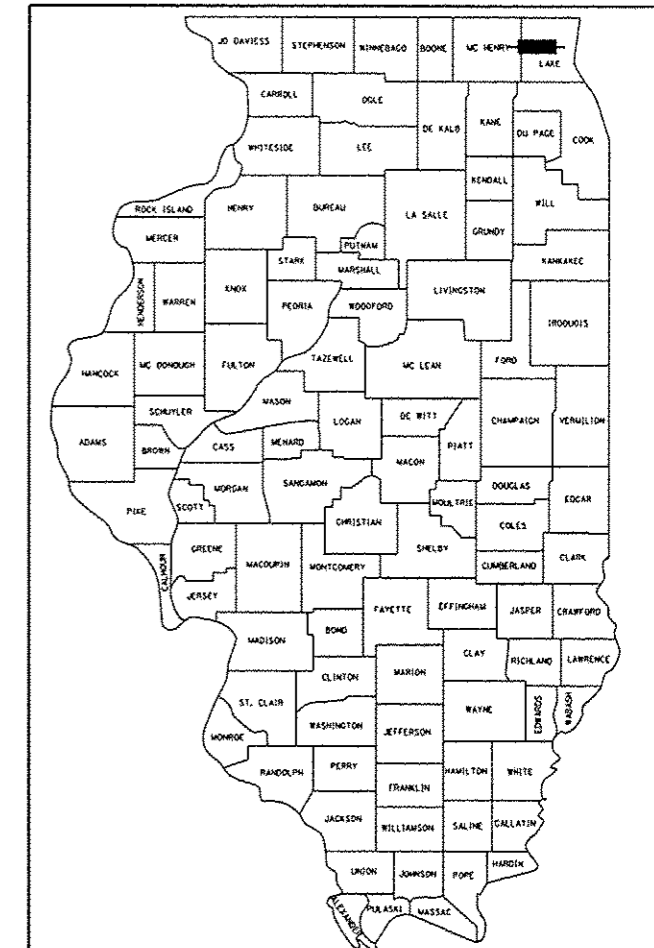


STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
**PROPOSED  
 HIGHWAY PLANS**

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
535	2014-084B	LAKE	16	1
		ILLINOIS	CONTRACT NO. 62A32	

D-91-133-15



LOCATION OF SECTION INDICATED THUS: - [black rectangle] -

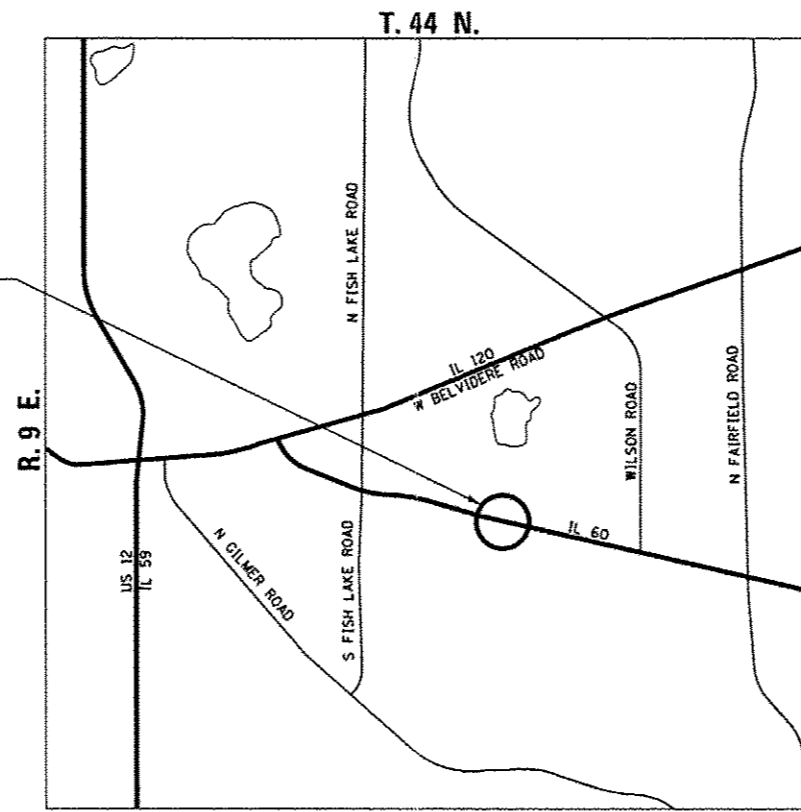
FOR INDEX OF SHEETS, SEE SHEET NO. 2

PROJECT LOCATED IN UNINCORPORATED LAKE COUNTY  
 JUST EAST OF THE VILLAGE OF VOLO

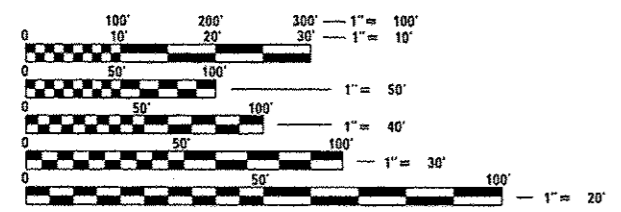
FAP ROUTE 535 (IL 60) OVER DITCH  
 (0.5 MILES WEST OF WILSON ROAD)  
 SECTION 2014-084B  
 CULVERT REPAIR  
 LAKE COUNTY  
 C-91-133-15

**TRAFFIC DATA**  
 POSTED SPEED: 55 MPH  
 DESIGN SPEED: 60 MPH  
 FUNCTIONAL CLASSIFICATION:  
 OTHER PRINCIPAL ARTERIAL  
 ADT = 9,100 (2013)

PROJECT LOCATION  
 STRUCTURE NO. 049-0569



LOCATION MAP  
 NOT TO SCALE



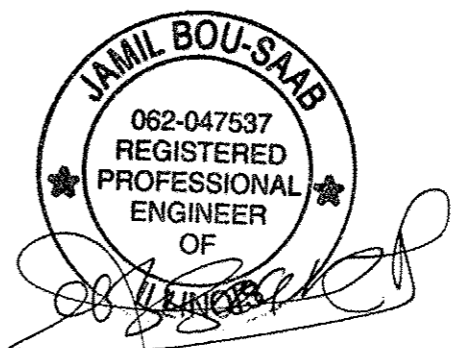
FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.  
 JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION  
 1-800-892-0123  
 OR 811

PROJECT MANAGER: ISSAM RAYYAN, P.E. (847) 705-4178  
 PROJECT ENGINEER: ROBERT T. BORO, P.E. (847) 705-4237

CONTRACT NO. 62A32

GROSS LENGTH = 38 FT. = 0.007 MILE  
 NET LENGTH = 38 FT. = 0.007 MILE



JAMIL BOU-SAAB  
 LICENSED PROFESSIONAL ENGINEER  
 ILLINOIS NO. 062-047537 EXPIRES 11-30-15



STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS

SUBMITTED *February 20 2015*  
*John F. Fullman*  
 DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER

*Mar 20 2015*  
*John D. Baranzoli, P.E.*  
 ENGINEER OF DESIGN AND ENVIRONMENT

*Mar 20 2015*  
*Omer Osman, P.E.*  
 DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

PRINTED BY THE AUTHORITY  
 OF THE STATE OF ILLINOIS

2/17/2015 MAIL 68 CULVERT REPAIR 12-154-9840-DIVISION OF HIGHWAYS SHEETS 01/11/15-084B-01-01-001.dwg

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	COVER SHEET
2	INDEX OF SHEETS, STATE STANDARDS AND GENERAL NOTES
3 - 5	SUMMARY OF QUANTITIES
6	TYPICAL SECTIONS
7	IL 60 PLAN & PAVEMENT MARKINGS
8	TRAFFIC CONTROL DETOUR PLAN
9	GENERAL PLAN AND ELEVATION
10 - 11	BOX CULVERT REPAIR DETAILS
12	EXISTING CULVERT PLANS
13	TRAFFIC CONTROL AND PROTECTION FOR SIDE ROAD, INTERSECTION AND DRIVEWAYS (TC-10)
14	TYPICAL APPLICATIONS: RAISED REFLECTIVE PAVEMENT MARKERS (SNOW-PLOW RESISTANT) (TC-11)
15	DISTRICT ONE TYPICAL PAVEMENT MARKINGS (TC-13)
16	DETOUR SIGNING FOR CLOSING STATE HIGHWAYS (TC-21)

GENERAL NOTES

- BEFORE STARTING ANY EXCAVATION, THE CONTRACTOR SHALL CALL "JULIE" AT (800) 892-0123 FOR FIELD LOCATIONS OF BURIED ELECTRIC, TELEPHONE AND GAS FACILITIES. 48-HOUR NOTIFICATION IS REQUIRED.
- THE CONTRACTOR WILL NOT BE ALLOWED TO SET UP A YARD OR FIELD OFFICE ON STATE PROPERTY WITHOUT WRITTEN PERMISSION FROM THE DEPARTMENT.
- ALL DAMAGE TO EXISTING PAVEMENT MARKINGS OR RAISED REFLECTIVE PAVEMENT MARKERS OUTSIDE THE REMOVAL LINE SHOWN ON THE PLANS SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
- BEFORE STARTING ANY WORK, THE CONTRACTOR SHALL OBTAIN AND RECORD FOR FUTURE REFERENCE, ALL EXISTING PAVEMENT MARKING LINES AND RAISED REFLECTIVE MARKERS IN ORDER THAT THESE LOCATIONS CAN BE RE-ESTABLISHED FOR STRIPING. EXACT LOCATIONS OF ALL PAVEMENT MARKINGS SHALL BE AS DIRECTED BY THE ENGINEER.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO CONSTRUCTION AND ORDERING OF MATERIALS.
- DO NOT SCALE PLANS FOR CONSTRUCTION DIMENSIONS.
- PLAN DIMENSIONS AND DETAILS RELATIVE TO THE EXISTING STRUCTURE HAVE BEEN TAKEN FROM EXISTING PLANS AND ARE SUBJECT TO NOMINAL CONSTRUCTION VARIATIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY SUCH DIMENSIONS AND DETAILS IN THE FIELD AND MAKE NECESSARY APPROVED ADJUSTMENTS PRIOR TO CONSTRUCTION AND ORDERING OF MATERIALS. SUCH VARIATIONS SHALL NOT BE CAUSE FOR ADDITIONAL COMPENSATION FOR A CHANGE IN SCOPE OF WORK, HOWEVER, THE CONTRACTOR WILL BE PAID FOR THE QUANTITY ACTUALLY FURNISHED AT THE UNIT PRICE BID FOR THE WORK.
- THE CONTRACTOR SHALL CONTACT THE DISTRICT ONE TRAFFIC CONTROL SUPERVISOR AT (847) 705-4470 A MINIMUM OF 72 HOURS IN ADVANCE OF BEGINNING OF WORK.
- THE RESIDENT ENGINEER SHALL CONTACT WALTER CZARNY, THE AREA TRAFFIC FIELD ENGINEER, AT (847) 438-2300 A MINIMUM OF TWO (2) WEEKS PRIOR TO PLACEMENT OF PERMANENT PAVEMENT MARKINGS.
- THE CONTRACTOR SHALL DIVERT WATER FROM THE WORK AREAS IF NECESSARY BY A METHOD APPROVED BY THE ENGINEER. THIS WORK IS INCIDENTAL TO THE CONTRACT AND WILL NOT BE PAID FOR SEPARATELY.
- ALL EXCAVATED SOILS FROM THE PROJECT SITE SHALL BE RE-USED AS FILL OR TOPSOIL AT THE PROJECT SITE. NO EXCAVATED SOILS FROM THE PROJECT SITE MAY BE DISPOSED OF AT ANY OFFSITE LOCATION.
- THE DEPARTMENT HAS DETERMINED THAT IN STREAM WORK IS NOT REQUIRED FOR THE WORK SPECIFIED IN THIS CONTRACT. THE DEPARTMENT HAS NOT OBTAINED A 404 PERMIT. IF THE CONTRACTOR CHOOSES TO USE ACTIVITIES REQUIRING AN USACE 404 PERMIT, IT IS THE CONTRACTOR'S RESPONSIBILITY TO SECURE THE PROPER USACE PERMITS.
- GUARDRAIL INSTALLATION SHALL BE COMPLETED PRIOR TO OPENING THE ROAD TO TRAFFIC.

STATE STANDARDS

000001-06	STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
001001-02	AREAS OF REINFORCEMENT BARS
442201-03	CLASS C AND D PATCHES
701001-02	OFF-RD OPERATIONS, 2L, 2W, MORE THAN 15' AWAY
701006-05	OFF-RD OPERATIONS, 2L, 2W, 15' TO 24" FROM PAVEMENT EDGE
701011-04	OFF-RD MOVING OPERATIONS, 2L, 2W, DAY ONLY
701201-04	LANE CLOSURE, 2L, 2W, DAY ONLY, FOR SPEEDS >= 45 MPH
701301-04	LANE CLOSURE, 2L, 2W, SHORT TIME OPERATIONS
701306-03	LANE CLOSURE, 2L, 2W, SLOW MOVING OPERATIONS DAY ONLY, FOR SPEEDS >= 45 MPH
701311-03	LANE CLOSURE, 2L, 2W, MOVING OPERATIONS - DAY ONLY
701901-04	TRAFFIC CONTROL DEVICES
780001-05	TYPICAL PAVEMENT MARKINGS
781001-03	TYPICAL APPLICATIONS RAISED REFLECTIVE PAVEMENT MARKERS

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PLOT DATE : 2/17/2015	CHECKED - LVA	REVISED -
	DATE - 02/17/15	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

IL 60 OVER DITCH CULVERT REPAIR (0.5 MI WEST OF WILSON RD)  
INDEX OF SHEETS, STATE STANDARDS AND GENERAL NOTES

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
535	2014-084B	LAKE	16	2
CONTRACT NO. 62A32				
ILLINOIS FED. AID PROJECT				

SCALE: NTS SHEET 1 OF 1 SHEETS STA. TO STA.

MAY 16 08 CULVERT REPAIR (2-154-084) Design\CL\1\1\000 Sheets\011116R-en-500.dgn  
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SP	SI	CODE NO.	ITEM	UNIT	TOTAL QUANTITY	100% STATE
						ROADWAY
						0040
		20101100	TREE TRUNK PROTECTION	EACH	3	3
		20101400	NITROGEN FERTILIZER NUTRIENT	POUND	1	1
		20101500	PHOSPHORUS FERTILIZER NUTRIENT	POUND	1	1
		20101600	POTASSIUM FERTILIZER NUTRIENT	POUND	1	1
		21101625	TOPSOIL FURNISH AND PLACE, 6"	SO YD	15	15
		25000210	SEEDING, CLASS 2A	ACRE	0.01	0.01
		25100115	MULCH, METHOD 2	ACRE	0.01	0.01
		28000400	PERIMETER EROSION BARRIER	FOOT	58	58
		28200200	FILTER FABRIC	SO YD	6	6
		40600275	BITUMINOUS MATERIALS (PRIME COAT)	POUND	5	5
		44201741	CLASS D PATCHES, TYPE II, 8 INCH	SO YD	6	6
		48101202	AGGREGATE SHOULDERS, TYPE B	CU YD	0.5	0.5
		50102400	CONCRETE REMOVAL	CU YD	5.0	5.0
		50200100	STRUCTURE EXCAVATION	CU YD	51	51

*URBAN*

X SPECIALTY ITEM  
 • SPECIAL PROVISION ITEM



USER NAME : KJJC	DESIGNED - KJC	REVISED -
PLOT SCALE : NTS	DRAWN - KJC	REVISED -
PLOT DATE : 2/17/2015	CHECKED - LVA	REVISED -
	DATE - 02/17/15	REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

IL 60 OVER DITCH CULVERT REPAIR (0.5 MI WEST OF WILSON RD)  
 SUMMARY OF QUANTITIES

SCALE: NTS    SHEET 1 OF 3 SHEETS    STA.    TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
535	2014-084B	LAKE	16	3
CONTRACT NO. 62A32			ILLINOIS FED. AID PROJECT	

URBAN

100% STATE

ROADWAY

0040

SP	SI	CODE NO.	ITEM	UNIT	TOTAL QUANTITY	
		50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	710	710
		54002020	EXPANSION BOLTS 3/4 INCH	EACH	51	51
		54003000	CONCRETE BOX CULVERTS	CU YD	5.0	5.0
		63301210	REMOVE AND REERECT STEEL PLATE BEAM GUARDRAIL, TYPE A	FOOT	37.5	37.5
		67000400	ENGINEER'S FIELD OFFICE, TYPE A	CAL MO	1	1
		67100100	MOBILIZATION	L SUM	1	1
		70106800	CHANGEABLE MESSAGE SIGN	CAL MO	2	2
	X	78000200	THERMOPLASTIC PAVEMENT MARKING - LINE 4"	FOOT	12	12
	X	78100100	RAISED REFLECTIVE PAVEMENT MARKER	EACH	2	2
	• X	85000200	MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION	EACH	2	2
	•	K1004595	PRUNING FOR SAFETY AND EQUIPMENT CLEARANCE	L SUM	1	1
	•	X4810200	AGGREGATE SHOULDER REMOVAL	CU YD	0.5	0.5
	•	X7010216	TRAFFIC CONTROL AND PROTECTION, (SPECIAL)	L SUM	1	1
	•	Z0013798	CONSTRUCTION LAYOUT	L SUM	1	1

X SPECIALTY ITEM  
 • SPECIAL PROVISION ITEM

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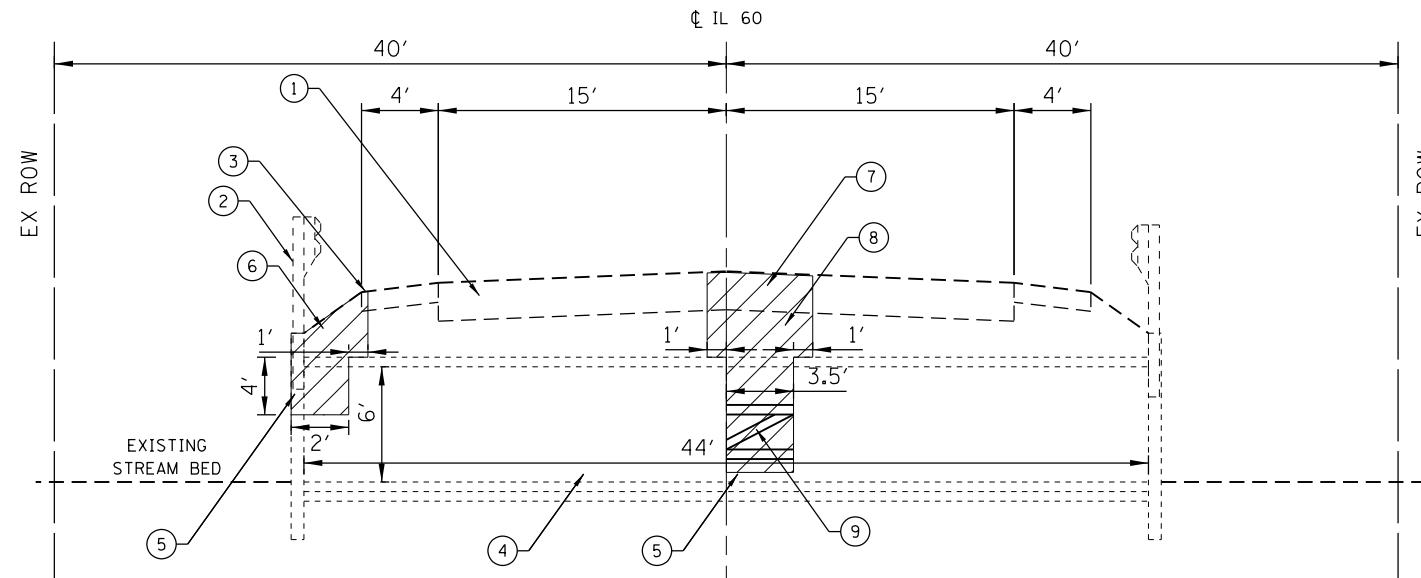
STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

IL 60 OVER DITCH CULVERT REPAIR (0.5 MI WEST OF WILSON RD)  
 SUMMARY OF QUANTITIES

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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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CONTRACT NO. 62A32			ILLINOIS FED. AID PROJECT	

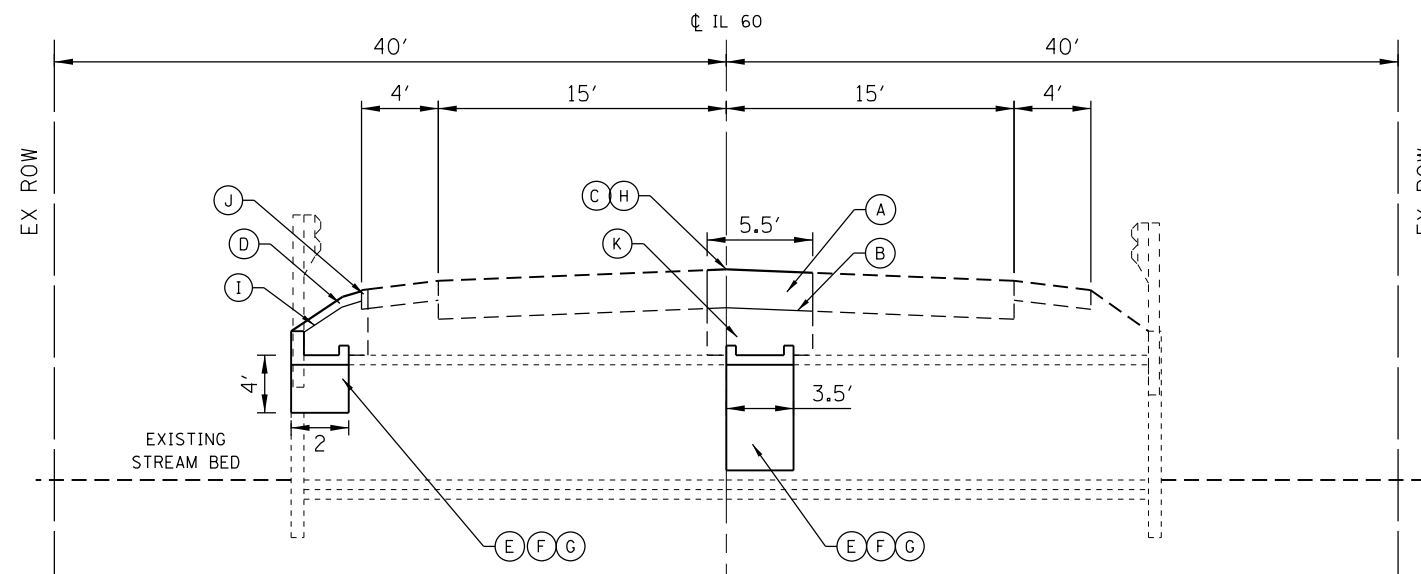




ILLINOIS ROUTE 60 OVER DITCH  
(0.5 MILES WEST OF WILSON ROAD)  
EXISTING REINFORCED BOX CULVERT

EXISTING/REMOVAL LEGEND

- ① EXISTING PAVEMENT
- ② EXISTING GUARDRAIL TO BE REMOVED AND REERECTED
- ③ EXISTING AGGREGATE SHOULDER TO BE REMOVED
- ④ EXISTING REINFORCED CONCRETE BOX CULVERT
- ⑤ CONCRETE REMOVAL
- ⑥ STRUCTURE EXCAVATION (TO BE REPLACED)
- ⑦ CLASS D PATCHES, TYPE II, 8 INCH
- ⑧ EXISTING SUBBASE MATERIAL TO BE REUSED & REPLACED
- ⑨ TEMPORARY SOIL RETENTION SYSTEM



ILLINOIS ROUTE 60 OVER DITCH  
(0.5 MILES WEST OF WILSON ROAD)  
PROPOSED REINFORCED BOX CULVERT REPAIRS

PROPOSED LEGEND

- Ⓐ CLASS D PATCHES, TYPE II, 8 INCH
- Ⓑ BITUMINOUS MATERIALS (PRIME COAT)
- Ⓒ THERMOPLASTIC PAVEMENT MARKING - LINE 4"
- Ⓓ TOPSOIL FURNISH AND PLACE, 6"
- Ⓔ CONCRETE BOX CULVERTS
- Ⓕ REINFORCEMENT BARS, EPOXY COATED
- Ⓖ EXPANSION BOLTS 3/4 INCH
- Ⓗ RAISED REFLECTIVE PAVEMENT MARKER
- Ⓘ FILTER FABRIC
- Ⓙ AGGREGATE SHOULDERS, TYPE B
- Ⓚ EXISTING SUBBASE MATERIAL TO BE REUSED & REPLACED

NOTES:

1. THE UNIT WEIGHT USED TO CALCULATE ALL HMA MIXTURE QUANTITIES IS 112 LBS/SQYD/IN.
2. FOR NON-POLYMERIZED HMA THE "AC TYPE" SHALL BE "PG 64 -22" UNLESS MODIFIED BY DISTRICT ONE SPECIAL PROVISIONS.
3. FOR USE OF RECYCLED MATERIALS SEE DISTRICT ONE SPECIAL PROVISIONS.
4. QUALITY MANAGEMENT PROGRAM (QMP) IDENTIFIES THE PARTICULAR QUALITY CONTROL SPECIFICATION THAT APPLIES TO THE HMA MIXTURE.

HOT-MIX ASPHALT REQUIREMENTS

APPLICATION	MIXTURE TYPE	AC TYPE	AIR VOIDS @ NDES	RAP %
CLASS D PATCHES, TYPE II, 8 INCH	2" HMA SURFACE COURSE, MIX D, N70	PG 64-22	4% @ 70 GYR	15
	6" HMA BINDER IL-19 MM	PG 58-22	4% @ 70 GYR	25

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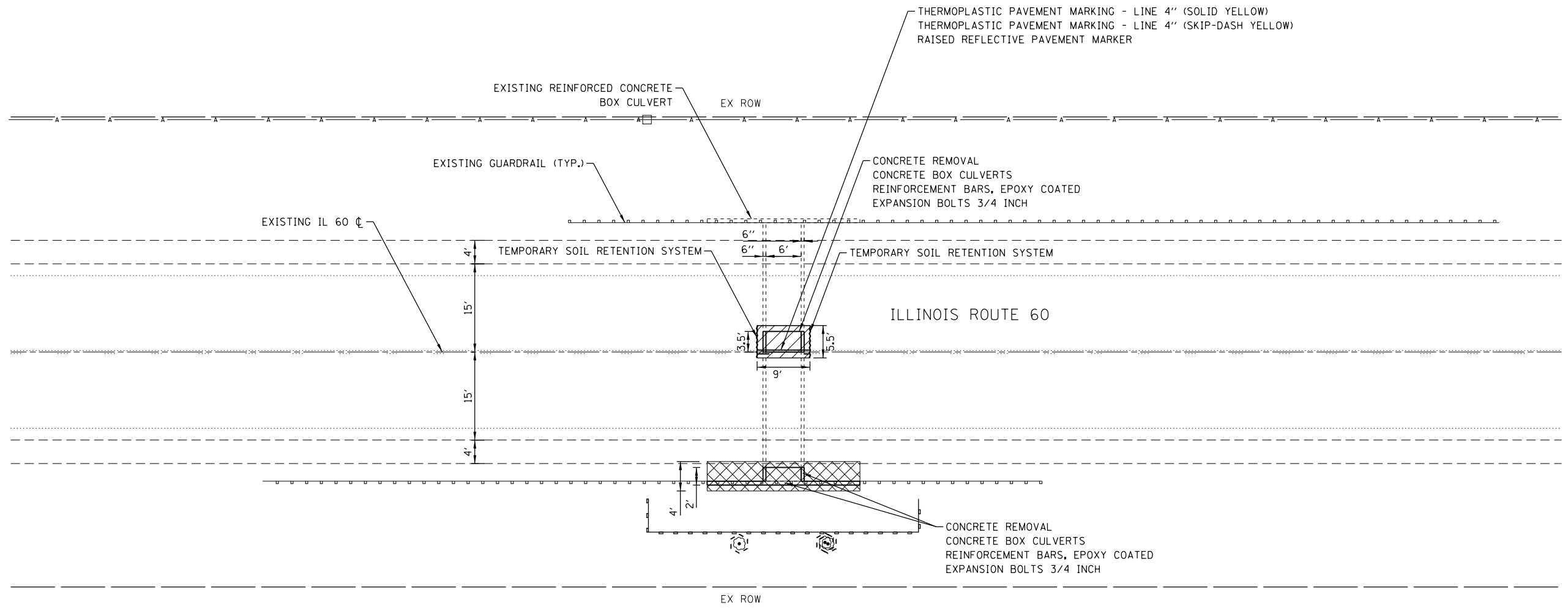
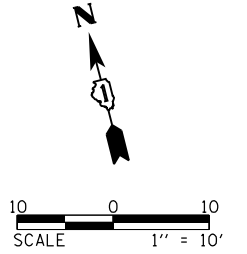
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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

IL 60 OVER DITCH CULVERT REPAIR (0.5 MI WEST OF WILSON RD)  
TYPICAL SECTIONS

SCALE: NTS SHEET 1 OF 1 SHEETS STA. TO STA.




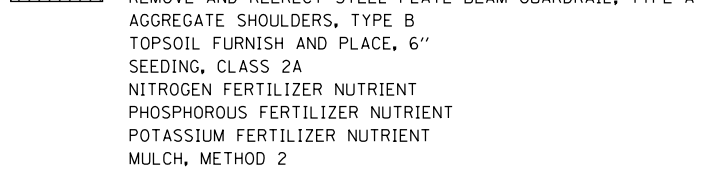

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
535	2014-084B	LAKE	16	6
CONTRACT NO. 62A32			ILLINOIS FED. AID PROJECT	



**TEMPORARY EROSION CONTROL NOTES**

1. THE CONTRACTOR SHALL INSTALL PERIMETER EROSION BARRIER PRIOR TO STRIPPING OF VEGETATION.
2. RUNOFF FROM EXCAVATION AREAS SHALL LEAVE THE SITE THROUGH SEDIMENT CONTROL DEVICES. THE CONTRACTOR SHALL ADJUST HIS OPERATION AND IMPLEMENT EROSION CONTROL MEASURES ACCORDINGLY.
3. THE CONTRACTOR SHALL SURROUND ANY NECESSARY EARTH STOCKPILES WITH PERIMETER EROSION BARRIER.
4. THE CONTRACTOR SHALL MAINTAIN ALL EROSION CONTROL DEVICES AT ALL TIMES. EROSION CONTROL DEVICES SHALL BE INSPECTED EVERY SEVEN CALENDAR DAYS OR WITHIN 24 HOURS AFTER A 1/2 INCH RAINFALL OR SNOWFALL.
5. THE CONTRACTOR SHALL SEED ALL DISTURBED AREAS AS SOON AS PRACTICAL AFTER CONSTRUCTION ACTIVITIES IN THAT AREA HAVE BEEN CONCLUDED. AREAS THAT HAVE STEEP SLOPES OR WILL NOT RECEIVE PERMANENT LANDSCAPING SHALL BE TEMPORARILY SEEDED. ALL FLATTER AREAS OR AREAS WHERE NO FURTHER WORK IS TO OCCUR FOR ONE MONTH OR MORE SHALL BE SEEDED AND COVERED WITH AN EROSION CONTROL BLANKET WITHIN SEVEN (7) CALENDAR DAYS.

**LEGEND**

-  CLASS D PATCHES, TYPE II, 8 INCH BITUMINOUS MATERIALS (PRIME COAT) EXISTING SUBBASE MATERIAL ABOVE CULVERT TO BE REUSED & REPLACED
-  STRUCTURE EXCAVATION
-  PERIMETER EROSION BARRIER
-  FILTER FABRIC REMOVE AND REERECT STEEL PLATE BEAM GUARDRAIL, TYPE A AGGREGATE SHOULDERS, TYPE B TOPSOIL FURNISH AND PLACE, 6" SEEDING, CLASS 2A NITROGEN FERTILIZER NUTRIENT PHOSPHOROUS FERTILIZER NUTRIENT POTASSIUM FERTILIZER NUTRIENT MULCH, METHOD 2
-  TREE PROTECTION

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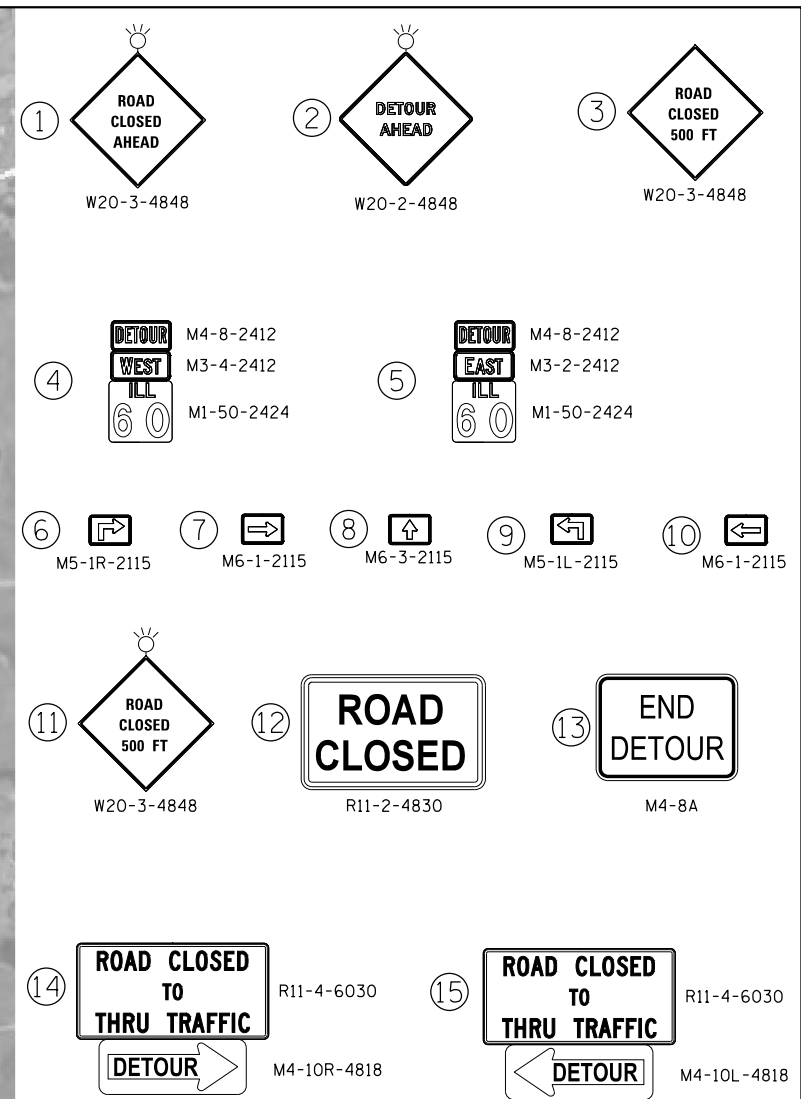
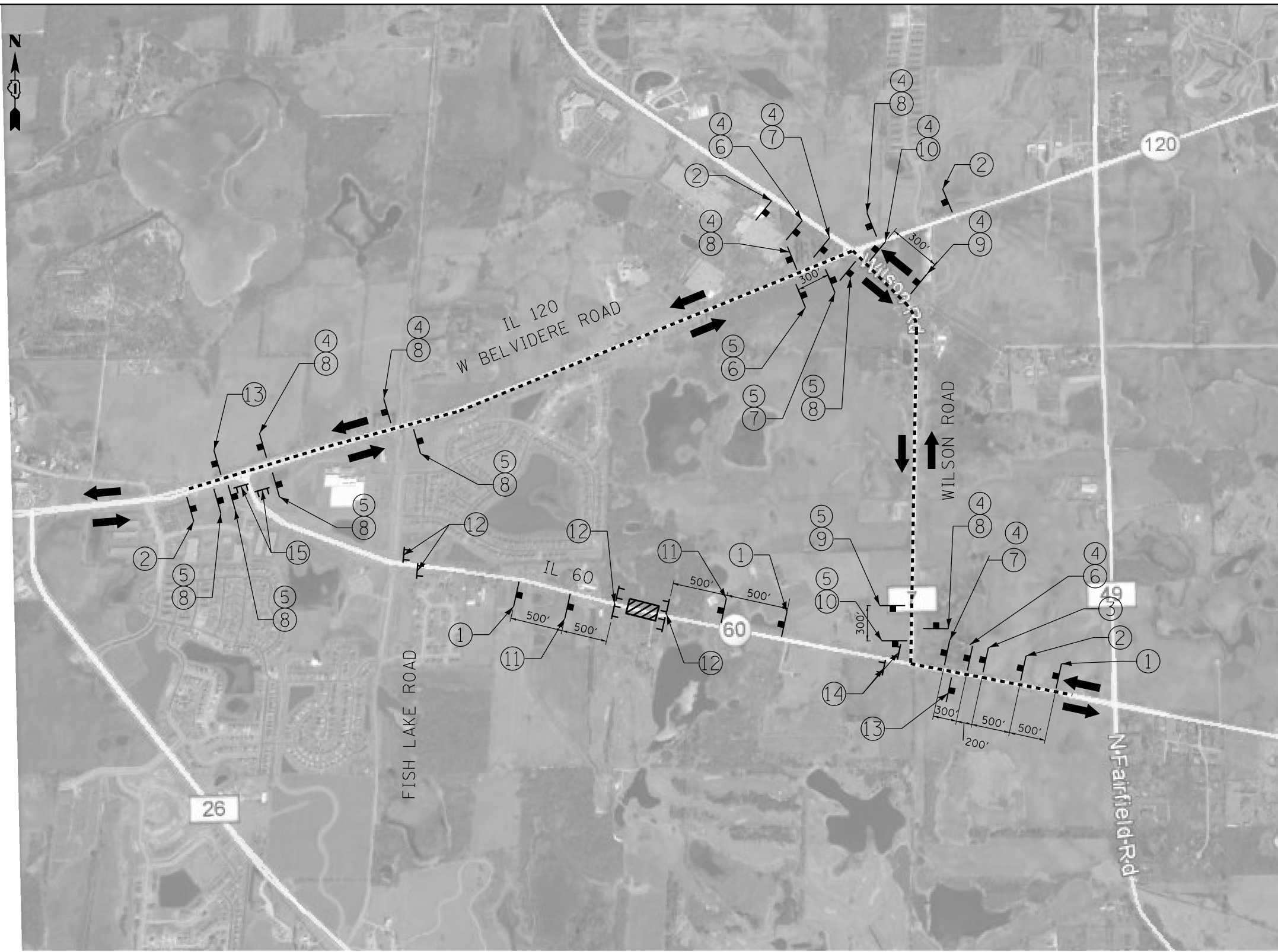
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**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**IL 60 OVER DITCH CULVERT REPAIR (0.5 MI WEST OF WILSON RD)  
IL 60 PLAN & PAVEMENT MARKINGS**

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
535	2014-084B	LAKE	16	7
CONTRACT NO. 62A32			ILLINOIS FED. AID PROJECT	

SCALE: 1" = 10' SHEET 1 OF 1 SHEETS STA. TO STA.



**LEGEND**

----- DETOUR ROUTE

CONSTRUCTION ZONE

TYPE III BARRICADE WITH TWO FLASHING LIGHTS

**NOTES**

1. PLACEMENT AND SPACING OF SIGNS AND BARRICADES SHALL BE IN ACCORDANCE WITH TC-21 (DETOUR SIGNING FOR CLOSING STATE HIGHWAYS).
2. THE COST OF SUPPLYING, ERECTING AND MAINTAINING BARRICADES, WARNING LIGHTS AND ALL SIGNS, INCLUDING SIGN PANEL OVERLAYS, SHALL BE INCLUDED IN THE CONTRACT COST OF TRAFFIC CONTROL AND PROTECTION (SPECIAL).
3. ACCESS TO ALL PRIVATE ENTRANCES SHALL BE MAINTAINED.
4. ALL SIGNALIZED INTERSECTIONS ALONG THE DETOUR ROUTE SHALL IMPLEMENT TEMPORARY TRAFFIC SIGNAL TIMING.
5. THE FOLLOWING INTERSECTIONS WILL REQUIRE MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION:
  - BELVIDERE RD. AND FISH LAKE RD.
  - BELVIDERE RD. AND WILSON RD.

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**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

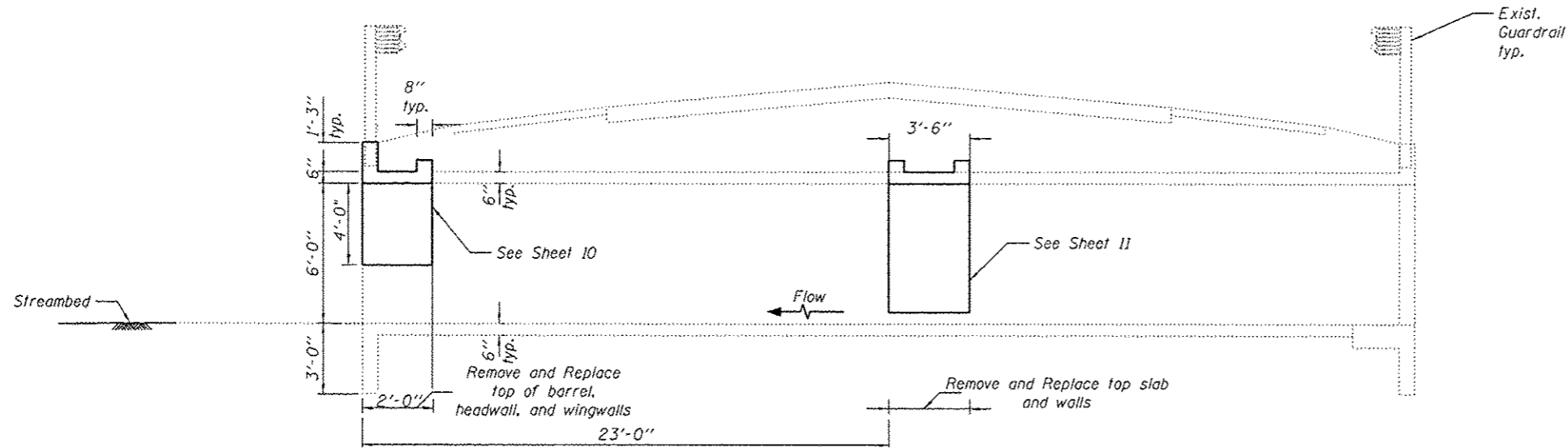
**IL 60 OVER DITCH CULVERT REPAIR (0.5 MI WEST OF WILSON RD)  
TRAFFIC CONTROL DETOUR PLAN**

SCALE: NTS    SHEET 1 OF 1 SHEETS    STA.    TO STA.

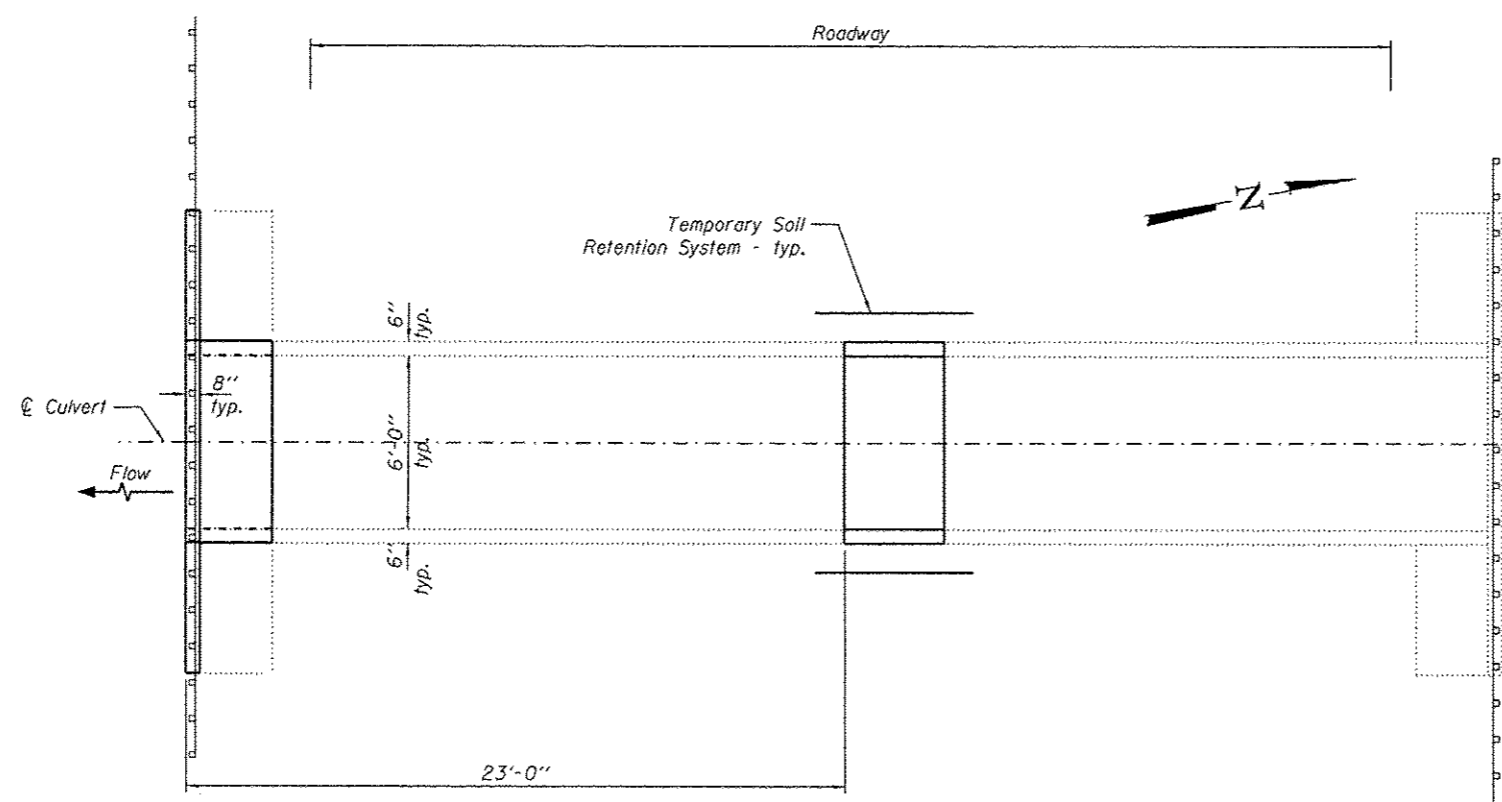
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
535	2014-084B	LAKE	16	8
CONTRACT NO. 62A32				
ILLINOIS FED. AID PROJECT				



Existing Structure: SN 049-0569 built in 1933 as S.B.J. Route 59A, Section 118 at Sta. 87+00.00.  
 A 6' x 6' reinforced concrete box culvert. Remove and replace top 4' of barrel, headwall, and wingwall at south end and top slab and walls near center of roadway.



**LONGITUDINAL SECTION**



**PLAN**

**LOADING HS 20-44 & ALT.**

**DESIGN STRESSES**

**FIELD UNITS**  
 $f'_c = 3,500 \text{ psi}$   
 $f_y = 60,000 \text{ psi (Reinforcement)}$

**DESIGN SPECIFICATIONS**

AASHTO Standard Bridge Design Specifications

**GENERAL NOTES**

- Barrel shall be poured monolithically with wingwalls.
- Exposed edges shall be beveled  $\frac{3}{4}$ ".
- Reinforcement bars shall conform to the requirements of AASHTO M-31, M-42, or M-53, Grade 60.
- Expansion bolts shall be  $\frac{3}{4}$ "  $\phi$  hooked bolts. Hooked bolts shall extend a minimum of 9" into new concrete.
- Reinforcement bars designated (E) shall be epoxy coated.
- Plan dimensions and details relative to existing plans are subject to nominal construction variations. The Contractor shall field verify existing dimensions and details affecting new construction and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.
- Existing reinforcement shall be cleaned and incorporated into the new construction. Cost included with Concrete Removal.



**TOTAL BILL OF MATERIAL**

ITEM	UNIT	TOTAL
Concrete Box Culverts	Cu. Yds.	5.0
Reinforcement Bars, Epoxy Coated	Pound	710
Expansion Bolts 3/4"	Each	51
Structure Excavation	Cu. Yds.	51
Temporary Soil Retention System	Sq. Ft.	110

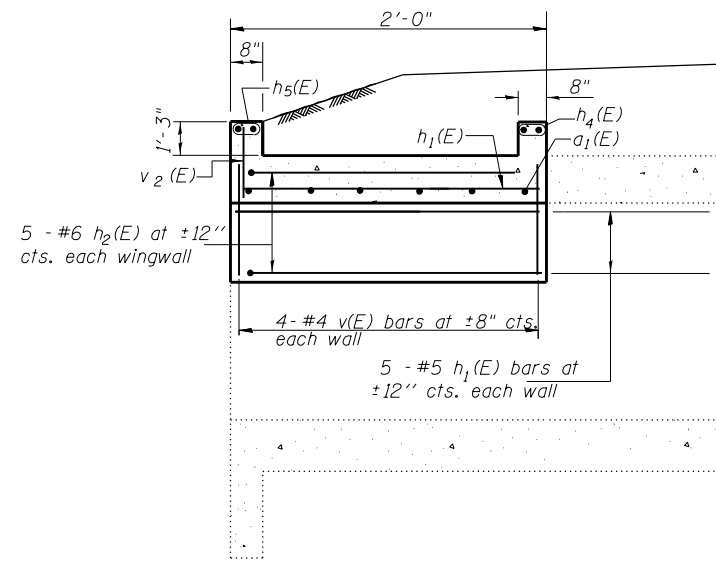


**LOCATION SKETCH**

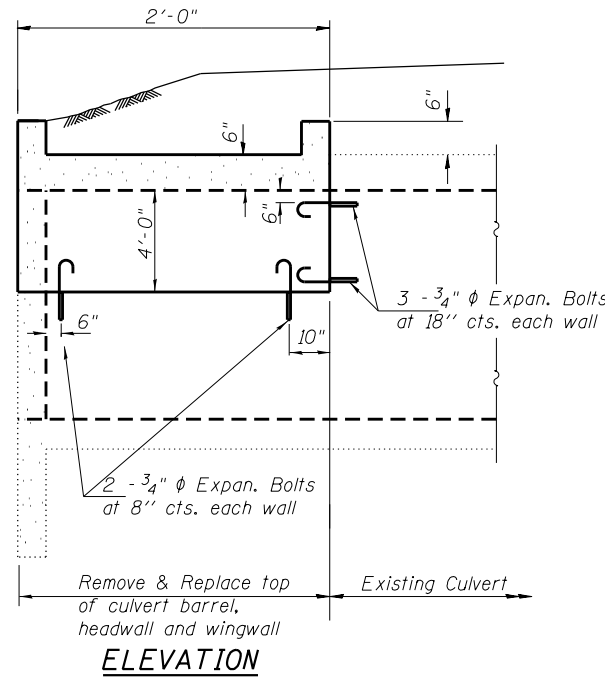
**GENERAL PLAN & ELEVATION**  
**IL RTE. 60 OVER DITCH**  
**F.A.P. RTE. 535 - SEC. 2014-084B**  
**LAKE COUNTY**  
**STATION 87+00.00**  
**STRUCTURE NO. 049-0569**

MAIL 60 CULVERT REPAIR (12-154-024) Design\Structure\049-0569\62A32-01-0P&E.dgn

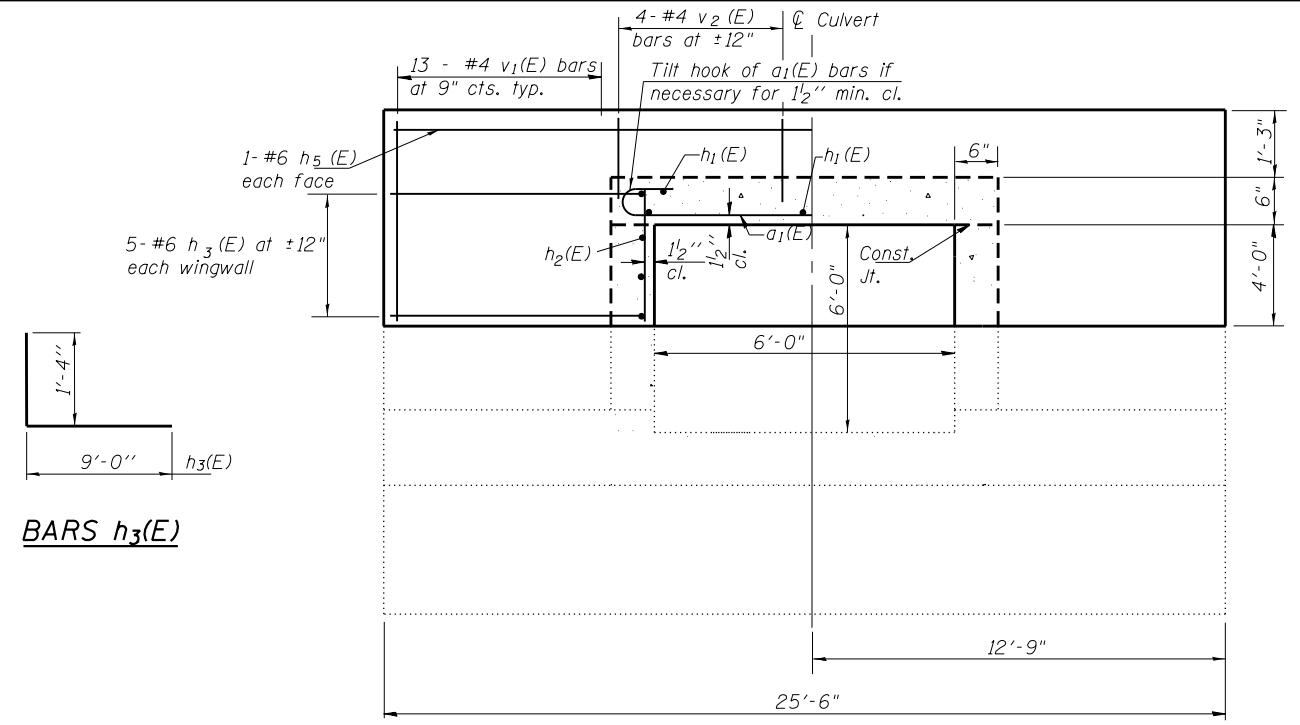
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	PLOT SCALE = NTS PLOT DATE = 2/11/2015	DRAWN - BR CHECKED - DOB DATE - 01/09/15	REVISED - REVISED - REVISED -			SCALE: NTS SHEET 1 OF 1 SHEETS STA. TO STA.	CONTRACT NO. 62A32 ILLINOIS FED. AID PROJECT			



LONG SECTION



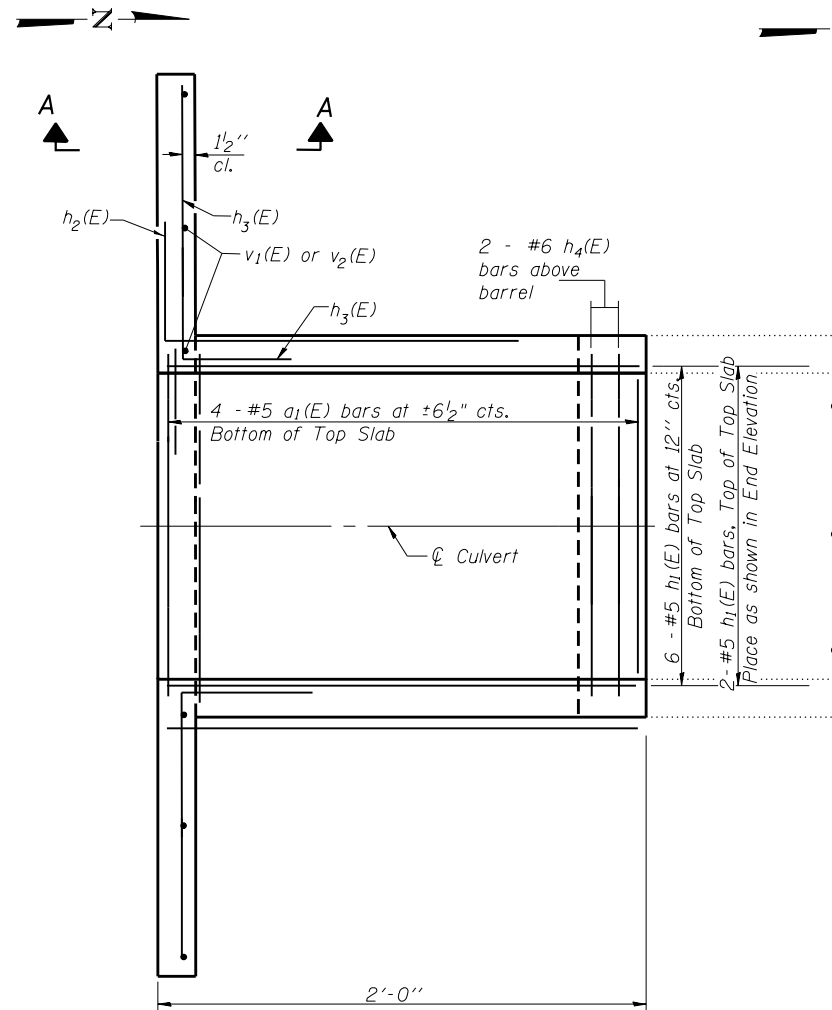
ELEVATION



SHOWING REINFORCEMENT

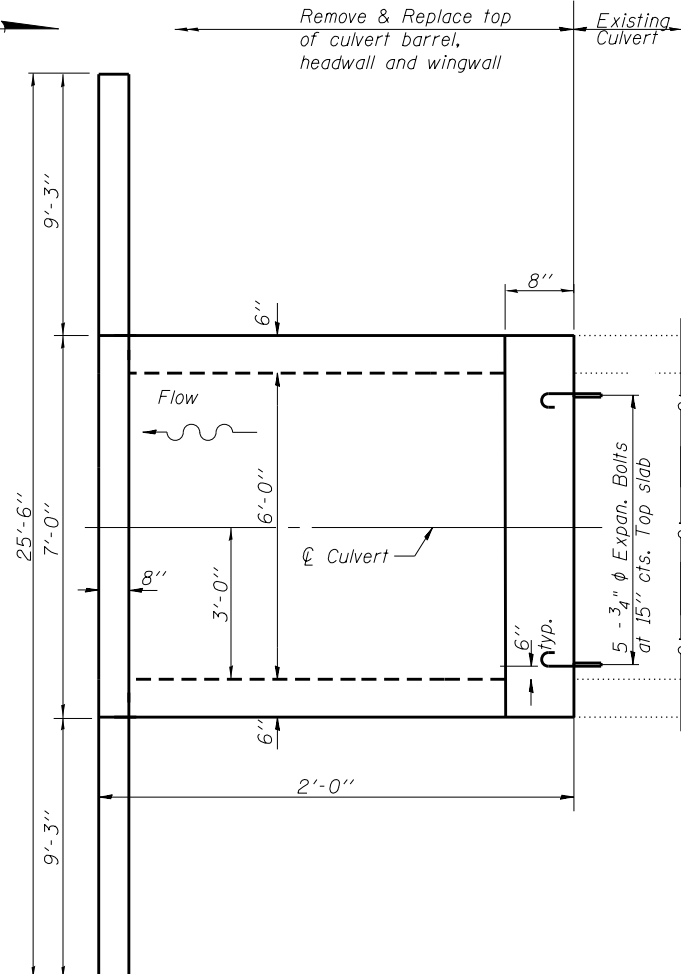
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END ELEVATION

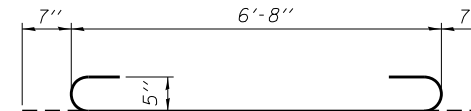


SHOWING REINFORCEMENT

PLAN

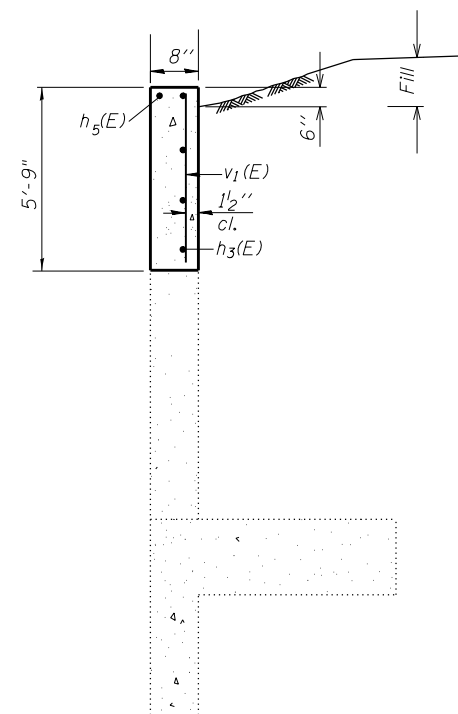


SHOWING OUTLINES

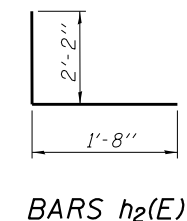


BARS h3(E)

BAR a1(E)



SECTION A-A



BARS h2(E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a1(E)	4	#5	7'-10"	C
h1(E)	18	#5	1'-8"	—
h2(E)	10	#6	3'-10"	—
h3(E)	10	#6	10'-4"	—
h4(E)	2	#6	6'-8"	—
h5(E)	2	#6	25'-2"	—
v(E)	8	#4	4'-2"	—
v1(E)	26	#4	5'-5"	—
v2(E)	8	#4	1'-5"	—
Concrete Box Culverts		Cu. Yd.	3.5	
Reinforcement Bars, Epoxy Coated		Pound	500	
Expansion Bolts 3/4"		Each	15	

BOX CULVERT REMOVAL/REPLACMENT  
 IL. RTE 60 OVER DITCH  
 F.A.P. RT. 535 - SEC. 2014-084B  
 LAKE COUNTY  
 STATION 87+00.00  
 STRUCTURE NO. 049-0569

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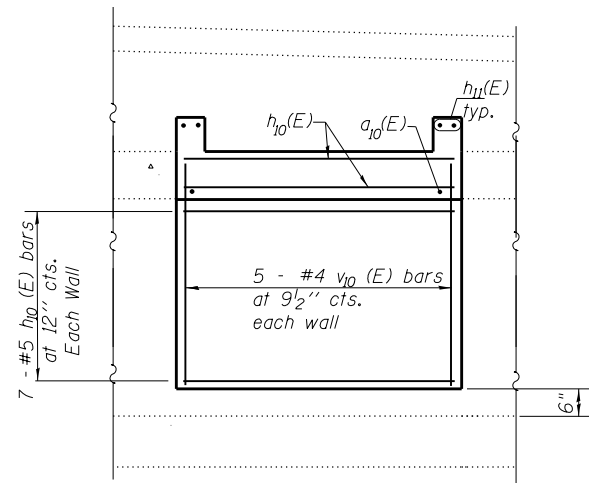
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STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

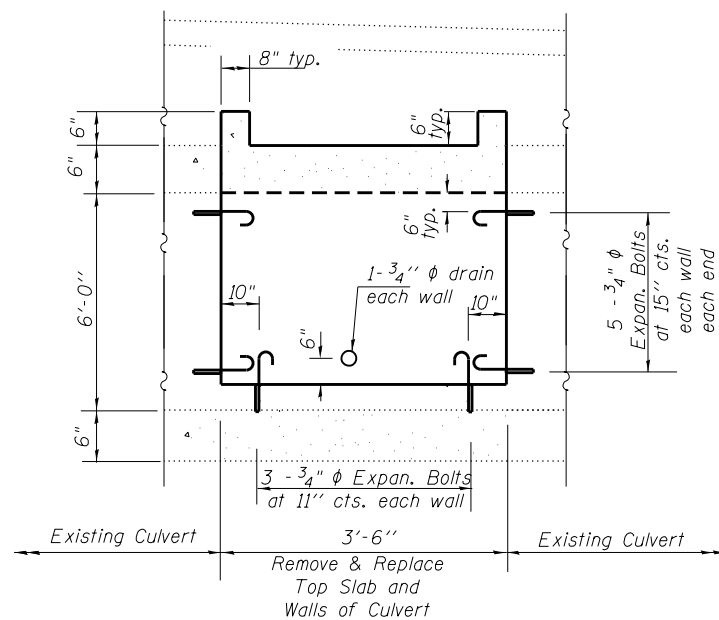
IL 60 OVER DITCH CULVERT REPAIR (0.5 MI WEST OF WILSON RD)  
 BOX CULVERT REPAIR DETAILS

SCALE: NTS SHEET 1 OF 2 SHEETS STA. TO STA.

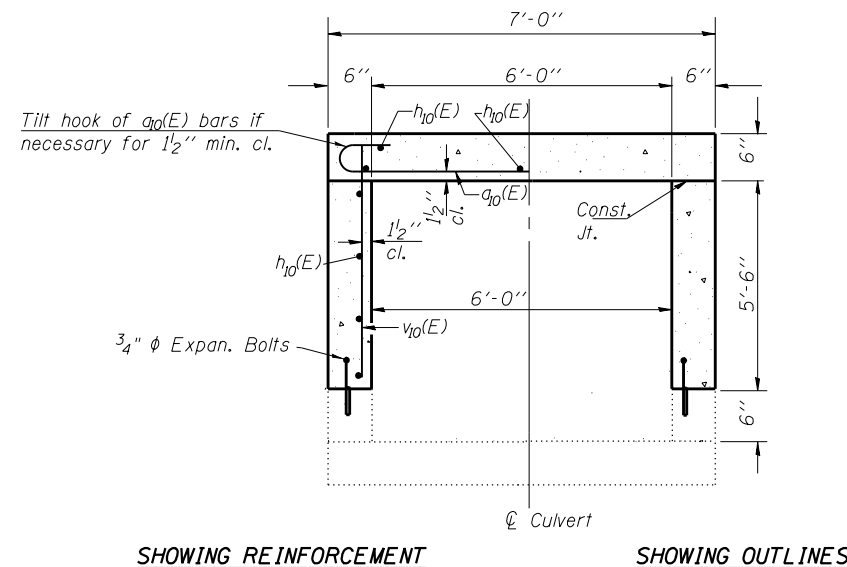
F.A.P. RTE. 535	SECTION 2014-084B	COUNTY LAKE	TOTAL SHEETS 16	SHEET NO. 10
			CONTRACT NO. 62A32	
ILLINOIS FED. AID PROJECT				



**LONG SECTION**



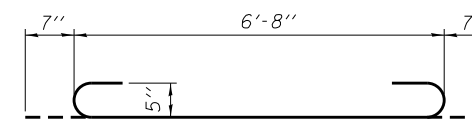
**ELEVATION**



**SHOWING REINFORCEMENT**

**SHOWING OUTLINES**

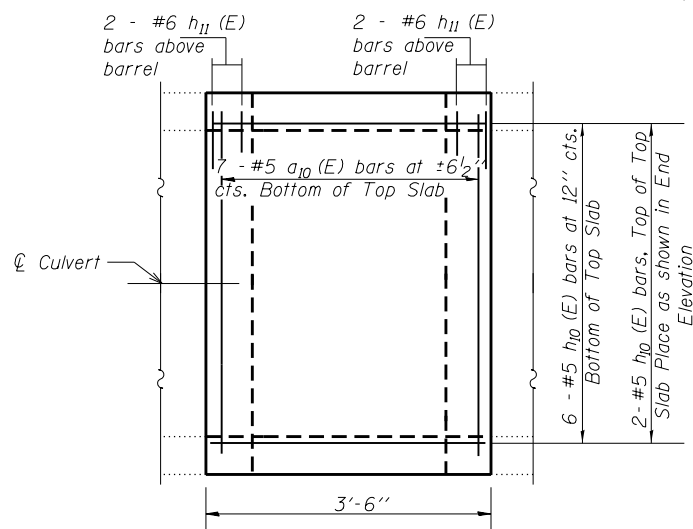
**SECTION THRU BARREL**



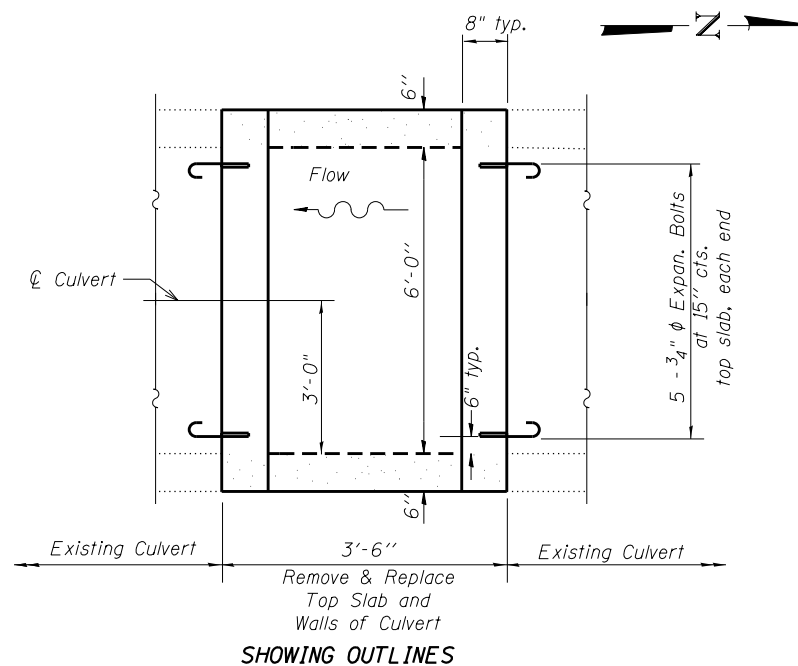
**BAR a10(E)**

**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape	
a10(E)	7	#5	7'-10"	U	
h10(E)	22	#5	3'-2"	—	
h11(E)	4	#6	6'-8"	—	
v10(E)	10	#4	5'-8"	—	
Concrete Box Culverts				Cu. Yd.	1.5
Reinforcement Bars, Epoxy Coated				Pound	210
Expansion Bolts 3/4"				Each	36



**SHOWING REINFORCEMENT**



**SHOWING OUTLINES**

**PLAN**

**BOX CULVERT REMOVAL/REPLACEMENT**  
**IL. RTE 60 OVER DITCH**  
**F.A.P. RT. 535 - SEC. 2014-084B**  
**LAKE COUNTY**  
**STATION 87+00.00**  
**STRUCTURE NO. 049-0569**

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PLOT SCALE = NTS	DRAWN - BR	REVISED -
PLOT DATE = 2/17/2015	CHECKED - DDB	REVISED -
	DATE - 02/17/15	REVISED -

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**IL 60 OVER DITCH CULVERT REPAIR (0.5 MI WEST OF WILSON RD)**  
**BOX CULVERT REPAIR DETAILS**

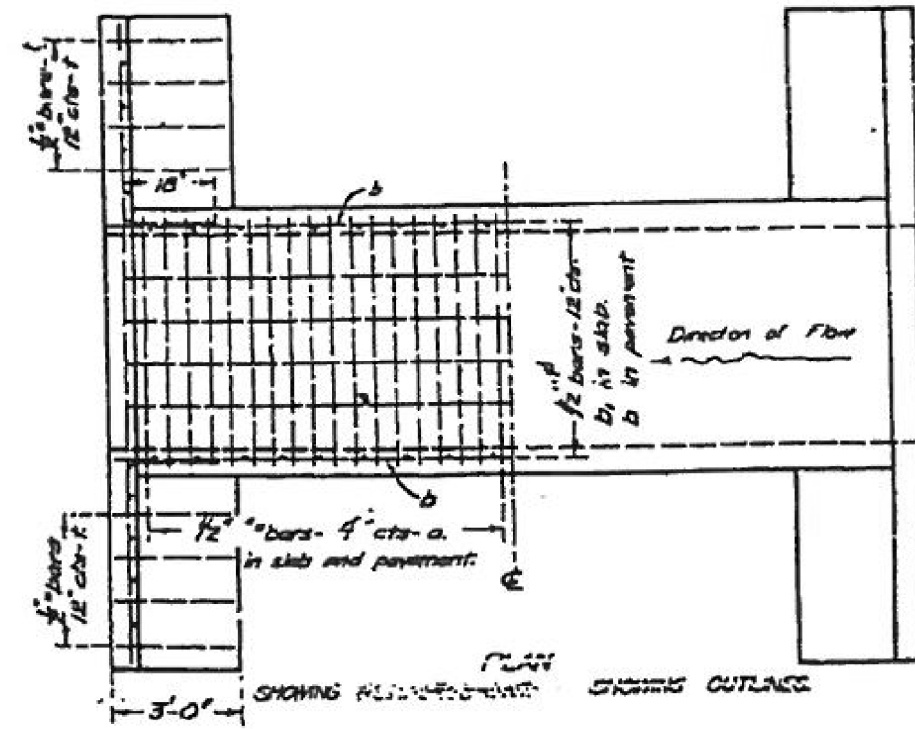
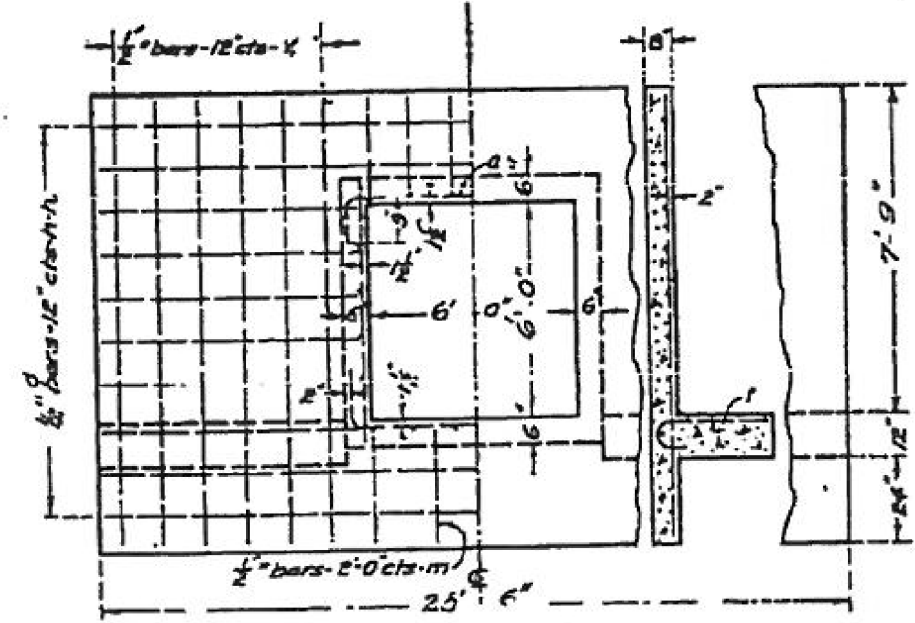
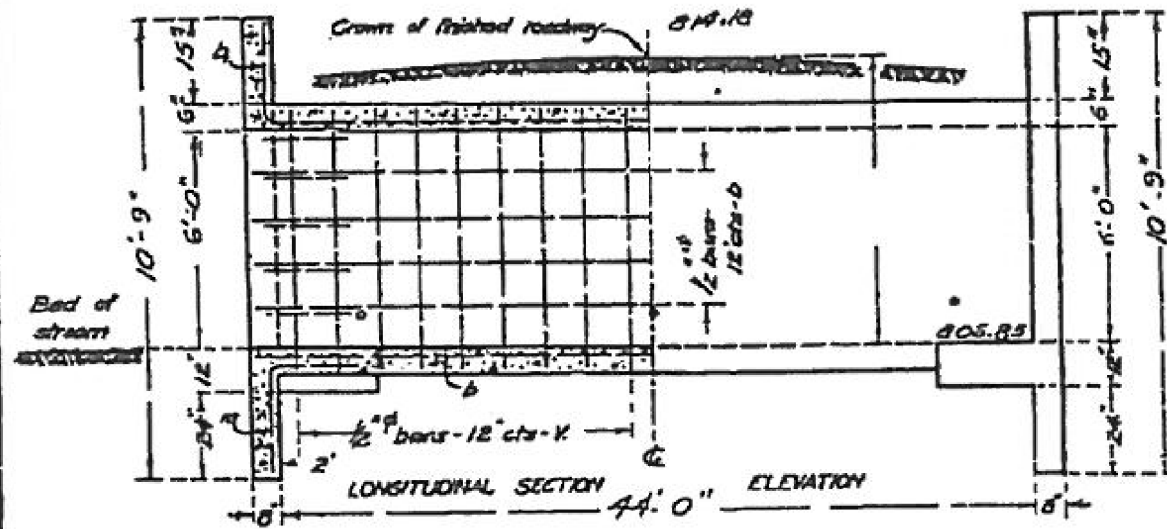
SCALE: NTS SHEET 2 OF 2 SHEETS STA. TO STA.

F.A.P. RTE. 535	SECTION 2014-084B	COUNTY LAKE	TOTAL SHEETS 16	SHEET NO. 11
CONTRACT NO. 62A32			ILLINOIS FED. AID PROJECT	

STATE OF ILLINOIS  
STATE HIGHWAY DEPARTMENT  
REINFORCED CONCRETE BOX CULVERT

ROAD ISSUE ROUTE NO.	SEC.	COUNTY	TOTAL SHEETS	SHEET NO.
59A	A-118A	LAKE	22	72
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT 201	

FOR INFORMATION ONLY



Note - Use "m" bars in downstream haubolt only  
Box is designed for no fill.  
Maximum clearance - 7'-6"

BILL OF MATERIAL

Bars	No.	Size	Length
v	24	1/2"	6'-9"
v	40	1/2"	11'-6"
h	8	1/2"	25'-0"
h	20	1/2"	11'-0"
a	276	1/2"	8'-0"
b	86	1/2"	23'-6"
b	12	1/2"	24'-0"
r	2	1/2"	3'-6"
m	2	1/2"	5'-0"
Steel - Lbs.			3850
Concrete - Cyls.			36.1

049-0569

Class A concrete to be used throughout

SPECIAL CULVERT DESIGN

SEC 118 LAKE CO

Project Engineer  
Checked  
Date 02/17/15

619

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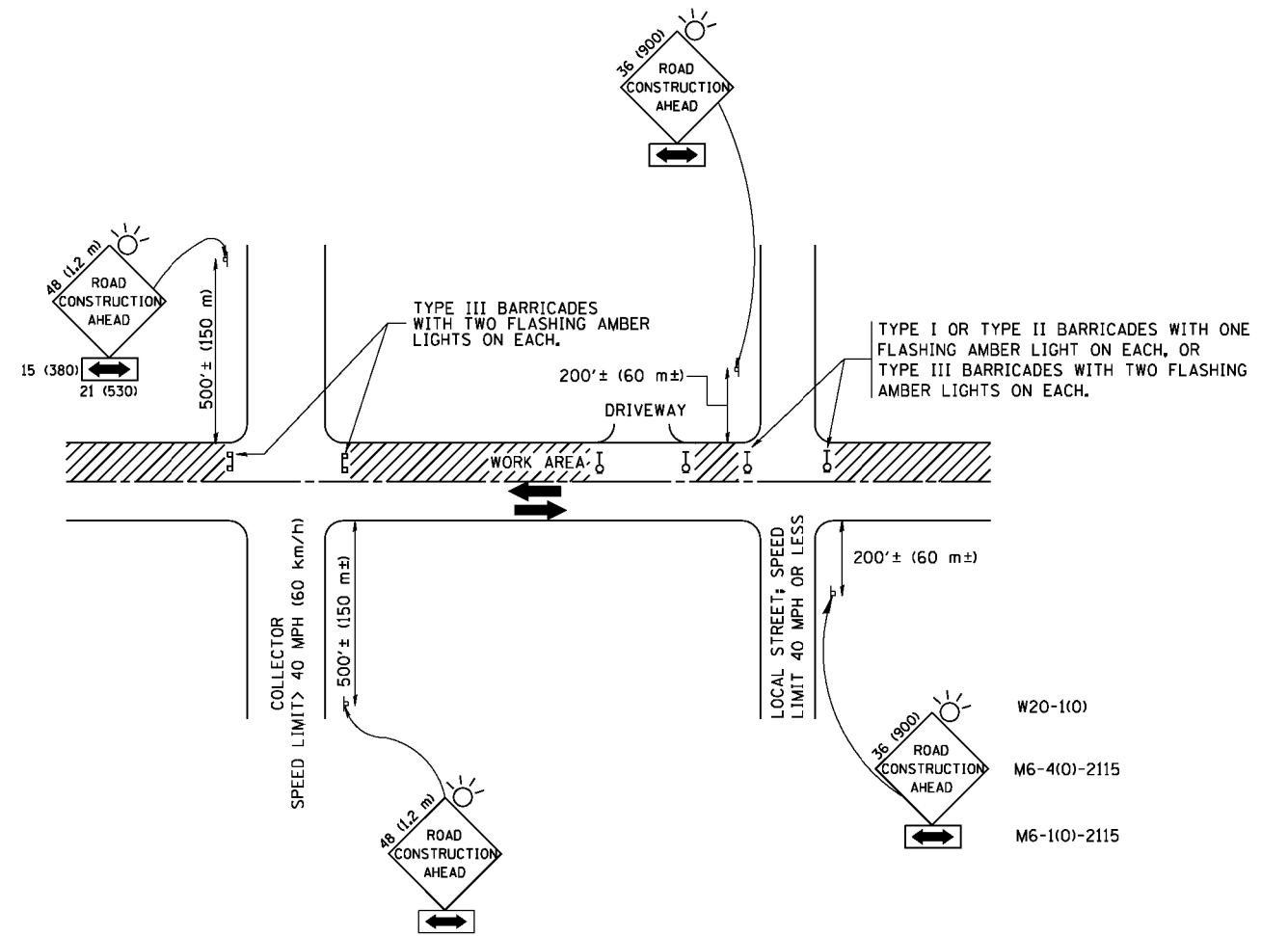
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PLOT DATE	2/17/2015	2/17/2015

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

IL 60 OVER DITCH CULVERT REPAIR (0.5 MI WEST OF WILSON RD)  
EXISTING CULVERT PLANS

SCALE: NTS SHEET 1 OF 1 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
535	2014-084B	LAKE	16	12
CONTRACT NO. 62A32				
ILLINOIS FED. AID PROJECT				



TRAFFIC CONTROL AND PROTECTION FOR SIDE ROADS, INTERSECTIONS, AND DRIVEWAYS

NOTES:

- A. FOR NO LANE RESTRICTION ON THE SIDE ROAD OR DRIVEWAYS
  1. SIDE ROAD WITH A SPEED LIMIT OF 40 MPH (60 km/h) OR LESS AS SHOWN ON THE DRAWING AND AS DIRECTED BY THE ENGINEER:
    - a) ONE ROAD CONSTRUCTION AHEAD SIGN 36 x 36 (900x900) WITH A FLASHER AND FLAG MOUNTED ON IT APPROXIMATELY 200' (60 m) IN ADVANCE OF THE MAIN ROUTE.
    - b) THE CLOSED PORTION OF THE MAIN ROUTE SHALL BE PROTECTED BY BLOCKING WITH TYPE I, TYPE II OR TYPE III BARRICADES, 1/3 OF THE CROSS SECTION OF THE CLOSED PORTION.
  2. SIDE ROAD WITH A SPEED LIMIT GREATER THAN 40 MPH (60 km/h) AS SHOWN ON THE DRAWING AND AS DIRECTED BY THE ENGINEER:
    - a) ONE ROAD CONSTRUCTION AHEAD SIGN 48 x 48 (1.2 m x 1.2 m) WITH A FLASHER MOUNTED ON IT APPROXIMATELY 500' (150 m) IN ADVANCE OF THE MAIN ROUTE.
    - b) THE CLOSED PORTION OF THE MAIN ROUTE SHALL BE PROTECTED BY BLOCKING WITH TYPE III BARRICADES, 1/2 OF THE CROSS SECTION OF THE CLOSED PORTION.
  3. WHEN THE SIDE ROAD LIES BETWEEN THE BEGINNING OF THE MAINLINE SIGNING AND THE WORK ZONE, A SINGLE HEADED ARROW (M6-1) SHALL BE USED IN LIEU OF THE DOUBLE HEADED ARROW (M6-4).
- B. FOR A LANE CLOSURE ON A SIDE ROAD OR DRIVEWAY:
 

USE APPLICABLE PORTIONS OF THE TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES (STD. 701501, STD. 701606 OR THE APPROPRIATE STANDARD). THE SPACING OF SIGNS AND BARRICADES SHALL BE ADJUSTED FOR FIELD CONDITIONS AS DIRECTED BY THE ENGINEER. THE DIRECTIONAL ARROW SHALL BE COVERED OR REMOVED WHEN NO LONGER CONSISTENT WITH THE SIDE ROAD LANE CLOSURE.
- C. ADVANCE WARNING SIGNS ARE TO BE OMITTED ON DRIVEWAY UNLESS OTHERWISE NOTED.
- D. THE TRAFFIC CONTROL AND PROTECTION FOR SIDE ROADS, INTERSECTIONS, AND DRIVEWAYS SHALL BE INCIDENTAL TO THE COST OF SPECIFIED TRAFFIC CONTROL STANDARDS OR ITEMS.

All dimensions are in millimeters (inches) unless otherwise shown.

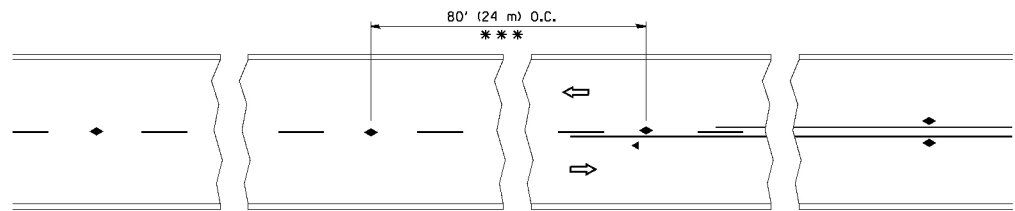
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	PLOT DATE = 1/4/2008	DATE - 06-89	REVISED - T. RAMMACHER 01-06-00

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL AND PROTECTION FOR  
SIDE ROADS, INTERSECTIONS, AND DRIVEWAYS

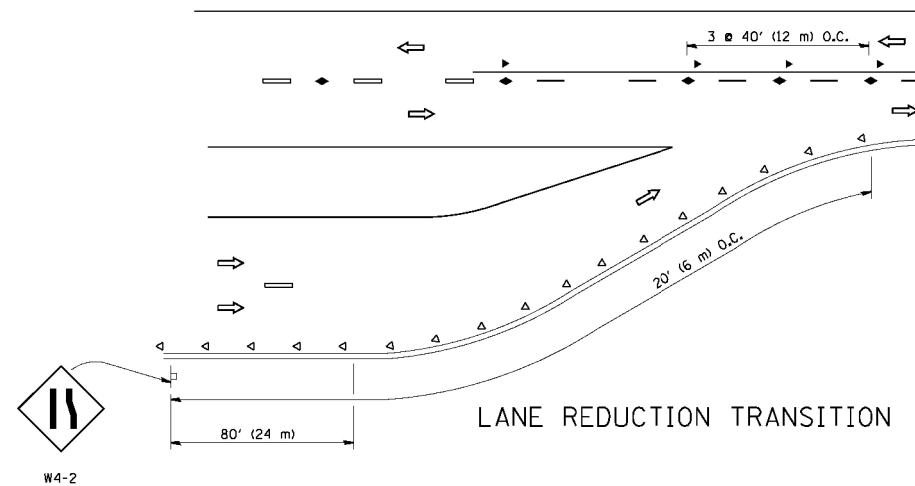
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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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TC-10			CONTRACT NO. 62A32	
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				

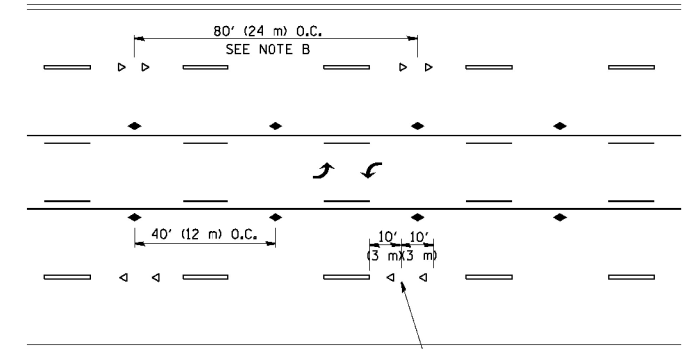


\*\*\* REDUCE TO 40' (12 m) O.C. ON CURVES WITH POSTED OR ADVISORY SPEED 45 M.P.H. (70 km/h) OR LESS.

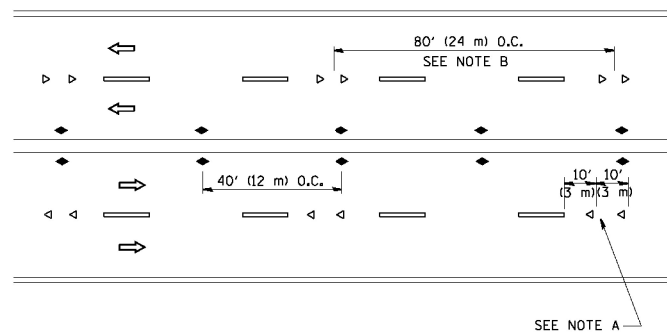
TWO-LANE/TWO-WAY



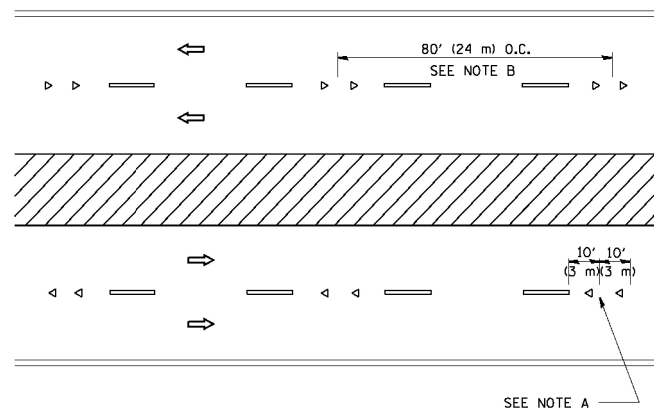
LANE REDUCTION TRANSITION



TWO-WAY LEFT TURN



MULTI-LANE/UNDIVIDED



MULTI-LANE/DIVIDED

GENERAL NOTES

1. MARKERS USED WITH DASHED LINES SHALL BE CENTERED IN THE GAP BETWEEN SEGMENTS.
2. MARKERS USED ADJACENT TO SOLID LINES SHALL BE OFFSET 2 TO 3 (50 TO 75) TOWARD TRAFFIC AS SHOWN.
3. MARKERS THROUGH TANGENTS LESS THAN 500' (150 m) IN LENGTH BETWEEN CURVES SHALL BE INSTALLED AT THE LESSER OF THE TWO CURVE SPACINGS.

SYMBOLS

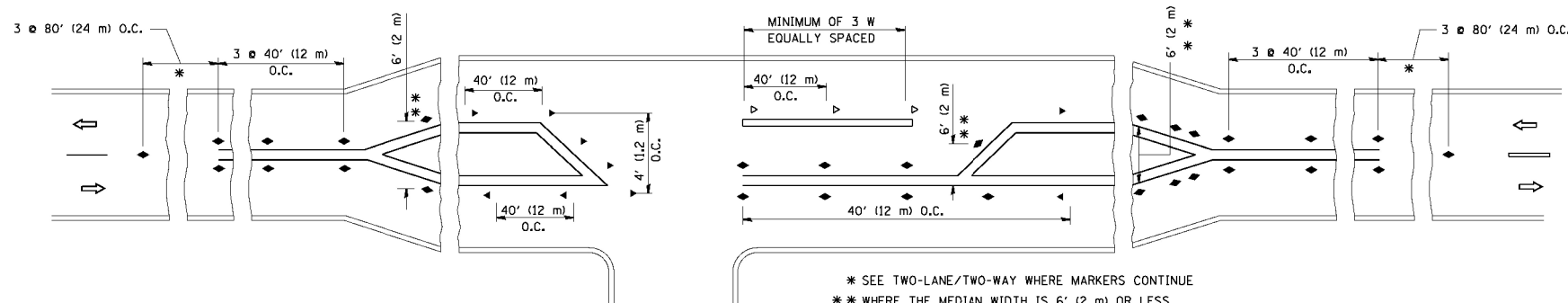
- YELLOW STRIPE
- WHITE STRIPE
- ◀ ONE-WAY AMBER MARKER
- ◁ ONE-WAY CRYSTAL MARKER (W/O)
- ◆ TWO-WAY AMBER MARKER

LANE MARKER NOTES

- A. USE DOUBLE LANE LINE MARKERS SPACED AS SHOWN.
- B. REDUCE TO 40' (12 m) O.C. ON CURVES WHERE ADVISORY SPEEDS ARE 10 M.P.H. (20 km/h) LOWER THAN POSTED SPEEDS.

DESIGN NOTES

1. DOUBLE LANE LINE MARKERS SHALL BE USED UNLESS SPECIFIED OTHERWISE.
2. EXCEPT AS SHOWN ON THE LANE REDUCTION TRANSITION AND FREEWAY EXIT RAMP DETAIL, MARKERS ARE NOT TO BE SPECIFIED ON RIGHT EDGE LINES.
3. THE EXACT MARKER LIMITS, SPACING, AND COLOR SHALL BE INCLUDED IN THE PLANS WHEN STANDARD SPECIFICATIONS ARE NOT BEING USED.
4. MARKERS SHOULD NOT BE USED ALONGSIDE CURBS EXCEPT FOR EXTREMELY SHORT SECTIONS OF CURBS WHERE NOT MORE THAN TWO MARKERS WOULD BE INVOLVED.



LEFT TURN

\* SEE TWO-LANE/TWO-WAY WHERE MARKERS CONTINUE  
 \*\* WHERE THE MEDIAN WIDTH IS 6' (2 m) OR LESS USE TWO-WAY MARKERS.

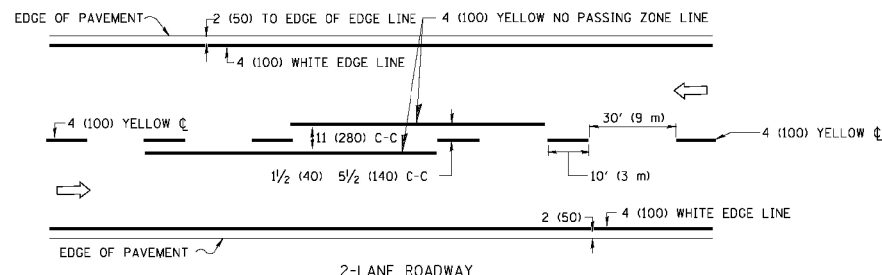
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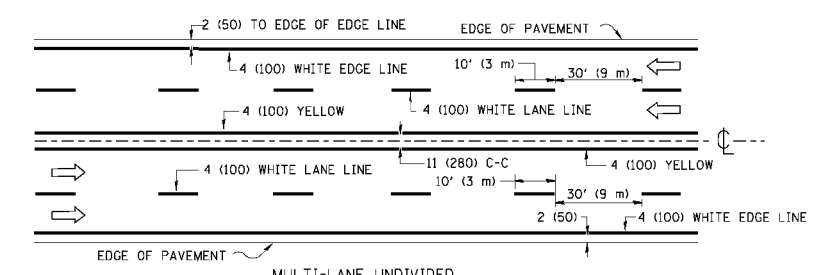
STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

TYPICAL APPLICATIONS			
RAISED REFLECTIVE PAVEMENT MARKERS (SNOW-PLOW RESISTANT)			
SCALE: NONE	SHEET NO. 1 OF 1 SHEETS	STA.	TO STA.

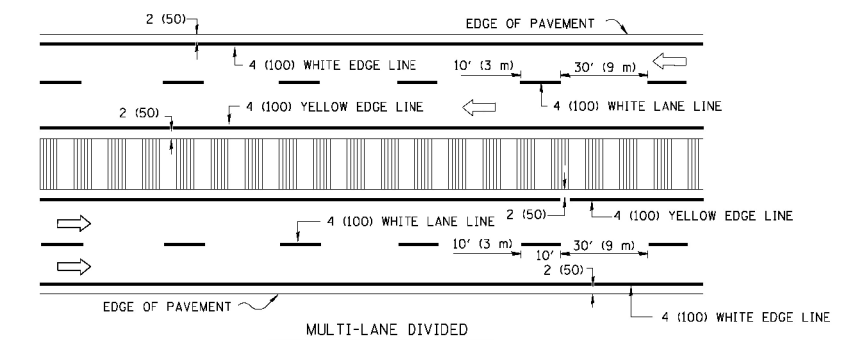
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
535	2014-084B	LAKE	16	14
TC-11		CONTRACT NO. 62A32		
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				



2-LANE ROADWAY



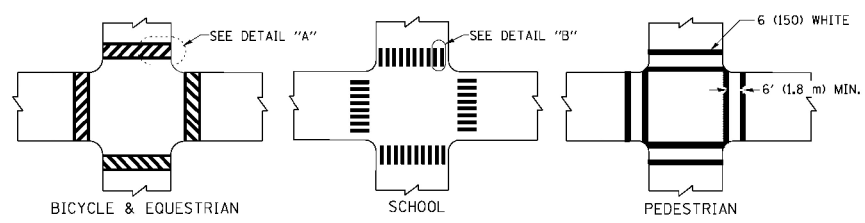
MULTI-LANE UNDIVIDED



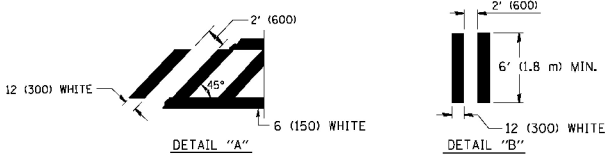
MULTI-LANE DIVIDED WITH MOUNTABLE MEDIAN

NOTE: MEDIANS WITH BARRIER CURB DO NOT REQUIRE AN EDGE LINE

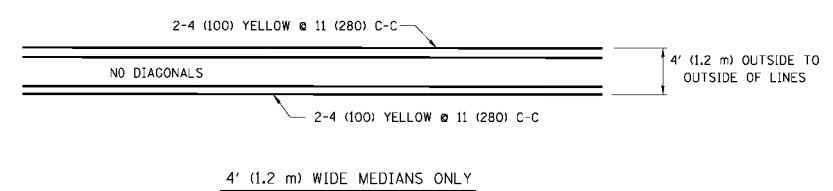
TYPICAL LANE AND EDGE LINE MARKING



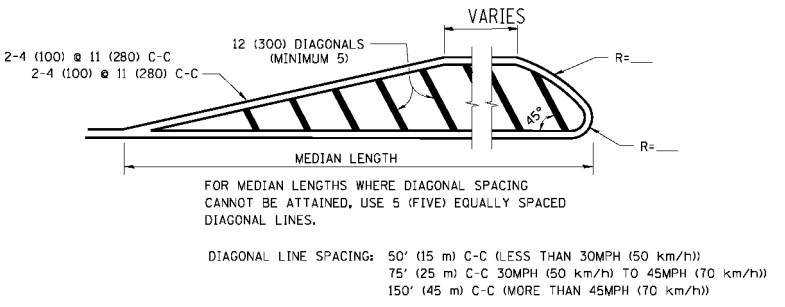
TYPICAL CROSSWALK MARKING



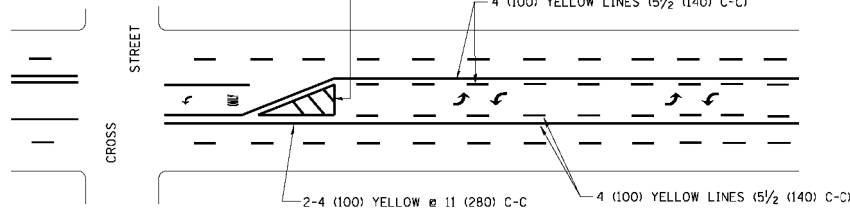
TYPICAL CROSSWALK MARKING



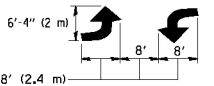
4' (1.2 m) WIDE MEDIANS ONLY



MEDIANS OVER 4' (1.2 m) WIDE

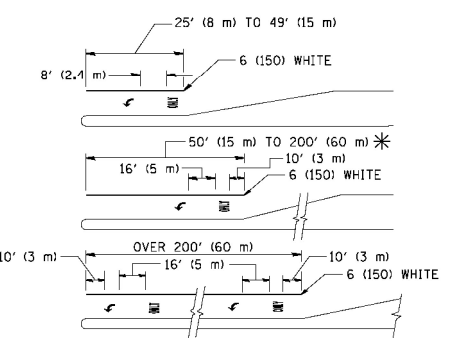


A MINIMUM OF TWO PAIRS OF TURN ARROWS SHALL BE USED, WHITE IN COLOR. ADDITIONAL PAIRS SHALL BE PLACED AT 200' (60 m) TO 300' (90 m) INTERVALS.



MEDIAN WITH TWO-WAY LEFT TURN LANE

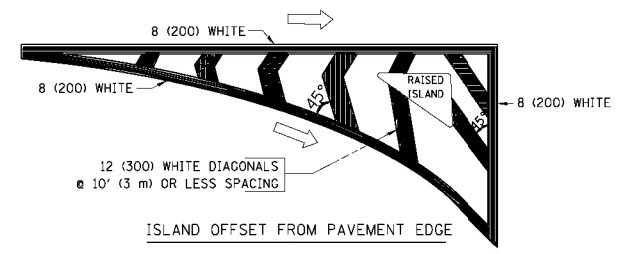
TYPICAL PAINTED MEDIAN MARKING



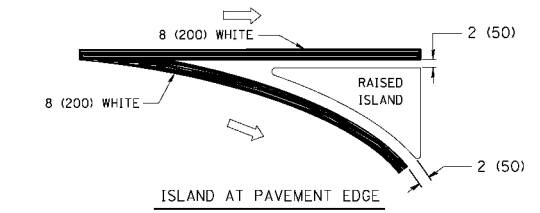
FULL SIZE LETTERS 8' (2.4 m) AND ARROWS SHALL BE USED. AREA = 15.6 SQ. FT. (1.5 m<sup>2</sup>) ONLY AREA = 20.8 SQ. FT. (1.9 m<sup>2</sup>) \* TURN LANES IN EXCESS OF 400' (120 m) IN LENGTH MAY HAVE AN ADDITIONAL SET OF ARROW - "ONLY" INSTALLED MIDWAY BETWEEN THE OTHER TWO SETS OF ARROW - "ONLY".

TYPICAL LEFT (OR RIGHT) TURN LANE

TYPICAL TURN LANE MARKING



ISLAND OFFSET FROM PAVEMENT EDGE



ISLAND AT PAVEMENT EDGE




TYPICAL ISLAND MARKING

TYPE OF MARKING	WIDTH OF LINE	PATTERN	COLOR	SPACING / REMARKS
CENTERLINE ON 2 LANE PAVEMENT	4 (100)	SKIP-DASH	YELLOW	10' (3 m) LINE WITH 30' (9 m) SPACE
CENTERLINE ON MULTI-LANE UNDIVIDED PAVEMENT	2 @ 4 (100)	SOLID	YELLOW	11 (280) C-C
NO PASSING ZONE LINES: FOR ONE DIRECTION	4 (100)	SOLID	YELLOW	5/2 (140) C-C FROM SKIP-DASH CENTERLINE
NO PASSING ZONE LINES: FOR BOTH DIRECTIONS	2 @ 4 (100)	SOLID	YELLOW	11 (280) C-C OMIT SKIP-DASH CENTERLINE BETWEEN
LANE LINES	4 (100) 5 (125) ON FREEWAYS	SKIP-DASH SKIP-DASH	WHITE WHITE	10' (3 m) LINE WITH 30' (9 m) SPACE
DOTTED LINES (EXTENSIONS OF CENTER, LANE OR TURN LANE MARKINGS)	SAME AS LINE BEING EXTENDED	SKIP-DASH	SAME AS LINE BEING EXTENDED	2' (600) LINE WITH 6' (1.8 m) SPACE
EDGE LINES	4 (100)	SOLID	YELLOW-LEFT WHITE-RIGHT	OUTLINE MOUNTABLE MEDIANS IN YELLOW; EDGE LINES ARE NOT USED NEXT TO BARRIER CURB
TURN LANE MARKINGS	6 (150) LINE; FULL SIZE LETTERS & SYMBOLS (8' (2.4m))	SOLID	WHITE	SEE TYPICAL TURN LANE MARKING DETAIL
TWO WAY LEFT TURN MARKING	2 @ 4 (100) EACH DIRECTION	SKIP-DASH AND SOLID	YELLOW	10' (3 m) LINE WITH 30' (9 m) SPACE FOR SKIP-DASH; 5/2 (140) C-C BETWEEN SOLID LINE AND SKIP-DASH LINE
	8' (2.4m) LEFT ARROW	IN PAIRS	WHITE	SEE TYPICAL TWO-WAY LEFT TURN MARKING DETAIL
CROSSWALK LINES (PEDESTRIAN)	2 @ 6 (150)	SOLID	WHITE	NOT LESS THAN 6' (1.8 m) APART
A. DIAGONALS (BIKE & EQUESTRIAN)	12 (300) @ 45°	SOLID	WHITE	2' (600) APART
B. LONGITUDINAL BARS (SCHOOL)	12 (300) @ 90°	SOLID	WHITE	2' (600) APART
				SEE TYPICAL CROSSWALK MARKING DETAILS.
STOP LINES	24 (600)	SOLID	WHITE	PLACE 4' (1.2 m) IN ADVANCE OF AND PARALLEL TO CROSSWALK, IF PRESENT. OTHERWISE, PLACE AT DESIRED STOPPING POINT, PARALLEL TO CROSSROAD CENTERLINE, WHERE POSSIBLE
PAINTED MEDIANS	2 @ 4 (100) WITH 12 (300) DIAGONALS @ 45°	SOLID	YELLOW; TWO WAY TRAFFIC WHITE; ONE WAY TRAFFIC	11 (280) C-C FOR THE DOUBLE LINE
	NO DIAGONALS USED FOR 4' (1.2 m) WIDE MEDIANS			SEE TYPICAL PAINTED MEDIAN MARKING.
GORE MARKING AND CHANNELIZING LINES	8 (200) WITH 12 (300) DIAGONALS @ 45°	SOLID	WHITE	DIAGONALS: 15' (4.5 m) C-C (LESS THAN 30MPH (50 km/h)) 20' (6 m) C-C 30MPH (50 km/h) TO 45MPH (70 km/h) 30' (9 m) C-C (OVER 45MPH (70 km/h))
RAILROAD CROSSING	24 (600) TRANSVERSE LINES; "RR" 15 6' (1.8 m) LETTERS; 16 (400) LINE FOR "X"	SOLID	WHITE	SEE STATE STANDARD 780001 AREA OF: "R"=3.6 SQ. FT. (0.33 m <sup>2</sup> ) EACH "X"=54.0 SQ. FT. (5.0 m <sup>2</sup> )
SHOULDER DIAGONALS	12 (300) @ 45°	SOLID	WHITE - RIGHT YELLOW - LEFT	50' (15 m) C-C (LESS THAN 30MPH (50 km/h)) 75' (25 m) C-C (30 MPH (50 km/h) TO 45MPH (70 km/h)) 150' (45 m) C-C (OVER 45MPH (70 km/h))






FOR FURTHER DETAILS ON PAVEMENT MARKING REFER TO STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND STATE STANDARD 780001.

All dimensions are in inches (millimeters) unless otherwise shown.






**ROUTE MARKERS**

-  FOR U.S. ROUTES  
M1-40-2424
-  FOR ILLINOIS ROUTES  
M1-50-2424
-  R.R., UNMARKED ROUTES  
SPECIAL 24" x 18" VARIABLE  
4" BLACK LETTERS ON WHITE  
REFLECTIVE BACKGROUND

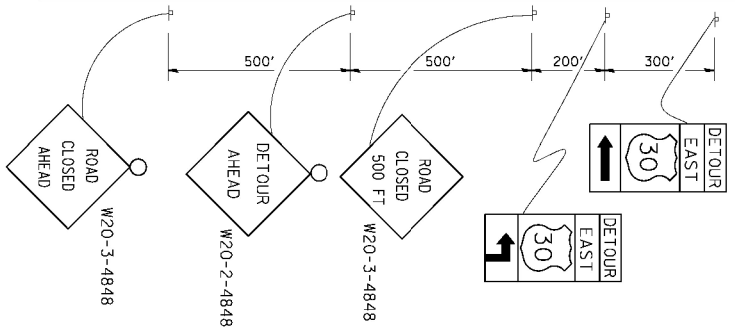
**ARROWS SIGNS**

-  M5-1L-2115
-  M5-1R-2115
-  M6-1-2115
-  M6-2-2115
-  M6-3-2115

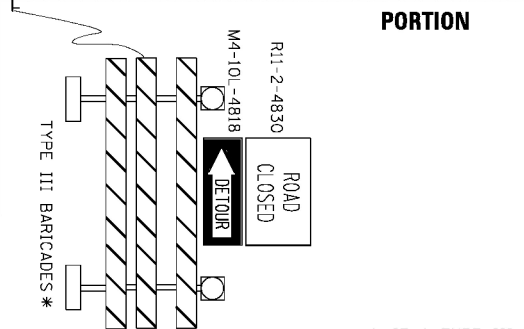
**CARDINAL DIRECTION & DETOUR SIGNS**

-  NORTH M3-1-2412
-  EAST M3-2-2412
-  SOUTH M3-3-2412
-  WEST M3-4-2412
-  DETOUR M4-8-2412

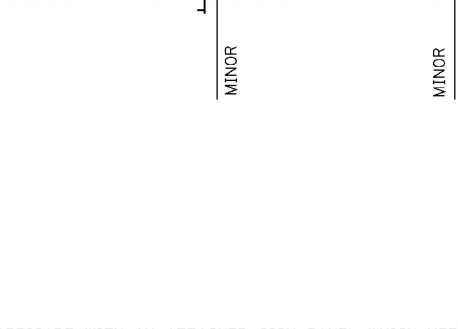
**STATE ROUTE**



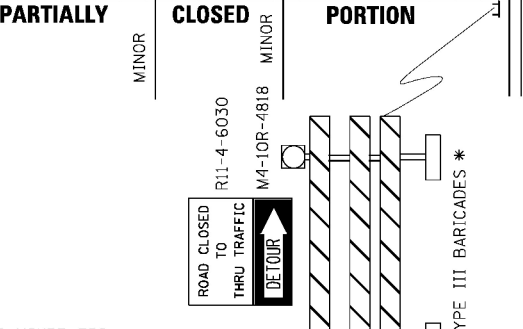
**COMPLETELY CLOSED PORTION**



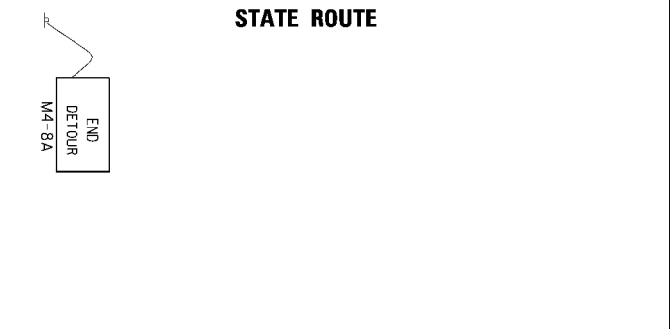
**PARTIALLY CLOSED PORTION**



**STATE ROUTE**



**STATE ROUTE**



\* IF A TYPE III BARRICADE WITH AN ATTACHED SIGN PANEL WHICH MEETS NCHRP 350 REQUIREMENTS IS NOT AVAILABLE, THE SIGNS SHALL BE MOUNTED, ABOVE THE BARRICADES, ON SEPARATE SIGNS SUPPORTS THAT MEET NCHRP 350 REQUIREMENTS.

FILE NAME =	USER NAME =
DESIGNED -	REVISOR -
DRAWN -	CHECKED -
DATE -	DATE -

DESIGNED -	REVISOR -
DRAWN -	CHECKED -
DATE -	DATE -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

<b>DETOUR SIGNING FOR CLOSING STATE HIGHWAYS</b>	
SCALE: NONE	SHEET NO. 1 OF 1 SHEETS
STA.	TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
535	2014-084B	LAKE	16	16
TC-21		CONTRACT NO. 62A32		
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				