

STATEWIDE AIRPORT PAVEMENT MARKINGS
AIP-IA16(001)--9I-00

TOTAL
14

PROJECT NUMBER
AIP-IA16(001)--9I-00

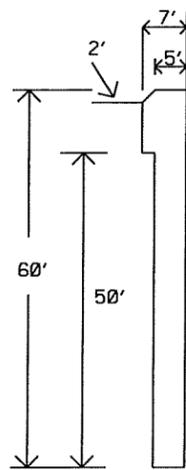
IOWA
DEPARTMENT OF TRANSPORTATION
OFFICE OF AVIATION
PLANS OF PROPOSED IMPROVEMENTS TO THE
AVIATION SYSTEM
STATEWIDE
AIRPORT PAVEMENT
MARKINGS

Federal Aviation Advisory Circulars 150/5340-1L, and
AC 150/5370-10G, Item P-620, plus current Supplemental
Specifications and Special Provisions shall apply to
construction work on this project.

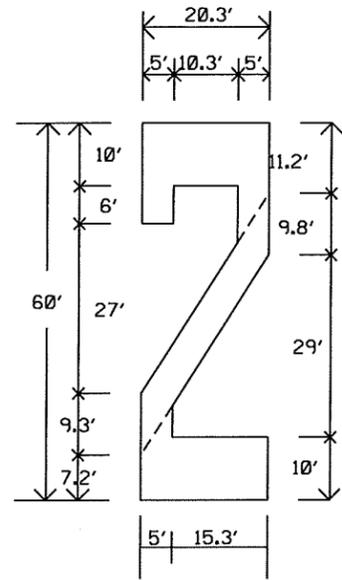
SHEET ID	DESCRIPTION
A.01	TITLE SHEET
B.01 - B.04	PAINTING LAYOUTS AND DETAILS
C.01 - C.02	ESTIMATE OF QUANTITIES AND DETAILS
D.01	MARKING DIAGRAM - CARROLL (CIN)
D.02	MARKING DIAGRAM - CRESTON (CSQ)
D.03	MARKING DIAGRAM - DENISON (DNS)
D.04	MARKING DIAGRAM - INDEPENDENCE (IIB)
D.05	MARKING DIAGRAM - NEWTON (TNU)
D.06	MARKING DIAGRAM - PERRY (PRO)
D.07	MARKING DIAGRAM - SHENANDOAH (SDA)

REVISIONS

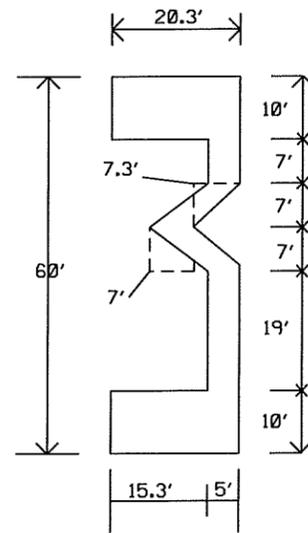
Solid - 318 S.F.



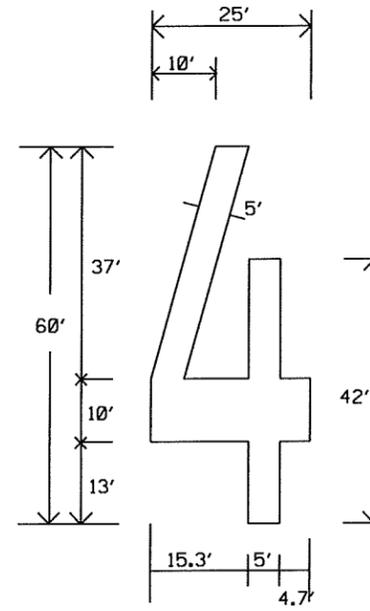
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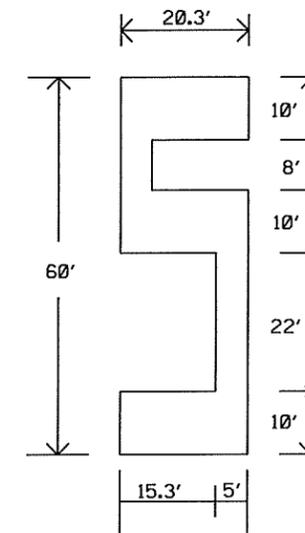
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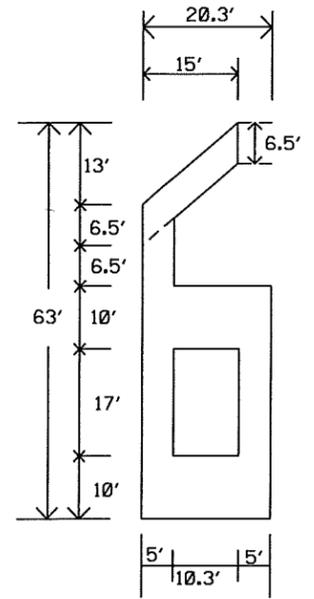
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Solid - 759 S.F.



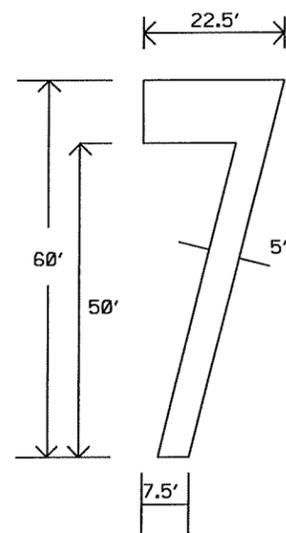
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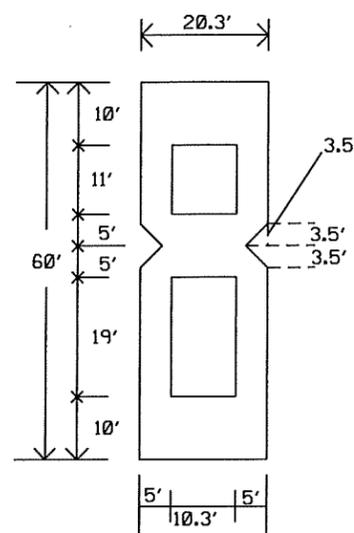
Notes:

1. All numerals except the number eleven (11) are horizontally spaced 15' apart.
2. The number 11 is horizontally spaced 27' apart.
3. Dimensions are expressed in feet and decimals of feet.
4. The number one (1), when used alone, contains a horizontal bar to differentiate it from the runway centerline.
5. Single designations are centered on the runway pavement centerline.

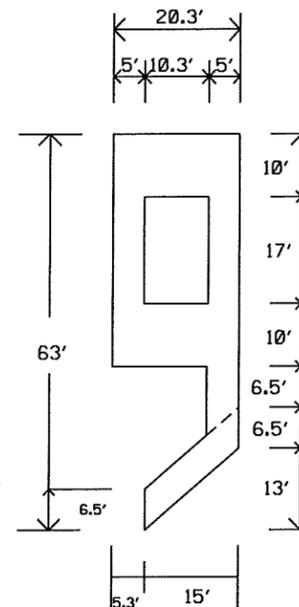
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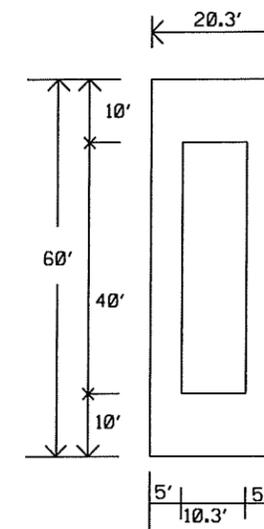
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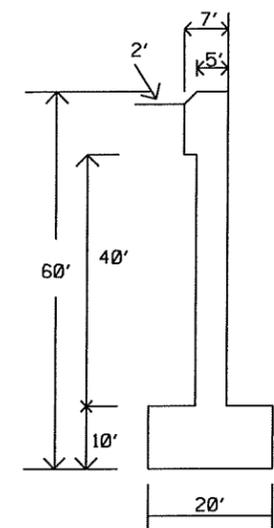
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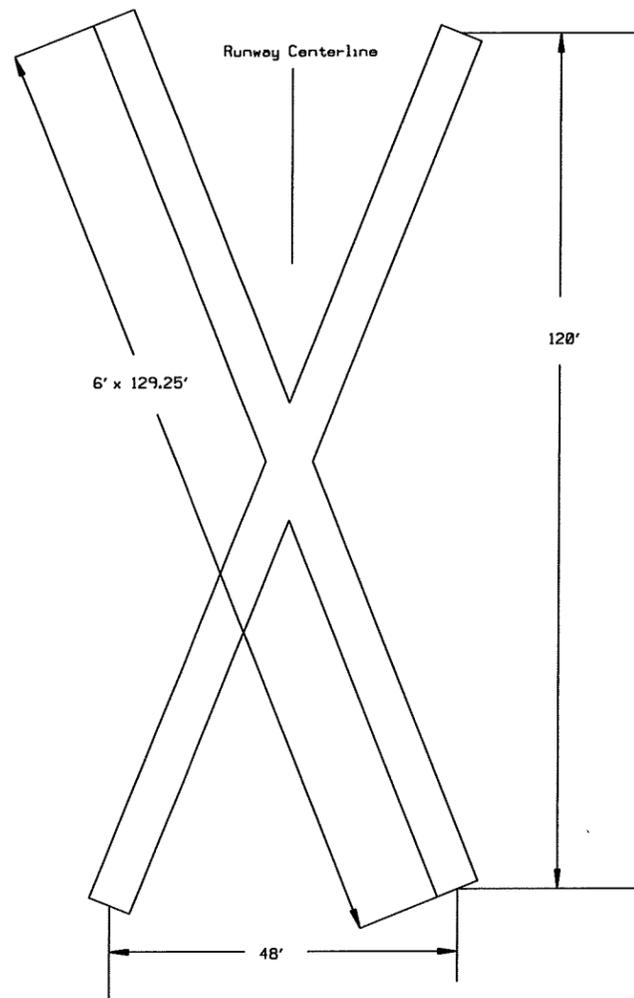


Solid - 806 S.F.

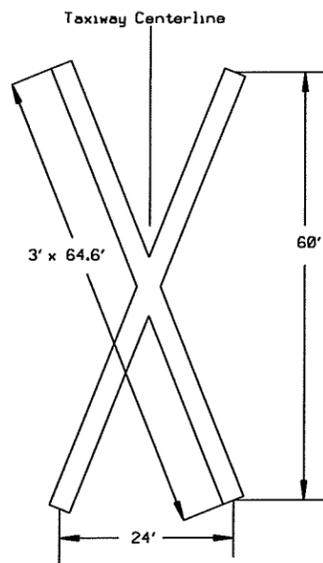


Solid - 468 S.F.



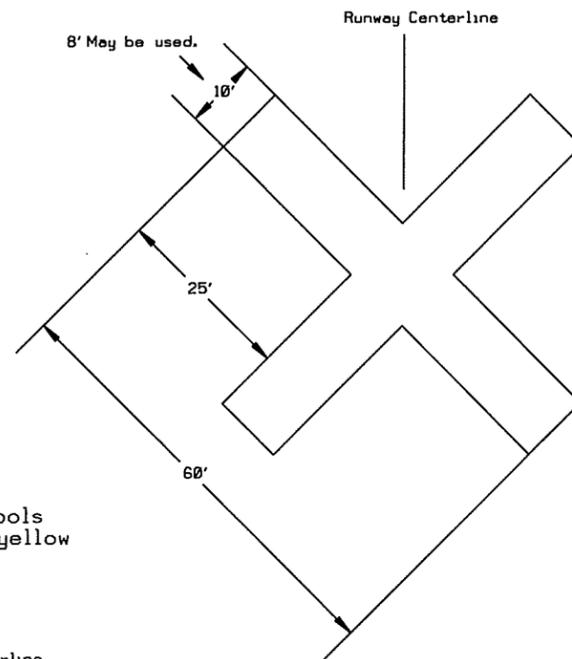


Alternate Temporary Closed Runway Symbol

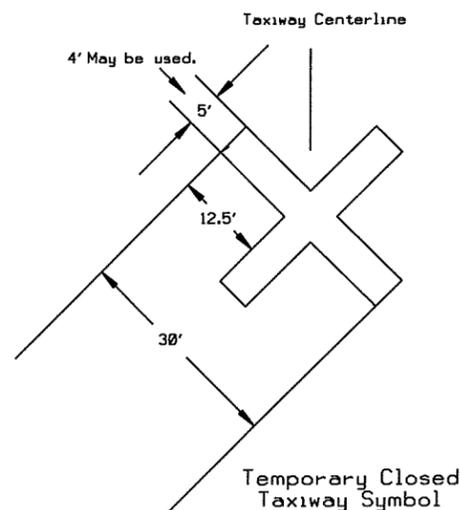


Alternate Temporary Closed Taxiway Symbol

Note: Symbols are always yellow



Temporary Closed Runway Symbol



Temporary Closed Taxiway Symbol

Notes:

The Contractor shall close the runway with Temporary Closure Markers by placing a symbol at each end of the runway and/or close taxiways with low profile barricades.

All symbols shall conform to specifications in AC 150/5340-1L. Symbols shall stay in place until all work, including drying or curing time, on the specific runway and/or taxiway is complete.

Night time closures will not be allowed.

Entry to and exit from work areas shall not cross a runway or utilize a taxiway which is not closed.

The Contractor must verify with the airport manager that all appropriate NOTAMs are in place prior to closing the runway.

Iowa Department of Transportation
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Temporary Closed Runway and Taxiway Symbol Details

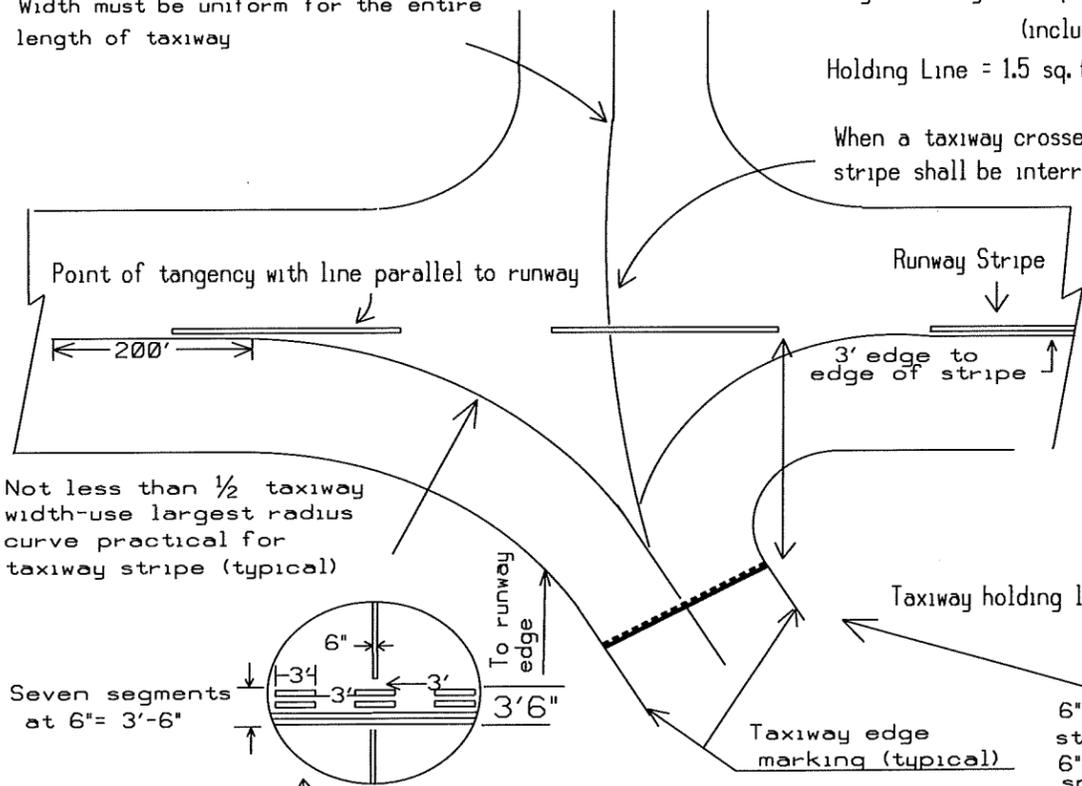
2016 Year

Sheet No. B.02

TAXIWAY MARKING

At taxiway intersections with runway end, taxiway centerline stripes terminate at the nearest edge of the runway as shown on the runway marking details.

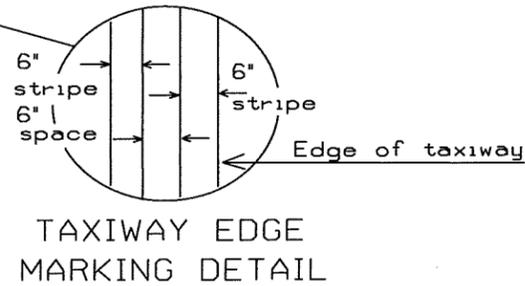
Centerline width may vary from 6-12". Width must be uniform for the entire length of taxiway



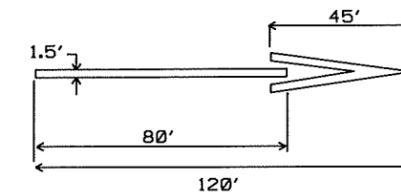
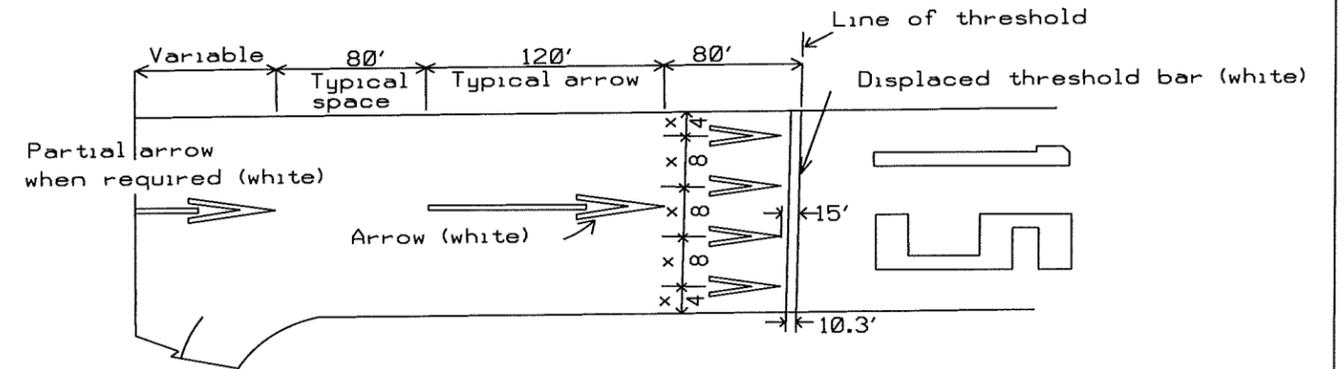
TAXIWAY MARKING AREAS

Centerline = .5 sq. ft. per linear foot of taxiway
 Edge marking = 2 sq. ft. per linear foot of taxiway (includes both edges)
 Holding Line = 1.5 sq. ft. per foot of taxiway width
 When a taxiway crosses a runway, the taxiway centerline stripe shall be interrupted by runway markings.

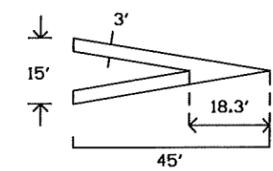
Taxiway holding line is perpendicular to taxiway centerline



Displaced Threshold Marking



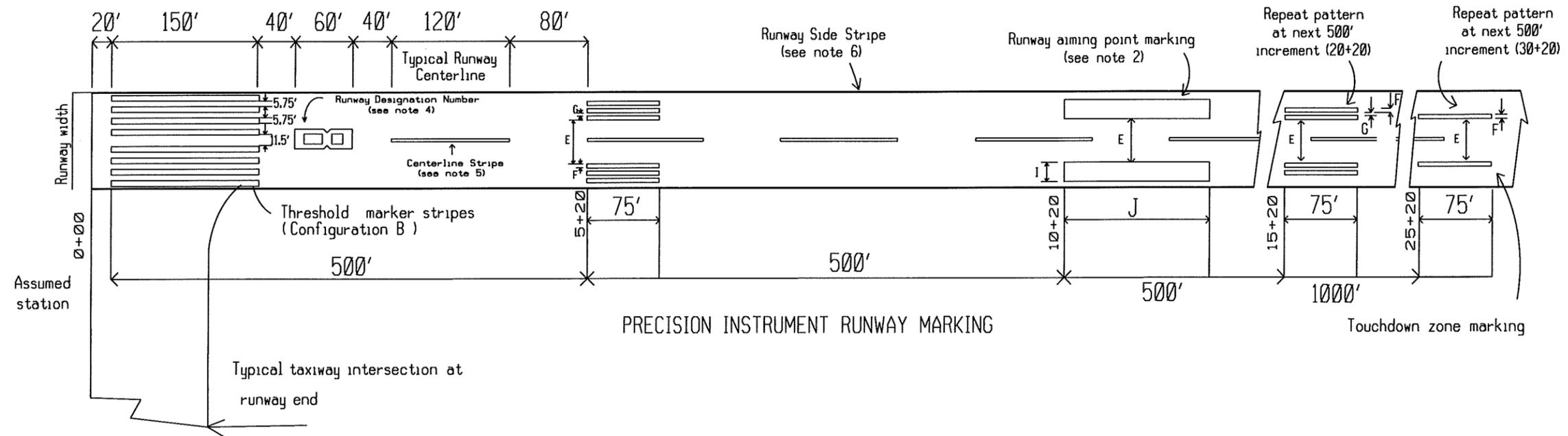
ARROW DETAIL
 Center on runway centerline
 Area for each chevron = 218 sq. ft.
 Area for each arrow shaft = 120 sq. ft.



ARROW HEAD DETAIL

Runway Width (W)	Number of Arrow Heads	Spacing between Arrow Heads	Spacing to Runway Edge
≥ 100'	4	W/4	W/8
< 100'	3	W/3	W/6
< 60'	2	W/2	W/4

Iowa Department of Transportation
 Office of Aviation
 Pavement Marking
 Detail Plans
 2016 YEAR



PRECISION INSTRUMENT RUNWAY MARKING

1) RUNWAY MARKING PRECEDENCE

- 1st. Precision Instrument
 - 2nd. Non-precision Instrument
 - 3rd. Basic (VFR)
- Marking of lesser precedence runways shall be interrupted at the edge of higher precedence runways at intersections and common ends. (see typical marking plans)

2) RUNWAY AIMING POINT MARKING

Runway Aiming Point Markings are placed on runways 4,200 feet and longer used by jet aircraft.

3) TOUCHDOWN ZONE MARKERS

For runways having touchdown zone markings on both ends, those pairs of markings which extend within 900 ft. of the runway midpoint are eliminated. No touchdown zone markings are to be eliminated when installed on only one end of the runway.

4) RUNWAY DESIGNATION NUMBERS

The runway designation number assigned each runway end is the whole number nearest one-tenth of the magnetic azimuth measured along the runway centerline. Numbers are determined from approach directions. Numbers are centered on the runway centerline. The numerals of two-digit standard sized numbers are spaced at 15 feet apart, except the numerals in number 11, which are spaced 27 ft. apart at the base. Numeral 1, when used alone, contains a horizontal bar to differentiate it from the runway centerline marking.

5) BLACK OUTLINE MARKINGS

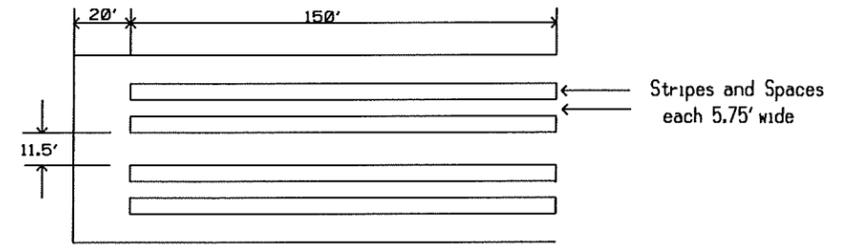
6" black border along the perimeter of the marking

6) RUNWAY CENTERLINE MARKING

Runway centerline stripes shall be laid out from runway direction numbers toward the middle. Any non-standard length stripes or space required shall be at the middle of the runway. 36" centerline stripe for precision runways 18" centerline stripe for non-precision runways 12" centerline stripe for visual runways

7) RUNWAY SIDE STRIPING

Minimum width is equal to the centerline marking. 36" side stripes for runways 100' or wider 18" side stripes for runways 75' wide or less

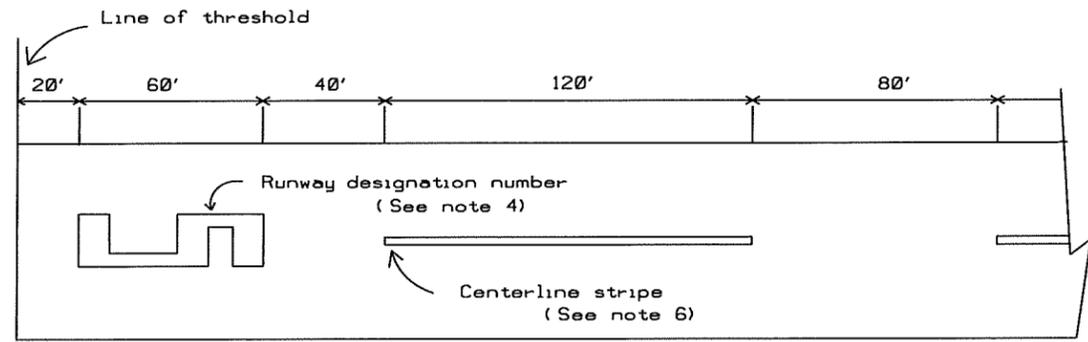


The stripes extend laterally to within 10 feet of the edge of a runway or to a distance of 92 feet on either side of a runway centerline, whichever results in the smaller lateral distance.

EXPLANATION OF TABLE

Dimensions are in feet and decimals of feet
Areas are in square feet. Measured for area of paint only.

RUNWAY WIDTH	Threshold Marking Stripes (per runway end)		TOUCHDOWN ZONE MARKING						RUNWAY AIMING POINT MARKING		
	Stripes	Area for Stripes	DIMENSIONS			AREAS			DIMENSIONS		AREA FOR 2 MARKERS
			E	F	G	6 STRIPES	4 STRIPES	2 STRIPES	I	J	
150	12	10,350	72	6	5	2700	1800	900	30	150	9000
100	8	6,900	48	4	3.3	1800	1200	600	20	150	6000
75	6	5,175	36	3	2.5	1350	900	450	15	150	4500
60	4	3,450	28.8	2.4	2	1080	720	360	12	150	3600



BASIC RUNWAY MARKING

Other elements of non-precision or precision instrument marking may be included.

Iowa Department of Transportation
Office of Aviation
Pavement Marking Detail Plans
2016 YEAR

ESTIMATED PROJECT QUANTITIES

100-1C
Modified

CONSTRUCTION USE ONLY	ITEM CODE	ITEM	UNIT	QUANTITIES						
				ESTIMATED						
				DIVISION 1	DIVISION 2	DIVISION 3	DIVISION 4	DIVISION 5	DIVISION 6	DIVISION 7
	2527-9263100	Painted Airport Pavement Markings	SF	22,628	33,940	33,785	46,620	60,615	21,975	51,535

ACTUAL PROJECT QUANTITIES

100-1C
Modified

CONSTRUCTION USE ONLY	ITEM CODE	ITEM	UNIT	QUANTITIES						
				AS BUILT						
				DIVISION 1	DIVISION 2	DIVISION 3	DIVISION 4	DIVISION 5	DIVISION 6	DIVISION 7
	2527-9263100	Painted Airport Pavement Markings	SF							

- DIVISION 1 CARROLL (CIN)
- DIVISION 2 CRESTON (CSQ)
- DIVISION 3 DENISON (DNS)
- DIVISION 4 INDEPENDENCE (IIB)
- DIVISION 5 NEWTON (TNU)
- DIVISION 6 PERRY (PRO)
- DIVISION 7 SHENANDOAH (SDA)

GENERAL NOTES

The Contractor is required to contact each airport owner, a minimum of 48 hours prior to arriving on site.

The contract unit price per square foot for Painted Airport Pavement Markings shall be full compensation for all surface preparation, glass beads, material placement, labor, and clean up. Surface preparation shall include use of a firm nylon rotary broom on all surfaces prior to painting.

Payment shall be made as lump sum. This work will be measured by the contractor and verified by the contracting authority.

Airport runways shall not be closed at night. No more than one runway may be closed at a time.

Any vehicle operating in airport operations area shall be equipped with a flashing yellow (amber) beacon.

During painting operations, aviation specific two-way radios will be required in all vehicles operating in the airport operations area. All vehicles are to monitor the local airport frequency and give way to aircraft.

Where Glass Beads are required, the application rate shall be 7 pounds per gallon of paint. (unless otherwise noted).

For locations of placement see FAA AC: 150/5340-1L

Costs for runway closure markers shall be included in the lump sum bid price.

Iowa Department
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Office of Aviation

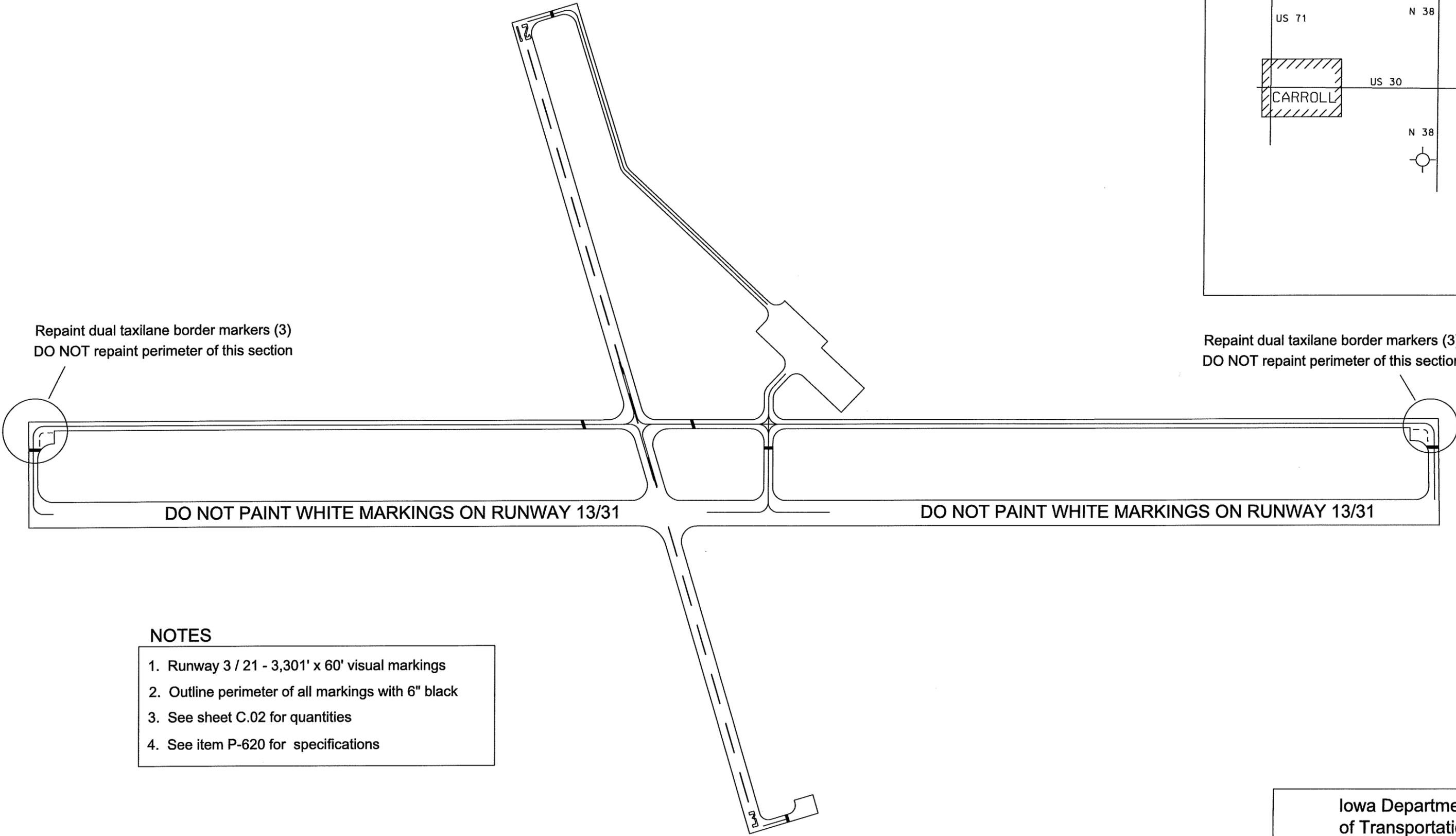
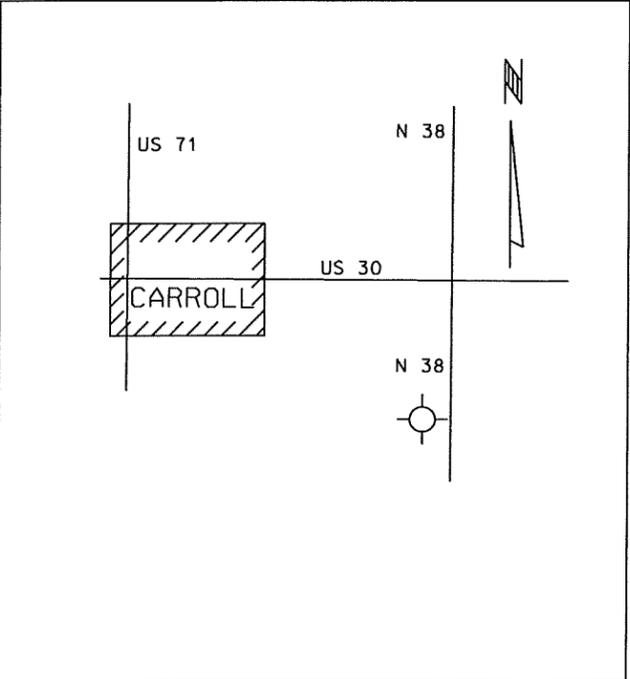
Estimate of Project
Quantities

2016 YEAR

Sheet No. C.01

Airport	Runway Length/width	Runway Designation Markings										WHITE PAINT					YELLOW PAINT					TOTALS							
		1	2	3	4	5	6	7	8	9	0	Centerline stripes Width(in.) No.	Runway Edgeline Length	Sets of threshold Markings Stripes	Sets of 6-stripe /chdown marking	Sets of 4-stripe /chdown marking	Sets of 2-stripe /chdown marking	Sets of runway aiming points	Blast Pad Chevron	Taxiway centerline length	Taxiway Edgeline length	No. of Taxiway Hold lines	New Black Paint (ft^2)	New White Paint (ft^2)	New Yellow Paint (ft^2)	Total New Paint (ft^2)	Total New Paint (gal.)	Glass Beads 7lbs/gal.	Glass Beads 10lbs./gal.
		1	2	3	4	5	6	7	8	9	0	18"																	
	Solid	318	666	624	602	759	716	468	885	718	806																		
Carroll (CIN)	3,301											15																	
Paint Count Rwy 3/21	60	1	1	1								12"								9,735	180	7							
Paint Square Feet		318	666	624								3,060							4,868	90	391	12,611	4,668	5,349	22,628	197	1,377	1,968	
Creston (CSQ)	4,901											22																	
Paint Count Rwy 16/34	75	1		1	1		1					18"		2			2			960		1							
Paint Square Feet		318		624	602		716					3,960		10,350			9,000	1,060	480		60	6,770	25,570	1,600	33,940	295	2,066	2,951	
Denison (DNS)	5,000											22																	
Paint Count Rwy 12/30	75	1	1	1							1	18"		2			2		1,600		1								
Paint Square Feet		318	666	624							806	3,960		10,350			9,000		800		60	7,201	25,724	860	33,785	294	2,056	2,938	
Independence (IIB)	5,500											25																	
Paint Count Rwy 18/36	100	1		1			1	1				18"		2			2		7,845	420	4								
Paint Square Feet		318		624			716	885				4,500		13,800			12,000		3,922	420	390	9,045	32,843	4,732	46,620	405	2,838	4,054	
Newton (TNU) - striated	5,599											25																	
Paint Count Rwy 14/32	100	1	1	1	1							36"	5,599	2	2	2	2		9,186		8								
Paint Square Feet		191	400	375	361							5,400	20,276	8,280	2,322	1,548	7,200		4,593		486	9,183	46,353	5,079	60,615	527	3,690	5,271	
Perry (PRO)	4,001											17																	
Paint Count Rwy 14/32	75	1	1	1	1							18"		2					800		1								
Paint Square Feet		318	666	624	602							3,060		10,350					400		60	5,895	15,620	460	21,975	191	1,338	1,911	
Shenandoah (SDA)	5,000											22																	
Paint Count Rwy 4/22	75		2		1							18"		2			2		3,820	100	4								
Paint Square Feet			1,332		602							3,960		10,350			9,000		1,910	100	294	9,989	25,244	2,304	37,537	326	2,285	3,264	
Paint Count Rwy 12/30	3,439											15																	
Paint Square Feet	75	1	1	1							1	18"		1				200		1									
		318	666	624							806	2,700		5,175				100		83	3,526	10,289	183	13,998	122	852	1,217		
																						64,220	186,311	20,567	271,098	2,357	16,502	23,574	

* Glass Beads Not Required



Repaint dual taxilane border markers (3)
DO NOT repaint perimeter of this section

Repaint dual taxilane border markers (3)
DO NOT repaint perimeter of this section

DO NOT PAINT WHITE MARKINGS ON RUNWAY 13/31

DO NOT PAINT WHITE MARKINGS ON RUNWAY 13/31

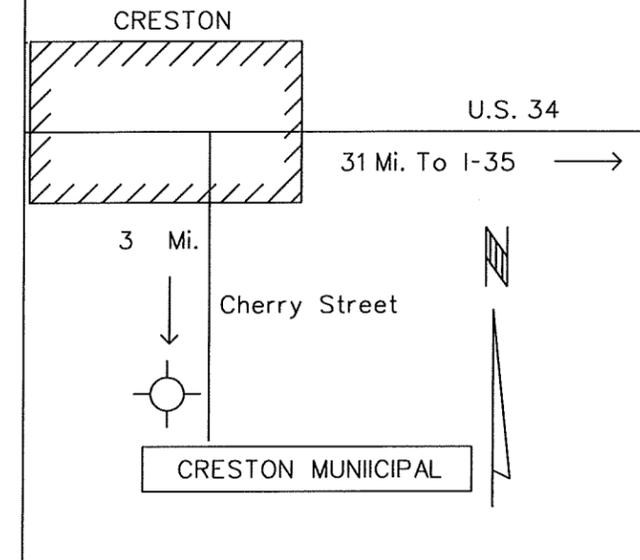
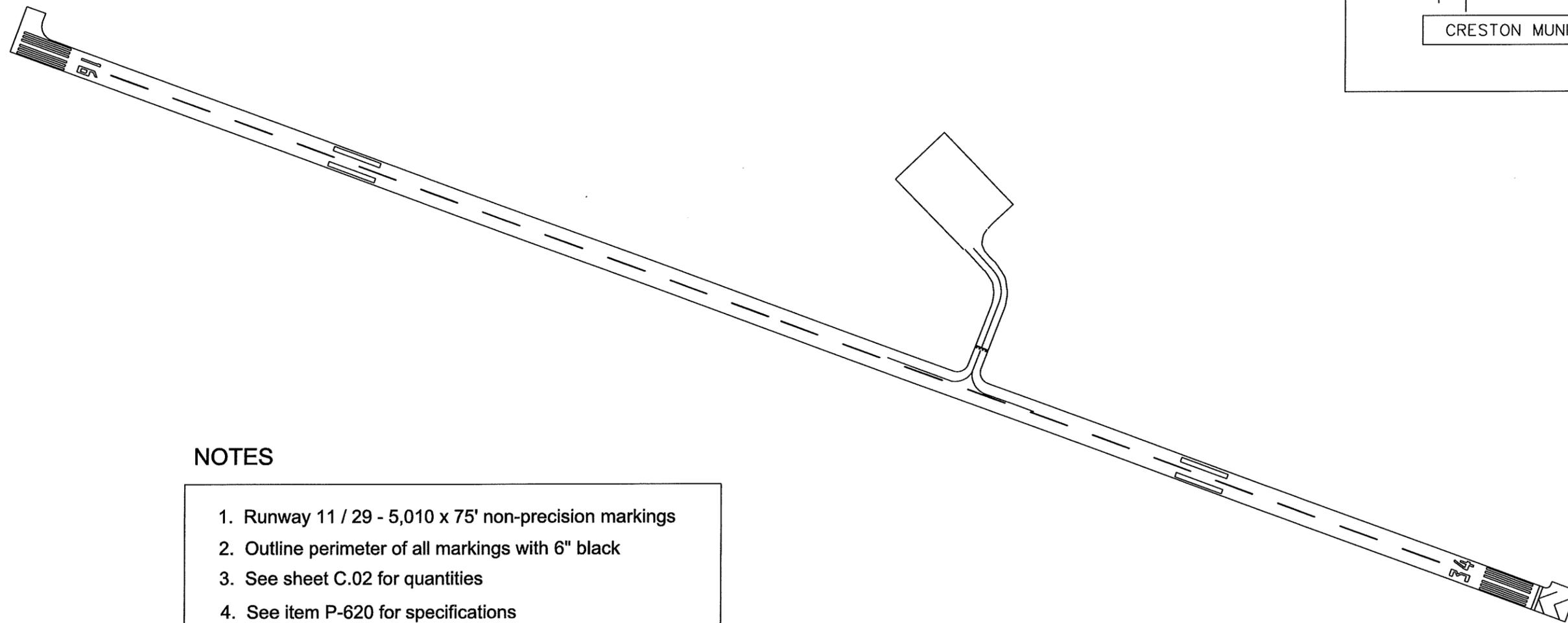
NOTES

1. Runway 3 / 21 - 3,301' x 60' visual markings
2. Outline perimeter of all markings with 6" black
3. See sheet C.02 for quantities
4. See item P-620 for specifications

Iowa Department
of Transportation
Office of Aviation

Carroll Municipal Airport
Pavement Marking Diagram

Sheet No. D.01



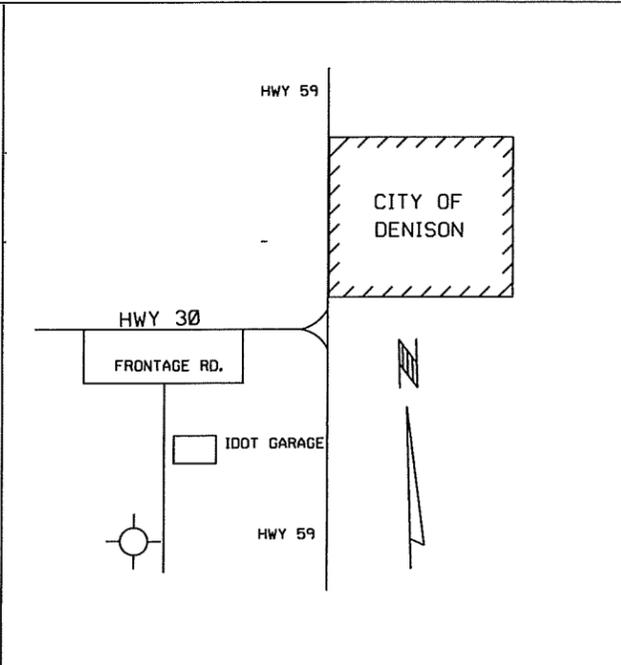
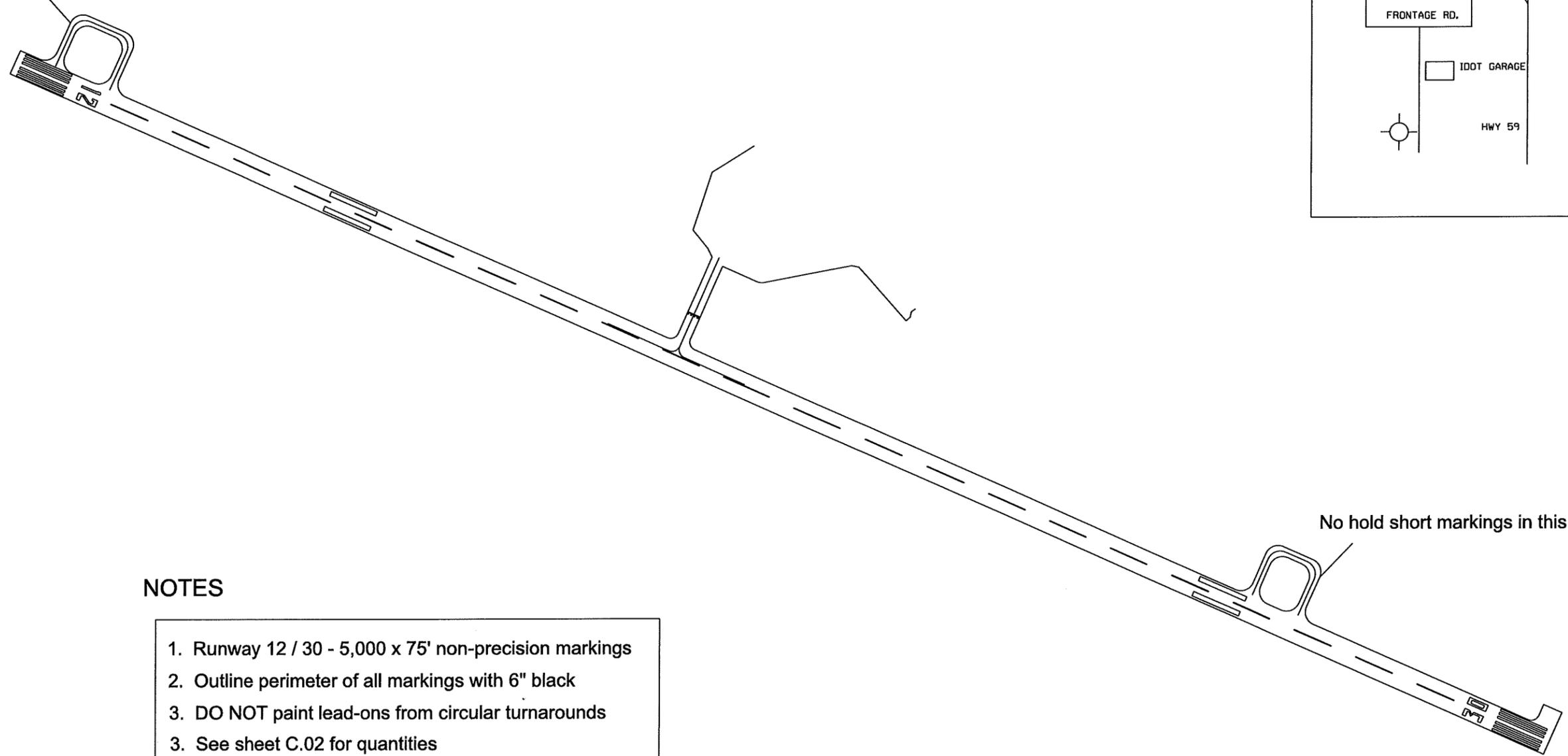
NOTES

- 1. Runway 11 / 29 - 5,010 x 75' non-precision markings
- 2. Outline perimeter of all markings with 6" black
- 3. See sheet C.02 for quantities
- 4. See item P-620 for specifications

Iowa Department
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Office of Aviation

Creston Municipal Airport
Pavement Marking Diagram

No hold short markings in this area



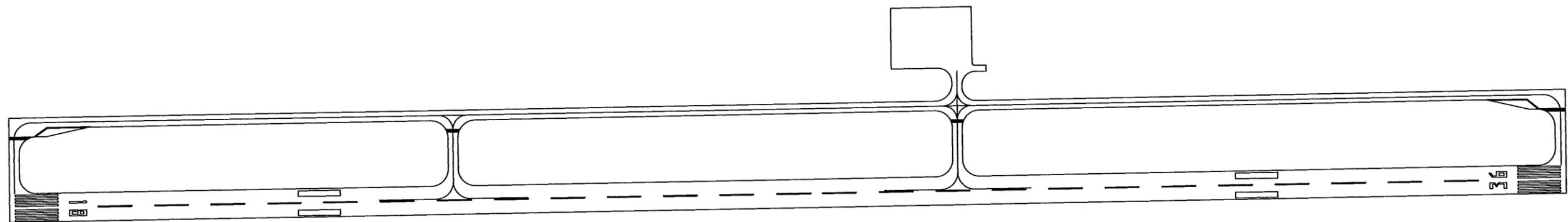
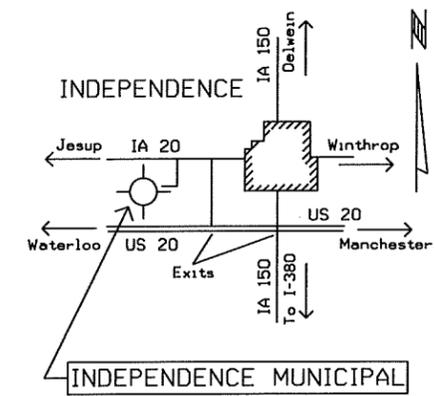
NOTES

- 1. Runway 12 / 30 - 5,000 x 75' non-precision markings
- 2. Outline perimeter of all markings with 6" black
- 3. DO NOT paint lead-ons from circular turnarounds
- 3. See sheet C.02 for quantities
- 4. See item P-620 for specifications

No hold short markings in this area

Iowa Department
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Office of Aviation

Denison Municipal Airport
Pavement Marking Diagram

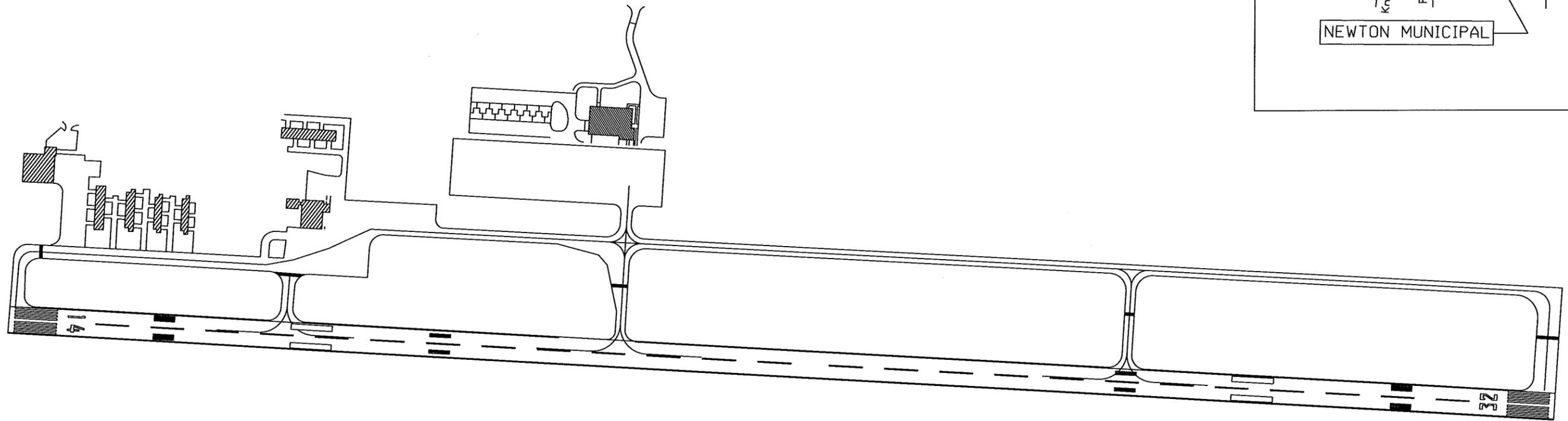
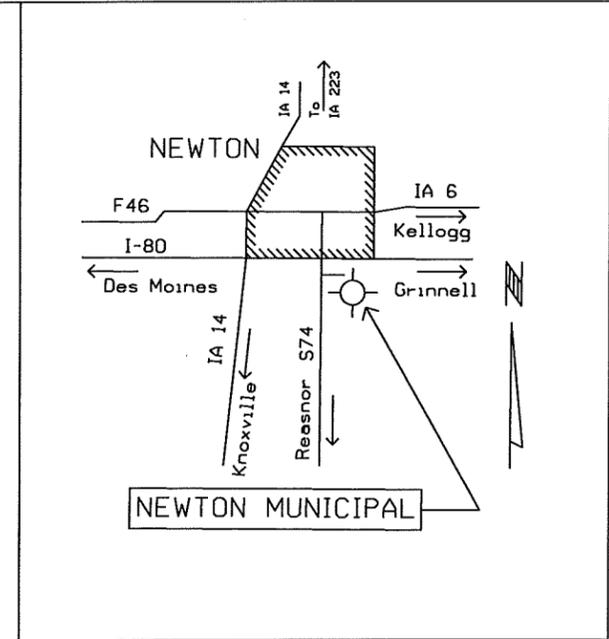


NOTES

1. Runway 18 / 36 - 5,500 x 100' non-precision markings
2. Outline perimeter of all markings with 6" black
3. See sheet C.02 for quantities
4. See item P-620 for specifications

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Independence Municipal Airport
Pavement Marking Diagram

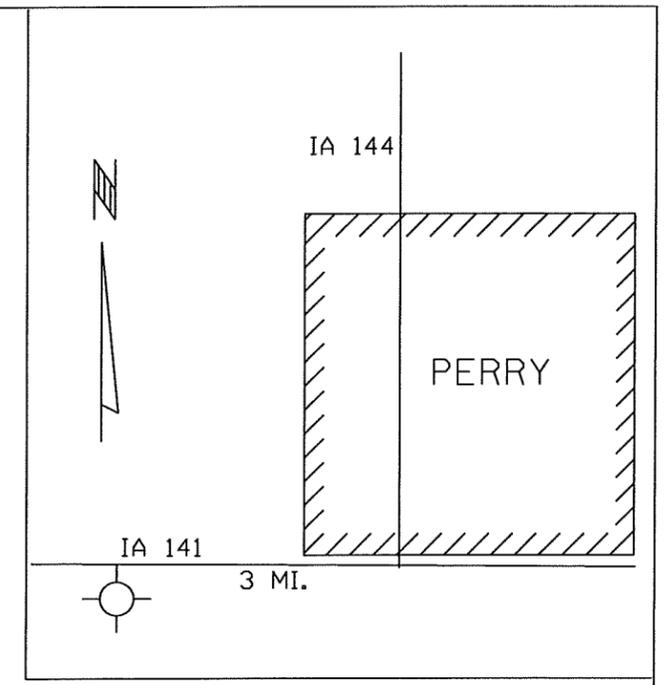
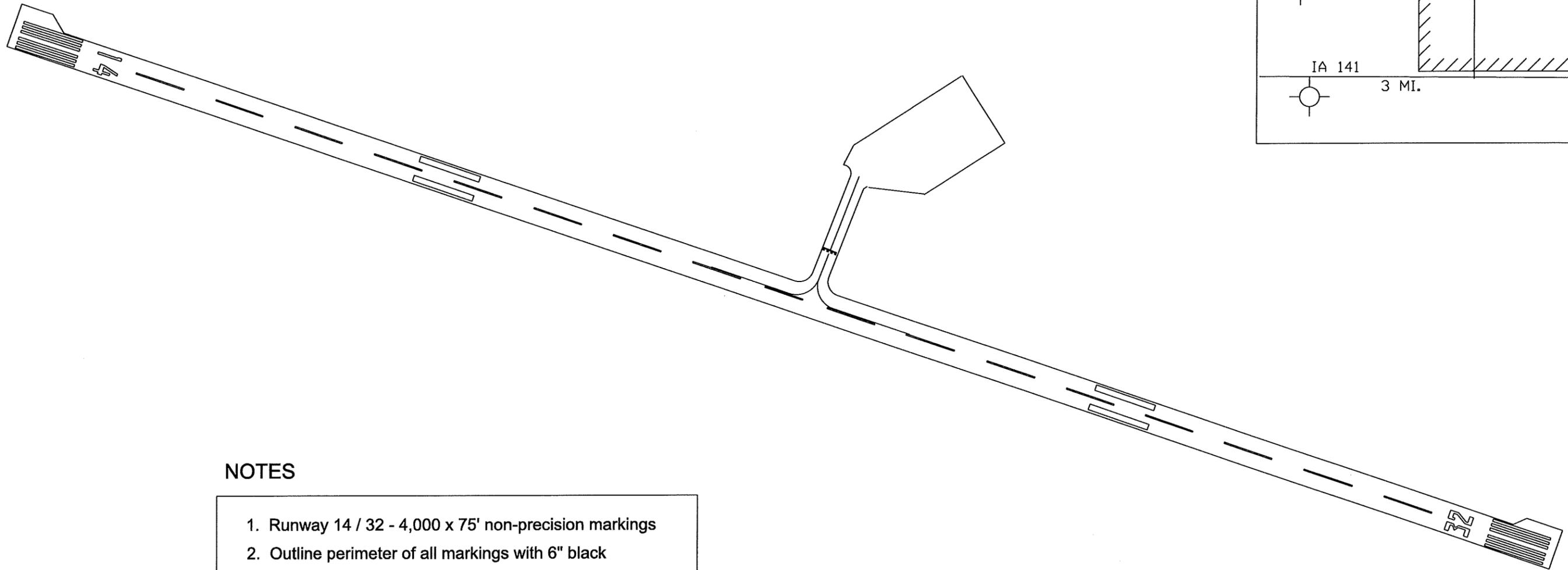


NOTES

1. Runway 14 / 32 - 5,599' x 60' striated precision markings
2. Outline perimeter of all markings EXCEPT runway edge markings with 6" black
3. See sheet C.02 for quantities
4. See item P-620 for specifications

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Newton Municipal Airport
Pavement Marking Diagram

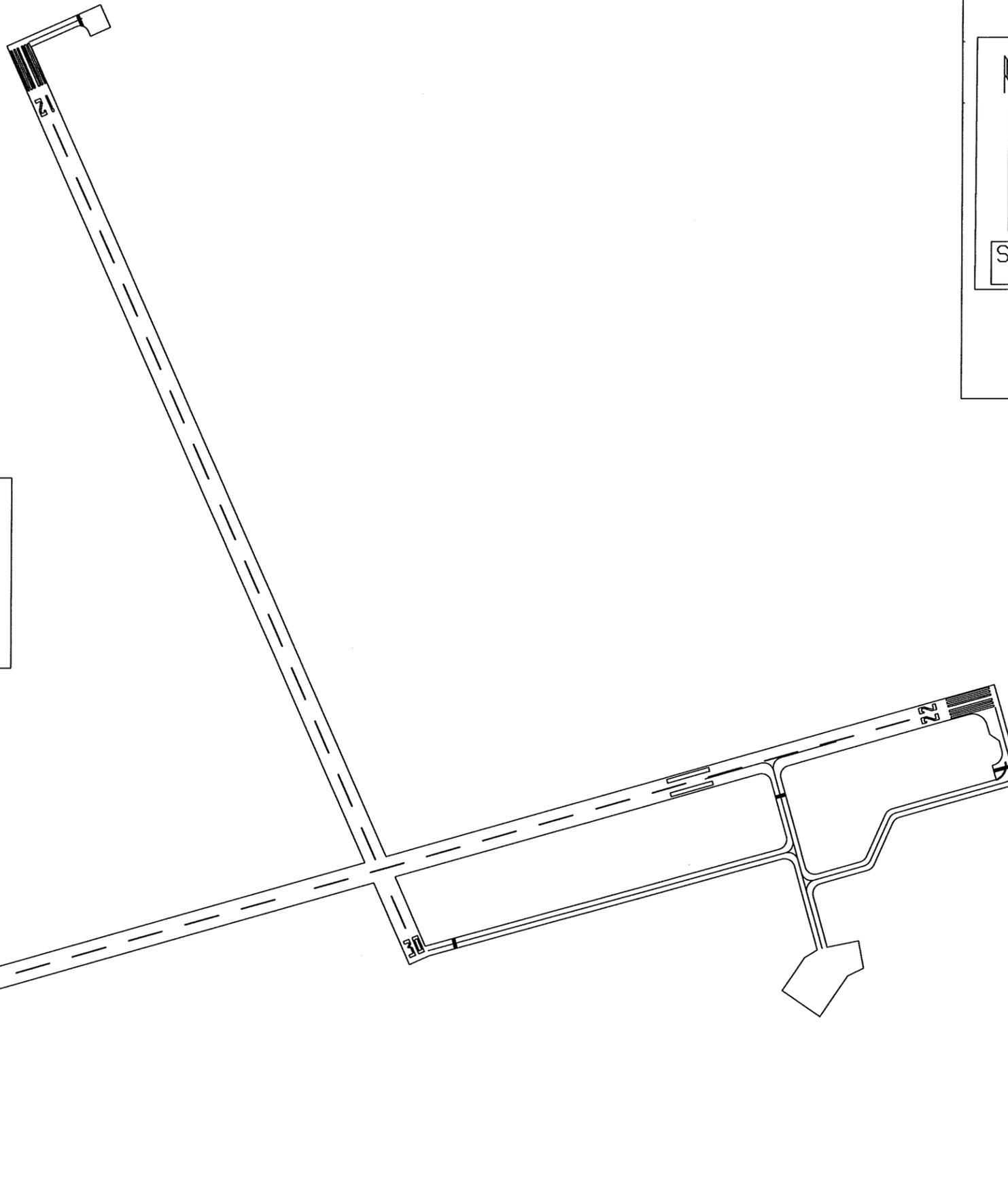


NOTES

1. Runway 14 / 32 - 4,000 x 75' non-precision markings
2. Outline perimeter of all markings with 6" black
3. See sheet C.02 for quantities
4. See item P-620 for specifications

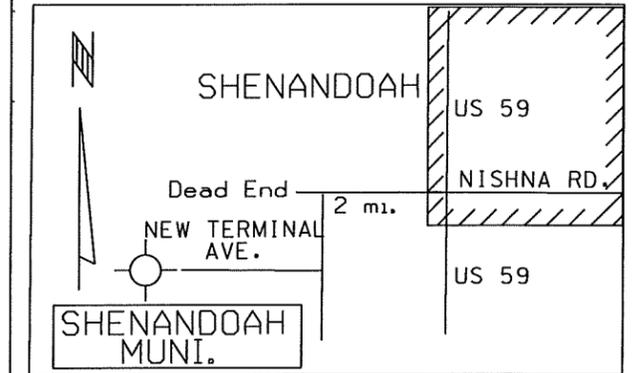
Iowa Department
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Office of Aviation

Perry Municipal Airport
Pavement Marking Diagram



NOTES

1. Runway 4 / 22 - 5,000 x 75' non-precision markings
2. Runway 12 / 30 - 3,300 x 75' non-precision markings
3. Outline perimeter of all markings with 6" black
4. See sheet C.02 for quantities
5. See item P-620 for specifications



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Shenandoah Municipal Airport
Pavement Marking Diagram