

VICINITY MAP
(NO SCALE)



AIRPORT LAYOUT PLAN

FOR

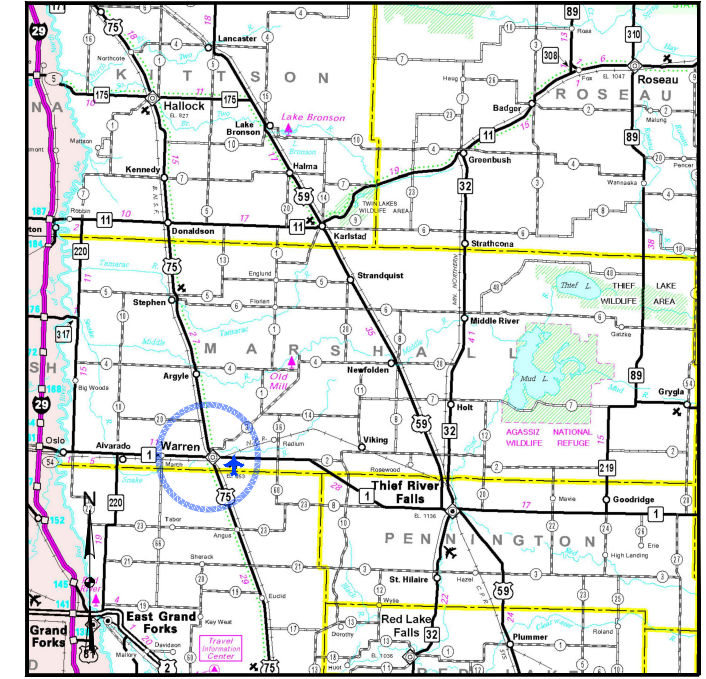
WARREN MUNICIPAL AIRPORT

WARREN, MARSHALL COUNTY, MINNESOTA

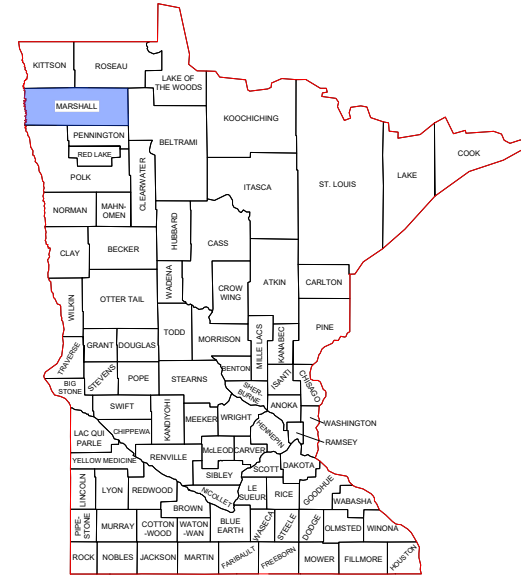
CITY OF WARREN (OWNER)

February 2024

LOCATION MAP
(NO SCALE)



ON BEHALF OF THE CITY OF WARREN (OWNER), THIS AIRPORT LAYOUT PLAN (ALP) WAS PREPARED BY KLJ ACCORDING TO THE APPLICABLE ADVISORY CIRCULARS AT THE TIME OF SCOPING THE PROJECT, THE CURRENT VERSION OF THE ARP SOP 2.0 ALP CHECKLIST, AND ACCURATELY DEPICTS THE PROPOSED USE OF AIRSPACE AT THE TIME OF DATA COLLECTION. THE ALP CONFORMS WITH FAA DESIGN STANDARDS, EXCEPT AS NOTED.



STATE OF MINNESOTA

REVISION DATE

SHEET INDEX

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- AIRPORT DATA SHEET
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- PART 77 AIRSPACE PLAN - (ULTIMATE)
- RUNWAY DEPARTURE SURFACE
- MNDOT ZONING SHEET
- LAND USE
- PROPERTY MAP

ALP APPROVALS

AIRPORT SPONSOR

SIGNATURE: _____
 NAME: _____
 TITLE: _____
 DATE: _____

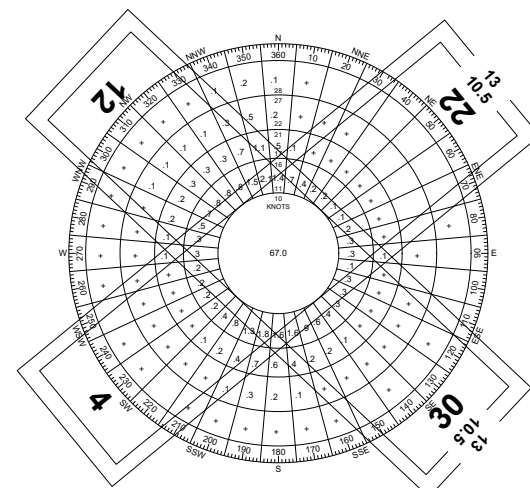
AIRSPACE APPROVAL

ALP AIRSPACE APPROVAL DATE: _____
 CASE #: _____

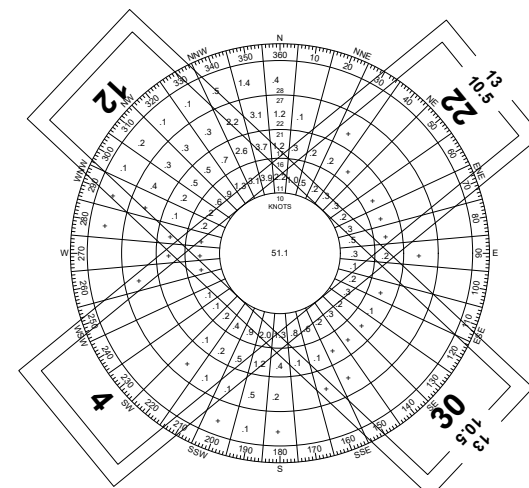


CONDITIONALLY APPROVED

NAME: _____ DATE: _____
 Regional Engineer / Representative



ALL WEATHER



IFR

WINDROSE

ALL-WEATHER WIND COVERAGE		
CONFIGURATION	CROSSWIND COMPONENT	
	10.5 KNOTS	13 KNOTS
RUNWAY 12-30	86.49%	93.44%
RUNWAY 4-22	81.01%	89.22%
COMBINED	93.61%	97.29%
SOURCE: KCKN AWOS (2012-2021, HOURLY) FROM NATIONAL CLIMATIC DATA CENTER 87,113 TOTAL OBSERVATIONS		
INSTRUMENT FLIGHT RULES (IFR) WIND COVERAGE		
CONFIGURATION	CROSSWIND COMPONENT	
	10.5 KNOTS	13 KNOTS
RUNWAY 12-30	74.76%	85.55%
SOURCE: KCKN AWOS (2012-2021, HOURLY) FROM NATIONAL CLIMATIC DATA CENTER 7,109 TOTAL OBSERVATIONS		
IFR = VISIBILITY LOWER THAN 3 MILES OR CEILING LOWER THAN 1,000 FEET		

WARREN MUNICIPAL AIRPORT PROJ. #2105-01703

WARREN MUNICIPAL AIRPORT
 CITY OF WARREN (OWNER)
 WARREN, MINNESOTA

TITLE SHEET

DRAFTED
 MTK/TLG
 REVIEWED
 AJC
 PROJECT NUMBER
 2105-01703

SHEET
1



WARREN MUNICIPAL AIRPORT
CITY OF WARREN (OWNER)
WARREN, MINNESOTA

TO BE USED AS A COMPLETE DRAWING SET FOR PLANNING PURPOSES ONLY, NOT FOR CONSTRUCTION

AIRPORT DATA SHEET

DRAFTED
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AJC
PROJECT NUMBER
2105-01703

SHEET
2

ITEM	RUNWAY DATA TABLE				CROSSWIND RUNWAY	
	EXISTING (E)		ULTIMATE (U)		EXISTING (E) & ULTIMATE (U)	
RUNWAY DESIGNATION	12	30	12	30	4	22
RUNWAY DESIGN CODE (RDC)	B-II-VIS	B-II-5000	B-II-VIS	B-II-5000	B-I(S)-VIS	B-I(S)-VIS
APPROACH REFERENCE CODE (APRC)	N/A	N/A	B-II-VIS	B-II-5000	N/A	N/A
DEPARTURE REFERENCE CODE (DPRC)	N/A	N/A	B-II	B-II	N/A	N/A
RUNWAY DIMENSIONS	3199' x 75'		3199' x 75'		2578' x 200'	
RUNWAY LENGTH CRITERIA	SMALL, <10 PX (95% FLEET)		SMALL, <10 PX (95% FLEET)		-	
CRITICAL AIRCRAFT (TYPE)	Air Tractor 802		Air Tractor 802		A/B-I (Small) Grouping	
CRITICAL AIRCRAFT (WINGSPAN)	79'		79'		<49'	
CRITICAL AIRCRAFT (TAIL HEIGHT)	11.13'		11.13'		<20'	
CRITICAL AIRCRAFT (APPROACH SPEED)	102.7 (Kts.)		102.7 (Kts.)		91 - 120 (Kts.)	
MAXIMUM TAKEOFF WEIGHT (MTOW)	16000 (LBS.)		16000 (LBS.)		12500 (LBS.)	
RUNWAY END ELEVATION	887.4'	885.7'	887.4'	885.7'	886.2'	884.8'
TOUCHDOWN ZONE ELEVATION (TDZE)	888.5'	888.5'	888.5'	888.5'	886.9'	886.9'
RUNWAY GRADIENT	0.053%		0.053%		0.054%	
MAX GRADE WITHIN RUNWAY LENGTH (%)	2.000%		2.000%		0.000%	
RUNWAY MEETS LINE OF SIGHT REQUIREMENTS	YES		YES		YES	
RUNWAY LIGHTING	MIRL		MIRL		NONE	
PAVEMENT TYPE	BITUMINOUS		BITUMINOUS		TURF	
RUNWAY CATEGORY	OTHER-THAN-UTILITY		OTHER-THAN-UTILITY		UTILITY	
PAVEMENT STRENGTH (WHEEL-LOAD)	26000 LBS (SW)		26000 LBS (SW)		-	
PAVEMENT CLASSIFICATION RATING (PCR)	-		-		-	
PAVEMENT MARKINGS	NON-PRECISION	NON-PRECISION	NON-PRECISION	NON-PRECISION	N/A	N/A
SURFACE TREATMENT	NONE		NONE		-	
RUNWAY SAFETY AREA (RSA)	3799' x 150'		3799' x 150'		3058' x 120'	
RUNWAY OBJECT FREE AREA (OFA)	3799' x 500'		3799' x 500'		3058' x 250'	
RUNWAY OBSTACLE FREE ZONE (OFZ)	3599' x 250'		3599' x 250'		2978' x 120'	
14 CFR PART 77 APPROACH TYPE	VISUAL	NON-PRECISION	VISUAL	NON-PRECISION	VISUAL	VISUAL
14 CFR PART 77 APPROACH SLOPE	20:1	34:1	20:1	34:1	20:1	20:1
14 CFR PART 77 APPROACH DIMENSIONS	500 X 1500 X 5000	500 X 3500 X 10000	500 X 1500 X 5000	500 X 3500 X 10000	250 X 1250 X 5000	250 X 1250 X 5000
VISIBILITY MINIMUMS	VISUAL	1 MILE	VISUAL	1 MILE	VISUAL	VISUAL
APPROACH SURFACE (AIRPORT DESIGN)	3	4	3	4	2	2
APPROACH SURFACE (AIRPORT DESIGN) SLOPE	20:1	20:1	20:1	20:1	20:1	20:1
APPROACH SURFACE (AIRPORT DESIGN) DIMENSIONS	STARTS AT THRESHOLD, 400' X 1000' X 1500' X 8500'	STARTS 200' FROM THRESHOLD, 400' X 3400' X 10000'	STARTS AT THRESHOLD, 400' X 1000' X 1500' X 8500'	STARTS 200' FROM THRESHOLD, 400' X 3400' X 10000'	STARTS AT THRESHOLD, 250' X 700' X 2250' X 2750'	STARTS AT THRESHOLD, 250' X 700' X 2250' X 2750'
VERTICAL GUIDANCE SURFACE (VGS)	NONE	NONE	NONE	NONE	NONE	NONE
VERTICAL GUIDANCE SURFACE (VGS) DIMENSIONS	NONE	NONE	NONE	NONE	NONE	NONE
DEPARTURE SURFACE	40:1	40:1	40:1	40:1	NONE	NONE
DEPARTURE SURFACE DIMENSIONS	1000' X 7512' X 12152'	1000' X 7512' X 12152'	1000' X 7512' X 12152'	1000' X 7512' X 12152'	NONE	NONE
AERONAUTICAL SURVEY-TYPE REQUIRED	NON-VERT. GUIDED	NON-VERT. GUIDED	NON-VERT. GUIDED	NON-VERT. GUIDED	-	-
RUNWAY ORIENTATION (TRUE)	130.48°	310.48°	130.48°	310.48°	48°	228°
MAGNETIC DECLINATION (2022)	2.55° (E)	2.55° (E)	2.55° (E)	2.55° (E)	2.55° (E)	2.55° (E)
RUNWAY ORIENTATION (MAGNETIC)	127.93°	307.93°	127.93°	307.93°	45.45°	225.45°
VISUAL AND INSTRUMENT NAVAIDS (NAVAIDS)	-	GPS	PAPI	GPS, PAPI	-	-
DISPLACED THRESHOLD	196'	None	196'	None	None	None
TAKEOFF RUNWAY AVAILABLE (TORA)	3199'	3003'	3199'	3003'	2578'	2578'
TAKEOFF DISTANCE AVAILABLE (TODA)	3199'	3003'	3199'	3003'	2578'	2578'
ACCELERATED STOP DISTANCE AVAILABLE (ASDA)	3199'	3199'	3199'	3199'	2578'	2578'
LANDING DISTANCE AVAILABLE (LDA)	3003'	3199'	3003'	3199'	2578'	2578'
RPZ DIMENSIONS - APPROACH	500' X 700' X 1000'	500' X 700' X 1000'	500' X 700' X 1000'	500' X 700' X 1000'	250' X 450' X 1000'	250' X 450' X 1000'
RPZ DIMENSIONS - DEPARTURE	500' X 700' X 1000'	500' X 700' X 1000'	500' X 700' X 1000'	500' X 700' X 1000'	250' X 450' X 1000'	250' X 450' X 1000'



MODIFICATION TO DESIGN STANDARDS				
APPROVAL DATE	AIRSPACE CASE #	LOCATION	STANDARD MODIFIED	DESCRIPTION
NONE REQUIRED				

AIRPORT DATA TABLE		
ITEM	EXISTING (E)	ULTIMATE (U)
AIRPORT REFERENCE CODE (ARC)	B-II	B-II
AIRPORT OWNERSHIP	PUBLIC	PUBLIC
NPIAS SERVICE LEVEL	-	-
NPIAS ASSET CLASSIFICATION	UNCLASSIFIED	UNCLASSIFIED
STATE SYSTEM PLAN SERVICE LEVEL	Intermediate Small	Intermediate Small
AIRPORT ELEVATION (MSL)	888.5'	888.5'
AIRPORT REFERENCE POINT (ARP)	(N) 48° 11' 28.20" (W) 96° 42' 40.70"	(N) 48° 11' 28.20" (W) 96° 42' 40.70"
MEAN MAX TEMPERATURE (MONTH)	69.5° (JUL.)	
AIRPORT NAVAIDS (STATE-OWNED)	-	AWOS
AIRPORT NAVAIDS (SPONSOR-OWNED)	Airport Beacon, Lighted Windcone	Airport Beacon, Lighted Windcone
MAGNETIC DECLINATION	2.55° (E)	2.55° (E)
www.ngdc.noaa.gov/geomag-web/#declination	2022	2022

TAXIWAY DATA TABLE		
	EXISTING (E)	ULTIMATE (U)
HIGHEST AIRPLANE DESIGN GROUP (ADG)	II	II
HIGHEST TAXIWAY DESIGN GROUP (TDG)	2A	2A
TAXIWAY WIDTH	35'	35'
TAXIWAY SAFETY AREA WIDTH	79'	79'
TAXIWAY OBJECT FREE AREA WIDTH	124'	124'
TAXIWAY EDGE SAFETY MARGIN	7.5'	7.5'
TAXIWAY SHOULDER WIDTH	15'	15'
TAXIWAY LIGHTING	REFLECTORS	MITL
HIGHEST TAXILANE DESIGN GROUP (TDG)	2A	1B
TAXILANE WIDTH	35'	25'
TAXILANE OBJECT FREE AREA WIDTH	110'	79'
TAXILANE LIGHTING	NONE	NONE

COORDINATE SUMMARY TABLE			
Point	Elevation	Latitude	Longitude
ARP	N/A	N 42° 32' 22.2"	W 96° 29' 05.2"
Rwy Intersection	886.7	N 48° 11' 29.836"	W 96° 42' 42.968"
Rwy 12 End	887.4	N 48° 11' 37.4194"	W 96° 42' 56.2602"
Rwy 12 Displaced Threshold	887.9	N 48° 11' 36.165"	W 96° 42' 54.058"
Rwy 30 End	885.7	N 48° 11' 16.9239"	W 96° 42' 20.3507"
12 & 30 TDZE & APT ELEV	888.5	N 48° 11' 32.744"	W 96° 42' 48.068"
Rwy 4 End	886.2	N 48° 11' 21.0011"	W 96° 42' 57.6337"
Rwy 22 End	884.8	N 48° 11' 37.9143"	W 96° 42' 29.5579"
4 & 22 TDZE	886.9	N 48° 11' 24.687"	W 96° 42' 51.516"

RWY = Runway ARP = Airport Reference Point TDZE = Touchdown Zone Elevation APT ELEV = Airport Elevation = 888.5'

Rev.	Date	Description



WARREN MUNICIPAL AIRPORT
CITY OF WARREN (OWNER)
WARREN, MINNESOTA

AIRPORT LAYOUT PLAN

DRAFTED
MTK/TLG
REVIEWED
AJC
PROJECT NUMBER
2105-01703

SHEET
3

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TO BE USED AS A COMPLETE DRAWING SET FOR PLANNING PURPOSES ONLY, NOT FOR CONSTRUCTION

- NOTES:
- SEE SHEET 2 FOR AIRPORT & RUNWAY DATA TABLES.
 - SEE INNER APPROACH SHEETS FOR OBSTACLE DATA.
 - WIND SENSOR LOCATION (U)
 - OBJECTS WITHIN 500' MUST REMAIN 15' BELOW WIND SENSOR.
 - OBJECTS 500'-1000' MUST REMAIN 10' BELOW WIND SENSOR.

LEGEND		
EXISTING (E)	ITEM	ULTIMATE (U)
---	AIRSPACE EASEMENT	---
---	BUILDING RESTRICTION LINE (BRL)	---
---	RUNWAY OBJECT FREE AREA (OFA)	---
---	RUNWAY SAFETY AREA (RSA)	---
---	RUNWAY OBSTACLE FREE ZONE (OFZ)	---
---	TAXIWAY OBJECT FREE AREA (TOFA)	---
---	N/A	---
---	BUILDING/BUILDING LOT	---
---	AIRSIDE PAVED SURFACE	---
---	LANDSIDE ROAD/PARKING	---
---	TURF RUNWAY/TAXIWAY	NONE
---	UNPAVED SURFACE (GRAVEL)	NONE
---	DECIDUOUS/EVERGREEN TREE	NONE
---	TREE ROWS, BUSHES	NONE
---	BARBED WIRE FENCE	---
---	CHAIN-LINK FENCE	---
---	WILDLIFE FENCE	---
---	POWER POLE/LIGHT POLE	---
---	AIRPLANE TIEDOWN	---
---	CULVERT WITH END SECTION	NONE
---	N/A	---
---	BUILDING/PAVEMENT TO BE REMOVED	---

STRUCTURE IDENTIFICATION TABLE			
ID	DESCRIPTION	PEAK ELEVATION	DISPOSITION
1	HANGAR	914'	TO REMAIN
2	A/D BUILDING	904'	TO REMAIN
3	HANGAR	907'	TO BE REMOVED
4	HANGAR	909'	TO BE REMOVED

COORDINATE SUMMARY TABLE			
Point	Elevation	Latitude	Longitude
ARP	N/A	N 42° 32' 22.2"	W 96° 29' 05.2"
Rwy Intersection	886.7	N 48° 11' 29.836"	W 96° 42' 42.969"
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Rwy 22 End	884.8	N 48° 11' 37.9143"	W 96° 42' 29.5579"
4 & 22 TDZE	886.9	N 48° 11' 24.687"	W 96° 42' 51.516"

RWY = Runway ARP = Airport Reference Point TDZE = Touchdown Zone Elevation
 APT ELEV = Airport Elevation = 888.5

ITEM	PRIMARY RUNWAY		CROSSWIND RUNWAY	
	EXISTING (E)	ULTIMATE (U)	EXISTING (E)	ULTIMATE (U)
RUNWAY DE SIGNATION	12 30	12 30 4	22	4 22
RUNWAY DE SIGN CODE (RDC)	B-3-VIS B-3-5000	B-3-VIS B-3-5000	B-3-VIS B-3-5000	B-3-VIS B-3-5000
RUNWAY LIGHTING	MRL	MRL	NONE	NONE
PAVEMENT TYPE	BITUMINOUS	BITUMINOUS	TURF	TURF
RUNWAY CATEG GORY	UTILITY	UTILITY	UTILITY	UTILITY
RUNWAY SAFETY AREA (RSA)	3799' x 150'	3799' x 150'	3058' x 120'	3058' x 120'
RUNWAY OBJECT FREE AREA (OFA)	3799' x 500'	3799' x 500'	3058' x 250'	3058' x 250'
RUNWAY OBSTACLE FREE ZONE (OFZ)	3599' x 250'	3599' x 250'	2978' x 120'	2978' x 120'
TAKEOFF RUNWAY AVAILABLE (TORA)	3199' 3003'	3199' 3003'	2578' 2578'	2578' 2578'
TAKEOFF DISTANCE AVAILABLE (TODA)	3199' 3003'	3199' 3003'	2578' 2578'	2578' 2578'
ACCELERATED STOP DISTANCE AVAILABLE (ASDA)	3199' 3199'	3199' 3199'	2578' 2578'	2578' 2578'
LANDING DISTANCE AVAILABLE (LDA)	3003' 3199'	3003' 3199'	2578' 2578'	2578' 2578'

TAXIWAY DATA TABLE		
	EXISTING (E)	ULTIMATE (U)
HIGHEST AIRPLANE DE SIGN GROUP (ADG)	II	II
HIGHEST TAXIWAY DESIGN GROUP (TDG)	2A	2A
TAXIWAY WIDTH	35'	35'
TAXIWAY SAFETY AREA WIDTH	79'	79'
TAXIWAY OBJECT FREE AREA WIDTH	124'	124'
TAXIWAY EDGE SAFETY MARGIN	7.5'	7.5'
TAXIWAY SHOULDER WIDTH	15'	15'
TAXIWAY LIGHTING	REFLECTORS	MFL
HIGHEST TAXIWAY DE SIGN GROUP (TDG)	2A	1B
TAXIWAY WIDTH	35'	25'
TAXIWAY OBJECT FREE AREA WIDTH	110'	79'
TAXIWAY LIGHTING	NONE	NONE

TRUE NORTH
MAGNETIC DECLINATION
2.55° E (2023)

200 0 200 400
scale feet

Rev.	Date	Description





WARREN MUNICIPAL AIRPORT
CITY OF WARREN (OWNER)
WARREN, MINNESOTA

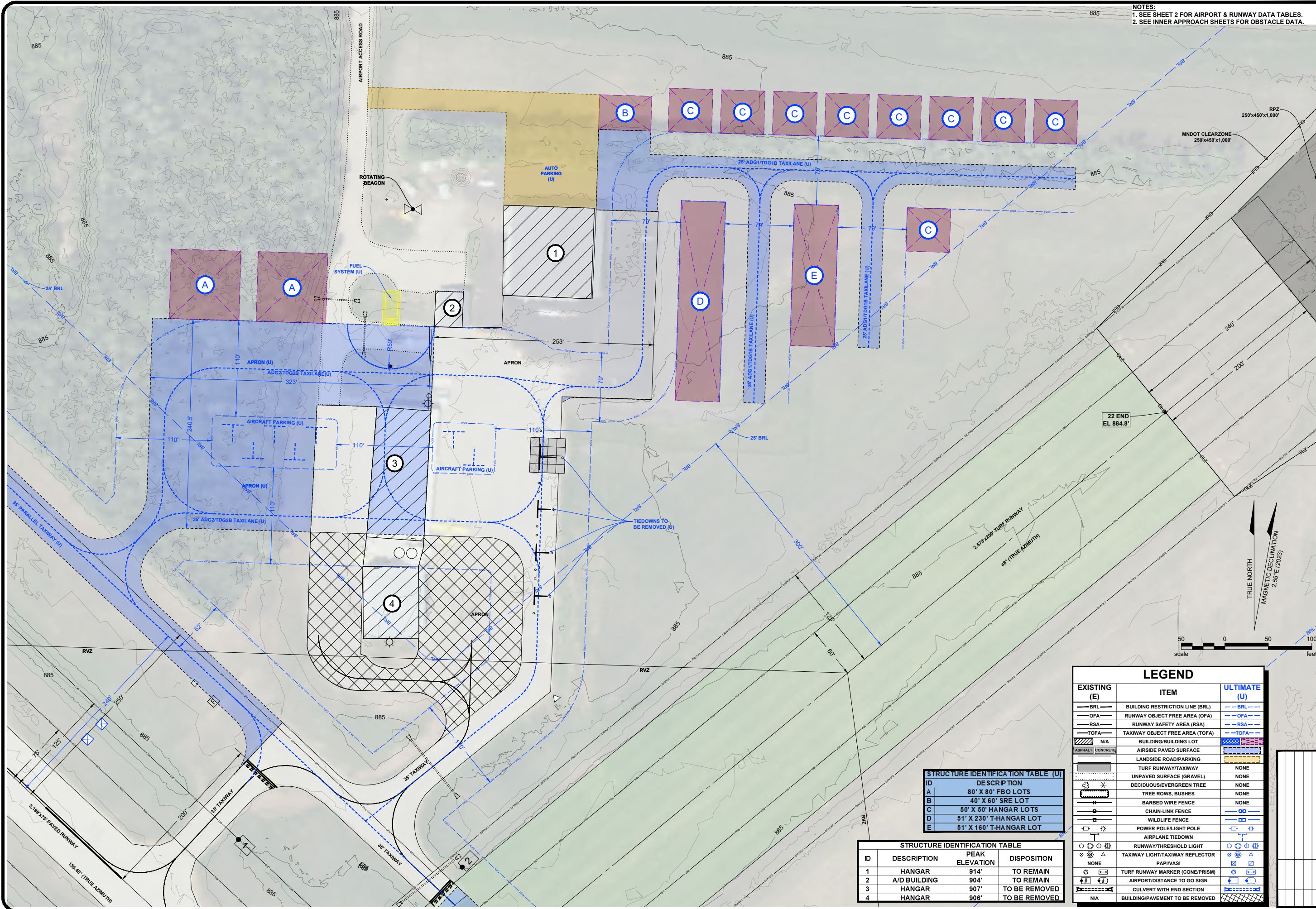
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TERMINAL AREA

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AJC
PROJECT NUMBER
2105-01703

SHEET
4

NOTES:
1. SEE SHEET 2 FOR AIRPORT & RUNWAY DATA TABLES.
2. SEE INNER APPROACH SHEETS FOR OBSTACLE DATA.



STRUCTURE IDENTIFICATION TABLE (U)

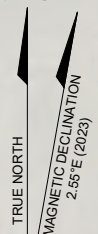
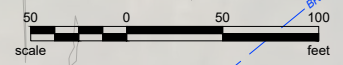
ID	DESCRIPTION	PEAK ELEVATION	DISPOSITION
A	80' X 80' FBO LOTS		
B	40' X 60' SRE LOT		
C	50' X 50' HANGAR LOTS		
D	51' X 230' T-HANGAR LOT		
E	51' X 160' T-HANGAR LOT		

STRUCTURE IDENTIFICATION TABLE

ID	DESCRIPTION	PEAK ELEVATION	DISPOSITION
1	HANGAR	914'	TO REMAIN
2	A/D BUILDING	904'	TO REMAIN
3	HANGAR	907'	TO BE REMOVED
4	HANGAR	906'	TO BE REMOVED

LEGEND

EXISTING (E)	ITEM	ULTIMATE (U)
---	BUILDING RESTRICTION LINE (BRL)	---
---	RUNWAY OBJECT FREE AREA (OFA)	---
---	RUNWAY SAFETY AREA (RSA)	---
---	TAXIWAY OBJECT FREE AREA (TOFA)	---
N/A	BUILDING/BUILDING LOT	
ASPHALT/CONCRETE	AIRSIDE PAVED SURFACE	
	LANDSIDE ROAD/PARKING	
	TURF RUNWAY/TAXIWAY	NONE
	UNPAVED SURFACE (GRAVEL)	NONE
	DECIDUOUS/EVERGREEN TREE	NONE
	TREE ROWS, BUSHES	NONE
	BARBED WIRE FENCE	NONE
	CHAIN-LINK FENCE	
	WILDLIFE FENCE	
	POWER POLE/LIGHT POLE	
	AIRPLANE TIEDOWN	
	RUNWAY THRESHOLD LIGHT	
	TAXIWAY LIGHT/TAXIWAY REFLECTOR	
NONE	PAPI/VASI	
	TURF RUNWAY MARKER (CONE/PRISM)	
	AIRPORT/DISTANCE TO GO SIGN	
	CULVERT WITH END SECTION	
N/A	BUILDING/PAVEMENT TO BE REMOVED	





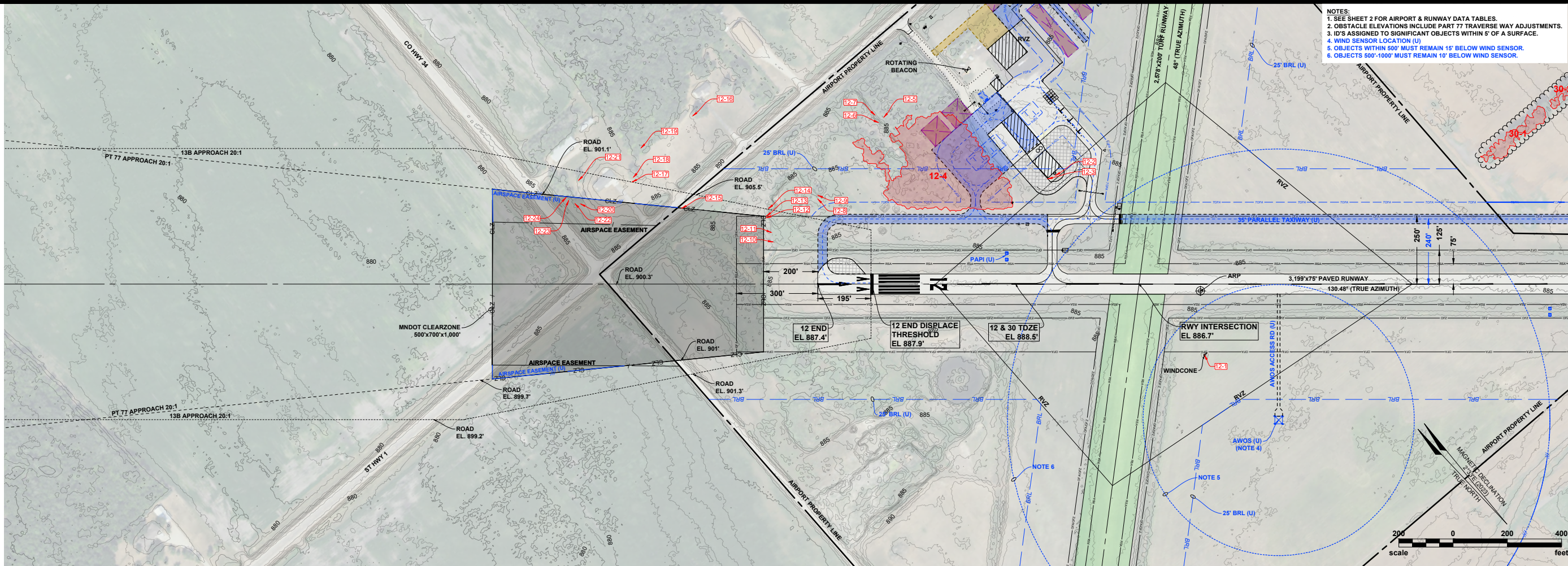
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CITY OF WARREN (OWNER)
WARREN, MINNESOTA

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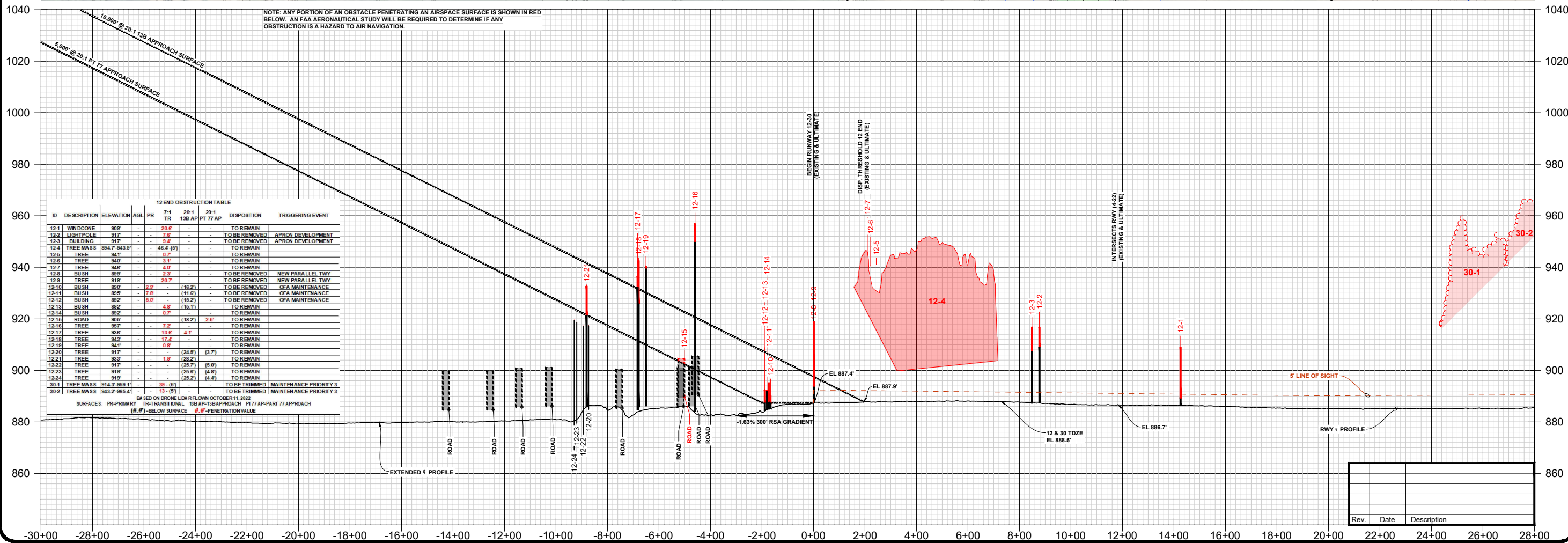
**INNER PORTION OF THE APPROACH SURFACE
RUNWAY 12 END**

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REVIEWED
AJC
PROJECT NUMBER
2105-01703

SHEET
5



- NOTES:
1. SEE SHEET 2 FOR AIRPORT & RUNWAY DATA TABLES.
 2. OBSTACLE ELEVATIONS INCLUDE PART 77 TRAVERSE WAY ADJUSTMENTS.
 3. ID'S ASSIGNED TO SIGNIFICANT OBJECTS WITHIN 5' OF A SURFACE.
 4. WIND SENSOR LOCATION (U)
 5. OBJECTS WITHIN 500' MUST REMAIN 15' BELOW WIND SENSOR.
 6. OBJECTS 500'-1000' MUST REMAIN 10' BELOW WIND SENSOR.



NOTE: ANY PORTION OF AN OBSTACLE PENETRATING AN AIRSPACE SURFACE IS SHOWN IN RED BELOW. AN FAA AERONAUTICAL STUDY WILL BE REQUIRED TO DETERMINE IF ANY OBSTRUCTION IS A HAZARD TO AIR NAVIGATION.

12 END OBSTRUCTION TABLE									
ID	DESCRIPTION	ELEVATION	AGL	PR	7:1	20:1	20:1	DISPOSITION	TRIGGERING EVENT
					TR	13B AP	PT 77 AP		
12-1	WINDCONE	899	-	-	20.6'	-	-	TO REMAIN	APRON DEVELOPMENT
12-2	LIGHTPOLE	917	-	-	7.0'	-	-	TO BE REMOVED	APRON DEVELOPMENT
12-3	BUILDING	917	-	-	8.4'	-	-	TO BE REMOVED	APRON DEVELOPMENT
12-4	TREE MASS	884.7-943.9'	-	-	46.4'-48'	-	-	TO REMAIN	
12-5	TREE	941	-	-	9.7'	-	-	TO REMAIN	
12-6	TREE	940	-	-	3.1'	-			



WARREN MUNICIPAL AIRPORT

CITY OF WARREN (OWNER)
WARREN, MINNESOTA

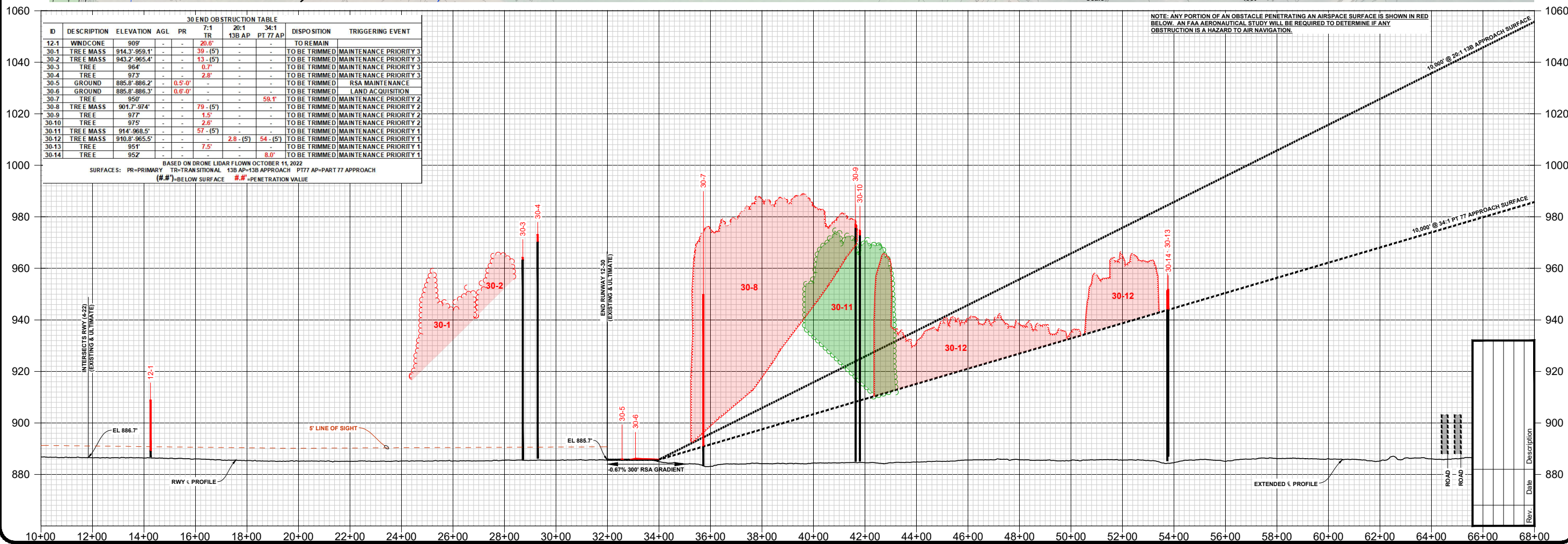
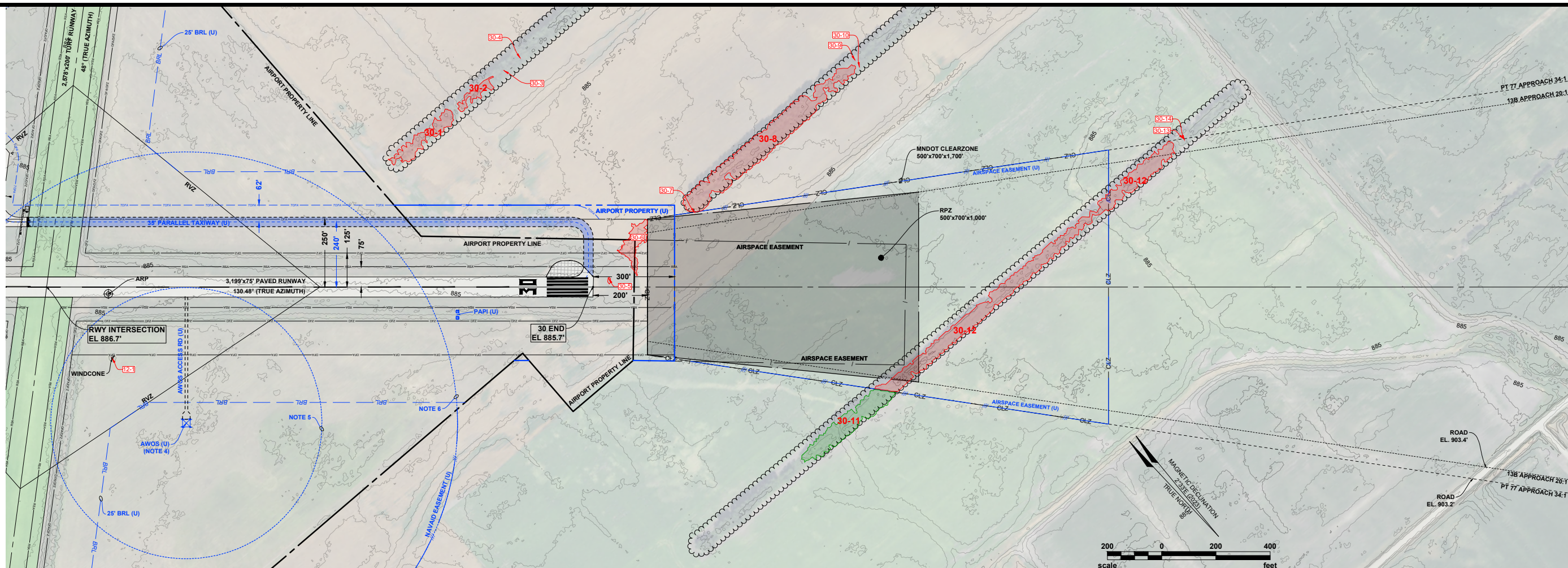
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INNER PORTION OF THE APPROACH SURFACE RUNWAY 30 END

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30 END OBSTRUCTION TABLE									
ID	DESCRIPTION	ELEVATION	AGL	PR	7:1 TR	20:1 13B AP	34:1 PT 77 AP	DISPOSITION	TRIGGERING EVENT
12-1	WINDCONE	909'	-	-	20.6'	-	-	TO REMAIN	
30-1	TRE MASS	914.3'-959.1'	-	-	39' (-5')	-	-	TO BE TRIMMED	MAINTENANCE PRIORITY 3
30-2	TRE MASS	943.2'-965.4'	-	-	13' (-5')	-	-	TO BE TRIMMED	MAINTENANCE PRIORITY 3
30-3	TREE	964'	-	-	0.7'	-	-	TO BE TRIMMED	MAINTENANCE PRIORITY 3
30-4	TREE	977'	-	-	2.8'	-	-	TO BE TRIMMED	MAINTENANCE PRIORITY 3
30-5	GROUND	885.8'-886.2'	-	-	0.5'-0"	-	-	TO BE TRIMMED	RSA MAINTENANCE
30-6	GROUND	885.8'-886.3'	-	-	0.6'-0"	-	-	TO BE TRIMMED	LAND ACQUISITION
30-7	TREE	950'	-	-	-	-	59.1'	TO BE TRIMMED	MAINTENANCE PRIORITY 2
30-8	TRE MASS	901.7'-974'	-	-	79' (-5')	-	-	TO BE TRIMMED	MAINTENANCE PRIORITY 2
30-9	TREE	977'	-	-	1.5'	-	-	TO BE TRIMMED	MAINTENANCE PRIORITY 2
30-10	TREE	975'	-	-	2.6'	-	-	TO BE TRIMMED	MAINTENANCE PRIORITY 2
30-11	TRE MASS	914'-968.5'	-	-	57' (-5')	-	-	TO BE TRIMMED	MAINTENANCE PRIORITY 1
30-12	TRE MASS	910.8'-965.5'	-	-	2.8' (-5')	54' (-5')	-	TO BE TRIMMED	MAINTENANCE PRIORITY 1
30-13	TREE	951'	-	-	7.5'	-	-	TO BE TRIMMED	MAINTENANCE PRIORITY 1
30-14	TREE	952'	-	-	8.0'	-	-	TO BE TRIMMED	MAINTENANCE PRIORITY 1

BASED ON DRONE LIDAR FLOWN OCTOBER 11, 2022
 SURFACES: PR-PRIMARY TR-TRANSITIONAL 13B AP-13B APPROACH PT77 AP-PART 77 APPROACH
 (#.#)-BELOW SURFACE #.#'-PENETRATION VALUE



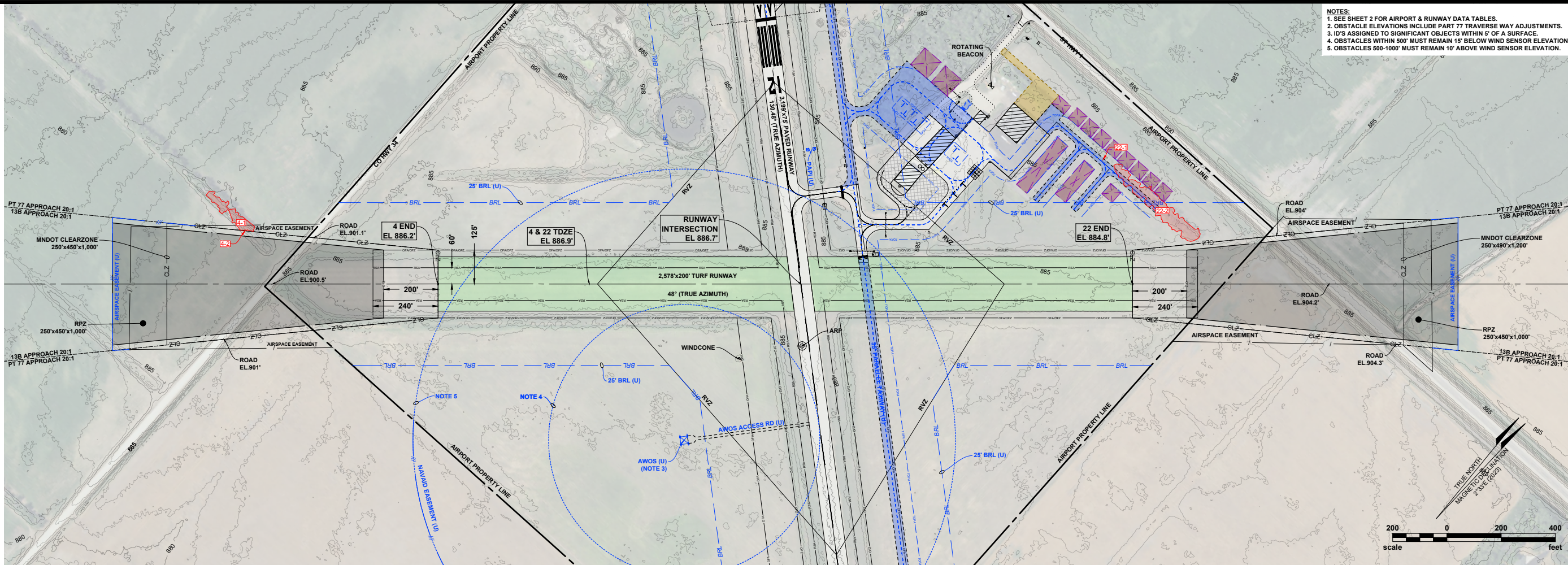
WARREN MUNICIPAL AIRPORT
CITY OF WARREN (OWNER)
WARREN, MINNESOTA

TO BE USED AS A COMPLETE DRAWING SET FOR PLANNING PURPOSES ONLY, NOT FOR CONSTRUCTION

**INNER PORTION OF THE APPROACH SURFACE
RUNWAY 4-22**

DRAFTED
MTK/TLG
REVIEWED
AJC
PROJECT NUMBER
2105-01703

SHEET
7

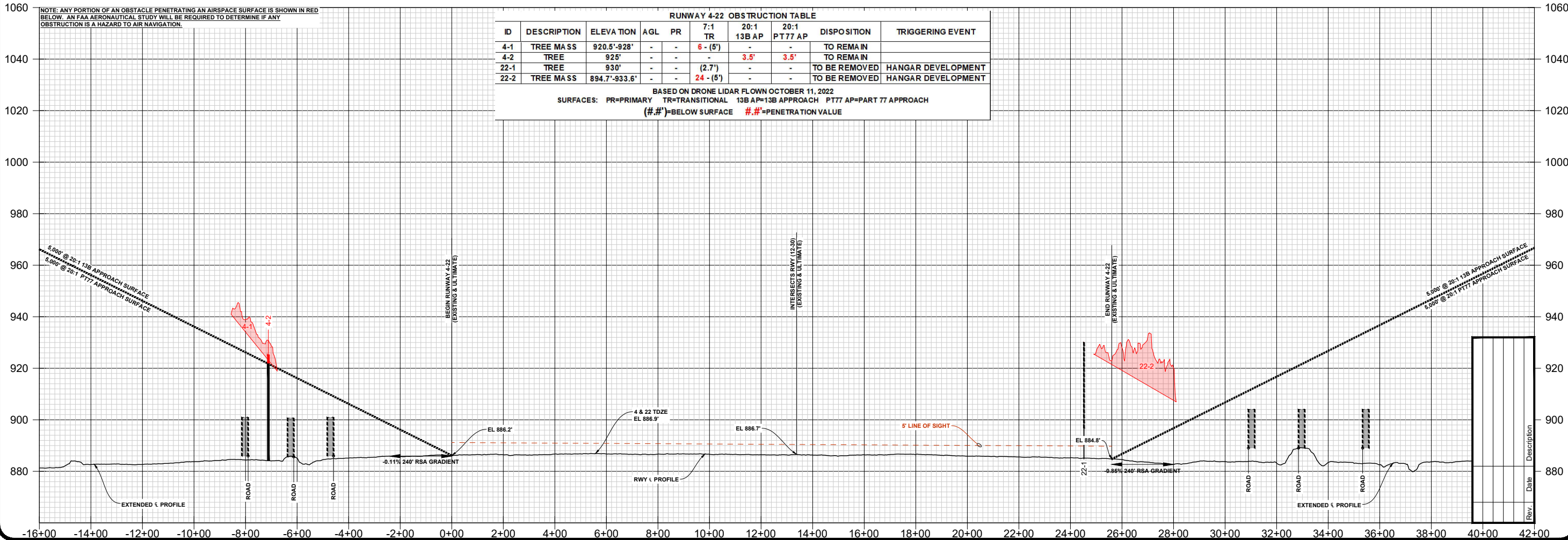


- NOTES:
1. SEE SHEET 2 FOR AIRPORT & RUNWAY DATA TABLES.
2. OBSTACLE ELEVATIONS INCLUDE PART 77 TRAVERSE WAY ADJUSTMENTS.
3. ID'S ASSIGNED TO SIGNIFICANT OBJECTS WITHIN 5' OF A SURFACE.
4. OBSTACLES WITHIN 500' MUST REMAIN 15' BELOW WIND SENSOR ELEVATION.
5. OBSTACLES 500'-1000' MUST REMAIN 10' ABOVE WIND SENSOR ELEVATION.

NOTE: ANY PORTION OF AN OBSTACLE PENETRATING AN AIRSPACE SURFACE IS SHOWN IN RED BELOW. AN FAA AERONAUTICAL STUDY WILL BE REQUIRED TO DETERMINE IF ANY OBSTRUCTION IS A HAZARD TO AIR NAVIGATION.

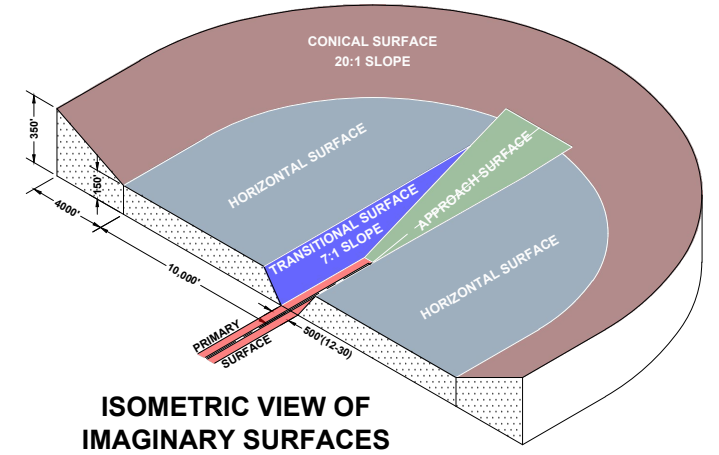
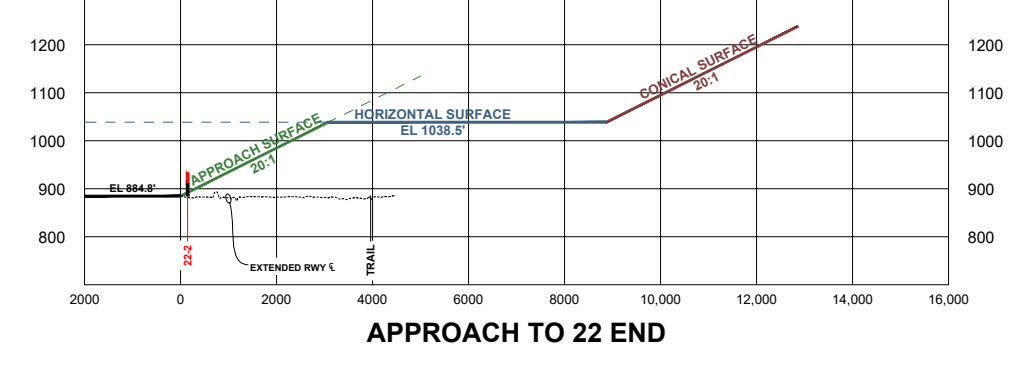
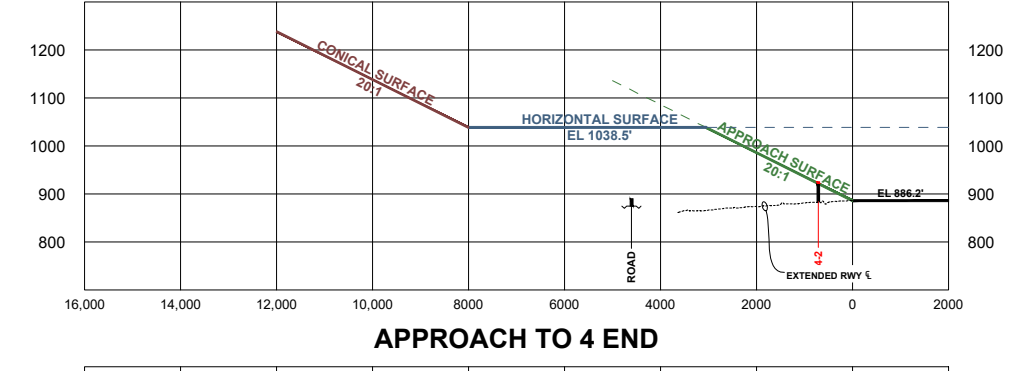
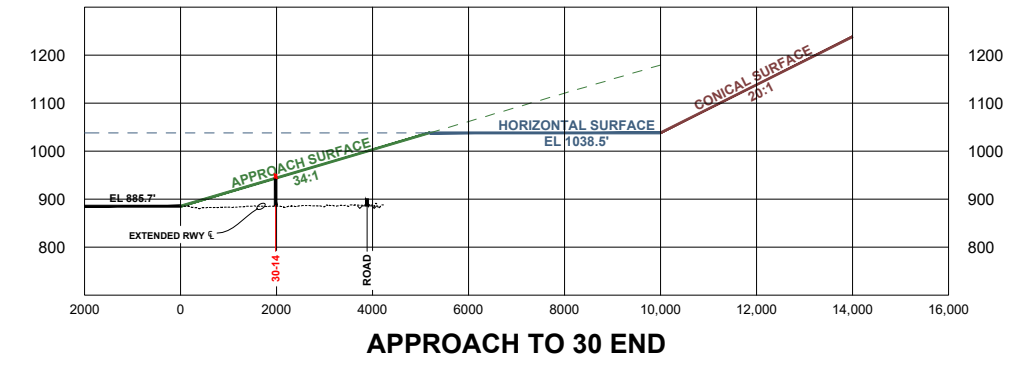
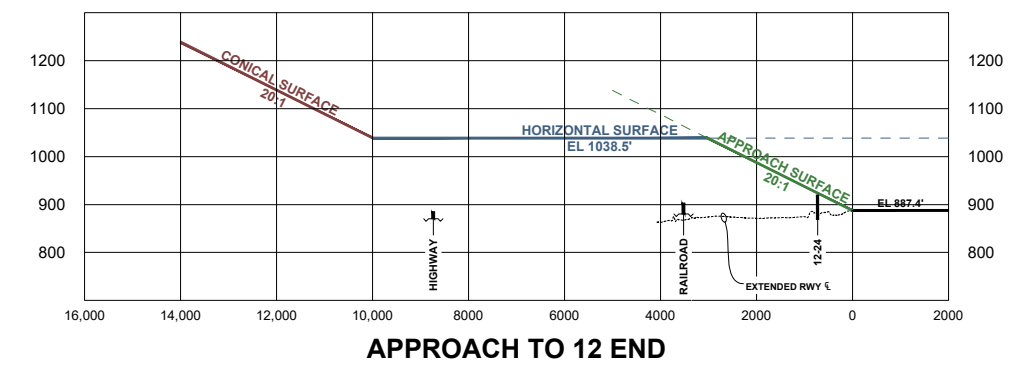
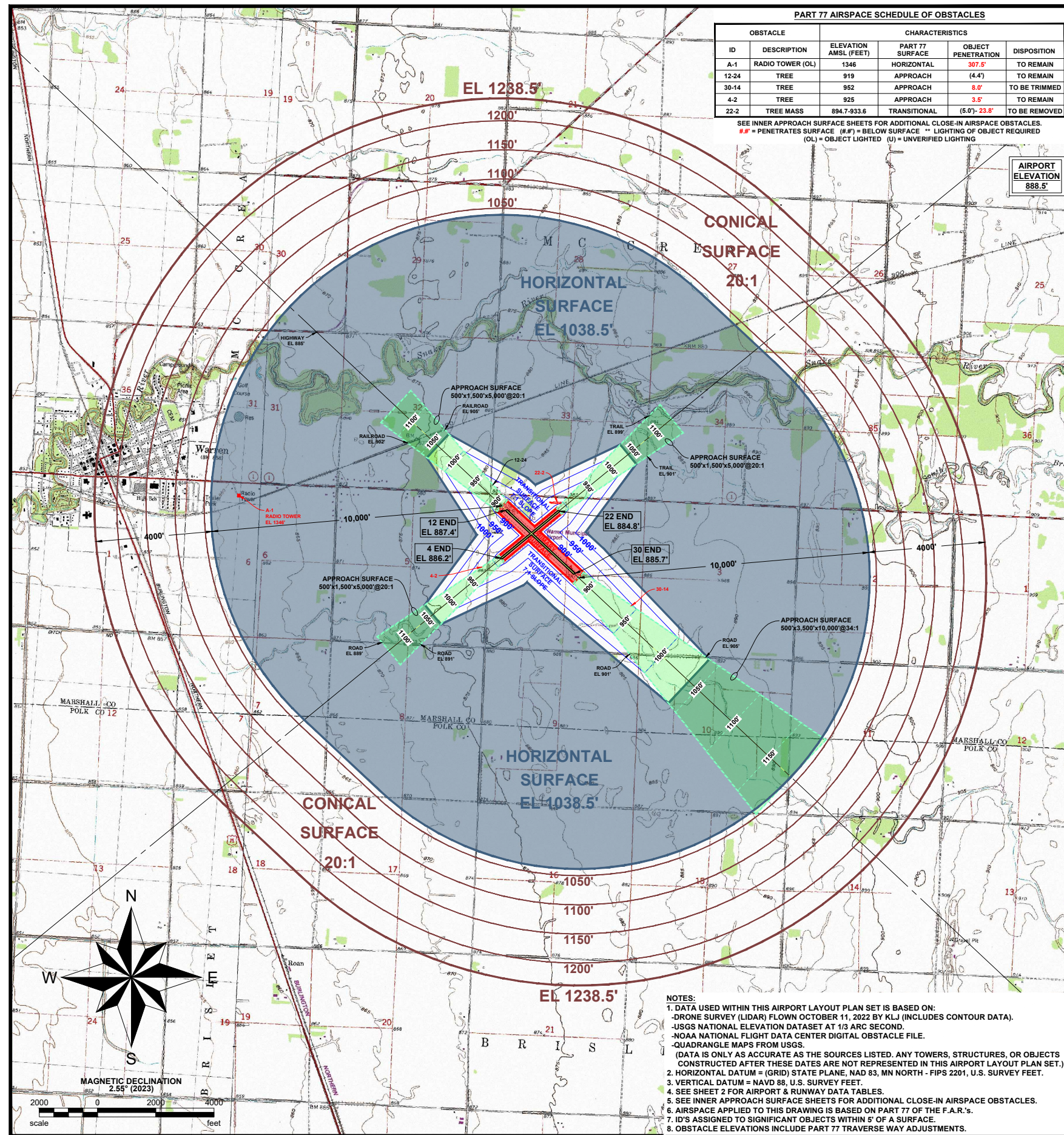
RUNWAY 4-22 OBSTRUCTION TABLE									
ID	DESCRIPTION	ELEVATION	AGL	PR	7:1 TR	20:1 13B AP	20:1 PT 77 AP	DISPOSITION	TRIGGERING EVENT
4-1	TREE MASS	920.5'-928'	-	-	6' (5')	-	-	TO REMAIN	
4-2	TREE	925'	-	-	-	3.5'	3.5'	TO REMAIN	
22-1	TREE	930'	-	-	(2.7')	-	-	TO BE REMOVED	HANGAR DEVELOPMENT
22-2	TREE MASS	894.7'-933.6'	-	-	24' (5')	-	-	TO BE REMOVED	HANGAR DEVELOPMENT

BASED ON DRONE LIDAR FLOWN OCTOBER 11, 2022
SURFACES: PR=PRIMARY TR=TRANSITIONAL 13B AP=13B APPROACH PT 77 AP=PART 77 APPROACH
(#.#')=BELOW SURFACE #.#'=PENETRATION VALUE

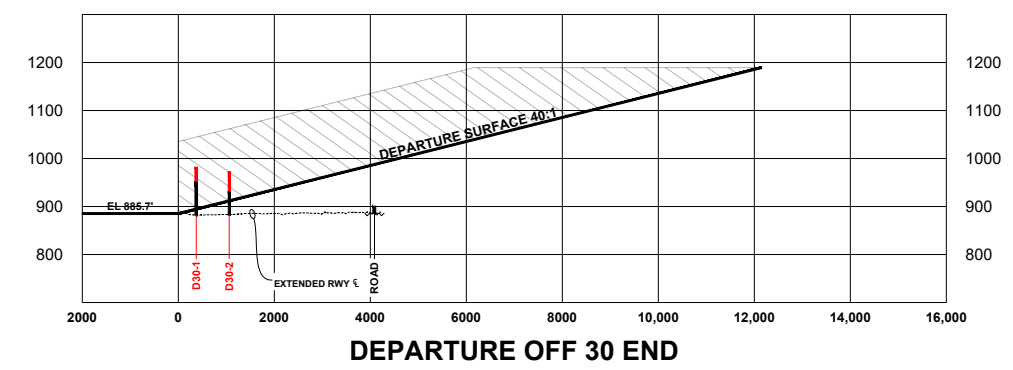
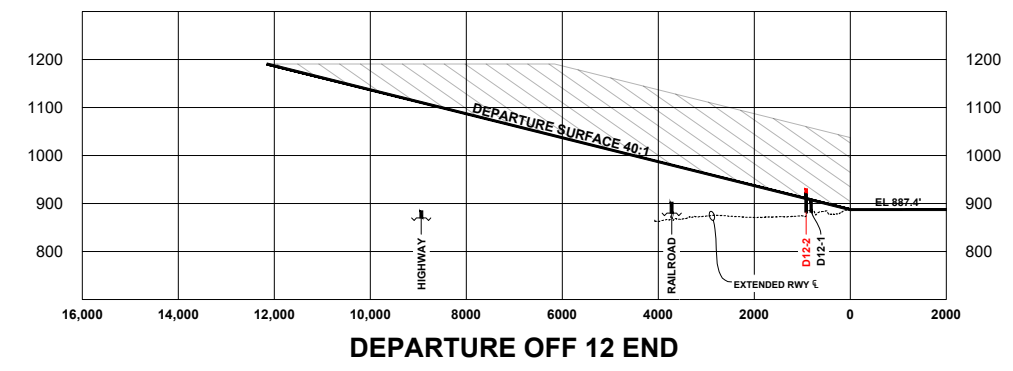
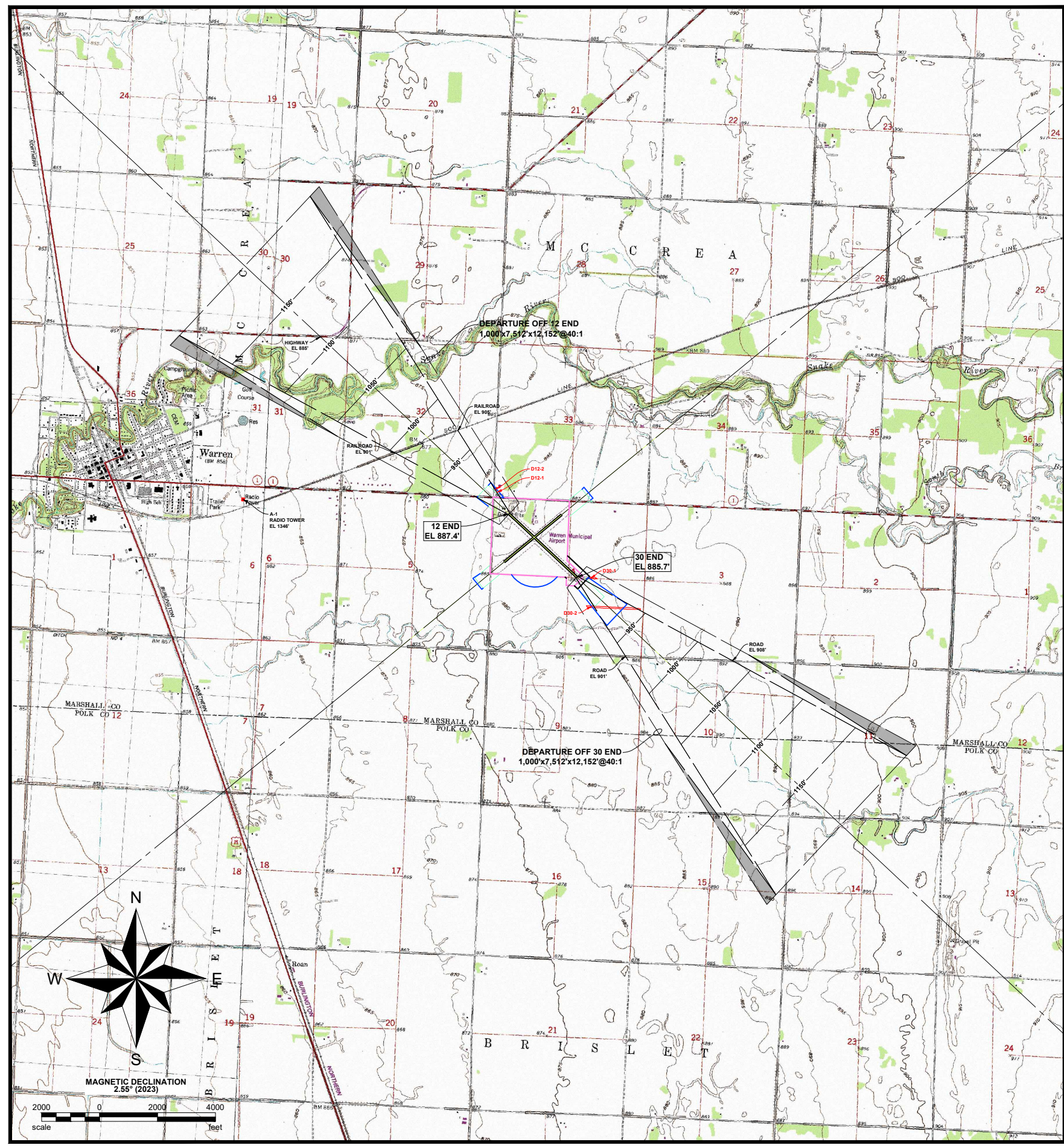




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Rev.	Date	Description

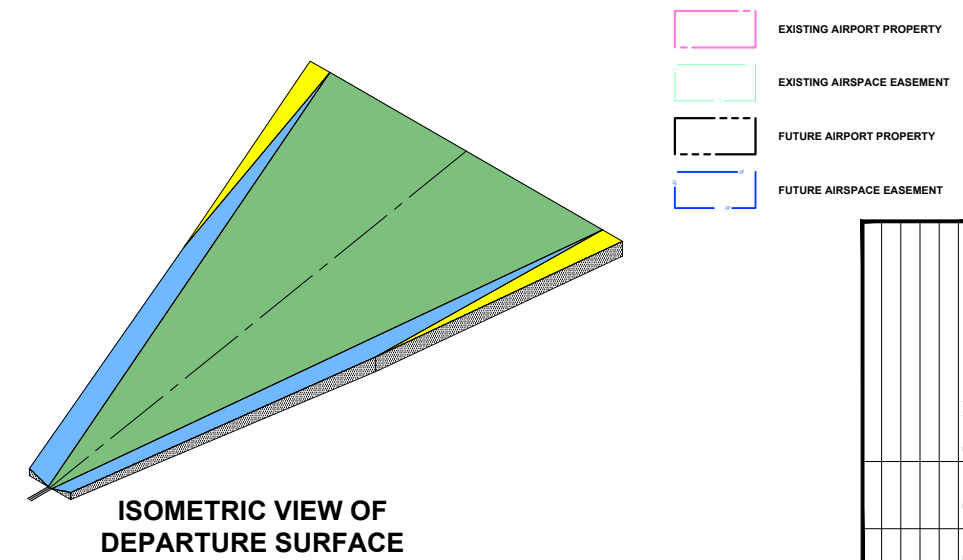


12-30 DEPARTURE OBSTRUCTION TABLE

ID	DESCRIPTION	ELEVATION	40:1 DE	DISPOSITION	TRIGGERING EVENT
12-1	TREE	905'	(2.5')	TO REMAIN	
12-2	TREE MASS	912'-930.7'	(5')-7.7'	TO BE REMOVED	APRON DEVELOPMENT
30-1	TREE MASS	935.7'-982'	(5')-29.3'	TO BE TRIMMED	
30-2	TREE MASS	910.8'-972.5'	(5')-40.2'	TO BE TRIMMED	

BASED ON DRONE LIDAR FLOWN OCTOBER 11, 2022
 (#.#)=BELOW SURFACE #.#'=PENETRATION VALUE

- NOTES:
- DATA USED WITHIN THIS AIRPORT LAYOUT PLAN SET IS BASED ON:
 -DRONE SURVEY (LIDAR) FLOWN OCTOBER 11, 2022 BY KLJ (INCLUDES CONTOUR DATA).
 -USGS NATIONAL ELEVATION DATASET AT 1/3 ARC SECOND.
 -NOAA NATIONAL FLIGHT DATA CENTER DIGITAL OBSTACLE FILE.
 -QUADRANGLE MAPS FROM USGS.
 (DATA IS ONLY AS ACCURATE AS THE SOURCES LISTED. ANY TOWERS, STRUCTURES, OR OBJECTS CONSTRUCTED AFTER THESE DATES ARE NOT REPRESENTED IN THIS AIRPORT LAYOUT PLAN SET.)
 - HORIZONTAL DATUM = (GRID) STATE PLANE, NAD 83, MN NORTH - FIPS 2201, U.S. SURVEY FEET.
 - VERTICAL DATUM = NAVD 88, U.S. SURVEY FEET.
 - SEE SHEET 2 FOR AIRPORT & RUNWAY DATA TABLES.
 - SEE INNER APPROACH SURFACE SHEETS FOR ADDITIONAL CLOSE-IN AIRSPACE OBSTACLES.
 - ID'S ASSIGNED TO SIGNIFICANT OBJECTS WITHIN 5' OF A SURFACE.
 - OBSTACLE ELEVATIONS INCLUDE PART 77 TRAVERSE WAY ADJUSTMENTS.
 - RUNWAY 4-22 IS NOT AN INSTRUMENT RUNWAY.



Rev.	Date	Description



WARREN MUNICIPAL AIRPORT
CITY OF WARREN (OWNER)
WARREN, MINNESOTA

MNDOT ZONING SHEET

DRAFTED
TLG
REVIEWED
AJC
PROJECT NUMBER
2105-01703

SHEET
10

NOTES:
1. SEE SHEET 2 FOR AIRPORT & RUNWAY DATA TABLES.

AIRPORT SAFETY ZONING ORDINANCE FOR WARREN MUNICIPAL AIRPORT
ADOPTED: MARCH 4, 1975

GENERAL RESTRICTIONS
NO USE SHALL BE MADE OF ANY LAND IN ANY OF THE SAFETY ZONES WHICH CREATES OR CAUSES INTERFERENCE WITH THE OPERATION OF RADIO OR ELECTRONIC FACILITIES ON THE AIRPORT OR WITH RADIO OR ELECTRONIC COMMUNICATIONS BETWEEN THE AIRPORT AND AIRCRAFT, MAKES IT DIFFICULT FOR PILOTS TO DISTINGUISH BETWEEN AIRPORT LIGHTS AND OTHER LIGHTS, RESULTS IN GLARE IN THE EYES OF PILOTS USING THE AIRPORT, IMPAIRS VISIBILITY IN THE VICINITY OF THE AIRPORT, OR OTHERWISE ENDANGERS THE LANDING, TAKE OFF, OR MANEUVERING OF AIRCRAFT.

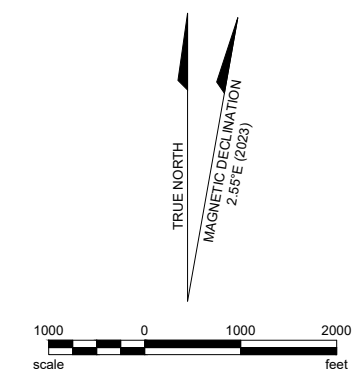
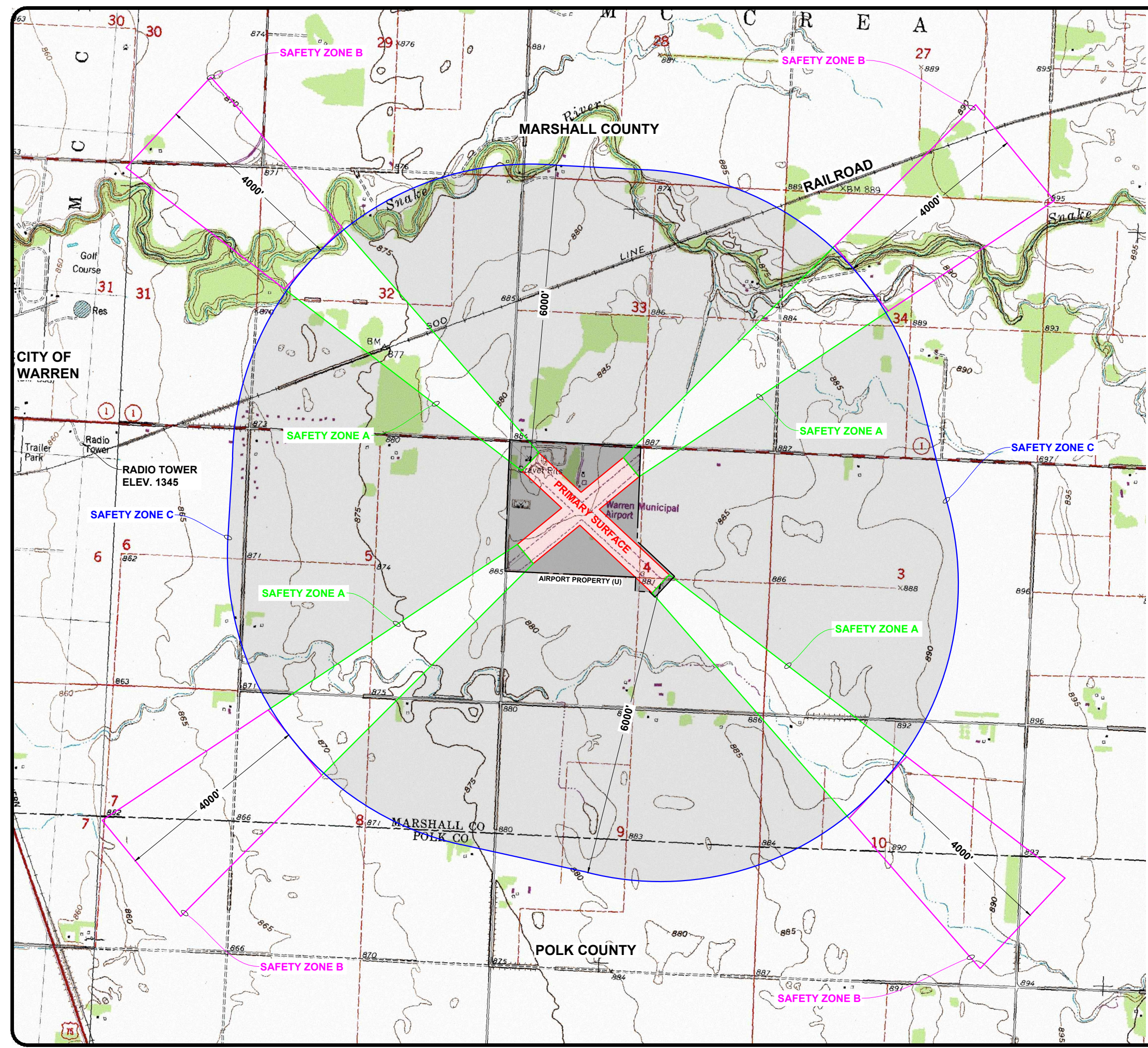
SAFETY ZONE "A"
SHALL CONTAIN NO BUILDINGS, TEMPORARY STRUCTURES, EXPOSED TRANSMISSION LINES, OR OTHER SIMILAR LAND USE STRUCTURAL HAZARDS, AND SHALL BE RESTRICTED TO THOSE USES WHICH WILL NOT CREATE, ATTRACT, OR BRING TOGETHER AN ASSEMBLY OF PERSONS THEREON. PERMITTED USES MAY INCLUDE AGRICULTURE, LIGHT OUTDOOR RECREATION (NONSPPECTATOR), CEMETERIES, AND AUTO PARKING.

SAFETY ZONE "B"
SHALL BE RESTRICTED IN USE AS FOLLOWS. EACH USE SHALL BE ON A SITE WHOSE AREA SHALL NOT BE LESS THAN THREE ACRES. EACH USE SHALL NOT CREATE, ATTRACT, OR BRING TOGETHER A SITE POPULATION THAT WOULD EXCEED 15 TIMES THAT OF THE SITE ACREAGE. EACH SITE SHALL HAVE NO MORE THAN ONE BUILDING PLOT UPON WHICH ANY NUMBER OF STRUCTURES MAY BE ERRECTED.
THE FOLLOWING USES ARE SPECIFICALLY PROHIBITED IN ZONE "B":
CHURCHES, HOSPITALS, SCHOOLS, THEATERS, STADIUMS, HOTELS AND MOTELS, TRAILER COURTS, CAMP GROUNDS, AND OTHER PLACES OF PUBLIC OR SEMIPUBLIC ASSEMBLY.

SAFETY ZONE "C"
IS SUBJECT ONLY TO THE GENERAL RESTRICTIONS. SAFETY ZONE "C" IS ENCLOSED WITHIN THE PERIMETER OF THE HORIZONTAL ZONE.

RUNWAY END(S)	RUNWAY LENGTH	AIRPORT ZONING DIMENSIONS					
		ZONE A LENGTH	ZONE A INNER WIDTH	ZONE A OUTER WIDTH	ZONE B LENGTH	ZONE B INNER WIDTH	ZONE B OUTER WIDTH
12	3,200'	6,000'	500'	1,700'	4,000'	1,700'	2,500'
30	3,200'	6,000'	500'	1,700'	4,000'	1,700'	2,500'
4	2,500'	6,000'	500'	1,700'	4,000'	1,700'	2,500'
22	2,500'	6,000'	500'	1,700'	4,000'	1,700'	2,500'

- NOTES:
- 1) PRIMARY SURFACE ENDS 100' FROM RUNWAY END ON RUNWAY 4-22
 - 2) ZONE A BEGINS AT END OF PRIMARY SURFACE
 - 3) ZONE B BEGINS AT END OF ZONE A
 - 4) ZONE C RADIUS = 6,000' @ 987' MSL ELEV.



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WARREN MUNICIPAL AIRPORT
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LAND USE

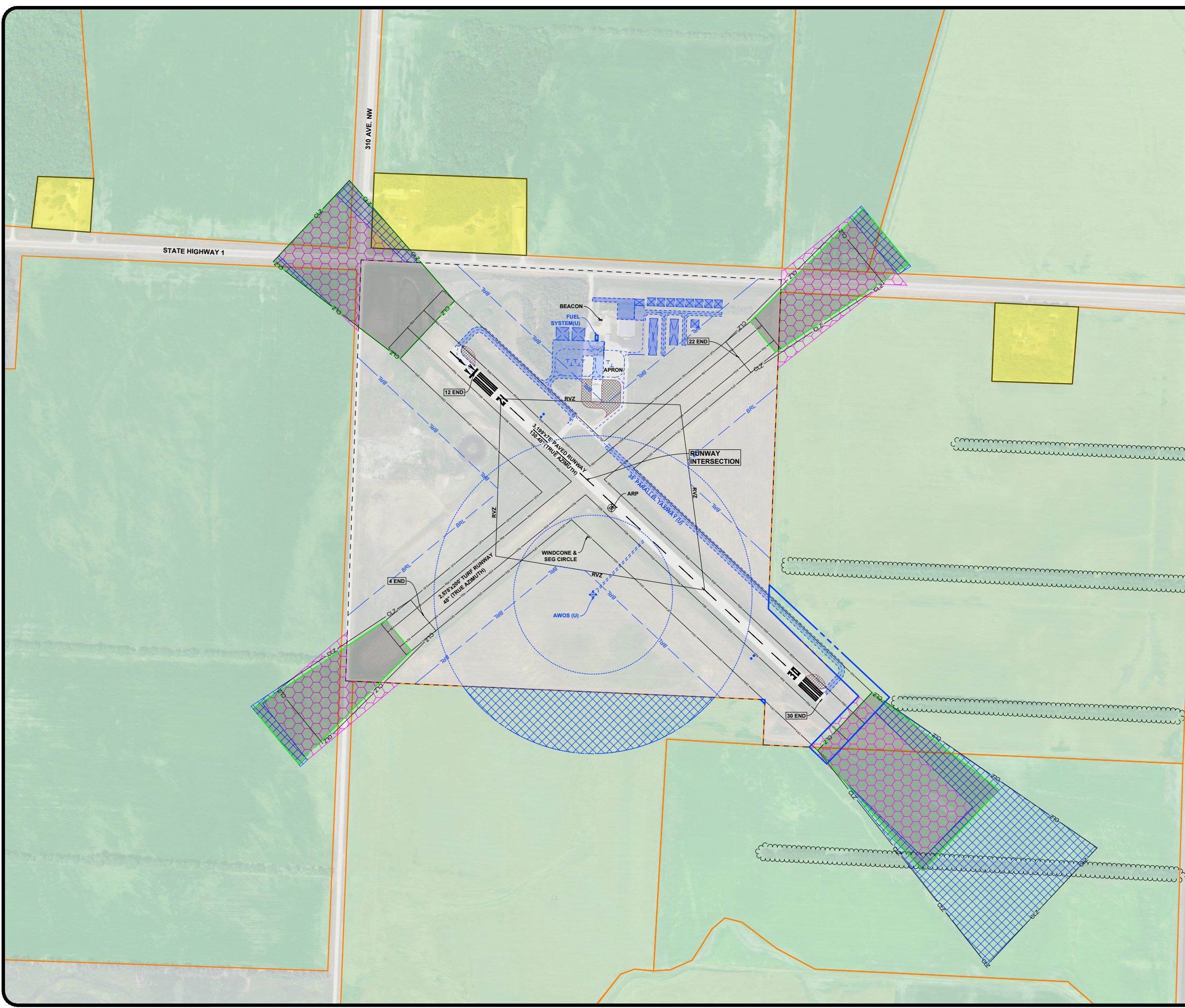
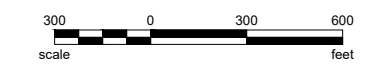
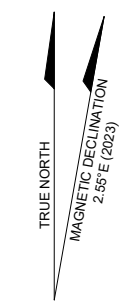
DRAFTED
TLG
REVIEWED
AJC
PROJECT NUMBER
2105-01703

SHEET
11

NOTES:
1. SEE SHEET 2 FOR AIRPORT & RUNWAY DATA TABLES.
2. SEE INNER APPROACH SHEETS FOR OBSTACLE DATA.

LEGEND

- AGRICULTURE
- RESIDENTIAL
- EXISTING AVIGATION EASEMENT
- ULTIMATE AVIGATION EASEMENT
- ULTIMATE DEVELOPMENT
- REMOVAL
- EXISTING RPZ
- EXISTING M&DOT CLEAR ZONE
- EXISTING AIRPORT PROPERTY
- ULTIMATE AIRPORT PROPERTY
- RUNWAY OBJECT FREE AREA (OFA)
- RUNWAY SAFETY AREA (RSA)





NOTES:
 1. THE PURPOSE OF THIS DRAWING IS TO PROVIDE INFORMATION FOR ANALYZING THE CURRENT AND FUTURE USE OF PROPERTY ACQUIRED.
 2. THIS PROPERTY MAP IS FOR PLANNING PURPOSES ONLY AND IS NOT SURVEY-LEVEL ACCURACY.

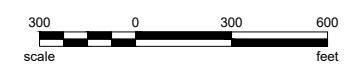
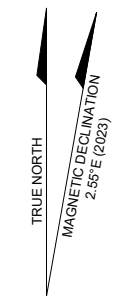
Parcel ID	Acreage	Grantor (Seller)	Grantee (Buyer)	Ownership Interest	Date of Conveyance Document	Federal Grant Number	Recorded Document Number
1	160	BAKKE FOLER PEARSON PETERS SWANSON	CITY OF WARREN	FEE SIMPLE	1953	FAAP 9-21-091-C501	BK. 115 PG. 564
2	7	FELIX BIENEK	CITY OF WARREN	FEE SIMPLE	1965	FAAP 9-21-091-C501	BK. 136 PG. 155
3	10.3	FELIX BIENEK	CITY OF WARREN	EASEMENT	1967	FAAP 9-21-091-C501	BK. 38 PG. 507
4	3.9	FELIX BIENEK	CITY OF WARREN	EASEMENT	1967	FAAP 9-21-091-C501	BK. 38 PG. 513
5	4	OLAF OLSON	CITY OF WARREN	EASEMENT	1967	FAAP 9-21-091-C501	BK. 38 PG. 523
6	0.8	BESSIE LAMBERSON	CITY OF WARREN	EASEMENT	1967	FAAP 9-21-091-C501	BK. 38 PG. 519
7	2.9	OLAF OLSON	CITY OF WARREN	EASEMENT	1970	FAAP 9-21-091-C501	BK. 115 PG. 564
8	2.7	RAGNER STANGHELLE	CITY OF WARREN	EASEMENT	1967	FAAP 9-21-091-C501	BK. 38 PG. 495
9	5.2	RAGNER STANGHELLE	CITY OF WARREN	EASEMENT	1967	FAAP 9-21-091-C501	BK. 38 PG. 499
10	1.2	ANNA JOHNSTON	CITY OF WARREN	EASEMENT	1967	FAAP 9-21-091-C501	BK. 38 PG. 503
Fee Parcels		167					
Avigation Easements		31					

Parcel ID	Acreage	Purpose of Acquisition	Type of Interest to be Acquired
UU1	4.3	Runway/Taxiway OFA	Fee Simple
UU2	19.6	RPZ and Clear Zone Protection	Easement
UU3	0.8	RPZ Protection	Easement
UU4	0.3	RPZ and Clear Zone Protection	Easement
UU5	0.96	RPZ and Clear Zone Protection	Easement
UU6	0.48	RPZ and Clear Zone Protection	Easement
UU7	1.1	RPZ Protection	Easement
UU8	9.9	AWOS Critical Area	Easement
UU9	0.02	Runway OFA	Fee Simple

Parcel ID	Existing Parcel	Existing Easement Acreage	Acreage Needed RPZ	Acreage Needed CLZ	Acreage Needed Total	Current Use	Acquisition Plan
UU2	3	10.30	3.82	19.60	19.60	Agricultural	Acquire Easement to control land use and obstruction heights
UU4	8	2.70	0.30	0.30	0.30	Agricultural	Acquire Easement to control land use and obstruction heights
UU5	6	0.80	0.96	0.96	0.96	Residential (no Domiciles)	Acquire Easement to control land use and obstruction heights
UU6	7	2.90	0.48	0.48	0.48	Agricultural	Acquire Easement to control land use and obstruction heights

PARCEL TO		PARCEL TO	
ID	ACRES	ID	ACRES
LT1	8.15	UU1	4.8
		UU9	0.02

①	PARCEL DESIGNATION
	EXISTING PARCEL BOUNDARY
	FUTURE PARCEL BOUNDARY
	EXISTING EASEMENT BOUNDARY
	FUTURE EASEMENT BOUNDARY
	RUNWAY PROTECTION ZONE (RPZ)



Rev.	Date	Description

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WARREN MUNICIPAL AIRPORT
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