

ROCHESTER HILLS - FIRE STATION 1

FIRE TRAINING TOWER
Rochester Hills, Michigan



Rochester Hills Fire Department
Owner
1111 Horizon CT
Rochester Hills, MI 48309
248.656.4650



A3C Collaborative Architecture
Architect - Project Number: 23092
115 1/2 East Liberty St.
Ann Arbor, MI 48104
PH: 734.663.1910
FX: 866.732.2168



A.R. Brouwer
Construction Manager
2830 Baker Rd
Dexter, MI 48130
734.426.9980



Washtenaw Engineering Company
Civil Engineer
3526 W. Liberty Rd, Suite 400
P.O. Box 1128
Ann Arbor, MI 48106
734.761.8800



Shymanski & Associates, LLC
Structural Engineer
33426 Five Mile Rd
Livonia, MI 48154
734.855.4810



WHP Training Towers
Training Tower Supplier
519 Duck Rd
Grandview, MO 64030
1-800-351-2525

24084 G0.01

PROJECT TITLE: NO SCALE 9



PROJECT NUMBER: 24084

E:\24084 - A.R. Brouwer - Fire Training Tower\6-CAD\Sheets\24084-G0.01 TITLE SHEET.dwg,09.03.05 4:41 PM



VICINITY MAP NO SCALE REFPD FROM: TS 4

ABBREVIATIONS LIST	NO SCALE	REFD FROM: NA	3
AFF	ABOVE FINISH FLOOR	MAX	MAXIMUM
ARCH	ARCHITECT(URAL)	MECH	MECHANICAL
BLDG	BUILDING	MFR	MANUFACTURER
CC	CENTER TO CENTER	MIN	MINIMUM
CJ	CONTROL JOINT	MO	MASONRY OPENING
CLG	CEILING	NA	NOT APPLICABLE
CONC	CONCRETE	NIC	NOT IN CONTRACT
CONT	CONTINUOUS	NOM	NOMINAL
DIA	DIAMETER	NTS	NOT TO SCALE
DS	DOWNSPOUT	OC	ON CENTER
DWG	DRAWING	OD	OUTSIDE DIAMETER
(E)	EXISTING	OPG	OPENING
EA	EACH	OPP	OPOSITE
EJ	EXPANSION JOINT	PR	PAIR
ELEC	ELECTRICAL	PRVD	PROVIDED
EL	ELEVATION	R	RISER
ELEV	ELEVATOR	REF	REFER (TO)
EQUIP	EQUIPMENT	REQD	REQUIRED
EWC	ELECTRIC WATER COOLER	RD	ROOF DRAIN
EXT	EXTERIOR	RO	ROUGH OPENING
FD	FLOOR DRAIN	SF	SQUARE FEET
FOF	FACE OF FINISH	SIM	SIMILAR
FOS	FACE OF STUD	SPEC	SPECIFICATIONS
FR	FIRE-RETARDANT	SS	STAINLESS STEEL
GA	GAUGE OR GAGE	STD	STANDARD
GC	GENERAL CONTRACTOR	STR	STRUCTURAL
GI	GALVANIZED IRON	T	TREAD
GYP BD	GYP SUM BOARD	TS	THIS SHEET
HM	HOLLOW METAL	TKC	TOP OF CONCRETE
HORIZ	HORIZONTAL	TOS	TOP OF STEEL
HT	HEIGHT	TOM	TOP OF MASONRY
INT	INTERIOR	TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE		
JT	JOINT	W	WITH
LAV	LAVATORY	WC	WATER CLOSET
		WD	WOOD
		WR	WATER RESISTANT
		WWF	WELDED WIRE FABRIC

23092 G0.01

ROCHESTER HILLS FIRE STATION 1:
Primary Site Contact:
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exley@m@rochesterhills.com

ARCHITECT:
A3C Collaborative Architecture
Project Manager
F. Edward Alonso
Ph: 734.663.1910
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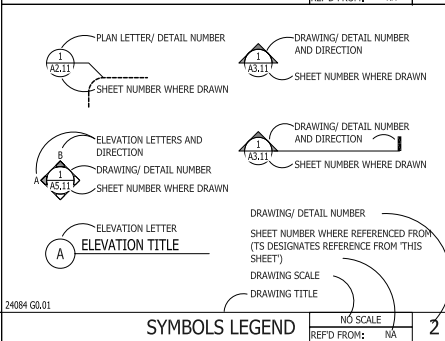
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Ted Shymanski
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WHP Training Towers
Joe Kirchner
Ph: 913.343.0446
joek@trainingtowers.com

23092 G0.01



24084 G0.01 SYMBOLS LEGEND NO SCALE REFPD FROM: NA 2

DRAWING INDEX KEY:		ISSUED FOR:	
SH. #	SHEET NAME	ADMIN REVIEW	PLANNING COMM.
01	TITLE SHEET		
CIVIL			
C1.0	OVERALL SITE EXISTING CONDITIONS		
C1.1	TRAINING TOWER AREA TOPOGRAPHICAL SURVEY		
C2.0	TRAINING TOWER AREA REMOVAL PLAN		
C3.0	OVERALL SITE PLAN		
C3.1	TRAINING TOWER SITE PLAN		
C4.0	TRAINING TOWER GRADING & SOIL EROSION CONTROL PLAN		
C5.0	TRAINING TOWER UTILITY PLAN & STORM SEWER PLAN & PROFILE		
C6.0	OVERALL SITE DRAINAGE AREAS AND STORM WATER CALCULATIONS		
C7.0	CITY STANDARDS - STORM SYSTEM STANDARD DETAILS		
ARCHITECTURAL			
A-1	EXISTING AND NEW ELEVATIONS		
WHP TRAINING TOWER SUPPLIER			
1	FIRST FLOOR PLAN		
2	SECOND FLOOR PLAN		
3	THIRD FLOOR PLAN		
4	FOURTH FLOOR PLAN (OPTIONAL)		
5	ROOF FLOOR PLAN		
6	FRONT SIDE AND LEFT SIDE ELEVATIONS		
7	REAR SIDE AND RIGHT SIDE ELEVATIONS		

PROJECT DESCRIPTION:
THE EXISTING ROCHESTER HILLS FIRE DEPARTMENT FIRE TRAINING TOWER WILL BE REMOVED BY OTHERS. THE NEW FIRE TRAINING TOWER WILL HAVE 4 FLOORS WITH BURN ROOMS, RECONFIGURABLE MAZE SYSTEM, FLAT ROOF AREAS, SLOPED VENT CHOP OUTS, STAIRS, VERTICAL LADDER, HATCH AND RAPELLING ANCHORS. THE GROSS FLOOR SQUARE FOOTAGE WILL BE 1,920 SF. THE BUILDING FOOTPRINT WILL BE 800 SF (20'x40').

24084-G0.01 DRAWING INDEX NO SCALE REFPD FROM: NA 1

ISSUE	PLANNING COMM.	ADMIN REVIEW
	01/03/25	11/20/24

ROCHESTER HILLS -
FIRE STATION 1
FIRE TRAINING TOWER
ROCHESTER HILLS, MI



115 1/2 E. LIBERTY STREET
ANN ARBOR, MI 48104
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F: 866.732.2168
www.a3c.com

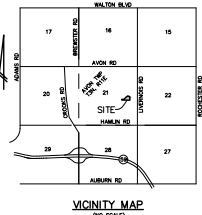
SHEET G0.01

THE ENGINEER HAS CONDUCTED VISUAL INSPECTIONS OF THE SITE AND SURROUNDING AREAS TO VERIFY THE ACCURACY OF THE INFORMATION PROVIDED BY THE CLIENT. THE ENGINEER HAS NOT CONDUCTED ANY TESTS OR ANALYSES TO VERIFY THE ACCURACY OF THE INFORMATION PROVIDED BY THE CLIENT. THE ENGINEER HAS NOT CONDUCTED ANY TESTS OR ANALYSES TO VERIFY THE ACCURACY OF THE INFORMATION PROVIDED BY THE CLIENT. THE ENGINEER HAS NOT CONDUCTED ANY TESTS OR ANALYSES TO VERIFY THE ACCURACY OF THE INFORMATION PROVIDED BY THE CLIENT.

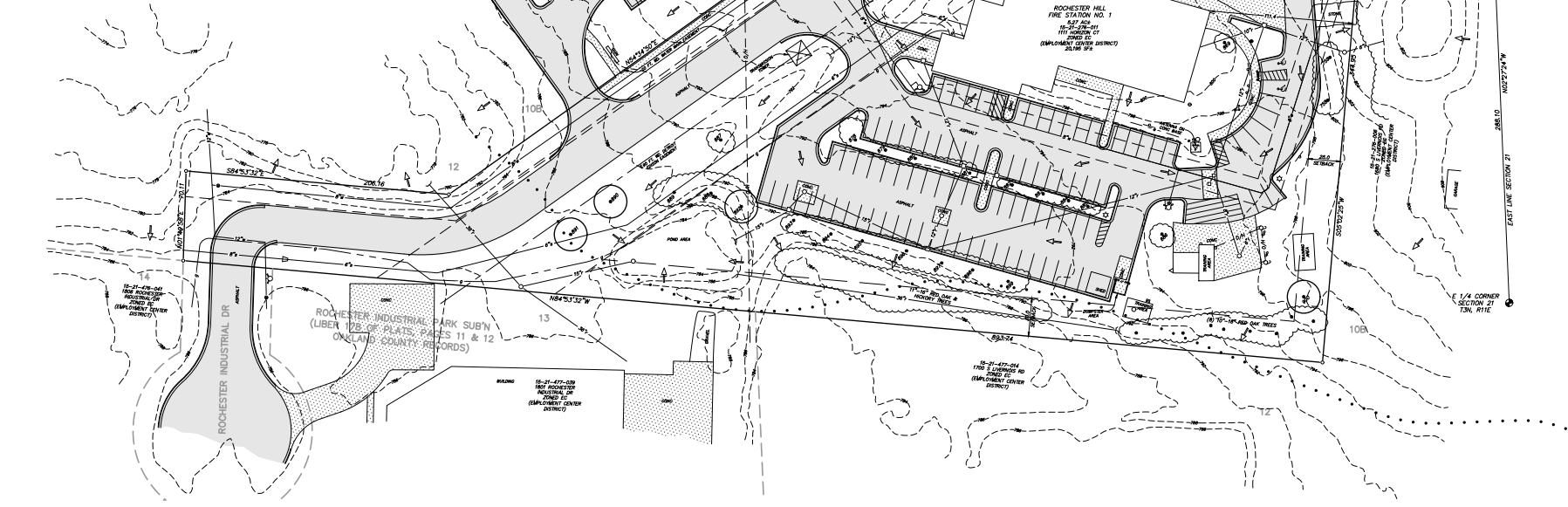
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TAG	COMMON NAME	DBH	CONDITION	SPECIMEN
750	Norway Maple	10	Good	
750	Sugar Maple	15	Good	
750	Norway Maple	18	Good	X
859	Crab Apple	7	Good	
870	Colorado Blue Spruce	12	Good	
871	Australian Pine	15	Good	
872	Colorado Blue Spruce	10	Fair	
873	Norway Maple	12	Good	
874	Colorado Blue Spruce	15	Fair	
875	Colorado Blue Spruce	15	Good	
876	Australian Pine	12	Good	
877	Norway Maple	15	Good	
878	Locust	15	Good	
879	Locust	8	Good	
880	Locust	8	Good	
881	Locust	7	Good	
882	Locust	6	Good	
883	Locust	8	Good	
884	Locust	7	Good	
885	Locust	7	Good	
886	Colorado Blue Spruce	9	Fair	
887	Crab Apple	7	Good	
888	Crab Apple	9	Good	
889	Crab Apple	9	Good	
890	Australian Pine	18	Fair	X
891	Australian Pine	18	Fair	X
892	Crab Apple	12	Good	X
893	Norway Maple	13	Good	
894	Norway Maple	10	Good	
895	Norway Maple	10	Good	
896	Norway Maple	10	Good	
897	Norway Maple	10	Good	
898	Norway Maple	10	Good	
899	Norway Maple	13	Good	
900	Red Oak	26	Good	X



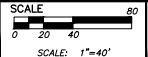
OAKLAND COUNTY SOIL SURVEY CLASSIFICATION
 10B - MARLETTE SANDY LOAM, 1 TO 6 PERCENT SLOPES
 12 - BROOKSTON AND COLWOOD LOAMS
 SOILS BOUNDARY
 SOILS ARE BASED ON USDA SOIL SURVEY OF OAKLAND COUNTY.

TAX DESCRIPTION
 T3N, R11E, SEC 21 PART OF E 1/2 OF SEC BEG AT PT DIST N 02-27-24 W 288.10 FT & 84-53-32 W 484.44 FT FROM E 1/4 COR. TH S 05-02-25 W 344.95 FT, TH N 84-53-32 W 883.74 FT TO NE COR OF LOT 14 OF 'ROCHESTER INDUSTRIAL PARK SUBDIVISION', TH N 01-49-28 E 70.11 FT, TH S 84-53-32 E 206.16 FT, TH N 84-53-32 E 542.73 FT TO ALG CURVE TO RIGHT, RAD 70 FT, CHORD BEARS S 80-25-18 E 98.99 FT, DIST OF 109.95 FT, TH S 84-53-32 E 109.96 FT, TH ALG CURVE TO LEFT, RAD 70 FT, CHORD BEARS S 39-53-32 E 98.99 FT, DIST OF 109.96 FT TO BEG 5-27-81 N 113-58-77 FR 009

LEGEND	○ = LIGHT POLE	⊙ = SPOT ELEV.	TC = TOP OF CURB	— — — = GRAVEL	— — — = EXISTING STORM
⊙ = UTILITY POLE	⊙ = POST	⊙ = MANHOLE	— — — = FENCE	— — — = EXISTING SANITARY	— — — = EXISTING WATER
⊙ = GUY ANCHOR	⊙ = GATE VALVE	⊙ = CATCHBASIN	⊙ = END SECTION	— — — = CONCRETE	— — — = EXISTING GAS
⊙ = HYDRANT	⊙ = SIGN	⊙ = ASPHALT		— — — = ASPHALT	— — — = EXISTING ELECTRIC
					— — — = EXISTING TELEPHONE

BENCHMARK BMT-1 SCORDED "X" ON LIGHT POLE BASE IN PARKING LOT ISLAND, WEST OF TRAINING TOWER AND SOUTH OF FIRE STATION, ELEV=724.86 (NAVD83)
 BMT-2 TOP OF FLAG POLE BASE, EAST OF FIRE STATION AND NORTH OF BARRIER TREE, PARKING, ELEV=800.59 (NAVD83)

REVISIONS 1-3-25 FOR PLANNING COMMISSION REVIEW.



PREPARED BY: JOSEPH K. MAYNARD P.E., MICH No. 52559
 CITY FILE #24-0378 SECTION #21



WASHTENA ENGINEERING
 CIVIL ENGINEERS
 3026 N. LIBERTY RD.
 ANN ARBOR, MI 48103
 TEL: 734-791-8800

A.R. BROUWER CONSULTING LLC
 260 CENTER ST. #100
 ANN ARBOR, MI 48106
 WWW.ARBROUWER.COM

OVERALL SITE EXISTING CONDITIONS

**FIRE STATION NO. 1
 1111 HORIZON CT
 TRAINING TOWER**

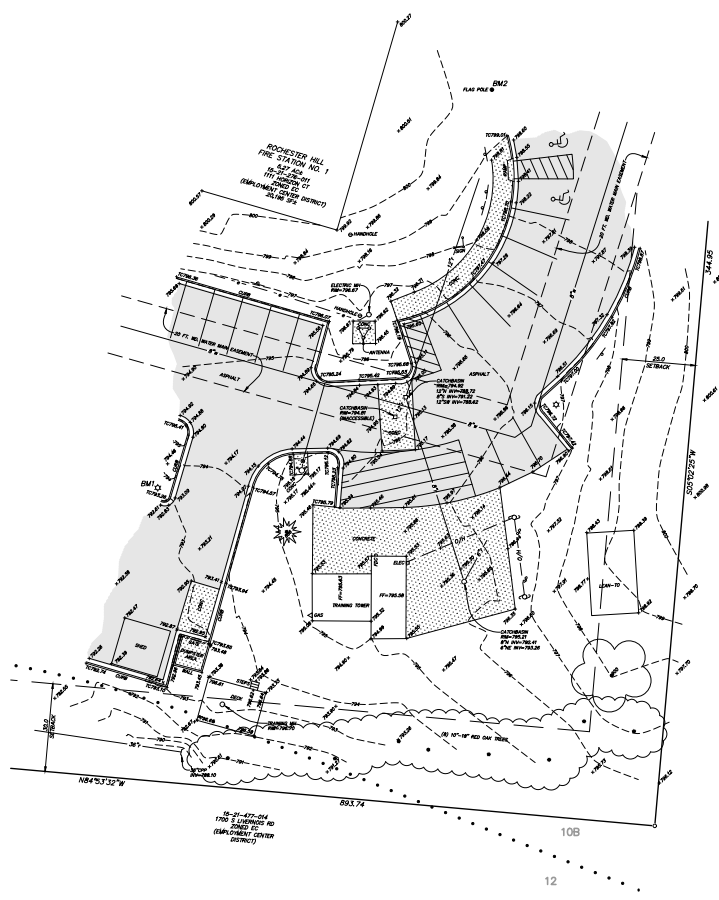
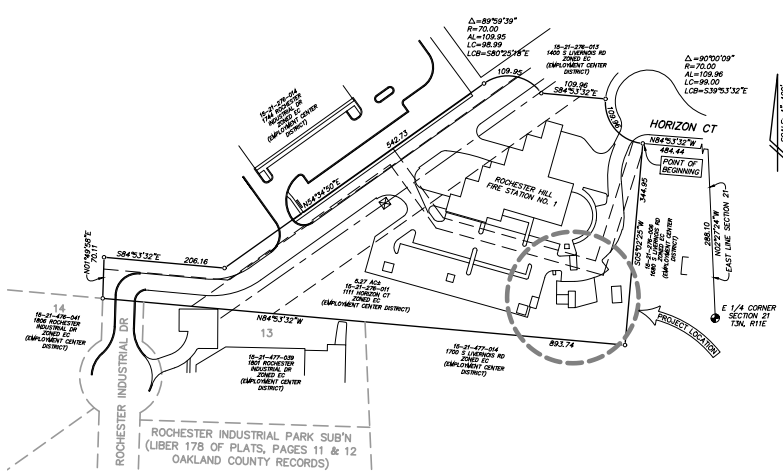
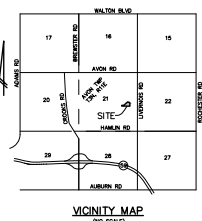
PROJECT: FIRE STATION NO. 1
 SHEET: 11 EAST
 TOWN: 3 NORTH RANGE: 11 EAST
 CITY OF ROCHESTER HILLS
 1111 HORIZON CT
 DATE: 1-3-2022 CON. NO. 13148
 DWE. NO. FLS SP-10009
 FIELD BOOK: _____
 FILE NO. 10899

C10

THE OWNER SHALL VERIFY THE ACCURACY AND COMPLETENESS OF ALL DATA AND INFORMATION PROVIDED TO THE ENGINEER. THE ENGINEER SHALL BE RESPONSIBLE FOR THE ACCURACY AND COMPLETENESS OF THE SURVEY DATA AND INFORMATION PROVIDED TO THE ENGINEER. THE ENGINEER SHALL BE RESPONSIBLE FOR THE ACCURACY AND COMPLETENESS OF THE SURVEY DATA AND INFORMATION PROVIDED TO THE ENGINEER. THE ENGINEER SHALL BE RESPONSIBLE FOR THE ACCURACY AND COMPLETENESS OF THE SURVEY DATA AND INFORMATION PROVIDED TO THE ENGINEER.

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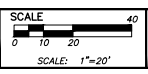


OAKLAND COUNTY SOIL SURVEY CLASSIFICATION
 10B - MARLETTE SANDY LOAM, 1 TO 6 PERCENT SLOPES
 12 - BROOKSTON AND COLWOOD LOAMS
 * * * * * SOILS BOUNDARY
 SOILS ARE BASED ON USDA SURVEY OF OAKLAND COUNTY.

	SPOT ELEV.	TC = TOP OF CURB		EXISTING STORM
	POST	TW = TOP OF WALL		EXISTING SANITARY
	GATE VALVE	MANHOLE		EXISTING WATER
	GATE VALVE	CATCHBASIN		EXISTING GAS
	POST	END SECTION		EXISTING ELECTRIC
				EXISTING TELEPHONE

BENCHMARK BM1 - SPOTTED "X" ON LIGHT POLE BASE IN PARKING LOT ISLAND, WEST OF TRAINING TOWER AND SOUTH OF FIRE STATION, ELEV=724.96 (NAVD83).
 BM2 - TOP OF FLAG POLE BASE, EAST OF FIRE STATION AND NORTH OF BARRIER FREE PARKING, ELEV=800.59 (NAVD83).

REVISIONS 1-3-25 FOR PLANNING COMMISSION REVIEW.



PREPARED BY: *Joseph K. Maynard*
 JOSEPH K. MAYNARD P.E., MICH No. 52559



Know what's below.
 Call before you dig.



WASHTENAW ENGINEERING
 CIVIL ENGINEERS
 LANDSCAPE ARCHITECTS
 3026 N. LIBERTY RD.
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 TEL: 734-761-8600

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 2600 W. WASHINGTON ST.
 ANN ARBOR, MI 48106
 WWW.ARBROUWER.COM

TRAINING TOWER AREA TOPOGRAPHICAL SURVEY

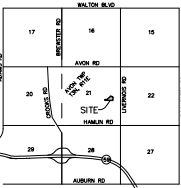
**FIRE STATION NO. 1
 1111 HORIZON CT
 TRAINING TOWER**

PROJECT: FIRE STATION NO. 1
 SHEET: C1.1

DATE: 1-3-2022
 DRAWING NO.: 13142
 DWG. NO.: 142-SP-1000
 FIELD BOOK: _____
 FILE NO.: 10899

SECTION: 21, TOWN: 3, NORTH RANGE: 11, EAST
 CITY OF ROCHESTER HILLS
 1111 HORIZON CT
 DATE: 1-3-2022
 DRAWING NO.: 13142
 DWG. NO.: 142-SP-1000
 FIELD BOOK: _____
 FILE NO.: 10899

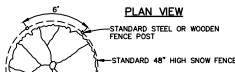
THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM THE CITY OF ROCHESTER HILLS AND THE ENGINEER A MINIMUM OF 72 HOURS PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM THE CITY OF ROCHESTER HILLS AND THE ENGINEER A MINIMUM OF 72 HOURS PRIOR TO THE START OF CONSTRUCTION.



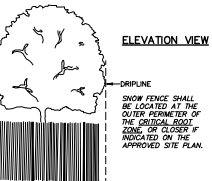
VICINITY MAP
(NO SCALE)

CONSTRUCTION NOTES:

- 1. IT IS ESSENTIAL THAT THE CONTRACTOR FAMILIARIZE THEMSELVES WITH THE SITE PRIOR TO SUBMITTING PROPOSAL.
- 2. THE AREA WITHIN THE CONSTRUCTION LIMITS SHALL BE STRIPPED OF ORGANIC SOILS PRIOR TO COMMENCING GENERAL EXCAVATION. THIS MATERIAL SHALL BE STOCKPILED ON THE PROPERTY OR AS DIRECTED BY THE ENGINEER OR THE OWNER.
- 3. THE CONTRACTOR WILL BE REQUIRED TO PROOF ROLL (WITH A HEAVY RUBBER Tired VEHICLE) ALL FILL AREAS PRIOR TO PLACING ADDITIONAL FILL AND ALL CUT AREAS UPON COMPLETION OF THE CUT AND PRIOR TO PLACING BASE MATERIAL. IF THE PROOF ROLLING INDICATES UNSTABLE AREAS, THE UNSTABLE MATERIAL MUST BE REMOVED AND REPLACED WITH MATERIAL MATCHING THE ADJACENT SOILS TO THE ELEVATION OF THE SUB-GRADE.
- 4. ALL FILL MATERIAL MUST BE PLACED IN LIFTS NOT EXCEEDING 9 INCHES AND COMPACTED TO 95% OF THE MAXIMUM UNIT WEIGHT.
- 5. THE FINISHED SUB GRADE MUST BE GRADED WITH A TOLERANCE OF +/- 0.1 FEET OF DESIGN GRADE COMPACTED TO NOT LESS THAN 95% OF THE MAXIMUM UNIT WEIGHT TO A DEPTH OF 9 INCHES AND APPROVED BY THE OWNER'S REPRESENTATIVE/ENGINEER PRIOR TO PLACEMENT OF THE AGGREGATE BASE. FINE GRADING PRIOR TO THE PLACEMENT OF THE BASE MATERIAL SHALL BE INCIDENTAL TO THE COST OF PREPARING THE SUB-GRADE.
- 6. ALL DISTURBED AREAS, DITCH BOTTOMS AND SLOPES UNLESS NOTED OTHERWISE, SHALL BE SEEDED AND MAINTAINED PER THE PLANS. DITCH BOTTOMS SHALL BE SODDED AND PEGGED WHERE DITCH GRADE EXCEEDS 3.00%.
- 7. THE CONTRACTOR MUST CONTACT MISS DIG 72 HOURS PRIOR TO BEGINNING CONSTRUCTION (811).
- 8. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION, MAINTENANCE AND REMOVAL OF ALL TEMPORARY EROSION CONTROL MEASURES PER THIS APPROVED PLAN.
- 9. CONTRACTOR MUST OBTAIN AN EROSION CONTROL PERMIT FROM OAKLAND COUNTY SOIL EROSION AND SEDIMENTATION CONTROL OFFICE PRIOR TO BEGINNING EARTH MOVING. CONTRACTOR WILL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS PRIOR TO BEGINNING CONSTRUCTION.
- 10. NOTIFY THE CITY OF ROCHESTER HILLS AND THE ENGINEER A MINIMUM OF 72 HOURS PRIOR TO THE START OF CONSTRUCTION.
- 11. ALL CONSTRUCTION MUST BE CONFORMING TO THE CURRENT ENGINEERING STANDARDS AND SPECIFICATIONS ADOPTED BY THE CITY OF ROCHESTER HILLS.
- 12. THE CONTRACTOR IS RESPONSIBLE FOR ALL DAMAGE TO EXISTING UTILITIES.
- 13. ALL REMOVED ITEMS SHALL BE DISPOSED OF AT APPROVED LOCATIONS, BY CONTRACTOR.



PLAN VIEW



ELEVATION VIEW

TREE PROTECTION FENCING
NOT TO SCALE

EXISTING TREE PROTECTION NOTES:

- 1. TREES NOT TO BE REMOVED AND IN THE PROXIMITY OF CONSTRUCTION SHALL BE PROTECTED BY SNOW FENCING OR OTHER COMPARABLE MATERIAL CRESTED AT LEAST EIGHT (8) FEET FROM THE TRUNK OR DRIFLINE, WHICHEVER IS GREATER. THE FENCED AREA SHALL PROVIDE A BARRIER AGAINST MECHANICAL INJURY, AND SHALL BE KEPT CLEAR OF ALL FILL, EQUIPMENT AND MATERIALS.
- 2. WHERE CONSTRUCTION LIMITS INFRINGE ON THE TREE'S DRIFLINE, THE TREE TRUNK SHALL BE PROTECTED BY A TRIANGULAR FENCE BUILT AROUND IT OR BY PLACEMENT OF PLANKS AROUND THE TRUNK AND FIRMLY WIRED IN PLACE.
- 3. WHERE THE USE OF HEAVY EARTH MOVING EQUIPMENT MAY PRODUCE INJURIOUS RESULTS, THE CONTRACTOR SHALL PROVIDE ALTERNATIVE METHODS OF CONSTRUCTION, SUCH AS THE USE OF SMALLER EQUIPMENT.
- 4. CLEANING OF EQUIPMENT OR MATERIAL, OR THE STORAGE OR DISPOSAL OF WASTE MATERIALS SUCH AS PAINTS, SOLVENTS, OILS, ASPHALT, CONCRETE, MORTAR OR ANY OTHER MATERIAL HARMFUL TO THE LIFE OF ANY TREE WITHIN THE DRIFLINE OF THAT TREE SHALL BE PROHIBITED.
- 5. NO DAMAGING ATTACHMENTS OR WIRES (OTHER THAN SUPPORTIVE WIRES FOR A TREE) MAY BE FASTENED TO ANY TREE NOTED AS BEING SAVED.
- 6. TREES TO REMAIN SHALL MAINTAIN THE SAME PROPOSED GRADE AS EXISTING.

OAKLAND COUNTY SOIL SURVEY CLASSIFICATION

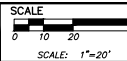
10B - MARLETTE SANDY LOAM, 1 TO 4 PERCENT SLOPES
12 - BROOKSTON AND COLWOOD LOAMS
..... SOILS SURVEY
SOILS ARE BASED ON USDA SOIL SURVEY OF OAKLAND COUNTY.

LEGEND table with symbols for Light Pole, Spot Elev., Top of Curb, Top of Wall, Fence, Post, Manhole, Gate Valve, Catchbasin, End Section, Hydrant, and various materials like Gravel, Concrete, Asphalt, Existing Storm, Existing Sanitary, Existing Water, Existing Gas, Existing Electric, Existing Telephone.

BENCHMARK: BMT-SCRPED 'X' ON LIGHT POLE BASE IN PARKING LOT ISLAND, WEST OF FIRE STATION TOWER AND SOUTH OF FIRE STATION. ELEV=724.6 (NAUG88). BMT-TOP OF FLAG POLE BASE, EAST OF FIRE STATION AND NORTH OF BARRIER TREE. PARKING. ELEV=800.59 (NAUG88).

REVISIONS 1-3-25 FOR PLANNING COMMISSION REVIEW.

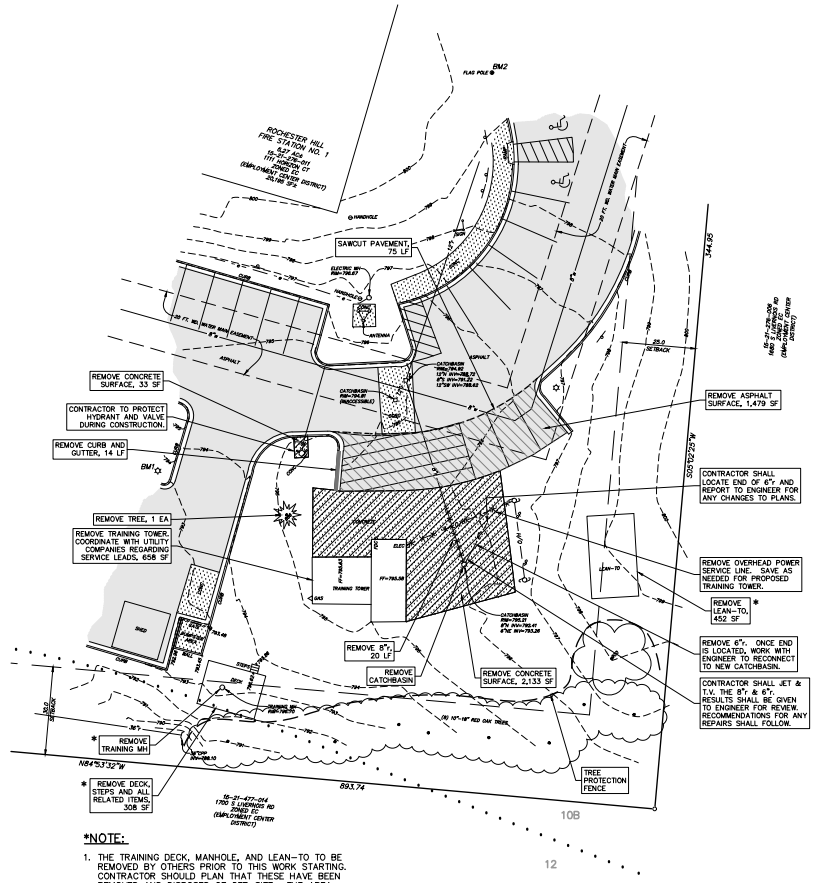
REMOVAL LEGEND table with symbols for Remove Concrete Curb & Gutter, Remove Asphalt Surface, Remove Concrete Surface, Remove Item, Sawcut, and Tree Protection Fence.



PREPARED BY: JOSEPH K. MAYNARD P.E., MICH NO. 52559

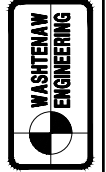


Know what's below. Call before you dig.



- *NOTE: 1. THE TRAINING DECK, MANHOLE, AND LEAN-TO TO BE REMOVED BY OTHERS PRIOR TO THIS WORK STARTING. CONTRACTOR SHOULD PLAN THAT THESE HAVE BEEN REMOVED AND DISPOSED OF OFF-SITE. THE AREA SHOULD HAVE ALSO BEEN RESTORED AND SEEDED.

DIV. ENGINEERS ARCHITECTS LANDSCAPE ARCHITECTS 3026 W. LIBERTY RD. DEWATER, MI 48130 ANN ARBOR, MI 48103 TEL: 734-761-8800

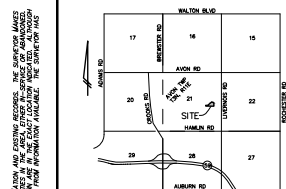


A.R. BROUWER CONSULTING LLC 26220 W. WATKINS RD. ST. CLAIR TWP. DEWATER, MI 48130 TEL: 734-761-8800 WWW.ARBROUWER.COM

TRAINING TOWER AREA REMOVAL PLAN

FIRE STATION NO. 1 1111 HORIZON CT TRAINING TOWER

Project information table including City of Rochester Hills, Job No. 13144, Date 1-3-2022, and Sheet C20.



VICINITY MAP
(NO SCALE)

Environmental Impact Statement
 Fire Station No. 1, City of Rochester Hills, MI.

TOPOGRAPHY
 The property is currently a developed Employment Center District (EC) lot. Approximately 40% of the site is landscaped area with the remaining site developed with the Fire Station No. 1 building and its associated parking and service areas. The area slopes from the building at elev. 801+ down to a low spot at the southwest corner at an elevation of 784. All open space is maintained as green domestic lawn.

WETLANDS
 There are no natural wetland features on this property.

THREATENED AND ENDANGERED SPECIES
 There are no apparent threatened or endangered plant or animal species evident on the property.

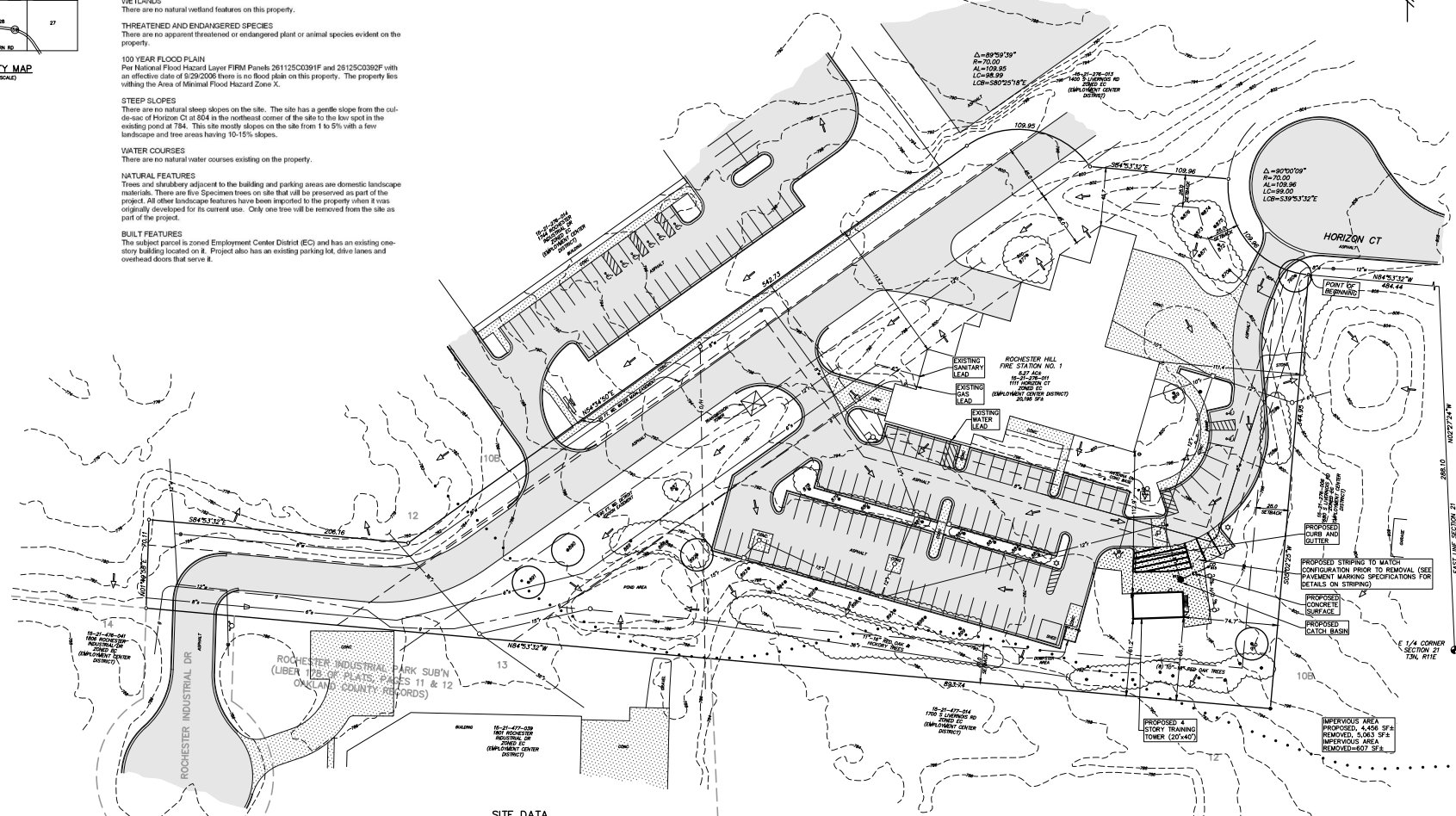
100 YEAR FLOOD PLAIN
 Per National Flood Hazard Layer FIRM Panels 261125C0391F and 26125C0392F with an effective date of 6/29/2006 there is no flood plain on this property. The property lies within the Area of Minimal Flood Hazard Zone X.

STEEP SLOPES
 There are no natural steep slopes on the site. The site has a gentle slope from the cul-de-sac of Horizon Ct at 804 in the southwest corner of the site to the low spot in the existing pond at 784. This site mostly slopes on the site from 1 to 5% with a few landscape and tree areas having 10-15% slopes.

WATER COURSES
 There are no natural water courses existing on the property.

NATURAL FEATURES
 Trees and shrubbery adjacent to the building and parking areas are domestic landscape materials. There are five Specimen trees on site that will be preserved as part of the project. All other landscape features have been imported to the property when it was originally developed for its current use. Only one tree will be removed from the site as part of the project.

BUILT FEATURES
 The subject parcel is zoned Employment Center District (EC) and has an existing one-story building located on 8. Project also has an existing parking lot, drive lanes and overhead doors that serve it.

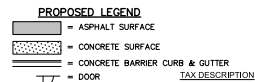


SITE DATA

CATEGORY	EXISTING	PROPOSED
ZONING	EC	EC
GROSS AREA AC	5.27 AC	5.27 AC
GROSS AREA SF	229,535 SF	229,535 SF

BUILDING DATA	EXISTING	PROPOSED
FIRE STATION 1	20,185 SF	20,195 SF
TRAINING TOWER	992 SF	1,920 SF

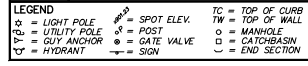
- NOTES:**
- NO PROPOSED CHANGES TO EXISTING SITE LIGHTING IS PROPOSED.
 - NO CHANGES PROPOSED TO EXISTING DUMPSITE.
 - NO CHANGES TO ANY SIGNAGE ON SITE.
 - NO LOADING ZONES ARE NEEDED FOR THIS PROJECT.
 - NO CHANGES TO SITE LANDSCAPING IS PROPOSED AS PART OF THIS PROJECT.
 - NO CHANGES TO BUILDING SERVICE LEADS ARE PROPOSED.



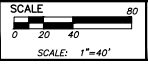
TAX DESCRIPTION

T3N, R1E, SEC 21 PART OF E 1/2 OF SEC BEG AT PT DIST N 02-27-24 W 288.10 FT & N 84-53-32 W 464.44 FT FROM E 1/4 COR. TH S 05-40-25 W 344.85 FT, TH N 84-53-32 W 893.74 FT TO NE COR OF LOT 14 OF ROCHESTER INDUSTRIAL PARK SUBDIVISION, TH N 01-45-58 E 70.11 FT, TH S 84-53-32 E 206.16 FT, TH N 84-54-0 E 642.73 FT TH ALG CURVE TO RIGHT, RAD 70 FT, CHORD BEARS S 80-25-18 E 88.99 FT, DIST OF 109.95 FT, TH S 84-53-32 E 109.96 FT, TH ALG CURVE TO LEFT, RAD 70 FT, CHORD BEARS S 38-53-32 E 88.99 FT, DIST OF 109.96 FT TO BEG 5-27-41/113-87 FR 009

CITY FILE #24-0378 SECTION #21



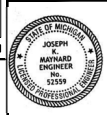
REVISIONS 1-3-25 FOR PLANNING COMMISSION REVIEW.



PREPARED BY: JOSEPH K. MAYNARD P.E., MICH NO. 52559



Know what's below. Call before you dig.



WASHTENAW ENGINEERING

CIVIL ENGINEERS
 LANDSCAPE ARCHITECTS
 3026 N. LIBERTY RD.
 ANN ARBOR, MI 48103
 TEL: 734-791-8800

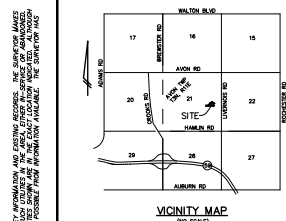
A.R. BROUWER CONSULTING LLC
 2600 W. WASHINGTON
 ANN ARBOR, MI 48106
 WWW.ARBROUWER.COM

OVERALL SITE PLAN

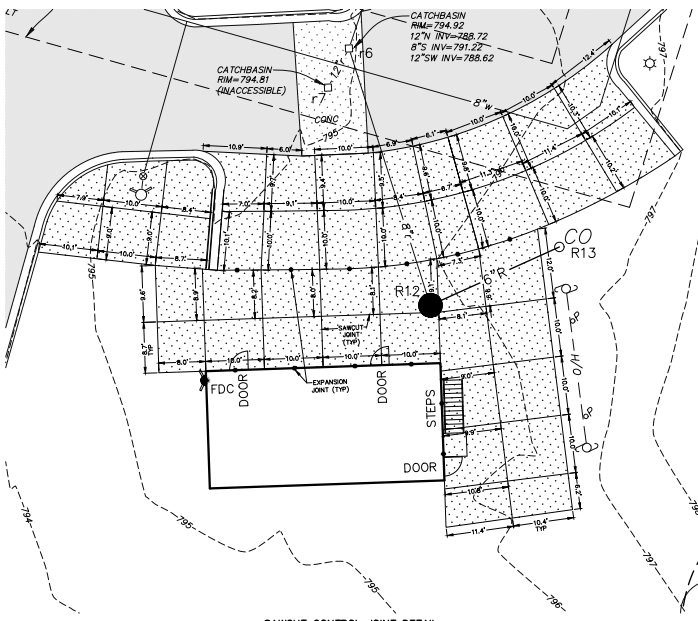
FIRE STATION NO. 1
1111 HORIZON CT
TRAINING TOWER

PROJECT: FIRE STATION NO. 1, EAST 1/4 CORNER SECTION 21 T3N, R1E, SEC 21, TOWN 3 NORTH, RANGE 1E, EAST CITY OF ROCHESTER HILLS, MICHIGAN
 SHEET: 1-2-2022 DATE: 1-2-2022 DRAWN BY: JKM, SP, CLM/SM FIELD BOOK: SCALE: 1"=40' FILE NO.: 10699

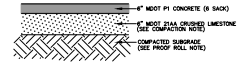
C30



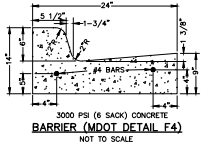
VICINITY MAP
(NO SCALE)



SAWCUT CONTROL JOINT DETAIL
(SCALE: 1"=10')

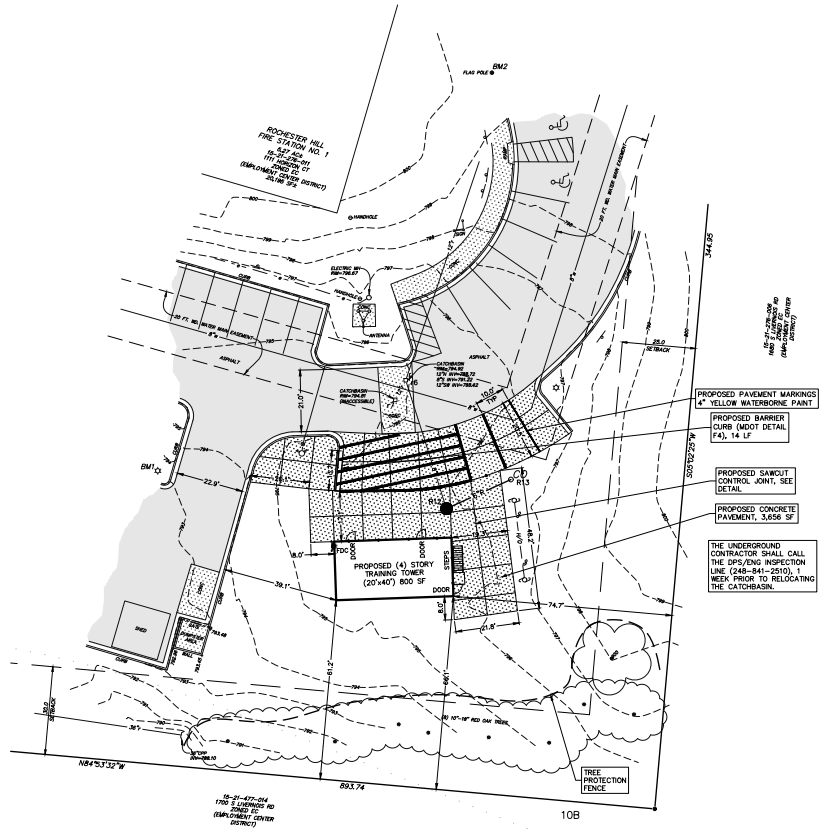


CONCRETE PAVEMENT
TYPICAL CROSS SECTION
PARKING AREA
(NO SCALE)

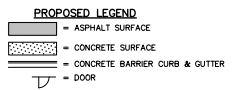


3000 PSI (6 SACK) CONCRETE
BARRIER (MDOT DETAIL F4)
NOT TO SCALE

- SITE MATERIALS NOTES:**
1. ALL MATERIALS AND COMPACTION REQUIREMENTS SHALL MEET MDOT STANDARDS.
 2. ALL CONCRETE CURBING SHALL HAVE A MIN 4" LAYER OF 21AA CRUSHED LESTONE COMPACTED IN PLACE UNDER THE CURB.
 3. ALL MATERIALS ARE TO BE COMPACTED TO THE REQUIREMENTS LISTED IN DIVISION 3 OF THE M.D.O.T. 2020 STANDARD SPECIFICATIONS FOR CONSTRUCTION.
- COMPACTION NOTE:**
USE OF NUCLEAR DENSITY GAUGE REQUIRES MEASURING THE PAVEMENT DENSITY USING THE THEORETICAL MAXIMUM SPECIFIC GRAVITY (G_{mm}) FROM THE JOB MIX FORMULA (JMF) FOR THE DENSITY CONTROL TARGET. THE REQUIRED IN-PLACE DENSITY OF THE HOT MIX ASPHALT (HMA) MIXTURE MUST BE 92.0 TO 98.0 PERCENT OF THE DENSITY CONTROL TARGET. NUCLEAR TESTING AND FREQUENCY WILL BE IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF TRANSPORTATION (MDOT) DENSITY AND INSPECTION MANUAL.
- PROOF ROLL NOTE:**
COMPLETE A PROOF ROLL USING EQUIPMENT APPROVED BY THE ENGINEER. THE ENGINEER WILL WITNESS AND DOCUMENT THE PROOF ROLL AND DETERMINE THE PROPER COURSE OF ACTION TO CORRECT ANY OBSERVED RUTTING OR DISPLACEMENT.



- PROPOSED PAVEMENT MARKINGS
4" YELLOW WATERBORNE PAINT
 - PROPOSED BARRIER CURB (MDOT DETAIL F4), 14 LF
 - PROPOSED SAWCUT CONTROL JOINT SEE DETAIL
 - PROPOSED CONCRETE PAVEMENT, 3,659 SF
- THE UNDERGROUND CONTRACTOR SHALL CALL THE DPS/INSPECTION LINE (248-841-2510) 1 WEEK PRIOR TO RELOCATING THE CATCHBASIN.



PROPOSED LEGEND

BOUNDARY INFORMATION AND LOCATION OF EXISTING FEATURES PER RECORD DRAWINGS. A BOUNDARY SURVEY HAS NOT BEEN PERFORMED. TOPOGRAPHICAL INFORMATION FOR OAKLAND COUNTY QS.

Know what's below.
Call before you dig.



CITY FILE #24-0378 SECTION #21

LEGEND

○ = LIGHT POLE	⊙ = SPOT ELEV.	TC = TOP OF CURB	— — — = GRAVEL	— — — = EXISTING STORM
⊙ = UTILITY POLE	⊙ = POST	TW = TOP OF WALL	— — — = FENCE	— — — = EXISTING SANITARY
⊙ = GUY ANCHOR	⊙ = GATE VALVE	○ = MANHOLE	— — — = CONCRETE	— — — = EXISTING WATER
⊙ = HYDRANT	— — — = END SECTION	⊙ = CATCHBASIN	— — — = ASPHALT	— — — = EXISTING GAS
				— — — = EXISTING ELECTRIC
				— — — = EXISTING TELEPHONE

OAKLAND COUNTY SOIL SURVEY CLASSIFICATION

10B - MARLETTE SANDY LOAM, 1 TO 6 PERCENT SLOPES

12 - BROOKSTON AND COLWOOD LOAMS

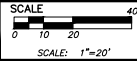
• • • • • = SOILS BOUNDARY

SOILS ARE BASED ON USDA SOIL SURVEY OF OAKLAND COUNTY.

BENCHMARK *BM1*-SCRIBED "X" ON LIGHT POLE BASE IN PARKING LOT ISLAND, WEST OF TRAINING TOWER AND SOUTH OF FIRE STATION. ELEV=794.86 (NAUGRS).

BM2-TOP OF FLAG POLE BASE, EAST OF FIRE STATION AND NORTH OF BARRIER FREE PARKING. ELEV=800.59 (NAUGRS).

REVISIONS 1-3-25 FOR PLANNING COMMISSION REVIEW.



PREPARED BY: *Joseph K. Maynard*
JOSEPH K. MAYNARD P.E., MICH No. 52559



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TRAINING TOWER AREA SITE PLAN

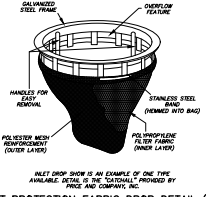
FIRE STATION NO. 1 1111 HORIZON CT TRAINING TOWER

PROJECT: FIRE STATION NO. 1
SHEET: 11 OF 11
TOWN: 3 NORTH RANGE: 11 EAST
CITY OF ROCHESTER HILLS
1111 HORIZON CT
ANN ARBOR, MI 48106
DATE: 1-3-2022
DWG NO.: 24-0378-016
FIELD BOOK: C3.1
FIELD NO.: 10859

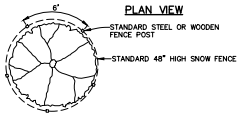
THE ENGINEER SHALL BE RESPONSIBLE FOR OBTAINING NECESSARY PERMITS AND CONDUCTING NECESSARY SURVEYS, INCLUDING BUT NOT LIMITED TO, THE OBTAINING OF NECESSARY PERMITS AND CONDUCTING NECESSARY SURVEYS, INCLUDING BUT NOT LIMITED TO, THE OBTAINING OF NECESSARY PERMITS AND CONDUCTING NECESSARY SURVEYS...



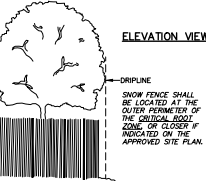
VICINITY MAP (NO SCALE)



INLET PROTECTION FABRIC DROP DETAIL (S58t) (NOT TO SCALE)



PLAN VIEW



ELEVATION VIEW

TREE PROTECTION FENCING (NOT TO SCALE)

OAKLAND COUNTY SOIL SURVEY CLASSIFICATION
10B - MARLETTE SANDY LOAM, 1 TO 4 PERCENT SLOPES
12 - BROOKSTON AND COLUMBIA LOAMS
SOILS ARE BASED ON USDA SOIL SURVEY OF OAKLAND COUNTY.

MAINTENANCE SCHEDULE DURING CONSTRUCTION

Tasks	Storm Sewer System	Catch Basin Bumps	Catch Basin Inlet Casings	Ditches and Swales	Outflow Control Structures	Rip-Rap	Filtration Basins	Storm Detention Areas	Emergency Overflows	Scheduled Frequency
Inspect for Sediment Accumulation	X	X	X	X	X	X	X	X	X	Weekly
Removal of Sediment Accumulation	X	X	X	X	X	X	X	X	X	As Needed & prior to turnover
Inspect for floatables and debris				X	X	X	X	X	X	Quarterly
Cleaning of floatables and debris				X	X	X	X	X	X	Quarterly & after turnover
Inspect for erosion				X	X	X	X	X	X	Weekly
Inspect following storms of 1 inch or more				X	X	X	X	X	X	As Needed
Re-establish permanent vegetation on eroded slopes				X	X	X	X	X	X	As Needed & at turnover
Replacement of stone				X	X	X	X	X	X	As Needed prior to turnover
Cleaning				X	X	X	X	X	X	0-2 Times per year
Inspect stormwater system components during wet weather and compare to as-built plans by professional engineer				X	X	X	X	X	X	Annually and at turnover
Make adjustments or replacements as determined by annual wet weather inspection				X	X	X	X	X	X	As Needed

(1) As Needed for removal of sediment accumulation means when sediment has accumulated to a maximum of one foot. During construction, it is the developer's responsibility to perform the maintenance.

(2) As Needed for removal of sediment accumulation means when sediment has accumulated to a maximum of one foot. Following construction, it will be the responsibility of the owner, CITY OF ROCHESTER HILLS, to perform the maintenance.

MAINTENANCE SCHEDULE AFTER CONSTRUCTION (PERMANENT)

Tasks	Catch Basin Inlet Casings	Ditches and Swales	Outflow Control Structure	Rip-Rap	Filtration Basins	Storm Detention Areas	Emergency Overflow	Schedule
Inspect for Sediment Accumulation	X	X	X	X	X	X	X	Annually
Removal of Sediment Accumulation	X	X	X	X	X	X	X	Every 2 Years As Needed
Inspect for floatables and debris	X	X	X	X	X	X	X	Annually
Cleaning of floatables and debris	X	X	X	X	X	X	X	Annually
Inspect for erosion	X	X	X	X	X	X	X	Annually
Re-establish permanent vegetation on eroded slopes	X	X	X	X	X	X	X	As Needed
Replacement of stone	X	X	X	X	X	X	X	As Needed
Clean Streets	X	X	X	X	X	X	X	Semi-Annually
Mowing	X	X	X	X	X	X	X	0-2 Times per year
Inspect stormwater system components during wet weather and compare to as-built plans by professional engineer	X	X	X	X	X	X	X	Annually
Inspect following storms of 1 inch or more	X	X	X	X	X	X	X	As Needed
Make adjustments or replacements as determined by annual wet weather inspection	X	X	X	X	X	X	X	As Needed

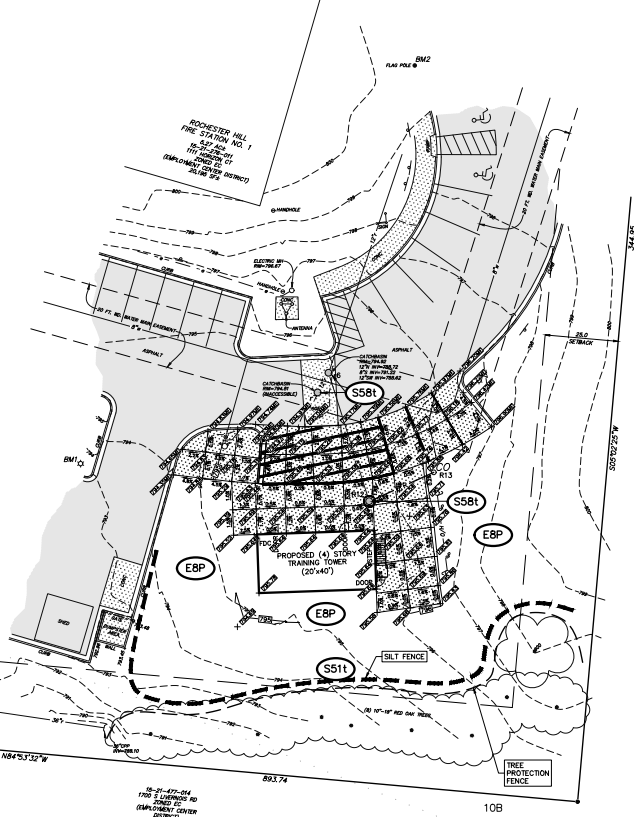
Keep records of all inspections and maintenance activities
Keep records of all costs for inspections, maintenance and repairs.
(1) As Needed for removal of sediment accumulation means when sediment has accumulated to a maximum of one foot. Following construction, it will be the responsibility of the owner, CITY OF ROCHESTER HILLS, to perform the maintenance. No chemicals are allowed in stormwater features or buffer zones with the following exception: invasive species may be treated with chemicals by a certified applicator. Mowing is only allowed once per year.

The owner, CITY OF ROCHESTER HILLS, is required to pay for all maintenance activities on a continuing basis.

CLIENT: Fire Station #1111 Horizon Ct, Training Tower
LOCATION: 1111 Horizon Ct, City of Rochester Hills, Michigan 48309
JOB #: 3146
DESIGNED BY: S&S
ESTIMATED COST: \$22,000.00

ANNUAL MAINTENANCE BUDGET (PERMANENT)

Item No.	Description	Annual Cost
1	Annual inspection for sediment accumulation	\$100.00
2	Removal of sediment accumulation every 2 years as needed	\$500.00
3	Inspect for floatables & debris annually and after major storms	\$100.00
4	Removal of floatables and debris annually and after major storms	\$150.00
5	Inspect for erosion annually and after major storms	\$150.00
6	Re-establish permanent vegetation on eroded slopes as needed	\$350.00
7	Replacement of stone as needed	\$600.00
8	Mowing 0-2 times per year	\$300.00
9	Inspect structural elements during wet weather and compare to as-built plans every 2 years	\$150.00
10	Make structural adjustments or replacements as determined by inspection as needed	\$400.00
11	Have a professional engineer carry out emergency inspections upon identification of severe problems	\$200.00
12	Records Maintenance	\$100.00
Estimated Annual Maintenance Cost		\$3,000.00



MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET
S-F-S-C KEYING SYSTEM

KEY	BEST MANAGEMENT PRACTICE	SYMBOL	WHERE USED
EB	PERMANENT SEDG	[Symbol]	Stabilize method utilized on sites where steep has been corrected (No grading allowed)
S5t	SILT FENCE	[Symbol]	Use adjacent to critical areas to prevent sediment load from entering trees area.
S58	NET PROTECTION	[Symbol]	Use at stormwater inlets, readily of conductive sites.

— = LIMITS OF CONSTRUCTION
— = SILT FENCE
— = TREE PROTECTION FENCE
— = FLOW ARROW
○ = INLET FILTER

CONSTRUCTION SEQUENCE:

1. ALL CONSTRUCTION TO BE FINIALIZED BY CONTRACTOR PRIOR TO CONSTRUCTION.
1. SOIL EROSION CONTROL, PRE-GRADING MEETING.
2. INSTALL SILT FENCE, INLET FILTERS, TREE PROTECTION FENCING.
3. REMOVE ALL BRUSH AND TREES LESS THAN 6 INCH DIAMETER.
4. REMOVE SEDIMENT FROM STORM WATER MANAGEMENT SYSTEM.
5. REMOVE ALL TEMPORARY SOIL EROSION CONTROL MEASURES ONCE SITE IS STABILIZED.

CONSTRUCTION NOTES:

1. ALL CONSTRUCTION TO BE FINIALIZED BY CONTRACTOR PRIOR TO CONSTRUCTION.
2. ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE CURRENT MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
3. THE CONTRACTOR IS RESPONSIBLE TO ACQUIRE ALL REQUIRED PERMITS FOR THIS PROJECT.
4. EXCESS MATERIAL IS TO BE REMOVED PROMPTLY FROM THE SITE.

SOIL EROSION CONTROL NOTES:

1. TOTAL AREA OF PARCEL IS 5.278 ACRES.
2. AREA OF PROPOSED EARTH DISRUPTION IS 0.022 ACRES ROUNDED UP TO 1 ACRE.
3. DISTURBED AREA NOT IN A 100 YEAR FLOOD PLAN.
4. ALL PERMANENT EROSION CONTROL DEVICES AND STORM WATER MANAGEMENT SYSTEMS IS TO BE MAINTAINED BY THE OWNER.
5. NO TOPSOIL MATERIAL IS TO BE STORED ON-SITE.
6. STABILIZATION MUST BE STARTED WITHIN FIVE(5) DAYS OF FINAL GRADE. USE 4 INCHES OF TOPSOIL MINIMUM.
7. NO DETERIORATING IS EXPECTED AS PART OF THIS PROJECT.

LEGEND
○ = LIGHT POLE
● = UTILITY POLE
□ = GUY ANCHOR
◆ = HYDRANT
— = SPOT ELEV.
— = POST
○ = MANHOLE
□ = CATCHBASIN
— = END SECTION

GRAVEL
CONCRETE
ASPHALT
EXISTING STORM
EXISTING SANITARY
EXISTING WATER
EXISTING GAS
EXISTING ELECTRIC
EXISTING TELEPHONE

BENCHMARK BMT-588828 'X' ON LIGHT POLE BASE IN PARKING LOT ISLAND, WEST OF TRAINING TOWER AND SOUTH OF FIRE STATION. ELEV=724.96 (NAUGHS)
END-TO-END FLAG POLE BASE, EAST OF FIRE STATION AND NORTH OF BARRIER FREE PARKING. ELEV=800.59 (NAUGHS)

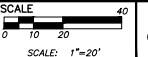
REVISONS 1-3-25 FOR PLANNING COMMISSION REVIEW.

PROPOSED GRADING LEGEND

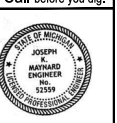
[Symbol]	PROPOSED 1 FT. CONTOUR
[Symbol]	PROPOSED 5 FT. CONTOUR
[Symbol]	SLOPE
[Symbol]	MATCH EXISTING ELEVATION
[Symbol]	PROPOSED FINISHED GRADE ELEVATION

PROPOSED LEGEND
[Symbol] = ASPHALT SURFACE
[Symbol] = CONCRETE SURFACE
[Symbol] = CONCRETE BARRIER CURB & GUTTER
[Symbol] = DOOR

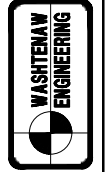
CITY FILE #24-0378 SECTION #21



PREPARED BY: JOSEPH K. MAYNARD P.E., MICH NO. 52559



DIV. ENGINEERS & ARCHITECTS
LANDSCAPE ARCHITECTS
3026 W. LIBERTY RD.
DETER, MI 48309-0703
ANN ARBOR, MI 48103
TEL. 734-791-8800



A.R. BROUWER
COMPUTER A.I.C.
26025 W. 100th ST.
DETER, MI 48309-0703
WWW.ARBROUWER.COM

TRAINING TOWER AREA
GRADING & SOIL
EROSION CONTROL PLAN

FIRE STATION NO. 1
1111 HORIZON CT
TRAINING TOWER

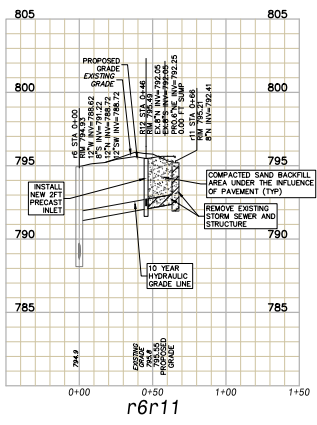
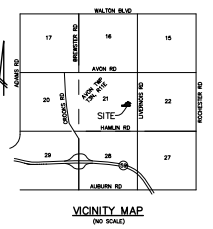
PROJECT: NORTH
RANGE: 11
EAST
CITY OF ROCHESTER HILLS
COMMISSION NO. 3146
DATE: 1-3-2022
JOB NO. 442-20-297
FIELD NO. _____
SHEET NO. 106999

C4.0

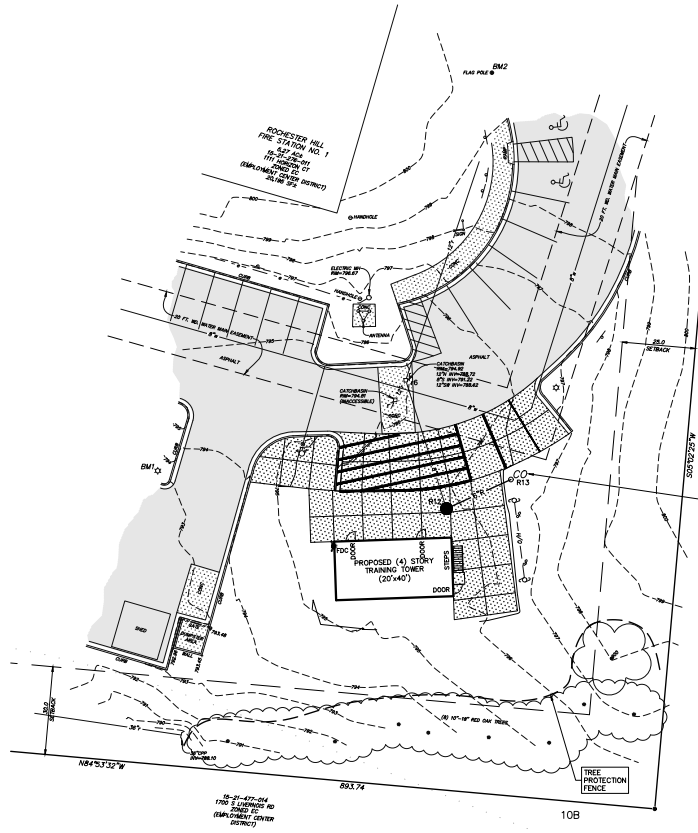
THE ENGINEER HAS CONDUCTED VISUAL INSPECTIONS OF THE PROPOSED PROJECT AND HAS FOUND NO OBVIOUS CONFLICTS WITH EXISTING UTILITIES. HOWEVER, THE ENGINEER HAS NOT CONDUCTED A FIELD SURVEY TO VERIFY THE LOCATION AND DEPTH OF EXISTING UTILITIES. THE ENGINEER HAS NOT CONDUCTED A FIELD SURVEY TO VERIFY THE LOCATION AND DEPTH OF EXISTING UTILITIES. THE ENGINEER HAS NOT CONDUCTED A FIELD SURVEY TO VERIFY THE LOCATION AND DEPTH OF EXISTING UTILITIES.

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STORM SEWER STRUCTURE SCHEDULE						
Structure Name	Structure Type Frame, Cover and Size	Rim Elevation	Inverts	Pipe Size	Structure Depth	Comments
R12	2' PRECAST INLET LIN 10x12 FRAME TYPE M3 ADA GRATE	795.49	N 792.05 N 792.05	8 INCH	3.4'	0.00' SUMP
R13	CLEANOUT	796.61	SW 792.49	6 INCH	4.5'	0.46' SUMP



ONCE 6" LINE IS LOCATED A CLEANOUT SHALL BE PLACED AT BEND TO CONNECT TO NEW STORM STRUCTURE. LOCATED CLEANOUT OUTSIDE OF NEW CONCRETE PAD.

THE UNDERGROUND CONTRACTOR SHALL CALL THE OPENING INSPECTION LINE (248-841-2510), 1 WEEK PRIOR TO RELIGATING THE CATCHBASIN.

OAKLAND COUNTY SOIL SURVEY CLASSIFICATION
 10B - MARLETTE SANDY LOAM, 1 TO 6 PERCENT SLOPES
 12 - BROOKSTON AND COLWOOD LOAMS

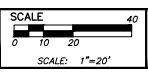
- LEGEND**
- = LIGHT POLE
 - ⊙ = UTILITY POLE
 - ⊕ = GUY ANCHOR
 - ⊖ = HYDRANT
 - ⊙ = SPOT ELEV.
 - ⊙ = POST
 - ⊙ = GATE VALVE
 - ⊖ = SIGN
 - TC = TOP OF CURB
 - TW = TOP OF WALL
 - = MANHOLE
 - ⊙ = CATCHBASIN
 - ⊖ = END SECTION
 - — — = GRAVEL
 - ▨ = FENCE
 - ▨ = CONCRETE
 - ▨ = ASPHALT
 - — — = EXISTING STORM
 - — — = EXISTING SANITARY
 - — — = EXISTING WATER
 - — — = EXISTING GAS
 - — — = EXISTING ELECTRIC
 - — — = EXISTING TELEPHONE

BENCHMARK BM1 - SCABBED "X" ON LIGHT POLE BASE IN PARKING LOT ISLAND, WEST OF TRAINING TOWER AND SOUTH OF FIRE STATION. ELEV=794.86 (NAVD83).

BM2 - TOP OF FLAG POLE BASE, EAST OF FIRE STATION AND NORTH OF BARRIER FREE PARKING. ELEV=800.59 (NAVD83).

REVISIONS 1-3-25 FOR PLANNING COMMISSION REVIEW.

- PROPOSED UTILITY LEGEND**
- 12" = STORM SEWER
 - = MANHOLE
 - ⊙ = CATCHBASIN
- PROPOSED LEGEND**
- ▨ = ASPHALT SURFACE
 - ▨ = CONCRETE SURFACE
 - ▨ = CONCRETE BARRIER CURB & GUTTER
 - ⊖ = DOOR



PREPARED BY: *Joseph K. Maynard*
 JOSEPH K. MAYNARD P.E., MICH NO. 52559

811
 Know what's below.
 Call before you dig.

BOUNDARY INFORMATION AND LOCATION OF EXISTING FEATURES PER RECORD DRAWINGS. A BOUNDARY SURVEY HAS NOT BEEN PERFORMED. TOPOGRAPHICAL INFORMATION PER OAKLAND COUNTY GIS.

CITY FILE #24-0378 SECTION #21

JOSEPH K. MAYNARD ENGINEER INC. 92519

CLIENT
 A.R. BROUWER COMMUNITY LLC
 260 CENTER ST. #200
 DEWATER, MI 48130
 WWW.ARBROUWER.COM

PROJECT
 FIRE STATION NO. 1
 1111 HORIZON CT
 TRAINING TOWER

SHEET
 TRAINING TOWER AREA
 UTILITY PLAN AND STORM
 SEWER PLAN & PROFILE

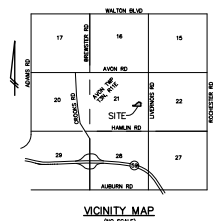
SECTION 21, **TOWN** 3, **NORTH** RANGE 11, **EAST**
 CITY OF ROCHESTER HILLS
 1111 HORIZON CT
 DATE 1-3-2022
 DRAWING NO. 24-0378-01
 FIELD BOOK -
 SHEET C50

DIVISION OF ENGINEERING
 LANDSCAPE ARCHITECTS
 3026 W. LIBERTY RD.
 DEWATER, MI 48130
 ANDY ARONOW, LIC. 48103
 TEL. 734-791-8600

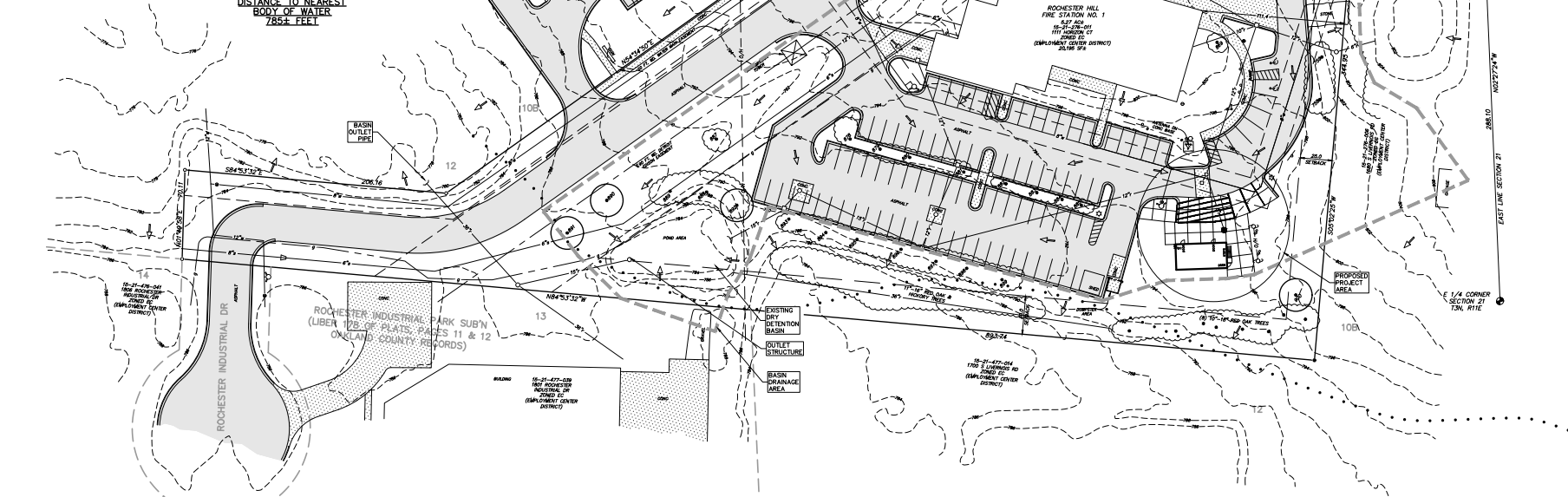
THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OF THE DATA PROVIDED TO THE ENGINEER. THE ENGINEER HAS CONDUCTED VISUAL INSPECTIONS OF THE SITE AND HAS REVIEWED THE RECORD DRAWINGS AND RECORDS OF THE PROJECT. THE ENGINEER HAS CONDUCTED VISUAL INSPECTIONS OF THE SITE AND HAS REVIEWED THE RECORD DRAWINGS AND RECORDS OF THE PROJECT. THE ENGINEER HAS CONDUCTED VISUAL INSPECTIONS OF THE SITE AND HAS REVIEWED THE RECORD DRAWINGS AND RECORDS OF THE PROJECT.

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DISTANCE TO NEAREST BODY OF WATER
785± FEET



OAKLAND COUNTY SOIL SURVEY CLASSIFICATION
 10B - MARLETTE SANDY LOAM, 1 TO 6 PERCENT SLOPES
 12 - BROOKSTON AND COLWOOD LOAMS
 SOILS BOUNDARY
 SOILS ARE BASED ON USDA SOIL SURVEY OF OAKLAND COUNTY.

○ = LIGHT POLE	○ = SPOT ELEV.	TC = TOP OF CURB	- - - = GRAVEL	— = EXISTING STORM
○ = UTILITY POLE	○ = POST	TW = TOP OF WALL	— = FENCE	— = EXISTING SANITARY
○ = GUY ANCHOR	○ = GATE VALVE	○ = MANHOLE	— = CONCRETE	— = EXISTING WATER
○ = HYDRANT	○ = END SECTION	○ = CATCHBASIN	— = ASPHALT	— = EXISTING GAS
				— = EXISTING ELECTRIC
				— = EXISTING TELEPHONE

BENCHMARK BMT-SCRPED "X" ON LIGHT POLE BASE IN PARKING LOT ISLAND, WEST OF TRAINING TOWER AND SOUTH OF FIRE STATION. ELEV=724.86 (NAVD83).
 BMS-TOP OF FLAG POLE BASE, EAST OF FIRE STATION AND NORTH OF BARRIER TREE. PARKING. ELEV=800.59 (NAVD83).

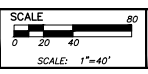
REVISIONS 1-3-25 FOR PLANNING COMMISSION REVIEW.



STORM WATER DRAINAGE NARRATIVE

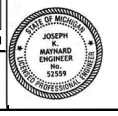
THIS PROJECT IS LOCATED IN THE CITY OF ROCHESTER HILLS AT 1111 HORIZON CT. THE PROJECT SITE IS WEST OF UNDERWOOD RD BETWEEN AVON RD AND HAZLUN RD.
 THE EXISTING SITE IS FULLY DEVELOPED AND HAS A FUNCTIONING DRY DETENTION BASIN AT THE SOUTHWEST CORNER OF THE SITE. ALL ON-SITE STORM WATER IS DIRECTED TO THIS POND. THIS BASIN DISCHARGES TO A 36" STORM SEWER THAT OUTLETS TO THE CLINTON RIVER, APPROXIMATELY 785 LF AWAY TO THE NORTH WEST.
 THERE ARE 5,063 SF OF IMPERVIOUS SURFACE REMOVALS AND 4456 SF OF NEW IMPERVIOUS SURFACES FOR A TOTAL REDUCTION IN THE IMPERVIOUS AREA BY 607 SF. THE PROPOSED PROJECT WILL HAVE NO IMPACT ON THE EXISTING SYSTEM. DRAINAGE FROM NEIGHBORING LOTS DOES NOT GET COLLECTED IN THIS SITE'S STORM SYSTEM. NO CHANGES TO THE EXISTING DETENTION BASIN ARE PROPOSED.
 NO DETRIMENT TO DOWNSTREAM PROPERTIES IS EXPECTED AS PART OF THIS PROJECT.

BOUNDARY INFORMATION AND LOCATION OF EXISTING FEATURES PER RECORD DRAWINGS. A BOUNDARY SURVEY WAS NOT PERFORMED. TOPOGRAPHICAL INFORMATION PER OAKLAND COUNTY GIS.



PREPARED BY: JOSEPH K. MAYNARD P.E., MICH No. 52559

CITY FILE #24-0378 SECTION #21



CLIENT
 A.R. BROUWER COMMERCIAL, LLC
 26000 W. HAZARD RD
 ROCHESTER HILLS, MI 48066
 WWW.ARBROUWER.COM

PROJECT
 FIRE STATION NO. 1
 1111 HORIZON CT
 TRAINING TOWER

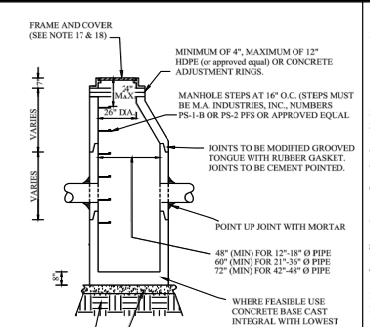
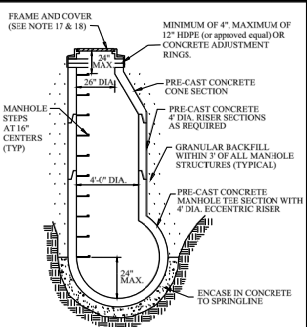
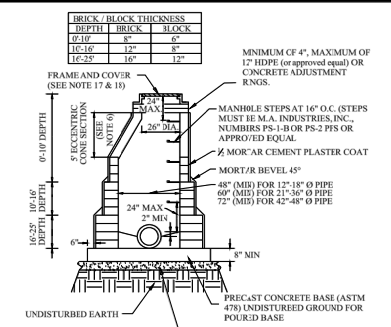
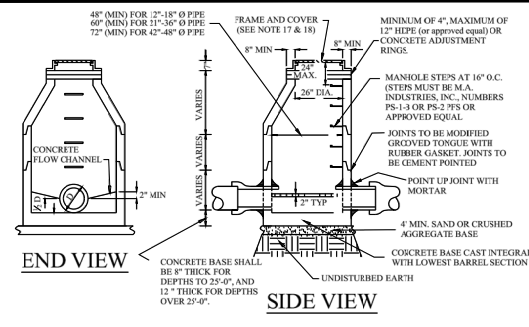
SHEET
 OVERALL SITE DRAINAGE AREAS AND STORM WATER CALCULATIONS

SECTION
 21, TOWN 3, NORTH RANGE 11, EAST CITY OF ROCHESTER HILLS
 1111 HORIZON CT, SECTION 21, TOWNSHIP 3 NORTH, RANGE 11 EAST
 DATE: 1-2-2022 CON. NO. 131428
 FIELD BOOK: - KAS SP-279
 SHEET: C6.0

FILE NO. 108989

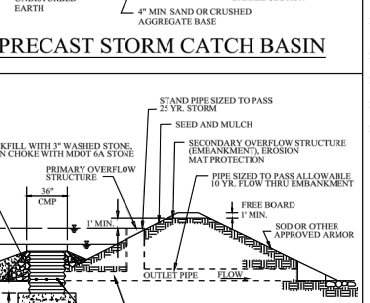
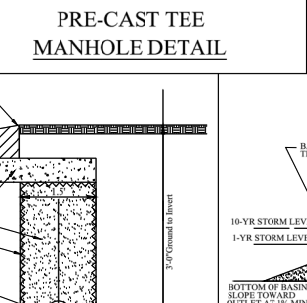
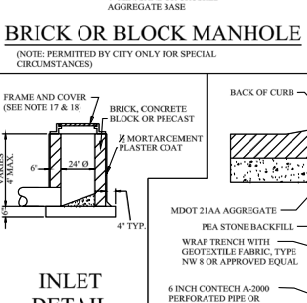
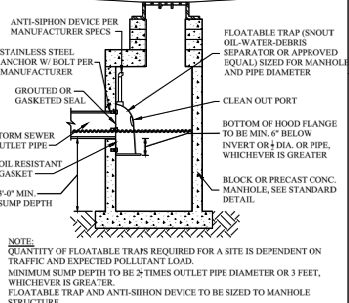
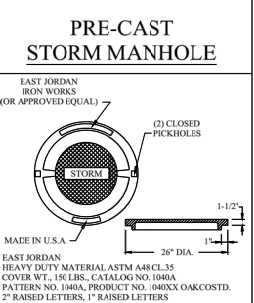
DIVISION
 CIVIL ENGINEERS
 LANDSCAPE ARCHITECTS
 3026 N. LIBERTY RD
 ANN ARBOR, MI 48103
 TEL: 734-761-8800

WASHTENAW ENGINEERING



GENERAL NOTES:

1. ALL EXISTING AND NEW STORM SYSTEMS SHALL BE CLEANED AND FLUSHED ONCE SITE IS 90% BUILT OUT AND VEGETATED. SEDIMENT, ROCK, AND OTHER DEBRIS SHALL BE COLLECTED AND DISPOSED IN A PROPER MANNER. IN NO CASE SHALL DEBRIS BE FLUSHED DOWN A STORM OR SANITARY SEWER FOR DISPOSAL. ALL DAMAGED IRRIGATION AND HOUSE DRAINAGE PIPE, DRAIN TILES, SEWER LATERALS AND CULVERTS SHALL BE REPAIRED EXTHENSIVELY. DEBRIS COLLECTED SHALL BE DISPOSED IN A COMMERCIAL WASTE TREATMENT PLANT OR OTHER APPROVED LOCATION.
2. STORM SEWER PIPE SHALL BE OF SIZE AND TYPE NOTED ON THE APPROVED PLANS.
3. REINFORCED CONCRETE PIPE (RCP) SHALL BE MODIFIED GROOVED TONGUE JOINTS WITH O-RING TYPE RUBBER GASKET, PER ASTM C443.
4. ALL CATCH BASIN LEADS AND INLET LEADS SHALL BE ASTM C76 CLASS IV PIPE.
5. MINIMUM PIPE SIZE FOR SEWERS, CATCH BASIN LEADS, AND INLET LEADS SHALL BE 12\"/>



LETTERED MANHOLE COVER

CATCH BASIN WITH FLOATABLE TRAP

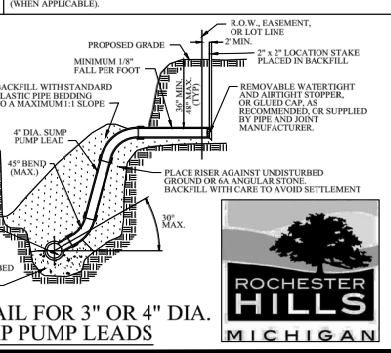
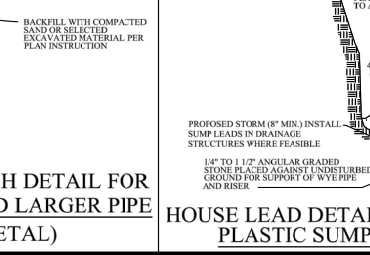
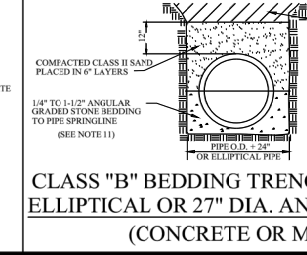
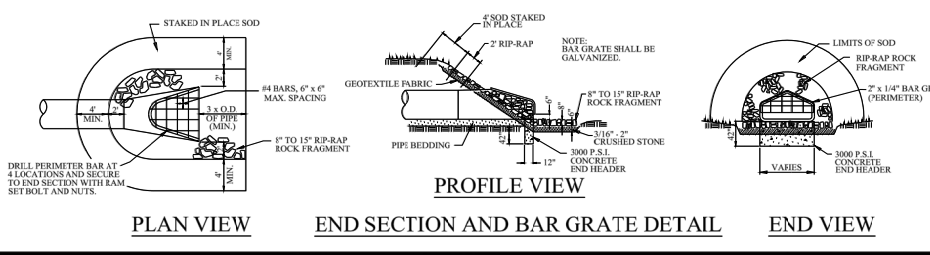
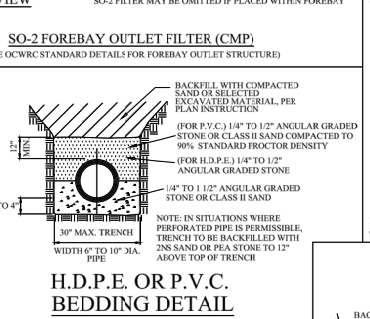
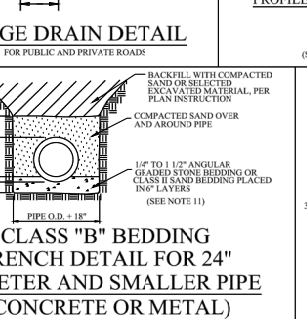
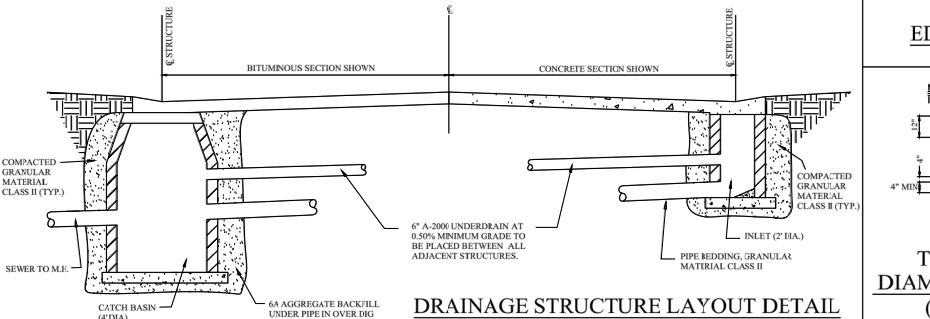
INLET DETAIL

EDGE DRAIN DETAIL

SO-2 FOREBAY OUTLET FILTER (CMP)

COVERS FOR MANHOLES, CATCH BASINS, AND INLETS

17. MANHOLE FRAME AND COVER SHALL BE 1960I TYPE A COVER OR EQUIVALENT.
18. CATCH BASINS AND INLET FRAME AND COVER SHALL BE AS FOLLOWS:
 - a. EI 7046 WITH TYPE M1 GRATE AND 7860 T2 ADJUSTABLE BACK, OR EQUAL, FOR USE WITH CONCRETE CURB AND GUTTER, (STRAIGHT CURB M.D.O.T. F CURB) AND WITH CONCRETE PAVEMENT WITH INTEGRAL CURB.
 - b. EI 706 WITH TYPE M1 GRATE OR EQUAL, FOR USE WITH CONCRETE B-2 MODIFIED CURB AND GUTTER, AND WITH CONCRETE WITH B-2 MODIFIED INTEGRAL CURB.
 - c. EI 706 WITH TYPE M1 GRATE AND 7860 T1 DRIVE OVER CURB BACK, OR EQUAL, FOR USE WITH MOUNTABLE CURB AND GUTTER, AND WITH CONCRETE PAVEMENT WITH MOUNTABLE INTEGRAL CURB.
 - d. EI FRAME 1046 WITH TYPE OVAL GRATE OR TYPE Q2 BEEHIVE GRATE, OR EQUAL, FOR USE ON OPEN DITCH STRUCTURES AND ON CATCH BASINS LOCATED IN SWALS, AND IN EASEMENTS OUTSIDE THE PUBLIC STREET RIGHT-OF-WAY.
 - e. EI FRAME 7045Z WITH TYPE M4 VANT STYLE INLET GRATE (RIGHT HAND FLOW OR LEFT HAND FLOW AND 7060 T1 BACK OR 7060 T2 BACK DEPENDING ON CURB STYLE, OR EQUAL, FOR USE WITH LEAFER BASINS WHICH ARE ON LONGITUDINAL SLOPES OF 4% OR GREATER.
 - f. EI FRAME 5106 WITH TYPE M1 SINUSOIDAL GRATE, OR EQUAL, FOR USE IN NON-CURB PAVEMENT AREAS.



REVISIONS	DATE	APPROVED BY

NOTIFY ROCHESTER HILLS ENGINEERING DEPARTMENT @ 248-841-2510 48 HRS. PRIOR TO START OF CONSTRUCTION

PREPARED BY ENGINEERING DIVISION DEPARTMENT OF PUBLIC SERVICES

City of Rochester Hills
1000 Rochester Hills Drive, Rochester Hills, Michigan 48309

STORM SYSTEM STANDARD DETAILS

NOT TO SCALE DATE: 1/10/2019 SHEET 1 OF 1 C7.0



E:\24084 AR Brouwer - Rochester Hills Fire Training tower6-CAD\Sheets\24084-A-1 EXISTING AND NEW ELEVATIONS.dwg,09.03.05 4:41 PM

CODE SUMMARY		
APPLICABLE CODE:	MICHIGAN BUILDING CODE, 2015 (MBC) MICHIGAN MECHANICAL CODE, 2021 (MMC) MICHIGAN ELECTRICAL CODE, 2023 (MEC), (2023 NEC) MICHIGAN PLUMBING CODE, 2021 (MPC) MICHIGAN INTERNATIONAL FIRE CODE, 2021, (IFC) NFPA 1402, 2019 NFPA 1403, 2018	SECTION
MBC FOR STRUCTURAL COMPONENTS & NFPA 1402 & 1403 FOR DESIGN.		
PROJECT DESCRIPTION:	NEW FIRE TRAINING TOWER (UNOCCUPIED SPACE) NON-SPRINKLERED, NO FIRE ALARM	--
BLDG CLASSIFICATION/USE:	UTILITY (GROUP U) (MOST NEARLY RESEMBLES)	302

24084-A-1

CODE SUMMARY		
DEFINING PROJECT THRU NFPA 1402 - DEFINED AS A "TRAINING PROP" OR "TRAINING STRUCTURE" PER GENERAL DEFINITIONS OF CHAPTER 3.3 OF NFPA 1402.		
BUILDING HEIGHTS & AREAS		504, 506
BUILDING HEIGHTS	PROPOSED 34'-0" 55'-0"	ALLOWED (MBC) T 504.3 T 504.4 T 506.2
STORIES	4	2
BUILDING AREA	1,920 SF	8,500 SF
CONSTRUCTION TYPE:	II-B	602
THE FIRE TRAINING TOWER IS NOT COMPLETELY DEFINED IN THE (MBC) THEREFORE WE HAVE FOLLOWED NFPA 1402 AND 1403 FOR DESIGN PARAMETERS.		

CODE SUMMARY NO SCALE REF'D FROM: TS 13



PROJECT NUMBER 24084

ISSUE	PLANNING COMM.	ADMIN REVIEW
	01/03/25	11/20/24

DRN: KLJ CHKD: FEA

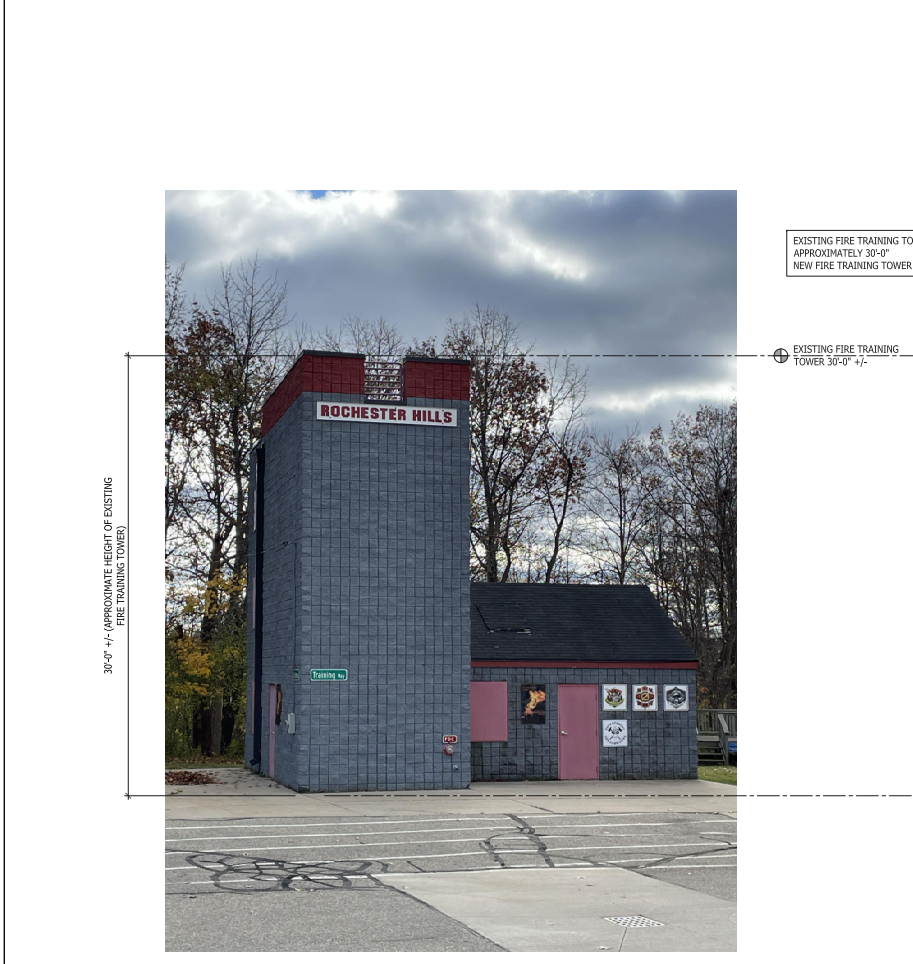
ROCHESTER HILLS -
FIRE STATION 1
FIRE TRAINING TOWER
ROCHESTER HILLS, MI
EXISTING AND NEW ELEVATIONS/
CODE SUMMARY



113 1/2 E. LIBERTY STREET
ANN ARBOR, MI 48104
T: 734-663-1910
F: 734-663-2148
www.a3c.com

SHEET

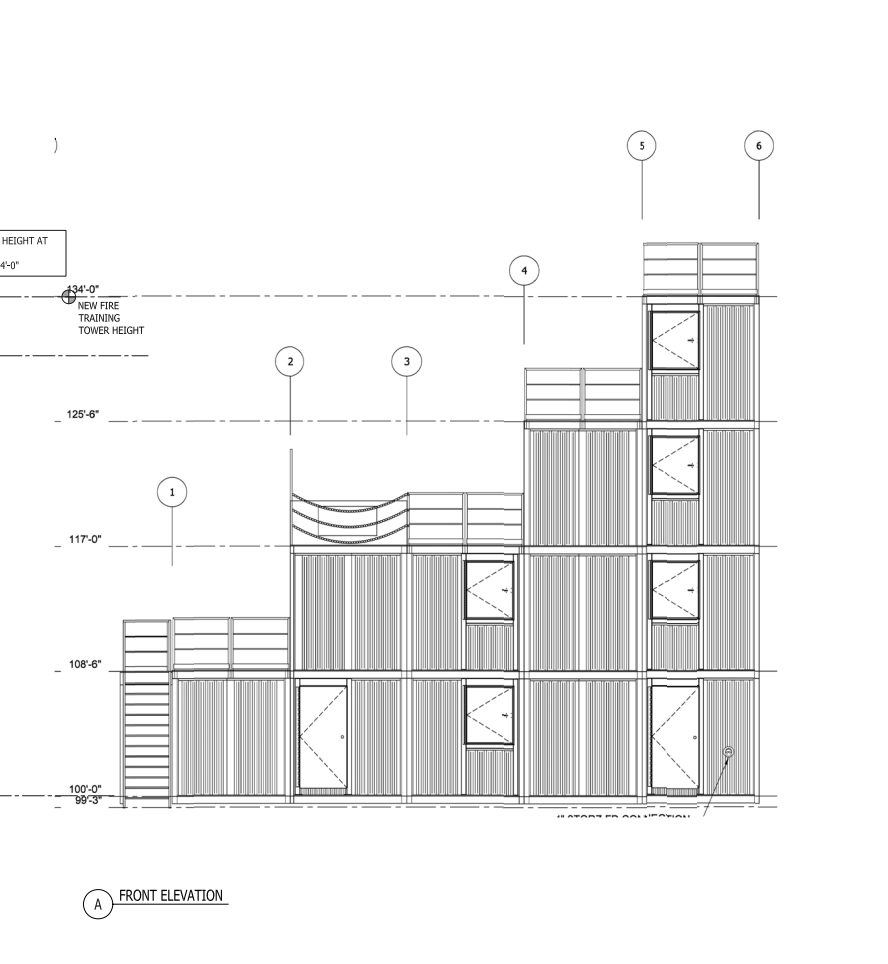
A-1



39'-0" +/- (APPROXIMATE HEIGHT OF EXISTING FIRE TRAINING TOWER)

EXISTING FIRE TRAINING TOWER HEIGHT AT APPROXIMATELY 30'-0"
NEW FIRE TRAINING TOWER AT 34'-0"

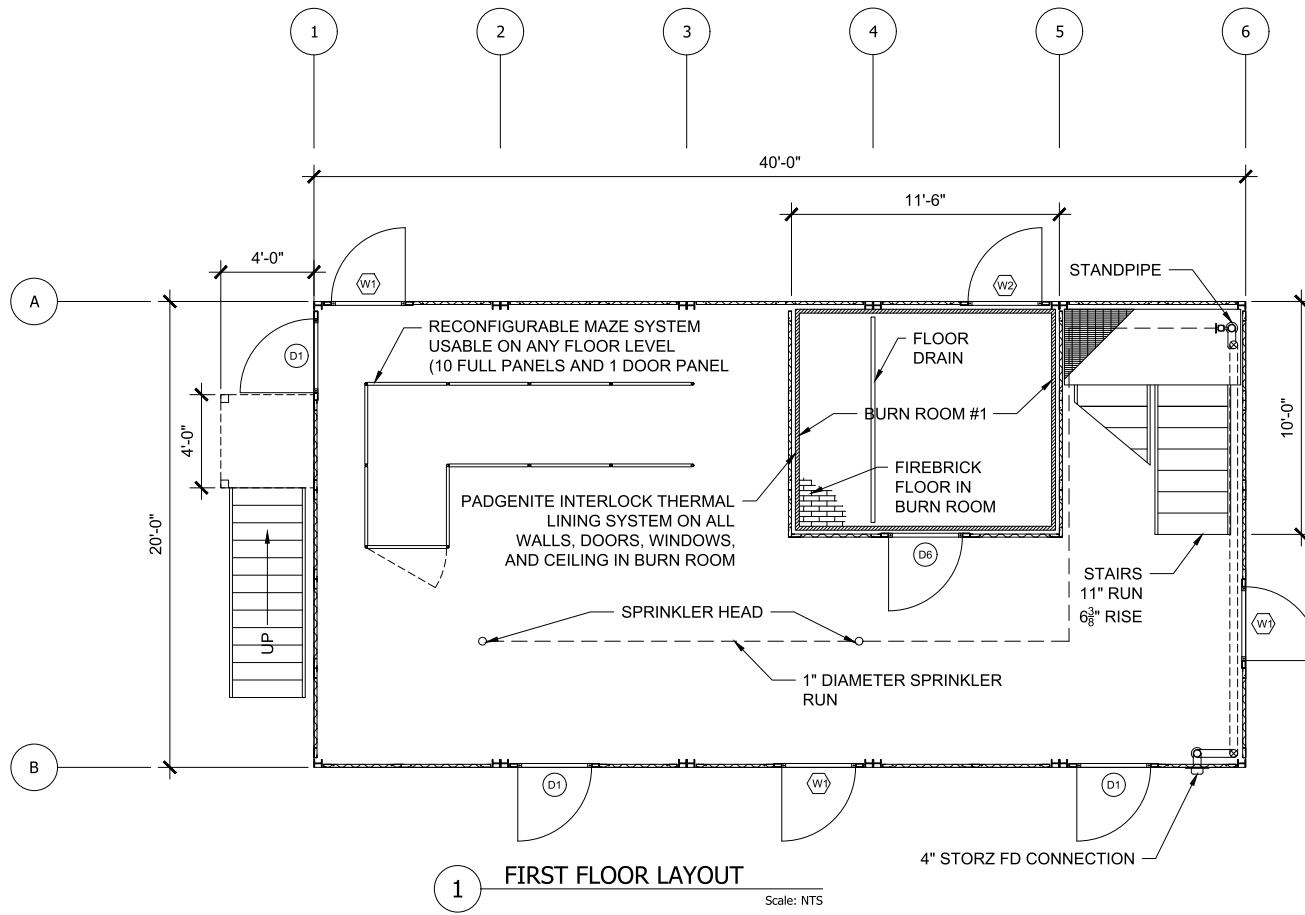
EXISTING FIRE TRAINING TOWER 30'-0" +/-



A FRONT ELEVATION

24084 EE01 EXISTING ELEVATION SCALE: 1/4"=1'-0" REF'D FROM: TS 3

24084 EE02 NEW ELEVATION SCALE: 1/4"=1'-0" REF'D FROM: TS 1



WHP
 A DIV. OF JAHNKE AND SONS CONSTRUCTION, INC.
 579 BUCK RD GRANDVIEW, MD 21030
 TEL: 410-362-5465 info@jahne.com
 TOLL FREE: 1-800-351-5257 www.jahne.com

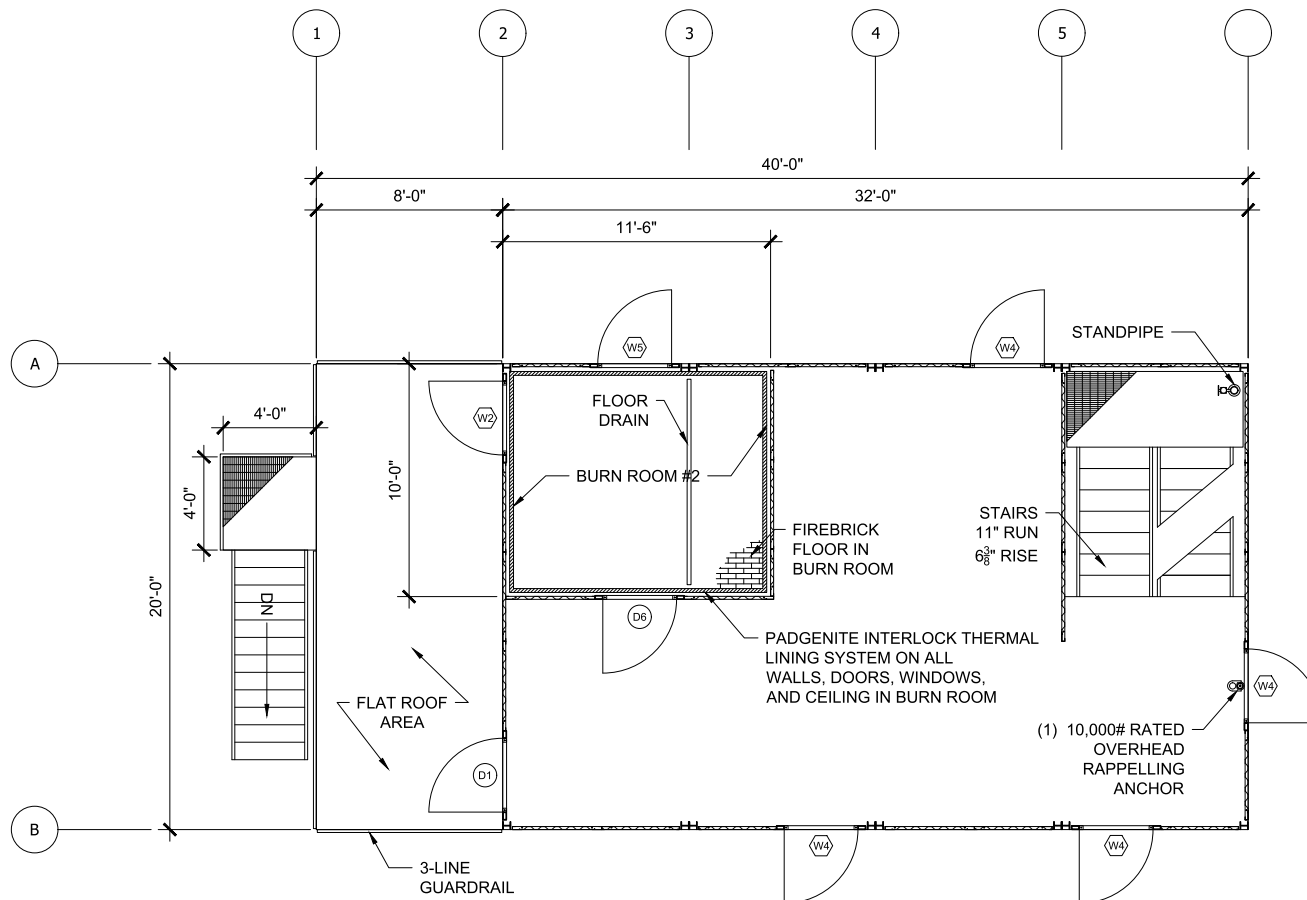
CUSTOM MODx - O
FIRE TRAINING SIMULATOR
 ROCHESTER HILLS FIRE DEPARTMENT TRAINING SIMULATOR

MODULAR BUILDING
 PROTECTED BY
 U.S. Pat. No. 11,276,323

THESE DRAWINGS, SPECIFICATIONS, IDEAS, DESIGNS, AND ARRANGEMENTS ARE AND SHALL REMAIN THE PROPERTY OF JAHNKE AND SONS CONSTRUCTION AND NO PART THEREOF SHALL BE COPIED, REPRODUCED, OR DISTRIBUTED WITHOUT WRITTEN CONSENT OF JAHNKE AND SONS CONSTRUCTION.

PROJECT NUMBER	DATE	DESCRIPTION
02-11-2001	1	DESIGN
	2	REVISED
	3	REVISED
	4	REVISED
	5	REVISED
	6	REVISED

FIRST FLOOR PLANS



2 SECOND FLOOR LAYOUT
Scale: NTS

WHP
 A DIV. OF JAHNKE AND SONS CONSTRUCTION, INC.
 579 DICK RD GRANDVIEW, MD 21040
 TEL: 410-342-5465 info@jahneandsons.com
 TOLL FREE: 1-800-351-5257 www.jahneandsons.com

**CUSTOM MODx - O
 FIRE TRAINING SIMULATOR**
 ROCHESTER HILLS FIRE DEPARTMENT TRAINING SIMULATOR

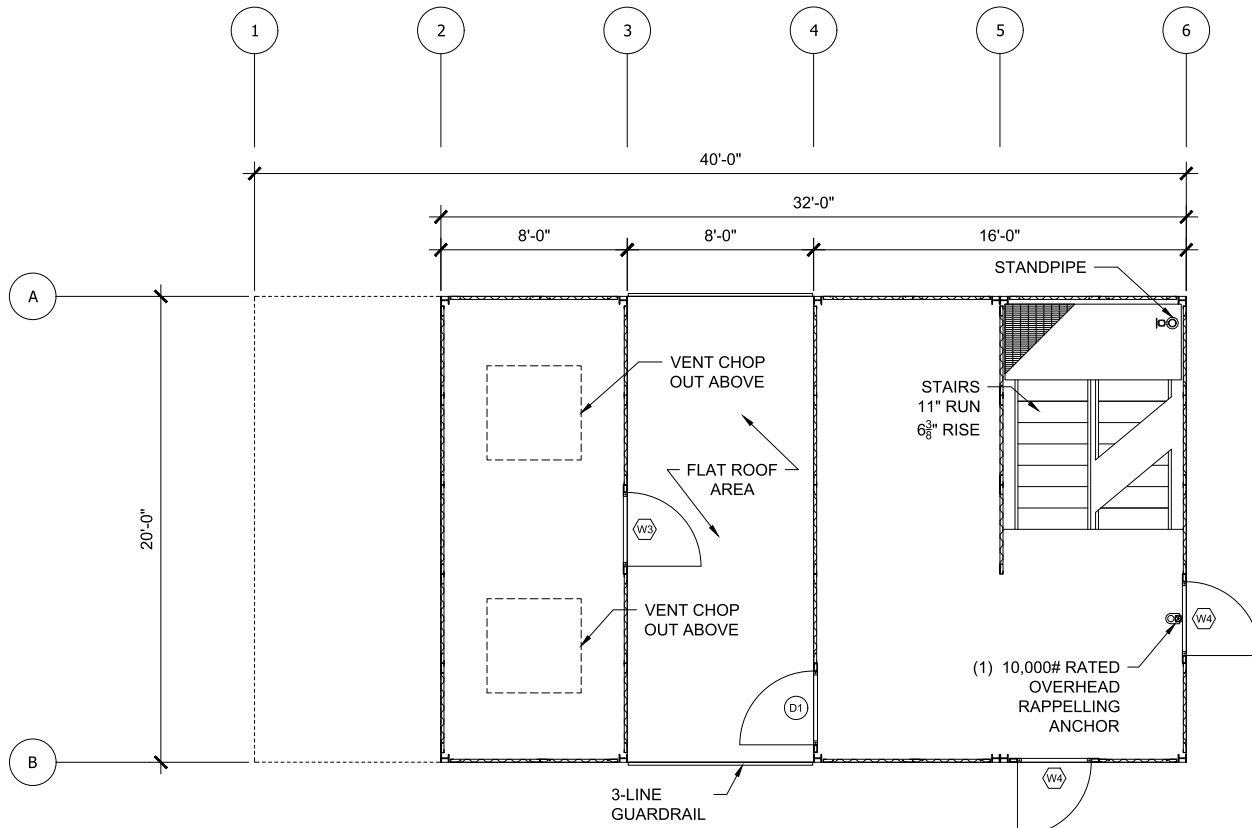
MODULAR BUILDING
 PROTECTED BY
 U.S. Pat. No. 11,276,323

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 WITHOUT WRITTEN CONSENT OF
 JAHNKE AND SONS CONSTRUCTION.

PROJECT NUMBER	DATE	DESCRIPTION
02-01-0001	11/11/2001	ISSUE DATE
PROJECT NUMBER	DATE	DESCRIPTION
02-01-0001	11/11/2001	ISSUE DATE
02-01-0001	11/11/2001	ISSUE DATE
02-01-0001	11/11/2001	ISSUE DATE

SECOND FLOOR PLANS

2



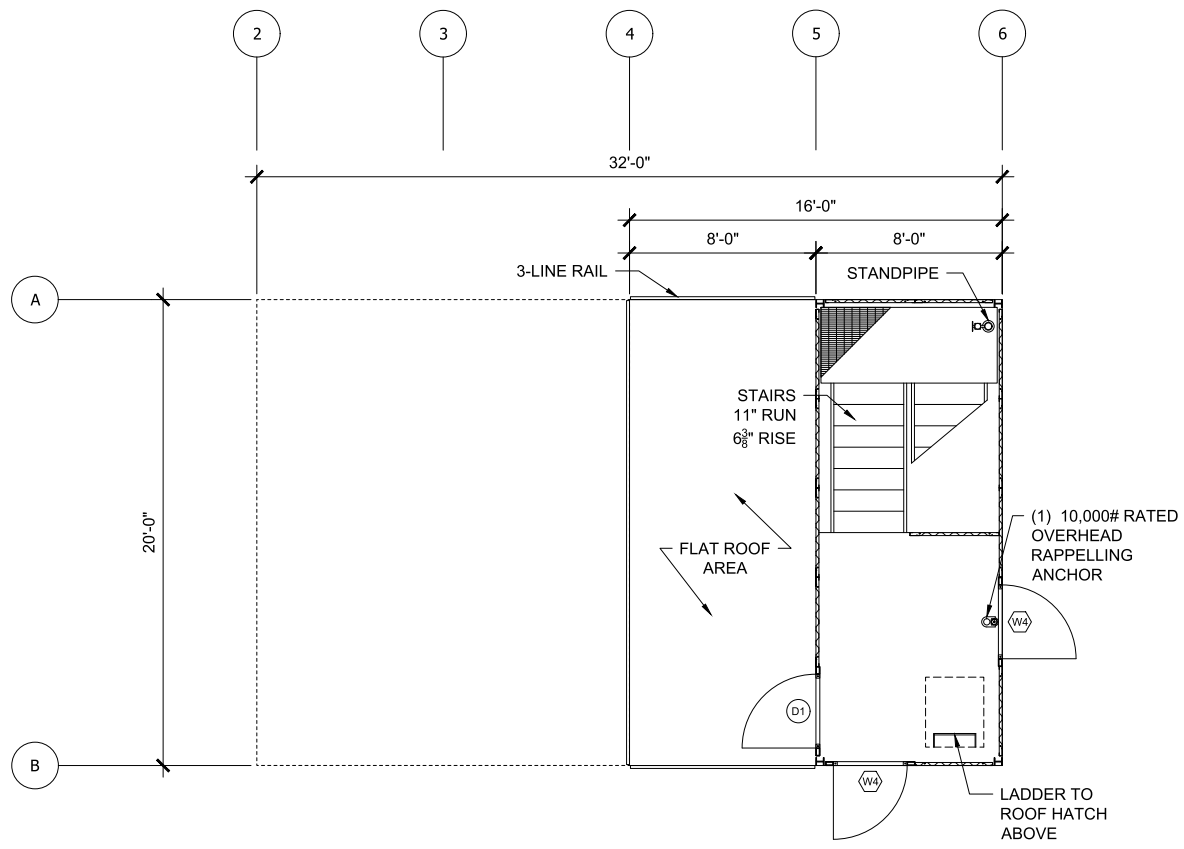
3 THIRD FLOOR LAYOUT
Scale: NTS

CUSTOM MODx - O
FIRE TRAINING SIMULATOR
 ROCHESTER HILLS FIRE DEPARTMENT TRAINING SIMULATOR

MODULAR BUILDING
 PROTECTED BY
 U.S. Pat. No. 11,276,323

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 CONSTRUCTION AND NO PART
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 REPRODUCED, OR DISTRIBUTED
 WITHOUT WRITTEN CONSENT OF
 JAHNKE AND SONS CONSTRUCTION.

PROJECT NUMBER	DATE	DESCRIPTION
03-01-0001	11/11/2003	DESIGN TAKE
PROJECT REVISION	BY	DATE
1	AM	2
2	AM	2
3	AM	2
4	AM	2
5	AM	2
6	AM	2
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8	AM	2
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39	AM	2
40	AM	2
41	AM	2
42	AM	2
43	AM	2
44	AM	2
45	AM	2
46	AM	2
47	AM	2
48	AM	2
49	AM	2
50	AM	2



4 FOURTH FLOOR LAYOUT
 *OPTIONAL Scale: NTS



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CUSTOM MODx - O
FIRE TRAINING SIMULATOR

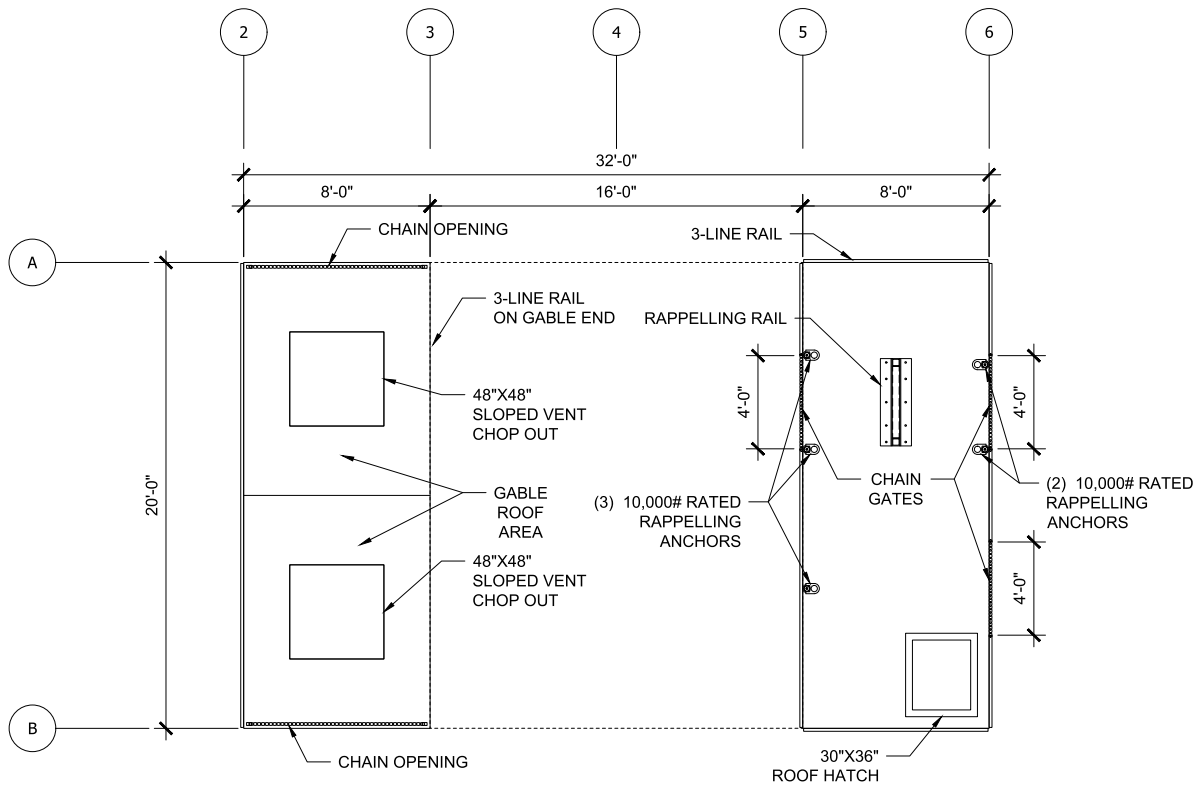
ROCHESTER HILLS FIRE DEPARTMENT TRAINING SIMULATOR

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PROJECT NUMBER	DATE	DESCRIPTION
02-W-0001	11/11/11	ISSUE FOR PERMIT
	12/15/11	REVISED
	01/10/12	REVISED
	02/01/12	REVISED
	02/01/12	REVISED

FOURTH FLOOR PLANS
 *OPTIONAL



5 ROOF LAYOUT
Scale: NTS



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**CUSTOM MODx - O
 FIRE TRAINING SIMULATOR**

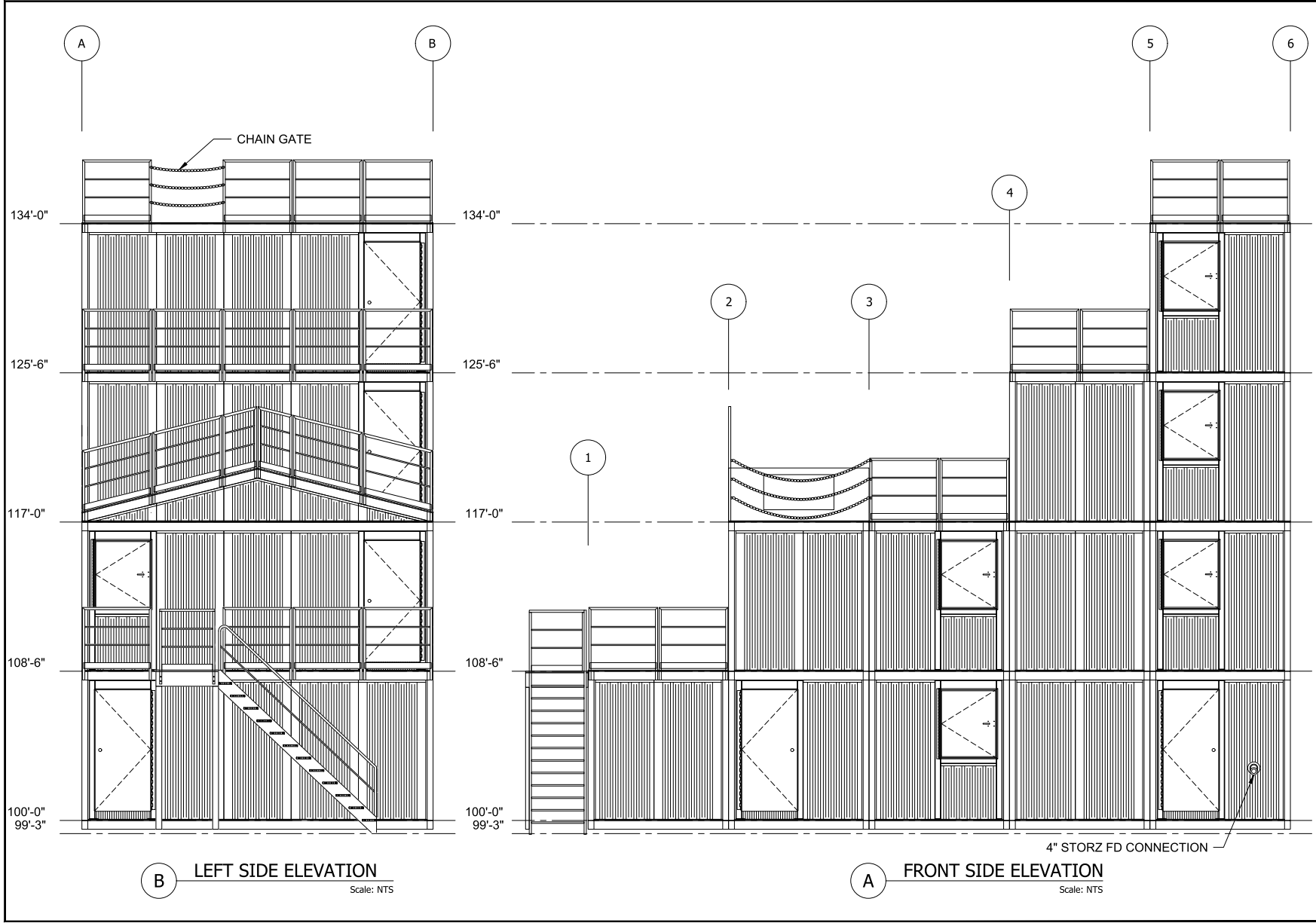
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PROJECT NUMBER	DATE	DESCRIPTION
1000000000	11/11/2011	1
		2
		3
		4
		5
		6

ROOF FLOOR PLANS



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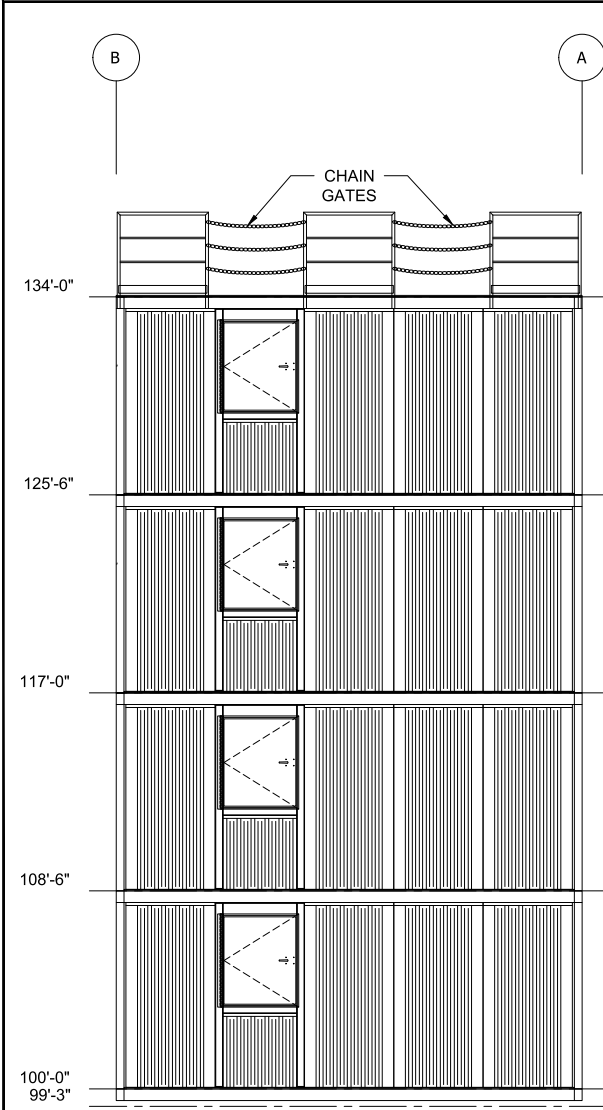
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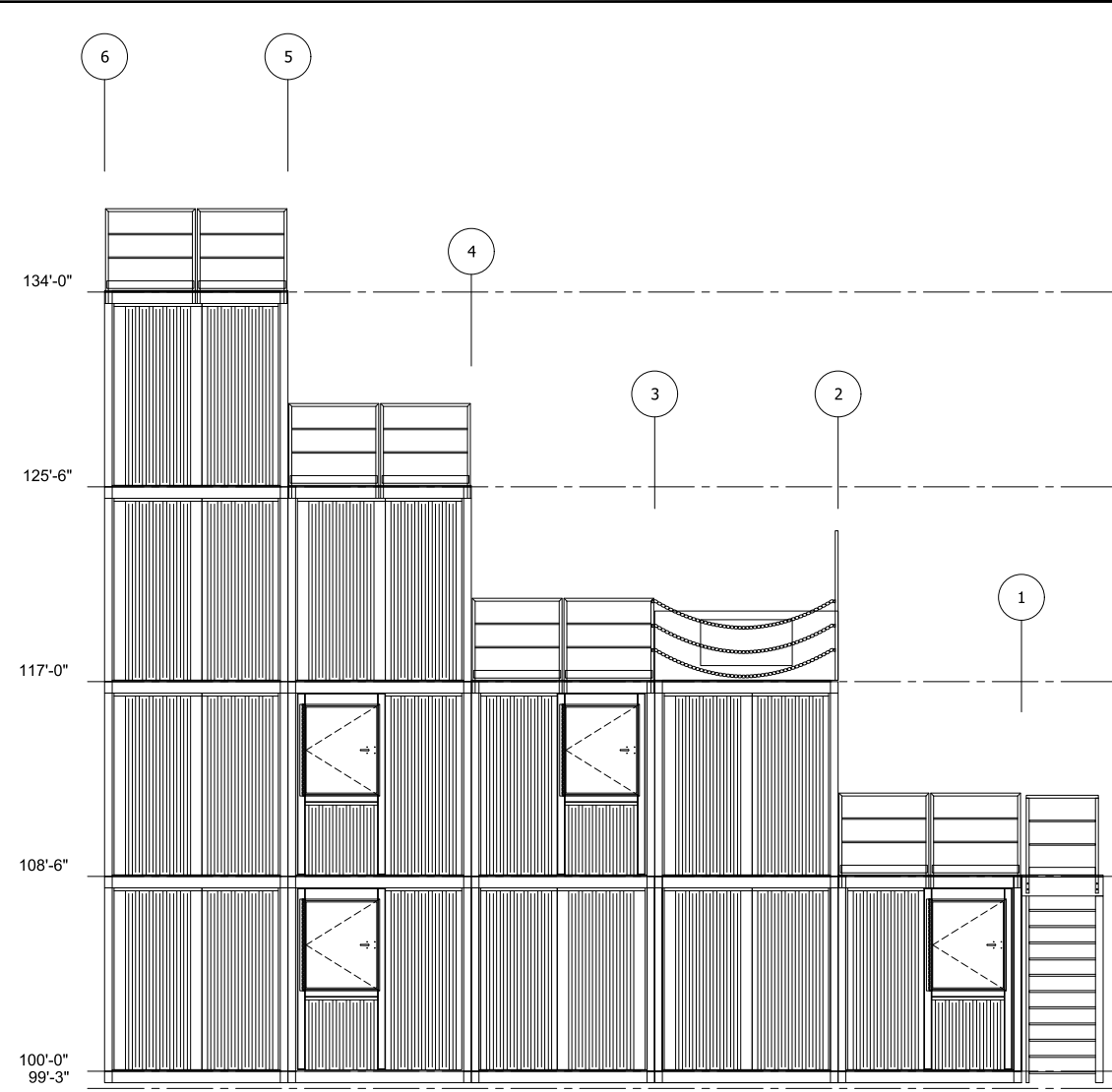
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PROJECT NUMBER	DATE	DESCRIPTION
02-W-0001	11-11-11	DESIGN TAKE
PROJECT REVISION	1	
DRAWN BY:	JM	2
CHECKED BY:	PC	3
DATE PLOTTED:	12-16-11	4

FRONT SIDE AND LEFT SIDE
 ELEVATIONS



D RIGHT SIDE ELEVATION
Scale: NTS



C REAR SIDE ELEVATION
Scale: NTS



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CUSTOM MODx - O
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ROCHESTER HILLS FIRE DEPARTMENT TRAINING SIMULATOR

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PROJECT NUMBER	DATE	DESCRIPTION
02-01-0001	11-11-11	DESIGN TAKE
	01-11-12	
	02-16-12	
	02-16-12	
	02-16-12	

REAR SIDE AND RIGHT SIDE
ELEVATIONS