

(A) LEFT ON GREEN ARROW ONLY  
 R10-5  
 24" x 30"  
 8 REQUIRED

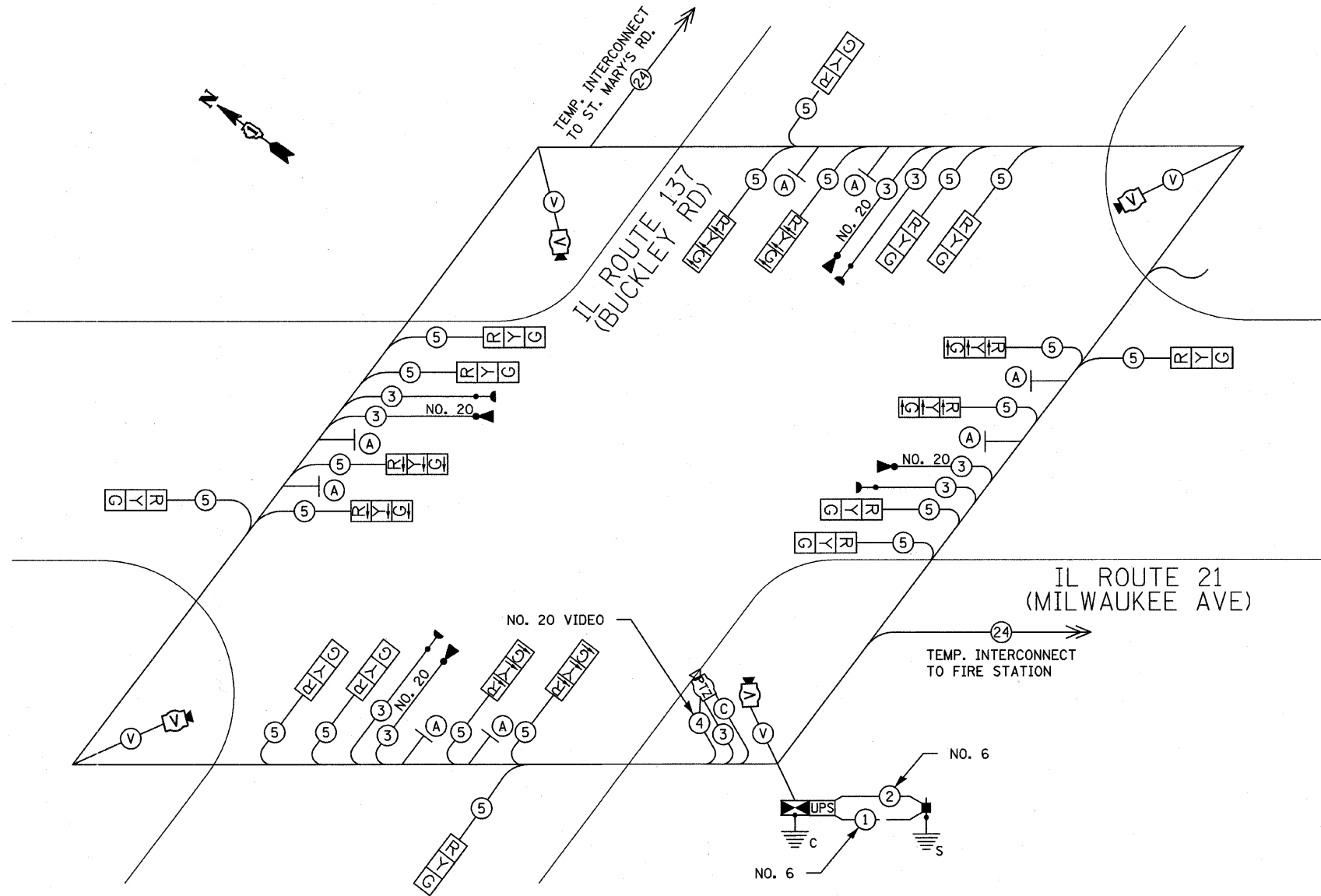
FILE NAME = P:\11386.000 - CRA IL Rte 21\Correspondence\IN\20110107-Handoff w Ref Files Reattach\DRAWNS\3B-Buckley.dgn	USER NAME = IDOT - District 01	DESIGNED -	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>TEMPORARY TRAFFIC SIGNAL INSTALLATION PLAN ILL RTE 21 (MILWAUKEE AVE.) AT ILL RTE 137 (BUCKLEY RD.) STAGE IIIB</b>			F.A. RTE. 330	SECTION 128R-3	COUNTY LAKE	TOTAL SHEETS 518	SHEET NO. 201
PLOT SCALE = 40.0000' / in.	CHECKED -	REVISED -	REVISED -		SCALE: 1"=20'	SHEET NO. 13 OF 41 SHEETS	STA. TO STA.	ILLINOIS FED. AID PROJECT				
PLOT DATE = 7/13/2011	DATE 07/08/11	REVISED -	REVISED -									

RESTORATION OF WORK AREA, RESTORATION OF THE TRAFFIC SIGNAL WORK AREA SHALL BE INCIDENTAL TO THE RELATED PAY ITEM SUCH AS FOUNDATION, CONDUIT, HANDHOLE, TRENCH AND BACKFILL, ETC., AND NO EXTRA COMPENSATION SHALL BE ALLOWED. ALL ROADWAY SURFACES SUCH AS SHOULDERS, MEDIANS, SIDEWALKS, PAVEMENT, ETC. SHALL BE REPLACED IN KIND. ALL DAMAGE TO MOWED LAWNS SHALL BE REPLACED WITH AN APPROVED SOD, AND ALL DAMAGE TO UNMOWED FIELDS SHALL BE SEEDED IN ACCORDANCE WITH STANDARD SPECIFICATIONS 252 AND 250 RESPECTIVELY.

NOTE:  
THE TRAFFIC SIGNAL CONTROLLER EQUIPMENT FOR THIS PROJECT SHALL BE "ECONOLITE" TO MATCH THE EXISTING ADJACENT SYSTEM.

NOTE:  
EXISTING RED LIGHT RUNNING EQUIPMENT IS PRESENT AT THIS LOCATION. RELOCATION OF THE EQUIPMENT IS BY OTHERS. THE CONTRACTOR SHALL COORDINATE RELOCATION OF THIS EQUIPMENT WITH THE VILLAGE OF LIBERTYVILLE AT (847) 362-2430 AND WITH GATSO-USA AT (480) 315-1386. THIS COORDINATION SHALL BE CONSIDERED INCLUDED IN THE COST OF THE TRAFFIC SIGNAL INSTALLATION.

Ⓐ LEFT ON GREEN ARROW ONLY  
R10-5  
24" x 30"  
8 REQUIRED



TEMPORARY CABLE PLAN  
ALL STAGES

I.D.O.T. - TEMPORARY TRAFFIC SIGNAL INSTALLATION  
ELECTRICAL SERVICE REQUIREMENTS

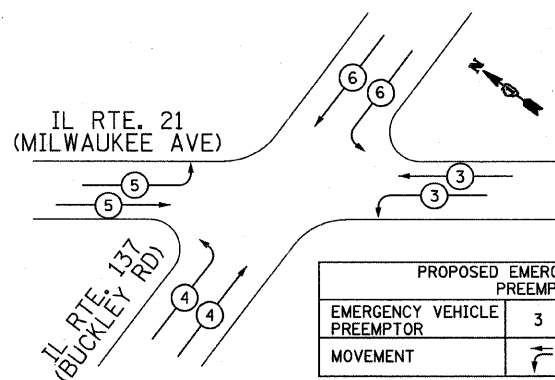
TYPE	NO. OF LAMPS	WATTAGE		% OPERATIONS	TOTAL WATTAGE
		INCAND.	LED		
SIGNAL (RED)	20		17	0.50	170
(YELLOW)	20		25	0.25	125
(GREEN)	20		15	0.25	75
ARROW	-		12	0.10	-
CONTROLLER	1	100		1.00	100
VIDEO CAMERA	4	25		1.00	100

ENERGY COSTS TO: TOTAL = 570.0

VILLAGE OF LIBERTYVILLE  
118 WEST COOK AVENUE  
LIBERTYVILLE, ILLINOIS 60048

ENERGY SUPPLY CONTACT: JOE HURLEY  
PHONE: (847) 816-5503  
COMPANY: COM ED

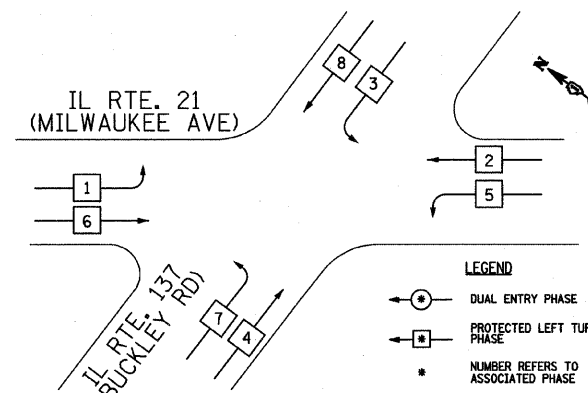
EMERGENCY VEHICLE PRE-EMPTION SEQUENCE



PROPOSED EMERGENCY VEHICLE PREEMPTORS				
EMERGENCY VEHICLE PREEMPTOR	3	4	5	6
MOVEMENT	↖	↗	↘	↙

NOTE:  
THE PHASING FOR STAGE III B SHALL BE LEAD-LAG PHASING FOR THE LEFT TURNS ON BOTH ILL RTE 21 AND ILL RTE 137.

CONTROLLER SEQUENCE



TEMPORARY PHASE DESIGNATION DIAGRAM  
ALL STAGES\*

FILE NAME = P:\11386.000 - CRA IL Rte 21\Correspondence\INV20110107-Handoff w Ref Files ReAttach\DRAWNSCP-Buckley.dgn	USER NAME = IDOT - District 01	DESIGNED -	REVISED -
PLOT SCALE = 40.0000' / 1".	CHECKED -	REVISED -	REVISED -
PLOT DATE = 7/13/2011	DATE 07/08/11	REVISED -	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

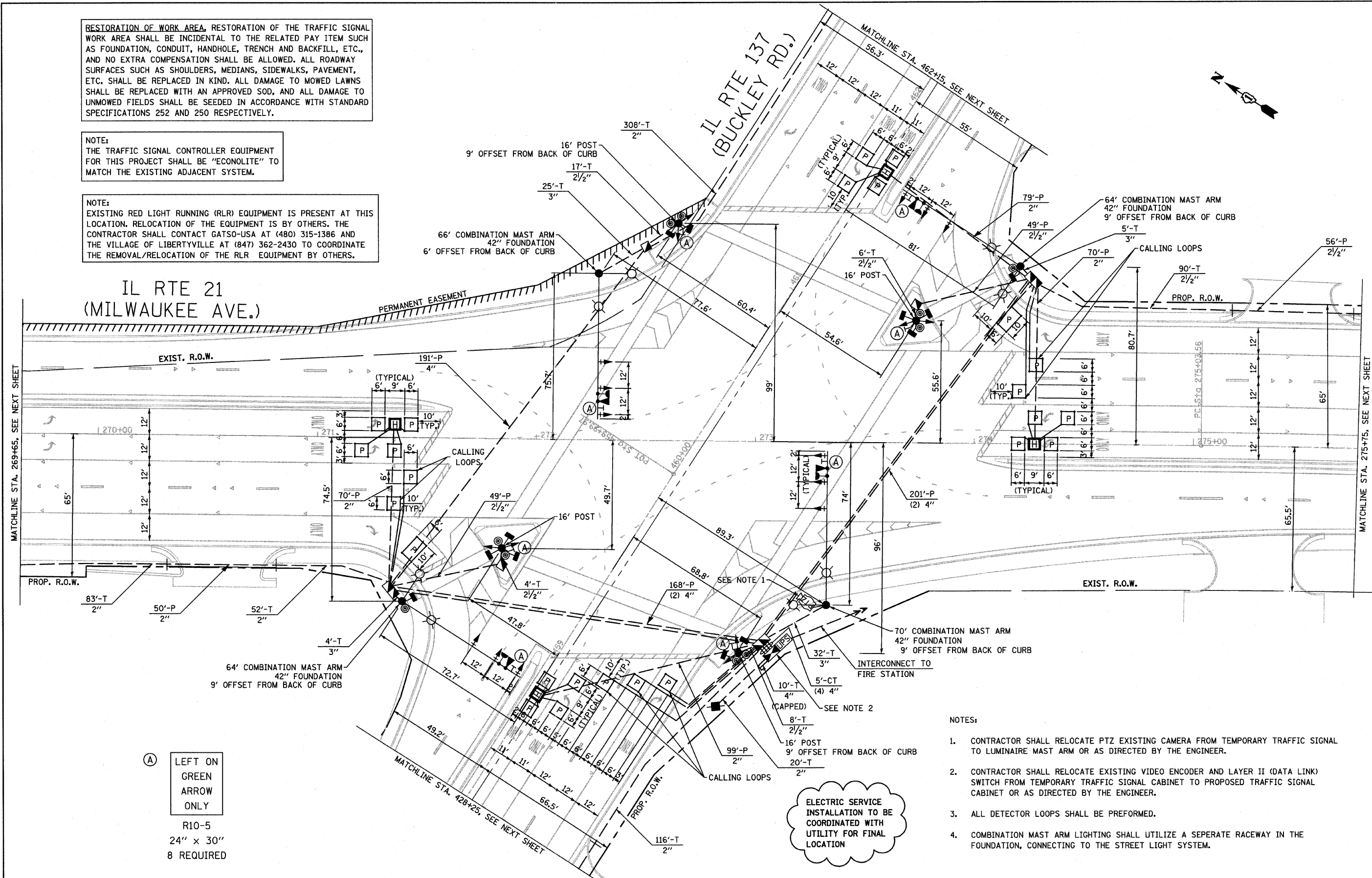
TEMPORARY CABLE PLAN, PHASE DESIGNATION DIAGRAM, AND EMERGENCY VEHICLE PREEMPTION SEQUENCE  
ILL RTE 21 (MILWAUKEE AVE.) AT ILL RTE 137 (BUCKLEY RD.)  
SCALE: NTS SHEET NO. 14 OF 41 SHEETS STA. TO STA.

F.A. RTE. 330	SECTION 128R-3	COUNTY LAKE	TOTAL SHEETS 518	SHEET NO. 202
				CONTRACT NO. 60953
ILLINOIS FED. AID PROJECT				

RESTORATION OF WORK AREA, RESTORATION OF THE TRAFFIC SIGNAL WORK AREA SHALL BE INCIDENTAL TO THE RELATED PAY ITEM SUCH AS FOUNDATION, CONDUIT, HANDHOLE, TRENCH AND BACKFILL, ETC., AND NO EXTRA COMPENSATION SHALL BE ALLOWED. ALL ROADWAY SURFACES SUCH AS SHOULDERS, MEDIANS, SIDEWALKS, PAVEMENT, ETC. SHALL BE REPLACED IN KIND. ALL DAMAGE TO MOWED LAWNS SHALL BE REPLACED WITH AN APPROVED SOD, AND ALL DAMAGE TO UNMOWED FIELDS SHALL BE SEEDED IN ACCORDANCE WITH STANDARD SPECIFICATIONS 252 AND 250 RESPECTIVELY.

NOTE:  
THE TRAFFIC SIGNAL CONTROLLER EQUIPMENT FOR THIS PROJECT SHALL BE "ECONOLITE" TO MATCH THE EXISTING ADJACENT SYSTEM.

NOTE:  
EXISTING RED LIGHT RUNNING (RLR) EQUIPMENT IS PRESENT AT THIS LOCATION. RELOCATION OF THE EQUIPMENT IS BY OTHERS. THE CONTRACTOR SHALL CONTACT GATSO-USA AT (480) 315-1386 AND THE VILLAGE OF LIBERTYVILLE AT (847) 362-2430 TO COORDINATE THE REMOVAL/RELOCATION OF THE RLR EQUIPMENT BY OTHERS.



(A) LEFT ON GREEN ARROW ONLY  
R10-5  
24" x 30"  
8 REQUIRED

ELECTRIC SERVICE INSTALLATION TO BE COORDINATED WITH UTILITY FOR FINAL LOCATION

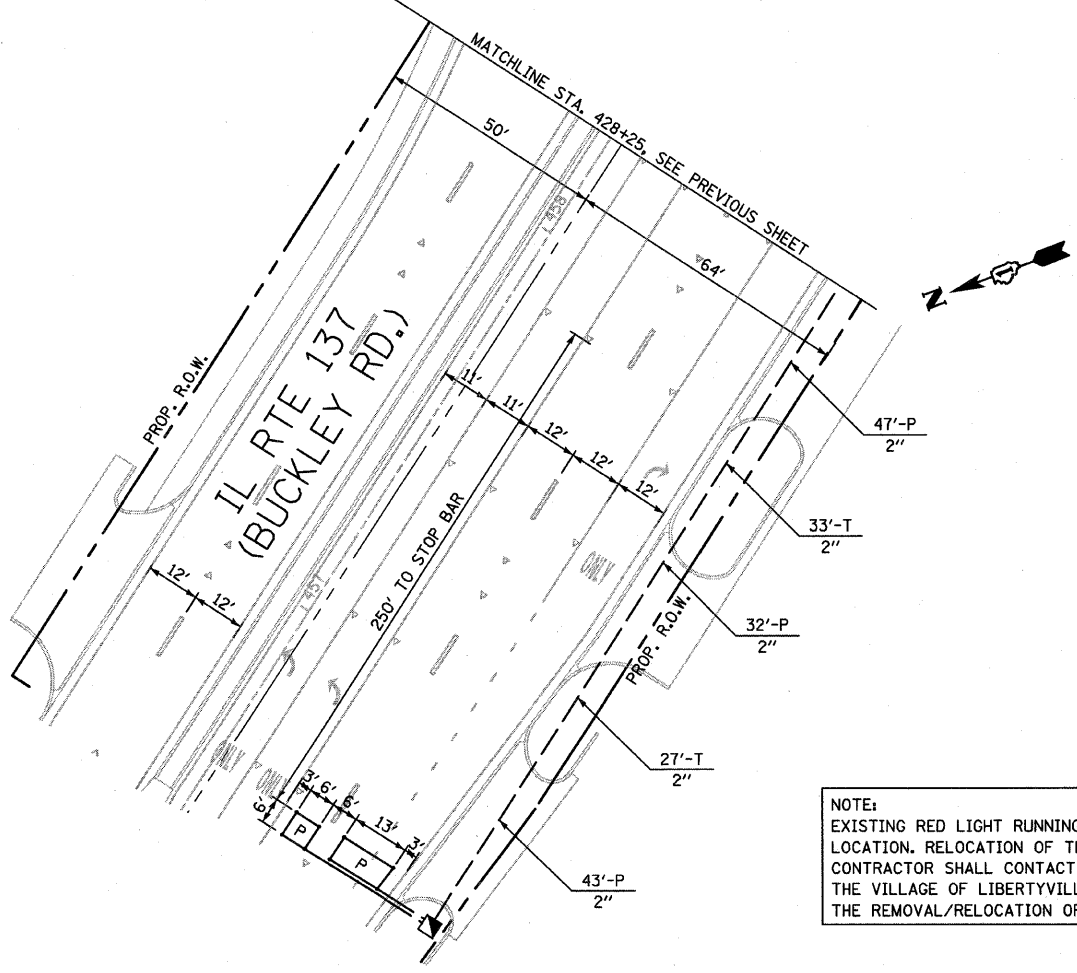
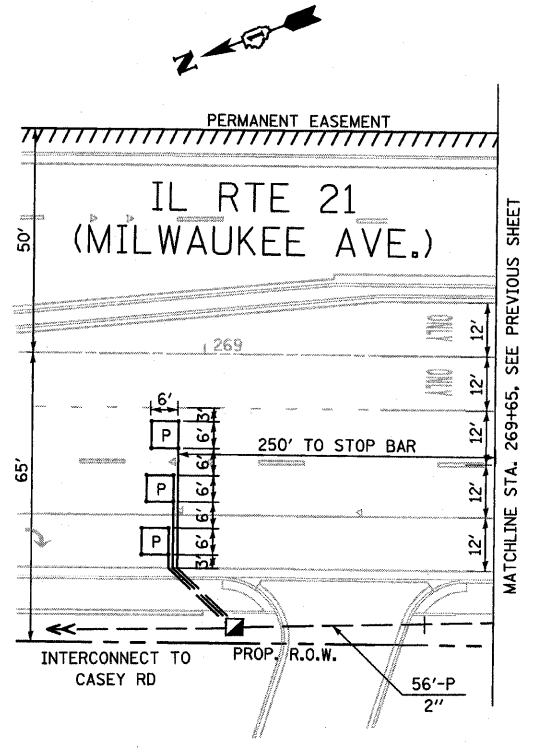
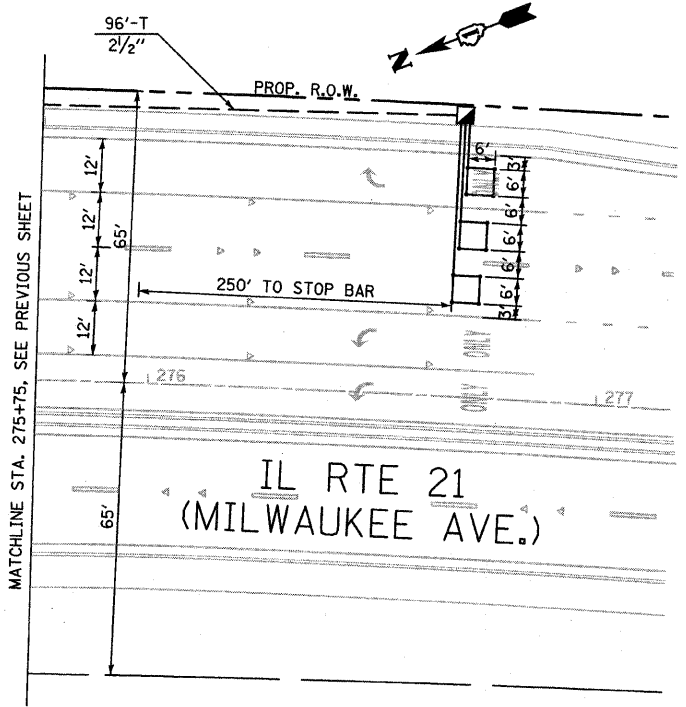
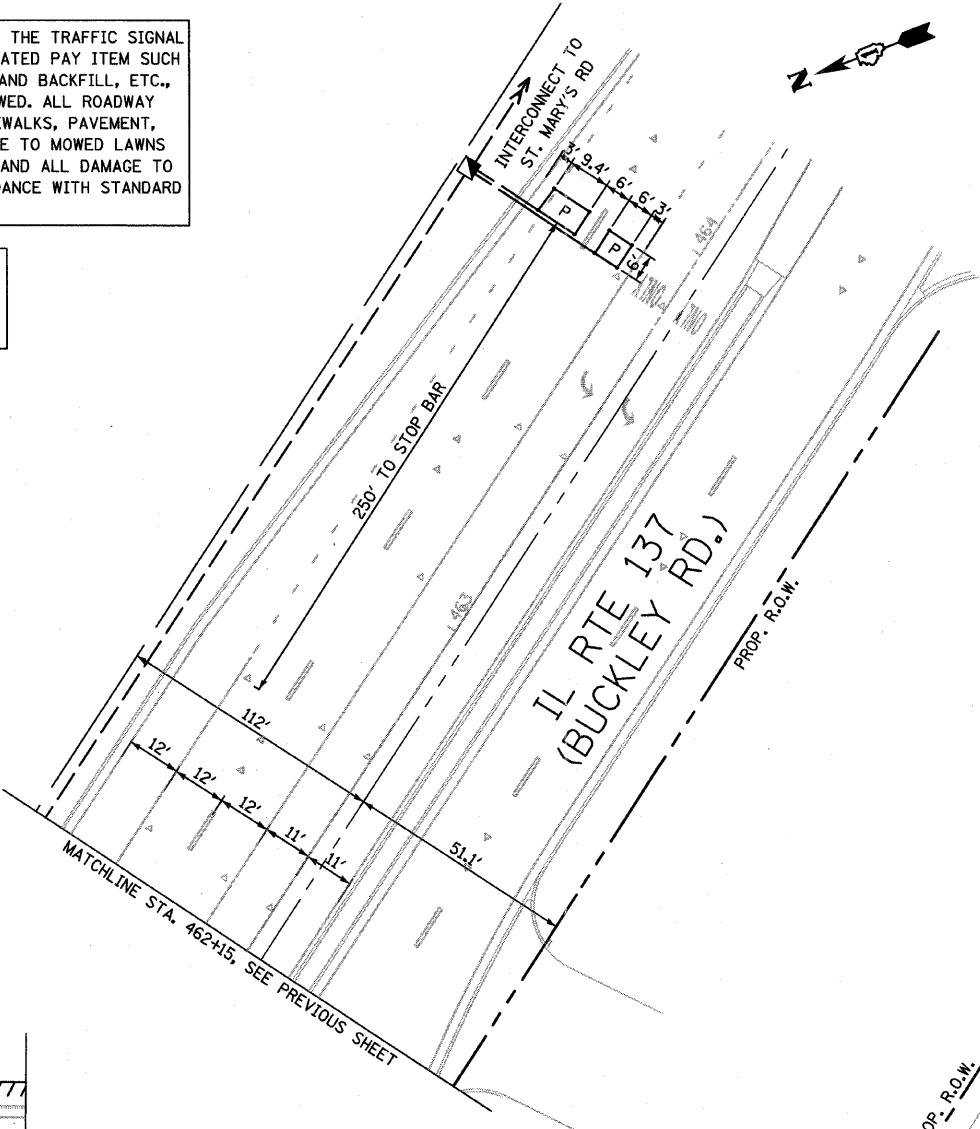
- NOTES:
1. CONTRACTOR SHALL RELOCATE PTZ EXISTING CAMERA FROM TEMPORARY TRAFFIC SIGNAL TO LUMINAIRE MAST ARM OR AS DIRECTED BY THE ENGINEER.
  2. CONTRACTOR SHALL RELOCATE EXISTING VIDEO ENCODER AND LAYER II (DATA LINK) SWITCH FROM TEMPORARY TRAFFIC SIGNAL CABINET TO PROPOSED TRAFFIC SIGNAL CABINET OR AS DIRECTED BY THE ENGINEER.
  3. ALL DETECTOR LOOPS SHALL BE PERFORMED.
  4. COMBINATION MAST ARM LIGHTING SHALL UTILIZE A SEPERATE RACEWAY IN THE FOUNDATION, CONNECTING TO THE STREET LIGHT SYSTEM.

FILE NAME = P:\11306.000 - CRA IL Rte 21\Correspondence\IN\28119107-Handoff w Ref Files Ref\tschach\08\11\1306-000.dgn	USER NAME = IDOT - District 01	DESIGNED -	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>TRAFFIC SIGNAL MODERNIZATION PLAN IL RTE 21 (MILWAUKEE AVE) AT IL RTE 137 (BUCKLEY ROAD)</b>	F.A. RTE. 330	SECTION 128R-3	COUNTY LAKE	TOTAL SHEETS 518	SHEET NO. 203		
PLOT SCALE = 48,0000' / 1in.	CHECKED -	REVISED -	REVISED -			SCALE: 1"=20'	SHEET NO. 15 OF 41 SHEETS	STA. TO STA.	ILLINOIS FED. AID PROJECT			
PLOT DATE = 7/13/2011	DATE 07/08/11	REVISED -	REVISED -									
CONTRACT NO. 60953												

RESTORATION OF WORK AREA, RESTORATION OF THE TRAFFIC SIGNAL WORK AREA SHALL BE INCIDENTAL TO THE RELATED PAY ITEM SUCH AS FOUNDATION, CONDUIT, HANDHOLE, TRENCH AND BACKFILL, ETC., AND NO EXTRA COMPENSATION SHALL BE ALLOWED. ALL ROADWAY SURFACES SUCH AS SHOULDERS, MEDIANS, SIDEWALKS, PAVEMENT, ETC. SHALL BE REPLACED IN KIND. ALL DAMAGE TO MOWED LAWNS SHALL BE REPLACED WITH AN APPROVED SOD, AND ALL DAMAGE TO UNMOWED FIELDS SHALL BE SEEDING IN ACCORDANCE WITH STANDARD SPECIFICATIONS 252 AND 250 RESPECTIVELY.

NOTE:  
THE TRAFFIC SIGNAL CONTROLLER EQUIPMENT FOR THIS PROJECT SHALL BE "ECONOLITE" TO MATCH THE EXISTING ADJACENT SYSTEM.

NOTE:  
ALL DETECTOR LOOPS SHALL BE PREFORMED.



NOTE:  
EXISTING RED LIGHT RUNNING (RLR) EQUIPMENT IS PRESENT AT THIS LOCATION. RELOCATION OF THE EQUIPMENT IS BY OTHERS. THE CONTRACTOR SHALL CONTACT GATSO-USA AT (480) 315-1386 AND THE VILLAGE OF LIBERTYVILLE AT (847) 362-2430 TO COORDINATE THE REMOVAL/RELOCATION OF THE RLR EQUIPMENT BY OTHERS.

FILE NAME = P:\11306.000 - CRA IL Rte 21\Correspondence\INV\201107-Handoff w Ref Files Reattach\DRAWN-Buckley2.dgn	USER NAME = IDOT - District 01	DESIGNED -	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	TRAFFIC SIGNAL MODERNIZATION PLAN IL RTE 21 (MILWAUKEE AVE) AT IL RTE 137 (BUCKLEY ROAD)	F.A. RTE. 330	SECTION 128R-3	COUNTY LAKE	TOTAL SHEETS 518	SHEET NO. 204		
PLOT SCALE = 40.0000' / 1" =	CHECKED -	REVISED -	REVISED -			SCALE: 1"=20'	SHEET NO. 16 OF 41 SHEETS	STA.	TO STA.	CONTRACT NO. 60953		
PLOT DATE = 7/13/2011	DATE 07/08/11	REVISED -	REVISED -			ILLINOIS FED. AID PROJECT						

SCHEDULE OF QUANTITIES		
ITEM	UNIT	QTY
SIGN PANEL - TYPE 1	SQ.FT	40
SIGN PANEL - TYPE 2	SQ.FT	60
CONDUIT IN TRENCH, 2" DIA., GALVANIZED STEEL	FT	639
CONDUIT IN TRENCH, 2 1/2" DIA., GALVANIZED STEEL	FT	221
CONDUIT IN TRENCH, 3" DIA., GALVANIZED STEEL	FT	66
CONDUIT IN TRENCH, 4" DIA., GALVANIZED STEEL	FT	30
CONDUIT PUSHED, 2" DIA., GALVANIZED STEEL	FT	546
CONDUIT PUSHED, 2 1/2" DIA., GALVANIZED STEEL	FT	154
CONDUIT PUSHED, 4" DIA., GALVANIZED STEEL	FT	929
HANDHOLE	EA	7
HEAVY-DUTY HANDHOLE	EA	4
DOUBLE HANDHOLE	EA	3
TRENCH AND BACKFILL FOR ELECTRICAL WORK	FT	956
FULL-ACTUATED CONTROLLER AND TYPE IV CABINET (SPECIAL)	EA	1
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 2C	FT	2533
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 3C	FT	4569
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FT	3575
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C	FT	2251
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 1 PAIR	FT	7421
ELECTRIC CABLE IN CONDUIT, SERVICE, NO. 6 2/C	FT	37
TRAFFIC SIGNAL POST, GALVANIZED STEEL 16 FT.	EA	4
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE, 64 FT.	EA	2
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE, 66 FT.	EA	1
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE, 70 FT.	EA	1
CONCRETE FOUNDATION, TYPE A	FT	16
CONCRETE FOUNDATION, TYPE C	FT	4
CONCRETE FOUNDATION, TYPE E 42 INCH DIAMETER	FT	92
SIGNAL HEAD, LED, 1 FACE, 3 SECTION, MAST-ARM MOUNTED	EA	8
SIGNAL HEAD, LED, 5 SECTION, MAST-ARM MOUNTED	EA	4
SIGNAL HEAD, LED, 2 FACE, 1-3 SECTION, 1-5 SECTION, BRACKET MOUNTED	EA	4
PEDESTRIAN SIGNAL HEAD, 1-FACE, LED, BRACKET MOUNTED WITH COUNTDOWN TIMER	EA	2
PEDESTRIAN SIGNAL HEAD, 2-FACE, LED, BRACKET MOUNTED WITH COUNTDOWN TIMER	EA	2
PEDESTRIAN SIGNAL HEAD, 3-FACE, LED, BRACKET MOUNTED WITH COUNTDOWN TIMER	EA	2
TRAFFIC SIGNAL BACKPLATE, LOUVERED, ALUMINIUM	EA	12
INDUCTIVE LOOP DETECTOR	EA	21
# LIGHT DETECTOR	EA	4
# LIGHT DETECTOR AMPLIFIER	EA	1
PEDESTRIAN PUSH-BUTTON	EA	10
TEMPORARY TRAFFIC SIGNAL INSTALLATION	EA	1
REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT	EA	1
REMOVE EXISTING HANDHOLE	EA	14
REMOVE EXISTING CONCRETE FOUNDATION	EA	8
PREFORMED DETECTOR LOOP	FT	1283
TEMPORARY TRAFFIC SIGNAL TIMING	EA	1
RELOCATE EXISTING REMOTE-CONTROLLED VIDEO SYSTEM (SPECIAL)	EA	1
RELOCATE EXISTING SWITCH (SPECIAL)	EA	1
SERVICE INSTALLATION, POLE MOUNT	EA	1
UNINTERRUPTIBLE POWER SUPPLY	EA	1
ELECTRIC CABLE IN CONDUIT, GROUNDING NO. 6 1/C	FT	801
# ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 20 3/C, TWISTED, SHIELDED	FT	1252
ELECTRIC CABLE IN CONDUIT, VIDEO NO. 20 4C	FT	102
ELECTRIC CABLE IN CONDUIT, COAXIAL	FT	102

# 100% VILLAGE OF LIBERTYVILLE COST

I.D.O.T.  
TRAFFIC SIGNAL INSTALLATION  
ELECTRICAL SERVICE REQUIREMENTS

TYPE	NO. OF LAMPS	WATTAGE		% OPERATIONS	TOTAL WATTAGE
		INCAND.	LED		
SIGNAL (RED)	20		17	0.50	170
(YELLOW)	20		25	0.25	125
(GREEN)	20		15	0.25	75
ARROW	16		12	0.10	19.2
PED. SIGNAL	12		25	1.00	300
CONTROLLER	1	100	100	1.00	100
FLASHER			25	0.50	

ENERGY COSTS TO: TOTAL = 789.2  
**VILLAGE OF LIBERTYVILLE**  
 118 WEST COOK AVENUE  
 LIBERTYVILLE, ILLINOIS 60048  
 ENERGY SUPPLY: CONTACT: JOE HURLEY  
 PHONE: (847) 816-5503  
 COMPANY: COM ED

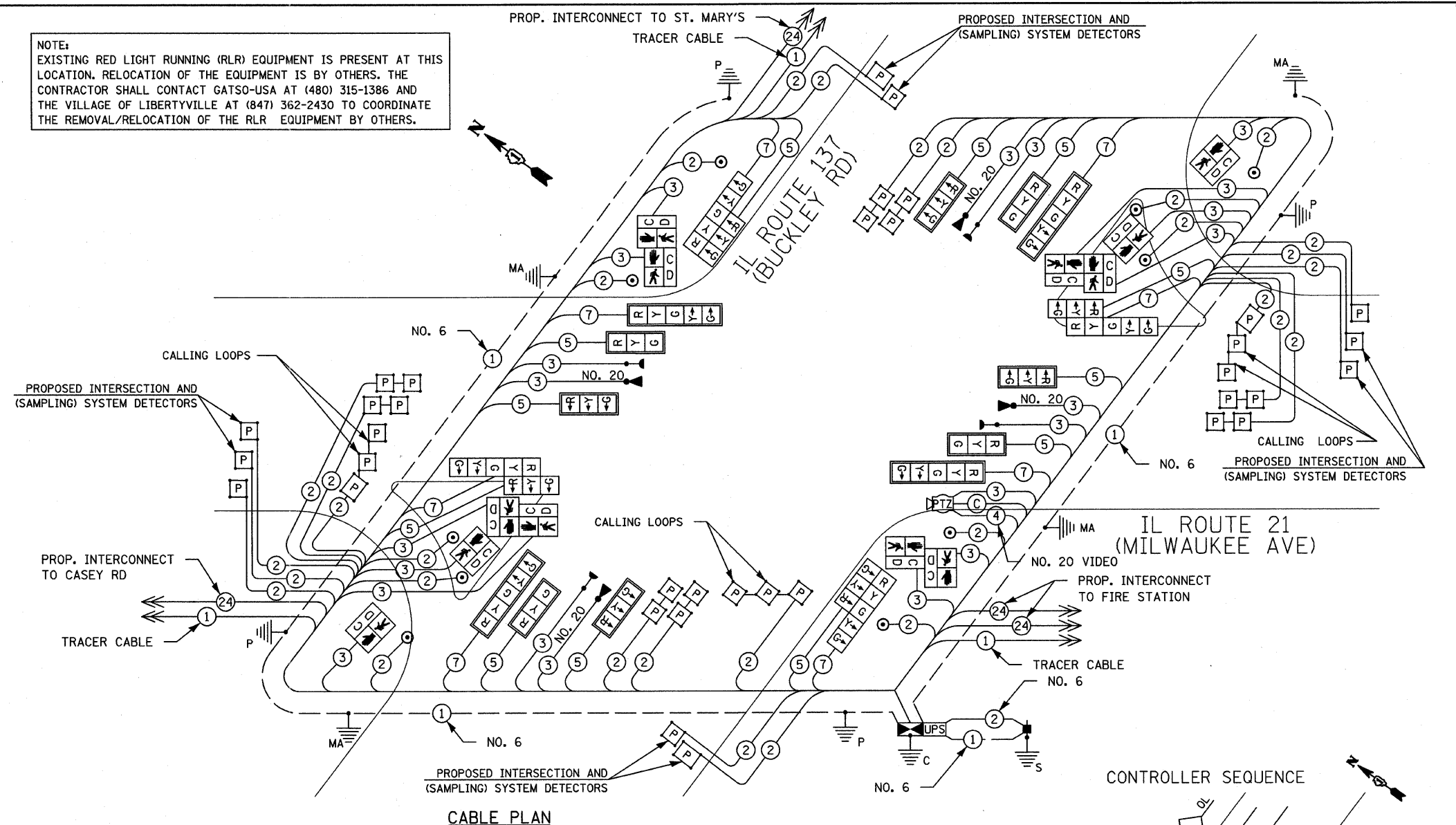
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PLOT SCALE = 48,0000' / in.	CHECKED -	REVISED -	REVISED -
PLOT DATE = 7/13/2011	DATE 07/08/11	REVISED -	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

SCHEDULE OF QUANTITIES, CABLE PLAN, PHASE DESIGNATION DIAGRAM, AND EMERGENCY VEHICLE PREEMPTION SEQUENCE  
 ILL RTE 21 (MILWAUKEE AVE.) AT ILL RTE 137 (BUCKLEY RD.)  
 SCALE: NTS SHEET NO. 17 OF 41 SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	128R-3	LAKE	518	205
CONTRACT NO. 60953			ILLINOIS FED. AID PROJECT	

NOTE:  
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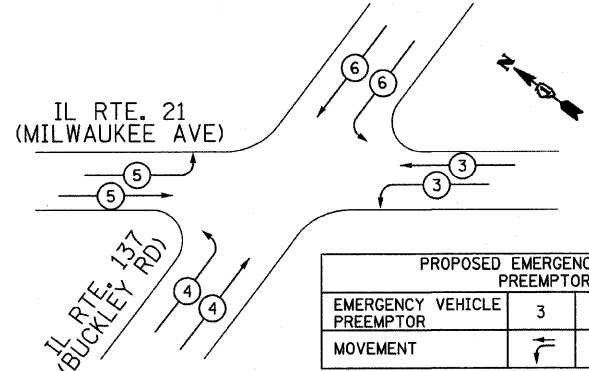


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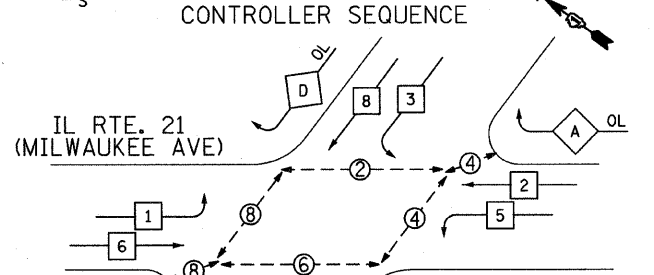
NOTE:  
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THE TRACER CABLE SHALL BE CONTINUOUS AND EXTEND INTO THE CONTROLLER CABINET.

EMERGENCY VEHICLE PRE-EMPTION SEQUENCE

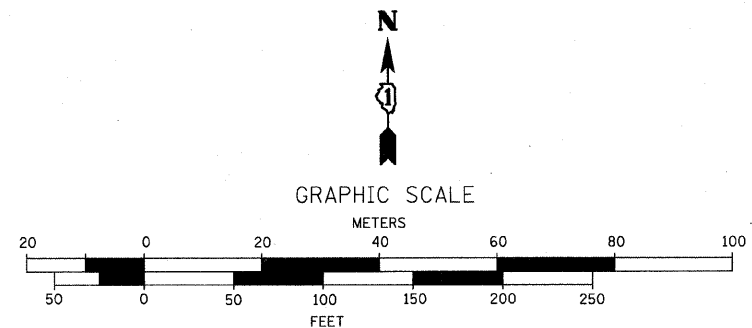
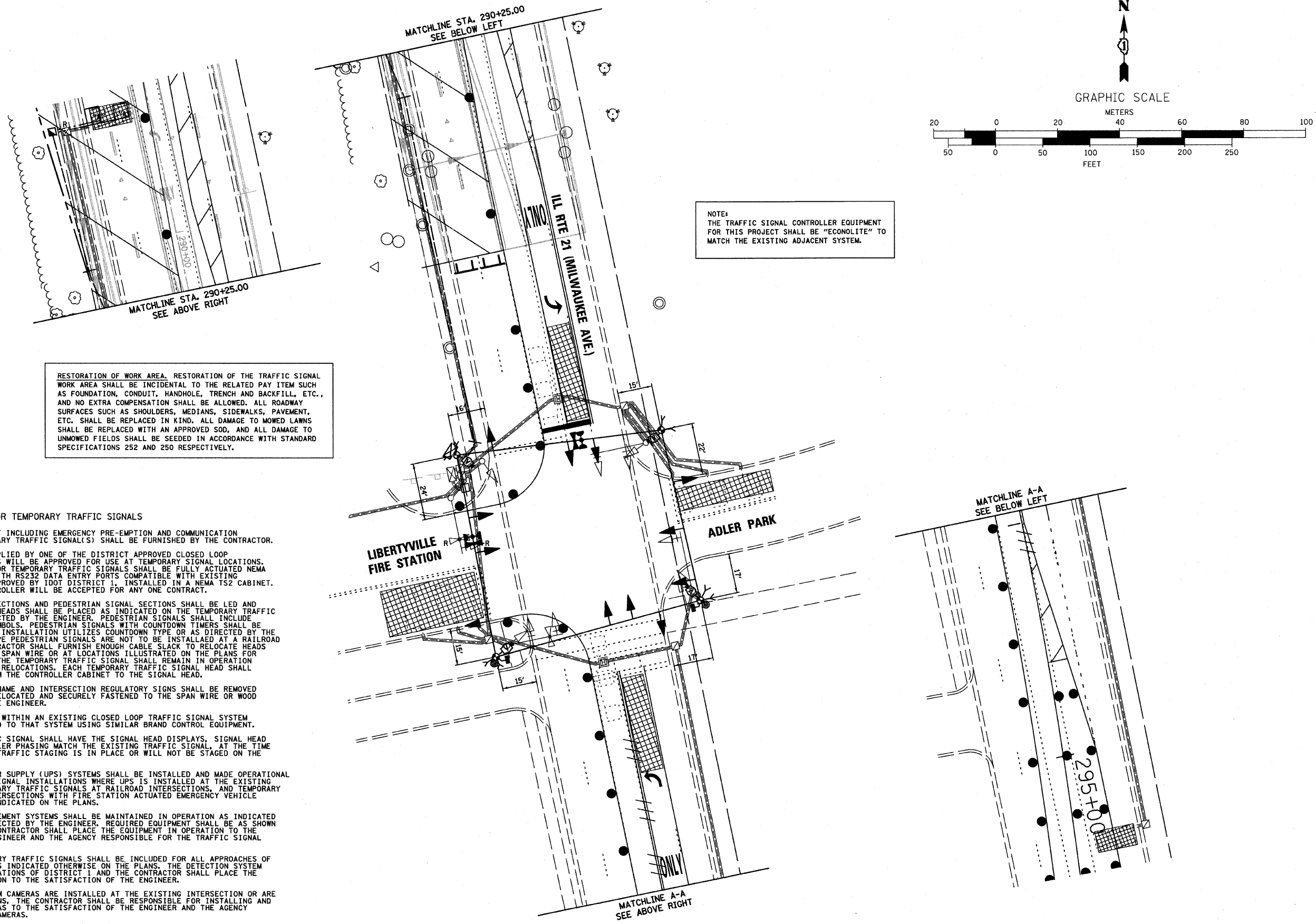


PROPOSED EMERGENCY VEHICLE PREEMPTORS				
EMERGENCY VEHICLE PREEMPTOR	3	4	5	6
MOVEMENT	↔	↔	↔	↔



OVERLAP LETTER	PERMISSIVE PHASE	PROTECTED PHASE
A	= 2	+ 3
B	= 4	+ 5
C	= 6	+ 7
D	= 8	+ 1

LEGEND  
 \* DUAL ENTRY PHASE  
 \* SINGLE ENTRY PHASE  
 \* OVERLAP  
 \* PEDESTRIAN PHASE  
 \* NUMBER REFERS TO ASSOCIATED PHASE



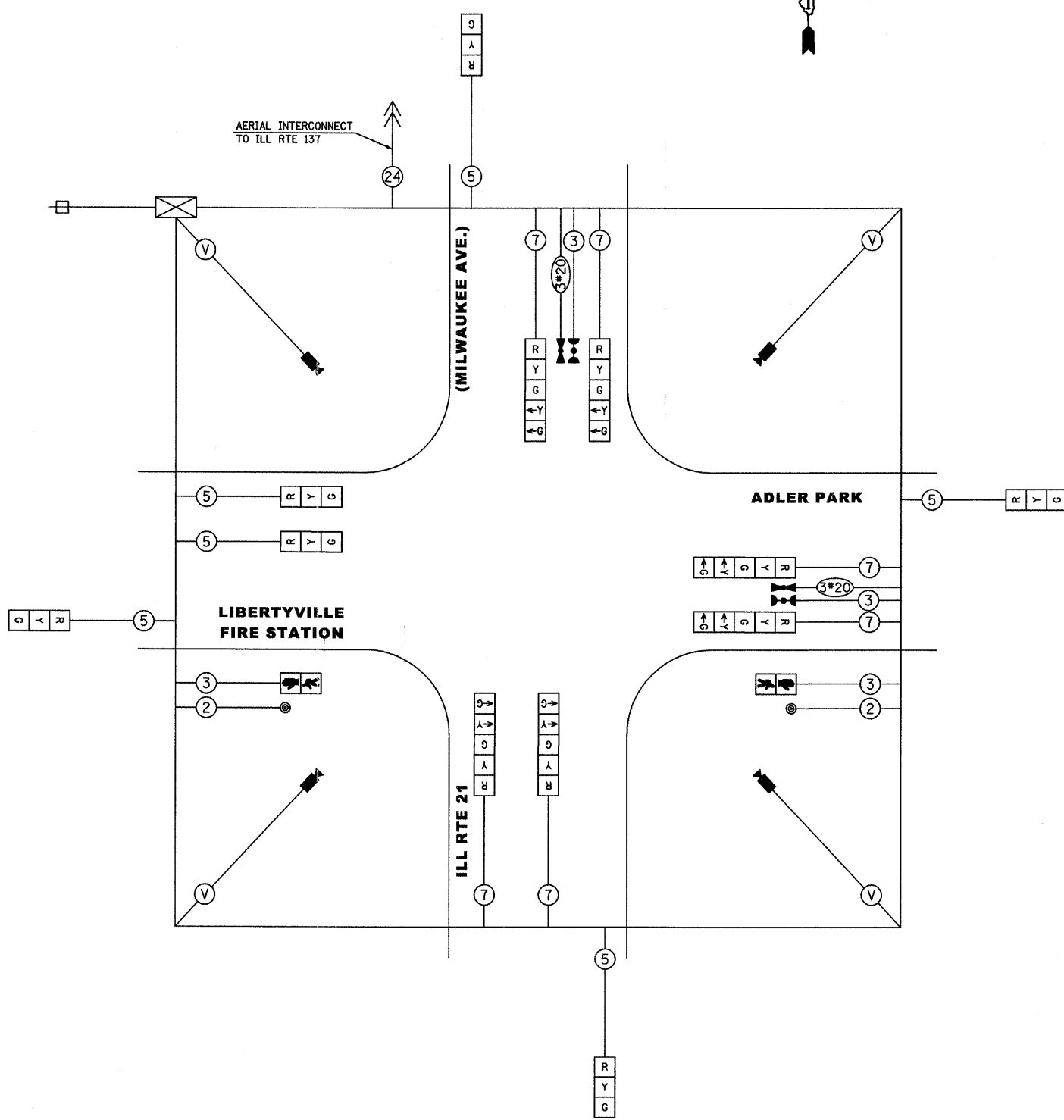
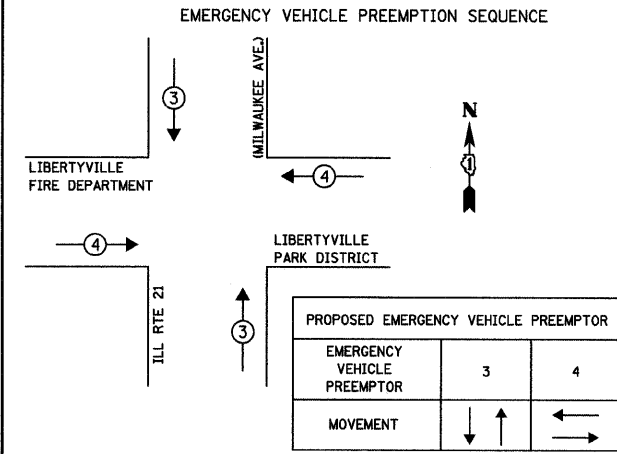
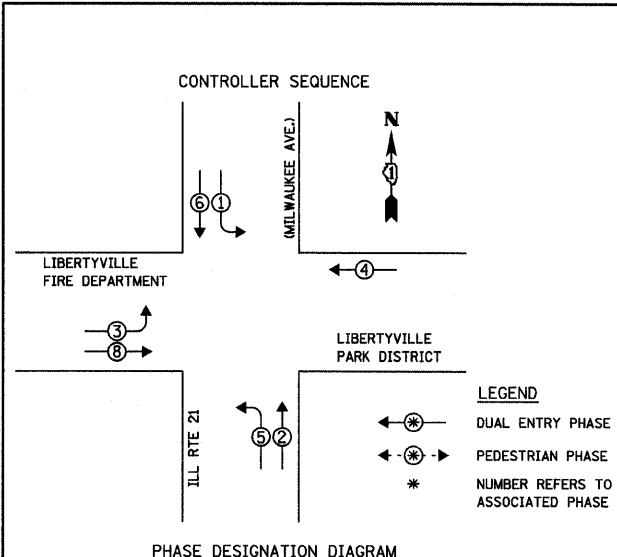
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**NOTES FOR TEMPORARY TRAFFIC SIGNALS**

1. ALL CONTROL EQUIPMENT INCLUDING EMERGENCY PRE-EMPTION AND COMMUNICATION DEVICES FOR THE TEMPORARY TRAFFIC SIGNAL(S) SHALL BE FURNISHED BY THE CONTRACTOR.
2. ONLY CONTROLLERS SUPPLIED BY ONE OF THE DISTRICT APPROVED CLOSED LOOP EQUIPMENT MANUFACTURERS WILL BE APPROVED FOR USE AT TEMPORARY SIGNAL LOCATIONS. ALL CONTROLLERS USED FOR TEMPORARY TRAFFIC SIGNALS SHALL BE FULLY ACTUATED NEMA MICROPROCESSOR BASED WITH RS232 DATA ENTRY PORTS COMPATIBLE WITH EXISTING MONITORING SOFTWARE APPROVED BY IDOT DISTRICT 1, INSTALLED IN A NEMA TS2 CABINET. ONLY ONE BRAND OF CONTROLLER WILL BE ACCEPTED FOR ANY ONE CONTRACT.
3. ALL TRAFFIC SIGNAL SECTIONS AND PEDESTRIAN SIGNAL SECTIONS SHALL BE LED AND 12" (300mm) DIAMETER. HEADS SHALL BE PLACED AS INDICATED ON THE TEMPORARY TRAFFIC SIGNAL PLAN OR AS DIRECTED BY THE ENGINEER. PEDESTRIAN SIGNALS SHALL INCLUDE SOLID INTERNATIONAL SYMBOLS. PEDESTRIAN SIGNALS WITH COUNTDOWN TIMERS SHALL BE USED WHEN THE EXISTING INSTALLATION UTILIZES COUNTDOWN TYPE OR AS DIRECTED BY THE ENGINEER. COUNTDOWN TYPE PEDESTRIAN SIGNALS ARE NOT TO BE INSTALLED AT A RAILROAD INTERSECTION. THE CONTRACTOR SHALL FURNISH ENOUGH CABLE SLACK TO RELOCATE HEADS TO ANY POSITION ON THE SPAN WIRE OR AT LOCATIONS ILLUSTRATED ON THE PLANS FOR CONSTRUCTION STAGING. THE TEMPORARY TRAFFIC SIGNAL SHALL REMAIN IN OPERATION DURING ALL SIGNAL HEAD RELOCATIONS. EACH TEMPORARY TRAFFIC SIGNAL HEAD SHALL HAVE ITS OWN CABLE FROM THE CONTROLLER CABINET TO THE SIGNAL HEAD.
4. ALL EXISTING STREET NAME AND INTERSECTION REGULATORY SIGNS SHALL BE REMOVED FROM EXISTING POLES, RELOCATED AND SECURELY FASTENED TO THE SPAN WIRE OR WOOD POLE AS DIRECTED BY THE ENGINEER.
5. ANY TEMPORARY SIGNAL WITHIN AN EXISTING CLOSED LOOP TRAFFIC SIGNAL SYSTEM SHALL BE INTERCONNECTED TO THAT SYSTEM USING SIMILAR BRAND CONTROL EQUIPMENT.
6. THE TEMPORARY TRAFFIC SIGNAL SHALL HAVE THE SIGNAL HEAD DISPLAYS, SIGNAL HEAD PLACEMENTS AND CONTROLLER PHASING MATCH THE EXISTING TRAFFIC SIGNAL, AT THE TIME OF THE TURN ON, IF NO TRAFFIC STAGING IS IN PLACE OR WILL NOT BE STAGED ON THE DAY OF THE TURN ON.
7. UNINTERRUPTIBLE POWER SUPPLY (UPS) SYSTEMS SHALL BE INSTALLED AND MADE OPERATIONAL AT TEMPORARY TRAFFIC SIGNAL INSTALLATIONS WHERE UPS IS INSTALLED AT THE EXISTING TRAFFIC SIGNAL, TEMPORARY TRAFFIC SIGNALS AT RAILROAD INTERSECTIONS, AND TEMPORARY TRAFFIC SIGNALS AT INTERSECTIONS WITH FIRE STATION ACTUATED EMERGENCY VEHICLE PRE-EMPTION, OR WHEN INDICATED ON THE PLANS.
8. TRAFFIC SIGNAL MANAGEMENT SYSTEMS SHALL BE MAINTAINED IN OPERATION AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER. REQUIRED EQUIPMENT SHALL BE AS SHOWN ON THE PLANS AND THE CONTRACTOR SHALL PLACE THE EQUIPMENT IN OPERATION TO THE SATISFACTION OF THE ENGINEER AND THE AGENCY RESPONSIBLE FOR THE TRAFFIC SIGNAL MANAGEMENT SYSTEM.
9. DETECTION AT TEMPORARY TRAFFIC SIGNALS SHALL BE INCLUDED FOR ALL APPROACHES OF THE INTERSECTION UNLESS INDICATED OTHERWISE ON THE PLANS. THE DETECTION SYSTEM MUST MEET THE SPECIFICATIONS OF DISTRICT 1 AND THE CONTRACTOR SHALL PLACE THE DETECTORS INTO OPERATION TO THE SATISFACTION OF THE ENGINEER.
10. WHEN PAN, TILT, ZOOM CAMERAS ARE INSTALLED AT THE EXISTING INTERSECTION OR ARE CALLED FOR IN THE PLANS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING AND MAINTAINING THE CAMERAS TO THE SATISFACTION OF THE ENGINEER AND THE AGENCY RESPONSIBLE FOR THE CAMERAS.

FILE NAME = P:\11385.000 - CRA IL Rte 21\Correspondence\IN\2011087-Handoff w Ref Files ReAttach\DRAWING Fire Sta\TCM.dgn	USER NAME = IDOT - District 01	DESIGNED - TCM	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>		<b>TEMPORARY TRAFFIC SIGNAL INSTALLATION ILL RTE 21 (MILWAUKEE AVE.) AND FIRE STATION DRIVE</b>			F.A.P. RTE. 330	SECTION 128R-3	COUNTY LAKE	TOTAL SHEETS 518	SHEET NO. 206
PLOT SCALE = 40.000000' / 1" =	CHECKED - TCM	REVISED -	REVISED -						SCALE: 1" = 20'	SHEET NO. 18 OF 41 SHEETS	STA. 295+00.00 TO STA. 280+00.00	CONTRACT NO. 60C18	
PLOT DATE = 7/13/2011	DATE = 07/08/11	REVISED -	REVISED -										



RESTORATION OF WORK AREA. RESTORATION OF THE TRAFFIC SIGNAL WORK AREA SHALL BE INCIDENTAL TO THE RELATED PAY ITEM SUCH AS FOUNDATION, CONDUIT, HANDHOLE, TRENCH AND BACKFILL, ETC., AND NO EXTRA COMPENSATION SHALL BE ALLOWED. ALL ROADWAY SURFACES SUCH AS SHOULDERS, MEDIANS, SIDEWALKS, PAVEMENT, ETC. SHALL BE REPLACED IN KIND. ALL DAMAGE TO MOWED LAWNS SHALL BE REPLACED WITH AN APPROVED SOD, AND ALL DAMAGE TO UNMOWED FIELDS SHALL BE SEEDING IN ACCORDANCE WITH STANDARD SPECIFICATIONS 252 AND 250 RESPECTIVELY.

NOTE:  
THE TRAFFIC SIGNAL CONTROLLER EQUIPMENT FOR THIS PROJECT SHALL BE "ECONOLITE" TO MATCH THE EXISTING ADJACENT SYSTEM.

I.D.O.T. TRAFFIC SIGNAL INSTALLATION ELECTRICAL SERVICE REQUIREMENTS					TOTAL WATTAGE
TYPE	NO. OF LAMPS	WATTAGE INCAND.	LED	% OPERATION	
SIGNAL (RED)	12	-	17	0.50	102.0
(YELLOW)	12	-	25	0.25	75.0
(GREEN)	12	-	15	0.25	45.0
ARROW	12	-	12	0.10	14.4
PED. SIGNAL	2	-	25	1.00	50.0
CONTROLLER	1	100	-	1.00	100.0

ENERGY COSTS TO: TOTAL = 386.4

VILLAGE OF LIBERTYVILLE

118 WEST COOK AVENUE  
LIBERTYVILLE, ILLINOIS 60048

ENERGY SUPPLY: CONTACT: JOE HURLEY  
PHONE: 847-816-5503  
COMPANY: COMED

FILE NAME = P:\11386.000 - CRA IL Rte 21\Correspondence\IN\20110817-Handoff w Ref Files ReAttach	USER NAME = IDOT - District 01	DESIGNED - TCM	REVISED -
PLOT SCALE = 40.0000' / 1".	CHECKED - TCM	REVISED -	REVISED -
PLOT DATE = 7/25/2011	DATE = 07/08/11	REVISED -	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

TEMPORARY CABLE PLAN AND TEMPORARY PHASE DESIGNATION DIAGRAM  
ILL RTE 21 AND LIBERTYVILLE FIRE STATION

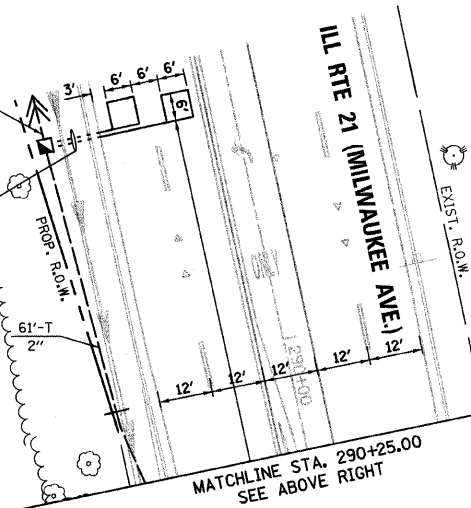
SCALE: N.T.S. SHEET NO. 19 OF 41 SHEETS STA. - TO STA. -

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	128R-3	LAKE	518	207

CONTRACT NO. 60953  
ILLINOIS FED. AID PROJECT

INTERCONNECT TO ILL RTE 137  
(SEE INTERCONNECT PLAN)

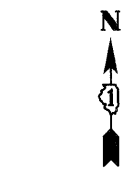
12'-CT  
(2) 1" UD



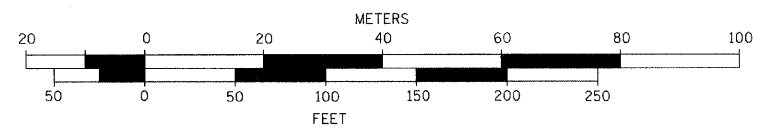
MATCHLINE STA. 290+25.00  
SEE ABOVE RIGHT

MATCHLINE STA. 290+25.00  
SEE BELOW LEFT

NOTE:  
THE TRAFFIC SIGNAL CONTROLLER EQUIPMENT  
FOR THIS PROJECT SHALL BE "ECONOLITE" TO  
MATCH THE EXISTING ADJACENT SYSTEM.

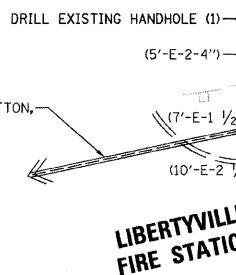


GRAPHIC SCALE



RESTORATION OF WORK AREA. RESTORATION OF THE TRAFFIC SIGNAL  
WORK AREA SHALL BE INCIDENTAL TO THE RELATED PAY ITEM SUCH  
AS FOUNDATION, CONDUIT, HANDHOLE, TRENCH AND BACKFILL, ETC.,  
AND NO EXTRA COMPENSATION SHALL BE ALLOWED. ALL ROADWAY  
SURFACES SUCH AS SHOULDERS, MEDIANS, SIDEWALKS, PAVEMENT,  
ETC. SHALL BE REPLACED IN KIND. ALL DAMAGE TO MOWED LAWNS  
SHALL BE REPLACED WITH AN APPROVED SOD, AND ALL DAMAGE TO  
UNMOWED FIELDS SHALL BE SEEDING IN ACCORDANCE WITH STANDARD  
SPECIFICATIONS 252 AND 250 RESPECTIVELY.

TO FIRE STATION PUSHBUTTON,  
(275'-E-2'")



LIBERTYVILLE  
FIRE STATION

ADLER PARK

MATCHLINE A-A  
SEE BELOW LEFT

SCHEDULE OF QUANTITIES		
ITEM	UNIT	QTY
CONDUIT IN TRENCH, 2" DIA., GALVANIZED STEEL	FT	210
CONDUIT PUSHED, 2" DIA., GALVANIZED STEEL	FT	49
HANDHOLE	EA	1
TRENCH AND BACKFILL FOR ELECTRICAL WORK	FT	210
ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 14 1 PAIR	FT	287
DRILL EXISTING HANDHOLE	EA	1
DETECTOR LOOP, TYPE I	FT	66
TEMPORARY TRAFFIC SIGNAL INSTALLATION	EA	1
REMOVE EXISTING HANDHOLE	EA	1
TEMPORARY TRAFFIC SIGNAL TIMINGS	EA	1

FILE NAME =	USER NAME = JDOT - District 01	DESIGNED - TCM	REVISED -
PN11305.000 - CRA IL Rte 21 Correspondence	h:\IN\20110107-Handoff w Ref Files ReAttach\DR\WOOD Fire Station.dgn	CHECKED - TCM	REVISED -
	PLOT SCALE = 40.000000' / 1 in.	DATE - 07/08/11	REVISED -
	PLOT DATE = 7/27/2011		

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

TRAFFIC SIGNAL MODIFICATION PLAN  
ILL RTE 21 (MILWAUKEE AVE.) AND FIRE STATION DRIVE

SCALE: 1" = 20' SHEET NO. 20 OF 41 SHEETS STA. 295+00.00 TO STA. 280+00.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	128R-3	LAKE	518	207A
CONTRACT NO. 60953				
ILLINOIS FED. AID PROJECT				



INTERCONNECT TO ILL RTE 137  
(SEE INTERCONNECT PLAN)

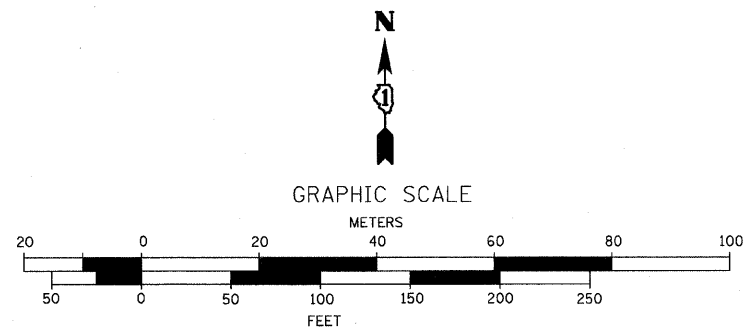
12'-CT  
(2) 1" UD

61'-T  
2"

MATCHLINE STA. 290+25.00  
SEE ABOVE RIGHT

MATCHLINE STA. 290+25.00  
SEE BELOW LEFT

NOTE:  
THE TRAFFIC SIGNAL CONTROLLER EQUIPMENT  
FOR THIS PROJECT SHALL BE "ECONOLITE" TO  
MATCH THE EXISTING ADJACENT SYSTEM.



RESTORATION OF WORK AREA. RESTORATION OF THE TRAFFIC SIGNAL  
WORK AREA SHALL BE INCIDENTAL TO THE RELATED PAY ITEM SUCH  
AS FOUNDATION, CONDUIT, HANDHOLE, TRENCH AND BACKFILL, ETC.,  
AND NO EXTRA COMPENSATION SHALL BE ALLOWED. ALL ROADWAY  
SURFACES SUCH AS SHOULDERS, MEDIANS, SIDEWALKS, PAVEMENT,  
ETC. SHALL BE REPLACED IN KIND. ALL DAMAGE TO MOWED LAWNS  
SHALL BE REPLACED WITH AN APPROVED SOD, AND ALL DAMAGE TO  
UNMOWED FIELDS SHALL BE SEEDED IN ACCORDANCE WITH STANDARD  
SPECIFICATIONS 252 AND 250 RESPECTIVELY.

SCHEDULE OF QUANTITIES		
ITEM	UNIT	QTY
CONDUIT IN TRENCH, 2" DIA., GALVANIZED STEEL	FT	210
CONDUIT PUSHED, 2" DIA., GALVANIZED STEEL	FT	49
HANDHOLE	EA	1
TRENCH AND BACKFILL FOR ELECTRICAL WORK	FT	210
ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 14 1 PAIR	FT	287
DRILL EXISTING HANDHOLE	EA	1
DETECTOR LOOP, TYPE I	FT	66
TEMPORARY TRAFFIC SIGNAL INSTALLATION	EA	1
REMOVE EXISTING HANDHOLE	EA	1
TEMPORARY TRAFFIC SIGNAL TIMINGS	EA	1

TO FIRE STATION PUSHBUTTON,  
(275'-E-2')

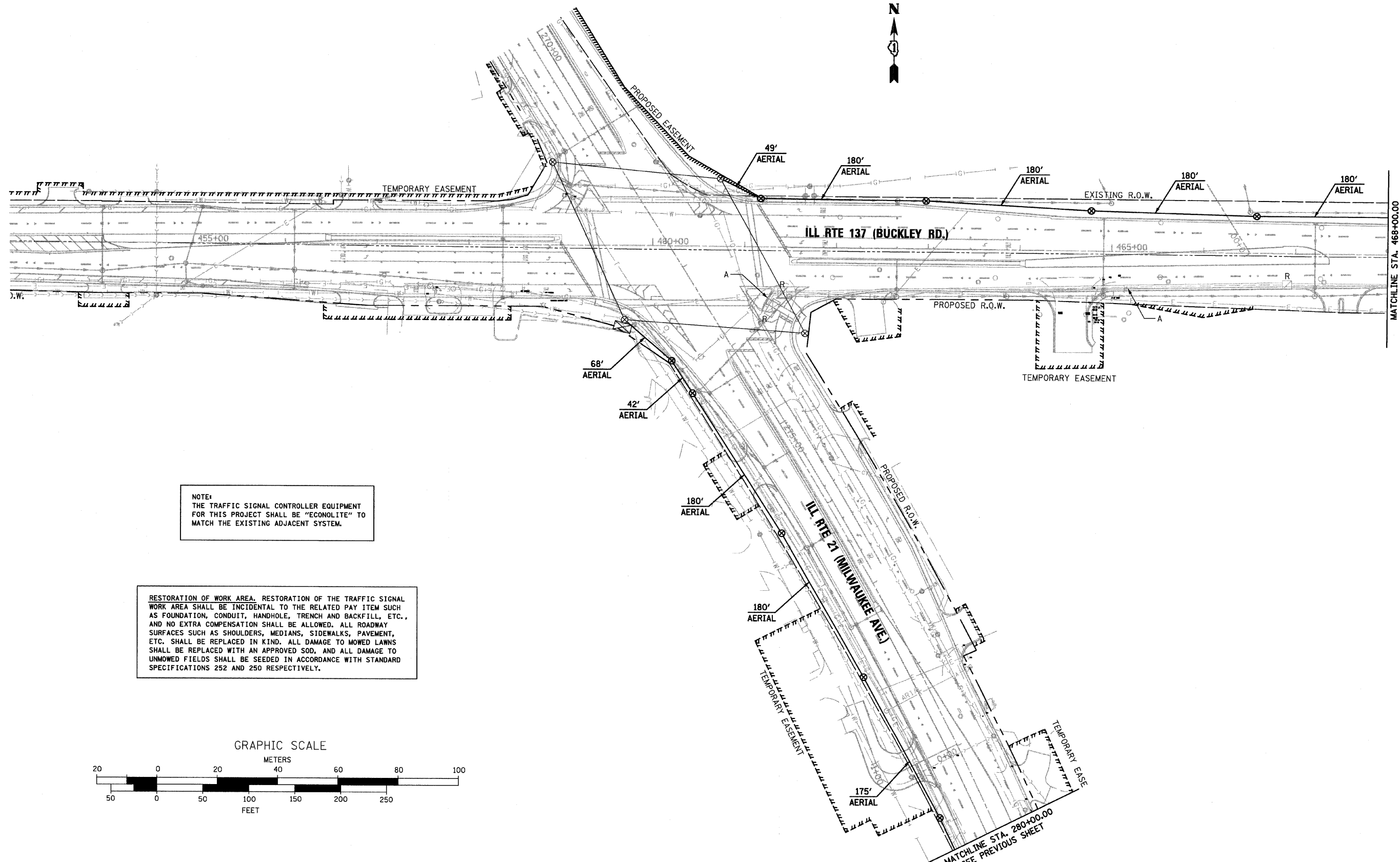
LIBERTYVILLE  
FIRE STATION

ADLER PARK

MATCHLINE A-A  
SEE BELOW LEFT

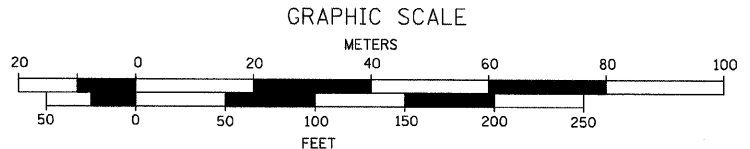
MATCHLINE A-A  
SEE ABOVE RIGHT



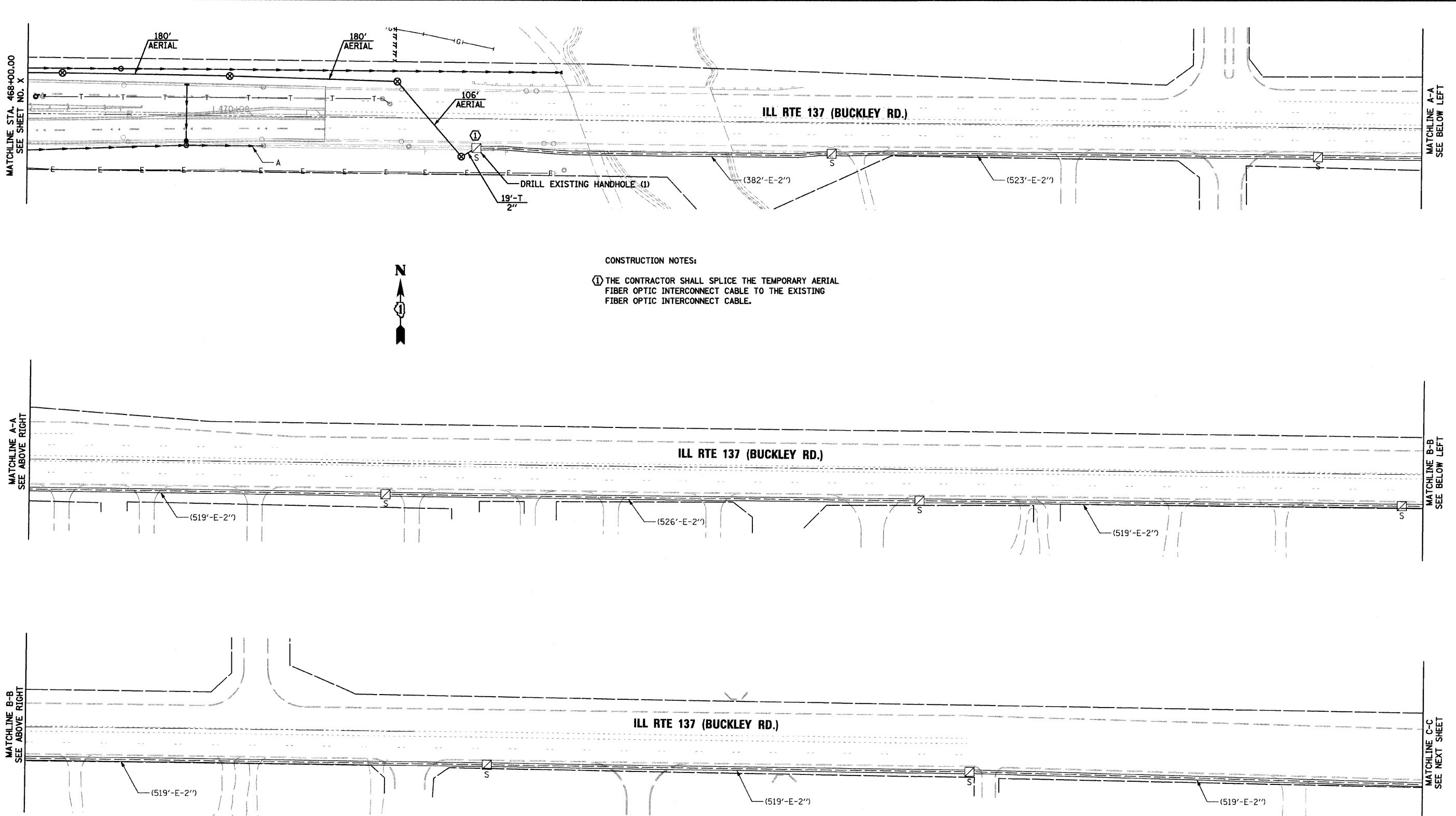


NOTE:  
 THE TRAFFIC SIGNAL CONTROLLER EQUIPMENT FOR THIS PROJECT SHALL BE "ECONOLITE" TO MATCH THE EXISTING ADJACENT SYSTEM.

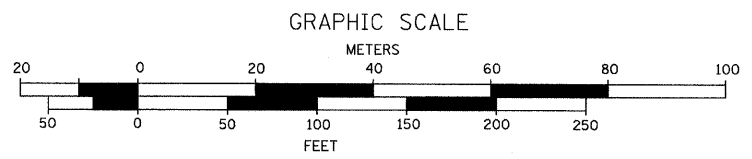
RESTORATION OF WORK AREA, RESTORATION OF THE TRAFFIC SIGNAL WORK AREA SHALL BE INCIDENTAL TO THE RELATED PAY ITEM SUCH AS FOUNDATION, CONDUIT, HANDHOLE, TRENCH AND BACKFILL, ETC., AND NO EXTRA COMPENSATION SHALL BE ALLOWED. ALL ROADWAY SURFACES SUCH AS SHOULDERS, MEDIANS, SIDEWALKS, PAVEMENT, ETC. SHALL BE REPLACED IN KIND. ALL DAMAGE TO MOWED LAWNS SHALL BE REPLACED WITH AN APPROVED SOD, AND ALL DAMAGE TO UNMOWED FIELDS SHALL BE SEEDED IN ACCORDANCE WITH STANDARD SPECIFICATIONS 252 AND 250 RESPECTIVELY.



FILE NAME = P:\11306.000 - CRA IL Rte 21\Working Files\Drawing Files\Sh123-TMP INT-02.dgn	USER NAME = IDOT - District 01	DESIGNED - TCM	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>TEMPORARY INTERCONNECT PLAN - SHEET 2 OF 5 ILL RTE 137 (BUCKLEY RD.)</b>			F.A.P. RTE. 330	SECTION 128R-3	COUNTY LAKE	TOTAL SHEETS 518	SHEET NO. 210
	PLOT SCALE = 100.000000' / 1in.	CHECKED - TCM	REVISED -		SCALE: 1" = 50'	SHEET NO. 23 OF 41 SHEETS	STA. 280+00.00 TO STA. 270+00.00	CONTRACT NO. 60953				
	PLOT DATE = 7/27/2011	DATE - 07/08/11	REVISED		ILLINOIS FED. AID PROJECT							



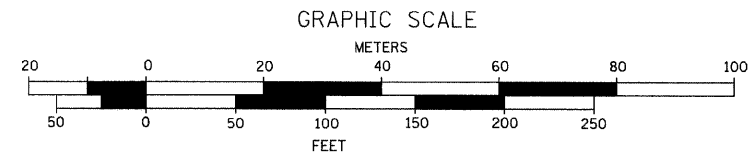
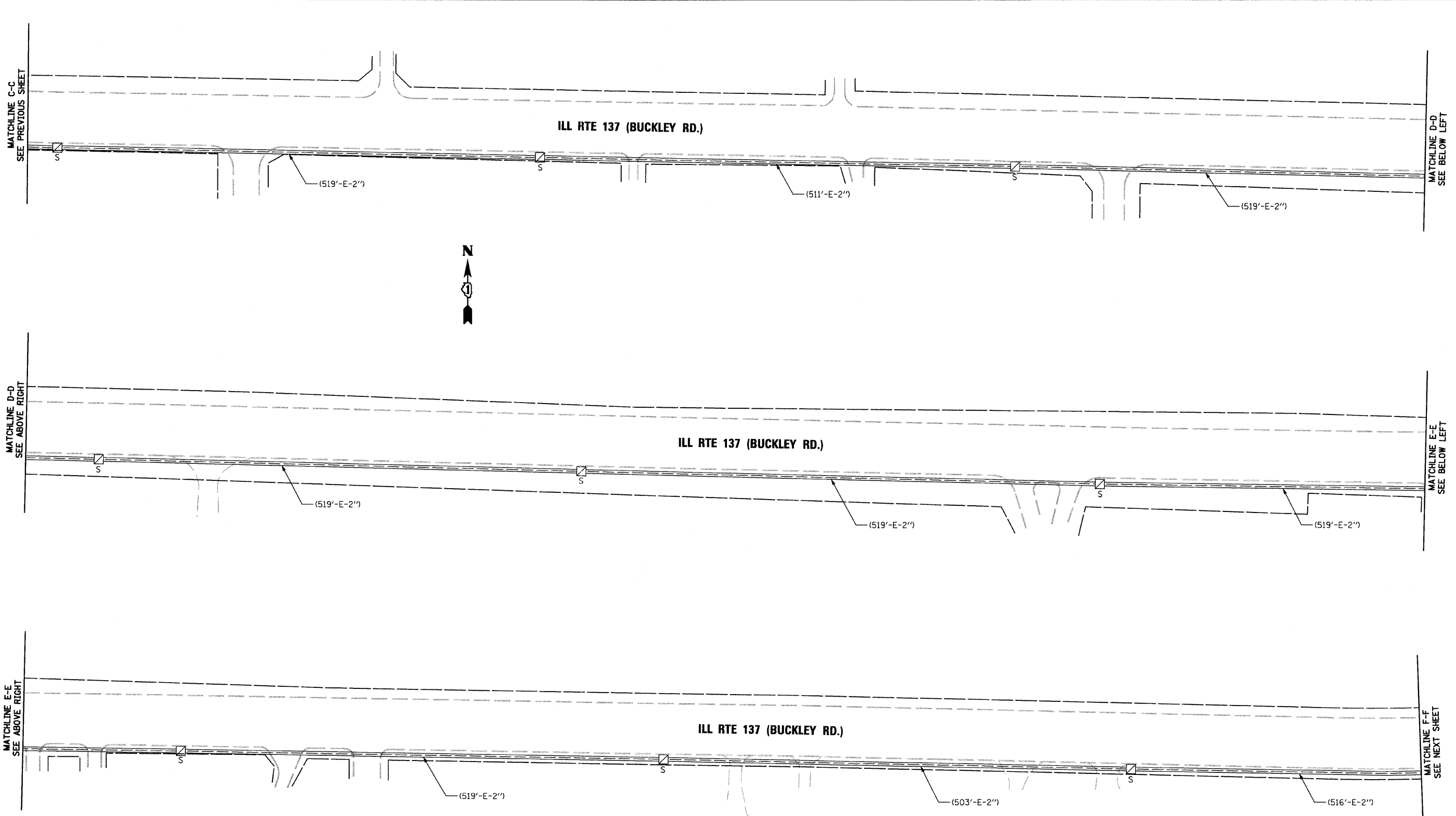
CONSTRUCTION NOTES:  
 ① THE CONTRACTOR SHALL SPLICE THE TEMPORARY AERIAL FIBER OPTIC INTERCONNECT CABLE TO THE EXISTING FIBER OPTIC INTERCONNECT CABLE.



NOTE:  
 THE TRAFFIC SIGNAL CONTROLLER EQUIPMENT FOR THIS PROJECT SHALL BE "ECONOLITE" TO MATCH THE EXISTING ADJACENT SYSTEM.

RESTORATION OF WORK AREA. RESTORATION OF THE TRAFFIC SIGNAL WORK AREA SHALL BE INCIDENTAL TO THE RELATED PAY ITEM SUCH AS FOUNDATION, CONDUIT, HANDHOLE, TRENCH AND BACKFILL, ETC., AND NO EXTRA COMPENSATION SHALL BE ALLOWED. ALL ROADWAY SURFACES SUCH AS SHOULDERS, MEDIANS, SIDEWALKS, PAVEMENT, ETC. SHALL BE REPLACED IN KIND. ALL DAMAGE TO MOWED LAWNS SHALL BE REPLACED WITH AN APPROVED SOD, AND ALL DAMAGE TO UNMOWED FIELDS SHALL BE SEEDED IN ACCORDANCE WITH STANDARD SPECIFICATIONS 252 AND 250 RESPECTIVELY.

FILE NAME = P:\11386.888 - GRA IL Rte 21\Working Files\Drawing Files\Sh24-TMP INT-#3.dgn	USER NAME = IDOT - District 01	DESIGNED - TCM	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>TEMPORARY INTERCONNECT PLAN - SHEET 3 OF 5 ILL RTE 137 (BUCKLEY RD.)</b>			F.A.P. RTE. 330	SECTION 128R-3	COUNTY LAKE	TOTAL SHEETS 518	SHEET NO. 211
PLOT SCALE = 100.000000' / in.	PLOT DATE = 7/27/2011	DRAWN - TCM	REVISED -		SCALE: 1" = 50'	SHEET NO. 24 OF 41 SHEETS	STA. 468+00.00 TO STA. -	CONTRACT NO. 60953				
CHECKED - TCM	DATE - 07/08/11	REVISIONS	REVISIONS		ILLINOIS FED. AID PROJECT							



NOTE:  
THE TRAFFIC SIGNAL CONTROLLER EQUIPMENT FOR THIS PROJECT SHALL BE "ECONOLITE" TO MATCH THE EXISTING ADJACENT SYSTEM.

RESTORATION OF WORK AREA. RESTORATION OF THE TRAFFIC SIGNAL WORK AREA SHALL BE INCIDENTAL TO THE RELATED PAY ITEM SUCH AS FOUNDATION, CONDUIT, HANDHOLE, TRENCH AND BACKFILL, ETC., AND NO EXTRA COMPENSATION SHALL BE ALLOWED. ALL ROADWAY SURFACES SUCH AS SHOULDERS, MEDIANS, SIDEWALKS, PAVEMENT, ETC. SHALL BE REPLACED IN KIND. ALL DAMAGE TO MOWED LAWNS SHALL BE REPLACED WITH AN APPROVED SOD, AND ALL DAMAGE TO UNMOWED FIELDS SHALL BE SEEDED IN ACCORDANCE WITH STANDARD SPECIFICATIONS 252 AND 250 RESPECTIVELY.

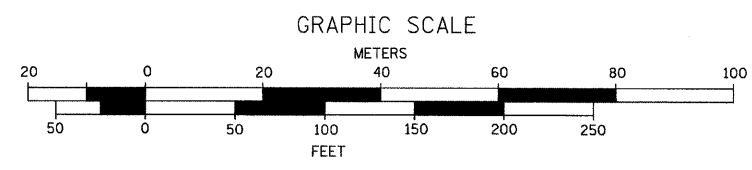
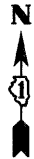
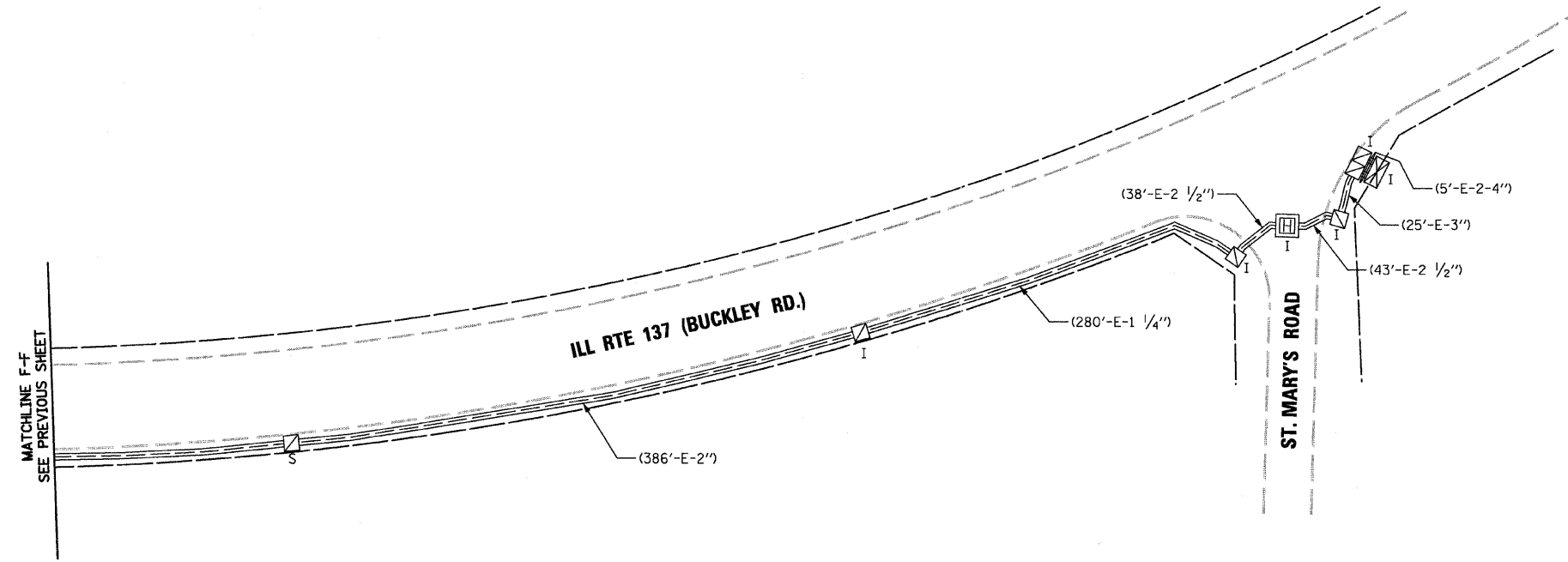
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PLOT SCALE = 100.0000000 / in.	DRAWN - TCM	CHECKED - TCM	REVISED -
PLOT DATE = 7/27/2011	DATE - 07/08/11		

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**TEMPORARY INTERCONNECT PLAN - SHEET 4 OF 5  
ILL RTE 137 (BUCKLEY RD.)**

SCALE: 1" = 50'    SHEET NO. 25 OF 41 SHEETS    STA. -    TO STA. -

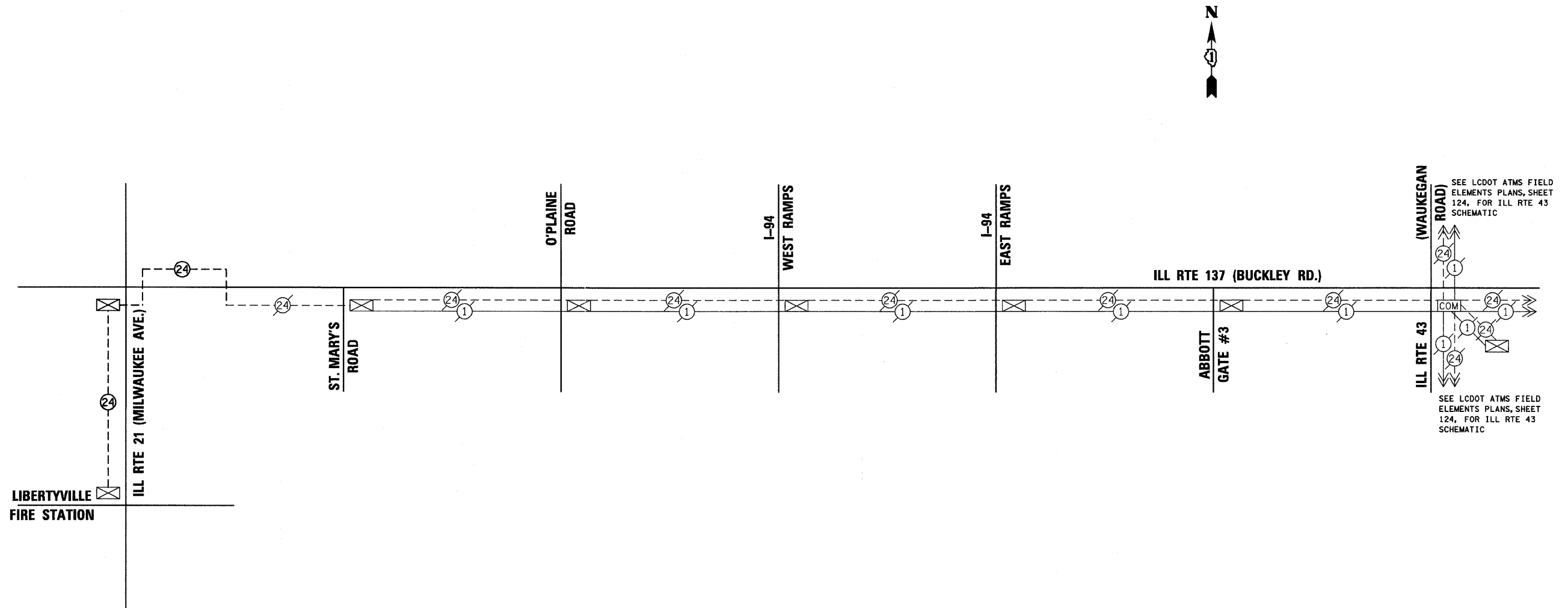
F.A.P. RTE. 330	SECTION 128R-3	COUNTY LAKE	TOTAL SHEETS 518	SHEET NO. 212
CONTRACT NO. 60953				
ILLINOIS FED. AID PROJECT				



NOTE:  
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RESTORATION OF WORK AREA, RESTORATION OF THE TRAFFIC SIGNAL WORK AREA SHALL BE INCIDENTAL TO THE RELATED PAY ITEM SUCH AS FOUNDATION, CONDUIT, HANDHOLE, TRENCH AND BACKFILL, ETC., AND NO EXTRA COMPENSATION SHALL BE ALLOWED. ALL ROADWAY SURFACES SUCH AS SHOULDERS, MEDIANS, SIDEWALKS, PAVEMENT, ETC. SHALL BE REPLACED IN KIND. ALL DAMAGE TO MOWED LAWNS SHALL BE REPLACED WITH AN APPROVED SOD, AND ALL DAMAGE TO UNMOWED FIELDS SHALL BE SEEDED IN ACCORDANCE WITH STANDARD SPECIFICATIONS 252 AND 250 RESPECTIVELY.

FILE NAME = P:\11306.000 - CRA IL Rte 21\Working Files\Drawing Files\Sh1\26-TMP INT-05.dgn	USER NAME = IDOT - District 01	DESIGNED - TCM	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>TEMPORARY INTERCONNECT PLAN - SHEET 5 OF 5 ILL RTE 137 (BUCKLEY RD.)</b>			F.A.P. RTE. 330	SECTION 128R-3	COUNTY LAKE	TOTAL SHEETS 518	SHEET NO. 213
PLOT SCALE = 100.000000' / in.	CHECKED - TCM	REVISED -	REVISED -		SCALE: 1" = 50'	SHEET NO. 26 OF 41 SHEETS	STA. -	TO STA. -	CONTRACT NO. 60953			
PLOT DATE = 7/27/2011	DATE - 07/08/11	REVISED -	REVISED -		ILLINOIS FED. AID PROJECT							



SEE LCDOT ATMS FIELD ELEMENTS PLANS, SHEET 124, FOR ILL RTE 43 SCHEMATIC

SEE LCDOT ATMS FIELD ELEMENTS PLANS, SHEET 124, FOR ILL RTE 43 SCHEMATIC

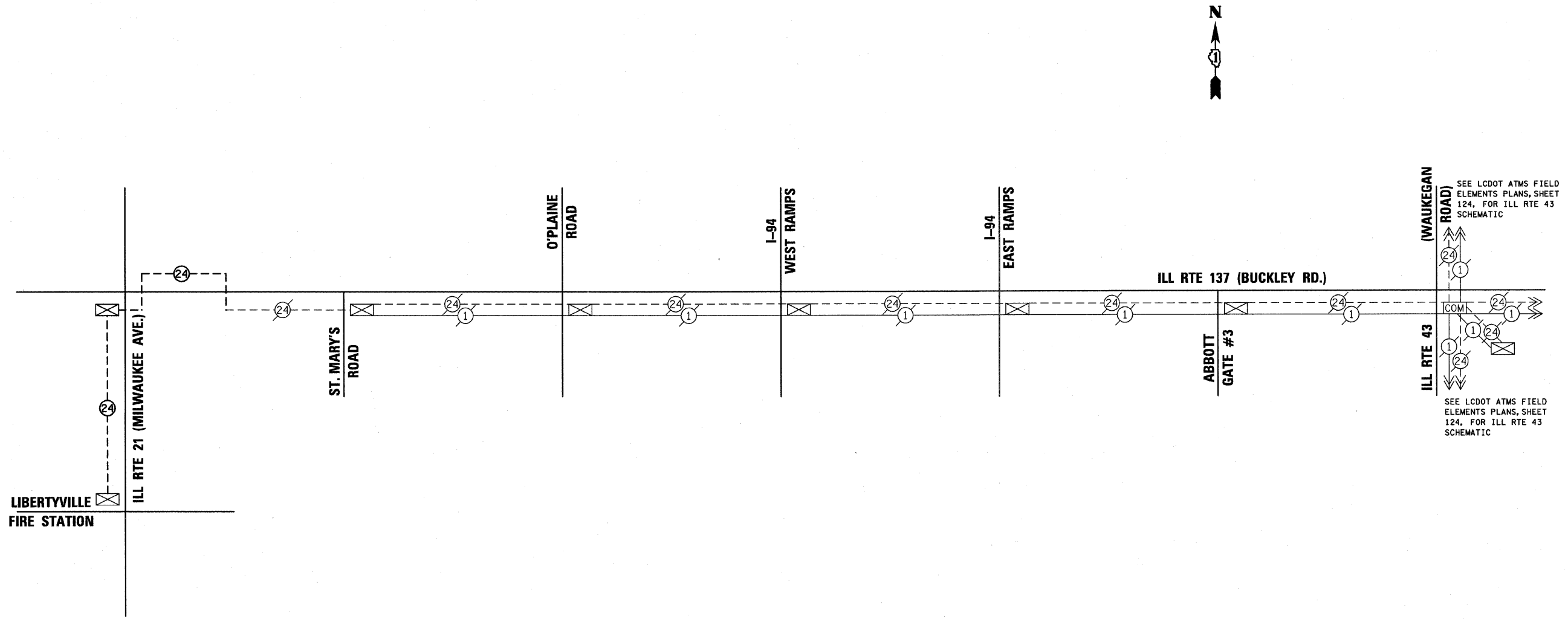
**SCHEDULE OF TEMPORARY INTERCONNECT QUANTITIES**

ITEM	UNIT	QTY
CONDUIT IN TRENCH, 2" DIA., GALVANIZED STEEL	FT	65
CONDUIT PUSHED, 2" DIA., GALVANIZED STEEL	FT	16
TRENCH AND BACKFILL FOR ELECTRICAL WORK	FT	65
MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION	EA	2
SPAN WIRE	FT	3043
TEMPORARY AERIAL FIBER OPTIC CABLE, NO. 62.5/125, MM12F, SM12F	FT	3553
DRILL EXISTING HANDHOLE	EA	2
REMOVE EXISTING HANDHOLE	EA	2
TRAFFIC SIGNAL WOOD POLE, 60 FT, CLASS 4	EA	20
REMOVE EXISTING TEMPORARY TRAFFIC SIGNAL EQUIPMENT	EA	1

NOTE:  
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PLOT SCALE = 100.0000000' / in.	CHECKED - TCM	REVISED -			SCALE: N.T.S.	SHEET NO. 27 OF 41 SHEETS	STA. -	TO STA. -	CONTRACT NO. 60953			
PLOT DATE = 7/27/2011	DATE - 07/08/11	REVISED			ILLINOIS FED. AID PROJECT							

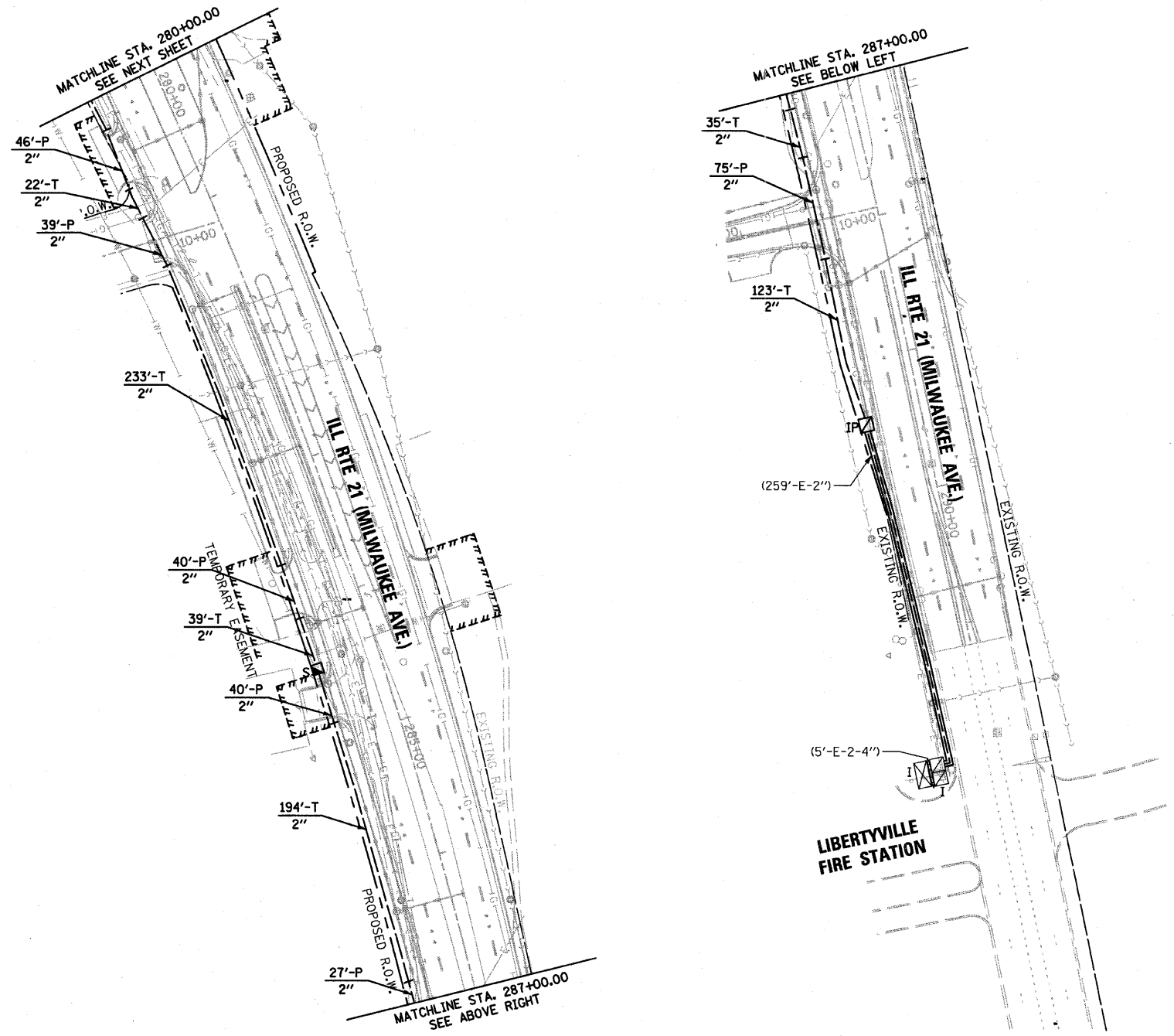


SCHEDULE OF TEMPORARY INTERCONNECT QUANTITIES		
ITEM	UNIT	QTY
CONDUIT IN TRENCH, 2" DIA., GALVANIZED STEEL	FT	65
CONDUIT PUSHED, 2" DIA., GALVANIZED STEEL	FT	16
TRENCH AND BACKFILL FOR ELECTRICAL WORK	FT	65
MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION	EA	2
SPAN WIRE	FT	3043
TEMPORARY AERIAL FIBER OPTIC CABLE, NO. 62.5/125, MM12F, SM12F	FT	3553
DRILL EXISTING HANDHOLE	EA	2
REMOVE EXISTING HANDHOLE	EA	2
TRAFFIC SIGNAL WOOD POLE, 60 FT, CLASS 4	EA	20
REMOVE EXISTING TEMPORARY TRAFFIC SIGNAL EQUIPMENT	EA	1

NOTE:  
THE TRAFFIC SIGNAL CONTROLLER EQUIPMENT FOR THIS PROJECT SHALL BE "ECONOLITE" TO MATCH THE EXISTING ADJACENT SYSTEM.

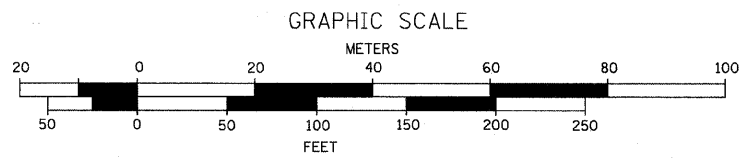
RESTORATION OF WORK AREA. RESTORATION OF THE TRAFFIC SIGNAL WORK AREA SHALL BE INCIDENTAL TO THE RELATED PAY ITEM SUCH AS FOUNDATION, CONDUIT, HANDHOLE, TRENCH AND BACKFILL, ETC., AND NO EXTRA COMPENSATION SHALL BE ALLOWED. ALL ROADWAY SURFACES SUCH AS SHOULDERS, MEDIANS, SIDEWALKS, PAVEMENT, ETC. SHALL BE REPLACED IN KIND. ALL DAMAGE TO MOWED LAWNS SHALL BE REPLACED WITH AN APPROVED SOD, AND ALL DAMAGE TO UNMOWED FIELDS SHALL BE SEEDED IN ACCORDANCE WITH STANDARD SPECIFICATIONS 252 AND 250 RESPECTIVELY.



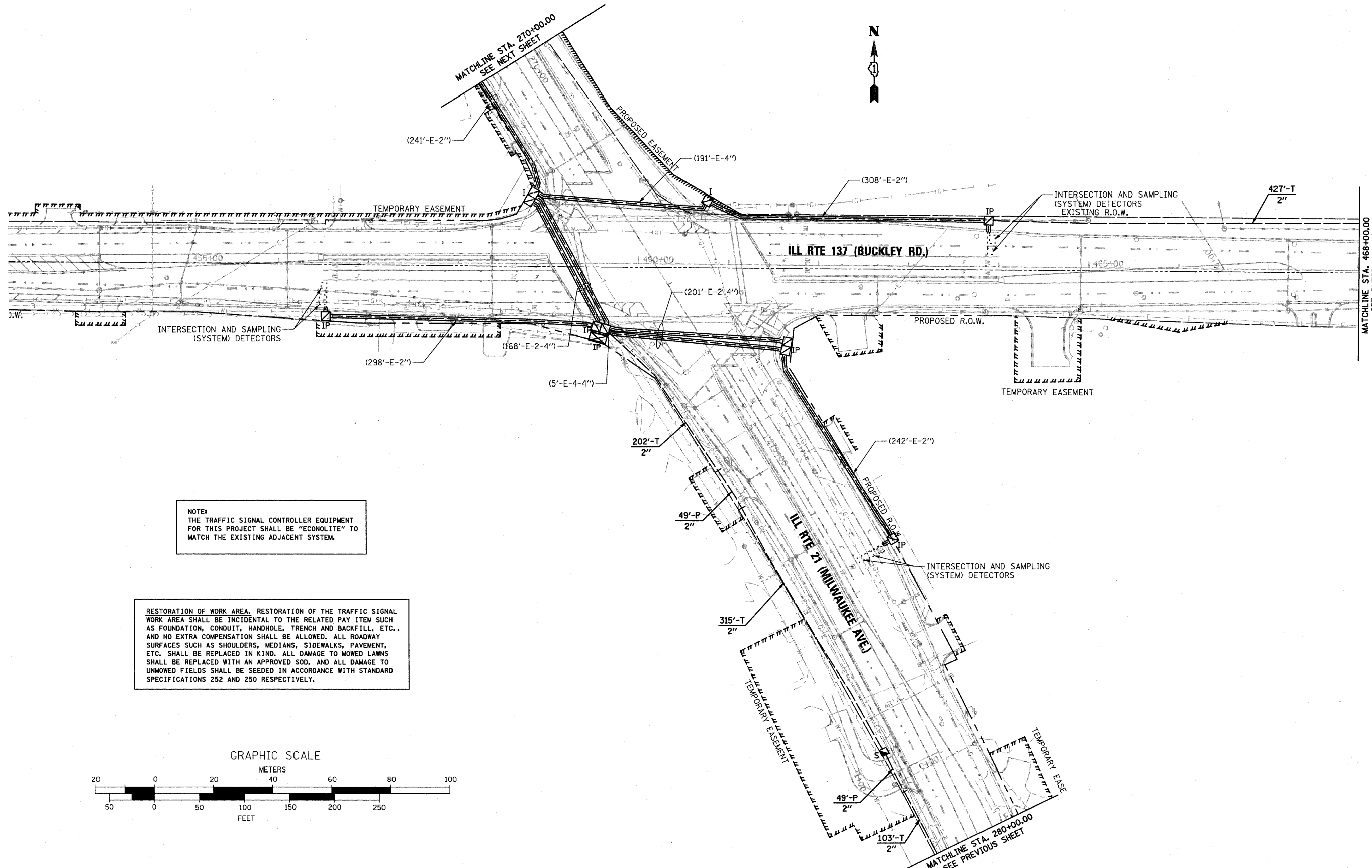


NOTE:  
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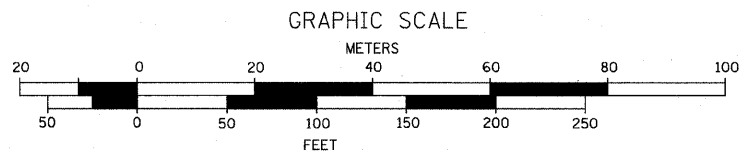


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	PLOT SCALE = 100.000000 / in.	CHECKED - TCM	REVISED -		SCALE: 1" = 50'	SHEET NO. 28 OF 41 SHEETS	STA. 295+00.00 TO STA. 280+00.00	CONTRACT NO. 60C18					
	PLOT DATE = 7/13/2011	DATE - 07/08/11	REVISED		ILLINOIS FED. AID PROJECT								

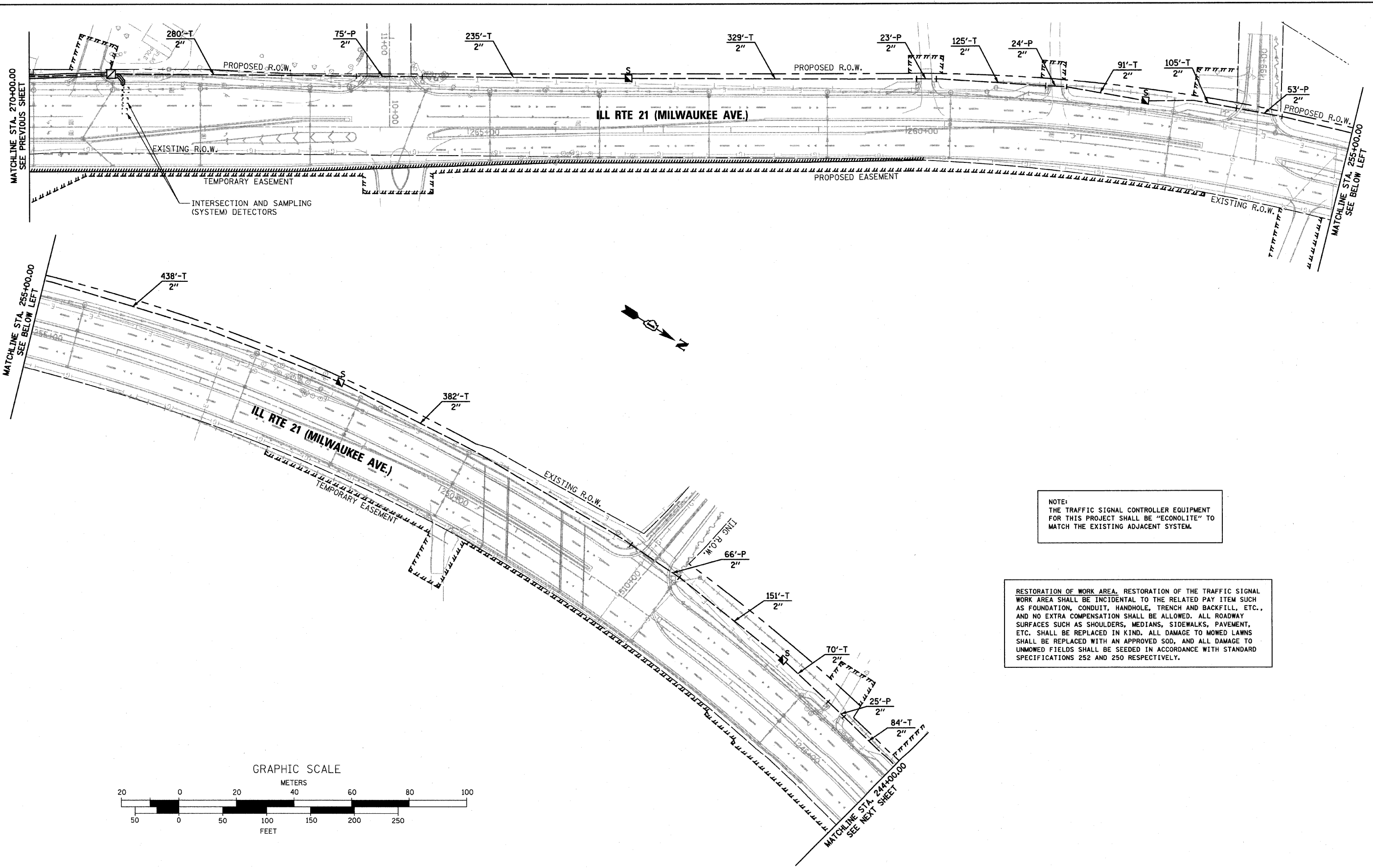


NOTE:  
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RESTORATION OF WORK AREA, RESTORATION OF THE TRAFFIC SIGNAL  
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 SPECIFICATIONS 252 AND 250 RESPECTIVELY.

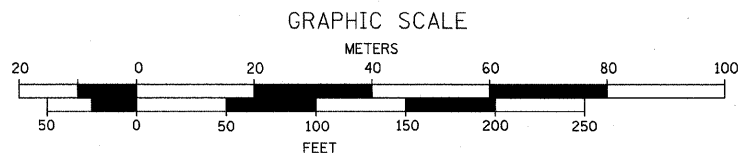


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		DRAWN - TCM	REVISED -		ILL RTE 21 (MILWAUKEE AVE.) - STA. 280+00 TO STA. 270+00			CONTRACT NO. 60C18				
		CHECKED - TCM	REVISED -		SCALE: 1" = 50'			SHEET NO. 29 OF 41 SHEETS		STA. 280+00.00 TO STA. 270+00.00		
		DATE - 07/08/11	REVISED		ILLINOIS FED. AID PROJECT							



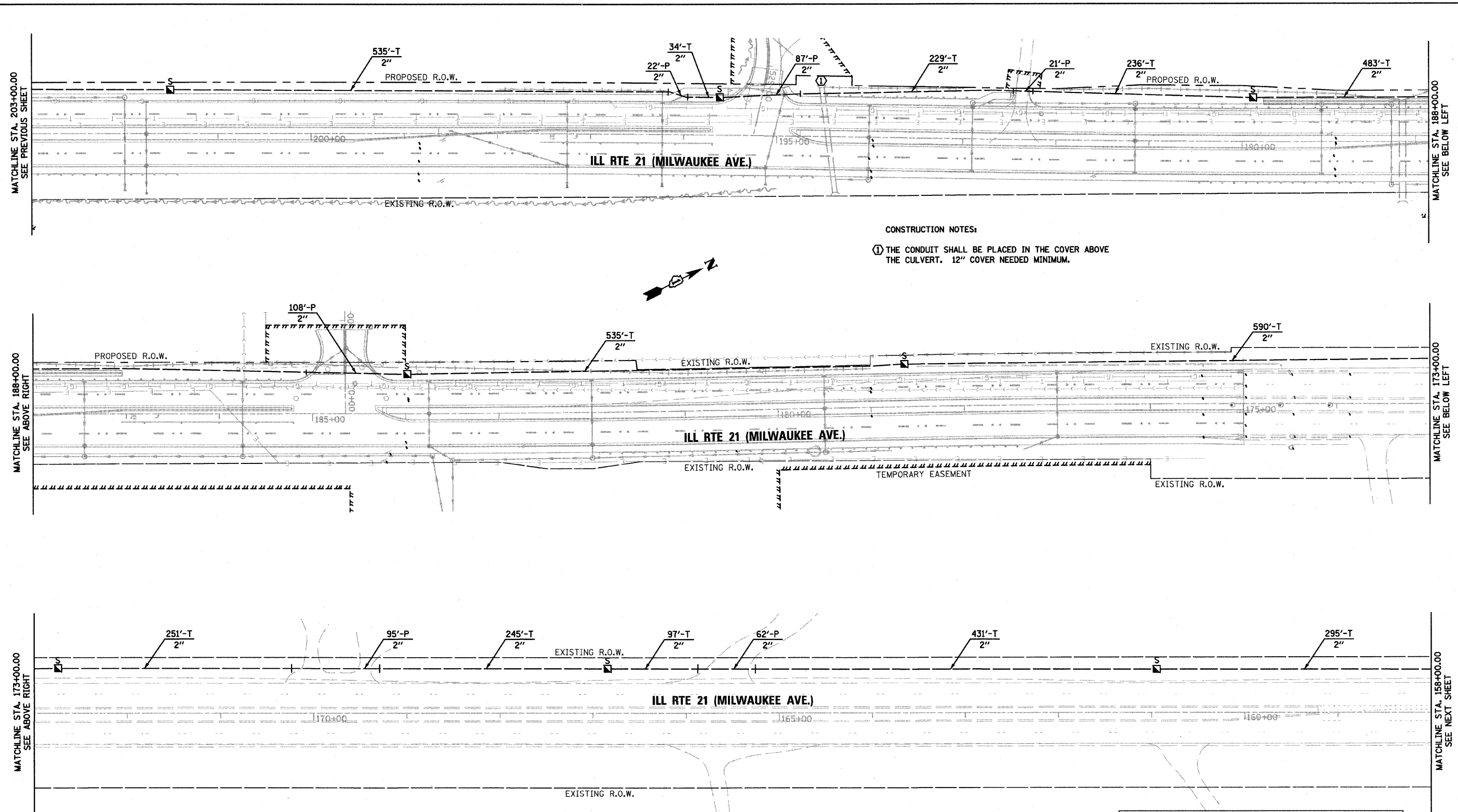
NOTE:  
THE TRAFFIC SIGNAL CONTROLLER EQUIPMENT  
FOR THIS PROJECT SHALL BE "ECONOLITE" TO  
MATCH THE EXISTING ADJACENT SYSTEM.

RESTORATION OF WORK AREA. RESTORATION OF THE TRAFFIC SIGNAL  
WORK AREA SHALL BE INCIDENTAL TO THE RELATED PAY ITEM SUCH  
AS FOUNDATION, CONDUIT, HANDHOLE, TRENCH AND BACKFILL, ETC.,  
AND NO EXTRA COMPENSATION SHALL BE ALLOWED. ALL ROADWAY  
SURFACES SUCH AS SHOULDERS, MEDIANS, SIDEWALKS, PAVEMENT,  
ETC. SHALL BE REPLACED IN KIND. ALL DAMAGE TO MOWED LAWNS  
SHALL BE REPLACED WITH AN APPROVED SOD, AND ALL DAMAGE TO  
UNMOWED FIELDS SHALL BE SEEDD IN ACCORDANCE WITH STANDARD  
SPECIFICATIONS 252 AND 250 RESPECTIVELY.

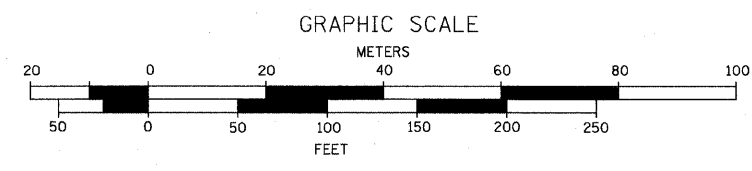


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PLOT SCALE = 100.000000 ' / in.	CHECKED - TCM	REVISD -	REVISD -		SCALE: 1" = 50'	SHEET NO. 30 OF 41 SHEETS	STA. 270+00.00 TO STA. 244+00.00	CONTRACT NO. 60C18		ILLINOIS FED. AID PROJECT		
PLOT DATE = 7/13/2011	DATE - 07/08/11	REVISD -	REVISD -									





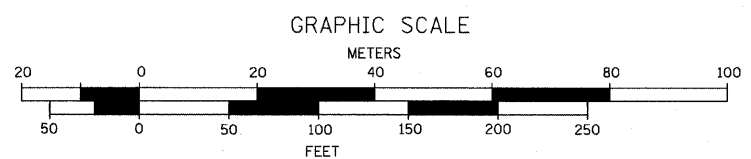
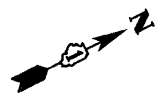
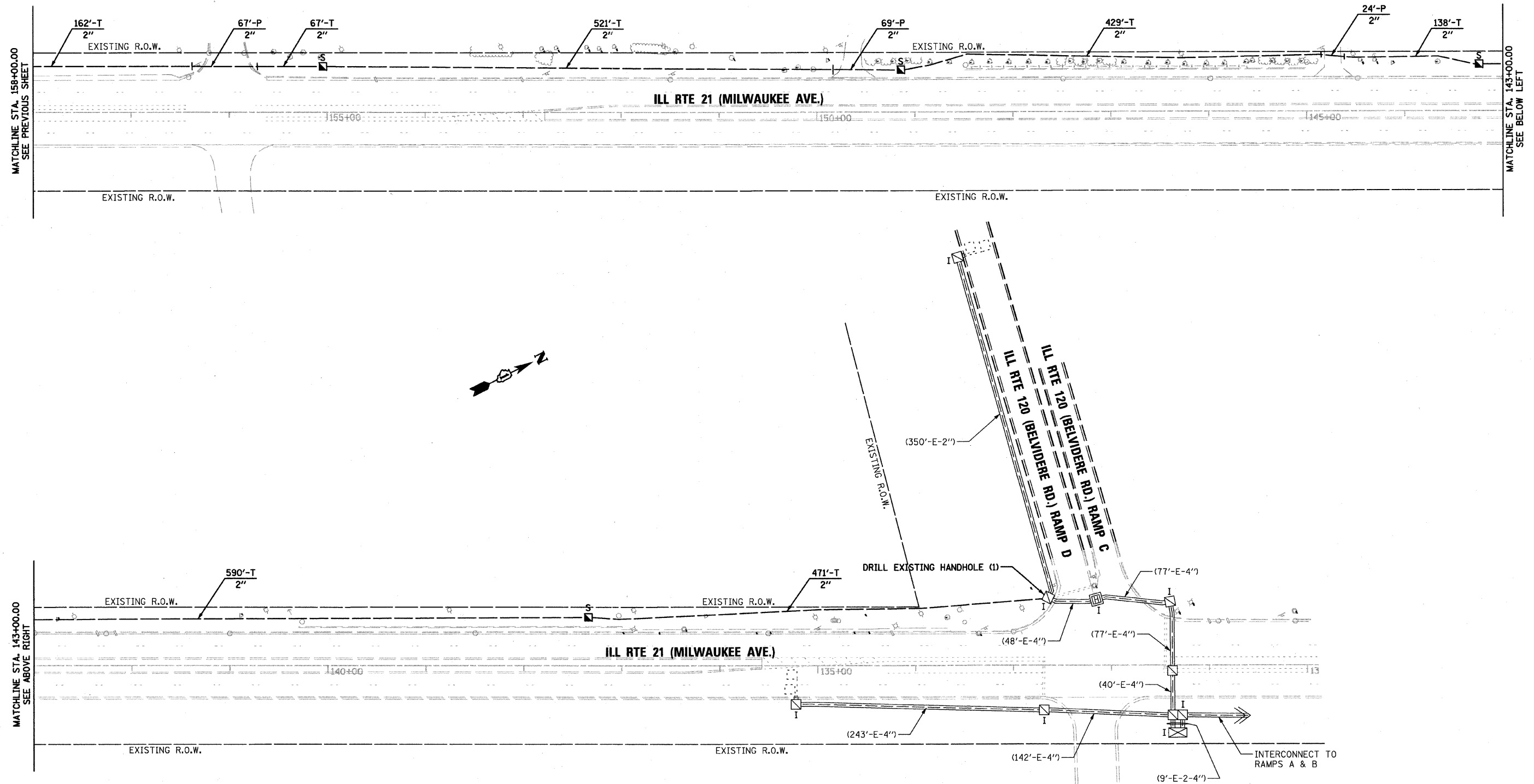
CONSTRUCTION NOTES:  
 ① THE CONDUIT SHALL BE PLACED IN THE COVER ABOVE THE CULVERT. 12" COVER NEEDED MINIMUM.



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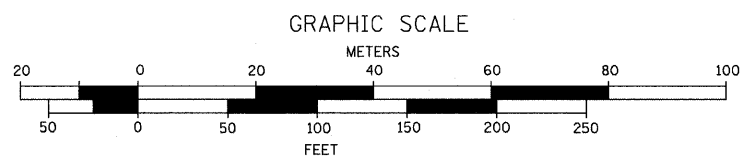
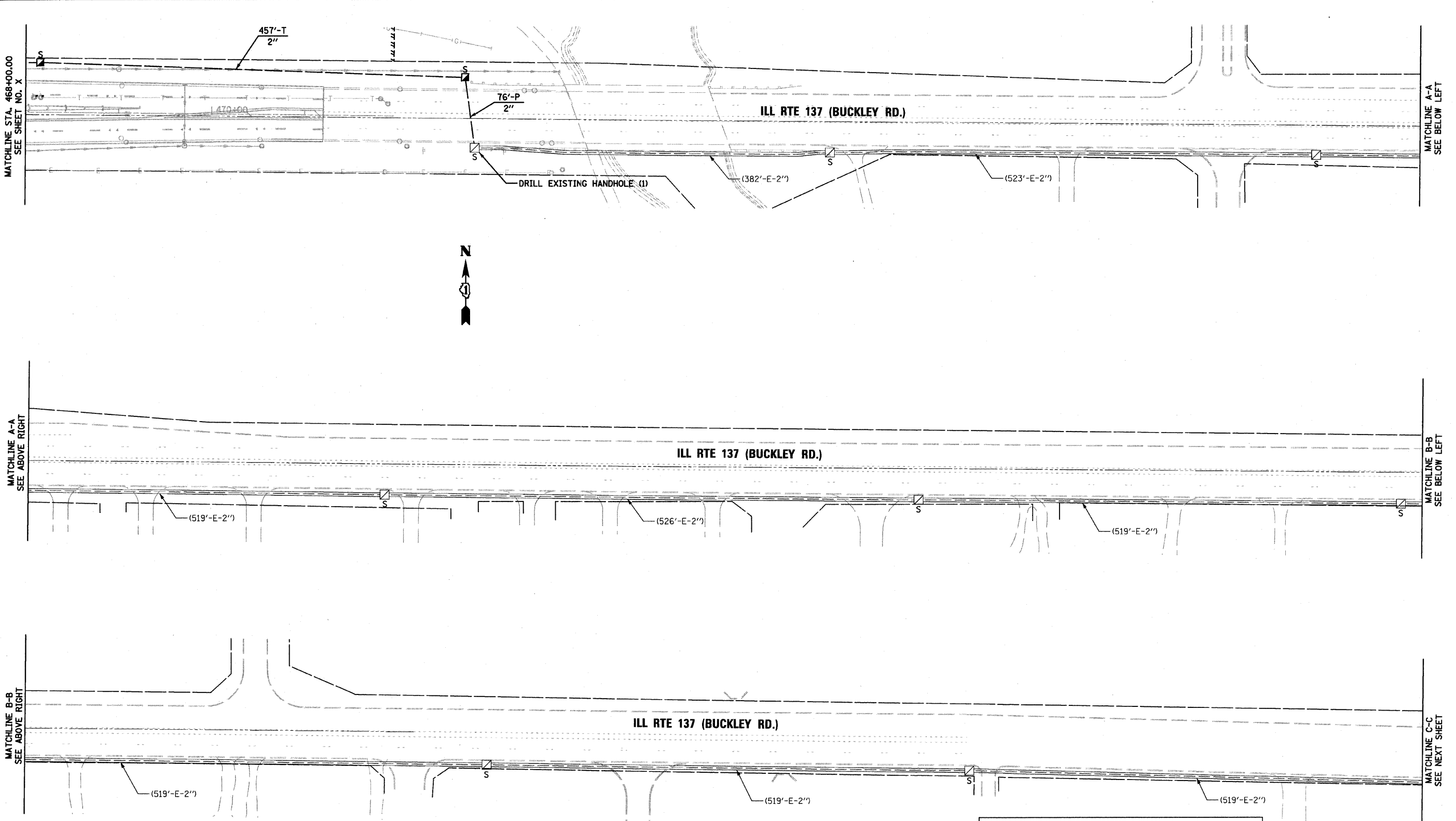
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PLOT SCALE = 1/8" = 50' / in.	CHECKED - TCM	REVISED -	REVISED -		SCALE: 1" = 50'	SHEET NO. 32 OF 41 SHEETS	STA. 203+00.00 TO STA. 158+00.00	CONTRACT NO. 60C18				
PLOT DATE = 7/13/2011	DATE - 07/08/11	REVISED	REVISED		ILLINOIS FED. AID PROJECT							



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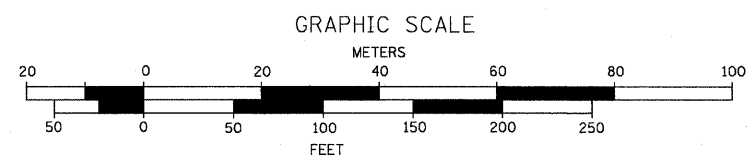
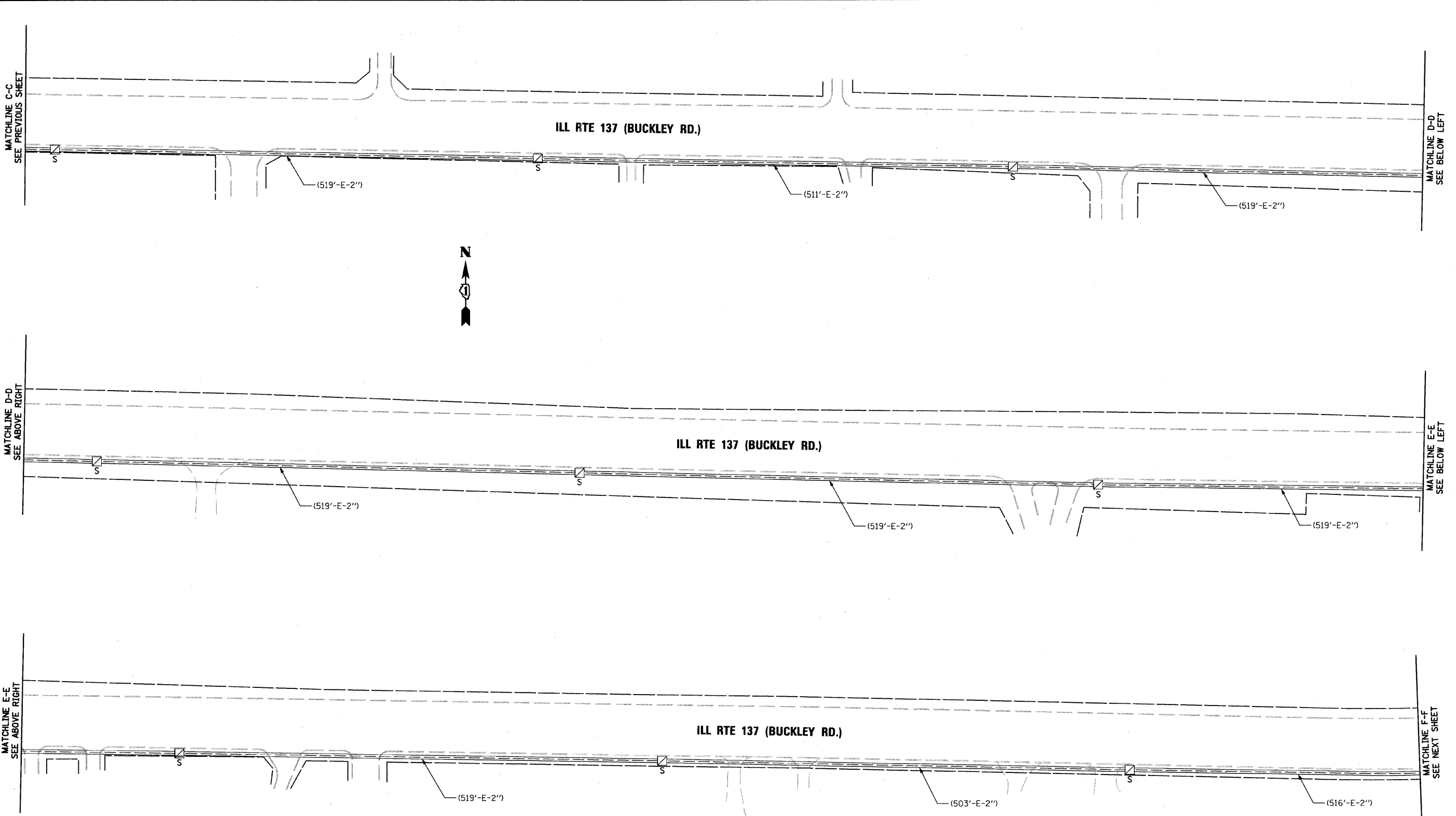
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PLOT SCALE = 100.000000 / in.	CHECKED - TCM	DRAWN - TCM	REVISED -		SCALE: 1" = 50'	SHEET NO. 33 OF 41 SHEETS	STA. 158+00.00 TO STA. 158+00.00	CONTRACT NO. 60C18				
PLOT DATE = 7/13/2011	DATE - 07/08/11	REVISOR -	REVISED -		ILLINOIS FED. AID PROJECT							



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PLOT SCALE = 100.000000' / in.	PLOT DATE = 7/13/2011	DRAWN - TCM	REVISED -		SCALE: 1" = 50'	SHEET NO. 34 OF 41 SHEETS	STA. 468+00.00 TO STA. -	CONTRACT NO. 60C18				
		CHECKED - TCM	REVISED -		ILLINOIS FED. AID PROJECT							
		DATE - 07/08/11	REVISED									

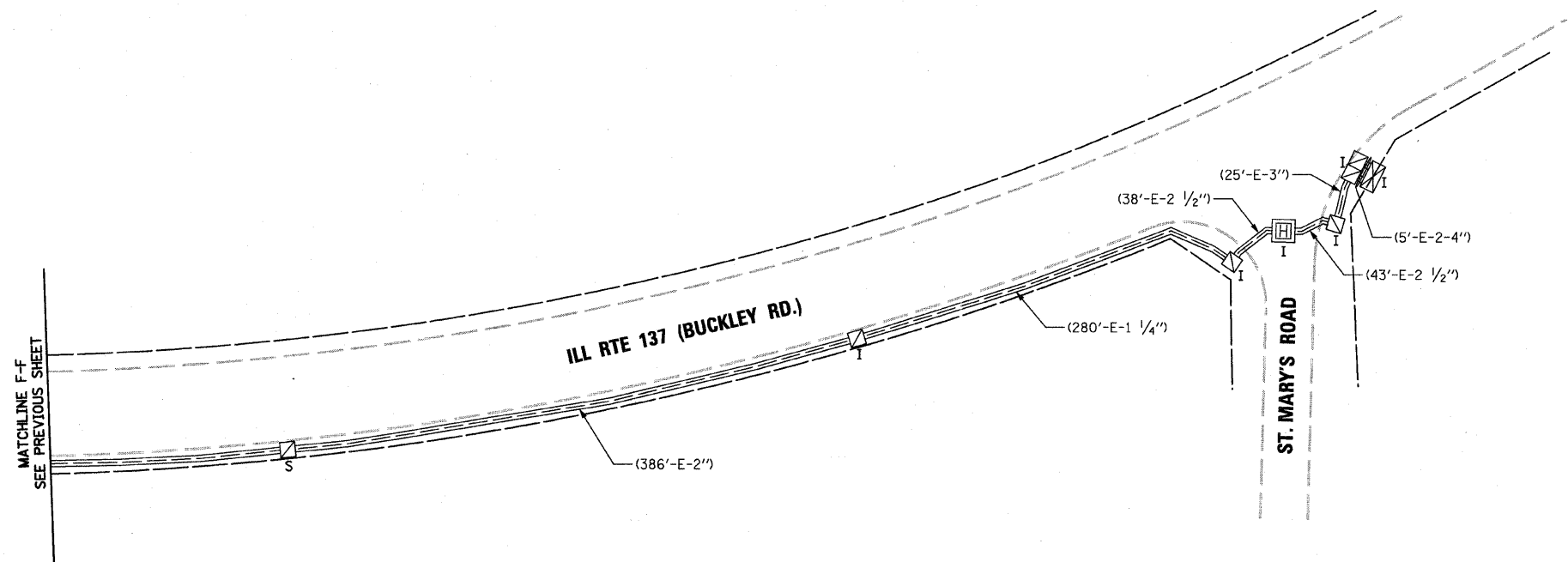


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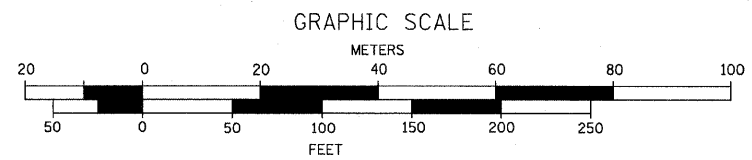
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PLOT SCALE = 100.000000' / in.	PLOT DATE = 7/13/2011	CHECKED - TCM	REVISED -		SCALE: 1" = 50'	SHEET NO. 35 OF 41 SHEETS	STA. -	TO STA. -	CONTRACT NO. 60C18			
		DATE - 07/08/11	REVISED		ILLINOIS FED. AID PROJECT							





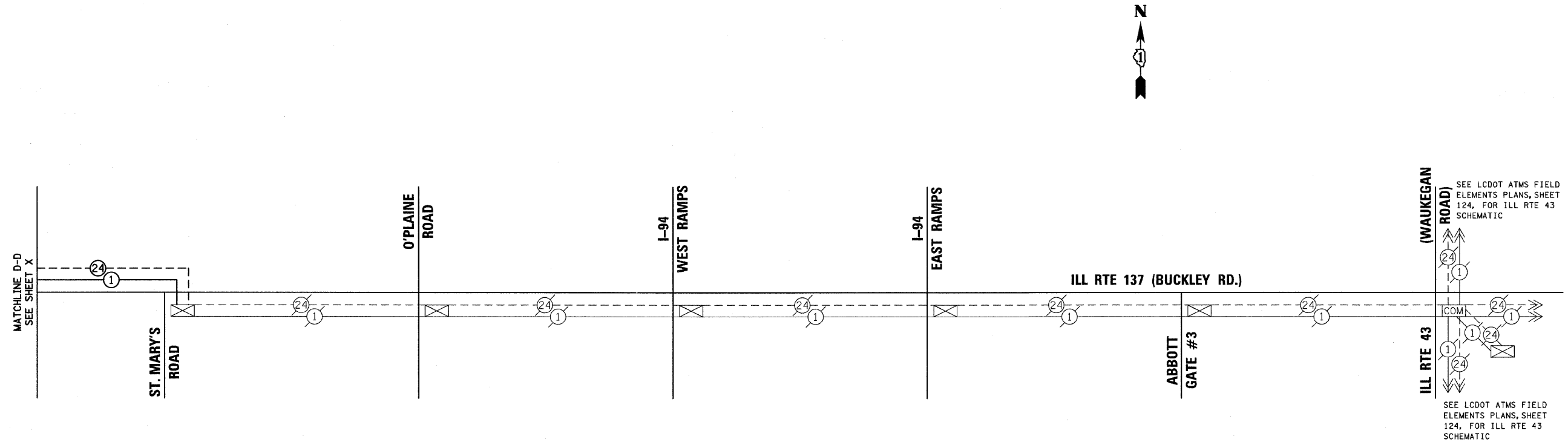
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PLOT SCALE = 100.000000' / in.	PLOT DATE = 7/13/2011	DRAWN - TCM	REVISIONS -		SCALE: 1" = 50'	SHEET NO. 36 OF 41 SHEETS	STA. -	TO STA. -	CONTRACT NO. 60C18 ILLINOIS FED. AID PROJECT			
		CHECKED - TCM	REVISIONS -									
		DATE - 07/08/11	REVISIONS -									



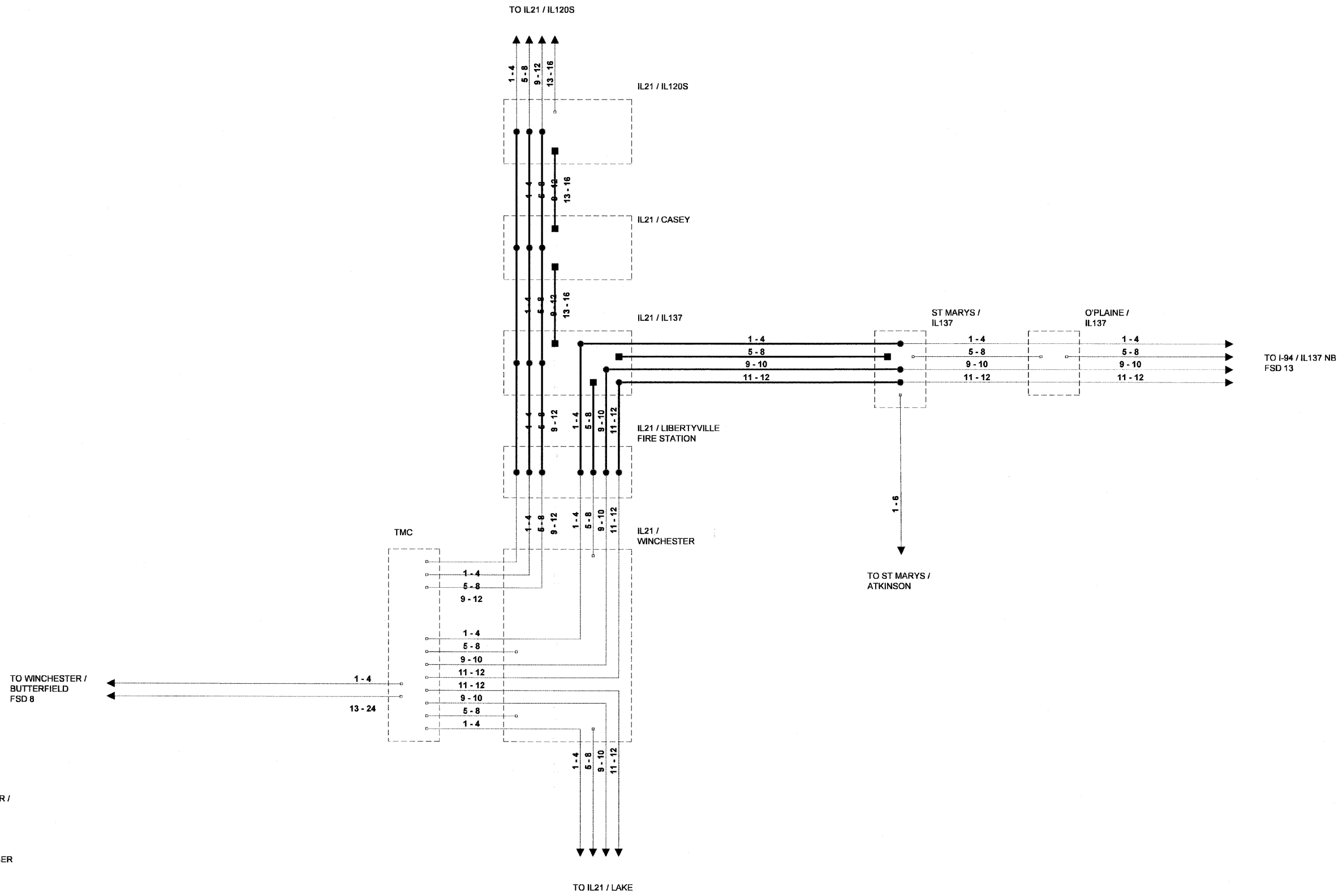


**SCHEDULE OF PERMANENT INTERCONNECT QUANTITIES**

ITEM	UNIT	QTY
CONDUIT IN TRENCH, 2" DIA., GALVANIZED STEEL	FT	14,933
CONDUIT PUSHED, 2" DIA., GALVANIZED STEEL	FT	1,542
HANDHOLE	EA	23
TRENCH AND BACKFILL FOR ELECTRICAL WORK	EA	14,933
MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION	EA	1
DRILL EXISTING HANDHOLE	EA	2
ELECTRIC CABLE IN CONDUIT, TRACER NO. 14 1C	FT	27,837
OPTIMIZE TRAFFIC SIGNAL SYSTEM	L SUM	1
FIBER OPTIC CABLE 24 FIBERS, SINGLE MODE	FT	27,837

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- EXISTING CONNECTOR / EXISTING FIBER
- NEW CONNECTOR / EXISTING FIBER
- EXISTING FUSION SPLICE / EXISTING FIBER
- NEW FUSION SPLICE / EXISTING FIBER
- NEW CONNECTOR / NEW FIBER
- NEW FUSION SPLICE / NEW FIBER

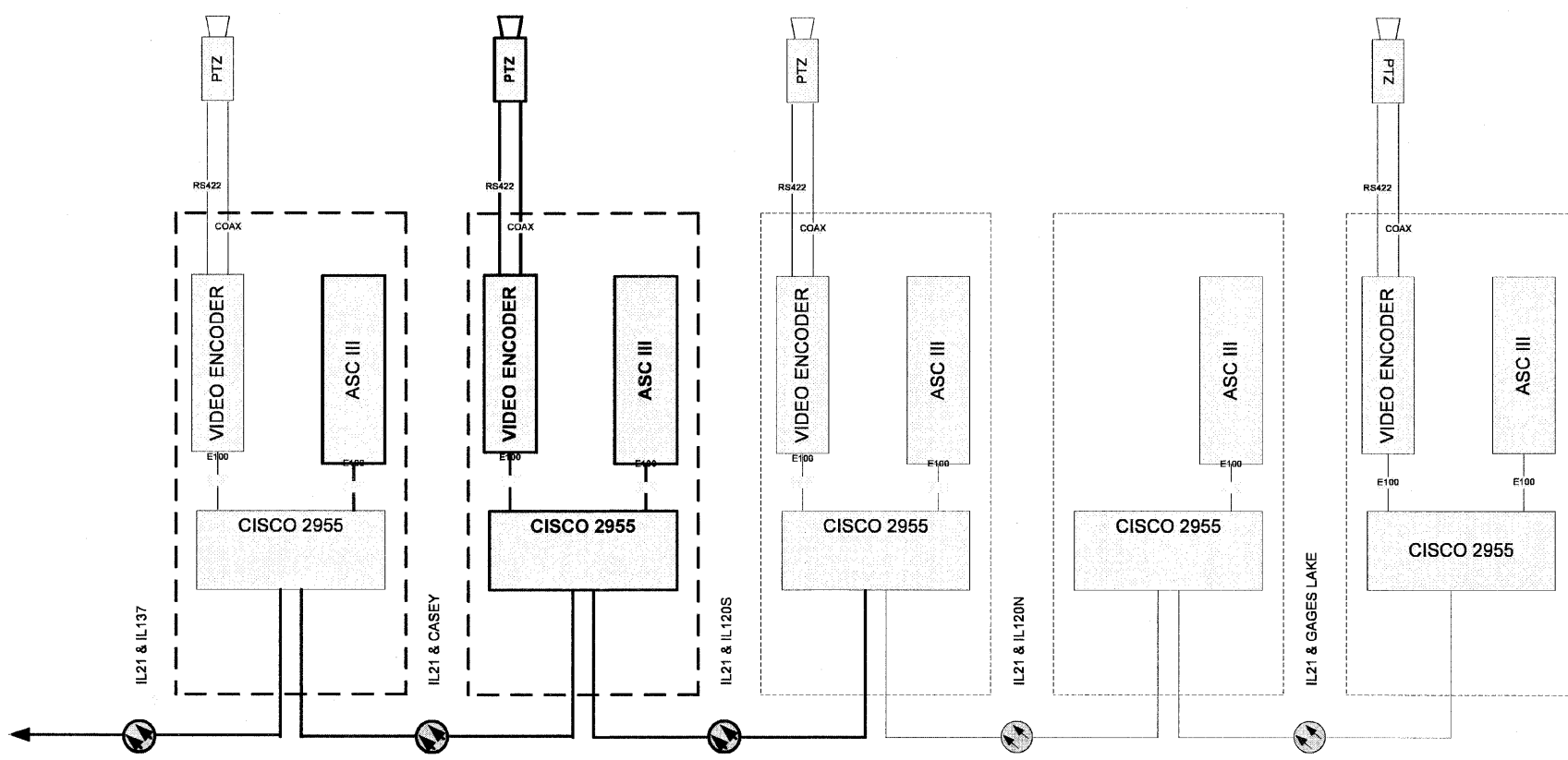


V6.0	10/10	QUENTIN / ENSELL	DESIGN		
			DRAWN		
			CHECKED		
			SCALE	NOT TO SCALE	
			DATE	07/08/11	

TITLE: LAKE COUNTY ATMS FINAL DESIGN AND INTEGRATION  
**FIBER SPLICING DIAGRAM - 12**  
 IL21 / IL137

PROJECT NO.  
 SHEET **227** OF **518**  
 DRAWING NO.

TO IL21 & WINCHESTER



V6.0 10/10 QUENTIN / ENSELL



DESIGN	
DRAWN	
CHECKED	
SCALE	NOT TO SCALE
DATE	07/08/11

TITLE: LAKE COUNTY ATMS FINAL DESIGN AND INTEGRATION  
**CABINET DETAIL – IL21**  
(IL137 TO IL120)

PROJECT NO.  
SHEET 228 OF 518  
DRAWING NO.

GENERAL NOTES - ROADWAY LIGHTING

1. SPlicing OF CONDUCTORS SHALL BE IN POLE BASES OR WEATHER TIGHT JUNCTION BOXES ONLY. SPICES BELOW GRADE WILL NOT BE PERMITTED.
2. LIGHTING CIRCUITS SHALL BE WIRED IN ACCORDANCE WITH THE PLANS. DEVIATIONS WILL NOT BE PERMITTED WITHOUT PRIOR APPROVAL OF THE ENGINEER.
3. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO RESTORE ANY SPECIALIZED LANDSCAPING (DECORATIVE ROCKS, PLANTS, ETC.).
4. ALL WORK SHALL CONFORM TO THE LATEST IDOT AND IDOT DISTRICT 1 STANDARDS, SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS, SPECIAL PROVISIONS, NATIONAL ELECTRICAL CODE, AND NATIONAL ELECTRICAL SAFETY CODE.
5. BURIED UTILITY LOCATIONS SHOWN ON THE PLAN SHEETS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY LOCATIONS OF ALL UTILITIES BEFORE STARTING WORK.
6. ALL ELECTRICAL EQUIPMENT SHALL BE UL LISTED AND LABELED.
7. ALL CONDUITS SHALL BE SEALED.
8. ALL CIRCUIT WIRES SHALL BE LABELED WITH CIRCUIT IDENTIFICATION.
9. ALL LAMPS SHALL BE FURNISHED AS PART OF THE CONTRACT.
10. CIRCUITS SHALL BE TESTED PER SPECIFICATION.
11. THE LOCATIONS OF ALL PROPOSED EQUIPMENT ARE ILLUSTRATED DIAGRAMMATICALLY. THE ACTUAL LOCATION IN THE FIELD SHALL MEET THE APPROVAL OF THE ENGINEER. IN NO CASE SHOULD THE FACE OF THE POLE BE LESS THAN THE IDOT GUIDELINE OF 2'-0" FROM THE BACK OF THE CURB.
12. ALL MEASUREMENTS ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY MEASUREMENTS IN THE FIELD.
13. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXISTING INSTALLATIONS AND DATA PRIOR TO BIDDING.
14. THE CONTRACTOR MUST MAINTAIN SAFE EQUIPMENT AND WORKING CLEARANCES FROM THE EXISTING OVERHEAD ELECTRIC LINES. THE CONTRACTOR SHALL PLAN HIS WORK CONSIDERING LINES TO BE IN SERVICE AND ENERGIZED THROUGHOUT THE CONSTRUCTION PERIOD.
15. GROUNDING CONDUCTORS SHALL BE CONTINUOUS, INSULATED, RUN TOGETHER WITH THE CIRCUIT CONDUCTORS AND PROPERLY BONDED TO POLES, HANDHOLES, BOXES, ETC.
16. ALL NEW UNIT DUCTS AND UNDERGROUND CONDUITS SHALL BE PLACED A MINIMUM OF 30" BENEATH THE GROUND SURFACE (FINAL GRADE), UNLESS NOTED OTHERWISE.
17. THE CONTRACTOR SHALL COORDINATE INSTALLATION OF CONDUITS, FOUNDATIONS AND UNIT DUCTS WITH THE ROADWAY, CURB AND SIDEWALK WORK, AND TRAFFIC SIGNAL WORK AND WITH UNDERGROUND UTILITIES.
18. THE EXISTING LIGHTING SYSTEM VOLTAGE WITHIN THE PROJECTS LIMITS IS 240V.
19. THE COST OF SPlicing TEMPORARY CONDUCTORS TO EXISTING CONDUCTORS IN EXISTING POLES SHALL BE INCIDENTAL TO THE PAY ITEM FOR AERIAL CABLE.
20. TEMPORARY LIGHTING SHALL REMAIN IN SERVICE UNTIL THE PERMANENT LIGHTING SYSTEM IS IN OPERATION.
21. TO MAINTAIN THE STRUCTURAL INTEGRITY OF THE LIGHT POLES, THE LIGHT POLES SHALL NOT BE ERECTED AND/OR LEFT TO STAND WITHOUT LUMINAIRES.
22. THE CONTRACTOR SHALL REQUEST A FORMAL MAINTENANCE TRANSFER FROM THE IDOT DISTRICT 1 BEFORE WORK BEGINS. CONTACT THE DISTRICT 1 OFFICE, PHONE (XXX) XXX-XXXX.
23. ALL 10" DIAMETER ALUMINUM LIGHT POLES SHALL BE FURNISHED WITH 9" TRANSFORMER BASES.

SHEET INDEX

SHEET NO.	TITLE
LT-01	GENERAL NOTES, LEGEND, SHEET INDEX
LT-02	PROPOSED INTERSECTION LIGHTING PLAN
LT-03	TEMPORARY LIGHTING PLAN
LT-04	INTERSECTION LIGHTING - REMOVAL PLAN
LT-05	WIRING DIAGRAM
LT-06	PROPOSED PEDESTRIAN UNDERPASS LIGHTING PLAN

DETAILS

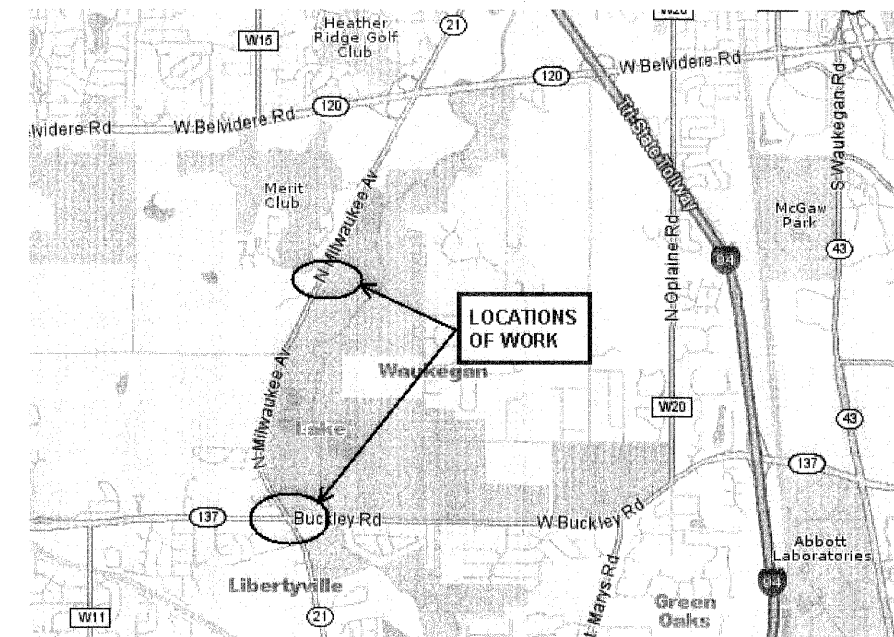
SHEET NO.	IDOT DIST 1 DETAIL NO.	TITLE
LT-07	BE-215	LIGHTING CONTROLLER - LM
LT-08	(Modified)	LIGHTING CONTROLLER, PEDESTAL MOUNT (UNDERPASS)
LT-09	BE-301	LIGHT POLE FOUNDATION, 40' TO 47 1/2' M.H. 15" BOLT CIRCLE
LT-10	BE-400	LIGHT POLE, ALUMINUM, TRUSS TYPE, 47.5 FT. M.H.
LT-11	BE-701	LUMINAIRE SAFETY CABLE ASSEMBLY
LT-12	BE-702	MISC. DETAILS, SHEET A - CABLE SPLICE, POLE WIRING, TRENCH DETAIL
LT-13	BE-800	TEMPORARY LIGHT POLE DETAILS
LT-14	BE-801	TEMPORARY AERIAL CABLE INSTALLATION.

ABBREVIATIONS

A	AMPERES
AC	ALTERNATING CURRENT
ADA	AMERICANS WITH DISABILITIES ACT
C	CONDUIT
CKT	CIRCUIT
COMED	COMMONWEALTH EDISON
DCO	DUPLEX CONVENIENCE OUTLET
DIA	DIAMETER
E	EXISTING LIGHTING UNIT TO REMAIN
EPR	ETHYLENE PROPOLYENE RUBBER
FT	FEET
GND	GROUND
HPS	HIGH PRESSURE SODIUM
IDOT	ILLINOIS DEPARTMENT OF TRANSPORTATION
IN	INCHES
LCFP	LAKE COUNTY FOREST PRESERVES
LT	LEFT
MA	MAST ARM
MH	MOUNTING HEIGHT
MTW	MACHINE TOOL WIRE
P	PUSHED
PC	PHOTOCELL CONTROL
PH	PHASE
PVC	POLYVINYL CHLORIDE
R	EXISTING LIGHTING UNIT TO BE REMOVED (OWNER SALVAGED)
RGSC	RIGID GALVANIZED STEEL CONDUIT
RT	RIGHT
STA	STATION
T	TEMPORARY
TYP	TYPICAL
UD	UNIT DUCT
UNO	UNLESS NOTED OTHERWISE
V	VOLTS
W	WATTS
W	WIRES

SYMBOL LIST

DESCRIPTION	PROPOSED	EXISTING TO REMAIN	EXISTING TO BE REMOVED	TEMPORARY
PROPOSED LIGHTING UNIT: 47.5 FT MH, 15 FT MA 400W HPS M-C-II LUMINAIRE WITH BREAKAWAY COUPLING AND SKIRT, UNO				
PROPOSED 400W HPS M-C-II LUMINAIRE, 15 FT MA, MOUNTED ON COMBO POLE				
EXISTING LIGHTING UNIT				
UNIT DUCT IN TRENCH, 1 1/2" DIA. POLYETHYLENE WITH 4-1C NO.4, 1/C NO.6 GROUND, (XLP-TYPE USE)				
3" RGSC, PUSHED WITH UNIT DUCT, 1 1/2" DIA. POLYETHYLENE WITH 4-1C NO.4, 1/C NO.6 GROUND, (XLP-TYPE USE)				
RGSC IN TRENCH, SIZE AND CONDUCTORS AS NOTED ON PLANS				
RGSC EMBEDDED IN CONCRETE STRUCTURE, SIZE AND CONDUCTORS AS NOTED ON PLANS				
TEMPORARY LIGHTING UNIT: 60' CLASS 4 WOOD POLE, 400 W HPS WITH PHOTOCELL CONTROL, 50' MH, 15 FT MA, UNO AERIAL CABLE, 3-1/C # 4 WITH MESSENGER WIRE				
GROUND ROD, COPPER-CLAD STEEL, 5/8" DIA. X 10' LONG, UNO				
LIGHTING CONTROLLER CABINET, SINGLE DOOR, BASE MOUNTED, 240/480V, 1-PH, 3-WIRE (DOOR SIDE AS INDICATED)				
ELECTRIC UTILITY POLE				
UNDERPASS LUMINAIRE				



**SPAAN Tech, Inc.**  
 311 South Wacker Drive, Suite 2400  
 Chicago, IL 60606  
 phone: 312.277.8800  
 fax: 312.277.8808  
 web: www.SpaanTech.com

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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

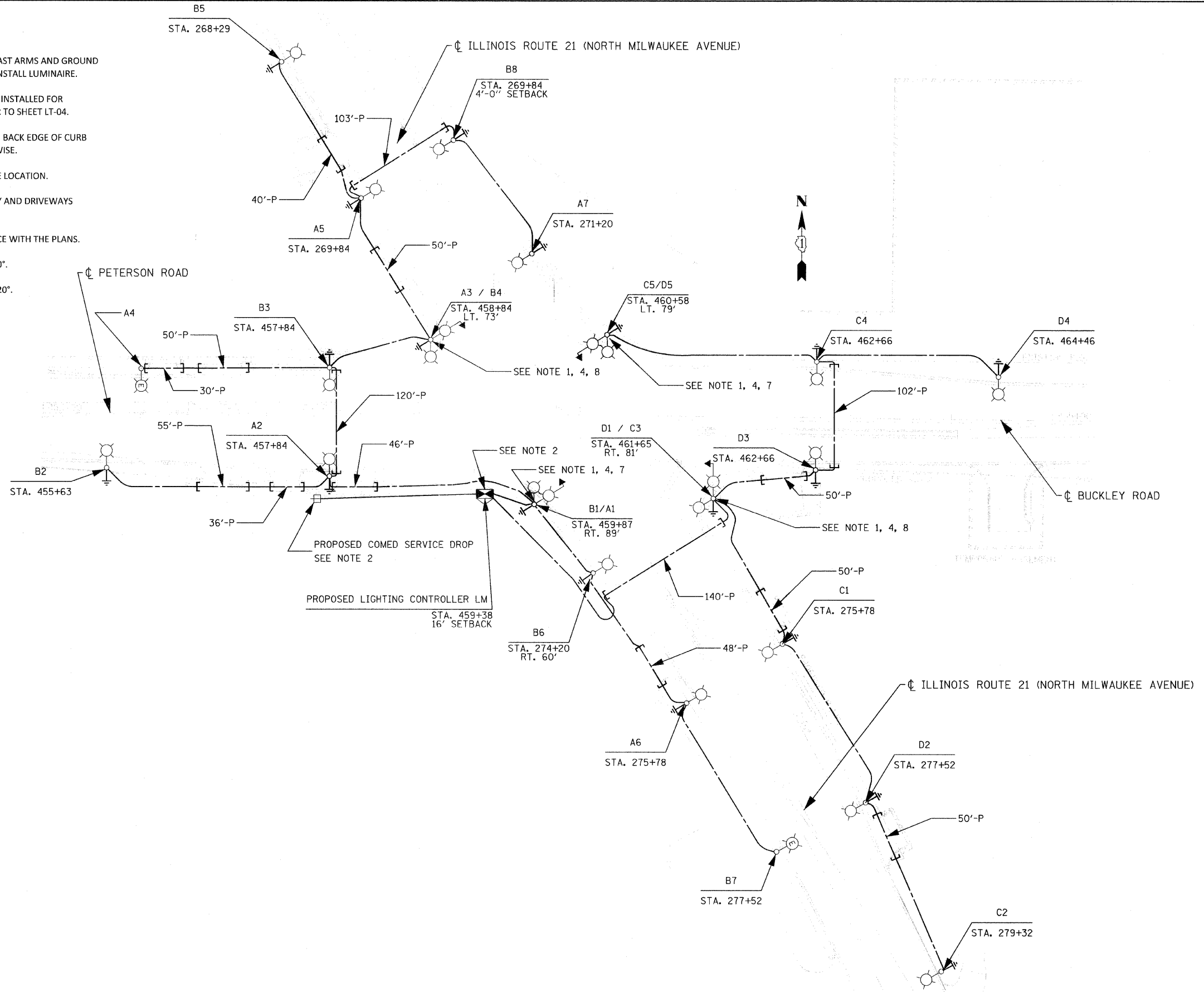
ILLINOIS ROUTE 21 AND ILLINOIS ROUTE 137  
GENERAL NOTES, LEGEND, AND SHEET INDEX

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	128R-3	LAKE	515	229
CONTRACT NO. 60953				
ILLINOIS FED. AID PROJECT				

SCALE: NONE SHEET NO. OF SHEETS STA. TO STA.

**NOTES**

1. COMBINATION POLE, (2) 15' LIGHTING MAST ARMS AND GROUND INSTALLED PER TRAFFIC SIGNAL PLANS. INSTALL LUMINAIRE.
2. PROPOSED LIGHTING CONTROLLER TO BE INSTALLED FOR TEMPORARY ROADWAY LIGHTING. REFER TO SHEET LT-04.
3. ALL POLES SHALL BE SET BACK 5'-0" FROM BACK EDGE OF CURB TO FACE OF POLE UNLESS NOTED OTHERWISE.
4. REFER TO TRAFFIC SIGNAL PLAN FOR POLE LOCATION.
5. ALL CONDUITS PUSHED UNDER ROADWAY AND DRIVEWAYS SHALL BE 3" RGSC.
6. CIRCUITS SHALL BE WIRED IN ACCORDANCE WITH THE PLANS.
7. ANGLE BETWEEN MAST ARMS SHALL BE 60°.
8. ANGLE BETWEEN MAST ARMS SHALL BE 120°.



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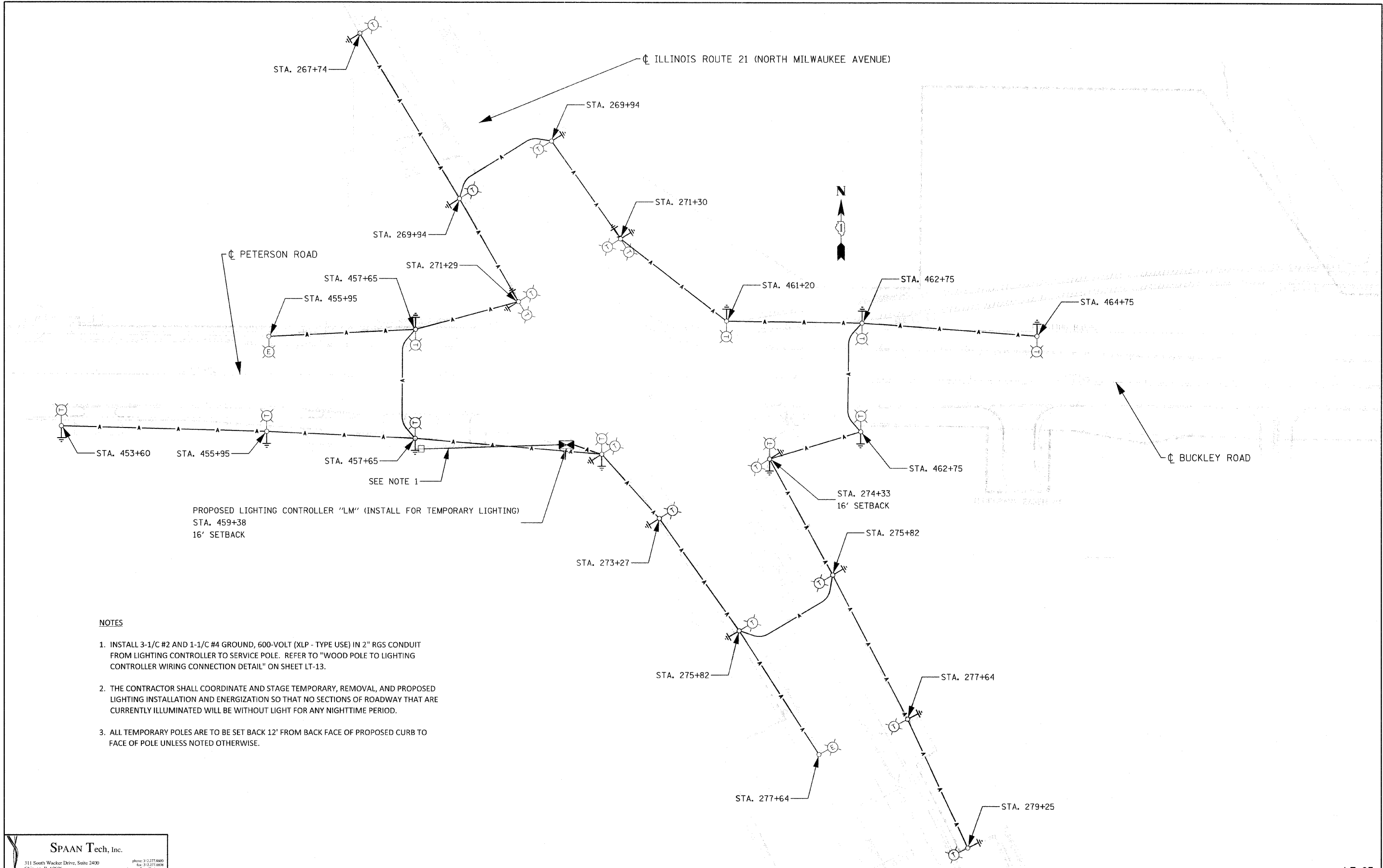
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**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**ILLINOIS ROUTE 21 AND ILLINOIS ROUTE 137  
 PROPOSED INTERSECTION LIGHTING PLAN**

SCALE: 1" = 50'    SHEET NO.    OF    SHEETS    STA.    TO STA.

F.A.P. RTE. 330	SECTION 128R-3	COUNTY LAKE	TOTAL SHEETS 518	SHEET NO. 230
CONTRACT NO. 60953				
ILLINOIS FED. AID PROJECT				



**NOTES**

1. INSTALL 3-1/C #2 AND 1-1/C #4 GROUND, 600-VOLT (XLP - TYPE USE) IN 2" RGS CONDUIT FROM LIGHTING CONTROLLER TO SERVICE POLE. REFER TO "WOOD POLE TO LIGHTING CONTROLLER WIRING CONNECTION DETAIL" ON SHEET LT-13.
2. THE CONTRACTOR SHALL COORDINATE AND STAGE TEMPORARY, REMOVAL, AND PROPOSED LIGHTING INSTALLATION AND ENERGIZATION SO THAT NO SECTIONS OF ROADWAY THAT ARE CURRENTLY ILLUMINATED WILL BE WITHOUT LIGHT FOR ANY NIGHTTIME PERIOD.
3. ALL TEMPORARY POLES ARE TO BE SET BACK 12' FROM BACK FACE OF PROPOSED CURB TO FACE OF POLE UNLESS NOTED OTHERWISE.

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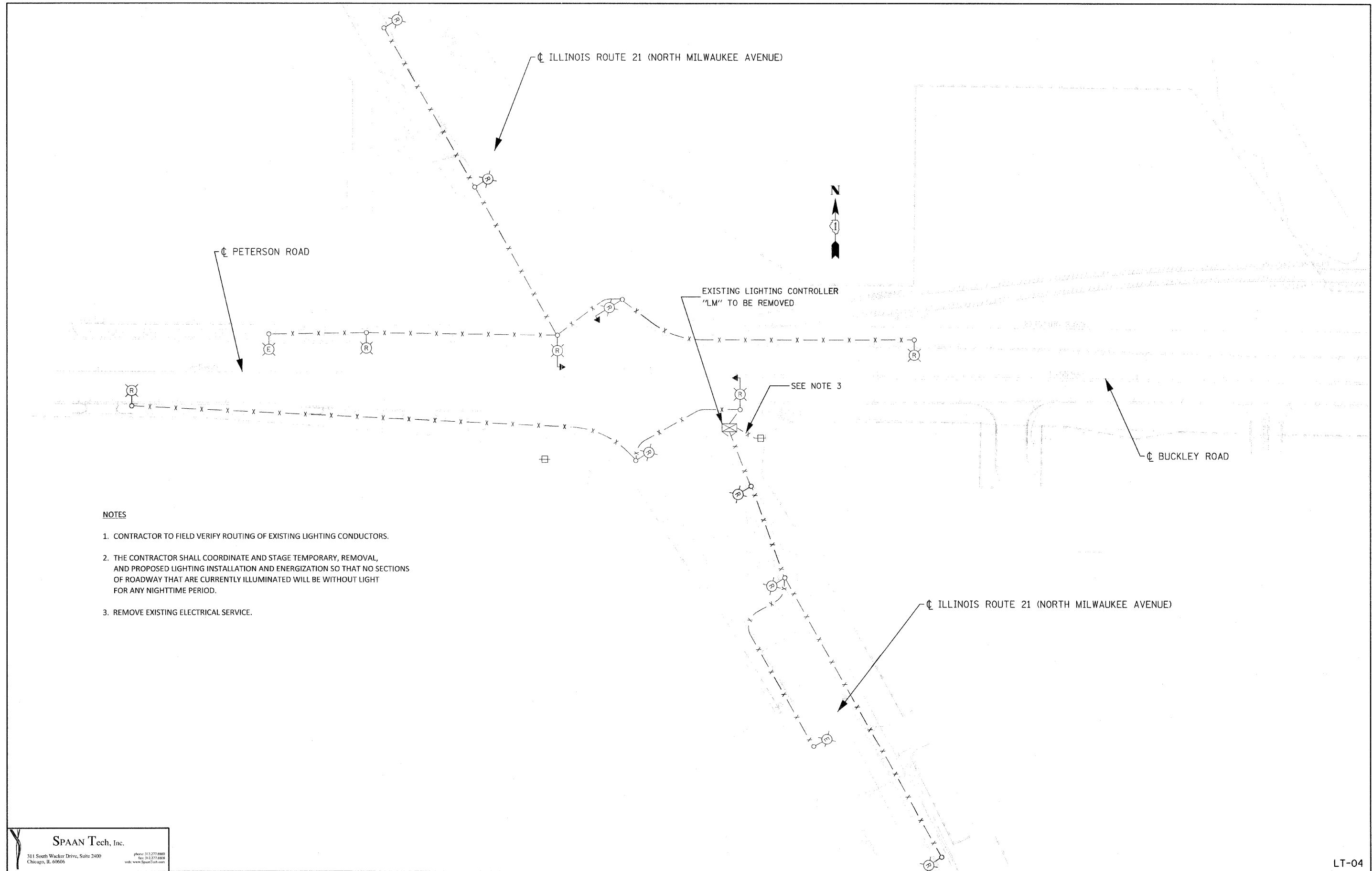
**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**ILLINOIS ROUTE 21 AND ILLINOIS ROUTE 137  
 TEMPORARY LIGHTING PLAN**

SCALE: 1" = 50' SHEET NO. OF SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	128R-3	LAKE	518	231
CONTRACT NO. 60953				
ILLINOIS FED. AID PROJECT				





**NOTES**

1. CONTRACTOR TO FIELD VERIFY ROUTING OF EXISTING LIGHTING CONDUCTORS.
2. THE CONTRACTOR SHALL COORDINATE AND STAGE TEMPORARY, REMOVAL, AND PROPOSED LIGHTING INSTALLATION AND ENERGIZATION SO THAT NO SECTIONS OF ROADWAY THAT ARE CURRENTLY ILLUMINATED WILL BE WITHOUT LIGHT FOR ANY NIGHTTIME PERIOD.
3. REMOVE EXISTING ELECTRICAL SERVICE.

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**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

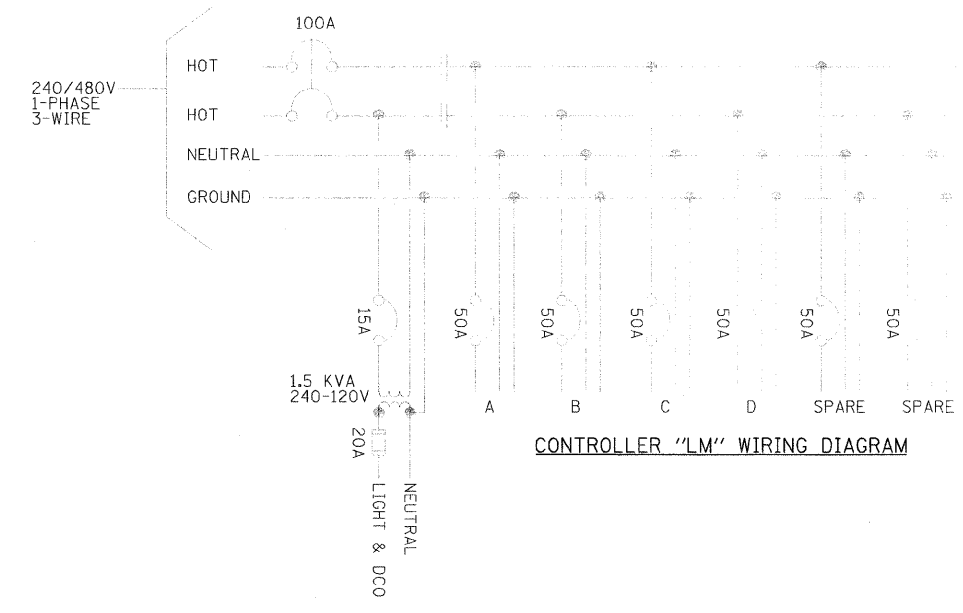
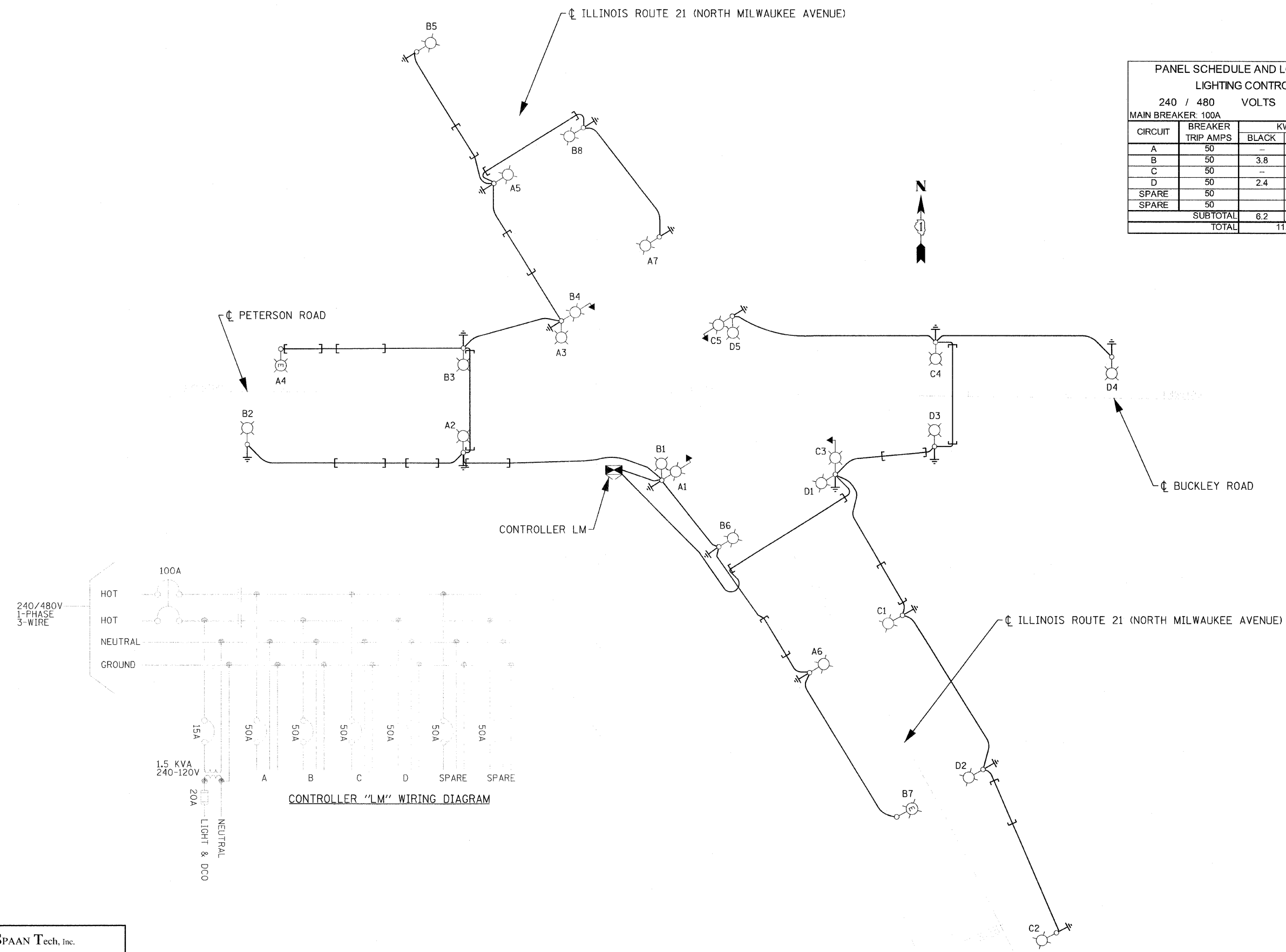
**ILLINOIS ROUTE 21 AND ILLINOIS ROUTE 137  
 REMOVAL PLAN**

SCALE: 1" = 50'    SHEET NO.    OF    SHEETS    STA.    TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	128R-3	LAKE	513	232
CONTRACT NO. 60953				
ILLINOIS FED. AID PROJECT				

**PANEL SCHEDULE AND LOAD TABULATION**  
**LIGHTING CONTROLLER LM**  
 240 / 480 VOLTS 1-PHASE, 3-WIRE  
 MAIN BREAKER: 100A

CIRCUIT	BREAKER TRIP AMPS	KW		AMPS
		BLACK	RED	
A	50	-	3.3	13.9
B	50	3.8	-	15.9
C	50	-	2.4	9.9
D	50	2.4	-	9.9
SPARE	50			
SPARE	50			
SUBTOTAL		6.2	5.7	--
TOTAL		11.9		24.8



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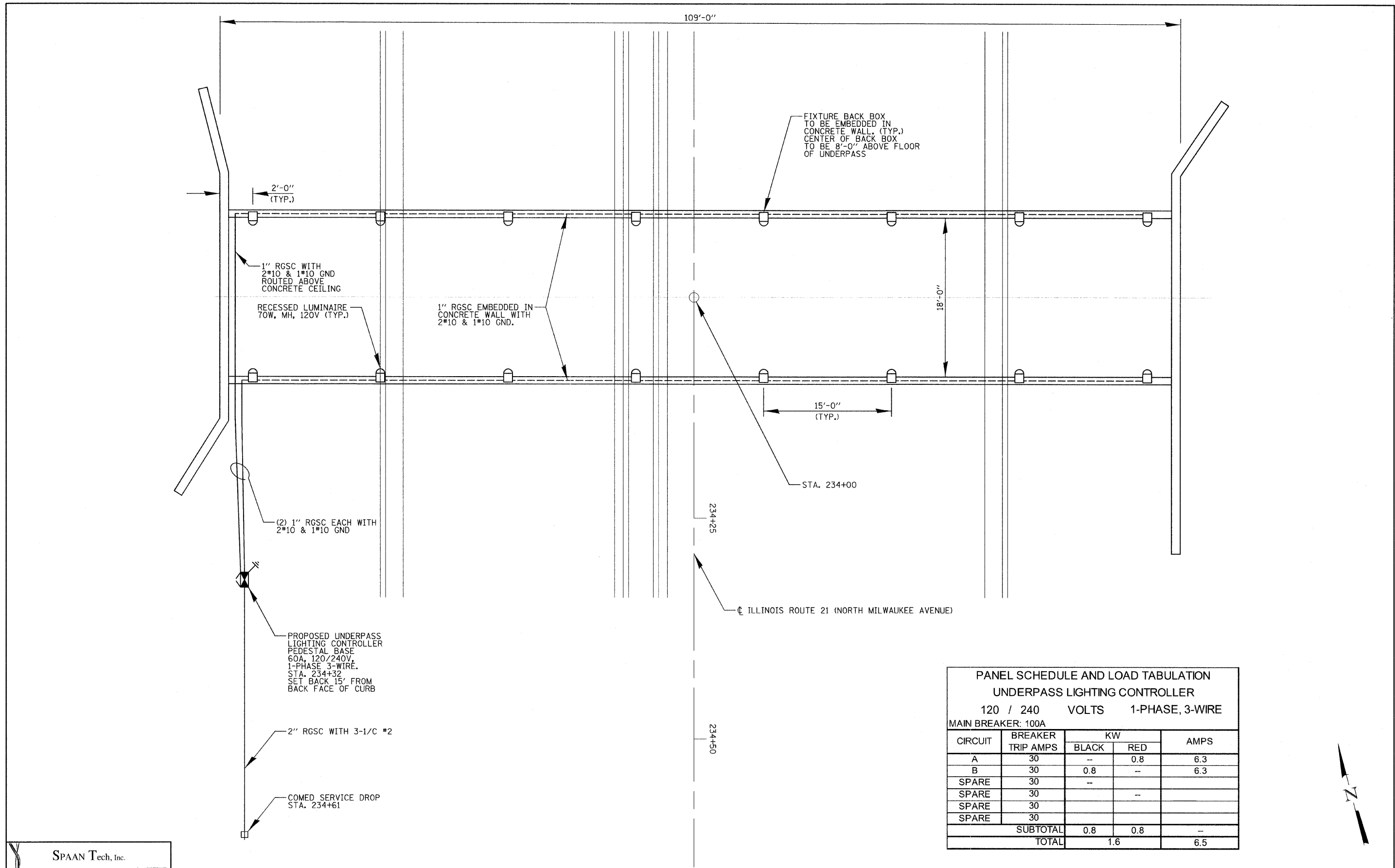
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**ILLINOIS ROUTE 21 AND ILLINOIS ROUTE 137**  
**WIRING DIAGRAM**

SCALE: NONE    SHEET NO.    OF    SHEETS    STA.    TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	128R-3	LAKE	517	233
CONTRACT NO. 60953				
ILLINOIS FED. AID PROJECT				

LT-05



**PANEL SCHEDULE AND LOAD TABULATION**  
**UNDERPASS LIGHTING CONTROLLER**  
 120 / 240 VOLTS 1-PHASE, 3-WIRE  
 MAIN BREAKER: 100A

CIRCUIT	BREAKER TRIP AMPS	KW		AMPS
		BLACK	RED	
A	30	--	0.8	6.3
B	30	0.8	--	6.3
SPARE	30	--	--	--
SPARE	30	--	--	--
SPARE	30	--	--	--
SUBTOTAL		0.8	0.8	--
TOTAL		1.6		6.5

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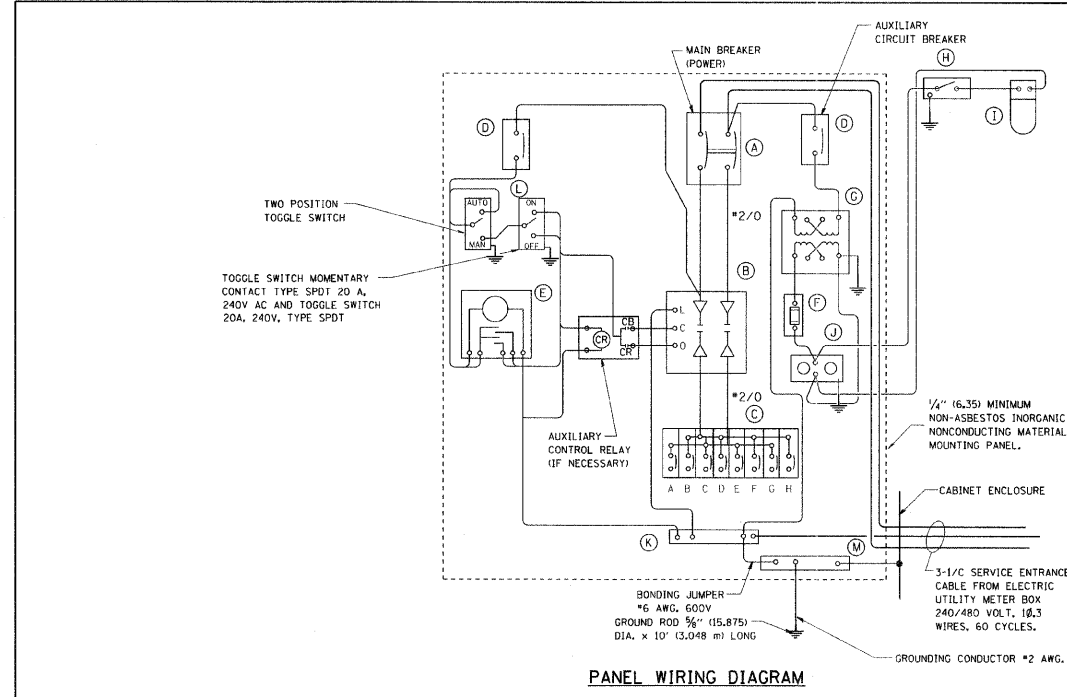
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

ILLINOIS ROUTE 21 AND ILLINOIS ROUTE 137  
 PROPOSED PEDESTRIAN UNDERPASS LIGHTING PLAN

SCALE: NONE SHEET NO. OF SHEETS STA. TO STA.

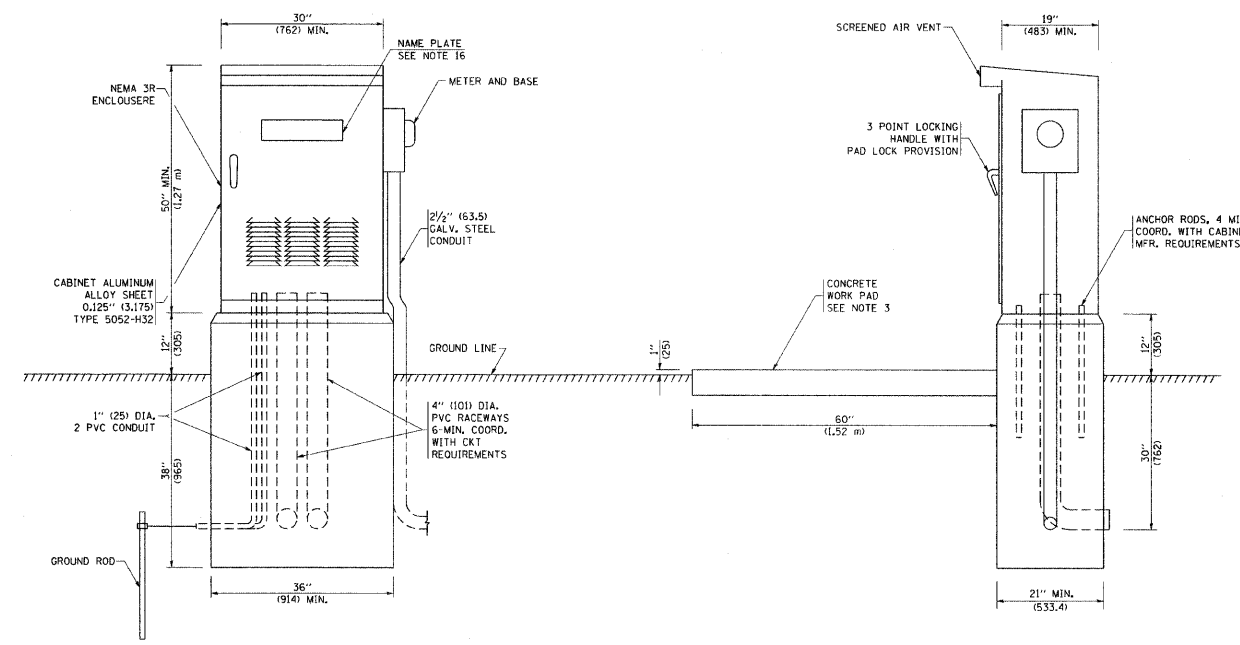
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CONTRACT NO. 60953				
ILLINOIS FED. AID PROJECT				

LT-06



**PANEL EQUIPMENT**

BILL OF MATERIAL		
ITEM	QUANTITY	DESCRIPTION
A	1	MAIN CIRCUIT BREAKER, 2 POLE, 600 VOLT 100 AMP. FRAME, 100 AMP. NON-INTERCHANGEABLE TRIP INTERRUPTING RATING NEMA-22000 AMP. AT 480 VOLT.
B	1	REMOTE CONTROL SWITCH, ELECTRICALLY OPERATED, MECHANICALLY HELD, 2 POLE, SINGLE THROW, 100 AMP., 600 VOLTS CONTROL CIRCUIT 240 VOLT.
C	8	CIRCUIT BREAKERS, 1 POLE, 100AMP. FRAME, 50 AMP. NON-INTERCHANGEABLE TRIP INTERRUPTING RATING NEMA-10,000 AMP. AT 240 V.
D	2	CONTROL CIRCUIT-CIRCUIT BREAKER, 1 POLE, 240 V., 100 AMP. FRAME, 15 AMP. NON-INTERCHANGEABLE TRIP INTERRUPTING RATING NEMA-5000 AMP. AT 240 V.
E	1	ASTRONOMIC MICROPROCESSOR-BASED 2-CHANNEL CONTROLLER (TIME SWITCH).
F	1	20 A., 120 V. FUSE.
G	1	1.5 KVA, SINGLE PHASE, ENCAPSULATED TRANSFORMER 240 X 480 / 120 X 240 VOLT, 60 HZ.
H	1	SPST 20A SWITCH ON DOOR, TO TURN LIGHT ON WHEN DOOR IS OPEN.
I	1	INCANDESCENT LIGHTING FIXTURE ENCLOSED AND GASKETED WITH 60 WATT, 120 V. LAMP.
J	1	20 A., 120 V., DUPLEX RECEPTACLE, GFCI.
K	1	COPPER GROUND BUS 1/4" (6.35) X 1" (25.4) X 12" (304.8 mm) LONG MOUNTED ON PANEL WITH LUGS AND 4 SPARE LUGS
L	1	TOGGLE SWITCHES MOUNTED IN 4" (101.6) X 4" (101.6 mm) BOX.
M	1	COPPER GROUND BUS 1/4" (6.35) X 1" (25.4) X 12" (304.8 mm) LONG MOUNTED ON PANEL WITH LUGS AND SPARE LUGS



- NOTES:**
- ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN.
  - FOUNDATION SIZE SHALL BE COORDINATED WITH CABINET SIZE AND MFR.
  - IN FRONT OF CONTROL CABINET DOOR, REMOVE VEGETATION AND 2" (50.8 mm) TOP SOIL. LEVEL THE AREA AND ON TOP, PLACE LENGTH WISE PARALLEL TO CONTROL CABINET, A CONCRETE PAD 36" (914.4 mm) X 60" (1524 mm) X 4" (101 mm) MIN. SIZE. THE COST OF LABOR AND MATERIALS ARE INCLUDED IN THE COST OF THE CONTROLLER.
  - DOOR SHALL BE CONSTRUCTED FROM SAME TYPE OF MATERIAL AND THICKNESS AS CABINET.
  - DOOR SHALL BE EQUIPPED WITH THREE POINT LATCHING MECHANISM WITH NYLON ROLLERS AT TOP THE BOTTOM.
  - DOOR HINGE SHALL BE A HEAVY GAUGE CONTINUOUS HINGE WITH A 1/4" (6.35 mm) DIA. STAINLESS STEEL HINGE PIN.
  - ALL EXTERNAL HARDWARE SHALL BE STAINLESS STEEL.
  - CONTROL WIRING TO BE #12 AWG, 600V, TYPE "SIS" GRAY SWITCH BOARD WIRE, STRANDED COPPER.
  - METER BOX SHALL BE MOUNTED ON THE SIDE OF CONTROL CABINET, NEAR TO THE SERVICE POLE.
  - CABINETS SHALL BE PRIMED AND PAINTED AS SPECIFIED.
  - THE HEADS OF CONNECTORS SCREWS SHALL BE PAINTED WHITE FOR NEUTRAL BAR CONNECTION AND GREEN FOR GROUND BAR CONNECTORS.
  - ALL WIRING WITHIN THE CABINET SHALL BE COLOR CODED AS INDICATED.  
R = RED    BL = BLUE    W = WHITE  
B = BLACK    Y = YELLOW    G = GREEN
  - PROVIDE SEALING GROMMETS FOR ALL OPEN WIRING EXTENDED FROM DEVICES IN BOXES OR CABINETS WITHIN THE CONTROL CABINET.
  - ALL WIRING SHALL BE NEATLY DRESSED AND SUPPORTED.
  - THE CONTROLLER SHALL BE CONSTRUCTED TO U.L. STD. 508 AND BEAR THE U.L. LABEL "ENCLOSED INDUSTRIAL CONTROL PANEL".
  - 12" (304.8) X 16" (406.4 mm) STAINLESS STEEL EXTERIOR NAMEPLATE SHALL BE ENGRAVED TO "STATE OF ILLINOIS LIGHTING CONTROLS" UNLESS OTHERWISE SPECIFIED.

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PLOT DATE = 1/4/2008	CHECKED -	REVISED -	FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT									
PLOT DATE = 1/4/2008	DATE - 04/13/11	REVISED -										

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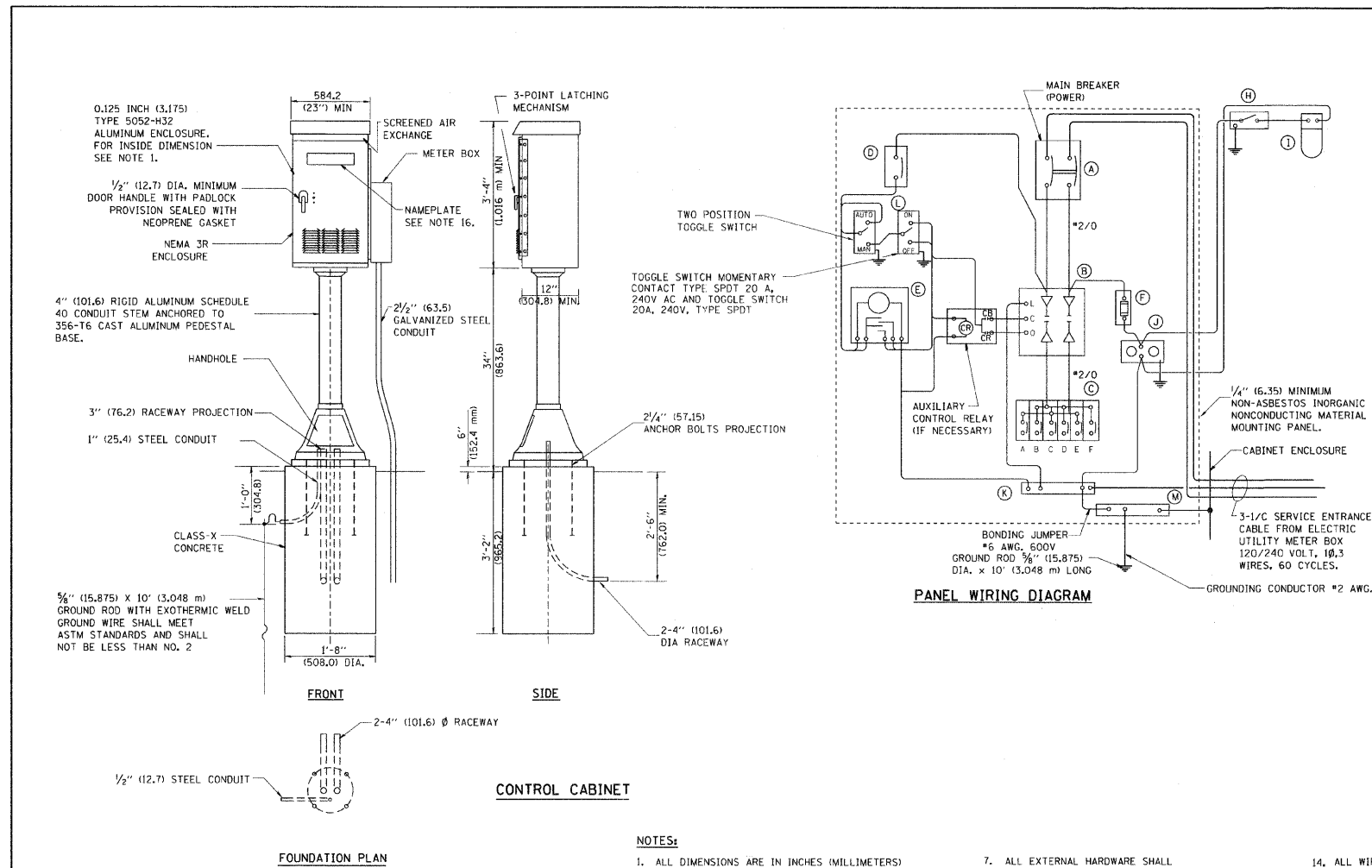
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	DATE - 04/13/11	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**ILLINOIS ROUTE 21 AND ILLINOIS ROUTE 137  
LIGHTING CONTROLLER - LM**

SCALE: NONE    SHEET NO. OF SHEETS    STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	128R-3	LAKE	513	235
CONTRACT NO. 60953				
ILLINOIS FED. AID PROJECT				



PANEL EQUIPMENT		
BILL OF MATERIAL		
ITEM	QUANTITY	DESCRIPTION
A	1	MAIN CIRCUIT BREAKER, 2 POLE, 240 VOLT 100 AMP, FRAME, 60 AMP, NON-INTERCHANGEABLE TRIP INTERRUPTING RATING NEMA-22000 AMP. AT 480 VOLT.
B	1	REMOTE CONTROL SWITCH, ELECTRICALLY OPERATED, MECHANICALLY HELD, 2 POLE, SINGLE THROW, 100 AMP., 600 VOLTS CONTROL CIRCUIT 240 VOLT.
C	6	CIRCUIT BREAKERS, 1 POLE, 240V., 100 AMP., FRAME 30 AMP, NON-INTERCHANGEABLE TRIP INTERRUPTING RATING NEMA-10,000 AMP. AT 240 V.
D	-	NOT USED
E	1	ASTRONOMIC MICROPROCESSOR-BASED 2-CHANNEL CONTROLLER (TIME SWITCH).
F	1	20 A., 120 V. FUSE.
G	-	NOT USED
H	1	SPST 20A SWITCH ON DOOR, TO TURN LIGHT ON WHEN DOOR IS OPEN.
I	1	INCANDESCENT LIGHTING FIXTURE ENCLOSED AND GASKETED WITH 60 WATT, 120 V. LAMP.
J	1	20 A., 120 V., DUPLEX RECEPTACLE, GFCI.
K	1	COPPER GROUND BUS 1/4" (6.35) X 1" (25.4) X 12" (304.8 mm) LONG MOUNTED ON PANEL WITH LUGS AND 4 SPARE LUGS
L	1	TOGGLE SWITCHES MOUNTED IN 4" (101.6) X 4" (101.6 mm) BOX.
M	1	COPPER GROUND BUS 1/4" (6.35) X 1" (25.4) X 12" (304.8 mm) LONG MOUNTED ON PANEL WITH LUGS AND SPARE LUGS

- NOTES:**
- ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN.
  - UNLESS OTHERWISE INDICATED, THE CABINET SHALL BE MOUNTED ATOP A 4-INCH (101.6 mm) RIGID ALUMINUM SCHEDULE 40 CONDUIT STEM ANCHORED TO A CAST ALUMINUM PEDESTAL BASE.
  - IN FRONT OF CONTROL CABINET DOOR, REMOVE VEGETATION AND 2" (50.8 mm) TOP SOIL, LEVEL THE AREA AND ON TOP, PLACE LENGTH WISE PARALLEL TO CONTROL CABINET, A CONCRETE PAD 36" (914.4 mm) X 60" (1524 mm) X 4" (101 mm) MIN. SIZE. THE COST OF LABOR AND MATERIALS ARE INCLUDED IN THE COST OF THE CONTROLLER.
  - DOOR SHALL BE CONSTRUCTED FROM SAME TYPE OF MATERIAL AND THICKNESS AS CABINET.
  - DOOR SHALL BE EQUIPPED WITH THREE POINT LATCHING MECHANISM WITH NYLON ROLLERS AT TOP THE BOTTOM.
  - DOOR HINGE SHALL BE A HEAVY GAUGE, CONTINUOUS HINGE WITH A 1/4" (6.35 mm) DIA. STAINLESS STEEL HINGE PIN.
  - ALL EXTERNAL HARDWARE SHALL BE STAINLESS STEEL.
  - CONTROL WIRING TO BE #12 AWG, 600V. TYPE "SIS" GRAY SWITCH BOARD WIRE, STRANDED COPPER.
  - METER BOX SHALL BE MOUNTED ON THE SIDE OF CONTROL CABINET, NEAR TO THE SERVICE POLE.
  - CABINETS SHALL BE PRIMED AND PAINTED AS SPECIFIED.
  - THE HEADS OF CONNECTORS SCREWS SHALL BE PAINTED WHITE FOR NEUTRAL BAR CONNECTION AND GREEN FOR GROUND BAR CONNECTORS.
  - ALL WIRING WITHIN THE CABINET SHALL BE COLOR CODED AS INDICATED.  
R = RED      BL = BLUE      W = WHITE  
B = BLACK    Y = YELLOW      G = GREEN
  - PROVIDE SEALING CROMMETS FOR ALL OPEN WIRING EXTENDED FROM DEVICES IN BOXES OR CABINETS WITHIN THE CONTROL CABINET.
  - ALL WIRING SHALL BE NEATLY DRESSED AND SUPPORTED.
  - THE CONTROLLER SHALL BE CONSTRUCTED TO U.L. STD. 508 AND BEAR THE U.L. LABEL "ENCLOSED INDUSTRIAL CONTROL PANEL".
  - 12" (304.8) X 16" (406.4 mm) STAINLESS STEEL EXTERIOR NAMEPLATE SHALL BE ENGRAVED TO "STATE OF ILLINOIS LIGHTING CONTROLS" UNLESS OTHERWISE SPECIFIED.

FILE NAME :	USER NAME : gajlanob1	DESIGNED -	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>LIGHTING CONTROLLER PEDESTAL MOUNT</b>	F.A.P. R.T.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
PLOT SCALE = 50,0000 ' / IN.	DRAWN -	REVISED -	SCALE: NONE			SHEET NO. 1 OF 1 SHEETS	STA.	TO STA.	FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT		
PLOT DATE = 1/4/2008	CHECKED -	REVISED -	CONTRACT NO.								
	DATE -	REVISED -									

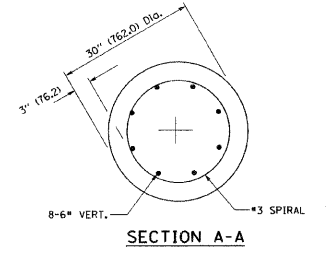
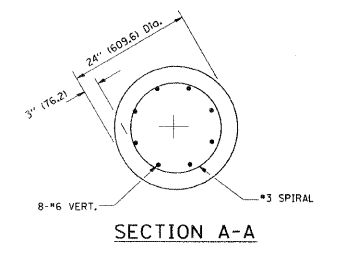
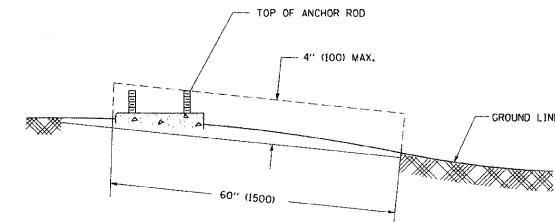
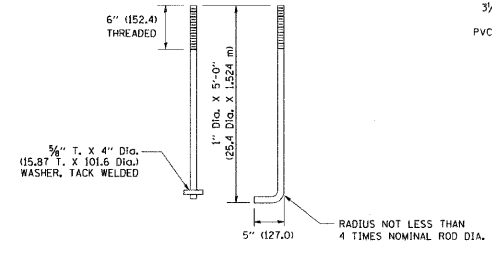
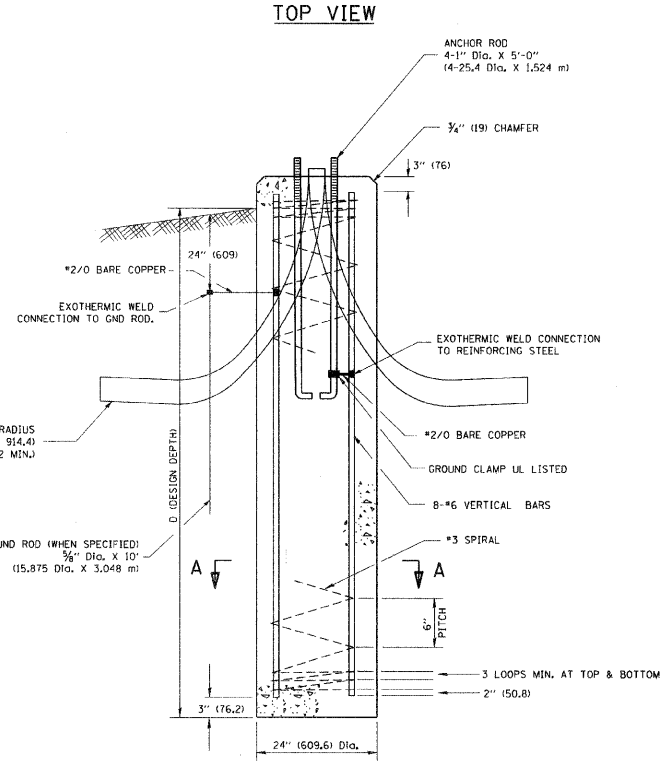
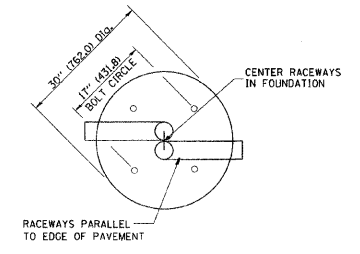
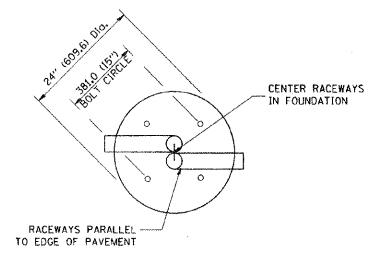
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LT-28.dgn	USER NAME = Darlan Longmire	DESIGNED - TCM	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>ILLINOIS ROUTE 21 AND ILLINOIS ROUTE 137 LIGHTING CONTROLLER - PEDESTAL MOUNT (UNDERPASS)</b>	F.A.P. R.T.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
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LT-08

**LIGHT POLE FOUNDATION DEPTH TABLE**  
40 FT. (12.192 m) TO 47.5 FT. (14.478 m) MOUNTING HEIGHT

SOIL CONDITIONS	DESIGN DEPTH "D" OF FOUNDATION	
	SINGLE ARM POLE	TWIN ARM POLE
SOFT CLAY Ou = 0.375 TON/50. FT.	13'-0" (3.96 m)	15'-0" (4.57 m)
MEDIUM CLAY Ou = 0.75 TON/50. FT.	9'-6" (2.93 m)	10'-9" (3.23 m)
STIFF CLAY Ou = 1.50 TON/50. FT.	7'-0" (2.13 m)	8'-0" (2.44 m)
LOOSE SAND φ = 34°	9'-0" (2.74 m)	10'-0" (3.05 m)
MEDIUM SAND φ = 37.5°	8'-3" (2.52 m)	9'-0" (2.74 m)
DENSE SAND φ = 40°	7'-9" (2.36 m)	9'-0" (2.74 m)



**NOTES**

- ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN.
- THE ANCHOR RODS AND RACEWAYS SHALL BE PROPERLY SECURED IN PLACE BEFORE THE CONCRETE IS PLACED.
- THE FOUNDATION SHALL NOT PROTRUDE MORE THAN 100MM (4 IN.) ABOVE THE FINISHED GRADE WITHIN A 50 IN. (1.25 m) CHORD ACROSS THE FOUNDATION, WITH ANCHOR RODS INCLUDED. IN ACCORDANCE WITH AASHTO GUIDELINES, IF THE FOUNDATION HEIGHT, INCLUDING ANCHOR RODS, EXTENDS BEYOND THESE SPECIFIED LIMITS, THE FOUNDATION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. SEE FOUNDATION EXTENSION DETAIL.
- THE HOLE FOR THE FOUNDATION SHALL BE MADE BY DRILLING WITH AN AUGER, OF THE SAME DIAMETER AS THE FOUNDATION. IF SOIL CONDITIONS REQUIRE THE USE OF A LINER TO FORM THE HOLE, THE LINER SHALL BE WITHDRAWN AS THE CONCRETE IS DEPOSITED.
- THE TOP OF THE FOUNDATION SHALL BE CONSTRUCTED LEVEL. A LINER OR FORM SHALL BE USED TO PRODUCE A UNIFORM SMOOTH SIDE TO THE TOP OF THE FOUNDATION. FOUNDATION TOP SHALL BE CHAMFERED 3/4-IN. (20 mm).
- THE CONCRETE SHALL BE CLASS SI. CONCRETE SHALL CURE ACCORDING TO ARTICLE 1020.13 BEFORE LIGHT POLES ARE INSTALLED.
- THE ANCHOR ROD SHALL BE A HOOK ROD TYPE. COLD BENDING OF THE ANCHOR ROD WILL NOT BE ALLOWED. THE RADIUS OF THE HOOK BEND SHALL NOT BE LESS THAN 4 TIMES THE NOMINAL DIAMETER OF THE ANCHOR ROD. A TACK WELDED ANCHOR ROD MAY BE SUBSTITUTED WITH THE APPROVAL OF THE ENGINEER.
- THE ANCHOR RODS SHALL BE ACCORDING TO ASTM F1554 GRADE 725 (GRADE 10S). NUTS SHALL BE HEXAGON NUTS ACCORDING TO ASTM A 194 2H OR ASTM A 563 DII, AND WASHERS SHALL BE ACCORDING TO ASTM F 436.
- ANCHOR RODS, NUTS AND WASHERS SHALL BE COMPLETELY GALVANIZED BY EITHER THE HOT-DIPPED PROCESS CONFORMING WITH AASHTO M 232, THE MECHANICAL PLATING METHOD CONFORMING TO AASHTO M 298, CLASS 50 WITH A MAXIMUM COATING THICKNESS OF 150 UMG MILS) OR THE ELECTROLYTIC PROCESS ACCORDING TO ASTM F 1136.
- THE ANCHOR RODS SHALL BE THREADED A MINIMUM OF 6 INCHES (150 mm) WITH A MINIMUM OF 3 INCHES (75 mm) OF THREADED ANCHOR ROD EMBEDDED IN THE FOUNDATION.
- ANCHOR RODS SHALL PROJECT 2 3/4" (69.9 mm) ABOVE THE TOP OF THE FOUNDATION. IF BREAKAWAY COUPLINGS ARE SPECIFIED, THE CONTRACTOR SHALL CAREFULLY COORDINATE THE ANCHOR ROD PROJECTION WITH THE INSTALLATION REQUIREMENTS OF THE BREAKAWAY COUPLINGS.
- THE CONTRACTOR SHALL USE A #3 SPIRAL AT 6" (152.4 mm) PITCH OR MAY SUBSTITUTE #3 TIES AT 12" (304.8 mm) O.C. WITH THE APPROVAL OF THE ENGINEER.
- THE CABLE TRENCHES AND FOUNDATION SHALL BE BACK FILLED AND COMPACTED AS SPECIFIED BEFORE THE LIGHT POLE IS ERECTED.
- THE RACEWAYS SHALL PROJECT 1" (25.4 mm) ABOVE THE TOP OF THE FOUNDATION.

FILE NAME =	USER NAME = gnglonabt	DESIGNED -	REVISED - 04-22-02	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>LIGHT POLE FOUNDATION</b>		F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.		
W:\dstad\22-34\ba301.dgn	PLOT SCALE = 50.0000 1" = 10'	DRAWN -	REVISED -		40' (12.192 m) TO 47 1/2' (14.478 m) M.H. 15" (381 mm) BOLT CIRCLE								
	PLOT DATE = 1/4/2008	CHECKED -	REVISED -		SCALE: NONE		SHEET NO. 1	OF 1	SHEETS	STA.	TO STA.	FED. ROAD DIST. NO. 1	ILLINOIS FED. AID PROJECT
		DATE -	REVISED -		SCALE: NONE		SHEET NO. 1	OF 1	SHEETS	STA.	TO STA.	CONTRACT NO. BE-301	

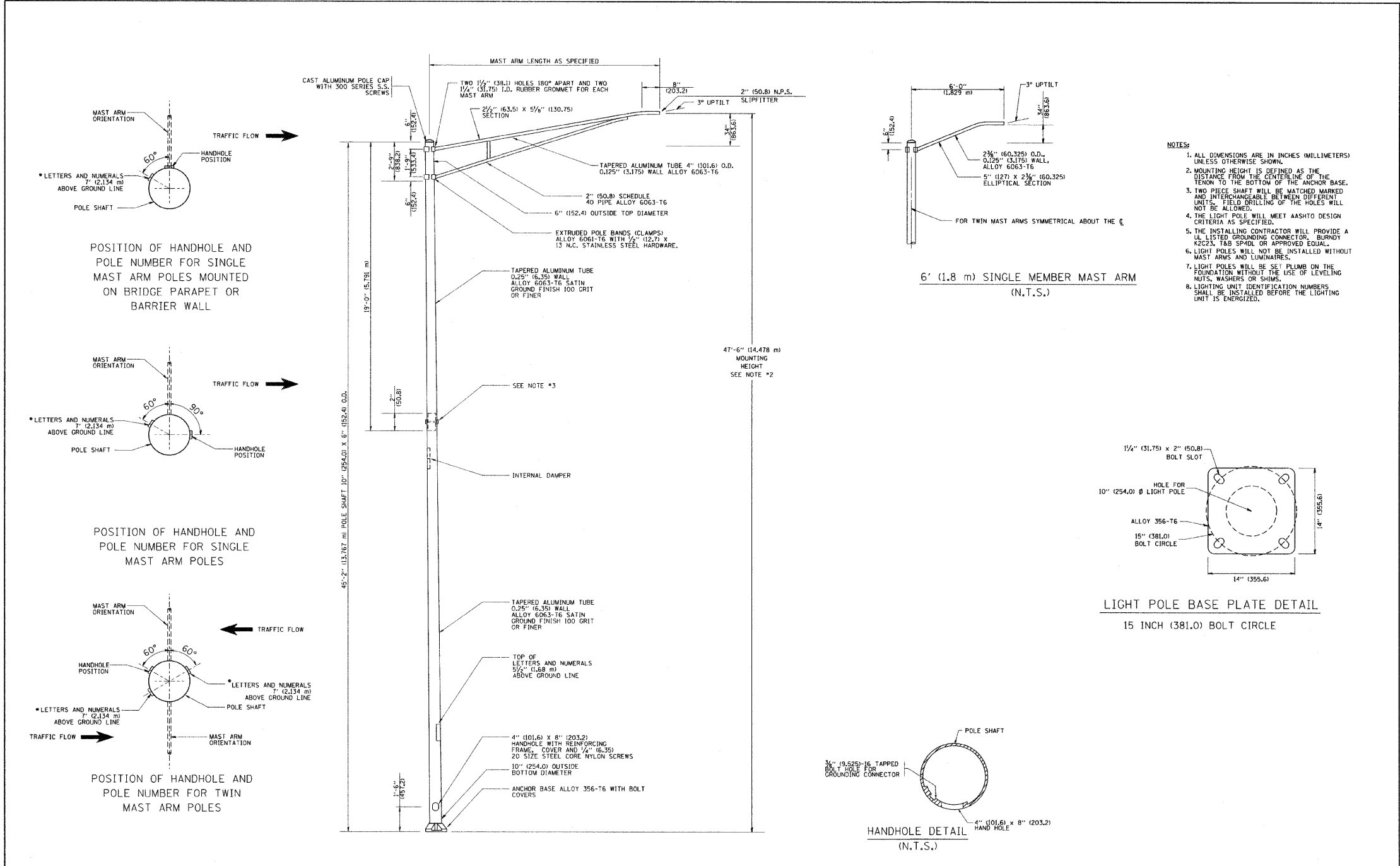
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fax: 312.277.8808  
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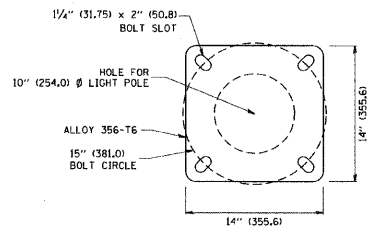
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

ILLINOIS ROUTE 21 AND ILLINOIS ROUTE 137  
LIGHT POLE FOUNDATION, 40' TO 47.5' M. H., 15" BOLT CIRCLE

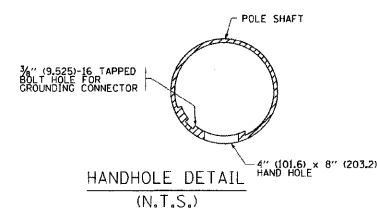
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	128R-3	LAKE	513	237
CONTRACT NO. 60953				
ILLINOIS FED. AID PROJECT				



- NOTES:**
1. ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN.
  2. MOUNTING HEIGHT IS DEFINED AS THE DISTANCE FROM THE CENTERLINE OF THE TENON TO THE BOTTOM OF THE ANCHOR BASE.
  3. TWO PIECE SHAFT WILL BE MATCHED MARKED AND INTERCHANGEABLE BETWEEN DIFFERENT UNITS. FIELD DRILLING OF THE HOLES WILL NOT BE ALLOWED.
  4. THE LIGHT POLE WILL MEET AASHTO DESIGN CRITERIA AS SPECIFIED.
  5. THE INSTALLING CONTRACTOR WILL PROVIDE A UL LISTED GROUNDING CONNECTOR, BURNDY #2223 TAB SPUD OR APPROVED EQUAL.
  6. LIGHT POLES WILL NOT BE INSTALLED WITHOUT MAST ARMS AND LUMINAIRES.
  7. LIGHT POLES WILL BE SET PLUMB ON THE FOUNDATION WITHOUT THE USE OF LEVELING NUTS, WASHERS OR SHIMS.
  8. LIGHTING UNIT IDENTIFICATION NUMBERS SHALL BE INSTALLED BEFORE THE LIGHTING UNIT IS ENERGIZED.



**LIGHT POLE BASE PLATE DETAIL**  
15 INCH (381.0) BOLT CIRCLE



**HANDHOLE DETAIL**  
(N.T.S.)

FILE NAME * w:\dsktest\22v34\bw400.dgn	USER NAME * gajienobt	DESIGNED - TCM	REVISED - R. TOMSONS 09-06-00	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>ALUMINUM LIGHT POLE</b> 47'-6" (14.478 m) MOUNTING HEIGHT		F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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		CHECKED - TCM	REVISED -								
		DATE - 1/4/2008	REVISED -								

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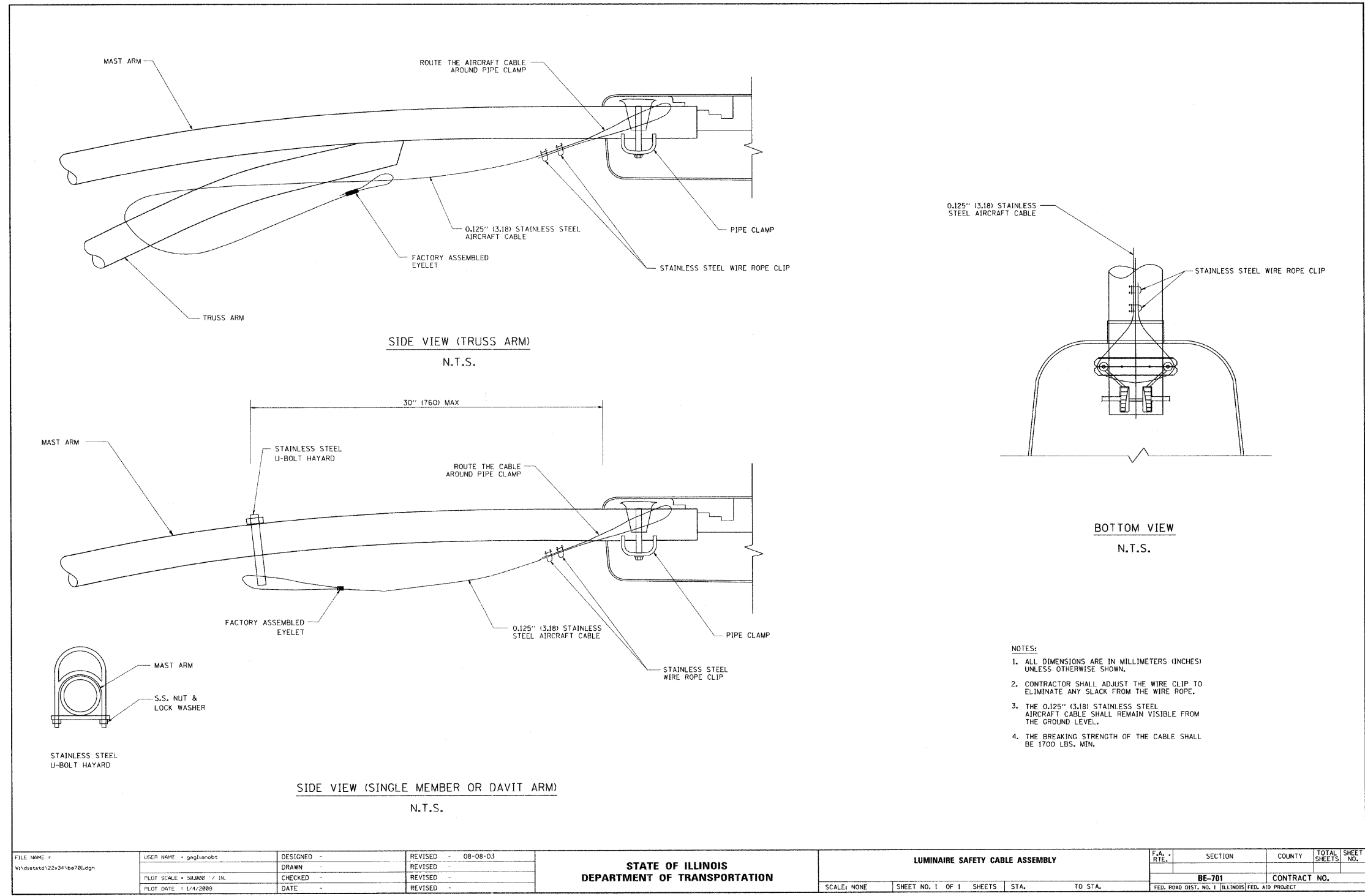
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	DATE - 04/13/11	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**ILLINOIS ROUTE 21 AND ILLINOIS ROUTE 137  
LIGHT POLE, ALUMINUM, TRUSS TYPE, 47'-6" MOUNTING HEIGHT**

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	128R-3	LAKE	518	238
CONTRACT NO. 60953				
ILLINOIS FED. AID PROJECT				



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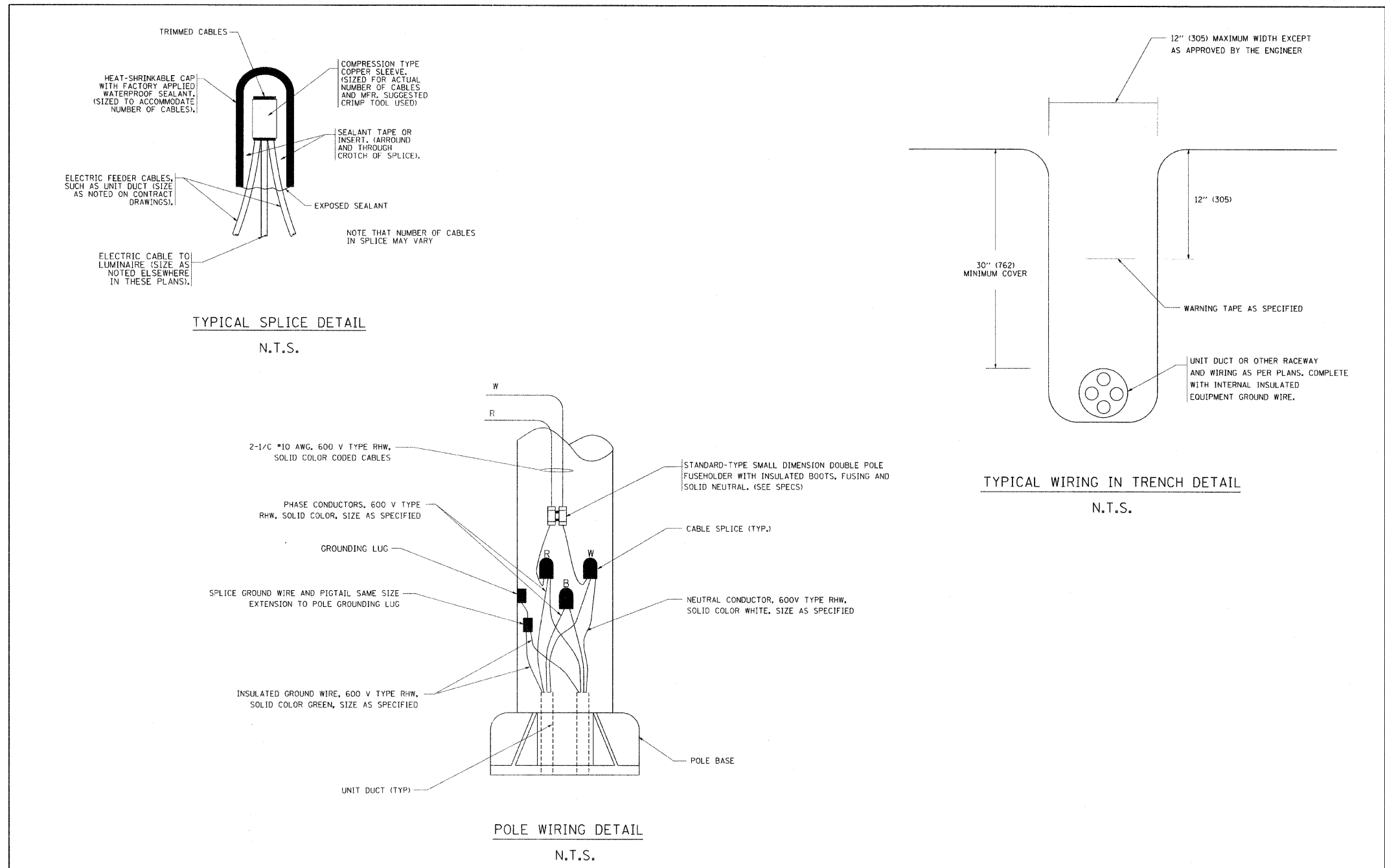
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DATE -	04/13/11	REVISED -	

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

**ILLINOIS ROUTE 21 AND ILLINOIS ROUTE 137**  
**LUMINAIRE SAFETY CABLE ASSEMBLY**  
 SCALE: NONE SHEET NO. OF SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	128R-3	LAKE	513	239
CONTRACT NO. 60953				
ILLINOIS FED. AID PROJECT				





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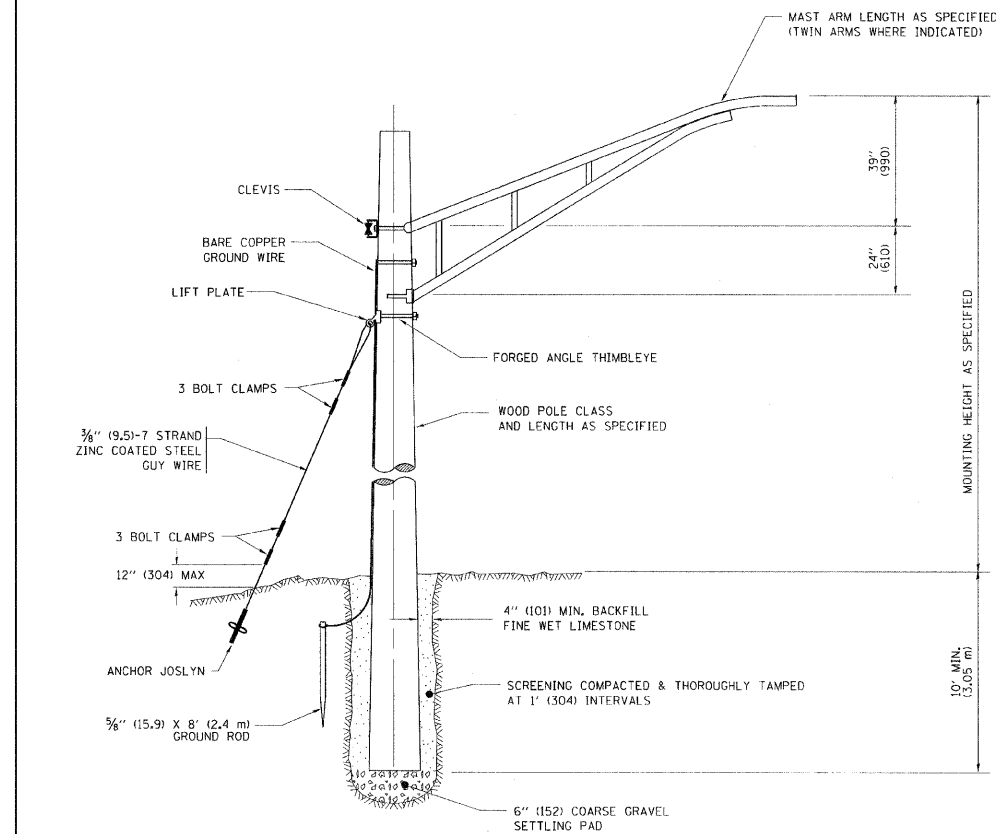
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DATE -	REVISED -	04/13/11	

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

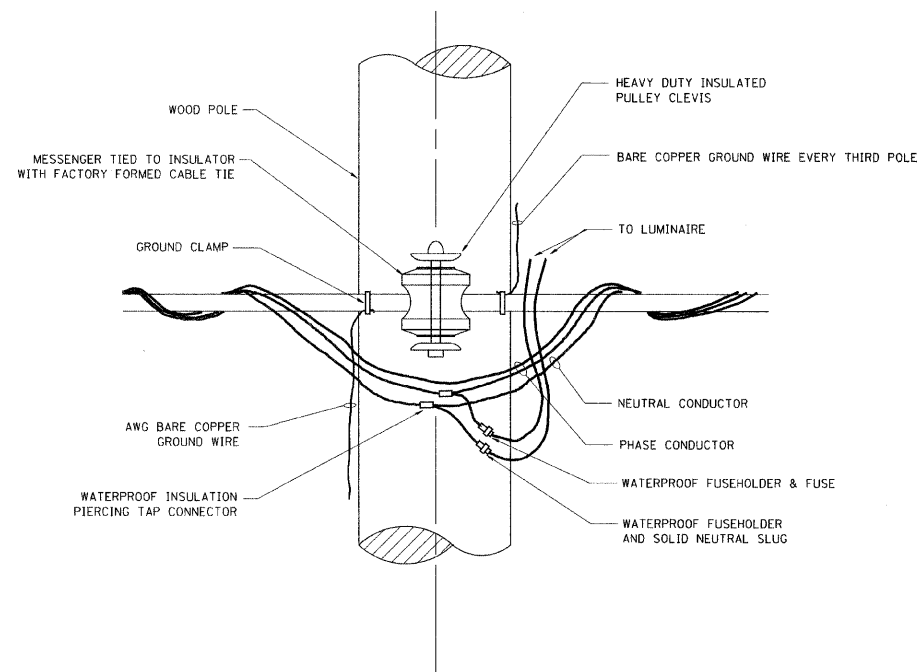
ILLINOIS ROUTE 21 AND ILLINOIS ROUTE 137  
MISC. ELECTRICAL DETAILS, SHEET A

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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	128R-3	LAKE	518	240
CONTRACT NO. 60953				
ILLINOIS FED. AID PROJECT				



TEMPORARY LIGHT POLE DETAIL



TEMPORARY LIGHT POLE ATTACHMENT DETAIL

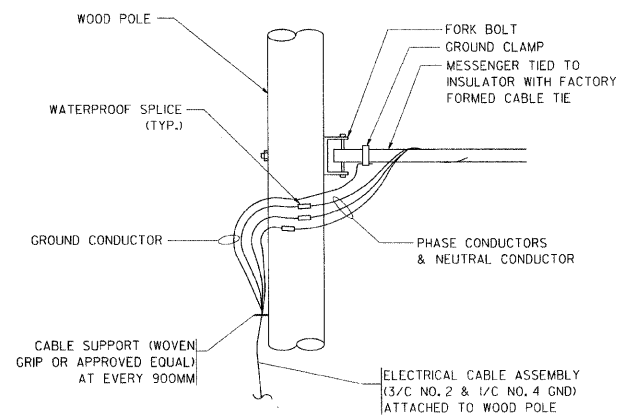
NOTES:

1. ALL DIMENSIONS IN INCHES (MILLIMETERS) UNLESS OTHERWISE INDICATED

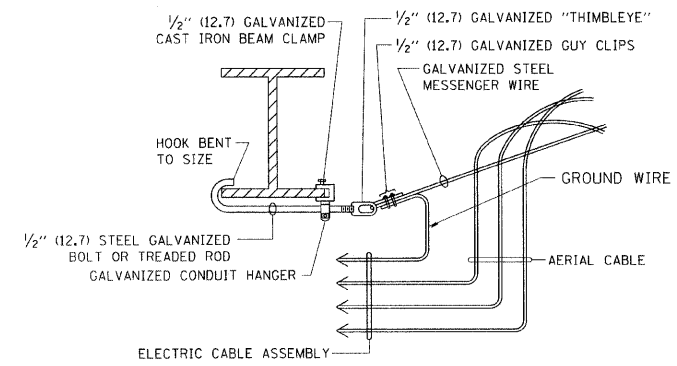
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	PLOT DATE = 1/4/2009	CHECKED -	REVISED -		FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT							
		DATE -	REVISED -									

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fax: 312.277.8808  
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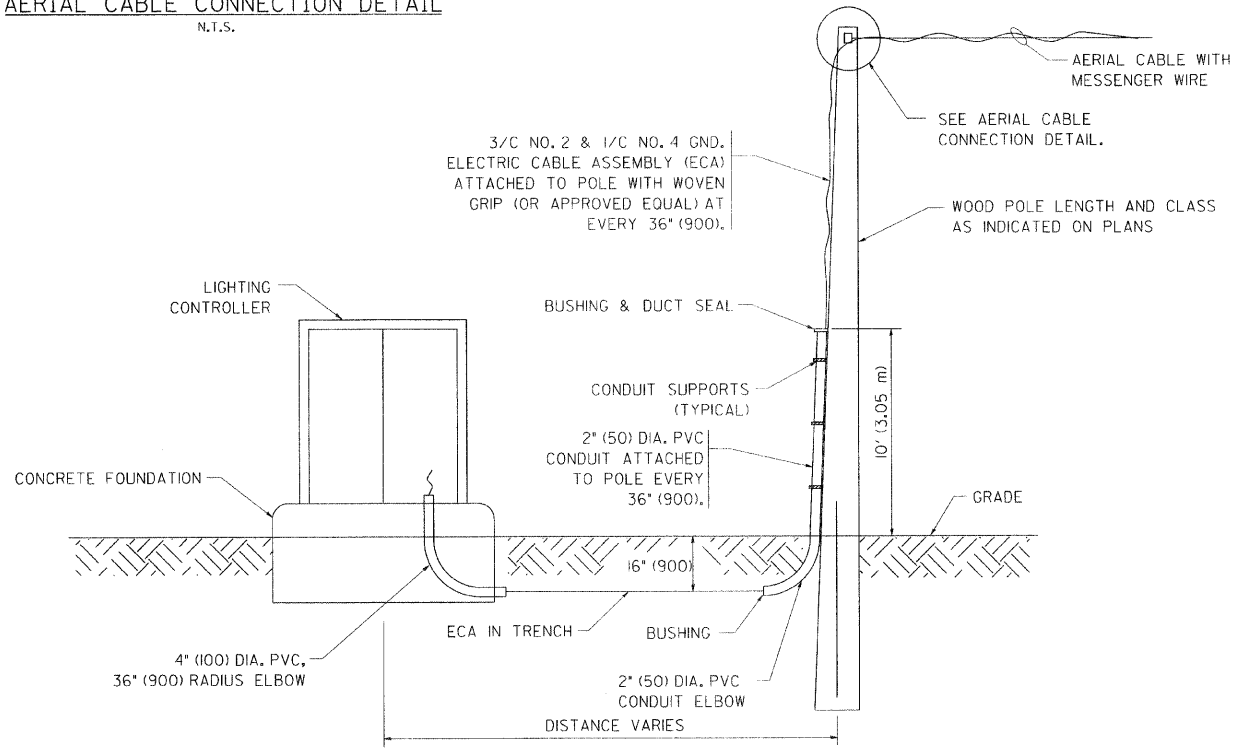
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**AERIAL CABLE CONNECTION DETAIL**  
N.T.S.



**AERIAL CABLE ATTACHED TO STRUCTURE**  
NOT TO SCALE



**WOOD POLE TO LIGHTING CONTROLLER WIRING CONNECTION DETAIL**  
N.T.S.

**NOTES:**

1. ALL DIMENSIONS IN INCHES (MILLIMETERS) UNLESS OTHERWISE INDICATED.
2. SEE PROPOSED LIGHTING PLAN FOR CONDUIT, CABLE AND ROUTING.
3. THE CONTRACTOR SHALL PROVIDE INTERMEDIATE SUPPORTS TO MAINTAIN MINIMUM CLEARANCES. REFER TO AERIAL CABLE ATTACHED TO STRUCTURE DETAIL.
4. COST OF SPLICES AND MOUNTING HARDWARE SHALL BE INCLUDED IN THE UNIT PRICE FOR AERIAL CABLE.

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PLOT DATE: 1/4/2008	DATE: -	REVISIONS: -	REVISIONS: -		FED. ROAD DIST. NO. 1 (ILLINOIS) FED. AID PROJECT							

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<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>			
ILLINOIS ROUTE 21 AND ILLINOIS ROUTE 137 TEMPORARY AERIAL CABLE INSTALLATION			
SCALE: NONE	SHEET NO. OF SHEETS	STA. TO STA.	

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	128R-3	LAKE	513	242
CONTRACT NO. 60953				
ILLINOIS FED. AID PROJECT				

<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>			
ILLINOIS ROUTE 21 AND ILLINOIS ROUTE 137 TEMPORARY AERIAL CABLE INSTALLATION			
SCALE: NONE	SHEET NO. OF SHEETS	STA. TO STA.	

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	128R-3	LAKE	513	242
CONTRACT NO. 60953				
ILLINOIS FED. AID PROJECT				

B.M.: Chisled box on top of S.E. wingwall of bridge. Elevation 669.64

Existing Structure: SN 049-0027 built as SBI Route 172, Section 128 in 1928 and rehabilitated in 1976. The structure is a simple span with precast concrete channel beams and closed type abutments. Skewed 24 degrees right hand forward 32'-10" Bk.-Bk. abutments and 41'-3" O.-O. deck.

Scope of Work: Existing superstructure is to be removed. Existing substructure is to be removed to 1 ft. below the existing groundline. A wider and longer new substructure is to be built. Traffic to be maintained using stage construction.

No Salvage.

**LOADING HL-93**

Allow 50#/sq. ft. for future wearing surface.

**DESIGN SPECIFICATIONS**

2007 AASHTO LRFD Bridge Design Specifications with 2008 and 2009 Interims

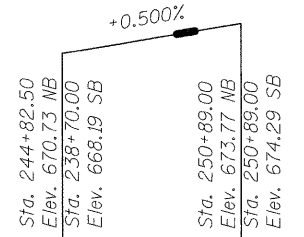
**DESIGN STRESSES**

**FIELD UNITS**

$f'_c = 3,500$  psi  
 $f_y = 60,000$  psi (Reinforcement)  
 $f_y = 50,000$  psi (M270 Grade 50W)

**SEISMIC DATA**

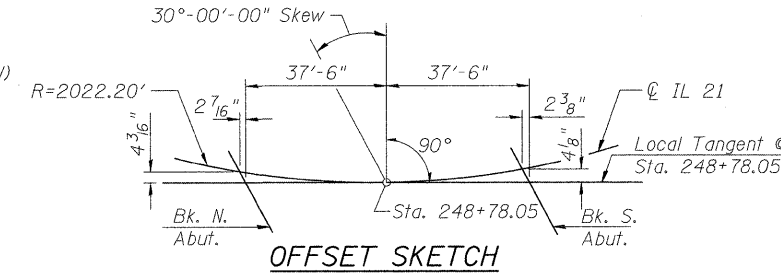
Seismic Performance Zone (SPZ) = 1  
 Design Spectral Acceleration at 1.0 sec. ( $S_{D1}$ ) = 0.077g  
 Design Spectral Acceleration at 0.2 sec. ( $S_{D5}$ ) = 0.128g  
 Soil Site Class = D



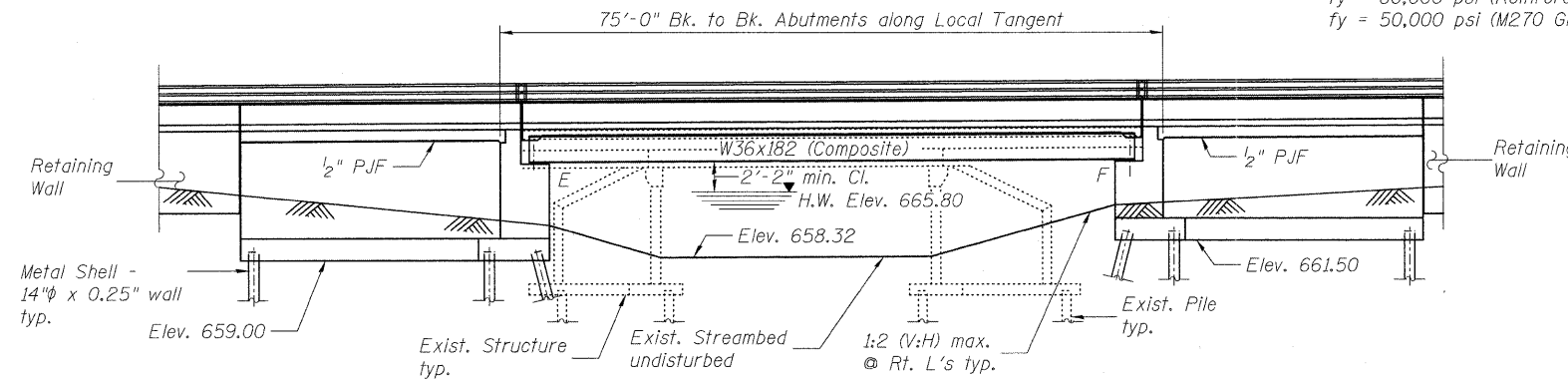
**PROFILE GRADE**

**CURVE DATA**

CL IL 21  
 $\Delta = 46^\circ-11'-38"$   
 $D = 2^\circ-50'-00"$   
 $L = 862.41'$   
 $T = 1,630.37'$   
 $E = 176.22'$   
 $R = 2,022.20'$   
 $S.E. = 2.90\%$   
 P.C. Sta. = 243+66.70  
 P.T. Sta. = 259+97.07  
 P.I. Sta. = 252+29.11



**OFFSET SKETCH**



**ELEVATION**

STATION 248+80  
 BUILT BY  
 STATE OF ILLINOIS  
 F.A.P. 330 SEC. 128R-3  
 LOADING HL-93  
 STRUCTURE NO. 049-0199

**NAME PLATE**

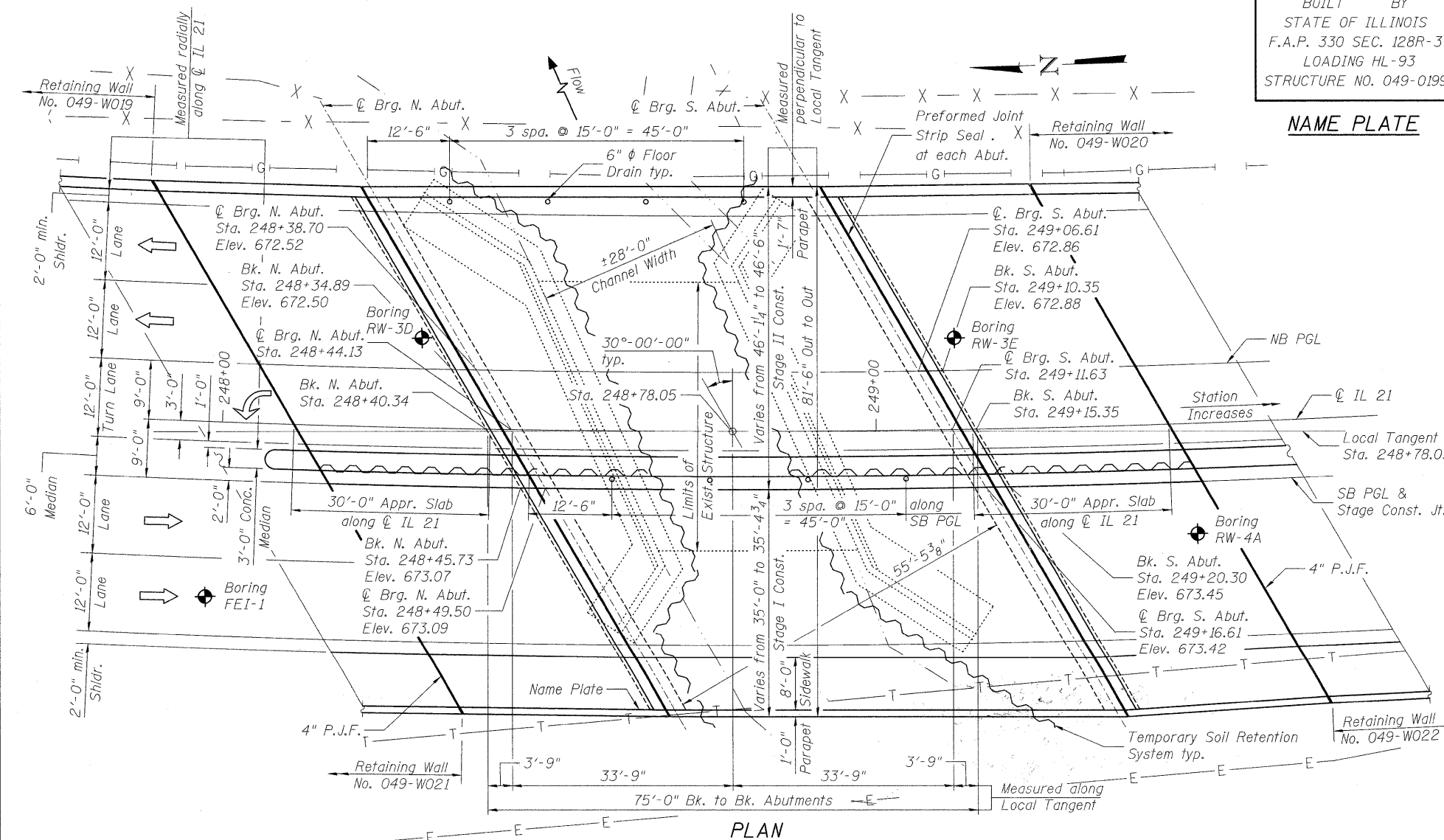
**WATERWAY INFORMATION**

Drainage Area = 12.1 Sq. Mi. Low Grade Elev. 668.50 @ Sta. 238+25.00

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Head - Ft.		Headwater El.		
			Exist.	Prop.	H.W.E. Exist.	Prop.	Exist.	Prop.	
Design	10	535	134	213	664.2	0.4	0.0	664.6	664.2
Base	50	1087	177	301	665.8	1.3	0.3	667.1	666.1
Overtopping	100	1408	228	336	666.4	1.7	0.4	668.1	666.8
Max. Calc.	>500	2400	228	432	667.7	2.1	0.7	669.8	668.5

**DESIGN SCOUR ELEVATION**

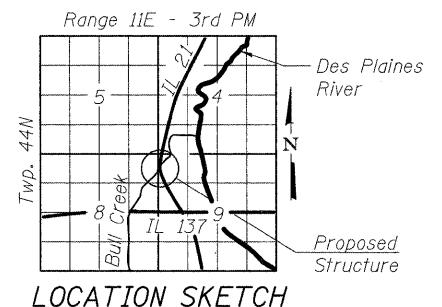
N. Abut.	S. Abut.
Elev. 654.00	Elev. 656.00



**PLAN**



JIE YANG  
 EXPIRATION DATE: 11/30/2012  
 DATE: 12/20/2010  
 DRAWING NO. SHEETS 1 TO 43



**LOCATION SKETCH**

**APPROVED**  
 FOR STRUCTURAL ADEQUACY ONLY  
 JIE YANG  
 ENGINEER OF BRIDGES AND STRUCTURES

**GENERAL PLAN AND ELEVATION**  
**ILLINOIS ROUTE 21 OVER BULL CREEK**  
 F.A.P. 330 SEC. 128R-3  
 LAKE COUNTY  
 STATION 248+78.05  
 STRUCTURE NO. 049-0199



FILE NAME = 0490199-60953-001.LGP.dgn	USER NAME =	DESIGNED - JY	REVISD -	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>GENERAL PLAN AND ELEVATION</b> <b>STRUCTURE NO. 049-0199</b>	F.A.P. RTE. = 330	SECTION = 128R-3	COUNTY = LAKE	TOTAL SHEETS = 518	SHEET NO. = 243
PLOT SCALE =	DRAWN - JY	REVISD -	CONTRACT NO. = 60953							
PLOT DATE = 12/20/2010	CHECKED - WPM	REVISD -	ILLINOIS FED. AID PROJECT							

**GENERAL NOTES**

\*\*\*\* Fasteners shall be AASHTO M164 Type 1, mechanically galvanized bolts in painted areas and M164 Type 3 in unpainted areas. Bolts - 7/8"φ, holes - 15/16"φ, unless otherwise noted.

\*\*\*\* Calculated weight of Structural Steel = 153,700 lbs (50W)

\*\*\*\* All structural steel shall be AASHTO M 270 Grade 50W except expansion joints which shall be AASHTO M 270 Grade 36. All structural steel shall be cleaned as specified in the Special Provision for "Surface Preparation and Painting Requirements for Weathering Steel".

No field welding is permitted except as specified in the contract documents.

Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60. See Special Provisions.

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.

Concrete Sealer shall be applied to the designated areas of the exposed surfaces of backwalls, bridge seats, and front faces of pile caps under abutment deck joints.

Slipforming of parapets is not allowed.

\*\*\*\* All structural steel and exposed surfaces of bearings within a distance of 9 ft. each way from the deck joints shall be painted as specified in the Special Provision for "Surface Preparation and Painting Requirements for Weathering Steel".

The embankment configuration shown shall be the minimum that must be placed and compacted prior to construction of the abutments.

Excavation behind existing abutment walls shall be performed to balance front and back soil pressure before removing the existing superstructure. The Contractor shall sawcut the upper portion of the existing abutment at the stage removal line before Stage I removal to ensure the remaining portion will not be prematurely damaged.

There will be no in-stream work April 20th through June 15th of any year for the Des Plaines Tributary No. 1 and Bull Creek.

The existing load post on the bridge will remain during construction.

**\*\*\*\* FOR INFORMATION ONLY**

Structural steel and bearings were furnished in Contract 60P54.

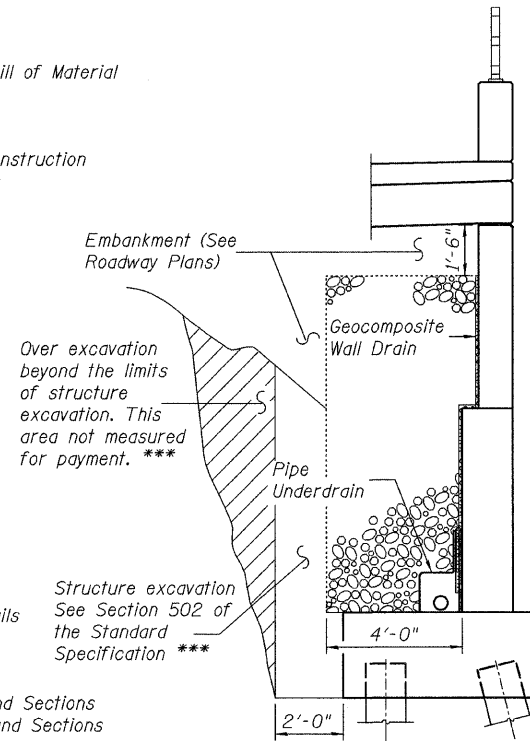
**INDEX OF DRAWINGS**

- 1 General Plan and Elevation
- 2 General Notes, Index of Sheets & Total Bill of Material
- 3 Stage Construction - Substructure
- 4 Structure Excavation and Removal
- 5 Stage Construction - Superstructure
- 6 Temporary Concrete Barrier For Stage Construction
- 7 Top of Slab Elevations - Plan and Details
- 8 Top of Slab Elevations - 1 of 2
- 9 Top of Slab Elevations - 2 of 2
- 10 Top of North Approach Slab Elevations
- 11 Top of South Approach Slab Elevations
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- 13 Stage II Deck Plan
- 14 Deck Cross Section
- 15 West Parapet Elevation and Details
- 16 East Parapet Elevation and Details
- 17 Deck Details and Bill of Material
- 18 Preformed Joint Strip Seal
- 19 Stage I North Approach Slab Plan
- 20 Stage I South Approach Slab Plan
- 21 Stage I Approach Slab Section
- 22 Stage II North Approach Slab Plan
- 23 Stage II South Approach Slab Plan
- 24 Stage II Approach Slab Section
- 25 Approach Slab Details and Bill of Material
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- 27 Beam Elevation, Diaphragm and Steel Details
- 28 Beam Moment and Reaction Table
- 29 Bearing Details
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- 31 Stage I North Abutment Plan, Elevation and Sections
- 32 Stage II North Abutment Plan, Elevation and Sections
- 33 North Abutment Wingwall
- 34 South Abutment Footing Plan
- 35 Stage I South Abutment Plan, Elevation and Sections
- 36 Stage II South Abutment Plan, Elevation and Sections
- 37 South Abutment Wingwall
- 38 Abutment Bill of Material
- 39 Bar Splicer Details
- 40 Metal Shell Pile Details
- 41 Boring Logs - 1 of 3
- 42 Boring Logs - 2 of 3
- 43 Boring Logs - 3 of 3

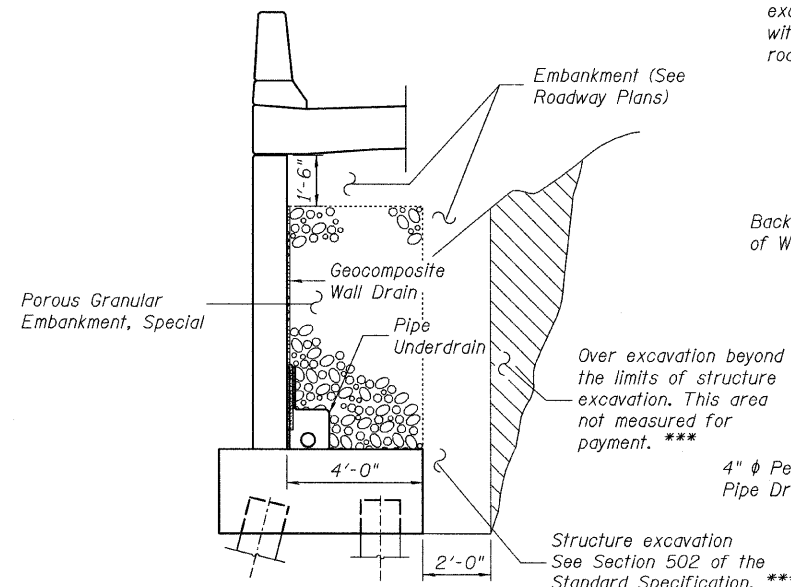
**TOTAL BILL OF MATERIAL**

ITEM	UNIT	SUPER	SUB	TOTAL
Removal Of Existing Superstructures	Each	1	-	1
Concrete Removal	Cu Yd	-	81	81
Structure Excavation	Cu Yd	-	1572	1,572
Floor Drains	Each	8	-	8
Concrete Structures	Cu Yd	-	532.4	532.4
Concrete Superstructure	Cu Yd	467.3	-	467.3
Bridge Deck Grooving	Sq Yd	529	-	529
Protective Coat	Sq Yd	1,272	-	1,272
Erecting Structural Steel	L Sum	1	-	1
Stud Shear Connectors	Each	3,597	-	3,597
Reinforcement Bars, Epoxy Coated	Pound	112,710	44,510	157,220
Bar Splicers	Each	473	240	713
Parapet Railing	Foot	130	-	130
Furnishing Metal Shell Piles 14" x 0.250"	Foot	-	2,535	2,535
Driving Piles	Foot	-	2,535	2,535
Test Pile Metal Shells	Each	-	2	2
Pile Shoes	Each	-	149	149
Name Plates	Each	1	-	1
Preformed Joint Strip Seal	Foot	190	-	190
Erecting Elastomeric Bearing Assembly, Type I	Each	11	-	11
Anchor Bolts, 1"	Each	22	-	22
Concrete Sealer	Sq Ft	-	2,197	2,197
Geocomposite Wall Drain	Sq Yd	-	226	226
* Pipe Underdrains For Structures 4"	Foot	-	362	362
* Porous Granular Embankment, Special	Cu Yd	-	304	304
* Temporary Soil Retention System	Sq Ft	-	5,640	5,640

\* Special Provision

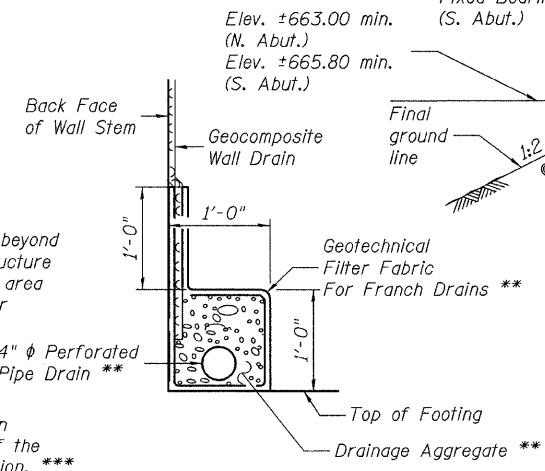


**SECTION THRU WEST WINGWALL**

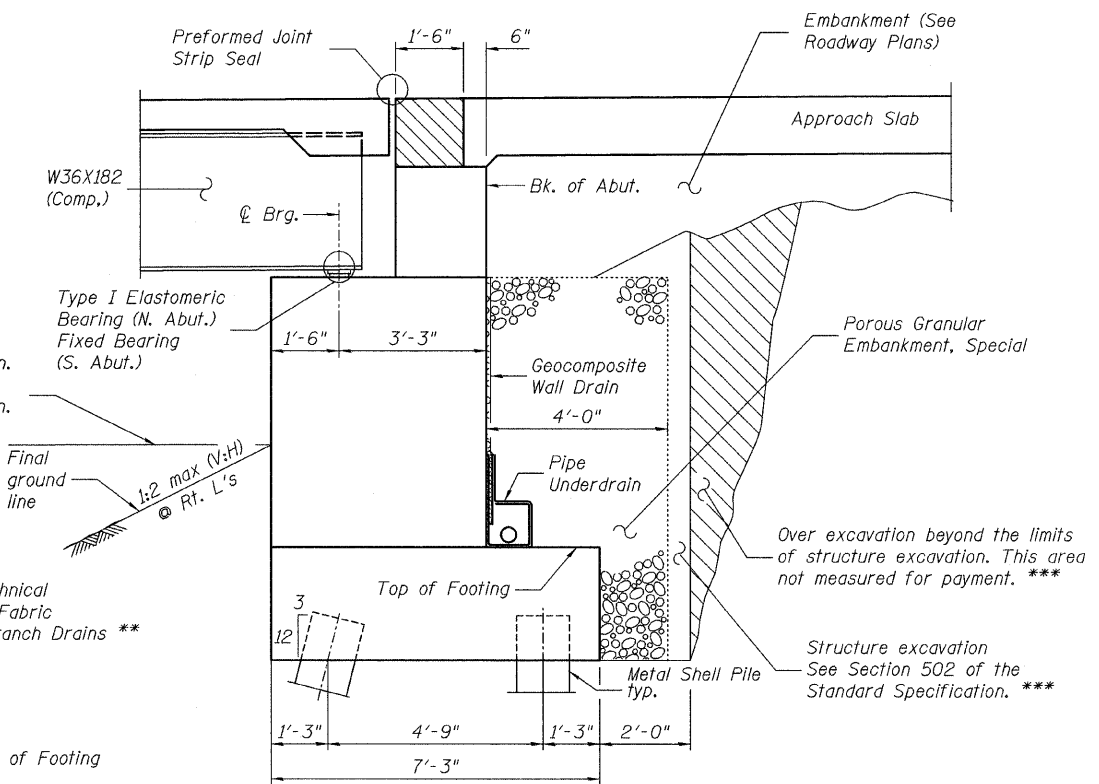


**SECTION THRU EAST WINGWALL**

\*\* Included in the cost of Pipe Underdrains for Structures.  
 \*\*\* Backfill remainder of structure excavation and over excavation with same material specified for roadway embankment.



**PIPE UNDERDRAIN DETAIL**

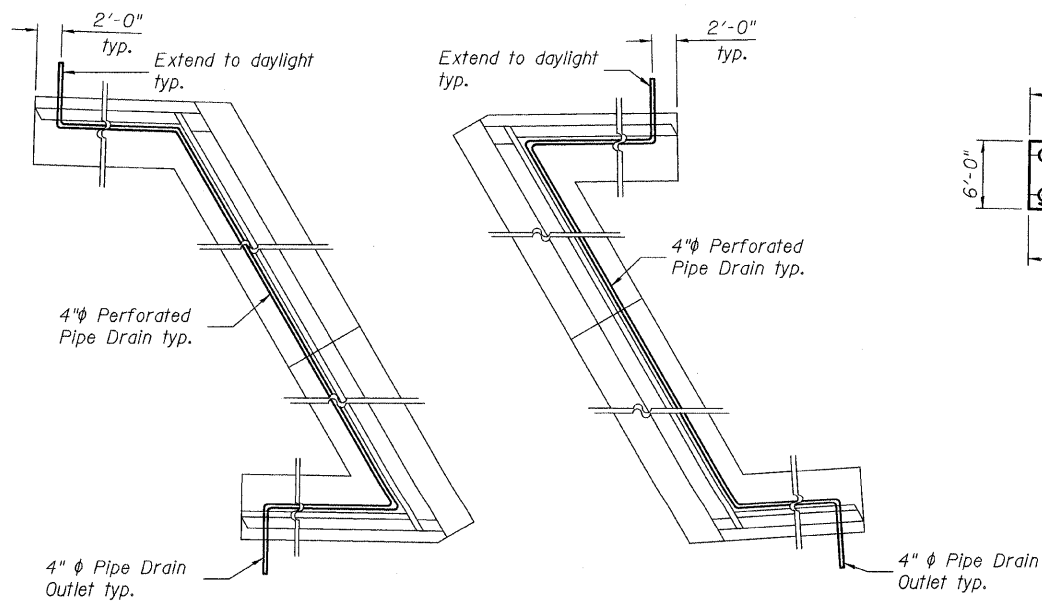
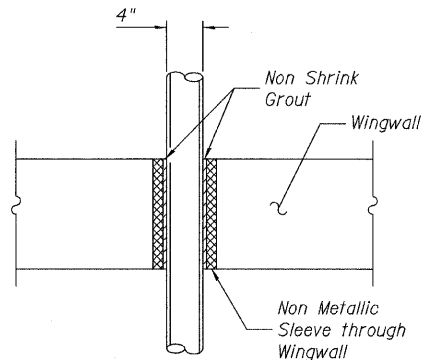


**SECTION THRU ABUTMENT**  
(Horiz. Dimensions @ Rt. L's)

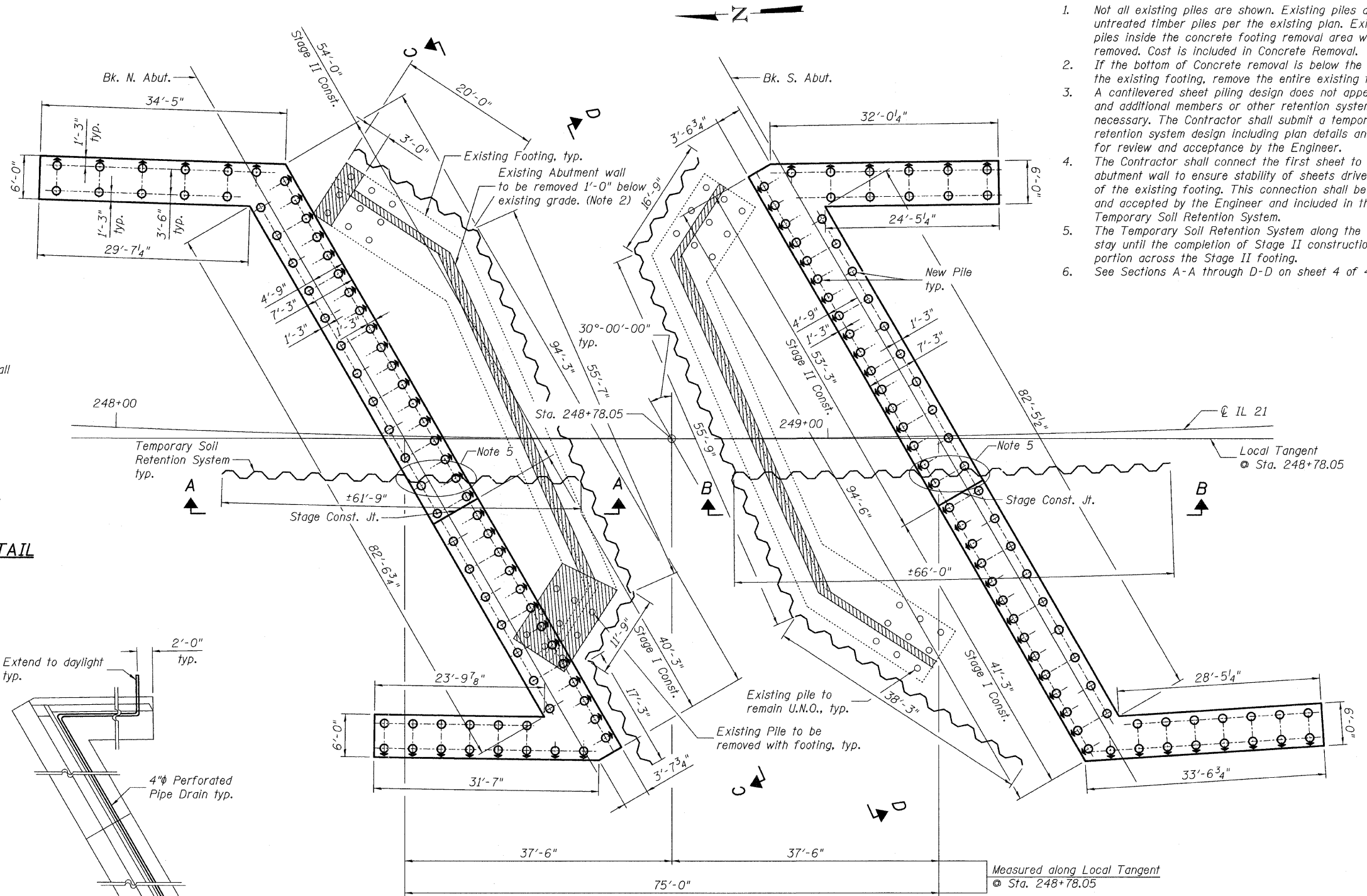
Notes:

1. Not all existing piles are shown. Existing piles are untreated timber piles per the existing plan. Existing piles inside the concrete footing removal area will be removed. Cost is included in Concrete Removal.
2. If the bottom of Concrete removal is below the top of the existing footing, remove the entire existing footing.
3. A cantilevered sheet piling design does not appear feasible and additional members or other retention systems may be necessary. The Contractor shall submit a temporary soil retention system design including plan details and calculations for review and acceptance by the Engineer.
4. The Contractor shall connect the first sheet to the existing abutment wall to ensure stability of sheets driven to the top of the existing footing. This connection shall be reviewed and accepted by the Engineer and included in the cost for Temporary Soil Retention System.
5. The Temporary Soil Retention System along the roadway will stay until the completion of Stage II construction, except the portion across the Stage II footing.
6. See Sections A-A through D-D on sheet 4 of 43.

**PIPE DRAIN THRU WINGWALL DETAIL**  
(Shift Reinforcing around outlet in Wingwall)






**PIPE DRAIN LAYOUT PLAN**



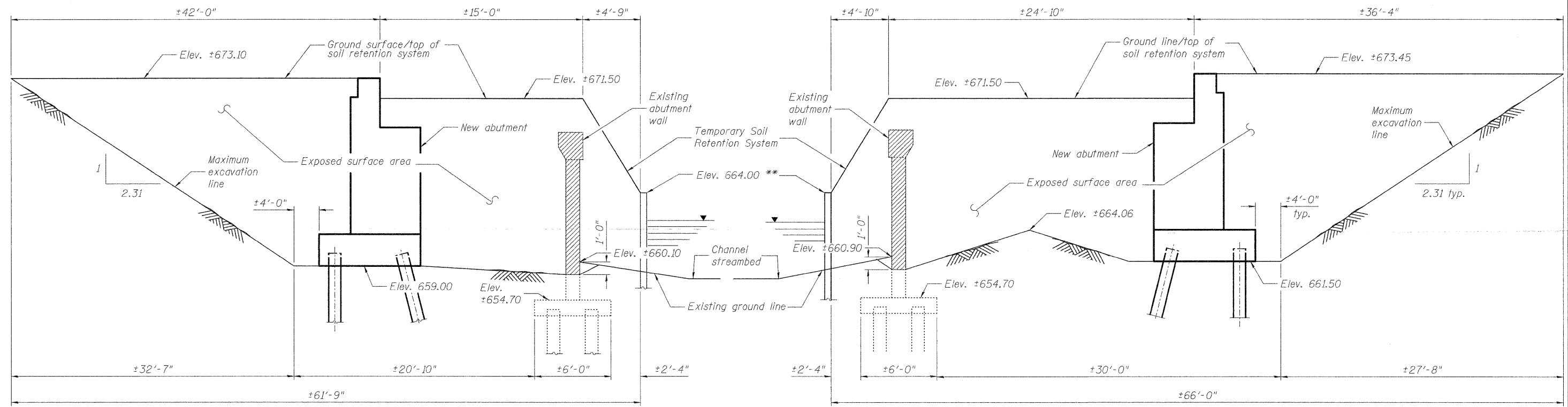
**SUBSTRUCTURE LAYOUT PLAN**

**LEGEND**

-  Concrete Removal
-  Metal Shell 14"φ x 0.25" wall
-  Battered Metal Shell 14"φ x 0.25" wall

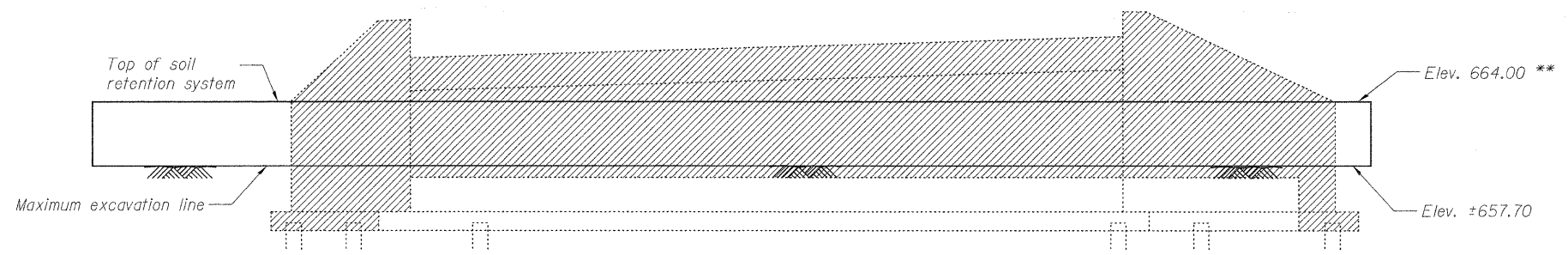
FILE NAME = 8498199-60953-003-StageConstSub.dgn	USER NAME =	DESIGNED - JY	REVISD -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>STAGE CONSTRUCTION - SUBSTRUCTURE STRUCTURE NO. 049-0199</b>	F.A.P. RTE. 330	SECTION 128R-3	COUNTY LAKE	TOTAL SHEETS 518	SHEET NO. 245		
PLOT SCALE =	CHECKED - WPM	REVISD -	SHEET NO. 3 OF 43 SHEETS			CONTRACT NO. 60953		ILLINOIS FED. AID PROJECT				
PLOT DATE = 12/28/2010	DRAWN - JY	REVISD -										
	CHECKED - WPM	REVISD -										





SECTION A-A

SECTION B-B



SECTION C-C

**LEGEND**  
 Concrete Removal

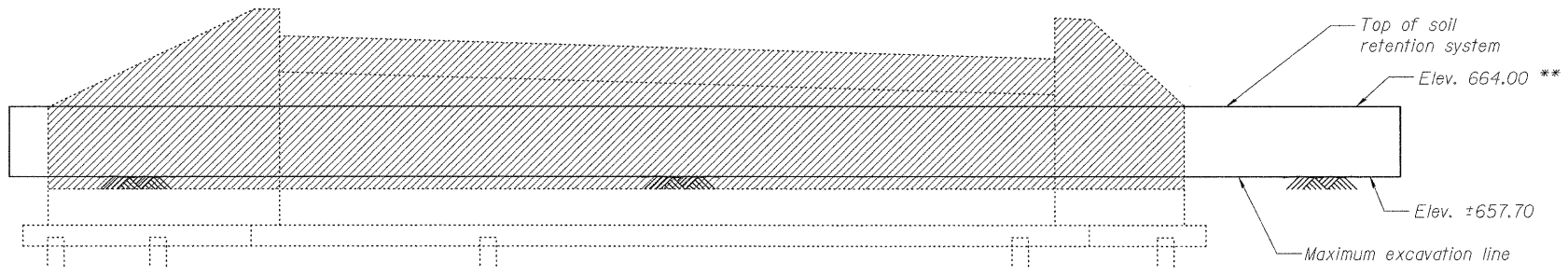
**BILL OF MATERIAL**

Item	Unit	Total
Concrete Removal	Cu. Yd.	81
Temporary Soil Retention System	Sq. Ft.	5,640

\* Special Provision

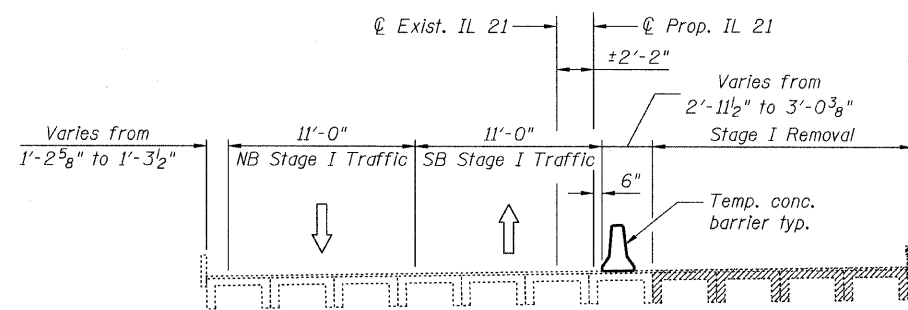
**Notes:**

- Excavate soil behind the existing abutment before removing the existing abutment wall.
- The stream work is expected in the low water level. The cost of dewatering the area behind the retention system for existing structure removal is included in Temporary Soil Retention System.
- \*\* 3. Adjust elevation based on water level in construction.
- See location of Sections A-A through D-D on sheet 3 of 43.

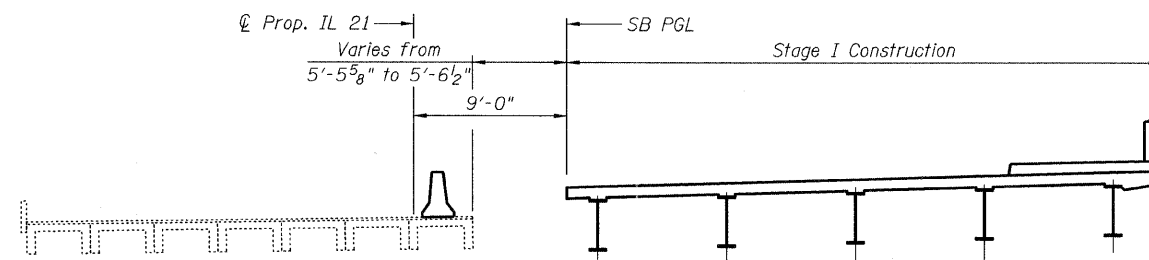


SECTION D-D

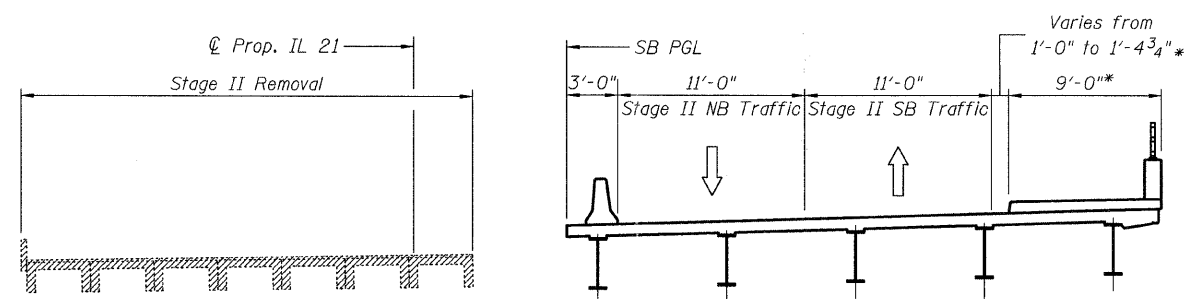




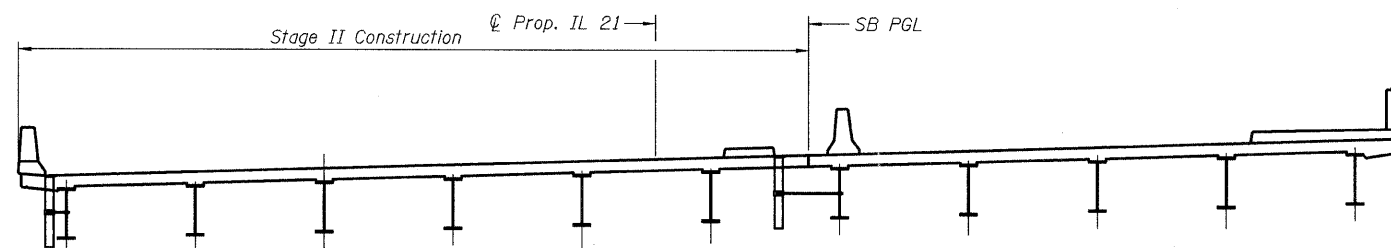
**STAGE I REMOVAL**



**STAGE I CONSTRUCTION**



**STAGE II REMOVAL**



**STAGE II CONSTRUCTION**

**Notes:**

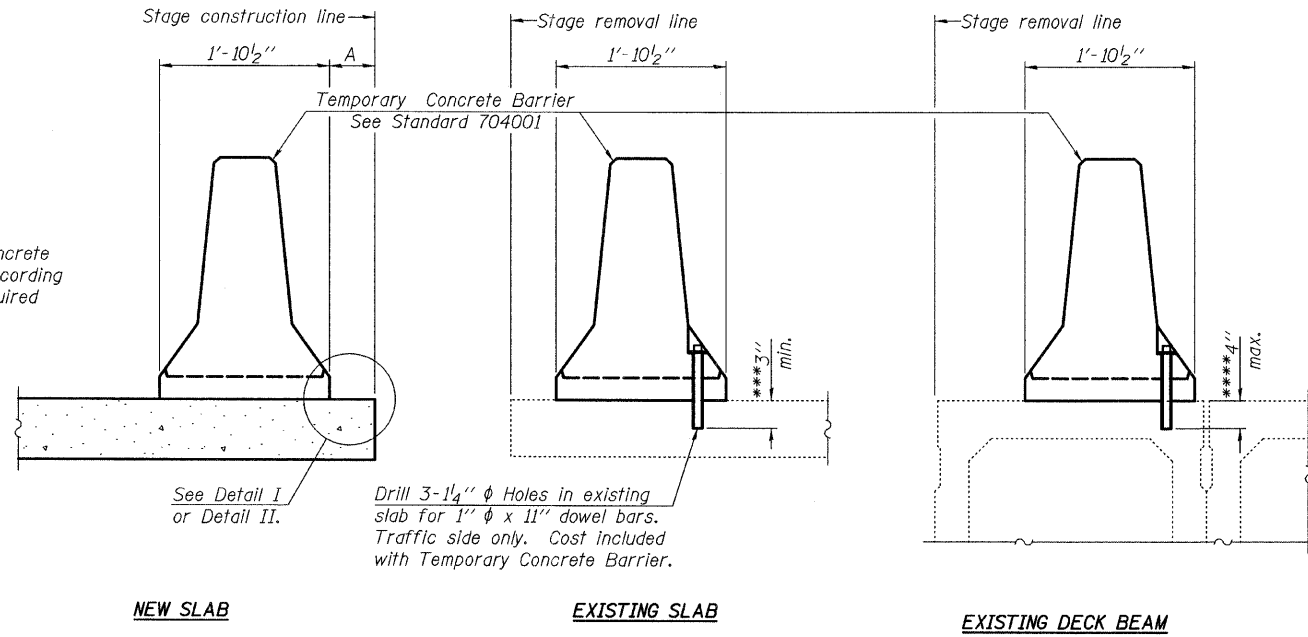
1. All staging cross sections are looking South.
2. For quantity of Temporary Concrete Barrier, see roadway plans.
3. Hatched areas indicate Removal of Existing Superstructures.
- \* 4. All horizontal dimensions are measured radially along proposed ℄ IL 21 unless denoted with "\*\*", which is measured perpendicular to the Local Tangent @ Sta. 248+78.05.

FILE NAME = 0490199-60953-005-StageConstSuper.dgn	USER NAME =	DESIGNED - JY	REVISIONS -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>STAGE CONSTRUCTION - SUPERSTRUCTURE STRUCTURE NO. 049-0199</b>	F.A.P. RTE. = 330	SECTION = 128R-3	COUNTY = LAKE	TOTAL SHEETS = 518	SHEET NO. = 247
FLUT SCALE =	DRAWN - JY	REVISIONS -	SHEET NO. 5 OF 43 SHEETS							
FLUT DATE = 12/20/2010	CHECKED - WPM	REVISIONS -	ILLINOIS FED. AID PROJECT							
			CONTRACT NO. 60953							





When "A" is 3'-6" or less, the temporary concrete barrier shall be anchored to the new slab according to Detail I or Detail II. No anchorage is required when "A" is greater than 3'-6".



**SECTIONS THRU SLAB OR DECK BEAM**

**NOTES**

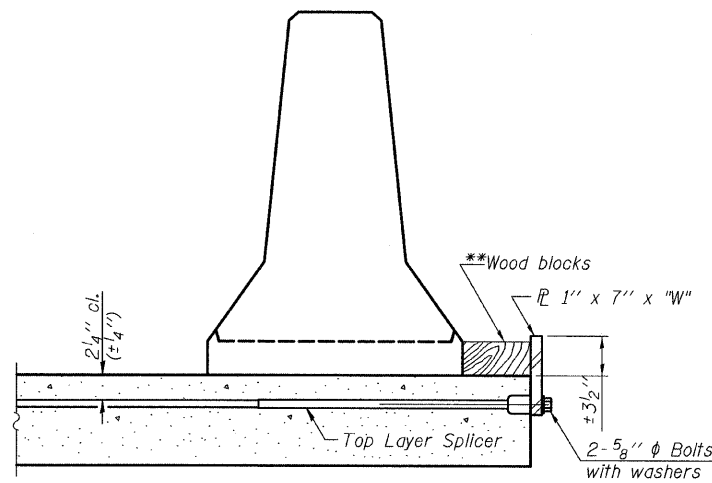
Detail I - With Bar Splicer or Couplers:  
Connect one (1) 1" x 7" x "W" steel PL to the top layer of couplers with 2-5/8" φ bolts screwed to coupler at approximate C of each barrier panel.

Detail II - With Extended Reinforcement Bars:  
Connect one (1) 1" x 7" x "W" steel PL to the concrete slab or concrete wearing surface with 2-5/8" φ Expansion Anchors or cast in place inserts spaced between the top layer of reinforcement at approximate C of each barrier panel.

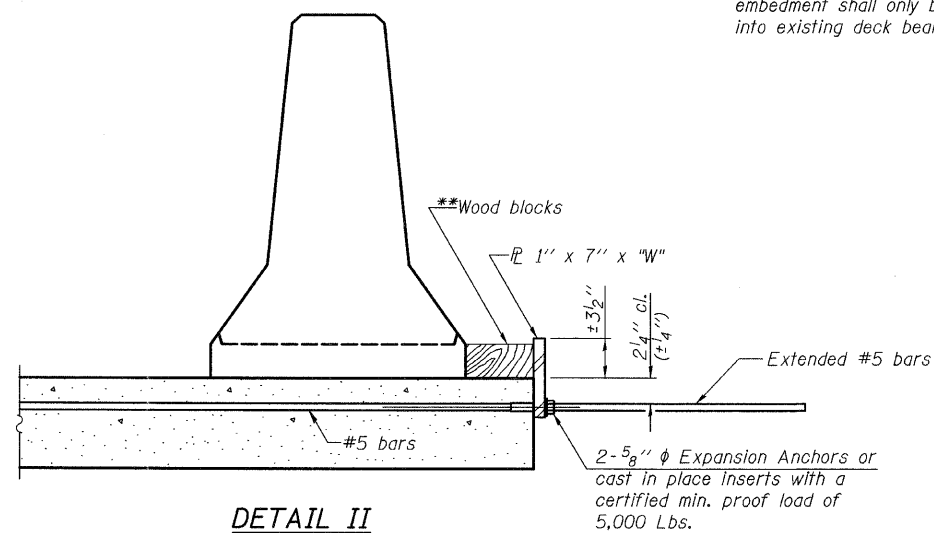
Cost of anchorage is included with Temporary Concrete Barrier. The 1" x 7" x "W" plate shall not be removed until stage II construction forms and all reinforcement bars are in place and the concrete is ready to be placed.

\*\*\* Dimension shown is minimum required embedment into concrete. If hot-mix asphalt wearing surface is present, minimum embedment shall be in addition to wearing surface depth.

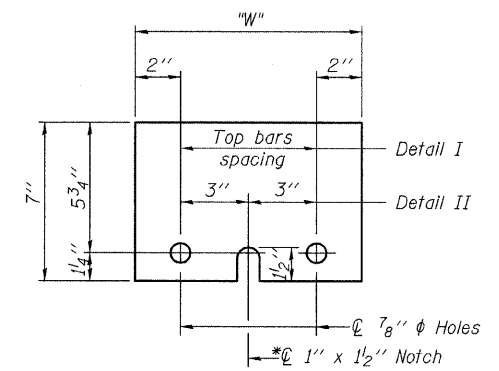
\*\*\*\* If existing deck beam is to remain in place after stage construction, embedment shall only be into wearing surface and not into existing deck beam concrete.



**DETAIL I**



**DETAIL II**



**STEEL RETAINER PL 1" x 7" x "W"**

\* Required only with Detail II

\*\* Wood blocks may be omitted when required to provide minimum stage traffic lane width. When the wood blocks are omitted, the concrete barrier shall be in direct contact with the steel retainer plate.

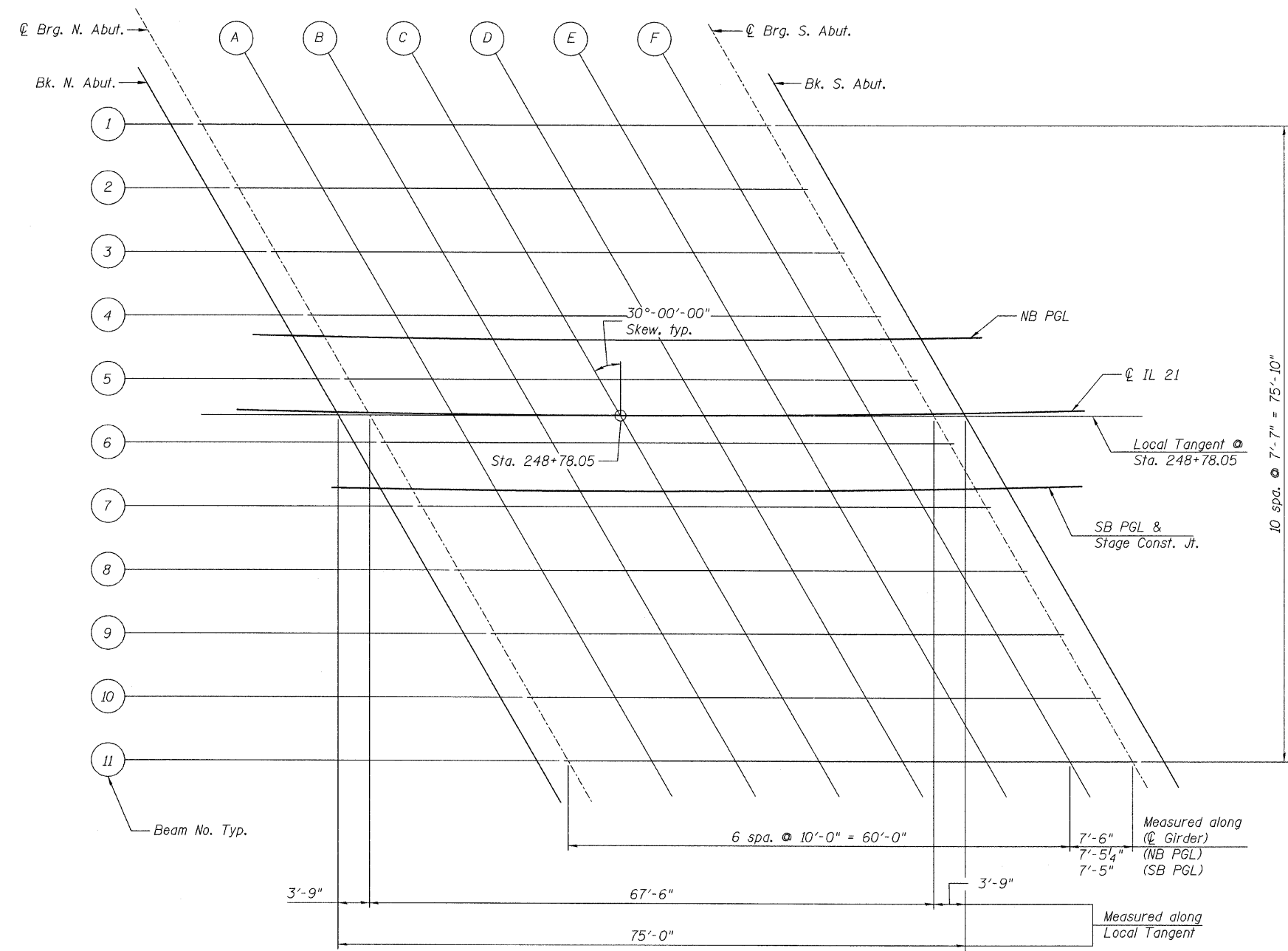
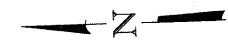
"W" = Top bars spacing + 4"

R-27

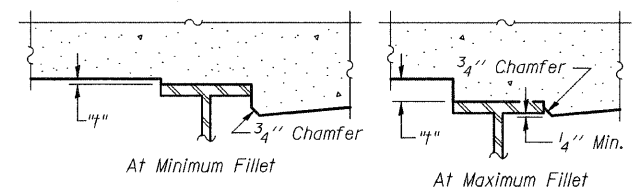
7-1-10

FILE NAME = 0490199-00953-006-TempBarrier.dgn	USER NAME =	DESIGNED - JY	REVISIONS -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION STRUCTURE NO. 049-0199</b>	F.A.P. RTE. = 330	SECTION = 128R-3	COUNTY = LAKE	TOTAL SHEETS = 518	SHEET NO. = 248	
PLOT SCALE =	DRAWN - JY	CHECKED - KO	REVISIONS -			CONTRACT NO. 60953					
PLOT DATE = 12/20/2010	CHECKED - KO	REVISIONS -	REVISIONS -			ILLINOIS FED. AID PROJECT					
SHEET NO. 6 OF 43 SHEETS											



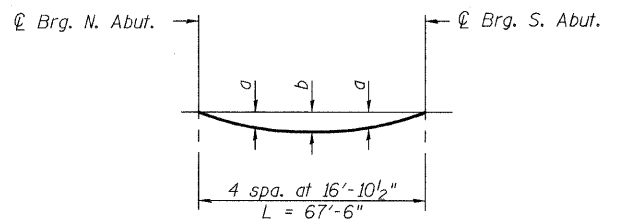


**PLAN**



To determine "t": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown below. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown on Sheets 8 and 9 of 43, minus slab thickness, equals the fillet heights "t" above top flange of beams.

**FILLET HEIGHTS**

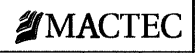


**DEAD LOAD DEFLECTION DIAGRAM**

(Includes weight of concrete only.)

Note:  
The above deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown on sheets 8 and 9 of 43.

Beam No.	a	b
1 thru 6	7/8"	1 1/4"
7 thru 11	1"	1 1/2"



**BEAM 1**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	248+19.54	-33.89	671.70	671.70
CL. Brg. N. Abut.	248+23.36	-33.94	671.72	671.72
A	248+33.53	-34.18	671.76	671.81
B	248+43.70	-34.38	671.81	671.89
C	248+53.87	-34.52	671.85	671.96
D	248+64.04	-34.62	671.90	672.00
E	248+74.21	-34.66	671.95	672.03
F	248+84.39	-34.66	672.00	672.04
CL. Brg. S. Abut.	248+92.01	-34.62	672.04	672.04
BK. S. Abut.	248+95.83	-34.59	672.06	672.06

**BEAM 2**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	248+24.20	-26.38	671.94	671.94
CL. Brg. N. Abut.	248+28.00	-26.47	671.96	671.96
A	248+38.13	-26.69	672.00	672.05
B	248+48.26	-26.87	672.05	672.14
C	248+58.39	-26.99	672.09	672.21
D	248+68.52	-27.06	672.14	672.25
E	248+78.65	-27.08	672.19	672.28
F	248+88.78	-27.06	672.24	672.28
CL. Brg. S. Abut.	248+96.37	-27.00	672.28	672.28
BK. S. Abut.	249+00.18	-26.96	672.30	672.30

**BEAM 3**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	248+28.82	-18.91	672.18	672.18
CL. Brg. N. Abut.	248+32.61	-18.99	672.20	672.20
A	248+42.72	-19.19	672.24	672.29
B	248+52.82	-19.34	672.29	672.38
C	248+62.93	-19.44	672.34	672.45
D	248+73.04	-19.49	672.38	672.49
E	248+83.15	-19.49	672.44	672.52
F	248+93.26	-19.44	672.49	672.53
CL. Brg. S. Abut.	249+00.82	-19.37	672.53	672.53
BK. S. Abut.	249+04.61	-19.33	672.53	672.53

**BEAM 4**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	248+33.41	-11.42	672.42	672.42
CL. Brg. N. Abut.	248+37.18	-11.51	672.44	672.44
A	248+47.24	-11.68	672.48	672.53
B	248+57.29	-11.81	672.53	672.62
C	248+67.35	-11.89	672.58	672.69
D	248+77.40	-11.92	672.63	672.73
E	248+87.46	-11.89	672.68	672.76
F	248+97.51	-11.82	672.73	672.77
CL. Brg. S. Abut.	249+05.05	-11.74	672.77	672.77
BK. S. Abut.	249+08.83	-11.68	672.79	672.79

**NB PGL**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	248+34.89	-9.00	672.50	672.50
CL. Brg. N. Abut.	248+38.70	-9.00	672.52	672.52
A	248+48.85	-9.00	672.57	672.62
B	248+58.97	-9.00	672.62	672.71
C	248+69.05	-9.00	672.67	672.78
D	248+79.11	-9.00	672.72	672.83
E	248+89.13	-9.00	672.77	672.85
F	248+99.13	-9.00	672.82	672.86
CL. Brg. S. Abut.	249+06.61	-9.00	672.86	672.86
BK. S. Abut.	249+10.35	-9.00	672.88	672.88

**BEAM 5**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	248+37.96	-3.94	672.66	672.66
CL. Brg. N. Abut.	248+41.69	-4.01	672.68	672.68
A	248+51.71	-4.16	672.72	672.77
B	248+61.73	-4.27	672.77	672.86
C	248+71.75	-4.32	672.82	672.93
D	248+81.77	-4.33	672.87	672.98
E	248+91.79	-4.29	672.92	673.00
F	249+01.81	-4.19	672.97	673.01
CL. Brg. S. Abut.	249+09.32	-4.09	673.01	673.01
BK. S. Abut.	249+13.08	-4.03	673.03	673.03

**BEAM 6**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	248+42.48	3.56	672.90	672.90
CL. Brg. N. Abut.	248+46.22	3.50	672.92	672.92
A	248+56.21	3.37	672.96	673.02
B	248+66.19	3.28	673.01	673.10
C	248+76.17	3.25	673.06	673.17
D	248+86.15	3.27	673.11	673.22
E	248+96.13	3.33	673.16	673.25
F	249+06.11	3.45	673.22	673.25
CL. Brg. S. Abut.	249+13.59	3.56	673.26	673.26
BK. S. Abut.	249+17.34	3.63	673.28	673.28

**SB PGL & STAGE CONSTRUCTION JOINT**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	248+45.73	9.00	673.07	673.07
CL. Brg. N. Abut.	248+49.50	9.00	673.09	673.09
A	248+59.53	9.00	673.14	673.20
B	248+69.52	9.00	673.19	673.28
C	248+79.49	9.00	673.24	673.35
D	248+89.43	9.00	673.29	673.40
E	248+99.34	9.00	673.34	673.43
F	249+09.22	9.00	673.39	673.43
CL. Brg. S. Abut.	249+16.61	9.00	673.43	673.43
BK. S. Abut.	249+20.30	9.00	673.45	673.45

**BEAM 7**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	248+46.97	11.07	673.14	673.14
CL. Brg. N. Abut.	248+50.70	11.02	673.16	673.16
A	248+60.65	10.91	673.20	673.26
B	248+70.59	10.85	673.25	673.34
C	248+80.54	10.83	673.30	673.41
D	248+90.48	10.87	673.35	673.46
E	249+00.43	10.96	673.40	673.49
F	249+10.38	11.09	673.46	673.50
CL. Brg. S. Abut.	249+17.83	11.23	673.50	673.50
BK. S. Abut.	249+21.56	11.30	673.52	673.52

Note:  
Stations and offsets are based on  $\mathcal{C}$  IL21.



**BEAM 8**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	248+51.42	18.59	673.38	673.38
CL. Brg. N. Abut.	248+55.14	18.55	673.40	673.40
A	248+65.05	18.46	673.45	673.50
B	248+74.96	18.42	673.49	673.59
C	248+84.87	18.43	673.54	673.66
D	248+94.78	18.49	673.60	673.70
E	249+04.69	18.59	673.65	673.73
F	249+14.60	18.75	673.70	673.74
CL. Brg. S. Abut.	249+22.03	18.90	673.74	673.74
BK. S. Abut.	249+25.74	18.98	673.76	673.76

**BEAM 9**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	248+55.84	26.12	673.62	673.62
CL. Brg. N. Abut.	248+59.55	26.09	673.64	673.64
A	248+69.42	26.02	673.69	673.74
B	248+79.29	26.00	673.74	673.83
C	248+89.16	26.03	673.79	673.90
D	248+99.03	26.11	673.84	673.95
E	249+08.90	26.24	673.89	673.97
F	249+18.78	26.42	673.95	673.98
CL. Brg. S. Abut.	249+26.17	26.58	673.99	673.99
BK. S. Abut.	249+29.87	26.67	674.01	674.01

**BEAM 10**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	248+60.23	33.66	673.86	673.86
CL. Brg. N. Abut.	248+63.92	33.63	673.88	673.88
A	248+73.76	33.59	673.93	673.98
B	248+83.59	33.59	673.98	674.07
C	248+93.43	33.64	674.03	674.14
D	249+03.27	33.74	674.08	674.19
E	249+13.10	33.89	674.13	674.22
F	249+22.94	34.09	674.19	674.23
CL. Brg. S. Abut.	249+30.31	34.27	674.23	674.23
BK. S. Abut.	249+34.00	34.37	674.25	674.25

**BEAM 11**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	248+64.59	41.21	674.10	674.10
CL. Brg. N. Abut.	248+68.27	41.19	674.12	674.12
A	248+78.07	41.17	674.17	674.22
B	248+87.87	41.19	674.22	674.30
C	248+97.67	41.26	674.27	674.37
D	249+07.47	41.39	674.32	674.42
E	249+17.27	41.55	674.38	674.45
F	249+27.07	41.77	674.43	674.47
CL. Brg. S. Abut.	249+34.42	41.97	674.47	674.47
BK. S. Abut.	249+38.09	42.08	674.50	674.50

Note:  
Stations and offsets are based on  $\mathcal{Q}$  IL21.



FILE NAME = 0490199-60953-009-SlabEL_2.dgn	USER NAME =	DESIGNED - KO	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>TOP OF SLAB ELEVATIONS - 2 OF 2 STRUCTURE NO. 049-0199</b>	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
PLOT SCALE =	CHECKED - WPM	REVISED -	330			128R-3	LAKE	518	251	
PLOT DATE = 12/28/2010	DRAWN - KO	REVISED -	CONTRACT NO. 60953							
	CHECKED - WPM	REVISED -	ILLINOIS FED. AID PROJECT							

**EAST EDGE OF NB SHOULDER**

Location	Station	Offset	Theoretical Grade Elevations
N. End North Appr. Pav't.	247+88.68	-34.99	671.51
A1	247+98.86	-35.10	671.56
A2	248+09.08	-35.14	671.61
S. End North Appr. Pav't.	248+19.33	-35.14	671.66

**EAST EDGE OF NB PAVEMENT**

Location	Station	Offset	Theoretical Grade Elevations
N. End North Appr. Pav't.	247+89.78	-33.00	671.57
A1	248+00.20	-33.00	671.62
A2	248+10.44	-33.00	671.68
S. End North Appr. Pav't.	248+20.66	-33.00	671.73

**EAST EDGE OF SB SHOULDER**

Location	Station	Offset	Theoretical Grade Elevations
N. End North Appr. Pav't.	248+15.26	7.00	672.86
A1	248+25.22	7.00	672.91
A2	248+35.17	7.00	672.96
S. End North Appr. Pav't.	248+45.12	7.00	673.01

**SB PGL, STAGE CONST. JT.  
EAST EDGE OF SB PAVEMENT**

Location	Station	Offset	Theoretical Grade Elevations
N. End North Appr. Pav't.	248+16.50	9.00	672.92
A1	248+26.44	9.00	672.97
A2	248+36.37	9.00	673.02
S. End North Appr. Pav't.	248+46.31	9.00	673.07

**NB PGL**

Location	Station	Offset	Theoretical Grade Elevations
N. End North Appr. Pav't.	248+05.29	-9.00	672.35
A1	248+15.35	-9.00	672.40
A2	248+25.42	-9.00	672.45
S. End North Appr. Pav't.	248+35.48	-9.00	672.50

**WEST EDGE OF NB PAVEMENT**

Location	Station	Offset	Theoretical Grade Elevations
N. End North Appr. Pav't.	248+12.79	3.00	672.73
A1	248+22.77	3.00	672.78
A2	248+32.75	3.00	672.83
S. End North Appr. Pav't.	248+42.73	3.00	672.88

**WEST EDGE OF SB PAVEMENT**

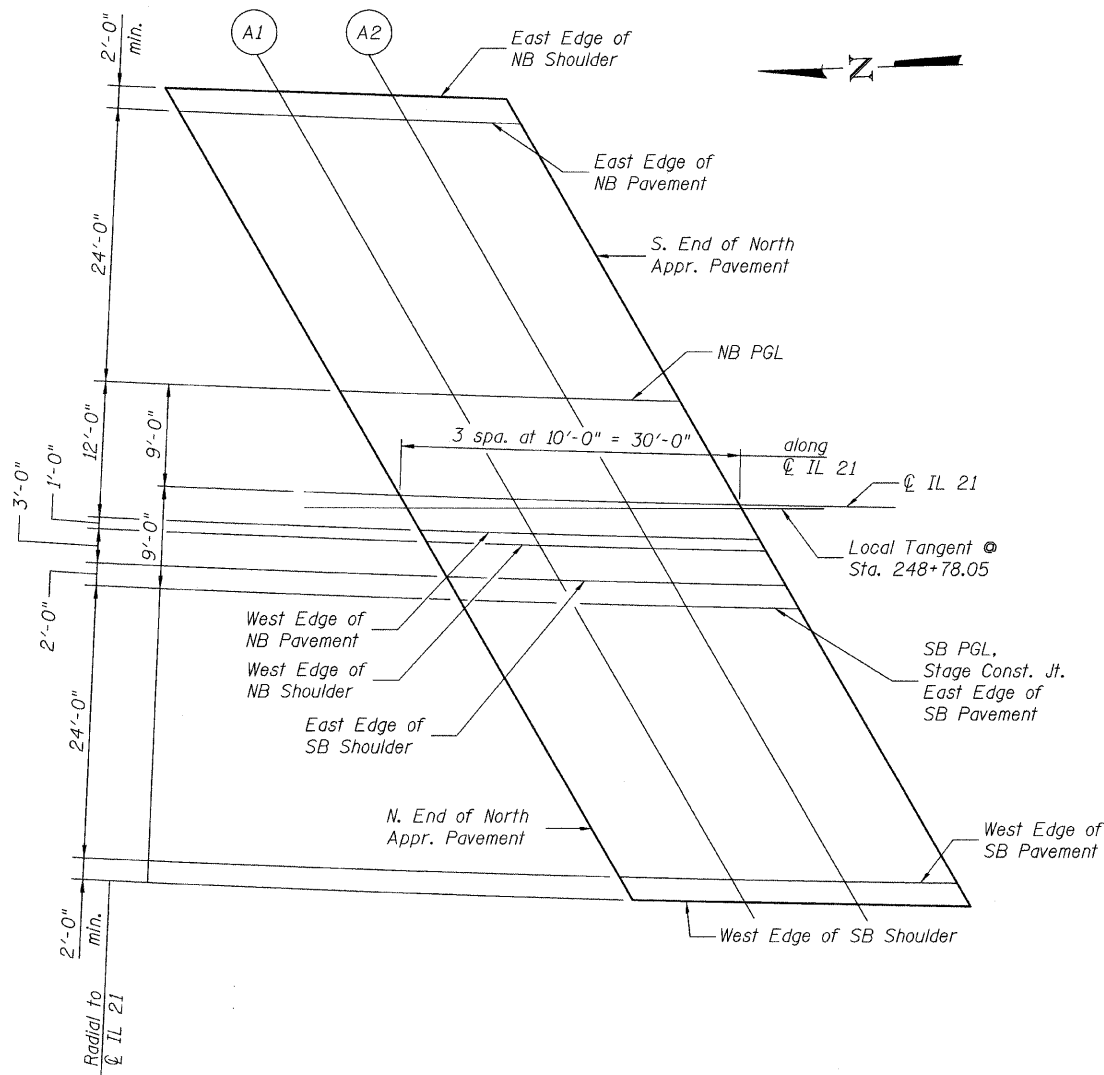
Location	Station	Offset	Theoretical Grade Elevations
N. End North Appr. Pav't.	248+31.07	33.00	673.69
A1	248+40.85	33.00	673.74
A2	248+50.64	33.00	673.79
S. End North Appr. Pav't.	248+60.42	33.00	673.84

**WEST EDGE OF NB SHOULDER**

Location	Station	Offset	Theoretical Grade Elevations
N. End North Appr. Pav't.	248+13.41	4.00	672.76
A1	248+23.38	4.00	672.81
A2	248+33.35	4.00	672.86
S. End North Appr. Pav't.	248+43.33	4.00	672.91

**WEST EDGE OF SB SHOULDER**

Location	Station	Offset	Theoretical Grade Elevations
N. End North Appr. Pav't.	248+32.27	34.99	672.76
A1	248+42.02	34.96	672.80
A2	248+51.79	34.98	672.85
S. End North Appr. Pav't.	248+61.60	35.04	672.90



**NORTH APPROACH SLAB PLAN**



**EAST EDGE OF NB SHOULDER**

Location	Station	Offset	Theoretical Grade Elevations
N. End South Appr. Pav't.	248+94.51	-35.87	672.01
A3	249+04.73	-35.90	672.06
A4	249+14.98	-35.88	672.11
S. End South Appr. Pav't.	249+25.26	-35.80	672.17

**EAST EDGE OF NB PAVEMENT**

Location	Station	Offset	Theoretical Grade Elevations
N. End South Appr. Pav't.	248+96.17	-33.00	672.10
A3	249+06.38	-33.00	672.16
A4	249+16.60	-33.00	672.21
S. End South Appr. Pav't.	249+26.82	-33.00	672.26

**EAST EDGE OF SB SHOULDER**

Location	Station	Offset	Theoretical Grade Elevations
N. End South Appr. Pav't.	249+18.64	7.00	673.38
A3	249+28.59	7.00	673.43
A4	249+38.55	7.00	673.48
S. End South Appr. Pav't.	249+48.50	7.00	673.53

**SB PGL, STAGE CONST. JT.  
EAST EDGE OF SB PAVEMENT**

Location	Station	Offset	Theoretical Grade Elevations
N. End South Appr. Pav't.	249+19.74	9.00	673.44
A3	249+29.67	9.00	673.49
A4	249+39.62	9.00	673.54
S. End South Appr. Pav't.	249+49.56	9.00	673.59

**NB PGL**

Location	Station	Offset	Theoretical Grade Elevations
N. End South Appr. Pav't.	249+09.77	-9.00	672.87
A3	249+19.83	-9.00	672.92
A4	249+29.89	-9.00	672.97
S. End South Appr. Pav't.	249+39.95	-9.00	673.02

**WEST EDGE OF NB PAVEMENT**

Location	Station	Offset	Theoretical Grade Elevations
N. End South Appr. Pav't.	249+16.43	3.00	673.25
A3	249+26.42	3.00	673.30
A4	249+36.40	3.00	673.35
S. End South Appr. Pav't.	249+46.38	3.00	673.40

**WEST EDGE OF SB PAVEMENT**

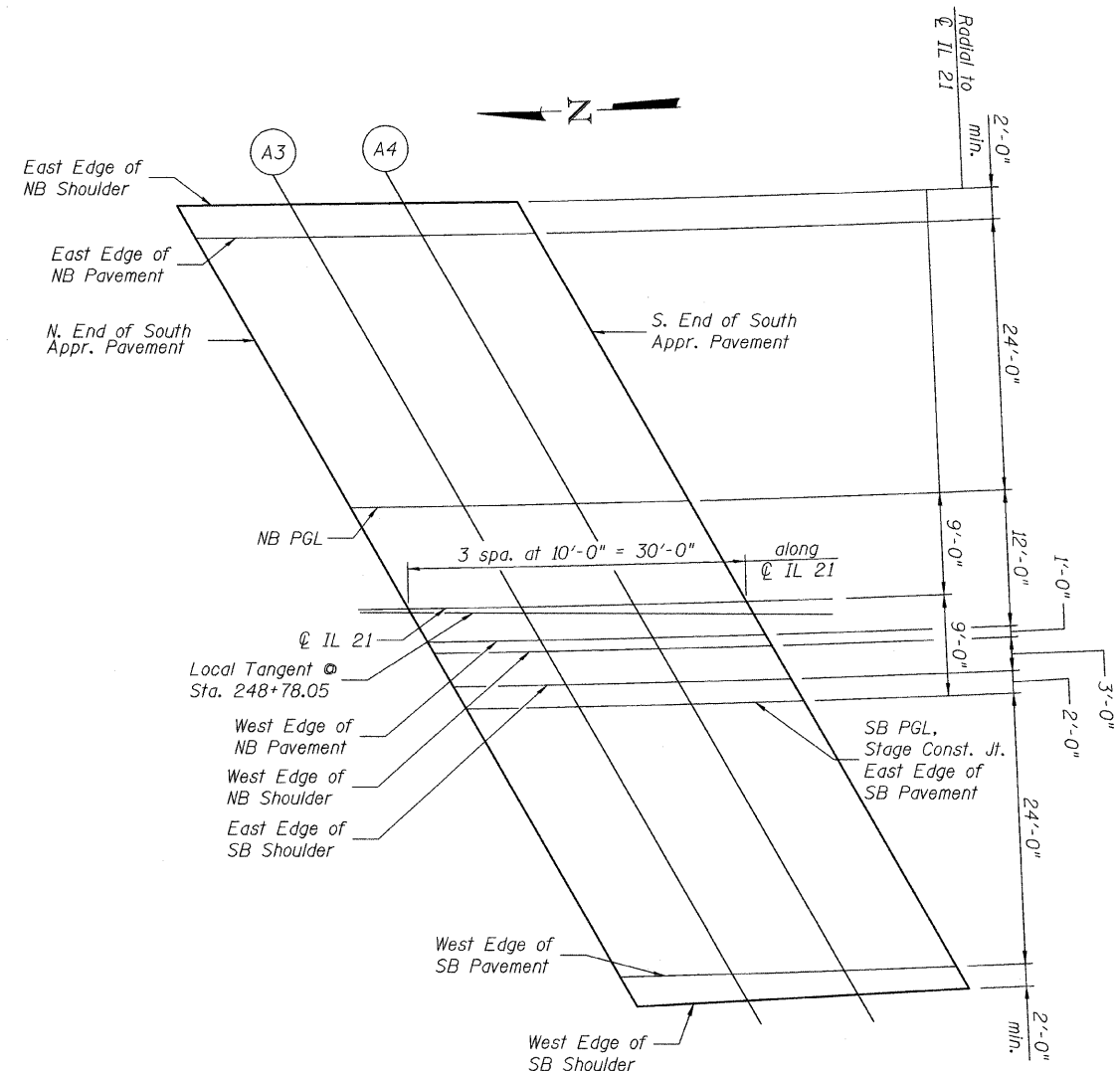
Location	Station	Offset	Theoretical Grade Elevations
N. End South Appr. Pav't.	249+32.70	33.00	674.20
A3	249+42.49	33.00	674.25
A4	249+52.29	33.00	674.30
S. End South Appr. Pav't.	249+62.08	33.00	674.35

**WEST EDGE OF NB SHOULDER**

Location	Station	Offset	Theoretical Grade Elevations
N. End South Appr. Pav't.	249+16.99	4.00	673.28
A3	249+26.96	4.00	673.33
A4	249+36.93	4.00	673.38
S. End South Appr. Pav't.	249+46.91	4.00	673.43

**WEST EDGE OF SB SHOULDER**

Location	Station	Offset	Theoretical Grade Elevations
N. End South Appr. Pav't.	249+34.13	35.69	674.29
A3	249+43.76	35.41	674.33
A4	249+53.42	35.18	674.37
S. End South Appr. Pav't.	249+63.11	34.99	674.41



**SOUTH APPROACH SLAB PLAN**

FILE NAME = 8498199-68953-811-S.Appr.EL.dgn	USER NAME =	DESIGNED - KO	REVISIONS -
		CHECKED - WPM	REVISIONS -
		DRAWN - KO	REVISIONS -
		CHECKED - WPM	REVISIONS -
			REVISIONS -

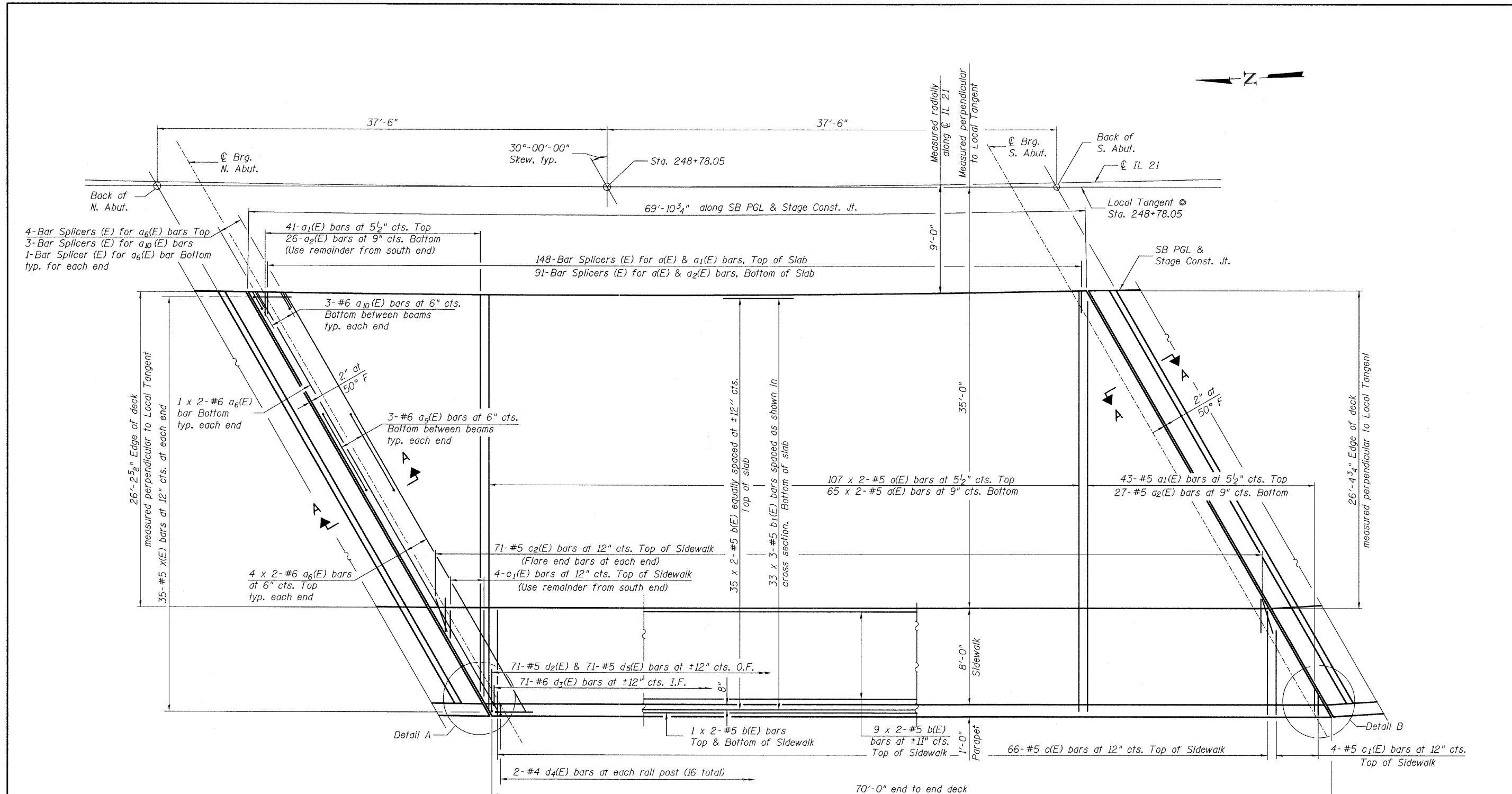
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**TOP OF SOUTH APPROACH SLAB ELEVATIONS  
STRUCTURE NO. 049-0199**

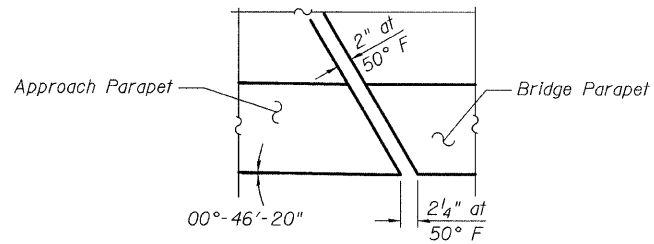
SHEET NO. 11 OF 43 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	128R-3	LAKE	518	253
CONTRACT NO. 60953			ILLINOIS FED. AID PROJECT	

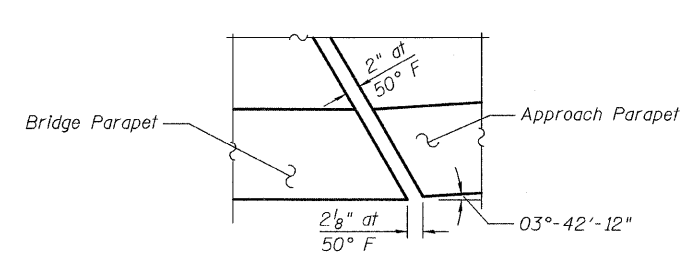




**STAGE I DECK PLAN**



**DETAIL A**

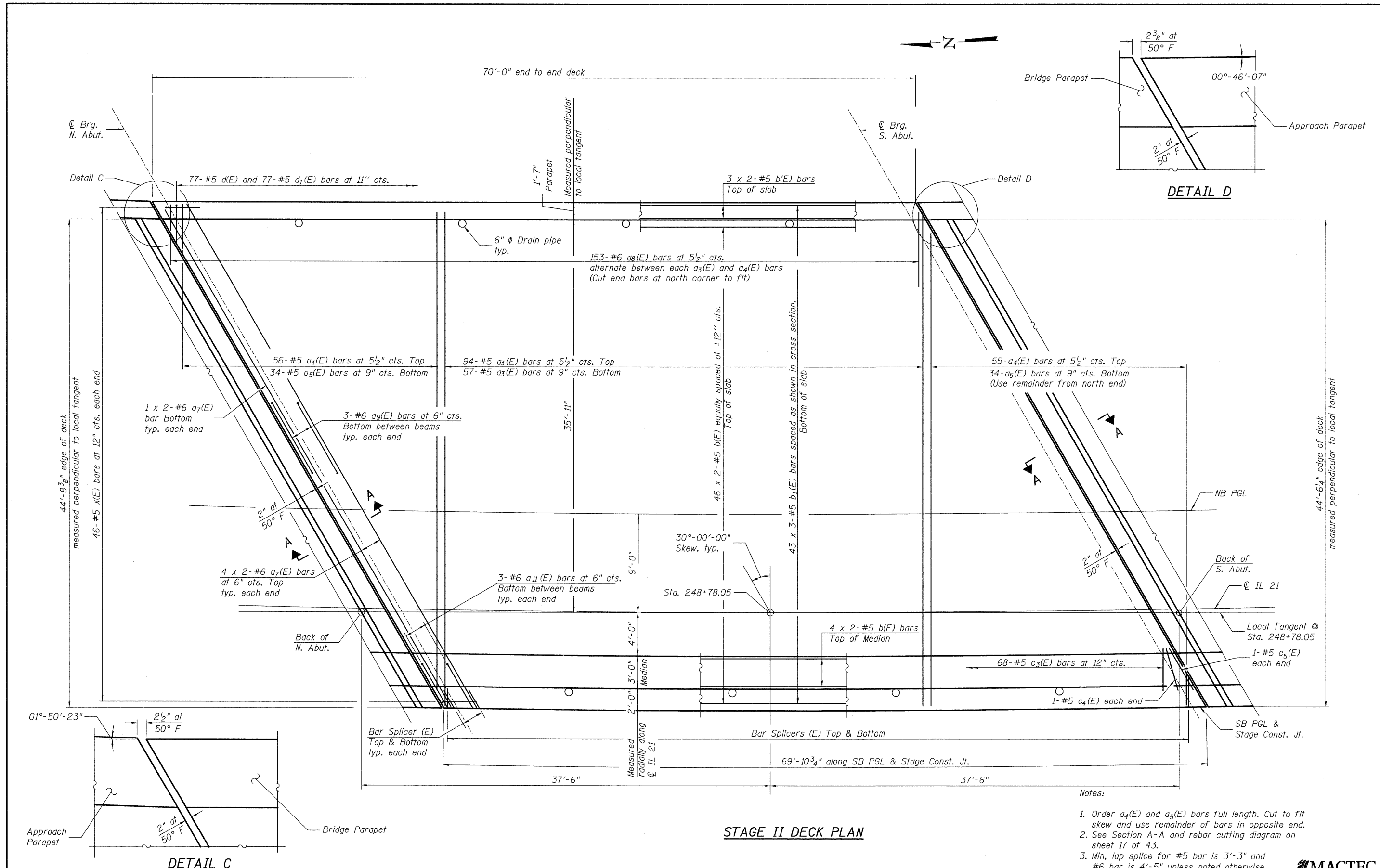


**DETAIL B**

- Notes:
1. Order  $a_1(E)$ ,  $a_2(E)$  and  $c_1(E)$  bars full length. Cut to fit skew and use remainder of bars in opposite end.
  2. See Section A-A and rebar cutting diagram on sheet 17 of 43.
  3. Min. lap splice for #5 bar is 3'-3" and #6 bar is 4'-5" unless noted otherwise.

FILE NAME = 0490199-60953-012-DeckPlan_Stage_I.dgn	USER NAME =	DESIGNED - KO	REVISIONS -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>STAGE I DECK PLAN STRUCTURE NO. 049-0199</b>	F.A.P. RTE. 330	SECTION 128R-3	COUNTY LAKE	TOTAL SHEETS 518	SHEET NO. 254
PLOT SCALE =	CHECKED - JY	REVISIONS -	SHEET NO. 12 OF 43 SHEETS			CONTRACT NO. 60953				
PLOT DATE = 12/20/2010	DRAWN - KO	REVISIONS -	ILLINOIS FED. AID PROJECT							
	CHECKED - JY	REVISIONS -								

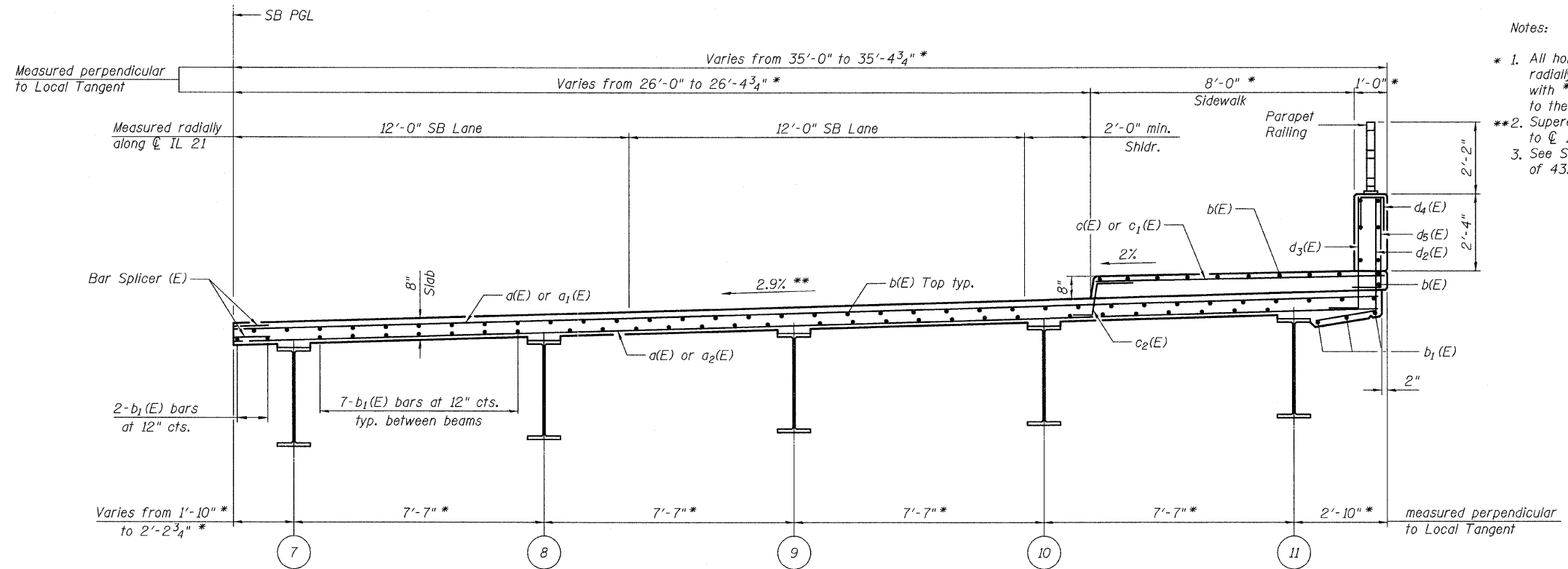




- Notes:
1. Order  $a_4(E)$  and  $a_5(E)$  bars full length. Cut to fit skew and use remainder of bars in opposite end.
  2. See Section A-A and rebar cutting diagram on sheet 17 of 43.
  3. Min. lap splice for #5 bar is 3'-3" and #6 bar is 4'-5" unless noted otherwise.

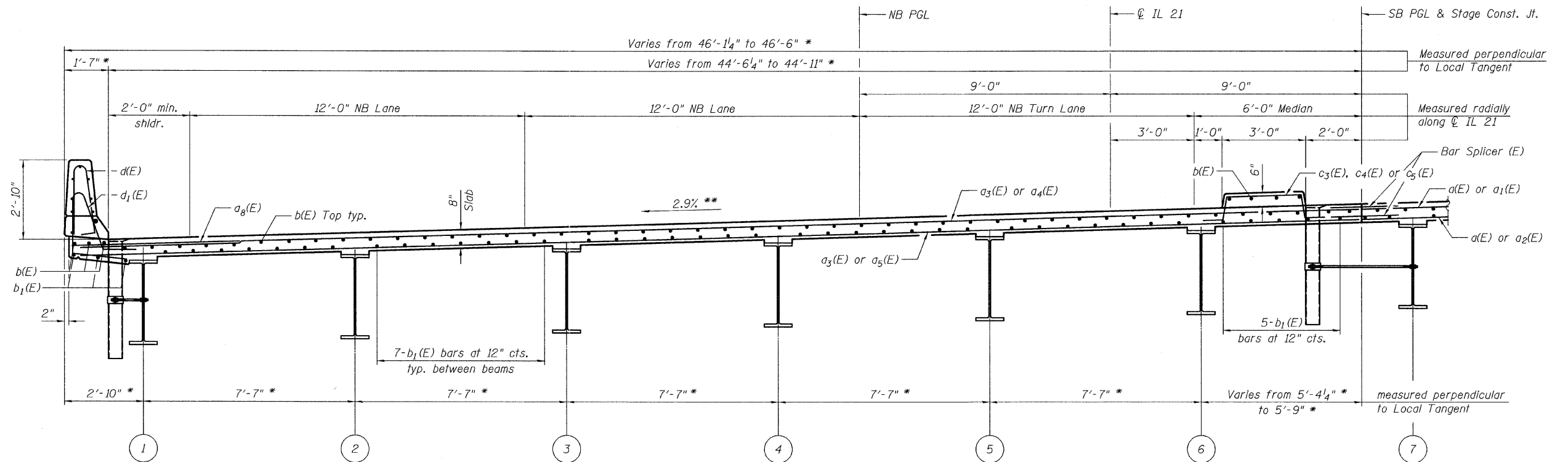
FILE NAME = 0490199-60953-013-DeckPlan.Stage.II.dgn	USER NAME =	DESIGNED - KO	REVISD -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>STAGE II DECK PLAN STRUCTURE NO. 049-0199</b>	F.A.P. RTE. 330	SECTION 128R-3	COUNTY LAKE	TOTAL SHEETS 518	SHEET NO. 255	
PLOT SCALE =	DRAWN - KO	REVISD -	CONTRACT NO. 60953								
PLOT DATE = 12/20/2010	CHECKED - JY	REVISD -	ILLINOIS FED. AID PROJECT								
SHEET NO. 13 OF 43 SHEETS											





**STAGE I DECK CROSS SECTION**  
(Looking South)

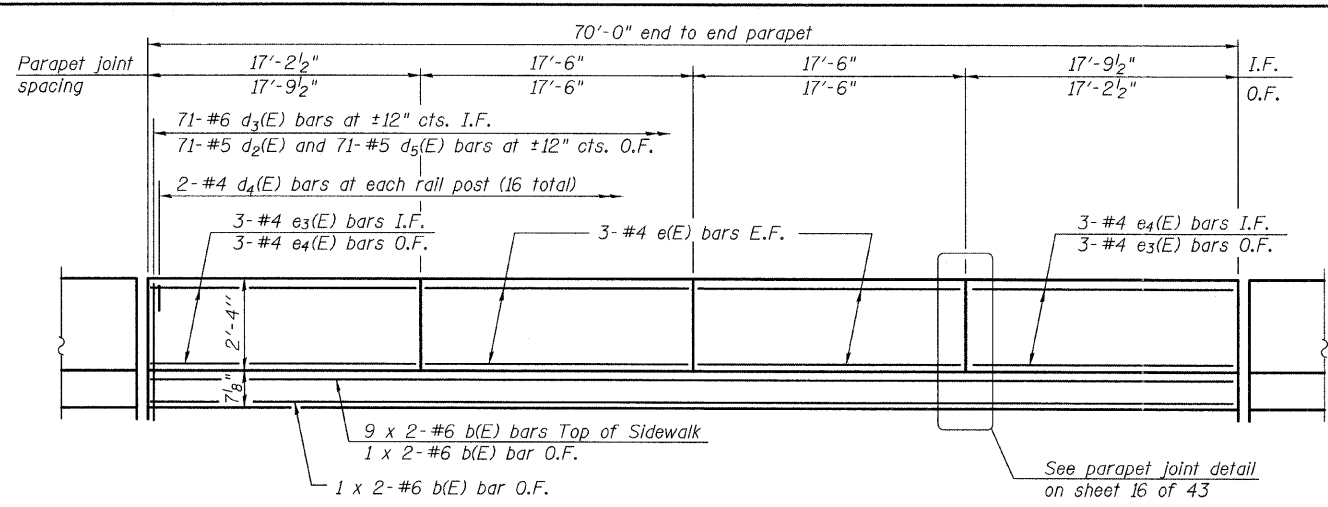
- Notes:
- \* 1. All horizontal dimensions are measured radially along  $\phi$  IL 21 unless denoted with \*, which is measured perpendicular to the Local Tangent @ Sta. 248+78.05.
  - \*\*2. Superelevation on deck is perpendicular to  $\phi$  IL 21.
  - 3. See Section thru Median on Sheet 17 of 43.



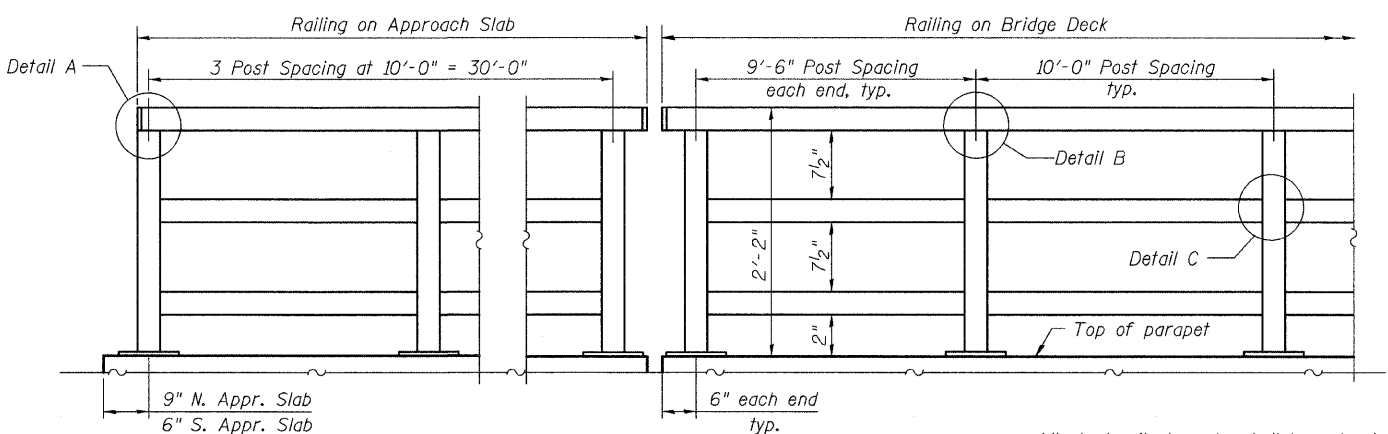
**STAGE II DECK CROSS SECTION**  
(Looking South)

FILE NAME = 0498199-60953-014-DeckSection.dgn	USER NAME =	DESIGNED - KO	REVISED -	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>DECK CROSS SECTION</b> <b>STRUCTURE NO. 049-0199</b>	F.A.P. RTE. = 330	SECTION = 128R-3	COUNTY = LAKE	TOTAL SHEETS = 518	SHEET NO. = 256
	PLOT SCALE =	CHECKED - JY	REVISED -			SHEET NO. 14 OF 43 SHEETS	ILLINOIS FED. AID PROJECT			
	PLOT DATE = 12/20/2018	DRAWN - KO	REVISED -							
		CHECKED - JY	REVISED -							



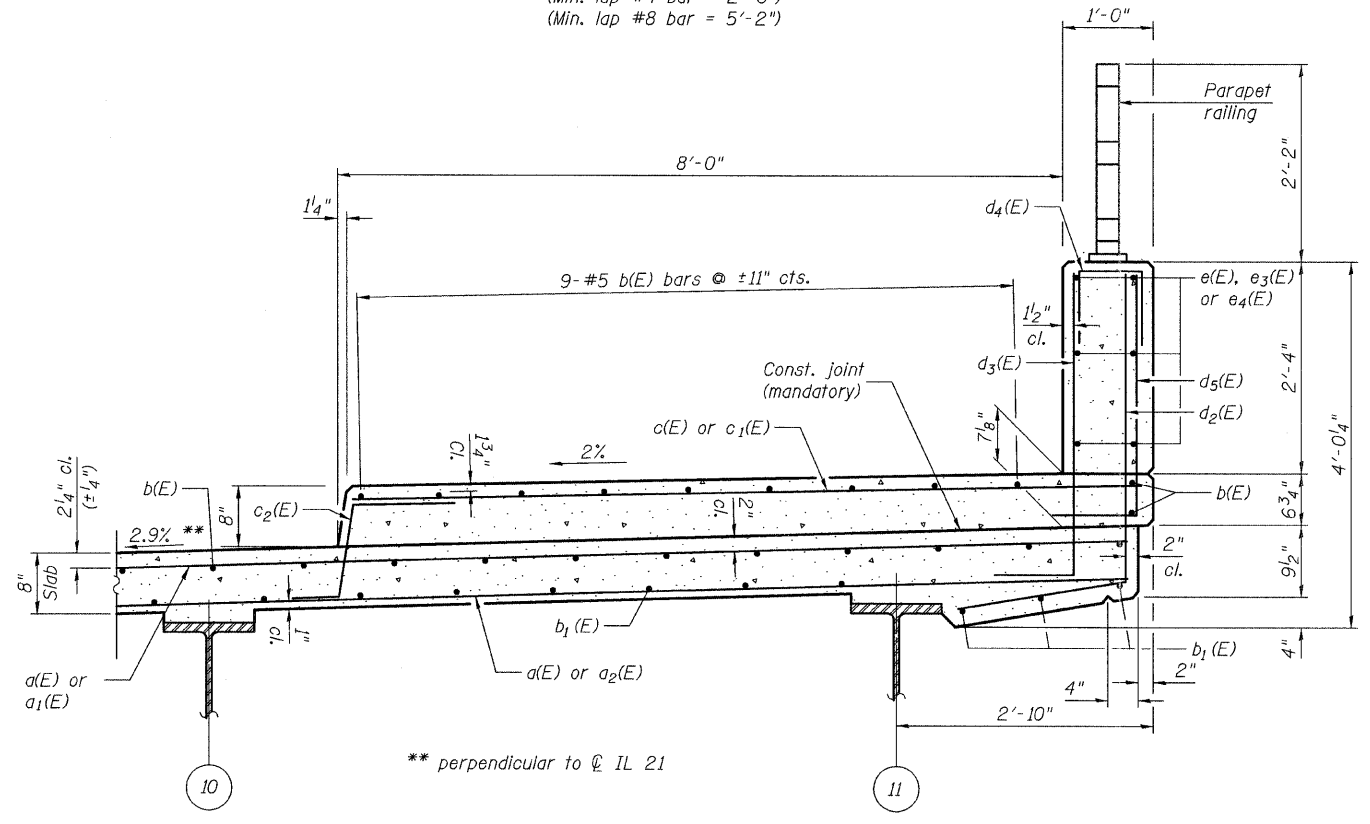


**INSIDE ELEVATION OF WEST PARAPET**  
 (Min. lap #4 bar = 2'-0")  
 (Min. lap #8 bar = 5'-2")

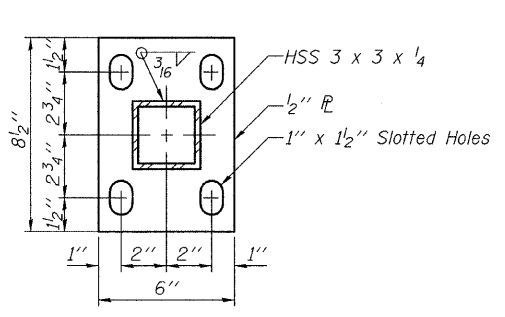


**PARAPET RAILING ELEVATION**

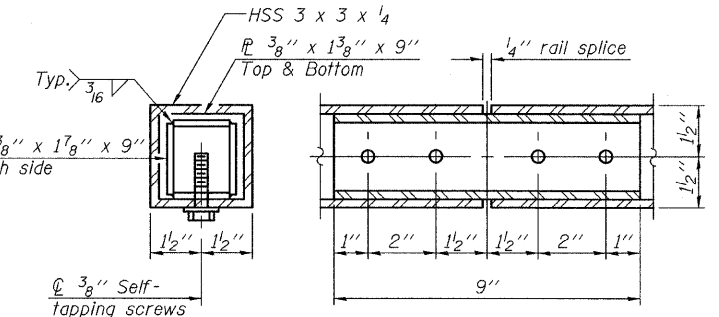
All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.



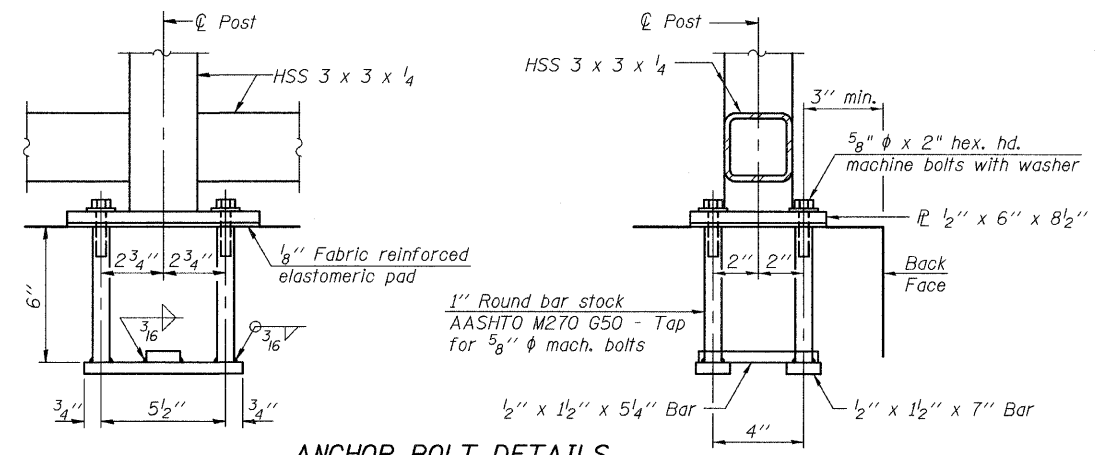
**SECTION THRU WEST PARAPET**



**BASE PL**

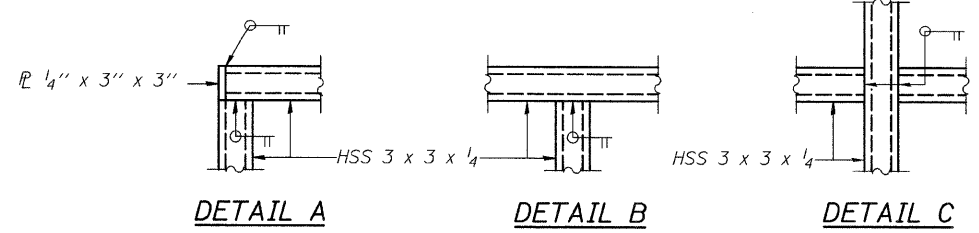


**RAIL SPLICE**



**ANCHOR BOLT DETAILS**

In lieu of the cast-in-place anchor device shown, the Contractor has the option of drilling and setting 5/8" φ anchor rods according to Article 509.06 of the Standard Specifications. Embedment shall be according to the manufacturer's specifications.



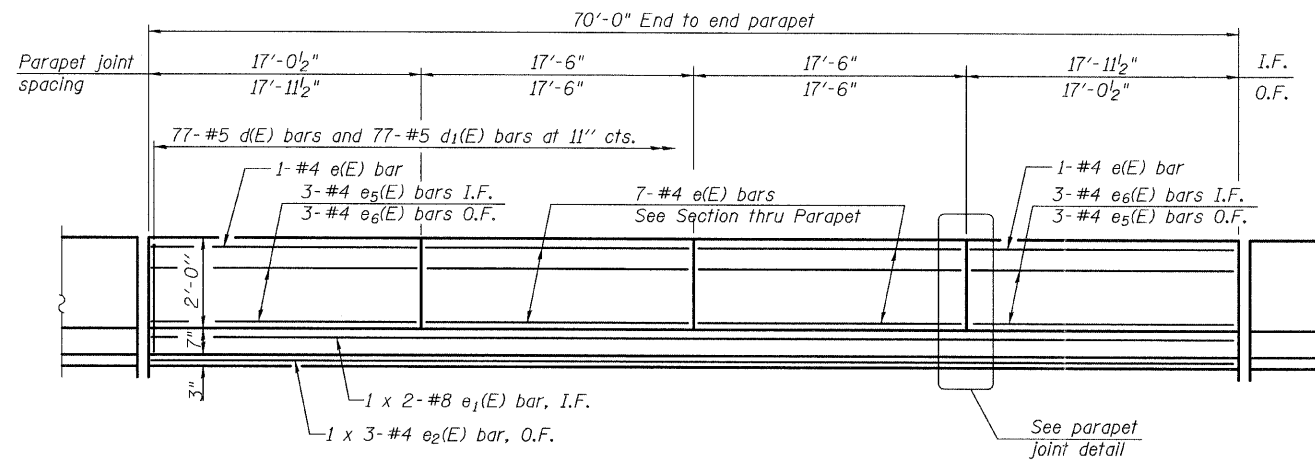
**DETAIL A**

**DETAIL B**

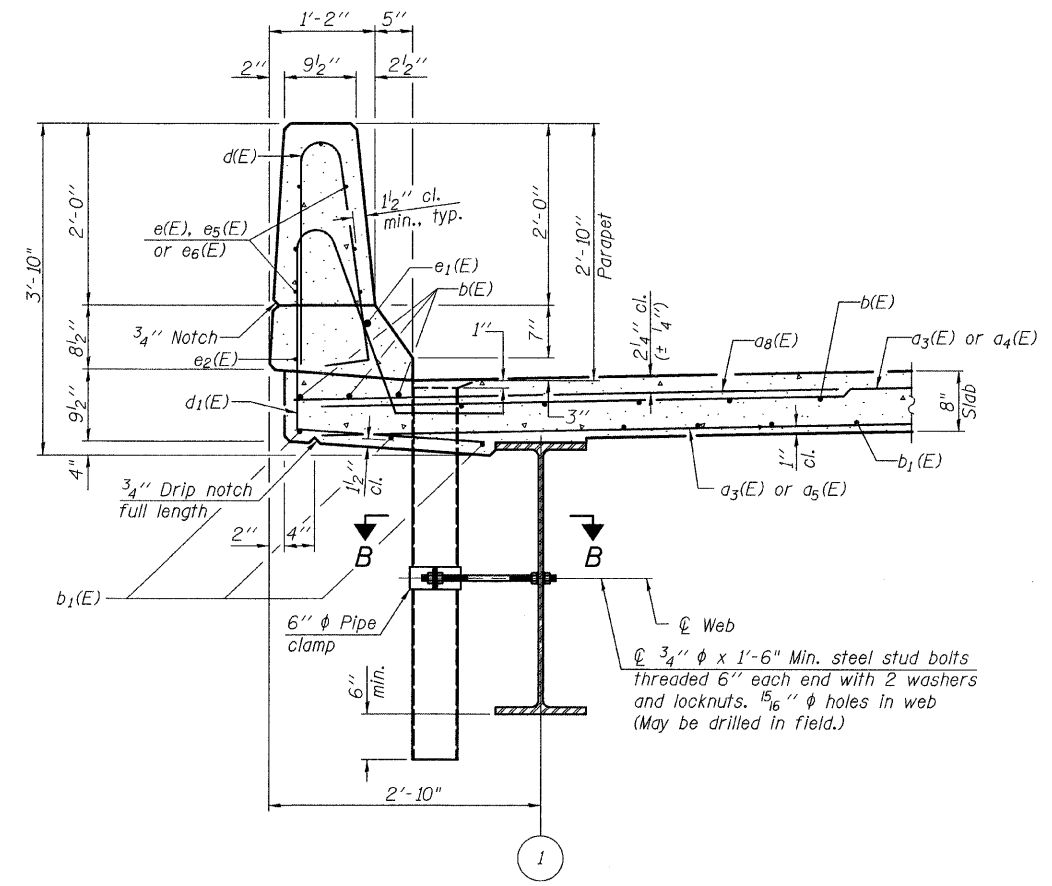
**DETAIL C**

FILE NAME = 0490199-60953-015-W.Parapet.dgn	USER NAME =	DESIGNED - KO	REVISIONS -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>WEST PARAPET ELEVATION AND DETAILS STRUCTURE NO. 049-0199</b>	F.A.P. RTE. 330	SECTION 128R-3	COUNTY LAKE	TOTAL SHEETS 518	SHEET NO. 257	
PLOT SCALE =	CHECKED - JY	REVISIONS -									
PLOT DATE = 12/28/2018	DRAWN - KO	REVISIONS -									
	CHECKED - JY	REVISIONS -									

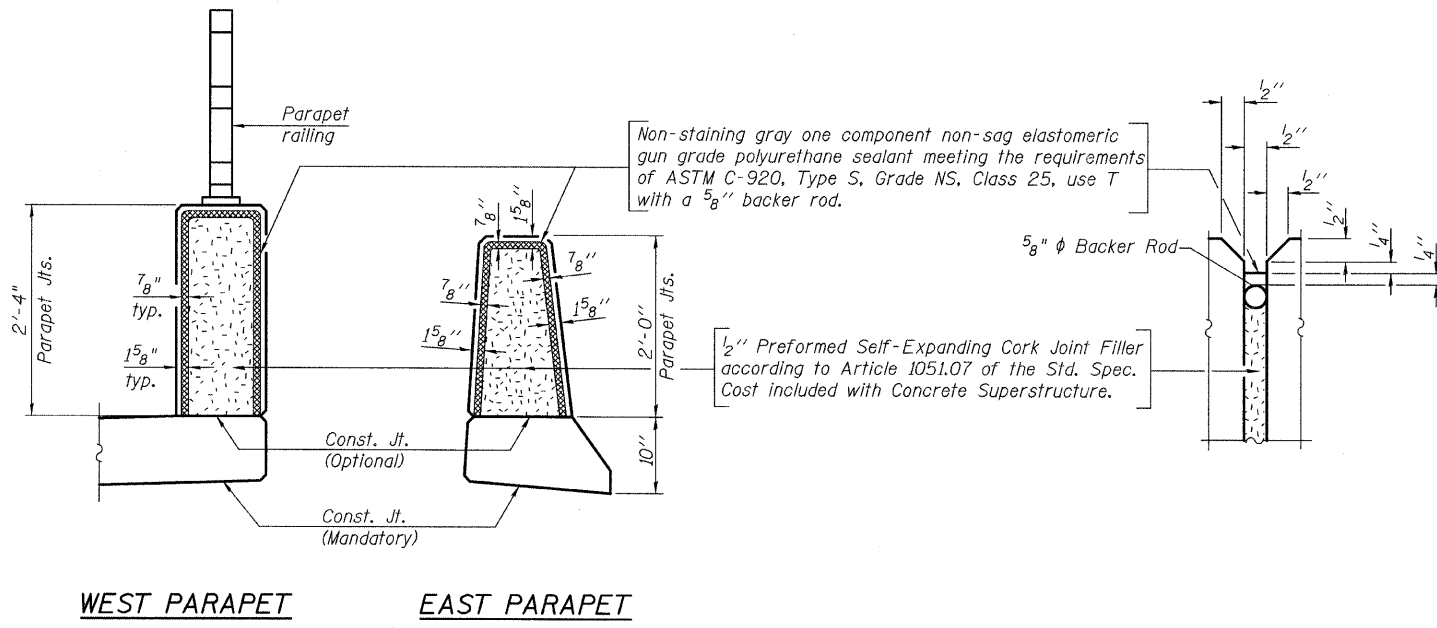




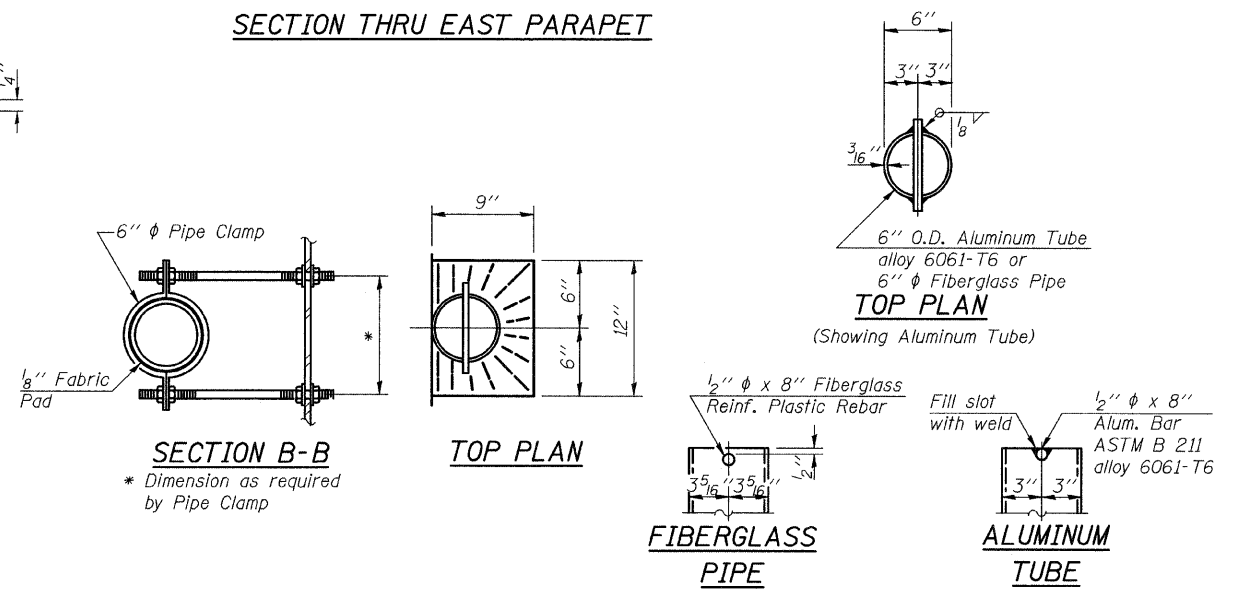
**INSIDE ELEVATION OF EAST PARAPET**  
 (Min. lap #4 bar = 2'-0")  
 (Min. lap #8 bar = 5'-2")



**SECTION THRU EAST PARAPET**



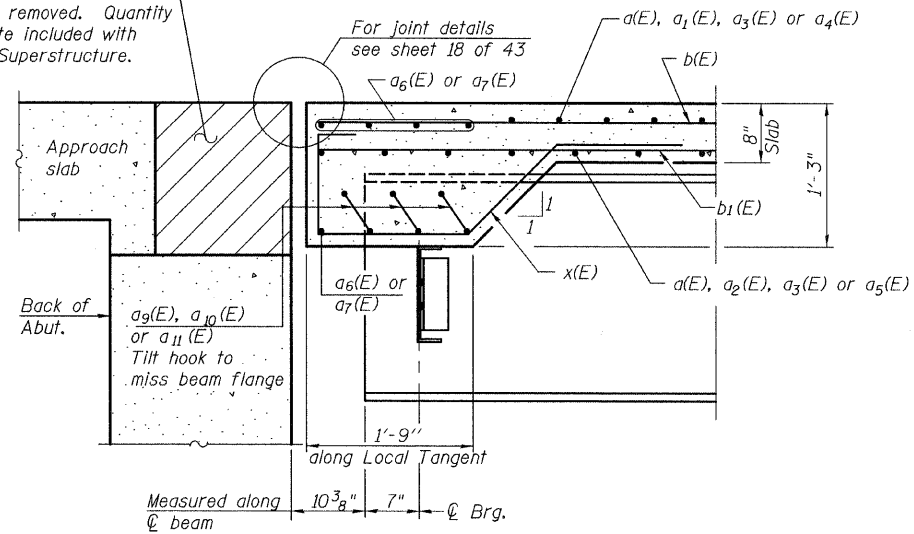
**PARAPET JOINT DETAILS**



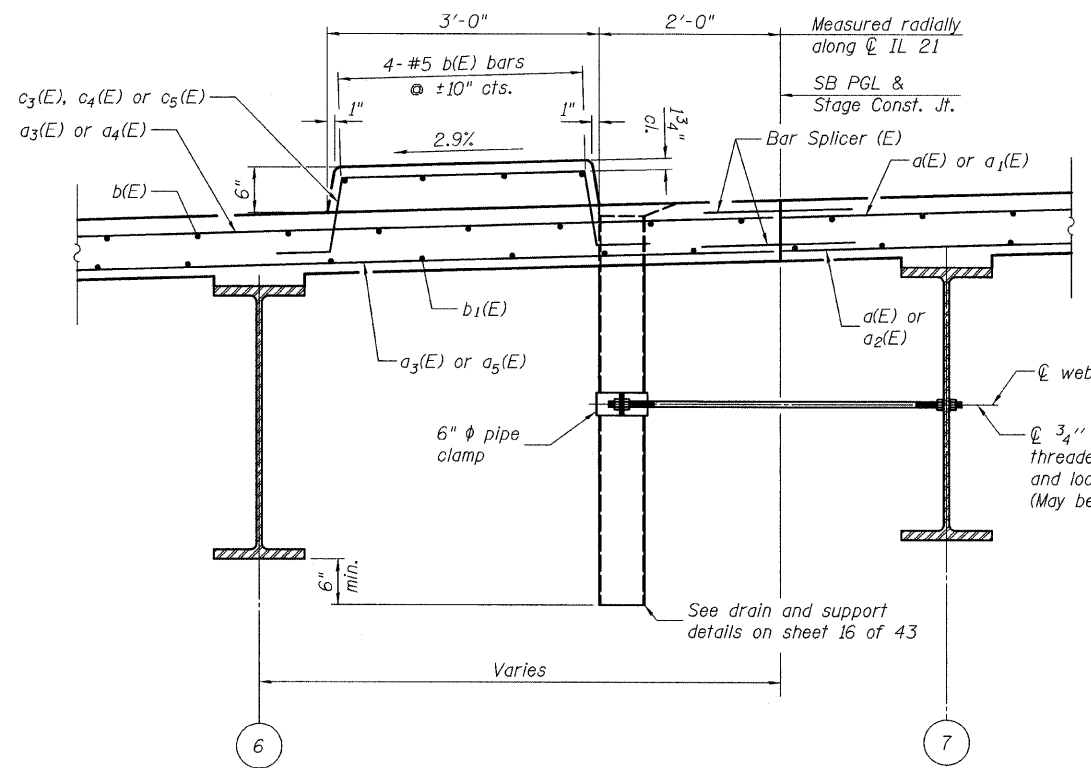
**Notes:**  
 Drains shall be located clear of all diaphragms.  
 The exterior surfaces of the floor drains shall be painted with the finish coat as specified in the special provisions for Cleaning and Painting New Metal Structures. The exterior surfaces of the drains shall be cleaned according to the Society of Protective Coatings Spec. SSPC-SPI prior to painting.  
 Fiberglass pipe shall conform to ASTM D 2996, with short-time rupture strength hoop tensile stress of 30,000 p.s.i. minimum.  
 Galvanize clamping device according to AASHTO M232. Cost of clamping device and inserts is included with Floor Drains.

FILE NAME = 0490199-62953-016-E_Parapet.dgn	USER NAME =	DESIGNED - KO	REVISIONS -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>EAST PARAPET ELEVATION AND DETAILS STRUCTURE NO. 049-0199</b>	F.A.P. RTE. = 330	SECTION = 128R-3	COUNTY = LAKE	TOTAL SHEETS = 518	SHEET NO. = 258	
PLOT SCALE =	CHECKED - JY	REVISIONS -									
PLOT DATE = 12/28/2010	DRAWN - KO	REVISIONS -									
	CHECKED - JY	REVISIONS -									

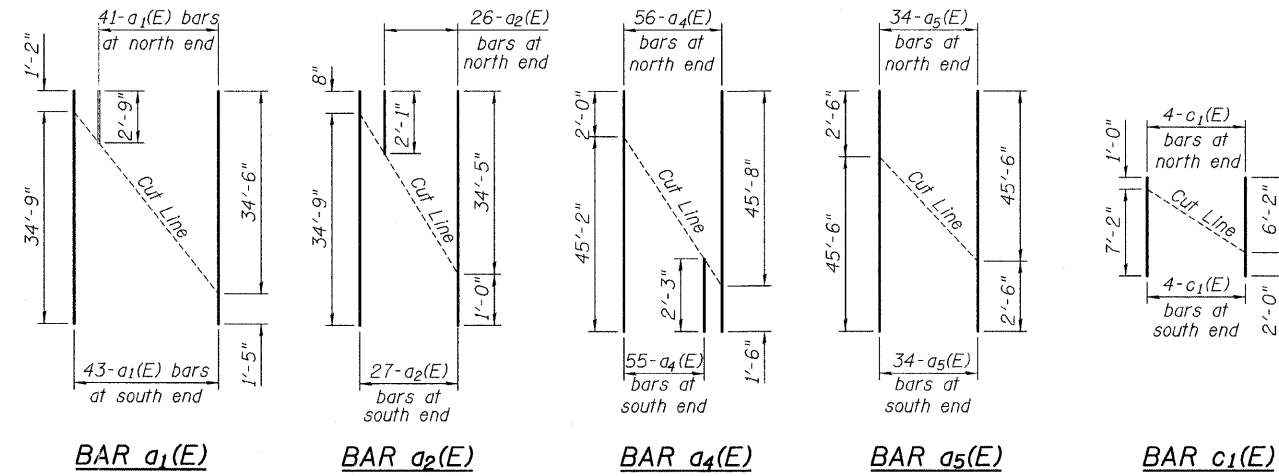
Hatched area to be poured after superstructure forms have been removed. Quantity of concrete included with Concrete Superstructure.



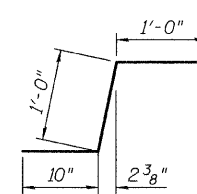
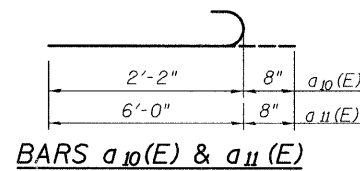
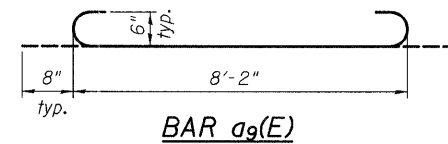
SECTION A-A



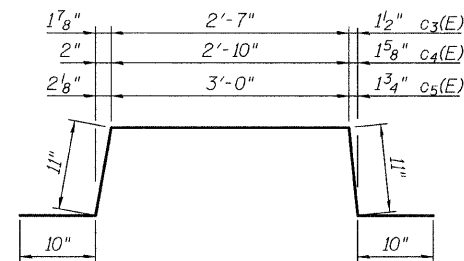
SECTION THRU MEDIAN



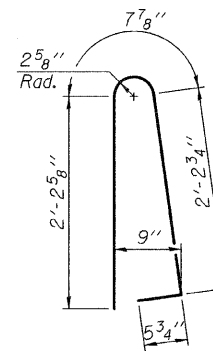
REBAR CUTTING DIAGRAM



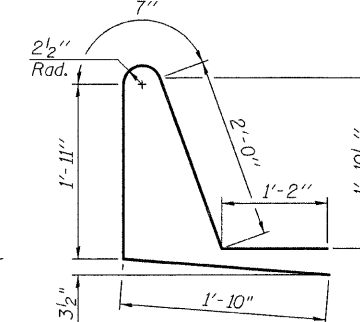
BAR c2(E)



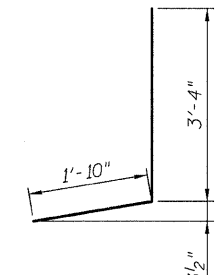
BARS c3(E), c4(E) & c5(E)



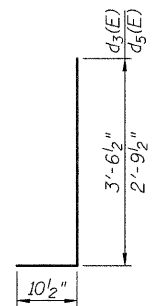
BAR d(E)



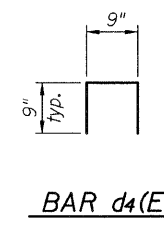
BAR d1(E)



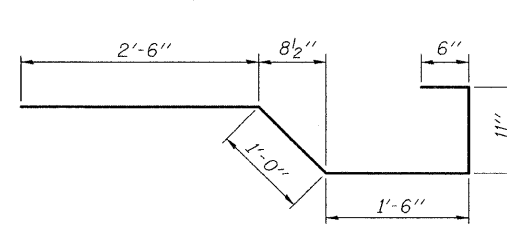
BAR d2(E)



BARS d3(E) & d5(E)



BAR d4(E)



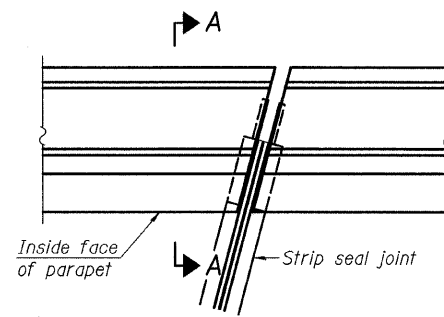
BAR x(E)

**SUPERSTRUCTURE  
BILL OF MATERIAL**

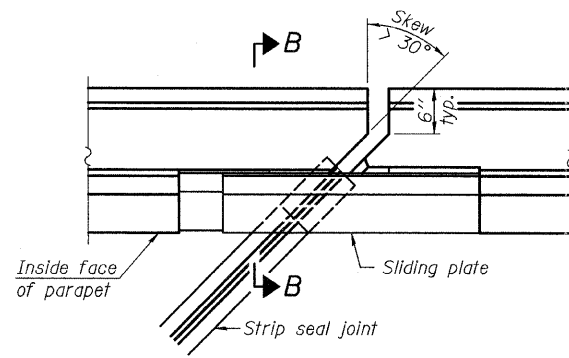
Bar	No.	Size	Length	Shape
a(E)	344	#5	19'-2"	—
a1(E)	43	#5	35'-11"	—
a2(E)	27	#5	35'-5"	—
a3(E)	151	#5	45'-10"	—
a4(E)	56	#5	47'-2"	—
a5(E)	34	#5	48'-0"	—
a6(E)	20	#6	22'-6"	—
a7(E)	20	#6	28'-9"	—
a8(E)	153	#6	6'-6"	—
a9(E)	54	#6	9'-6"	—
a10(E)	6	#6	2'-10"	—
a11(E)	6	#6	6'-8"	—
b(E)	198	#5	36'-6"	—
b1(E)	228	#5	25'-6"	—
c(E)	66	#5	8'-8"	—
c1(E)	4	#5	8'-2"	—
c2(E)	71	#5	2'-10"	—
c3(E)	68	#5	6'-1"	—
c4(E)	2	#5	6'-4"	—
c5(E)	2	#5	6'-6"	—
d(E)	77	#5	5'-7"	—
d1(E)	77	#5	7'-6"	—
d2(E)	71	#5	5'-2"	—
d3(E)	71	#6	4'-5"	—
d4(E)	16	#4	2'-3"	—
d5(E)	71	#5	3'-8"	—
e(E)	28	#4	17'-2"	—
e1(E)	2	#8	37'-6"	—
e2(E)	3	#4	24'-3"	—
e3(E)	6	#4	16'-8"	—
e4(E)	6	#4	17'-5"	—
e5(E)	6	#4	16'-10"	—
e6(E)	6	#4	17'-7"	—
x(E)	162	#5	6'-5"	—
Floor Drains	Each		8	
Concrete Superstructure		Cu. Yd.	177.5	
Bridge Deck Grooving		Sq. Yd.	529	
Protective Coat		Sq. Yd.	685	
Reinforcement Bars, Epoxy Coated		Pound	44,080	
Bar Splicer	Each		255	
Parapet Railing	Foot		70	

Bars indicated thus 1 x 2 - #8 etc. indicates 1 line of bars with 2 lengths per line.

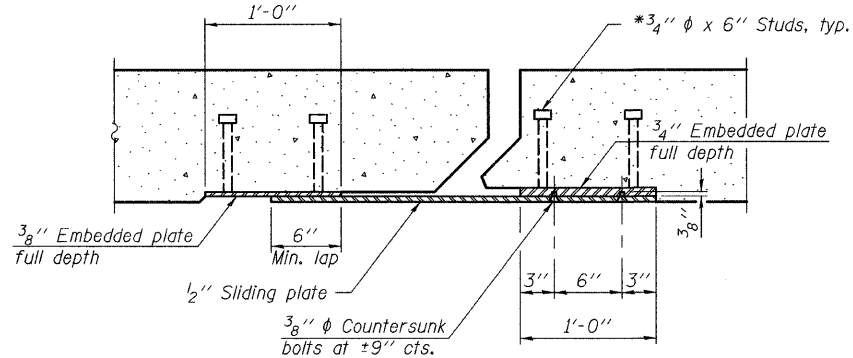




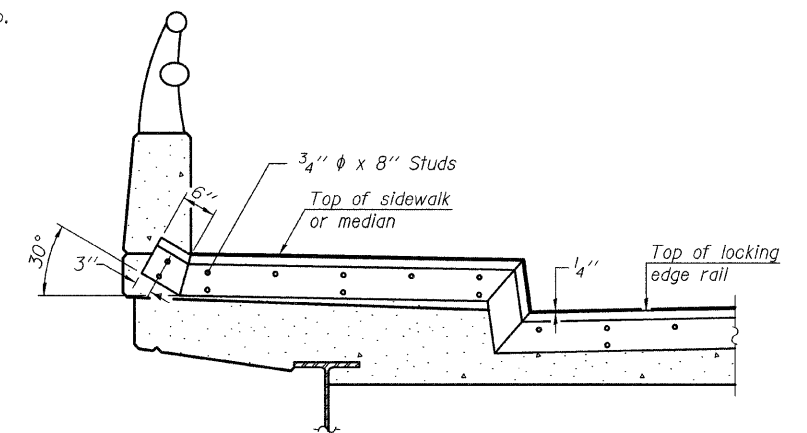
**PLAN**  
(For skews  $\leq 30^\circ$ )



**PLAN**  
(For skews  $> 30^\circ$ )  
Showing point block

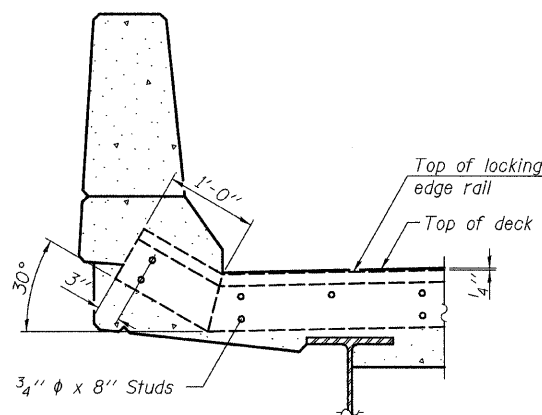


**SECTION C-C**

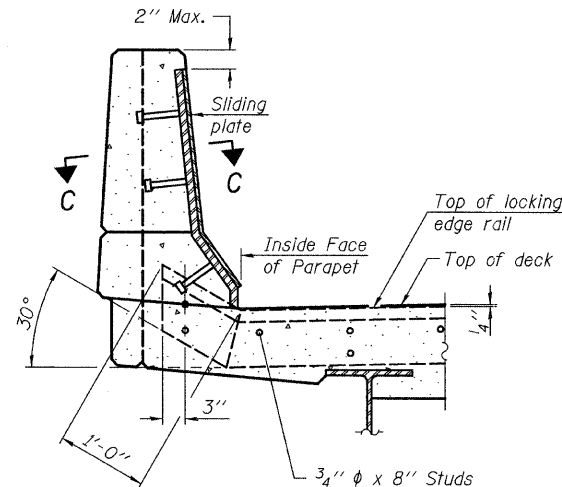


**TYPICAL END TREATMENT  
AT SIDEWALK OR MEDIAN**

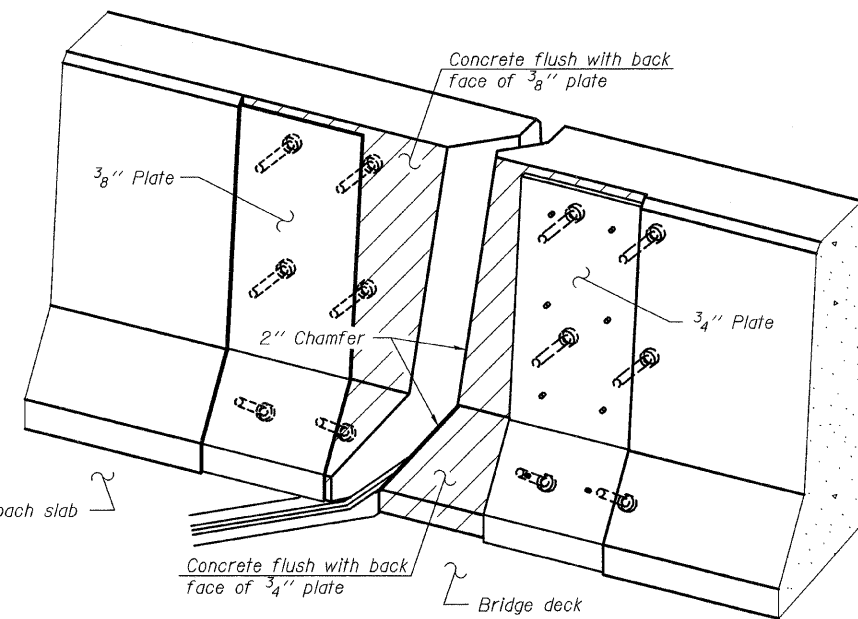
Shorter plates with a single row of studs at 12" cts. may be necessary on medians which are shallower than 9". See manufacturer's recommendation.



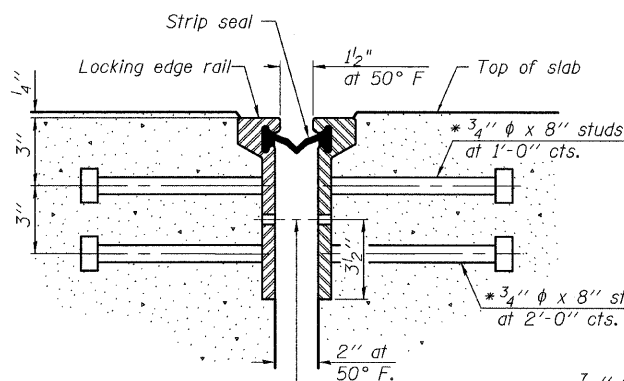
**SECTION A-A**



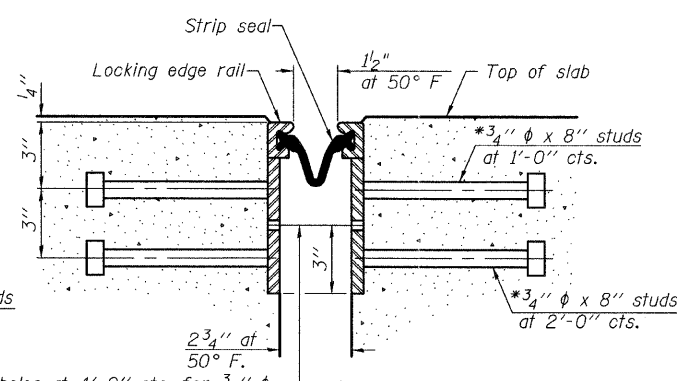
**SECTION B-B**



**TRIMETRIC VIEW**  
(Showing back plates only)



**SECTION THRU  
ROLLED RAIL JOINT**

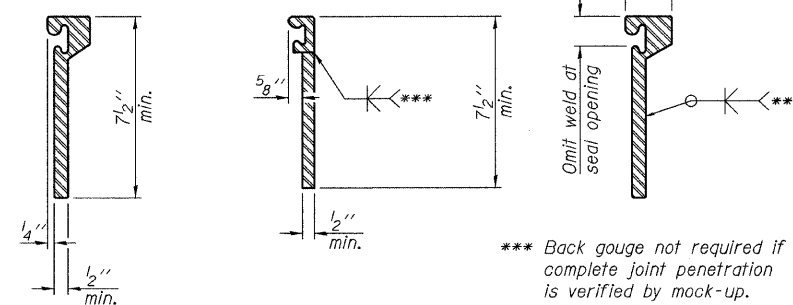


**SECTION THRU  
WELDED RAIL JOINT**

$7/16"$   $\phi$  holes at 4'-0" cts. for  $3/8"$   $\phi$  bolts. All bolts shall be burned, sawed, or chipped off flush with the plates after forms are removed, typ.

$7/16"$   $\phi$  holes at 4'-0" cts. for  $3/8"$   $\phi$  bolts. All bolts shall be burned, sawed, or chipped off flush with the plates after forms are removed, typ.

\* Granular or solid flux filled headed studs conforming to Article 1006.32 of the Std. Specs., automatically end welded.



**ROLLED  
EXTRUDED RAIL**

**WELDED RAIL**

**LOCKING EDGE  
RAIL SPLICE**

The inside of the locking edge rail groove shall be free of weld residue.  
Rolled rail shown, welded rail similar.

\*\*\* Back gouge not required if complete joint penetration is verified by mock-up.

**LOCKING EDGE RAILS**

**BILL OF MATERIAL**

Item	Unit	Total
Preformed Joint Strip Seal	Foot	190

EJ-SSJ

7-1-10

FILE NAME = 0490199-60953-018-StripSeal.dgn

USER NAME =  
PLOT SCALE =  
PLOT DATE = 12/20/2010

DESIGNED - JY  
CHECKED - RMK  
DRAWN - JY  
CHECKED - RMK

REVISED -  
REVISED -  
REVISED -  
REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

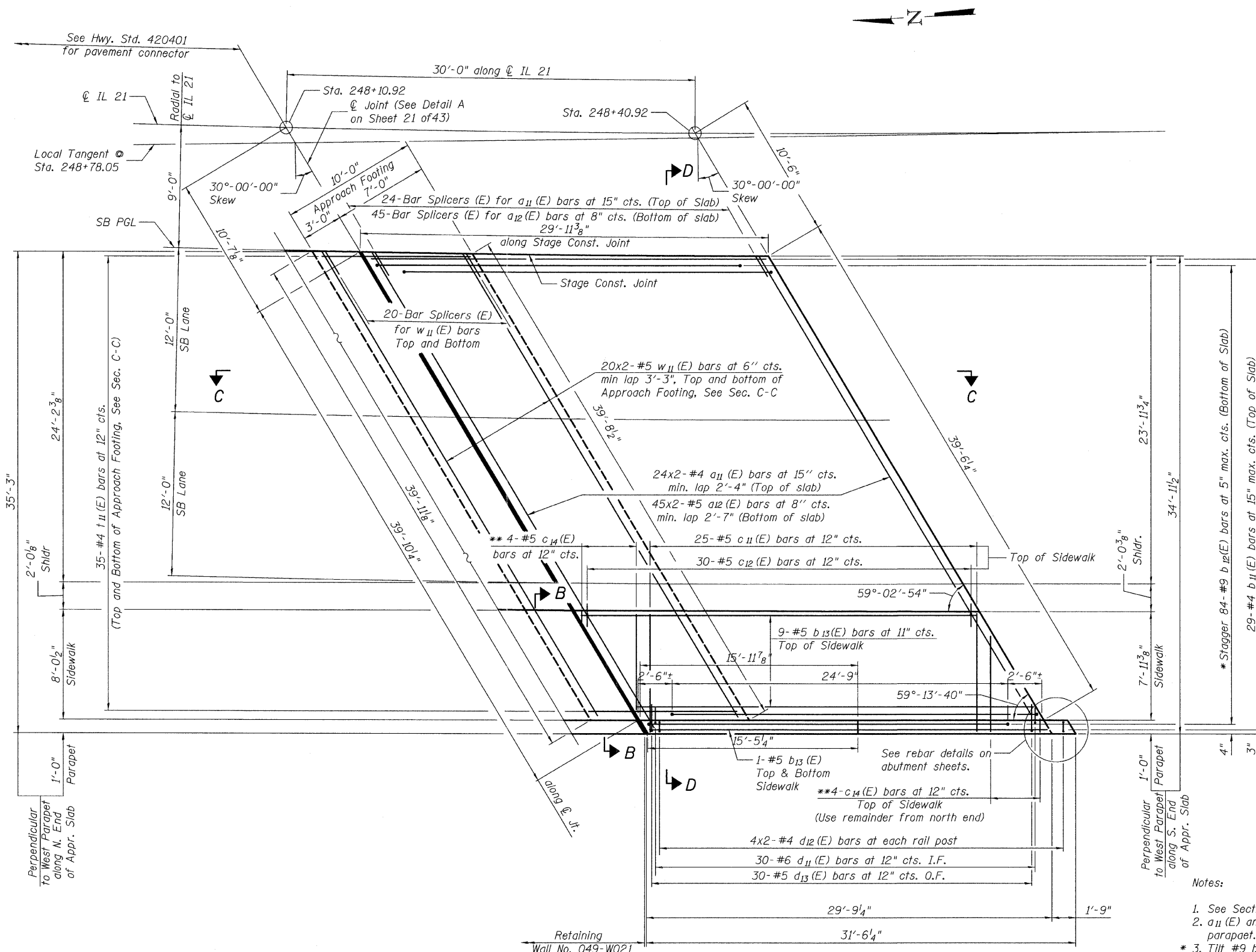
PREFORMED JOINT STRIP SEAL  
STRUCTURE NO. 049-0199

SHEET NO. 18 OF 43 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	128R-3	LAKE	518	260
				CONTRACT NO. 60953

ILLINOIS FED. AID PROJECT

MACTEC

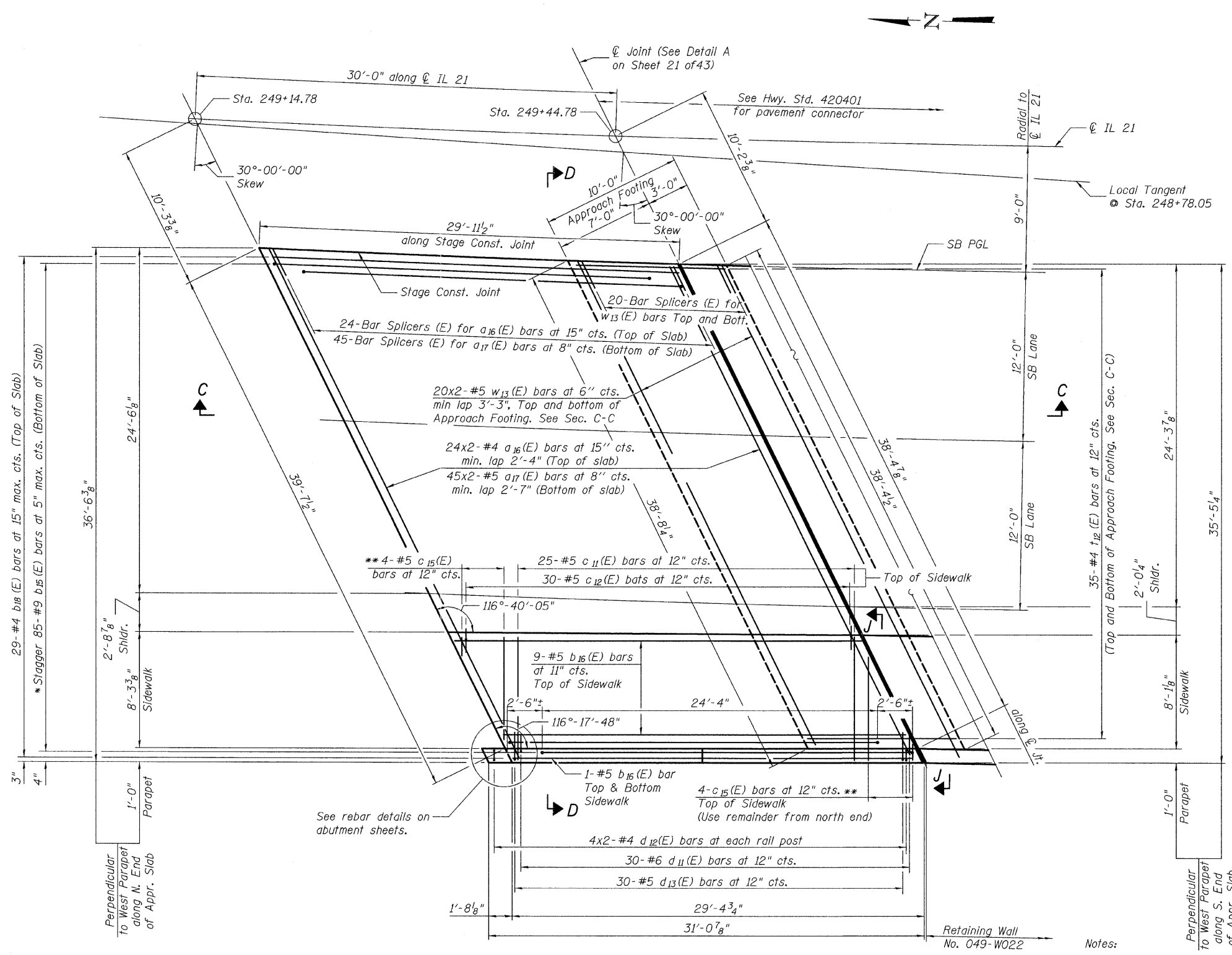


STAGE I NORTH APPROACH SLAB PLAN

- Notes:
1. See Section B-B, thru Section D-D on sheet 21 of 43.
  2.  $a_{11}(E)$  and  $a_{12}(E)$  bar spacings measured along west parapet.
  - \* 3. Tilt #9  $b_{12}(E)$  bars as required to maintain clearance.
  - \*\* 4. Order  $c_{14}(E)$  bars full length. Cut to fit skew and use remainder of bars in opposite end.

FILE NAME = 0490199-60953-019-N.ApprPlan.Stage.I.dgn	USER NAME =	DESIGNED - KO	REVISIONS -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>STAGE I NORTH APPROACH SLAB PLAN STRUCTURE NO. 049-0199</b>	F.A.P. RTE. = 330	SECTION = 128R-3	COUNTY = LAKE	TOTAL SHEETS = 518	SHEET NO. = 261	
PLOT SCALE =	DRAWN - KO	REVISIONS -	SHEET NO. 19 OF 43 SHEETS								
PLOT DATE = 12/28/2010	CHECKED - RMK	REVISIONS -	ILLINOIS FED. AID PROJECT								
							CONTRACT NO. 60953				

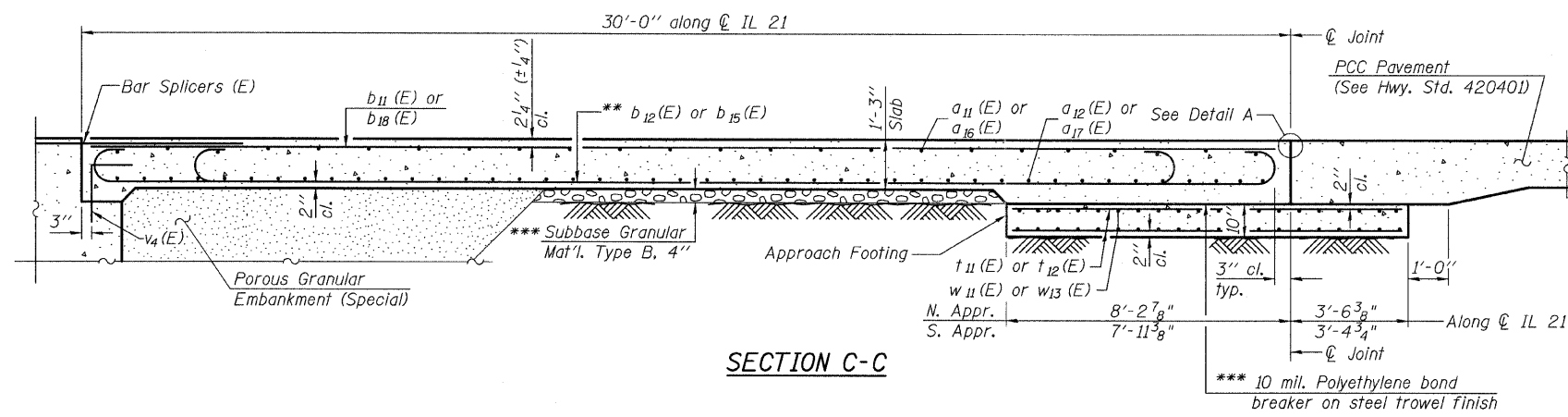




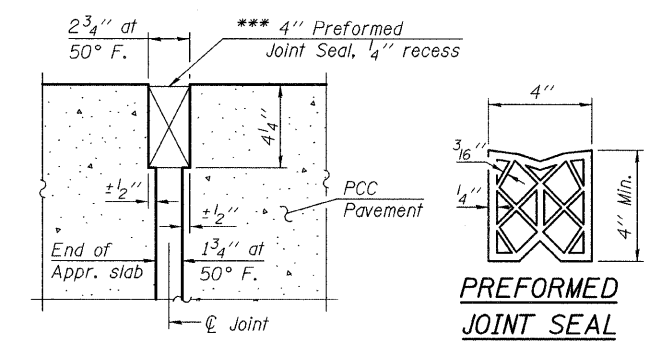
**STAGE I SOUTH APPROACH SLAB PLAN**

- Notes:
1. See Sections C-C, D-D and J-J on sheet 21 of 43.
  2.  $a_{16}(E)$  and  $a_{17}(E)$  bar spacings measured along west parapet.
  - \* 3. Tilt #9  $b_{15}(E)$  bars as required to maintain clearance.
  - \*\* 4. Order  $c_{15}(E)$  bars full length. Cut to fit skew and use remainder of bars in opposite end.

FILE NAME = 0490199-00953-020-S_ApprPlan_Stage_1.dwg	USER NAME =	DESIGNED - KO	REVISD -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>STAGE I SOUTH APPROACH SLAB PLAN STRUCTURE NO. 049-0199</b>	F.A.P. RFE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
PLOT SCALE =	DRAWN - KO	REVISD -	330			128R-3	LAKE	518	262		
PLOT DATE = 12/20/2010	CHECKED - RMK	REVISD -	SHEET NO. 20 OF 43 SHEETS			CONTRACT NO. 60953		ILLINOIS FED. AID PROJECT			
<b>MACTEC</b>											
ILLINOIS FED. AID PROJECT											

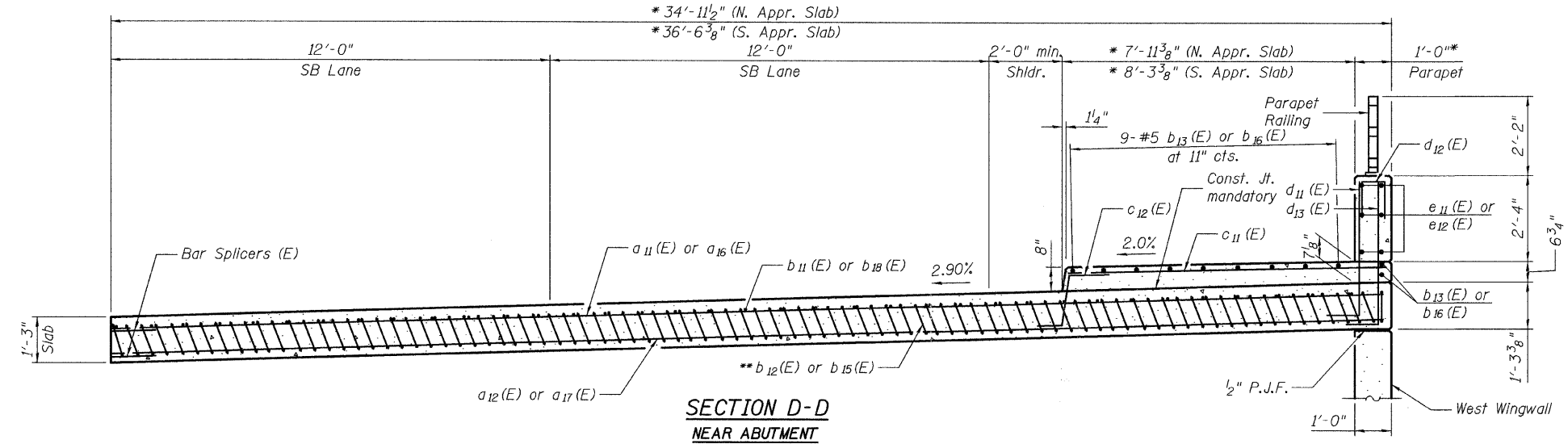


**SECTION C-C**

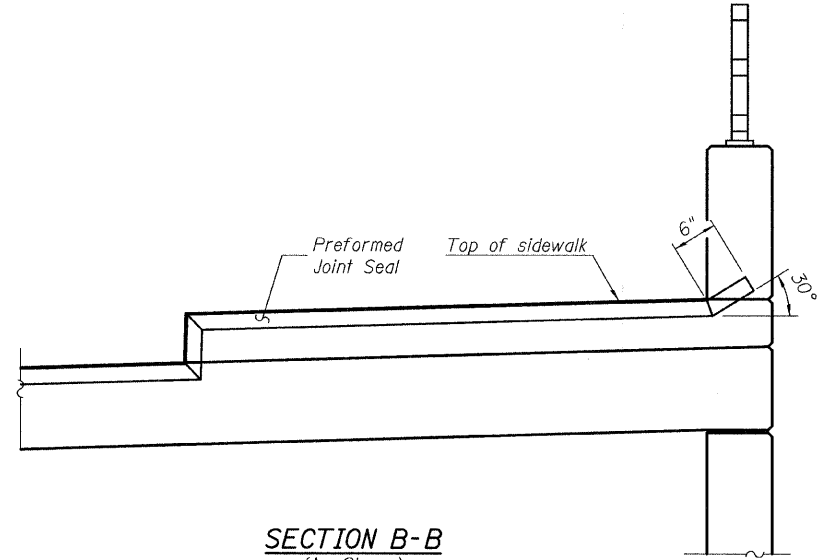


**DETAIL A**

\*\*\* Cost Included with Concrete Superstructure.  
 \*\* Tilt #9 b12(E) or b15(E) as required to maintain clearance.

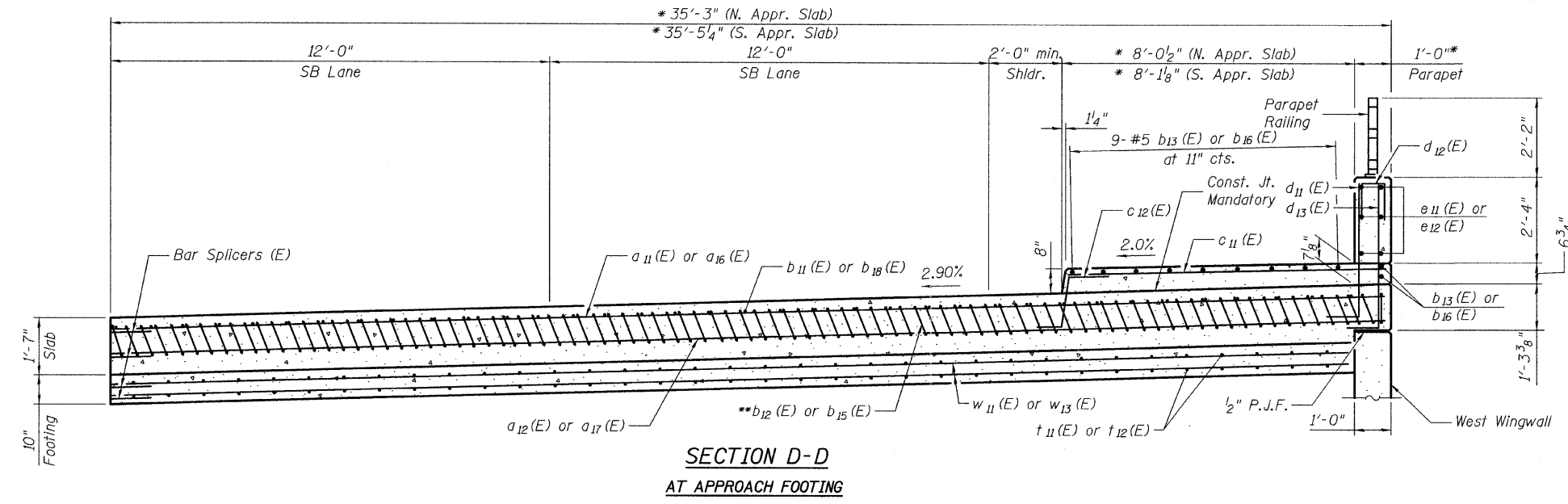


**SECTION D-D  
NEAR ABUTMENT**



**SECTION B-B  
(As Shown)**

**SECTION J-J  
(Opposite Hand)**



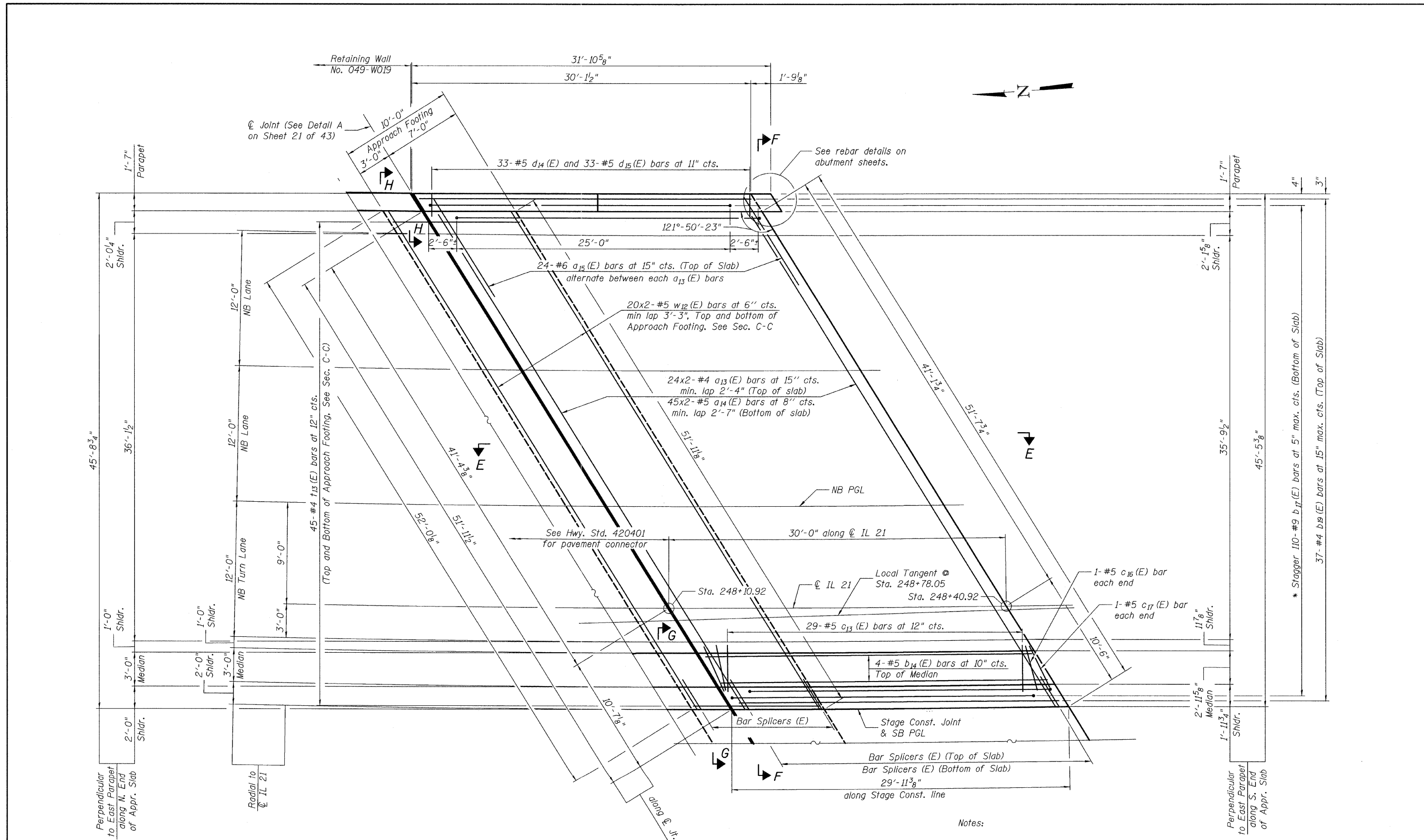
**SECTION D-D  
AT APPROACH FOOTING**

- Notes:
- Horizontal dimensions in Section D-D are measured radially along CL IL 21 unless noted with "\*\*", which is measured perpendicular to the West Parapet.
  - Superelevation 2.90% is radial to CL IL 21.
  - For v4(E) bar details, see sheets 31 and 35 of 43.
  - For additional parapet details see sheet 25 of 43.

FILE NAME = 0490199-00953-021-ApprSection.Stage.1.dgn	USER NAME =	DESIGNED - KO	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>STAGE I APPROACH SLAB SECTION STRUCTURE NO. 049-0199</b>	F.A.P. RTE. = 330	SECTION = 128R-3	COUNTY = LAKE	TOTAL SHEETS = 518	SHEET NO. = 263	
PLOT SCALE =	DRAWN - KO	CHECKED - RMK	REVISED -			CONTRACT NO. 60953					
PLOT DATE = 12/20/2010	DRAWN - RMK	CHECKED - RMK	REVISED -			ILLINOIS FED. AID PROJECT					
SHEET NO. 21 OF 43 SHEETS											





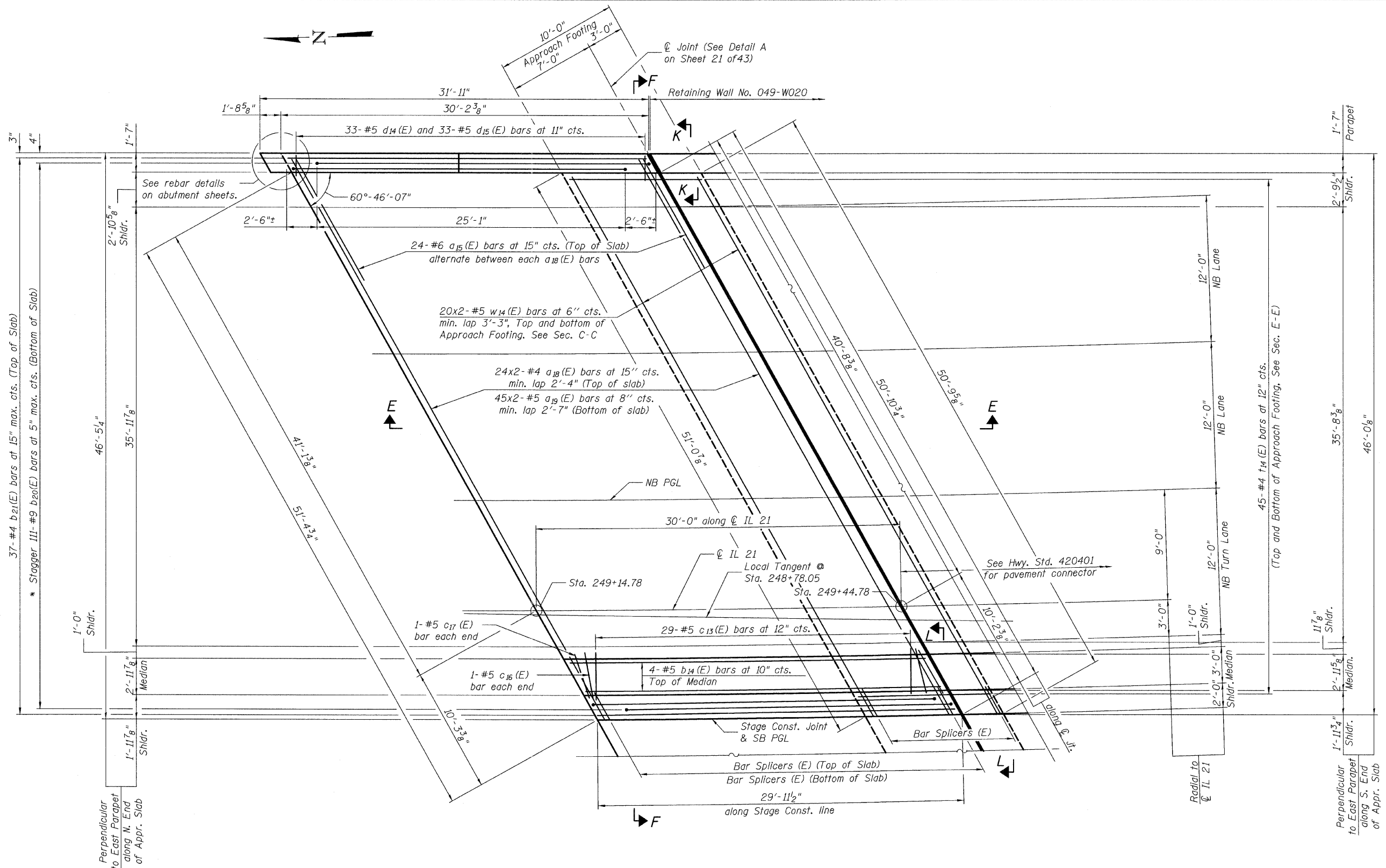


**STAGE II NORTH APPROACH SLAB PLAN**

- Notes:
1. See Section E-E, thru Section H-H on sheet 24 of 43.
  2.  $a_{13}(E)$  and  $a_{15}(E)$  bar spacings measured along east parapet.
  - \* 3. Tilt #9  $b_{17}(E)$  bars as required to maintain clearance.

FILE NAME = 0490199-60953-022-N.ApprPlan.Stage.II.dgn	USER NAME =	DESIGNED - KO	REVISIONS -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>STAGE II NORTH APPROACH SLAB PLAN STRUCTURE NO. 049-0199</b>	F.A.P. R/E = 330	SECTION 128R-3	COUNTY LAKE	TOTAL SHEETS 518	SHEET NO. 264		
PLOT SCALE =	DRAWN - KO	CHECKED - RMK	REVISIONS -			SHEET NO. 22 OF 43 SHEETS						
PLOT DATE = 12/28/2010	DRAWN - KO	CHECKED - RMK	REVISIONS -			ILLINOIS FED. AID PROJECT						
						CONTRACT NO. 60953						
						ILLINOIS FED. AID PROJECT						



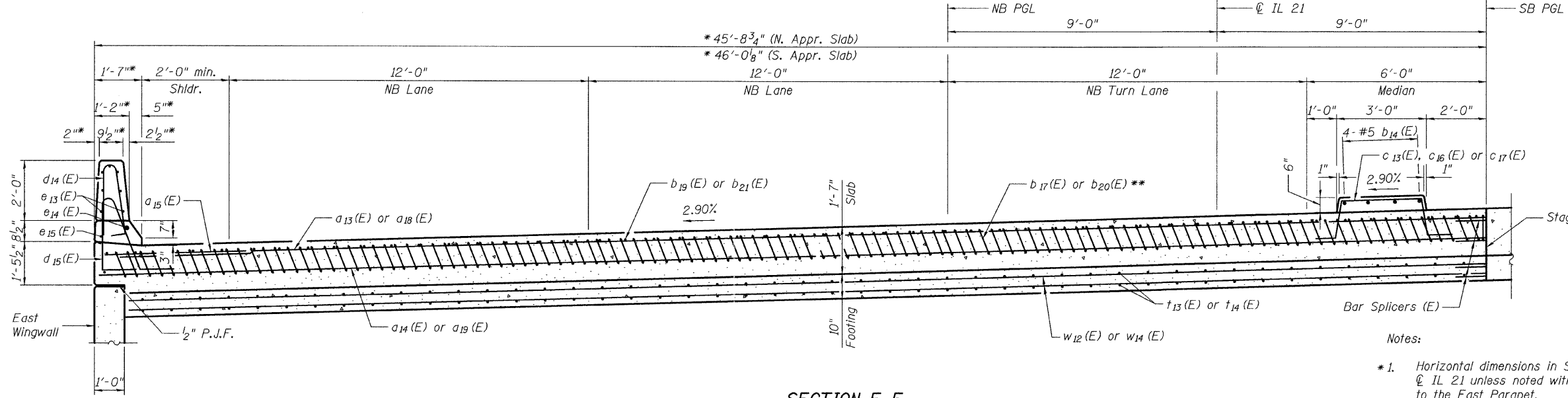
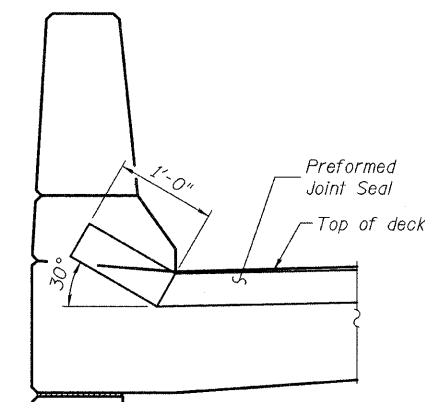
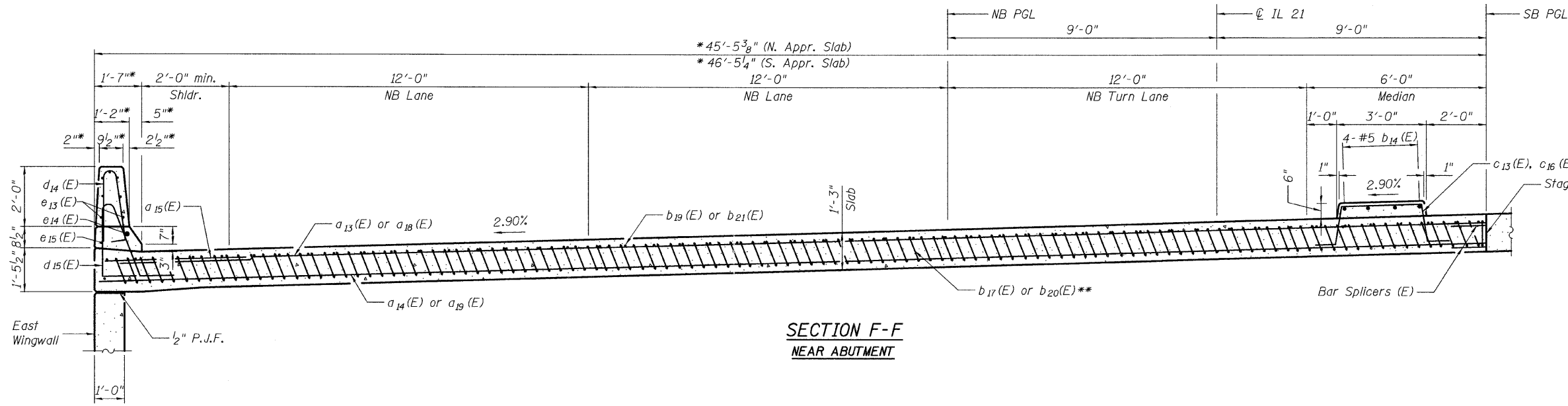
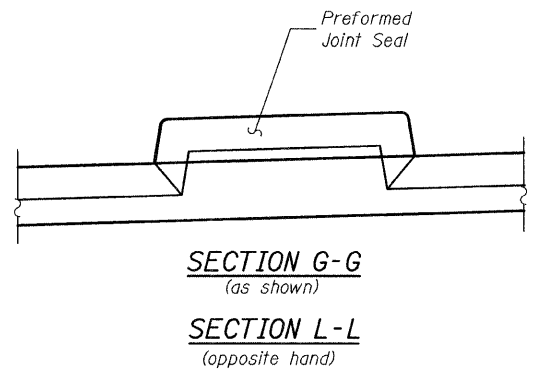
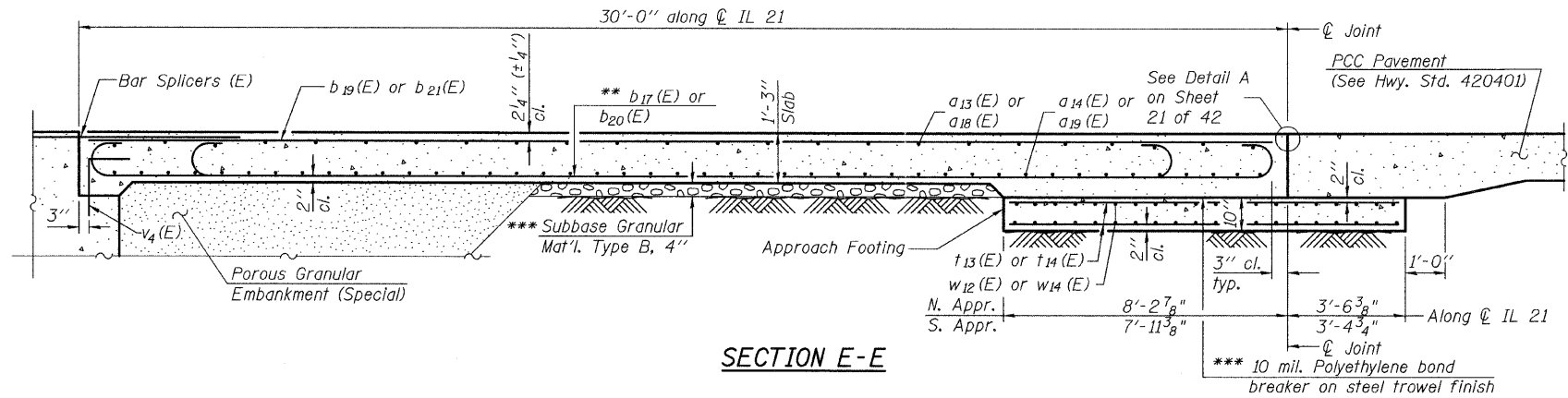


**STAGE II SOUTH APPROACH SLAB PLAN**

- Notes:
1. See Sections E-E, F-F, K-K and L-L on sheet 24 of 43.
  2.  $a_{18}(E)$  and  $a_{19}(E)$  bar spacings measured along east parapet.
  - \* 3. Tilt #9  $b_{20}(E)$  bars as required to maintain clearance.

FILE NAME = 0490199-60953-023-S_ApprPlan_Stage_II.dgn	USER NAME =	DESIGNED - KO	REVISIONS -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>STAGE II SOUTH APPROACH SLAB PLAN STRUCTURE NO. 049-0199</b>	F.A.P. RATE = 330	SECTION 128R-3	COUNTY LAKE	TOTAL SHEETS 518	SHEET NO. 265
PLOT SCALE =	DRAWN - KO	REVISIONS -	SHEET NO. 23 OF 43 SHEETS			CONTRACT NO. 60953				
PLOT DATE = 12/28/2010	CHECKED - RMK	REVISIONS -	ILLINOIS FED. AID PROJECT							

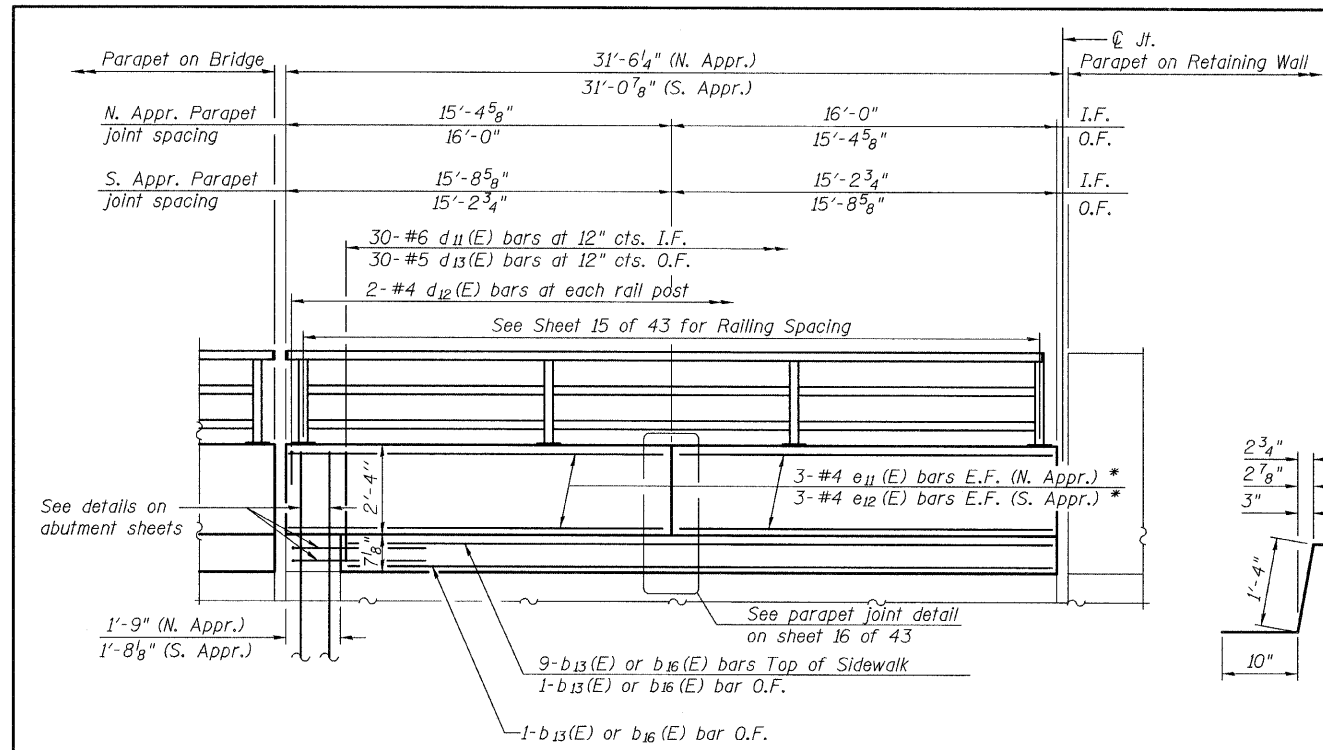




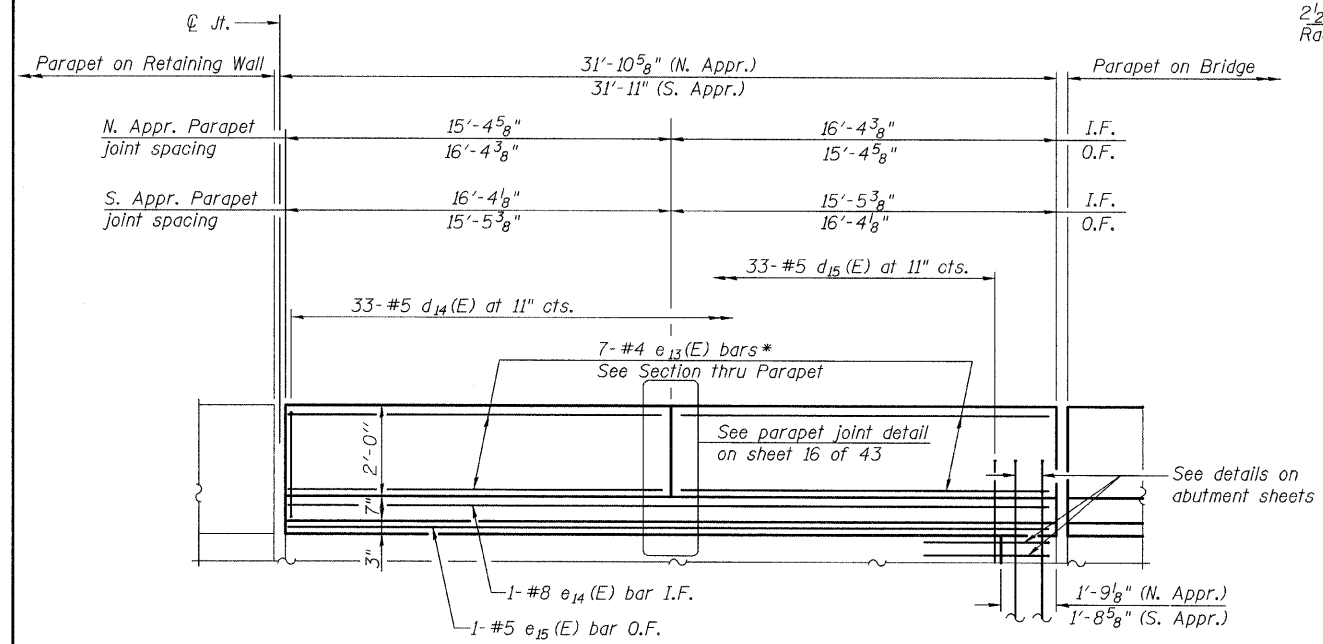
- Notes:
- Horizontal dimensions in Section D-D are measured radially along  $\text{CL IL 21}$  unless noted with "\*\*", which is measured perpendicular to the East Parapet.
  - Superelevation 2.90% is radial to  $\text{CL IL 21}$ .
  - For  $v_4(E)$  bar details, see sheets 32 and 36 of 43.
  - For additional parapet details see sheet 25 of 43.

FILE NAME = 0490199-60953-024-ApprSection_Stage_II.dgn	USER NAME =	DESIGNED - KO	REvised -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>STAGE II APPROACH SLAB SECTION STRUCTURE NO. 049-0199</b>	F.A.P. RTE. = 330	SECTION = 128R-3	COUNTY = LAKE	TOTAL SHEETS = 518	SHEET NO. = 266	
PLOT SCALE =	CHECKED - RMK	REvised -									
PLOT DATE = 12/20/2010	DRAWN - KO	REvised -									
	CHECKED - RMK	REvised -									
SHEET NO. 24 OF 43 SHEETS						CONTRACT NO. 60953 ILLINOIS FED. AID PROJECT					

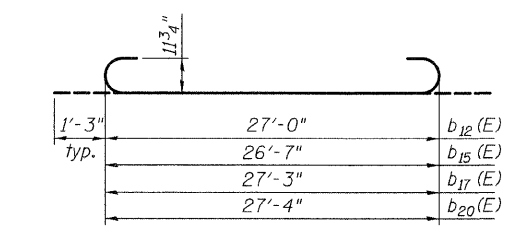




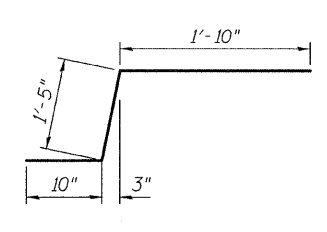
**INSIDE ELEVATION OF WEST PARAPET**  
(North Abutment As Shown, South Abutment Opposite Hand)



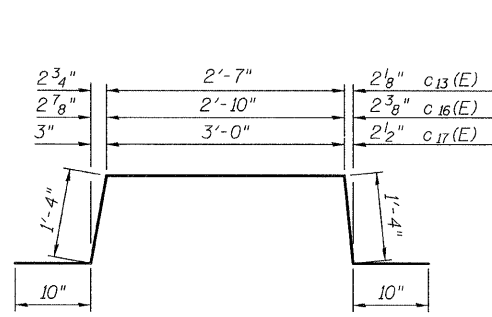
**INSIDE ELEVATION OF EAST PARAPET**  
(North Abutment As Shown, South Abutment Opposite Hand)



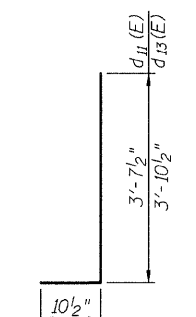
**BARS b<sub>12</sub>(E), b<sub>15</sub>(E), & b<sub>17</sub>(E) & b<sub>20</sub>(E)**



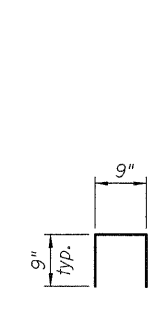
**BAR c<sub>12</sub>(E)**



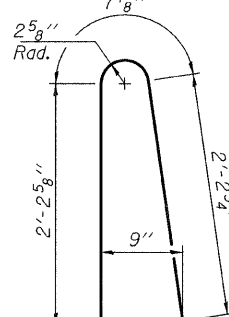
**BARS c<sub>13</sub>(E), c<sub>16</sub>(E) & c<sub>17</sub>(E)**



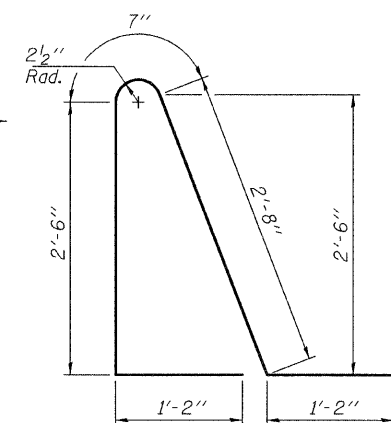
**BARS d<sub>11</sub>(E) & d<sub>13</sub>(E)**



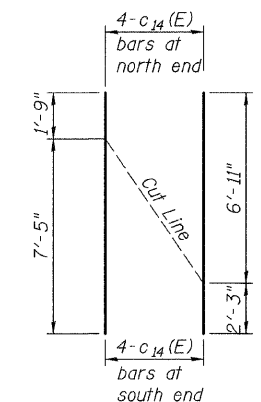
**BAR d<sub>12</sub>(E)**



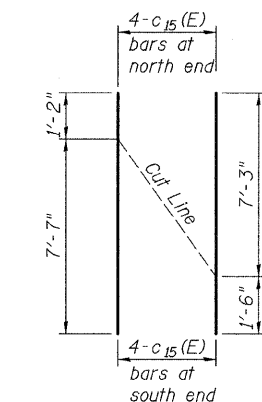
**BAR d<sub>14</sub>(E)**



**BAR d<sub>15</sub>(E)**



**BAR c<sub>14</sub>(E)**



**BAR c<sub>15</sub>(E)**

**REBAR CUTTING DIAGRAM**

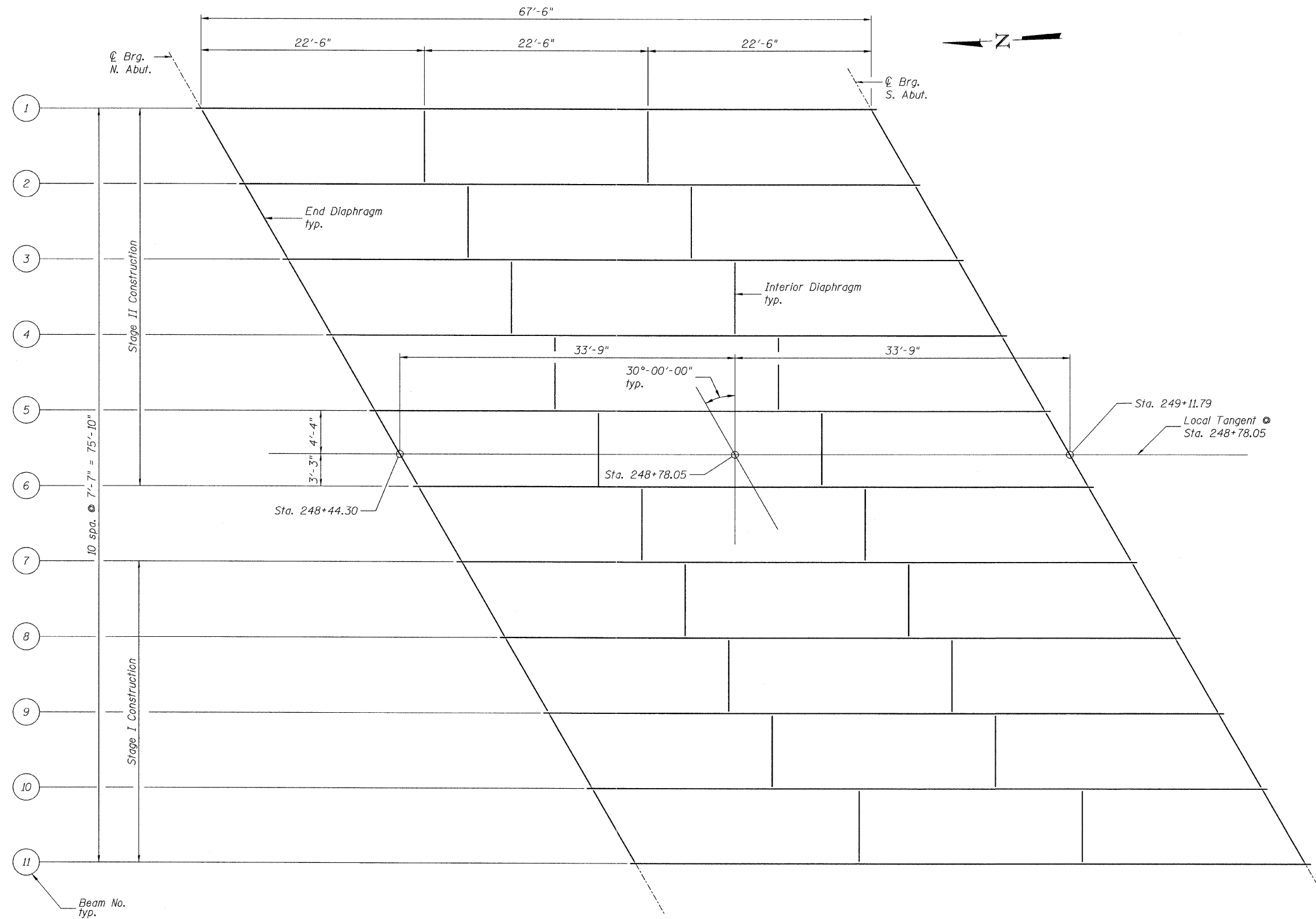
**TWO APPROACHES  
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
a <sub>11</sub> (E)	48	#4	21'-5"	
a <sub>12</sub> (E)	90	#5	21'-7"	
a <sub>13</sub> (E)	48	#4	28'-0"	
a <sub>14</sub> (E)	90	#5	28'-2"	
a <sub>15</sub> (E)	48	#6	6'-6"	
a <sub>16</sub> (E)	48	#4	21'-5"	
a <sub>17</sub> (E)	90	#5	21'-7"	
a <sub>18</sub> (E)	48	#4	27'-8"	
a <sub>19</sub> (E)	90	#5	27'-10"	
b <sub>11</sub> (E)	29	#4	29'-3"	
b <sub>12</sub> (E)	84	#9	29'-6"	
b <sub>13</sub> (E)	11	#5	29'-4"	
b <sub>14</sub> (E)	8	#5	29'-6"	
b <sub>15</sub> (E)	85	#9	29'-1"	
b <sub>16</sub> (E)	11	#5	28'-11"	
b <sub>17</sub> (E)	110	#9	29'-9"	
b <sub>18</sub> (E)	29	#4	28'-11"	
b <sub>19</sub> (E)	37	#4	29'-8"	
b <sub>20</sub> (E)	111	#9	29'-10"	
b <sub>21</sub> (E)	37	#4	29'-9"	
c <sub>11</sub> (E)	50	#5	8'-7"	
c <sub>12</sub> (E)	60	#5	4'-1"	
c <sub>13</sub> (E)	58	#5	6'-11"	
c <sub>14</sub> (E)	4	#5	9'-2"	
c <sub>15</sub> (E)	4	#5	8'-9"	
c <sub>16</sub> (E)	2	#5	7'-2"	
c <sub>17</sub> (E)	2	#5	7'-4"	
d <sub>11</sub> (E)	60	#6	4'-6"	
d <sub>12</sub> (E)	16	#4	2'-3"	
d <sub>13</sub> (E)	60	#5	4'-9"	
d <sub>14</sub> (E)	66	#5	5'-7"	
d <sub>15</sub> (E)	66	#5	8'-1"	
e <sub>11</sub> (E)	12	#4	15'-8"	
e <sub>12</sub> (E)	12	#4	15'-5"	
e <sub>13</sub> (E)	28	#4	16'-0"	
e <sub>14</sub> (E)	2	#8	31'-5"	
e <sub>15</sub> (E)	2	#5	31'-5"	
f <sub>11</sub> (E)	35	#4	11'-3"	
f <sub>12</sub> (E)	35	#4	10'-10"	
f <sub>13</sub> (E)	45	#4	11'-5"	
f <sub>14</sub> (E)	45	#4	11'-0"	
w <sub>11</sub> (E)	80	#5	21'-7"	
w <sub>12</sub> (E)	80	#5	27'-7"	
w <sub>13</sub> (E)	80	#5	20'-11"	
w <sub>14</sub> (E)	80	#5	27'-0"	
Concrete Superstructure		Cu. Yd.	275.4	
Concrete Structures		Cu. Yd.	56.0	
Protective Coat		Sq. Yd.	587	
Reinforcement Bars, Epoxy Coated		Pound	68,630	
Bar Splicer		Each	218	
Parapet Railing		Foot	60	

**Notes:**

1. Reinforcing shall be paid for as reinforcing bars, epoxy coated.
2. Approach slab and parapet concrete shall be paid for as Concrete Superstructure.
3. Approach footing concrete shall be paid for as Concrete Structures.
4. Order bars e<sub>11</sub>(E), e<sub>12</sub>(E) and e<sub>13</sub>(E) full length, field cut to fit in parapets.
5. The approach footing maximum applied service bearing pressure (Q<sub>max</sub>) = 2.0 ksf.
6. For bar splicer details, see sheet 39 of 43.
7. Cost of excavation for approach footing included with Concrete Structures.
8. For Porous Granular Embankment (Special) and drainage treatment details, see sheet 2 of 43.
9. For additional parapet and railing details, see sheets 15 and 16 of 43.





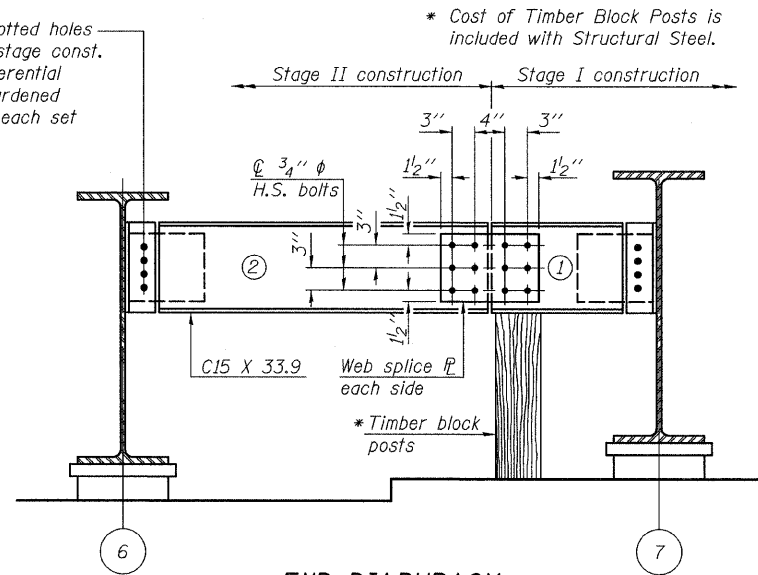
**BEAM FRAMING PLAN**

FILE NAME = 0490199-00953-026-Framing.dgn	USER NAME =	DESIGNED - JY	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>BEAM FRAMING PLAN STRUCTURE NO. 049-0199</b>	F.A.P. RTE. 330	SECTION 128R-3	COUNTY LAKE	TOTAL SHEETS 518	SHEET NO. 268
	PLOT SCALE =	DRAWN - JY	REVISED -			SHEET NO. 26 OF 43 SHEETS		CONTRACT NO. 60953		
PLOT DATE = 12/20/2010	CHECKED - WPM	REVISED -		ILLINOIS FED. AID PROJECT						



Provide  $\frac{1}{16}$ " x  $1\frac{7}{8}$ " slotted holes on one side only for stage const. diaphragm due to differential displacements. Two hardened washers required for each set of oversized holes.

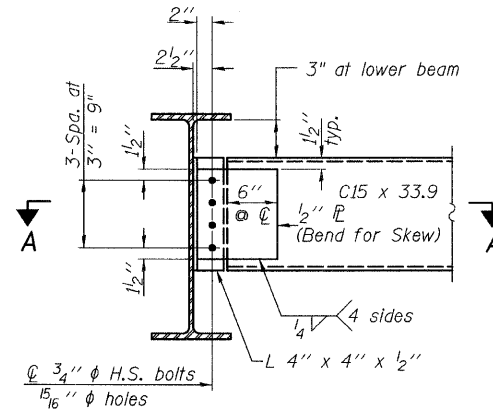
\* Cost of Timber Block Posts is included with Structural Steel.



**END DIAPHRAGM**

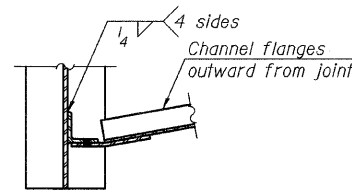
**END DIAPHRAGM STAGE CONSTRUCTION SEQUENCE**

- 1.) Order diaphragm in two sections.
- 2.) Attach section ① of diaphragm to Beam 7.
- 3.) Place timber block posts between section ① of diaphragm and abutment bearing section.
- 4.) Attach section ② of diaphragm to both Beam 6 and section ① of diaphragm during stage II construction with splice plates.
- 5.) Remove timber block posts.

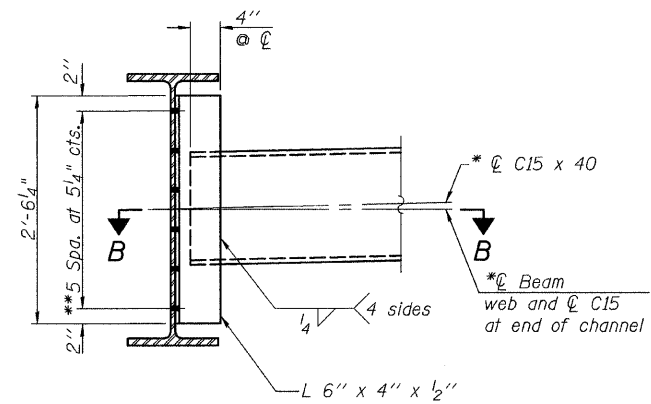


**END DIAPHRAGM**

Note:  
Two hardened washers required for each set of oversized holes.

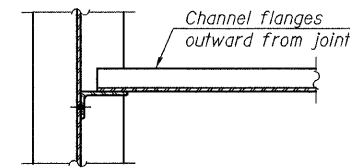


**SECTION A-A**

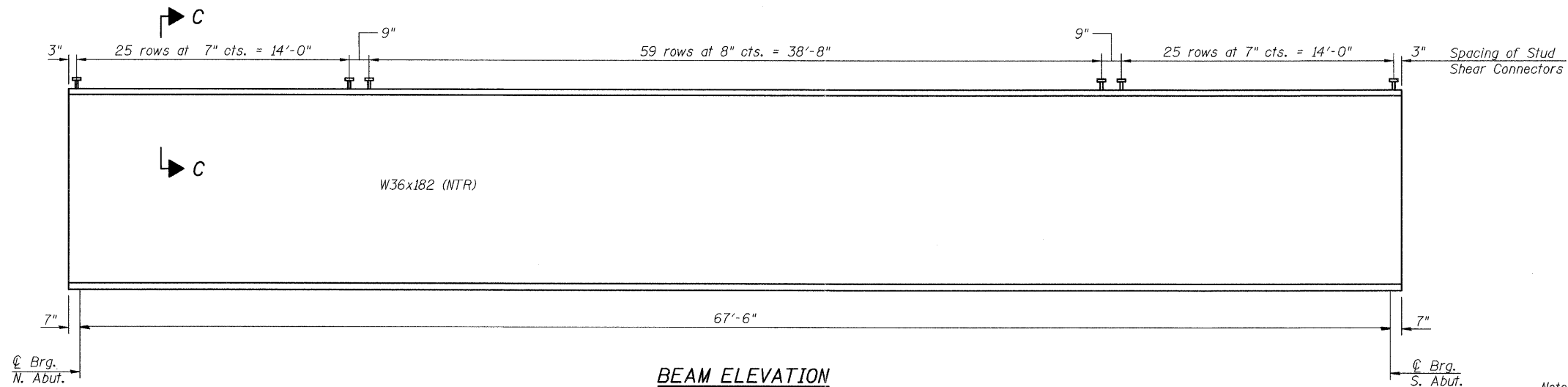


**INTERIOR DIAPHRAGM**

Note: (For Interior Diaphragm)  
Two hardened washers required for each set of oversized holes.  
\*Alternate channels are permitted to facilitate material acquisition. Calculated weight of structural steel is based on the lighter section. The alternate, if utilized, shall be provided at no additional cost to the Department.  
\*\* $\frac{3}{4}$ "  $\phi$  HS bolts,  $\frac{1}{16}$ "  $\phi$  holes

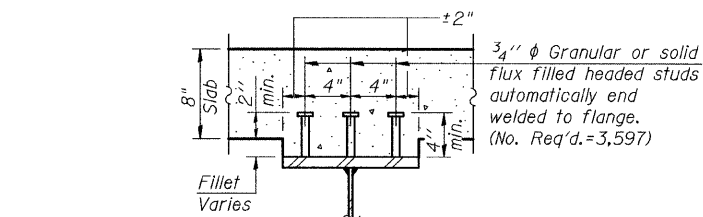


**SECTION B-B**



**BEAM ELEVATION**

"NTR" denotes plates to which notch toughness requirements are applicable.



**SECTION C-C**

**NOTE:**  
Structural steel was furnished in Contract 60P54 and is shown for information only. Stud Shear Connectors and erection are included in Contract 60953.

Notes:  
All diaphragms, connecting plates, and angles shall be AASHTO M270 Grade 50W.  
All cross frames or diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted. Individual cross frames or diaphragms at supports may be temporarily disconnected to install bearing anchor rods.  
Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.

FILE NAME = 0490199-60953-027-Steel.dgn	USER NAME =	DESIGNED - JY	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>BEAM ELEVATION, DIAPHRAGM AND STEEL DETAILS STRUCTURE NO. 049-0199</b>	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
		CHECKED - WPM	REVISED -			330	128R-3	LAKE	518	269	
		DRAWN - JY	REVISED -			CONTRACT NO. 60953					
		CHECKED - WPM	REVISED -			SHEET NO. 27 OF 43 SHEETS					
						ILLINOIS FED. AID PROJECT					



INTERIOR BEAM MOMENT TABLE		
0.5 Span		
$I_s$	(in <sup>4</sup> )	11,174
$I_c(n)$	(in <sup>4</sup> )	28,812
$I_c(3n)$	(in <sup>4</sup> )	20,915
$S_s$	(in <sup>3</sup> )	615
$S_c(n)$	(in <sup>3</sup> )	896
$S_c(3n)$	(in <sup>3</sup> )	806
DC1	(k/')	0.98
M <sub>DC1</sub>	(k)	558
DC2	(k/')	0.45
M <sub>DC2</sub>	(k)	256
DW	(k/')	0.38
M <sub>DW</sub>	(k)	216
M <sub>ℓ + IM</sub>	(k)	1,050
M <sub>u</sub> (Strength I)	(k)	3,179
φ <sub>r</sub> M <sub>n</sub>	(k)	4,438
f <sub>s</sub> DC1	(ksi)	10.89
f <sub>s</sub> DC2	(ksi)	3.82
f <sub>s</sub> DW	(ksi)	3.22
f <sub>s</sub> 1.3(ℓ+IM)	(ksi)	18.27
f <sub>s</sub> (Service II)	(ksi)	35.49
f <sub>s</sub> (Total)(Strength I)	(ksi)	46.75
V <sub>f</sub>	(k)	25.1

INTERIOR BEAM REACTION TABLE		
Abut.		
R <sub>DC1</sub>	(k)	33
R <sub>DC2</sub>	(k)	15
R <sub>DW</sub>	(k)	10
R <sub>ℓ + IM</sub>	(k)	92
R <sub>Total</sub>	(k)	150

**TOP OF BEAM ELEVATIONS  
(FOR FABRICATION ONLY)**

Beam No.	℄ Brg. N. Abut.	℄ Brg. S. Abut.
Girder 1	670.97	671.29
Girder 2	671.21	671.53
Girder 3	671.45	671.78
Girder 4	671.69	672.02
Girder 5	671.93	672.26
Girder 6	672.17	672.51
Girder 7	672.41	672.75
Girder 8	672.65	672.99
Girder 9	672.89	673.24
Girder 10	673.13	673.48
Girder 11	673.37	673.72

$I_s, S_s$ : Non-composite moment of inertia and section modulus of the steel section used for computing  $f_s$  (Total-Strength I, and Service II) due to non-composite dead loads (in<sup>4</sup> and in<sup>3</sup>).

$I_c(n), S_c(n)$ : Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing  $f_s$  (Total-Strength I, and Service II) due to short-term composite live loads (in<sup>4</sup> and in<sup>3</sup>).

$I_c(3n), S_c(3n)$ : Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing  $f_s$  (Total-Strength I, and Service II) due to long-term composite (superimposed) dead loads (in<sup>4</sup> and in<sup>3</sup>).

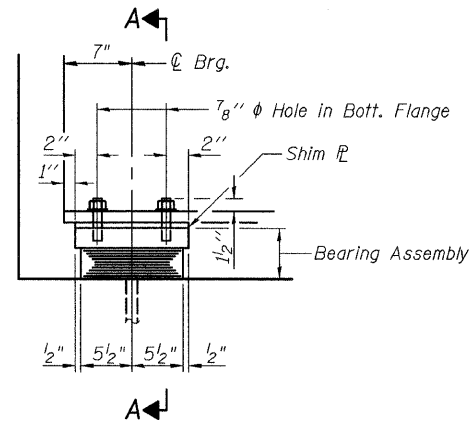
DC1: Un-factored non-composite dead load (kips/ft.).  
M<sub>DC1</sub>: Un-factored moment due to non-composite dead load (kip-ft.).  
DC2: Un-factored long-term composite (superimposed excluding future wearing surface) dead load (kips/ft.).  
M<sub>DC2</sub>: Un-factored moment due to long-term composite (superimposed excluding future wearing surface) dead load (kip-ft.).  
DW: Un-factored long-term composite (superimposed future wearing surface only) dead load (kips/ft.).  
M<sub>DW</sub>: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).  
M<sub>ℓ + IM</sub>: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).  
M<sub>u</sub> (Strength I): Factored design moment (kip-ft.).  
1.25 (M<sub>DC1</sub> + M<sub>DC2</sub>) + 1.5 M<sub>DW</sub> + 1.75 M<sub>ℓ + IM</sub>  
φ<sub>r</sub>M<sub>n</sub>: Compact composite positive moment capacity computed according to Article 6.10.7.1 (kip-ft.).  
f<sub>s</sub> (Service II): Sum of stresses as computed from the moments below (ksi).  
M<sub>DC1</sub> + M<sub>DC2</sub> + M<sub>DW</sub> + 1.3 M<sub>ℓ + IM</sub>  
f<sub>s</sub> (Total)(Strength I): Sum of stresses as computed from the moments below (ksi).  
1.25 (M<sub>DC1</sub> + M<sub>DC2</sub>) + 1.5 M<sub>DW</sub> + 1.75 M<sub>ℓ + IM</sub>  
V<sub>f</sub>: Maximum factored shear range in composite portion of span computed according to Article 6.10.10.

**NOTE:**

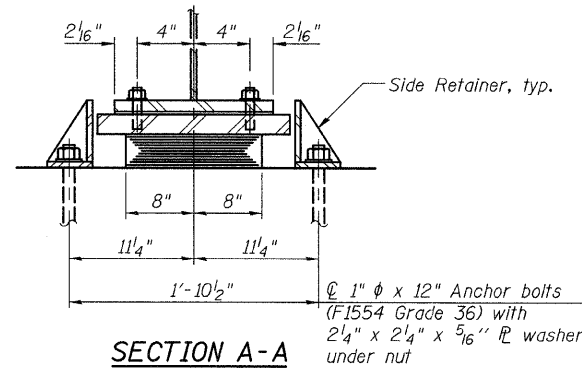
This sheet is for information only.  
Structural steel was furnished in  
Contract 60P54.



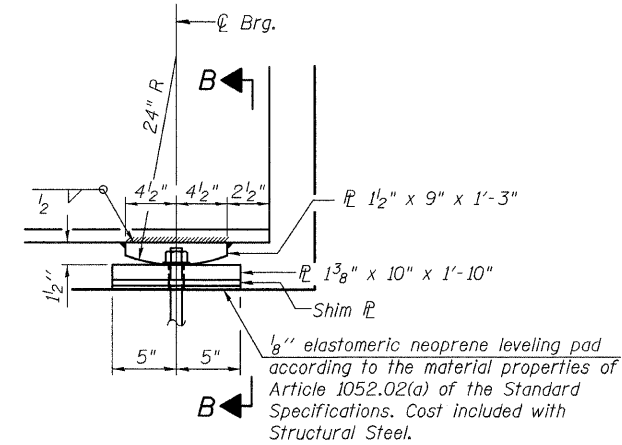
FILE NAME = 0490199-60P53-020-Moment.dgn	USER NAME =	DESIGNED - JY	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>BEAM MOMENT AND REACTION TABLE STRUCTURE NO. 049-0199</b>	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
PLOT SCALE =	CHECKED - WPM	REVISED -	330			128R-3	LAKE	518	270	
PLOT DATE = 12/20/2010	DRAWN - JY	REVISED -	CONTRACT NO. 60953							
CHECKED - WPM	REVISED -	SHEET NO. 28 OF 43 SHEETS								
						ILLINOIS FED. AID PROJECT				



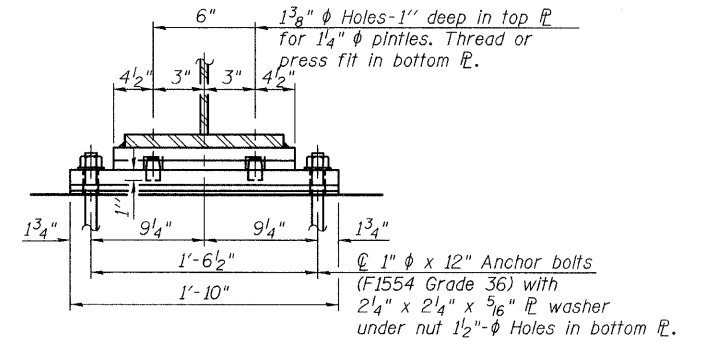
ELEVATION AT NORTH ABUTMENT



SECTION A-A

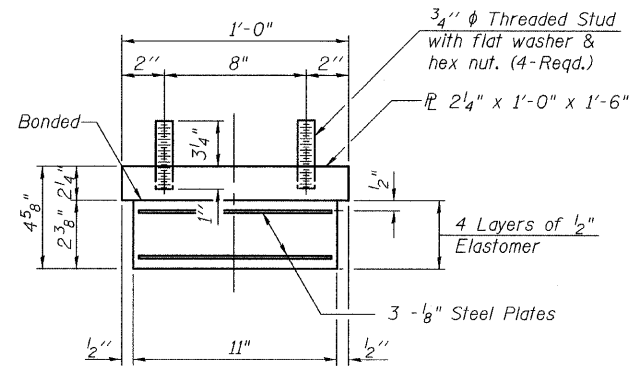


ELEVATION AT SOUTH ABUTMENT



SECTION B-B

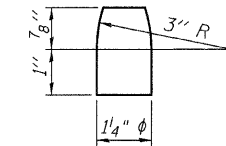
TYPE I ELASTOMERIC EXP. BRG.



BEARING ASSEMBLY

Note: Shim plates shall not be placed under Bearing Assembly.

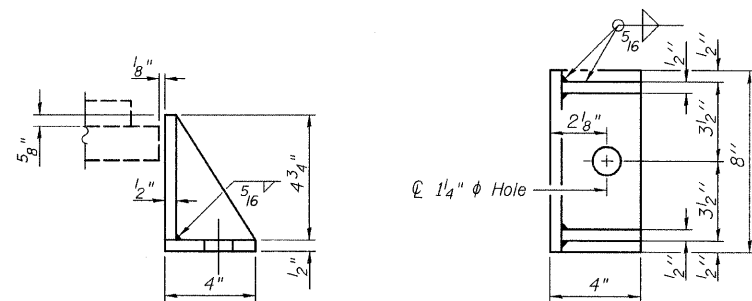
Notes:  
 Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. ASTM A307 Grade C anchor bolts may be used in lieu of ASTM F1554 Grade 36 (Fy=36ksi). The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.  
 Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.  
 Anchor bolts for side retainers may be cast in place or installed in holes drilled before or after members are in place.  
 Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.  
 Side retainers and other steel members required for the elastomeric bearing assembly shall be included in the cost of Furnishing Elastomeric Bearing Assembly, Type I.



PINTLE

FIXED BEARING

NOTE:  
 Bearings were furnished in Contract 60P54 and are shown for information only. Anchor bolts and bearing erection are included in Contract 60953.



SIDE RETAINER

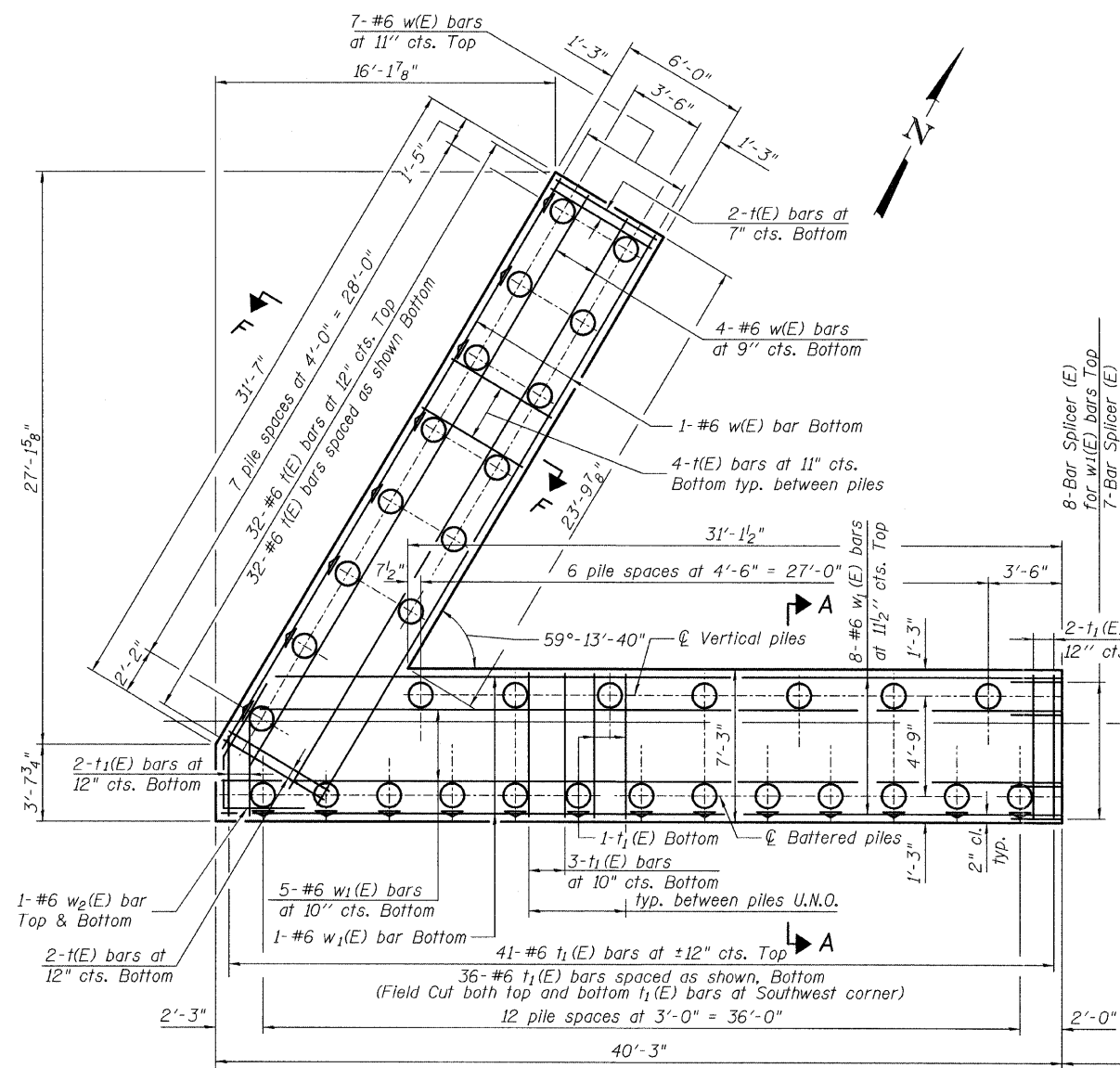
Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.

BILL OF MATERIAL

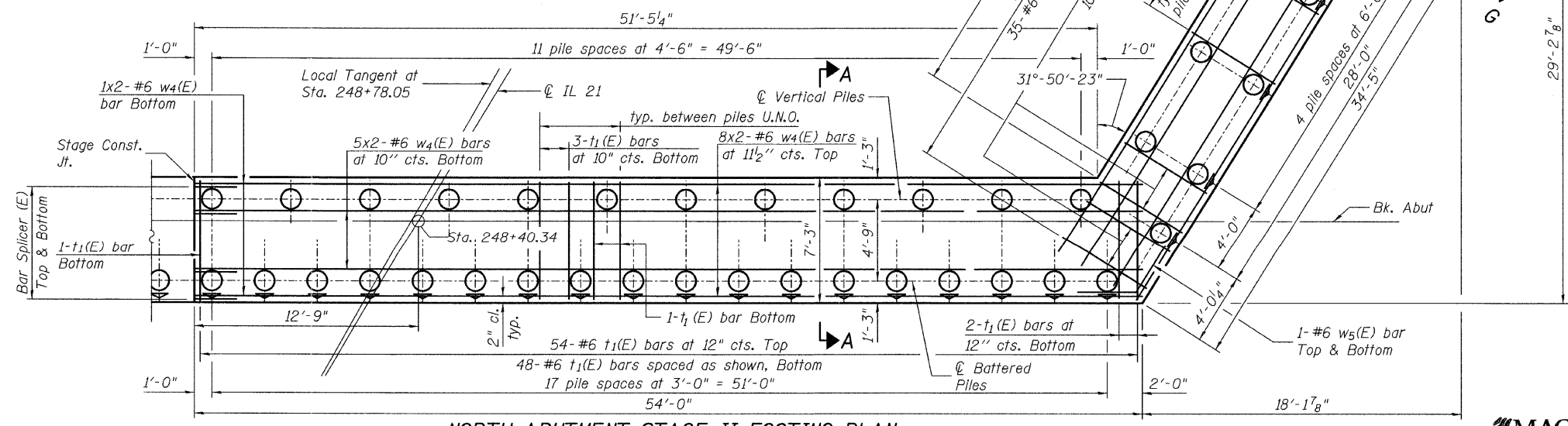
Item	Unit	Total
Erecting Elastomeric Bearing Assembly, Type I	Each	11
Anchor Bolts, 1"	Each	22







**NORTH ABUTMENT STAGE I FOOTING PLAN**



**NORTH ABUTMENT STAGE II FOOTING PLAN**

**PILE DATA**

Type: Metal Shell - 14"φ x 0.25" walls with pile shoes  
 Nominal Required Bearing: 403 kips  
 Factored Resistance Available: 145 kips  
 Est. Length: 15 ft  
 No. Production Piles: 74  
 No. Test Piles: 1

**LEGEND**

- Metal Shell - 14"φ x 0.25" wall
- ⊙ Battered Metal Shell - 14"φ x 0.25" wall

**Notes:**

1. Cut w(E), w1(E) and w3(E) bars in field to fit or miss piles if necessary.
2. See Section A-A on sheet 31 of 43.
3. See Section F-F and Section G-G on sheet 33 of 43.
4. n(E) and n1(E) bars are not shown for clarity. See Sheets 31 thru 33 for placement.

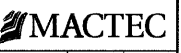
FILE NAME = 8498199-68953-030-N.Aburt.Ftg.dgn	USER NAME =	DESIGNED - JY	REVISIONS -
PLOT SCALE =		CHECKED - WPM	REVISIONS -
PLOT DATE = 12/28/2010		DRAWN - JY	REVISIONS -
		CHECKED - RMK	REVISIONS -

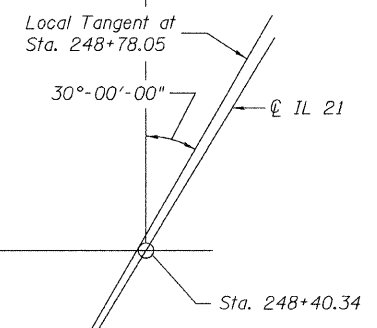
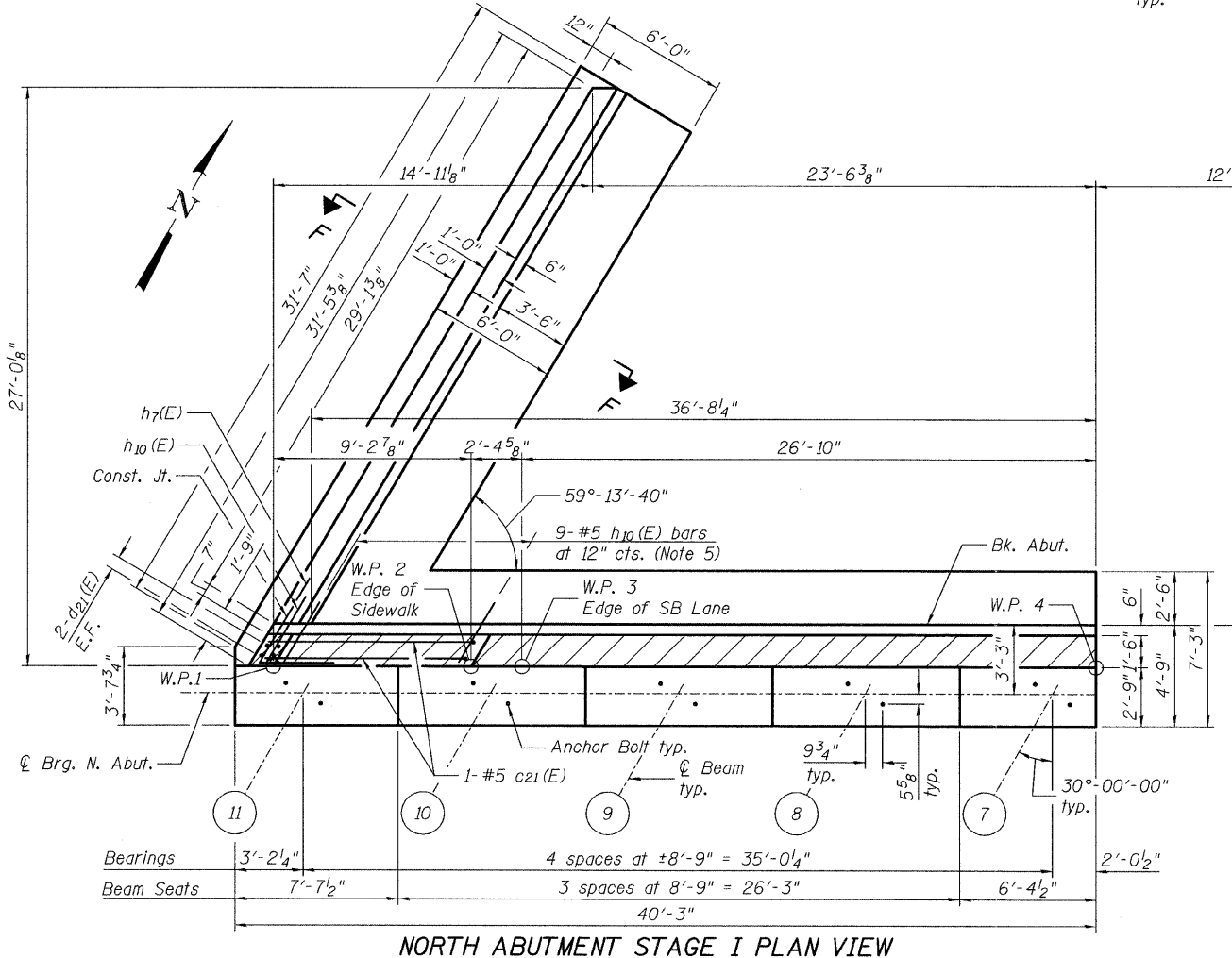
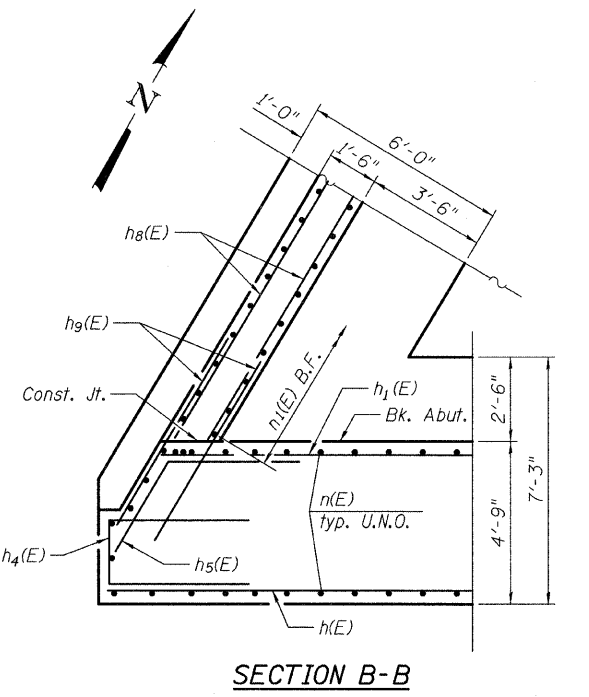
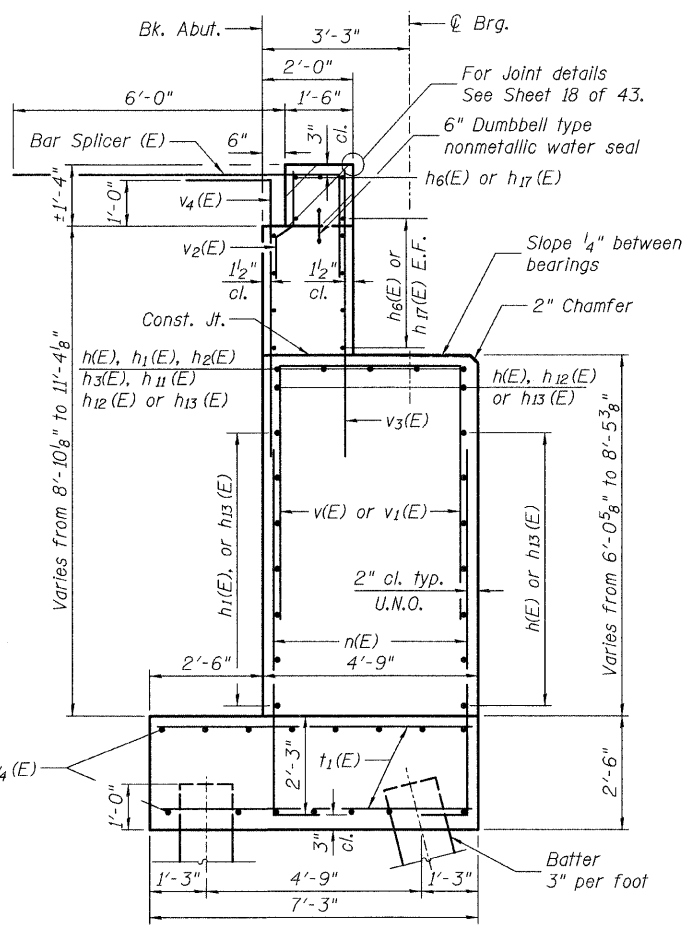
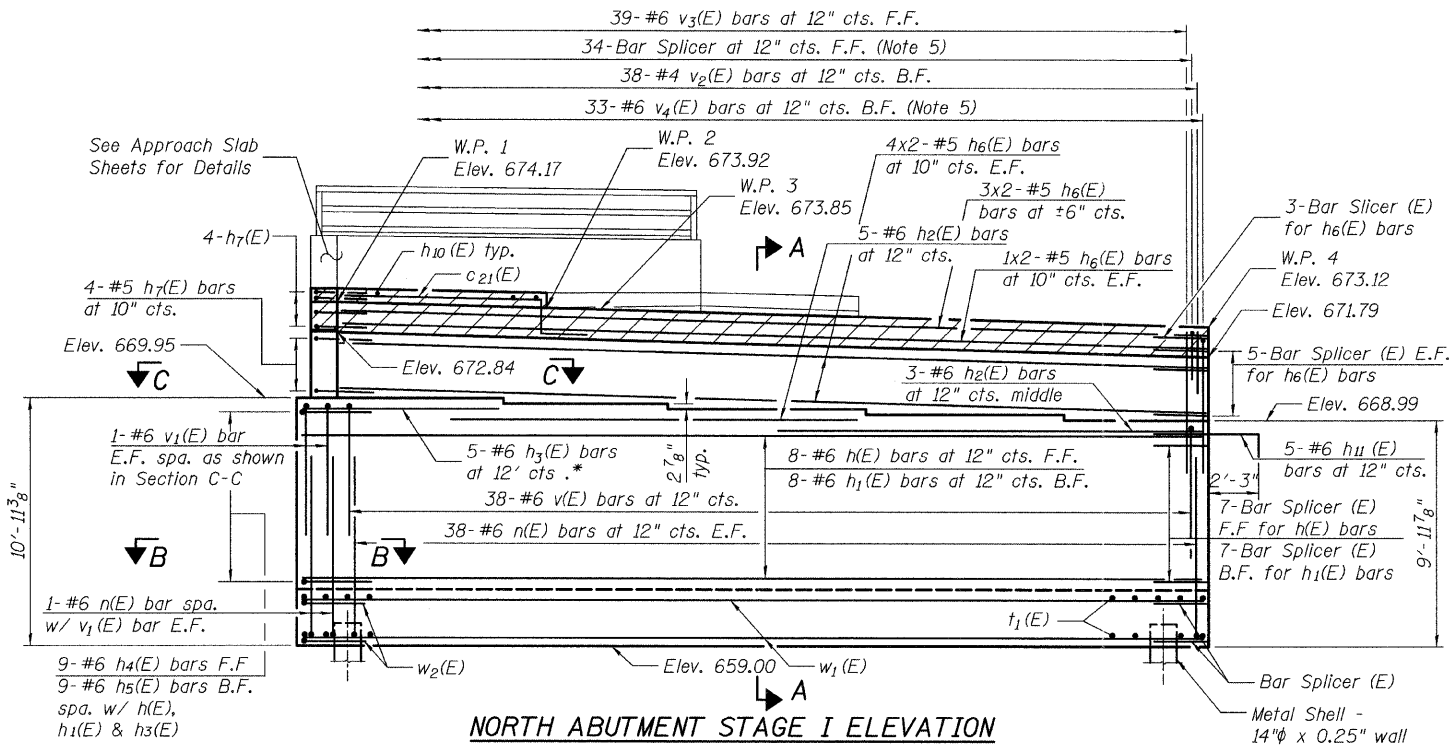
**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**NORTH ABUTMENT FOOTING PLAN  
 STRUCTURE NO. 049-0199**

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	128R-3	LAKE	518	272
CONTRACT NO. 60953				
ILLINOIS FED. AID PROJECT				

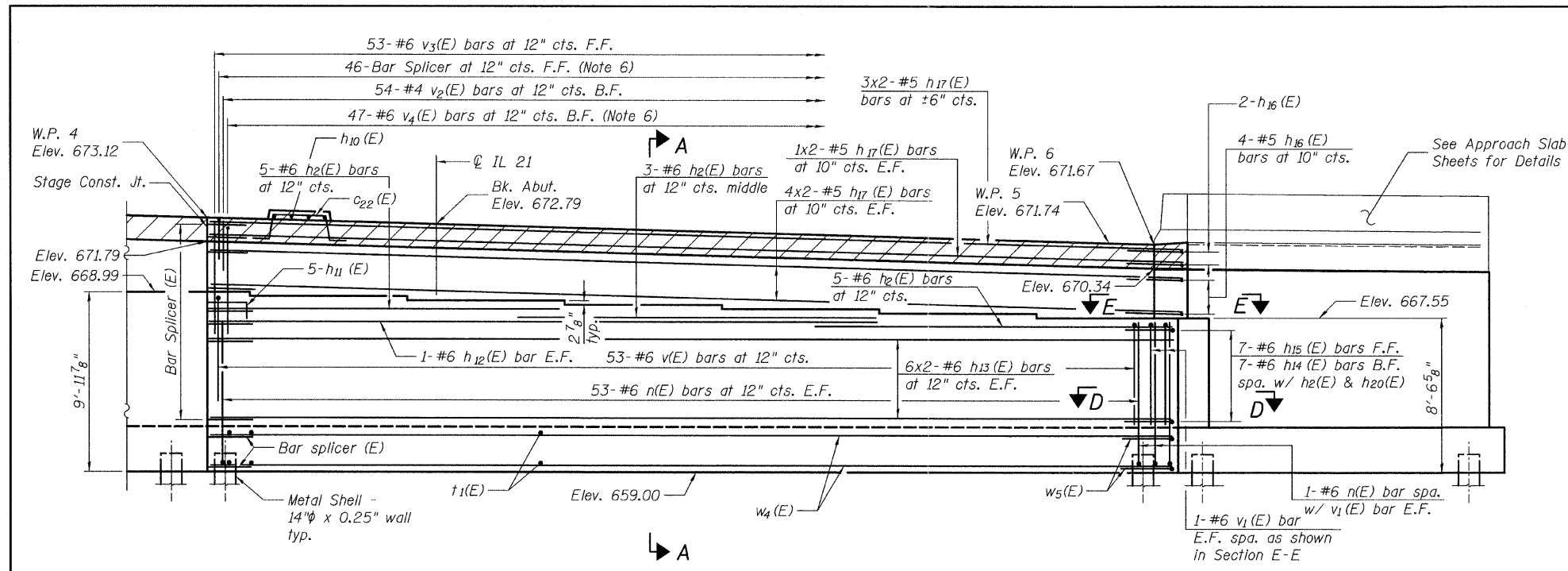
SHEET NO. 30 OF 43 SHEETS





Beam No.	Elevation
7	668.99
8	669.23
9	669.47
10	669.71
11	669.95

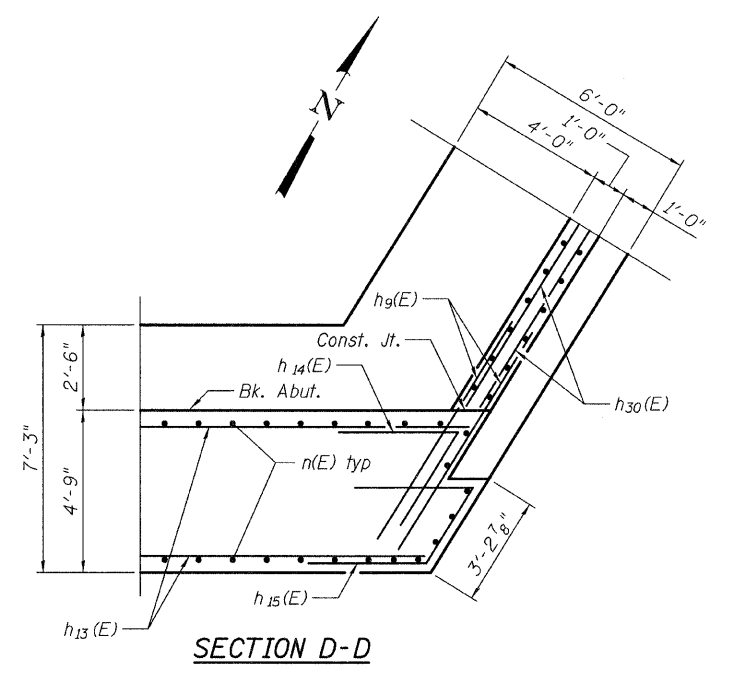
- Notes:
- See Section F-F on sheet 33 of 43.
  - Hatched area to be poured after superstructure false work has been removed. Quantity of concrete included with Concrete Superstructure.
  - Space reinforcement in cap to miss anchor bolts.
  - Pour steps monolithically with cap.
  - Place bar splicer (E), v4(E) and h10(E) bars parallel to beams. Alternate bar splicer with v4(E) bars.
  - Field cut h3(E) bars to fit.
  - Min. lap splice for #5 bar is 2'-11" and #6 bar is 3'-6" unless noted otherwise.



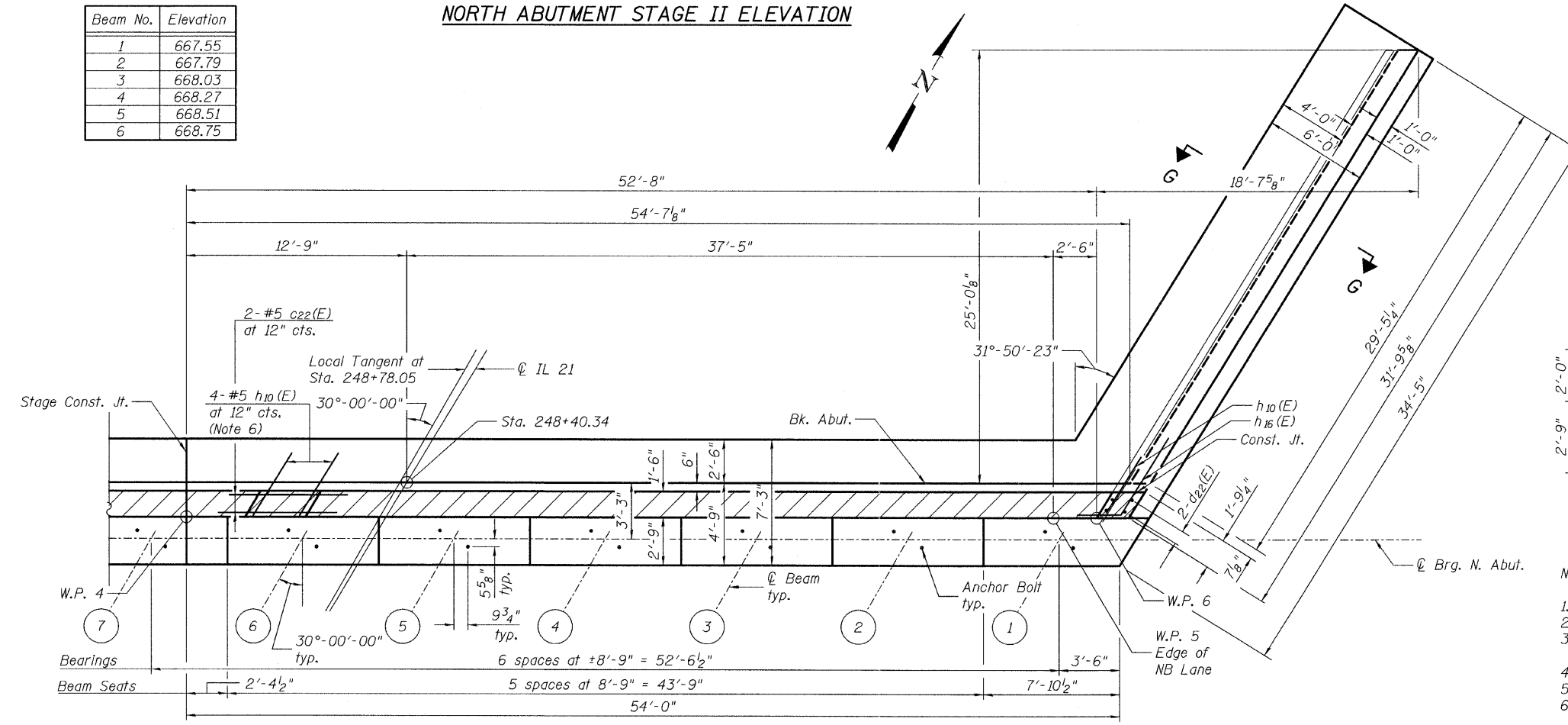
BEAM SEAT ELEVATION

Beam No.	Elevation
1	667.55
2	667.79
3	668.03
4	668.27
5	668.51
6	668.75

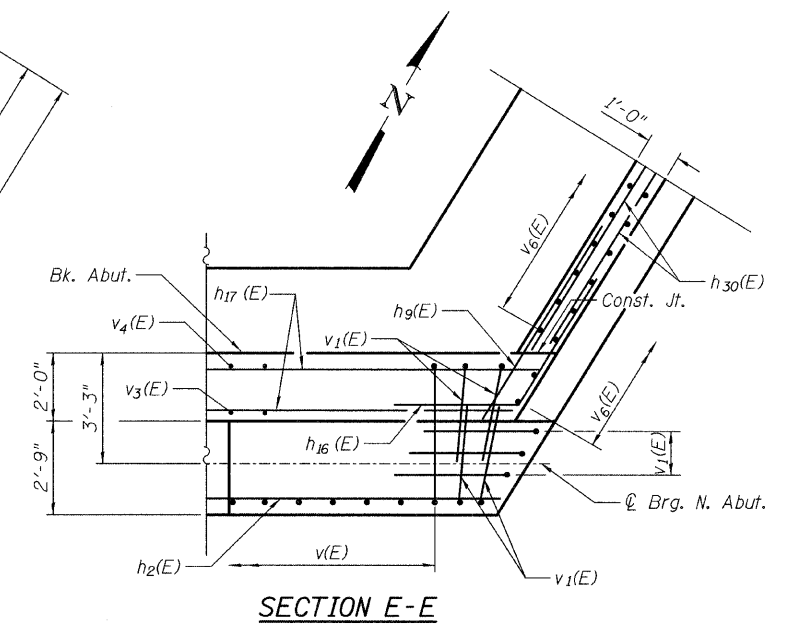
NORTH ABUTMENT STAGE II ELEVATION



SECTION D-D



NORTH ABUTMENT STAGE II PLAN VIEW

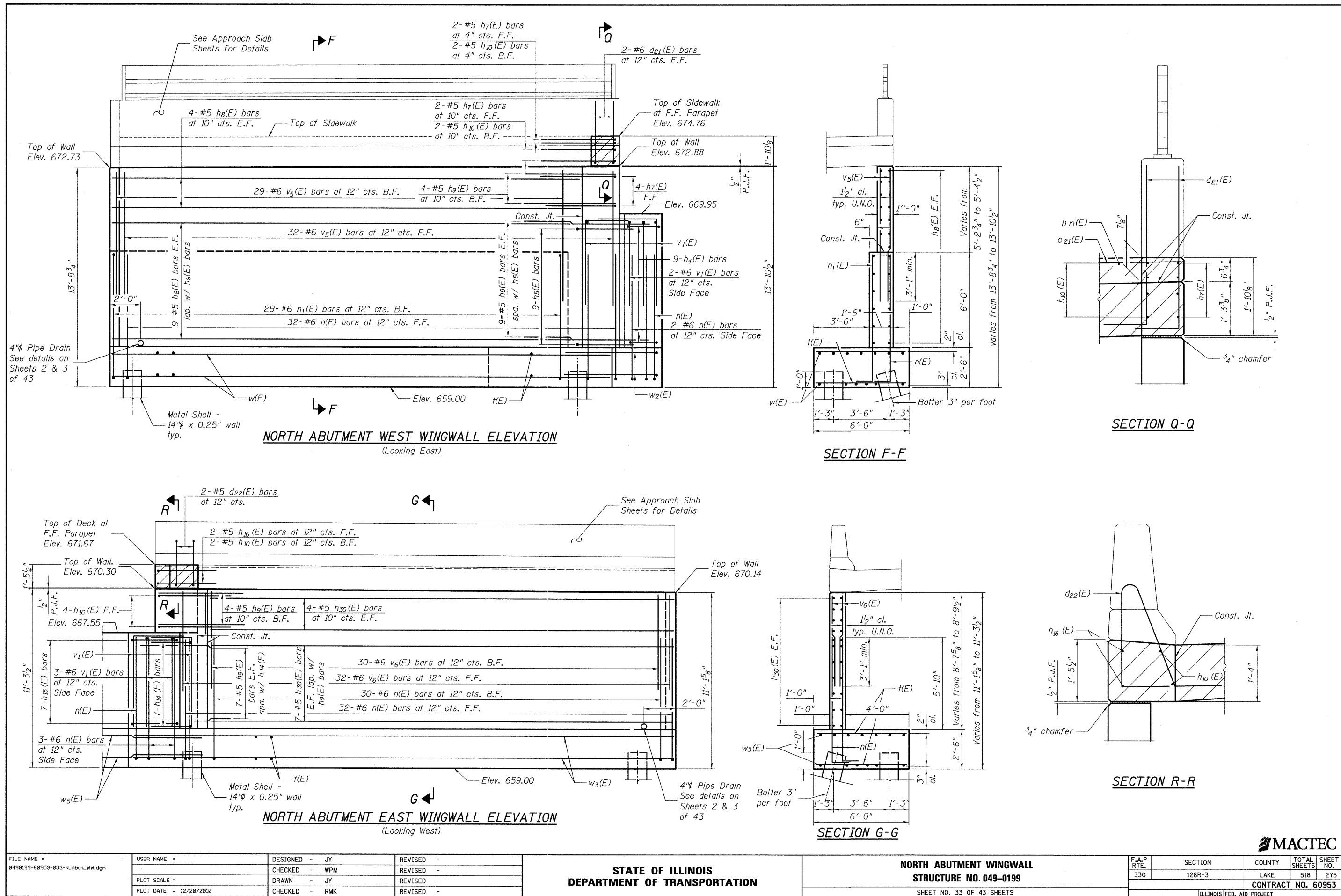


SECTION E-E

Notes:

1. See Section A-A on sheet 31 of 43.
2. See Section G-G on sheet 33 of 43.
3. Hatched area to be poured after superstructure false work has been removed. Quantity of concrete included with Concrete Superstructure.
4. Space reinforcement in cap to miss anchor bolts.
5. Pour steps monolithically with cap.
6. Place bar splicer (E), v4(E) and h10(E) bars parallel to beams. Alternate bar splicer with v4(E) bars.
7. Min. lap splice for #5 bar is 2'-11" and #6 bar is 3'-6" unless noted otherwise.





FILE NAME = 8498199-68963-833-N.Abut.WW.dgn	USER NAME =	DESIGNED - JY	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>NORTH ABUTMENT WINGWALL STRUCTURE NO. 049-0199</b>	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
PLOT SCALE =	CHECKED - WPM	REVISED -	330			128R-3	LAKE	518	275	
PLOT DATE = 12/28/2018	DRAWN - JY	REVISED -	SHEET NO. 33 OF 43 SHEETS							
	CHECKED - RMK	REVISED -	CONTRACT NO. 60953							
			ILLINOIS FED. AID PROJECT							

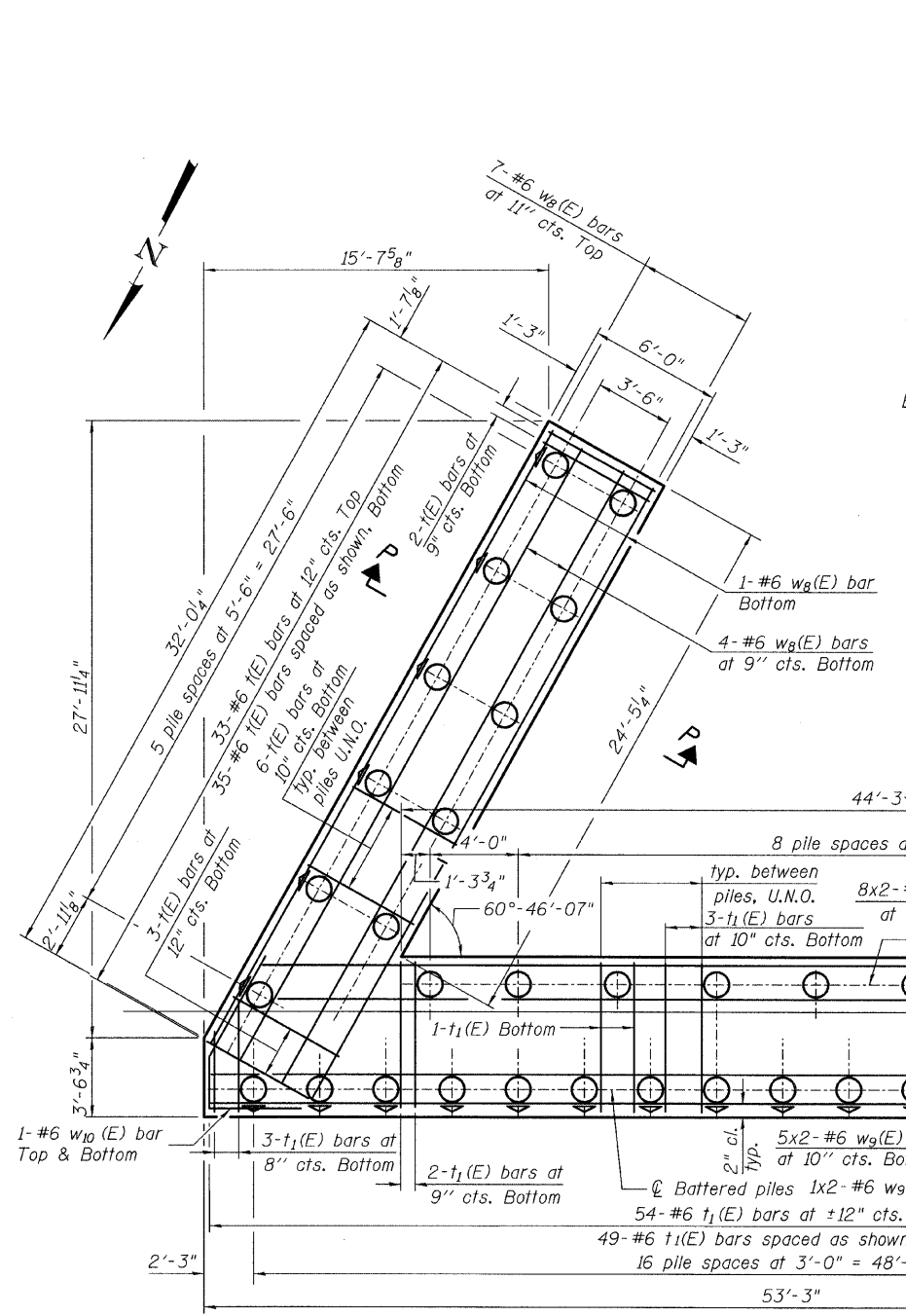
MACTEC

**PILE DATA**

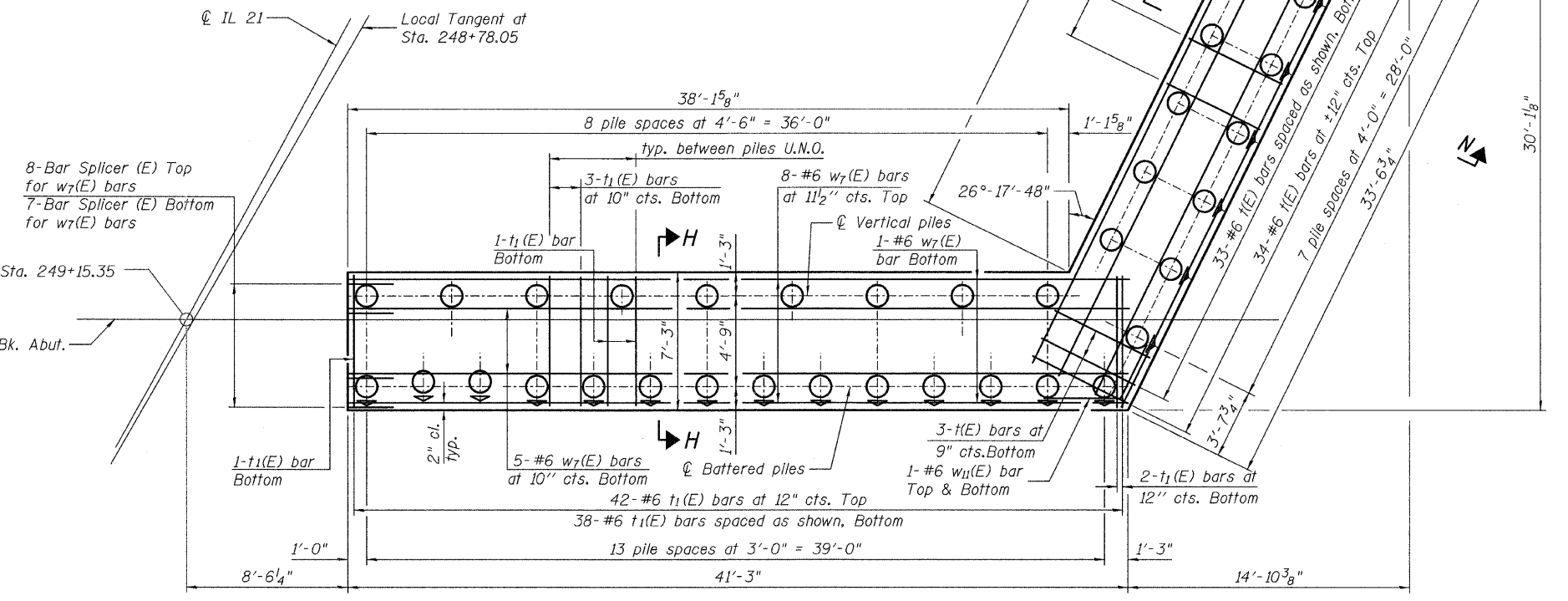
Type: Metal Shell - 14"  $\phi$  x 0.25" walls with pile shoes  
 Nominal Required Bearing: 316 kips  
 Factored Resistance Available: 136 kips  
 Est. Length: 19 ft  
 No. Production Piles: 75  
 No. Test Piles: 1

**LEGEND**

- Metal Shell - 14"  $\phi$  x 0.25" wall
- Battered Metal Shell - 14"  $\phi$  x 0.25" wall



**SOUTH ABUTMENT STAGE II FOOTING PLAN**



**SOUTH ABUTMENT STAGE I FOOTING PLAN**

**Notes:**

1. Cut w6(E), w8(E) and w9(E) bars in field to fit or miss piles if necessary.
2. See Section H-H on sheet 35 of 43.
3. See Section N-N and Section P-P on sheet 37 of 43.
4. n2(E), n3(E) and n4(E) bars are not shown for clarity. See Sheets 35 thru 37 for placement.

FILE NAME = 0490199-60953-034-S_Abut_Ftg.dgn	USER NAME =	DESIGNED - JY	REVISIONS -
PLOT SCALE =	CHECKED - WPM	REVISIONS -	
PLOT DATE = 12/28/2010	DRAWN - JY	REVISIONS -	
	CHECKED - RMK	REVISIONS -	

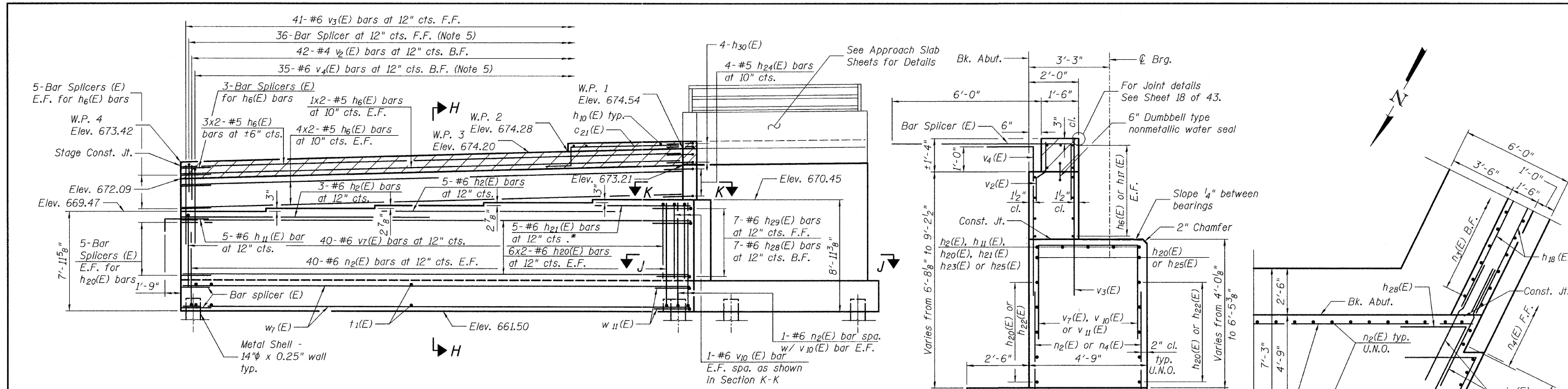
**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**SOUTH ABUTMENT FOOTING PLAN  
 STRUCTURE NO. 049-0199**

SHEET NO. 34 OF 43 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	128R-3	LAKE	518	276
				CONTRACT NO. 60953
ILLINOIS FED. AID PROJECT				

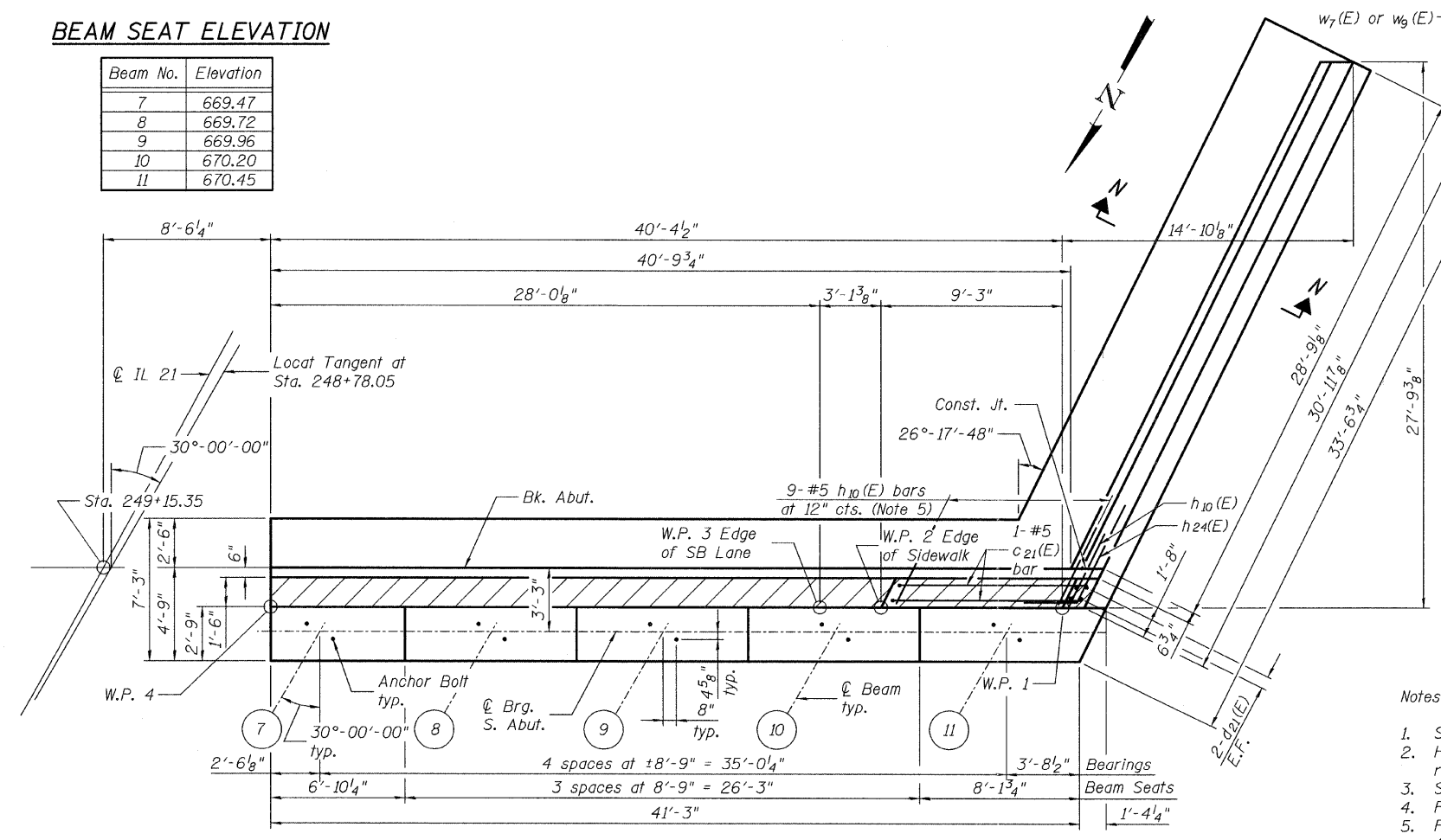




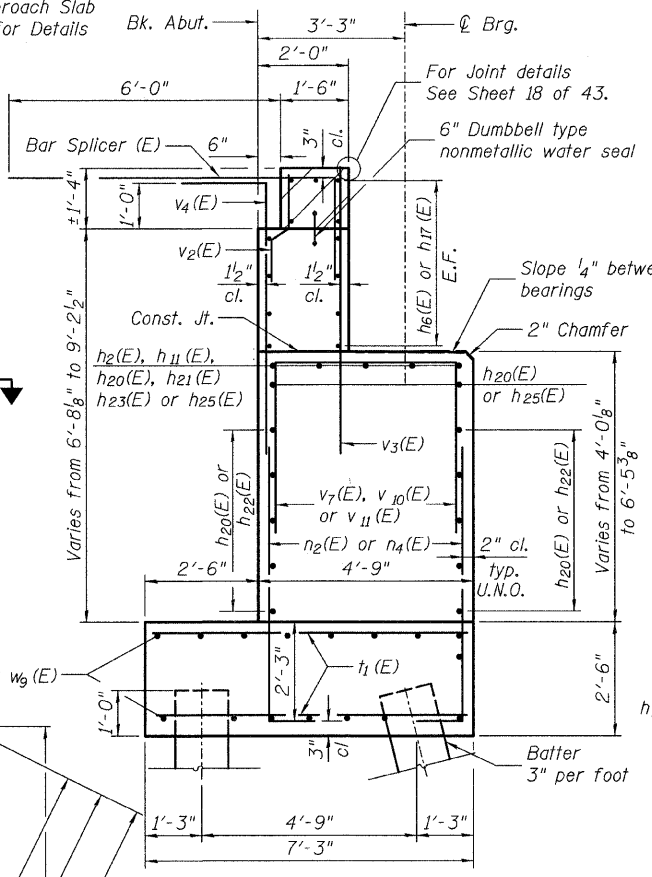
**SOUTH ABUTMENT STAGE I ELEVATION**

**BEAM SEAT ELEVATION**

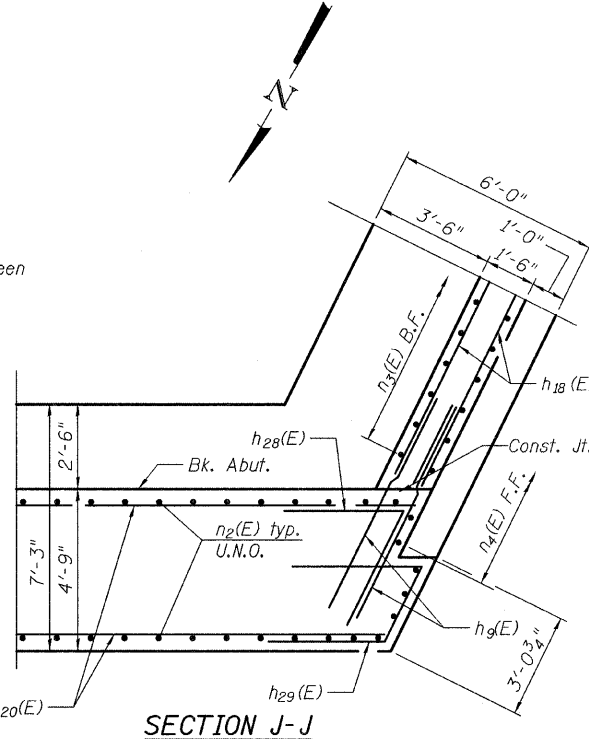
Beam No.	Elevation
7	669.47
8	669.72
9	669.96
10	670.20
11	670.45



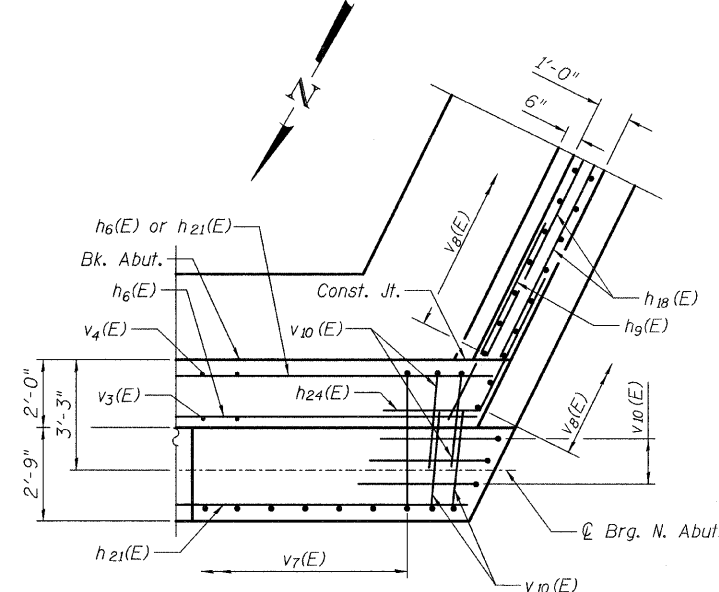
**SOUTH ABUTMENT STAGE I PLAN VIEW**



**SECTION H-H**



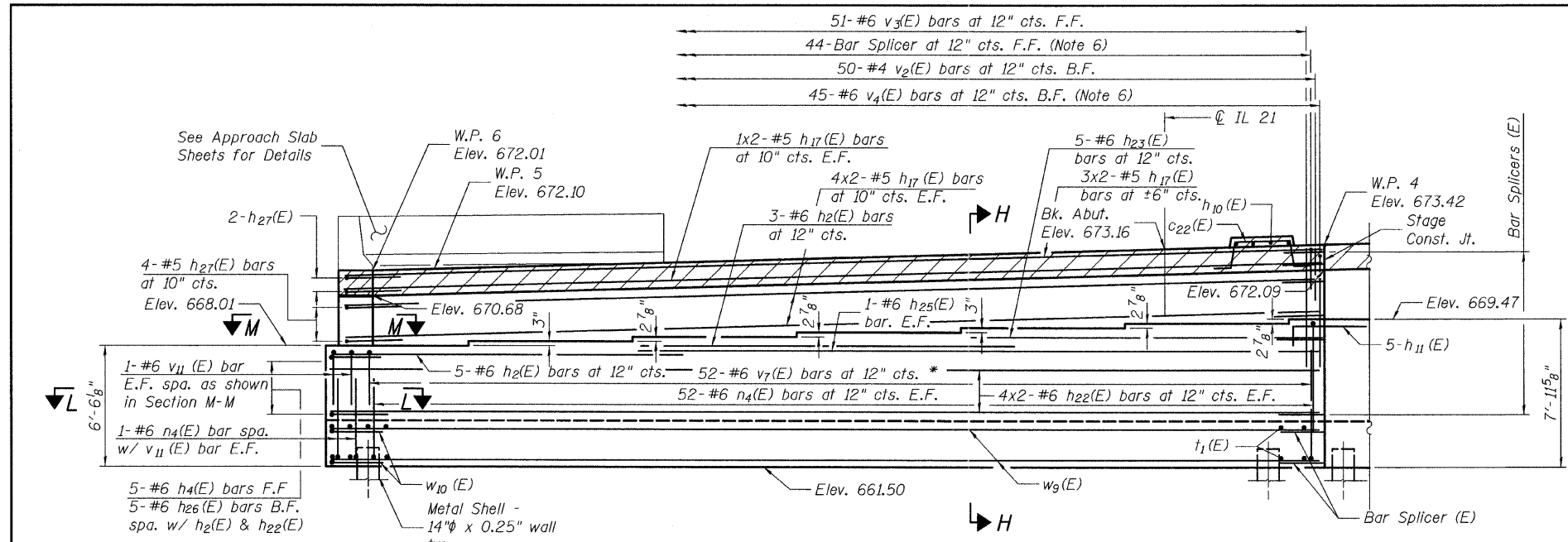
**SECTION J-J**



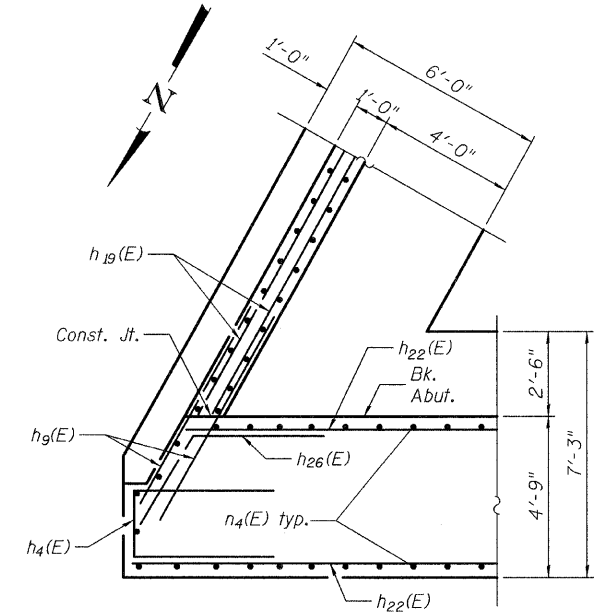
**SECTION K-K**

- Notes:
- See Section N-N on sheet 37 of 43.
  - Hatched area to be poured after superstructure false work has been removed. Quantity of concrete included with Concrete Superstructure.
  - Space reinforcement in cap to miss anchor bolts.
  - Pour steps monolithically with cap.
  - Place bar splicer (E), v4(E) and h10(E) bars parallel to beams. Alternate bar splicer with v4(E) bars.
  - Field cut h21(E) bars to fit.
  - Min. lap splice for #5 bar is 2'-11" and #6 bar is 3'-6" unless noted otherwise.





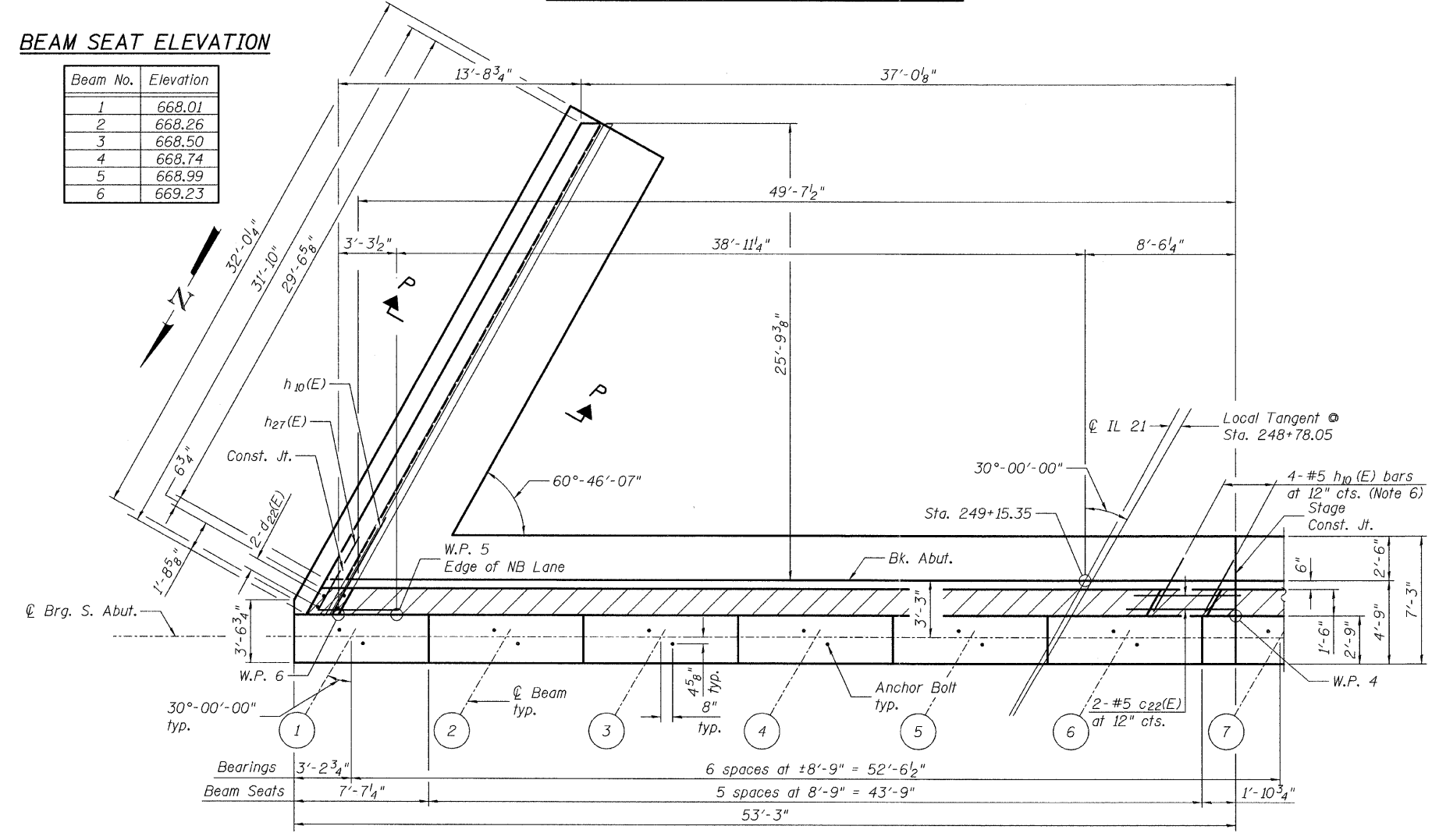
**SOUTH ABUTMENT STAGE II ELEVATION**



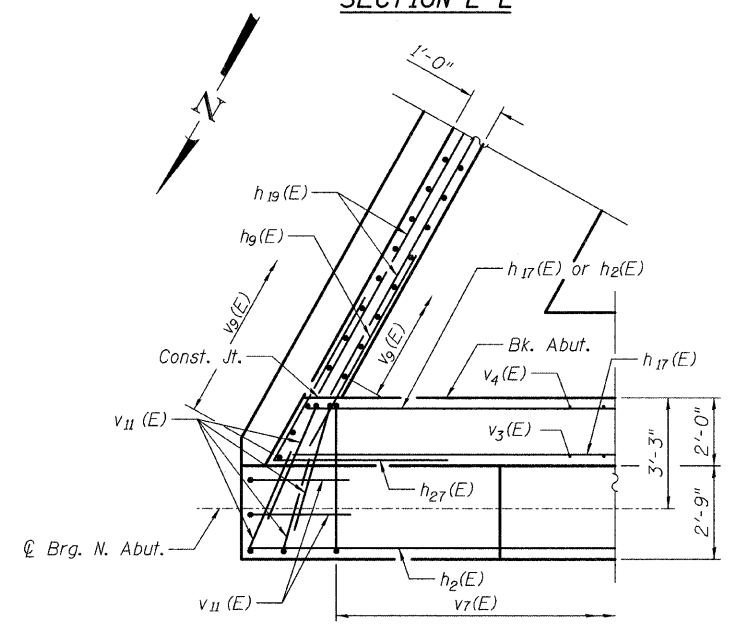
**SECTION L-L**

**BEAM SEAT ELEVATION**

Beam No.	Elevation
1	668.01
2	668.26
3	668.50
4	668.74
5	668.99
6	669.23



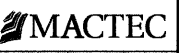
**SOUTH ABUTMENT STAGE II PLAN VIEW**

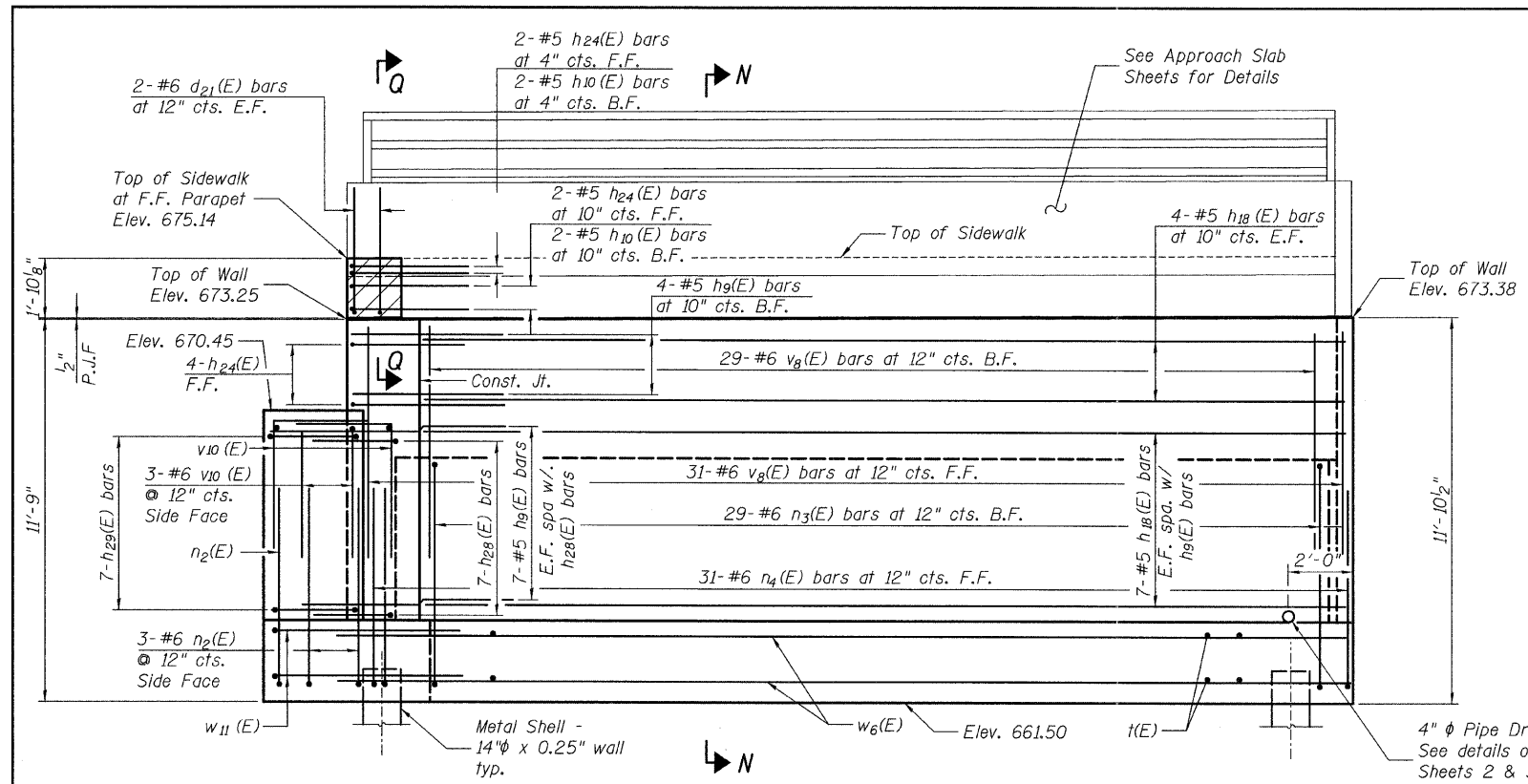


**SECTION M-M**

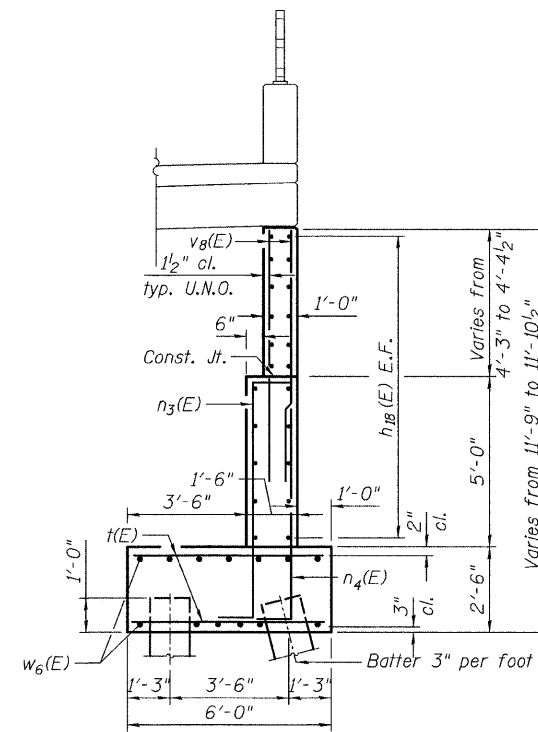
**Notes:**

1. See Section H-H on sheet 35 of 43.
2. See Section P-P on sheet 37 of 43.
3. Hatched area to be poured after superstructure false work has been removed. Quantity of concrete included with Concrete Superstructure.
4. Space reinforcement in cap to miss anchor bolts.
5. Pour steps monolithically with cap.
6. Place bar splicer (E), v4(E) and h10(E) bars parallel to beams. Alternate bar splicer with v4(E) bars.
- \* 7. Field cut v7(E) bars at the east corner to fit.
8. Min. lap splice for #5 bar is 2'-11" and #6 bar is 3'-6" unless noted otherwise.

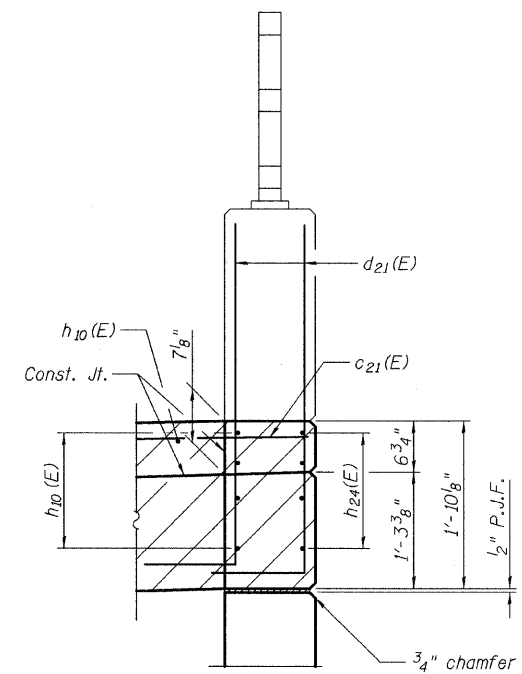




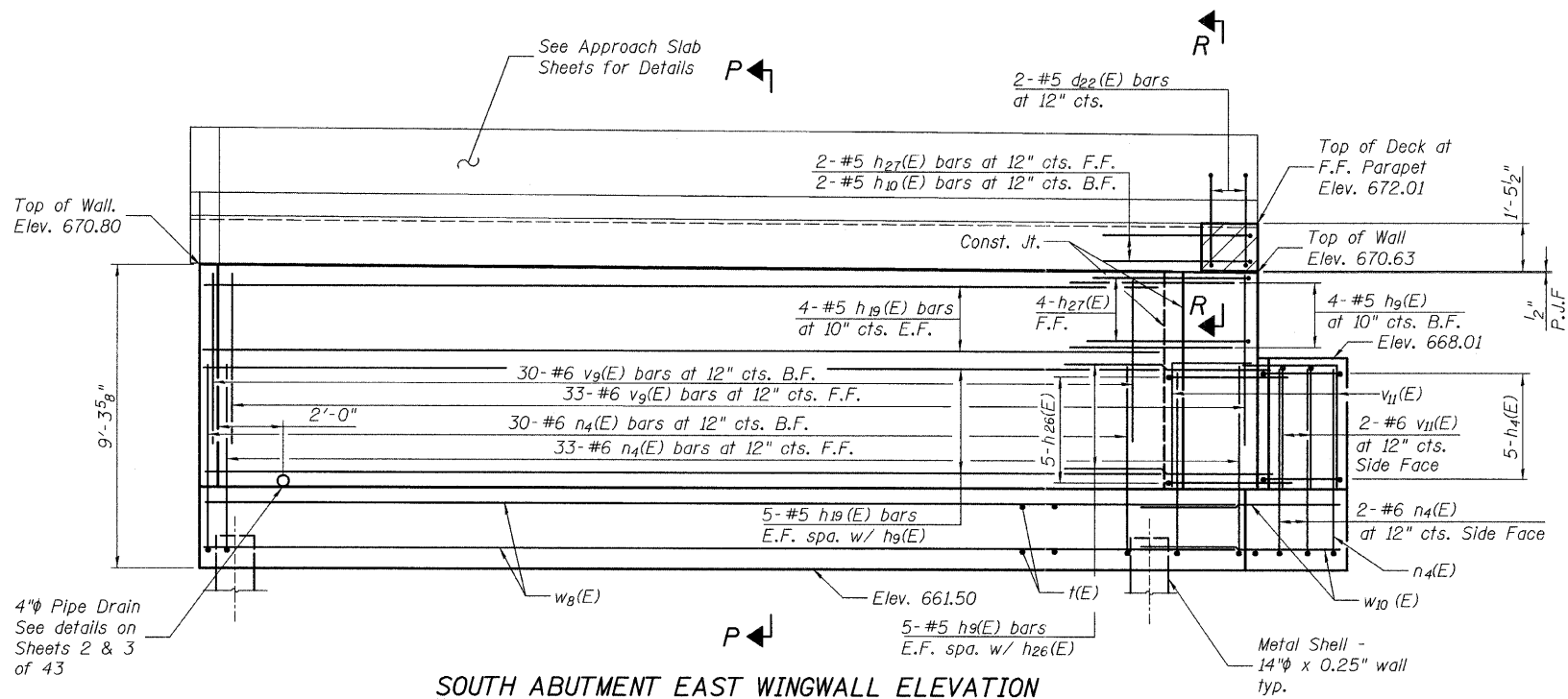
**SOUTH ABUTMENT WEST WINGWALL ELEVATION**  
(Looking East)



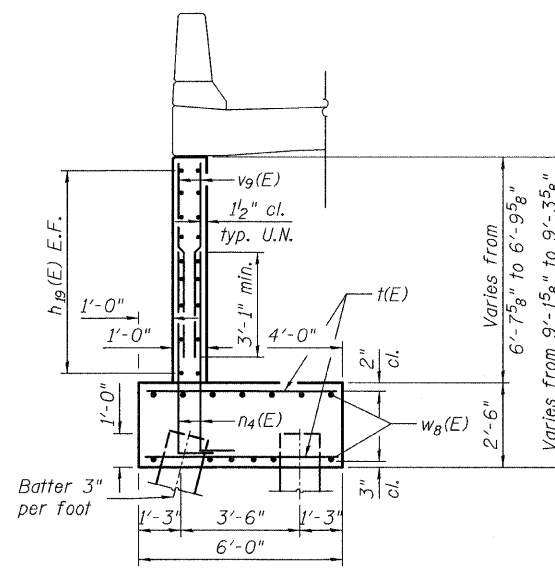
**SECTION N-N**



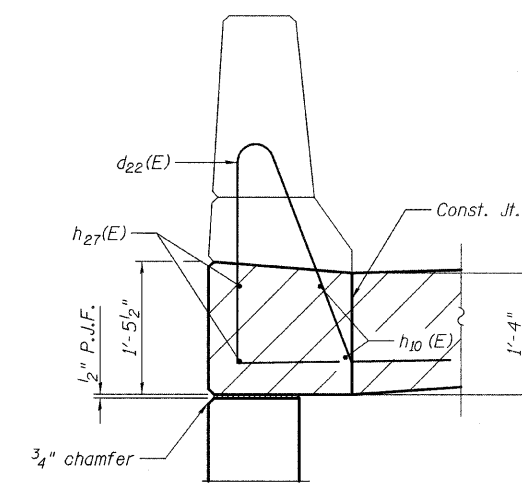
**SECTION Q-Q**



**SOUTH ABUTMENT EAST WINGWALL ELEVATION**  
(Looking West)



**SECTION P-P**



**SECTION R-R**

FILE NAME = 2498199-68953-837-S.Abut.WW.dgn	USER NAME =
PLOT SCALE =	PLOT DATE = 12/28/2010

DESIGNED - JY	REVISD -
CHECKED - RMK	REVISD -
DRAWN - JY	REVISD -
CHECKED - RMK	REVISD -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

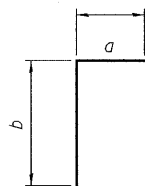
**SOUTH ABUTMENT WINGWALL  
STRUCTURE NO. 049-0199**

SHEET NO. 37 OF 43 SHEETS

F.A.P. RTE. 330	SECTION 128R-3	COUNTY LAKE	TOTAL SHEETS 518	SHEET NO. 279
CONTRACT NO. 60953				
ILLINOIS FED. AID PROJECT				

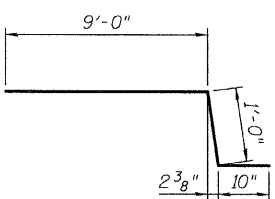




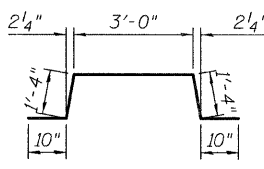


**BARS  $d_{21}(E)$ ,  $h_{11}(E)$ ,  $n(E)$ ,  $n_2(E)$ ,  $n_4(E)$ ,  $v_1(E)$ ,  $v_4(E)$ ,  $v_{10}(E)$ , and  $v_{11}(E)$**

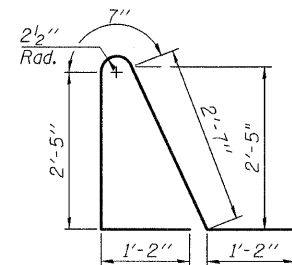
Bar	a	b
$d_{21}(E)$	1'-0"	3'-10"
$h_{11}(E)$	1'-0"	5'-8"
$n(E)$	1'-0"	8'-1"
$n_2(E)$	1'-0"	7'-6"
$n_4(E)$	1'-0"	6'-1"
$v_1(E)$	4'-0"	5'-7"
$v_4(E)$	1'-11"	6'-3"
$v_{10}(E)$	1'-11"	4'-1"
$v_{11}(E)$	1'-11"	3'-10"



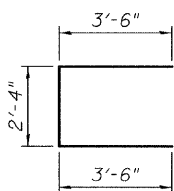
**BAR  $c_{21}(E)$**



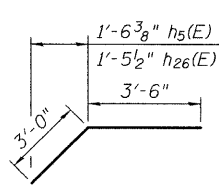
**BAR  $c_{22}(E)$**



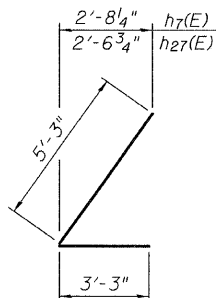
**BAR  $d_{22}(E)$**



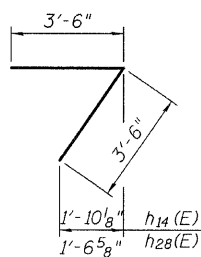
**BAR  $h_4(E)$**



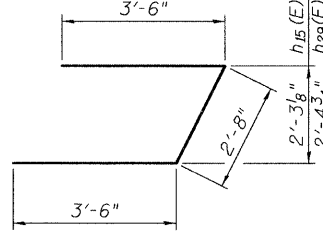
**BARS  $h_5(E)$  &  $h_{26}(E)$**



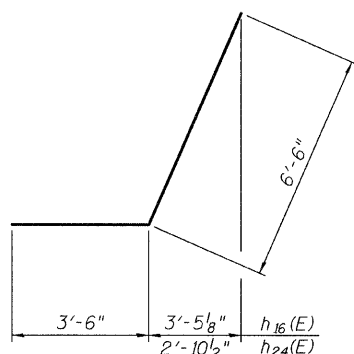
**BARS  $h_7(E)$  &  $h_{27}(E)$**



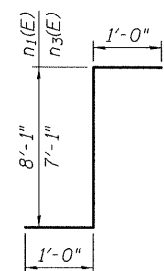
**BARS  $h_{14}(E)$  &  $h_{28}(E)$**



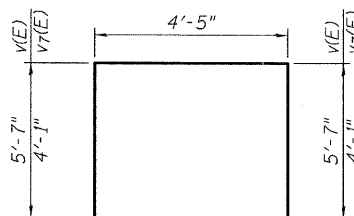
**BARS  $h_{15}(E)$  &  $h_{29}(E)$**



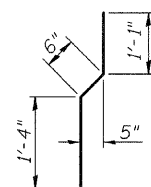
**BARS  $h_{16}(E)$  &  $h_{24}(E)$**



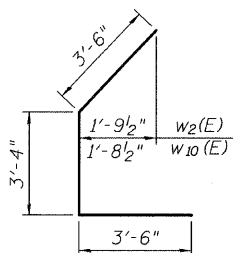
**BARS  $n_1(E)$  &  $n_3(E)$**



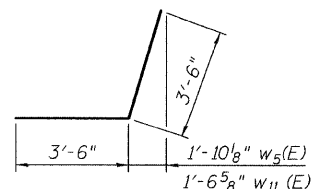
**BARS  $v(E)$  &  $v_7(E)$**



**BAR  $v_2(E)$**



**BARS  $w_2(E)$  &  $w_{10}(E)$**



**BARS  $w_5(E)$  &  $w_{11}(E)$**

Notes:

- For details of Bar Splicers, see sheet 39 of 43.
- For details of piles and Concrete Encasement, see sheet 40 of 43.

**NORTH ABUTMENT  
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
$c_{21}(E)$	2	#5	10'-10"	
$c_{22}(E)$	2	#5	7'-4"	
$d_{21}(E)$	4	#6	4'-10"	
$d_{22}(E)$	2	#5	7'-11"	
$h(E)$	8	#6	40'-0"	
$h_1(E)$	8	#6	38'-11"	
$h_2(E)$	21	#6	19'-8"	
$h_3(E)$	5	#6	7'-3"	
$h_4(E)$	9	#6	9'-4"	
$h_5(E)$	9	#6	6'-6"	
$h_6(E)$	26	#5	22'-2"	
$h_7(E)$	8	#5	8'-6"	
$h_8(E)$	26	#5	28'-9"	
$h_9(E)$	40	#5	6'-9"	
$h_{10}(E)$	19	#5	4'-8"	
$h_{11}(E)$	5	#6	6'-8"	
$h_{12}(E)$	2	#6	37'-2"	
$h_{13}(E)$	24	#6	29'-6"	
$h_{14}(E)$	7	#6	7'-0"	
$h_{15}(E)$	7	#6	9'-8"	
$h_{16}(E)$	6	#5	10'-0"	
$h_{17}(E)$	26	#5	29'-1"	
$h_{30}(E)$	22	#5	29'-3"	
$n(E)$	289	#6	9'-1"	
$n_1(E)$	29	#6	10'-1"	
$t(E)$	134	#6	5'-8"	
$t_1(E)$	179	#6	6'-11"	
$v(E)$	91	#6	15'-7"	
$v_1(E)$	13	#6	9'-7"	
$v_2(E)$	92	#4	2'-11"	
$v_3(E)$	92	#6	6'-3"	
$v_4(E)$	80	#6	8'-2"	
$v_5(E)$	63	#6	8'-3"	
$v_6(E)$	62	#6	5'-11"	
$w(E)$	13	#6	31'-3"	
$w_1(E)$	15	#6	40'-0"	
$w_2(E)$	2	#6	10'-4"	
$w_3(E)$	13	#6	34'-3"	
$w_4(E)$	30	#6	28'-9"	
$w_5(E)$	2	#6	7'-0"	
Structure Excavation		Cu. Yd.	835	
Concrete Structures		Cu. Yd.	257.1	
Concrete		Cu. Yd.	7.2	
Superstructure				
Reinforcing Bars, Epoxy Coated		Pound	23,260	
Bar Splicers		Each	122	
Furnishing Metal Shell Piles 14" x 0.250"		Foot	1,110	
Driving Piles		Foot	1,110	
Test Pile Metal Shells		Each	1	
Pile Shoes		Each	74	
Concrete Sealer		Sq. Ft.	1,193	
Geocomposite		Sq. Yd.	130	
Wall Drain				
* Pipe Underdrains for Structures 4"		Foot	181	
* Porous Granular Embankment, Special		Cu. Yd.	175	

\* Special Provision

**SOUTH ABUTMENT  
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
$c_{21}(E)$	2	#5	10'-10"	
$c_{22}(E)$	2	#5	7'-4"	
$d_{21}(E)$	4	#6	4'-10"	
$d_{22}(E)$	2	#5	7'-11"	
$h_2(E)$	16	#6	19'-8"	
$h_4(E)$	5	#6	9'-4"	
$h_6(E)$	26	#5	22'-2"	
$h_9(E)$	32	#5	6'-9"	
$h_{10}(E)$	19	#5	4'-8"	
$h_{11}(E)$	5	#6	6'-8"	
$h_{17}(E)$	26	#5	29'-1"	
$h_{18}(E)$	22	#5	28'-7"	
$h_{19}(E)$	18	#5	29'-4"	
$h_{20}(E)$	24	#6	22'-11"	
$h_{21}(E)$	5	#6	8'-10"	
$h_{22}(E)$	16	#6	28'-4"	
$h_{23}(E)$	5	#6	19'-3"	
$h_{24}(E)$	8	#5	10'-0"	
$h_{25}(E)$	2	#6	36'-9"	
$h_{26}(E)$	5	#6	6'-6"	
$h_{27}(E)$	6	#5	8'-6"	
$h_{28}(E)$	7	#6	7'-0"	
$h_{29}(E)$	7	#6	9'-8"	
$n_2(E)$	87	#6	8'-6"	
$n_3(E)$	29	#6	9'-1"	
$n_4(E)$	204	#6	7'-1"	
$t(E)$	135	#6	5'-8"	
$t_1(E)$	183	#6	6'-11"	
$v_2(E)$	92	#4	2'-11"	
$v_3(E)$	92	#6	6'-3"	
$v_4(E)$	80	#6	8'-2"	
$v_7(E)$	92	#6	12'-7"	
$v_8(E)$	60	#6	8'-6"	
$v_9(E)$	63	#6	5'-11"	
$v_{10}(E)$	7	#6	6'-0"	
$v_{11}(E)$	7	#6	5'-9"	
$w_6(E)$	13	#6	33'-3"	
$w_7(E)$	15	#6	41'-1"	
$w_8(E)$	13	#6	32'-0"	
$w_9(E)$	30	#6	28'-4"	
$w_{10}(E)$	2	#6	10'-4"	
$w_{11}(E)$	2	#6	7'-0"	
Structure Excavation		Cu. Yd.	737	
Concrete Structures		Cu. Yd.	219.3	
Concrete		Cu. Yd.	7.2	
Superstructure				
Reinforcing Bars, Epoxy Coated		Pound	21,250	
Bar Splicers		Each	118	
Furnishing Metal Shell Piles 14" x 0.250"		Foot	1,425	
Driving Piles		Foot	1,425	
Test Pile Metal Shells		Each	1	
Pile Shoes		Each	75	
Concrete Sealer		Sq. Ft.	1,004	
Geocomposite		Sq. Yd.	96	
Wall Drain				
* Pipe Underdrains for Structures 4"		Foot	181	
* Porous Granular Embankment, Special		Cu. Yd.	129	

\* Special Provision

FILE NAME = 8498199-62953-038-AbutBOM.dgn  
PLOT SCALE =  
PLOT DATE = 12/28/2018

DESIGNED	REVISIONS
JY	-
RMK	-
JY	-
RMK	-

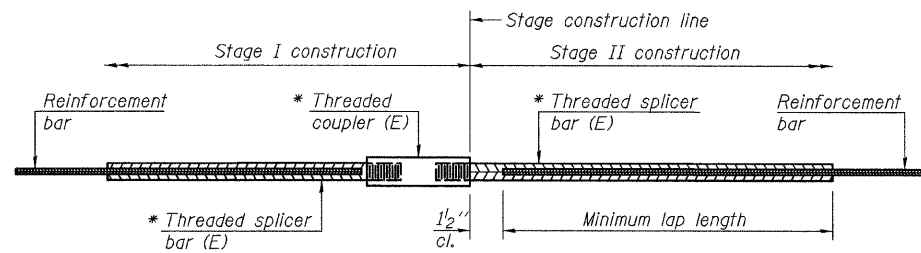
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**ABUTMENT BILL OF MATERIAL  
STRUCTURE NO. 049-0199**  
SHEET NO. 38 OF 43 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	128R-3	LAKE	518	280

CONTRACT NO. 60953  
ILLINOIS FED. AID PROJECT

MACTEC



**STANDARD BAR SPLICER ASSEMBLY**

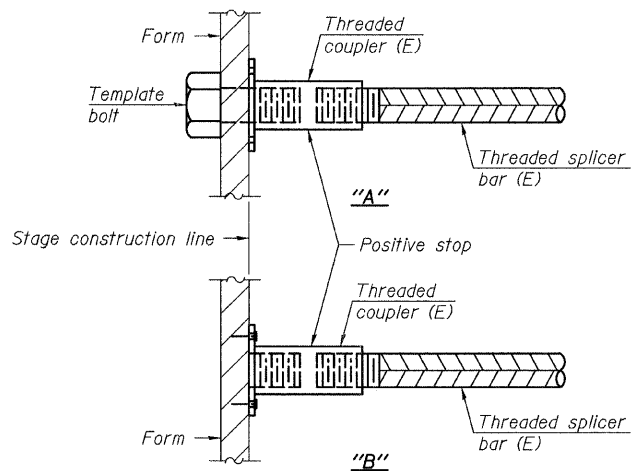
Bar size to be spliced	Minimum Lap Lengths				
	Table 1	Table 2	Table 3	Table 4	Table 5
3, 4	1'-5"	1'-11"	2'-1"	2'-4"	2'-3"
5	1'-9"	2'-5"	2'-7"	2'-11"	2'-10"
6	2'-1"	2'-11"	3'-1"	3'-6"	3'-4"
7	2'-9"	3'-10"	4'-2"	4'-8"	4'-6"
8	3'-8"	5'-1"	5'-5"	6'-2"	5'-10"
9	4'-7"	6'-5"	6'-10"	7'-9"	7'-5"

- Table 1: Black bar, 0.8 Class C
- Table 2: Black bar, Top bar lap, 0.8 Class C
- Table 3: Epoxy bar, 0.8 Class C
- Table 4: Epoxy bar, Top bar lap, 0.8 Class C
- Table 5: Epoxy bar, Top bar lap, Class B

Threaded splicer bar length = min. lap length + 1 1/2" + thread length

\* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

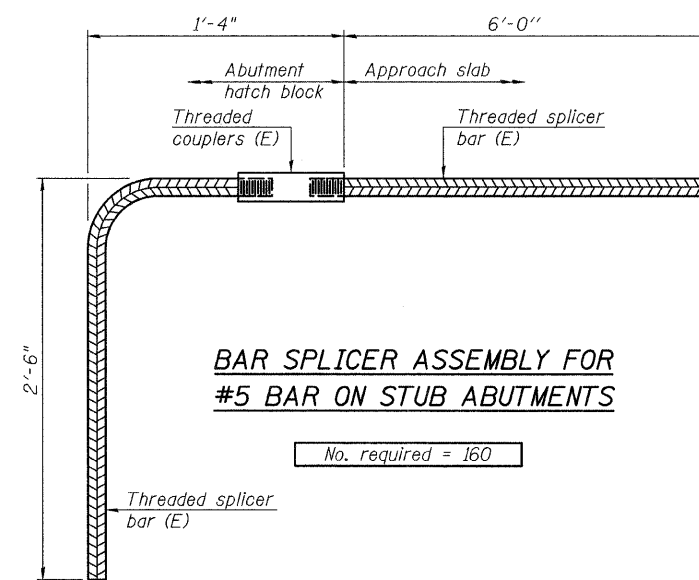
Location	Bar size	No. assemblies required	Table for minimum lap length
N. Abut. Footing Top	#6	8	4
N. Abut. Footing Bottom	#6	7	3
N. Abut. Stem	#6	14	4
N. Abut. Backwall	#5	13	5
S. Abut. Footing Top	#6	8	4
S. Abut. Footing Bottom	#6	7	3
S. Abut. Stem	#6	10	4
S. Abut. Backwall	#5	13	5
N. Appr. Slab Top	#4	24	4
N. Appr. Slab Bottom	#5	45	3
N. Appr. Slab Footing	#5	40	3
S. Appr. Slab Top	#4	24	4
S. Appr. Slab Bottom	#5	45	3
S. Appr. Slab Footing	#5	40	3
Deck Top	#5	148	3
Deck Bottom	#5	91	3
Deck Top	#6	14	4
Deck Bottom	#6	2	3



**INSTALLATION AND SETTING METHODS**

- "A" : Set bar splicer assembly by means of a template bolt.
- "B" : Set bar splicer assembly by nailing to wood forms or cementing to steel forms.

(E) : Indicates epoxy coating.



**BAR SPLICER ASSEMBLY FOR #5 BAR ON STUB ABUTMENTS**

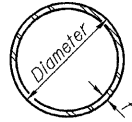
No. required = 160

**NOTES**

- Splicer bars shall be deformed with threaded ends and have a minimum 60 ksi yield strength.
- All reinforcement shall be lapped and tied to the splicer bars.
- Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars. See Section 508 of the Standard Specifications.
- See special provision for Mechanical Splicers.
- See approved list of bar splicer assemblies and mechanical splicers for alternatives.

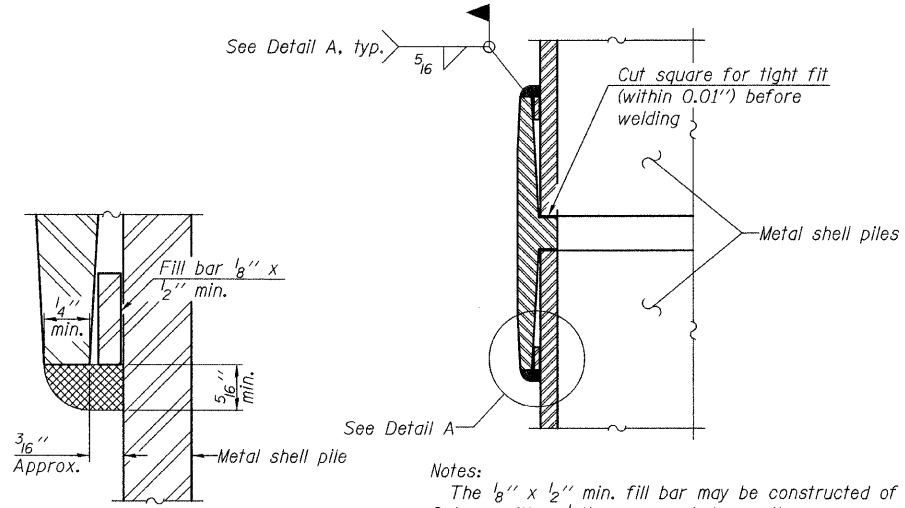


FILE NAME = 2498199-60953-039-Bar Splicer.dgn	USER NAME =	DESIGNED - JY	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>BAR SPLICER DETAILS STRUCTURE NO. 049-0199</b>	F.A.P. RTE. 330	SECTION 128R-3	COUNTY LAKE	TOTAL SHEETS 518	SHEET NO. 281
PLOT SCALE =	DRAWN - JY	REVISED -	<b>CONTRACT NO. 60953</b>							
PLOT DATE = 12/20/2010	CHECKED - RMK	REVISED -	ILLINOIS FED. AID PROJECT							
SHEET NO. 39 OF 43 SHEETS										



**METAL SHELL PILE TABLE**

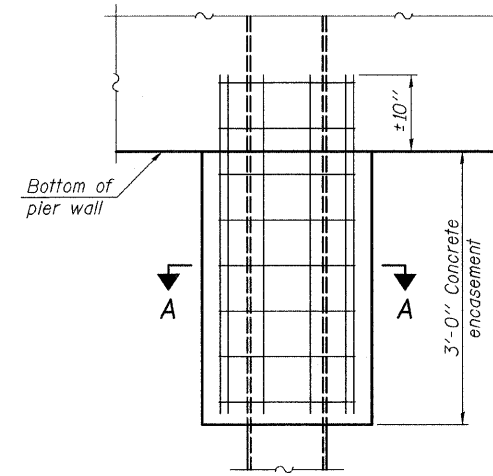
Designation and outside diameter	Wall thickness <i>t</i>	Weight per foot (Lbs./ft.)	Inside volume (yd. <sup>3</sup> /ft.)
PP12	0.179"	22.60	0.0274
PP12	0.250"	31.37	0.0267
PP14	0.250"	36.71	0.0368
PP14	0.312"	45.61	0.0361



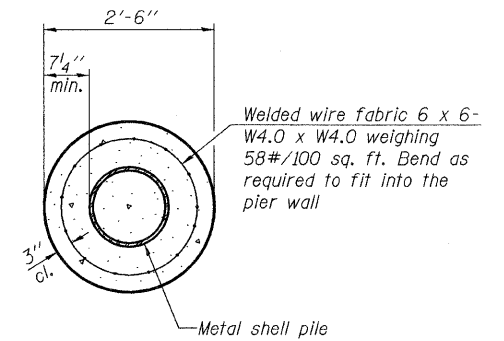
**DETAIL A**

Notes:  
The  $\frac{1}{8}$ " x  $\frac{1}{2}$ " min. fill bar may be constructed of 2 bars with a  $\frac{1}{8}$ " max. gap between them.  
Pile segments shall be driven to solid contact with splicer before welding.

**WELDED COMMERCIAL SPLICE**



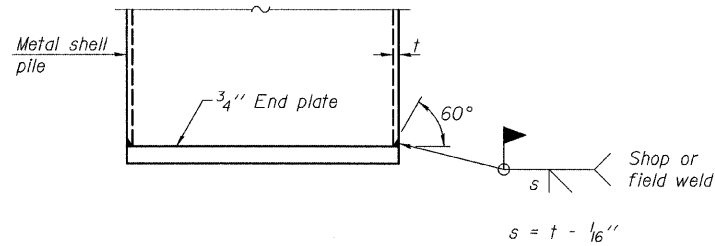
**ELEVATION**



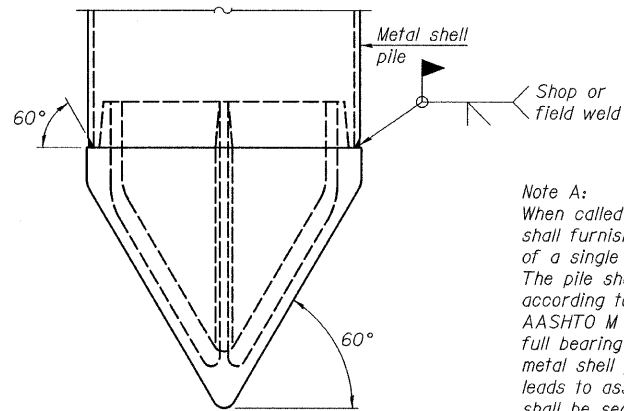
**SECTION A-A**

Note:  
Forms for encasement may be omitted when soil conditions permit.

**CONCRETE ENCASEMENT AT PIERS**



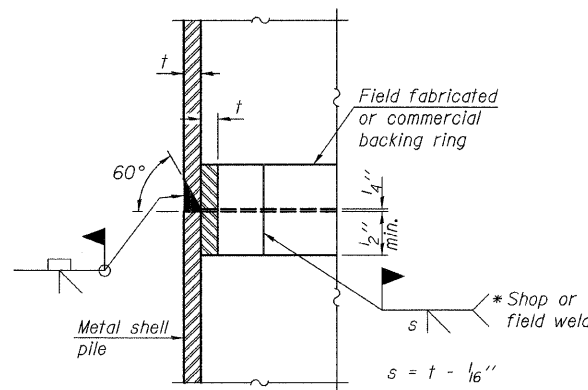
**END PLATE ATTACHMENT**



**METAL SHELL PILE SHOE ATTACHMENT**

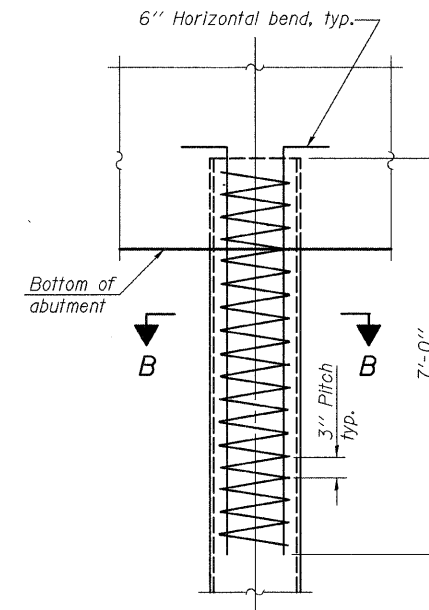
(See Note A)

Note A:  
When called for on the plans, the Contractor shall furnish metal shell pile shoes consisting of a single piece conical pile point as shown. The pile shoes shall be cast in one piece steel according to either ASTM A 148 Grade 90-60 or AASHTO M 103 Grade 65-35 and shall provide full bearing over the full circumference of the metal shell pile. The pile shoe shall have tapered leads to assure proper alignment and fitting and shall be secured to the pile with a circumferential weld.

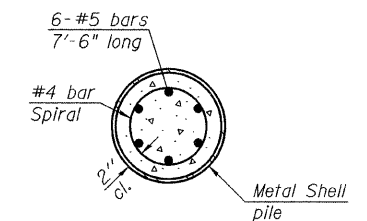


**COMPLETE PENETRATION WELD SPLICE**

\* Field fabricated backing ring may be made from pile shell by removing segment to allow reducing circumference and vertically rejoin with partial joint penetration weld.



**ELEVATION**



**SECTION B-B**

**METAL SHELL REINFORCEMENT AT ABUTMENTS**

Note:  
The metal shell piles shall be according to ASTM A 252 Grade 3.

F-MS

7-1-10

FILE NAME = 0490199-60953-040-PileDetails.dgn	USER NAME =	DESIGNED - JY	REVISED -
		CHECKED - RMK	REVISED -
		DRAWN - JY	REVISED -
		CHECKED - RMK	REVISED -
PLOT SCALE =			
PLOT DATE = 12/20/2010			

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**METAL SHELL PILE DETAILS  
STRUCTURE NO. 049-0199**

SHEET NO. 40 OF 43 SHEETS

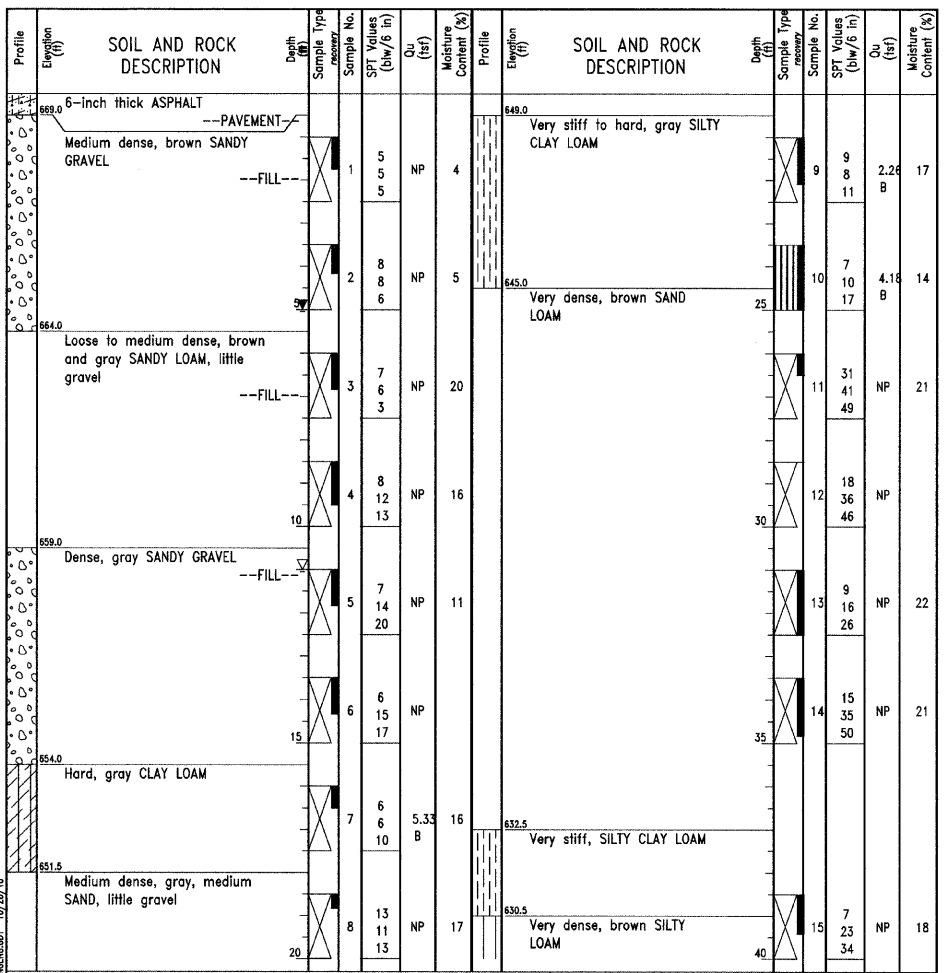
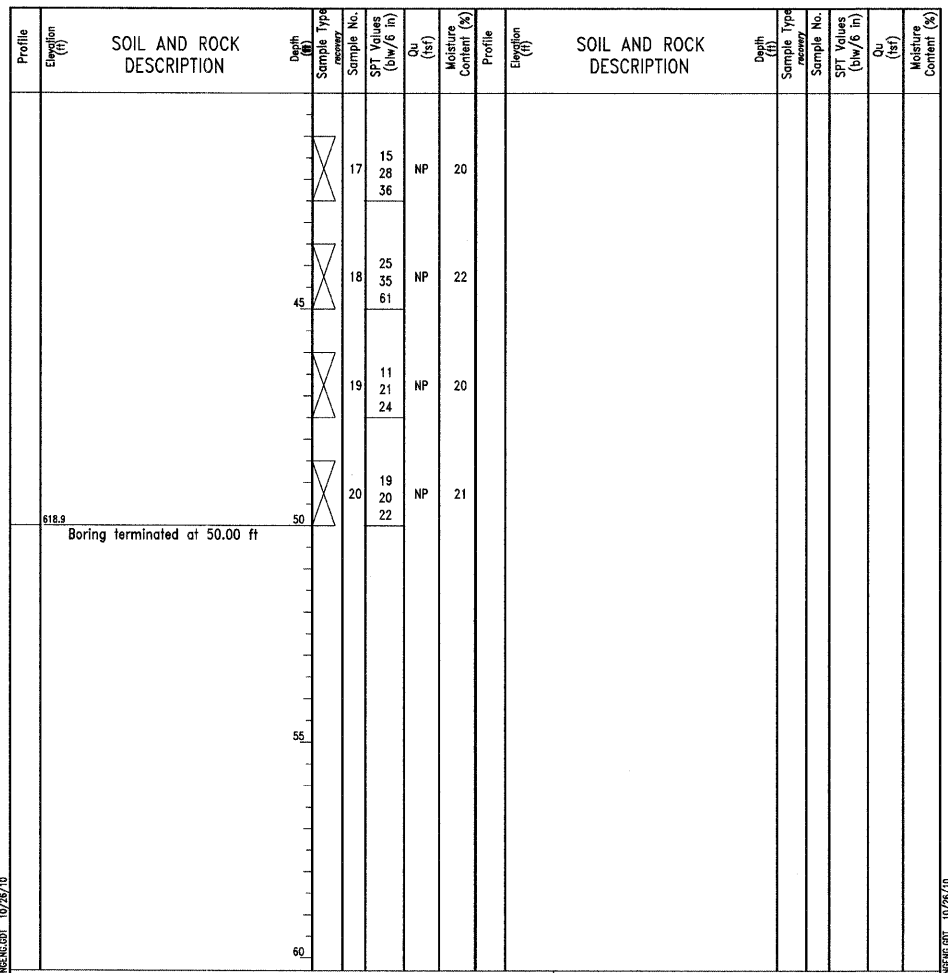
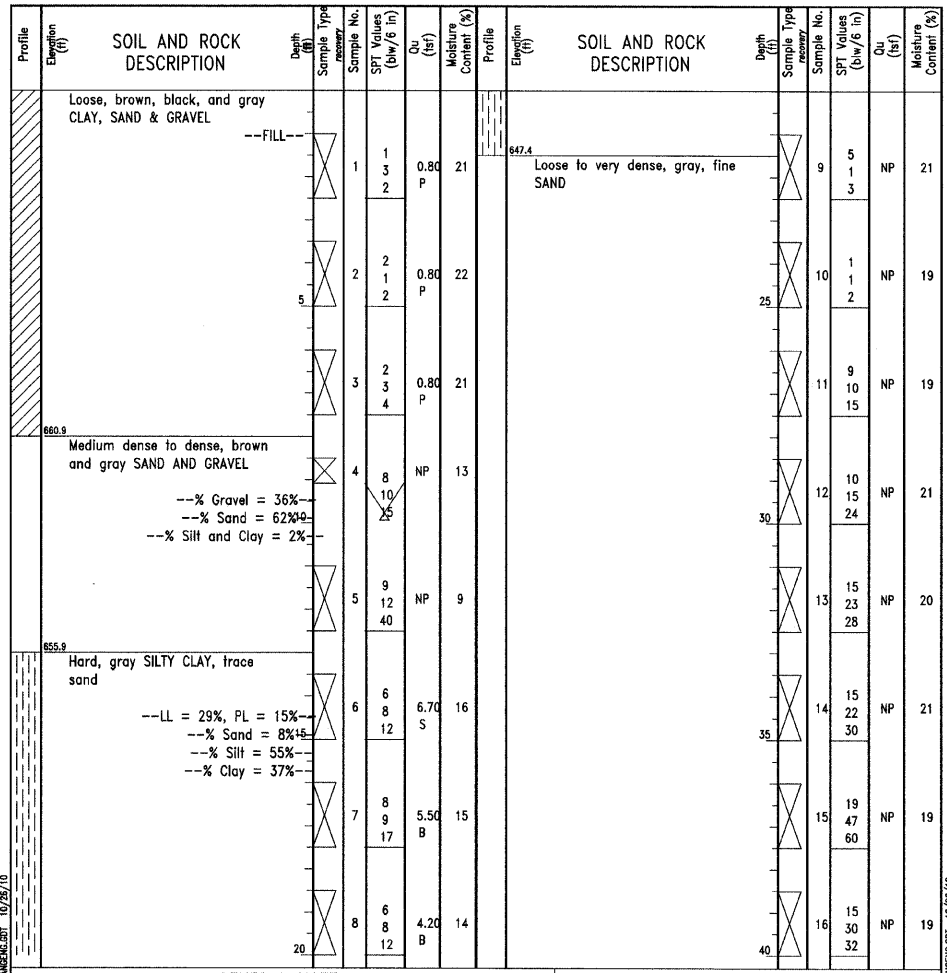
F.A.P. RTE. 330	SECTION 128R-3	COUNTY LAKE	TOTAL SHEETS 518	SHEET NO. 282
CONTRACT NO. 60953				
ILLINOIS FED. AID PROJECT				

**MACTEC**

**BORING LOG FEI-1** Page 1 of 2  
 wangeng@wangeng.com WEI Job No.: 722-23-01 Datum: NAV88  
 1145 N Main Street Elevation: 668.90 ft  
 Lombard, IL 60148 Client: MACTEC Engineering and Consulting, Inc. North: 2056624.45 ft  
 Telephone: 630 953-9928 Project: FAP 330, IL 21 (Milwaukee Avenue) East: 1084243.30 ft  
 Fax: 630 953-9938 Location: Section 128R-3, Lake County, Illinois Station: 247+97.000  
 Offset: 27.00 RT

**BORING LOG FEI-1** Page 2 of 2  
 wangeng@wangeng.com WEI Job No.: 722-23-01 Datum: NAV88  
 1145 N Main Street Elevation: 668.90 ft  
 Lombard, IL 60148 Client: MACTEC Engineering and Consulting, Inc. North: 2056624.45 ft  
 Telephone: 630 953-9928 Project: FAP 330, IL 21 (Milwaukee Avenue) East: 1084243.30 ft  
 Fax: 630 953-9938 Location: Section 128R-3, Lake County, Illinois Station: 247+97.000  
 Offset: 27.00 RT

**BORING LOG RW-3D** Page 1 of 2  
 wangeng@wangeng.com WEI Job No.: 722-23-01 Datum: NAV88  
 1145 N Main Street Elevation: 668.90 ft  
 Lombard, IL 60148 Client: MACTEC Engineering and Consulting, Inc. North: 2056589.11 ft  
 Telephone: 630 953-9928 Project: FAP 330, IL 21 (Milwaukee Avenue) East: 1084288.41 ft  
 Fax: 630 953-9938 Location: Section 128R-3, Lake County, Illinois Station: 248+30.07  
 Offset: 13.75' LT



**GENERAL NOTES**  
 Begin Drilling 03-14-1995 Complete Drilling 03-14-1995  
 Drilling Contractor Foundation Engineering, InDrill Rig D-50  
 Driller BP Logger CHC Checked by  
 Drilling Method 2.75" ID HSA; backfilled w/ bentonite chip and AC blacktop.

**WATER LEVEL DATA**  
 While Drilling NA  
 At Completion of Drilling NA  
 Time After Drilling 24 hours  
 Depth to Water NA

**GENERAL NOTES**  
 Begin Drilling 03-14-1995 Complete Drilling 03-14-1995  
 Drilling Contractor Foundation Engineering, InDrill Rig D-50  
 Driller BP Logger CHC Checked by  
 Drilling Method 2.75" ID HSA; backfilled w/ bentonite chip and AC blacktop.

**WATER LEVEL DATA**  
 While Drilling NA  
 At Completion of Drilling NA  
 Time After Drilling 24 hours  
 Depth to Water NA

**GENERAL NOTES**  
 Begin Drilling 04-12-2001 Complete Drilling 04-12-2001  
 Drilling Contractor Rock and Soil Drilling Drill Rig D-120  
 Driller Dave Logger T. Chen Checked by P. Wang  
 Drilling Method 4.25" ID HSA; backfilled w/ bentonite chip and AC blacktop; rotary wash after 25 ft.

**WATER LEVEL DATA**  
 While Drilling 11.00 ft  
 At Completion of Drilling 5.00 ft  
 Time After Drilling 24 hours  
 Depth to Water NA

FILE NAME = 8498199-68953-841-Log-1.dgn  
 USER NAME =  
 DESIGNED - KO  
 CHECKED - JY  
 DRAWN - KO  
 CHECKED - JY

REVISED -  
 REVISED -  
 REVISED -  
 REVISED -

**BORING LOGS - 1 OF 3**  
**STRUCTURE NO. 049-0199**  
 SHEET NO. 41 OF 43 SHEETS

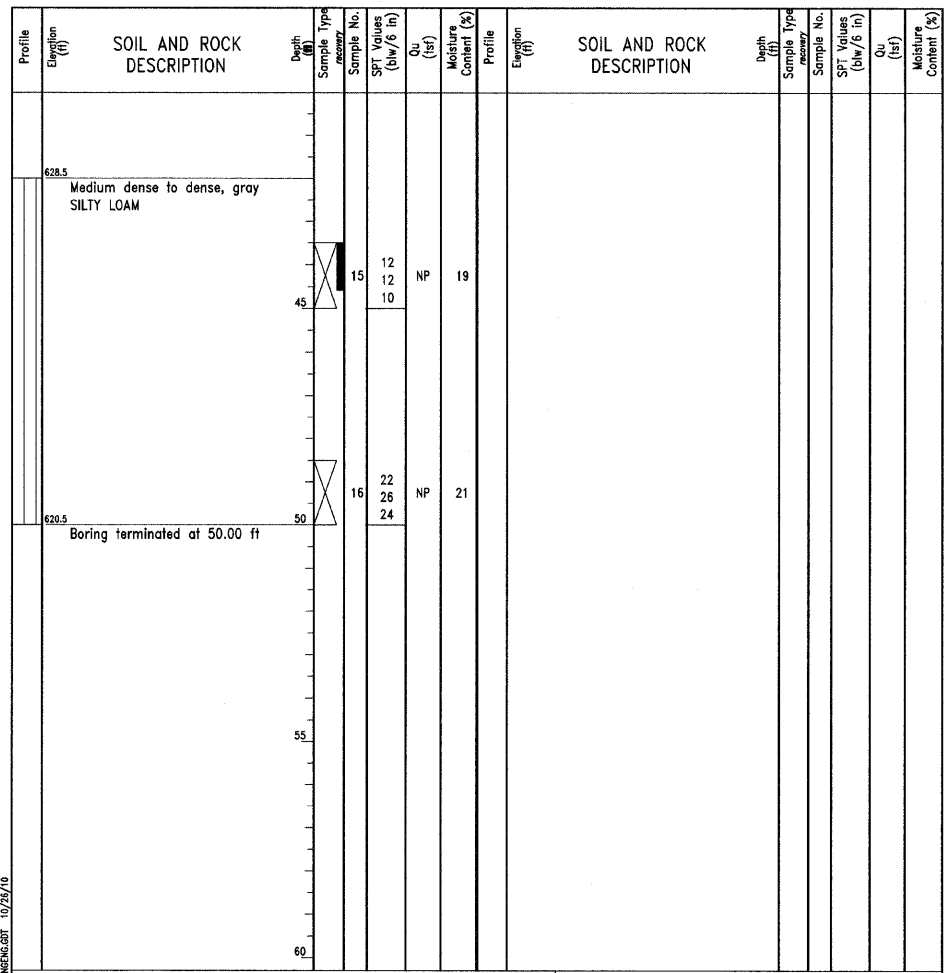
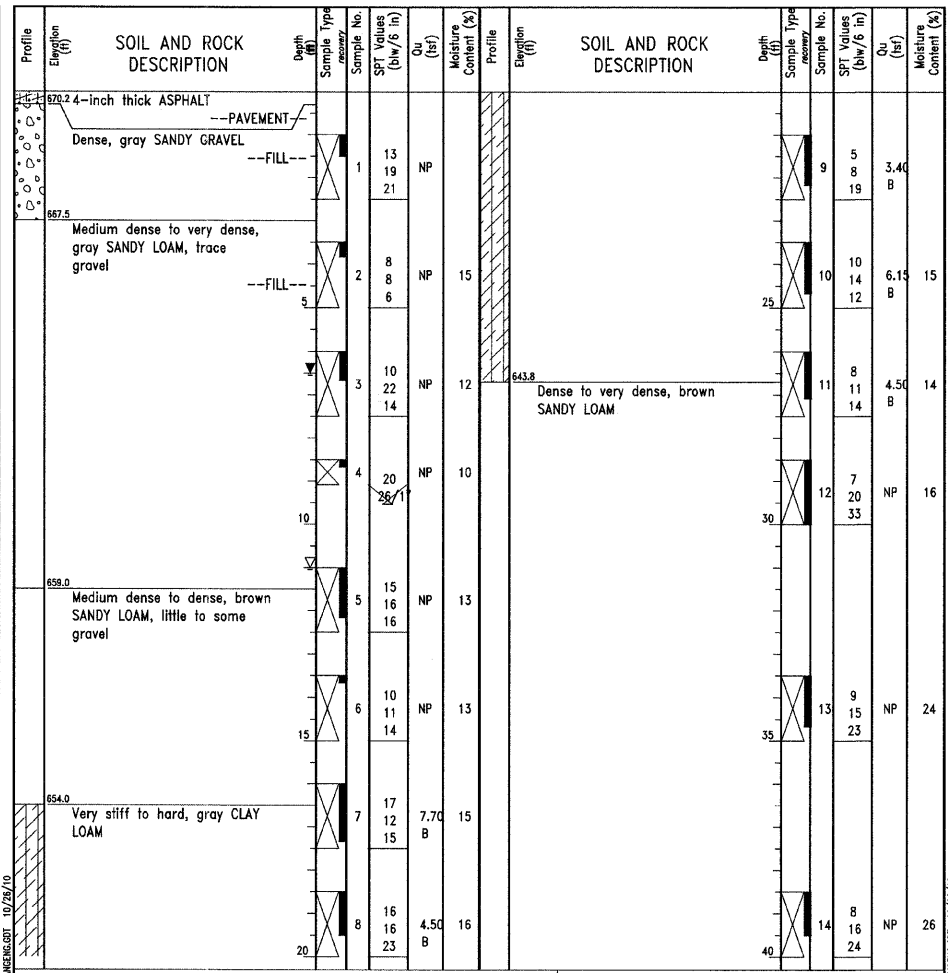
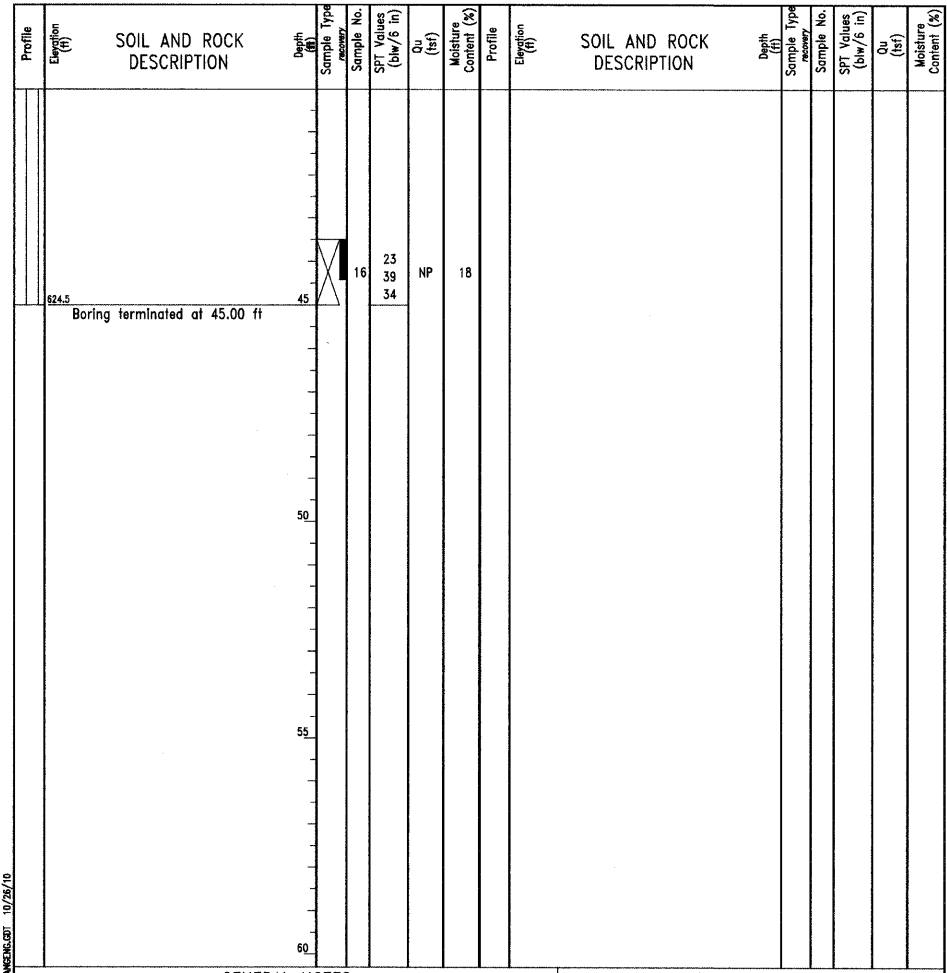
F.A.P. RTE. 330 SECTION 128R-3 COUNTY LAKE TOTAL SHEETS 518 SHEET NO. 283 CONTRACT NO. 60953 ILLINOIS FED. AID PROJECT



**BORING LOG RW-3D** Page 2 of 2  
 wangeng@wangeng.com WEI Job No.: 722-23-01  
 1145 N Main Street Client: MACTEC Engineering and Consulting, Inc.  
 Lombard, IL 60148 Project: FAP 330, IL 21 (Milwaukee Avenue)  
 Telephone: 630 953-9928 Location: Section 128R-3, Lake County, Illinois  
 Fax: 630 953-9938 Datum: NAV88  
 Elevation: 669.50 ft  
 North: 2056569.11 ft  
 East: 1084288.41 ft  
 Station: 248+30.07  
 Offset: 13.75' LT

**BORING LOG RW-3E** Page 1 of 2  
 wangeng@wangeng.com WEI Job No.: 722-23-01  
 1145 N Main Street Client: MACTEC Engineering and Consulting, Inc.  
 Lombard, IL 60148 Project: FAP 330, IL 21 (Milwaukee Avenue)  
 Telephone: 630 953-9928 Location: Section 128R-3, Lake County, Illinois  
 Fax: 630 953-9938 Datum: NAV88  
 Elevation: 670.50 ft  
 North: 2056507.85 ft  
 East: 1084288.77 ft  
 Station: 249+12.11  
 Offset: 14.00' LT

**BORING LOG RW-3E** Page 2 of 2  
 wangeng@wangeng.com WEI Job No.: 722-23-01  
 1145 N Main Street Client: MACTEC Engineering and Consulting, Inc.  
 Lombard, IL 60148 Project: FAP 330, IL 21 (Milwaukee Avenue)  
 Telephone: 630 953-9928 Location: Section 128R-3, Lake County, Illinois  
 Fax: 630 953-9938 Datum: NAV88  
 Elevation: 670.50 ft  
 North: 2056507.85 ft  
 East: 1084288.77 ft  
 Station: 249+12.11  
 Offset: 14.00' LT



**GENERAL NOTES**  
 Begin Drilling: 04-12-2001 Complete Drilling: 04-12-2001  
 Drilling Contractor: Rock and Soil Drilling Drill Rig: D-120  
 Driller: Dave Logger: T. Chen Checked by: P. Wang  
 Drilling Method: 4.25" ID. HSA; backfilled w/ bentonite chip and AC  
 blacktop; rotary wash after 25 ft.

**WATER LEVEL DATA**  
 While Drilling: 11.00 ft  
 At Completion of Drilling: 5.00 ft  
 Time After Drilling: 24 hours  
 Depth to Water: NA  
 The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

**GENERAL NOTES**  
 Begin Drilling: 04-11-2001 Complete Drilling: 04-11-2001  
 Drilling Contractor: Rock and Soil Drilling Drill Rig: D-120  
 Driller: Dave Logger: T. Chen Checked by: P. Wang  
 Drilling Method: 4.25" ID. HSA; backfilled w/ bentonite chip and AC  
 blacktop; rotary wash after 20 ft.

**WATER LEVEL DATA**  
 While Drilling: 11.00 ft  
 At Completion of Drilling: 6.50 ft  
 Time After Drilling: 24 hours  
 Depth to Water: NA  
 The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

**GENERAL NOTES**  
 Begin Drilling: 04-11-2001 Complete Drilling: 04-11-2001  
 Drilling Contractor: Rock and Soil Drilling Drill Rig: D-120  
 Driller: Dave Logger: T. Chen Checked by: P. Wang  
 Drilling Method: 4.25" ID. HSA; backfilled w/ bentonite chip and AC  
 blacktop; rotary wash after 20 ft.

**WATER LEVEL DATA**  
 While Drilling: 11.00 ft  
 At Completion of Drilling: 6.50 ft  
 Time After Drilling: 24 hours  
 Depth to Water: NA  
 The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

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 USER NAME =  
 DESIGNED - KO  
 CHECKED - JY  
 DRAWN - KO  
 PLOT SCALE =  
 PLOT DATE = 12/28/2018  
 REVISIONS:  
 REVISION NO. DATE BY  
 1 12/28/2018 JY

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

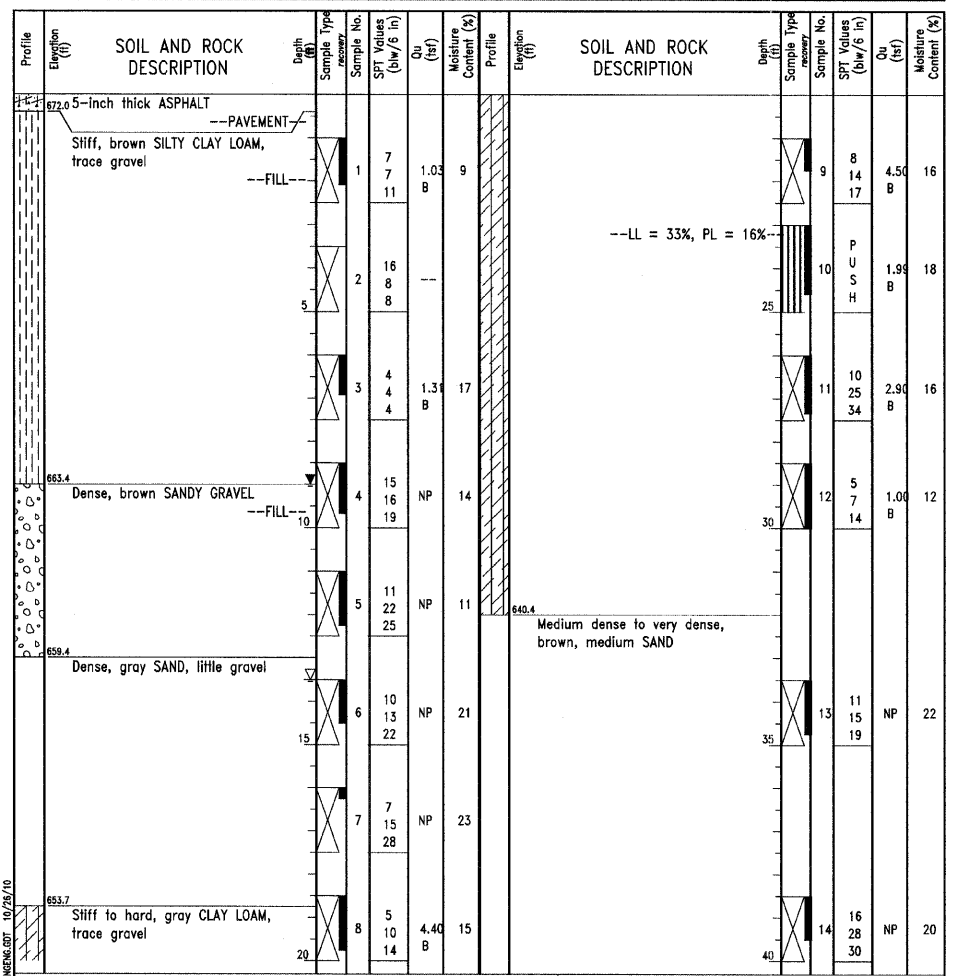
**BORING LOGS - 2 OF 3**  
**STRUCTURE NO. 049-0199**  
 SHEET NO. 42 OF 43 SHEETS

F.A.P. RTE. 330 SECTION 128R-3 COUNTY LAKE TOTAL SHEETS 518 SHEET NO. 284 CONTRACT NO. 60953 ILLINOIS FED. AID PROJECT



**BORING LOG RW-4A** Page 1 of 2

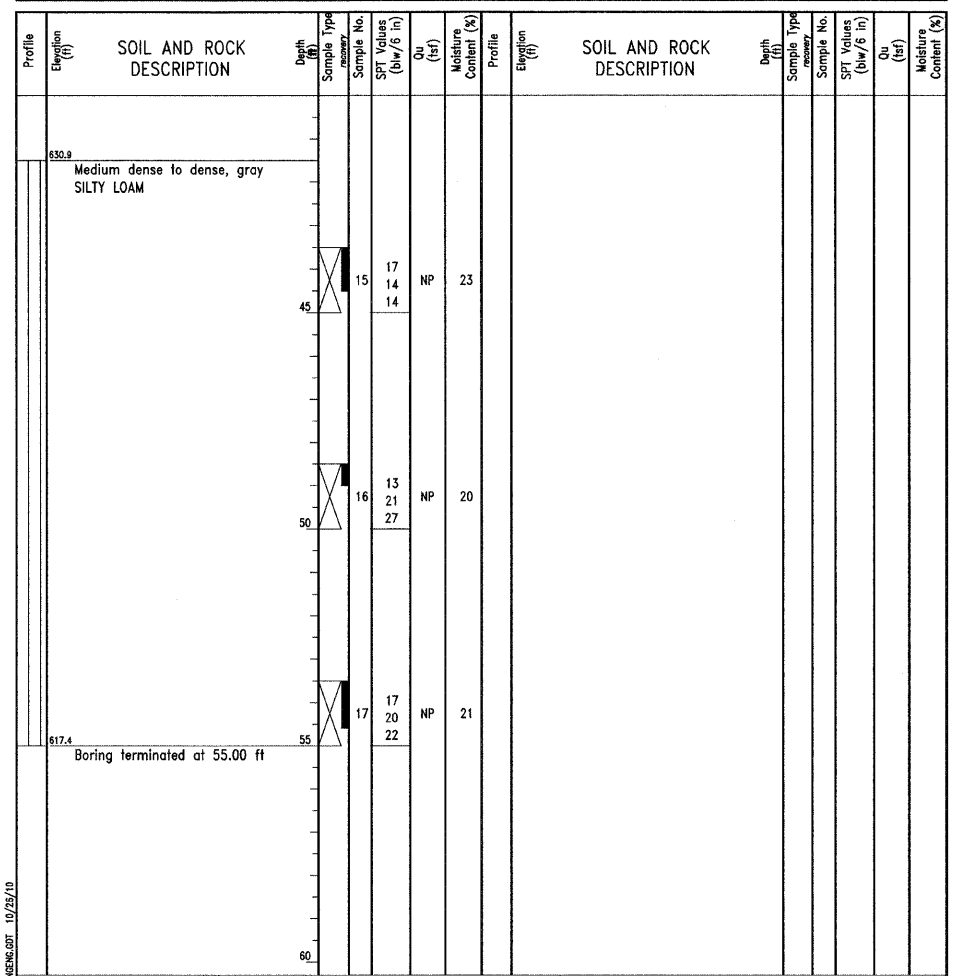
wangeng@wangeng.com 1145 N Main Street Lombard, IL 60148 Telephone: 630 953-9928 Fax: 630 953-9938	WEI Job No.: 722-23-01 Client: MACTEC Engineering and Consulting, Inc. Project: FAP 330, IL 21 (Milwaukee Avenue) Location: Section 1288 RR-33, Lake County, Illinois	Datum: NAV88 Elevation: 672.40 ft North: 2056470.57 ft East: 1084258.77 ft Station: 249+48.92 Offset: 17.00' RT
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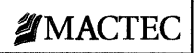
<b>GENERAL NOTES</b> Begin Drilling 04-10-2001 Complete Drilling 04-10-2001 Drilling Contractor Rock and Soil Drilling Drill Rig D-120 Driller Dave Logger T. Chen Checked by P. Wang Drilling Method 4.25" ID HSA; backfilled w/ bentonite chip and AC blacktop; rotary wash after 20 ft.	<b>WATER LEVEL DATA</b> While Drilling 13.50 ft At Completion of Drilling 9.00 ft Time After Drilling 24 hours Depth to Water NA <small>The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.</small>
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**BORING LOG RW-4A** Page 2 of 2

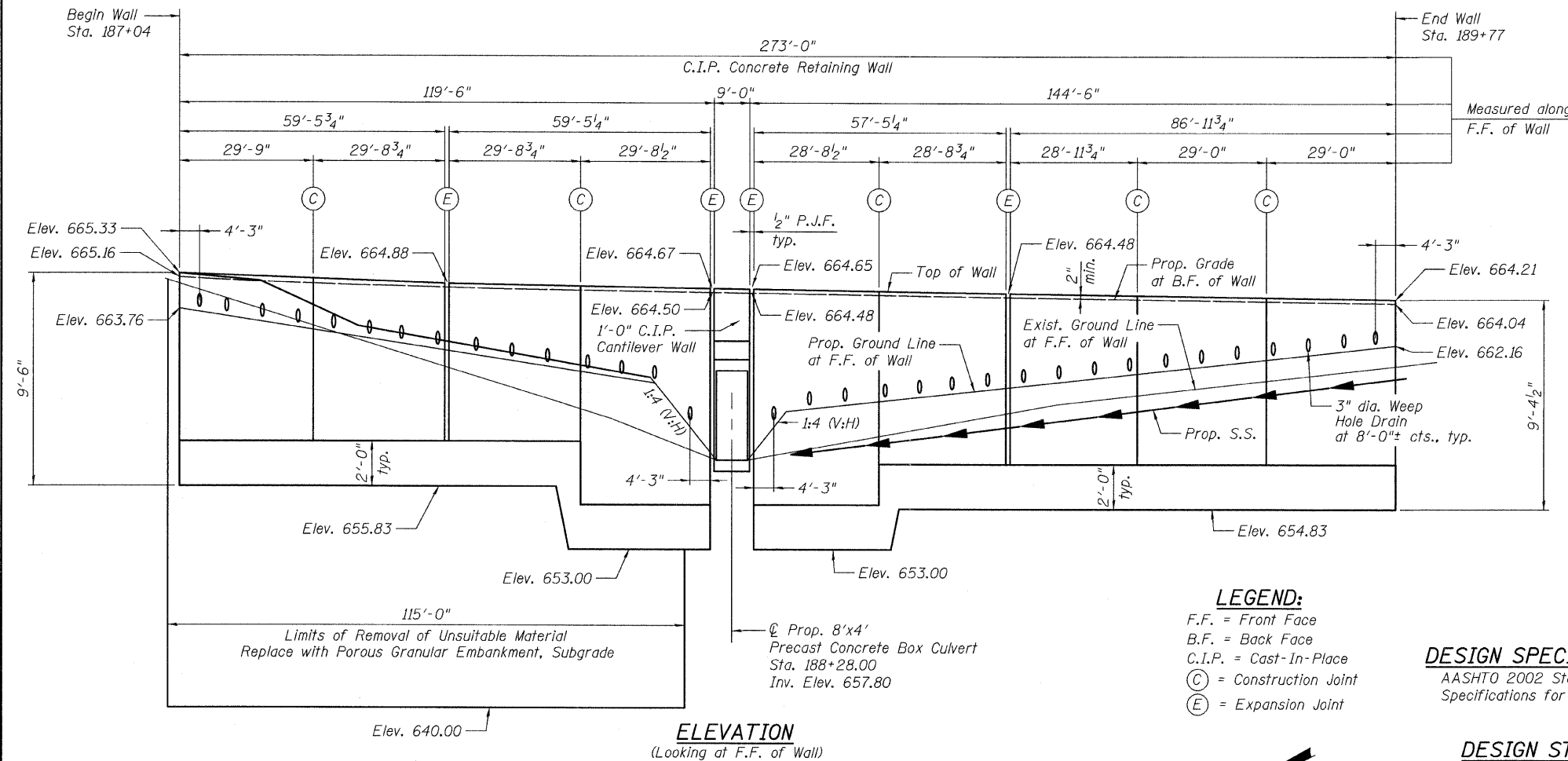
wangeng@wangeng.com 1145 N Main Street Lombard, IL 60148 Telephone: 630 953-9928 Fax: 630 953-9938	WEI Job No.: 722-23-01 Client: MACTEC Engineering and Consulting, Inc. Project: FAP 330, IL 21 (Milwaukee Avenue) Location: Section 1288 RR-33, Lake County, Illinois	Datum: NAV88 Elevation: 672.40 ft North: 2056470.57 ft East: 1084258.77 ft Station: 249+48.92 Offset: 17.00' RT
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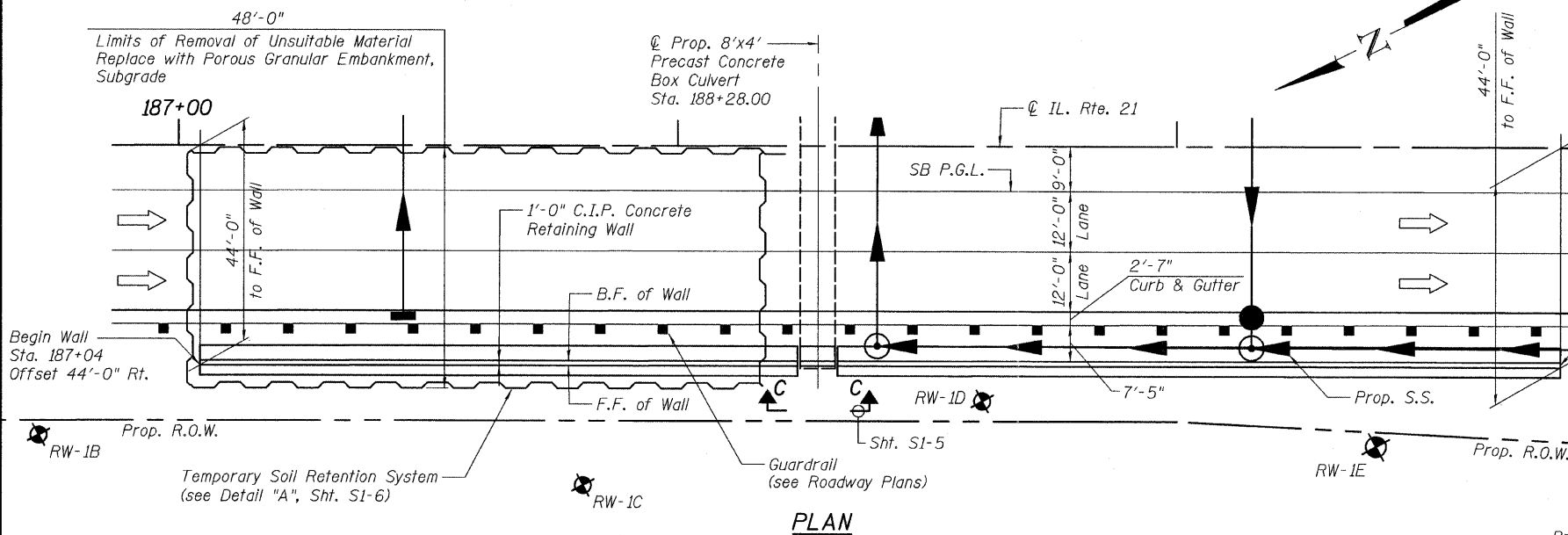
<b>GENERAL NOTES</b> Begin Drilling 04-10-2001 Complete Drilling 04-10-2001 Drilling Contractor Rock and Soil Drilling Drill Rig D-120 Driller Dave Logger T. Chen Checked by P. Wang Drilling Method 4.25" ID HSA; backfilled w/ bentonite chip and AC blacktop; rotary wash after 20 ft.	<b>WATER LEVEL DATA</b> While Drilling 13.50 ft At Completion of Drilling 9.00 ft Time After Drilling 24 hours Depth to Water NA <small>The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.</small>
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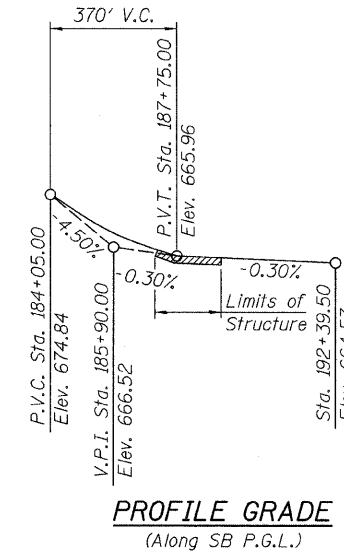
Bench Mark:  
Chiseled box on top of S.E. wingwall of bridge,  
Elevation 669.64



**ELEVATION**  
(Looking at F.F. of Wall)



**PLAN**



**PROFILE GRADE**  
(Along SB P.G.L.)

**INDEX OF SHEETS**

- S1-1 GENERAL PLAN & ELEVATION
- S1-2 PLAN & ELEVATION-I
- S1-3 PLAN & ELEVATION-II
- S1-4 RETAINING WALL SECTIONS
- S1-5 RETAINING WALL DETAILS
- S1-6 TEMPORARY SOIL RETENTION SYSTEM
- S1-7 SOIL BORING LOGS-I
- S1-8 SOIL BORING LOGS-II

**TOTAL BILL OF MATERIAL**

DESCRIPTION	UNIT	QUANTITY
Structure Excavation	Cu. Yd.	320
Removal and Disposal of Unsuitable Material for Structures	Cu. Yd.	4,600
Concrete Structures	Cu. Yd.	200.0
Form Liner Textured Surface	Sq. Ft.	1,670
Reinforcement Bars, Epoxy Coated	Pound	21,630
Geocomposite Wall Drain	Sq. Yd.	106
Concrete Gutter, Type B	Foot	273
Temporary Soil Retention System	Sq. Ft.	7,600
Porous Granular Embankment, Subgrade	Cu. Yd.	3,230
Porous Granular Embankment, Special	Cu. Yd.	318
Stain For Concrete Structures	Sq. Yd.	186

**DESIGN SPECIFICATIONS**  
AASHTO 2002 Standard  
Specifications for Highway Bridges

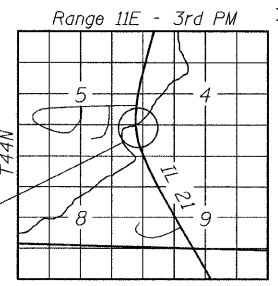
**DESIGN STRESSES**  
**FIELD UNITS**  
f'<sub>c</sub> = 3,500 psi  
f<sub>y</sub> = 60,000 psi (Reinforcement)  
f<sub>y</sub> = 36,000 psi (Structural Steel)

**LEGEND:**  
F.F. = Front Face  
B.F. = Back Face  
C.I.P. = Cast-In-Place  
⊙ = Construction Joint  
⊕ = Expansion Joint



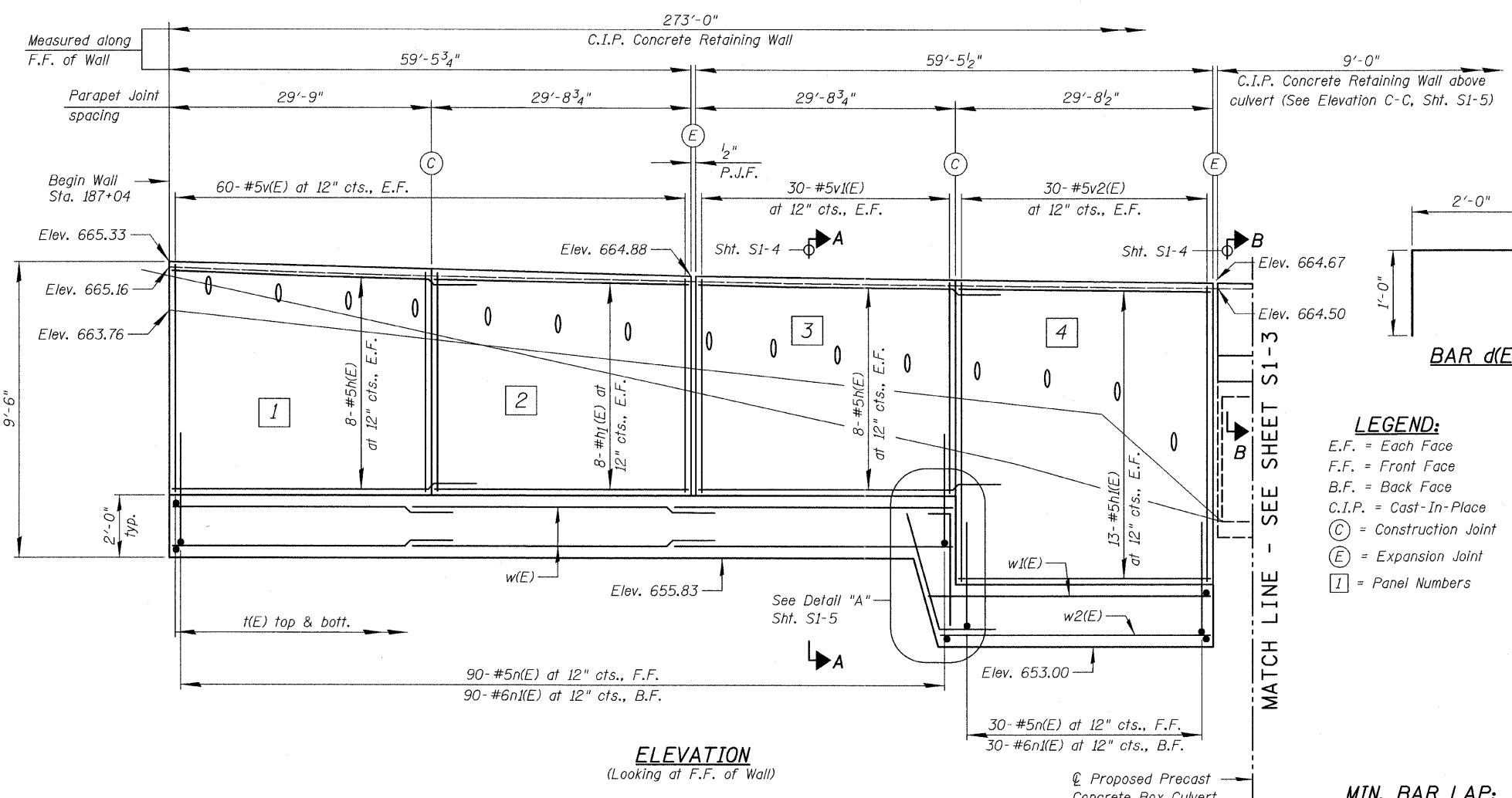
*B. N. Shah*  
BHADRESH N. SHAH  
LICENSED STRUCTURAL ENGINEER  
STATE OF ILLINOIS LIC. NO. 081-004476  
EXPIRES: 11-30-12

**GENERAL PLAN & ELEVATION**  
**ILLINOIS ROUTE 21 - RETAINING WALL NO. 1**  
**F.A.P. 330 SEC. 128R-3**  
**LAKE COUNTY**  
**STATION 187+04.00 TO 189+77.00**  
**STRUCTURE NO. 049-W017**

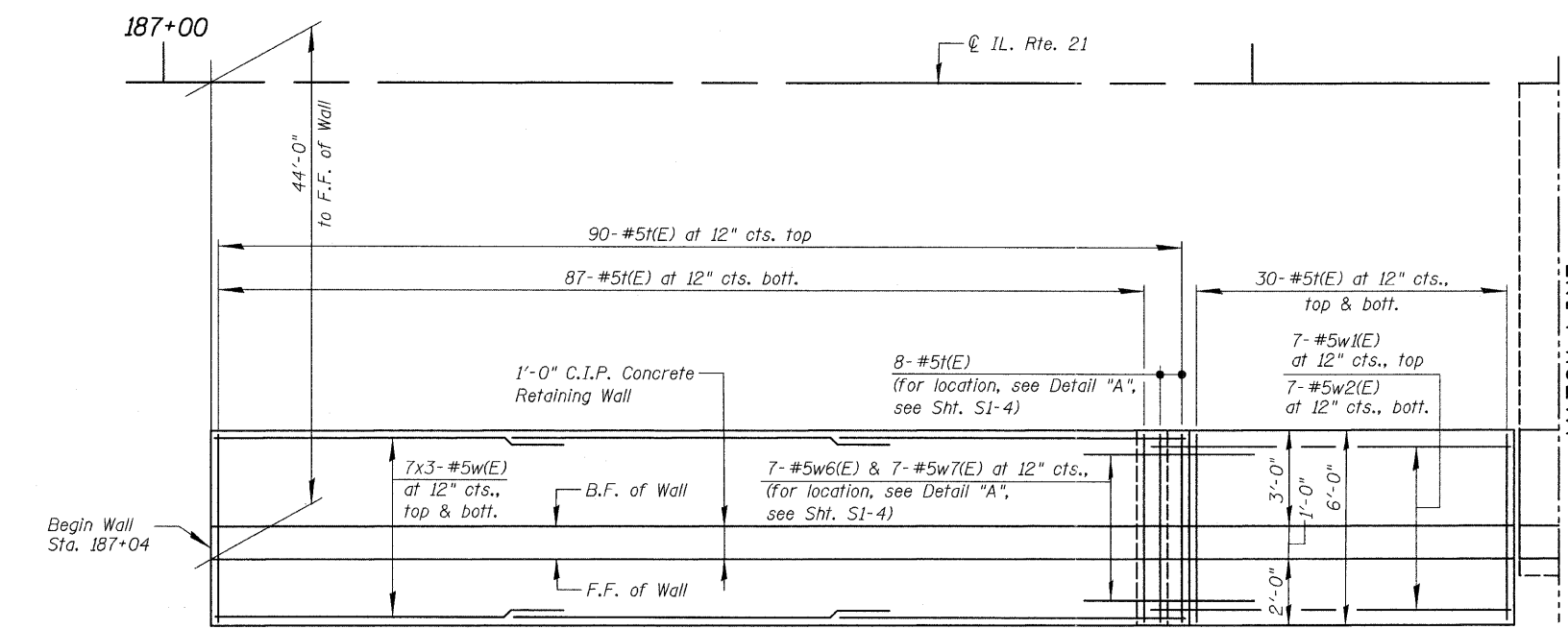


**LOCATION SKETCH**

FILE NAME = D168953-01-GPE.dgn	USER NAME =	DESIGNED - J.C.N./B.N.S.	REVISD -	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>GENERAL PLAN &amp; ELEVATION</b> <b>STRUCTURE NO. 049-W017</b>	F.A.P. RTE. = 330	SECTION = 128R-3	COUNTY = LAKE	TOTAL SHEETS = 518	SHEET NO. = 286
PLOT SCALE =	DRAWN - F.M.	REVISD -	SHEET NO. S1-1 OF S1-8 SHEETS			CONTRACT NO. 60953				
PLOT DATE =	CHECKED - B.N.S./J.C.N.	REVISD -	ILLINOIS FED. AID PROJECT							
			INDICATES BORING LOCATIONS							



**ELEVATION**  
(Looking at F.F. of Wall)



**PLAN**

**GENERAL NOTES:**

1. Reinforcement Bars shall conform to the requirements of ASTM A 706, Gr. 60. See Special Provisions.
2. All Exposed Concrete edges shall be chamfered  $\frac{3}{4}$ " unless otherwise noted.
3. Reinforcement Bars designated (E) shall be Epoxy Coated.

**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
d(E)	16	#6	3'-0"	┌
h(E)	32	#5	32'-3"	—
h1(E)	42	#5	29'-6"	—
h2(E)	16	#5	28'-9"	—
h3(E)	50	#5	31'-6"	—
h4(E)	4	#5	8'-8"	—
h5(E)	26	#5	28'-3"	—
n(E)	265	#5	5'-7"	L
n1(E)	265	#6	7'-4"	L
n2(E)	9	#5	4'-7"	L
n3(E)	9	#5	3'-6"	L
t(E)	537	#5	5'-8"	—
v(E)	120	#5	6'-9"	—
v1(E)	60	#5	6'-7"	—
v2(E)	60	#5	9'-4"	—
v3(E)	58	#5	9'-3"	—
v4(E)	58	#5	7'-4"	—
v5(E)	180	#5	7'-1"	—
w(E)	42	#5	31'-7"	—
w1(E)	7	#5	32'-9"	—
w2(E)	7	#5	31'-3"	—
w3(E)	7	#5	31'-9"	—
w4(E)	7	#5	30'-3"	—
w5(E)	56	#5	30'-10"	—
w6(E)	7	#5	6'-11"	┌
w7(E)	7	#5	9'-1"	└
w8(E)	7	#5	5'-11"	┌
w9(E)	7	#5	7'-8"	└
w10(E)	6	#5	8'-8"	—
Reinforcement Bars, Epoxy Coated		Pound	21,630	
Concrete Structures		Cu. Yd.	200.0	

Reinforcement Bars designated thus 7x3-#5 etc., indicates 7 lines of bars with 3 lengths per line

**LEGEND:**  
 E.F. = Each Face  
 F.F. = Front Face  
 B.F. = Back Face  
 C.I.P. = Cast-In-Place  
 (C) = Construction Joint  
 (E) = Expansion Joint  
 [1] = Panel Numbers

**MIN. BAR LAP:**  
 #5 bars = 2'-6"

MATCH LINE - SEE SHEET S1-3

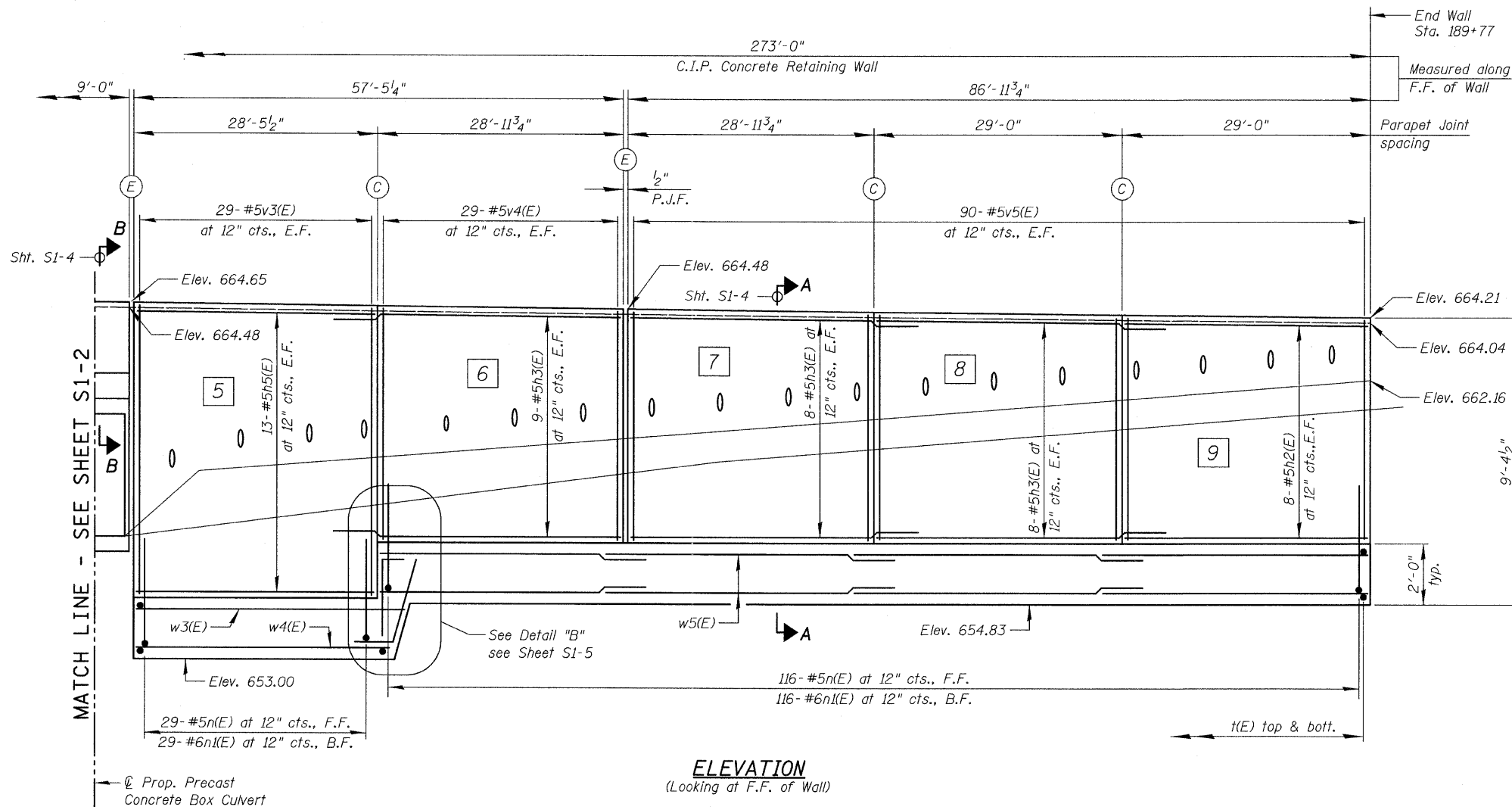
MATCH LINE - SEE SHEET S1-3

**PLAN & ELEVATION-I**  
**STRUCTURE NO. 049-W017**



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PLOT DATE =	DRAWN - F.M.	REVISIONS -	ILLINOIS FED. AID PROJECT							
	CHECKED - B.N.S./J.C.N.	REVISIONS -								

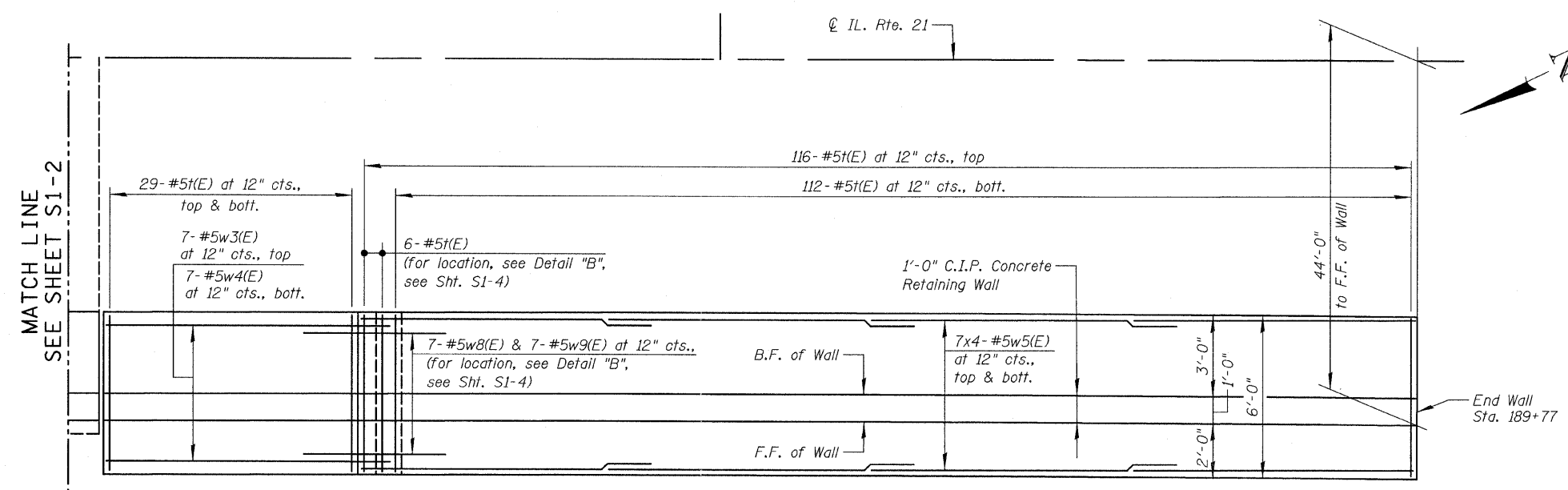




**LEGEND:**  
 E.F. = Each Face  
 F.F. = Front Face  
 B.F. = Back Face  
 C.I.P. = Cast-In-Place  
 (C) = Construction Joint  
 (E) = Expansion Joint  
 [ ] = Panel Numbers

**MIN. BAR LAP:**  
 #5 bars = 2'-6"

**ELEVATION**  
 (Looking at F.F. of Wall)

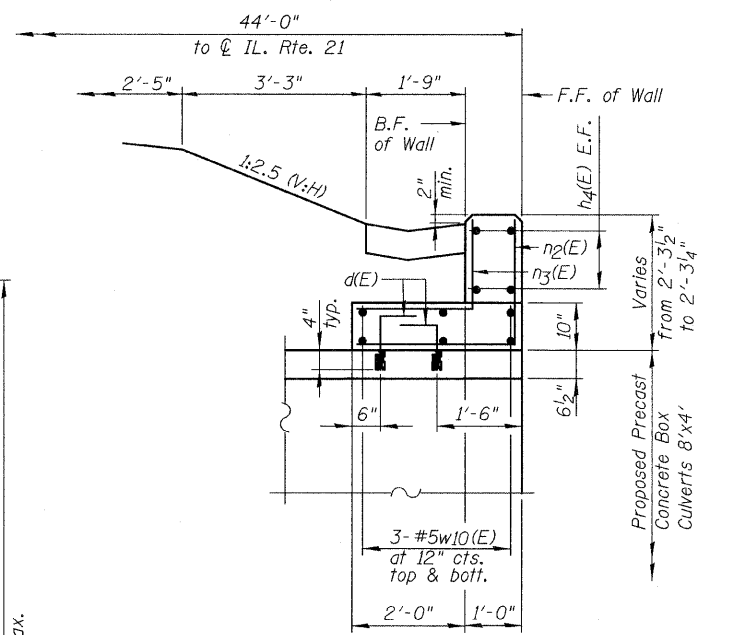
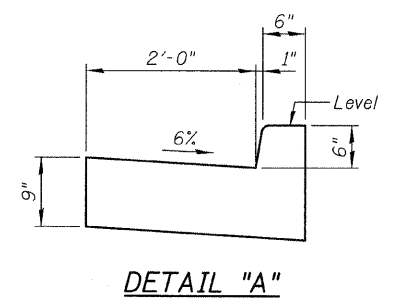
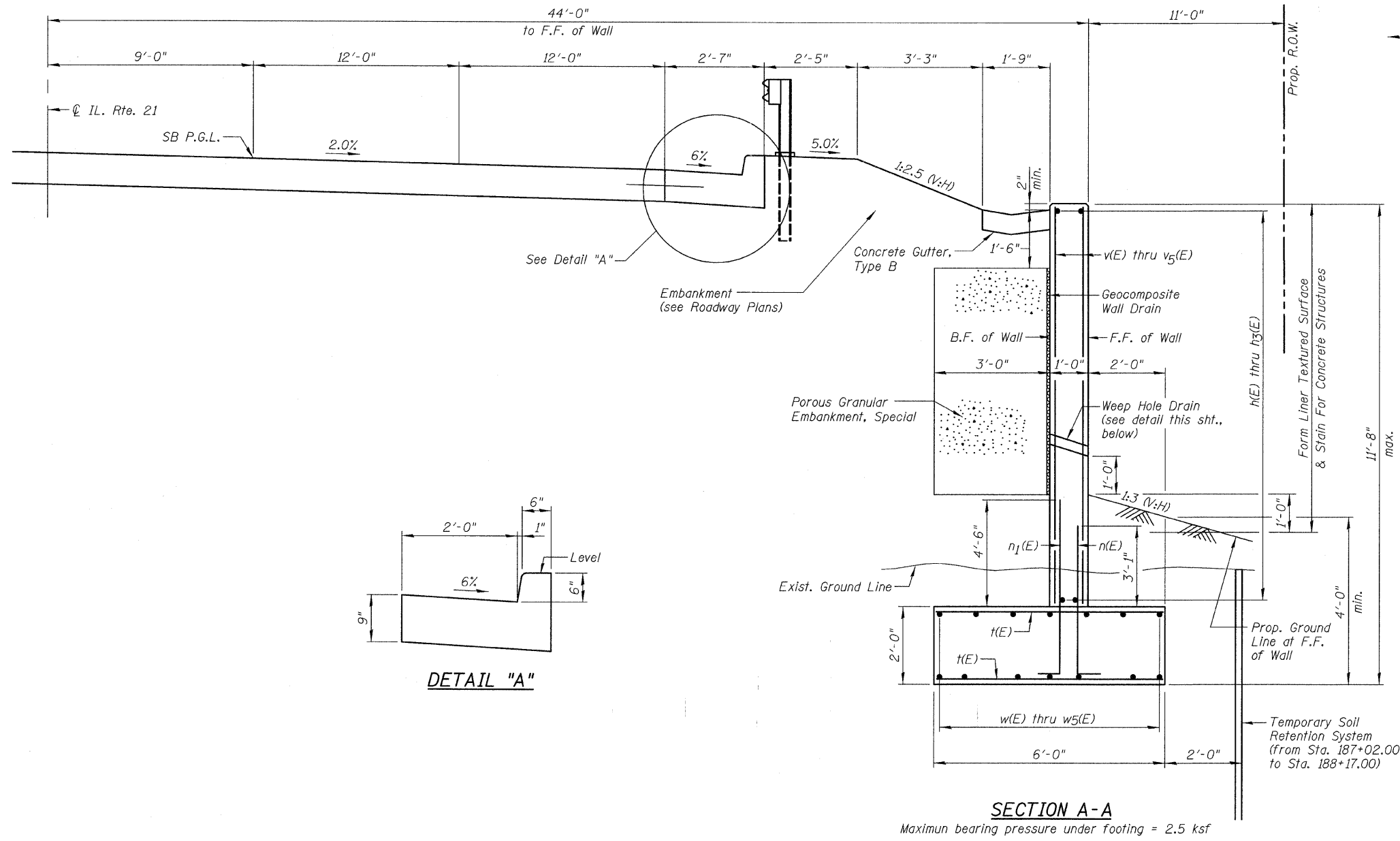


**PLAN**

**PLAN & ELEVATION-II**  
**STRUCTURE NO. 049-W017**

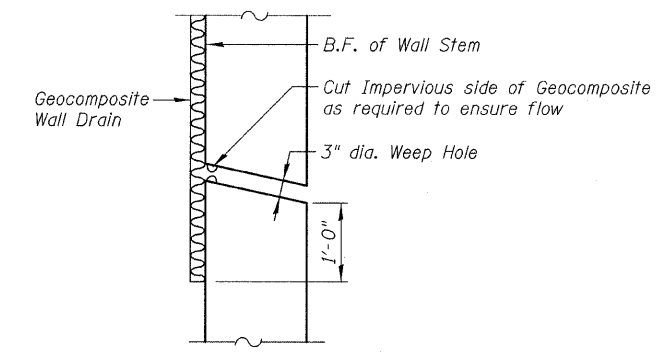


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PLOT DATE =	CHECKED - B.N.S./J.C.N.	CHECKED - B.N.S.	REVISED -			ILLINOIS FED. AID PROJECT					
SHEET NO. S1-3 OF S1-8 SHEETS											



**C.I.P. CANTILEVER WALL**  
 (from Sta. 188+23.50 to Sta. 188+32.50)  
**SECTION B-B**

**LEGEND:**  
 B.F. = Back Face  
 F.F. = Front Face



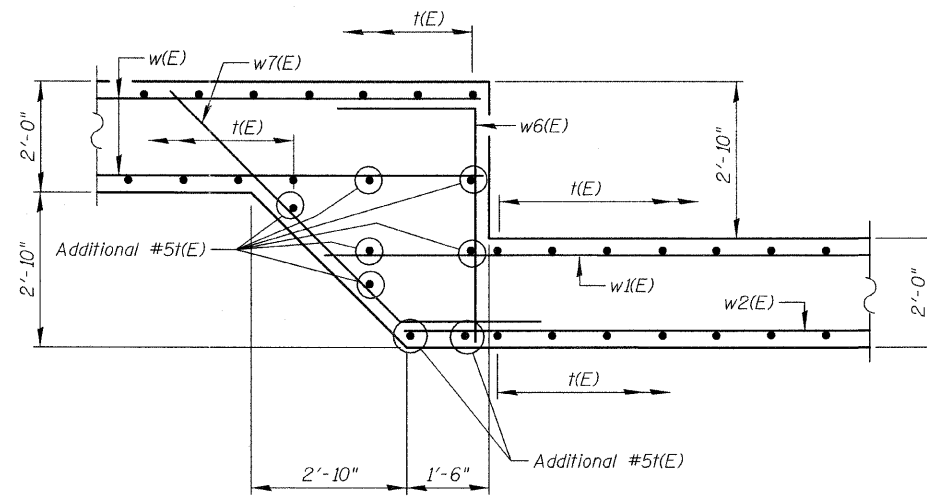
**WEEP HOLE DRAIN DETAIL**

**SECTION A-A**  
 Maximum bearing pressure under footing = 2.5 ksf

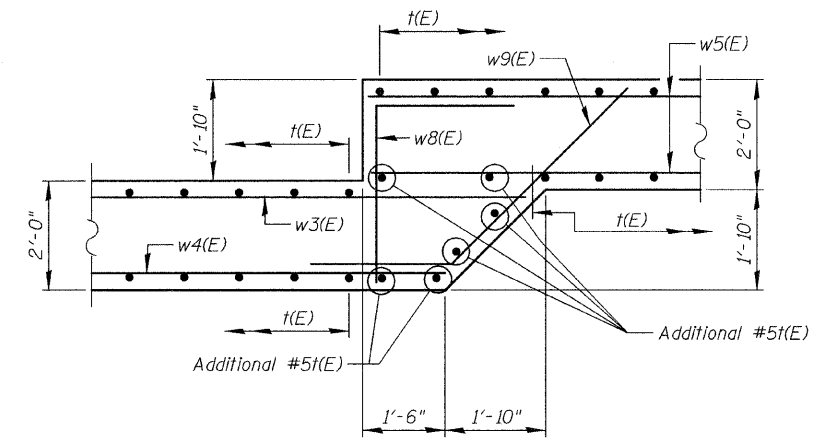
**RETAINING WALL SECTIONS**  
**STRUCTURE NO. 049-W017**



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						CONTRACT NO. 60953					



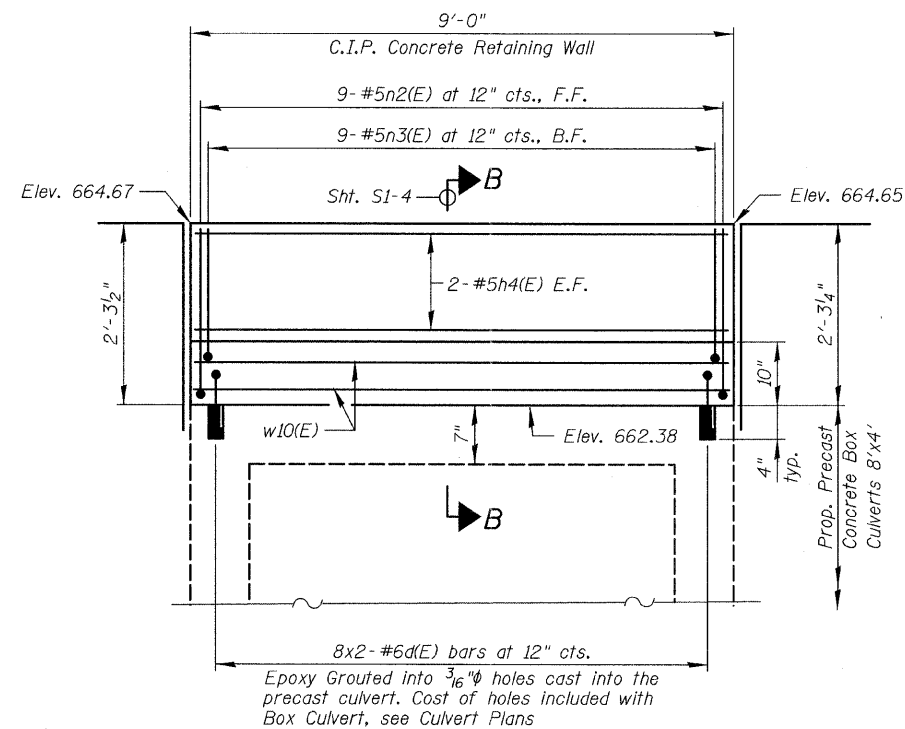
DETAIL "A"



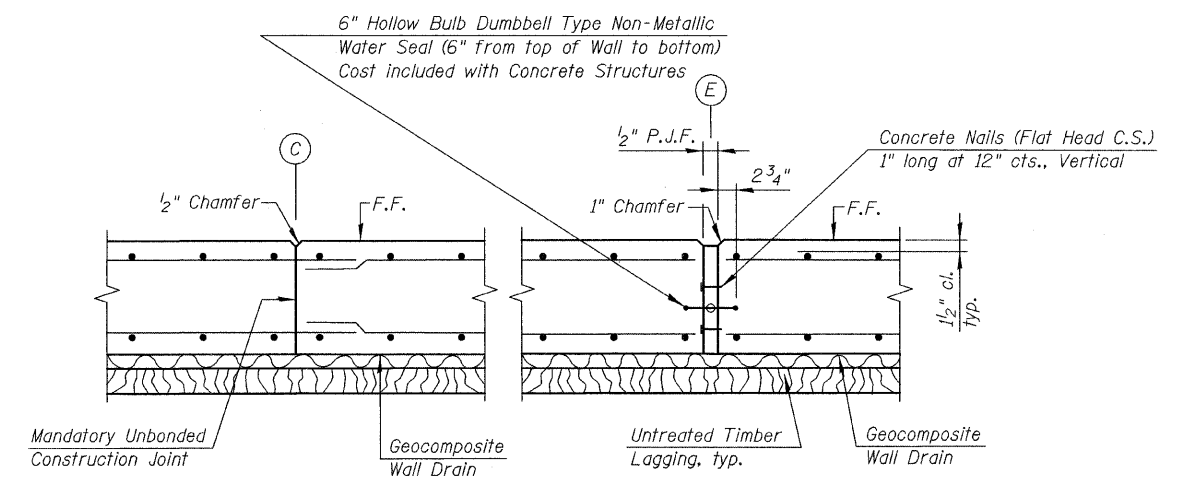
DETAIL "B"

**LEGEND:**

- B.F. = Back Face
- F.F. = Front Face
- E.F. = Each Face
- C.I.P. = Cast-In-Place



ELEVATION C-C



CONSTRUCTION JOINT

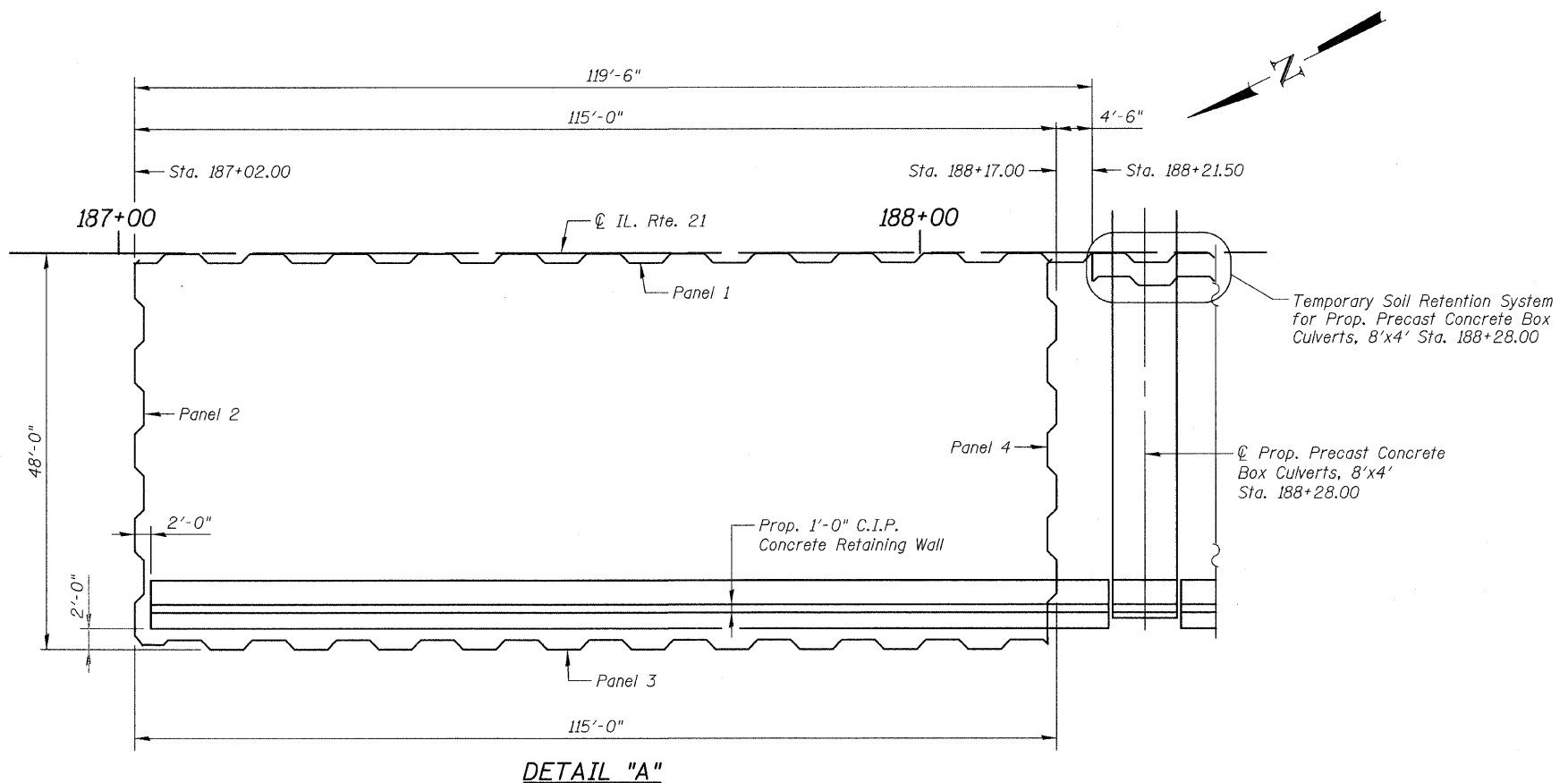
EXPANSION JOINT

JOINT DETAILS FOR CAST-IN-PLACE T-TYPE WALLS

**RETAINING WALL DETAILS  
STRUCTURE NO. 049-W017**

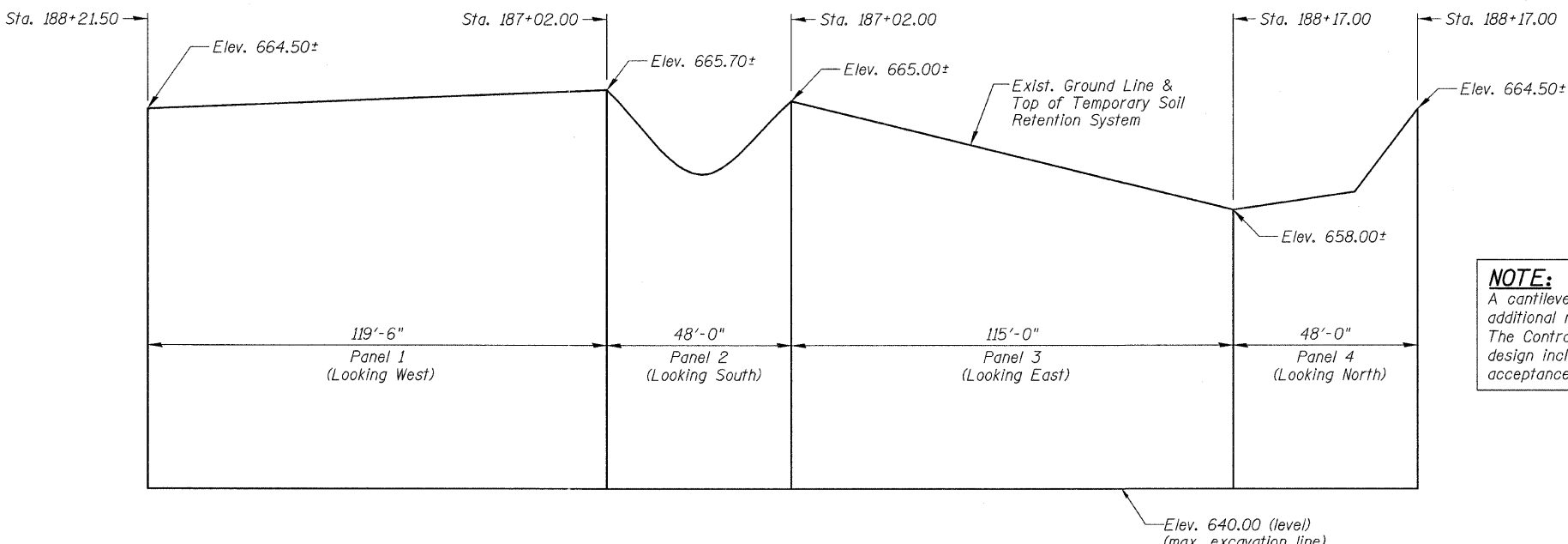


FILE NAME = D168953-05-ret_wall.det.dgn	USER NAME =	DESIGNED - J.C.N./B.N.S.	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>RETAINING WALL DETAILS STRUCTURE NO. 049-W017</b>	F.A.P. RTE. 330	SECTION 128R-3	COUNTY LAKE	TOTAL SHEETS 518	SHEET NO. 290		
PLOT SCALE =	CHECKED - B.N.S.	DRAWN - F.M.	REVISED -			SHEET NO. S1-5 OF S1-8 SHEETS						
PLOT DATE =	CHECKED - B.N.S./J.C.N.	REVISED -	REVISED -			ILLINOIS FED. AID PROJECT						
CONTRACT NO. 60953												
ILLINOIS FED. AID PROJECT												



**DETAIL "A"**

**LEGEND:**  
C.I.P. = Cast-In-Place



**ELEVATION OF PANELS  
TEMPORARY SOIL RETENTION SYSTEM**

**NOTE:**  
A cantilevered sheet piling design does not appear feasible and additional members or other retention systems may be necessary. The Contractor shall submit a temporary soil retention system design including plan details and calculations for review and acceptance by the Engineer.

**TEMPORARY SOIL RETENTION SYSTEM  
STRUCTURE NO. 049-W017**



FILE NAME = D168953-06-temp soil ret system.dgn	USER NAME =	DESIGNED - J.C.N./B.N.S.	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>TEMPORARY SOIL RETENTION SYSTEM STRUCTURE NO. 049-W017</b>	F.A.P. RTE. 330	SECTION 128R-3	COUNTY LAKE	TOTAL SHEETS 518	SHEET NO. 291	
PLOT SCALE =	DRAWN - F.M.	REVISED -	SHEET NO. S1-6 OF S1-8 SHEETS			CONTRACT NO. 60953					
PLOT DATE =	CHECKED - B.N.S./J.C.N.	REVISED -	ILLINOIS FED. AID PROJECT								

**Wang Engineering**  
 wangeng@wangeng.com  
 1145 N Main Street  
 Lombard, IL 60148  
 Telephone: 630 953-9928  
 Fax: 630 953-9938

**BORING LOG RW-1B**

Page 1 of 1

WEI Job No.: 722-23-01  
 Client: MACTEC Engineering and Consulting, Inc.  
 Project: FAP 330, IL 21 (Milwaukee Avenue)  
 Location: Section 128 R-3, Lake County, Illinois

Datum: NAV88  
 Elevation: 664.71 ft  
 North: 2062360.28 ft  
 East: 1086313.18 ft  
 Station: 186+72  
 Offset: 58 RT

Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample No.	SPT Values (blows/6 in)	Qu (tsf)	Moisture Content (%)	Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample No.	SPT Values (blows/6 in)	Qu (tsf)	Moisture Content (%)
659.2	Stiff, brown and black CLAY LOAM --FILL--	1	3	3	1.25	32	634.2		9	10	6	1.86	20
		2	3	3	1.50	31			10	8	7	1.45	20
		3	5	5	1.24	19			11	6	7	1.24	16
		4	7	6	1.45	17			12	34	58	NR	
654.2	Stiff, brown and gray CLAY --FILL--	5	9	10	3.93	15	629.7	Medium dense to dense, gray SANDY LOAM, little gravel	13	11	9	NP	10
		6	---	---	2.50	15			14	7	11	NP	19
		7	8	5	1.82	18			15	7	11	20	
		8	3	4	1.45	19			16	1	1	0.25	34
			4	8					17	1	1	0.25	29
									18	1	1	0.25	34
									19	1	1	0.25	29
									20	1	1	0.25	29
									21	1	1	0.25	29
									22	1	1	0.25	29
									23	1	1	0.25	29
									24	1	1	0.25	29
									25	1	1	0.25	29
									26	1	1	0.25	29
									27	1	1	0.25	29
									28	1	1	0.25	29
									29	1	1	0.25	29
									30	1	1	0.25	29
									31	1	1	0.25	29
									32	1	1	0.25	29
									33	1	1	0.25	29
									34	1	1	0.25	29
									35	1	1	0.25	29
									36	1	1	0.25	29
									37	1	1	0.25	29
									38	1	1	0.25	29
									39	1	1	0.25	29
									40	1	1	0.25	29

GENERAL NOTES				WATER LEVEL DATA			
Begin Drilling	04-16-2001	Complete Drilling	04-16-2001	While Drilling	▽	30.50 ft	
Drilling Contractor	Rock and Soil Drilling	Drill Rig	Acker 82	At Completion of Drilling	▽	9.00 ft	
Driller	Dave	Logger	T. Chen	Time After Drilling		24 hours	
Drilling Method	4.25" ID HSA; backfilled w/ bentonite chip.	Checked by	P. Wang	Depth to Water	▽	NA	
				The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.			

**Wang Engineering**  
 wangeng@wangeng.com  
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 Fax: 630 953-9938

**BORING LOG RW-1C**

Page 1 of 1

WEI Job No.: 722-23-01  
 Client: MACTEC Engineering and Consulting, Inc.  
 Project: FAP 330, IL 21 (Milwaukee Avenue)  
 Location: Section 128 R-3, Lake County, Illinois

Datum: NAV88  
 Elevation: 660.23 ft  
 North: 2062265.32 ft  
 East: 1086259.48 ft  
 Station: 187+81  
 Offset: 68 RT

Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample No.	SPT Values (blows/6 in)	Qu (tsf)	Moisture Content (%)	Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample No.	SPT Values (blows/6 in)	Qu (tsf)	Moisture Content (%)
657.2	Medium stiff, black CLAY --FILL--	1	3	4	0.75	55	634.7	Medium dense to very dense, white SANDY GRAVEL	9	15	14	NP	15
		2	3	2	0.50	43			10	5	4	NP	19
		3	2	3	0.91	26			11	7	11	NP	
		4	2	2	0.25	35			12	4	8	NP	12
652.2	Medium stiff, brown and gray CLAY --FILL--	5	0	1	0.25	34	628.2	Medium dense, brown, coarse SAND, wet	7	7	11	NP	
		6	0	2	0.25	32			8	15	23	4.38	15
		7	1	1	0.25	34			9	15	23	B	
		8	1	1	0.25	29			10	15	23	B	
									11	15	23	B	
									12	15	23	B	
									13	15	23	B	
									14	15	23	B	
									15	15	23	B	
									16	15	23	B	
									17	15	23	B	
									18	15	23	B	
									19	15	23	B	
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									32	15	23	B	
									33	15	23	B	
									34	15	23	B	
									35	15	23	B	
									36	15	23	B	
									37	15	23	B	
									38	15	23	B	
									39	15	23	B	
									40	15	23	B	

GENERAL NOTES				WATER LEVEL DATA			
Begin Drilling	04-16-2001	Complete Drilling	04-16-2001	While Drilling	▽	23.50 ft	
Drilling Contractor	Rock and Soil Drilling	Drill Rig	Acker 82	At Completion of Drilling	▽	4.00 ft	
Driller	Dave	Logger	T. Chen	Time After Drilling		24 hours	
Drilling Method	4.25" ID HSA; backfilled w/ bentonite chip.	Checked by	P. Wang	Depth to Water	▽	NA	
				The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.			

**SOIL BORING LOGS-I  
 STRUCTURE NO. 049-W017**



FILE NAME = D160953-07-boring_logs-1.dgn	USER NAME =	DESIGNED - J.C.N./B.N.S.	REVISIONS -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>SOIL BORING LOGS-I STRUCTURE NO. 049-W017</b>	F.A.P. RTE. = 330	SECTION = 128R-3	COUNTY = LAKE	TOTAL SHEETS = 518	SHEET NO. = 292
PLOT SCALE =	DRAWN - F.M.	REVISIONS -	CONTRACT NO. 60953							
PLOT DATE =	CHECKED - B.N.S./J.C.N.	REVISIONS -	ILLINOIS FED. AID PROJECT							
SHEET NO. 51-7 OF 51-8 SHEETS										

Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
651.3	Medium stiff to very stiff, dark brown to black CLAY --FILL--	1	3	5	5	2.00	63			9	4	6	8	NP	
		2	2	2	3	0.50	21			10	3	4	7		
		3	3	4	9	1.07	11			11	9	11	11	NP	
	Medium dense to dense, light gray SANDY GRAVEL	4	41	15	11	NP	7			12	9	9	10	NP	
		5	8	12	9	NP	11			13	13	26	22	NP	
		6	59	35	16	NP	7			15	28	12	10	NP	
		7	4	8	7	NP				20	4	8	7	NP	
		8								35					
								622.8	Boring terminated at 35.00 ft						

Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)	Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	Soft to medium stiff, black CLAY LOAM --FILL--	1	3	4	4	1.25	34			9	8	16	25	2.56	17
		2	3	1	3	0.50	56			10	5	10	11	2.15	23
		3	4	3	3	NP	18			11	6	5	20	2.65	27
654.0	Loose, brown SANDY LOAM, little gravel, wet	4	5	5	3	NP	25			12	8	25	25	NP	17
		5	7	8	5	0.25	30			13	4	15	20	NP	14
649.0	Soft, gray CLAY, trace gravel	6	8	15	11	NP	11			15					
647.5	Medium dense, brown SANDY LOAM, some gravel	7	10	12	9	4.25	13			20					
		8	10	11	17	2.48	16			35					
644.0	Very stiff to hard, gray CLAY, trace gravel									625.5	Boring terminated at 35.00 ft				

**GENERAL NOTES**  
 Begin Drilling 04-16-2001 Complete Drilling 04-17-2001  
 Drilling Contractor Rock and Soil Drilling Drill Rig Acker 82  
 Driller Dave Logger T. Chen Checked by P. Wang  
 Drilling Method 2.25" ID HSA; backfilled w/ bentonite chip.

**WATER LEVEL DATA**  
 While Drilling  $\nabla$   
 At Completion of Drilling  $\nabla$  1.00 ft  
 Time After Drilling 24 hours  
 Depth to Water  $\nabla$  NA  
 The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

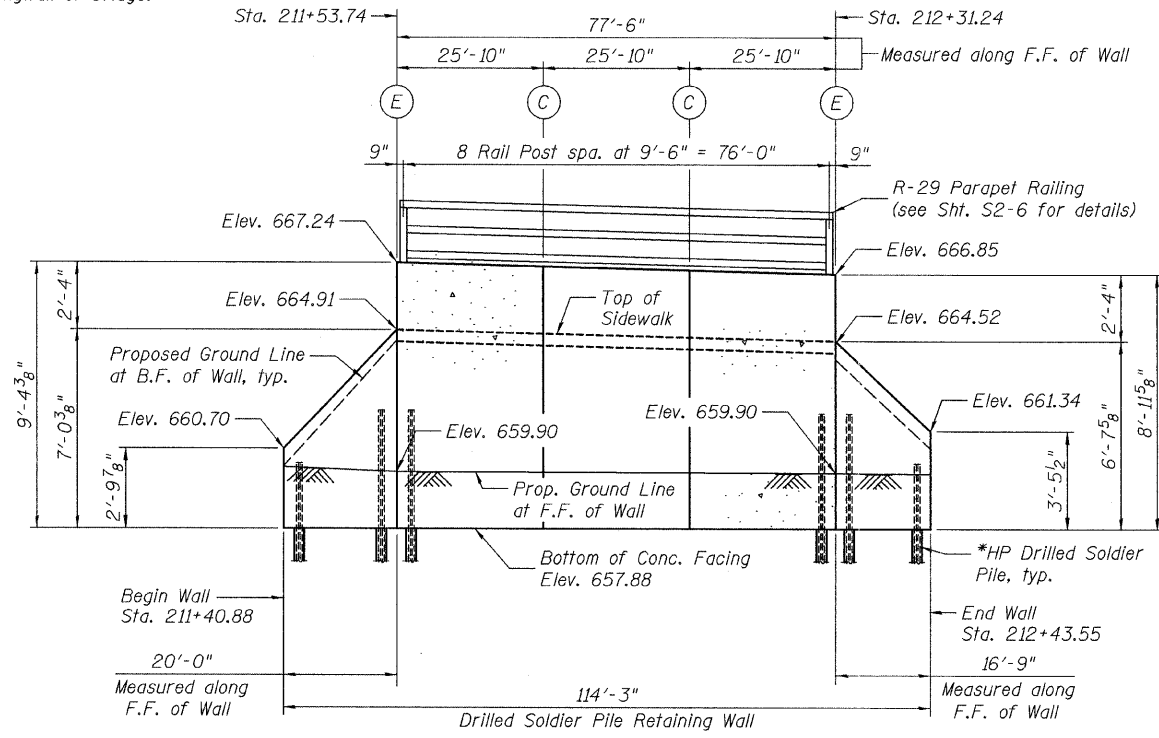
**GENERAL NOTES**  
 Begin Drilling 04-17-2001 Complete Drilling 04-17-2001  
 Drilling Contractor Rock and Soil Drilling Drill Rig Acker 82  
 Driller Dave Logger T. Chen Checked by P. Wang  
 Drilling Method 2.25" ID HSA; backfilled w/ bentonite chip.

**WATER LEVEL DATA**  
 While Drilling  $\nabla$  6.50 ft  
 At Completion of Drilling  $\nabla$  3.00 ft  
 Time After Drilling 24 hours  
 Depth to Water  $\nabla$  NA  
 The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

**SOIL BORING LOGS-II  
 STRUCTURE NO. 049-W017**

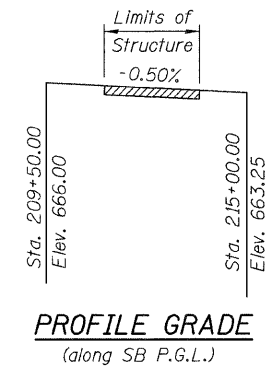


Bench Mark:  
Chiseled box on top of S.E. wingwall of bridge.  
Elevation 669.64



**ELEVATION**  
(Looking at F.F. of Wall)

\*See Sht's. S2-2 thru S2-5 for pile sections, spacings and tip elevations

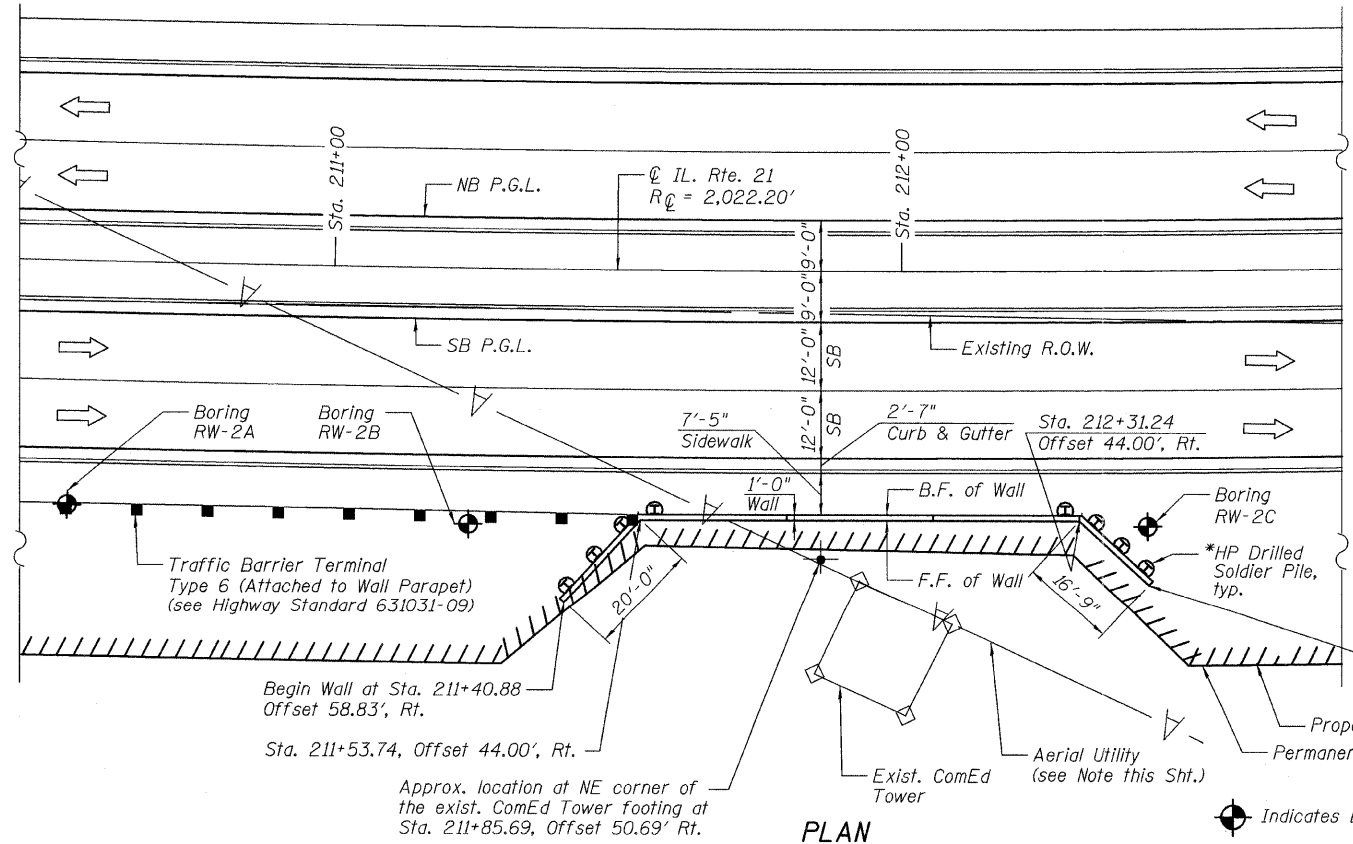


**PROFILE GRADE**  
(along SB P.G.L.)

**LEGEND:**  
F.F. = Front Face  
B.F. = Back Face  
(C) = Construction Joint  
(E) = Expansion Joint

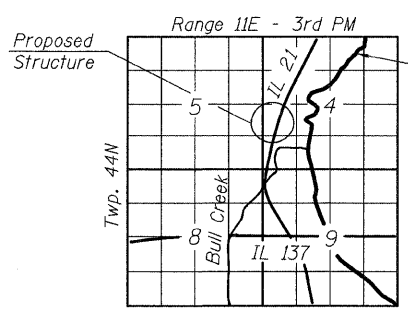
**CURVE DATA**

(@ IL. Rte. 21)  
Δ = 46°-11'-38"  
D = 2°-50'-00"  
T = 862.41'  
L = 1,630.37'  
E = 176.22'  
R = 2,022.20'  
S.E. = 2.90%  
P.C. Sta. = 243+66.70  
P.T. Sta. = 259+97.07  
P.I. Sta. = 252+29.11



**PLAN**

**PLAN**  
The Contractor shall use extreme care as not to damage or disturb the Aerial Utility and the exist. ComEd Tower and Footing.



**LOCATION SKETCH**

**INDEX OF SHEETS**

- S2-1 GENERAL PLAN & ELEVATION
- S2-2 PLAN & ELEVATION-I
- S2-3 PLAN & ELEVATION-II
- S2-4 RETAINING WALL SECTIONS
- S2-5 SOLDIER PILE SCHEDULE & DETAILS
- S2-6 PARAPET RAILING
- S2-7 SOIL BORING LOGS

**TOTAL BILL OF MATERIAL**

DESCRIPTION	UNIT	QUANTITY
Structure Excavation	Cu. Yd.	38
Concrete Structures	Cu. Yd.	33.1
Form Liner Textured Surface	Sq. Ft.	780
Stud Shear Connectors	Each	388
Reinforcement Bars, Epoxy Coated	Pound	6,120
Parapet Railing	Foot	78
Geocomposite Wall Drain	Sq. Yd.	36
Concrete Gutter, Type B	Foot	37
Untreated Timber Lagging	Sq. Ft.	468
Furnishing Soldier Piles (HP Section)	Foot	346
Pipe Underdrains for Structures 4"	Foot	124
Drilling and Setting Soldier Piles (in Soil)	Cu. Ft.	1,510
Stain For Concrete Structures	Sq. Yd.	87

**DESIGN SPECIFICATIONS**

AASHTO 2002 Standard  
Specifications for Highway Bridges

**DESIGN STRESSES**

**FIELD UNITS**

$f'_c = 3,500$  psi  
 $f_y = 60,000$  psi (Reinforcement)  
 $f_y = 36,000$  psi (Structural Steel)

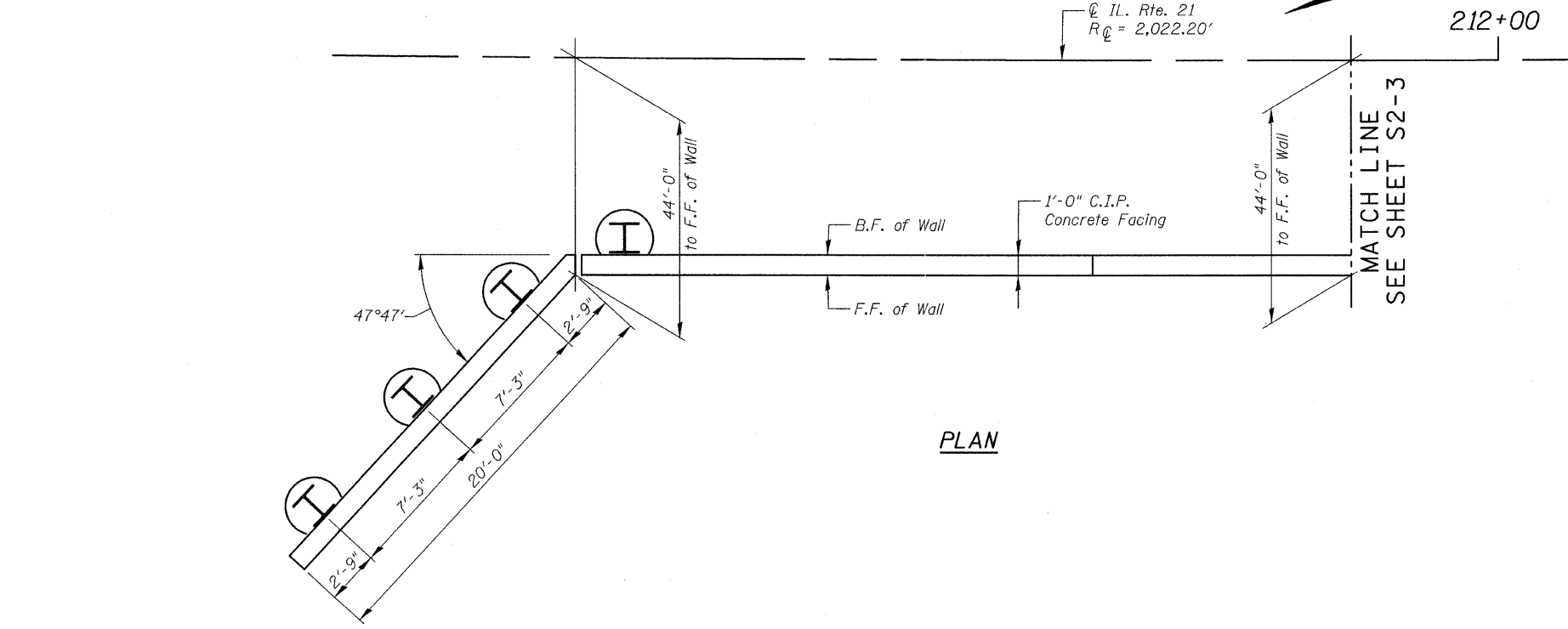
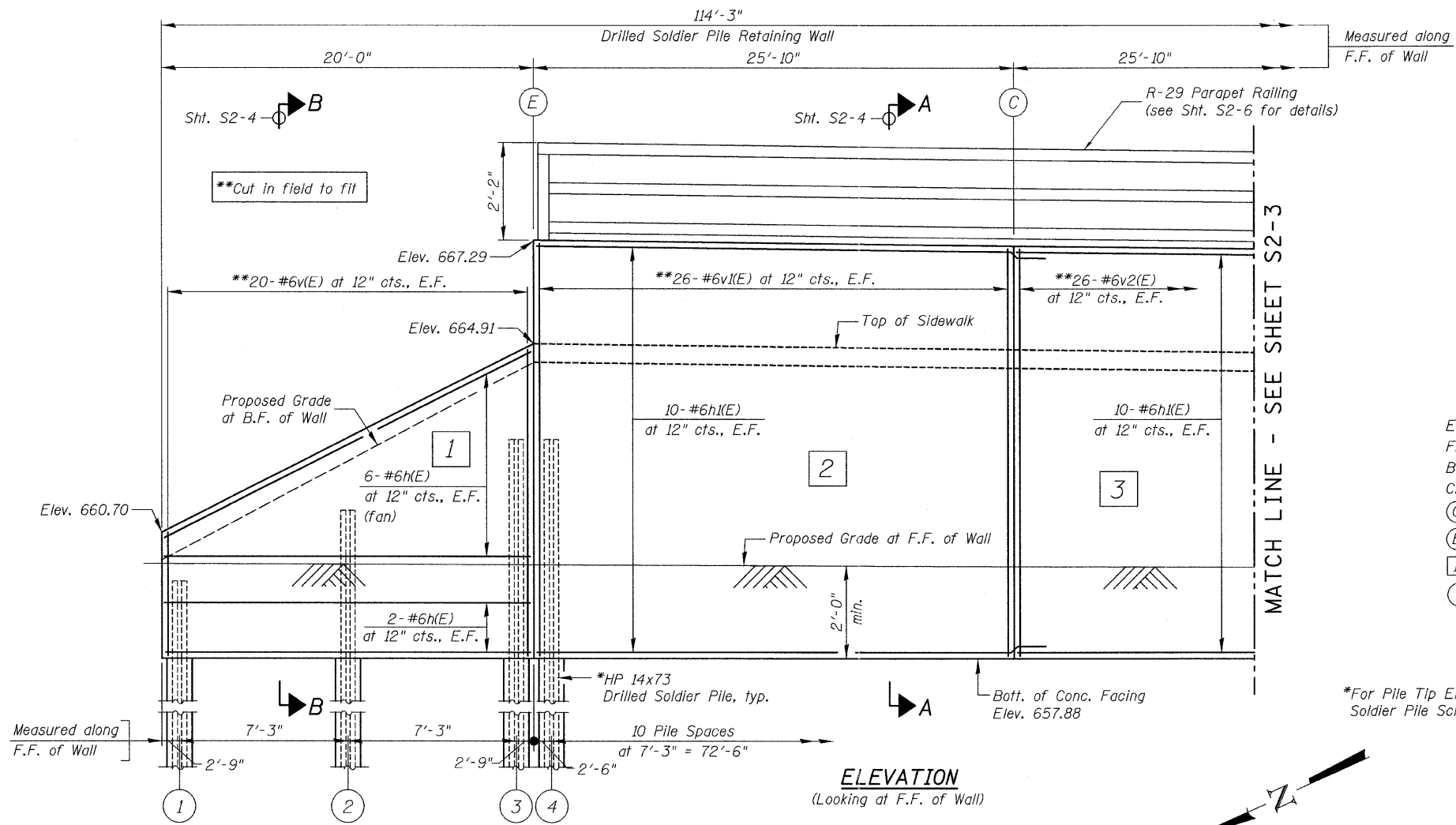


Bhadrish N. Shah  
BHADRISH N. SHAH Aug. 15, 2011  
LICENSED STRUCTURAL ENGINEER  
STATE OF ILLINOIS LIC. NO. 081-004476  
EXPIRES: 11-30-12

**GENERAL PLAN & ELEVATION**  
**ILLINOIS ROUTE 21 - RETAINING WALL NO. 2**  
**F.A.P. 330 SEC. 128R-3**  
**LAKE COUNTY**  
**STATION 211+40.88 TO 212+43.25**  
**STRUCTURE NO. 049-W018**



FILE NAME = D168953-01-GPE.dgn	USER NAME =	DESIGNED - J.C.N./B.N.S.	REVISED -	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>GENERAL PLAN &amp; ELEVATION</b> <b>STRUCTURE NO. 049-W018</b>	F.A.P. RTE. = 330	SECTION = 128R-3	COUNTY = LAKE	TOTAL SHEETS = 518	SHEET NO. = 294		
PLOT SCALE =	CHECKED - B.N.S.	REVISED -	SHEET NO. S2-1 OF S2-7 SHEETS			CONTRACT NO. 60953		ILLINOIS FED. AID PROJECT				
PLOT DATE =	DRAWN - F.M.	REVISED -										
	CHECKED - B.N.S./J.C.N.	REVISED -										



- GENERAL NOTES:**
- The Contractor is responsible for the design and performance of the lagging using no less than a 3 in. nominal rough-sawn thickness and timber with a minimum allowable bending stress of 1000 psi.
  - Pipe Underdrain Outlet Pipes shall drain into concrete headwalls. See Article 601.05 of the Standard Specifications and see Highway Standard 601101.
  - Reinforcement Bars shall conform to the requirements of ASTM A 706, Gr. 60. See Special Provisions.
  - All Exposed Concrete edges shall be chamfered  $\frac{3}{4}$ " unless otherwise noted.
  - Reinforcement Bars designated (E) shall be Epoxy Coated.

**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape	
h(E)	16	#6	19'-9"	—	
h1(E)	40	#6	28'-5"	—	
h2(E)	20	#6	25'-7"	—	
h3(E)	16	#6	16'-6"	—	
v(E)	40	#6	6'-8"	—	
v1(E)	52	#6	8'-11"	—	
v2(E)	52	#6	8'-9"	—	
v3(E)	52	#6	8'-7"	—	
v4(E)	34	#6	6'-3"	—	
Reinforcement Bars, Epoxy Coated				Pound	6,120
Concrete Structures				Cu. Yd.	33.1

**LEGEND:**

- E.F. = Each Face
- F.F. = Front Face
- B.F. = Back Face
- C.I.P. = Cast-In-Place
- (C) = Construction Joint
- (E) = Expansion Joint
- [1] = Panel Numbers
- (1) = Pile Numbers

**MIN. BAR LAP:**  
#6 bars = 2'-7"

**PLAN & ELEVATION-I  
STRUCTURE NO. 049-W018**



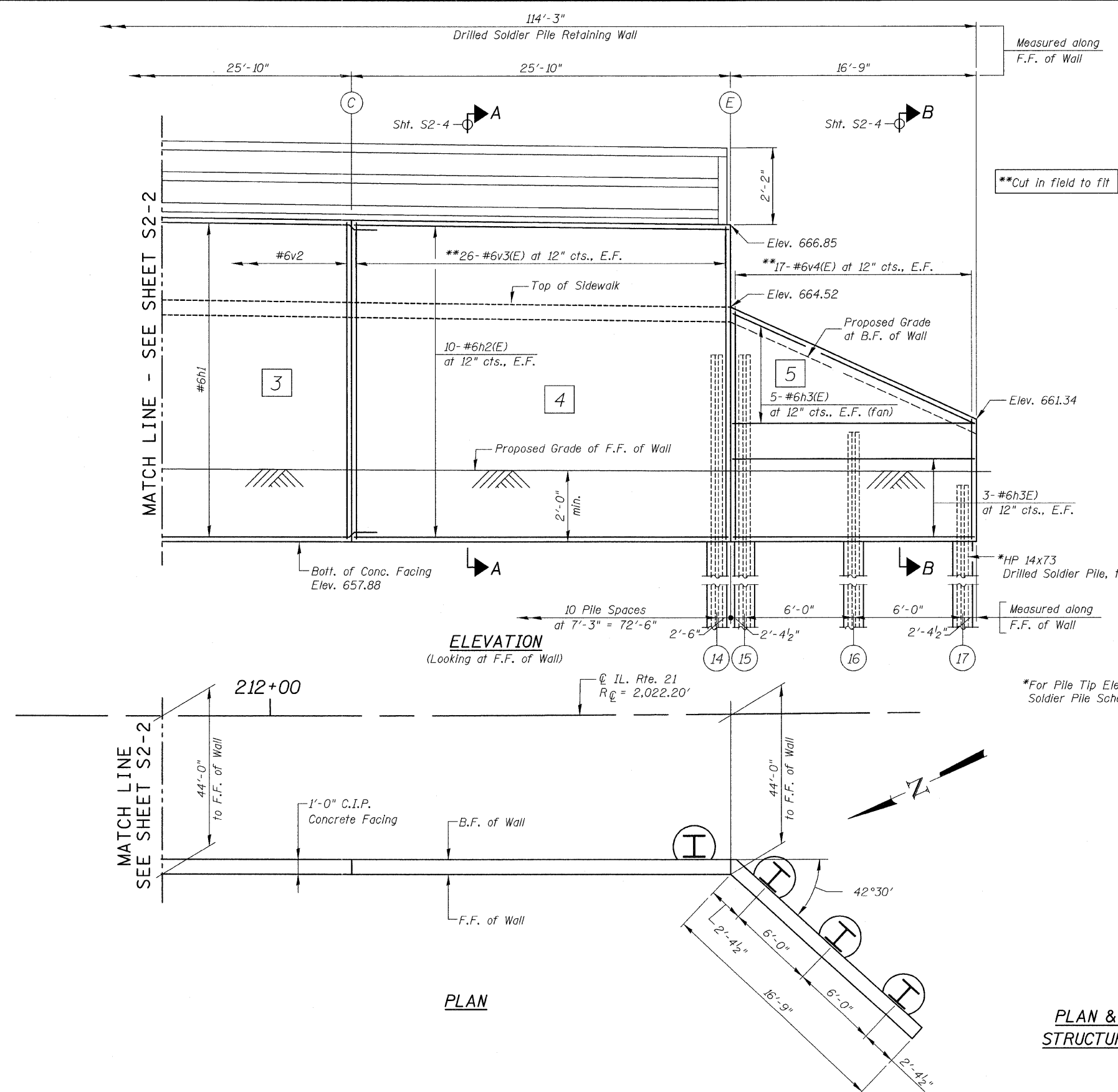
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		DRAWN - F.M.	REVISED -
		CHECKED - B.N.S./J.C.N.	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**PLAN & ELEVATION-I  
STRUCTURE NO. 049-W018**  
SHEET NO. S2-2 OF S2-7 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	128R-3	LAKE	518	295
				CONTRACT NO. 60953
ILLINOIS FED. AID PROJECT				





**LEGEND:**  
 E.F. = Each Face  
 F.F. = Front Face  
 B.F. = Back Face  
 C.I.P. = Cast-In-Place  
 (C) = Construction Joint  
 (E) = Expansion Joint  
 [I] = Panel Numbers  
 (I) = Pile Numbers

**MIN. BAR LAP:**  
 #6 bars = 2'-7"

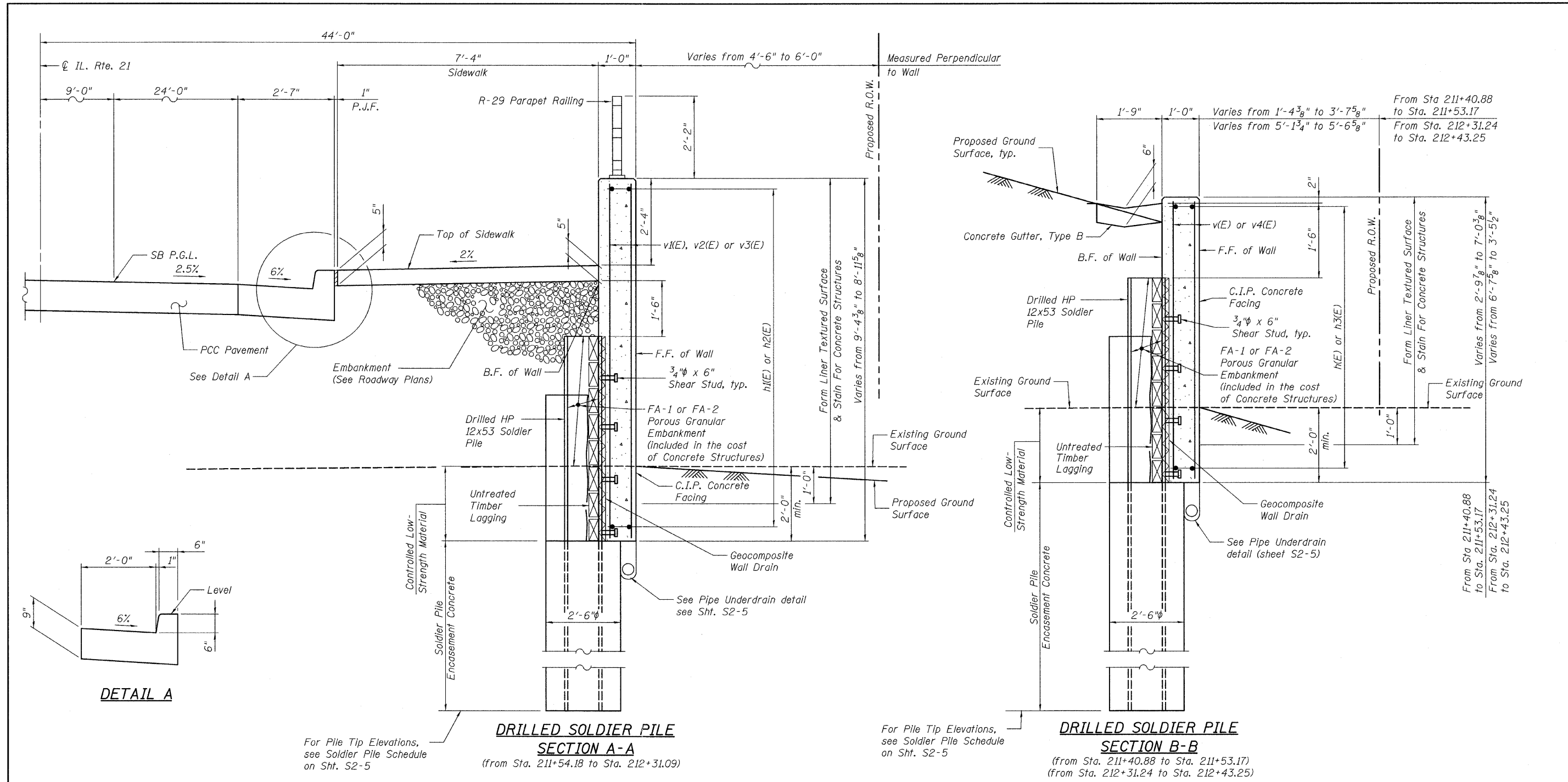
\*\*Cut in field to fit

\*For Pile Tip Elevations, see Soldier Pile Schedule, Sht. S2-5

**PLAN & ELEVATION-II**  
**STRUCTURE NO. 049-W018**



FILE NAME = D168953-03-plan-elev-11.dgn	USER NAME =	DESIGNED - J.C.N./B.N.S.	REVISIONS -	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>PLAN &amp; ELEVATION-II</b> <b>STRUCTURE NO. 049-W018</b> SHEET NO. S2-3 OF S2-7 SHEETS	F.A.P. RTE. = 330	SECTION = 128R-3	COUNTY = LAKE	TOTAL SHEETS = 518	SHEET NO. = 296
PLOT SCALE =	CHECKED - B.N.S.	REVISIONS -	<b>CONTRACT NO. 60953</b>							
PLOT DATE =	DRAWN - F.M.	REVISIONS -	ILLINOIS FED. AID PROJECT							
	CHECKED - B.N.S./J.C.N.	REVISIONS -								



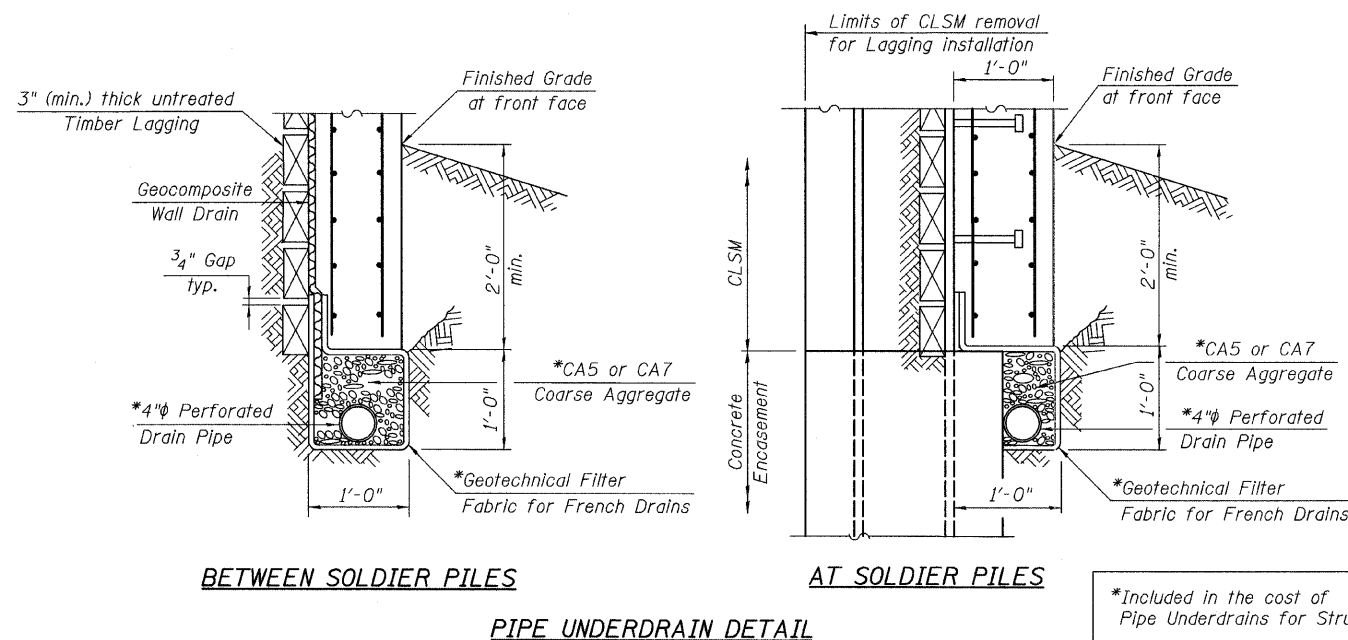
**RETAINING WALL SECTIONS  
 STRUCTURE NO. 049-W018**



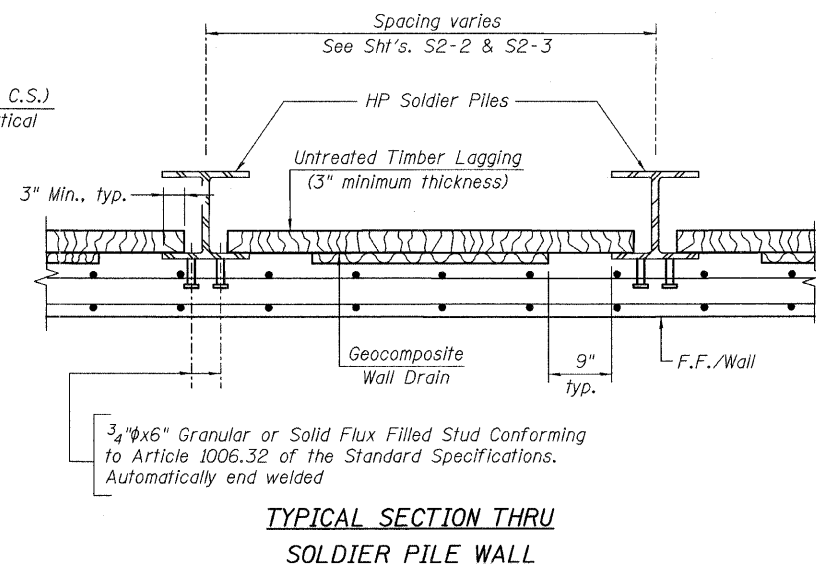
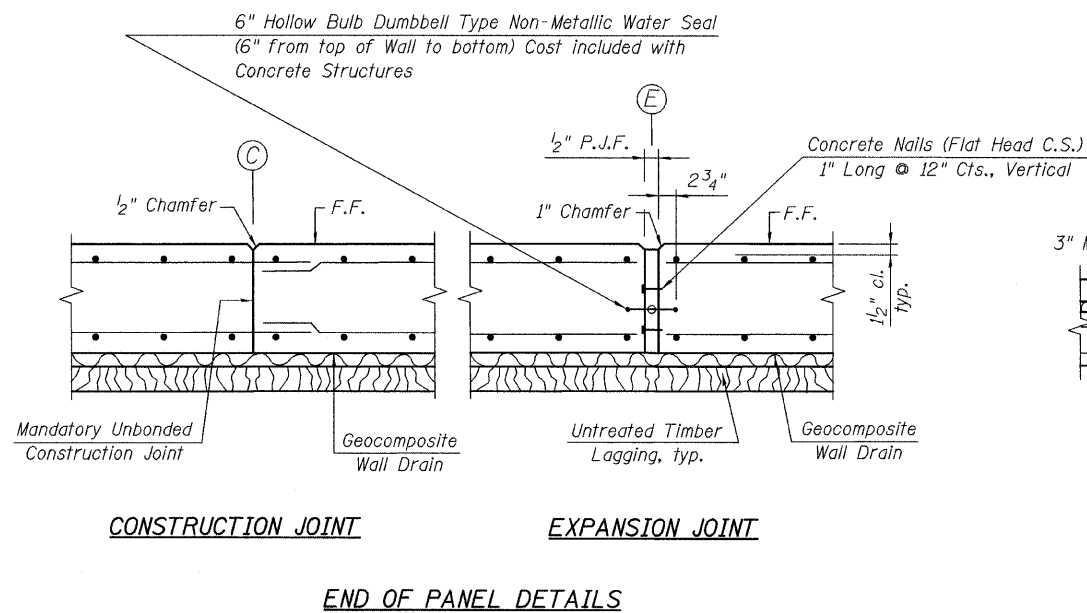
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PLOT SCALE =	DRAWN - F.M.	CHECKED - B.N.S.	REVISIONS -			SHEET NO. S2-4 OF S2-7 SHEETS					
PLOT DATE =	CHECKED - B.N.S./J.C.N.	CHECKED - B.N.S.	REVISIONS -			CONTRACT NO. 60953					
ILLINOIS FED. AID PROJECT											

**SOLDIER PILE RETAINING WALL NO. 2**  
**SOLDIER PILE SCHEDULE**

PILE NO.	PILE SIZE	TOP/PILE ELEV.	TIP/PILE ELEV.	APPROX. PILE LENGTH (FT.)	NO. STUD PER PILE	STUD SPACING
1	HP 14x 73	659.61	641.90	17.71	2 x 5 = 10	4 SPA. @ 4.50 IN = 1'- 6 "
2	HP 14x 73	661.14	641.90	19.24	2 x 9 = 18	8 SPA. @ 4.50 IN = 3'- 0 "
3	HP 14x 73	662.67	641.90	20.77	2 x 12 = 24	11 SPA. @ 4.75 IN = 4'- 4 "
4	HP 14x 73	662.98	641.90	21.08	2 x 13 = 26	12 SPA. @ 4.75 IN = 4'- 9 "
5	HP 14x 73	662.94	641.90	21.04	2 x 13 = 26	12 SPA. @ 4.75 IN = 4'- 9 "
6	HP 14x 73	662.91	641.90	21.01	2 x 13 = 26	12 SPA. @ 4.75 IN = 4'- 9 "
7	HP 14x 73	662.87	641.90	20.97	2 x 13 = 26	12 SPA. @ 4.75 IN = 4'- 9 "
8	HP 14x 73	662.83	641.90	20.93	2 x 13 = 26	12 SPA. @ 4.75 IN = 4'- 9 "
9	HP 14x 73	662.80	641.90	20.90	2 x 13 = 26	12 SPA. @ 4.50 IN = 4'- 6 "
10	HP 14x 73	662.76	641.90	20.86	2 x 13 = 26	12 SPA. @ 4.50 IN = 4'- 6 "
11	HP 14x 73	662.72	641.90	20.82	2 x 13 = 26	12 SPA. @ 4.50 IN = 4'- 6 "
12	HP 14x 73	662.69	641.90	20.79	2 x 13 = 26	12 SPA. @ 4.50 IN = 4'- 6 "
13	HP 14x 73	662.65	641.90	20.75	2 x 12 = 24	11 SPA. @ 4.75 IN = 4'- 4 "
14	HP 14x 73	662.62	641.90	20.72	2 x 12 = 24	11 SPA. @ 4.75 IN = 4'- 4 "
15	HP 14x 73	662.40	641.90	20.50	2 x 12 = 24	11 SPA. @ 4.75 IN = 4'- 4 "
16	HP 14x 73	661.26	641.90	19.36	2 x 9 = 18	8 SPA. @ 4.75 IN = 3'- 2 "
17	HP 14x 73	660.12	641.90	18.22	2 x 6 = 12	5 SPA. @ 4.75 IN = 1'- 11 "
				TOTAL	346	388



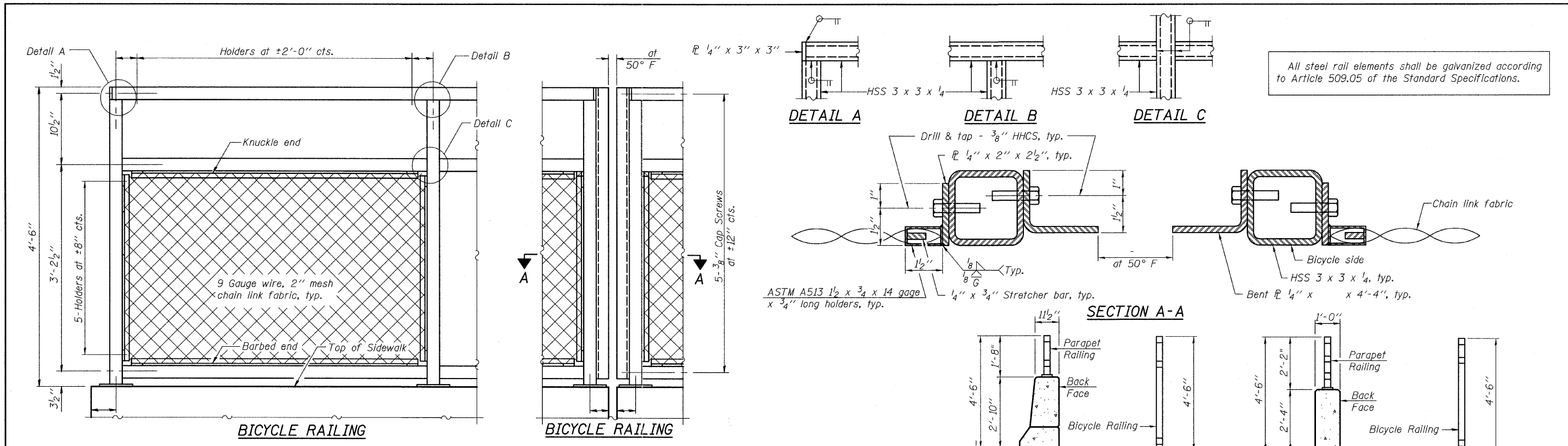
\*Included in the cost of Pipe Underdrains for Structures 4"



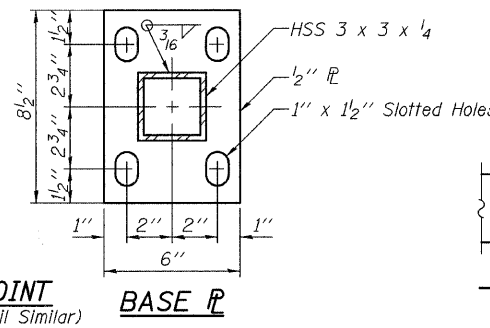
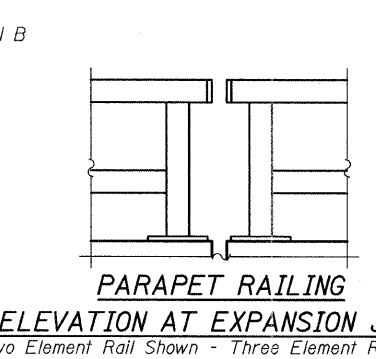
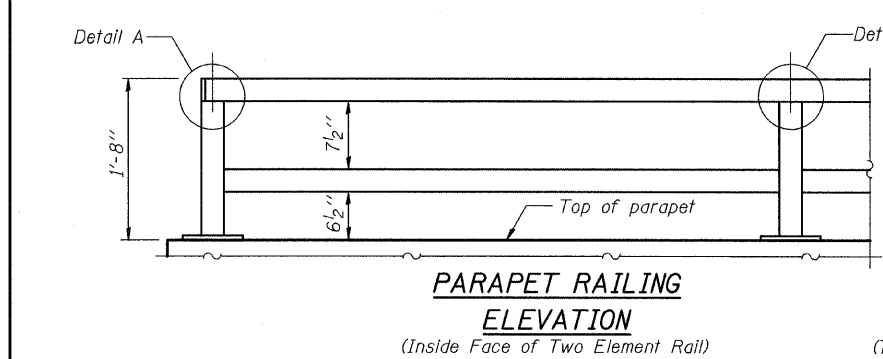
**SOLDIER PILE SCHEDULE & DETAILS**  
**STRUCTURE NO. 049-W018**



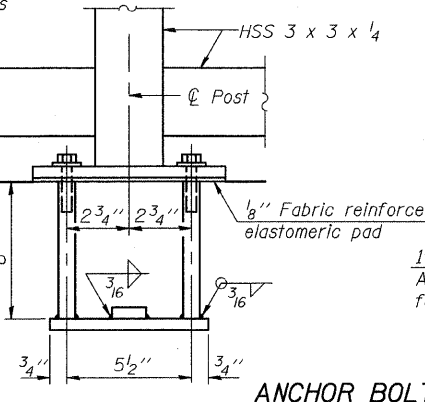
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PLOT SCALE =	DRAWN - F.M.	REVISIONS -	SHEET NO. S2-5 OF S2-7 SHEETS			CONTRACT NO. 60953					
PLOT DATE =	CHECKED - B.N.S./J.C.N.	REVISIONS -	ILLINOIS FED. AID PROJECT								



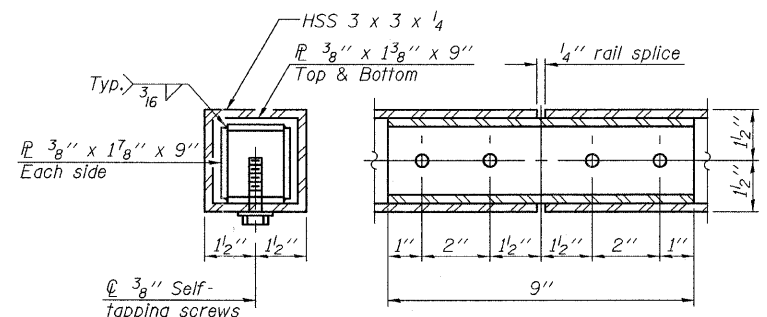
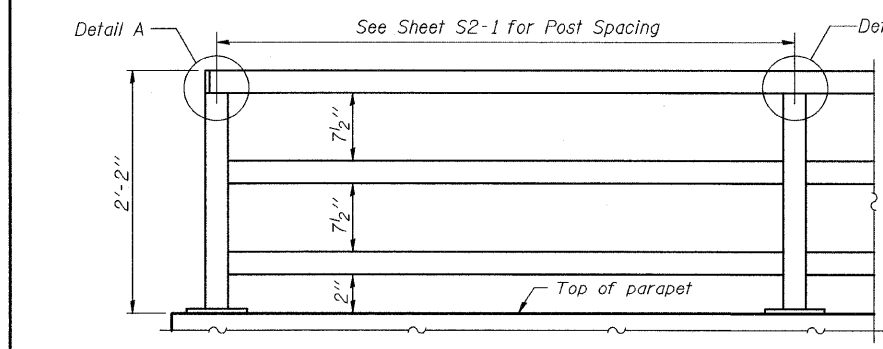
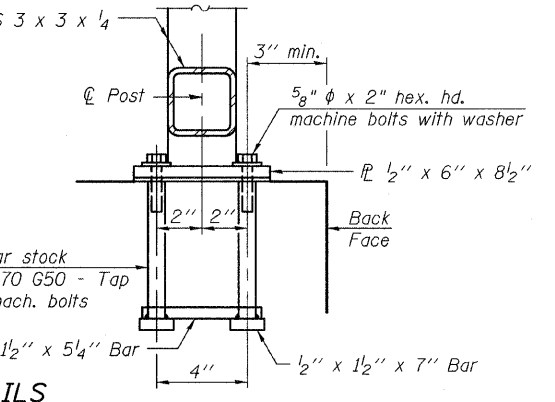
All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.



**SECTION THRU DECK**



**SECTION THRU SIDEWALK**



**ANCHOR BOLT DETAILS**

In lieu of the cast-in-place anchor device shown, the Contractor has the option of drilling and setting 5/8" φ anchor rods according to Article 509.06 of the Standard Specifications. Embedment shall be according to the manufacturer's specifications.

**BILL OF MATERIAL**

Item	Unit	Quantity
Parapet Railing	Foot	78

**PARAPET RAILING  
STRUCTURE NO. 049-W018**



**BORING LOG RW-2A**

WEI Job No.: 722-23-02  
 Client: MACTEC Engineering and Consulting, Inc.  
 Project: Illinois Route 21 (Milwaukee Avenue)  
 Location: T44N R11E and T45N R11E

Datum: NGVD  
 Elevation: 660.00 ft  
 North: 2060145.47 ft  
 East: 1085194.06 ft  
 Station: 210+52.62  
 Offset: 42.99 RT

Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample No.	SPT Values (blows/in)	Qu (tsf)	Moisture Content (%)	Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample No.	SPT Values (blows/in)	Qu (tsf)	Moisture Content (%)
658.0	24-inch thick, dark brown to black CLAY LOAM --TOPSOIL--	1	3	4.50	24								
655.5	Hard, brown SANDY CLAY LOAM	2	3	4.50	19								
653.0	Very loose, dark brown SAND	3	2	NP	20								
650.5	Loose, brown SANDY LOAM with trace gravel	4	1	NP	14								
650.5	Loose, brown SANDY GRAVEL	5	4	NP	11								
648.0	Loose to medium dense, brown and gray SAND with some GRAVEL	6	3	NP	25								
		7	3	NP	21								
		8	5	NP	8								
641.0	Boring terminated at 19.00 ft												

GENERAL NOTES		WATER LEVEL DATA	
Begin Drilling 11-23-2010	Complete Drilling 11-23-2010	While Drilling	10.00 ft
Drilling Contractor STS	Drill Rig CME 45	At Completion of Drilling	8.00 ft
Driller, B&S	Logger, A. Kurnia	Time After Drilling	NA
Drilling Method, 3.25 IDA HSA; Boring backfilled, upon completion		Depth to Water	NA
The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.			

**BORING LOG RW-2B**

WEI Job No.: 722-23-02  
 Client: MACTEC Engineering and Consulting, Inc.  
 Project: Illinois Route 21 (Milwaukee Avenue)  
 Location: T44N R11E and T45N R11E

Datum: NGVD  
 Elevation: 659.50 ft  
 North: 2060081.22 ft  
 East: 1085163.55 ft  
 Station: 211+23.44  
 Offset: 41.81 RT

Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample No.	SPT Values (blows/in)	Qu (tsf)	Moisture Content (%)	Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample No.	SPT Values (blows/in)	Qu (tsf)	Moisture Content (%)
657.5	24-inch thick, dark brown CLAY LOAM --TOPSOIL--	1	4	3.50	22								
657.5	Hard, brown SANDY CLAY LOAM	2	3	4.00	15								
655.0	Loose, brown SAND	3	2	NP	14								
650.8	Stiff, brown SILTY CLAY LOAM	4	3	1.25	15								
650.0	Loose, brown SANDY GRAVEL	5	4	NP	19								
647.5	Loose to medium dense, brown SAND	6	1	NP	28								
		7	2	NP	25								
		8	3	NP	21								
640.5	Boring terminated at 19.00 ft												

GENERAL NOTES		WATER LEVEL DATA	
Begin Drilling 11-23-2010	Complete Drilling 11-23-2010	While Drilling	10.00 ft
Drilling Contractor STS	Drill Rig CME 45	At Completion of Drilling	7.00 ft
Driller, B&S	Logger, A. Kurnia	Time After Drilling	NA
Drilling Method, 3.25 IDA HSA; Boring backfilled, upon completion		Depth to Water	NA
The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.			

**BORING LOG RW-2C**

WEI Job No.: 950-12-01  
 Client: Christian-Roge & Associates, Inc.  
 Project: Illinois Route 21 (Milwaukee Avenue)  
 Location: T44N R11E and T45N R11E

Datum: NGVD  
 Elevation: 659.50 ft  
 North: 2059973.75 ft  
 East: 1085108.94 ft  
 Station: 212+43.36  
 Offset: 44.93 RT

Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample No.	SPT Values (blows/in)	Qu (tsf)	Moisture Content (%)	Profile Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample No.	SPT Values (blows/in)	Qu (tsf)	Moisture Content (%)
658.5	12-inch thick black SILTY CLAY LOAM --TOPSOIL--	1	P	0.50	25								
657.0	Medium stiff, brown SILTY CLAY	2	P	NP	22								
655.5	Brown SANDY LOAM	3	P	NP	23								
651.3	Fine to medium coarse, brown SAND	4	P	NP	20								
649.3	Stiff, brown and gray SILTY CLAY	5	P	1.00	24								
647.3	Brown SILTY LOAM	6	P	NP	23								
641.5	Fine to medium coarse, gray SAND	7	P	NP	13								
		8	P	NP	18								
		9	P	NP	19								
641.5	Boring terminated at 18.00 ft												

GENERAL NOTES		WATER LEVEL DATA	
Begin Drilling 04-27-2011	Complete Drilling 04-27-2011	While Drilling	4.00 ft
Drilling Contractor WTS	Drill Rig Hand Auger	At Completion of Drilling	4.00 ft
Driller, N & B	Logger, N. Boddy	Time After Drilling	NA
Drilling Method, Pneumatic Hand Auger and Geoprobe Sampler		Depth to Water	NA
The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.			

**SOIL BORING LOGS**  
**STRUCTURE NO. 049-W018**



CHRISTIAN-ROGE & ASSOCIATES, INC.

FILE NAME = D:\68953-07-boring_logs.dgn	USER NAME =	DESIGNED - J.C.N./B.N.S.	REVISIONS -	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>SOIL BORING LOGS</b> <b>STRUCTURE NO. 049-W018</b>	F.A.P. RTE. = 330	SECTION = 128R-3	COUNTY = LAKE	TOTAL SHEETS = 518	SHEET NO. = 300
PLOT SCALE =	CHECKED - B.N.S.	REVISIONS -	SHEET NO. S2-7 OF S2-7 SHEETS							
PLOT DATE =	DRAWN - F.M.	REVISIONS -	ILLINOIS FED. AID PROJECT							
	CHECKED - B.N.S./J.C.N.	REVISIONS -	CONTRACT NO. 60953							