickman Ph: (248) 357-3777

PROJECT LOCATION

Part of the Northeast ¹/₄ of Section 21 T. 3 North, R. 11 East City of Rochester Hills, Oakland County, Michigan

SHEET Tree Preservation Plan



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

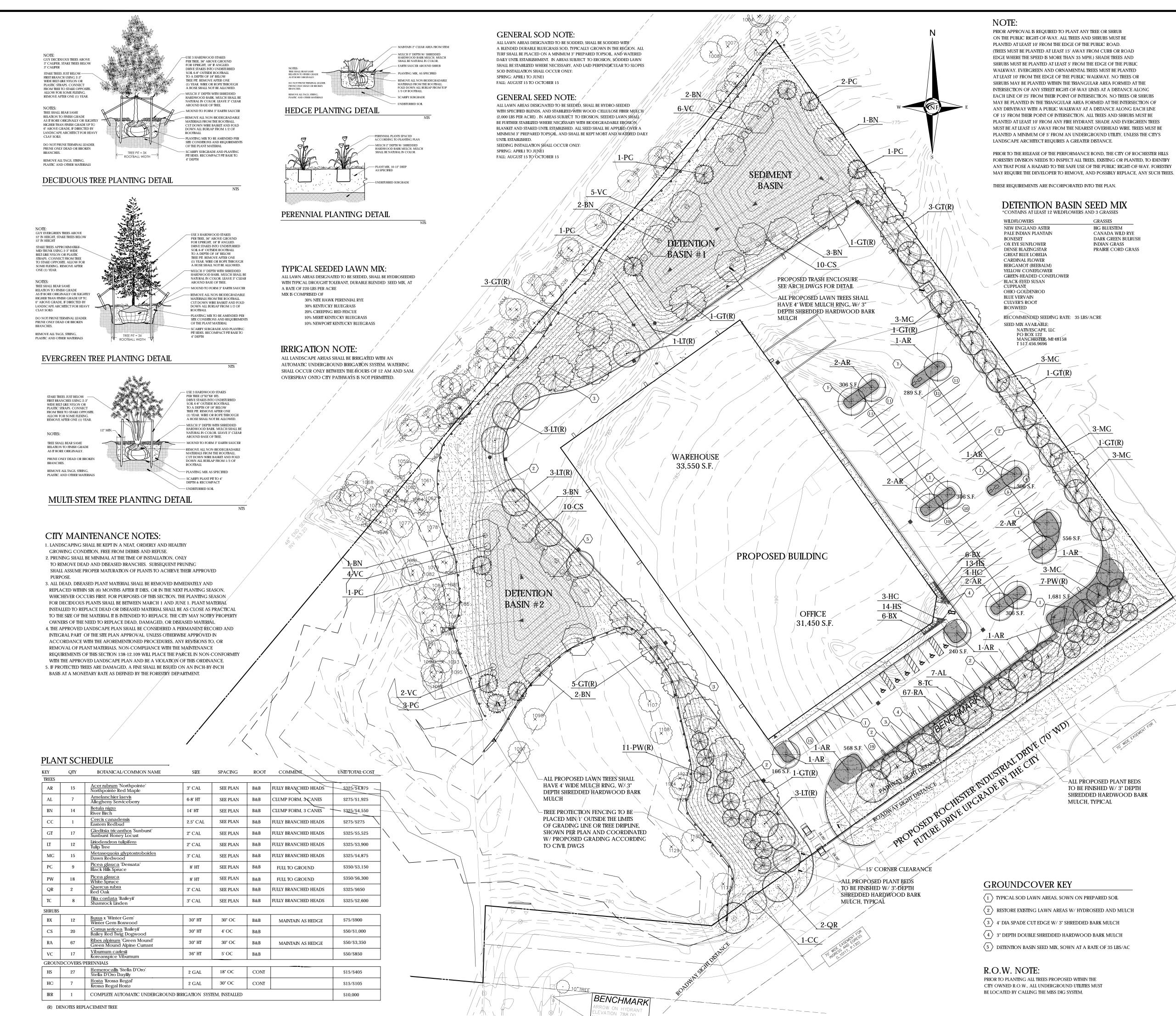
REVISIONS 02/04/2020 REVISED PER CLIENT 02/27/2020 REVISED PER CITY 04/01/2020 REVISED PER CITY

	DRAWN BY:			
VED	G. Ostrowski			
	DESIGNED BY:			
	G. Ostrowski			
	APPROVED BY:			
	G. Ostrowski			
	DATE:			
	01-02-2020			
	SCALE: $1'' = 40'$			
	40 20 0	20	40	60
	NFE JOB NO.	SF	HEET NO	D.
21	L354		L1	

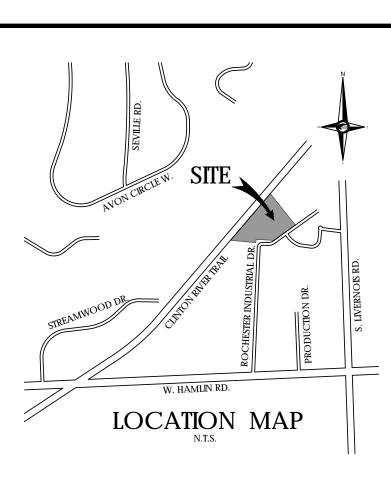
TREE PRESERVATION SUMMARY:

TOTAL NUMBER OF TREES SURVEYED:	194
TOTAL TREES OFF-SITE AND IN R.O.W.:	70
NET TREES ON-SITE:	124
TOTAL TREES TO BE REMOVED:	69
TOTAL TREES EXEMPT FROM REPLACEMENT (ASH, DISEASED ELM):	18
NET TREES TO BE REMOVED AND REPLACED:	51
TOTAL SPECIMEN TREES ON-SITE:	6
TOTAL SPECIMEN TREES TO BE REMOVED:	0
TOTAL SPECIMEN CREDITS:	6
TOTAL TREES TO REMAIN (124-69):	55 (44%)
MINIMUM PRESERVATION REQUIREMENT	
124 TREES - 16 TREES IN BUILDING ENVELOPE = 108 X 40% =	43 TREES NEED TO BE PRESER
TREE REPLACEMENT	
TOTAL REMOVALS:	69 TREES
TOTAL UNREGULATED (SPECIES) REMOVALS:	-18 TREES
TOTAL REPLACEMENT TREES REQUIRED:	51 TREES
LESS SPECIMEN TREE CREDITS:	6 TREES
TOTAL REPLACEMENT TREES PROVIDED:	45 TREES

CITY OF ROCHESTER HILLSNFE JOBPROJECT #20-003, SECTION 21L354



2 WILDFLO	WERS AND 3 GRASSES
	GRASSES
N	BIG BLUESTEM CANADA WILD RYE DARK GREEN BULRUSH INDIAN GRASS PRAIRIE CORD GRASS
) R EFLOWER	
ÍNG RATE:	35 LBS/ACRE
LC	



LANDSCAPE REQUIREMENTS EXISTING SITE ZONING: REC-W, LIGHT INDUSTRIAL DISTRICT EXISTING SITE AREA: 103,942 S.F. OR 2.39 ACRES

BUFFER TYPE B (NORTH PROPERTY LINE) DUE TO THE +18' GRADE DIFFERENTIAL AND EXISTING TREE LINE ALONG THE CLINTON RIVER TRAIL ON THE NORTHERN BORDER OF THE SITE. A WAIVER OF THE REQUIRED TYPE B BUFFER AS EXISTING VEGETATION WILL PROVIDE AN EQUAL OR GREATER BUFFER.

PARKING LOT PERIMETER 1 DECIDUOUS TREE PER 25 L.F. AND 1 ORNAMENTAL TREE PER 35 L.F WITHIN 30' OF R.O.W. A HEDGE IS REQUIRED REQUIRED: 191 L.F. / 25 L.F. = 7.6 OR 8 CANOPY TREES REQUIRED 191 L.F. / 35 L.F. = 5.5 OR 6 ORNAMENTAL TREES REQUIRED PROVIDED: 8 TREES, 7 ORNAMENTAL TREES AND HEDGE WHERE PARKING IS ADJACENT

PARKING LOT LANDSCAPE REQUIREMENTS 5% OF THE PAVED AREA TO BE PROVIDED AS LANDSCAPE AREA 1 TREE PER 150 S.F. OF REQUIRED AREA REQUIRED: 90,243.21 S.F. X 5% = 4,512.16 S.F. OF AREA TREES

PROVIDED: 30 TREES, 5,030 S.F. R.O.W. PLANTING 1 SHADE TREE PER 35 L.F. AND 1 ORNAMENTAL TREE PER 60 L.F. REQUIRED: 70 L.F. 70 L.F. / 35 = 2 SHADE TREES 70 L.F. / 60 = 1.16 OR 1 ORNAMENTAL TREES PROVIDED: 2 SHADE TREES, AND 1 ORNAMENTAL TREES

STORMWATER BASIN LANDSCAPE 1.5 DECIDUOUS, 1 EVERGREEN, 4 SHRUBS PER 100 L.F. POND 1: 530.67 L.F. PERIMETER 530.67/100 X 1.5 = 8 DECIDUOUS TREES 530.67/100 = 5 EVERGREEN TREES 530.67/100 X 4 = 21 SHRUBS

POND 2: 409.42 L.F. PERIMETER 409.42/100 X 1.5 = 6 DECIDUOUS TREES 409.42/100 = 4 EVERGREEN TREES 409.42/X4 = 16 SHRUBS

4,512.16 S.F. / 150 = 30 TREES REQUIRED

REPLACEMENT TREES 51 TREES REQUIRED 6 CREDITS FOR SPECIMEN TREES SAVED, 45 TREES PROVIDED

GENERAL LANDSCAPE NOTES

- LANDSCAPE CONTRACTOR SHALL VISIT SITE, INSPECT EXISTING CONDITIONS AND REVIEW PROPOSED PLANTING AND RELATED WORK. IN CASE OF DISCREPANCY BETWEEN PLAN AND PLANT LIST, THE PLAN SHALL
- GOVERN QUANTITIES. CONTACT THE LANDSCAPE ARCHITECT WITH ANY CONCERNS. THE CONTRACTOR SHALL VERIFY LOCATIONS OF ALL ON-SITE UTILITIES
- PRIOR TO BEGINNING CONSTRUCTION ON HIS/HER PHASE OF WORK. ANY DAMAGE OR INTERUPTION OF SERVICES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE ALL RELATED ACTIVITIES WITH
- OTHER TRADES, AND SHALL REPORT ANY UNACCEPTACBLE SITE CONDITIONS TO THE OWNER'S REPRESENTATIVE PRIOR TO COMMENCEMENT.
- PLANTS SHALL BE FULL, WELL-BRANCHED, AND IN HEALTHY VIGOROUS GROWING CONDITION. PLANTS SHALL BE WATERED BEFORE AND AFTER PLANTING IS COMPLETE.
- ALL TREES MUST BE STAKED, FERTILIZED AND MULCHED AND SHALL BE GUARANTEED TO EXHIBIT A NORMAL GROWTH CYCLE FOR AT LEAST ONE (EAR FOLLOWING PLANTING.
- ALL MATERIAL SHALL CONFORM TO THE GUIDELINES ESTABLISHED IN THE MOST RECENT EDITION OF THE "AMERICAN STANDARDS FOR NURSERY STOCK". CONTRACTOR WILL SUPPLY FINISHED GRADE AND EXCAVATE AS NECESSARY 1 SUPPLY PLANT MIX DEPTH IN ALL PLANTING BEDS AS INDICATED IN PLANT DETAILS
- AND A DEPTH OF 4" IN ALL LAWN AREAS. PROVIDE CLEAN BACKFILL SOIL, USING MATERIAL STOCKPILED ON-SITE. SOIL SHALL BE SCREENED AND FREE OF DEBRIS, FOREIGN MATERIAL, AND STONE.
- SLOW-RELEASE FERTILIZER SHALL BE ADDED TO THE PLANT PITS BEFORE BEING BACKFILLED. APPLICATION SHALL BE AT THE MANUFACTURERS RECOMMENDED
- AMENDED PLANT MIX (PREPARED TOPSOIL) SHALL CONSIST OF 1/3 SCREENED TOPSOIL, 1/3 SAND, AND 1/3 "DAIRY DOO" COMPOST, MIXED WELL AND SPREAD TO A DEPTH AS INDICATED IN PLANTING DETAILS.
- ALL PLANTINGS SHALL BE MULCHED WITH SHREDDED HARDWOOD BARK, SPREAD TO A DEPTH OF 3" FOR TREES AND SHRUBS, AND 2" ON ANNUALS, PERENNIALS, AND GROUNDCOVER PLANTINGS. MULCH SHALL BE FREE FROM DEBRIS AND FOREIGN MATERIAL, AND PIECES ON INCONSISTENT SIZE.
- NO SUBSTITUTIONS OR CHANGES OF LOCATION, OR PLANT TYPE SHALL BE MADE WITHOUT THE APPROVAL OF THE LANDSCAPE ARCHITECT OR OWNERS REPRESENTATIV THE LANDSCAPE ARCHIFECT SHALL BE NOTIFIED OF ANY DISCREPANCIES BETWEEN
- THE PLANS AND FIELD CONDITIONS PRIOR TO INSTALLATION. 15. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL PLANT MATERIAL IN A VERTICAL CONDITION THROUGHOUT THE GUARANTEED PERIOD. 16. THE LANDSCAPE ARCHITECT OR OWNERS REPRESENTATIVE SHALL HAVE THE RIGHT
- TO REJECT ANY WORK OR MATERIAL THAT DOES NOT MEET THE REQUIREMENTS OF THE PLANS AND/OR SPECIFICATIONS. THE LANDSCAPE CONTRACTOR SHALL SEED AND MULCH OR SOD (AS INDICATED ON PLANS) ALL AREAS DESIGNATED AS SUCH ON THE PLANS, THROUGHOUT THE CONTRACT
- LIMITS. FURTHER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING AREAS DISTURBED DURING CONSTRUCTION, NOT IN THE CONTRACT LIMITS, TO EQUAL OR GREATER CONDITION. ALL LANDSCAPE AREAS SHALL HAVE PROPER DRAINAGE THAT PREVENTS EXCESSIVE 18
- WATER FROM PONDING ON LAWN AREAS OR AROUND TREES AND SHRUBS. 19. ALL LANDSCAPE AREAS SHALL BE IRRIGATED WITH AN AUTOMATIC UNDERGROUND

CITY OF ROCHESTER HILLS PROJECT #20-003, SECTION 21



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

SEAL

PROJECT Auburn Pharmaceutical **Rochester Industrial Drive**

CLIENT

General Development Two Towne Square Suite 850 Southfield, MI 48076

Contact: Bruce Brickman Ph: (248) 357-3777

PROJECT LOCATION

Part of the Northeast $\frac{1}{2}$ of Section 21 T. 3 North, R. 11 East City of Rochester Hills, Oakland County, Michigan

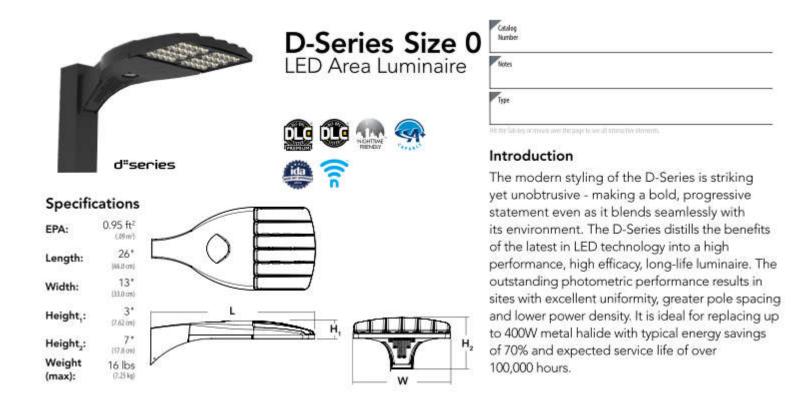
SHEET Landscape Plan



Call before you dig.

REVISIONS 02/04/2020 REVISED PER CLIENT 02/27/2020 REVISED PER CITY 04/01/2020 REVISED PER CITY

DRAWN BY:			
G. Ostrowski			
DESIGNED BY:			
G. Ostrowski			
APPROVED BY:			
G. Ostrowski			
DATE:			
01-02-2020			
SCALE: $1'' = 40'$			
	20	40	60
NFE JOB NO.	S	HEET N	О.
L354		L2	



A+ Capable options indicated by this color background.

DSX0 LED					
Series	LEDs	Color temperature	Distribution	Voltage	Mounting
DSX0 LED	Forward optics P1 P4 P7 P2 P5 P3 P6 Rotated optics P10' P12' P11' P13' P13'	30K 3000 K 40K 4000 K 50K 5000 K	T1S Type I short TSS Type V short T2S Type I short TSM Type V medium T2M Type II medium TSW Type V wide T3S Type II medium TSW Type V wide T3M Type II medium LCO Left corner cutoff? T4M Type IV medium RCCO Right corner cutoff? TFTM Forward throw medium TSVS Type V very short	MVOLT 34 120 # 208 # 240 4 277 4 347 43 480 45	Shipped included SPA Square pole mounting RPA Round pole mounting WBA Wall bracket SPUMBA Square pole universal mounting adaptor RPUMBA Round pole universal mounting adaptor Shipped separately KMA8 DDBXD U KMA8 DDBXD U Mast arm mounting bracket adaptor (specify finish)'

Shipped i NLTAIR2	installed nLight AIR generation 2 enabled ^{to}	PIR	High/low, motion/ambient sensor, 8-15' mounting beight, ambient sensor enabled at Sfc ^{16,17}	Ship HS	ped installed House-side shield ¹⁷	DDBXD DBLXD	Dark bronze Black
PIRHN	Network, high/low motion/ambient sensor ¹⁰	PIRH	High/low, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 5fc ^{36,10}	SF	Single fuse (120, 277, 347V) *	DNAXD	Natural aluminum
PER	NEMA twist-lock receptacle only (control ordered separate) ¹¹	PIR1FC3V	High/low, motion/ambient sensor, 8-15' mounting	DF	Double fuse (208, 240, 480V)*	DWHXD	White
PERS	Five-pin receptacle only (control ordered separate) 707		height, ambient sensor enabled at 1fc 10.11	1.90	Left rotated optics 1	DDBTXD	Textured dark bronze
PER7	Seven-pin receptacle only (leads exit fixture) (control ordered	PIRH1FC3V	High/low, motion/ambient sensor, 15-30' mounting	R90	Right rotated optics ¹	DBLBXD	Textured black
	separate) ^{recu}	962.0	height, ambient sensor enabled at 1fc %.6	DDL	Diffused drop lens ⁽²⁾	DNATXD	Textured natural
DMG	0-10V dimming extend out back of housing for external control	FAO	Field adjustable output.*	Ship	ped separately	Card Landson	aluminum
	(control ordered separate) ¹³			BS	Bird spikes 18	DWHGXD	Textured white
				EGS	External glare shield ¹⁸		



One Lithonia Way

Conyers, Georgia 30012

Phone: 800.705.7378

www.lithonia.com
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DSX0-LED Rev. 09/12/19 Page 1 of 8

Symbol	Label	QTY	Manufacturer	Catalog Number	Description	Lamp	Number Lamps	Lumens per Lamp	LLF	Wattage	Mounting Height
	Α	6	Lithonia Lighting	DSX0 LED P7 40K T4M MVOLT	DSX0 LED AREA LIGHT, P7 FORWARD OPTICS, 4000K, TYPE 4 MEDIUM DISTRIBUTION	LED	1	17969	0.9	166	20'-0"
	В	1	Lithonia Lighting	DSX0 LED P5 40K BLC MVOLT	DSX0 LED AREA LIGHT, P7 FORWARD OPTICS, 4000K, BACKLIGHT CONTROL DISTRIBUTION	LED	1	9576	0.9	89	20'-0"
D Ö	С	2	Lithonia Lighting	DSX0 LED P7 40K T5W MVOLT	DSX0 LED AREA LIGHT, P7 FORWARD OPTICS, 4000K, TYPE 5 WIDE DISTRIBUTION	LED	1	18933	0.9	332	20'-0"
	D	11	Lithonia Lighting	DSX0 LED P7 40K T4M MVOLT WBA	DSX0 LED AREA LIGHT, P7 FORWARD OPTICS, 4000K, TYPE 4 MEDIUM DISTRIBUTION, WALL BRACKET	LED	1	17969	0.9	166	20'-0"

Statistics							
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min	Avg/Max
PARKING LOT	+	2.6 fc	5.8 fc	0.4 fc	14.5:1	6.5:1	0.4:1
PROPERTY LINE	+	0.1 fc	0.5 fc	0.0 fc	N/A	N/A	0.2:1

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.

Drawing Note

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

General Note

SEE SCHEDULE FOR LUMINAIRE MOUNTING HEIGHT.
 CALCULATIONS ARE SHOWN IN FOOTCANDLES AT: 0' - 0"

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

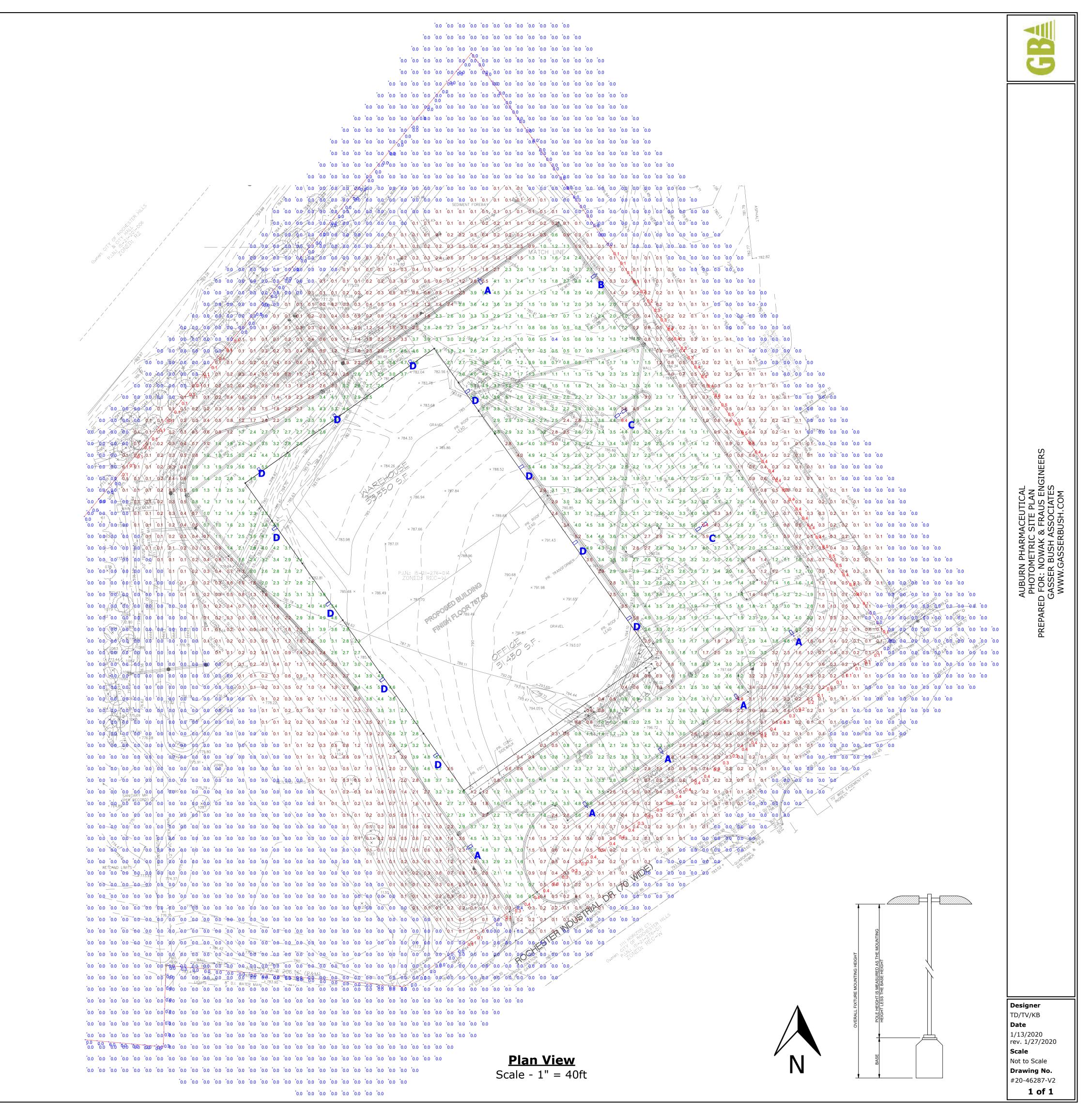
ENGINEERING SOCIETY APPROVED METHODS. ACTUAL PERFORMANCE OF ANY MANUFACTURER'S LUMINAIRE MAY VARY DUE TO VARIATION IN ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, AND OTHER VARIABLE FIELD CONDITIONS. MOUNTING HEIGHTS INDICATED ARE FROM GRADE AND/OR FLOOR UP.

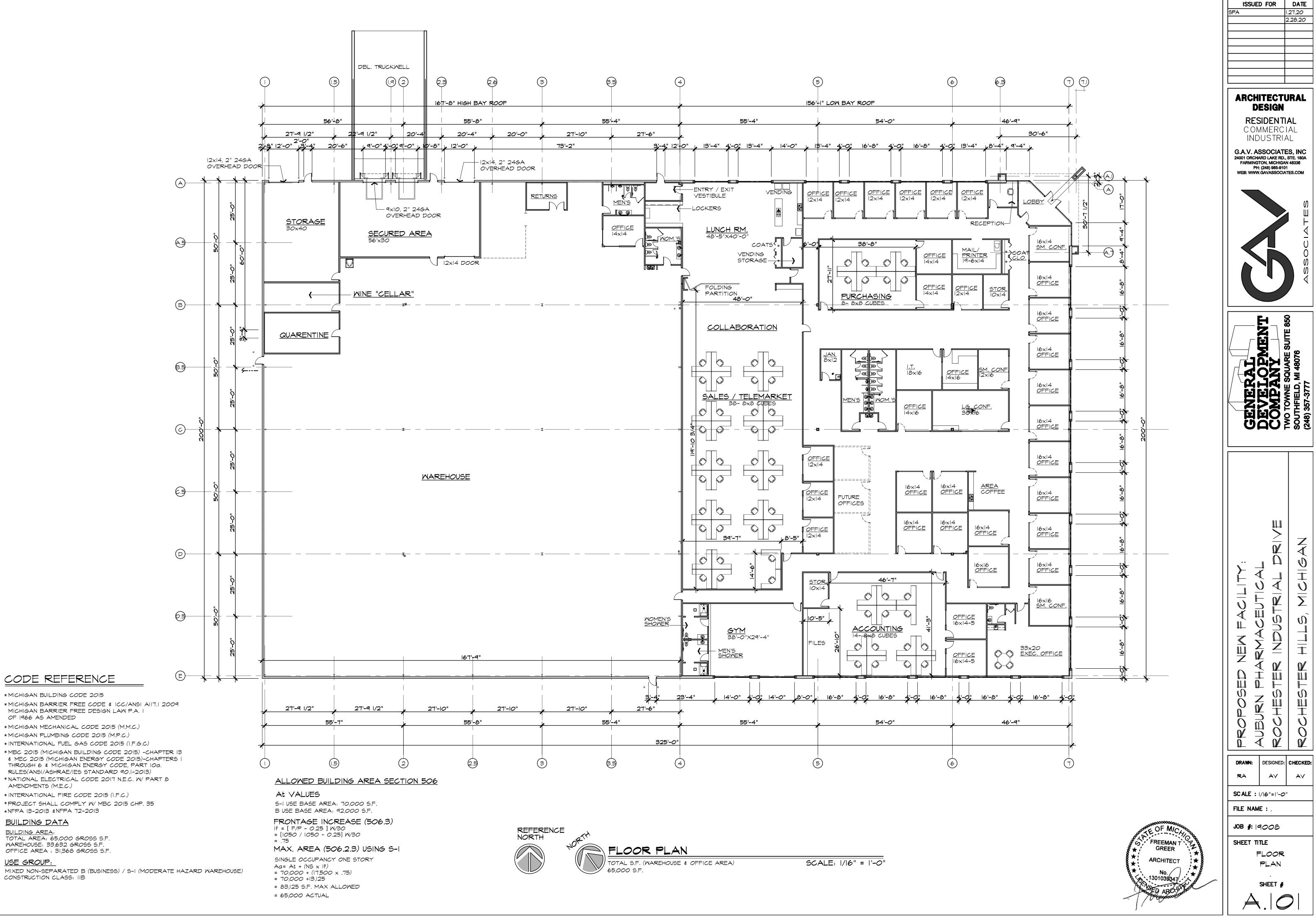
THESE LIGHTING CALCULATIONS ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM SUITABILITY AND SAFETY. THE ENGINEER AND/OR ARCHITECT IS RESPONSIBLE TO REVIEW FOR MICHIGAN ENERGY CODE AND LIGHTING QUALITY COMPLIANCE.

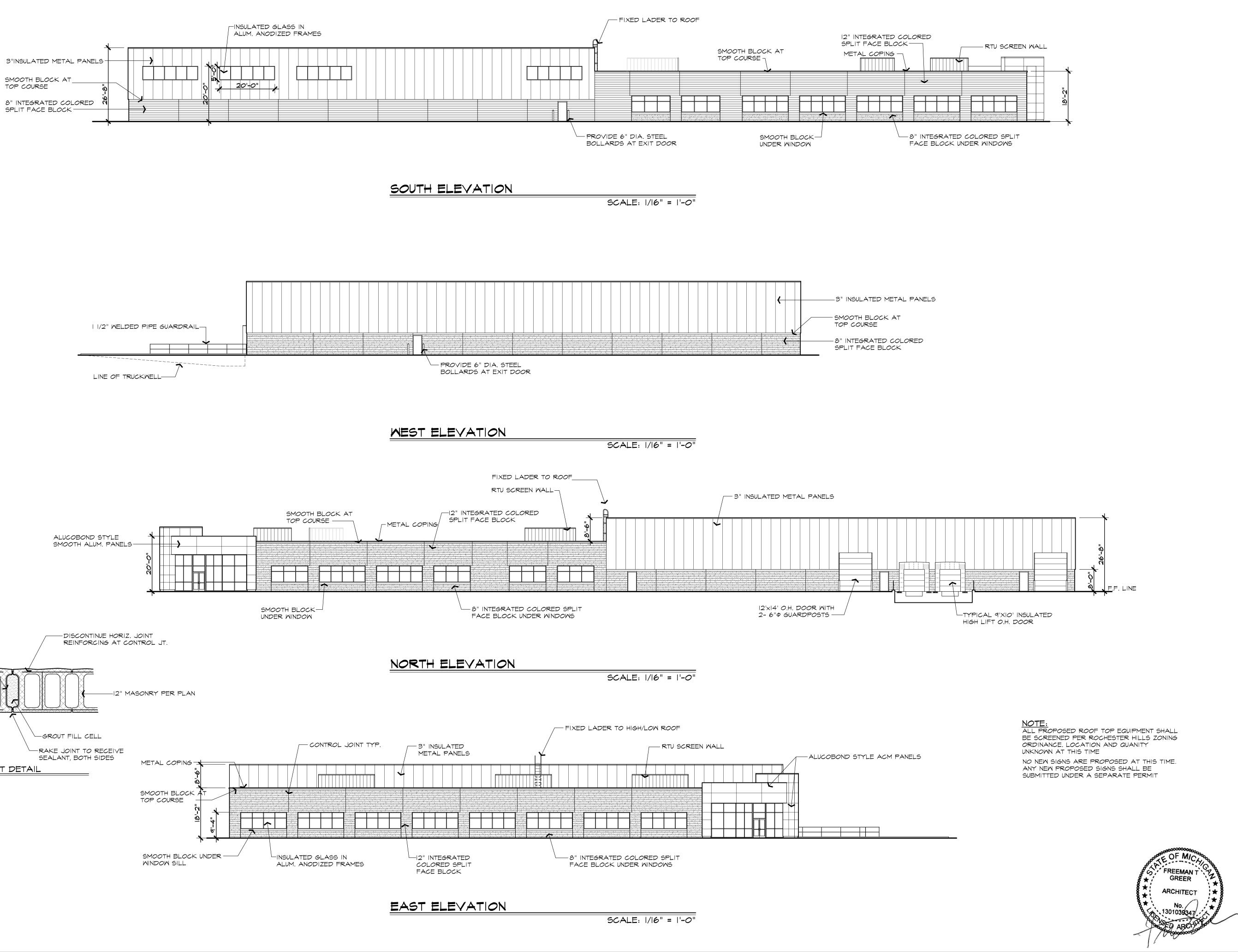
UNLESS EXEMPT, PROJECT MUST COMPLY WITH LIGHTING CONTROLS REQUIRMENTS DEFINED IN ASHRAE 90.1 2013. FOR SPECIFIC INFORMATION CONTACT GBA CONTROLS GROUP AT ASG@GASSERBUSH.COM OR 734-266-6705.

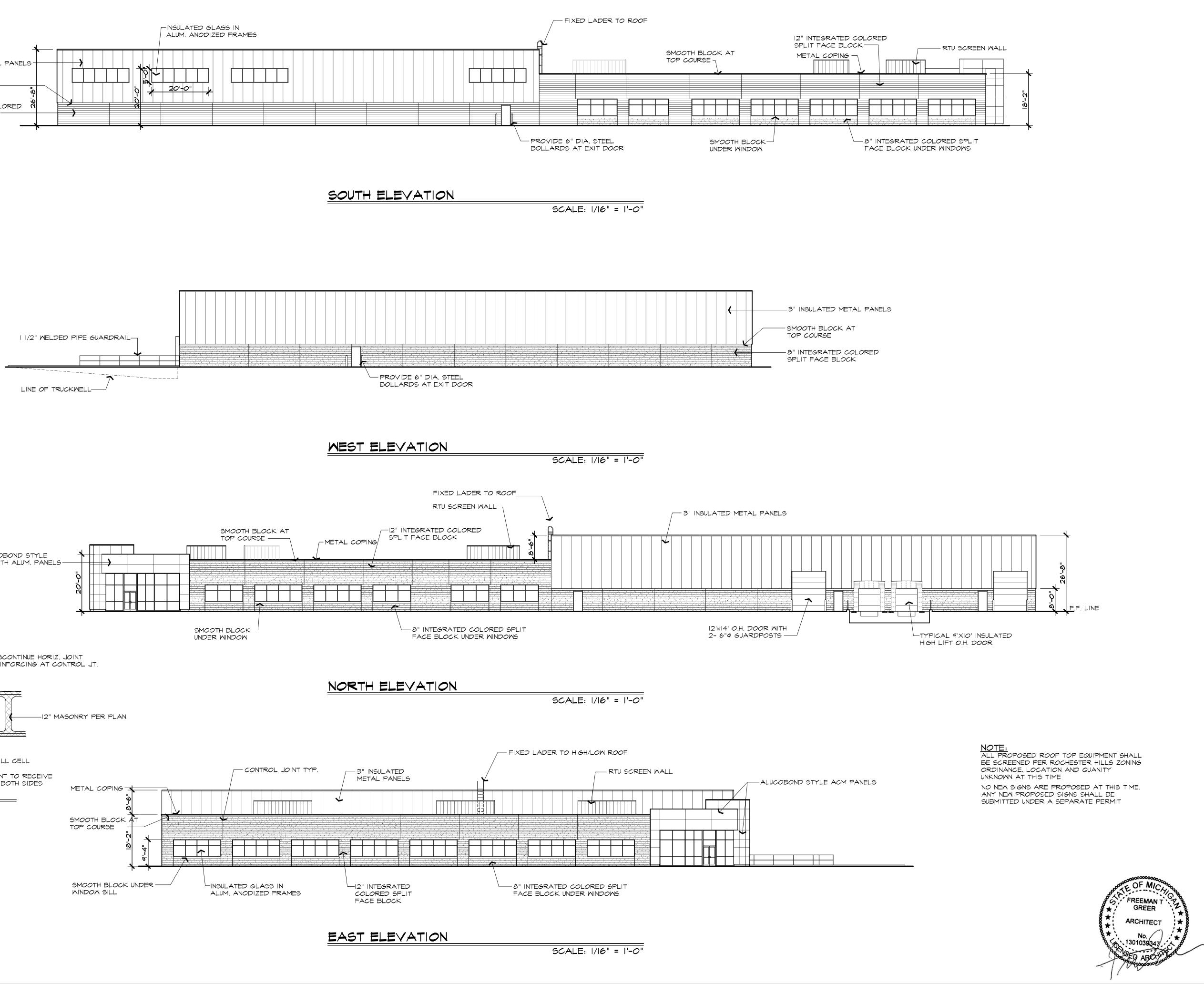
Ordering Note

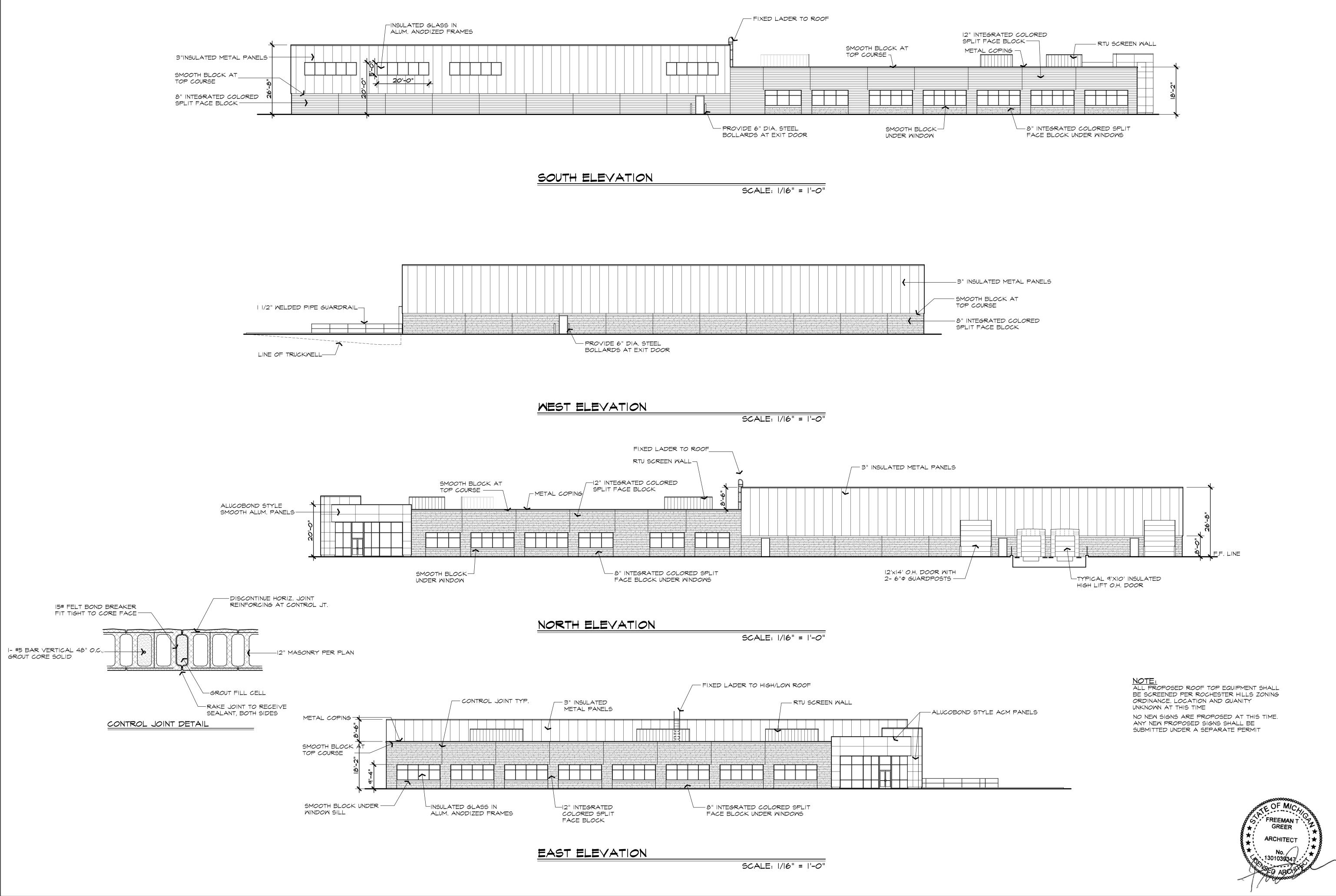
FOR INQUIRIES CONTACT GASSER BUSH AT QUOTES@GASSERBUSH.COM OR 734-266-6705.











SPA ARCI RE C C IN G.A.V. / 24001 ORC FARMIN	HITECT DESIGN SIDENT DUSTR MMERC DUSTR MMERC DUSTR MARD LAKE RI GTON, MICHIG PH: (248) 985-9 H: (248) 985-9	FIAL CIAL IAL FES, INC D., STE. 180A IAN 48336 101
	ENT	NITE 850 ASSOCIATES
GENERAL	DEVELOPM COMPANY	TWO TOWNE SQUARE SUITE 850 SOUTHFIELD, MI 48076 (248) 357-3777
PROPOSED NEW FACILITY:	AUBURN PHARMACEUTICAL Rochester Industrial Drive	ROCHESTER HILLS, MICHIGAN
DRAWN: RA SCALE FILE NA JOB #: SHEET	DESIGNEE AV : ME : .	