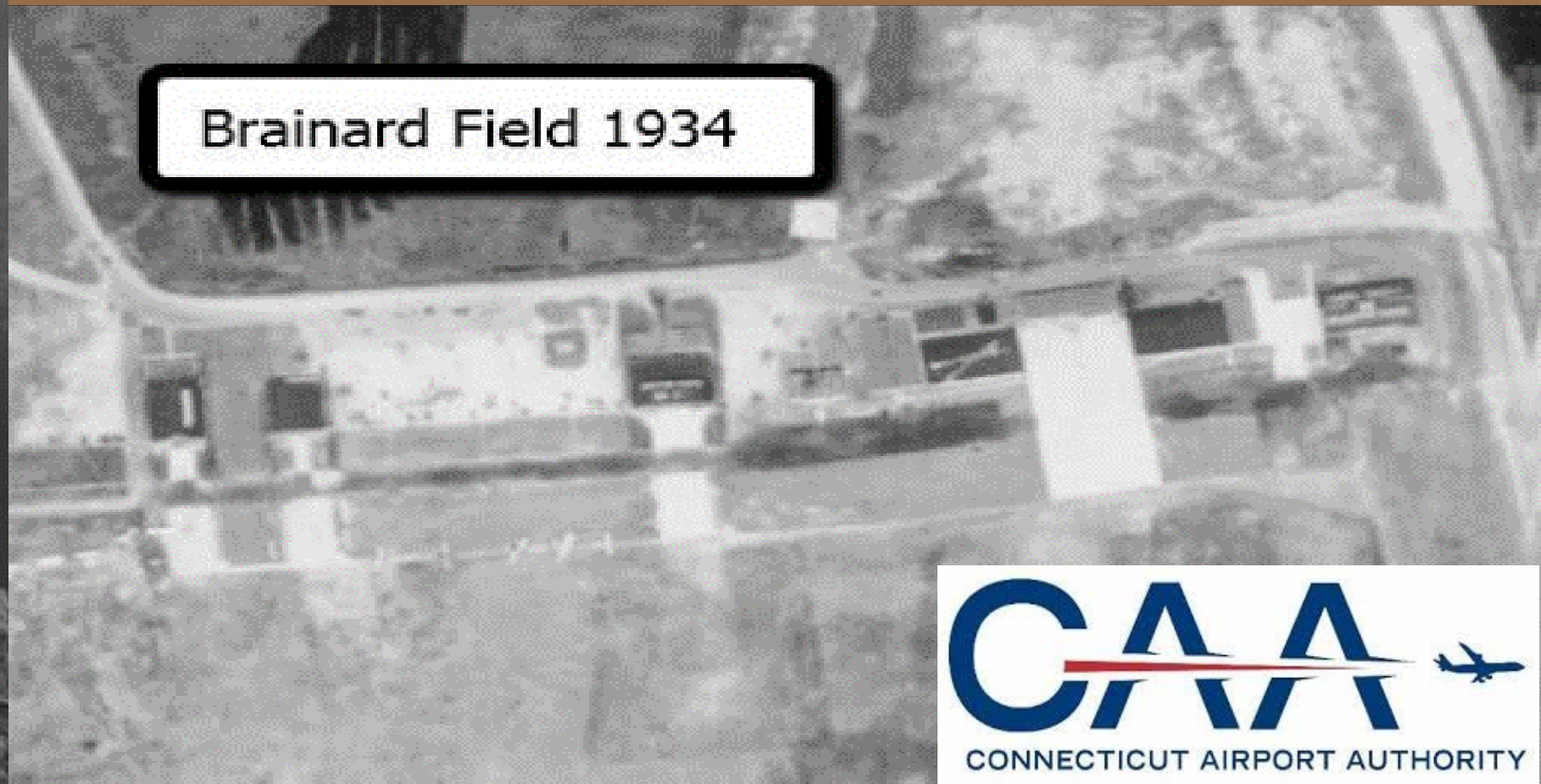
Stantec

Public Information Hearing

Hartford-Brainard Airport (HFD) Off-Airport Obstruction Removal

CT Department of Energy and Environmental Protection
Inland Wetlands and Watercourses Application
#202204934
December 15, 2022 @7PM



CAA
CONNECTICUT AIRPORT AUTHORITY

Hearing Agenda

1. Project Introduction
2. Purpose and Need
3. Vegetation Management Design
4. Closing Remarks
5. Public Comment

Typical view of the interior wooded area of the mechanical cutting areas revealing the multiple-trunked target trees reflecting past management

1. Project Introduction

a) Airport Description and Layout
b) CT Airport Authority's Role and Responsibilities
c) Airport Property and Easements

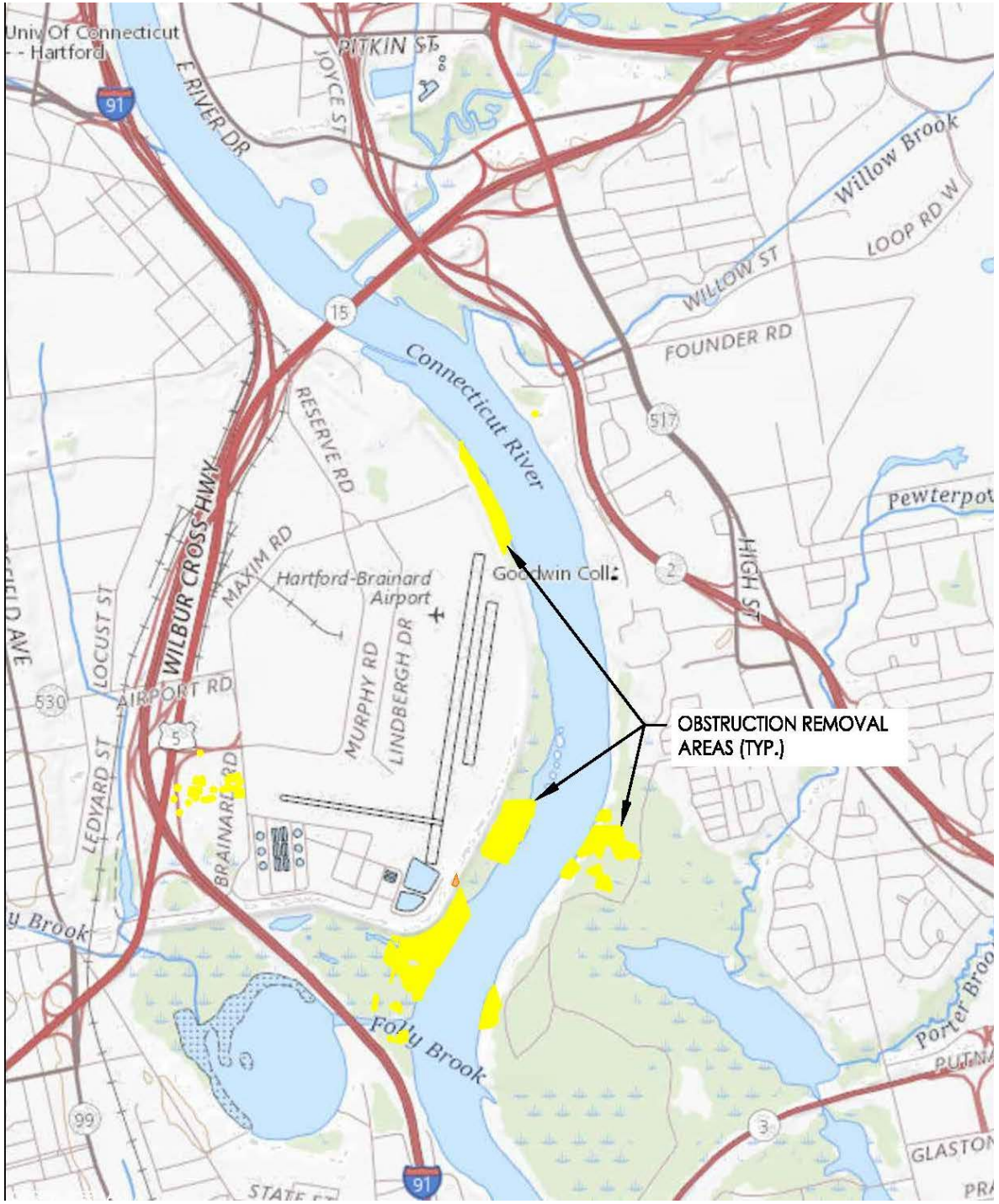
Runway 2 End Approach Surface and the Clark Dike Flood Protection Levee

Introduction

Airport Layout

Features

- ✓ CT River
- ✓ Route 91
- ✓ Charter Oak Bridge
- ✓ Charter Oak Landing
- ✓ Goodwin University
- ✓ Wethersfield Cove
- ✓ South Meadows



Introduction

Airport Layout

Features

- ✓ Runway 2-20
- ✓ Runway 11-29
- ✓ HFD Apron
- ✓ HFD Hangars
- ✓ The Clark Dike
- ✓ Metro District Commission WWTP
- ✓ CT River
- ✓ Route 91
- ✓ Maxim Road

Introduction

CAA's Role and Responsibilities

The Connecticut Airport Authority or CAA

"The Connecticut Airport Authority was established in July 2011 to develop, improve and operate Bradley International Airport and the state's five general aviation airports (Danielson, Groton-New London, Hartford-Brainard, Waterbury-Oxford, and Windham airports). The board consists of 11 members with a broad spectrum of experience in aviation-related and other industries as well as government. The CAA serves as an economic driver in Connecticut, making the state's airports more attractive to new routes, new commerce, and new companies who may be considering making Connecticut their home."

Sec. 15-120cc. Duties and powers. (a) The authority shall have the duty, power and authority generally to manage, operate and develop Bradley, the general aviation airports and other airports ensuring **compliance with all federal obligations** the state has incurred with respect to such airports, and specifically to:

(1) Develop an organizational and management structure that will best accomplish the goals of Bradley, the general aviation airports and any other airports;

(2) Approve all **safety**, security and federal certification plans, procedures and specifications related to the operation, management and development of Bradley, the general aviation airports and any other airports;

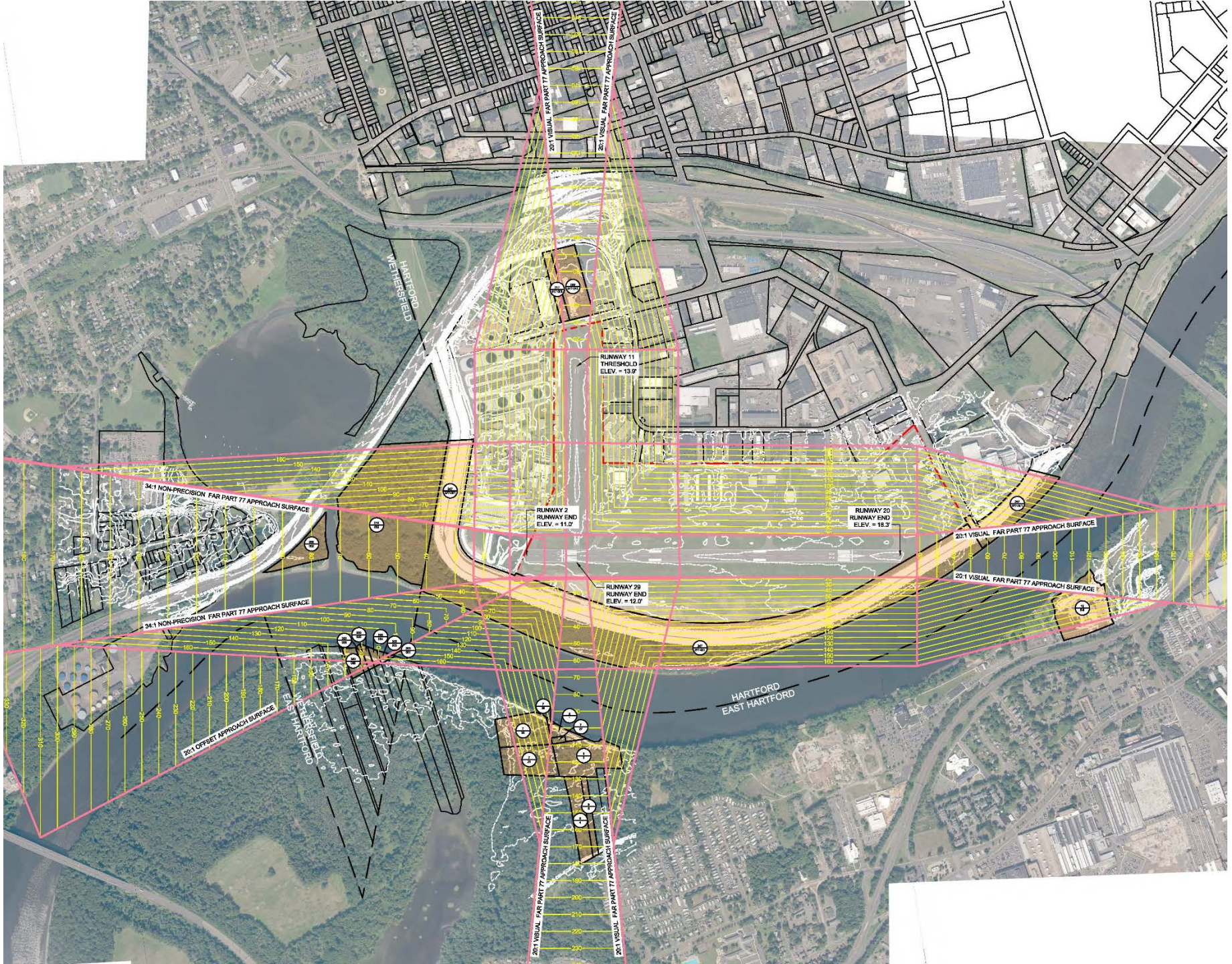
CAA
CONNECTICUT AIRPORT AUTHORITY

Introduction

HFD Property

Hartford-Brainard Airport Property and Easements

- ✓ Airport property is limited
- ✓ Obstruction work is beyond the airport property limits
- ✓ Avigation easements provide CAA with access to address airspace obstructions



2. Purpose and Need

a. FAA Airspace Protection Regulatory Framework
b. HFD Airspace Analysis Methodology and Timelines
c. Results of the 2019 HFD Airspace Analysis

Runway 2 End Approach Surface during a spring-time high-water event

Purpose and Need

FAA Airspace Regulations

FAA Airspace Regulatory Framework

Part 77 and TERPS

a) Define the protected airspace geometry
b) Provide the standards for determining if obstructions exist
c) Define what is an airspace obstruction
d) Determine methods for addressing obstructions
e) The CAA is responsible for identifying and addressing airspace obstructions at HFD

Federal Aviation Regulations or FAR14 CFR PART 77 - SAFE, EFFICIENT USE, AND PRESERVATION OF THE NAVIGABLE AIRSPACE

Subpart A - General§ 77.1 Purpose. This part establishes:
(a) The requirements to provide notice to the FAA of certain proposed construction, or the alteration of existing structures;
(b) The standards used to determine obstructions to air navigation, and navigational and communication facilities;
(c) The process for aeronautical studies of obstructions to air navigation or navigational facilities to determine the effect on the safe and efficient use of navigable airspace, air navigation facilities or equipment; and
(d) The process to petition the FAA for discretionary review of determinations, revisions, and extensions of determinations.

FAA Order 8260.3E - United States Standard for Terminal Instrument Procedures (TERPS) Revision Issued - September 17, 2020

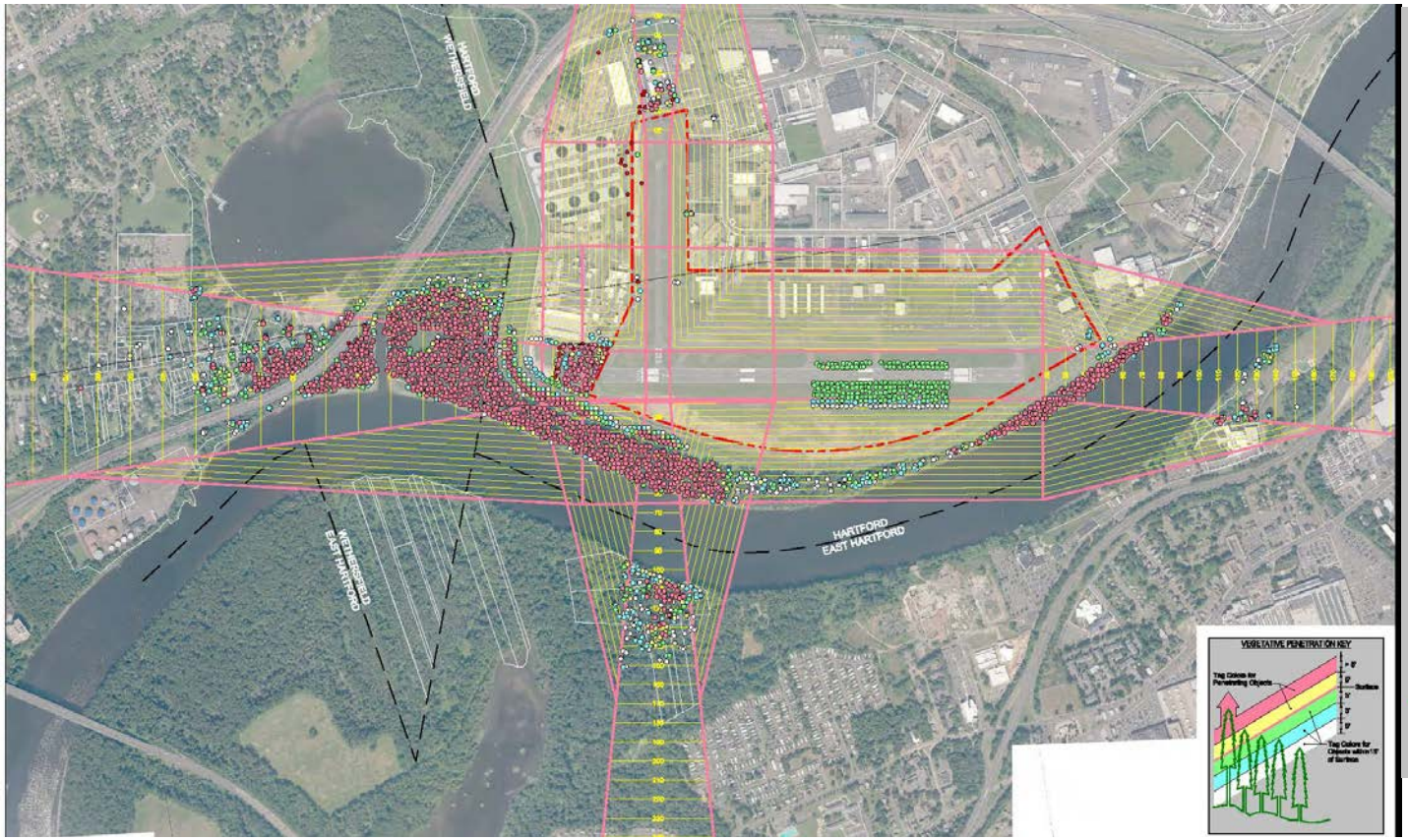
a) This order prescribes standardized methods for designing and evaluating Instrument Flight Procedures prescribed under Title 14, Code of Federal Regulations (14 CFR) Part 95 and Part 97.
b) It is to be used by all personnel responsible for the preparation, approval, and promulgation of IFPs. The criteria contained within this order are predicated on normal aircraft operations and performance.

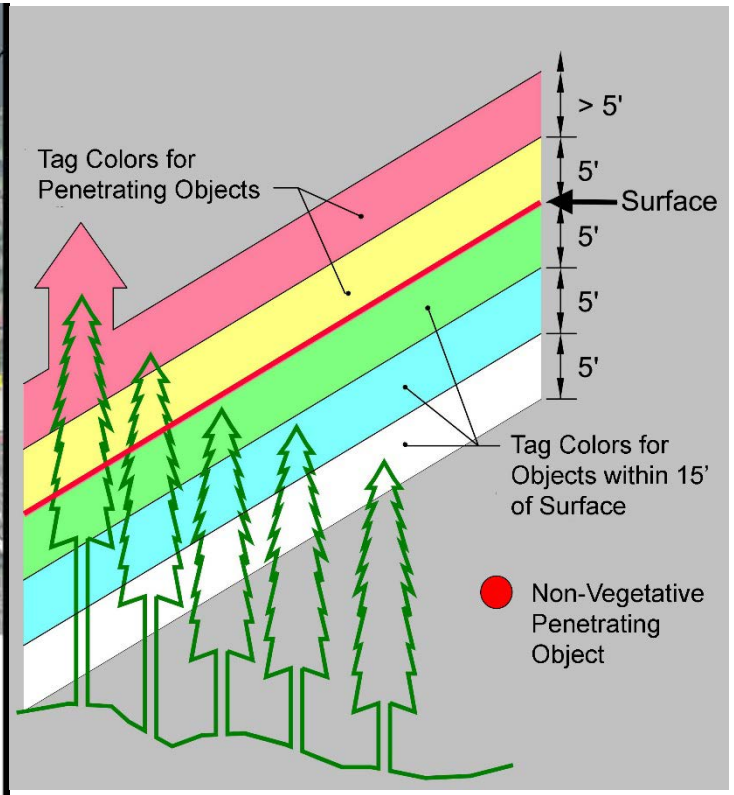
Purpose and Need

Airspace Analysis at HFD

HFD Airspace Analysis

- ✓ Tree-top, leaf-on aerial photogrammetry flights conducted in 2019
- ✓ Ground survey in support of the photogrammetry completed following the aerial survey
- ✓ Analyzed the required airspace and navigational aid surfaces
- ✓ Developed mapping of the airspace and the obstruction locations
- ✓ Identified properties located within the obstruction areas to determine easement needs
- ✓ Recommended a plan to mitigate the identified airspace obstructions



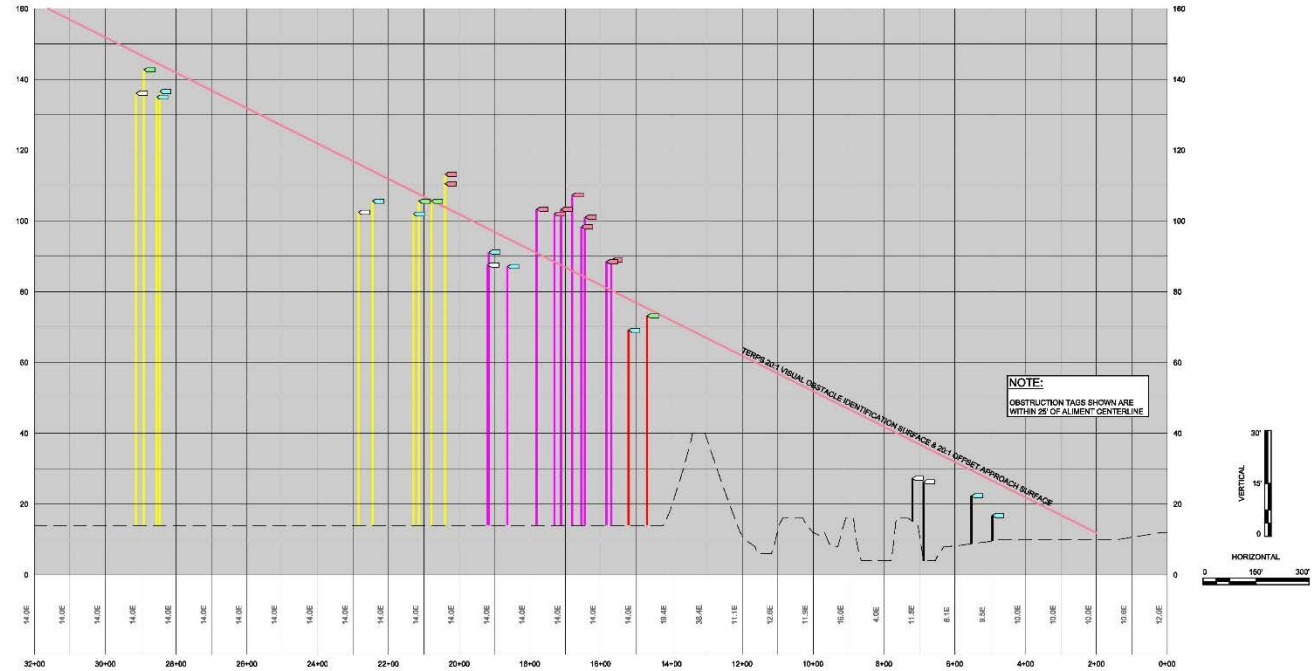


Purpose and Need

Airspace Analysis at HFD

HFD Airspace Analysis

RUNWAY 2



RUNWAY 2 - CENTERLINE PROFILE

Airspace Data

Cross-sectional presentation of obstruction data and the protected airspace surface

Purpose and Need

Airspace Analysis at HFD

HFD Airspace Analysis

- ✓ Data is provided for each of the obstruction tags identified in the analysis so the type, extent and location of each obstruction can be determined
- ✓ Field work provides the type, condition and growth pattern of the target trees
- ✓ The combination of the obstruction data and field work determines the removal method

Data Table Sample: HFD

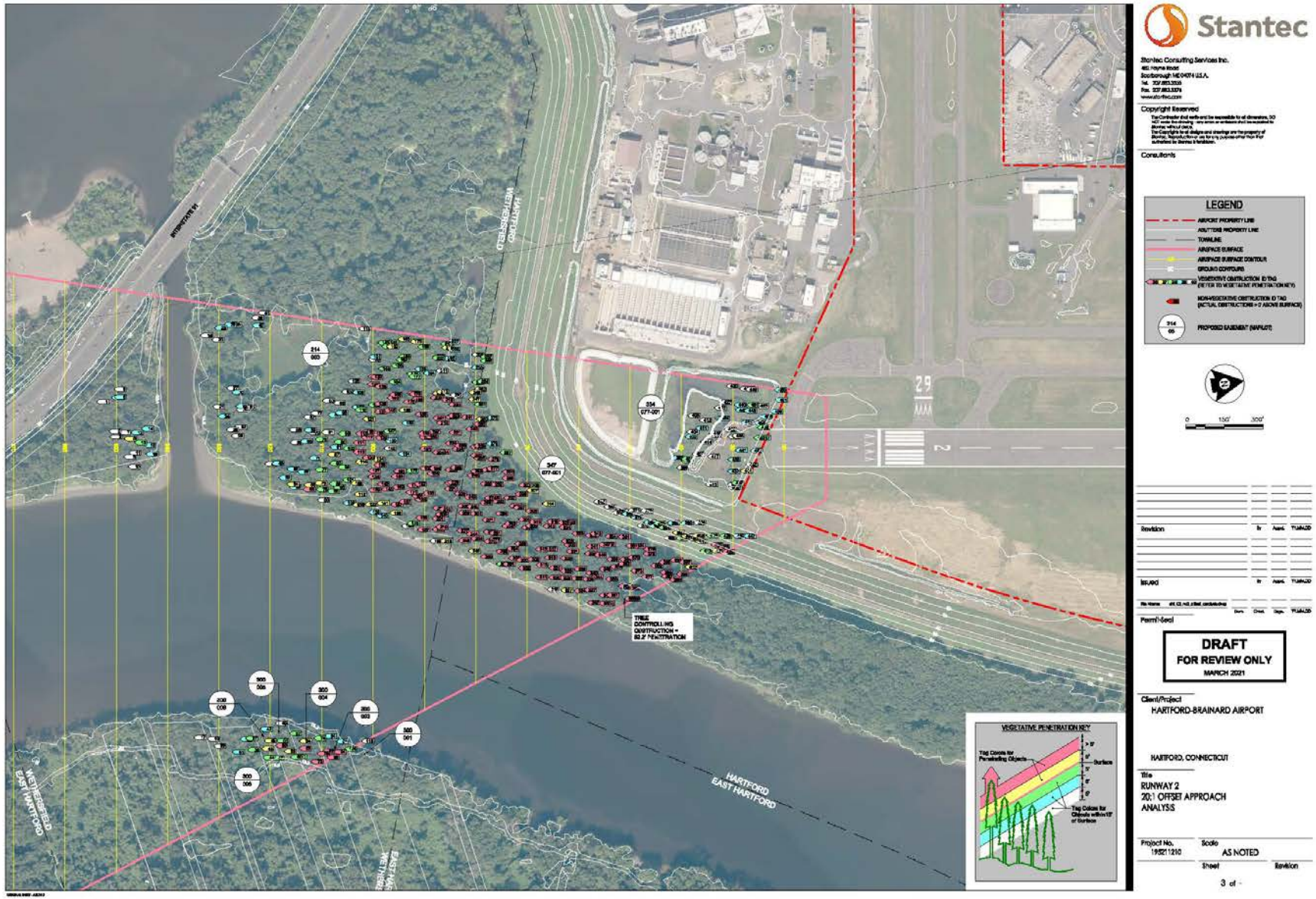
TAG NO.	EASTING	NORTHING	DESCRIPTION	BASE-ELEV	TOP-ELEV	HEIGHT	PENETRATION	LAT (N)	LONG (W)
161	1027216	825964	Tree	6.2	100.9	95	9.9	41°43'40.41"	72°39'01.07"
162	1027315	825960	Tree	8.4	103.0	95	12.6	41°43'40.37"	72°38'59.76"
163	1026853	826035	Tree	5.8	80.8	75	-9.4	41°43'41.11"	72°39'05.86"
164	1027099	826005	Tree	5.8	105.1	99	15.4	41°43'40.81"	72°39'02.61"
165	1027241	825989	Tree	6.9	102.2	95	12.7	41°43'40.65"	72°39'00.74"
166	1027080	826017	Tree	5.9	108.6	103	19.2	41°43'40.93"	72°39'02.86"
167	1027221	826000	Tree	6.9	105.1	98	16	41°43'40.76"	72°39'01.00"
168	1027501	825959	Tree	4.9	78.1	73	-10.9	41°43'40.35"	72°38'57.31"
169	1026951	826047	Tree	6.0	98.7	93	9.8	41°43'41.23"	72°39'04.56"
170	1027417	825981	Tree	11.1	106.4	95	17.9	41°43'40.57"	72°38'58.42"
171	1026800	826078	Tree	6.2	85.7	80	-2.8	41°43'41.54"	72°39'06.55"
172	1027459	825976	Tree	8.9	104.1	95	15.7	41°43'40.52"	72°38'57.87"
173	1027163	826022	Tree	6.1	102.0	96	13.5	41°43'40.98"	72°39'01.77"
174	1026936	826058	Tree	6.1	90.5	84	2	41°43'41.34"	72°39'04.76"
175	1026795	826081	Tree	6.2	88.4	82	0	41°43'41.57"	72°39'06.62"
176	1027031	826044	Tree	5.9	109.0	103	20.6	41°43'41.20"	72°39'03.51"

Purpose and Need

Airspace Analysis at HFD

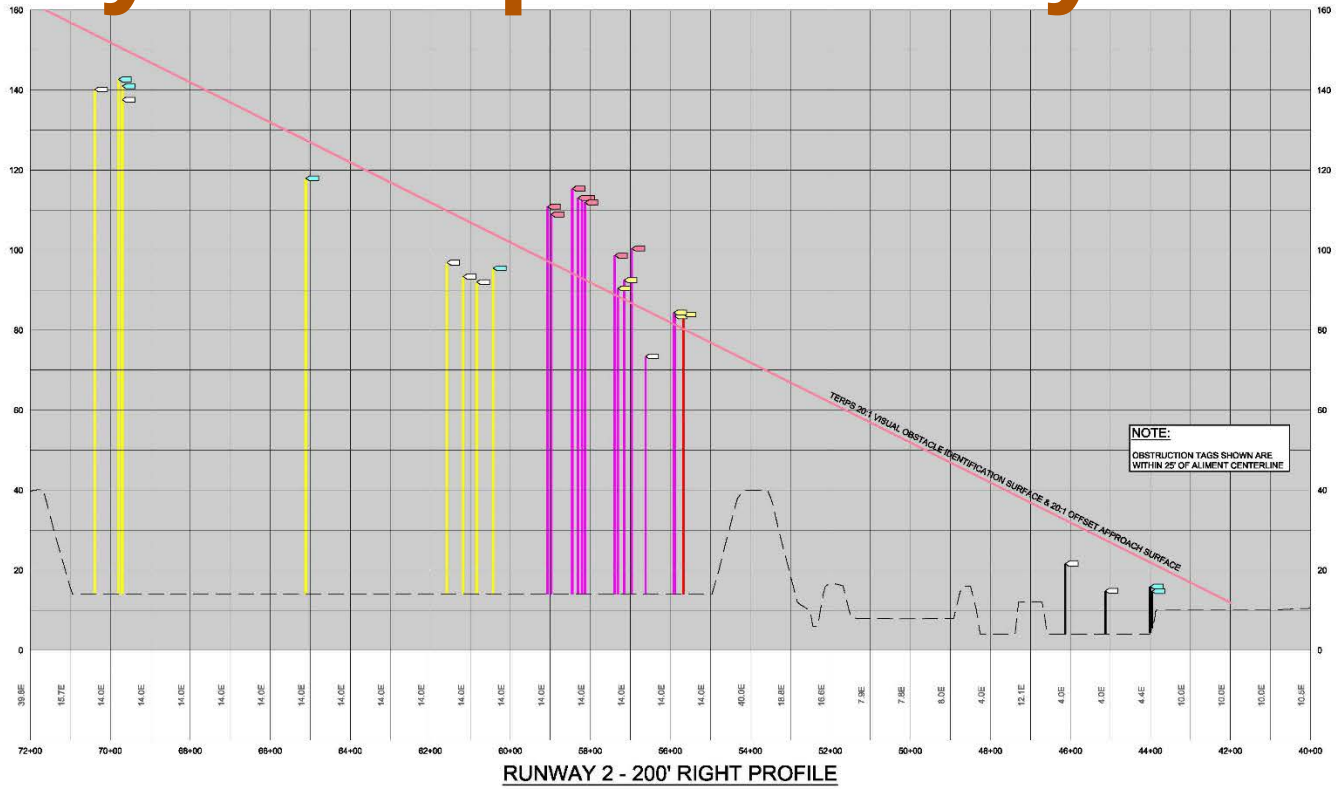
HFD Airspace Analysis Results

Runway 2 End



RUNWAY 2

Runway 2: Airspace Analysis



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LEGEND
- AIRPORT PROPERTY LINE
- ABUTTERS PROPERTY LINE
- TOWNLINE
- EXISTING CONTOUR
- AIRSPACE SURFACE
- AIRSPACE SURFACE CONTOUR
- VEGETATIVE OBSTRUCTION ID TAG (REFER TO VEGETATIVE PENETRATION KEY)
- NON-VEGETATIVE OBSTRUCTION ID TAG (ACTUAL OBSTRUCTIONS > 0' ABOVE SURFACE)
- MECHANIZED FELLING - FLUSH CUT
- MECHANIZED FELLING - SNAG CUT
- CLIMBING - TOPPING
- CLIMBING - PRUNING
- 214 03 PROPOSED EASEMENT (MAP/LOT)

0 150' 300'

Revision | By | Appd. | YY.MM.DD

Issued | By | Appd. | YY.MM.DD

File Name: int_01_to_08_terps_plan_n_profile.dwg | Dwn. | Chkd. | Dsgn. | YY.MM.DD

Permit-Seal

Client/Project
HARTFORD-BRAINARD AIRPORT

HARTFORD, CONNECTICUT

Title
RUNWAY 2
TERPS 20:1 VISUAL AREA OBSTACLE IDENTIFICATION SURFACE (VA-OIS)
PLAN AND PROFILE - SHEET 2 OF 3

Project No. 195211210 | Scale AS NOTED | Sheet | Revision

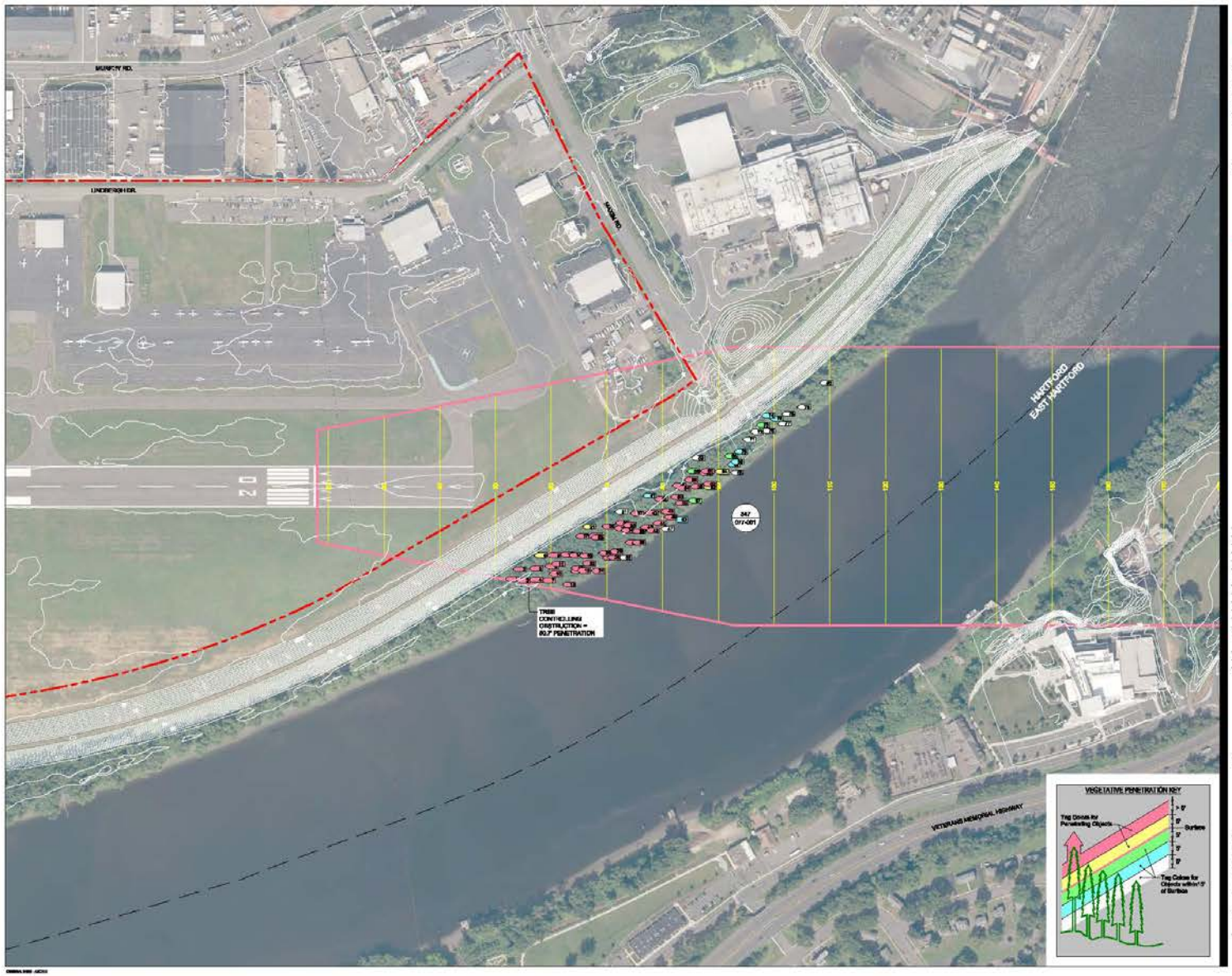
2 of -

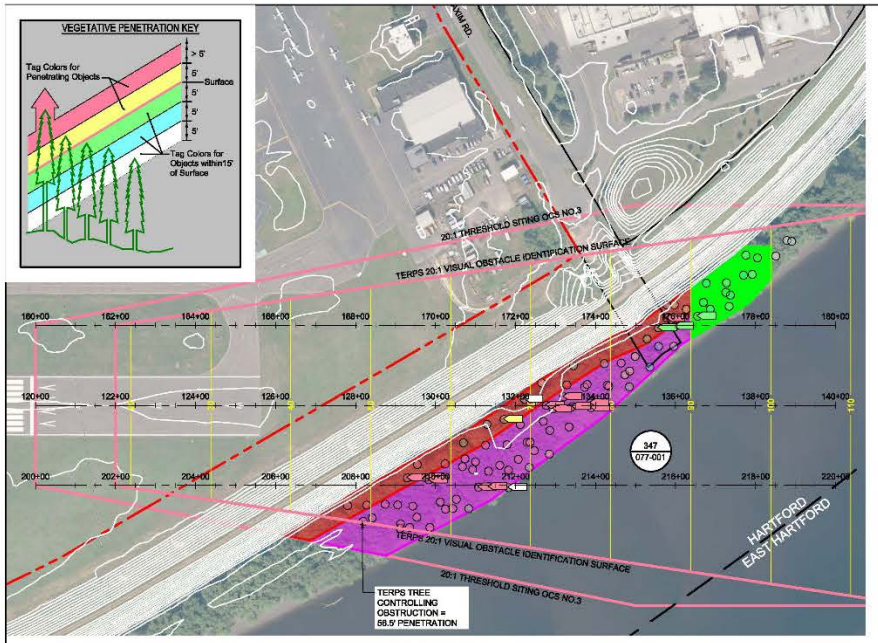
Purpose and Need

Airspace Analysis at HFD

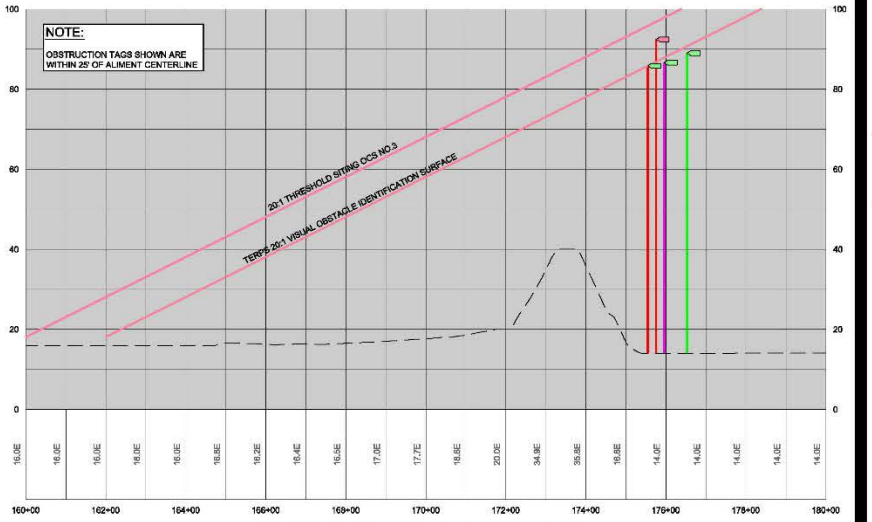
HFD Airspace Analysis Results

Runway 20 End



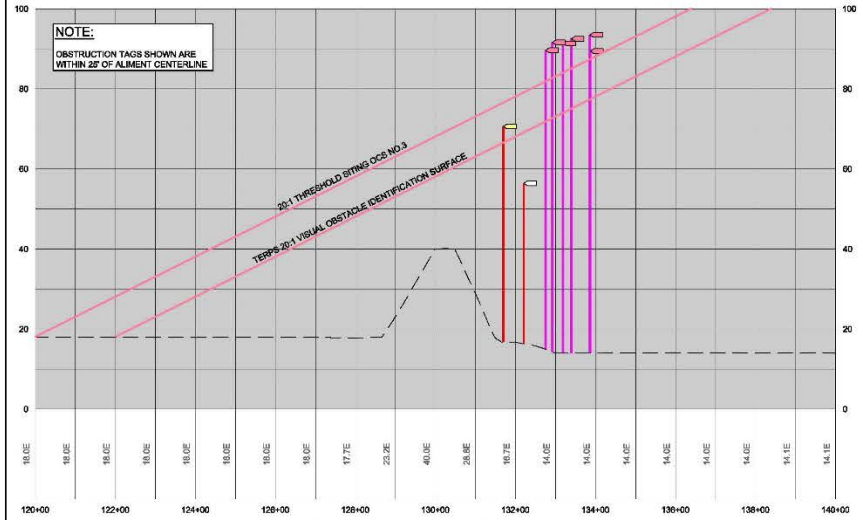


RUNWAY 20

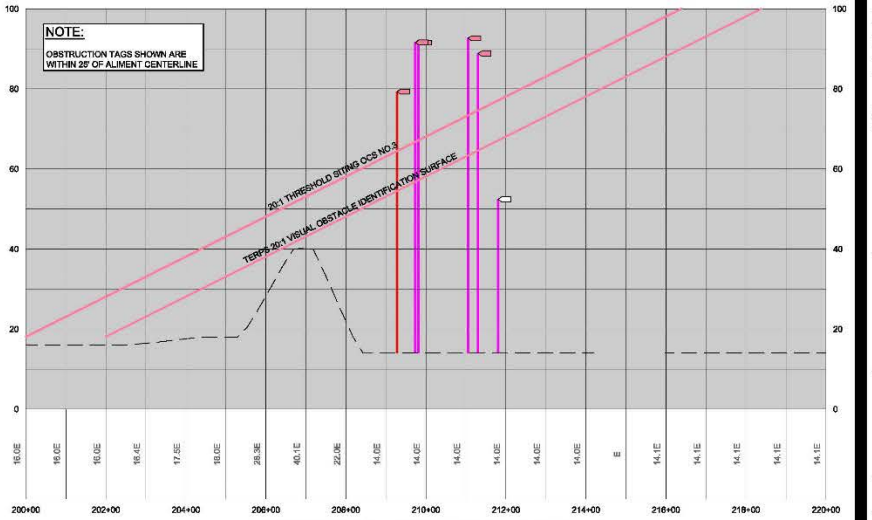


RUNWAY 20 - 200' LEFT PROFILE

Runway 20: Airspace Analysis



RUNWAY 20 - CENTERLINE PROFILE



RUNWAY 20 - 200' RIGHT PROFILE

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HARTFORD-BRAINARD AIRPORT

HARTFORD, CONNECTICUT

Title
RUNWAY 20
TERPS 20:1 VISUAL AREA OBSTACLE IDENTIFICATION SURFACE (VA-OIS)
PLAN AND PROFILE - SHEET 1OF 1

Project No. 195211210 | Scale AS NOTED | Sheet | Revision

4 of -

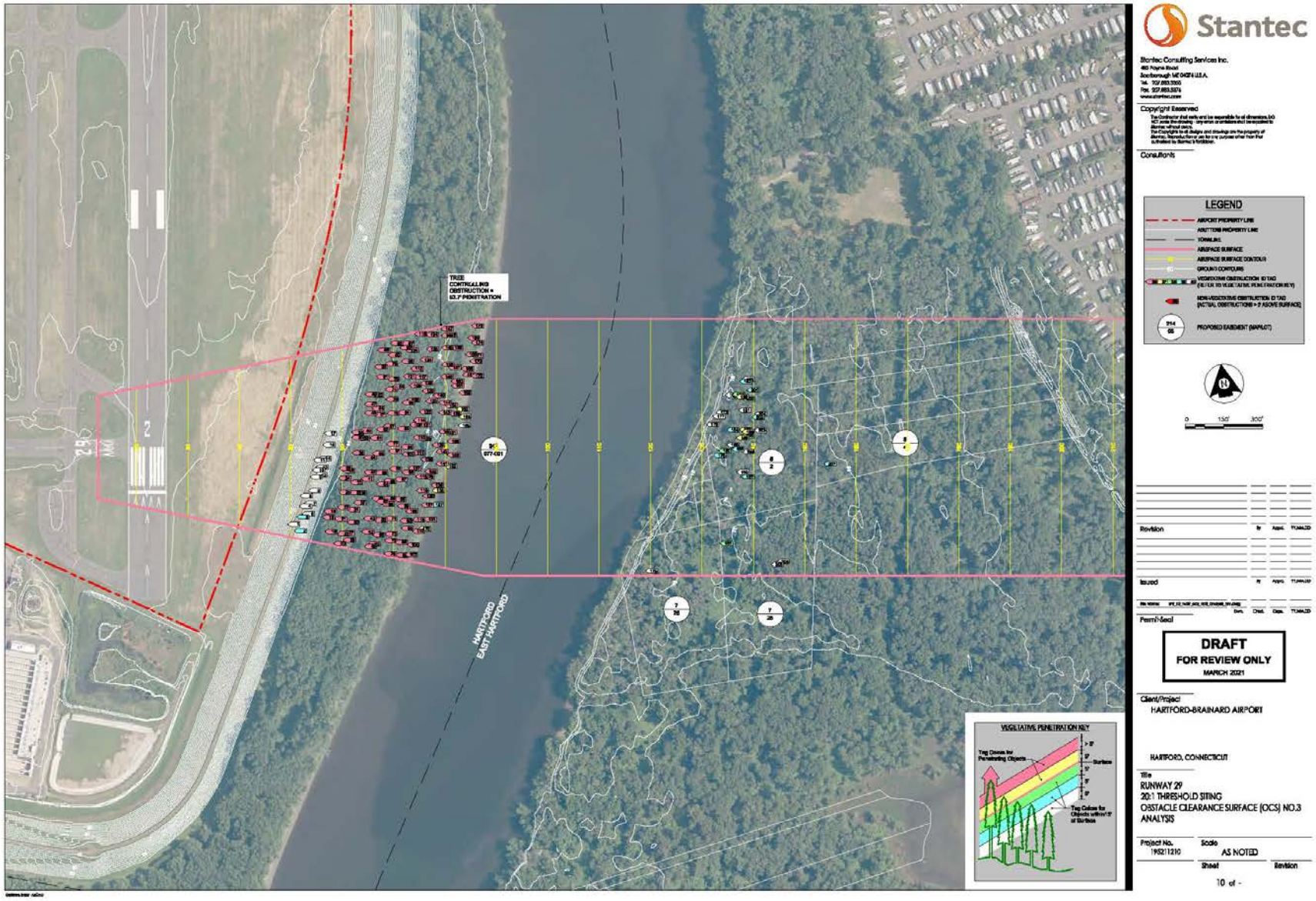
ORIGINAL SHEET - ARCH D

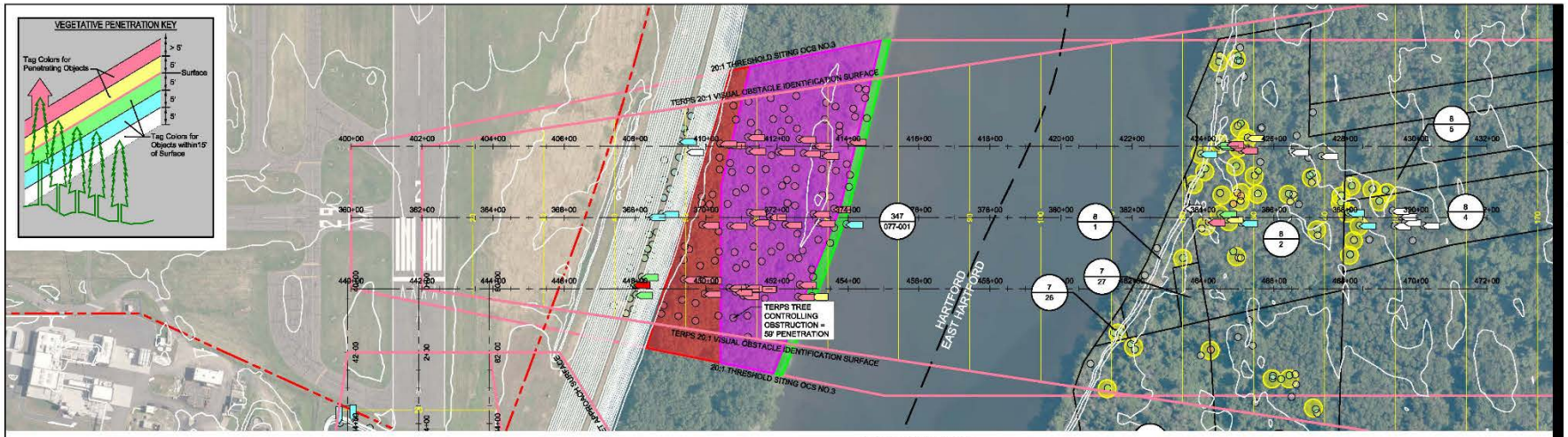
Purpose and Need

Airspace Analysis at HFD

HFD Airspace Analysis Results

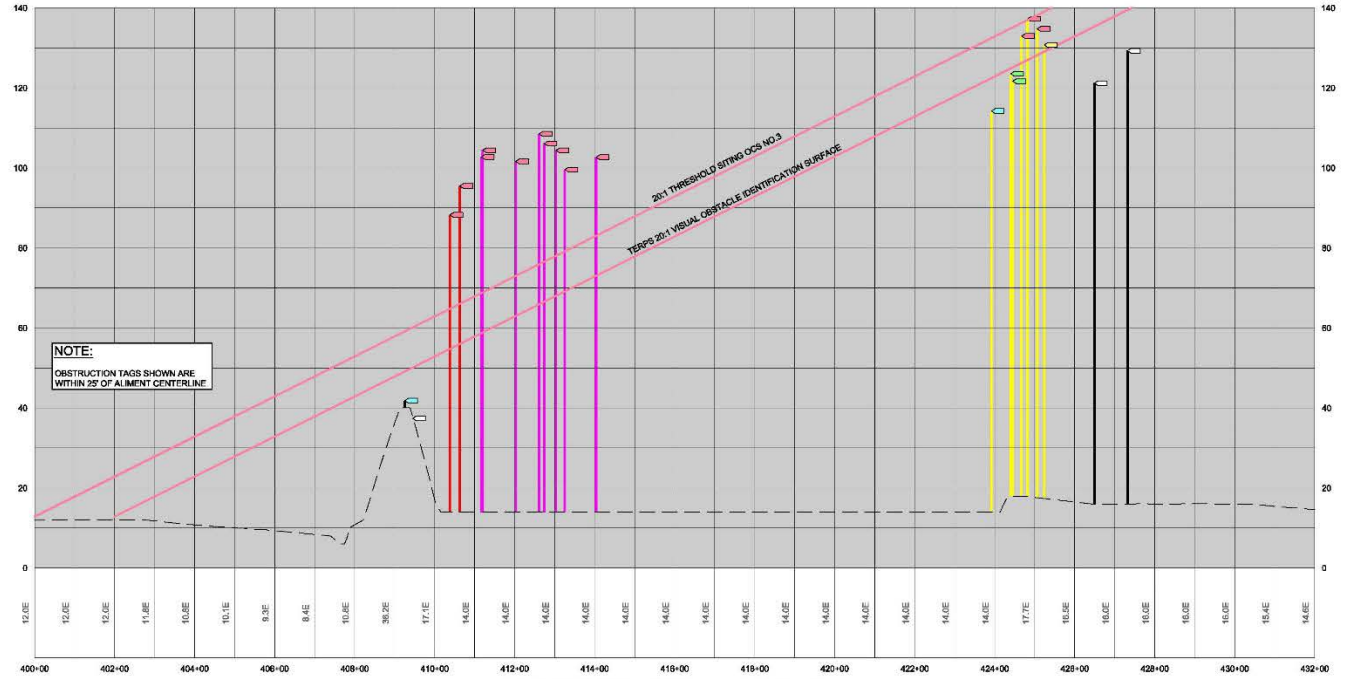
Runway 29 End





RUNWAY 29

Runway 29: Airspace Analysis



RUNWAY 29 - 200' LEFT PROFILE

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HARTFORD-BRAINARD AIRPORT

HARTFORD, CONNECTICUT

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RUNWAY 29
TERPS 20:1 VISUAL AREA OBSTACLE IDENTIFICATION SURFACE (VA-OIS)
PLAN AND PROFILE - SHEET 2 OF 3

Project No. 195211210 | Scale AS NOTED | Sheet | Revision

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3. Project Design and Alternatives

a. Alternatives Considered
b. Selected Design Alternative
c. Environmental Impact Avoidance, Minimization and Mitigation
d. Follow-up Site Improvements

Project Design

Description

HFD Obstruction Removal – Alternatives

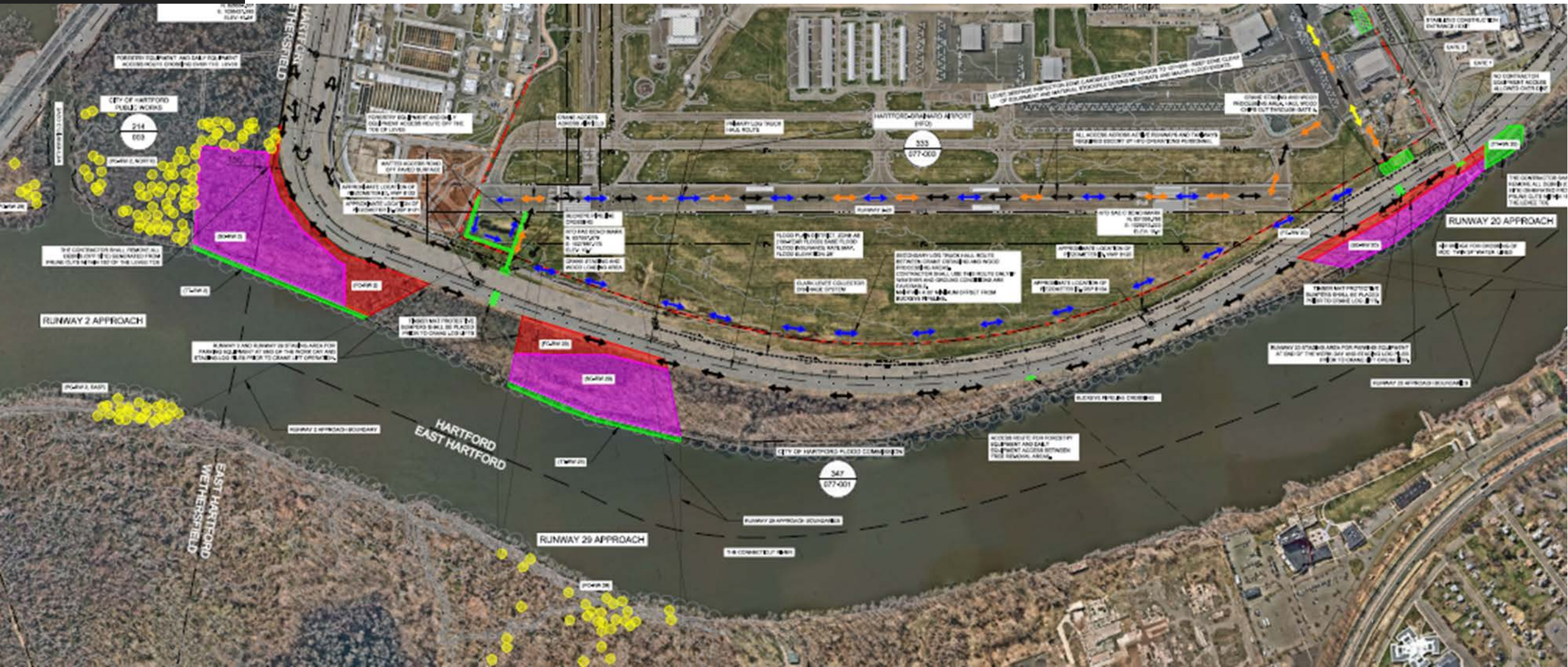
The NEPA Environmental Assessment included Design Alternatives

- ✓ *No Action*
- ✓ *Complete Obstruction Removal* – Manage all Protected Airspace Surfaces
    - ✓ Estimated at 75+ acres of management in the NEPA EA
- ✓ *Modified Obstruction Removal* – Manage Critical Airspace Surfaces Only
    - ✓ Calculated to be 33.8 acres of management
    - ✓ Selected alternative from the NEPA EA
    - ✓ Current design based on this alternative
    - ✓ Achieves a balance between airport safety and environmental concerns
    - ✓ Results in a project longevity of up to 10 years
- ✓ *Full Tree Removal from the Critical Airspace Surfaces* (Stump Management)
    - ✓ Manage re-growth of floodplain tree stumps to select for vegetation that is compatible with the airspace elevations
    - ✓ Eliminate stumps through grubbing or limited herbicide application
    - ✓ Reduces the frequency and scale of future projects
    - ✓ Results in a project longevity of up to 20 years
    - ✓ Not selected for this project due to several environmental factors

HFD Obstruction Removal - Design

Project Design

Description



Vegetation Management Areas

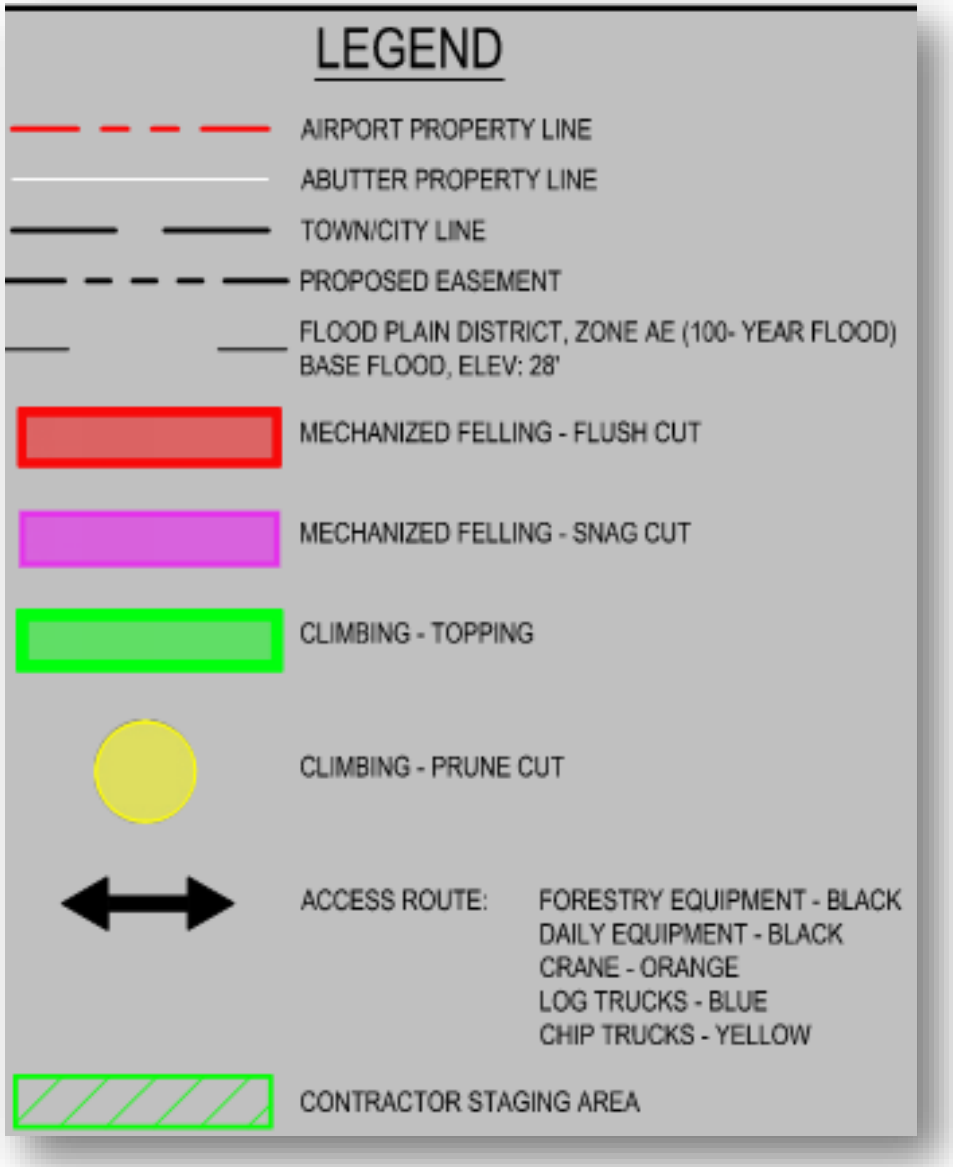
Six primary areas of vegetation management grouped by common location, access, and proximity to runways and to the river edge

- Runway 20 End – Airport Side of River
  - +/- 4.5 acres
  - Mechanical Felling (Flush & Snag), Tree Topping
- Runway 29 End – Airport Side of River
  - +/- 10.9 acres
  - Mechanical Felling (Flush & Snag), Tree Topping
- Runway 2 End – Airport Side of River
  - +/- 17.8 acres
  - Mechanical Felling (Flush & Snag), Tree Topping, Prune cuts
- Wethersfield Parcel – Airport Side of River across Brook
  - Prune cuts
- East Hartford / Great Meadows – East Side of River
  - No Mechanical Work - Prune cuts
- Goodwin University – East Side of RIver
  - Individual Tree Removal on Campus

Project Design

Description

HFD Obstruction Removal - Design



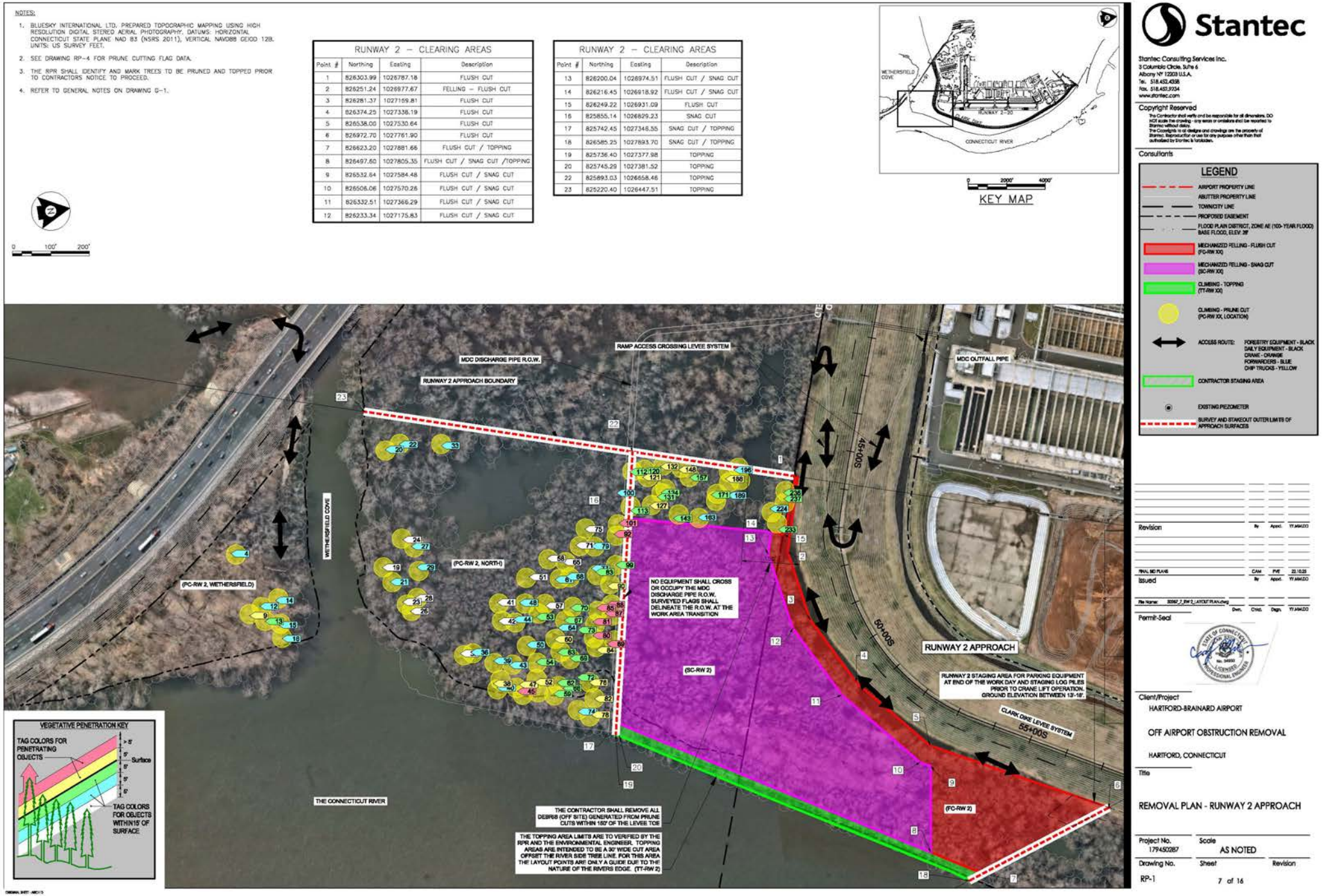
Project Plan Set Legend – Explained

- ✓ Both mechanical and non-mechanical methods
- ✓ Red/Purple depict mechanical means
- ✓ Green/Yellow depict hand labor only
- ✓ Color coding of the plan set is common to all plans in the set
- ✓ Note decreased intensity of management methods as you progress outward from each runway end; all management areas trend from red near the runway to yellow further out in the approach
- ✓ Environmental impact minimization is reflected in the selected management methods

Project Design

Description

Runway 2 End

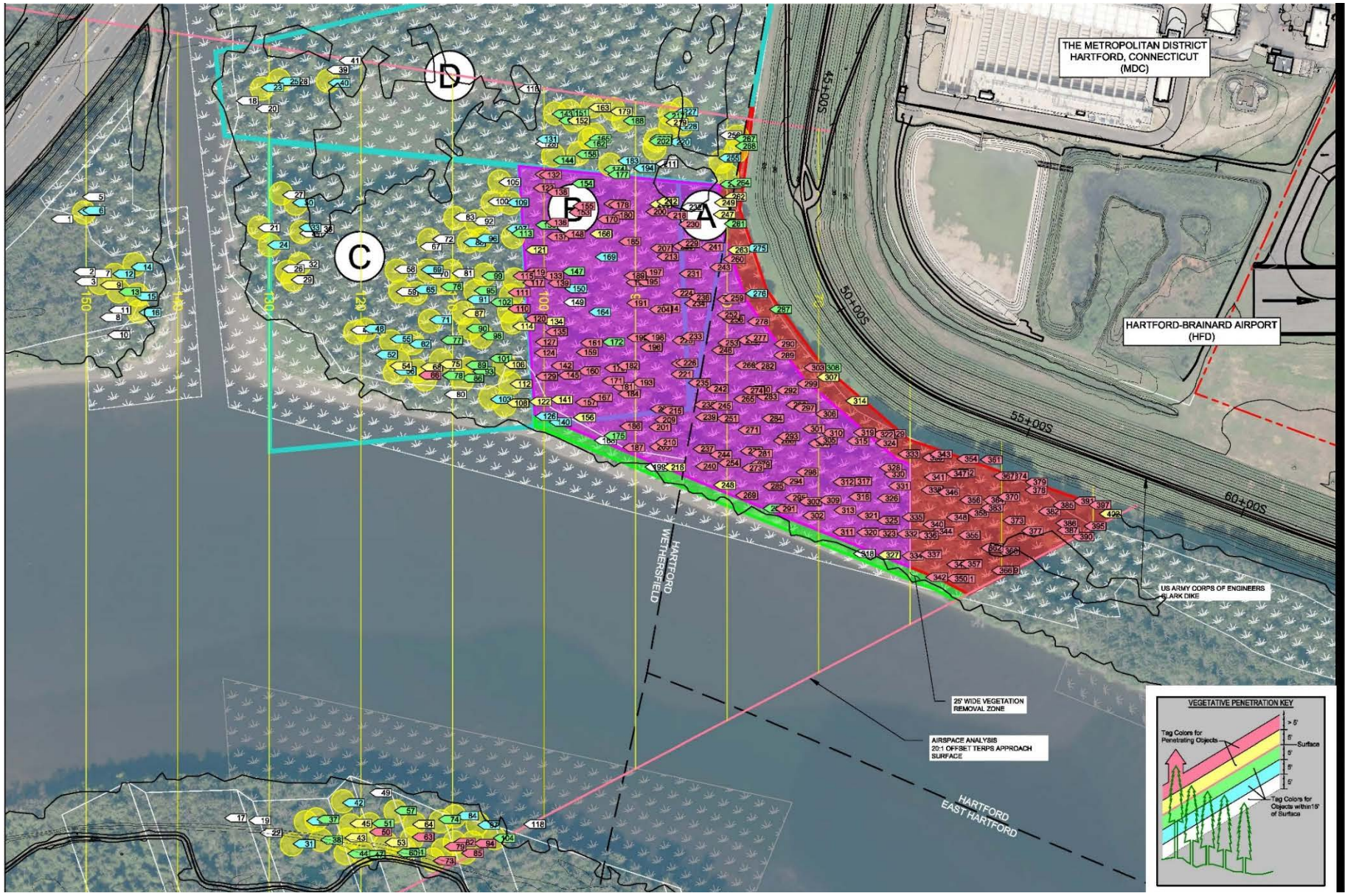


Project Design

Description

Folly Brook Natural Area Compliance

a) Easement Property
b) Property Steward: The Nature Conservancy (TNC)
c) Pre-established Management Methods – 1990 Tree Maintenance Plan
d) Four Zones – A through D Established in the Tree Plan
e) TNC Coordination Completed July 2022



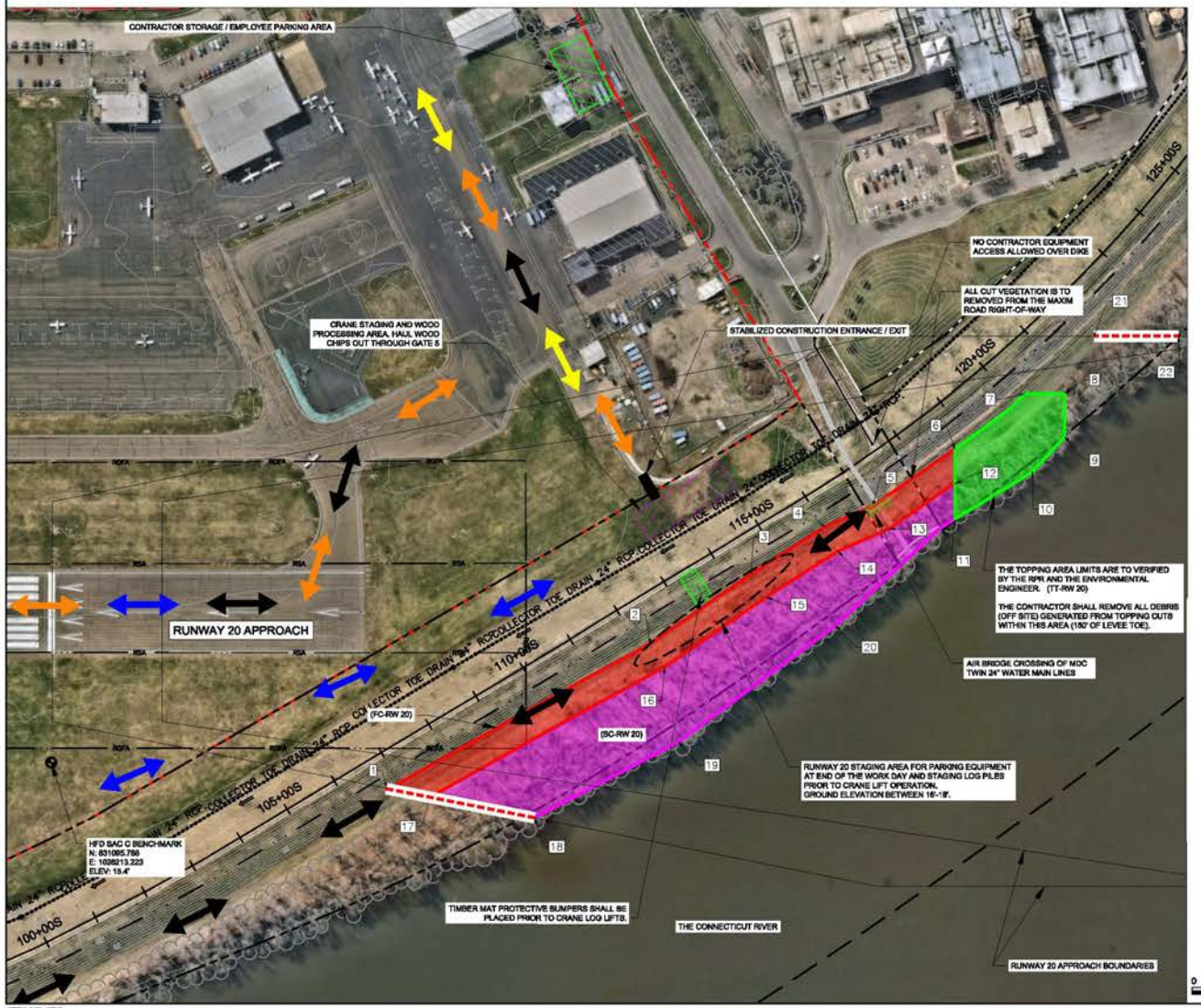
Project Design

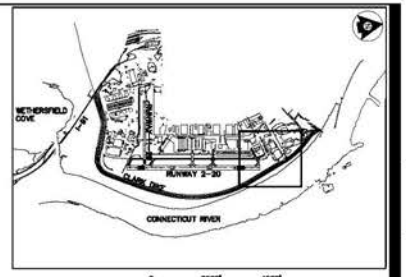
Description

Runway 20 End

NOTES:

1. BLUESKY INTERNATIONAL LTD. PREPARED TOPOGRAPHIC MAPPING USING HIGH RESOLUTION DIGITAL STEREO AERIAL PHOTOGRAPHY. DATUMS: HORIZONTAL CONNECTICUT STATE PLANE NAD 83 (NSRS 2011), VERTICAL NAVD88 GEOID 12B. UNITS: US SURVEY FEET.
2. THE RPR SHALL IDENTIFY AND MARK TREES TO BE PRUNED AND TOPPED PRIOR TO CONTRACTORS NOTICE TO PROCEED.
3. REFER TO GENERAL NOTES ON DRAWING G-1.





KEY MAP

RUNWAY 20 – CLEARING AREAS

Point #	Northing	Easting	Description
1	831691.54	1028353.80	FLUSH CUT
2	832204.81	1028167.42	FLUSH CUT
3	832405.48	1028070.57	FLUSH CUT
4	832550.91	1028008.27	FLUSH CUT
5	832842.90	1027982.24	FLUSH CUT
6	832806.02	1027903.07	SNAG CUT / TOPPING
7	832946.99	1027822.95	TOPPING
8	833019.19	1027834.26	TOPPING
9	833006.78	1027911.39	TOPPING
10	832939.31	1027965.76	TOPPING
11	832786.37	1028028.91	SNAG CUT / TOPPING
12	832796.22	1027965.85	FLUSH CUT / SNAG CUT / TOPPING
13	832666.08	1028027.86	FLUSH CUT / SNAG CUT
14	832567.44	1028053.63	FLUSH CUT / SNAG CUT
15	832426.45	1028115.96	FLUSH CUT / SNAG CUT
16	832223.99	1028213.56	FLUSH CUT / SNAG CUT
17	831766.52	1028381.37	FLUSH CUT / SNAG CUT
18	831948.05	1028448.10	SNAG CUT
19	832227.98	1028351.86	SNAG CUT
20	832542.09	1028187.08	SNAG CUT
21	833087.40	1027740.14	APPROCH SURFACE LIMIT
22	833238.91	1027763.79	APPROCH SURFACE LIMIT

LEGEND

- AIRPORT PROPERTY LINE
- ABUTTER PROPERTY LINE
- TOWN/CITY LINE
- PROPOSED EASEMENT
- FLOOD PLAIN DISTRICT, ZONE AE (100- YEAR FLOOD) BASE FLOOD, ELEV. 28'
- MECHANIZED FELLING - FLUSH CUT (FC-RW XX)
- MECHANIZED FELLING - SNAG CUT (SC-RW XX)
- CLIMBING - TOPPING (TT-RW XX)
- CLIMBING - PRUNE CUT (PC-RW XX, LOCATION)
- ACCESS ROUTE: FORESTRY EQUIPMENT - BLACK; CRANE - ORANGE; LOG TRUCKS - BLUE; CHIP TRUCKS - YELLOW
- CONTRACTOR STAGING AREA
- EXISTING PIEZOMETER
- SURVEY AND STAKE OUTER LIMITS OF APPROACH SURFACES

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Revision

Issued

Permit-Seal

Client/Project
HARTFORD-BRAINARD AIRPORT

OFF AIRPORT OBSTRUCTION REMOVAL

HARTFORD, CONNECTICUT

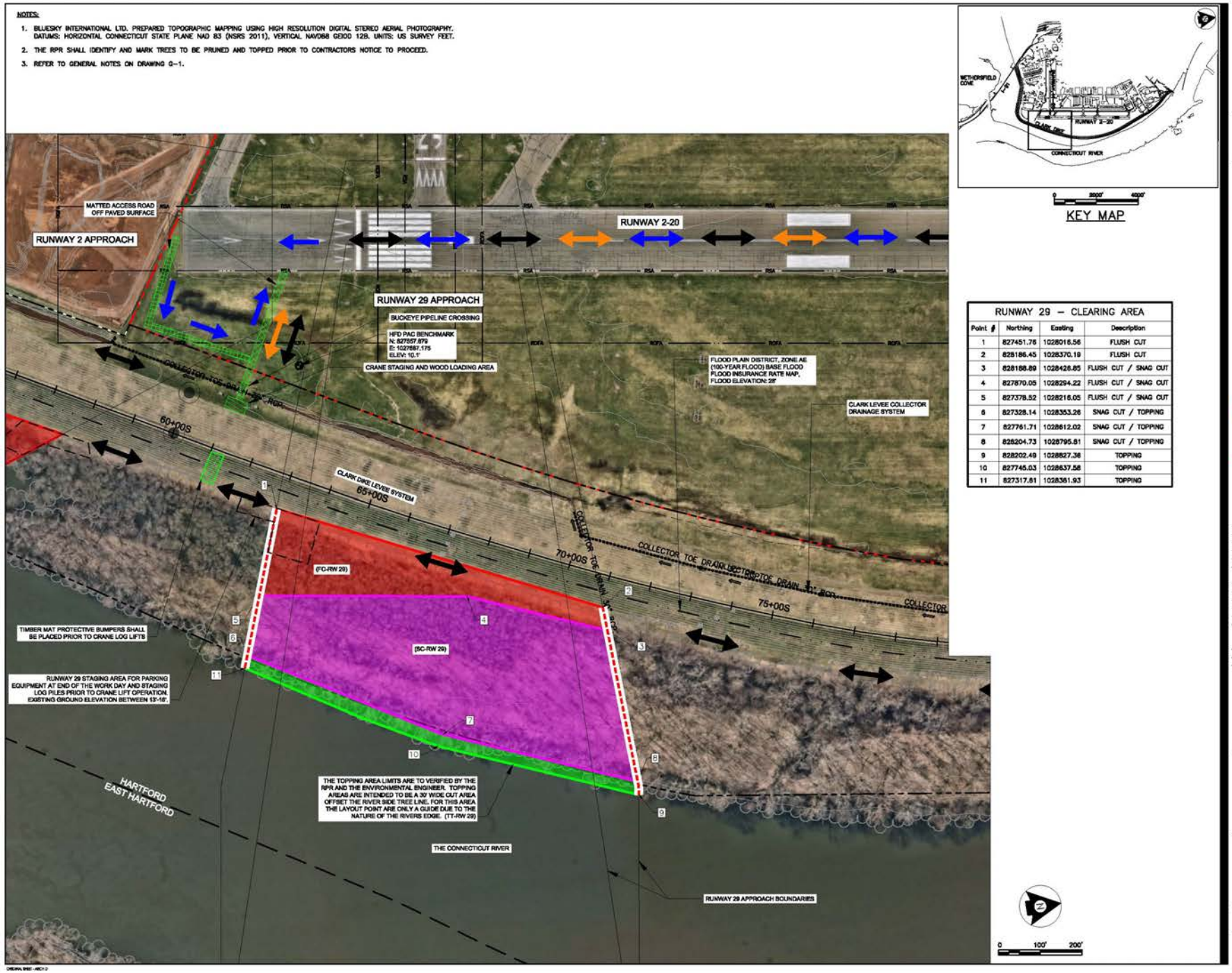
Title
REMOVAL PLAN - RUNWAY 20 APPROACH

Project No. 179450287
Scale AS NOTED
Drawing No. RP-3
Sheet 9 of 16
Revision

Project Design

Description

Runway 29 End



RUNWAY 29 – CLEARING AREA			
Point #	Northing	Easting	Description
1	827451.76	1028016.56	FLUSH CUT
2	828186.45	1028370.19	FLUSH CUT
3	828188.89	1028428.85	FLUSH CUT / SNAG CUT
4	827870.05	1028294.22	FLUSH CUT / SNAG CUT
5	827378.52	1028218.05	FLUSH CUT / SNAG CUT
6	827328.14	1028353.26	SNAG CUT / TOPPING
7	827761.71	1028612.02	SNAG CUT / TOPPING
8	828204.73	1028795.81	SNAG CUT / TOPPING
9	828202.49	1028827.38	TOPPING
10	827745.03	1028637.58	TOPPING
11	827317.81	1028361.93	TOPPING

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LEGEND
- AIRPORT PROPERTY LINE
- ABUTTER PROPERTY LINE
- TOWN/CITY LINE
- PROPOSED EASEMENT
- FLOOD PLAIN DISTRICT, ZONE AE (100- YEAR FLOOD) BASE FLOOD, ELEV. 28'
- MECHANIZED FELLING - FLUSH CUT (FC-RW XX)
- MECHANIZED FELLING - SNAG CUT (SC-RW XX)
- CLIMBING - TOPPING (TT-RW XX)
- CLIMBING - PRUNE CUT (PC-RW XX, LOCATION)
- ACCESS ROUTE: FORESTRY EQUIPMENT - BLACK; DAILY EQUIPMENT - BLACK; CRANE - ORANGE; LOG TRUCKS - BLUE; CHIP TRUCKS - YELLOW
- CONTRACTOR STAGING AREA
- EXISTING PIEZOMETER
- SURVEY AND STAKEOUT LIMITS OF APPROACH SURFACE

Revision

Issued

Permit-Seal

Client/Project
HARTFORD-BRAINARD AIRPORT

OFF AIRPORT OBSTRUCTION REMOVAL

HARTFORD, CONNECTICUT

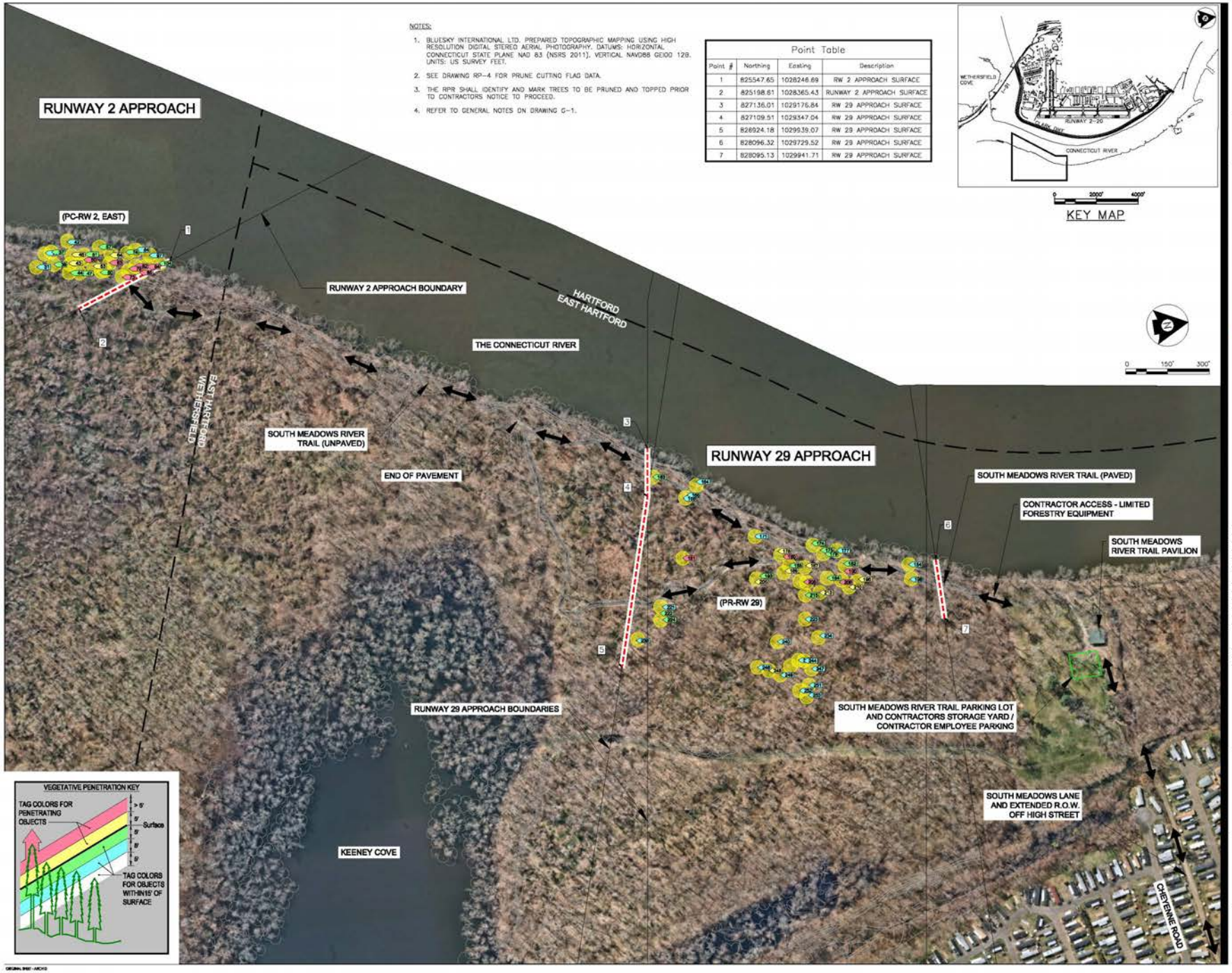
Title
REMOVAL PLAN - RUNWAY 29 APPROACH

Project No. 179450287
Scale AS NOTED
Drawing No. RP-2
Sheet 8 of 16
Revision

Project Design

Description

Runway 2 and 29 Ends – East side of CT River



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Issued | By | Appd. | YY.MM.DD

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Client/Project
HARTFORD-BRAINARD AIRPORT

OFF AIRPORT OBSTRUCTION REMOVAL

HARTFORD, CONNECTICUT

Title
EQUIPMENT ACCESS, STAGING & LAYOUT PLAN
EAST SIDE OF RIVER

Project No. 179450287 | Scale AS NOTED

Drawing No. AC-2 | Sheet 5 of 16 | Revision

Project Design

Description

HFD Obstruction Removal – Wetland Impacts

✓ Of the 33.8 acres of work within wetlands, 10.1 acres consist of non-mechanical methods

Management Method	Inland Wetland Area (Acres)
Mechanical - Flush Cut Area	6.1
Mechanical - Snag Cut Areas	17.6
Hand Removal – Topping	1.8
Hand Removal - Pruning	8.3
Total	33.8

Project Design

Description

HFD Obstruction Removal – Impact Avoidance, Minimization and Mitigation

Measures included in the project to reduce impacts:

1. The **project timing** restricted to winter removal to reduce non-target plant mortality and to take advantage of frozen soils to reduce the potential for rutting, erosion and sedimentation;

2. **Sensitive removal methods** are proposed for those areas where only the canopy section of the target trees penetrates the protected airspace, thus limiting equipment movement on the site and within wetlands;

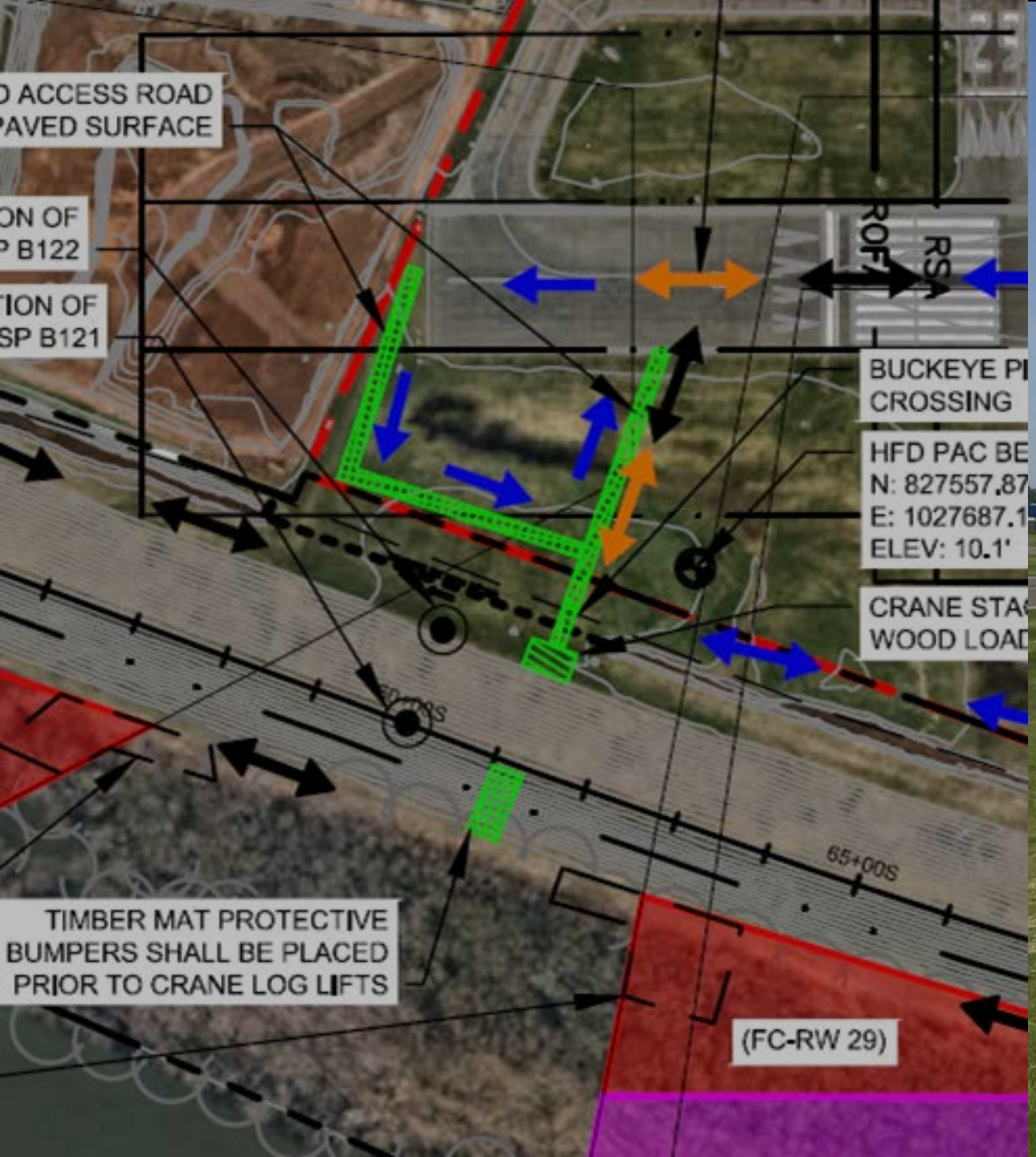
3. The **use of a crane** to lift wood debris from the site which will limit equipment movement through the wetland/floodplain and significantly reduce heavy equipment trips over the flood control berm;

4. Protection procedures have been prepared for **protection of the state-listed species** mapped within and adjacent to the work areas;

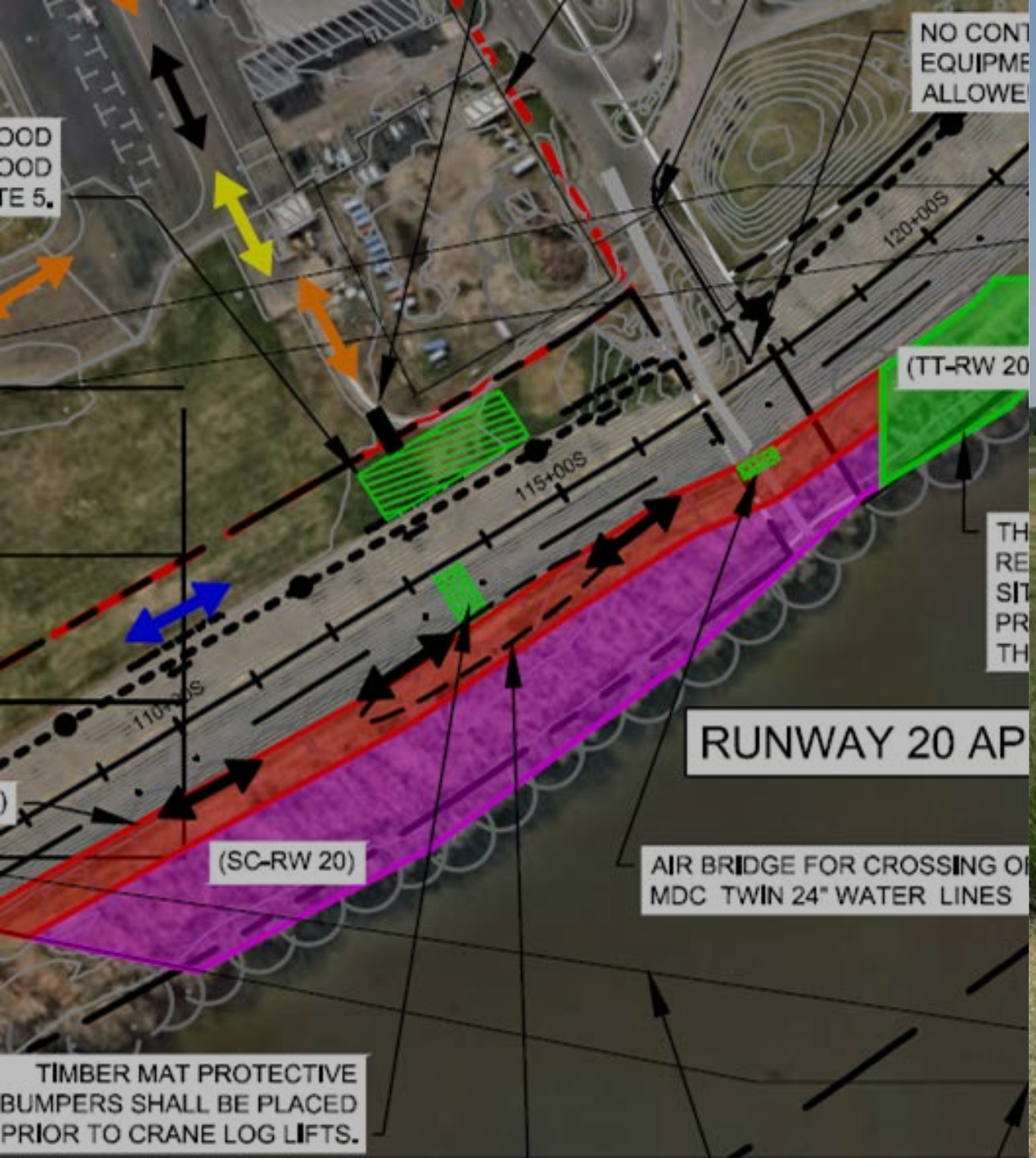
5. Adequate **setbacks to the active eagle nest** have been provided based on guidelines from the Bald and Golden Eagles Protection Act as communicated through the CT DEEP rare species staff;

6. **A planting plan** within a protective 100-foot buffer zone of the Connecticut River will be implemented to promote revegetation of the site; and,

7. **An invasive species control plan** will be implemented during a 5-year period following vegetation management.



South Crane Site



North Crane Site

4. Closing Remarks

a) Project is based on existing regulatory requirements of the Federal Aviation Administration
b) Hartford-Brainard Airport is part of the National Plan of Integrated Airport Systems and thus is subject to all FAA regulatory requirements, advisories and design criteria
c) By statute, the CAA is responsible for safety at its public use airports including HFD
d) Selected design balances environmental protection with overall project feasibility and longevity
e) Project is consistent with current wetland and rare species regulations

Pruning trees; east side of the Connecticut River

5. Public Comment

CONNECTICUT AIRPORT AUTHORITY

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