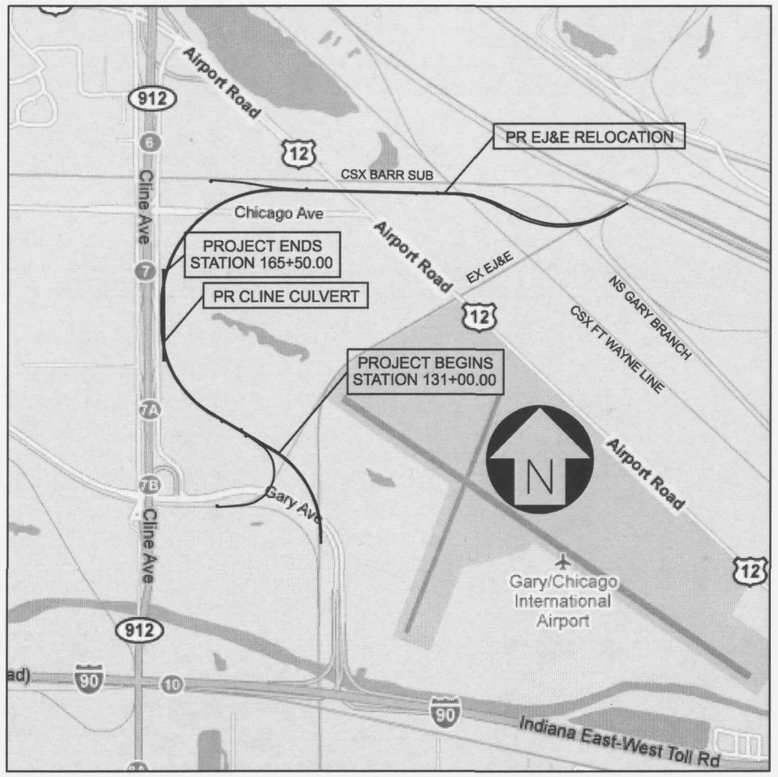
GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY

EJ&E RAILWAY RELOCATION PROJECT
CULVERT AND GRADING
CITY OF GARY, INDIANA
PROJECT NO. REP011

US EPA RECORDS CENTER REGION 5
418031

GaryChicago International Airport



PROJECT LOCATION MAP

PROJECT LENGTH EJ&E MAINLINE RELOCATION = 3,450.00' (0.65 MILES)

NOT TO SCALE

9/16/2011

SEE SHEET 2 FOR INDEX OF SHEETS

Indiana 811
Know what's below. Call before you dig.

INDIANA UNDERGROUND PLANT PROTECTION SERVICE
"HOLEY MOLEY"

CALL AT LEAST TWO WORKING DAYS PRIOR TO DIGGING
811 OR 1-800-382-5544

ISSUED FOR BID 9/16/2011

TranSystems
1475 EAST WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
847-605-9600

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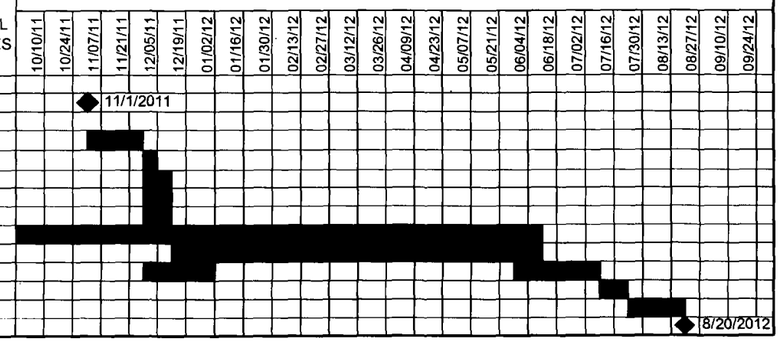
PROJECT SCHEDULE

PROJECT SCHEDULE

TASK DESCRIPTION	TOTAL WEEKS
NOTICE TO PROCEED	
A. MOBILIZATION	4
B. CONSTRUCT HAUL ROADS AND STAGING AREAS	1
C. CLEAR AND GRUB PROJECT SITE	2
D. INSTALL EROSION CONTROL MEASURES	2
F. PLACE STABILIZATION STONE FROM STATION 135+00 TO 145+00	2
E. UTILITY RELOCATIONS (BY OTHERS)	
F. CONSTRUCT BOX CULVERT	26
G. CONSTRUCT EMBANKMENT	11
H. INSTALL LANDSCAPING AND SEEDING	2
I. PUNCHLIST ITEMS	4



ALL OTHER WORK BY CONTRACTOR EXCEPT AS NOTED.
UTILITY RELOCATIONS ARE ONGOING DURING CONSTRUCTION.

PROJECT SCHEDULE NOTES

1. ALL WORK ON THIS PROJECT SHALL BE COMPLETED BY AUGUST 20, 2012. THE TOTAL DURATION OF THE CONTRACT IS 293 (TWO HUNDRED AND NINETY THREE) CALENDAR DAYS.

INDEX OF SHEETS

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EJ&E RAILWAY
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DRAWN BY: BJH
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SHEET TITLE:
INDEX OF SHEETS AND PROJECT SCHEDULE

SHEET NO.
INDEX-1

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GENERAL NOTES

1. THE HORIZONTAL DATUM FOR THIS SURVEY IS NAD 83 (GIS GRADE). IN STATE PLANE COORDINATES. THE VERTICAL DATUM FOR THIS SURVEY IS THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 1988).

2. ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM WITH THE CURRENT SPECIFICATIONS AND STANDARDS OF THE CN FOR WORK WITHIN EJ&E ROW. WORK WITHIN CSX OR NS ROW SHALL CONFORM TO THE RESPECTIVE STANDARDS OF THE OWNER RAILROAD. WORK THAT IS NOT GOVERNED BY CN OR OTHER RAILROAD SPECIFICATIONS SHALL CONFORM WITH THE CURRENT SPECIFICATIONS AND STANDARDS OF THE INDIANA DEPARTMENT OF TRANSPORTATION.

3. LINEAL FOOT MEASUREMENTS SHOWN ON THE PLANS ARE HORIZONTAL MEASUREMENTS, NOT SLOPE MEASUREMENTS. ALL PAYMENTS SHALL BE MADE ON HORIZONTAL MEASUREMENTS.

4. THE CONTRACTOR MUST COMPLY WITH ALL FEDERAL, STATE AND LOCAL SAFETY REGULATIONS, AS WELL AS THOSE SPECIFIED IN THE CONTRACT DRAWINGS AND SPECIFICATIONS.

5. THIS PLAN DOES NOT GUARANTEE THE EXISTENCE, NON-EXISTENCE, SIZE, TYPE, LOCATION, ALIGNMENT OR DEPTH OF ANY OR ALL UNDERGROUND UTILITIES OR OTHER FACILITIES. WHERE SURFACE FEATURES (MANHOLES, CATCH BASINS, VALVES, ETC.) ARE UNAVAILABLE OR INCONCLUSIVE, INFORMATION SHOWN MAY BE FROM UTILITY OWNER'S RECORDS AND/OR ELECTRONIC LINE TRACING, THE RELIABILITY OF WHICH IS UNCERTAIN. THE CONTRACTOR SHALL PERFORM WHATEVER TEST EXCAVATION OR OTHER INVESTIGATION IS NECESSARY TO VERIFY TIE-INVERTS, LOCATIONS AND CLEARANCES, AND SHALL REPORT IMMEDIATELY ANY DISCREPANCIES. UTILITY COMPANIES SHALL BE NOTIFIED 72 HOURS IN ADVANCE OF ANY EXCAVATION IN THE PROXIMITY OF THEIR UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AT HIS EXPENSE ANY EXISTING UTILITIES DAMAGED DURING CONSTRUCTION.

6. CLEARING AND GRUBBING OPERATIONS AND DISPOSAL OF ALL DEBRIS THEREFROM SHALL BE PERFORMED BY THE CONTRACTOR IN STRICT ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL CODES, LAWS, REGULATIONS AND ORDINANCES.

7. ALL WASTE MATERIAL RESULTING FROM THE PROJECT SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR AND HAULED TO A LEGAL WASTE DISPOSAL SITE. NO CONSTRUCTION WASTE SHALL BE BURNED OR BURIED ON SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY OBLIGATIONS STEMMING FROM THE IMPROPER DISPOSAL OF WASTE.

8. THE CONTRACTOR SHALL CONTROL THE EROSION AND SILTATION DURING ALL PHASES OF CONSTRUCTION AND KEEP ALL STREETS AND RAILROADS CLEAN OF MUD AND DEBRIS.

9. ALL MANHOLES, CATCH BASINS, UTILITY VALVES AND METER PITS SHALL BE ADJUSTED OR REBUILT TO GRADE AS REQUIRED.

10. PLEASE REFERENCE SOIL BORING LOGS FOR LOCAL GEOLOGICAL INFORMATION. PROJECT SPECIFIC GEOTECHNICAL REPORTS ARE AVAILABLE FOR REVIEW AT THE GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY AND IN THE CONTRACT DOCUMENTS.

11. IN PERFORMING THE WORK UNDER THIS CONTRACT, THE CONTRACTOR SHALL BECOME THOROUGHLY FAMILIAR WITH ALL FEDERAL, STATE AND LOCAL STATUTES, ORDINANCES AND DIRECTIVES WITH RESPECT TO THE ELIMINATION OF EXCESSIVE NOISE AND POLLUTION OF AIR AND WATER DUE TO HIS CONSTRUCTION EQUIPMENT AND OTHER OPERATIONS. ATTENTION SHALL BE GIVEN TO REDUCE THE NOISE OF HEAVY CONSTRUCTION EQUIPMENT AND TO THE CONTROL OF DUST, SMOKE AND FUMES FROM CONSTRUCTION EQUIPMENT AND OTHER OPERATIONS ON THE WORK SITE, AND THE DIRT AND NOISE CREATED BY HEAVY TRUCK OPERATION AREAS AND ADJACENT EXISTING PAVED AREAS. THESE AREAS SHALL BE KEPT FREE FROM DEBRIS AT ALL TIMES. THE DISCHARGE OF OILY, GREASY OR CHEMICAL WASTES INTO WATERWAYS AND CITY SEWERS WILL NOT BE PERMITTED.

12. THE GCIAA REQUIRES THAT ALL CONTRACTORS BE QUALIFIED FOR THE WORK THEY ARE PERFORMING. IT IS PRESUMED THAT CONTRACTORS PERFORMING WORK ARE EXPERIENCED AND KNOWLEDGEABLE ABOUT THE WORK (INCLUDING GOVERNMENTAL REGULATIONS), THAT QUALITY PRODUCTS APPROPRIATE FOR THE APPLICATION, WILL BE USED AND THAT ALL WORK WILL BE INSTALLED IN A PROFESSIONAL WORKMANLIKE MANNER. THE PLANS SHOW LOCATIONS, RELATIONSHIPS, MAGNITUDE AND GENERAL SPECIFICATIONS OF THE WORK REQUIRED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ASSURE THAT ALL COMPONENTS INSTALLED, FUNCTION PROPERLY AND THAT ALL HARDWARE, FITTINGS, CABLING, CONNECTIONS, SUPPLY LINES, ETC. ARE SUPPLIED AND PROPERLY FITTED, WHETHER DETAILED ON THE PLANS OR NOT.

13. THIS CONTRACT REQUIRES COMPLIANCE WITH ALL FEDERAL AND STATE WAGE RATES FOR CLASSES OF EMPLOYEES. FEDERAL PREVAILING WAGE RATE DETERMINATIONS SHALL BE POSTED OUTSIDE THE SITE FIELD OFFICE(S) IN A WEATHERPROOF ENCLOSURE.

14. THE CONTRACTOR SHALL PROVIDE CONSTRUCTION RELATED SERVICES WITH EXPERIENCED PERSONNEL. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE MEANS, METHODS AND SAFETY OF THE CONSTRUCTION OPERATIONS.

15. UNLESS OTHERWISE SHOWN THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FOR CONSTRUCTION PRIOR TO THE START OF WORK AND FOR ALL PERMIT APPLICATION FEES.

16. THE CONTRACTOR SHALL FURNISH AND MAINTAIN SANITARY CONVENIENCE FACILITIES FOR THE WORKERS AND INSPECTORS FOR THE DURATION OF THE WORK. COST SHALL BE INCLUDED IN THE PRICE BID FOR THE PROJECT IMPROVEMENTS.

17. THE CONTRACTOR SHALL SWEEP AND WASH DOWN ALL HAUL ROUTES OVER CITY STREETS TO/FROM THE CONSTRUCTION AREA, IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND ANY PERMITS REQUIRED FOR THE WORK. THE CONTRACTOR SHALL PROVIDE WHATEVER MEANS NECESSARY TO ALLEVIATE OR PREVENT DUST NUISANCE AT ALL TIMES.

18. ALL MAINTENANCE OF TRAFFIC REQUIRED SHALL CONFORM TO INDOT & CITY OF GARY STANDARDS AND BE COORDINATED WITH THE OWNER'S REPRESENTATIVE.

19. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO VERIFY ALL DIMENSIONS AND CONDITIONS EXISTING IN THE FIELD PRIOR TO ORDERING MATERIALS AND BEGINNING CONSTRUCTION.

20. THE CONTRACTOR SHALL INSPECT THE SITE OF THE PROJECT AND FAMILIARIZE HIMSELF WITH ALL EXISTING CONDITIONS, TRAFFIC AND OTHER ITEMS, THAT AFFECT THE CONTRACT AND THE DETAILED REQUIREMENTS OF CONSTRUCTION.

21. ALL CATCH BASINS, MANHOLES, INLETS, CULVERTS AND SIMILAR STRUCTURES NEWLY CONSTRUCTED, ADJUSTED OR RECONSTRUCTED UNDER THE CONTRACT SHALL BE CLEANED OF ANY ACCUMULATION OF SILT, DEBRIS OR ANY FOREIGN MATTER OF ANY KIND AND SHALL BE FREE OF SUCH ACCUMULATION AT THE TIME OF FINAL INSPECTION. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THIS CONTRACT.

22. LOCATION OF CONSTRUCTION STAGING AREAS IS TO BE COORDINATED WITH THE CONSTRUCTION MANAGER PRIOR TO BEGINNING CONSTRUCTION.

23. ALL CONSTRUCTION TRAFFIC SHALL ENTER AND EXIT WORK AREAS FROM LOCATIONS DESIGNATED BY THE CONSTRUCTION MANAGER

24. IN THE EVENT THAT UNEXPECTED REGULATED OR HAZARDOUS SUBSTANCES ARE ENCOUNTERED DURING EXCAVATION, THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL STATUES, ORDINANCES AND DIRECTIVES WITH RESPECT TO HANDLING AND DISPOSAL OF SUCH SUBSTANCES.

25. IN ESTABLISHING THE SCHEDULE FOR THIS CONTRACT, THE CONTRACTOR MUST CONSIDER THE FOLLOWING: NO ADDITIONAL COMPENSATION OR EXTENSION OF TIME FOR COMPLETION OF THE PROJECT OR ANY PHASE OF THE PROJECT WILL BE ALLOWED DUE TO THE PHASING OF THE WORK, OR DUE TO WEATHER CONDITIONS WHICH MAY IMPEDE THE PROJECT OF THE WORK.

26. THE CONTRACTOR'S SUPERINTENDENT MUST BE ON THE CONSTRUCTION SITE AT ALL TIMES DURING THE WORKING HOURS WHILE THIS PROJECT IS IN PROGRESS. THE CONTRACTOR'S SUPERINTENDENT MUST BE THE DESIGNATED RESPONSIBLE CONTRACTOR REPRESENTATIVE AND MUST BE AVAILABLE IN CASE OF EMERGENCIES ON A TWENTY-FOUR (24) HOUR BASIS.

27. NO REQUIREMENTS OF THIS CONTRACT WITH RESPECT TO PRECAUTIONS REQUIRED OR OMITTED WILL BE DEEMED TO LIMIT OR IMPAIR ANY OBLIGATIONS ASSUMED BY THE CONTRACTOR UNDER OR IN CONNECTION WITH THIS CONTRACT, AND THE CONTRACTOR MUST AT ALL TIMES MAINTAIN ADEQUATE PROTECTION TO SAFEGUARD AIRCRAFT, THE PUBLIC, AND ALL PERSONS ENGAGED IN THE WORK. THE CONTRACTOR MUST TAKE SUCH PRECAUTIONS AS WILL ACCOMPLISH SUCH END WITHOUT INTERFERENCE TO AIRCRAFT, THE PUBLIC, RAILROAD OPERATIONS, OR MAINTENANCE AND OPERATIONS OF THE AIRPORT EXCEPT WHERE OTHERWISE NOTED.

28. NO ITEM WILL BE DEMOLISHED UNTIL APPROVED BY THE CONSTRUCTION MANAGER.

Systems
1475 E WOODFIELD ROAD
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SHEET TITLE:

GENERAL NOTES

SHEET NO.

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UTILITY NOTES

1. THE CONTRACTOR SHALL GIVE A TWO WORKING DAYS NOTICE TO THE INDIANA UNDERGROUND PLANT PROTECTION SERVICE (HOLEY MOLEY) BY CALLING (800) 382-5544. TWO WORKING DAYS NOTICE SHALL ALSO BE GIVEN TO THE OWNERS OF UNDERGROUND UTILITIES SHOWN ON THE PLANS WHO ARE NOT MEMBERS OF A REGISTERED UNDERGROUND PROTECTION SERVICE.

2. ALL EXISTING UTILITIES SHALL REMAIN IN CONTINUOUS OPERATION DURING THE PROSECUTION OF THE WORK. THESE UTILITIES INCLUDE, BUT ARE NOT LIMITED TO WATER, SEWER, COMMUNICATIONS, STEAM, POWER, COMPRESSED AIR AND GAS AND PETROLEUM LINES. THE CONTRACTOR SHALL CONTACT THE OWNERS OF ALL UTILITIES PRIOR TO THE START OF THE WORK SO THAT THE OWNERS MAY LOCATE AND STAKE THEIR UTILITIES. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER, IN WRITING, 48 HOURS PRIOR TO UTLITY OWNER LOCATING THE UTILITY.

3. ALL EXCAVATION NEAR EXISTING CABLES OR OTHER EXISTING UTILITY LINES SHALL BE PERFORMED BY HAND. EXTRA COSTS INCURRED BY HAND EXCAVATION SHALL BE INCIDENTAL TO THE CONTRACT. ANY CABLE OR OTHER EXISTING UTILITY LINE THAT IS DAMAGED DURING THE PERFORMANCE OF THIS CONTRACT SHALL BE REPAIRED IMMEDIATELY, UNDER THE UTILITY OWNER'S DIRECTION AND AT THE CONTRACTOR'S EXPENSE. DURING THE PERIOD OF TIME THAT THE ABOVE TYPES OF CABLES OR UTILITIES ARE OUT OF SERVICE DUE TO THE CONTRACTOR'S OPERATIONS, ALL CONTRACT WORK SHALL BE SUSPENDED UNLESS OTHERWISE DIRECTED BY THE CONSTRUCTION MANAGER. THE CONTRACTOR WILL NOT BE ALLOWED TO MAKE CLAIMS FOR EXTRA COSTS OR TIME EXTENSIONS DUE TO SUCH STOPAGES OF WORK.

4. THE CONTRACTOR SHALL PREPARE AND SUBMIT SHOP AND CONSTRUCTION DRAWINGS, CERTIFIED BY A PROFESSIONAL ENGINEER LICENSED BY THE STATE OF INDIANA, TO THE OWNER'S REPRESENTATIVE WHICH CLEARLY AND ACCURATELY DEPICT THE METHODS AND MEANS BY WHICH THE CONTRACTOR INTENDS TO PROTECT, SHORE, SUPPORT, BRACE, ETC., EXISTING UTILITIES WHEN THE WORK AFFECTS A CABLE, SEWER OR OTHER UTILITY WITHIN THE CONTRACT LIMIT LINES. THIS PROCESS IS ALSO APPLICABLE FOR THE INSTALLATION OF NEW SEWERS AND UTILITIES THAT REQUIRE SHORING AND BRACING WITHIN THE CONTRACT LIMIT LINES

5. MOVING PUBLIC UTILITIES SHALL BE THE RESPONSIBILITY OF THE UTILITY OWNERS AS NOTED ON THE PLANS, IN THE GENERAL NOTES AND IN THE SPECIFICATIONS. THE CONTRACTOR IS TO NOTIFY THE UTILITY OWNER SUFFICIENTLY IN ADVANCE OF THE SCHEDULE FOR SUCH REMOVALS AND OF RELOCATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREMIUM COSTS WHICH BECOME NECESSARY AS A RESULT OF THE CONTRACTOR'S FAILURE TO NOTIFY THE UTILITY OWNER. ALL OTHER UTILITIES NOTED ON THE PLANS TO BE RELOCATED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

6. ALL ITEMS PROPOSED FOR ABANDONMENT, RELOCATION OR DEMOLITION SHALL BE MARKED BY THE CONTRACTOR FOR REVIEW BY THE CONSTRUCTION MANAGER. NO ITEM SHALL BE ABANDONED, RELOCATED OR DEMOLISHED UNTIL APPROVED BY THE OWNER'S REPRESENTATIVE.

7. THE CONSTRUCTION MANAGER WILL REVIEW THE SHOP DRAWINGS AND PROCEDURES IN ACCORDANCE WITH THE PROVISIONS OF THE APPROPRIATE SECTION OF THE SPECIFICATIONS.

8. THE CONTRACTOR SHALL NOT START ANY WORK WHICH MAY AFFECT EXISTING WATER, STEAM, SEWER, COMPRESSED AIR, COMMUNICATIONS, POWER, GAS, FUEL, OR OTHER UTILITY CABLES, PIPELINES OR SEWERS UNTIL THE OWNER'S REPRESENTATIVE HAS REVIEWED AND APPROVED THE SHOP DRAWINGS AND PROCEDURES FOR PROTECTION OF THE UTILITY.

9. REMOVAL AND REPLACEMENT OF ALL UTILITY STRUCTURES, PIPES, CONDUITS, POWER POLES, LIGHT POLES, FENCES, GATES, GUARDRAIL, VAULTS, JUNCTION BOXES, TREES, SHRUBS AND OR ANY OTHER OBSTRUCTION REQUIRED TO INSTALL THE PROPOSED SEWERS AND UTILITIES AS SHOWN ON THE PLANS SHALL BE INCIDENTAL TO THE CONTRACT UNLESS OTHERWISE STATED IN THE CONTRACT DOCUMENTS.

10. THE UTILITY LOCATIONS SHOWN ON THESE PLANS ARE APPROXIMATE. THIS PLAN DOES NOT GUARANTEE THE EXISTENCE, NON-EXISTENCE, SIZE, TYPE, LOCATION, ALIGNMENT OR DEPTH OF ANY OR ALL UNDERGROUND UTILITIES OF FACILITIES. UTILITY COMPANIES SHALL BE NOTIFIED 72 HOURS IN ADVANCE OF ANY EXCAVATION IN THE PROXIMITY OF THEIR UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AT HIS EXPENSE ANY EXISTING UTILITIES DAMAGED DURING CONSTRUCTION.

UNDERGROUND UTILITIES

CALL TWO WORKING DAYS BEFORE YOU DIG

CALL BEFORE YOU DIG. IT'S THE LAW.

INDIANA UNDERGROUND
PLANT PROTECTION SERVICE

1-800-382-5544

SEWER AND DRAINAGE NOTES

1. THIS LIST INCLUDES GENERAL REQUIREMENTS AND IS NOT ALL-INCLUSIVE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE AN INSTALLATION IN ACCORDANCE WITH THE CITY OF GARY PLUMBING CODE.

2. ALL SEWERS TO BE ABANDONED SHALL BE BULKHEADED AT BOTH ENDS AND FILLED WITH GROUT AS DIRECTED BY THE OWNER'S REPRESENTATIVE UNLESS OTHERWISE NOTED ON THE PLANS. WHEREVER ANY ABANDONED CONDUITS OR PIPES ARE CUT OR BROKEN BY SEWER CONSTRUCTION, SUITABLE BULKHEADS, AS DETERMINED BY THE CONSTRUCTION MANAGER, SHALL BE INSTALLED SO THAT NO LOSS OF BACKFILL MATERIAL SHALL OCCUR. ALL SEWERS AND SEWER STRUCTURES TO BE PLUGGED, BULKHEADED, REMOVED AND/OR FILLED WITH GROUT SHALL BE INCIDENTAL TO THE SEWER AND WATER ITEMS. ALL COSTS TO PERFORM SUCH WORK SHALL BE INCIDENTAL TO THE CONTRACT.

3. ALL KNOWN WATER PIPE SERVICES ARE SHOWN AND NOTED ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND MAINTAINING ALL WATER SERVICES. THIS WORK SHALL BE INCIDENTAL TO THE CONTRACT.

4. THE CONTRACTOR SHALL AT ALL TIMES DURING CONSTRUCTION PROVIDE AND MAINTAIN AMPLE MEANS AND DEVICES FOR THE TEMPORARY DIVERSION OF FLOW IN EXISTING SEWERS AND DRAINS AND THE PROMPT REMOVAL AND PROPER DISPOSAL OF ALL WATER OR SEWAGE ENTERING THE TRENCHES OR OTHER PARTS OF THE WORK, AND SHALL KEEP SAID EXCAVATIONS AS DRY AS PRACTICABLE UNTIL THE STRUCTURES TO BE BUILT THEREIN ARE COMPLETED. THIS WORK SHALL BE INCIDENTAL TO THE CONTRACT.

5. THE LOCATIONS AND ELEVATIONS OF EXISTING SEWERS AND SEWER STRUCTURES SHOWN ON THE PLANS AND PROFILES HAVE BEEN OBTAINED FROM DRAWINGS AND ATLASES AND THE INFORMATION IS NOT GUARANTEED. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING AND PROTECTING ALL SEWERS AND STRUCTURES.

6. IN LOCATIONS WHERE THE EXISTING DRAINAGE FACILITIES ARE TO REMAIN AND ARE DISTURBED OR DAMAGED DURING CONSTRUCTION BY THE CONTRACTOR, IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO RESTORE AND REPLACE THE DAMAGED FACILITIES AT HIS EXPENSE TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE. THE SEWER FLOW MUST BE MAINTAINED AT ALL TIMES.

7. OFFSET AND TOP OF FRAME ELEVATIONS ARE GIVEN TO THE CENTER OF FRAME AND GRATE. ALL STRUCTURES SHALL BE TURNED SO THAT THE FRAME IS FURTHEST FROM THE RAIL.

8. IF DURING STORM SEWER OR DITCHING EXCAVATION THE CONTRACTOR DISCOVERS A FIELD TILE ABOVE THE INVERT OF THE PROPOSED FACILITY, THE CONTRACTOR SHALL RECORD ITS LOCATION AND CONNECT SAID FIELD TILE TO THE PROPOSED STORM WATER SYSTEM. IF THE FIELD TILE IS BELOW THE INVERT OF THE PROPOSED FACILITY, THE CONTRACTOR SHALL RECORD ITS LOCATION, REPAIR ANY DAMAGE TO THE TILE AND BACKFILL THE TILE ACROSS THE FULL WIDTH OF THE TRENCH WITH COMPACTED COURSE AGGREGATE STONE.

9. IN THE EVENT THE CONTRACTOR ENCOUNTERS EXISTING SUBSURFACE DRAINAGE SYSTEMS THAT WERE NOT SHOWN ON PLANS, THE CONTRACTOR SHALL MAINTAIN AND PRESERVE THE SUBSURFACE DRAINAGE SYSTEMS OR CONNECT THE SYSTEMS TO THE NEAREST DRAINAGE SYSTEMS AS DIRECTED BY THE ENGINEER.

10. SEE SHEET 42 FOR DRAINAGE STRUCTURE TABLES

UTILITY CONTACT LIST

UTILITY	CONTACT NAME	CONTACT NUMBER
BP (AMOCO) PIPELINES	NICK SCHILLING	630-536-2172
BUCKEYE PIPELINE CO.	JASON HUPP	610-904-4956
WEST SHORE PIPELINE	MATTHEW VALE	219-397-3656
CITGO PETROLEUM, CORP.	PETER KRIVAS	219-398-0734
MCI / VERIZON	CHRIS FOWLER	317-435-6225
NIPSCO WEST	DEREK BROVOLD	219-726-4848
ENVIRON INTERNATIONAL CORP.	BARBARA COUGHLIN	312-288-3814
PRAXAIR	JOHN MACK	716-879-7560
INDIANA AMERICAN WATER NORTHWEST	ELIZABETH PATZ	219-880-2331
SBC (AT&T INDIANA)	ANGELO LAMANTIA	219-662-4418
T-CUBED (ELANTIC TELECOM/LEVEL 3/JOB 8)	DANNY YOUNG	
CITY OF GARY	MARIANETTA BARBER	219-881-1310
GARY SANITARY DISTRICT	RINZER WILLIAMS III	
WOLVERINE PIPELINE CO.	FRED HIPSHEAR	269-323-2491
MARATHON PIPELINE	SHERITA SHURELDS	219-924-8577
MAGESTIC STAR CASINO	LARRY BLACK	219-977-7579

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SHEET TITLE:
GENERAL NOTES

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RAILROAD NOTES

1. THE CONTRACTOR SHALL NOT PERFORM ANY WORK ON ACTIVE EJ&E, CSX, OR NS TRACKS, UTILITIES OR FACILITIES, UNLESS DIRECTED IN WRITING BY THE EJ&E, CSX, OR NS REPRESENTATIVE.

2. THE CONTRACTOR'S WORK SHALL NOT INTERRUPT THE OPERATIONS OF ANY RAILROAD WITHOUT PRIOR APPROVAL OF THE RESPECTIVE EJ&E, CSX, OR NS REPRESENTATIVE.

3. THE CONTRACTOR SHALL NOT ENTER ONTO RAILROAD RIGHT OF WAY WITHOUT PERMISSION AND AN APPOINTED FLAGMEN ON DUTY. THIS APPLIES TO EJ&E, CSX, AND NS RIGHTS OF WAY.

4. THE CONTRACTOR UNDERSTANDS THAT THE FORMER ELGIN, JOLIET AND EASTERN RAILROAD (EJ&E) IS NOW OWNED BY THE CANADIAN NATIONAL RAILWAY (CN) AND THAT THESE TERMS MAY BE USED INTERCHANGEABLY THROUGHOUT THE CONTRACT DOCUMENTS TO REFER TO THE SAME ENTITY.

5. ALL WORKERS ON EJ&E, CSX, OR NS PROPERTY MUST HAVE THE APPROPRIATE RAILROAD SAFETY TRAINING AND WEAR RAILROAD APPROVED PERSONAL PROTECTIVE EQUIPMENT. ANY COSTS ASSOCIATED WITH THESE REQUIREMENTS SHALL BE INCIDENTAL TO THE CONTRACT.

6. ALL DIMENSIONS, COORDINATE GEOMETRY, PROFILES, AND CROSS-SECTIONS ARE BASED OFF OF THE PROPOSED EJ&E MAIN NO. 1 TRACK CENTERLINE AND STATIONING EXCEPT WHERE OTHERWISE NOTED.

AIRPORT NOTES AND RESTRICTIONS

1. THE CONTRACTOR UNDERSTANDS THAT CONSTRUCTION ACTIVITY WILL TAKE PLACE IMMEDIATELY ADJACENT TO AN INTERNATIONAL AIRPORT. SPECIFICALLY, CONSTRUCTION WILL OCCUR WITHIN THE AIRCRAFT APPROACH PATH TO RUNWAY 12, WHICH IS SERVED BY INSTRUMENT LANDING AND LIGHTING SYSTEMS, AND AN AIR TRAFFIC CONTROL TOWER. AIRCRAFT OPERATIONS SHALL HAVE THE HIGHEST PRIORITY AND RIGHT-OF-WAY AT ALL TIMES.

2. CONSTRUCTION ACTIVITY SHALL OCCUR DURING DAYLIGHT HOURS. RESTRICTED VISIBILITY AND/OR NIGHT WORK REQUIRING THE USE OF PORTABLE FLOOD LIGHTING MUST BE APPROVED 72 HOURS IN ADVANCE BY THE GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY (219) 949-9722. WORK LIGHTING SHALL NOT INTERFERE WITH AIRPORT OR AIRCRAFT OPERATIONS.

3. THE CONTRACTOR UNDERSTANDS THAT THE AIRPORT PERIMETER SECURITY FENCE IS NEAR THE CONSTRUCTION SITE. SECURITY OF THE PERIMETER FENCE IS STRICTLY ENFORCED. THE CONTRACTOR MAY BE FINED FOR ANY SECURITY BREACHES.

4. DUE TO THE PROXIMITY TO THE AIRPORT, CONTRACTOR SHALL PROVIDE ADEQUATE DUST CONTROL AT ALL TIMES. THIS IS PARTICULARLY IMPORTANT DURING EARTHMOVING, LIME/CEMENT STABILIZATION OPERATIONS OR WHEN PLACING AGGREGATE. CONTRACTOR UNDERSTANDS THAT THEIR OPERATIONS MAY BE SHUT DOWN ON SHORT NOTICE IF CONSTRUCTION ACTIVITIES IMPACT AIRCRAFT OPERATIONS.

5. THE CONTRACTOR SHALL COMPLY WITH ALL FEDERAL AVIATION ADMINISTRATION (FAA) REQUIREMENTS REGARDING HEIGHT RESTRICTIONS OF TEMPORARY CONSTRUCTION EQUIPMENT AND PERMANENT STRUCTURES THAT PENETRATE OR INFRINGE UPON FAA PART 77 AIRSPACE. THE CONTRACTOR SHALL KEEP A LIST OF EQUIPMENT MAXIMUM HEIGHTS FOR USE IN DETERMINING CLEARANCES TO AIRPORT IMAGINARY SURFACES.

6. THE CONTRACTOR IS ADVISED THAT CERTAIN RULES AND RESTRICTIONS, AS CONTAINED IN THE FAA ADVISORY CIRCULAR 150/5370-2 (OR CURRENT EDITION), OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION, AND AUGMENTED BY THESE DRAWINGS AND SPECIFICATIONS MAY APPLY TO THE WORK. THE CONTRACTOR MUST MAINTAIN ALL AREAS OF WORK IN COMPLIANCE WITH THESE REQUIREMENTS AT ALL TIMES. THIS EFFORT IS INCIDENTAL TO THE CONTRACT.

Systems
1475 E WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE:847-805-9600
FAX:847-805-9610

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL
AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago
International Airport

REVISIONS:		
MARK	DATE	DESCRIPTION
	9/16/2011	ISSUED FOR BID

PROJ NO: P401050064
SCALE: NTS
DATE: 9/16/2011
DESIGNED BY: BJH
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:
GENERAL NOTES

SHEET NO.
GEN-3

USER:
9/16/2011 - 5:33:31 PM - G:\P401050064\Install\Field\contract s-culvert\GEN-01.dgn

SUMMARY OF QUANTITIES

ITEM NUMBER	PAY ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY
1	110.1	MOBILIZATION AND DEMOBILIZATION	LS	1
2	201.1	CLEARING AND GRUBBING	ACRE	10
3	202.1	CULVERT, REMOVE	LF	390
4	202.2	PAVEMENT REMOVAL	SY	634
5	202.3	ARTICULATED BLOCK REVETMENT MAT, REMOVE	SY	8338
6	203.1	EXCAVATION, UNCLASSIFIED	CY	6682
7	203.2	BORROW	CY	22028
8	203.3	ALLOWANCE FOR UNCLASSIFIED EXCAVATION - CONTAMINATED MATERIAL	ALLOW	1
9	205.1	TEMPORARY SILT FENCE	LF	5696
10	205.2	TEMPORARY CULVERT INLET PROTECTION	EACH	4
11	205.3	TEMPORARY CHECK DAM, REVETMENT RIPRAP	TON	1
12	205.4	TEMPORARY DITCH INLET PROTECTION	EACH	6
13	205.5	STABILIZED CONSTRUCTION ENTRANCE/EXIT	EACH	3
14	302.1	SUB-BALLAST	CY	7588
15	601.1	GUARDRAIL, REMOVE	LF	341
16	601.2	GUARDRAIL, W-BEAM, 6 FT 3 IN SPACING	LF	300
17	616.1	RIPRAP, REVETMENT	TON	36
18	616.2	GEOTEXTILES	SY	3470
19	616.3	ARTICULATED BLOCK REVETMENT MAT	SY	3753
20	621.1	TOPSOIL	CY	2536
21	621.2	SEED MIXTURE T, FALL MIX	LB	733
22	621.3	SEED MIXTURE R	LB	664
23	621.4	SEED MIXTURE D	LB	14
24	621.5	FERTILIZER	TON	2
25	621.6	EROSION CONTROL BLANKET	SY	23658
26	621.7	MULCHING MATERIAL	TON	8
27	621.8	WATER	KILO-GAL	100
28	715.1	PIPE, TYPE 1, CIRCULAR, 24 IN	LF	168
29	715.2	PIPE, TYPE 2, CIRCULAR, 12 IN	LF	49
30	715.3	PIPE, TYPE 2, CIRCULAR, 18 IN	LF	30
31	715.4	PIPE, TYPE 2, CIRCULAR, 24 IN	LF	33
32	715.5	PIPE, TYPE 2, CIRCULAR, 30 IN	LF	47
33	715.6	PIPE, TYPE 2, CIRCULAR, 36 IN	LF	41
34	715.7	SAFETY METAL END SECTION, 4:1, 24 IN	EACH	6
35	720.1	CATCH BASIN, TYPE E	EACH	3
36	720.2	MANHOLE, TYPE J	EACH	3
37	720.3	CASTING TYPE 2	EACH	3
38	720.4	CASTING TYPE 7	EACH	3
39	801.1	MAINTAINING TRAFFIC	LS	1
40	2300.1	COFFERDAM (CLINE CULVERT)	LS	1
41	2850.1	STABLIZATION STONE	CY	4519
42	3201.1	REINFORCING STEEL	LB	673600
43	3310.1	CONCRETE 5000 P.S.I.	CY	3368

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E,I&E RAILWAY
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CULVERT AND GRADING

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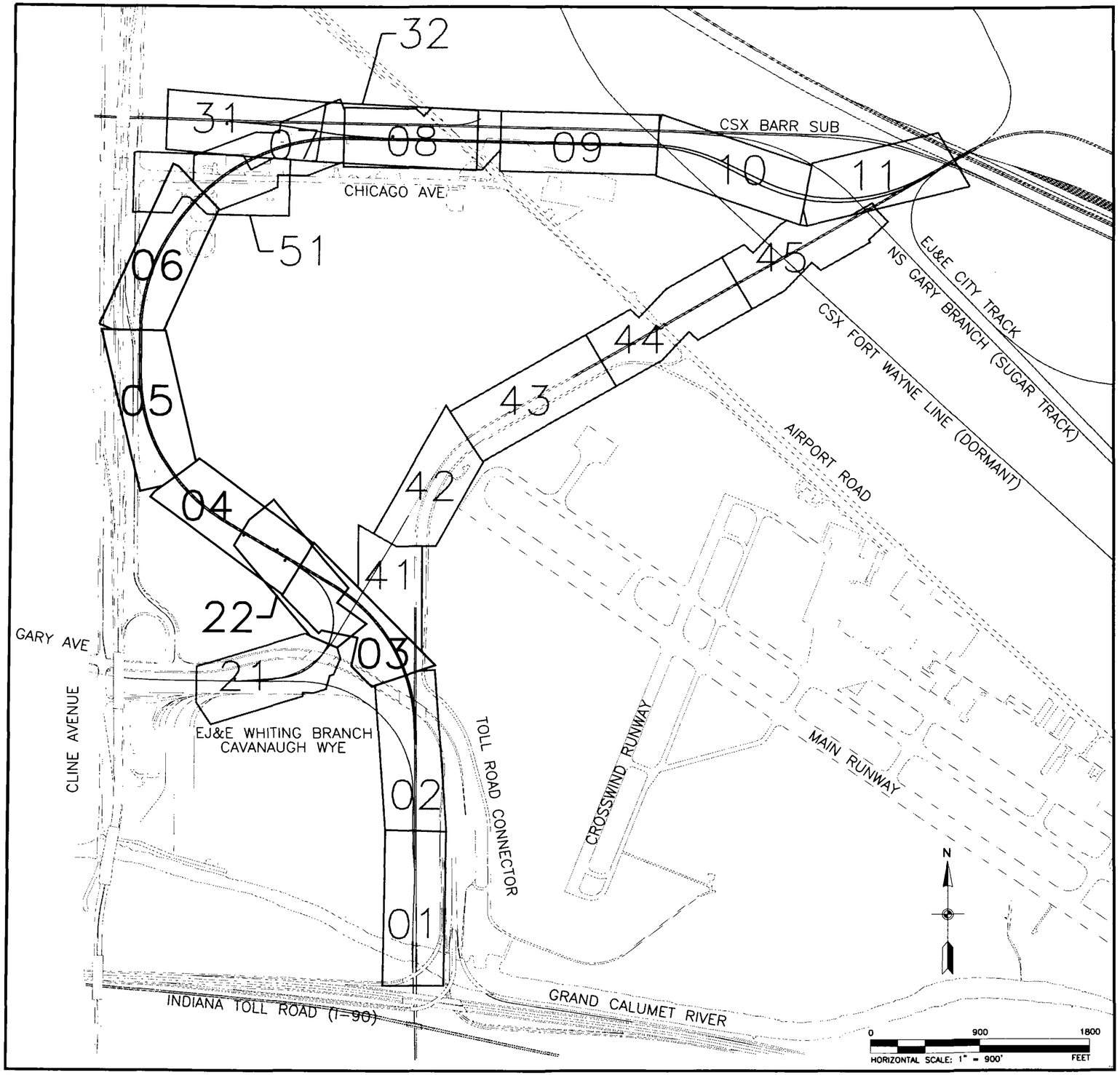
CHECKED BY: KKY

SHEET TITLE:
SUMMARY OF QUANTITIES

SHEET NO.
SOQ-01

USER:
9/16/2011 - 5:33:39 PM - g:\chi\05006\traffic\sheets\contract e-culvert\SOQ-01.dgn



SHEETS INCLUDED IN CONTRACT:

03, 04, 05, 06, 22

SHEETS NOT INCLUDED:

01, 02, 07, 08, 09, 10, 11, 21, 31, 32, 41, 42, 43, 44, 45, 51

Systems
1475 E WOODFIELD ROAD
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SHEET TITLE:

KEY PLAN

SHEET NO.

KEY-01

SHEET 7 OF 93

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LEGEND

RAILROAD SYMBOLS

EXISTING	PROPOSED	
		℄ TRACK
OR	OR	POINT OF SWITCH – HAND THROWN
		POINT OF SWITCH – POWER
MP 246 STA. 246+25		MILE POST MARKER (STATION AND MILE)
		R.O.W. / PROPERTY LINE
		CONTROL BOX
		CROSSING GATE

DRAINAGE SYMBOLS

EXISTING	PROPOSED	
OR		STORM SEWER LINE
		STORM SEWER CATCH BASIN
		MANHOLE
		INLET
		FLOW DIRECTION
		HIGH POINT
		SWALE ARROW
		PROPOSED HEADWALL

UTILITY SYMBOLS

EXISTING	PROPOSED	
NG	NG 2"	NATURAL GAS LINE PIPE
W 16"	W 16"	WATER LINE PIPE
		FIRE HYDRANT
O'TELE MH	T	TELEPHONE MANHOLE
E	E	UNDERGROUND ELECTRIC
OE	OE	OVERHEAD ELECTRIC
FG	FG	FUEL GAS
NG	NG	NATURAL GAS
T	T	TELECOMMUNICATIONS
FO	FO	FIBER OPTIC CABLE
TV	TV	CABLE TELEVISION
OTV	OTV	OVERHEAD CABLE TELEVISION
COM	COM	RAILROAD COMMUNICATIONS
AIR	AIR	COMPRESSED AIR
W	W	WATER
SS	SS	SANITARY SEWER
		GAS MARKER
FO		FIBER OPTIC WARNING MARKER
		UTILITY POLE
		BOLLARD
		JUNCTION BOX
		LIGHT POLE
		TELEPHONE SPLICE BOX
		ELECTRICAL SPLICE BOX
		GROUNDING ROD
	8-5	SOIL BORING LOCATION AND NUMBER
		PIPE/CONDUIT REDUCER
		HIGH MAST LIGHT POLE (BY MUSCO)
		LIGHT POLE DUCT BANK

MISCELLANEOUS SYMBOLS

EXISTING	PROPOSED	
		TREES
		SURVEY CONTROL POINT
615	615	CONTOUR
×615.0	N 1721296.22 E 1032542.15 EL 615.2	SPOT ELEVATION
BLDG		STRUCTURE
		STRUCTURE REMOVAL
		LIMIT OF CLEARING AND GRUBBING
		GRADE CROSSING
		SILT FENCE
		VEGETATION LINE
		FENCE
		SIGN
		WETLAND
		LIMITS OF CONSTRUCTION

TRACK ABBREVIATIONS

EJ&E = ELGIN, JOLIET AND EASTERN RAILWAY COMPANY
NS = NORFOLK SOUTHERN
CSXT = CSX TRANSPORATION
C/L (or ℄) = CENTERLINE
C-# = CURVE NO.
Δ = DELTA OF SPIRAL-CURVE-SPIRAL
Dc = DEGREE OF CURVE (CHORD DEF.)
R = RADIUS
T = TANGENT
Lc = CURVE LENGTH
Ts = TANGENT LENGTH (SPIRALED CURVE)
Ls = SPIRAL LENGTH
E_A = ACTUAL SUPERELEVATION
E_U = UNBALANCED SUPERELEVATION
V = SPEED (MPH)
TS = TANGENT TO SPIRAL
SC = SPIRAL TO CURVE
CS = CURVE TO SPIRAL
ST = SPIRAL TO TANGENT
STA = STATION
EL = ELEVATION
R.H. = RIGHT HAND
L.H. = LEFT HAND
R.H.P.O.T.O. = RIGHT HAND POWER OPERATED TURNOUT
L.H.P.O.T.O. = LEFT HAND POWER OPERATED TURNOUT
R.H.H.T.T.O. = RIGHT HAND HAND THROWN TURNOUT
L.H.H.T.T.O. = LEFT HAND HAND THROWN TURNOUT
NIC = NOT IN CONTRACT
OOS = OUT OF SERVICE
TBR = TO BE REMOVED
MH = MANHOLE
TYP = TYPICAL
EX = EXISTING
PR = PROPOSED

EROSION CONTROL AND TURF RESTORATION

	TEMPORARY SILT FENCE
	TEMPORARY DITCH INLET PROTECTION
	TEMPORARY CULVERT INLET PROTECTION
	TEMPORARY CHECK DAM, REVETMENT RIPRAP
	SEED MIXTURE T, FALL MIX
	SEED MIXTURE R, WITH MULCH
	DITCH SEED MIXTURE D

Systems
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EJ&E RAILWAY
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CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL
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GaryChicago
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SCALE: AS SHOWN
DATE: 9/16/2011
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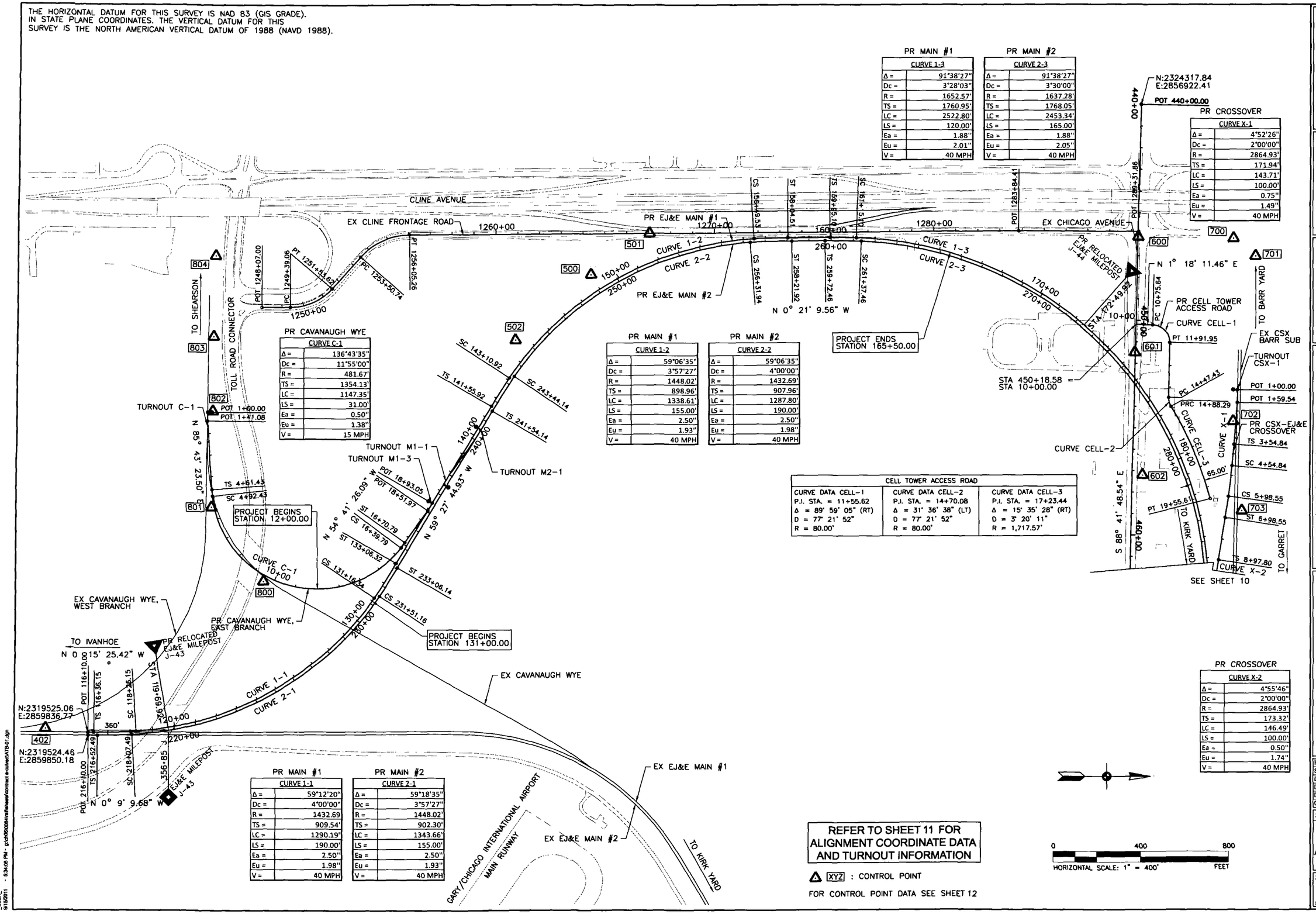
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:
LEGEND AND ABBREVIATIONS

SHEET NO.
LEG-01

USER: 9/16/2011 - 5:33:05 PM - g:\chi\50006\initial\field\contract e-culvert\LEGEND.dgn

THE HORIZONTAL DATUM FOR THIS SURVEY IS NAD 83 (GIS GRADE).
IN STATE PLANE COORDINATES. THE VERTICAL DATUM FOR THIS
SURVEY IS THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 1988).



PR MAIN #1

CURVE 1-3	
Δ =	91°38'27"
Dc =	3°28'03"
R =	1652.57'
TS =	1760.95'
LC =	2522.80'
LS =	120.00'
Ea =	1.88"
Eu =	2.01"
V =	40 MPH

PR MAIN #2

CURVE 2-3	
Δ =	91°38'27"
Dc =	3°30'00"
R =	1637.28'
TS =	1768.05'
LC =	2453.34'
LS =	165.00'
Ea =	1.88"
Eu =	2.05"
V =	40 MPH

PR CROSSOVER

CURVE X-1	
Δ =	4°52'26"
Dc =	2°00'00"
R =	2864.93'
TS =	171.94'
LC =	143.71'
LS =	100.00'
Ea =	0.75"
Eu =	1.49"
V =	40 MPH

PR CAVANAUGH WYE

CURVE C-1	
Δ =	136°43'35"
Dc =	11°55'00"
R =	481.67'
TS =	1354.13'
LC =	1147.35'
LS =	31.00'
Ea =	0.50"
Eu =	1.38"
V =	15 MPH

PR MAIN #1

CURVE 1-2	
Δ =	59°06'35"
Dc =	3°57'27"
R =	1448.02'
TS =	898.96'
LC =	1338.61'
LS =	155.00'
Ea =	2.50"
Eu =	1.93"
V =	40 MPH

PR MAIN #2

CURVE 2-2	
Δ =	59°06'35"
Dc =	4°00'00"
R =	1432.69'
TS =	907.96'
LC =	1287.80'
LS =	190.00'
Ea =	2.50"
Eu =	1.98"
V =	40 MPH

CELL TOWER ACCESS ROAD

CURVE DATA CELL-1	CURVE DATA CELL-2	CURVE DATA CELL-3
P.I. STA. = 11+55.62	P.I. STA. = 14+70.08	P.I. STA. = 17+23.44
Δ = 89° 59' 05" (RT)	Δ = 31° 36' 38" (LT)	Δ = 15° 35' 28" (RT)
D = 77° 21' 52"	D = 77° 21' 52"	D = 3° 20' 11"
R = 80.00'	R = 80.00'	R = 1,717.57'

PR CROSSOVER

CURVE X-2	
Δ =	4°55'46"
Dc =	2°00'00"
R =	2864.93'
TS =	173.32'
LC =	146.49'
LS =	100.00'
Ea =	0.50"
Eu =	1.74"
V =	40 MPH

PR MAIN #1

CURVE 1-1	
Δ =	59°12'20"
Dc =	4°00'00"
R =	1432.69
TS =	909.54'
LC =	1290.19'
LS =	190.00'
Ea =	2.50"
Eu =	1.98"
V =	40 MPH

PR MAIN #2

CURVE 2-1	
Δ =	59°18'35"
Dc =	3°57'27"
R =	1448.02'
TS =	902.30'
LC =	1343.66'
LS =	155.00'
Ea =	2.50"
Eu =	1.93"
V =	40 MPH

REFER TO SHEET 11 FOR ALIGNMENT COORDINATE DATA AND TURNOUT INFORMATION

△ XYZ : CONTROL POINT

FOR CONTROL POINT DATA SEE SHEET 12

0 400 800
HORIZONTAL SCALE: 1" = 400' FEET

Systems
1475 E WOODFIELD ROAD
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EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago International Airport

REVISIONS:			
MARK	DATE	DESCRIPTION	
	9/16/2011	ISSUED FOR BID	

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY: ESB
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:
ALIGNMENT, TIES AND BENCHMARKS

SHEET NO.
ATB-1

SHEET 9 OF 93

USER: 9/16/2011 - 5:34:05 PM - g:\chi05\006\mainfile\sheet\contract e-culvert\ATB-01.dgn

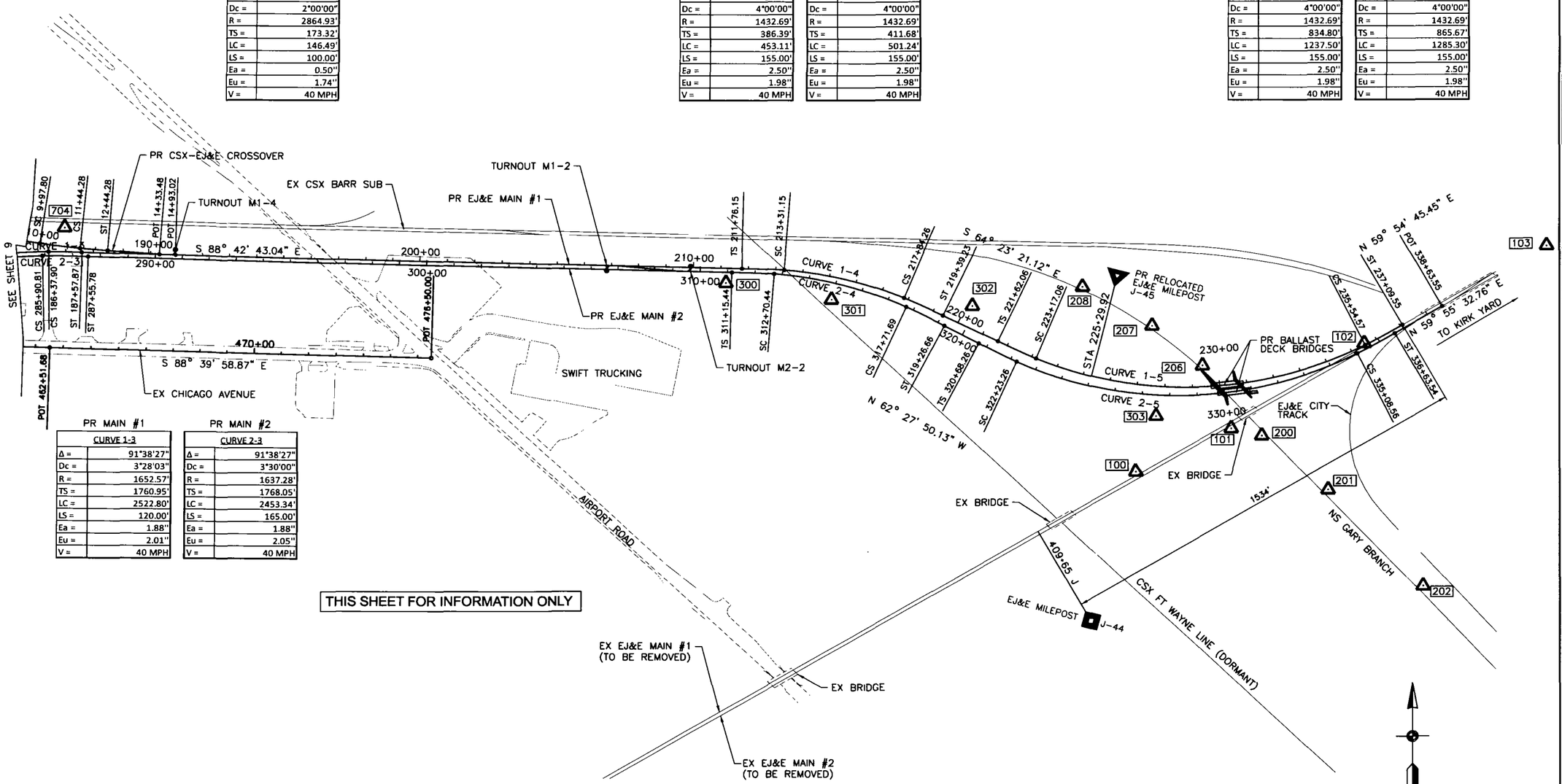
PR CROSSOVER	
CURVE X-2	
Δ =	4°55'46"
Dc =	2°00'00"
R =	2864.93'
TS =	173.32'
LC =	146.49'
LS =	100.00'
Ea =	0.50"
Eu =	1.74"
V =	40 MPH

PR MAIN #1	
CURVE 1-4	
Δ =	24°19'22"
Dc =	4°00'00"
R =	1432.69'
TS =	386.39'
LC =	453.11'
LS =	155.00'
Ea =	2.50"
Eu =	1.98"
V =	40 MPH

PR MAIN #2	
CURVE 2-4	
Δ =	26°14'53"
Dc =	4°00'00"
R =	1432.69'
TS =	411.68'
LC =	501.24'
LS =	155.00'
Ea =	2.50"
Eu =	1.98"
V =	40 MPH

PR MAIN #1	
CURVE 1-5	
Δ =	55°41'53"
Dc =	4°00'00"
R =	1432.69'
TS =	834.80'
LC =	1237.50'
LS =	155.00'
Ea =	2.50"
Eu =	1.98"
V =	40 MPH

PR MAIN #2	
CURVE 2-5	
Δ =	57°36'37"
Dc =	4°00'00"
R =	1432.69'
TS =	865.67'
LC =	1285.30'
LS =	155.00'
Ea =	2.50"
Eu =	1.98"
V =	40 MPH



PR MAIN #1	
CURVE 1-3	
Δ =	91°38'27"
Dc =	3°28'03"
R =	1652.57'
TS =	1760.95'
LC =	2522.80'
LS =	120.00'
Ea =	1.88"
Eu =	2.01"
V =	40 MPH

PR MAIN #2	
CURVE 2-3	
Δ =	91°38'27"
Dc =	3°30'00"
R =	1637.28'
TS =	1768.05'
LC =	2453.34'
LS =	165.00'
Ea =	1.88"
Eu =	2.05"
V =	40 MPH

THIS SHEET FOR INFORMATION ONLY

REFER TO SHEET 11 FOR ALIGNMENT COORDINATE DATA AND TURNOUT INFORMATION

△ XYZ : CONTROL POINT

FOR CONTROL POINT DATA SEE SHEET 12

Systems
1475 E WOODFIELD ROAD
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PHONE:847-605-9600
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EJ&E RAILWAY
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CHECKED BY: KKY

SHEET TITLE:

ALIGNMENT, TIES AND BENCHMARKS

SHEET NO.
ATB-2

USER: 9/15/2011 - 5:34:13 PM - g:\n50\p0064\mstn\sheets\contract s-culvert\ATB-02.dgn

HORIZONTAL TRACK DATA EJ&E MAINLINE #1				
CURVE NO.	POINT	STATION	NORTHING	EASTING
Curve 1-1	TS	116+36.15	2,319,551.20	2,859,836.65
	SC	118+26.15	2,319,741.10	2,859,831.60
	PI	125+18.85	2,320,432.07	2,859,782.60
	CS	131+16.34	2,320,822.79	2,859,210.61
	ST	133+06.32	2,320,922.89	2,859,049.19
Curve 1-2	TS	141+55.92	2,321,354.58	2,858,317.42
	SC	143+10.92	2,321,435.69	2,858,185.36
	PI	150+32.52	2,321,835.06	2,857,584.36
	CS	156+49.53	2,322,555.37	2,857,541.33
	ST	158+04.51	2,322,710.28	2,857,537.61
Curve 1-3	TS	159+95.10	2,322,900.87	2,857,536.44
	SC	161+15.10	2,323,020.86	2,857,537.15
	PI	176+96.56	2,324,601.60	2,857,584.83
	CS	186+37.90	2,324,623.45	2,859,166.14
	ST	187+57.87	2,324,622.20	2,859,286.09
Curve 1-4	TS	211+76.15	2,324,567.84	2,861,703.76
	SC	213+31.15	2,324,561.57	2,861,858.61
	PI	215+59.66	2,324,544.09	2,862,086.45
	CS	217+84.26	2,324,456.59	2,862,297.55
	ST	219+39.23	2,324,392.15	2,862,438.46
Curve 1-5	TS	221+62.06	2,324,295.83	2,862,639.40
	SC	223+17.06	2,324,231.37	2,862,780.34
	PI	229+77.54	2,323,978.49	2,863,390.49
	CS	235+54.57	2,324,278.22	2,863,979.04
	ST	237+09.55	2,324,353.48	2,864,114.50

HORIZONTAL TRACK DATA EJ&E MAINLINE #2				
CURVE NO.	POINT	STATION	NORTHING	EASTING
Curve 2-1	TS	216+52.49	2,319,566.95	2,859,850.06
	SC	218+07.49	2,319,721.90	2,859,846.88
	PI	225+32.25	2,320,445.51	2,859,806.19
	CS	231+51.16	2,320,846.62	2,859,202.55
	ST	233+06.14	2,320,927.73	2,859,070.51
Curve 2-2	TS	241+54.14	2,321,358.60	2,858,340.12
	SC	243+44.14	2,321,458.71	2,858,178.68
	PI	250+35.37	2,321,848.60	2,857,607.91
	CS	256+31.94	2,322,538.02	2,857,557.87
	ST	258+21.92	2,322,727.89	2,857,552.50
Curve 2-3	TS	259+72.46	2,322,878.42	2,857,551.58
	SC	261+37.46	2,323,043.40	2,857,553.33
	PI	276+60.70	2,324,565.15	2,857,620.69
	CS	285+90.81	2,324,607.64	2,859,143.34
	ST	287+55.78	2,324,606.70	2,859,308.29
Curve 2-4	TS	311+15.44	2,324,553.66	2,861,667.35
	SC	312+70.44	2,324,547.38	2,861,822.20
	PI	315+23.71	2,324,528.01	2,862,074.72
	CS	317+71.69	2,324,423.23	2,862,305.30
	ST	319+26.66	2,324,354.09	2,862,443.97
Curve 2-5	TS	320+68.26	2,324,288.63	2,862,569.52
	SC	322+23.26	2,324,219.47	2,862,708.22
	PI	329+12.95	2,323,934.15	2,863,336.12
	CS	335+08.56	2,324,247.00	2,863,950.78
	ST	336+63.54	2,324,322.22	2,864,086.26

HORIZONTAL TRACK DATA CSX-EJ&E CROSSOVER				
CURVE NO.	POINT	STATION	NORTHING	EASTING
Curve X-1	TS	3+54.84	2,324,740.66	2,858,497.87
	SC	4+54.84	2,324,732.75	2,858,597.56
	PI	5+26.71	2,324,726.22	2,858,669.13
	CS	5+98.55	2,324,716.12	2,858,740.29
	ST	6+98.55	2,324,700.91	2,858,839.12
Curve X-2	TS	8+97.80	2,324,669.46	2,859,035.88
	SC	9+97.80	2,324,654.25	2,859,134.72
	PI	10+71.06	2,324,643.95	2,859,207.25
	CS	11+44.28	2,324,637.37	2,859,280.22
	ST	12+44.28	2,324,629.55	2,859,379.91

HORIZONTAL TRACK DATA CAVANAUGH WYE, EAST BRANCH				
CURVE NO.	POINT	STATION	NORTHING	EASTING
Curve C-1	TS	4+61.43	2,320,078.85	2,858,707.02
	SC	4+92.43	2,320,081.50	2,858,737.91
	PI	17+06.71	2,320,210.96	2,859,945.27
	CS	16+39.79	2,320,944.33	2,858,977.46
	ST	16+70.79	2,320,962.51	2,858,952.35

NUMBER	PARENT TRACK	T.O. TOWARD	POINT OF SWITCH LOCATION			POINT OF INTERSECTION LOCATION			SIZE	HAND	TYPE
			STATION	NORTHING	EASTING	STATION	NORTHING	EASTING			
M1-1	EJ&E MAIN 1	EJ&E MAIN 2	137+31.51	2,321,138.91	2,858,682.96	137+72.60	2,321,159.79	2,858,647.57	15	RIGHT	POTO
M1-2	EJ&E MAIN 1	EJ&E MAIN 2	206+82.91	2,324,578.93	2,861,210.64	207+24.00	2,324,578.01	2,861,251.72	15	RIGHT	POTO
M2-1	EJ&E MAIN 2	EJ&E MAIN 1	240+54.17	2,321,307.78	2,858,426.22	240+13.08	2,321,286.90	2,858,461.61	15	RIGHT	POTO
M2-2	EJ&E MAIN 2	EJ&E MAIN 1	309+65.21	2,324,557.04	2,861,517.16	309+24.12	2,324,557.96	2,861,476.08	15	RIGHT	POTO
CSX-1	CSX MAIN 2	EJ&E MAIN 1	1+00.00	2,324,756.39	2,858,243.58	1+59.54	2,324,754.99	2,858,303.10	20	RIGHT	POTO
M1-3	EJ&E MAIN 1	CAVANAUGH E.	136+31.48	2,321,088.11	2,858,769.12	135+90.40	2,321,067.23	2,858,804.50	12	RIGHT	POTO
C-1	EJ&E CAVANAUGH	CAVANAUGH E.	1+00.00	2,320,055.32	2,858,346.48	1+41.08	2,320,054.96	2,858,387.56	12	LEFT	POTO
M1-4	EJ&E MAIN 1	CSX MAIN 2	191+00.00	2,324,614.51	2,859,628.14	190+40.46	2,324,615.85	2,859,568.61	20	RIGHT	POTO

ALL TURNOUTS TO FOLLOW CN SPECIFICATION 2113

Systems
1475 E WOODFIELD ROAD
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PHONE:847-605-9600
FAX:847-605-9610

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago International Airport

REVISIONS:		
MARK	DATE	DESCRIPTION
	9/16/2011	ISSUED FOR BID

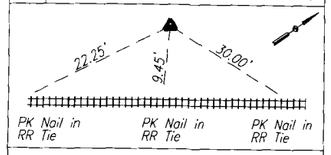
PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY: ESB
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:
ALIGNMENT, TIES AND BENCHMARKS

SHEET NO.
ATB-3

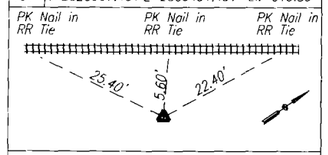
USER: g/19/2011 - 5:34:22 PM - g:\ch05\005006\mstr\sheets\cons\ed e-cu\mstr\ATB-03.dgn

100 N=2323807.014 E=2863143.324 El.=614.08



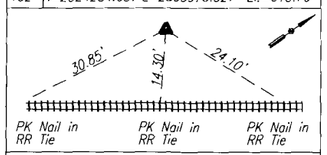
5/8" Rebar Set with DLZ Control Point Cap

101 N=2323967.481 E=2863491.451 El.=615.80



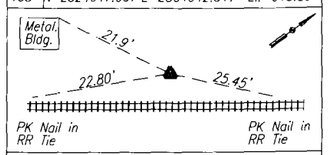
5/8" Rebar Set with DLZ Control Point Cap

102 N=2324284.637 E=2863975.527 El.=613.70



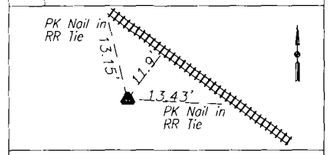
5/8" Rebar Set with DLZ Control Point Cap

103 N=2324647.607 E=2864642.317 El.=613.80



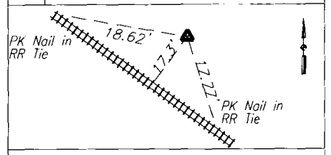
5/8" Rebar Set with DLZ Control Point Cap

200 N=2323940.658 E=2863603.695 El.=589.66



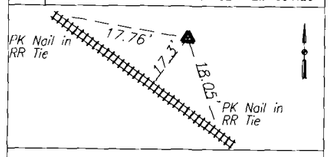
Rebar Set with DLZ Control Point Cap

201 N=2323738.408 E=2863843.829 El.=590.62



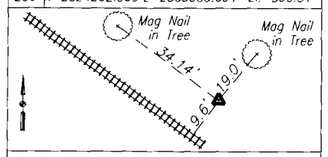
Rebar Set with DLZ Control Point Cap

202 N=2323377.461 E=2864187.825 El.=591.25



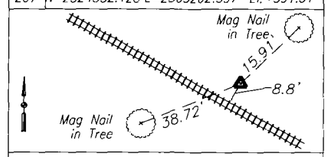
Rebar Set with DLZ Control Point Cap

206 N=2324202.999 E=2863385.694 El.=590.31



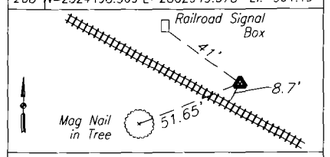
Railroad Spike Set with Punch Mark

207 N=2324352.128 E=2863202.397 El.=591.31



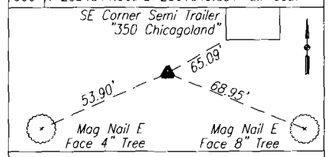
Railroad Spike Set with Punch Mark

208 N=2324498.569 E=2862949.378 El.=591.19



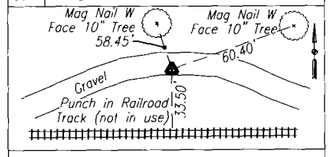
Mag Nail Set

300 N=2324514.369 E=2861645.891 El.=592.14



5/8" Rebar Set with DLZ Control Point Cap

301 N=2324451.231 E=2862032.989 El.=592.08



5/8" Rebar Set with DLZ Control Point Cap

302 N=2324428.089 E=2862545.578 El.=612.68

No References Available

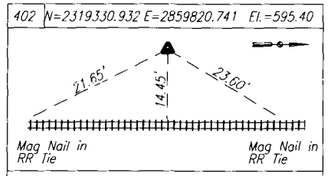
5/8" Rebar Set with DLZ Control Point Cap

303 N=2324014.656 E=2863217.412 El.=616.39

No References Available

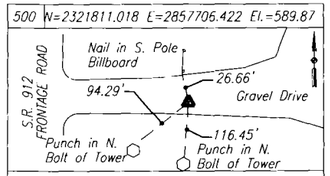
5/8" Rebar Set with DLZ Control Point Cap

402 N=2319330.932 E=2859820.741 El.=595.40



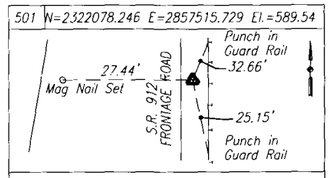
5/8" Rebar Set with Punch Mark

500 N=2321811.018 E=2857706.422 El.=589.87



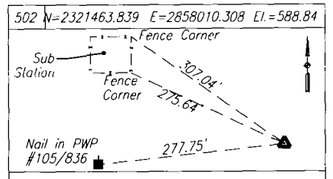
Mag Nail Set in Gravel Drive

501 N=2322078.246 E=2857515.729 El.=589.54



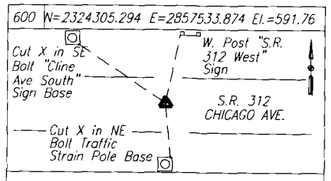
Mag Nail Set

502 N=2321463.839 E=2858010.308 El.=588.84



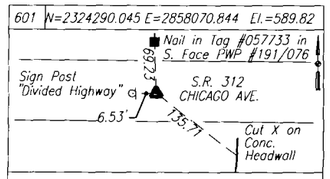
5/8" Rebar Set with DLZ Control Point Cap

600 N=2324305.294 E=2857533.874 El.=591.76



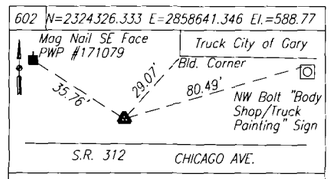
Mag Nail Set in S.R. 312 (Chicago Avenue) Median

601 N=2324290.045 E=2858070.844 El.=589.82



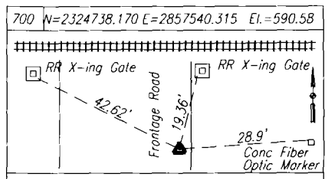
Cut Cross Set in S.R. 312 (Chicago Avenue) Concrete Median

602 N=2324326.333 E=2858641.346 El.=588.77



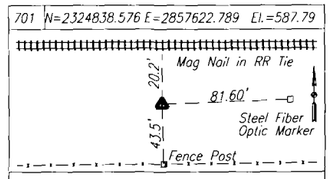
Mag Nail Set in Asphalt Parking Lot

700 N=2324738.170 E=2857540.315 El.=590.58



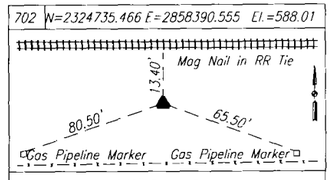
Mag Nail Set

701 N=2324838.576 E=2857622.789 El.=587.79



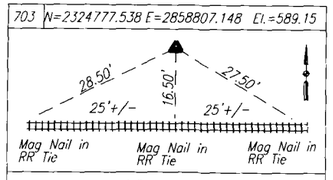
5/8" Rebar Set with DLZ Control Point Cap

702 N=2324735.466 E=2858390.555 El.=588.01



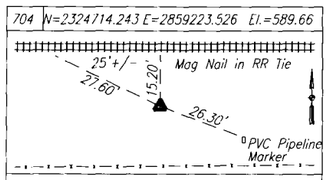
5/8" Rebar Set with DLZ Control Point Cap

703 N=2324777.538 E=2858807.148 El.=589.15



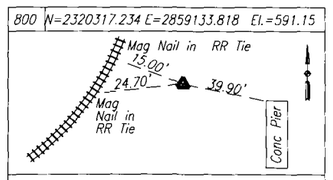
5/8" Rebar Set with DLZ Control Point Cap

704 N=2324714.243 E=2859223.526 El.=589.66



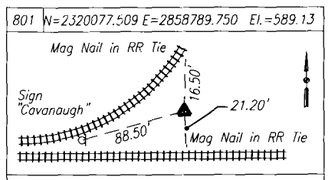
5/8" Rebar Set with DLZ Control Point Cap

800 N=2320317.234 E=2859133.818 El.=591.15



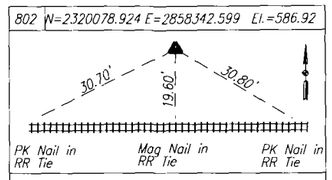
5/8" Rebar Set with DLZ Control Point Cap

801 N=2320077.509 E=2858789.750 El.=589.13



5/8" Rebar Set with DLZ Control Point Cap

802 N=2320078.924 E=2858342.599 El.=586.92



5/8" Rebar Set with DLZ Control Point Cap

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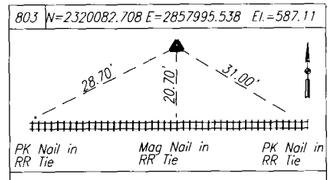
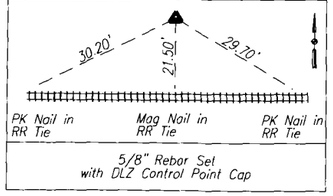


5/8" Rebar Set with DLZ Control Point Cap

804 N=2320090.007 E=2857620.139 El.=586.81



5/8" Rebar Set with DLZ Control Point Cap

Systems
1476 E WOODFIELD ROAD
SUITE 800
SCHAUMBURG, IL 60173
PHONE:847-605-9600
FAX:847-605-9610

E,J&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago International Airport

REVISIONS:			
MARK	DATE	DESCRIPTION	
	9/16/2011	ISSUED FOR BID	

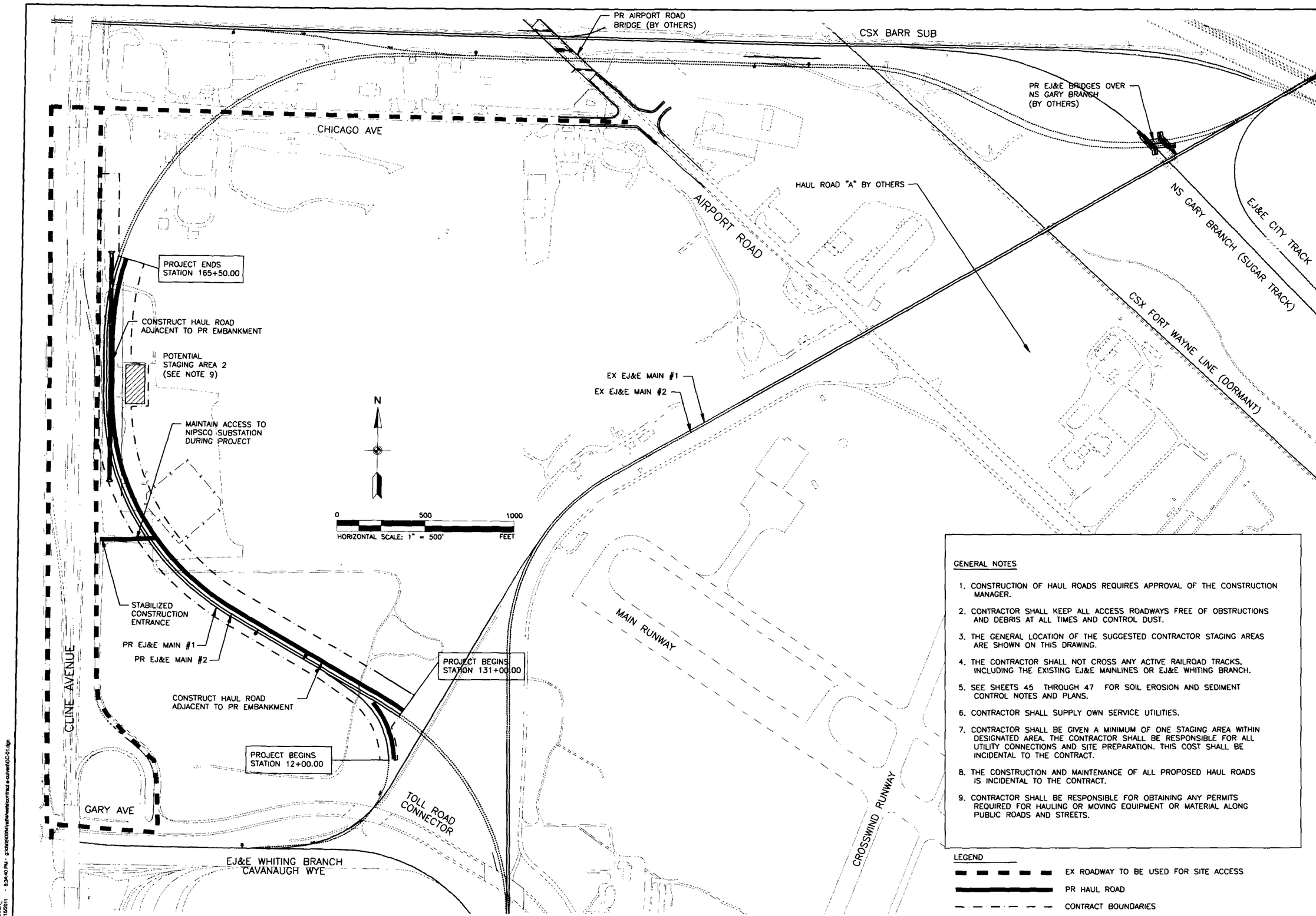
PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY: ESB
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:

ALIGNMENT, TIES AND BENCHMARKS

SHEET NO.
ATB-4

USER: 9/16/2011 - 5:34:28 PM - g:\chi\051006\drafting\acad\contract s-curves\ATB-04.dgn



GENERAL NOTES

1. CONSTRUCTION OF HAUL ROADS REQUIRES APPROVAL OF THE CONSTRUCTION MANAGER.
2. CONTRACTOR SHALL KEEP ALL ACCESS ROADWAYS FREE OF OBSTRUCTIONS AND DEBRIS AT ALL TIMES AND CONTROL DUST.
3. THE GENERAL LOCATION OF THE SUGGESTED CONTRACTOR STAGING AREAS ARE SHOWN ON THIS DRAWING.
4. THE CONTRACTOR SHALL NOT CROSS ANY ACTIVE RAILROAD TRACKS, INCLUDING THE EXISTING EJ&E MAINLINES OR EJ&E WHITING BRANCH.
5. SEE SHEETS 45 THROUGH 47 FOR SOIL EROSION AND SEDIMENT CONTROL NOTES AND PLANS.
6. CONTRACTOR SHALL SUPPLY OWN SERVICE UTILITIES.
7. CONTRACTOR SHALL BE GIVEN A MINIMUM OF ONE STAGING AREA WITHIN DESIGNATED AREA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL UTILITY CONNECTIONS AND SITE PREPARATION. THIS COST SHALL BE INCIDENTAL TO THE CONTRACT.
8. THE CONSTRUCTION AND MAINTENANCE OF ALL PROPOSED HAUL ROADS IS INCIDENTAL TO THE CONTRACT.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY PERMITS REQUIRED FOR HAULING OR MOVING EQUIPMENT OR MATERIAL ALONG PUBLIC ROADS AND STREETS.

LEGEND

- EX ROADWAY TO BE USED FOR SITE ACCESS
- PR HAUL ROAD
- CONTRACT BOUNDARIES

Systems
1475 E WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE:847-605-9600
FAX:847-605-9610

EJ&E RAILWAY RELOCATION PROJECT CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago International Airport

REVISIONS:		
MARK	DATE	DESCRIPTION
	9/16/2011	ISSUED FOR BID

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY: BJH
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:

CONSTRUCTION ACCESS PLAN

SHEET NO.
GC-01

SHEET 13 OF 93

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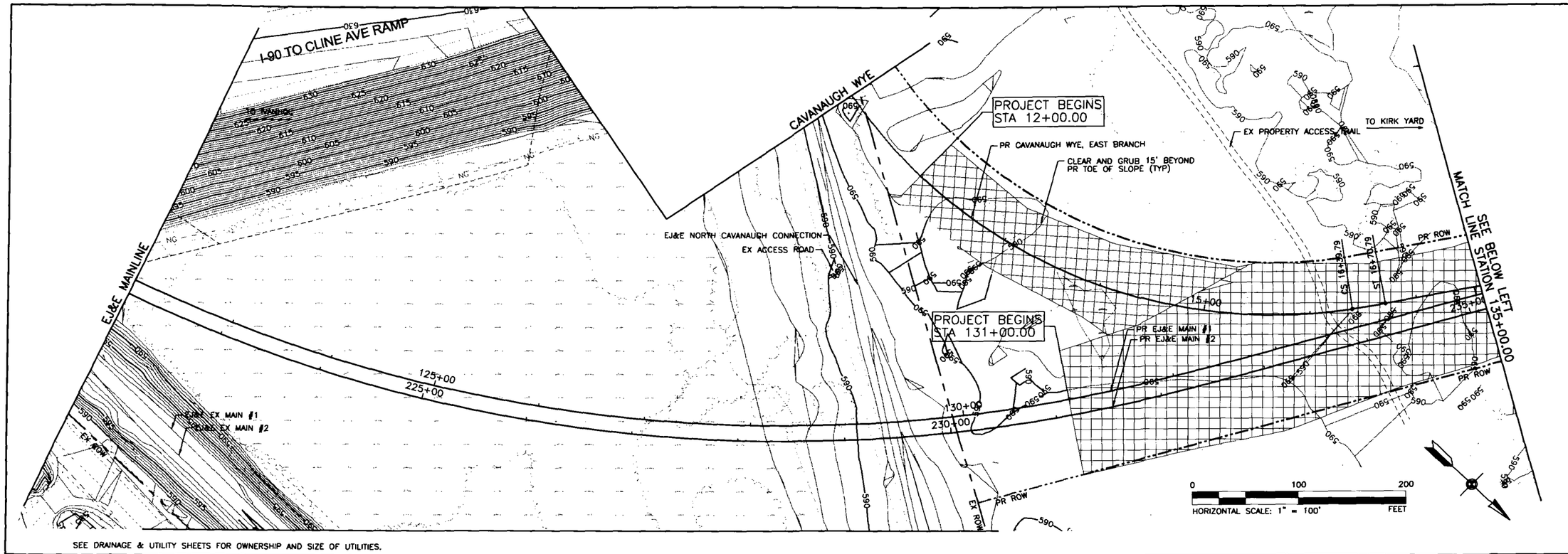
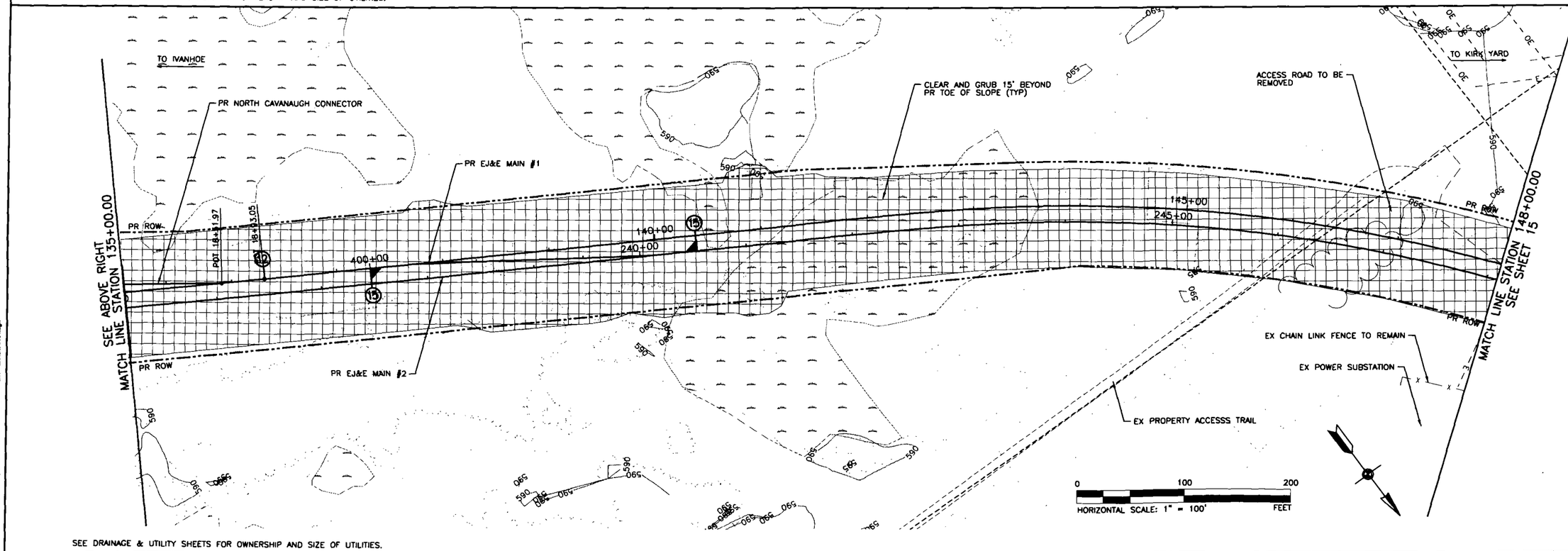
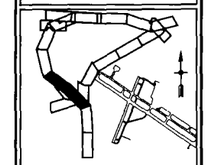


SEE DRAINAGE & UTILITY SHEETS FOR OWNERSHIP AND SIZE OF UTILITIES.



SEE DRAINAGE & UTILITY SHEETS FOR OWNERSHIP AND SIZE OF UTILITIES.

Systems
1475 E WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE:847-605-9600
FAX:847-605-9610



E,J&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL
AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago
International Airport

REVISIONS:		
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PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY: BJH
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:
EXISTING CONDITIONS AND REMOVAL PLAN EJ&E RAILROAD

SHEET NO.
R-03/04

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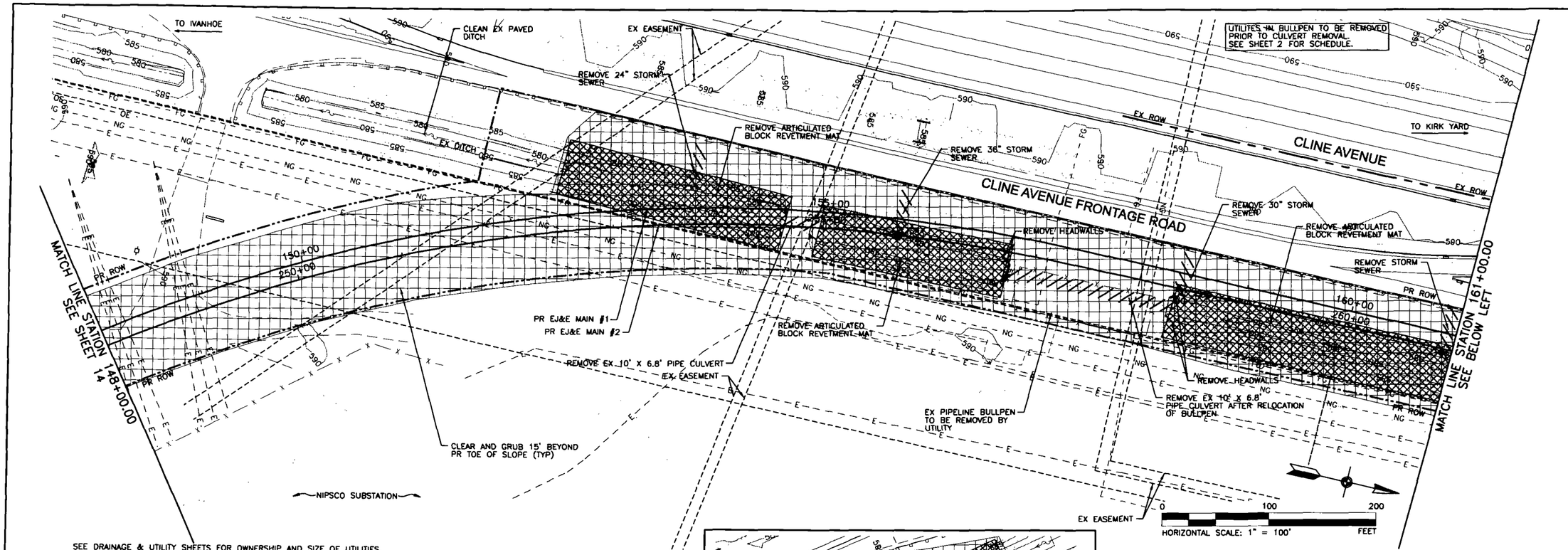

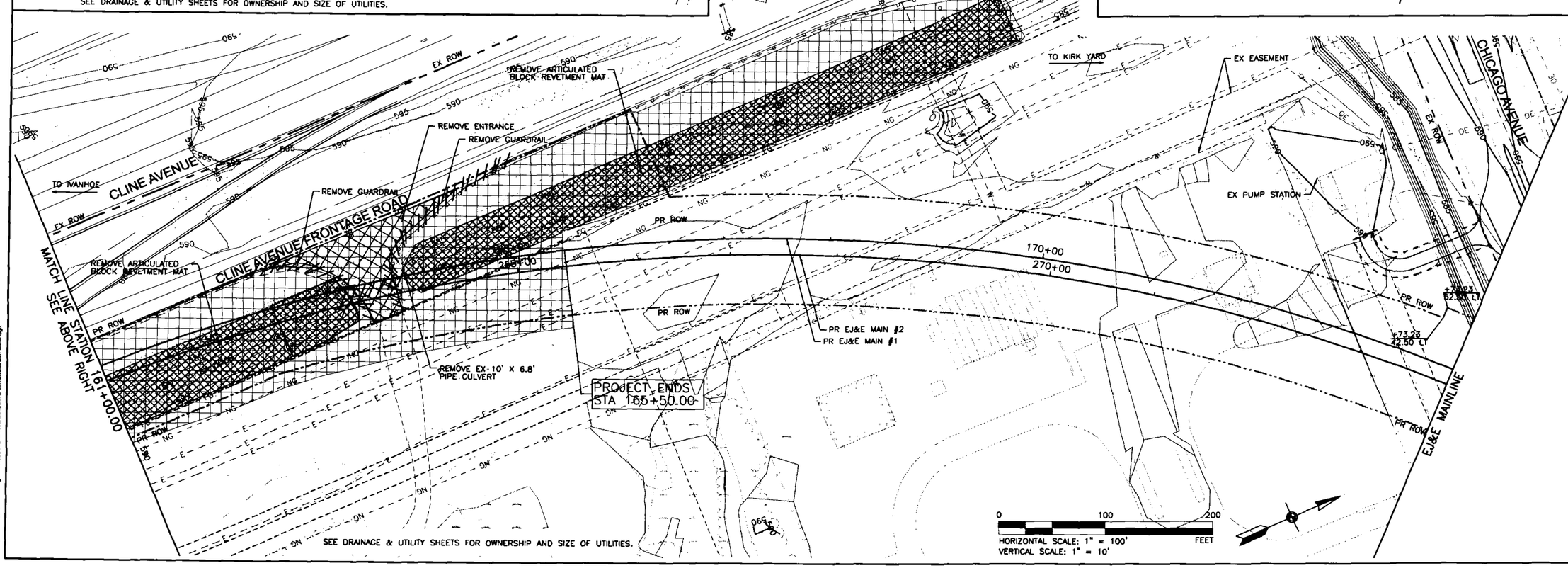

Systems
1475 E WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE:847-805-9600
FAX:847-605-9610

KEY PLAN

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL
AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago
International Airport

MARK	DATE	DESCRIPTION
REVISIONS:		
	9/16/2011	ISSUED FOR BID

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY: BJH
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:
EXISTING CONDITIONS AND REMOVAL PLAN EJ&E RAILROAD

SHEET NO.
R-05/06

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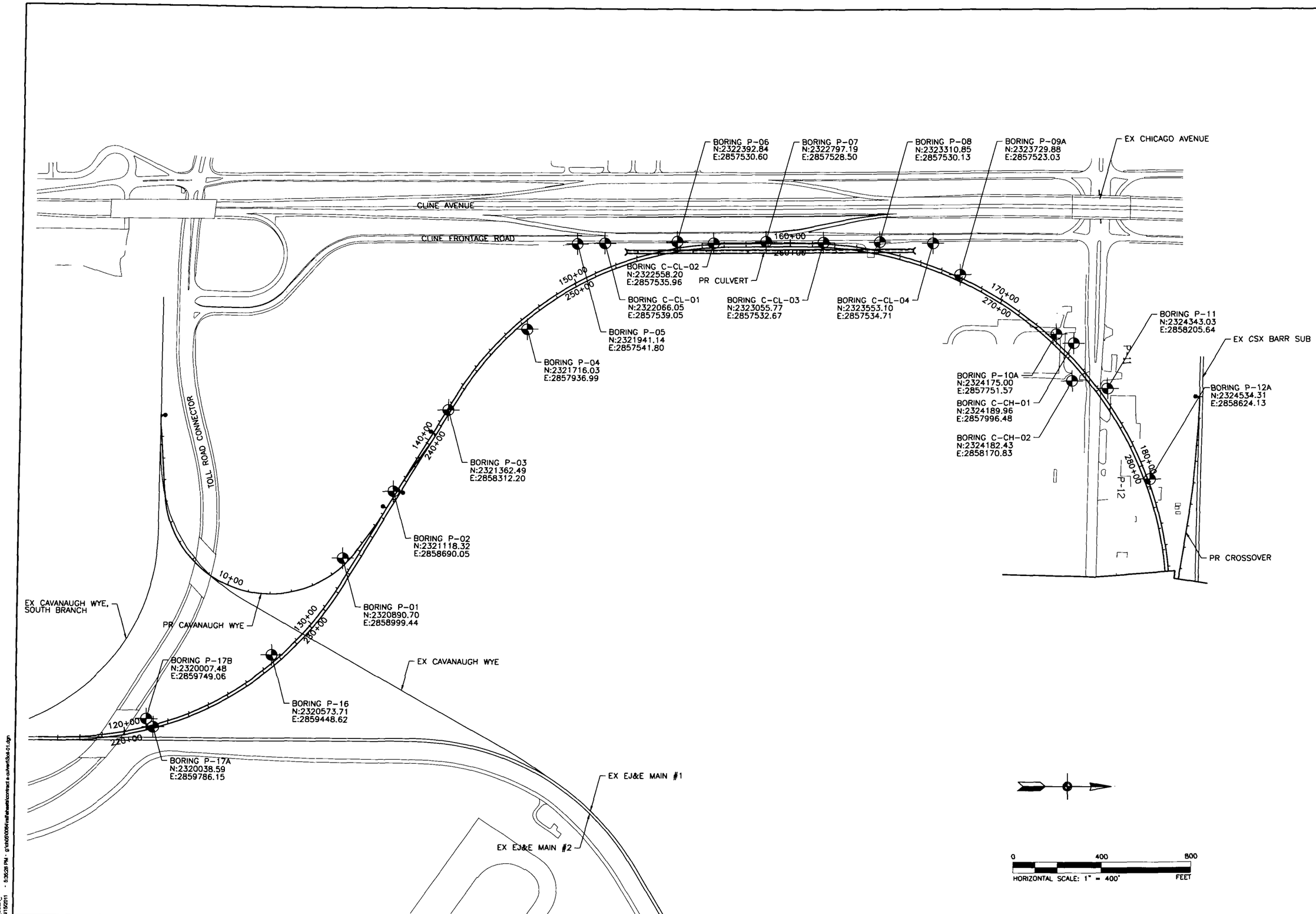

Systems
1475 E WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE:847-605-9600
FAX:847-605-9610

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL
AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago
International Airport

REVISIONS:		
MARK	DATE	DESCRIPTION
	9/16/2011	ISSUED FOR BID

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY: BJH
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:

SOIL BORING LOCATIONS

SHEET NO.
SL-01

SHEET 16 OF 93

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BORING LOG C-CH-01

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

WEI Job No.: 790-16-03
Client: TranSystems Corporation
Project: Gary Chicago Airport/ EJ&E Track Relocation
Location: Gary, Lake County, Indiana

Datum: NAV88
Elevation: 588.50 ft
North: 2324189.96 ft
East: 2857996.48 ft
Station: 173+86
Offset: 46.02 LT

Depth (ft)	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	587.9	7-inch thick, brown and black, LEAN CLAY with SILT (CL) --TOPSOIL--				
		Medium dense to dense, brown, fine to medium well-graded SAND (SW)	1	4 6 8	NP	6
5			2	4 6 7	NP	26
			3	4 6 9	NP	25
10			4	4 8 12	NP	28
	578.0	Medium dense to dense, gray, fine to medium, well-graded SAND (SW)	5	5 16 24	NP	26
15			6	8 16 25	NP	25
			7	6 7 8	NP	24
20			8	4 10 25	NP	25
25	563.5	Boring terminated at 25.00 ft	9	4 9 20	NP	25
			10	6 13 25	NP	26
30						
35						
40						

GENERAL NOTES

Begin Drilling: 03-09-2011 Complete Drilling: 03-09-2011
Drilling Contractor: K & S Engineers Drill Rig: Diedrich D-50
Driller: C & E Logger: F. Bozga Checked by: E. Datz
Drilling Method: 3.25 IDA HSA, Boring backfilled upon completion

WATER LEVEL DATA

While Drilling: 3.00 ft
At Completion of Drilling: 3.50 ft
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 790160 3.GPJ WANGENG.GDT 5/25/11

BORING LOG C-CH-02

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

WEI Job No.: 790-16-03
Client: TranSystems Corporation
Project: Gary Chicago Airport/ EJ&E Track Relocation
Location: Gary, Lake County, Indiana

Datum: NAV88
Elevation: 588.50 ft
North: 2324182.42 ft
East: 2858170.84 ft
Station: 175+11.25
Offset: 76.73 RT

Depth (ft)	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		18-inch thick GRAVELLY SAND --SURFACE AGGREGATE--				
	587.0	Medium dense, brown to gray, fine to medium, well-graded SAND (SW)	1	7 14 12	NP	11
			2	2 3 9	NP	28
			3	5 12 12	NP	18
10			4	6 9 10	NP	19
	578.0	Very dense, gray, fine poorly-graded SAND (SP)	5	14 27 31	NP	25
15			6	6 25 31	NP	22
	573.0	Medium dense, gray, fine, poorly-graded SAND (SP)	7	5 8 20	NP	23
20			8	5 6 20	NP	24
25	563.5	Boring terminated at 25.00 ft	9	5 8 20	NP	23
			10	5 6 10	NP	27
30						
35						
40						

GENERAL NOTES

Begin Drilling: 03-08-2011 Complete Drilling: 03-08-2011
Drilling Contractor: K & S Engineers Drill Rig: Diedrich D-50
Driller: C & E Logger: F. Bozga Checked by: E. Datz
Drilling Method: 3.25 IDA HSA, Boring backfilled upon completion

WATER LEVEL DATA

While Drilling: 5.00 ft
At Completion of Drilling: 4.00 ft
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 790160 3.GPJ WANGENG.GDT 5/25/11

Systems
1475 E WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE:847-605-9600
FAX:847-605-9610

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL
AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago
International Airport

MARK	DATE	DESCRIPTION
	9/16/2011	ISSUED FOR BID

REVISIONS:

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY:
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:
SOIL BORING LOGS

SHEET NO.
BR-01

USER: 6/15/2011 - 5:35:42 PM - g:\cch20\1004\raffel\sheets\contract a-culvert\borings.dgn

BORING LOG C-CL-01

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

WEI Job No.: 790-16-03
Client: TranSystems Corporation
Project: Gary Chicago Airport/ EJ&E Track Relocation
Location: Gary, Lake County, Indiana

Datum: NAV88
Elevation: 588.00 ft
North: 2322066.05 ft
East: 2857539.05 ft
Station: 151+89.06
Offset: 68.07 LT

Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
587.82	2-inch thick, black SILTY SAND (SM) --TOPSOIL--						
586.0	Gray GRAVEL and SAND --FILL--						
	Medium dense to very dense, brown to gray, fine, poorly-graded SAND (SP)		X	1	6 10 15	NP	9
		5	X	2	6 13 17	NP	7
			X	3	8 10 11	NP	21
		10	X	4	5 7 14	NP	27
			X	5	8 11 14	NP	32
		15	X	6	8 20 33	NP	30
			X	7	10 13 25	NP	30
		20	X	8	18 38 45	NP	28
567.5	Medium dense, gray, fine, poorly-graded SAND (SP)						
			X	9	4 5 5	NP	24
			X	10	5 5 13	NP	26
563.0	Boring terminated at 25.00 ft	25					
		30					
		35					
		40					

GENERAL NOTES

Begin Drilling: 03-10-2011 Complete Drilling: 03-10-2011
Drilling Contractor: K & S Engineers Drill Rig: Diedrich D-50
Driller: C & E Logger: F. Bozga Checked by: E. Datz
Drilling Method: 3.25 IDA HSA, Boring backfilled upon completion

WATER LEVEL DATA

While Drilling: 6.50 ft
At Completion of Drilling: 6.50 ft
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENG.GDT 5/25/11 WANGENG INC 7901603.GPJ

BORING LOG C-CL-02

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

WEI Job No.: 790-16-03
Client: TranSystems Corporation
Project: Gary Chicago Airport/ EJ&E Track Relocation
Location: Gary, Lake County, Indiana

Datum: NAV88
Elevation: 588.50 ft
North: 2322558.20 ft
East: 2857535.96 ft
Station: 156+54
Offset: 4.96 LT

Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	15-inch thick, GRAVELLY SAND						
587.3	--SURFACE AGGREGATE--						
	Medium dense, brown to gray, fine, poorly-graded SAND (SP)		X	1	6 10 15	NP	7
		5	X	2	6 13 17	NP	9
			X	3	8 10 11	NP	31
		10	X	4	5 7 14	NP	33
			X	5	8 11 14	NP	31
575.5	Medium dense to very dense, gray, fine, poorly-graded SAND (SP)						
		15	X	6	8 20 33	NP	25
			X	7	10 13 25	NP	33
		20	X	8	18 38 45	NP	31
			X	9	4 5 5	NP	28
			X	10	5 5 13	NP	25
563.5	Boring terminated at 25.00 ft	25					
		30					
		35					
		40					

GENERAL NOTES

Begin Drilling: 03-10-2011 Complete Drilling: 03-10-2011
Drilling Contractor: K & S Engineers Drill Rig: Diedrich D-50
Driller: C & E Logger: F. Bozga Checked by: E. Datz
Drilling Method: 3.25 IDA HSA, Boring backfilled upon completion

WATER LEVEL DATA

While Drilling: 5.50 ft
At Completion of Drilling: 6.00 ft
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENG.GDT 5/25/11 WANGENG INC 7901603.GPJ

Systems
1475 E WOODFIELD ROAD
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SCHAUMBURG, IL 60173
PHONE:847-605-9600
FAX:847-605-9610

EJ&E RAILWAY RELOCATION PROJECT CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA
GaryChicago International Airport

MARK	DATE	DESCRIPTION
	9/16/2011	ISSUED FOR BID

REVISIONS:

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY:
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:
SOIL BORING LOGS

SHEET NO.
BR-02

USER: sv1 5/25/11 - 5:35:50 PM - g:\cad\2002\railway\railway\contract 6-culvert\Borings.dgn

BORING LOG C-CL-03

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

WEI Job No.: 790-16-03
Client: TranSystems Corporation
Project: Gary Chicago Airport/ EJ&E Track Relocation
Location: Gary, Lake County, Indiana

Datum: NAV88
Elevation: 588.50 ft
North: 2323055.77 ft
East: 2857532.67 ft
Station: 161+51.21
Offset: 5.09 LT

Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
588	32-inch thick, black SILTY SAND --TOPSOIL--						
	Medium dense, brown to gray, fine, poorly-graded SAND (SP)		X	1	7 10 13	NP	9
			X	2	7 10 13	NP	14
		5	X	3	7 10 16	NP	24
			X	4	8 13 15	NP	18
		10	X	5	9 12 15	NP	28
575.5	Medium dense to dense, gray, fine, poorly-graded SAND (SP)		X	6	8 15 19	NP	28
		15	X	7	8 10 21	NP	28
			X	8	4 7 15	NP	28
		20	X	9	9 16 30	NP	35
			X	10	9 13 18	NP	26
563.5	Boring terminated at 25.00 ft	25					

GENERAL NOTES

Begin Drilling: 03-10-2011 Complete Drilling: 03-10-2011
Drilling Contractor: K & S Engineers Drill Rig: Diedrich D-50
Driller: C & E Logger: F. Bozga Checked by: E. Datz
Drilling Method: 3.25 IDA HSA, Boring backfilled upon completion

WATER LEVEL DATA

While Drilling: 5.50 ft
At Completion of Drilling: 5.50 ft
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

BORING LOG C-CL-04

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

WEI Job No.: 790-16-03
Client: TranSystems Corporation
Project: Gary Chicago Airport/ EJ&E Track Relocation
Location: Gary, Lake County, Indiana

Datum: NAV88
Elevation: 589.50 ft
North: 2323553.10 ft
East: 2857534.71 ft
Station: 166+27.07
Offset: 96.72 LT

Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	18-inch thick, GRAVELLY SAND --SURFACE AGGREGATE--						
588.0	Medium dense, brown to gray fine poorly-graded SAND (SP)		X	1	7 9 14	NP	7
			X	2	6 9 10	NP	6
		5	X	3	7 6 7	NP	26
			X	4	6 9 12	NP	26
		10	X	5	8 17 20	NP	27
			X	6	4 7 15	NP	27
		15	X	7	6 16 20	NP	33
571.5	Very dense, gray, fine poorly-graded SAND (SP)		X	8	12 28 45	NP	27
		20					
569.0	Medium dense, gray, fine poorly-graded SAND (SP)		X	9	5 7 17	NP	33
		25	X	10	6 14 17	NP	25
564.5	Boring terminated at 25.00 ft						

GENERAL NOTES

Begin Drilling: 03-10-2011 Complete Drilling: 03-10-2011
Drilling Contractor: K & S Engineers Drill Rig: Diedrich D-50
Driller: K & K Logger: F. Bozga Checked by: E. Datz
Drilling Method: 3.25 IDA HSA, Boring backfilled upon completion

WATER LEVEL DATA

While Drilling: 5.50 ft
At Completion of Drilling: 5.50 ft
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

TranSystems
1475 E WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE:847-605-9500
FAX:847-605-9610

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago International Airport

REVISIONS: MARK	DATE	DESCRIPTION
	9/16/2011	ISSUED FOR BID

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY:
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:
SOIL BORING LOGS

SHEET NO.
BR-03

WANGENG.CDT 5/25/11 WANGENG INC 790160J.CPJ
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BORING LOG P-01

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

WEI Job No.: 790-16-03
Client: TranSystems Corporation
Project: Gary Chicago Airport/ EJ&E Track Relocation
Location: Gary, Lake County, Indiana

Datum: NAV88
Elevation: 589.50 ft
North: 2320890.74 ft
East: 2858999.33 ft
Station: 133+32.49
Offset: 21.76 LT

Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
589.24	4-inch thick, gray SILTY SAND (SM) --TOPSOIL--		1	1 2 3 3	NP	
	Loose, brown, fine, poorly-graded SAND (SP) --% Sand = 98.9%-- --% Silt and Clay = 1.1%--		2	2 3 4 3	NP	
		5	3	1 2 3 5	NP	
583.5	Loose to medium dense, gray SILTY SAND (SM), with shell fragments and organic matter		4	1 4 6 6	NP	
		10	5	3 3 4 5	NP	
577.5	Boring terminated at 12.00 ft		6	3 6 6 9	NP	
		15				
		20				

GENERAL NOTES

Begin Drilling 04-13-2006 Complete Drilling 04-13-2006
Drilling Contractor Precon Drill Rig CME75
Driller J&A Logger K. Jacob Checked by E. Datz
Drilling Method 3.25 IDA HSA, Boring backfilled upon completion

WATER LEVEL DATA

While Drilling ▽ 3.00 ft
At Completion of Drilling ▼ 4.50 ft
Time After Drilling NA
Depth to Water ▽ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

BORING LOG P-02

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

WEI Job No.: 790-16-03
Client: TranSystems Corporation
Project: Gary Chicago Airport/ EJ&E Track Relocation
Location: Gary, Lake County, Indiana

Datum: NAV88
Elevation: 589.50 ft
North: 2321118.36 ft
East: 2858689.94 ft
Station: 137+15.71
Offset: 3.79 RT

Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	Medium dense, black SILTY SAND (SM) --TOPSOIL--		1	3 6 7 7	NP	
588.5	Loose to medium dense, brown, fine, poorly-graded SAND (SP)		2	3 4 4 4	NP	
585.5	Loose to medium dense, gray, fine SILTY SAND (SM), with shell fragments and organic matter	5	3	2 4 4 4	NP	
			4	3 4 6 7	NP	
579.5	Boring terminated at 10.00 ft	10	5	2 5 7 13	NP	
		15				
		20				

GENERAL NOTES

Begin Drilling 04-13-2006 Complete Drilling 04-13-2006
Drilling Contractor Precon Drill Rig CME75
Driller J&A Logger K. Jacob Checked by E. Datz
Drilling Method 3.25 IDA HSA, Boring backfilled upon completion

WATER LEVEL DATA

While Drilling ▽ 5.00 ft
At Completion of Drilling ▼ 5.00 ft
Time After Drilling NA
Depth to Water ▽ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

TranSystems
1475 E WOODFIELD ROAD
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PHONE:847-605-9600
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EJ&E RAILWAY RELOCATION PROJECT CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA
GaryChicago International Airport

REVISIONS:			
MARK	DATE	DESCRIPTION	
	9/16/2011	ISSUED FOR BID	

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY:
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:
SOIL BORING LOGS

SHEET NO.
BR-04
SHEET 20 OF 93

WANGENGINC 790160 3.GPJ WANGENG.GDT 5/25/11
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BORING LOG P-03

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

WEI Job No.: 790-16-03

Client: TranSystems Corporation
Project: Gary Chicago Airport/ EJ&E Track Relocation
Location: Gary, Lake County, Indiana

Datum: NAV88
Elevation: 588.50 ft
North: 2321362.53 ft
East: 2858312.09 ft
Station: 141+65.58
Offset: 6.49 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		Medium dense, black SILTY SAND (SM), with strong odor			1	3 5 5 6	NP	
	586.8	Loose to medium dense, gray, fine, poorly-graded SAND (SP) to SILTY SAND (SM), with strong odor --% Sand = 98.1%-- --% Silt and Clay = 1.9%--			2	4 4 5 5	NP	
			5		3	3 3 4 5	NP	
					4	3 4 6 9	NP	
	578.5		10		5	4 5 9 13	NP	
		Boring terminated at 10.00 ft						
			15					
			20					

GENERAL NOTES

Begin Drilling 04-13-2006 Complete Drilling 04-13-2006
Drilling Contractor Precon Drill Rig CME75
Driller J&A Logger K. Jacob Checked by E. Datz
Drilling Method 3.25 IDA HSA, Boring backfilled upon completion

WATER LEVEL DATA

While Drilling ▽ 4.00 ft
At Completion of Drilling ▼ 6.00 ft
Time After Drilling NA
Depth to Water ▽ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

BORING LOG P-04

wangeng@wangeng.com
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Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

WEI Job No.: 790-16-03

Client: TranSystems Corporation
Project: Gary Chicago Airport/ EJ&E Track Relocation
Location: Gary, Lake County, Indiana

Datum: NAV88
Elevation: 589.50 ft
North: 2321716.07 ft
East: 2857936.88 ft
Station: 146+90.46
Offset: 48.88 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		Loose brown SILTY SAND (SM) --TOPSOIL--			1	1 3 6 6	NP	11
	588.5	Medium dense, brown, fine, poorly-graded SAND (SP)			2	12 11 10 11	NP	20
			5		3	5 8 11 12	NP	29
					4	3 7 8 9	NP	31
	579.5		10		5	1 3 7 9	NP	30
		Boring terminated at 10.00 ft						
			15					
			20					

GENERAL NOTES

Begin Drilling 04-04-2006 Complete Drilling 04-04-2006
Drilling Contractor Precon Drill Rig CME75
Driller J&R Logger K. Jacob Checked by E. Datz
Drilling Method 3.25 IDA HSA, Boring backfilled upon completion

WATER LEVEL DATA

While Drilling ▽ 4.00 ft
At Completion of Drilling ▼ 7.50 ft
Time After Drilling NA
Depth to Water ▽ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

TranSystems
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EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago International Airport

REVISIONS:		
MARK	DATE	DESCRIPTION
	9/16/2011	ISSUED FOR BID

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY:
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:
SOIL BORING LOGS

SHEET NO.
BR-05

WANGENGINC P901603.GPJ WANGENG.GDT 5/25/11
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BORING LOG P-05

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

WEI Job No.: 790-16-03

Client: TranSystems Corporation
Project: Gary Chicago Airport/ EJ&E Track Relocation
Location: Gary, Lake County, Indiana

Datum: NAV88
Elevation: 588.50 ft
North: 2321941.18 ft
East: 2857541.69 ft
Station: 150+83.48
Offset: 156+83 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	587.9	7-inch thick ASPHALT --PAVEMENT--						
	587.4	4-inch thick CRUSHED STONE --AGGREGATE BASE--						
		Medium dense, brown, fine, poorly-graded SAND (SP)			1	3 7 7 8	NP	10
					2	4 5 8 13	NP	5
			5		3	3 9 11 10	NP	22
					4	3 6 8 7	NP	29
			10		5	3 5 6 8	NP	24
	577.5	Boring terminated at 11.00 ft						
			15					
			20					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)

GENERAL NOTES

Begin Drilling 04-04-2006 Complete Drilling 04-04-2006
Drilling Contractor Precon Drill Rig CME75
Driller J&R Logger K. Jacob Checked by E. Datz
Drilling Method 3.25 IDA HSA, Boring backfilled upon completion

WATER LEVEL DATA

While Drilling ▽ 7.00 ft
At Completion of Drilling ▼ 8.50 ft
Time After Drilling NA
Depth to Water ▽ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

BORING LOG P-06

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WEI Job No.: 790-16-03

Client: TranSystems Corporation
Project: Gary Chicago Airport/ EJ&E Track Relocation
Location: Gary, Lake County, Indiana

Datum: NAV88
Elevation: 588.00 ft
North: 2322392.88 ft
East: 2857530.49 ft
Station: 154+92.15
Offset: 28.70 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	587.4	6-inch thick ASPHALT --PAVEMENT--						
	586.9	7-inch thick CRUSHED STONE --AGGREGATE BASE--						
		Medium dense, brown, fine, poorly-graded SAND (SP)			1	6 10 10 10	NP	5
					2	3 7 6 6	NP	6
			5		3	2 5 5 7	NP	23
					4	3 3 4 7	NP	31
			10		5	1 2 3 7	NP	27
	577.0	Boring terminated at 11.00 ft						
			15					
			20					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)

GENERAL NOTES

Begin Drilling 04-04-2006 Complete Drilling 04-04-2006
Drilling Contractor Precon Drill Rig CME75
Driller J&R Logger K. Jacob Checked by E. Datz
Drilling Method 3.25 IDA HSA, Boring backfilled upon completion

WATER LEVEL DATA

While Drilling ▽ 6.50 ft
At Completion of Drilling ▼ 8.50 ft
Time After Drilling NA
Depth to Water ▽ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

TranSystems
1475 E WOODFIELD ROAD
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EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL
AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago
International Airport

REVISIONS: MARK	DATE	DESCRIPTION
	9/16/2011	ISSUED FOR BID

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY:
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:
SOIL BORING LOGS

SHEET NO.
BR-06

WANGENG INC 7901603.CPJ WANGENG.GDT 5/25/11
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BORING LOG P-07

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

WEI Job No.: 790-16-03

Client: TranSystems Corporation
Project: Gary Chicago Airport/ EJ&E Track Relocation
Location: Gary, Lake County, Indiana

Datum: NAV88
Elevation: 588.50 ft
North: 2322797.23 ft
East: 2857528.39 ft
Station: 158+92.87
Offset: 8.20 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	588.0	6-inch thick ASPHALT --PAVEMENT--						
	587.5	6-inch thick CRUSHED STONE --AGGREGATE BASE--						
		Loose to medium dense, brown, fine, poorly-graded SAND (SP)			1	6 8 10 9	NP	10
					2	6 8 11 13	NP	6
			5		3	3 6 6 8	NP	23
					4	2 4 4 5	NP	32
			10		5	3 7 10 14	NP	29
	577.5	Boring terminated at 11.00 ft						
			15					
			20					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)

GENERAL NOTES

Begin Drilling 04-04-2006 Complete Drilling 04-04-2006
Drilling Contractor Precon Drill Rig CME75
Driller J&R Logger K. Jacob Checked by E. Datz
Drilling Method 3.25 IDA HSA, Boring backfilled upon completion

WATER LEVEL DATA

While Drilling ▽ 6.50 ft
At Completion of Drilling ▼ 8.00 ft
Time After Drilling NA
Depth to Water ▽ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

BORING LOG P-08

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WEI Job No.: 790-16-03

Client: TranSystems Corporation
Project: Gary Chicago Airport/ EJ&E Track Relocation
Location: Gary, Lake County, Indiana

Datum: NAV88
Elevation: 589.50 ft
North: 2323310.89 ft
East: 2857530.02 ft
Station: 164+01.15
Offset: 37.96 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		13-inch thick ASPHALT --PAVEMENT--						
	588.4	Medium dense, brown, fine, poorly-graded SAND (SP)			1	4 9 12 12	NP	7
					2	3 10 11 13	NP	8
			5		3	3 6 11 13	NP	22
					4	3 5 5 7	NP	30
			10		5	3 6 8 10	NP	28
	578.5	Boring terminated at 11.00 ft						
			15					
			20					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)

GENERAL NOTES

Begin Drilling 04-04-2006 Complete Drilling 04-04-2006
Drilling Contractor Precon Drill Rig CME75
Driller J&R Logger K. Jacob Checked by E. Datz
Drilling Method 3.25 IDA HSA, Boring backfilled upon completion

WATER LEVEL DATA

While Drilling ▽ 6.50 ft
At Completion of Drilling ▼ 8.00 ft
Time After Drilling NA
Depth to Water ▽ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

TranSystems
1475 E WOODFIELD ROAD
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EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago International Airport

REVISIONS:			
MARK	DATE	DESCRIPTION	
	9/16/2011	ISSUED FOR BID	

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY:
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:
SOIL BORING LOGS

SHEET NO.
BR-07

WANGENG INC 790160 3.CPJ WANGENG.GDT 5/25/11
WANGENG INC 790160 3.CPJ WANGENG.GDT 5/25/11
USER: 9/16/2011 - 5:35:10 PM - g:\chi\05\0064\rail\sheets\contract s-culvert\Borings.dgn

BORING LOG P-09A

wangeng@wangeng.com
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Lombard, IL 60148
Telephone: 630 953-9928
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WEI Job No.: 790-16-03
Client: TranSystems Corporation
Project: Gary Chicago Airport/ EJ&E Track Relocation
Location: Gary, Lake County, Indiana

Datum: NAV88
Elevation: 587.50 ft
North: 2323676.06 ft
East: 2857680.26 ft
Station: 167+90.29
Offset: 7.49 LT

Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
587.5	32-inch thick, brown SANDY SILT (ML) --TOPSOIL--					
	Medium dense to dense, brown to gray, fine, poorly-graded SAND (SP)		1	4 5 10 13	NP	10
			2	13 16 16 20	NP	8
		5	3	6 14 17 19	NP	23
			4	5 9 15 15	NP	24
577.5		10	5	7 12 14 20	NP	27
	Boring terminated at 10.00 ft					
		15				
		20				

Sample Type / recovery

GENERAL NOTES

Begin Drilling: 03-09-2011 Complete Drilling: 03-09-2011
Drilling Contractor: K & S Engineers Drill Rig: Diedrich D-50
Driller: C & E Logger: F. Bozga Checked by: E. Datz
Drilling Method: 3.25 IDA HSA, Boring backfilled upon completion

WATER LEVEL DATA

While Drilling: 5.00 ft
At Completion of Drilling: 6.00 ft
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENG.GDT 5/25/11 WANGENG 7901603.GPJ

BORING LOG P-10A

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WEI Job No.: 790-16-03
Client: TranSystems Corporation
Project: Gary Chicago Airport/ EJ&E Track Relocation
Location: Gary, Lake County, Indiana

Datum: NAV88
Elevation: 588.50 ft
North: 2324110.67 ft
East: 2857954.28 ft
Station: 173+01.47
Offset: 21.06 LT

Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
588.0	6-inch thick, dark brown SILTY CLAY (CL-ML) --TOPSOIL--					
	Medium dense to dense, brown, fine, poorly-graded SAND (SP)		1	4 6 8	NP	8
			2	10 13 11	NP	24
		5	3	3 5 5	NP	25
			4	10 20 21	NP	23
578.5		10	5	6 9 15	NP	21
	Boring terminated at 10.00 ft					
		15				
		20				

Sample Type / recovery

GENERAL NOTES

Begin Drilling: 03-09-2011 Complete Drilling: 03-09-2011
Drilling Contractor: K & S Engineers Drill Rig: Diedrich D-50
Driller: C & E Logger: F. Bozga Checked by: E. Datz
Drilling Method: 3.25 IDA HSA, Boring backfilled upon completion

WATER LEVEL DATA

While Drilling: 3.00 ft
At Completion of Drilling: 3.50 ft
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENG.GDT 5/25/11 WANGENG 7901603.GPJ

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FAX:847-605-0610

EJ&E RAILWAY RELOCATION PROJECT CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago International Airport

MARK	DATE	DESCRIPTION
REVISIONS:	9/16/2011	ISSUED FOR BID

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY:
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:
SOIL BORING LOGS

SHEET NO.
BR-08

USER: 9/16/2011 - 5:36:13 PM - g:\2005\2005\Final\Meets\contract s-culvert\Borings.dgn

BORING LOG P-11

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1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
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WEI Job No.: 790-16-03
Client: TranSystems Corporation
Project: Gary Chicago Airport/ EJ&E Track Relocation
Location: Gary, Lake County, Indiana

Datum: NAV88
Elevation: 589.50 ft
North: 2324343.07 ft
East: 2858205.53 ft
Station: 176+39.01
Offset: 29.14 LT

Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
589.2	3.5-inch thick, brown SANDY LEAN CLAY (CL) --TOPSOIL--		1	7 8 9 5	NP	10
587.5	Medium dense, black and gray SILTY SAND (SM) --FILL--		2	4 3 1 1	NP	9
586.0	Loose, brown, fine, poorly-graded SAND (SP)					
585.5	Brown ORGANIC SILT with plant matter (OL)		3	3 4 5 6	NP	23
	Loose to medium dense, brown and gray, fine, poorly-graded SAND (SP)	5	4	2 2 3 3	NP	26
			5	3 7 10 11	NP	22
579.5	Boring terminated at 10.00 ft	10				
		15				
		20				

Profile | Sample Type / recovery | Profile | Elevation (ft) | SOIL AND ROCK DESCRIPTION | Depth (ft) | Sample No. | SPT Values (blw/6 in) | Qu (tsf) | Moisture Content (%)

GENERAL NOTES

Begin Drilling: 04-04-2006 Complete Drilling: 04-04-2006
Drilling Contractor: Precon Drill Rig: CME75
Driller: J&R Logger: K. Jacob Checked by: E. Datz
Drilling Method: 3.25 IDA HSA, Boring backfilled upon completion

WATER LEVEL DATA

While Drilling: 4.00 ft
At Completion of Drilling: 6.50 ft
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENG.GDT 5/25/11 WANGENG.GDT 5/25/11 WANGENG INC 7901603.GPJ

BORING LOG P-12A

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Telephone: 630 953-9928
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WEI Job No.: 790-16-03
Client: TranSystems Corporation
Project: Gary Chicago Airport/ EJ&E Track Relocation
Location: Gary, Lake County, Indiana

Datum: NAV88
Elevation: 585.50 ft
North: 2324534.31 ft
East: 2858624.13 ft
Station: 180+95.23
Offset: 5.00 LT

Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
585.0	6-inch thick, dark brown SILTY CLAY (CL-ML) --TOPSOIL--		1	6 6 9 13	NP	16
	Medium dense, brown, fine, poorly-graded SAND (SP)		2	5 6 10 13	NP	25
		5	3	3 5 6 7	NP	26
			4	3 4 7 10	NP	26
			5	3 5 8 13	NP	25
575.5	Boring terminated at 10.00 ft	10				
		15				
		20				

Profile | Sample Type / recovery | Profile | Elevation (ft) | SOIL AND ROCK DESCRIPTION | Depth (ft) | Sample No. | SPT Values (blw/6 in) | Qu (tsf) | Moisture Content (%)

GENERAL NOTES

Begin Drilling: 03-09-2011 Complete Drilling: 03-09-2011
Drilling Contractor: K & S Engineers Drill Rig: Diedrich D-50
Driller: C & E Logger: F. Bozga Checked by: E. Datz
Drilling Method: 3.25 IDA HSA, Boring backfilled upon completion

WATER LEVEL DATA

While Drilling: 3.00 ft
At Completion of Drilling: 3.50 ft
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENG.GDT 5/25/11 WANGENG.GDT 5/25/11 WANGENG INC 7901603.GPJ

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EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA
GaryChicago International Airport

REVISIONS:			
MARK	DATE	DESCRIPTION	
	9/16/2011	ISSUED FOR BID	

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY:
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:
SOIL BORING LOGS

SHEET NO.
BR-09
SHEET 25 OF 93

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BORING LOG P-16

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

WEI Job No.: 790-16-03
Client: TranSystems Corporation
Project: Gary Chicago Airport/ EJ&E Track Relocation
Location: Gary, Lake County, Indiana

Datum: NAV88
Elevation: 586.50 ft
North: 2320573.71 ft
East: 2859448.62 ft
Station: 127+78.61
Offset: 5.01 LT

Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	20-inch thick, black SILTY SAND (SM) --TOPSOIL--			1	PUSH	NP	31
584.8	Brown, fine, poorly-graded SAND (SP)			2	PUSH	NP	21
		5		3	PUSH	NP	21
579.0	Gray, fine, poorly-graded SAND (SP)			4	PUSH	NP	19
				5	PUSH	NP	25
		10		6	PUSH	NP	26
				7	PUSH	NP	25
		15		8	PUSH	NP	25
570.5	Boring terminated at 10.00 ft						
		20					

GENERAL NOTES

Begin Drilling: 04-01-2011 Complete Drilling: 04-01-2011
Drilling Contractor: Wang Testing Service Drill Rig: Hand Auger
Driller: F & N Logger: F. Bozga Checked by: E. Datz
Drilling Method: Pneumatic Hand Auger and Geoprobe Sampler

WATER LEVEL DATA

While Drilling: 0.00 ft
At Completion of Drilling: 0.00 ft
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 790160 3.GPJ WANGENG.GDT 5/25/11

BORING LOG P17A

wangeng@wangeng.com
1145 N Main Street
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Telephone: 630 953-9928
Fax: 630 953-9938

WEI Job No.: 790-16-03
Client: TranSystems Corporation
Project: Gary Chicago Airport/ EJ&E Track Relocation
Location: Gary, Lake County, Indiana

Datum: NAV88
Elevation: 589.50 ft
North: 2320038.59 ft
East: 2859786.15 ft
Station: 121+42.30
Offset: 10.72 RT

Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
589.33	33-inch thick, black SANDY CLAY LOAM --TOPSOIL--			1	PUSH	NP	19
	Brown, fine, poorly-graded SAND			2	PUSH	NP	22
		5		3	PUSH	NP	22
				4	PUSH	NP	21
				5	PUSH	NP	19
		10		6	PUSH	NP	19
577.5	Gray, fine, poorly-graded SAND			7	PUSH	NP	24
		15		8	PUSH	NP	24
573.5	Boring terminated at 16.00 ft						
		20					

GENERAL NOTES

Begin Drilling: 03-31-2011 Complete Drilling: 03-31-2011
Drilling Contractor: Wang Testing Service Drill Rig: Hand Auger
Driller: F & N Logger: F. Bozga Checked by: E. Datz
Drilling Method: Pneumatic Hand Auger and Geoprobe Sampler

WATER LEVEL DATA

While Drilling: 4.00 ft
At Completion of Drilling: 4.00 ft
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 790160 3.GPJ WANGENG.GDT 5/25/11

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FAX:847-605-9610

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT
GARY, INDIANA

GaryChicago International Airport

REVISIONS:		
MARK	DATE	DESCRIPTION
	9/16/2011	ISSUED FOR BID

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY:
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:
SOIL BORING LOGS

SHEET NO.
BR-10

USER: 9/19/2011 - 5:38:20 PM - g:\chi\05\006\final\shaw\contract a-culvert\borings.dgn

BORING LOG P17B

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

WEI Job No.: 790-16-03

Client: TranSystems Corporation
Project: Gary Chicago Airport/ EJ&E Track Relocation
Location: Gary, Lake County, Indiana

Datum: NAV88
Elevation: 608.50 ft
North: 2320007.48 ft
East: 2859749.06 ft
Station: 121+23.87
Offset: 34.09 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	608.0	6-inch thick, black SANDY CLAY LOAM --TOPSOIL--			1	PUSH	NP	25
		Brown to dark brown, fine, poorly-graded SAND --FILL			2	PUSH	NP	9
			5		3	PUSH	NP	6
					4	PUSH	NP	12
					5	PUSH	NP	10
	598.5		10					
		Black to brown, fine, poorly-graded SAND (SP) --SAMPER REFUSAL with SLAG-- --FILL--			6	PUSH	NP	15
	597.5	Boring terminated at 11.00 ft						
			15					
			20					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)

GENERAL NOTES

Begin Drilling 03-31-2011 Complete Drilling 03-31-2011
Drilling Contractor Wang Testing Service Drill Rig Hand Auger
Driller F & N Logger F. Bozga Checked by E. Datz
Drilling Method Pneumatic Hand Auger and Geoprobe Sampler

WATER LEVEL DATA

While Drilling ▽ DRY
At Completion of Drilling ▼ DRY
Time After Drilling NA
Depth to Water ▽ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC P01603.GPJ WANGENG.GDT 5/25/11

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TranSystems
1475 E WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE:847-605-9600
FAX:847-605-9610

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL
AIRPORT AUTHORITY
GARY, INDIANA

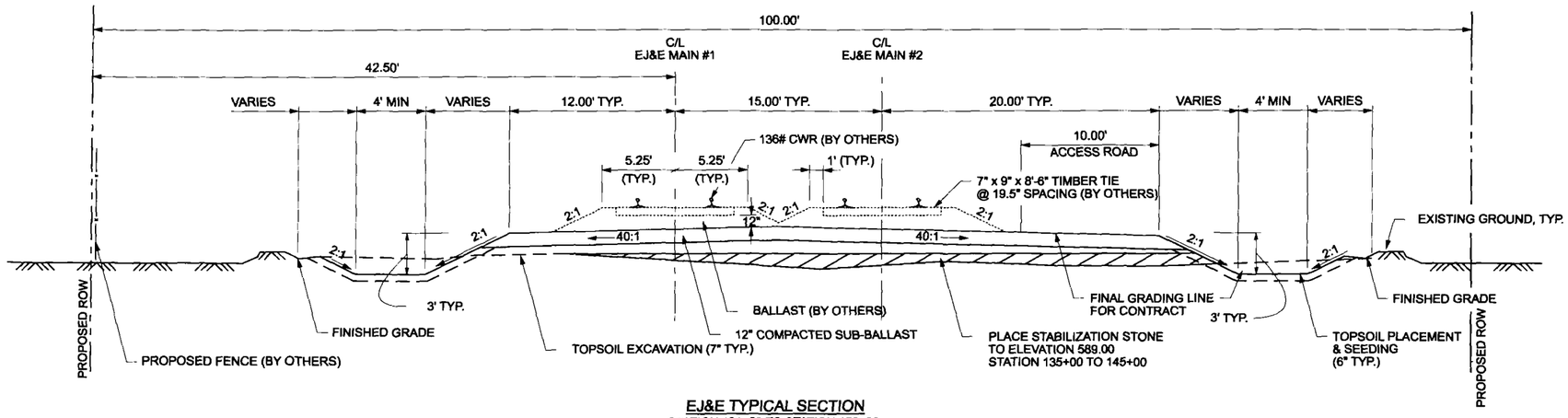
GaryChicago
International Airport

REVISIONS:		
MARK	DATE	DESCRIPTION
	9/16/2011	ISSUED FOR BID

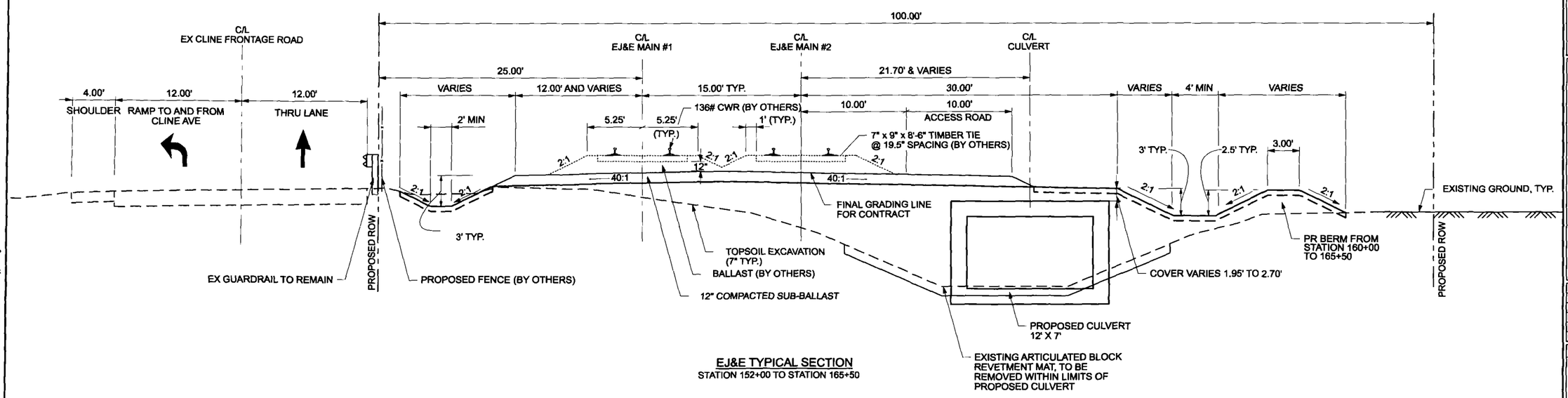
PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY:
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:
SOIL BORING LOGS

SHEET NO.
BR-11



EJ&E TYPICAL SECTION
STATION 131+00 TO STATION 152+00



EJ&E TYPICAL SECTION
STATION 152+00 TO STATION 165+50

IF THIS DRAWING IS LESS THAN 22" X 34" IT IS A REDUCED SIZE DRAWING

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Systems
1475 EAST WOODFIELD ROAD
SUITE 600
SCHAUMBURG IL, 60173
MAIN: 847-605-9600
FAX: 847-605-6610

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL
AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago
International Airport

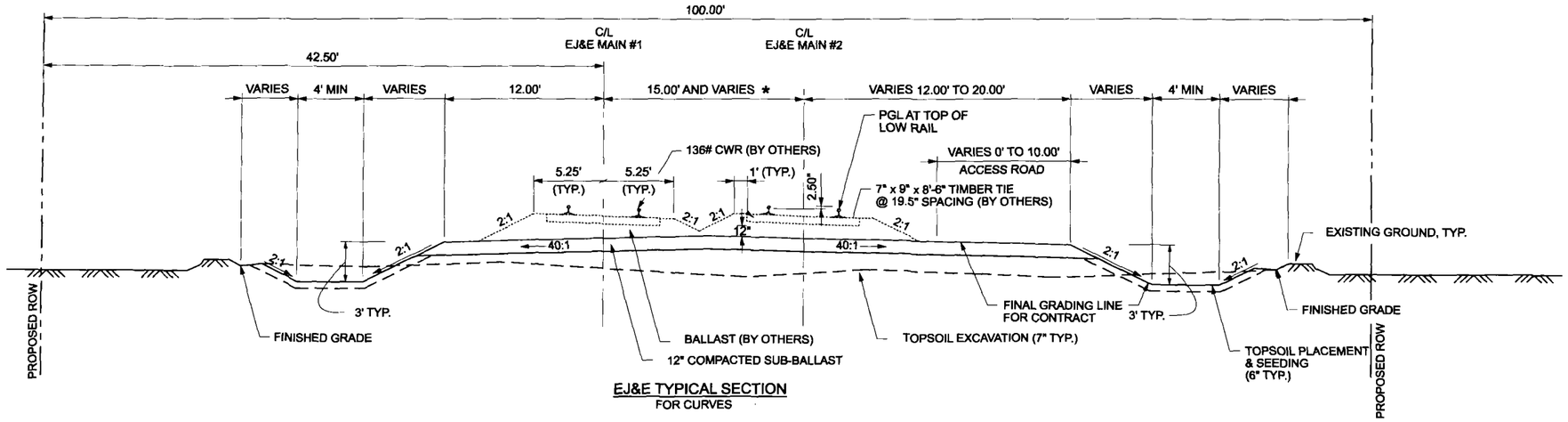
REVISIONS:			
MARK	DATE	DESCRIPTION	
	9/16/2011	ISSUED FOR BID	

PROJ NO: P401050064
SCALE: NTS
DATE: 9/16/2011
DESIGNED BY: ESB
DRAWN BY: BJH
CHECKED BY: KYY

SHEET TITLE:
TYPICAL SECTIONS

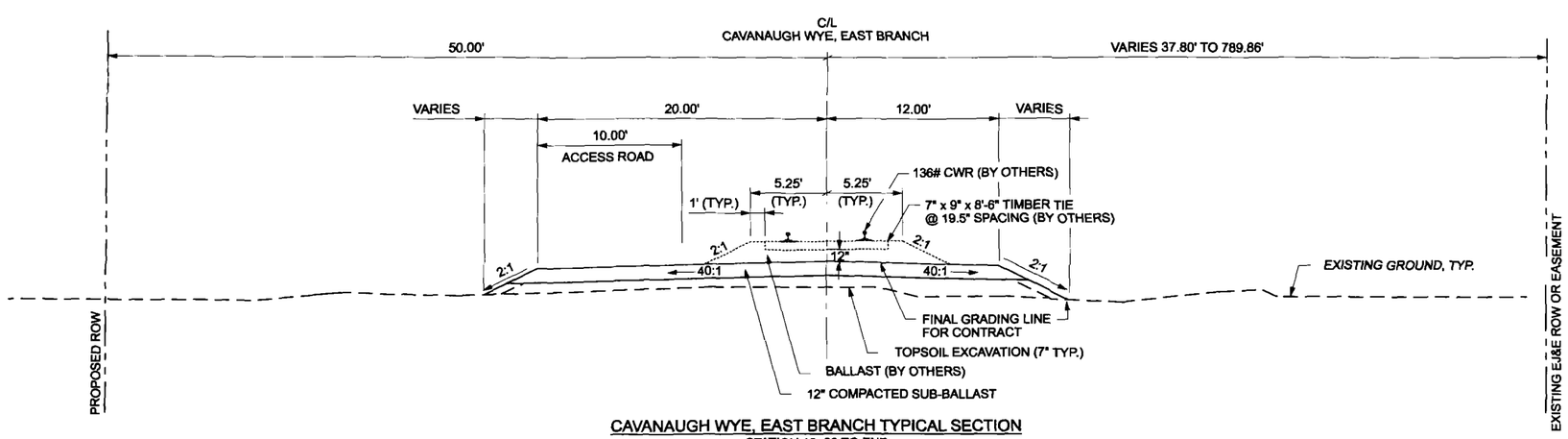
SHEET NO.
TYP-1

SHEET 28 OF 93



EJ&E TYPICAL SECTION
FOR CURVES

* 1" ADDED FOR EACH DEGREE OF CURVE



CAVANAUGH WYE, EAST BRANCH TYPICAL SECTION
STATION 12+00 TO END

IF THIS DRAWING IS LESS THAN 22" X 34" IT IS A REDUCED SIZE DRAWING

Systems
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EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL
AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago
International Airport

REVISIONS:

MARK	DATE	DESCRIPTION
	9/16/2011	ISSUED FOR BID

PROJ NO: P401050064
SCALE: NTS
DATE: 9/16/2011
DESIGNED BY: ESB
DRAWN BY: BJH
CHECKED BY: KYY

SHEET TITLE:

TYPICAL
SECTIONS

SHEET NO.
TYP-2

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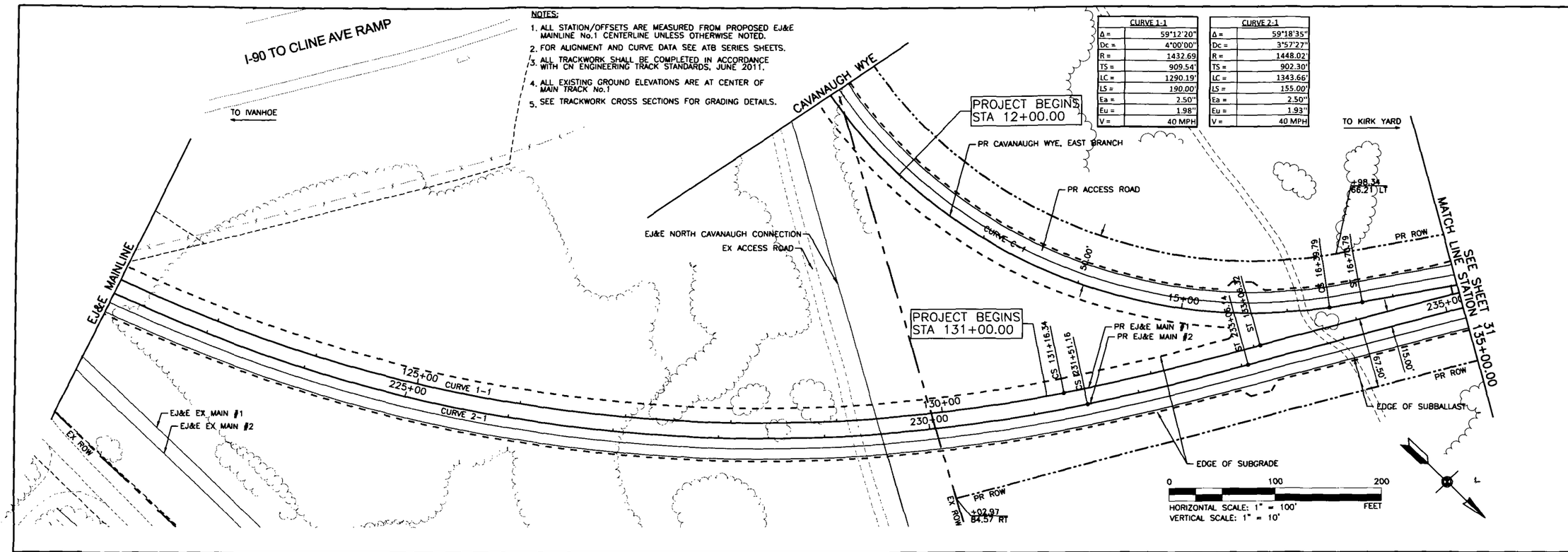
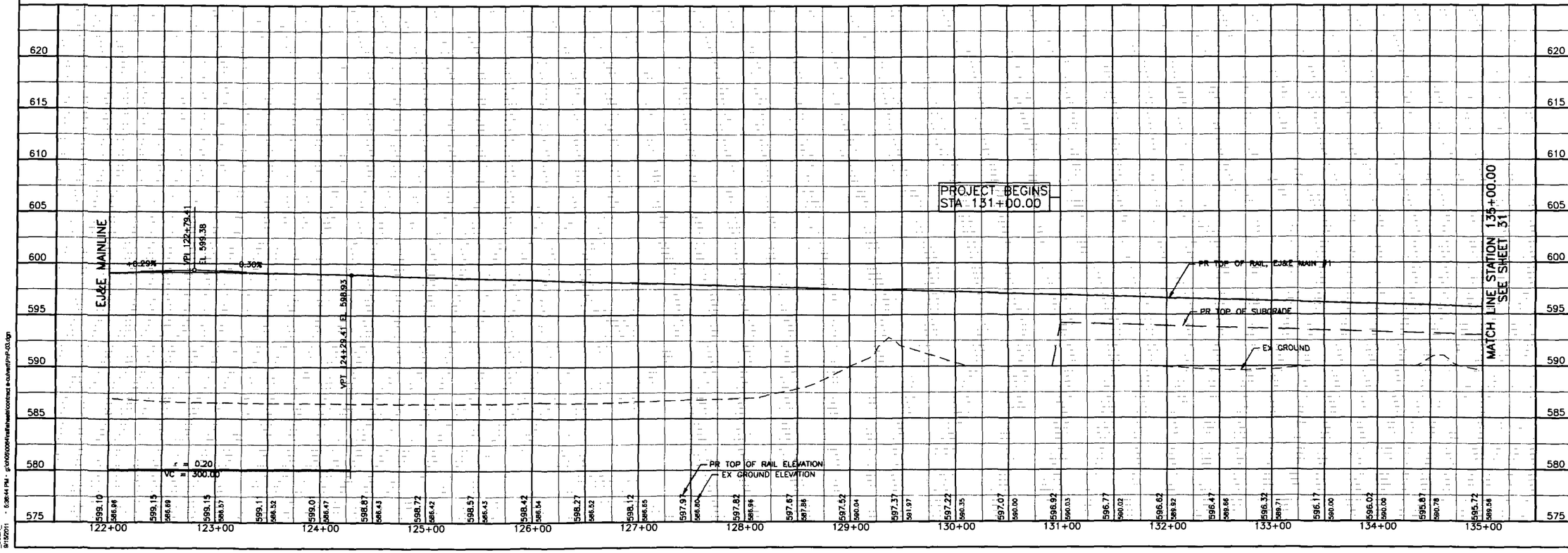
NOTES:

1. ALL STATION/OFFSETS ARE MEASURED FROM PROPOSED EJ&E MAINLINE No.1 CENTERLINE UNLESS OTHERWISE NOTED.
2. FOR ALIGNMENT AND CURVE DATA SEE ATB SERIES SHEETS.
3. ALL TRACKWORK SHALL BE COMPLETED IN ACCORDANCE WITH CN ENGINEERING TRACK STANDARDS, JUNE 2011.
4. ALL EXISTING GROUND ELEVATIONS ARE AT CENTER OF MAIN TRACK No.1
5. SEE TRACKWORK CROSS SECTIONS FOR GRADING DETAILS.

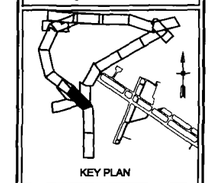
CURVE 1-1	
Δ =	59°12'20"
Dc =	4°00'00"
R =	1432.69
TS =	909.54'
LC =	1290.19'
LS =	190.00'
Ea =	2.50"
Eu =	1.98"
V =	40 MPH

CURVE 2-1	
Δ =	59°18'35"
Dc =	3°57'27"
R =	1448.02'
TS =	902.30'
LC =	1343.66'
LS =	155.00'
Ea =	2.50"
Eu =	1.93"
V =	40 MPH





Systems
1475 E WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE:847-605-9800
FAX:847-605-9810



EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago International Airport

REVISIONS:		
MARK	DATE	DESCRIPTION
	9/16/2011	ISSUED FOR BID

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY: ESB
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:

PLAN AND PROFILE EJ&E RAILROAD

SHEET NO.
P-03

SHEET 30 OF 93

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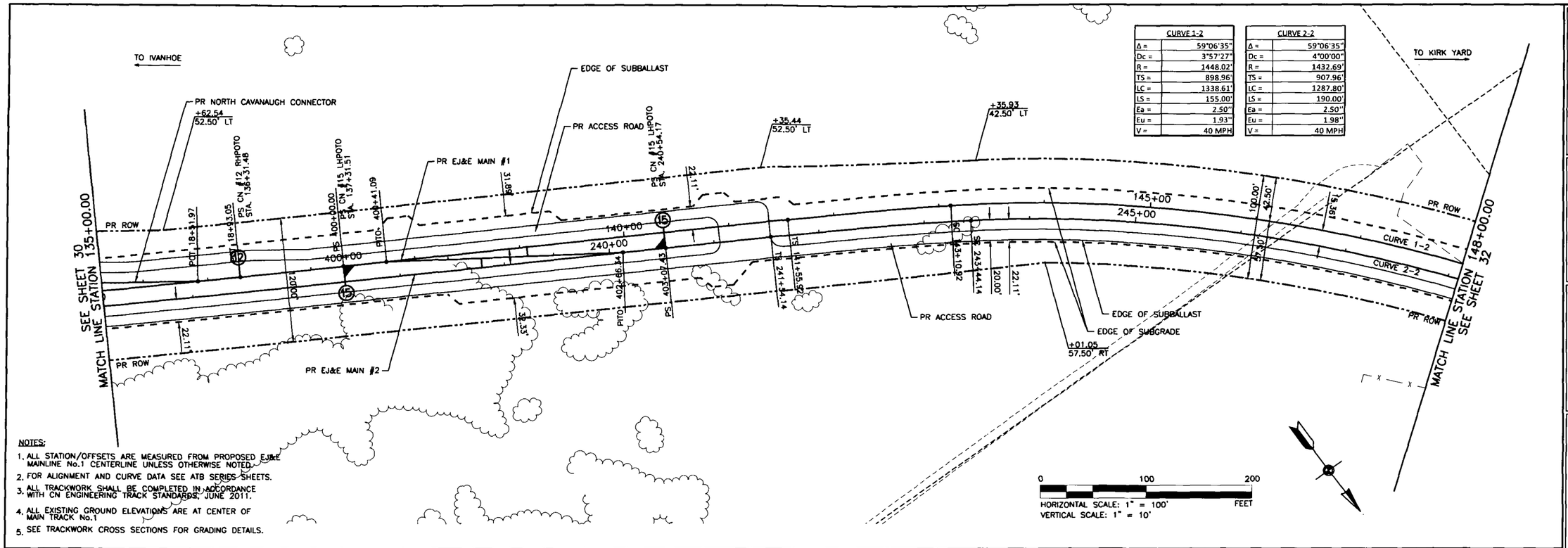
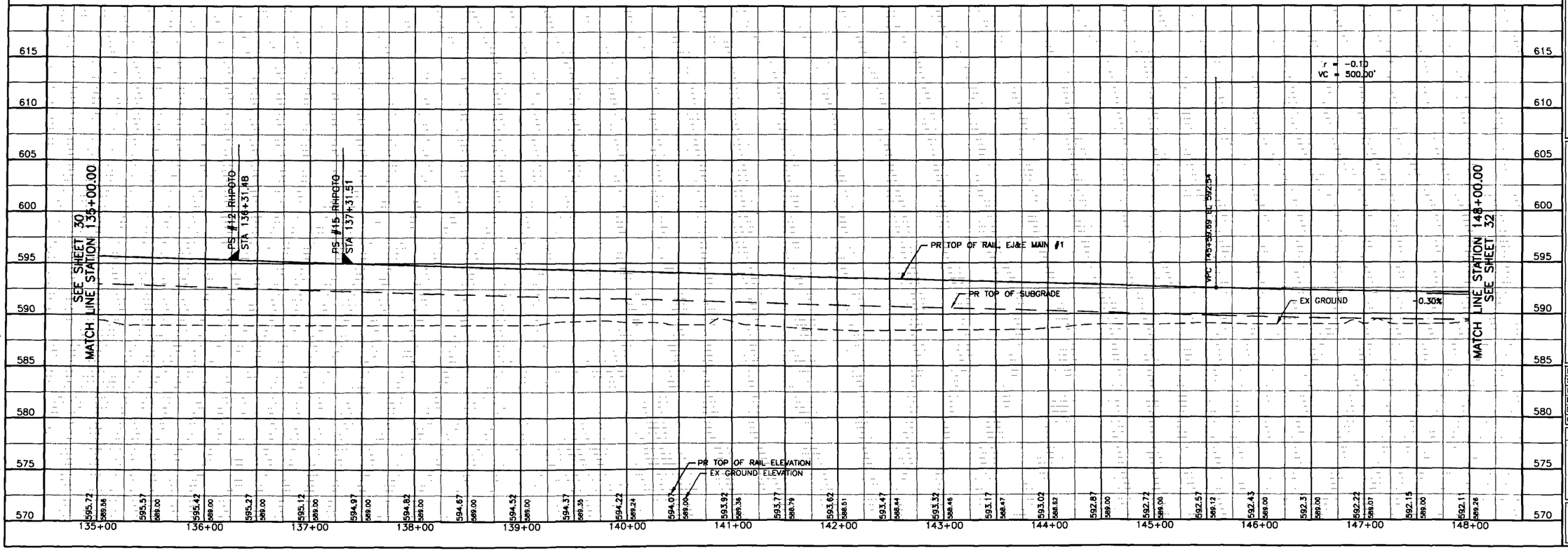


CURVE 1-2	
Δ =	59°06'35"
Dc =	3°57'27"
R =	1448.02'
TS =	898.96'
LC =	1338.61'
LS =	155.00'
Ea =	2.50"
Eu =	1.93"
V =	40 MPH

CURVE 2-2	
Δ =	59°06'35"
Dc =	4°00'00"
R =	1432.69'
TS =	907.96'
LC =	1287.80'
LS =	190.00'
Ea =	2.50"
Eu =	1.98"
V =	40 MPH

NOTES:

1. ALL STATION/OFFSETS ARE MEASURED FROM PROPOSED EJ&E MAINLINE No.1 CENTERLINE UNLESS OTHERWISE NOTED.
2. FOR ALIGNMENT AND CURVE DATA SEE ATB SERIES SHEETS.
3. ALL TRACKWORK SHALL BE COMPLETED IN ACCORDANCE WITH CN ENGINEERING TRACK STANDARDS, JUNE 2011.
4. ALL EXISTING GROUND ELEVATIONS ARE AT CENTER OF MAIN TRACK No.1
5. SEE TRACKWORK CROSS SECTIONS FOR GRADING DETAILS.



Systems
1475 E WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE:847-605-9600
FAX:847-605-9610

KEY PLAN

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL
AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago
International Airport

REVISIONS:		
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	9/16/2011	ISSUED FOR BID

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY: ESB
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:

PLAN AND
PROFILE
EJ&E RAILROAD

SHEET NO.
P-04

SHEET 31 OF 93

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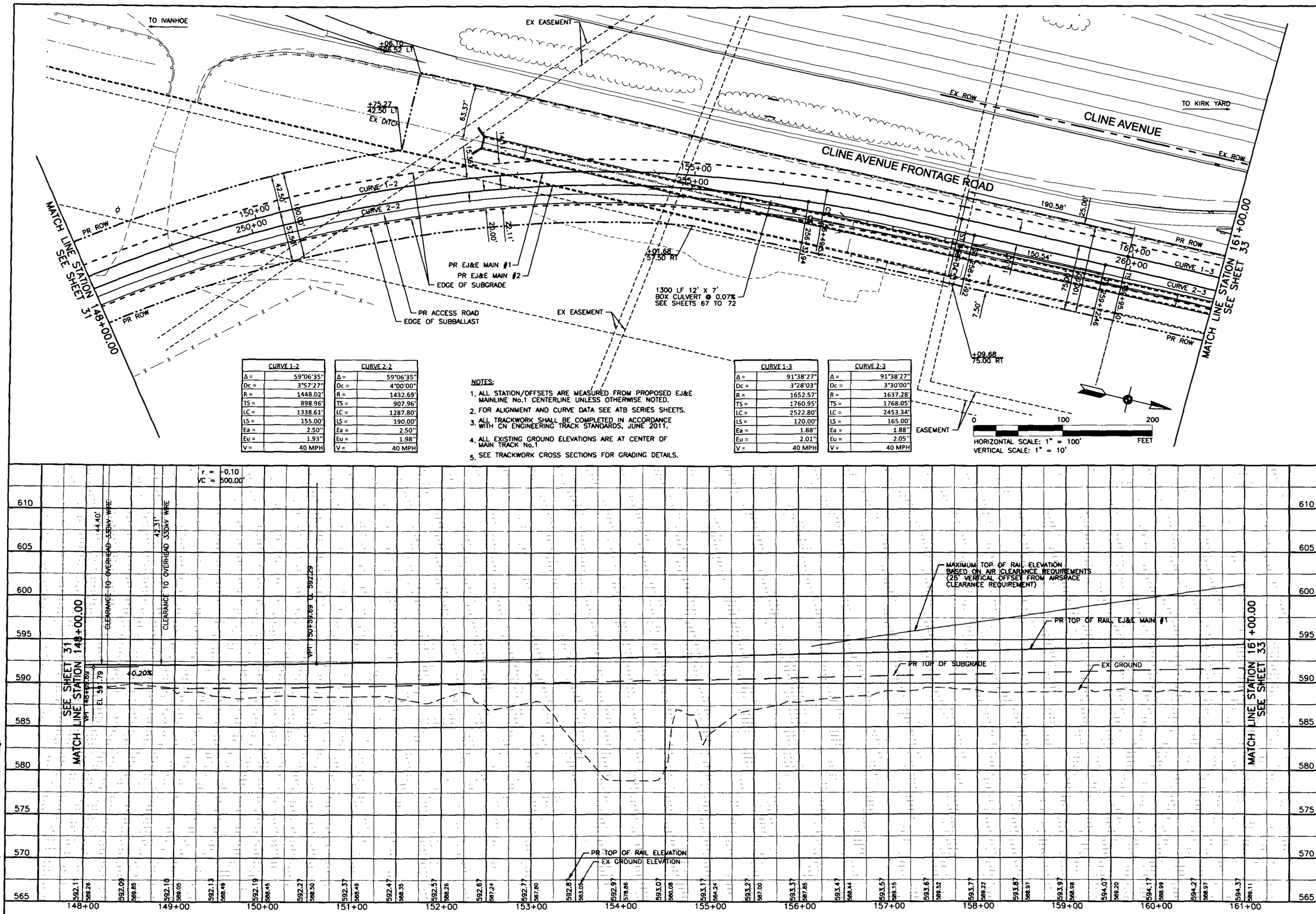


CURVE 1-2	
Δ =	59°06'35"
Dc =	3°57'27"
R =	1448.02'
TS =	898.96'
LC =	1338.61'
LS =	155.00'
Ea =	2.50"
Eu =	1.93"
V =	40 MPH

CURVE 2-2	
Δ =	59°06'35"
Dc =	4°00'00"
R =	1432.69'
TS =	907.96'
LC =	1287.80'
LS =	190.00'
Ea =	2.50"
Eu =	1.98"
V =	40 MPH

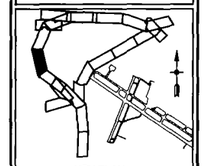
NOTES:

1. ALL STATION/OFFSETS ARE MEASURED FROM PROPOSED EJ&E MAINLINE No.1 CENTERLINE UNLESS OTHERWISE NOTED.
2. FOR ALIGNMENT AND CURVE DATA SEE ATB SERIES SHEETS.
3. ALL TRACKWORK SHALL BE COMPLETED IN ACCORDANCE WITH CN ENGINEERING TRACK STANDARDS, JUNE 2011.
4. ALL EXISTING GROUND ELEVATIONS ARE AT CENTER OF MAIN TRACK No.1
5. SEE TRACKWORK CROSS SECTIONS FOR GRADING DETAILS.

CURVE 1-3	
Δ =	91°38'27"
Dc =	3°28'03"
R =	1652.57'
TS =	1760.95'
LC =	2522.80'
LS =	120.00'
Ea =	1.88"
Eu =	2.01"
V =	40 MPH

CURVE 2-3	
Δ =	91°38'27"
Dc =	3°30'00"
R =	1637.28'
TS =	1768.05'
LC =	2453.34'
LS =	165.00'
Ea =	1.88"
Eu =	2.05"
V =	40 MPH

Systems
1475 E WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE:847-605-9600
FAX:847-605-9610



EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL
AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago
International Airport

REVISIONS:		
MARK	DATE	DESCRIPTION
	9/16/2011	ISSUED FOR BID

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY: ESB
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:

PLAN AND
PROFILE
EJ&E RAILROAD

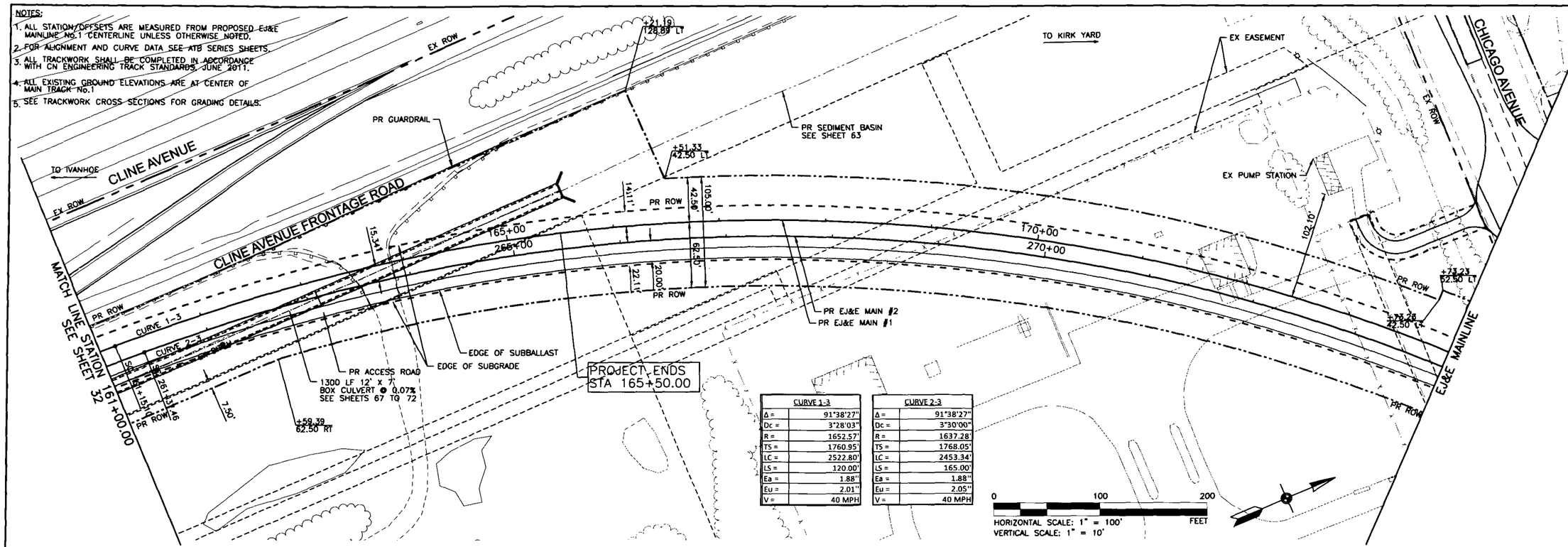
SHEET NO.
P-05

SHEET 32 OF 93

USER: 9/16/2011 - 8:37:00 PM - g:\chi\50\004\rail\sheets\contract a-culvert\p-05.dgn

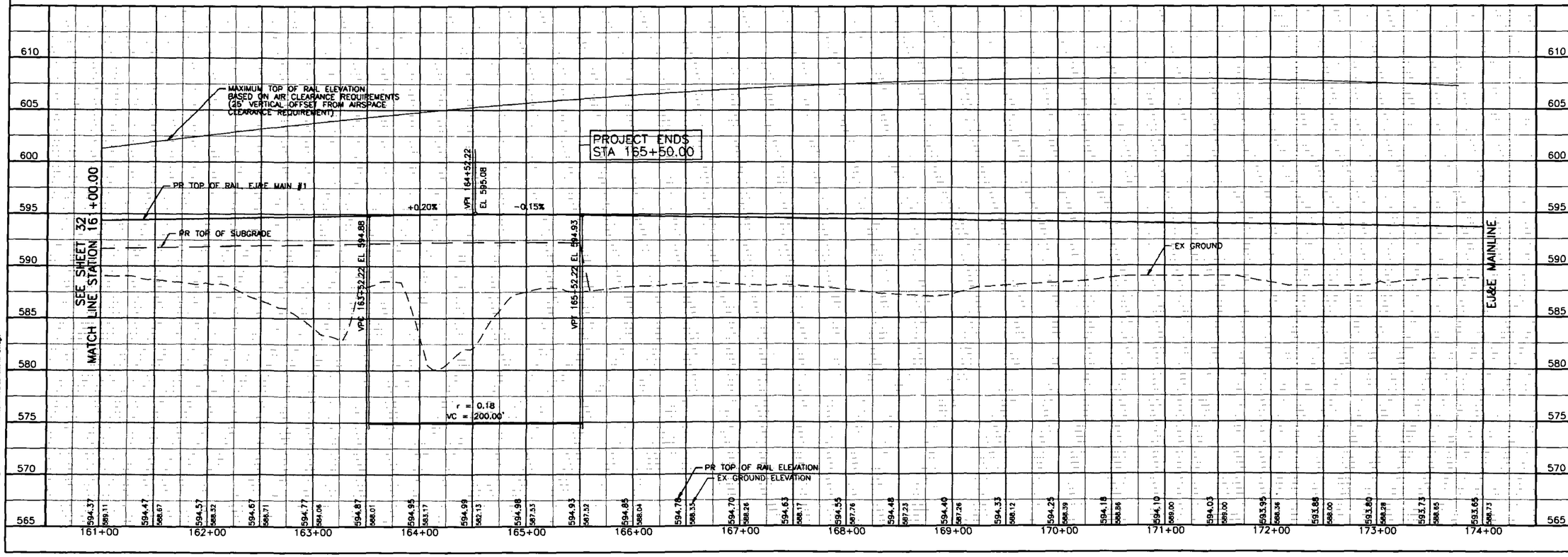
NOTES:

1. ALL STATION/OFFSETS ARE MEASURED FROM PROPOSED EJ&E MAINLINE No.1 CENTERLINE UNLESS OTHERWISE NOTED.
2. FOR ALIGNMENT AND CURVE DATA SEE ATB SERIES SHEETS.
3. ALL TRACKWORK SHALL BE COMPLETED IN ACCORDANCE WITH CN ENGINEERING TRACK STANDARDS, JUNE 2011.
4. ALL EXISTING GROUND ELEVATIONS ARE AT CENTER OF MAIN TRACK No.1
5. SEE TRACKWORK CROSS SECTIONS FOR GRADING DETAILS.



CURVE 1-3	
Δ =	91°38'27"
Dc =	3°28'03"
R =	1652.57'
TS =	1760.95'
LC =	2522.80'
LS =	120.00'
Ea =	1.88"
Eu =	2.01"
V =	40 MPH

CURVE 2-3	
Δ =	91°38'27"
Dc =	3°30'00"
R =	1637.28'
TS =	1768.05'
LC =	2453.34'
LS =	165.00'
Ea =	1.88"
Eu =	2.05"
V =	40 MPH



Systems
1475 E WOODFIELD ROAD
SUITE 800
SCHAUMBURG, IL 60173
PHONE:847-605-9900
FAX:847-605-9610

KEY PLAN

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL
AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago
International Airport

REVISIONS:		
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PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY: ESB
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:

PLAN AND
PROFILE
EJ&E RAILROAD

SHEET NO.
P-06

SHEET 33 OF 93

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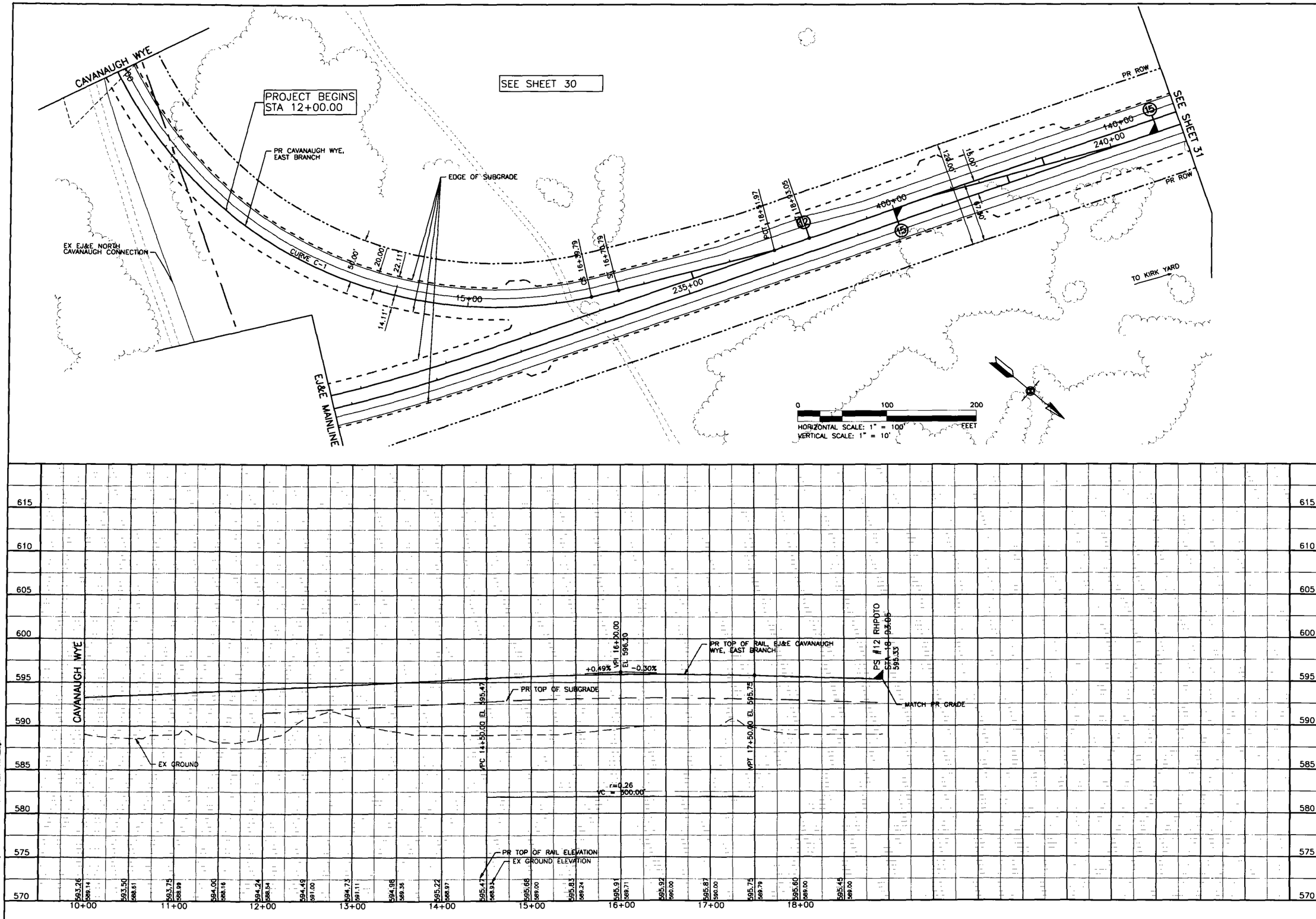

Systems
1475 E WOODFIELD ROAD
SUITE 800
SCHAUMBURG, IL 60173
PHONE:847-605-9600
FAX:847-605-9610

KEY PLAN

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL
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GARY, INDIANA

GaryChicago
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	9/16/2011	ISSUED FOR BID

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY: ESB
DRAWN BY: BJH
CHECKED BY: KKY

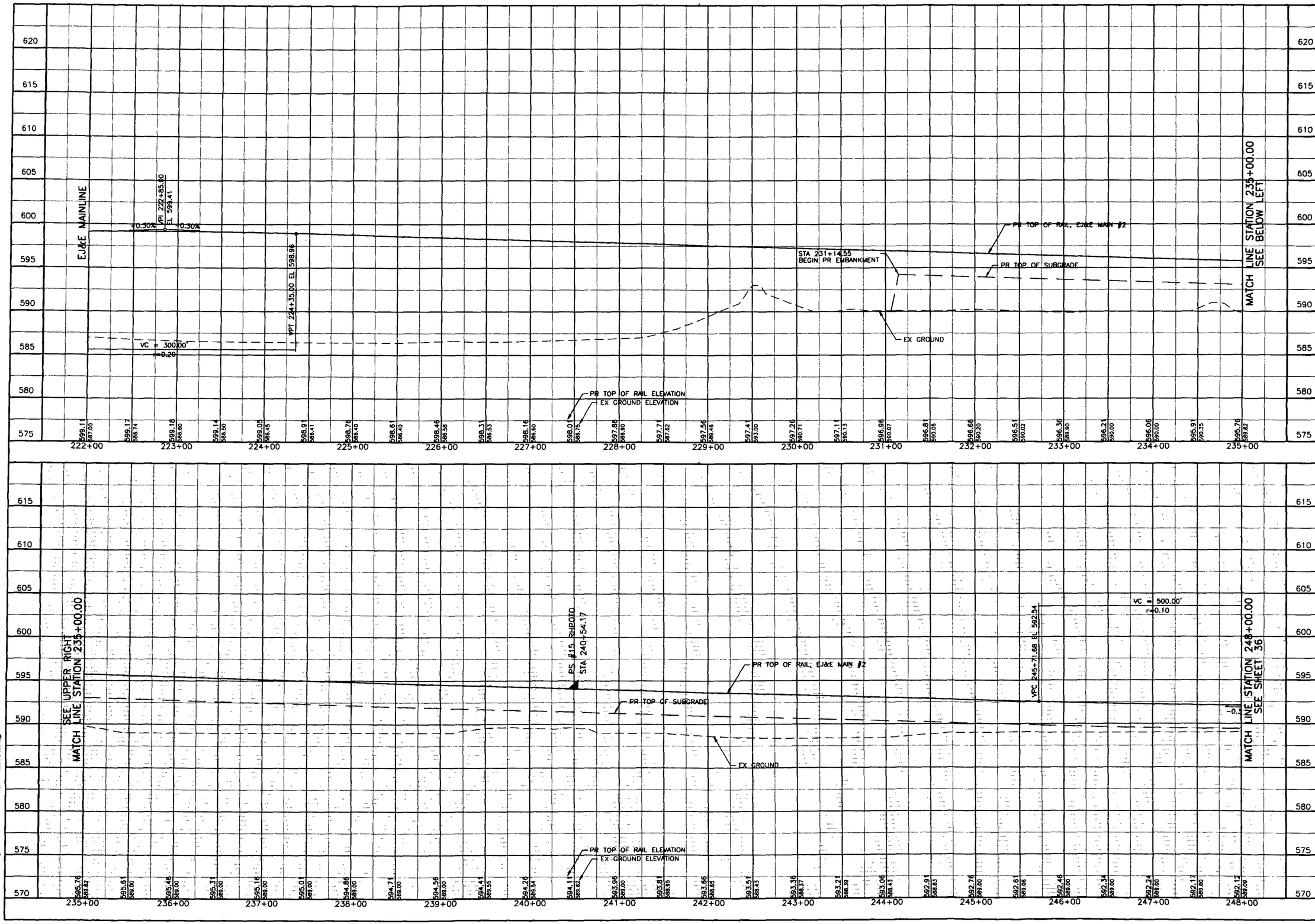
SHEET TITLE:

PLAN AND PROFILE CAVANAUGH

SHEET NO.
P-22

SHEET 34 OF 93

USER: 9/16/2011 - 5:37:19 PM - g:\chi\050064\esf\texas\contract e-culvert\PnP-22.dgn



Systems
1475 E WOODFIELD ROAD
SUITE 800
SCHAUMBURG, IL 60173
PHONE:847-605-9900
FAX:847-605-9610

KEY PLAN

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL
AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago
International Airport

REVISIONS:		
MARK	DATE	DESCRIPTION
	9/16/2011	ISSUED FOR BID

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY: ESB
DRAWN BY: BJH
CHECKED BY: KYY

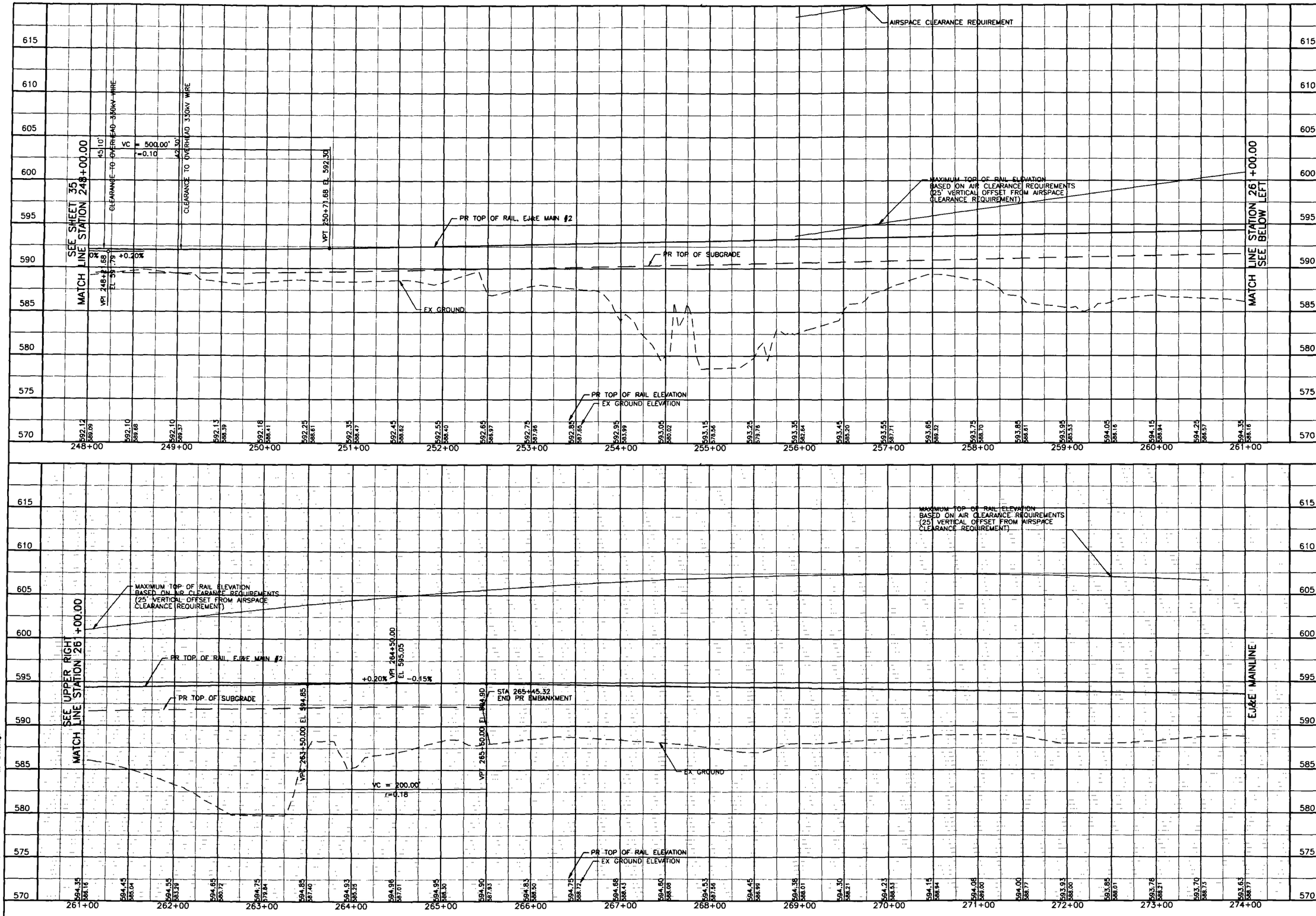
SHEET TITLE:

PROFILE
MAIN TRACK 2
EJ&E RAILROAD

SHEET NO.
PR2-03/04

SHEET 35 OF 93

USER: gr16820 - 5:27:27 PM - g:\chi\050064\railtracks\contract a-culvert\PR2-0304.dgn



Systems
1475 E WOODFIELD ROAD
SUITE 800
SCHAUMBURG, IL 60173
PHONE:847-605-9500
FAX:847-605-9810

KEY PLAN

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL
AIRPORT AUTHORITY
GARY, INDIANA

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International Airport

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MARK	DATE	DESCRIPTION
	9/16/2011	ISSUED FOR BID

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY: ESB
DRAWN BY: BJH
CHECKED BY: KYY

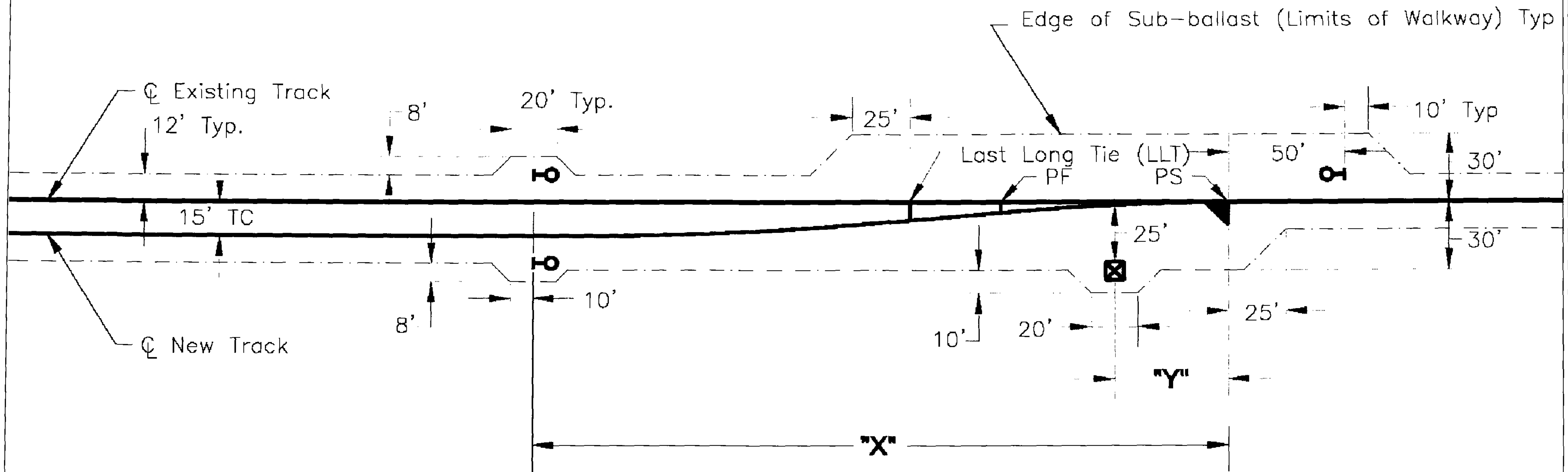
SHEET TITLE:

PROFILE
MAIN TRACK 2
EJ&E RAILROAD

SHEET NO.
PR2-05/06

SHEET 35 OF 93

USER
9/16/2011 - 5:37:33 PM - p:\d050006\drafile\eleinconrad e.dwg



Frog Number	PS to LLT	Curvature	Radius	Distance "X"	Distance "Y"
#10	116'	5°-00'	1146.29'	257'	41'
#12	138'	4°-00'	1432.69'	336'	49'
#15	175'	3°-00'	1910.08'	389'	56'
#16	171'	2°-30'	2290.01'	385'	58'
#20	220'	1°-30'	3819.83'	518'	78'

Notes:

1. Reduce or Increase distance "X" between Trailing Point Signal and PS by L (in feet) = NxD where N = Frog Number and D = Difference between Proposed Track Centers (in decimal feet) and 15 as shown. Reduce if Proposed TC < 15, Increase if Proposed TC > 15

2. Trailing Point Signals are located 20 ft. past the end of return curve (Clearance Point) (See "X" value)

3. Centerline of Track to center of Signal mast = 12ft.

Revisions		CN Southern Region	ALL DIV	SYSTEM SUB
Date	By		LOCATION	
Approvals		TURNOUT GRADING NEW INSTALLATION ALL OPERATING COMPANIES		
		OFFICE OF ENGINEERING TECH SERVICES		
Sheet 1 of 1		Drawn by: dec	Scale:	Dwg. No.
		Chkd. by:	Date: 1/16/09	File No.

Systems
1475 EAST WOODFIELD ROAD
SUITE 600
SCHAUMBURG IL 60173
MAIN: 847-605-9600
FAX: 847-605-9610

EJ&E RAILWAY RELOCATION PROJECT CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago International Airport

MARK	DATE	DESCRIPTION
	9/16/2011	ISSUED FOR BID

PROJ NO: P401050064
SCALE: NTS
DATE: 9/16/2011
DESIGNED BY: ESB
DRAWN BY: ESB
CHECKED BY: KKY

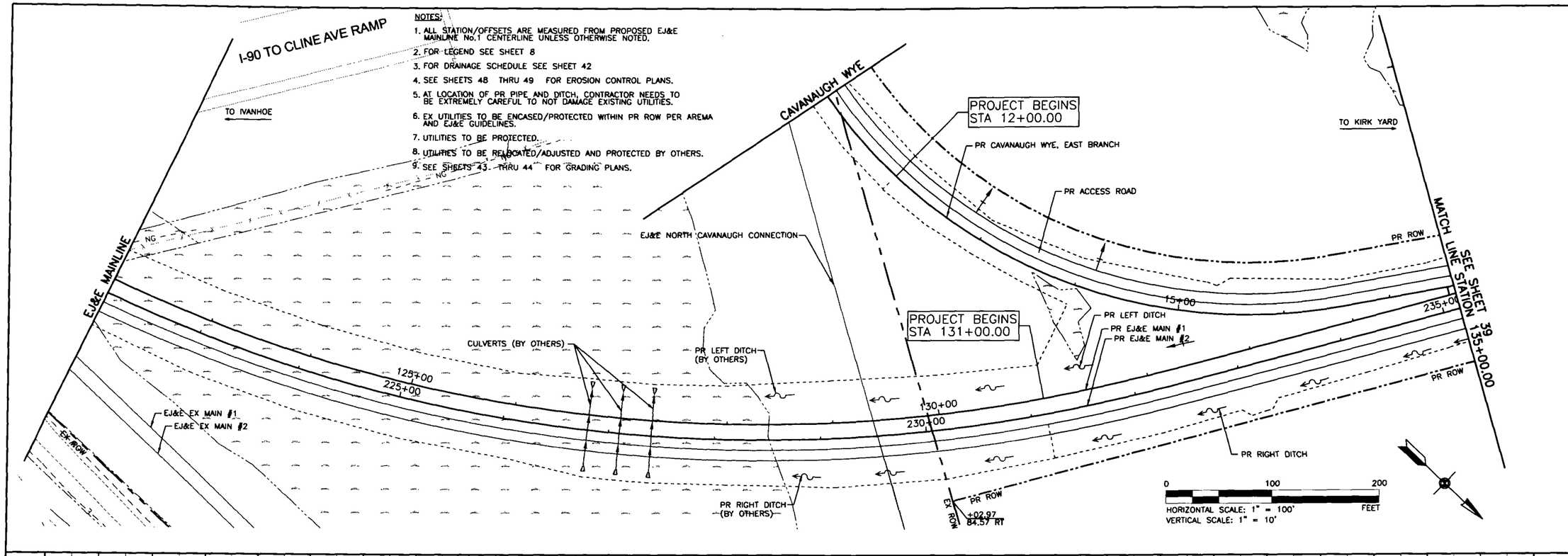
SHEET TITLE:
CN STANDARDS-1 TURNOUT GRADING PLAN

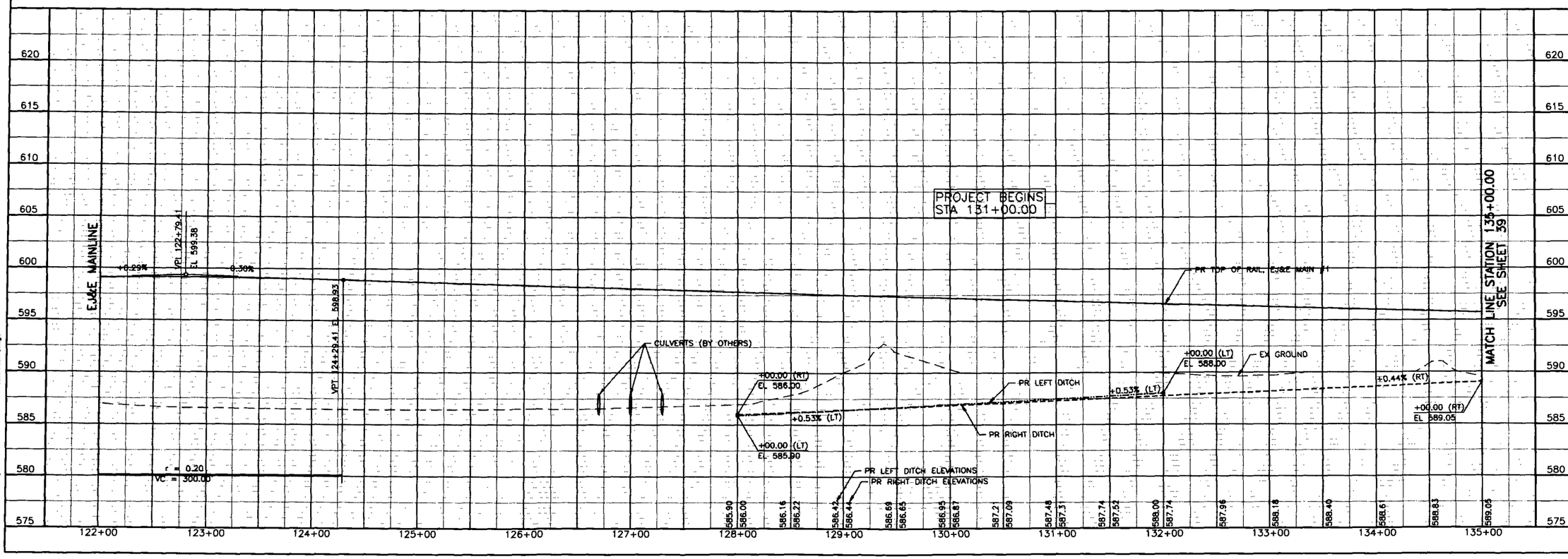
SHEET NO.
TS-101

IF THIS DRAWING IS LESS THAN 22" X 34" IT IS A REDUCED SIZE DRAWING

NOTES:

1. ALL STATION/OFFSETS ARE MEASURED FROM PROPOSED EJ&E MAINLINE No.1 CENTERLINE UNLESS OTHERWISE NOTED.
2. FOR LEGEND SEE SHEET 8
3. FOR DRAINAGE SCHEDULE SEE SHEET 42
4. SEE SHEETS 48 THRU 49 FOR EROSION CONTROL PLANS.
5. AT LOCATION OF PR PIPE AND DITCH, CONTRACTOR NEEDS TO BE EXTREMELY CAREFUL TO NOT DAMAGE EXISTING UTILITIES.
6. EX UTILITIES TO BE ENCASED/PROTECTED WITHIN PR ROW PER AREMA AND EJ&E GUIDELINES.
7. UTILITIES TO BE PROTECTED.
8. UTILITIES TO BE RELOCATED/ADJUSTED AND PROTECTED BY OTHERS.
9. SEE SHEETS 43 THRU 44 FOR GRADING PLANS.





Systems
1475 E WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE:847-605-9600
FAX:847-605-9610

KEY PLAN

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL
AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago
International Airport

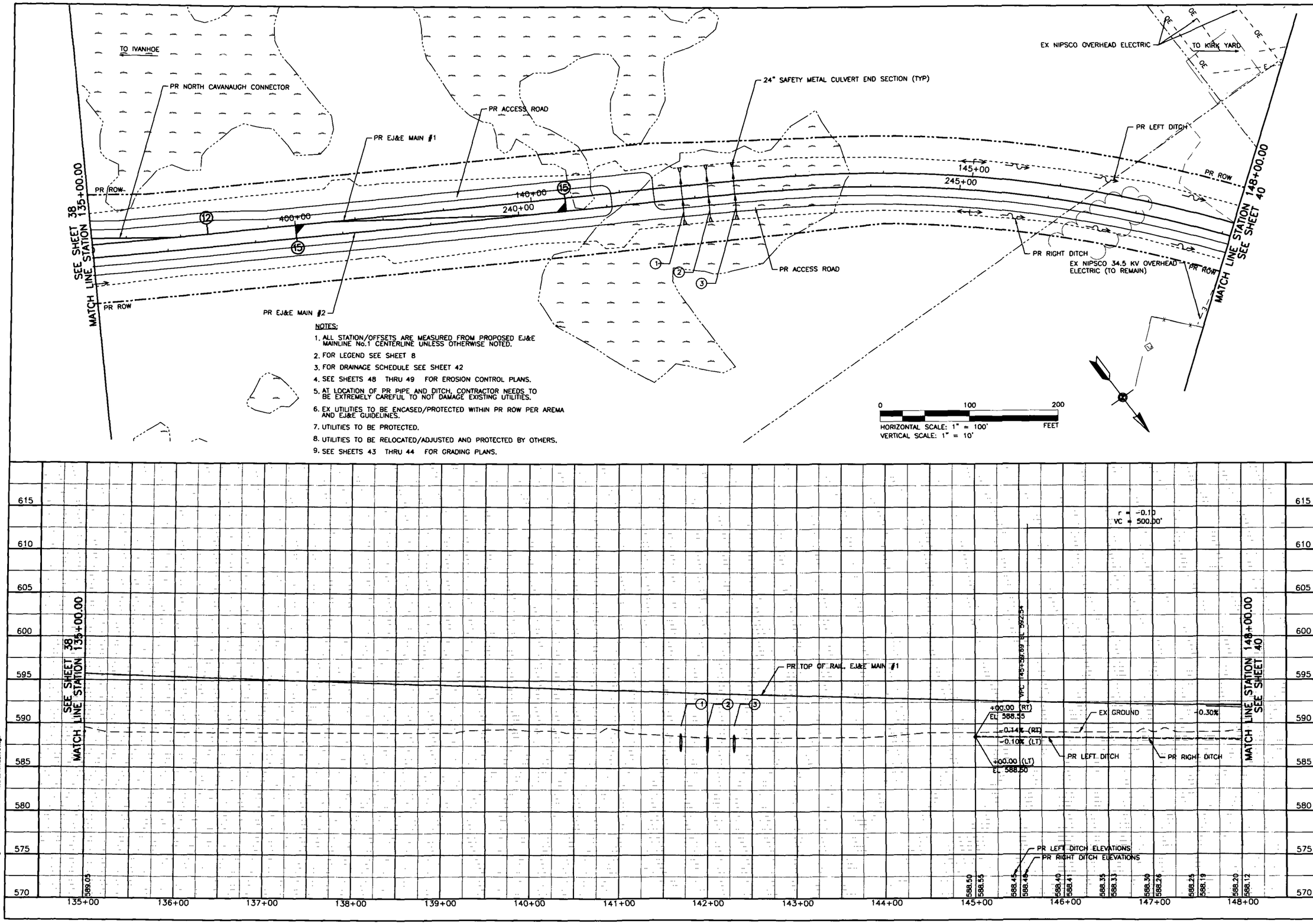
REVISIONS:			
MARK	DATE	DESCRIPTION	
	9/16/2011	ISSUED FOR BID	

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY: JLV
DRAWN BY: KAL
CHECKED BY: KKY

SHEET TITLE:
DRAINAGE AND UTILITIES PLAN AND PROFILE EJ&E RAILROAD

SHEET NO.
D-03

USER: SLUSZCZ11 - 5:37:53 PM - g:\chi\401\004\railway\contract e-culvert\DR-03.dgn



NOTES:

1. ALL STATION/OFFSETS ARE MEASURED FROM PROPOSED EJ&E MAINLINE No.1 CENTERLINE UNLESS OTHERWISE NOTED.
2. FOR LEGEND SEE SHEET 8
3. FOR DRAINAGE SCHEDULE SEE SHEET 42
4. SEE SHEETS 48 THRU 49 FOR EROSION CONTROL PLANS.
5. AT LOCATION OF PR PIPE AND DITCH, CONTRACTOR NEEDS TO BE EXTREMELY CAREFUL TO NOT DAMAGE EXISTING UTILITIES.
6. EX UTILITIES TO BE ENCASED/PROTECTED WITHIN PR ROW PER AREMA AND EJ&E GUIDELINES.
7. UTILITIES TO BE PROTECTED.
8. UTILITIES TO BE RELOCATED/ADJUSTED AND PROTECTED BY OTHERS.
9. SEE SHEETS 43 THRU 44 FOR GRADING PLANS.

Systems
1475 E WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE:847-605-9800
FAX:847-605-9810

KEY PLAN

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago International Airport

REVISIONS:		
MARK	DATE	DESCRIPTION
	9/16/2011	ISSUED FOR BID

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY: JLV
DRAWN BY: KAL
CHECKED BY: KKY

SHEET TITLE:
DRAINAGE AND UTILITIES PLAN AND PROFILE EJ&E RAILROAD

SHEET NO.
D-04

SHEET 39 OF 83

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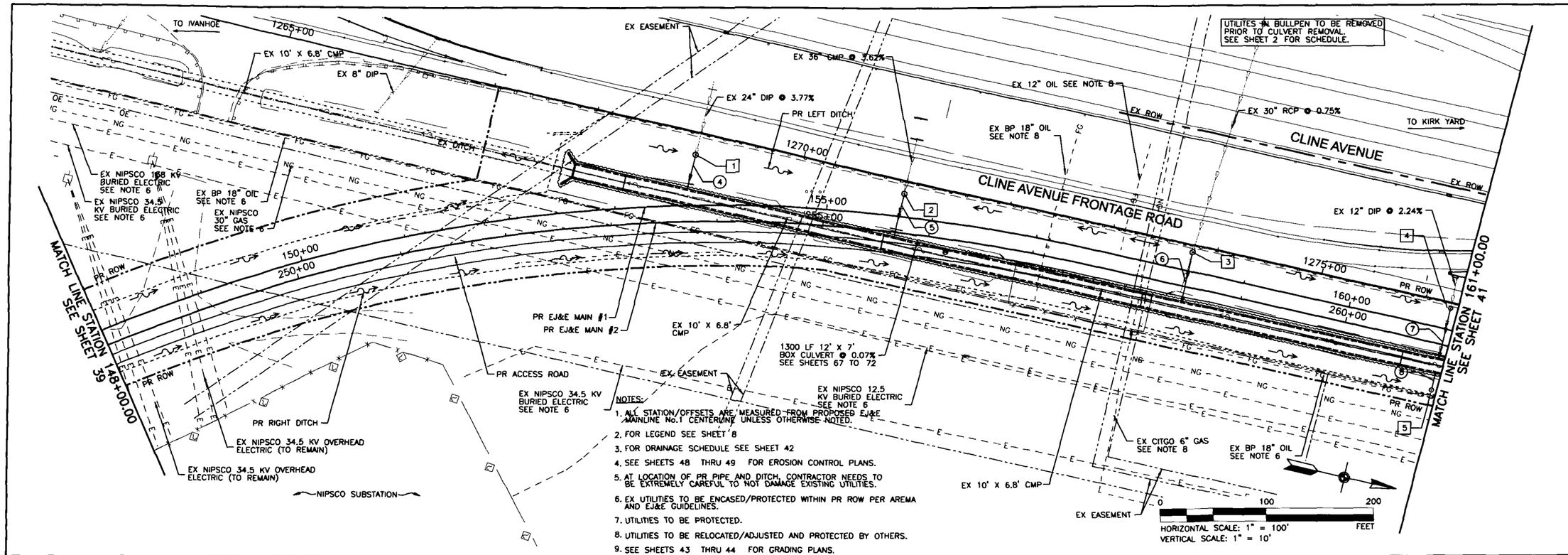
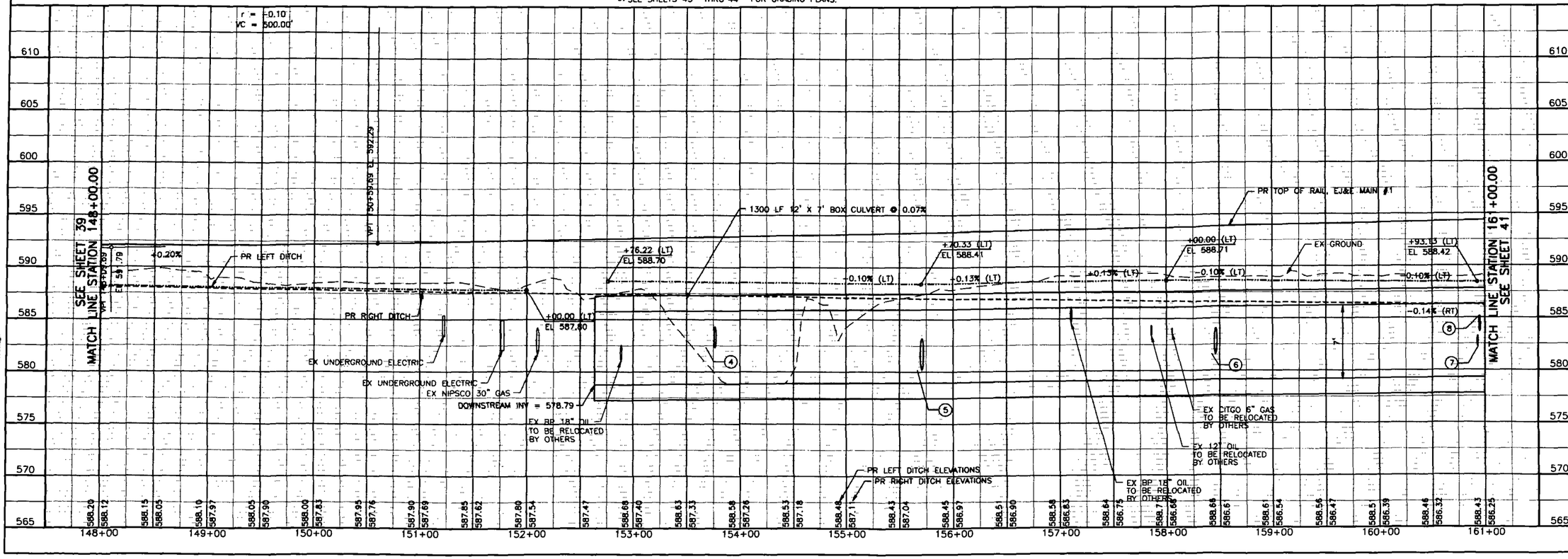


NOTES:

1. ALL STATION/OFFSETS ARE MEASURED FROM PROPOSED EJ&E MAINLINE No.1 CENTERLINE UNLESS OTHERWISE NOTED.
2. FOR LEGEND SEE SHEET 8
3. FOR DRAINAGE SCHEDULE SEE SHEET 42
4. SEE SHEETS 48 THRU 49 FOR EROSION CONTROL PLANS.
5. AT LOCATION OF PR PIPE AND DITCH, CONTRACTOR NEEDS TO BE EXTREMELY CAREFUL TO NOT DAMAGE EXISTING UTILITIES.
6. EX UTILITIES TO BE ENCASED/PROTECTED WITHIN PR ROW PER AREMA AND EJ&E GUIDELINES.
7. UTILITIES TO BE PROTECTED.
8. UTILITIES TO BE RELOCATED/ADJUSTED AND PROTECTED BY OTHERS.
9. SEE SHEETS 43 THRU 44 FOR GRADING PLANS.



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SUITE 600
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PHONE:847-605-9600
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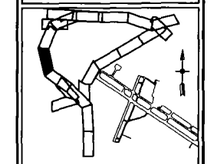

EJ&E RAILWAY
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GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
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SHEET TITLE:
DRAINAGE AND UTILITIES PLAN AND PROFILE EJ&E RAILROAD

SHEET NO.
D-05

SHEET 40 OF 93

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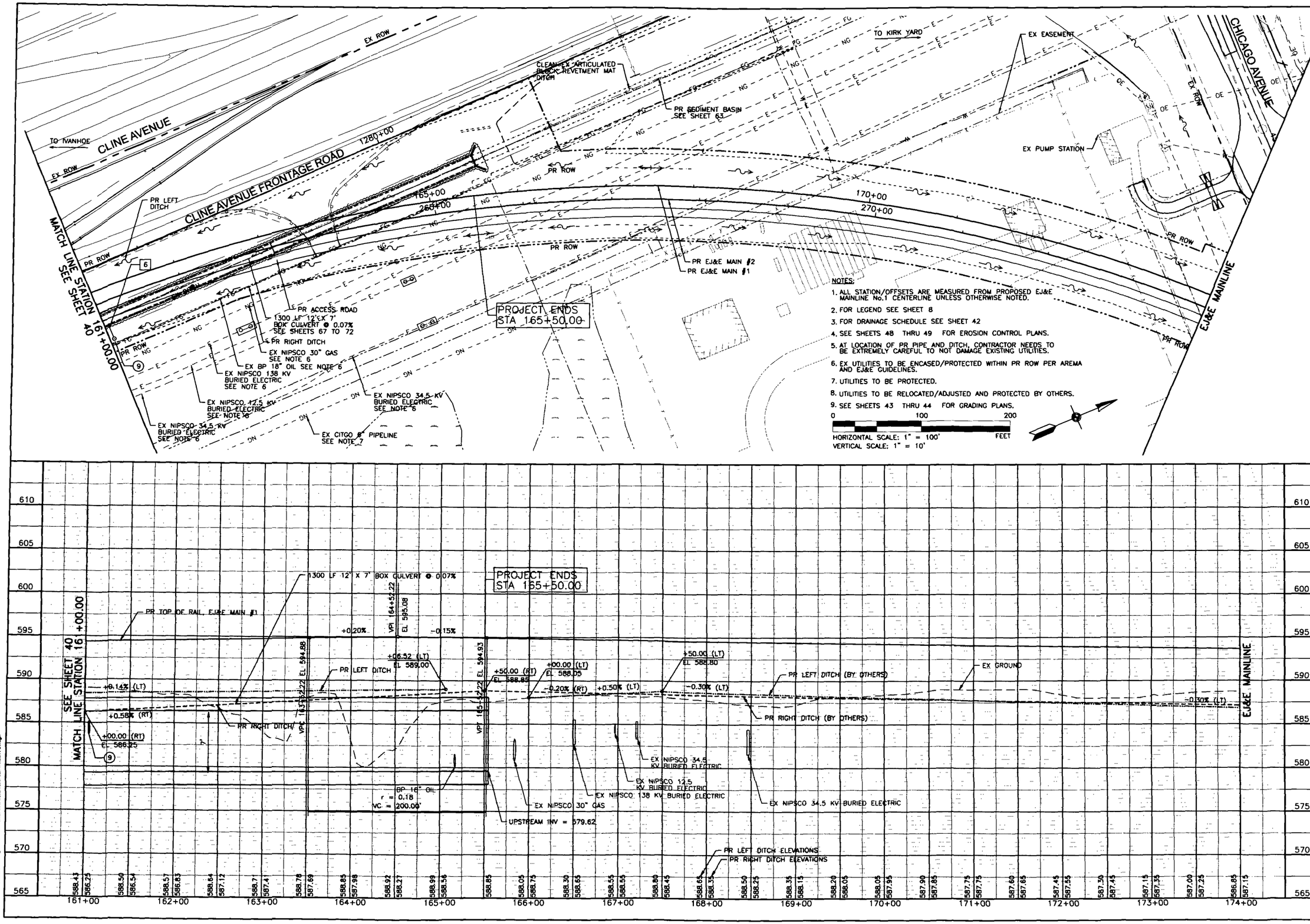

Systems
1475 E WOODFIELD ROAD
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PHONE:847-805-9800
FAX:847-805-9810

KEY PLAN

EJ&E RAILWAY RELOCATION PROJECT CULVERT AND GRADING

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CHECKED BY: KKY

SHEET TITLE:
DRAINAGE AND UTILITIES PLAN AND PROFILE EJ&E RAILROAD

SHEET NO.
D-06

SHEET 41 OF 93

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PIPES

CULVERT NO.	ALIGNMENT	DOWNSTREAM STATION	DOWNSTREAM INVERT	DOWNSTREAM OFFSET	UPSTREAM STATION	UPSTREAM INVERT	UPSTREAM OFFSET	LENGTH	SLOPE	SIZE	TYPE	SHEET NUMBER
1*	EJ&E MAIN 1	141+70.00	586.99	39.50 RT	141+70.00	587.32	16.50 LT	56	0.59%	24"	PIPE, STRUCTURAL-PLATE, STEEL, BOLTED: 6 x 2 CORRUGATED, 0.188-0.283	D-04
2*	EJ&E MAIN 1	142+00.00	586.73	39.50 RT	142+00.00	586.81	16.50 LT	56	0.14%	24"	PIPE, STRUCTURAL-PLATE, STEEL, BOLTED: 6 x 2 CORRUGATED, 0.188-0.284	D-04
3*	EJ&E MAIN 1	141+30.00	586.72	39.50 RT	141+30.00	586.86	16.50 LT	56	0.25%	24"	PIPE, STRUCTURAL-PLATE, STEEL, BOLTED: 6 x 2 CORRUGATED, 0.188-0.285	D-04
4	EJ&E MAIN 1	153+76.61	582.33	14.64 LT	153+76.61	582.96	45.89 LT	33	1.91%	24"	REINFORCED CONCRETE PIPE, CLASS 5	D-05
5	EJ&E MAIN 1	155+70.82	580.22	21.20 RT	155+70.82	581.00	19.50 LT	41	1.90%	36"	REINFORCED CONCRETE PIPE, CLASS 5	D-05
6	EJ&E MAIN 1	158+46.14	581.58	30.70 RT	158+46.14	582.51	15.89 LT	47	1.98%	30"	REINFORCED CONCRETE PIPE, CLASS 5	D-05
7	EJ&E MAIN 1	160+93.08	582.27	29.89 RT	160+93.08	583.22	18.33 LT	49	1.94%	12"	REINFORCED CONCRETE PIPE, CLASS 5	D-05
8	EJ&E MAIN 1	160+95.00	583.68	43.39 RT	160+95.00	583.75	57.47 RT	15	0.47%	18"	REINFORCED CONCRETE PIPE, CLASS 5	D-05
9	EJ&E MAIN 1	161+05.00	583.68	43.12 RT	161+05.00	583.75	57.47 RT	15	0.47%	18'	REINFORCED CONCRETE PIPE, CLASS 5	D-06

* INVERTS TO MATCH EXISTING GROUND

DRAINAGE STRUCTURES

STRUCTURE NO.	STATION	OFFSET TYPE	TYPE	CASTING TYPE	RIM ELEVATIONS	INVERT ELEVATIONS			
						NORTH	SOUTH	EAST	WEST
1	153+76.61	48.32 LT	MANHOLE TYPE J*	TYPE 2	588.60			582.96	583.21
2	155+70.82	21.98 LT	MANHOLE TYPE J*	TYPE 2	588.49			581.00	581.25
3	158+46.14	18.39 LT	MANHOLE TYPE J*	TYPE 2	588.66			582.51	582.76
4	160+93.08	20.33 LT	CATCH BASIN TYPE E	TYPE 7	589.05			583.22	583.47
5	160+95.00	59.47 RT	CATCH BASIN TYPE E	TYPE 7	586.25				583.75
6	161+05.00	59.47 RT	CATCH BASIN TYPE E	TYPE 7	586.25				583.75

* MANHOLE TO INCLUDE 2' 6" SUMP BELOW LOW INVERT

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EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago
International Airport

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CHECKED BY: KKY

SHEET TITLE:
DRAINAGE STRUCTURE TABLE

SHEET NO.
DTBL-1

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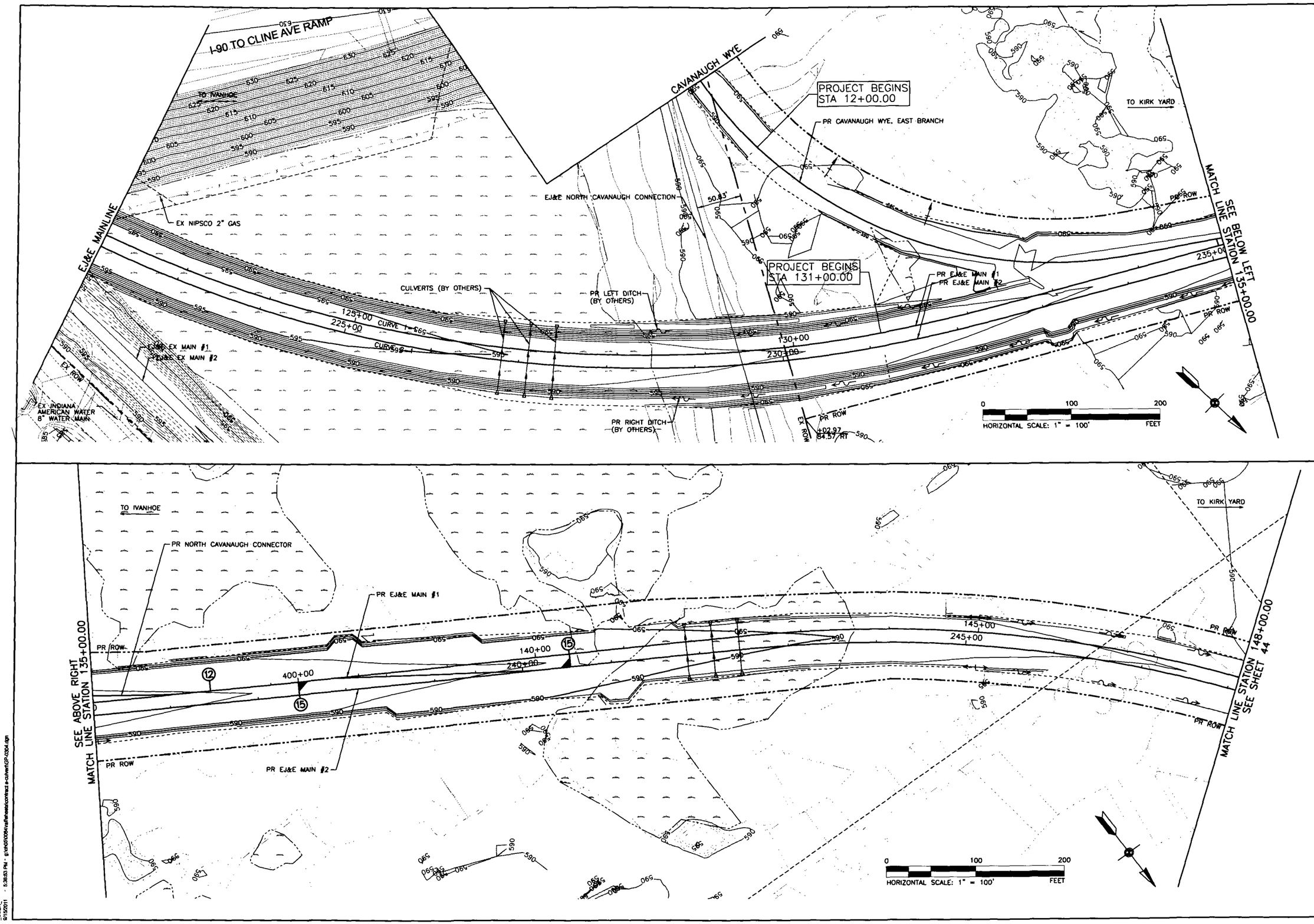

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FAX:847-605-9610

KEY PLAN

EJ&E RAILWAY
RELOCATION PROJECT
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SHEET TITLE:

GRADING
PLAN
EJ&E RAILROAD

SHEET NO.
GP-03/04

SHEET 43 OF 93

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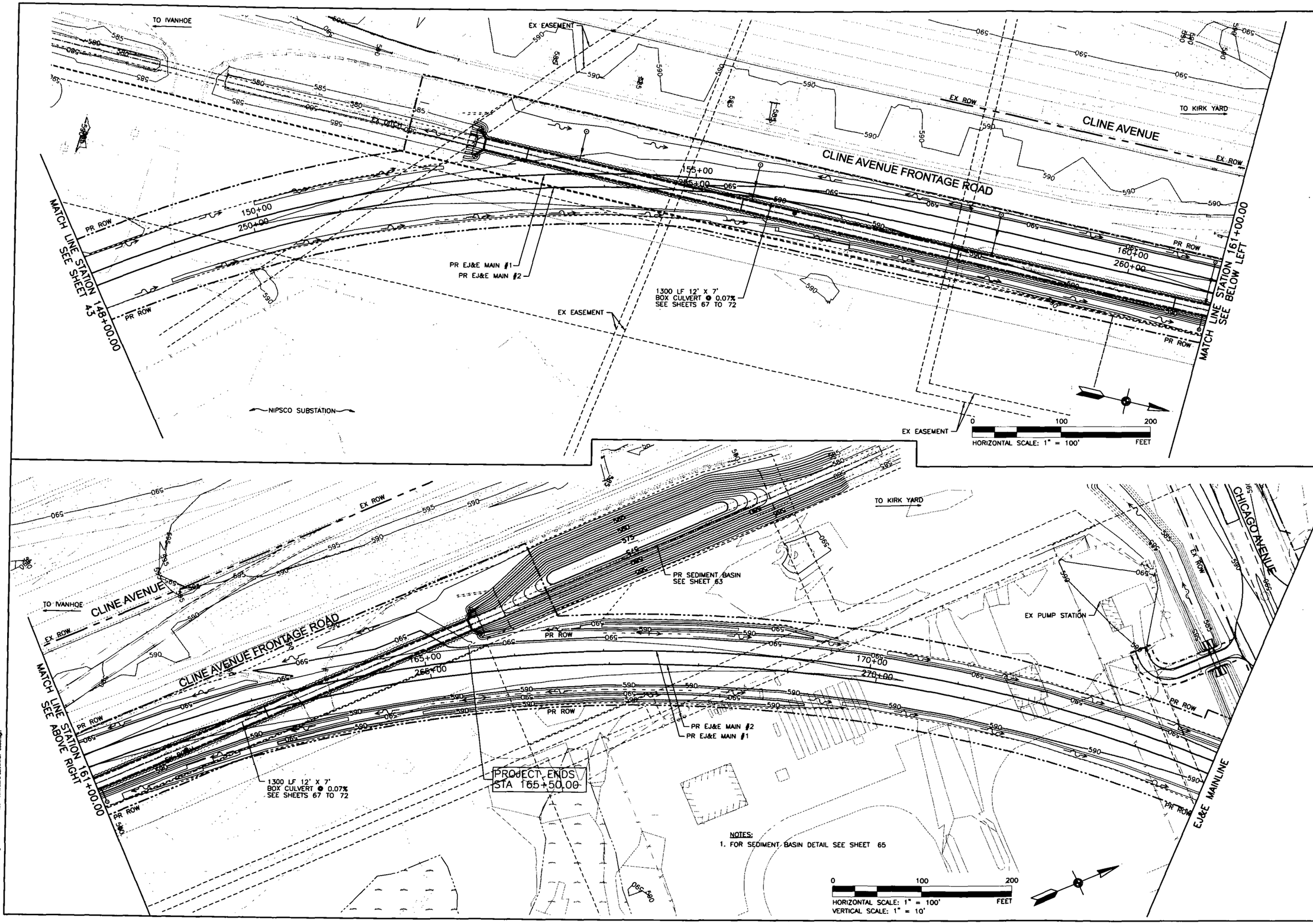

NOTES:
1. FOR SEDIMENT BASIN DETAIL SEE SHEET 65

Systems
1475 E WOODFIELD ROAD
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KEY PLAN

EJ&E RAILWAY
RELOCATION PROJECT
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SHEET TITLE:

GRADING PLAN EJ&E RAILROAD

SHEET NO.
GP-05/06

SHEET 44 OF 93

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GENERAL NOTES FOR EROSION CONTROL

1. THE CONTRACTOR SHALL FOLLOW THE GENERAL NOTES ON THE PLANS AND THE REQUIREMENTS OF THE INDIANA STORM WATER QUALITY MANUAL UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
2. THE NOTICE OF INTENT (NOI) AND NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORM WATER PERMIT SHALL BE OBTAINED PRIOR TO THE COMMENCEMENT OF ANY EARTH MOVING ACTIVITIES.
3. ALL EROSION CONTROL DEVICES, INCLUDING SILT FENCE, LOCATED ALONG THE PERIMETER OF THE AREA,TO BE DISTURBED SHALL BE INSTALLED PRIOR TO ANY SITE CLEARING AND GRADING ACTIVITIES. ANY TEMPORARY DIVERSIONS, SEDIMENT BASINS AND ANY OTHER APPROPRIATE EROSION CONTROL MEASURES SHALL BE INSTALLED WHEN NECESSARY.
4. ALL ENVIRONMENTALLY SENSITIVE AREAS, INCLUDING WETLANDS, THAT WILL NOT BE IMPACTED AS PART OF THE PROPOSED IMPROVEMENTS SHALL BE PROTECTED FROM CONSTRUCTION DEBRIS BY INSTALLING SILT FENCE AROUND WETLAND BOUNDARY AS INDICATED IN THE PLANS. THE WETLAND BOUNDARIES SHOWN IN THE PLANS SHALL BE STRICTLY ADHERED TO.
5. ALL GRADING ACTIVITIES SHALL BE PERFORMED, IF AND ONLY IF, STEPS 1 THROUGH 4 HAVE BEEN COMPLETED AND APPROVED BY THE ENGINEER. AS GIVEN CONSTRUCTION ACTIVITES ARE COMPLETED, THE AREA SHALL BE IMMEDIATELY STABILIZED WITH TEMPORARY OR PERMANENT EROSION CONTROL MEASURES.
6. IN THE EVENT OF REPEATED FAILURE ON THE PART OF THE CONTRACTOR TO FOLLOW THE STEPS PRESCRIBED BY THE ENGINEER TO CONTROL EROSION, THE ENGINEER RESERVES THE RIGHT TO EMPLOY OUTSIDE ASSISTANCE OR TO USE HIS/HER OWN FORCES TO PROVIDE THE NECESSARY CORRECTIVE MEASURES AT CONTRACTOR EXPENSE.
7. THE TEMPORARY EROSION CONTROL SYSTEMS INSTALLED BY THE CONTRACTOR SHALL BE PROPERLY MAINTAINED AS DIRECTED BY THE ENGINEER TO CONTROL SILTATION AT ALL TIMES DURING THE DURATION OF THE CONTRACT. THIS WORK SHALL INCLUDE, BUT NOT BE LIMITED TO, OPERATION OF THE VARIOUS EROSION CONTROL MEASURES, REMOVAL OF TRAPPED SEDIMENT AND CLEANING OF ANY SILT FABRIC. ACCUMULATED SILT IN SEDIMENT BASINS SHALL BE REMOVED AT ANY TIME THE BASIN BECOMES 75% FILLED. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.
8. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE DISPOSED OF WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION MEASURES. TRAPPED SEDIMENT AND OTHER DISTURBED SOILS SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.
9. ALL EROSION CONTROL MEASURES AS INDICATED IN THE PLANS OR AS DIRECTED BY THE ENGINEER SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES WHICH WILL POTENTIALLY CREATE CONDITIONS SUSCEPTIBLE TO EROSION. THE PLACEMENT AND INSTALLATION OF EROSION CONTROL DEVICES SHALL BE APPROVED BY THE ENGINEER PRIOR TO BEGINNING OTHER WORK. EROSION CONTROL MEASURES PUT IN PLACE FOR CONTRACTOR BORROW PITS, EQUIPMENT STORAGE SITES, PLANT SITES, HAUL ROADS AND OTHER SITES SHALL BE INSTALLED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
10. ALL TRUCKS LEAVING THE SITE SHALL BE LOADED IN A MANNER THAT WILL PREVENT MATERIALS FROM FALLING ON THE STREETS, AND WHEN NECESSARY, SHALL HAVE SUITABLE TARPAULINS FASTENED OVER THE LOAD BEFORE THEY ENTER STREETS UNDER LOCAL, COUNTY OR STATE JURISDICTION. TRUCKS HAULING MATERIAL TO THE SITE ALONG THESE STREETS SHALL BE SIMILARLY LOADED AND COVERED AS NEEDED.

    THE CONTRACTOR SHALL CONTINUOUSLY MAINTAIN THE LOCAL, COUNTY AND STATE STREETS FREE OF DIRT AND DEBRIS RESULTING FROM HAULING OPERATIONS AND MUST PROVIDE STREET CLEANING AS NECESSARY OR AS DIRECTED BY THE ENGINEER. THE COST OF THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.

    ALL SURPLUS OR REJECTED MATERIAL, REFUSE, TOOLS AND DEBRIS THAT MAY ACCUMULATE ON SITE THROUGH THE DURATION OF THE PROJECT SHALL BE REMOVED FROM TIME AND TIME, AND ON COMPLETION OF WORK, ALL DEBRIS SHALL BE REMOVED AND THE SITE THOROUGHLY BRUSH CLEANED.
11. TEMPORARY SOIL OR AGGREGATE STOCKPILES ARE NOT ALLOWED ONSITE WITHOUT THE INSTALLATION OF PERIMETER EROSION CONTROL BARRIER.
12. INLET PROTECTION WITH STRAW BALE BARRIER SHALL NOT BE USED FOR MORE THAN THREE MONTHS. INLET PROTECTION WITH GRAVEL AND WIRE MESH OR FABRIC DROP SHALL BE USED IF GROUND STABILIZATION CAN NOT BE ACCOMPLISHED WITHIN THREE MONTHS. STRAW BALES SHALL NOT BE USED IN ANY AREA WHERE THERE IS CONCENTRATED FLOW.
13. ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES ARE REFERENCED FROM INDIANA STORM WATER QUALITY MANUAL "2007 EDITION".
14. FOR STORM WATER POLLUTION AND PREVENTION, PLEASE REFER TO THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) PREPARED BY NORTH-WEST ENGINEERING.

Systems
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EJ&E RAILWAY
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CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA
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SHEET TITLE:
TEMPORARY EROSION CONTROL GENERAL NOTES

SHEET NO.
ECN-01

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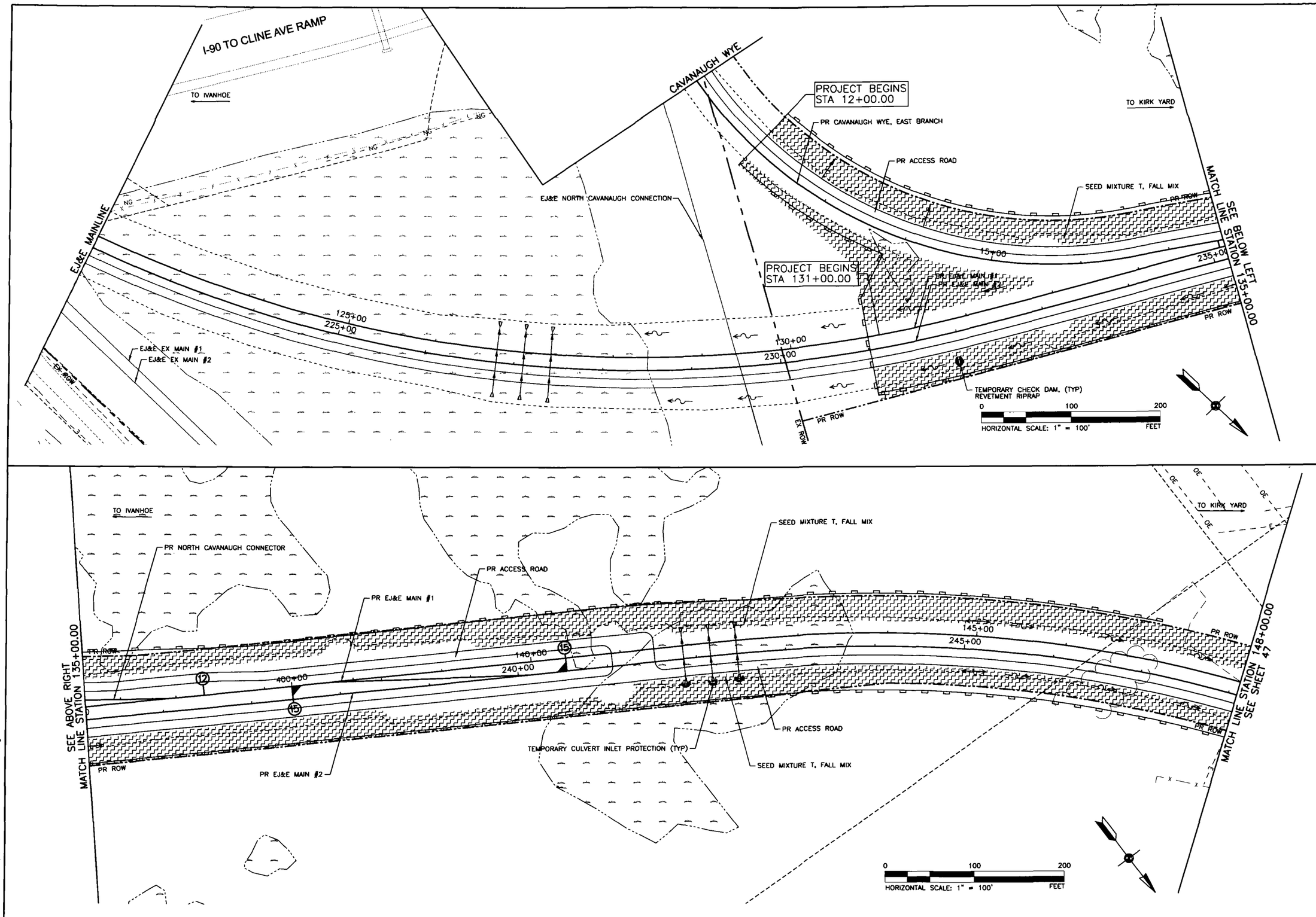

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KEY PLAN

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SHEET TITLE:

EROSION CONTROL TEMPORARY PLAN EJ&E RAILROAD

SHEET NO.
TEC-03/04

SHEET 46 OF 93

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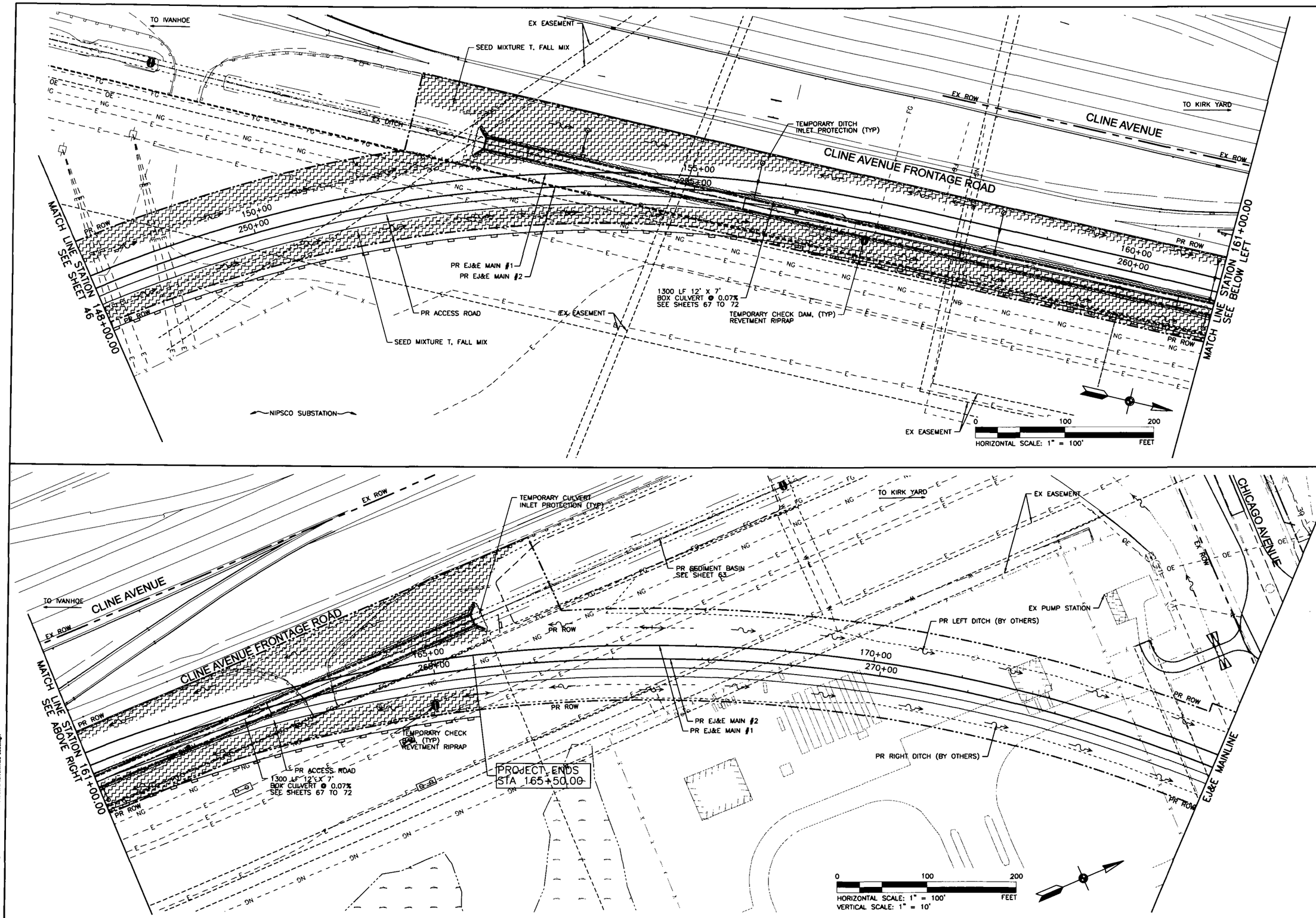

Systems
1475 E WOODFIELD ROAD
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FAX:847-605-9610

KEY PLAN

EJ&E RAILWAY
RELOCATION PROJECT
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CHECKED BY: KKY

SHEET TITLE:
EROSION CONTROL TEMPORARY PLAN EJ&E RAILROAD

SHEET NO.
TEC-05/06

SHEET 47 OF 93

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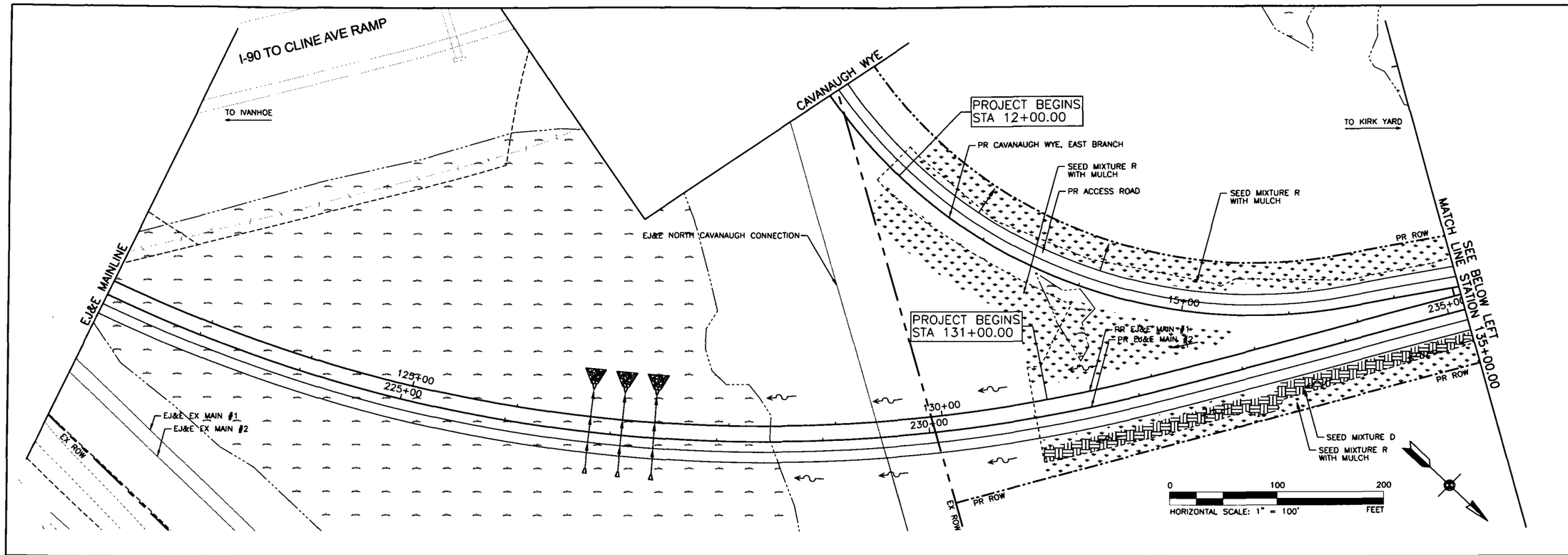

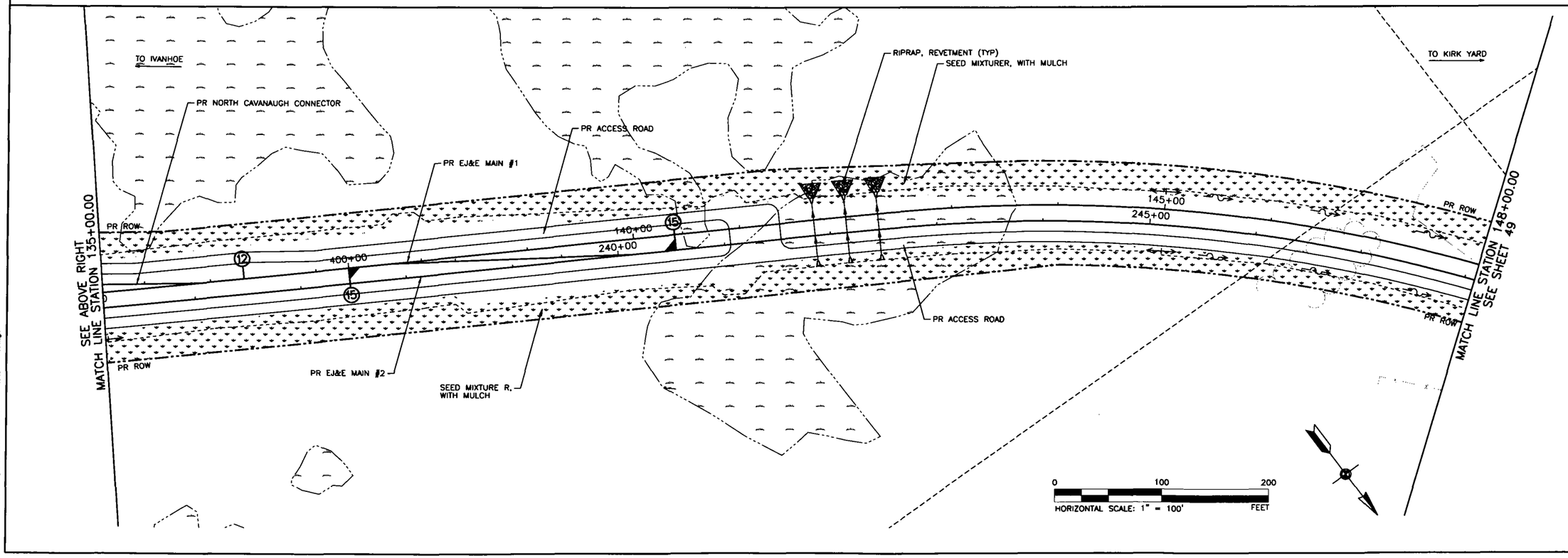

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SHEET TITLE:
EROSION
CONTROL
PLAN
EJ&E RAILROAD

SHEET NO.
EC-03/04

SHEET 48 OF 93

USER:
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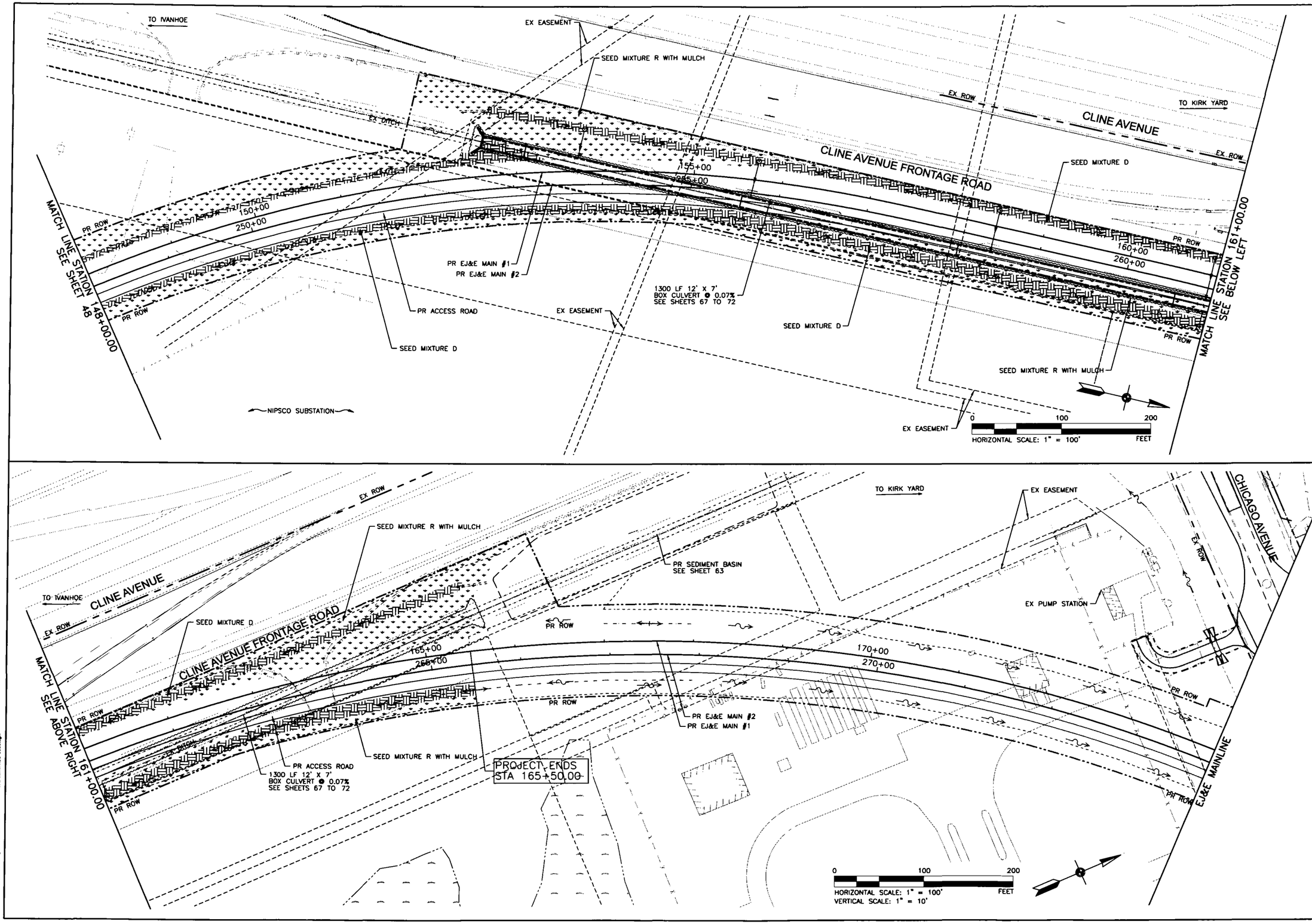

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SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY: JLV
DRAWN BY: KAL
CHECKED BY: KKY

SHEET TITLE:

EROSION
CONTROL
PLAN
EJ&E RAILROAD

SHEET NO.
EC-05/06

SHEET 49 OF 93

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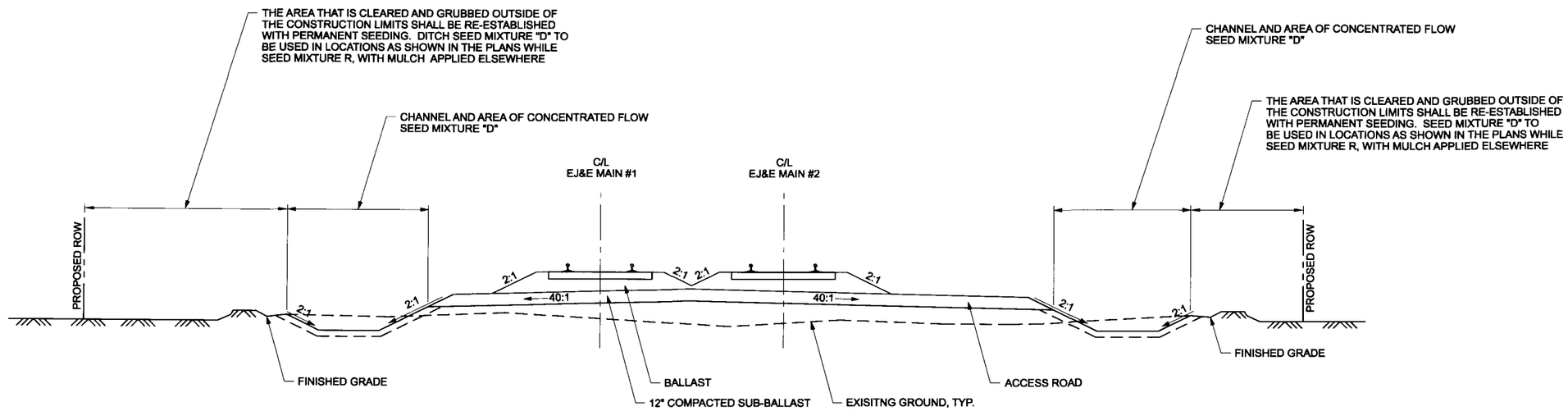
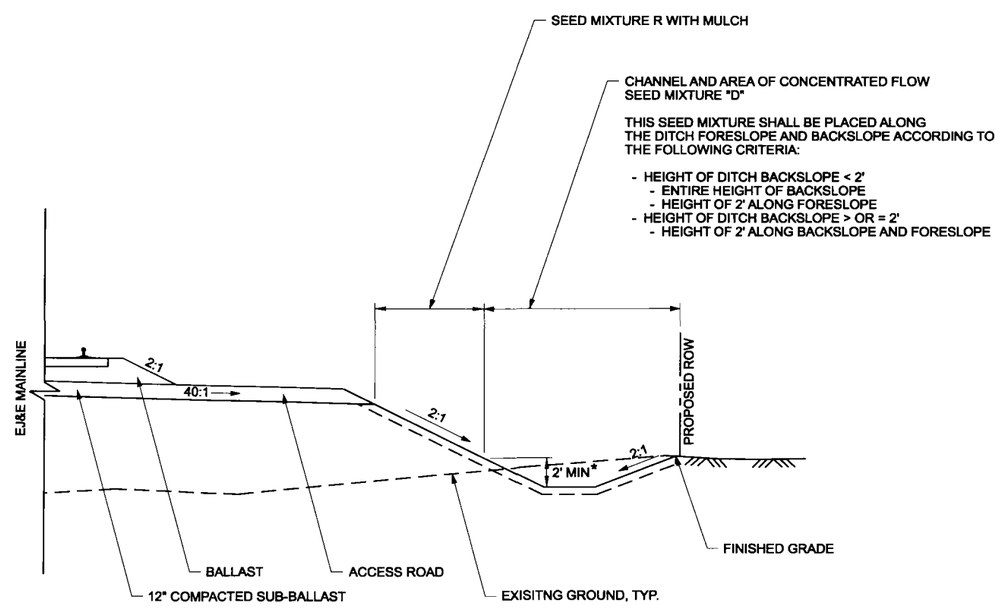


TYPICAL SECTION
EMBANKMENT HEIGHTS < 3 FEET



TYPICAL SECTION - DETAIL A
EMBANKMENT HEIGHTS > 3 FEET

* OR AS SHOWN IN THE PLANS

Systems
1475 E WOODFIELD ROAD
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CHECKED BY: KKY

SHEET TITLE:
EROSION CONTROL TYPICAL SECTIONS

SHEET NO.
ECTYP-1

SHEET 50 OF 93 93

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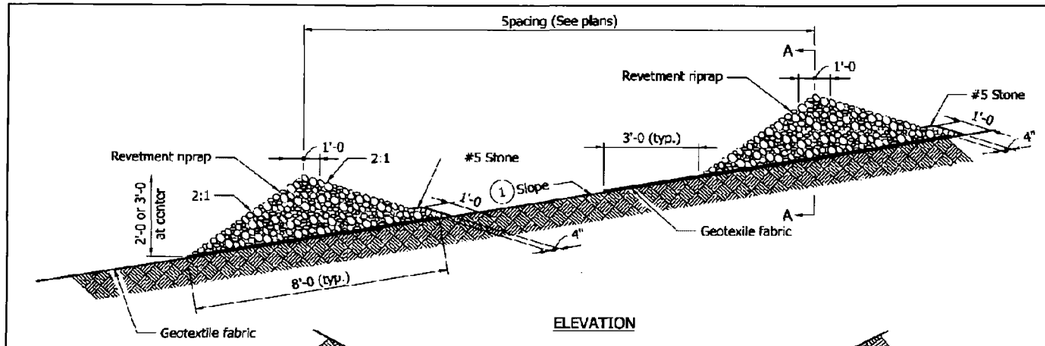
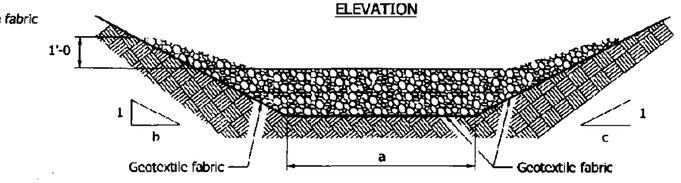
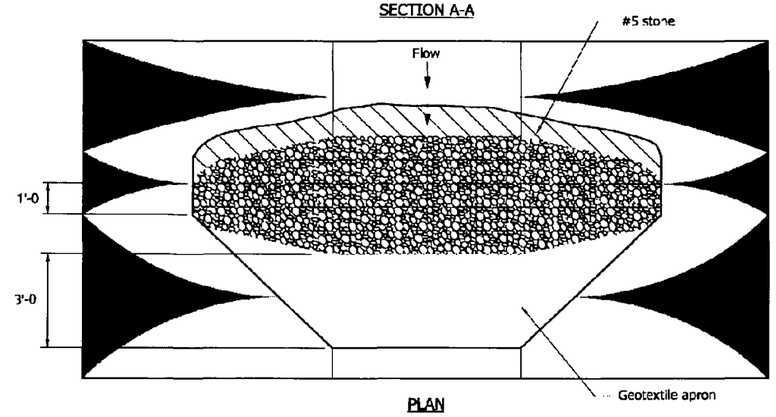


ELEVATION



SECTION A-A



PLAN

GENERAL NOTES:

1. Riprap ditch check dams shall be spaced such that the top of the downstream check dam is at the same elevation as the toe of the adjacent upstream check dam.
2. The volume of #5 stone (cys) is as follow:
   2 ft at center: 1/81 [a + 1.5 (b+c)]
   3 ft at center: 1/81 [a + 2 (b+c)]
3. The area of geotextile fabric (sys) is as follow:
   2 ft at center: 1/9 [11a + 18 (b+c)]
   3 ft at center: 1/9 [11a + 24 (b+c)]

INDIANA DEPARTMENT OF TRANSPORTATION

TEMPORARY CHECK DAM, REVETMENT RIPRAP

SEPTEMBER 2009

STANDARD DRAWING NO. E 205-TECD-01

RICHARD L. VanCLEAVE REGISTERED No. 9750 STATE OF INDIANA PROFESSIONAL ENGINEER

DESIGN STANDARDS ENGINEER

/s/ Richard L. VanCleave 09/01/09
DESIGN STANDARDS ENGINEER DATE

/s/ Mark A. Miller 09/01/09
CHIEF HIGHWAY ENGINEER DATE

Systems
1475 E WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE:847-605-9600
FAX:847-605-9610

E,J&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago International Airport

REVISIONS:		
MARK	DATE	DESCRIPTION
	9/16/2011	ISSUED FOR BID

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY: BJH
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:
STANDARDS FOR EROSION CONTROL AND DRAINAGE

SHEET NO.
STD-01

USER_
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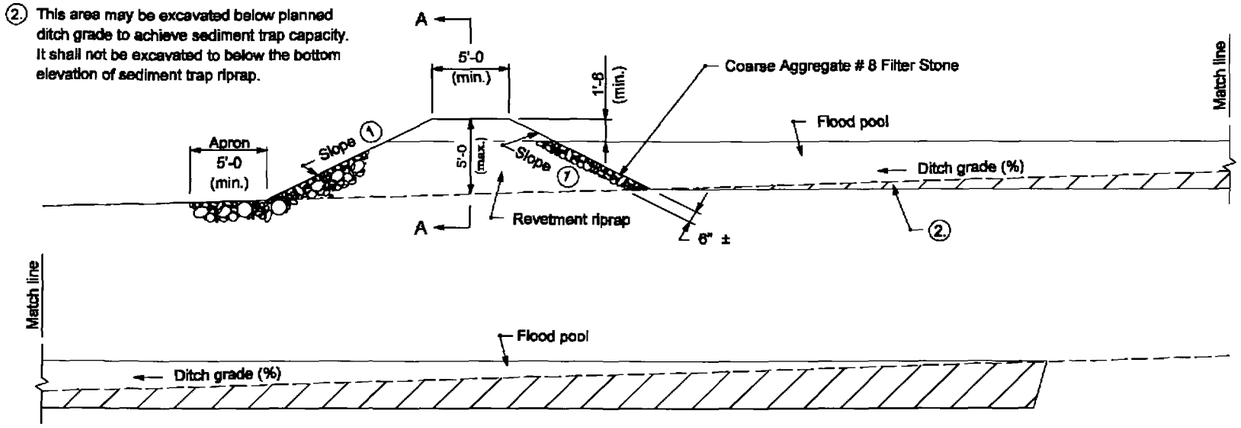
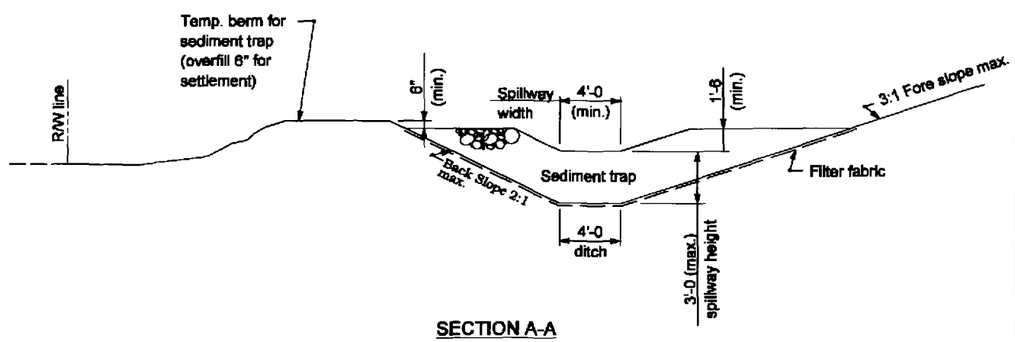
NOTES

1. Slope should be 3:1 maximum on the near side with respect to the direction of traffic while the far side slope may be 2:1 maximum.

2. This area may be excavated below planned ditch grade to achieve sediment trap capacity. It shall not be excavated to below the bottom elevation of sediment trap riprap.





SECTION A-A

INDIANA DEPARTMENT OF TRANSPORTATION

TEMPORARY SEDIMENT TRAP

MARCH 2004

STANDARD DRAWING NO. E 205-TECD-04

RICHARD L. VANCLEAVE REGISTERED No. 9750 STATE OF INDIANA PROFESSIONAL ENGINEER
DESIGN STANDARDS ENGINEER

/s/ Richard L VanCleave 3-01-04
DESIGN STANDARDS ENGINEER DATE

/s/ Richard Seufrer 3-01-04
CHIEF HIGHWAY ENGINEER DATE

Systems
1475 E WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE:847-805-9600
FAX:847-805-9610

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago International Airport

REVISIONS:			
MARK	DATE	DESCRIPTION	
	9/16/2011	ISSUED FOR BID	

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY: BJH
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:
STANDARDS FOR EROSION CONTROL AND DRAINAGE

SHEET NO.
STD-02

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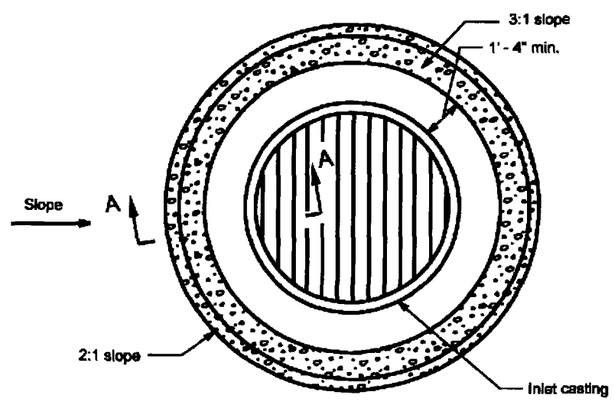
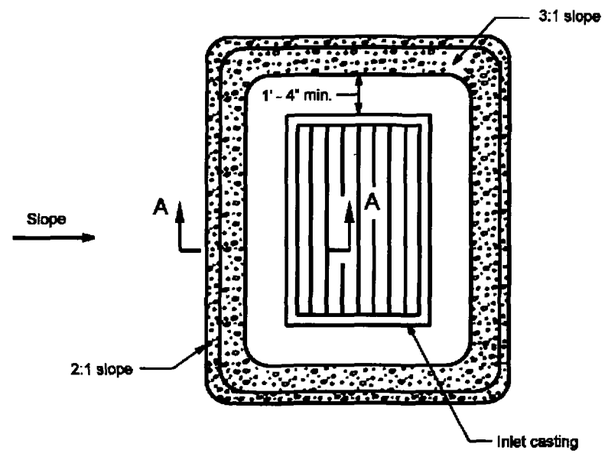
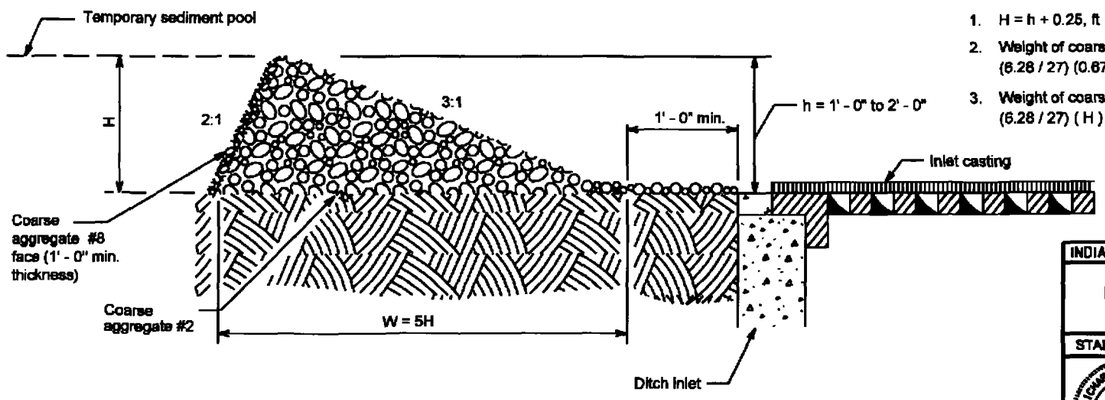




GENERAL NOTES

1. H = h + 0.25, ft
2. Weight of coarse aggregate #2, Tons:
   (6.28 / 27) (0.67² + 2.5H) (1 + 3H + 1/2 Inlet width) (0.6)
3. Weight of coarse aggregate #8, Tons:
   (6.28 / 27) (H) (1 + 4H + 1/2 inlet widt) (0.6)



SECTION A-A

INDIANA DEPARTMENT OF TRANSPORTATION

TEMPORARY DITCH INLET PROTECTION, GRAVEL RING

MARCH 2002

STANDARD DRAWING NO. E 205-TECI-01

RICHARD L. VANCLEAVE REGISTERED No. 9750 STATE OF INDIANA PROFESSIONAL ENGINEER — DESIGN STANDARDS ENGINEER

/s/ Richard L. VanCleave — DESIGN STANDARDS ENGINEER — DATE 3-01-02

/s/ Richard E. Sneyder — CHIEF HIGHWAY ENGINEER — DATE 3-01-02

Systems
1475 E WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE:847-605-9600
FAX:847-605-9610

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago International Airport

REVISIONS:		
MARK	DATE	DESCRIPTION
	9/16/2011	ISSUED FOR BID

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY: BJH
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:
STANDARDS FOR EROSION CONTROL AND DRAINAGE

SHEET NO.
STD-03

SHEET 53 OF 93

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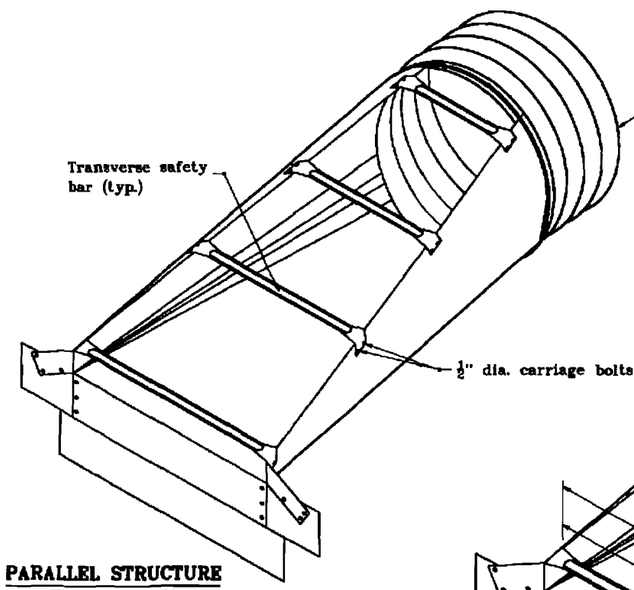
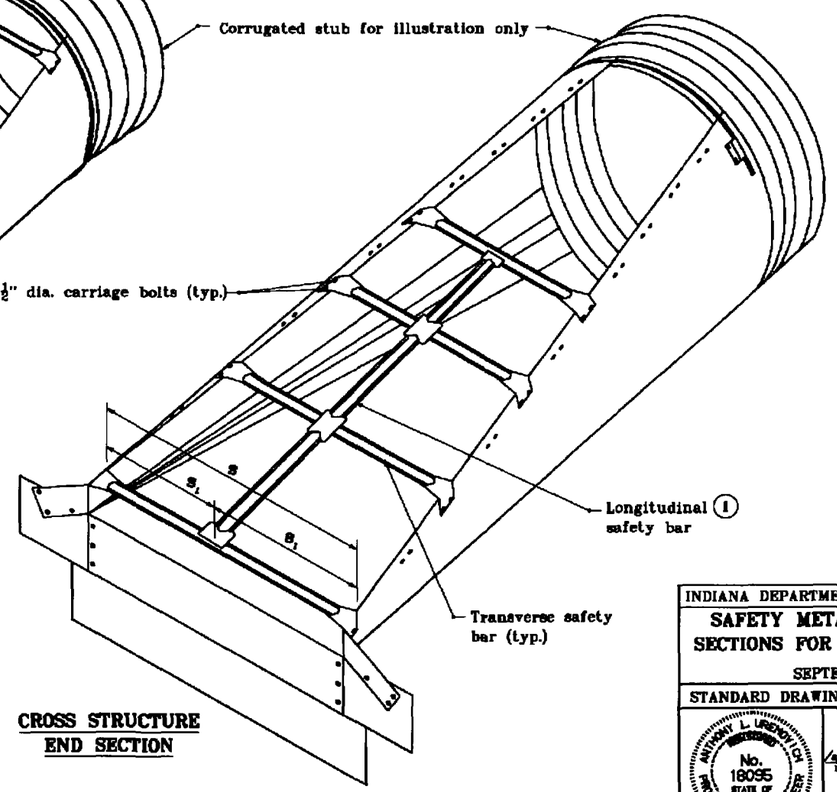
GENERAL NOTES

1. Longitudinal safety bar shall be welded to transverse bars. For cross structure and section, if S < 2'-6, no longitudinal safety bar is required. If S > 2'-6, longitudinal safety bar(s) shall be provided so S_1 < 2'-6.
2. Bolts shall be oriented with threads to inside of end section.



PARALLEL STRUCTURE END SECTION



CROSS STRUCTURE END SECTION

LEGEND

s – Overall span

s_1 – Span between end section edge and longitudinal safety bar or between longitudinal safety bars.

$$s_1 = \frac{s}{n+1}$$

where n = Number of longitudinal safety bars

INDIANA DEPARTMENT OF TRANSPORTATION

SAFETY METAL CULVERT END SECTIONS FOR CORRUGATED PIPE

SEPTEMBER 2000

STANDARD DRAWING NO. E 715-SMES-01

ANTHONY L. URBANOVICH REGISTERED No. 18095 STATE OF INDIANA PROFESSIONAL ENGINEER

DESIGN STANDARDS ENGINEER

/s/ Anthony L. Urbanovich 9-01-00
DESIGN STANDARDS ENGINEER — DATE

/s/ Pirooz Zandi 9-01-00
CHIEF HIGHWAY ENGINEER — DATE

Systems
1475 E WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE:847-605-9600
FAX:847-605-9610

EJ&E RAILWAY RELOCATION PROJECT CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago International Airport

REVISIONS:			
MARK	DATE	DESCRIPTION	
	9/18/2011	ISSUED FOR BID	

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/18/2011
DESIGNED BY: BJH
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:
STANDARDS FOR EROSION CONTROL AND DRAINAGE

SHEET NO.
STD-04

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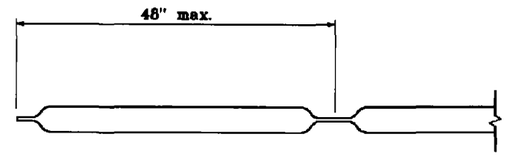
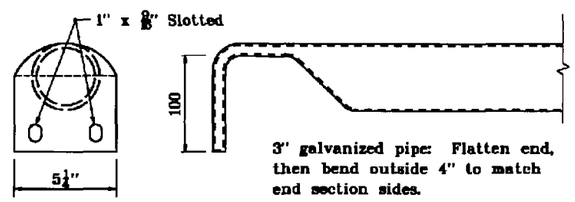


LONGITUDINAL SAFETY BAR DETAIL



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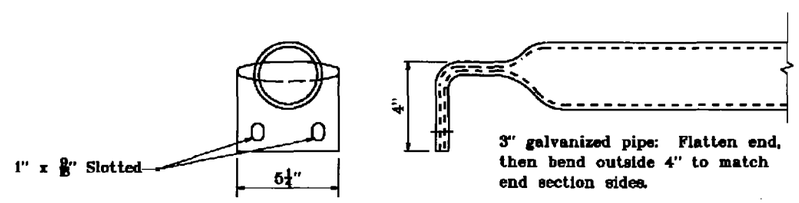

TRANSVERSE SAFETY BAR DETAILS

INDIANA DEPARTMENT OF TRANSPORTATION

SAFETY METAL CULVERT END SECTIONS FOR CORRUGATED PIPE

JANUARY 1998

STANDARD DRAWING NO. E 715-SMES-02

ANTHONY L. URBANOVICH REGISTERED No. 18095 STATE OF INDIANA PROFESSIONAL ENGINEER

DESIGN STANDARDS ENGINEER

DETAILS PLACED IN THIS FORMAT 7-27-98

/s/ Anthony L. Urbanovich 7-27-98
DESIGN STANDARDS ENGINEER DATE

/s/ Firoz Zandi 7-27-98
CHIEF HIGHWAY ENGINEER DATE

ORIGINALLY APPROVED 1-02-98

Systems
1475 E WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE:847-605-9600
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E,J&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago International Airport

REVISIONS:		
MARK	DATE	DESCRIPTION
	9/16/2011	ISSUED FOR BID

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY: BJH
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:
STANDARDS FOR EROSION CONTROL AND DRAINAGE

SHEET NO.
STD-05

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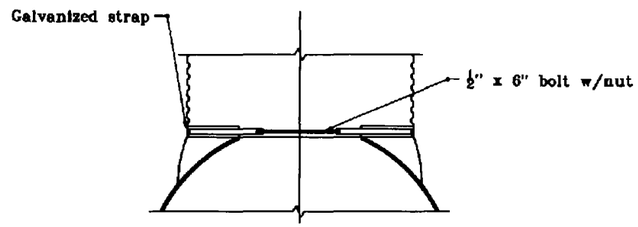
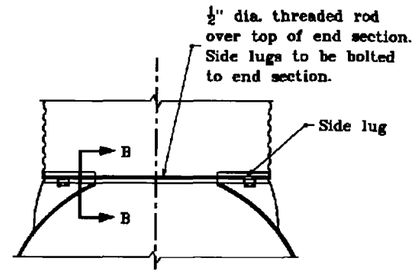
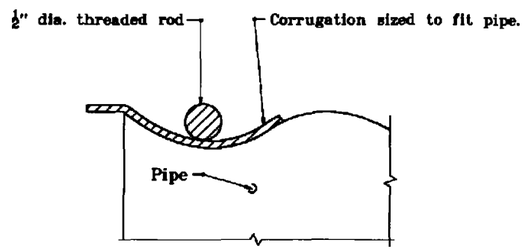


TYPE 1 CONNECTOR DETAIL
Through 24" dia.



TYPE 2 CONNECTOR DETAIL
For all circular pipes larger than 24" and all pipe-arches



SECTION B-B

GENERAL NOTES

1. For circular pipe diameters through 24", attach end section to pipe with type 1 connector. For all other sizes, attach end section to pipe with type 2 connector.

INDIANA DEPARTMENT OF TRANSPORTATION

SAFETY METAL CULVERT END SECTIONS FOR CORRUGATED PIPE

JANUARY 1998

STANDARD DRAWING NO. E 715-SMES-03

ANTHONY L. URSEMOVICH REGISTERED No. 18095 STATE OF INDIANA PROFESSIONAL ENGINEER

DESIGN STANDARDS ENGINEER

DETAILS PLACED IN THIS FORMAT 7-27-99

/s/ Anthony L. Ursemovich 7-27-99
DESIGN STANDARDS ENGINEER DATE

/s/ Firoz Randi 7-27-99
CHIEF HIGHWAY ENGINEER DATE

ORIGINALLY APPROVED 1-02-98

Systems
1475 E WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE:847-605-9600
FAX:847-605-9610

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago
International Airport

REVISIONS:		
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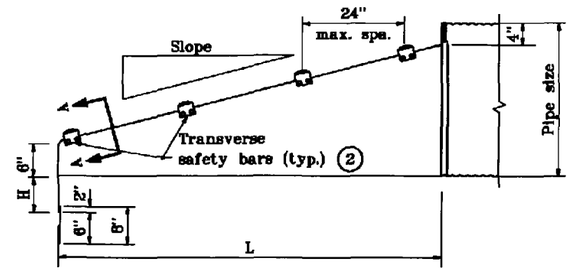
PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY: BJH
DRAWN BY: BJH
CHECKED BY: KKY

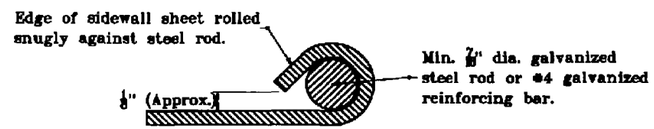
SHEET TITLE:
STANDARDS FOR EROSION CONTROL AND DRAINAGE

SHEET NO.
STD-06

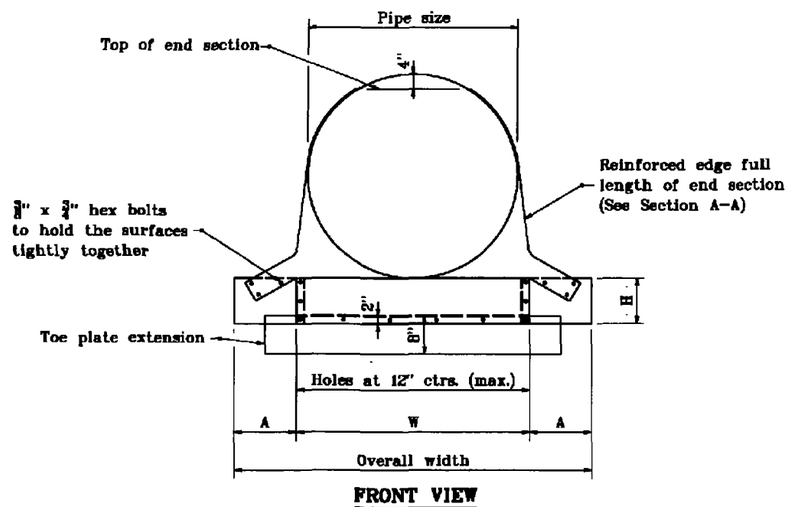
USER: 9/15/2011 - 5:40:42 PM - g:\n\p0050064\drafting\details\contract e-culvert\STD-06.dgn



SIDE ELEVATION OF PARALLEL STRUCTURE END SECTION



SECTION A–A



FRONT VIEW

GENERAL NOTES

1. See Standard Drawing E 715–SMES–06 for variable dimensions.
2. (2) Transverse safety bars shall be schedule 40 galvanized steel pipe. Pipe shall be galvanized after forming. Number of bars required will vary depending on the length of the end sections.
3. The toe plate extension shall be the same thickness as the end section. The dimension shall be the end section overall width less 6".

INDIANA DEPARTMENT OF TRANSPORTATION

SAFETY METAL CULVERT END SECTIONS FOR CORRUGATED PIPE

JANUARY 1996

STANDARD DRAWING NO. E 715–SMES–04

ANTHONY L. URMOVICH REGISTERED No. 18095 STATE OF INDIANA PROFESSIONAL ENGINEER

DESIGN STANDARDS ENGINEER

DETAILS PLACED IN THIS FORMAT 7-27-99

/s/ Anthony L. Urmovich 7-27-99
DESIGN STANDARDS ENGINEER DATE

/s/ Firoz Sanai 7-27-99
CHIEF HIGHWAY ENGINEER DATE

ORIGINALLY APPROVED 1-02-98

Systems
1475 E WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE:847-605-9600
FAX:847-605-9610

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL
AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago
International Airport

REVISIONS:			
MARK	DATE	DESCRIPTION	
	9/16/2011	ISSUED FOR BID	

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY: BJH
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:
STANDARDS FOR EROSION CONTROL AND DRAINAGE

SHEET NO.
STD-07

SHEET 57 OF 93

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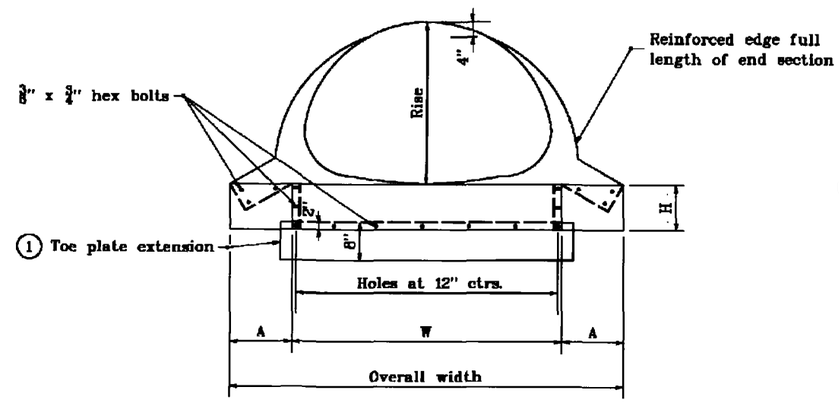
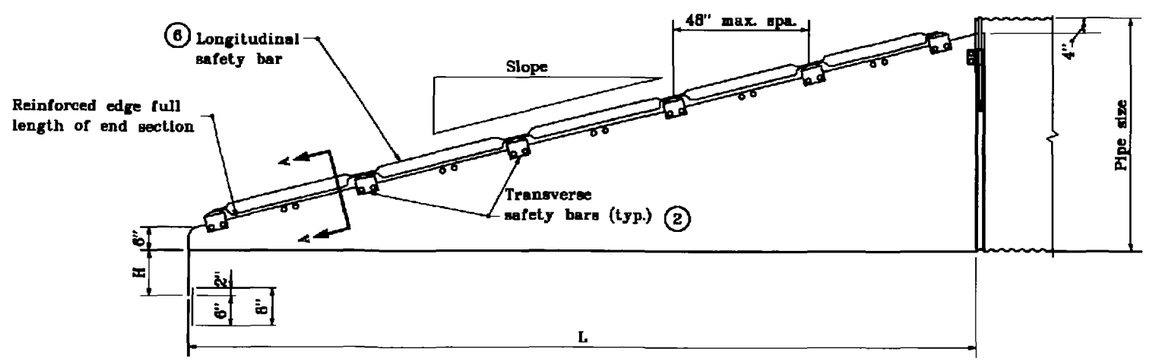
GENERAL NOTES

1. Toe plate extension shall be the same thickness as the end section. Dimension shall be overall width less 6".
2. Transverse safety bars shall be Schedule 40 galvanized steel pipe. Pipe shall be galvanized after forming. Number of bars required will vary depending on the length of the end sections.
3. Slotted holes for safety bar attachment shall be provided for all end sections.
4. See Standard Drawing E 715-SMES-04 for Section A-A.
5. See Standard Drawing E 715-SMES-06 for variable dimensions.
6. See Standard Drawing E 715-SMES-01 for warrant of longitudinal saftey bar.



FRONT VIEW



SIDE ELEVATION FOR CROSS STRUCTURE END SECTION

INDIANA DEPARTMENT OF TRANSPORTATION

SAFETY METAL CULVERT END SECTIONS FOR CORRUGATED PIPE

JANUARY 1998

STANDARD DRAWING NO.E 715-SMES-05

ANTHONY L. URSENOVICH REGISTERED No. 18095 STATE OF INDIANA PROFESSIONAL ENGINEER

DESIGN STANDARDS ENGINEER

DETAILS PLACED IN THIS FORMAT 7-27-99

/s/ Anthony L. Ursenovich 7-27-99
DESIGN STANDARDS ENGINEER DATE

/s/ Firoz Sandi 7-27-99
CHIEF HIGHWAY ENGINEER DATE

OFFICIALLY APPROVED 1-22-99

Systems
1475 E WOODFIELD ROAD
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E,J&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago International Airport

REVISIONS:			
MARK	DATE	DESCRIPTION	
	9/16/2011	ISSUED FOR BID	

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY: BJH
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:
STANDARDS FOR EROSION CONTROL AND DRAINAGE

SHEET NO.
STD-08

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METAL END SECTIONS FOR CIRCULAR PIPES									
Pipe Dia.	Min. Thick.	Dimensions, in.				L Dimensions			
		A	H	W	Overall Width	Slope	Length (in.)	Slope	Length (in.)
15	.064	8	6	37	37	4:1	20	6:1	30
18	.064	8	6	40	40	4:1	32	6:1	48
21	.064	8	6	43	43	4:1	44	6:1	66
24	.064	8	6	46	46	4:1	56	6:1	84
30	.109	12	9	60	60	4:1	80	6:1	120
36	.109	12	9	66	66	4:1	104	6:1	156
42	.109	16	12	80	80	4:1	128	6:1	192
48	.109	16	12	86	86	4:1	152	6:1	228
54	.109	16	12	92	92	4:1	176	6:1	264
60	.109	16	12	86	98	4:1	200	6:1	300

SAFETY METAL END SECTIONS FOR PIPE-ARCHES											
Equiv. Dia. (in.)	(inches)		Min. Thick	Dimensions, in.				L Dimensions			
	Span	Rise	in.	A	H	W	Overall Width	Slope	Length (in.)	Slope	Length (in.)
18	21	15	.064	8	6	27	43	4:1	20	6:1	30
21	24	18	.064	8	6	30	46	4:1	32	6:1	48
24	28	20	.064	8	6	34	50	4:1	40	6:1	60
30	35	24	.079	12	9	41	65	4:1	56	6:1	84
36	42	29	.109	12	9	48	72	4:1	76	6:1	114
42	49	33	.109	16	12	55	87	4:1	92	6:1	138
48	57	38	.109	16	12	63	95	4:1	112	6:1	168
54	64	43	.109	16	12	70	102	4:1	132	6:1	198
60	71	47	.109	16	12	77	109	4:1	148	6:1	222
72	83	57	.109	16	12	89	121	4:1	188	6:1	282

INDIANA DEPARTMENT OF TRANSPORTATION

SAFETY METAL CULVERT END SECTIONS FOR CORRUGATED PIPE

JANUARY 1998

STANDARD DRAWING NO. E 715-SMES-06

ANTHONY L. URSKOVICH REGISTERED No. 18095 STATE OF INDIANA PROFESSIONAL ENGINEER

DESIGN STANDARDS ENGINEER

DETAILS PLACED IN THIS FORMAT 11-15-99

/s/ Anthony L. Urskovich 11-15-99
DESIGN STANDARDS ENGINEER DATE

/s/ Bruce Zandi 11-15-99
CHIEF HIGHWAY ENGINEER DATE

ORIGINALLY APPROVED 1-02-98

Systems
1475 E WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE:847-605-9600
FAX:847-605-9610

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago International Airport

REVISIONS:			
MARK	DATE	DESCRIPTION	
	9/16/2011	ISSUED FOR BID	

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY: BJH
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:
STANDARDS FOR EROSION CONTROL AND DRAINAGE

SHEET NO.
STD-09

SHEET 59 OF 93

USER:
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Str.	Type	Casting Types												
		2	3	4	5	6	7	8	10	12	12A	13	14	15
Catch Basins	A	X	X					X						
	D					X								
	E						X							
	J								X					
	K								X					
	S												X	
	W①	X	X					X						
Inlets	A	X	X					X						
	B													X
	C													X
	D					X								
	E						X							
	F						X							
	G						X							
	H, HA				X									
	J								X					
	M								X					
	N									X				
	P										X			
	R											X		
	S												X	
	T												X	
Manholes	A	X		X				X						
	B	X		X				X						
	C②	X		X				X						
	D	X		X				X						
	E	X		X				X						
	F	X		X				X						
	G	X		X				X						
	H	X		X				X						
	J	X		X				X						
	K	X		X				X						
	L	X		X				X						
	M	X		X				X						
	N	X		X				X						

NOTES

① May be substituted for catch basin type A.

② May be substituted for manhole type A or B.

INDIANA DEPARTMENT OF TRANSPORTATION

COMPATIBILITY OF DRAINAGE STRUCTURES AND CASTINGS

SEPTEMBER 2006

STANDARD DRAWING NO. E 720-CDSC-01

RICHARD L. VANCLEAVE REGISTERED No. 9750 STATE OF INDIANA PROFESSIONAL ENGINEER

DESIGN STANDARDS ENGINEER

/s/ Richard L. VanCleave 9-01-06
DESIGN STANDARDS ENGINEER DATE

/s/ Richard K. Sautter 9-01-06
CHIEF HIGHWAY ENGINEER DATE

Systems
1475 E WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE:847-605-9600
FAX:847-605-9610

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago International Airport

REVISIONS:		
MARK	DATE	DESCRIPTION
	9/16/2011	ISSUED FOR BID

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY: BJH
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:
STANDARDS FOR EROSION CONTROL AND DRAINAGE

SHEET NO.
STD-10

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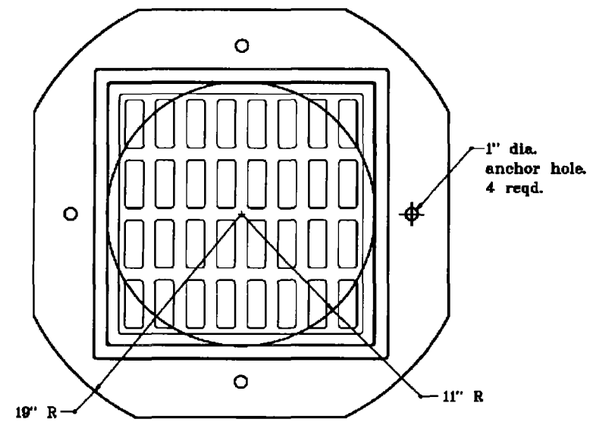

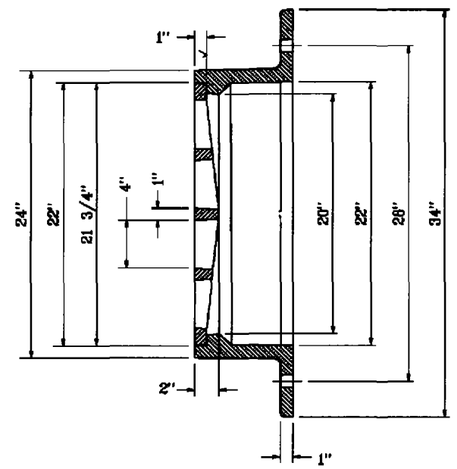

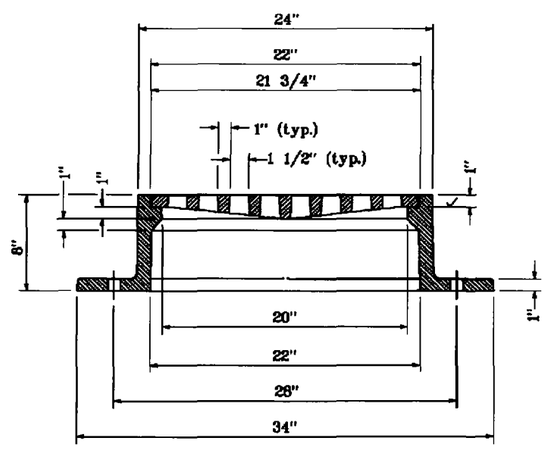

INDIANA DEPARTMENT OF TRANSPORTATION

FLAT TOP GRATE CASTING

TYPE 2

SEPTEMBER 1998

STANDARD DRAWING NO. E 720-MHCA-01

ANTHONY L. URSKOVICH REGISTERED No. 18095 STATE OF INDIANA PROFESSIONAL ENGINEER

DESIGN STANDARDS ENGINEER 9-01-98

DETAILS PLACED IN THIS FORMAT 11-15-99

/s/ Anthony L. Urskovich 11-15-99
DESIGN STANDARDS ENGINEER DATE

/s/ Bruce Zandi 11-15-99
CHIEF HIGHWAY ENGINEER DATE

ORIGINALLY APPROVED 9-01-98

Systems
1475 E WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE:847-605-9600
FAX:847-605-9610

E,I&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago International Airport

REVISIONS:			
MARK	DATE	DESCRIPTION	
	9/16/2011	ISSUED FOR BID	

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY: BJH
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:
STANDARDS FOR EROSION CONTROL AND DRAINAGE

SHEET NO.
STD-11

USER
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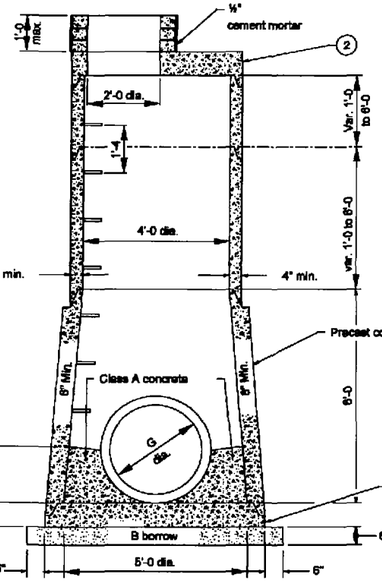
MANHOLE PIPE SIZES				
Type	G (in.)	F (ft. in.)	Maximum Pipe Size Rt. ∡ to Mainline (in.)	Maximum Pipe Size for Mainline (in.)
H	24 to 36	——	30	36
J	24 to 36	5'-0	30	36
K	36 to 48	6'-0	36	48
L	48 to 54	8'-0	48	54
M	54 to 72	8'-6	66	72
N	72 to 84	9'-0	72	84

NOTES

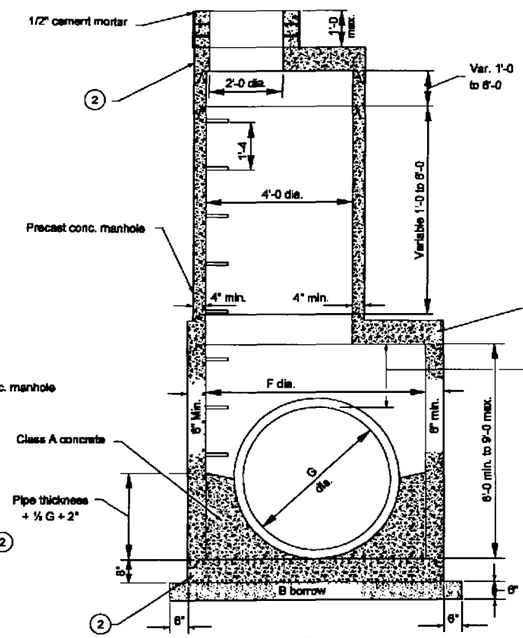
1. Drop pipe may be used with manholes Type H, J, K, L, M, or N. Such manhole shall be referred to as drop manholes type H, J, K, L, M, or N. For details of construction see Standard Drawing E 720-MHST-03.

(2) See Standard Drawing E 720-MHST-06 for Details A, B, and C.

(3) Manholes type C, D, E, or F. may be substituted for manholes type H, J, K, L, M, or N. for comparable pipe sizes. See Standard Drawings E 720-MHST-02 and -04 for manholes type D, E, F, and G details..



MANHOLE TYPE H



MANHOLE TYPE J,K,L,M & N

INDIANA DEPARTMENT OF TRANSPORTATION

MANHOLES
TYPE H, J, K, L, M, AND N
SEPTEMBER 2006

STANDARD DRAWING NO. E 720-MHST-05

RICHARD L. VANCLEAVE No. 9750 STATE OF INDIANA PROFESSIONAL ENGINEER
DESIGN STANDARDS ENGINEER

/s/ Richard L. VanCleave 9-01-06
DESIGN STANDARDS ENGINEER DATE

/s/ Richard K. Sautzar 9-01-06
CHIEF HIGHWAY ENGINEER DATE

Systems
1475 E WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE:847-605-9600
FAX:847-605-9610

E,I&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago
International Airport

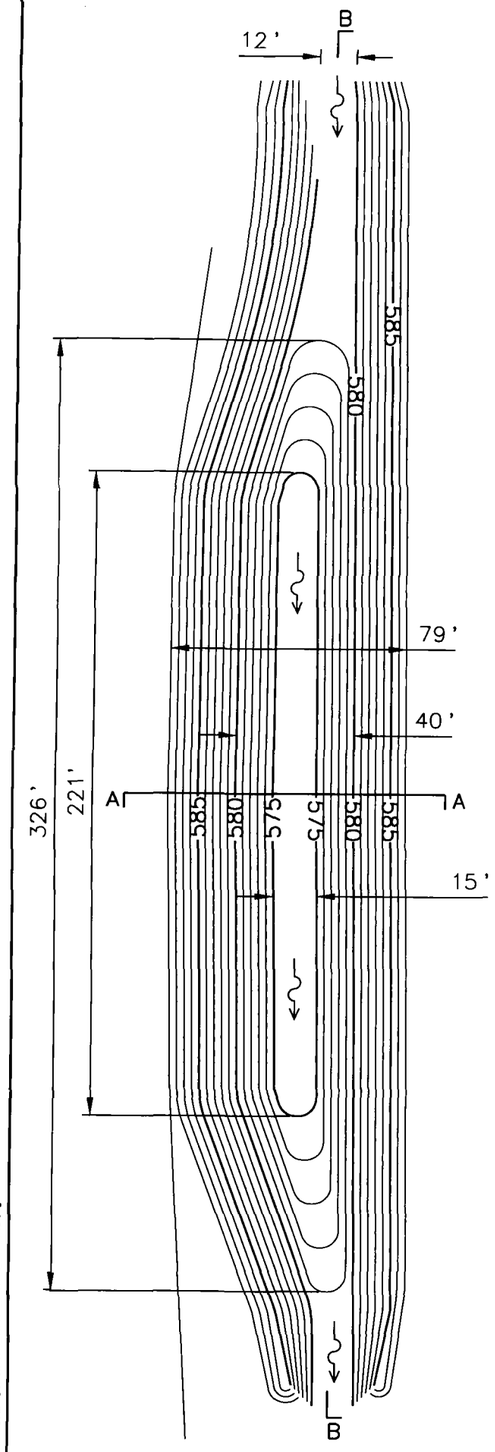
REVISIONS:			
MARK	DATE	DESCRIPTION	
	9/16/2011	ISSUED FOR BID	

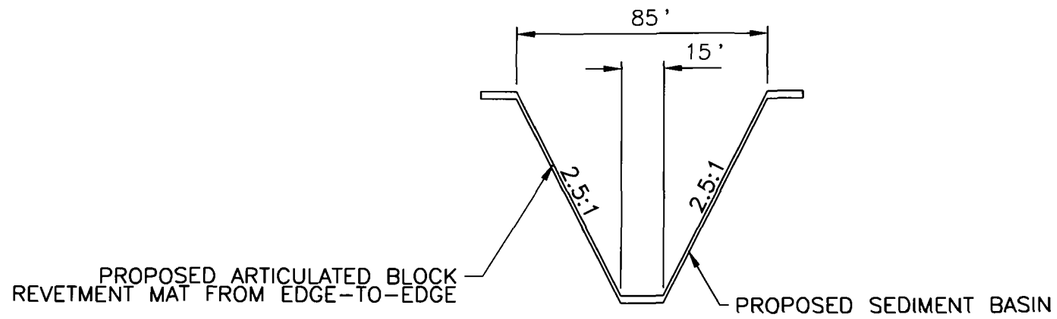
PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY: BJH
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:
STANDARDS FOR EROSION CONTROL AND DRAINAGE

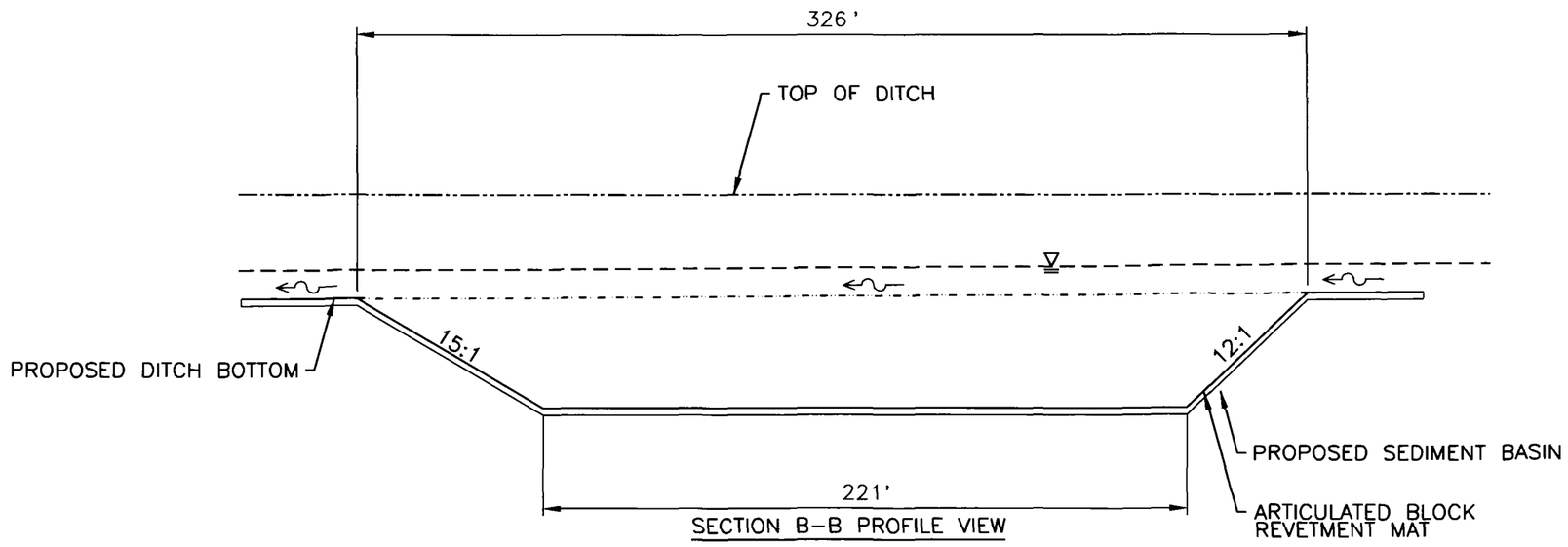
SHEET NO.
STD-12

USER: 9/15/2011 - 5:41:04 PM - g:\ch2\0\0064\rwf\sheets\contract s-culvert\STD-12.dgn





SECTION A–A CROSS SECTIONAL VIEW



SECTION B–B PROFILE VIEW

Systems
1475 E WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE:847-805-9600
FAX:847-805-9810

E,I&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago
International Airport

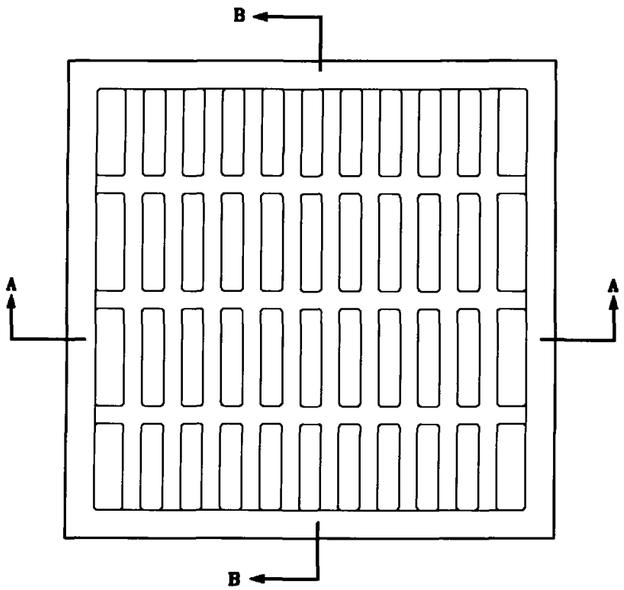
REVISIONS:		
MARK	DATE	DESCRIPTION
	9/16/2011	ISSUED FOR BID

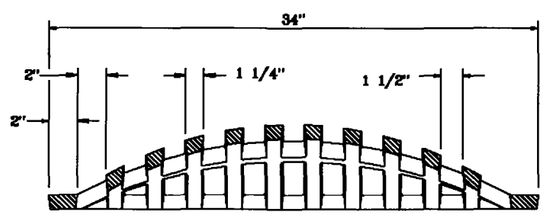
PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/18/2011
DESIGNED BY: BJH
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:
STANDARDS FOR EROSION CONTROL AND DRAINAGE

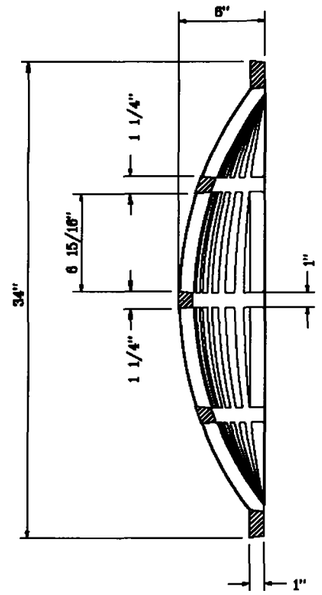
SHEET NO.
STD-13

USER: 9/15/2011 - 5:41:10 PM - g:\chi50\0064\mai\sheets\contract a-culvert\STD-13.dgn





SECTION A–A



SECTION B–B

EARTH DITCH CASTING TYPE 7

INDIANA DEPARTMENT OF TRANSPORTATION

EARTH DITCH
CASTING TYPE 7
SEPTEMBER 1996

STANDARD DRAWING NO. E 720–EDCA–01

ANTHONY L. BRANOVICH REGISTERED No. 18055 STATE OF INDIANA PROFESSIONAL ENGINEER

DESIGN STANDARDS ENGINEER

DETAILS PLACED IN THIS FORMAT 11-15-99

/s/ Anthony L. Branovich 11-15-99
DESIGN STANDARDS ENGINEER DATE

/s/ Firoz Sendi 11-15-99
CHIEF HIGHWAY ENGINEER DATE

ORIGINALLY APPROVED 9-13-96

Systems
1475 E WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE:847-605-9600
FAX:847-605-9610

E,J&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL
AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago
International Airport

REVISIONS:		
MARK	DATE	DESCRIPTION
	9/16/2011	ISSUED FOR BID

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY: BJH
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:
STANDARDS FOR EROSION CONTROL AND DRAINAGE

SHEET NO.
STD-14

SHEET 64 OF 93

USER:
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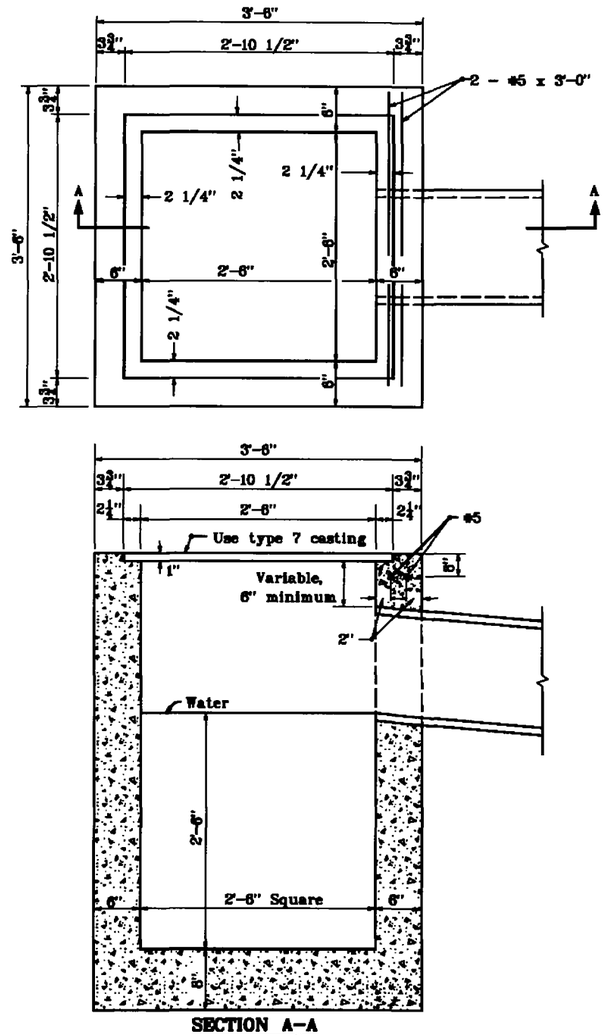


SECTION A-A

INDIANA DEPARTMENT OF TRANSPORTATION

CATCH BASIN
TYPE E
SEPTEMBER 1997

STANDARD DRAWING NO. E 720-CBST-03

ANTHONY L. URBANICH REGISTERED No. 18095 STATE OF INDIANA PROFESSIONAL ENGINEER
DESIGN STANDARDS ENGINEER

DETAILS PLACED IN THIS FORMAT 11-15-99

/s/ Anthony L. Urbanich 11-15-99
DESIGN STANDARDS ENGINEER DATE

/s/ Pirooz Sanati 11-15-99
CHIEF HIGHWAY ENGINEER DATE

ORIGINALLY APPROVED 9-01-97

Systems
1475 E WOODFIELD ROAD
SUITE 800
SCHAUMBURG, IL 60173
PHONE:847-605-9600
FAX:847-605-9610

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago
International Airport

REVISIONS:			
MARK	DATE	DESCRIPTION	
	9/16/2011	ISSUED FOR BID	

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY: BJH
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:
STANDARDS FOR EROSION CONTROL AND DRAINAGE

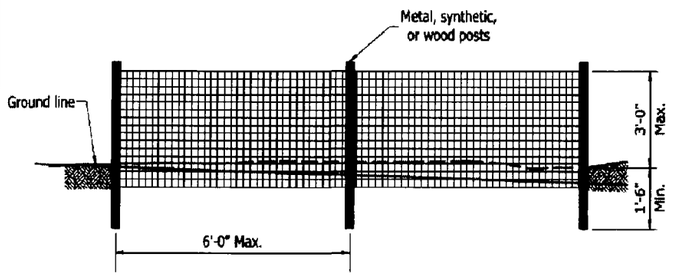
SHEET NO.
STD-15

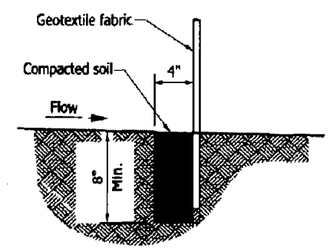
SHEET 85 OF 93

USER: 9/15/2011 - 5:41:18 PM - g:\chi\50\064\rail\sheets\contract e-culvert\STD-15.dgn

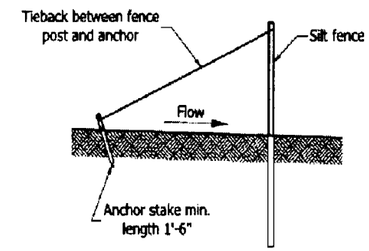
NOTES:

1. Dimensions will vary based on right-of-way availability. Silt fence shall be placed as close as possible to edge of construction limits.
2. The spacing of the tiebacks shall equal the spacing of the posts. Additional post depth or tiebacks may be required in unstable soils.

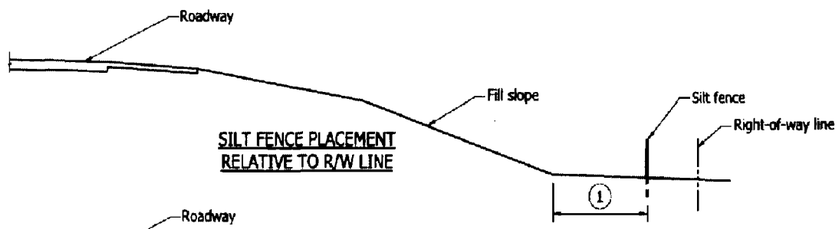




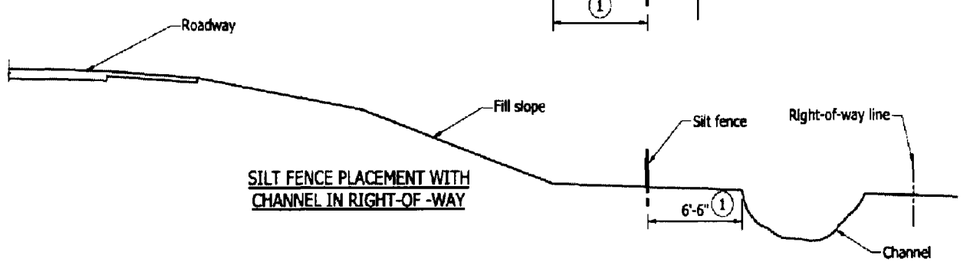
EMBEDMENT DETAIL



TIEBACK DETAIL (2)



SILT FENCE PLACEMENT RELATIVE TO R/W LINE



SILT FENCE PLACEMENT WITH CHANNEL IN RIGHT-OF -WAY

INDIANA DEPARTMENT OF TRANSPORTATION

TEMPORARY
SILT FENCE
SEPTEMBER 2010

STANDARD DRAWING NO. E 205-TECP-02

RICHARD L. VanCLEAVE REGISTERED No. 9750 STATE OF INDIANA PROFESSIONAL ENGINEER

DESIGN STANDARDS ENGINEER

/s/ Richard L. VanCleave 09/01/10
DESIGN STANDARDS ENGINEER DATE

/s/ Mark A. Miller 09/01/10
CHIEF HIGHWAY ENGINEER DATE

Systems
1475 E WOODFIELD ROAD
SUITE 800
SCHAUMBURG, IL 60173
PHONE:847-605-9600
FAX:847-605-9610

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago International Airport

REVISIONS:		
MARK	DATE	DESCRIPTION
	9/16/2011	ISSUED FOR BID

PROJ NO: P401050064
SCALE: AS SHOWN
DATE: 9/16/2011
DESIGNED BY: BJH
DRAWN BY: BJH
CHECKED BY: KKY

SHEET TITLE:
STANDARDS FOR EROSION CONTROL AND DRAINAGE

SHEET NO.
STD-16

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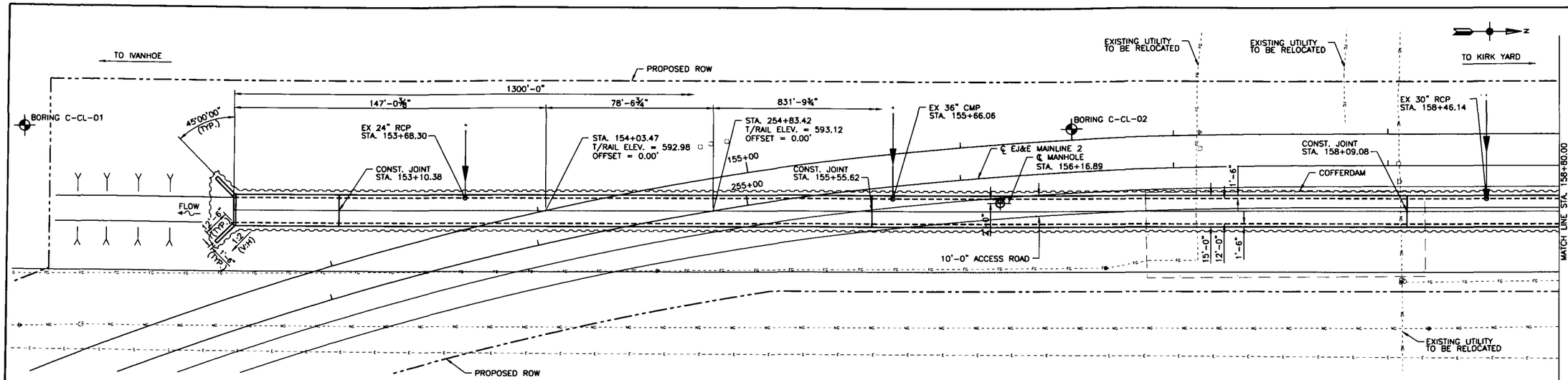
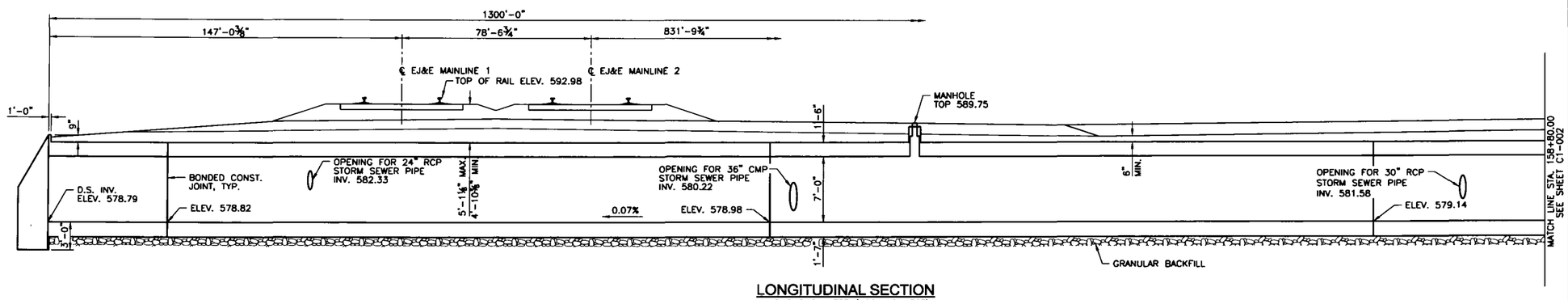


PLAN



LONGITUDINAL SECTION

ALONG ℄ CULVERT (LOOKING WEST)
VERTICAL SCALE: 4:1 (V:H)

HORIZONTAL CURVE DATA

(EJ&E MAINLINE 1)

CURVE 1-2

P.I. STA. = 150+32.52
LENGTH = 1338.61'
DEGREE OF CURVE = 3°57'27"
RADIUS = 1448.02'
P.C. STA. = 143+10.92
P.T. STA. = 156+49.53

CURVE 1-3

P.I. STA. = 176+96.56
LENGTH = 2522.8'
DEGREE OF CURVE = 3°28'03"
RADIUS = 1652.57
P.C. STA. = 161+15.10
P.T. STA. = 186+37.90

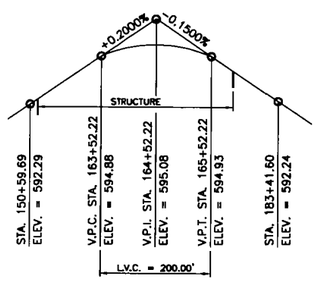
(EJ&E MAINLINE 2)

CURVE 2-2

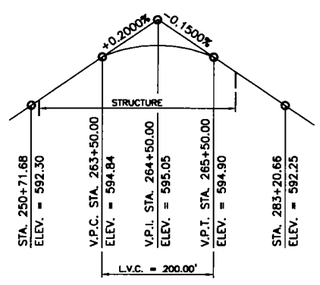
P.I. STA. = 250+35.37
LENGTH = 1287.80'
DEGREE OF CURVE = 4°0'00"
RADIUS = 1432.69
P.C. STA. = 243+44.14
P.T. STA. = 256+31.94

CURVE 2-3

P.I. STA. = 276+60.70
LENGTH = 2453.35'
DEGREE OF CURVE = 3°30'00"
RADIUS = 1637.28
P.C. STA. = 261+37.46
P.T. STA. = 285+90.81



TOP OF RAIL PROFILE EJ&E MAINLINE 1



TOP OF RAIL PROFILE EJ&E MAINLINE 2

LEGEND

- POWER LINE
- NATURAL GAS LINE
- FUEL LINE
- WATER LINE
- STORM SEWER
- BORING

GENERAL NOTES:

SPECIFICATIONS:
DESIGN SPECIFICATIONS:
-AMERICAN RAILWAY ENGINEERING AND MAINTENANCE-OF-WAY ASSOCIATION (A.R.E.M.A.), MANUAL FOR RAILWAY ENGINEERING, 2010, CHAPTERS 8 AND 15.
-CN GUIDELINES FOR DESIGN OF RAILWAY STRUCTURES (JANUARY 2006)

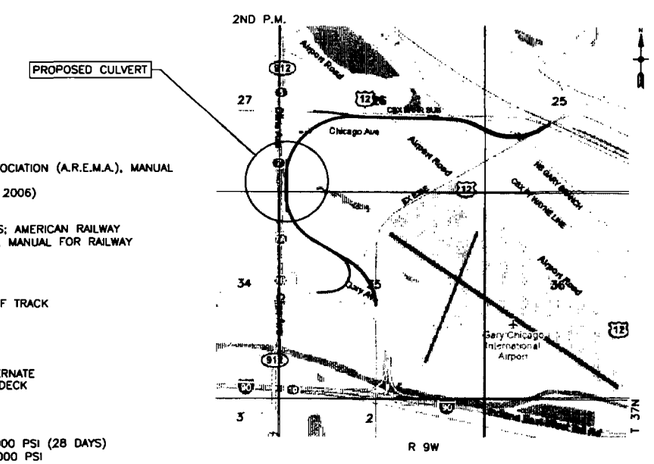
CONSTRUCTION DOCUMENTS:
PROJECT SPECIAL CONDITIONS; PROJECT TECHNICAL SPECIFICATIONS; AMERICAN RAILWAY ENGINEERING AND MAINTENANCE-OF-WAY ASSOCIATION (A.R.E.M.A.), MANUAL FOR RAILWAY ENGINEERING, 2010.

DESIGN LOADING:
DEAD LOAD (ASSUMED)

TRACK	200 LBS. PER LIN. FT. OF TRACK
BALLAST	120 LBS. PER CUBIC FT.
CONCRETE	150 LBS. PER CUBIC FT.
STRUCTURAL STEEL	490 LBS. PER CUBIC FT.
FUTURE BALLAST	28 IN TO TOP OF TIE
LIVE LOAD	COOPER E 90 PLUS ALTERNATE LIVE LOAD FOR BALLAST DECK
IMPACT LOAD	DIESEL IMPACT
DESIGN SPEED	40 MPH

DESIGN UNIT STRESSES:
CAST-IN-PLACE CONCRETE — F'C = 5,000 PSI (28 DAYS)
REINFORCING STEEL (ASTM A615, GRADE 60) — FY = 60,000 PSI

STATIONS ARE BASED UPON CENTERLINE PROPOSED EJ&E MAINLINE 1 FOR LATERALS AND MANHOLES.



VICINITY MAP

Systems
1475 E WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE:847-805-9600
FAX:847-805-9610

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago International Airport

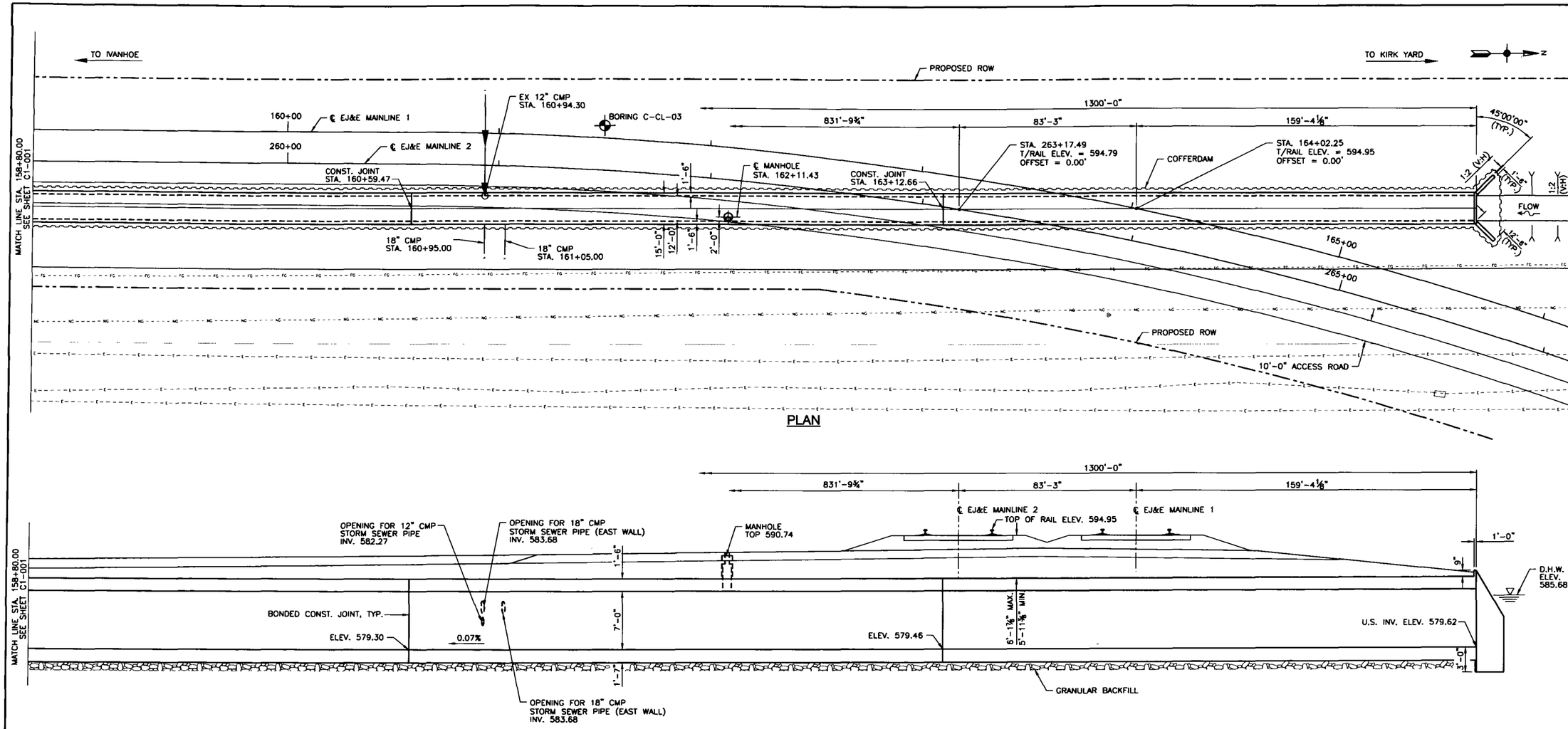
REVISIONS:			
MARK	DATE	DESCRIPTION	
	9/16/2011	ISSUED FOR BID	

PROJ NO: P401050064
SCALE: 1" = 25'
DATE: 9/16/2011
DESIGNED BY: JRM
DRAWN BY: DMG
CHECKED BY: JMT

SHEET TITLE:
CLINE CULVERT PLAN AND SECTION I

SHEET NO.
C1-001

SHEET 67 OF 93



PLAN

LONGITUDINAL SECTION
ALONG ℄ CULVERT (LOOKING WEST)
VERTICAL SCALE: 4:1 (V:H)

NOTES:

1. STATIONS ARE BASED UPON CENTERLINE PROPOSED EJ&E MAINLINE 1 FOR LATERALS AND MANHOLES.

LEGEND

- POWER LINE
- NATURAL GAS LINE
- FUEL LINE
- WATER LINE
- STORM SEWER
- BORING

BILL OF MATERIAL

ITEM NO.	PAY ITEM NO.	ITEM	UNIT	QTY.
40	2300.1	COFFERDAM (CLINE CULVERT)	LS	1
42	3201.1	REINFORCING STEEL	LB	673,600
43	3310.1	CONCRETE 5000 P.S.I.	CY	3368

Systems
1475 E WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE:847-605-9600
FAX:847-605-9610

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA

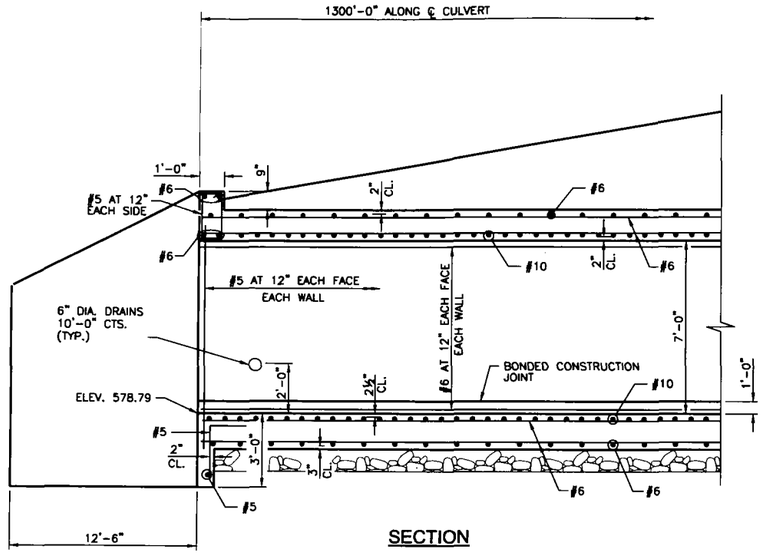
GaryChicago International Airport

REVISIONS:		
MARK	DATE	DESCRIPTION
	9/16/2011	ISSUED FOR BID

PROJ NO: P401050064
SCALE: 1" = 25'
DATE: 9/16/2011
DESIGNED BY: JRM
DRAWN BY: DMG
CHECKED BY: JMT

SHEET TITLE:
CLINE CULVERT PLAN AND SECTION II

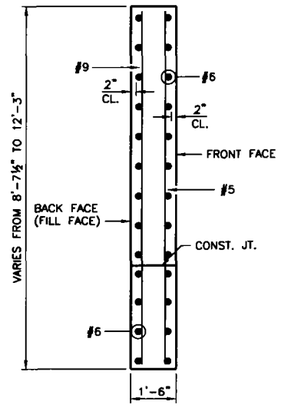
SHEET NO.
C1-002



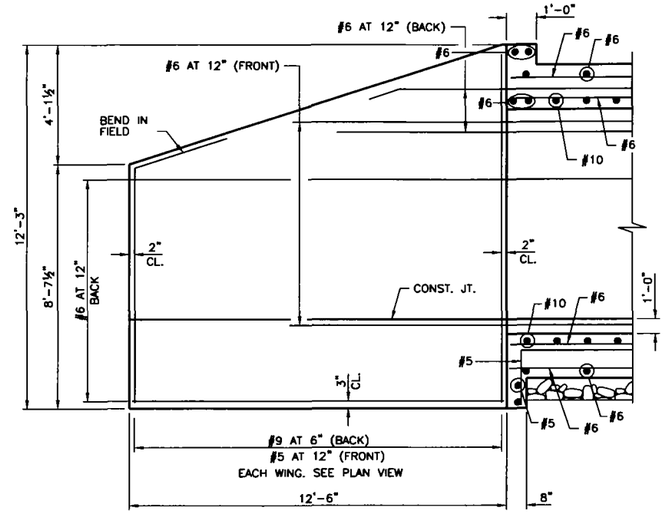
SECTION

(DOWNSTREAM OUTLET)

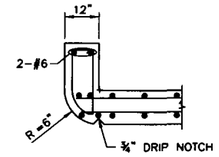
SECTION VIEW IS NORMAL TO CULVERT ℄



SECTION AT WINGWALL

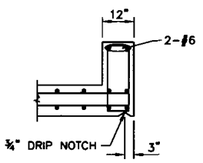


ELEVATION



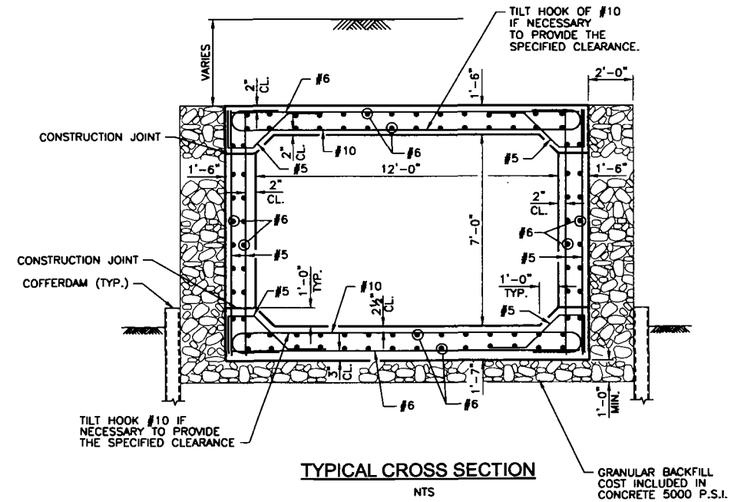
SECTION THRU HEADWALL

(UP STREAM END ONLY)



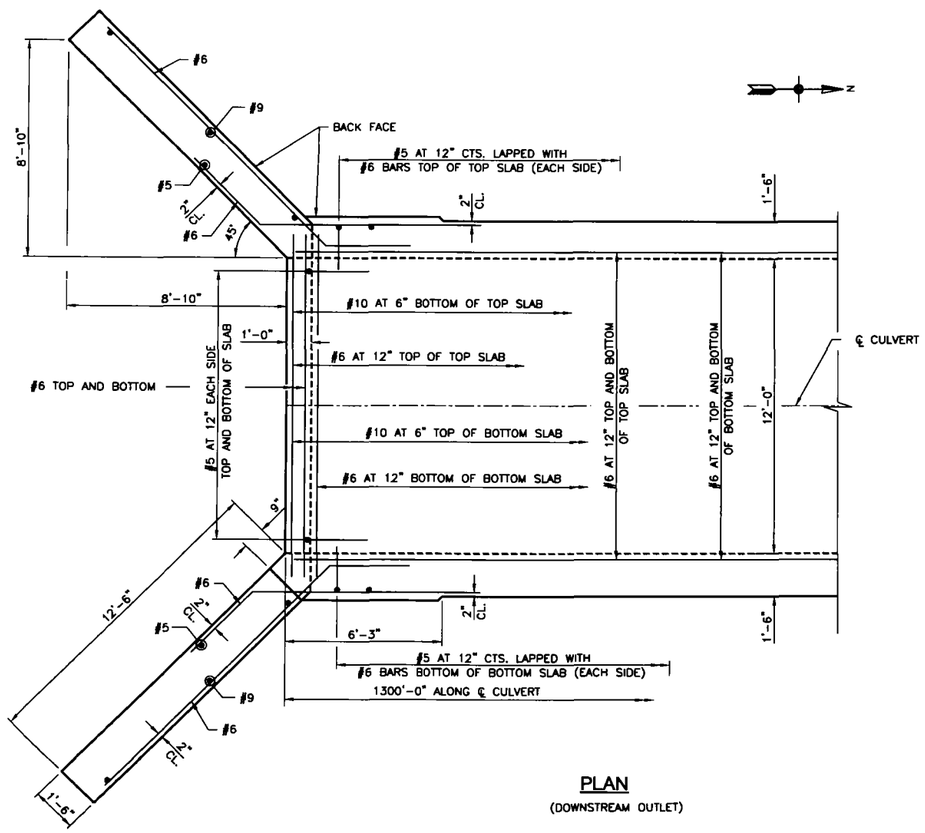
SECTION THRU HEADWALL

(DOWN STREAM END ONLY)



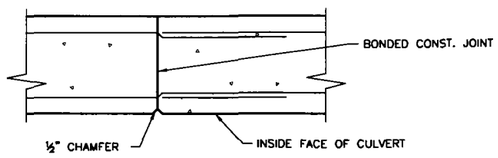
TYPICAL CROSS SECTION

NTS



PLAN

(DOWNSTREAM OUTLET)



CONSTRUCTION JOINT DETAIL

NTS

NOTES

1. A DISTANCE OF HALF THE LENGTH OF THE WINGWALL BUT NOT LESS THAN SIX FEET OF THE BARREL SHALL BE POURED MONOLITHICALLY WITH THE WINGWALLS.
2. MIN LAP LENGTH FOR #6 BARS = 2'-7".
3. SOIL PROPERTIES BASED ON GEOTECHNICAL ENGINEERING REPORT BY WANG ENGINEERING.

Systems
1475 E WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE:847-605-9600
FAX:847-605-9610

EJ&E RAILWAY RELOCATION PROJECT CULVERT AND GRADING

GARY CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago International Airport

REVISIONS:		
MARK	DATE	DESCRIPTION
	9/16/2011	ISSUED FOR BID

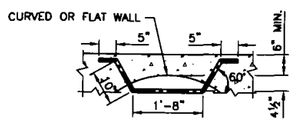
PROJ NO: P401050064
SCALE: 1"=5'
DATE: 9/16/2011
DESIGNED BY: JRM
DRAWN BY: AJP
CHECKED BY: SLC

SHEET TITLE:

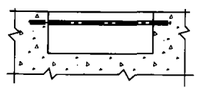
CLINE CULVERT DETAILS

SHEET NO.
C1-003

SHEET 69 OF 93

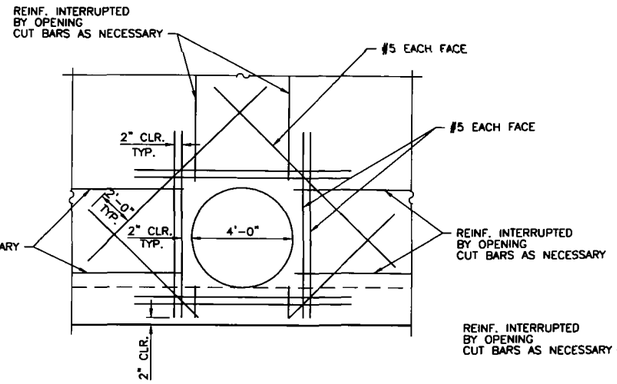


PLAN

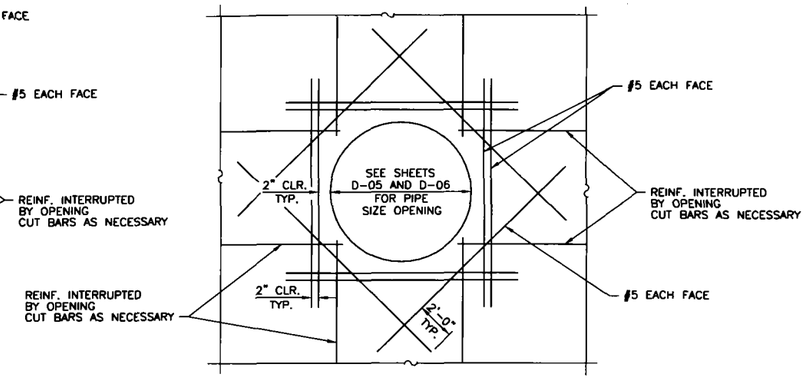


ELEVATION

TYPE "Y"

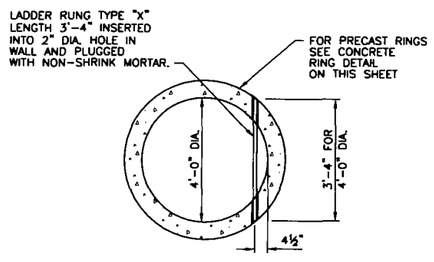


MANHOLE OPENING PLAN



DETAIL AT PIPE THROUGH CULVERT WALL

DETAIL AT EXT. WALL
SEE SHEETS C1-001 TO C1-002
FOR LOCATIONS, SIZES AND INVERTS



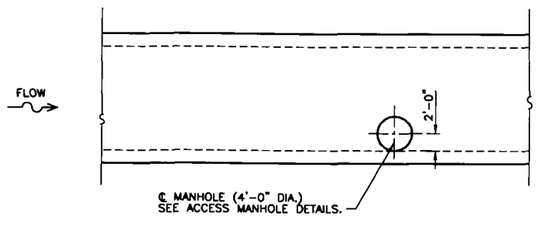
SECTION A-A

TYPE "X"

NOTE:
ALL LADDER RUNGS SHALL BE ALUMINUM AND HAVE 1" DIA. OR EQUIVALENT CROSS SECTION AREA

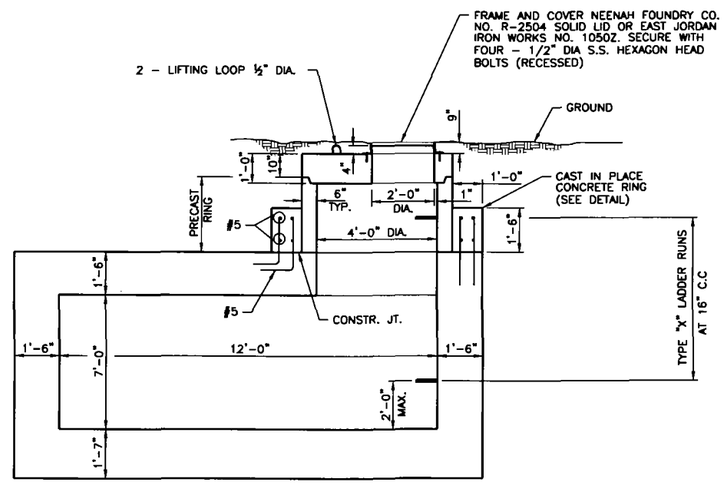
LADDER RUNGS DETAIL

NTS



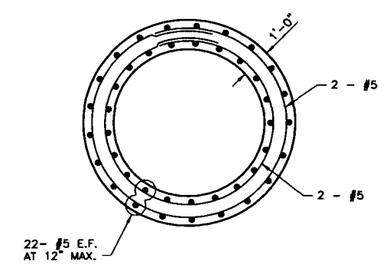
TYPICAL ACCESS GEOMETRY PLAN

NTS



ACCESS MANHOLE CROSS SECTION

NTS



CONCRETE RING DETAIL

NTS

NOTES:

1. PIPE OPENING SHALL BE SUFFICIENT SIZE TO ACCOMMODATE PIPE OUTSIDE DIAMETER PLUS GROUT.
2. THE ANNULAR SPACE BETWEEN THE CONCRETE RING AND THE PRECAST RINGS SHALL BE FILLED WITH NON-SHRINK GROUT.

Systems
1475 E WOODFIELD ROAD
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SCHAUMBURG, IL 60173
PHONE:847-605-9600
FAX:847-605-9610

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago
International Airport

REVISIONS:			
MARK	DATE	DESCRIPTION	
	9/16/2011	ISSUED FOR BID	

PROJ NO: P401050064
SCALE: 1" = 1'
DATE: 9/16/2011
DESIGNED BY: JMT
DRAWN BY: JMT
CHECKED BY: SLC

SHEET TITLE:

CLINE CULVERT ACCESS DETAILS

SHEET NO.
C1-004
SHEET 70 OF 93

USER
9/15/2011 4:20:49 PM g:\ph05\D06A\structure\cad\sheets\cline culvert\S-306-C1.dgn

BORING LOG C-CL-01

Page 1 of 1

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

WEI Job No.: 790-16-03
Client: TranSystems Corporation
Project: Gary Chicago Airport/ EJ&E Track Relocation
Location: Gary, Lake County, Indiana

Datum: NAVD88
Elevation: 588.00 ft
North: 2322066.05 ft
East: 2857539.05 ft
Station: 151+89.06
Offset: 68.07 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	588.0	12-inch thick, black SILTY SAND (SM)						
	586.0	--TOPSOIL--						
		Gray GRAVEL and SAND --FILL--						
		Medium dense to very dense, brown to gray, fine, poorly-graded SAND (SP)			1	6 10 15	NP	9
			5		2	6 13 17	NP	7
					3	8 10 11	NP	21
			10		4	5 7 14	NP	27
					5	8 11 14	NP	32
			15		6	8 20 33	NP	30
					7	10 13 25	NP	30
			20		8	18 38 45	NP	28
	567.5	Medium dense, gray, fine, poorly-graded SAND (SP)			9	4 5 5	NP	24
			25		10	5 5 13	NP	26
	563.0	Boring terminated at 25.00 ft						
			30					
			35					
			40					

GENERAL NOTES

Begin Drilling 03-10-2011 Complete Drilling 03-10-2011
Drilling Contractor K & S Engineers Drill Rig Diedrich D-50
Driller C & E Logger F. Bozga Checked by E. Datz
Drilling Method 3.25 IDA HSA. Boring backfilled upon completion

WATER LEVEL DATA

While Drilling	▽	6.50 ft
At Completion of Drilling	▽	6.50 ft
Time After Drilling		NA
Depth to Water	▽	NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

BORING LOG C-CL-02

Page 1 of 1

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

WEI Job No.: 790-16-03
Client: TranSystems Corporation
Project: Gary Chicago Airport/ EJ&E Track Relocation
Location: Gary, Lake County, Indiana

Datum: NAVD88
Elevation: 588.50 ft
North: 2322558.20 ft
East: 2857535.96 ft
Station: 156+54
Offset: 4.96 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		15-inch thick, GRAVELLY SAND						
	587.3	--SURFACE AGGREGATE--						
		Medium dense, brown to gray, fine, poorly-graded SAND (SP)			1	6 10 15	NP	7
			5		2	6 13 17	NP	9
					3	8 10 11	NP	31
			10		4	5 7 14	NP	33
					5	8 11 14	NP	31
	575.5	Medium dense to very dense, gray, fine, poorly-graded SAND (SP)						
			15		6	8 20 33	NP	25
					7	10 13 25	NP	33
			20		8	18 38 45	NP	31
					9	4 5 5	NP	28
			25		10	5 5 13	NP	25
	563.5	Boring terminated at 25.00 ft						
			30					
			35					
			40					

GENERAL NOTES

Begin Drilling 03-10-2011 Complete Drilling 03-10-2011
Drilling Contractor K & S Engineers Drill Rig Diedrich D-50
Driller C & E Logger F. Bozga Checked by E. Datz
Drilling Method 3.25 IDA HSA. Boring backfilled upon completion

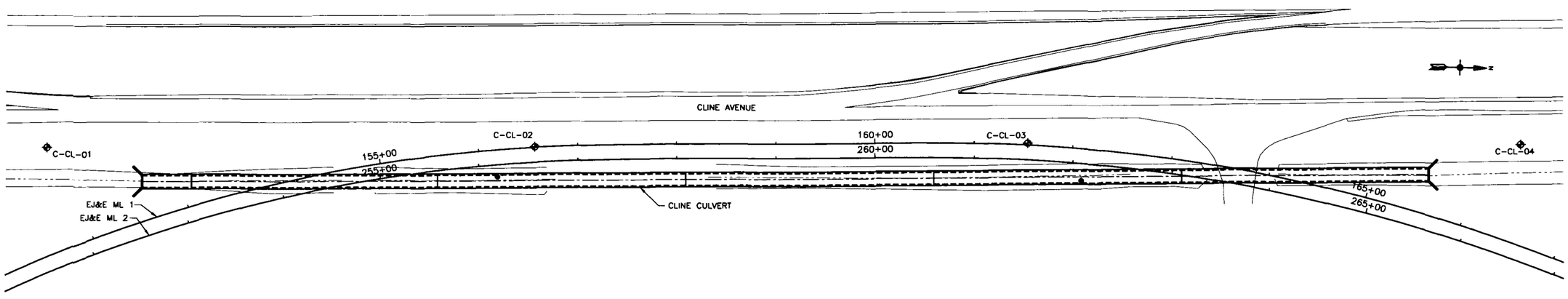
WATER LEVEL DATA

While Drilling	▽	5.50 ft
At Completion of Drilling	▽	6.00 ft
Time After Drilling		NA
Depth to Water	▽	NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

GEOTECHNICAL NOTES:

THIS DRAWING TO BE READ IN CONJUNCTION WITH GEOTECHNICAL INVESTIGATION PRODUCED BY WANG ENGINEERING, DATED MAY 10, 2011.



BORING LOCATION PLAN

NTS

TranSystems
1475 E WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE:847-805-9600
FAX:847-805-9810

E,J&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago International Airport

REVISIONS:		
MARK	DATE	DESCRIPTION
	9/16/2011	ISSUED FOR BID

PROJ NO: P401050064
SCALE: 1" = 1'
DATE: 9/16/2011
DESIGNED BY: JMT
DRAWN BY: DMG
CHECKED BY: SLC

SHEET TITLE:
CLINE CULVERT
SOIL BORING
LOGS I

SHEET NO.
C1-005

SHEET 71 OF 93

BORING LOG C-CL-03

Page 1 of 1

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

WEI Job No.: 790-16-03
Client: TranSystems Corporation
Project: Gary Chicago Airport/ EJ&E Track Relocation
Location: Gary, Lake County, Indiana

Datum: NAVD88
Elevation: 588.50 ft
North: 2323055.77 ft
East: 2857532.67 ft
Station: 161+51.21
Offset: 5.09 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	588.5	32-inch thick, black SILTY SAND --TOPSOIL--							
		Medium dense, brown to gray, fine, poorly-graded SAND (SP)		X		1	7 10 13	NP	9
			5	X		2	7 10 13	NP	14
						3	7 10 16	NP	24
			10	X		4	8 13 15	NP	18
				X		5	9 12 15	NP	28
	575.5	Medium dense to dense, gray, fine, poorly-graded SAND (SP)							
			15	X		6	8 15 19	NP	28
				X		7	8 10 21	NP	28
			20	X		8	4 1 15	NP	28
				X		9	9 16 30	NP	35
			25	X		10	9 13 18	NP	26
	563.5	Boring terminated at 25.00 ft							
			30						
			35						
			40						

GENERAL NOTES

Begin Drilling 03-10-2011 Complete Drilling 03-10-2011
Drilling Contractor K & S Engineers Drill Rig Diedrich D-50
Driller C & E Logger F. Bozgo Checked by F. Dotz
Drilling Method 3.25 ID/A HSA, Boring backfilled upon completion

WATER LEVEL DATA

While Drilling ▽ 5.50 ft
At Completion of Drilling ▼ 5.50 ft
Time After Drilling NA
Depth to Water ▽ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

BORING LOG C-CL-04

Page 1 of 1

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

WEI Job No.: 790-16-03
Client: TranSystems Corporation
Project: Gary Chicago Airport/ EJ&E Track Relocation
Location: Gary, Lake County, Indiana

Datum: NAVD88
Elevation: 589.50 ft
North: 2323553.10 ft
East: 2857534.71 ft
Station: 166+27.07
Offset: 96.72 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		18-inch thick, GRAVELLY SAND --SURFACE AGGREGATE--							
	588.0	Medium dense, brown to gray fine poorly-graded SAND (SP)		X		1	7 9 14	NP	7
			5	X		2	6 9 10	NP	6
				X		3	7 6 7	NP	26
			10	X		4	6 9 12	NP	26
				X		5	8 17 20	NP	27
			15	X		6	4 7 15	NP	27
				X		7	6 16 20	NP	33
	571.5	Very dense, gray, fine poorly-graded SAND (SP)							
			20	X		8	12 28 45	NP	27
	569.0	Medium dense, gray, fine poorly-graded SAND (SP)							
				X		9	5 7 17	NP	33
			25	X		10	6 14 17	NP	25
	564.5	Boring terminated at 25.00 ft							
			30						
			35						
			40						

GENERAL NOTES

Begin Drilling 03-10-2011 Complete Drilling 03-10-2011
Drilling Contractor K & S Engineers Drill Rig Diedrich D-50
Driller K & K Logger F. Bozgo Checked by F. Dotz
Drilling Method 3.25 ID/A HSA, Boring backfilled upon completion

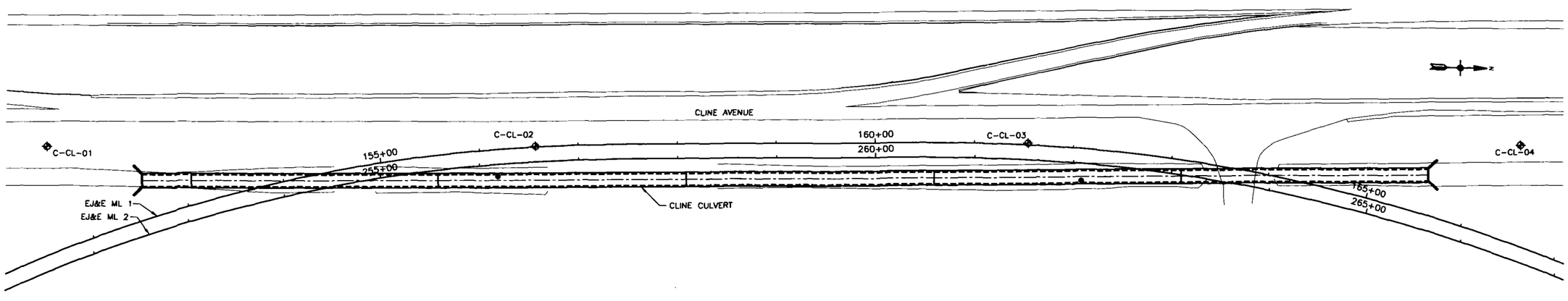
WATER LEVEL DATA

While Drilling ▽ 5.50 ft
At Completion of Drilling ▼ 5.50 ft
Time After Drilling NA
Depth to Water ▽ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

GEOTECHNICAL NOTES:

THIS DRAWING TO BE READ IN CONJUNCTION WITH GEOTECHNICAL INVESTIGATION PRODUCED BY WANG ENGINEERING, DATED MAY 10, 2011.



BORING LOCATION PLAN

NTS

TranSystems
1475 E WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE:847-605-9600
FAX:847-605-9610

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY CHICAGO INTERNATIONAL AIRPORT AUTHORITY
GARY, INDIANA

GaryChicago International Airport

REVISIONS: MARK	DATE	DESCRIPTION
	9/16/2011	ISSUED FOR BID

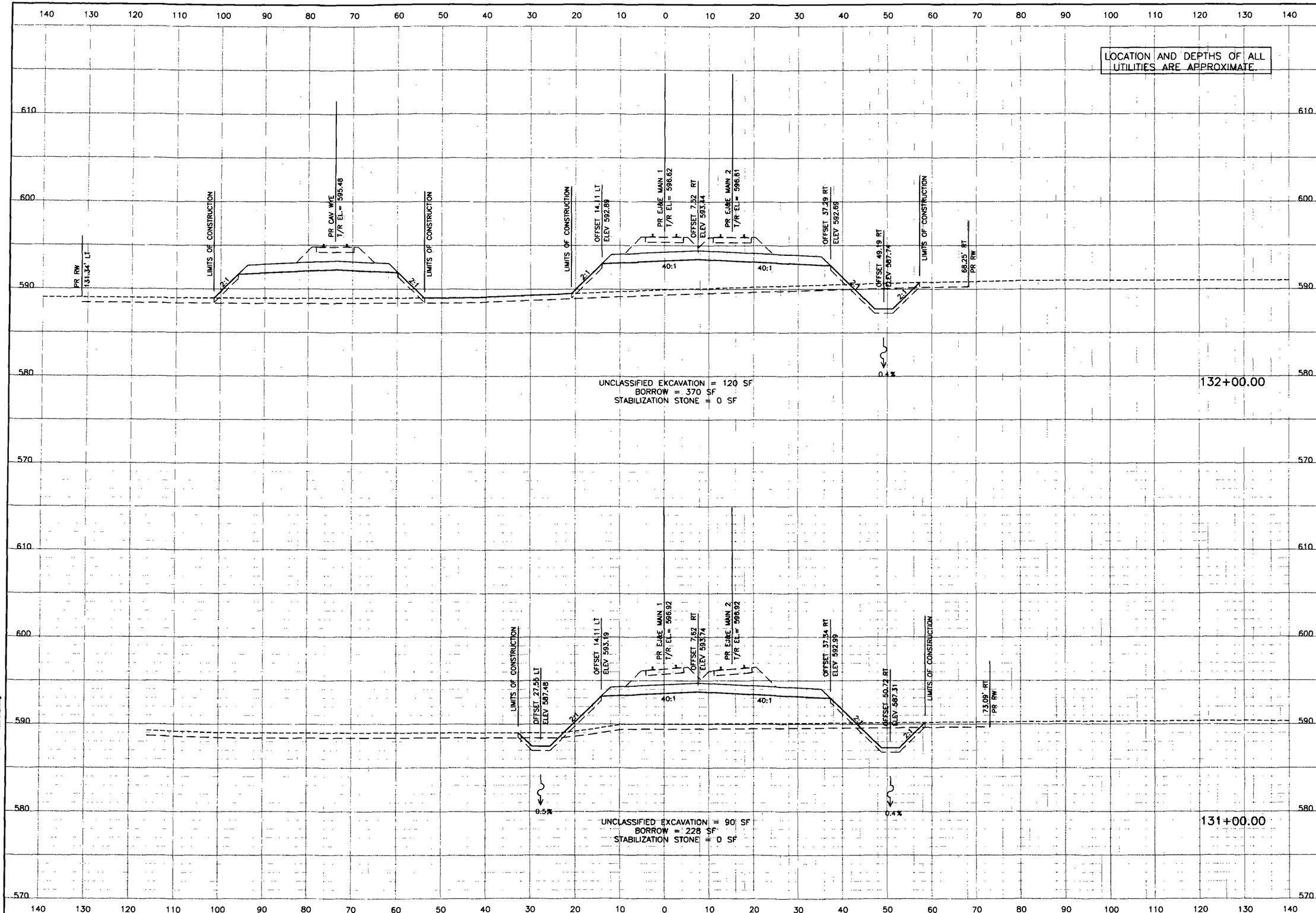
PROJ NO: P401050064
SCALE: 1" = 1'
DATE: 9/16/2011
DESIGNED BY: JMT
DRAWN BY: DMG
CHECKED BY: SLC

SHEET TITLE:
CLINE CULVERT
SOIL BORING
LOGS II

SHEET NO.
C1-006

SHEET 72 OF 93

USER
9/15/2011 4:21:09 PM



Systems
1475 EAST WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE: 847-605-9600
FAX: 847-605-8610

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
TRACK RELOCATION

GaryChicago International Airport

REVISIONS:			
MARK	DATE	DESCRIPTION	
	9/16/2011	ISSUED FOR BID	

PROJ NO: P401050064
SCALE: 10H:5V
DATE: 9/16/2011
DESIGNED BY: JEB
DRAWN BY: KAL
CHECKED BY: KKY

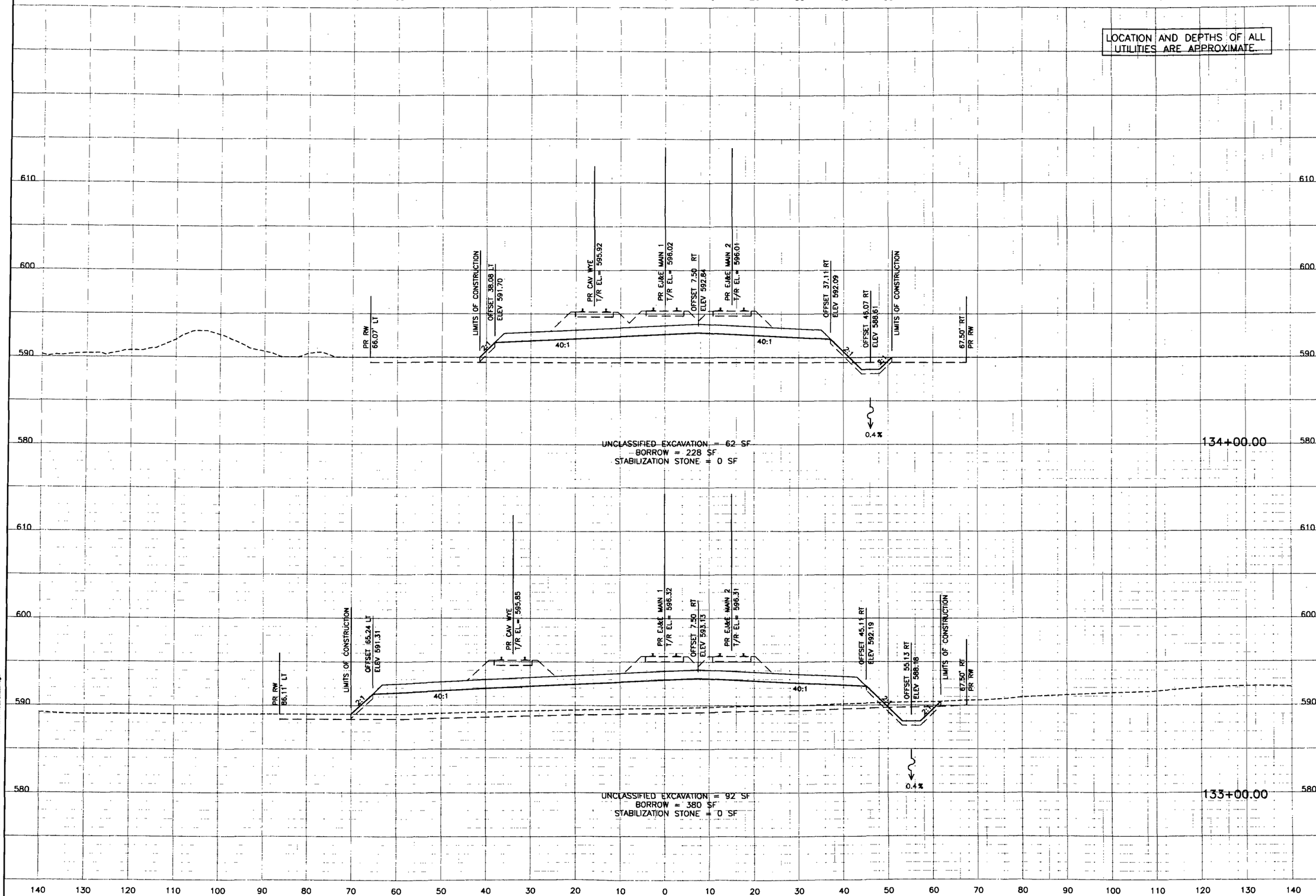
SHEET TITLE:
EJ&E
CROSS SECTIONS
131+00.00 to 132+00.00

SHEET NO.
XS-EJ&E-1

IF THIS DRAWING IS LESS THAN 22" X 34" IT IS A REDUCED SIZE DRAWING

USER: 9/16/2011 - 5:43:21 PM - q:\m\050006\krai\sheets\contract s-culvert\0094-C-XS01-Track-Shade.dgn

LOCATION AND DEPTHS OF ALL UTILITIES ARE APPROXIMATE.



Systems
1475 EAST WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE: 847-605-9800
FAX: 847-605-9810

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
TRACK RELOCATION

GaryChicago
International Airport

REVISIONS:			
MARK	DATE	DESCRIPTION	
	9/16/2011	ISSUED FOR BID	

PROJ NO: P401050064
SCALE: 10H:5V
DATE: 9/16/2011
DESIGNED BY: JEB
DRAWN BY: KAL
CHECKED BY: KKY

SHEET TITLE:

EJ&E
CROSS SECTIONS
133+00.00 to 134+00.00

SHEET NO.
XS-EJ&E-2

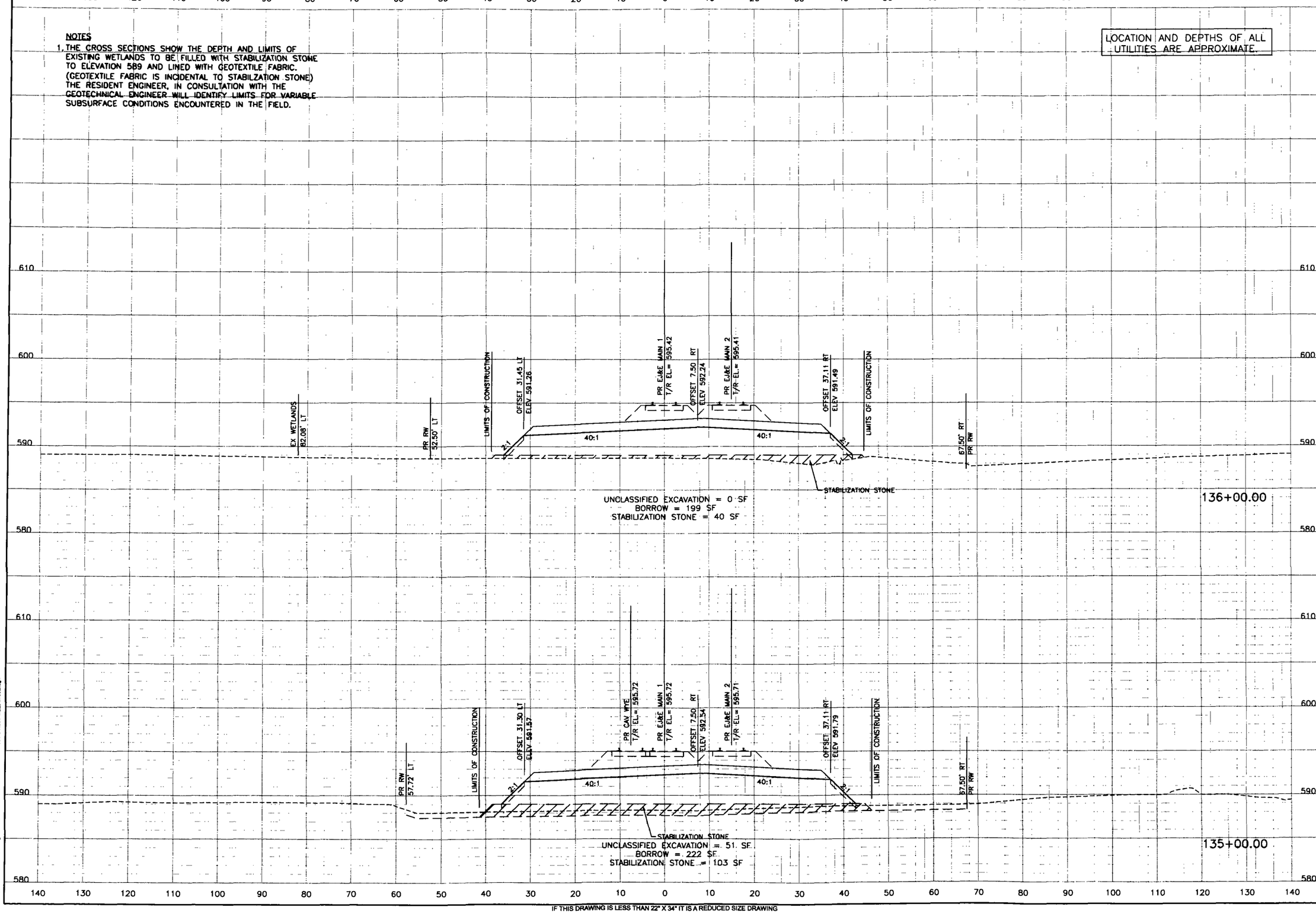
IF THIS DRAWING IS LESS THAN 22" X 34" IT IS A REDUCED SIZE DRAWING

USER: 9/13/2011 - 5:43:21 PM - g:\n\p050064\mainfile\sheets\contract s-culvert\0094-C-XS01-Track-Sheets.dgn

NOTES

1. THE CROSS SECTIONS SHOW THE DEPTH AND LIMITS OF EXISTING WETLANDS TO BE FILLED WITH STABILIZATION STONE TO ELEVATION 589 AND LINED WITH GEOTEXTILE FABRIC. (GEOTEXTILE FABRIC IS INCIDENTAL TO STABILZATION STONE) THE RESIDENT ENGINEER, IN CONSULTATION WITH THE GEOTECHNICAL ENGINEER WILL IDENTIFY LIMITS FOR VARIABLE SUBSURFACE CONDITIONS ENCOUNTERED IN THE FIELD.

LOCATION AND DEPTHS OF ALL UTILITIES ARE APPROXIMATE.



Systems
1475 EAST WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE: 847-605-9600
FAX: 847-605-9610

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
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GaryChicago International Airport

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PROJ NO: P401050064
SCALE: 10H:5V
DATE: 9/16/2011
DESIGNED BY: JEB
DRAWN BY: KAL
CHECKED BY: KKY

SHEET TITLE:

EJ&E
CROSS SECTIONS
135+00.00 to 136+00.00

SHEET NO.
XS-EJ&E-3

SHEET 75 OF 93

IF THIS DRAWING IS LESS THAN 22" X 34" IT IS A REDUCED SIZE DRAWING

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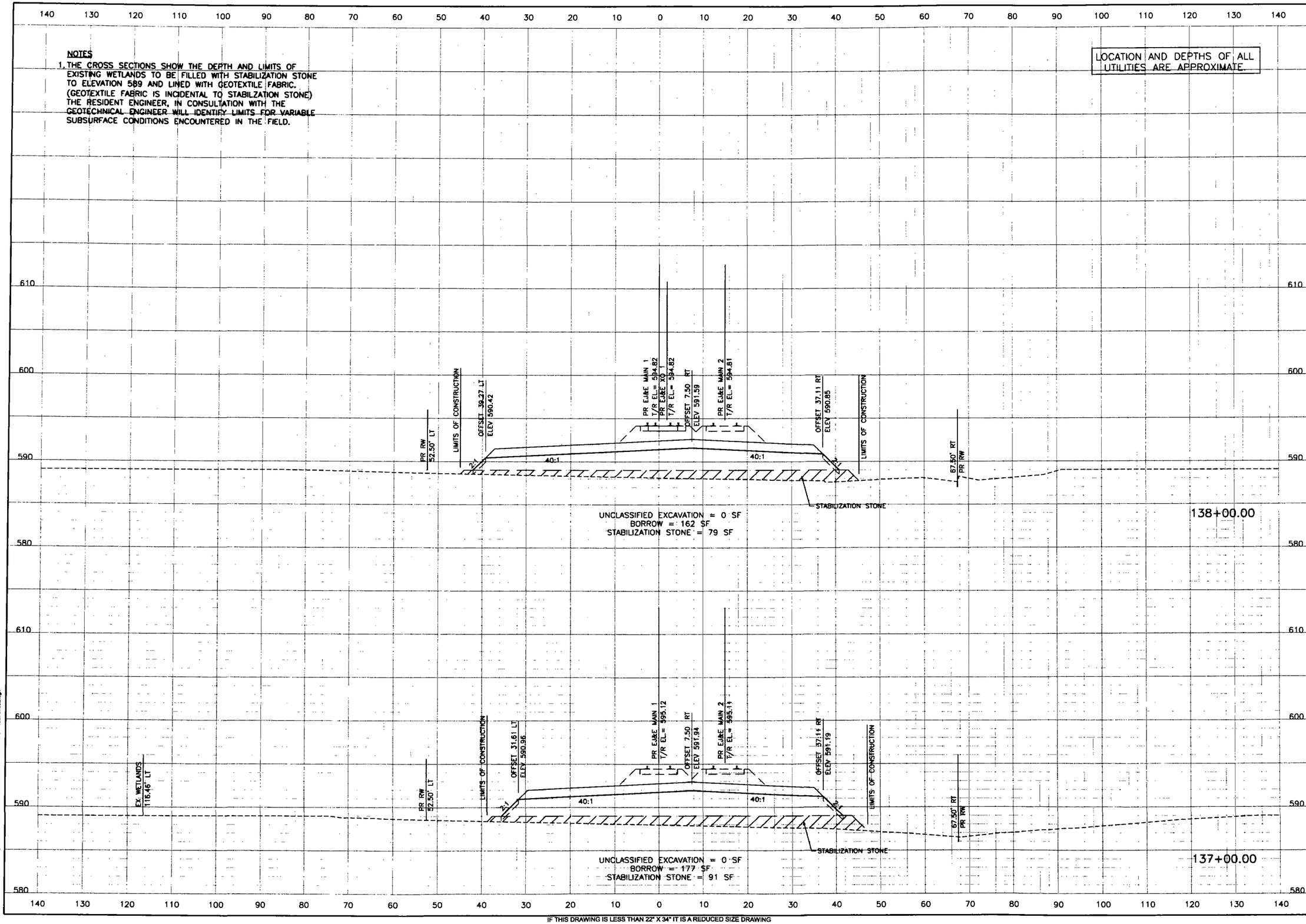
NOTES

1. THE CROSS SECTIONS SHOW THE DEPTH AND LIMITS OF EXISTING WETLANDS TO BE FILLED WITH STABILIZATION STONE TO ELEVATION 589 AND LINED WITH GEOTEXTILE FABRIC. (GEOTEXTILE FABRIC IS INCIDENTAL TO STABILZATION STONE) THE RESIDENT ENGINEER, IN CONSULTATION WITH THE GEOTECHNICAL ENGINEER WILL IDENTIFY LIMITS FOR VARIABLE SUBSURFACE CONDITIONS ENCOUNTERED IN THE FIELD.

LOCATION AND DEPTHS OF ALL UTILITIES ARE APPROXIMATE.



IF THIS DRAWING IS LESS THAN 22" X 34" IT IS A REDUCED SIZE DRAWING

Systems
1475 EAST WOODFIELD ROAD
SUITE 800
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RELOCATION PROJECT
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PROJ NO: P401050064
SCALE:10H:5V
DATE: 9/16/2011
DESIGNED BY: JEB
DRAWN BY: KAL
CHECKED BY: KKY

SHEET TITLE:

EJ&E
CROSS SECTIONS
137+00.00 to 138+00.00

SHEET NO.
XS-EJ&E-4

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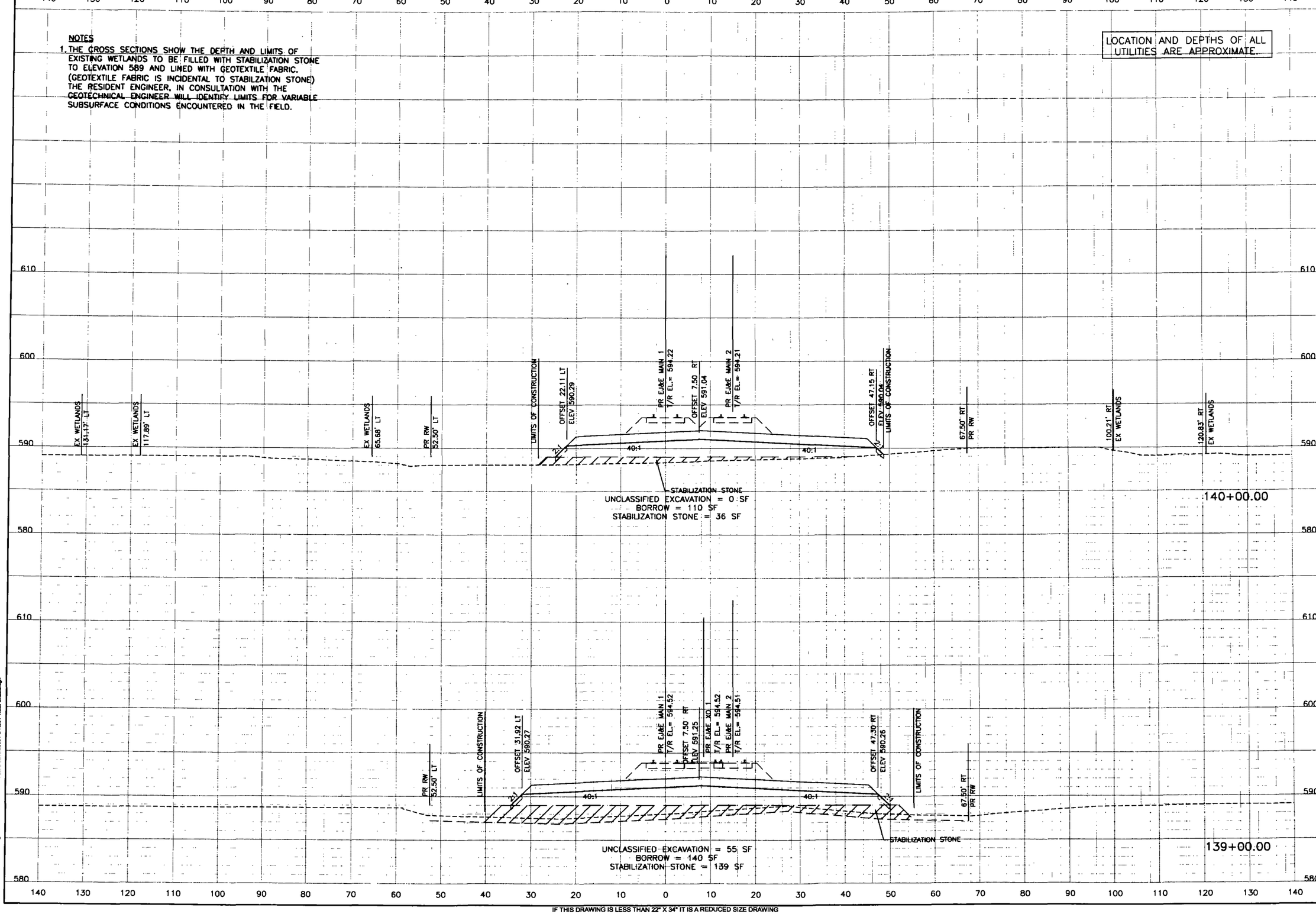
NOTES

1. THE CROSS SECTIONS SHOW THE DEPTH AND LIMITS OF EXISTING WETLANDS TO BE FILLED WITH STABILIZATION STONE TO ELEVATION 589 AND LINED WITH GEOTEXTILE FABRIC. (GEOTEXTILE FABRIC IS INCIDENTAL TO STABILZATION STONE) THE RESIDENT ENGINEER, IN CONSULTATION WITH THE GEOTECHNICAL ENGINEER WILL IDENTIFY LIMITS FOR VARIABLE SUBSURFACE CONDITIONS ENCOUNTERED IN THE FIELD.

LOCATION AND DEPTHS OF ALL UTILITIES ARE APPROXIMATE.



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1475 EAST WOODFIELD ROAD
SUITE 600
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FAX: 847-605-9610

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SCALE: 10H:5V
DATE: 9/16/2011
DESIGNED BY: JEB
DRAWN BY: KAL
CHECKED BY: KKY

SHEET TITLE:
EJ&E
CROSS SECTIONS
139+00.00 to 140+00.00

SHEET NO.
XS-EJ&E-5
SHEET 77 OF 93

IF THIS DRAWING IS LESS THAN 22" X 34" IT IS A REDUCED SIZE DRAWING

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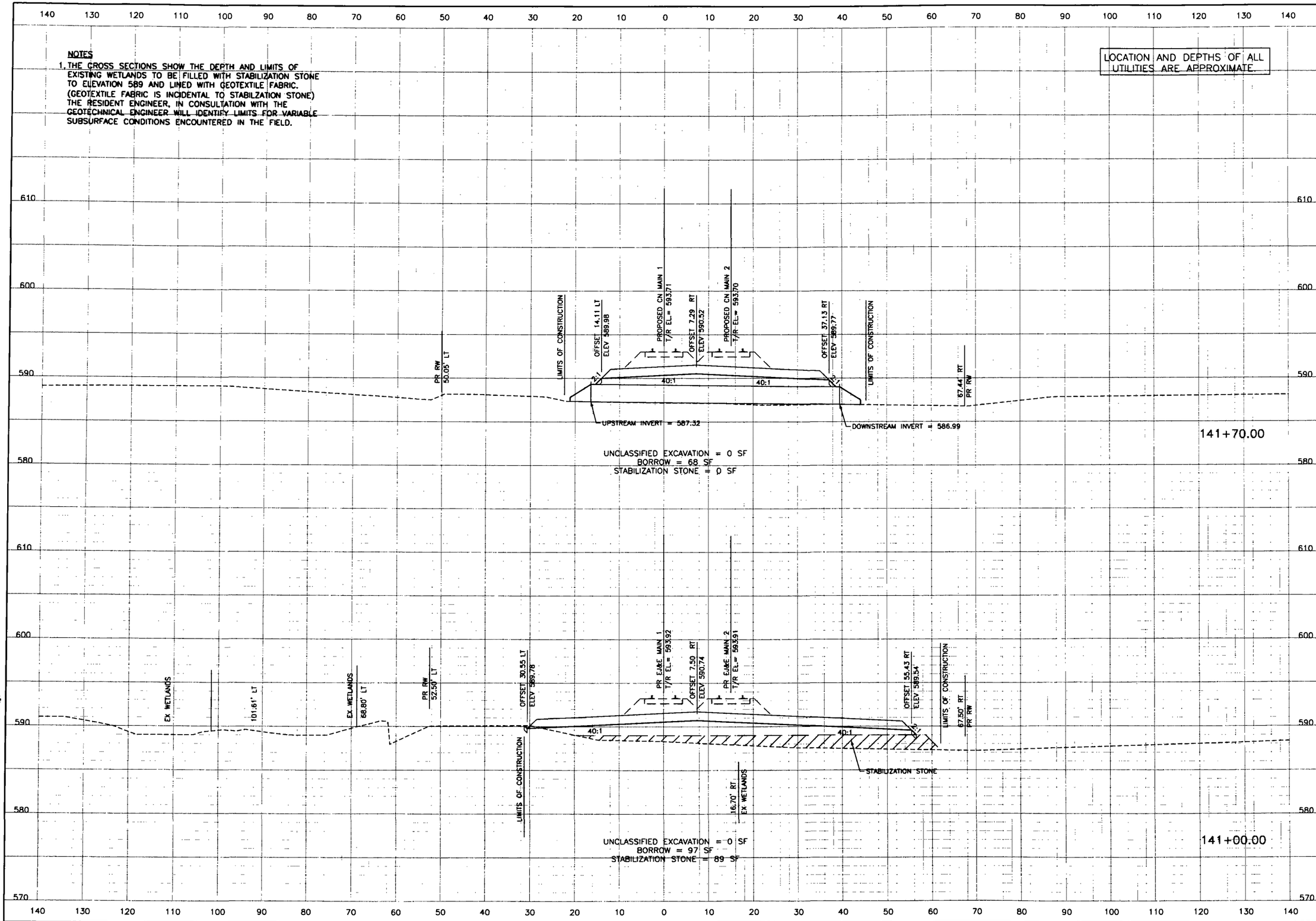
NOTES

1. THE CROSS SECTIONS SHOW THE DEPTH AND LIMITS OF EXISTING WETLANDS TO BE FILLED WITH STABILIZATION STONE TO ELEVATION 589 AND LINED WITH GEOTEXTILE FABRIC. (GEOTEXTILE FABRIC IS INCIDENTAL TO STABILZATION STONE) THE RESIDENT ENGINEER, IN CONSULTATION WITH THE GEOTECHNICAL ENGINEER WILL IDENTIFY LIMITS FOR VARIABLE SUBSURFACE CONDITIONS ENCOUNTERED IN THE FIELD.

LOCATION AND DEPTHS OF ALL UTILITIES ARE APPROXIMATE.



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SUITE 600
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EJ&E RAILWAY
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SCALE: 10H:5V
DATE: 9/16/2011
DESIGNED BY: JEB
DRAWN BY: KAL
CHECKED BY: KKY

SHEET TITLE:

EJ&E
CROSS SECTIONS
141+00.00 to 141+70.00

SHEET NO.
XS-EJ&E-6

IF THIS DRAWING IS LESS THAN 22" X 34" IT IS A REDUCED SIZE DRAWING

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NOTES

1. THE CROSS SECTIONS SHOW THE DEPTH AND LIMITS OF EXISTING WETLANDS TO BE FILLED WITH STABILIZATION STONE TO ELEVATION 589 AND LINED WITH GEOTEXTILE FABRIC. (GEOTEXTILE FABRIC IS INCIDENTAL TO STABILZATION STONE) THE RESIDENT ENGINEER, IN CONSULTATION WITH THE GEOTECHNICAL ENGINEER WILL IDENTIFY LIMITS FOR VARIABLE SUBSURFACE CONDITIONS ENCOUNTERED IN THE FIELD.

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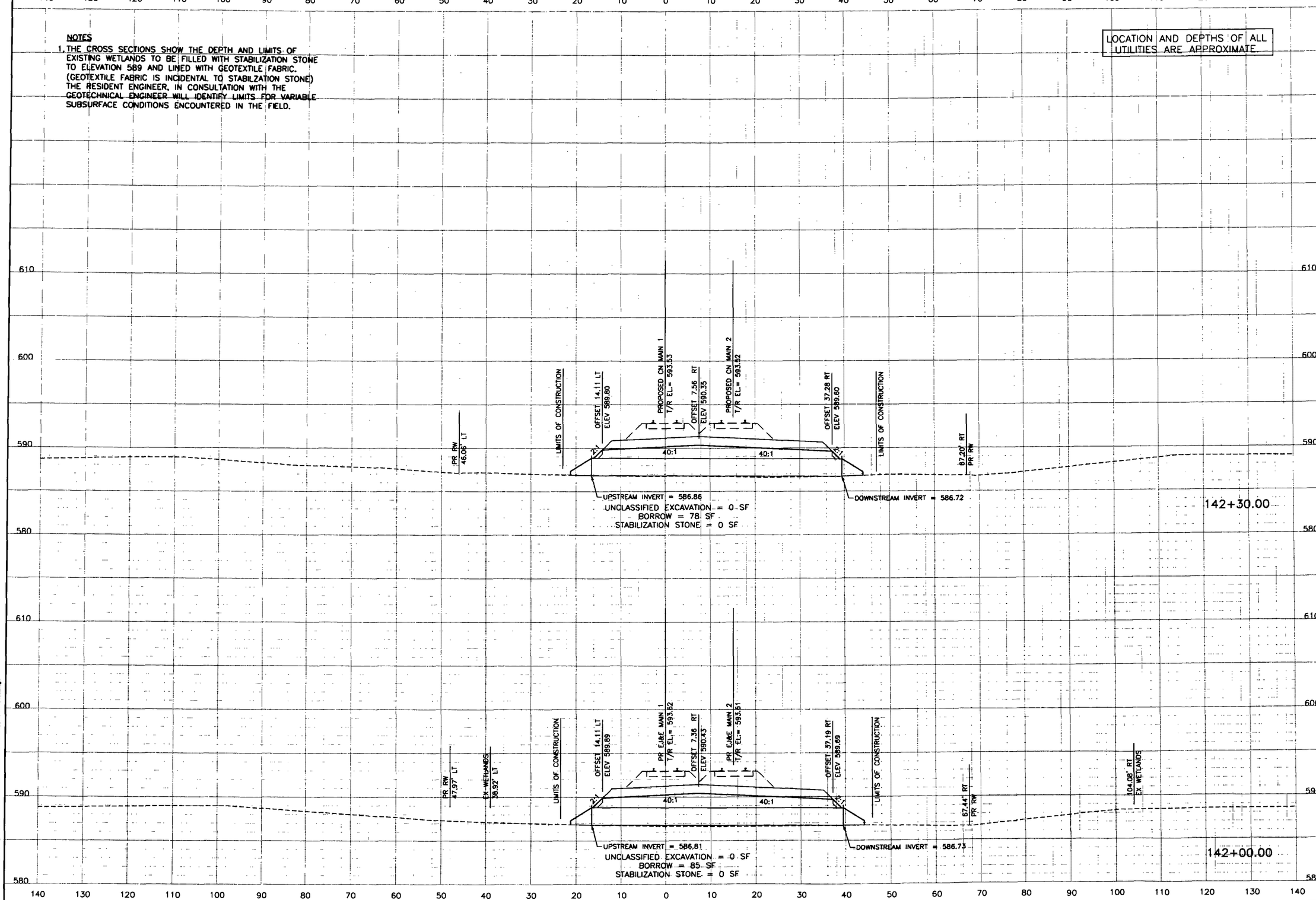

IF THIS DRAWING IS LESS THAN 22" X 34" IT IS A REDUCED SIZE DRAWING

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1475 EAST WOODFIELD ROAD
SUITE 600
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SCALE:10H:5V
DATE: 9/18/2011
DESIGNED BY: JEB
DRAWN BY: KAL
CHECKED BY: KKY

SHEET TITLE:

EJ&E
CROSS SECTIONS
142+00.00 to 142+30.00

SHEET NO.
XS-EJ&E-7

SHEET 78 OF 93

USER: 9/15/2011 - 5:43:26 PM - p:\chi\05\0064\rail\sheets\contract e-sub\xs\0064-C-XS01-Track-Sheets.dgn

NOTES

1. THE CROSS SECTIONS SHOW THE DEPTH AND LIMITS OF EXISTING WETLANDS TO BE FILLED WITH STABILIZATION STONE TO ELEVATION 589 AND LINED WITH GEOTEXTILE FABRIC. (GEOTEXTILE FABRIC IS INCIDENTAL TO STABILZATION STONE) THE RESIDENT ENGINEER, IN CONSULTATION WITH THE GEOTECHNICAL ENGINEER WILL IDENTIFY LIMITS FOR VARIABLE SUBSURFACE CONDITIONS ENCOUNTERED IN THE FIELD.

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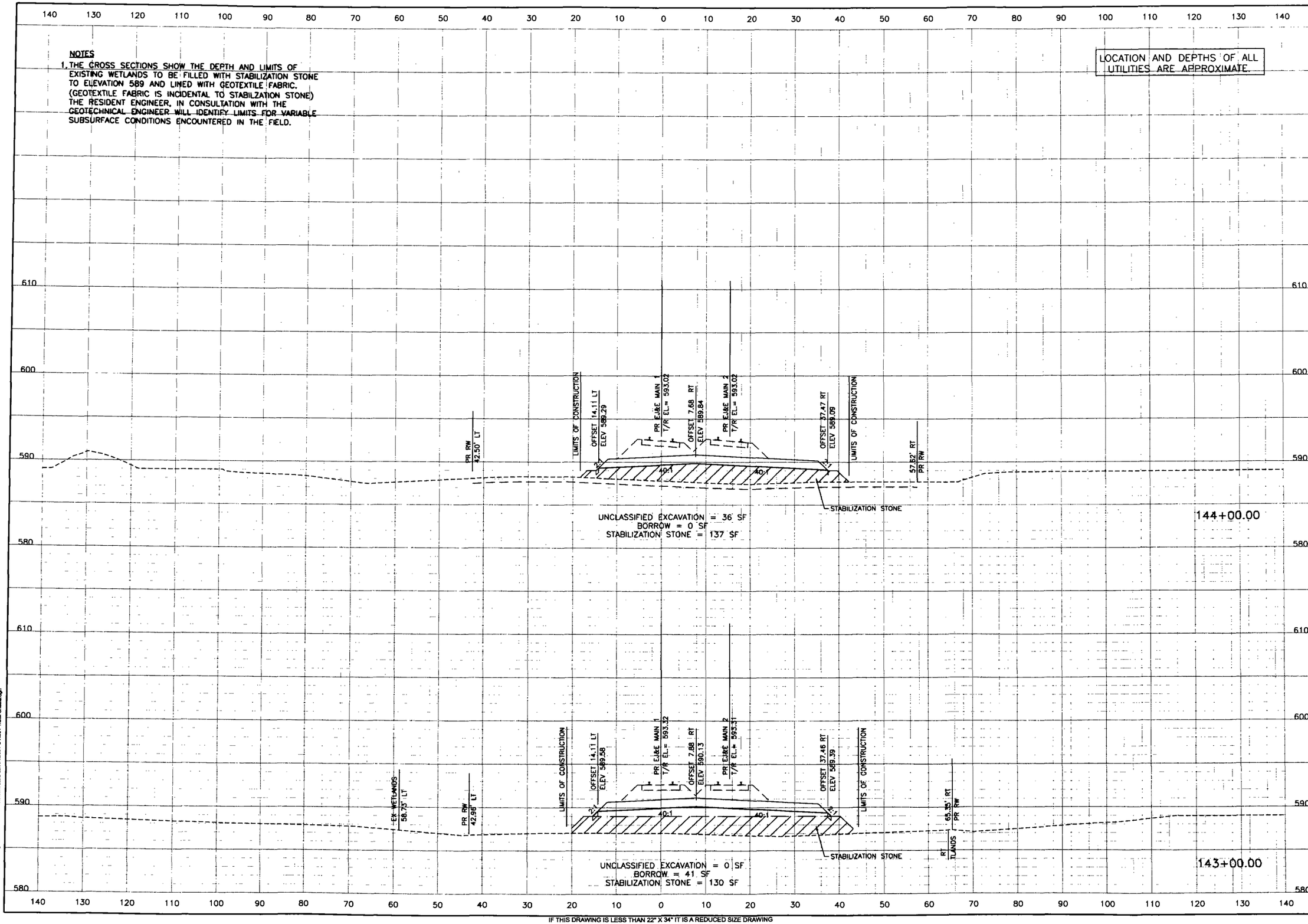

Systems
1475 EAST WOODFIELD ROAD
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EJ&E RAILWAY
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	9/16/2011	ISSUED FOR BID	

PROJ NO: P401050064
SCALE: 10H:5V
DATE: 9/16/2011
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DRAWN BY: KAL
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SHEET TITLE:

EJ&E
CROSS SECTIONS
143+00.00 to 144+00.00

SHEET NO.
XS-EJ&E-8

IF THIS DRAWING IS LESS THAN 22" X 34" IT IS A REDUCED SIZE DRAWING

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NOTES

1. THE CROSS SECTIONS SHOW THE DEPTH AND LIMITS OF EXISTING WETLANDS TO BE FILLED WITH STABILIZATION STONE TO ELEVATION 589 AND LINED WITH GEOTEXTILE FABRIC. (GEOTEXTILE FABRIC IS INCIDENTAL TO STABILZATION STONE) THE RESIDENT ENGINEER, IN CONSULTATION WITH THE GEOTECHNICAL ENGINEER WILL IDENTIFY LIMITS FOR VARIABLE SUBSURFACE CONDITIONS ENCOUNTERED IN THE FIELD.

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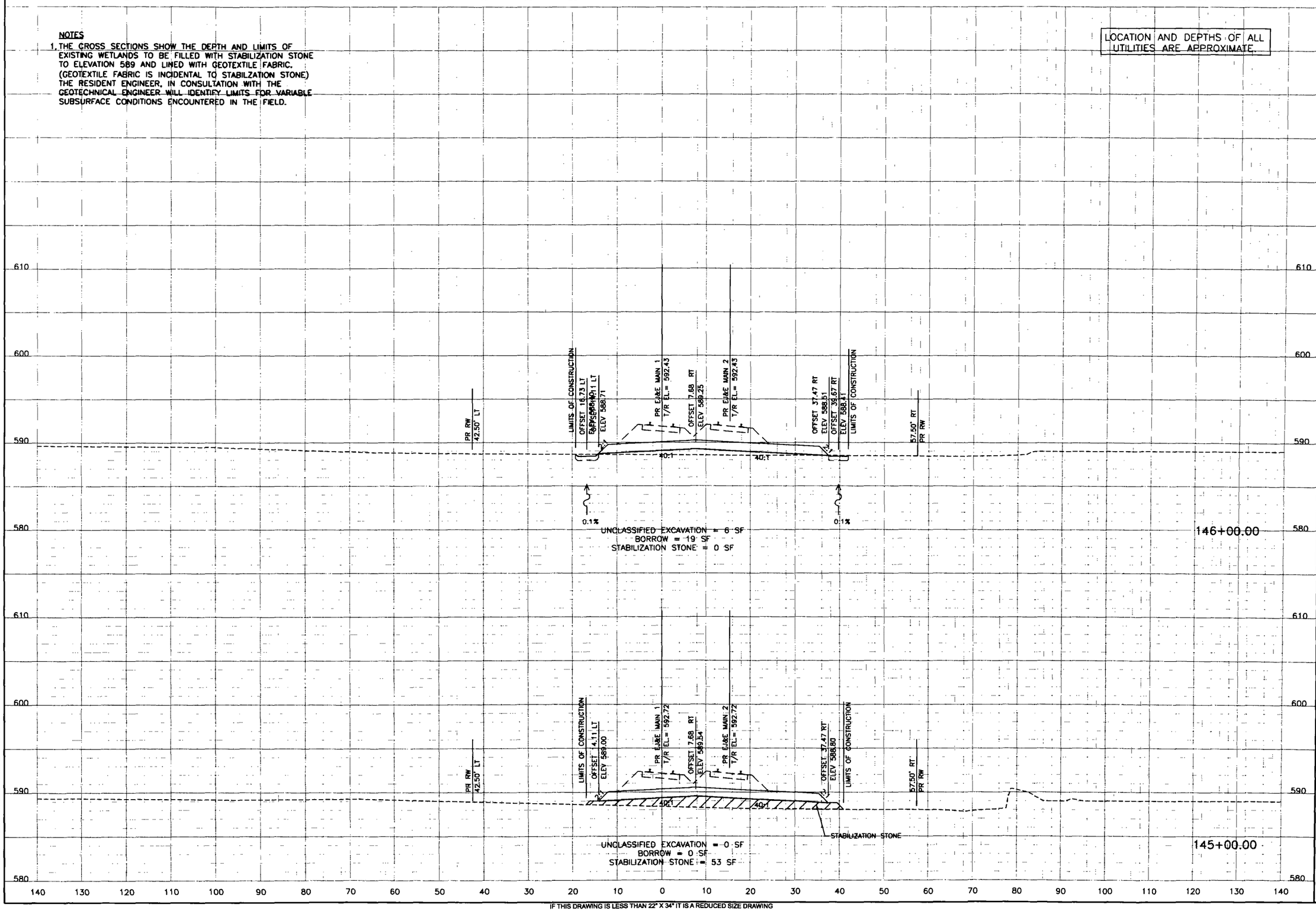

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FAX: 847-605-9610

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PROJ NO: P401050064
SCALE:10H:5V
DATE: 9/16/2011
DESIGNED BY: JEB
DRAWN BY: KAL
CHECKED BY: KKY

SHEET TITLE:

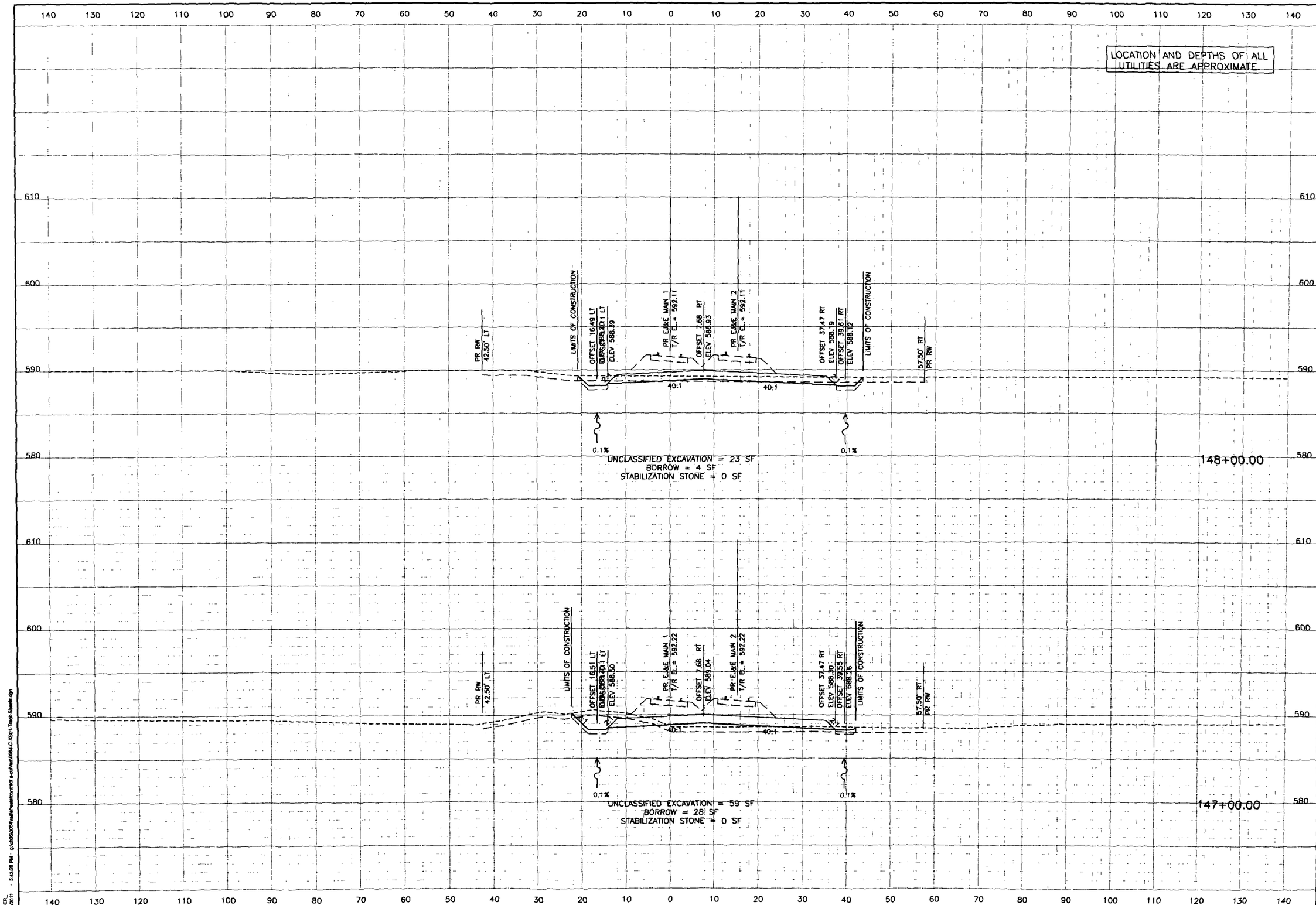
EJ&E CROSS SECTIONS

145+00.00 to 146+00.00

SHEET NO.

XS-EJ&E-9

SHEET 81 OF 93



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Systems
1475 EAST WOODFIELD ROAD
SUITE 800
SCHAUMBURG, IL 60173
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	9/16/2011	ISSUED FOR BID	

PROJ NO: P401050064
SCALE: 10H:5V
DATE: 9/16/2011
DESIGNED BY: JEB
DRAWN BY: KAL
CHECKED BY: KKY

SHEET TITLE:

EJ&E
CROSS SECTIONS
147+00.00 to 148+00.00

SHEET NO.
XS-EJ&E-10

SHEET 82 OF 93

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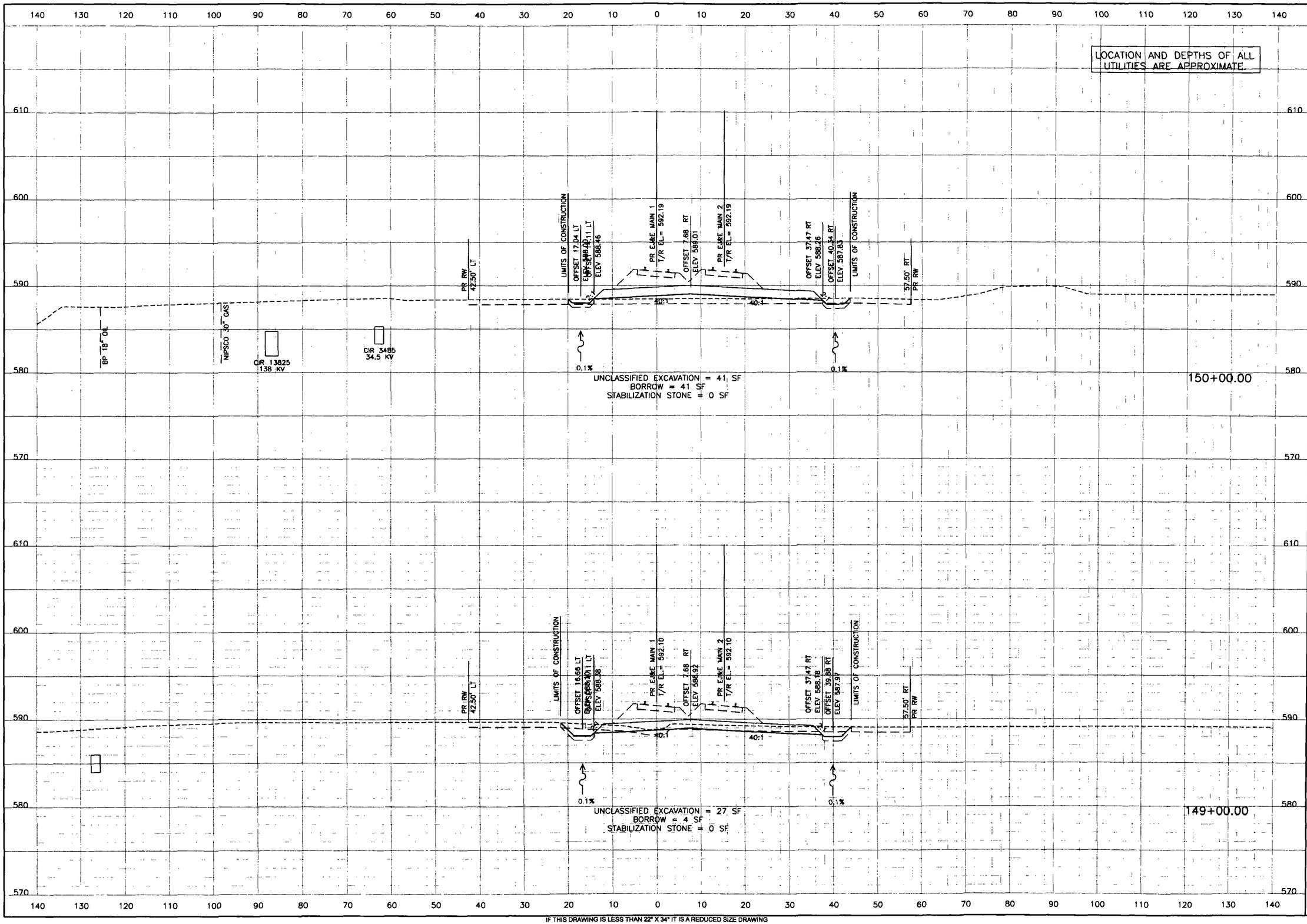

[redacted] Systems
1475 EAST WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE: 847-605-9800
FAX: 847-605-9810

EJ&E RAILWAY
RELOCATION PROJECT
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TRACK RELOCATION

GaryChicago International Airport

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	9/16/2011	ISSUED FOR BID

PROJ NO: P401050064
SCALE: 10H:5V
DATE: 9/16/2011
DESIGNED BY: JEB
DRAWN BY: KAL
CHECKED BY: KKY

SHEET TITLE:

EJ&E
CROSS SECTIONS
149+00.00 to 150+00.00

SHEET NO.
XS-EJ&E-11
SHEET 63 OF 93

IF THIS DRAWING IS LESS THAN 22" X 34" IT IS A REDUCED SIZE DRAWING

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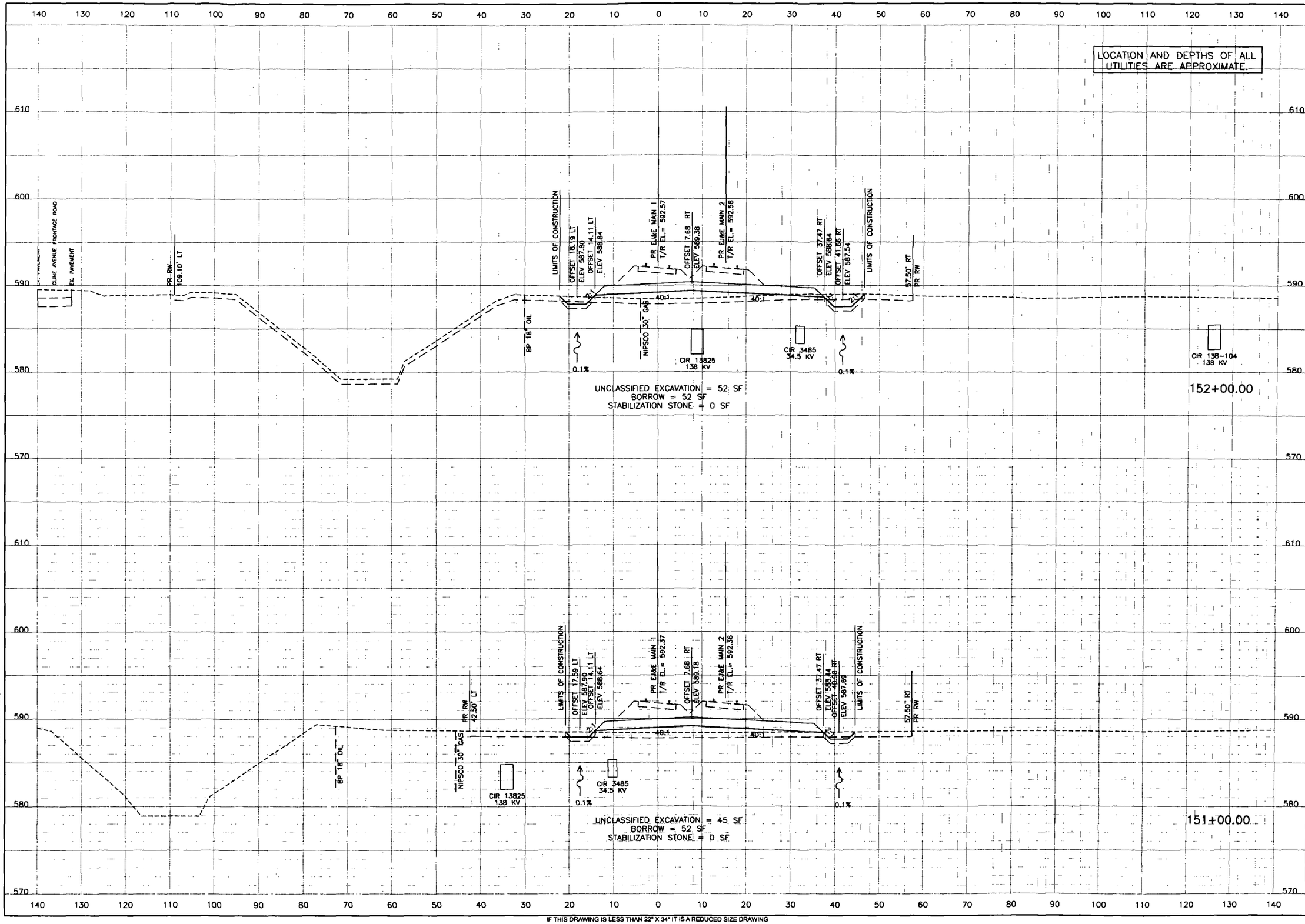

IF THIS DRAWING IS LESS THAN 22" X 34" IT IS A REDUCED SIZE DRAWING

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1475 EAST WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
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PROJ NO: P401050064
SCALE:10H:5V
DATE: 9/16/2011
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DRAWN BY: KAL
CHECKED BY: KKY

SHEET TITLE:

EJ&E
CROSS SECTIONS
151+00.00 to 152+00.00

SHEET NO.
XS-EJ&E-12

SHEET 84 OF 93

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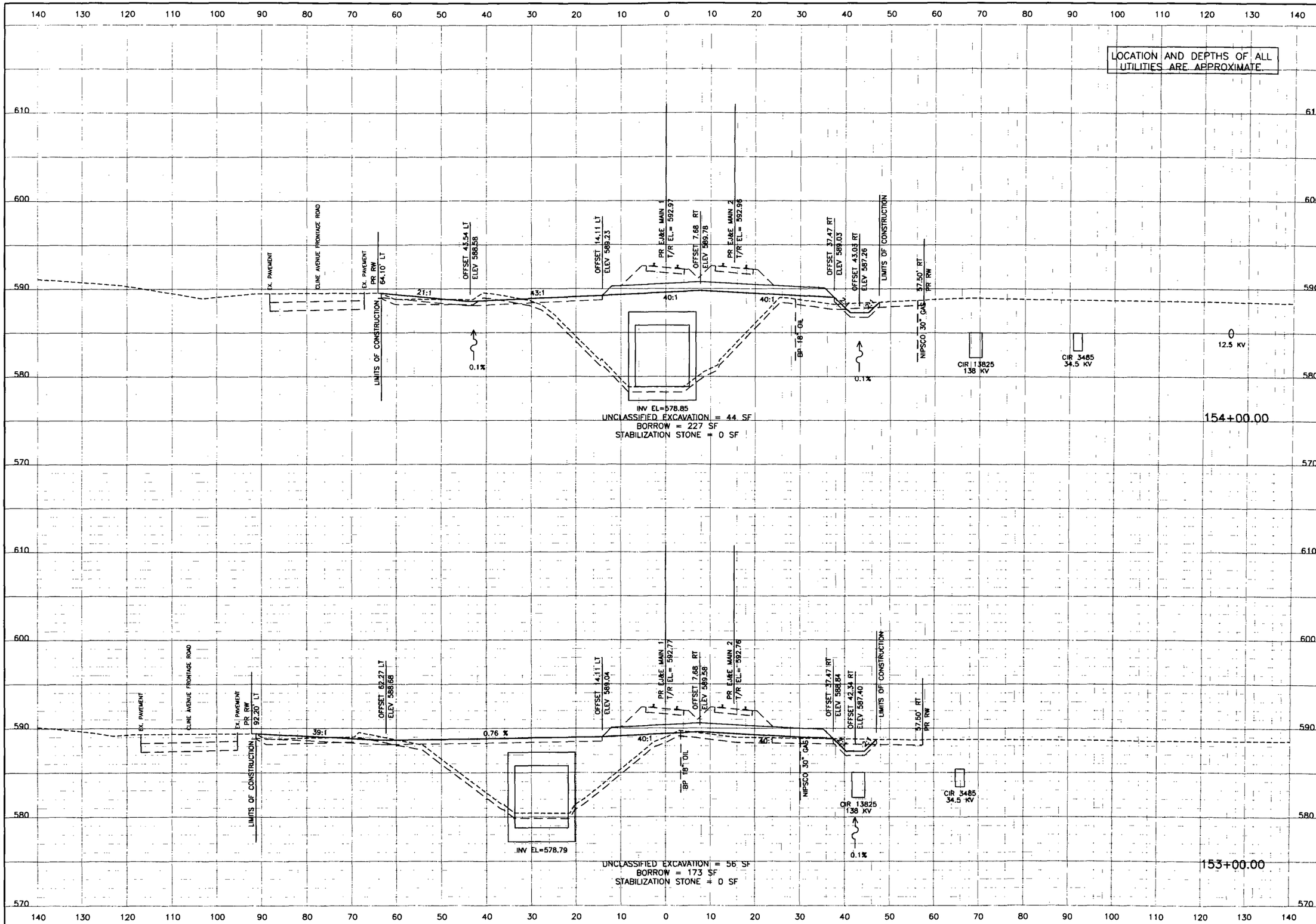

Systems
1475 EAST WOODFIELD ROAD
SUITE 800
SCHAUMBURG, IL 60173
PHONE: 847-605-9600
FAX: 847-605-9610

EJ&E RAILWAY
RELOCATION PROJECT
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PROJ NO: P401050064
SCALE: 10H:5V
DATE: 9/16/2011
DESIGNED BY: JEB
DRAWN BY: KAL
CHECKED BY: KKY

SHEET TITLE:

EJ&E
CROSS SECTIONS
153+00.00 to 154+00.00

SHEET NO.
XS-EJ&E-13

SHEET 85 OF 93

IF THIS DRAWING IS LESS THAN 22" X 34" IT IS A REDUCED SIZE DRAWING

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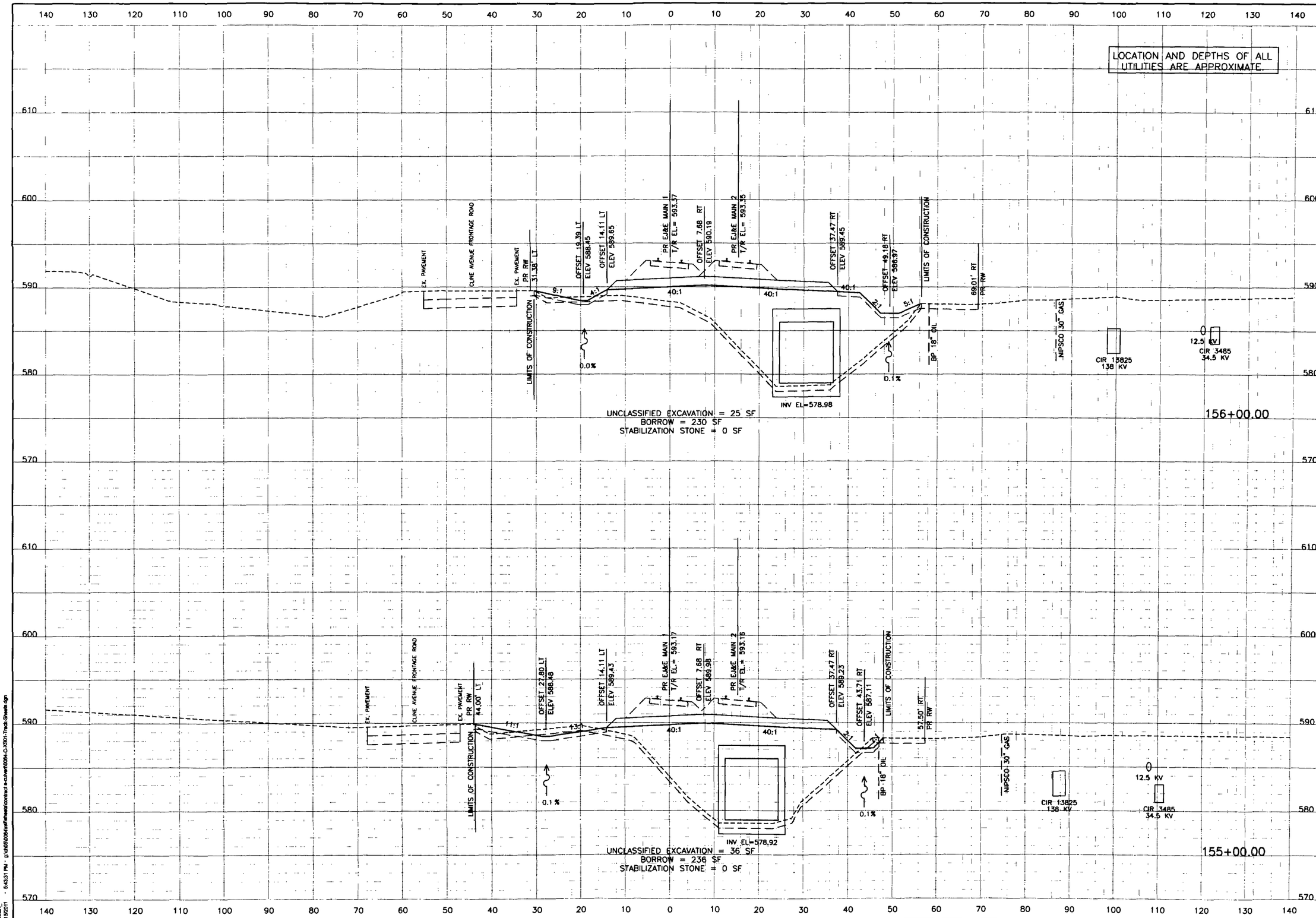

IF THIS DRAWING IS LESS THAN 22" X 34" IT IS A REDUCED SIZE DRAWING

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SUITE 600
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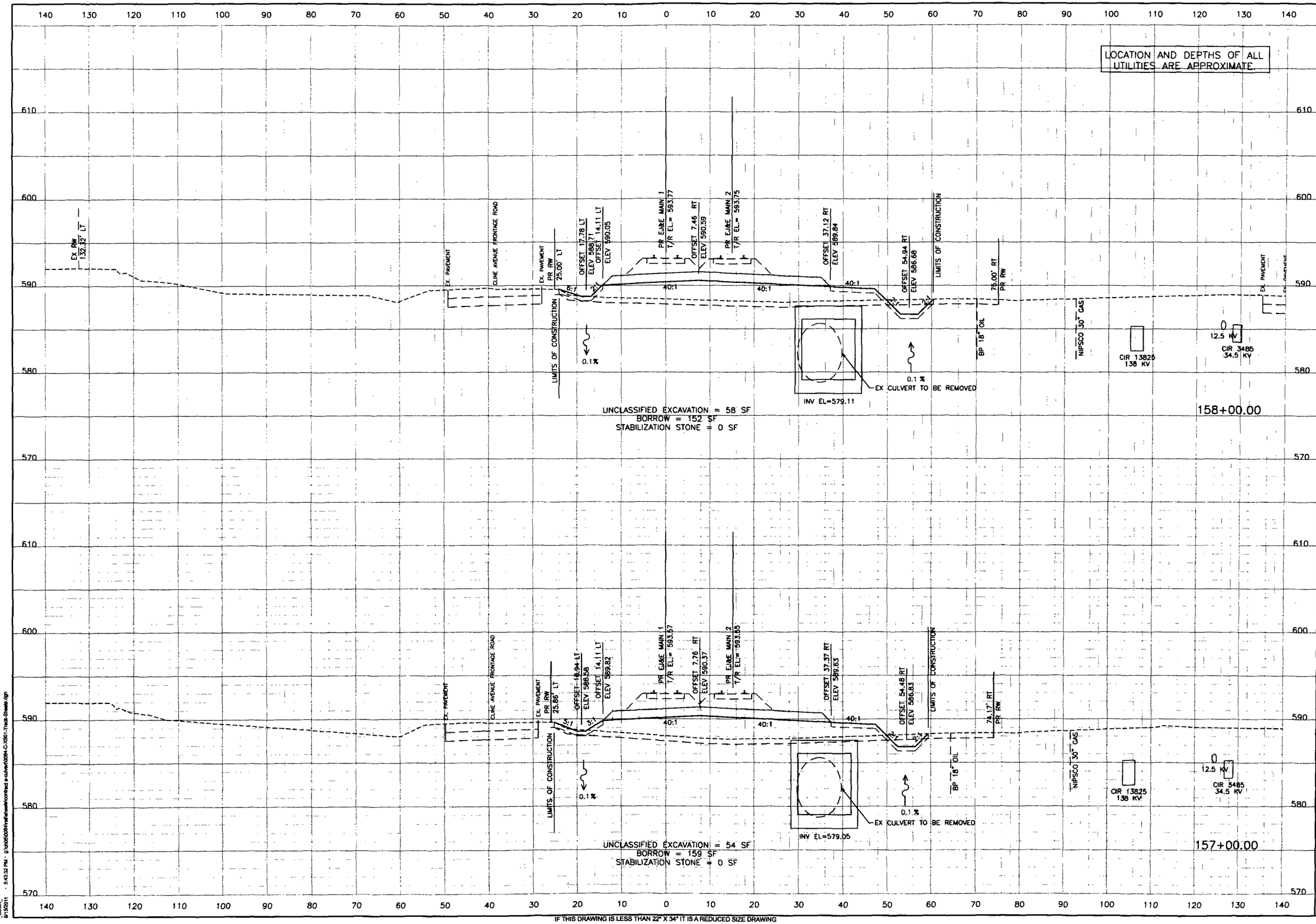
SCALE: 10H:5V
DATE: 9/16/2011
DESIGNED BY: JEB
DRAWN BY: KAL
CHECKED BY: KKY

SHEET TITLE:

EJ&E
CROSS SECTIONS
155+00.00 to 156+00.00

SHEET NO.
XS-EJ&E-14

SHEET 86 OF 93



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DATE: 9/16/2011
DESIGNED BY: JEB
DRAWN BY: KAL
CHECKED BY: KKY

SHEET TITLE:
EJ&E CROSS SECTIONS
157+00.00 to 158+00.00

SHEET NO.
XS-EJ&E-15

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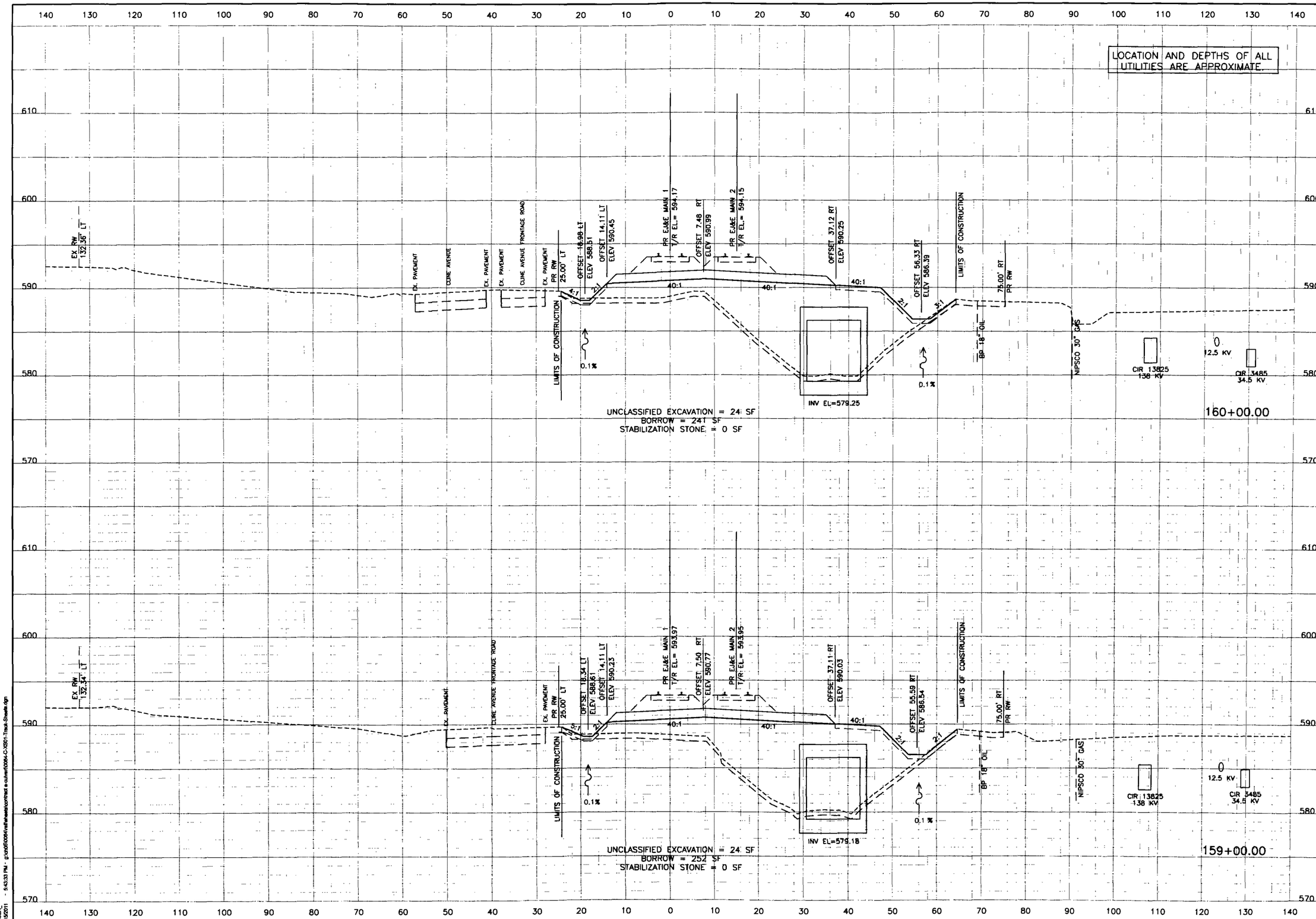

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PROJ NO: P401050064
SCALE: 10H:5V
DATE: 9/16/2011
DESIGNED BY: JEB
DRAWN BY: KAL
CHECKED BY: KKY

SHEET TITLE:

EJ&E
CROSS SECTIONS
159+00.00 to 160+00.00

SHEET NO.
XS-EJ&E-16

SHEET 88 OF 93

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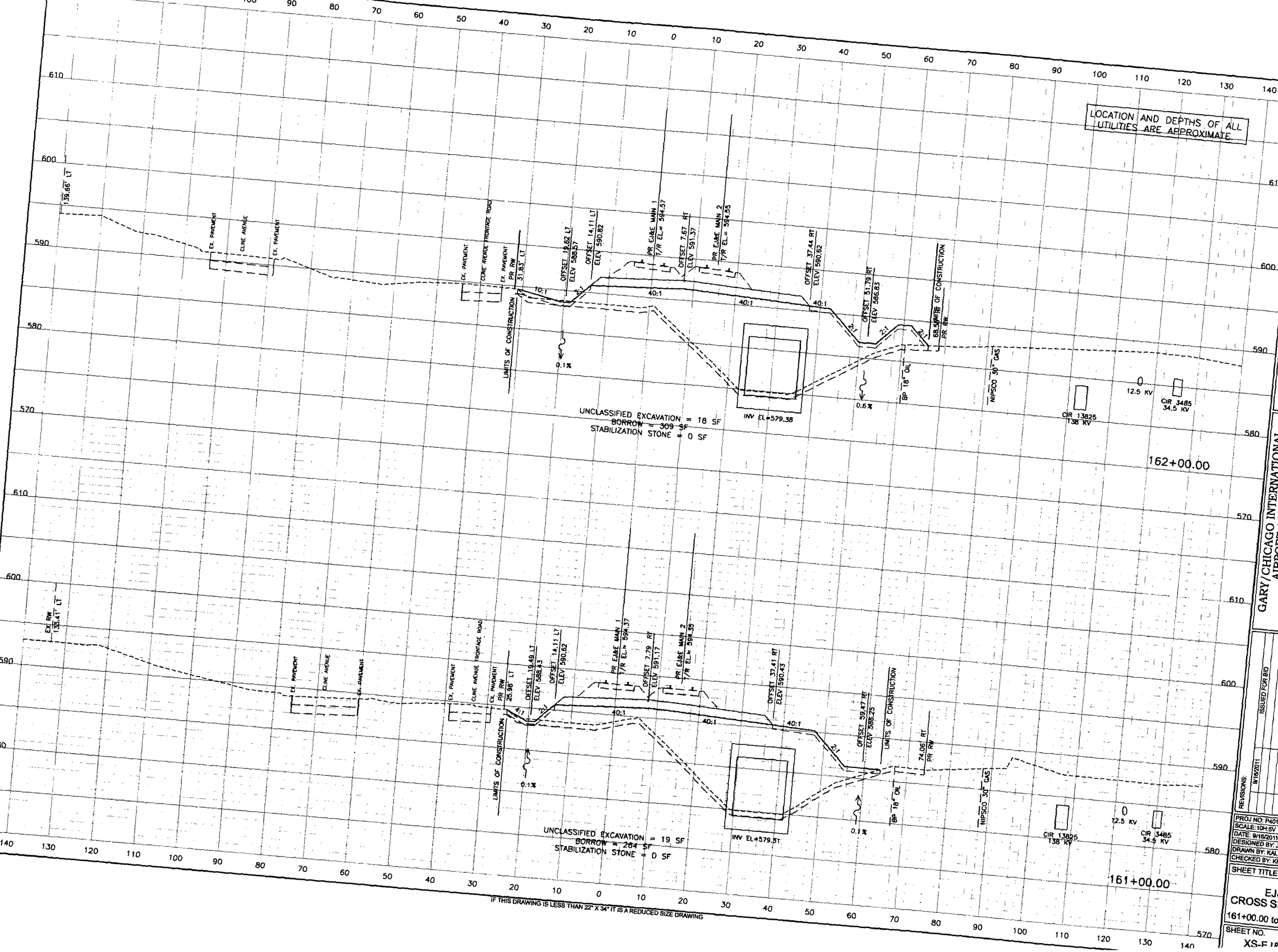

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1475 EAST WOODFIELD ROAD
SUITE 600
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DRAWN BY: KAL
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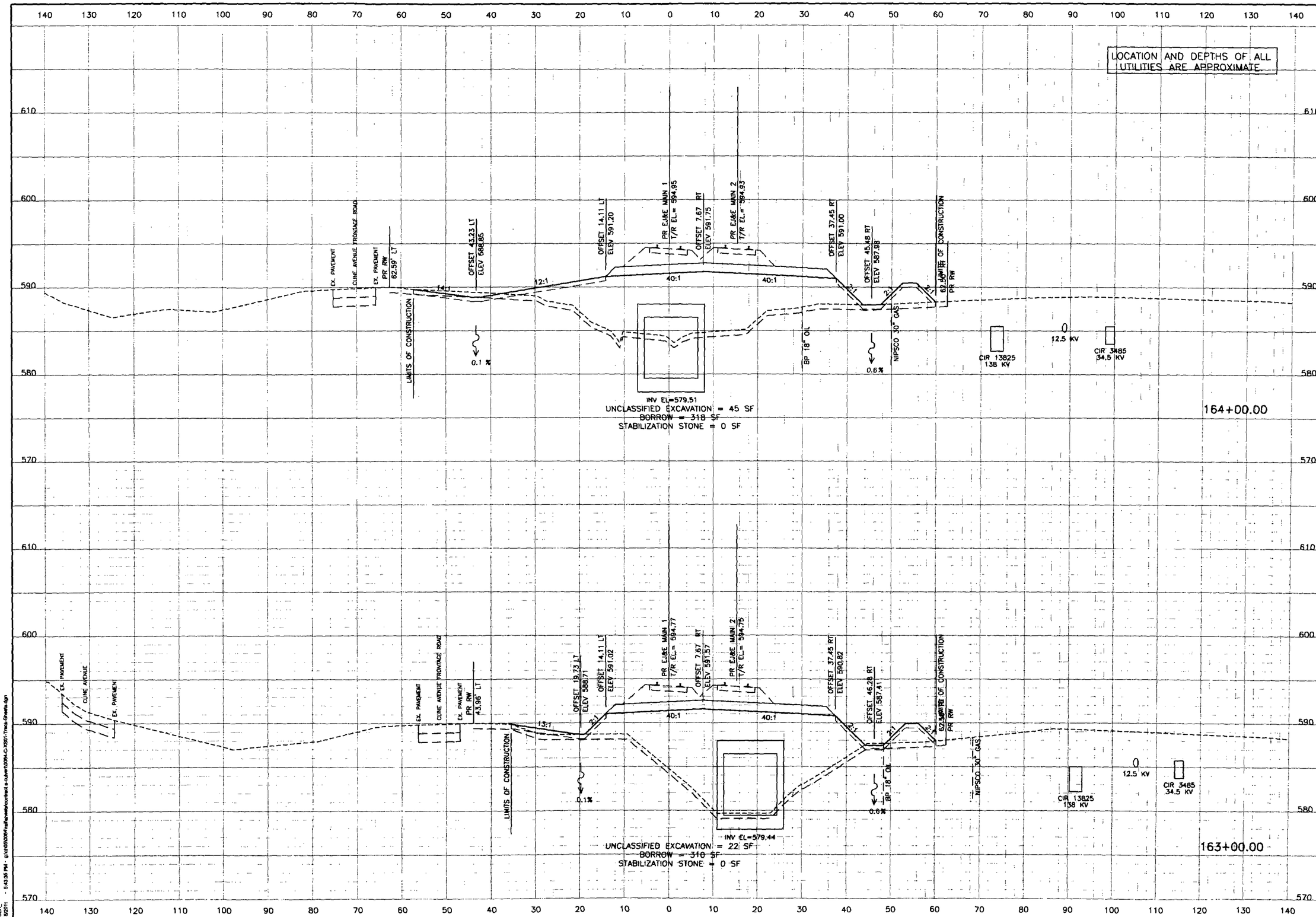
SHEET TITLE:
EJ&E
CROSS SECTIONS
161+00.00 to 162+00.00

SHEET NO.
XS-E J&E-1



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RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
TRACK RELOCATION

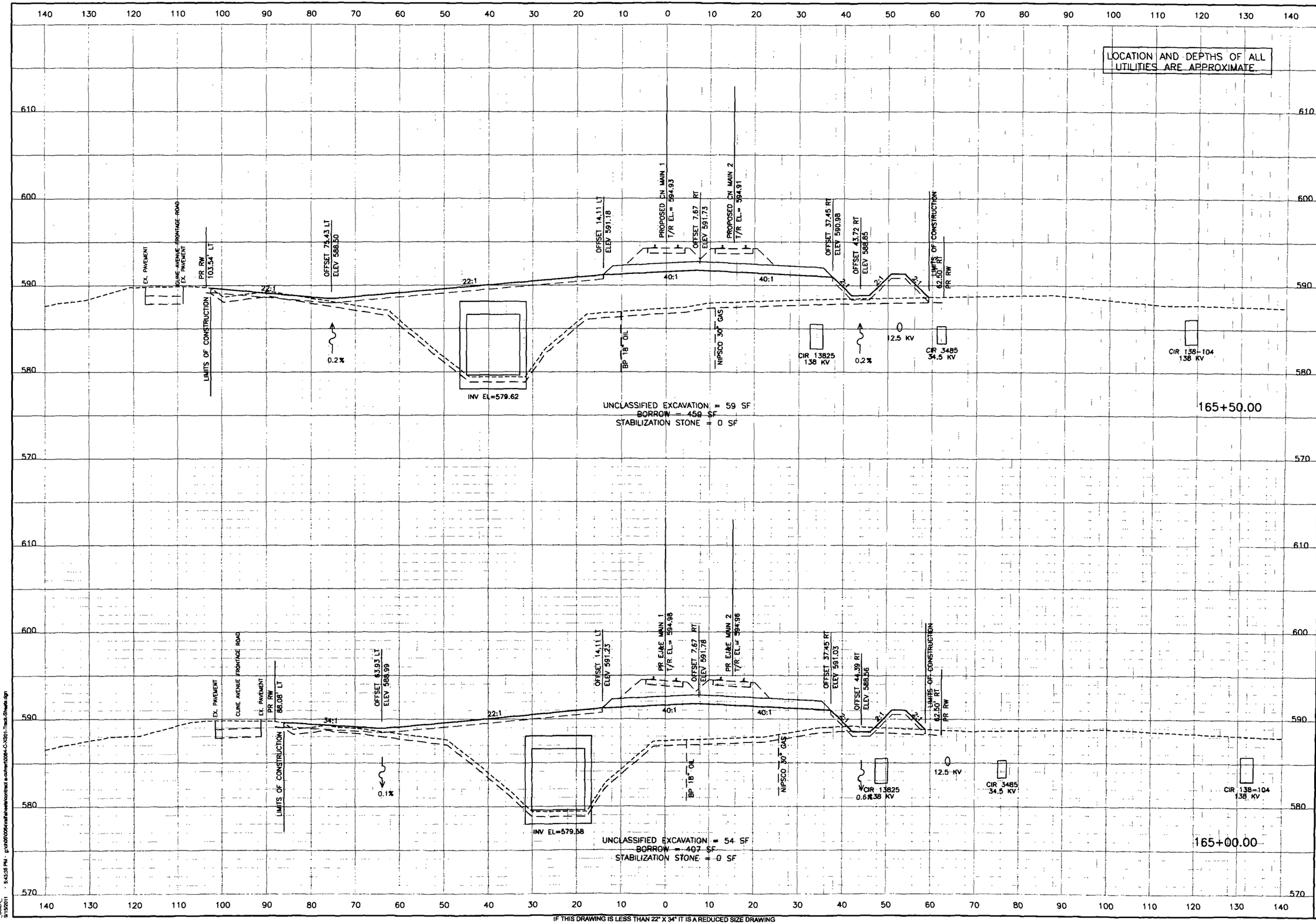
GaryChicago International Airport

REVISIONS:			
MARK	DATE	DESCRIPTION	
	9/16/2011	ISSUED FOR BID	

PROJ NO: P401050064
SCALE: 10H:5V
DATE: 9/16/2011
DESIGNED BY: JEB
DRAWN BY: KAL
CHECKED BY: KKY

SHEET TITLE:
EJ&E
CROSS SECTIONS
163+00.00 to 164+00.00

SHEET NO.
XS-EJ&E-18
SHEET 90 OF 93



IF THIS DRAWING IS LESS THAN 22" X 34" IT IS A REDUCED SIZE DRAWING

USER: 9/15/2011 - 9:43:35 PM - gr:\h05\0064\rail\sheets\contract s-c\rwr\0064-C-X301-Track-Sheets.dgn

Systems
1475 EAST WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE: 847-805-9600
FAX: 847-805-9610

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
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GaryChicago International Airport

REVISIONS:

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	9/16/2011	ISSUED FOR BID

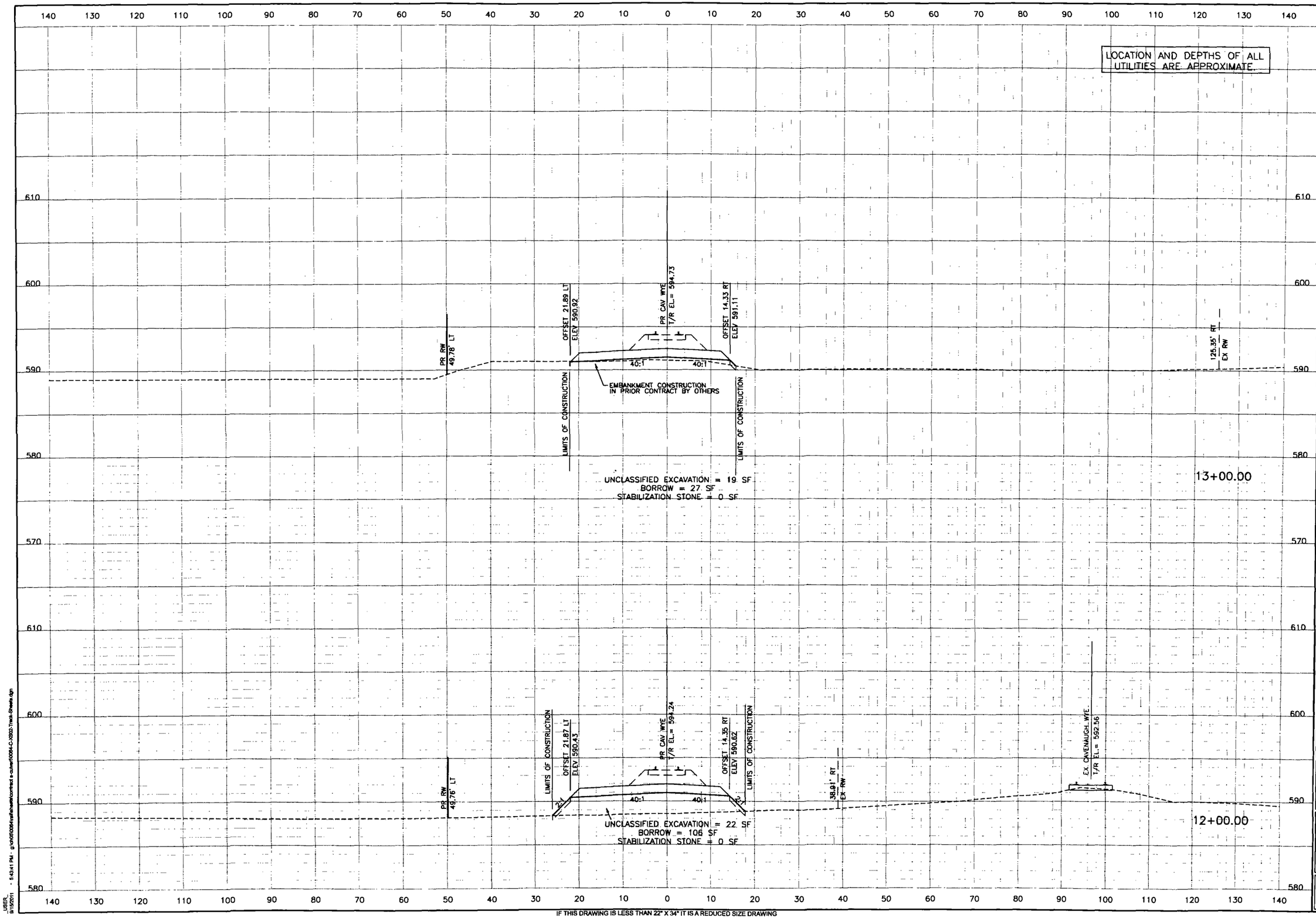
PROJ NO: P401050064
SCALE: 10H:5V
DATE: 9/16/2011
DESIGNED BY: JEB
DRAWN BY: KAL
CHECKED BY: KKY

SHEET TITLE:

EJ&E
CROSS SECTIONS
165+00.00 to 165+50.00

SHEET NO.
XS-EJ&E-19

SHEET 91 OF 93



IF THIS DRAWING IS LESS THAN 22" X 34" IT IS A REDUCED SIZE DRAWING

Systems
1475 EAST WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE: 847-605-9600
FAX: 847-605-9610

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
TRACK RELOCATION

GaryChicago
International Airport

REVISIONS:

MARK	DATE	DESCRIPTION
	9/16/2011	ISSUED FOR BID

PROJ NO: P401050064
SCALE: 10H:5V
DATE: 9/16/2011
DESIGNED BY: JEB
DRAWN BY: KAL
CHECKED BY: KKY

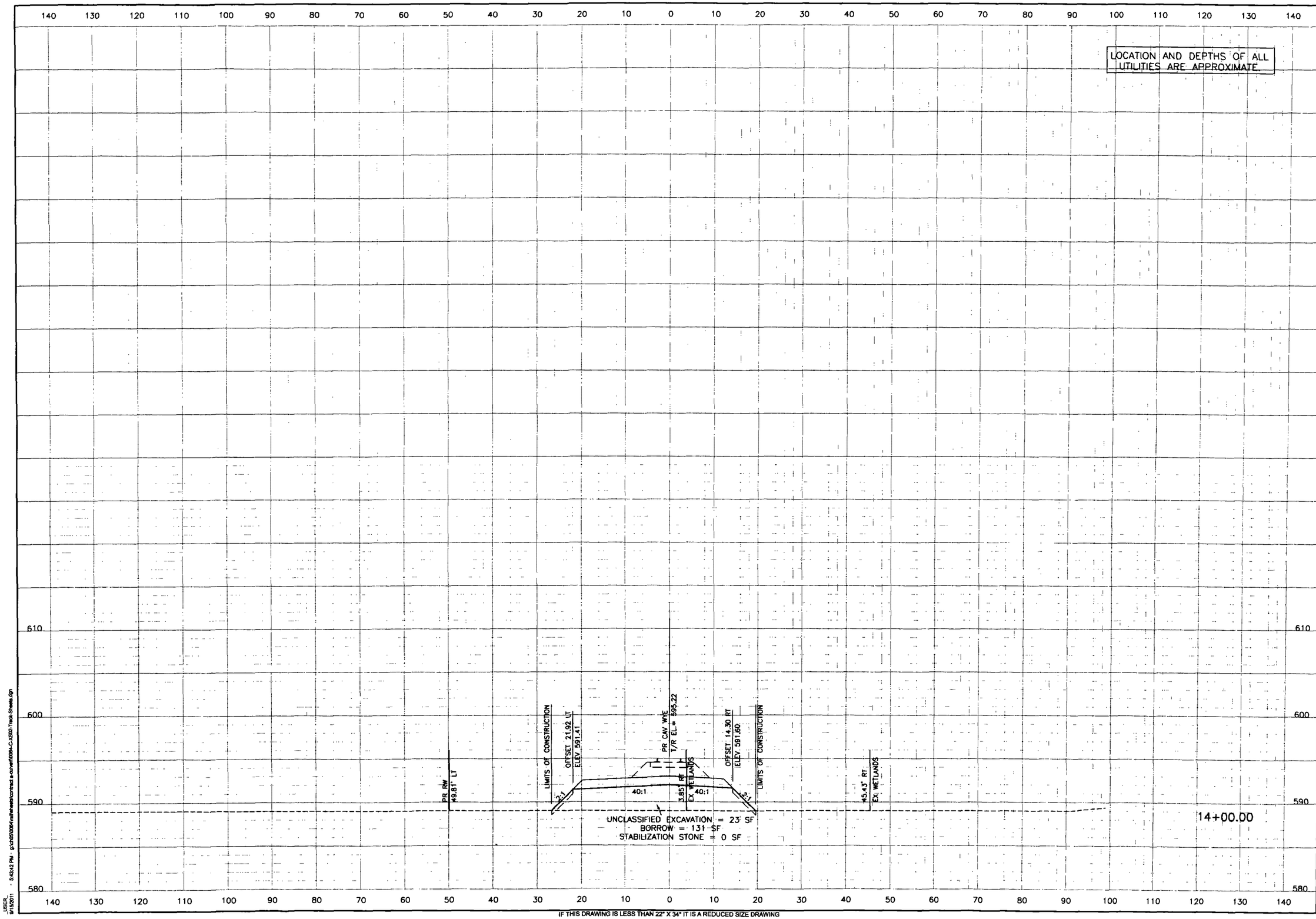
SHEET TITLE:

CAVANAUGH WYE
CROSS SECTIONS
12+00.00 to 13+00.00

SHEET NO.
XS-CAV-1

SHEET 92 OF 93

USER: 9/16/2011 - 5:43:41 PM - g:\chi\50064\wallsheets\contract s-curve\50064-C-X002-Track-Sheets.dgn



IF THIS DRAWING IS LESS THAN 22" X 34" IT IS A REDUCED SIZE DRAWING

USER_
9/15/2011 - 5:43:42 PM - g:\h05\0064\wheels\contract a-culvert\0064-C-XS02-Track-Sheets.dgn

[redacted] Systems
1475 EAST WOODFIELD ROAD
SUITE 600
SCHAUMBURG, IL 60173
PHONE: 847-605-5800
FAX: 847-605-9610

EJ&E RAILWAY
RELOCATION PROJECT
CULVERT AND GRADING

GARY/CHICAGO INTERNATIONAL AIRPORT AUTHORITY
TRACK RELOCATION

GaryChicago
International Airport

REVISIONS:

MARK	DATE	DESCRIPTION
	9/16/2011	ISSUED FOR BID

PROJ NO: P401050064
SCALE: 10H:5V
DATE: 9/16/2011
DESIGNED BY: JEB
DRAWN BY: KAL
CHECKED BY: KKY

SHEET TITLE:

CAVANAUGH WYE
CROSS SECTIONS
14+00.00 to 14+00.00

SHEET NO.
XS-CAV-2
SHEET 93 OF 93