

**DRAINAGE INVESTIGATION  
FOR  
ELGIN O'HARE EXPRESSWAY AND PLUM GROVE ROAD**

**ELGIN O'HARE - WEST BYPASS  
P-91-443-06**

*Prepared for:*

Illinois Department of Transportation  
201 West Center Court  
Schaumburg, IL 60196

*Prepared By:*

Christopher B. Burke Engineering, Ltd.  
9575 W. Higgins Road  
Rosemont, IL 60018

November 29, 2010



**CHRISTOPHER B. BURKE ENGINEERING, LTD.**

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FOR  
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**TABLE OF CONTENTS**

**SECTION 1 TECHNICAL MEMORANDUM**

Existing Drainage Conditions and Suggestions

**SECTION 2 EXHIBITS**

Flooding Locations	Exhibit 1
Elgin O'Hare Contract Plans (July 1992)	Exhibit 2
100-Year Floodplain	Exhibit 3



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# TECHNICAL MEMORANDUM

Prepared by: Lynn J. Krauss, PE

Subject: Elgin O'Hare – West Bypass  
Elgin O'Hare Expressway and Plum Grove Road Drainage Investigation

Project No: P-91-943-06

Date: November 29, 2010

The purpose of this memorandum is to summarize the existing drainage conditions and to provide recommendations for the area bounded on the north by the Elgin O'Hare Expressway, on the west by Plum Grove Road, on the east by Medinah (Meacham) Road, and on the south by Thorndale Avenue. The western and southeastern portions of this area are located in an unincorporated area of Bloomingdale Township, referred to by the Township as North Medinah. The northeastern portion of this area is within a Limited Industrial zoning district of the Village of Roselle.

According to IDOT correspondence, several pictures of home and local street flooding, along with responses to flooding questionnaires received from eight (8) of the residents within the unincorporated residential area were submitted to the Medinah Homeowner's Association at a meeting held by State Senator Diane Pankau on October 19, 2009 at the Itasca Public Library. Of the eight (8) homeowners in North Medinah area who submitted flooding complaints, four (4) have homes which are located partially within the designated 100-year floodplain (Exhibit 1).

## **A. Existing Conditions**

On November 2, 2010, a field investigation was performed to observe the existing overland and ditch drainage conditions within the North Medinah subdivision. Several photographs of existing roadway and driveway crossing drainage culverts along with photographs of the Meacham Creek Tributary and the existing in-stream retention pond located east of the subdivision and north of the industrial district were taken.

Based upon the mainline plan and profile sheets (Exhibit 2) from the IDOT contract plans for F.A.P. Route 345 (Elgin O'Hare Expressway) and field observation, it is determined that roadway drainage along the south shoulder of the Elgin O'Hare Expressway east of Plum Grove Road is conveyed through a ditch draining easterly to a storm sewer that crosses the expressway and discharges into the detention pond located north of the wetland area adjacent to Medinah Road. The ditch conveys runoff from the expressway and is confined to the limits of the right-of-way by an existing retaining wall constructed north of the south right-of-way line, which separates the drainage in the North Medinah subdivision from the expressway drainage system. Any storm water that falls outside (south) of the retaining wall either flows east within a drainage ditch and outlets to the existing wetland area located east of the unincorporated North Medinah residential subdivision or flows overland in a wandering pattern through yards of the subdivision and southeastward across the



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subdivision access roads to the large depressional wetlands. The North Medinah subdivision does not have defined ditches for drainage and the existing culverts under the local streets and driveways are undersized considering the amount of land area and local terrain. Of the eight (8) homeowners within the North Medinah subdivision who sent flooding complaints to their homeowner's association, four (4) of the residential building structures are located partially within the identified flood plain established by a hydraulic study of Meacham Creek prepared by CBBEL. This hydraulic study of Meacham Creek analyzed culverts under the Elgin O'Hare Expressway, a private crossing upstream of Medinah Road, and the box culverts under Medinah Road to determine their created headwaters. A base floodplain elevation of 616.80 feet has been developed by this study and is designated on Exhibit 3.

Before construction of the Elgin O'Hare Expressway, the general drainage pattern according to the Location Drainage Study prepared for the Expressway project was such that overland runoff of the proposed Expressway right of way moved in a west to east direction towards the Meacham Creek. Both examination of the contract plans and field observation indicate that construction of the Expressway, (including installation of storm sewers and ditches to convey stormwater runoff from the Expressway to the outlet at the Meacham Creek), did not increase stormwater to the North Medinah subdivision. Therefore, none of the flooding issues that were presented by the residents of this area at the meeting on October 19, 2009, can be attributed to construction of the Elgin O'Hare Expressway.

## **B. Recommendations**

It appears that flooding of the North Medinah subdivision is caused by lack of conveyance system and high base flood elevation. The 100-year flood elevation of 616.80 feet inundates some of homes that experience flooding. Enlargement of the Medinah/Meacham Road culvert and a private culvert may reduce the created headwaters and shrink the base floodplain boundary. Hydrologic and hydraulic modeling of the watershed is required to determine benefits and impacts of enlarging the existing culverts. In addition, installing a new conveyance system through the North Medinah subdivision is required to provide a positive drainage for the area.

## **C. References**

1. October 21, 2009, E-mail from Richard F. Wojcik, P.E., Hydraulics Section Chief, Bureau of Programming, IDOT District One, asking that the source of identified flooding complaints be included in the Elgin O'Hare – West Bypass study, and including a summary of the October 19, 2009 meeting between both State and DuPage County representatives and Senator Pankau and several of her constituents who live within unincorporated Bloomingdale Township, including the North Medinah subdivision.
2. October 21, 2009, E-mail and map attachment from Richard F. Wojcik, P.E., Hydraulics Section Chief, Bureau of Programming, IDOT District One, showing the area of flooding complaints within the North Medinah subdivision.
3. Storm Sewer Atlas for the study area provided by Mike Higgins of the Village of Roselle Department of Public Works in an E-mail dated October 22, 2010;



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4. November 3, 2010, E-mail and map questionnaire attachments from Richard F. Wojcik, P.E., Hydraulics Section Chief, Bureau of Programming, IDOT District One.
5. November 11, 2010, E-mail from Marion E. Kessy, Hydraulics Section, Bureau of Programming, IDOT District One.
6. Elgin O'Hare Expressway Design Report, Appendix I (Volume V of VII), Location Drainage Study FAP 426 (Elgin-O'Hare), Mitchell Boulevard. to Rohlwing Road, Station 812+00 to Station 966+00, Meacham Creek Watershed, prepared for IDOT by Barton-Aschman Associates, Inc. (1988).
7. IDOT plan set titled "Plans for Proposed Federal Aid Highway, F.A.P. Route 345 (Elgin O'Hare Expressway), Mitchell Boulevard to West of Rohlwing Road, Project NHF-345(16), Section: [16-2-2 & 22-2] K, Cook and DuPage Counties", dated July 31, 1992.

LJK/my

N:\Idot\070404\Drain\Docs\Drainage Investigations\North Medinah\DI.NorthMedinah\_112910.docx



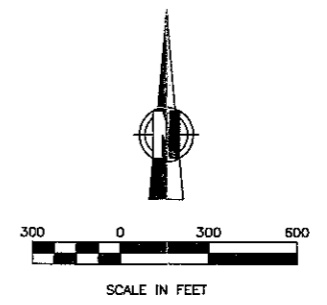
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*our ditches should not discharge onto these properties; hopefully outlet holes onto wetland!*



**PLAN**



**LEGEND**

- FFDC PROPERTY LINE
- 100-YR FLOODPLAIN
- MUNICIPAL BOUNDARIES
- COOK-DUPAGE COUNTY LINE
- EXISTING WETLAND
- FLOODING QUESTIONAIRES RECEIVED

OWNER:  
 STREET ADDRESS:  
 3 S 580 MAPERVILLE ROAD  
 WHEATON, IL 60187-8781

ARCHITECT LICENSE: \_\_\_\_\_ ENGINEER LICENSE: \_\_\_\_\_

SIGNED: \_\_\_\_\_ SIGNED: \_\_\_\_\_  
 DATE: \_\_\_\_\_ DATE: \_\_\_\_\_  
 LIC#: \_\_\_\_\_ LIC#: \_\_\_\_\_  
 EXP: \_\_\_\_\_ EXP: \_\_\_\_\_

**ILLINOIS**

**MEDINAH WETLANDS FOREST PRESERVE  
 MEACHAM CREEK FLOOD MAP**

CONSULTANT: \_\_\_\_\_ PH#: \_\_\_\_\_ FAX#: \_\_\_\_\_  
 SUBCONSULTANT: \_\_\_\_\_ PH#: \_\_\_\_\_ FAX#: \_\_\_\_\_

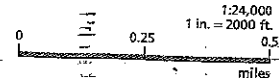
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PROJECT NO: Z-740-001  
 DRAWN BY: AC  
 DATE: 11/09  
 CAD DWG FILE: MeachamCrfldMap.dwg

XREF NAME: \_\_\_\_\_ LOCATION: \_\_\_\_\_

SHEET TITLE:  
**SITE PLAN**

SHEET NO:  
**1**  
 SHEET 1 OF 1



SEE MAP 2912

SEE MAP 2914

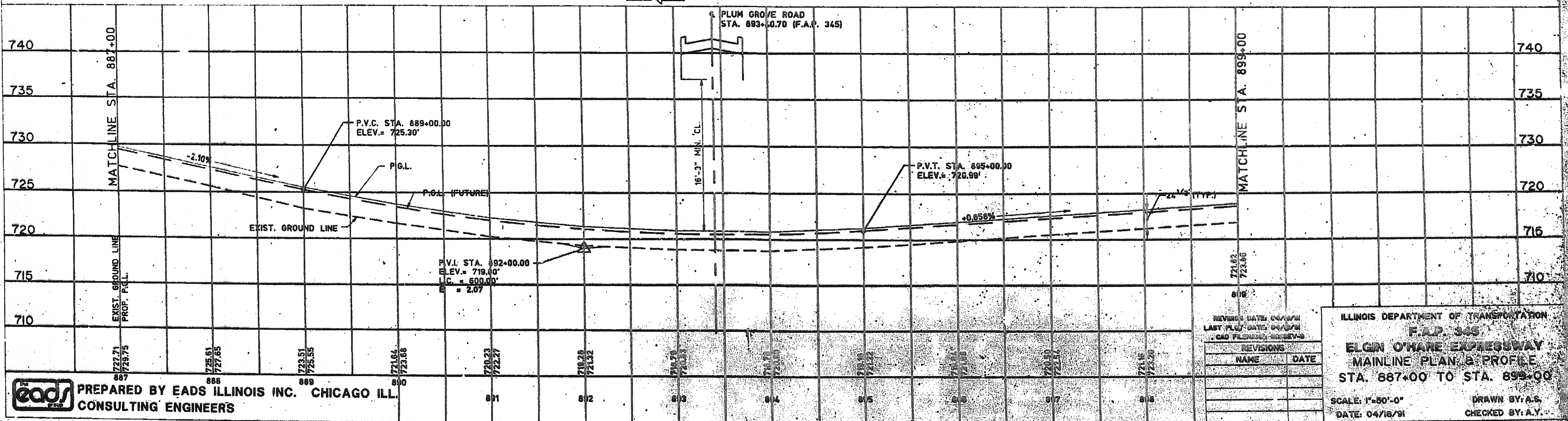
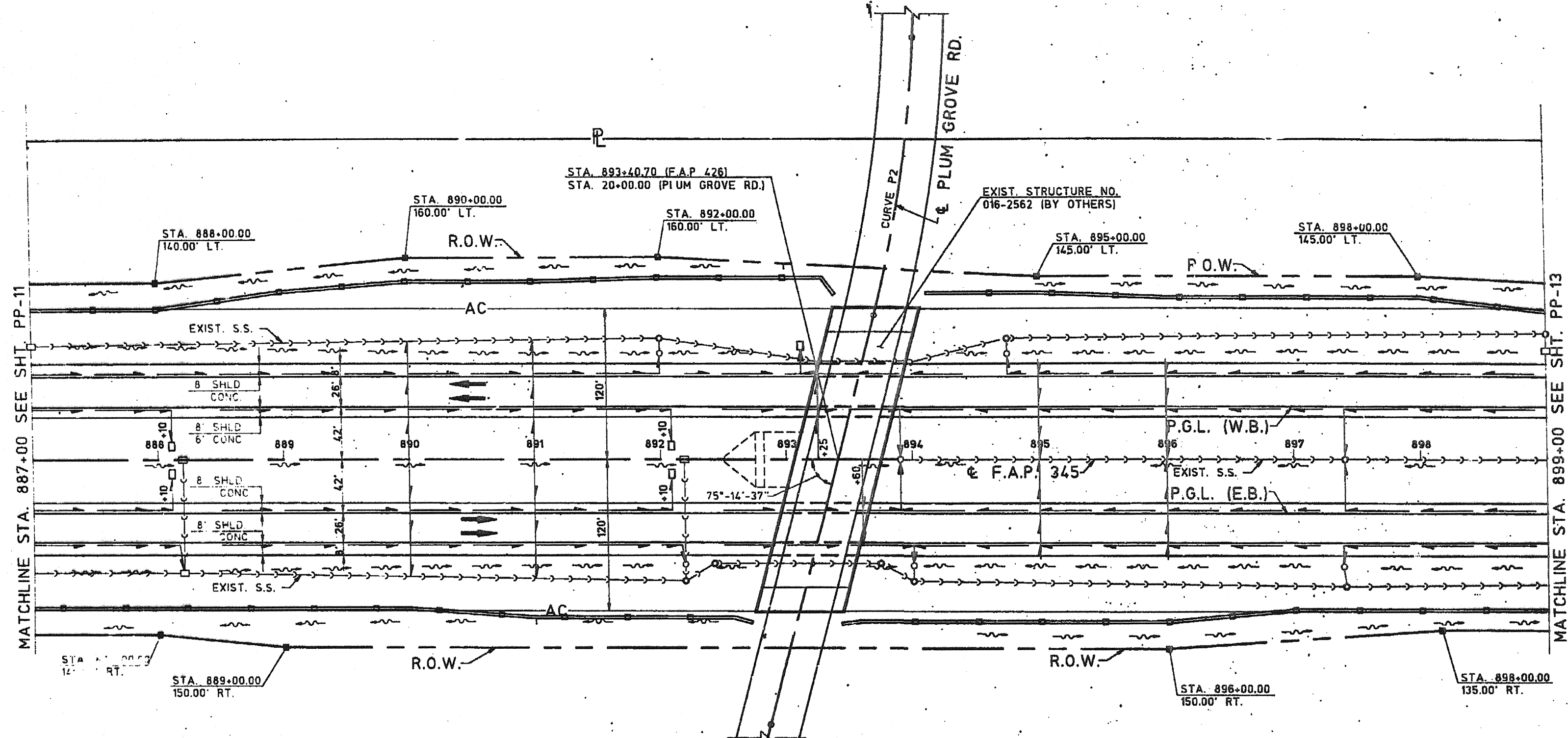
**CURVE DATA**

DESCRIPTION	PLUM GROVE ROAD	
	CURVE P1	CURVE P2
Δ	09°-34'-57"	11°-23'-48"
R	1432.40'	1091.35'
D	04°-00'-00"	05°-15'-00"
L	239.56'	217.08'
T	120.06'	108.90'
E	5.02'	5.42'
P.C. STA.	15+42.56	21+18.17
P.I. STA.	16+62.62	22+27.07
P.T. STA.	17+82.12	23+35.25
S.E. FT./FT.	0.031	0.034

**LEGEND**

- PROPOSED NOISE ABATEMENT WALL
- EXISTING DITCH
- 6" PIPE UNDERDRAINS (PROPOSED)
- EXISTING STORM SEWER

FOR NOISE ABATEMENT DETAILS SEE SHT. NW-9 & NW-10

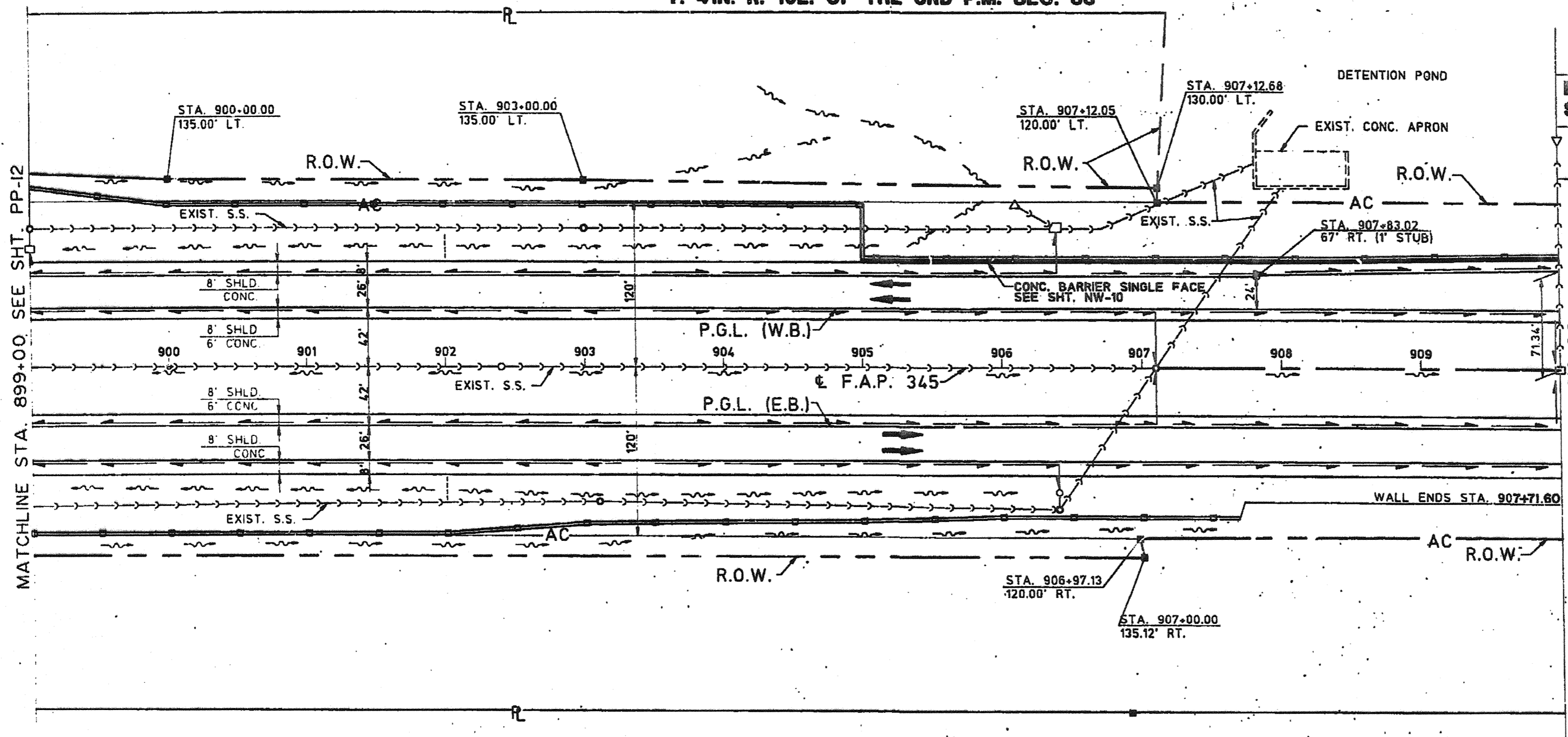


PREPARED BY EADS ILLINOIS INC. CHICAGO ILL. CONSULTING ENGINEERS

REVISION DATE: 04/18/91	LAST PLAN DATE: 04/18/91	CAO: PLUM GROVE RD. REV-3
REVISIONS		
NAME	DATE	

ILLINOIS DEPARTMENT OF TRANSPORTATION  
**F.A.P. 345**  
**ELGIN O'HARE EXPRESSWAY**  
**MAINLINE PLAN & PROFILE**  
**STA. 887+00 TO STA. 899+00**  
 SCALE: 1"=50'-0"  
 DATE: 04/18/91  
 DRAWN BY: A.S.  
 CHECKED BY: A.Y.





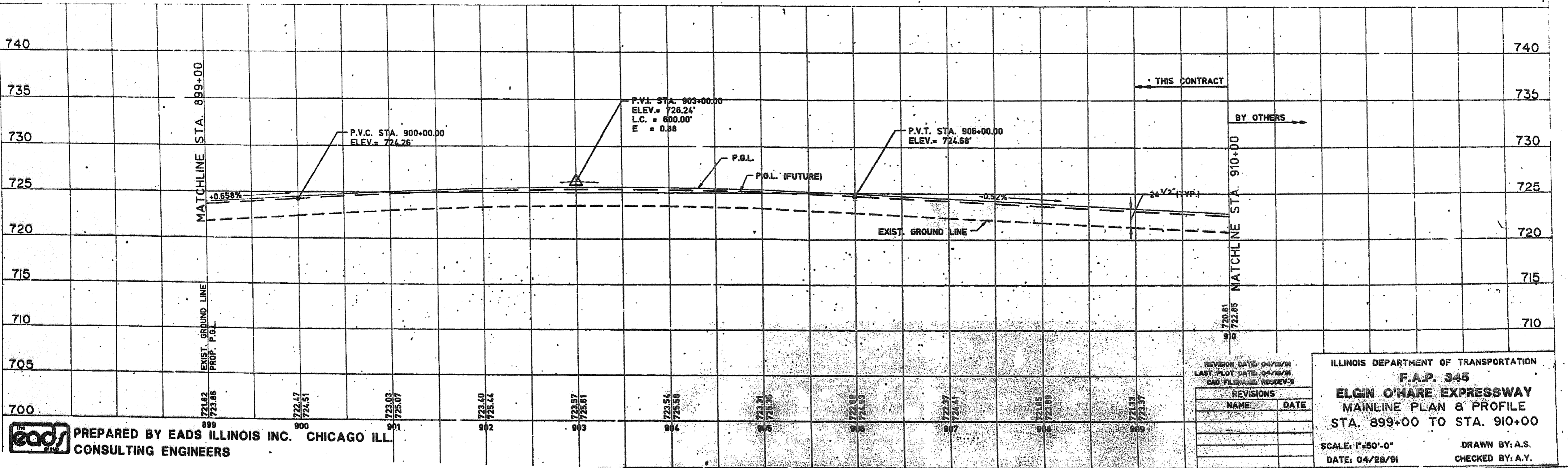
END IMPROVEMENT  
STA. 910+00

BY OTHERS →

FOR NOISE ABATEMENT WALL DETAILS  
SEE SHT. NW-11 & NW-12

**LEGEND**

- PROPOSED NOISE ABATEMENT WALL
- EXISTING DITCH
- 6" PIPE UNDERDRAINS (PROPOSED)
- EXISTING STORM SEWER



REVISION DATE: 04/12/91  
LAST PLOT DATE: 04/16/91  
CAD FILENAME: RDSEV-9

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
F.A.P. 345  
**ELGIN O'HARE EXPRESSWAY**  
MAINLINE PLAN & PROFILE  
STA. 899+00 TO STA. 910+00

SCALE: 1"=50'-0"  
DATE: 04/28/91

DRAWN BY: A.S.  
CHECKED BY: A.Y.

PREPARED BY EADS ILLINOIS INC. CHICAGO ILL.  
CONSULTING ENGINEERS

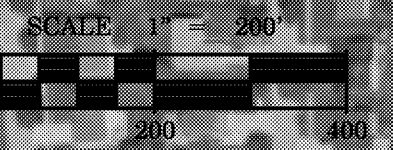


100-YR FLOODPLAIN BOUNDARY

ELGIN O'HARE

MEDINAH ROAD

CREST AVE.



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CLIENT:  
**ILLINOIS DEPARTMENT OF TRANSPORTATION**

NO.	DATE	NATURE OF REVISION	CHKD.

DSGN.	MDC
DWN.	EAT
CHKD.	MDC
SCALE:	1" = 200'

TITLE:  
**ELGIN O'HARE - WEST BYPASS  
 MEACHAM CREEK  
 100-YEAR FLOODPLAIN BOUNDARY**

PROJECT NO.  
 DATE: 11/30/2010

**EXHIBIT 3**

N:\data\070404\Water\Exhibit MDC\070404exh7 Medinah Rd Floodplain.dgn