INDIANA HARBOR BELT RAILROAD COMPANY
2721 161st STREET
HAMMOND, IN 46323-1099

BRIDGE 156
OVER ST. CHARLES ROAD
BELLWOOD, ILLINOIS

PHASE II

1. ABUTMENT REPAIRS- SHOTCRETE
2. NEW RETAINING WALLS, EAST SIDE
3. REPLACE STRUCTURAL STEEL SPANS- TRACK 1 AND 2

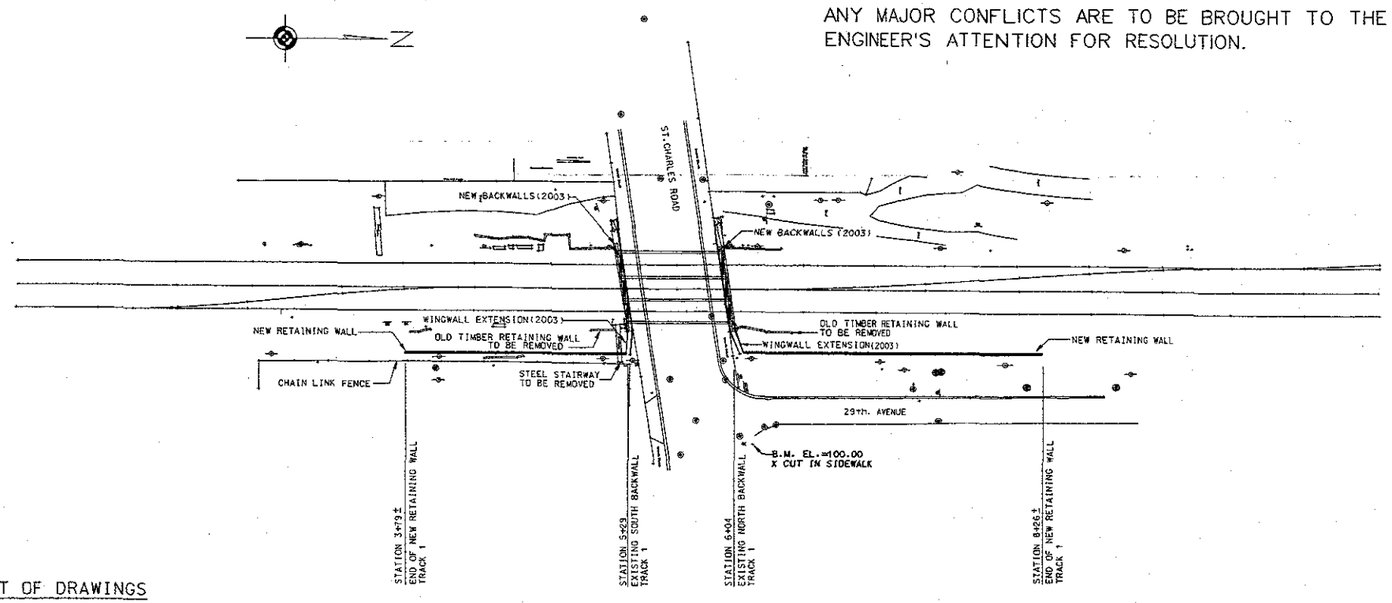
NIEMEYER & ASSOCIATES
ENGINEERS
4415 BECK LANE
RINGWOOD, IL 60072 - 9668
PHONE : (815) 653-9400 FAX : (815) 728-0220

CONTRACTOR'S NOTE

THIS ABUTMENT WAS ORIGINALLY BUILT IN 1897.
THE ONLY AVAILABLE PLAN FOR THE ABUTMENTS
HAS A MINIMUM OF INFORMATION.

THE REPAIR PLANS WERE PREPARED BASED ON THE
OLD 1897 PLAN AND FIELD SURVEY TAKEN 3-12-03

IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE
CONSTRUCTION AS DESCRIBED IN THE PLANS AND ACTUAL
CONDITIONS AS THEY ARE DISCOVERED AS WORK PROGRESSES.
ANY MAJOR CONFLICTS ARE TO BE BROUGHT TO THE
ENGINEER'S ATTENTION FOR RESOLUTION.



LOCATION PLAN
NOT TO SCALE

STRUCTURAL STEEL REPLACEMENT
SUGGESTED CONSTRUCTION SEQUENCE

1. REPAIR BRIDGE SEAT COPING AT TWO LOCATIONS PRIOR TO ALL OTHER CONSTRUCTION.
   A. SOUTH ABUTMENT, EXISTING GIRDER G 1 BEARING. PRESSURE GROUT CRACK AND SOLIDIFY COPING.
   B. NORTH ABUTMENT, EXISTING GIRDER G 3 BEARING. REMOVE DETERIORATED CONCRETE FOR A LENGTH OF 8" AND REPLACE WITH CAST-IN-PLACE REINFORCED CONCRETE.
2. APPLY 4" THICK LAYER OF REINFORCED SHOTCRETE TO VERTICAL SURFACE OF BOTH ABUTMENTS AND WING WALLS AND SLOPING SURFACE OF WING WALLS. THIS DOES NOT INCLUDE WING WALL EXTENSIONS CONSTRUCTED IN 2003. CONTRACTOR IS TO HAMMER TEST INVOLVED SURFACES AND REMOVE DETERIORATED CONCRETE TO SOUND MATERIAL. A FEW LOCATIONS HAVE BEEN IDENTIFIED ON THE REPAIR PLANS.
3. REPLACE EXISTING CAST PEDESTAL AND TIMBER RAISING BLOCKS FOR EXPANSION AND FIXED BEARINGS FOR EXISTING GIRDERS G 3 AND G 4 (TRACK-2).
   A. TRACK-2 TO BE RESTORED TO SERVICE IN NO LESS THAN 8 HOURS.
   B. PLACE PROPER CAPACITY JACKS AT EACH OF G 3 AND G 4 AS PER PLAN.
   C. RAISE ALL FOUR BEARINGS ENOUGH IN ORDER TO REMOVE EXISTING CAST PEDESTAL AND TIMBER RAISING BLOCKS.
      I. REMOVE EXISTING 1" THICK SOLE PLATE FROM ALL FOUR ENDS OF THE GIRDERS AND PREPARE BOTTOM FLANGE FOR NEW BEARINGS.
      II. CLEAN BRIDGE SEAT THOROUGHLY, REMOVING LOOSE CONCRETE, PATCHING HOLES, ETC.; LEAVING A SMOOTH, EVEN SURFACE.
   D. INSTALL NEW EXPANSION BEARINGS AT THE SOUTH ABUTMENT AND NEW FIXED BEARINGS AT THE NORTH ABUTMENT.
      I. BASE OF NEW BEARINGS ARE TO BE PLACED AT THE ELEVATION SHOWN ON THE PLAN AND THE VOID BETWEEN THE BOTTOM OF THE NEW BEARING AND REPAIRED BRIDGE SEAT FILLED WITH A QUICKSET FLOWABLE MORTAR.
   E. NO RAIL TRAFFIC MUST OPERATE ON TRACK 2 OR 21 WHILE SPAN IS SUPPORTED ON JACKS. CONTRACTOR MUST HAVE SUITABLE TEMPORARY BLOCKING AT THE SITE TO ACCOMMODATE RAIL TRAFFIC ON TRACK 2 OR 21. CLOSE CO-ORDINATION WITH IHB OPERATING DEPARTMENT IS REQUIRED.
4. REPLACE EXISTING GIRDERS G 1 AND G 2, FLOOR SYSTEMS, AND BEARINGS FROM TRACKS 1 AND 2.
   A. PERFORM PREPARATORY WORK ON EXISTING GIRDER G 3 TO PERMIT TIMELY CONNECTION OF NEW TRACK 2 FLOORBEAMS.
   B. TAKE TRACK 1 AND 2 OUT OF SERVICE AND OPERATE ALL TRAFFIC OVER TRACK-21.
      NOTE: TRACK-2 MUST BE RETURNED TO SERVICE WITHIN A SINGLE 24-HOUR PERIOD. WORK IS TO BE CONTINUOUS AND PERFORMED WITH NIGHTTIME LIGHTING WHEN REQUIRED.
   C. IHB FORCES WILL REMOVE EXISTING TIES AND RAILS.
   D. EXISTING GIRDERS G 1 AND G 2 AND FLOOR SYSTEMS OF TRACK 1 AND 2 WILL BE REMOVED BY THE CONTRACTOR.
   E. CLEAN BRIDGE SEAT THOROUGHLY, REMOVING LOOSE CONCRETE, PATCHING HOLES, ETC.; LEAVING A SMOOTH, EVEN SURFACE. LOCATION OF NEW GIRDER G 2 TO BE COMPLETED FIRST.
   F. INSTALL NEW EXPANSION BEARINGS AT THE SOUTH ABUTMENT AND NEW FIXED BEARINGS AT THE NORTH ABUTMENT FOR NEW GIRDER G 2.
      I. BASE OF NEW BEARINGS ARE TO BE PLACED AT THE ELEVATION SHOWN ON THE PLAN AND THE VOID BETWEEN THE BOTTOM OF THE NEW BEARING AND REPAIRED BRIDGE SEAT FILLED WITH A QUICKSET FLOWABLE MORTAR.
      II. BEARINGS ARE TO BE INSTALLED AND PROPERLY ALIGNED FOR NEW TRACK-2 FLOOR SYSTEM CONNECTION TO EXISTING GIRDER-G 3.
   G. INSTALL NEW GIRDER-G 2 AND NEW FLOOR SYSTEM FOR TRACK-2.
   H. IHB FORCES WILL REALIGN TRACK-2 AND PLACE NEW TIMBER OPEN DECK, RAILS AND GRATING WALKWAY AND RESTORE TRACK-2 TO SERVICE. TRAFFIC WILL THEN BE OVER TRACK-2 AND TRACK-21.
   I. ONCE BRIDGE SEAT REPAIRS ARE COMPLETE, EXPANSION AND FIXED BEARINGS, NEW GIRDER G 1 AND TRACK FLOOR SYSTEM FOR TRACK-1 WILL BE INSTALLED.
   J. IHB FORCES WILL REALIGN TRACK-1 AND PLACE NEW TIMBER OPEN DECK, RAILS AND GRATING WALK WAY AND RESTORE TRACK-1 TO SERVICE.

ALL THREE TRACKS WILL NOW BE IN SERVICE.

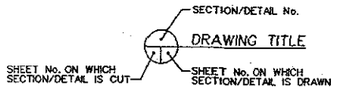
NOTE: CONTRACTOR MUST CONFER WITH INDIANA HARBOR BELT OPERATING DEPARTMENT AND SUBMIT A DETAILED SCHEDULE FOR BEARING CHANGE OUT FOR EXISTING TRACK-2 G 3 GIRDERS AND FOR REMOVAL OF EXISTING AND INSTALLATION OF NEW SPANS FOR TRACK 1 AND 2. CHIEF ENGINEER OF THE INDIANA HARBOR BELT RAILROAD OR HIS REPRESENTATIVE MUST REVIEW AND APPROVE THE SCHEDULE BEFORE ANY WORK IS TO BE PROGRESSED.

LIST OF DRAWINGS

SHEET NUMBER	DESCRIPTION
GN1	GENERAL NOTES
LP1	LOCATION PLAN
1	CONCRETE ABUTMENT-SHOTCRETE REPAIRS
2	CONCRETE REPAIR DETAILS
3	RETAINING WALLS
4	ERECTION DIAGRAM-STRUCTURAL STEEL
5	GIRDERS G1 AND G2
6	STIFFENERS-GIRDERS G1 AND G2
7	INTERIOR FLOORBEAMS
8	END FLOORBEAMS
9	STRINGERS
10	KNEE BRACES
11	BEARINGS-GIRDERS G1 AND G2
12	BEARINGS-GIRDERS G3 AND G4
13	FLOORBEAM LOCATIONS GIRDER G3
14	EXISTING GIRDER G3-DETAILS
15	EXISTING GIRDER G3-DETAILS
16	EXISTING GIRDER G3-DETAILS
17	EXISTING FLOORBEAMS AT KNEEBRACES ONLY-DETAILS
18	EXISTING INTERMEDIATE FLOORBEAMS
19	CROSS SECTIONS STATION 3+79 TO STATION 5+29
20	CROSS SECTIONS STATION 6+04 TO STATION 8+50
21	TYPICAL DECK CROSS SECTION

SUMMARY OF ESTIMATED MATERIAL

ITEM	MATERIAL	REFERENCE SHEET NUMBERS
STRUCTURAL STEEL	134.572 LBS.	4 THROUGH 10
FIXED AND EXPANSION BEARINGS	8.788 LBS. 332LBS(BRONZE PLATES)	11 AND 12
SHOTCRETE REPAIRS	2.728.SQ.FT.OF 4"THICK FACING	1 AND 2
RETAINING WALLS	375 LINEAL FEET	3
COMPACTED EMBANKMENT	1135 CUBIC YARDS	3
EXCAVATION	.255 CUBIC YARDS	3



SECTION DESIGNATION

IHB INDIANA HARBOR BELT RAILROAD COMPANY
21 161st STREET
HAMMOND, IN 46323-1099

BRIDGE.156
ST. CHARLES ROAD
BELLWOOD, ILLINOIS
LOCATION PLAN - LP1

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DRAWN BY: DJD	DATE DRAWN:	DATE ISSUED: 5- 06-04	
CHECKED BY: JRI	REVISION DATE: REVISION	DRAWING NO:	SHEET LP1
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GENERAL NOTES

GENERAL NOTES - CIVIL

A. SAFETY PROVISIONS:

1. TO PROVIDE RAIL TRAFFIC, MOTORISTS AND PEDESTRIANS WITH SAFE TRAVEL CONDITIONS DURING THIS CONSTRUCTION PROJECT AND TO PROVIDE SAFE WORKING CONDITIONS FOR ALL EMPLOYEES BOTH OF INDIANA HARBOR BELT AND OF PRIVATE CONTRACTORS. THE RULES, REGULATIONS, AND CONDITIONS STATED BELOW WILL PREVAIL FOR THE DURATION OF THIS CONTRACT. ANY EMPLOYEE OF THE CONTRACTOR OR HIS SUB-CONTRACTORS THAT REFUSES TO COMPLY WITH THESE GENERAL SAFETY PROVISIONS SHALL BE REMOVED FROM THE JOB SITE.

   a. THE CONTRACTOR AND ANY SUB-CONTRACTORS SHALL COMPLY WITH IHB SAFETY REQUIREMENTS AND RULES FOR CONTRACTORS WORKING ON THE PROPERTY.

   b. THE CONTRACTOR AND ANY SUB-CONTRACTORS SHALL COMPLY WITH FEDERAL RAILROAD ADMINISTRATION ROADWAY WORKERS PROTECTION REGULATIONS 49CFR PART 214.

   c. THE CONTRACTOR AND ANY SUB-CONTRACTORS RETAINED BY HIM SHALL COMPLY WITH THE STATE OF ILLINOIS AND FEDERAL REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 (OSHA), REVISED 1987, AS IT RELATES TO HIS OPERATION.

B. POLLUTION CONTROL:

1. THE CONTRACTOR WILL BE REQUIRED TO COMPLY WITH ALL STATE REGULATIONS REGARDING AIR, WATER AND NOISE POLLUTION. THE CONTRACTOR WILL NOT BE ALLOWED TO BUILD FIRES ON THE SITE.

C. UTILITIES:

1. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ADJACENT UNDERGROUND AND OVERHEAD UTILITIES.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UNDERGROUND OR SURFACE UTILITIES EVEN THOUGH THEY MAY NOT BE SHOWN ON THE PLANS. ANY UTILITY THAT IS DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER OR THE OWNER OR REPLACED. THIS WORK SHALL BE DONE AT CONTRACTOR'S EXPENSE.

3. BEFORE STARTING ANY EXCAVATIONS, THE CONTRACTOR SHALL CALL J.U.L.I.E. AT 1-800-892-0123 FOR FIELD LOCATIONS OF BURIED UTILITY FACILITIES.
(48 HOURS NOTIFICATION IS REQUIRED).

   CONTRACTOR IS RESPONSIBLE FOR ACQUIRING ALL REQUIRED PERMITS DIG TICKETS OR OTHER PERMISSIONS FROM UTILITIES AS REQUIRED.

4. GENERAL:

1. THE CONTRACTOR SHALL ASCERTAIN WHETHER ANY PERMITS, SPECIAL INSPECTIONS, etc. ARE REQUIRED WITH RESPECT TO THE CONSTRUCTION OPERATIONS AND WORK UNDER THIS CONTRACT. IT IS SOLELY THE CONTRACTOR'S DUTY TO PROVIDE FOR SUCH REQUIREMENTS AND TO MAKE PAYMENTS AS NECESSARY.

2. THE CONTRACTOR MUST SUBMIT FOR APPROVAL, HIS PROPOSED SEQUENCE OF OPERATIONS PRIOR TO START OF CONSTRUCTION.

3. THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS AND REMOVE ALL DEBRIS FROM THE SITE.

4. DURING CONSTRUCTION THE CONTRACTOR SHALL REMOVE DIRT AND DEBRIS AND MAINTAIN ROADWAYS IN A SAFE AND CLEAN CONDITION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE STREETS AND/OR ASSOCIATED STRUCTURES AND SHALL MAKE REPAIRS AS DIRECTED BY THE ENGINEER.

5. WHEN ARTIFICIAL LIGHTING IS USED IN NIGHT OPERATIONS, THE CONTRACTOR SHALL EXERCISE THE UTMOST PRECAUTIONS IN PREVENTING ADVERSE VISIBILITY TO THE MOTORING PUBLIC AND ADJOINING RESIDENTIAL AREAS.

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL NECESSARY SURVEYING REQUIRED TO COMPLETE THE PROJECT.

GENERAL NOTES - STRUCTURAL

A. DESIGN SPECIFICATIONS:

THE 'MANUAL FOR RAILWAY ENGINEERING" OF THE AMERICAN RAILWAY ENGINEERING AND MAINTENANCE-OF-WAY ASSOCIATION (AREMA) 2003 EDITION:

1. DESIGN LOADING:

LIVE LOAD: LIVE LOAD IN POUNDS PER AXLE AND UNIFORM TRAILING LOAD FOR EACH TRACK IS THE COOPER E80 LOAD.

IMPACT: IN ACCORDANCE WITH AREMA AS REQUIRED FOR ROLLING EQUIPMENT WITHOUT HAMMER BLOW.

2. DESIGN METHOD:

STRUCTURAL STEEL: SERVICE LOAD, AREMA CHAPTER 15.

B. STRUCTURAL STEEL:

1. ALL STRUCTURAL STEEL SHAPES AND PLATES SHALL BE TYPE ASTM A-35, Fy=36,000 PSI.

2. PLATES AND SHAPES MARKED "FCM" ON THE DRAWINGS SHALL BE FRACTURE CRITICAL MATERIAL ⅔ INFORMING TO THE REQUIREMENTS OF THE "FRACTURE CONTROL PLAN FOR FRACTURE CRITICAL MEMBERS" OF AREMA. THE IMPACT TEST REQUIREMENTS FOR FRACTURE CRITICAL MEMBERS SHALL BE AS REQUIRED FOR ZONE 2 SERVICE TEMPERATURE.

3. WELDED CONNECTIONS SHALL BE MADE WITH TYPE E70XX ELECTRODES COMPATIBLE WITH EACH INDIVIDUAL APPLICATION.

4. UNLESS OTHERWISE SHOWN ON THE PLANS, NO FIELD WELDING OF ANY NATURE WILL BE PERMITTED.

5. ALL STRUCTURAL BOLTS SHALL BE HEAVY HEX HIGH STRENGTH 7/8" DIA. ASTM A325, TYPE 1 AND ALL HOLES SHALL BE 15/16" DIA. UNLESS OTHERWISE NOTED ON THE PLANS. ALL ANCHOR BOLTS SHALL BE ASTM A276, TYPE 410, ANNEALED.

6. ALL STRUCTURAL NUTS SHALL BE HEAVY HEX CONFORMING TO ASTM A563-DH. STRUCTURAL WASHERS SHALL BE HARDENED CONFORMING TO ASTM A436.

7. ALL CONTACT SURFACES ON THE NEW STEEL INCLUDING THOSE ADJACENT TO THE BOLT HEADS, NUTS OR WASHERS, SHALL BE FREE OF SCALE, BURRS, DIRT, AND OTHER FOREIGN MATERIALS AND SHALL ALSO BE FREE OF OIL, LACQUER, OR OTHER COATINGS THAT WOULD PREVENT SOLID SEATING OF THE PARTS.

8. PAINTING OF NEW STRUCTURAL STEEL: ALL NEW STRUCTURAL STEEL, EXCEPT CORROSION RESISTANT STEEL, SHALL BE PAINTED AS SPECIFIED, PRIOR TO ITS DELIVERY TO THE SITE. ALL DAMAGED PAINT SHALL BE TOUCHED UP IN THE FIELD. ALL BOLTS, NUTS, AND WASHERS SHALL BE PAINTED IN THE FIELD AFTER INSTALLATION.

9. PAINTING OF EXISTING STRUCTURAL STEEL:

   a. ALL EXPOSED SURFACE AREAS OF TRACK-21 GIRDERS AND FLOOR SYSTEM ARE TO BE BLAST CLEANED IN ACCORDANCE WITH STEEL STRUCTURES PAINTING COUNCIL MANUAL SPCC6 PRIOR TO FIELD APPLICATION OF THE PAINT SYSTEM.

   b. FIELD APPLICATION OF PRIMER AND FINISH COAT WILL CONFORM TO THE SHOP PAINT SPECIFIED FOR THE NEW STEEL SPANS.

C. CONCRETE WORK:

1. MINOR REPAIRS TO EXISTING CONCRETE ABUTMENTS, AT SPECIFIED LOCATIONS AS SHOWN ON THE PLANS, ARE TO BE COMPLETED BEFORE THE APPLICATION OF THE 4" THICK SHOTCRETE FACING.

2. SURFACE PREPARATION, REINFORCING AND APPLICATION OF THE 4" THICK SHOTCRETE TO ABUTMENT FACE AND WINGWALL FACE AND TOP SHALL BE IN ACCORDANCE WITH AREMA, CHAPTER 8, SECTION 14.5.

D. GENERAL:

1. PLAN DIMENSIONS AND DETAILS RELATIVE TO EXISTING STRUCTURES HAVE BEEN TAKEN FROM EXISTING PLANS. MODIFIED AS NECESSARY FROM FIELD MEASUREMENT. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THESE DIMENSIONS AND SUBMIT ANY DEVIATIONS WITH SUPPORTING SURVEY NOTES AND DRAWINGS FOR REVIEW AND APPROVAL. SUCH VARIATIONS SHALL NOT BE CAUSE FOR ADDITIONAL COMPENSATION FOR A CHANGE IN SCOPE OF WORK. THIS SHALL BE DONE BEFORE THE COMMENCEMENT OF CONSTRUCTION AND PREPARATION OF THE SHOP DRAWINGS.

2. DO NOT SCALE PLANS FOR CONSTRUCTION DIMENSIONS.

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GENERAL NOTES

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DRAWN BY: DJD	DATE DRAWN:		DATE ISSUED: 5-06-04
CHECKED BY: JRI	REVISION DATE:	REVISION	DRAWING NO:
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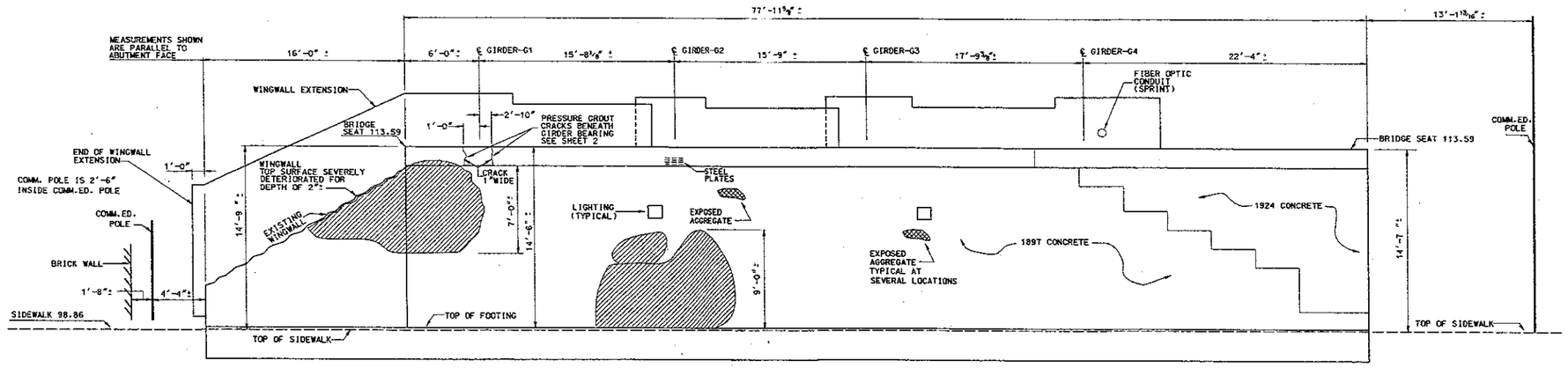
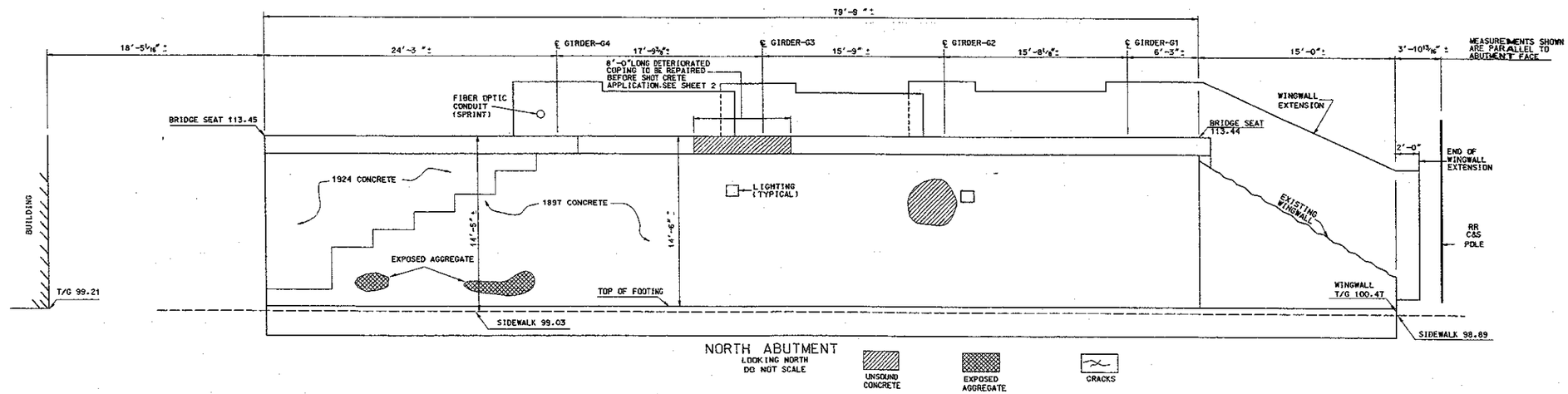


SOUTH ABUTMENT
LOOKING SOUTH
DO NOT SCALE



NORTH ABUTMENT
LOOKING NORTH
DO NOT SCALE

UNSOUND CONCRETE — EXPOSED AGGREGATE — CRACKS

GENERAL NOTES

DETERIORATED PORTIONS AS SHOWN ARE SPECIFIC LOCATIONS REQUIRING ATTENTION. THERE ARE NUMEROUS OTHER SMALL AREAS NOT IDENTIFIED THAT MAY OR MAY NOT NEED REPAIRS.

CONTRACTOR IS TO HAMMER TEST ENTIRE FACE OF ABUTMENT AND COPING AND REMOVE UNSOUND AND DETERIORATED CONCRETE TO SOUND MATERIAL.

TYPICAL REPAIRS FOR CRACKS AND SPALLS ARE SHOWN ON SHEET 8.

CONCRETE REPAIRS ARE TO BE MADE IN ACCORDANCE WITH CHAPTER 8. PART 14- REPAIRS & REHABILITATION OF CONCRETE STRUCTURES. OF THE AMERICAN RAILWAY ENGINEERING AND MAINTENANCE OF WAY ASSOCIATION. (AREMA)

ALL CRACKS TO BE GROOVED & CLEANED WITH AIR OR WATER BLAST BEFORE GROUTING.

SHOTCRETE TO BE PLACED AFTER ALL CRACK GROUTING & ALL CONCRETE REPAIRS ARE COMPLETED.

ENTIRE SURFACE RECEIVING SHOTCRETE TO BE SANDBLASTED TO REMOVE ALL LOOSE SURFACE PARTICALS IN ACCORDANCE WITH AREMA MANUAL CHAPTER 8. PART 14. SECTION 14.5 REPAIR METHODS.

FIBER OPTIC CONDUIT ATTACHMENT ON WEST SIDE OF BRIDGE ABOVE THE BRIDGE SEAT. (SPRINT)

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BRIDGE 156
ST.CHARLES ROAD
BELLWOOD, ILLINOIS
CONCRETE REPAIRS
NORTH AND SOUTH ABUTMENTS.

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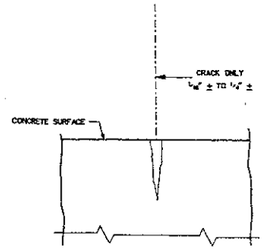
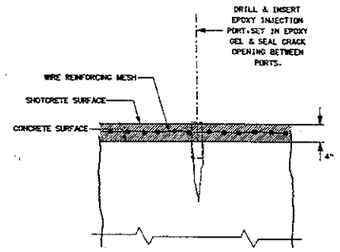


SURFACE CRACK ONLY
NO ADJACENT SPALLING.

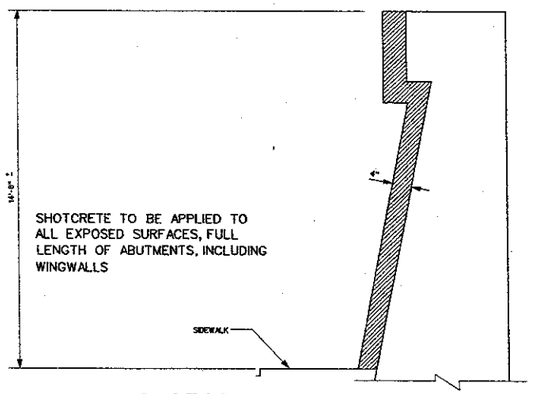
CONDITION
NOT TO SCALE



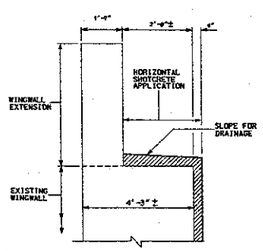
EPOXY INJECTION

REPAIR
NOT TO SCALE

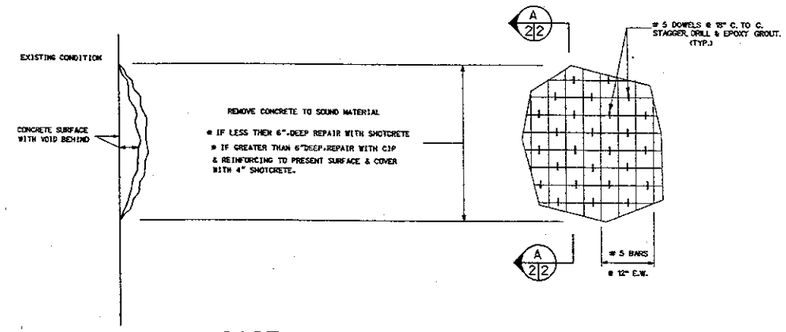
TYPE - A CRACK



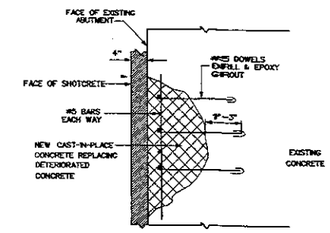
SHOTCRETE APPLICATION
TYPICAL CROSS SECTION
NOT TO SCALE



WINGWALLS
TYPICAL SHOTCRETE APPLICATION
NOT TO SCALE



CAST-IN-PLACE CONCRETE
REPAIR DETAIL "A"
NOT TO SCALE



SECTION A 2/2
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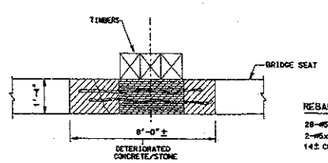
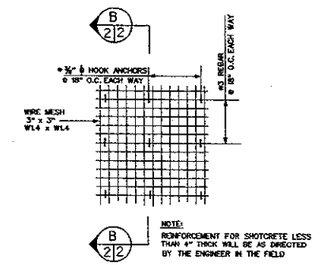
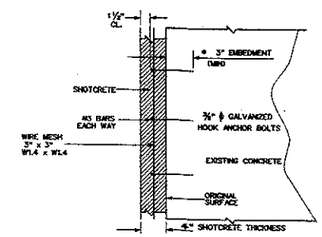


REBARS REQUIRED
28-#5x2'-6" DOWELS
2-#5x8'-0" ±
14± CU.FT. CONCRETE

EXISTING CONDITION
NO SCALE



SHOTCRETE REPAIR DETAIL-B
NOT TO SCALE



SECTION B 2/2
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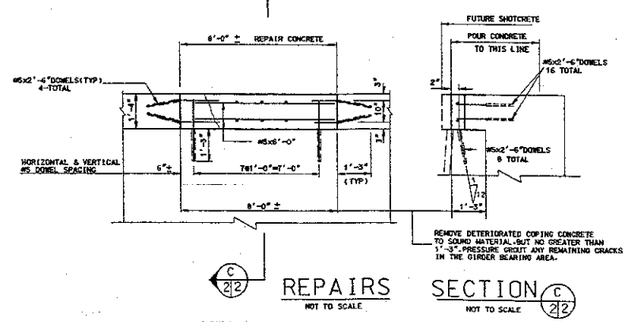

REPAIRS
NOT TO SCALE

SECTION C 2/2
NOT TO SCALE

NORTH ABUTMENT
GIRDER No. 3 FROM EAST

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BRIDGE. 156
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REPAIR DETAILS
NORTH AND SOUTH ABUTMENTS

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DRAWN BY: DJD	DATE DRAWN:		DATE ISSUED: 5-06-04
CHECKED BY: JRI	REVISION DATE:	REVISION:	DRAWING NO: SHEET 2 OF 21
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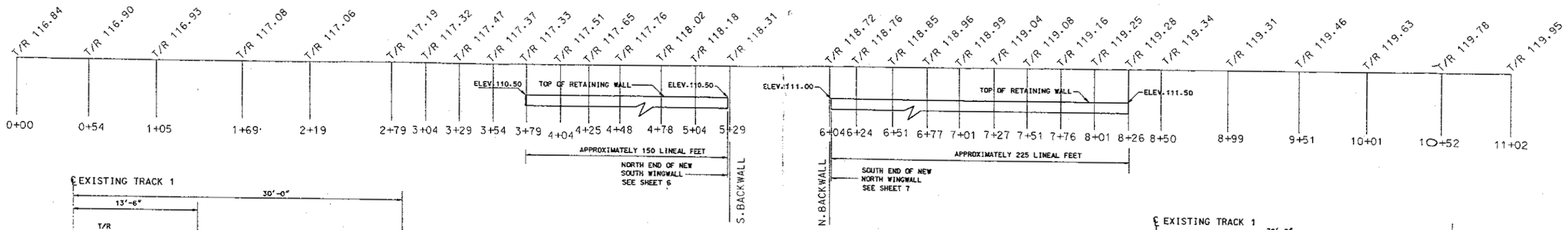
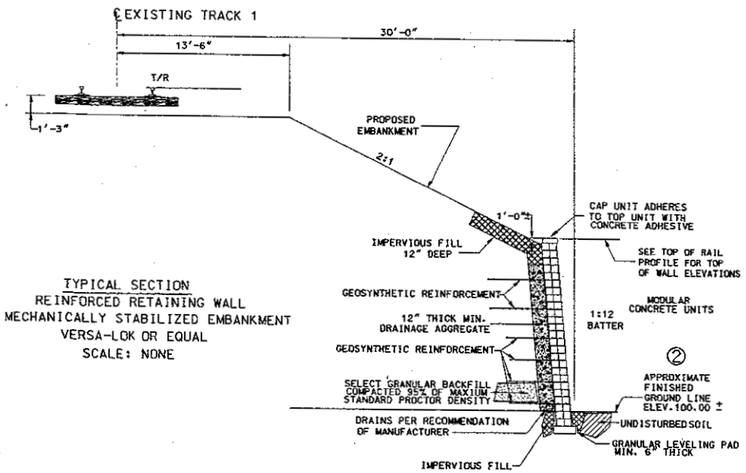
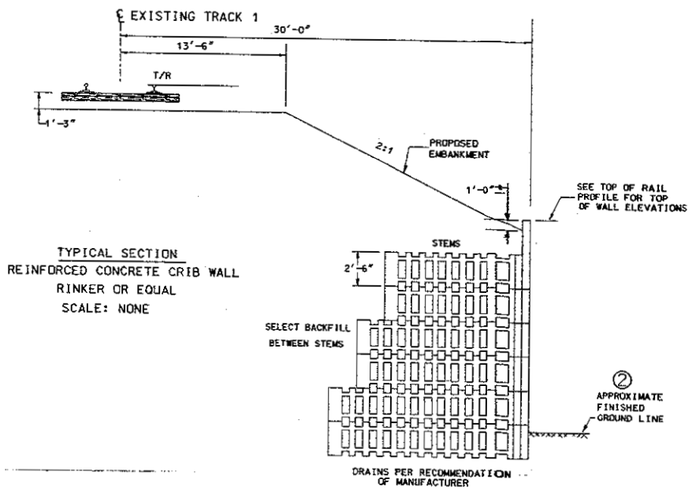


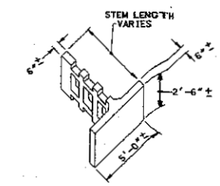
TOP OF RAIL PROFILE
EAST RAIL OF TRACK 21
NOT TO SCALE



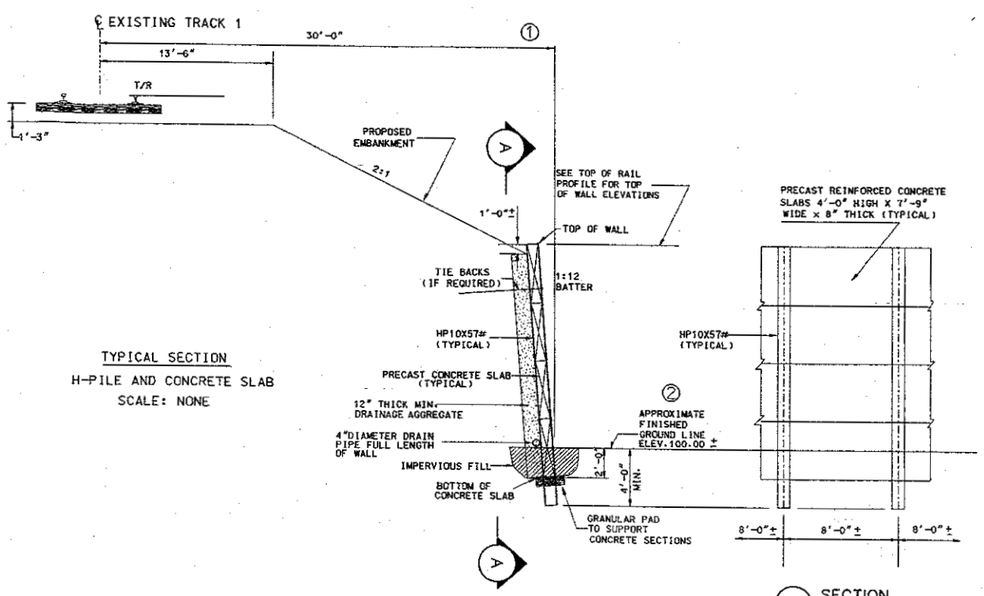
TYPICAL SECTION
REINFORCED RETAINING WALL
MECHANICALLY STABILIZED EMBANKMENT
VERSA-LOK OR EQUAL
SCALE: NONE



TYPICAL SECTION
REINFORCED CONCRETE CRIB WALL
RINKER OR EQUAL
SCALE: NONE

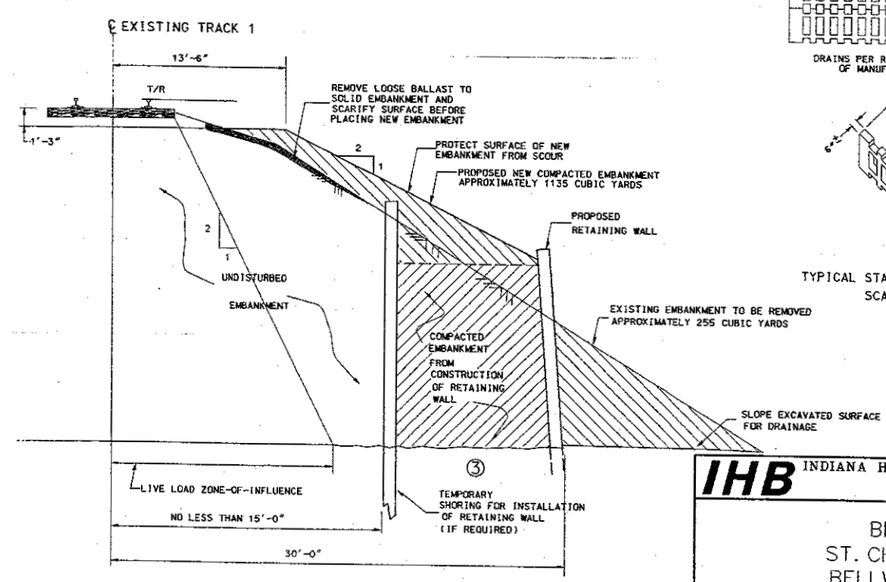


TYPICAL STANDARD UNIT DIMENSIONS
SCALE: NONE



TYPICAL SECTION
H-PILE AND CONCRETE SLAB
SCALE: NONE

A SECTION
SCALE: NONE



TYPICAL SECTION
AT RIGHT ANGLES
TO ℄ TRACK
SHORING REQUIREMENTS
SCALE: NONE

NOTE:

EXISTING ELEVATIONS SHOWN ON SHEETS 11 THROUGH 15 PER FIELD SURVEY TAKEN 3-12-03

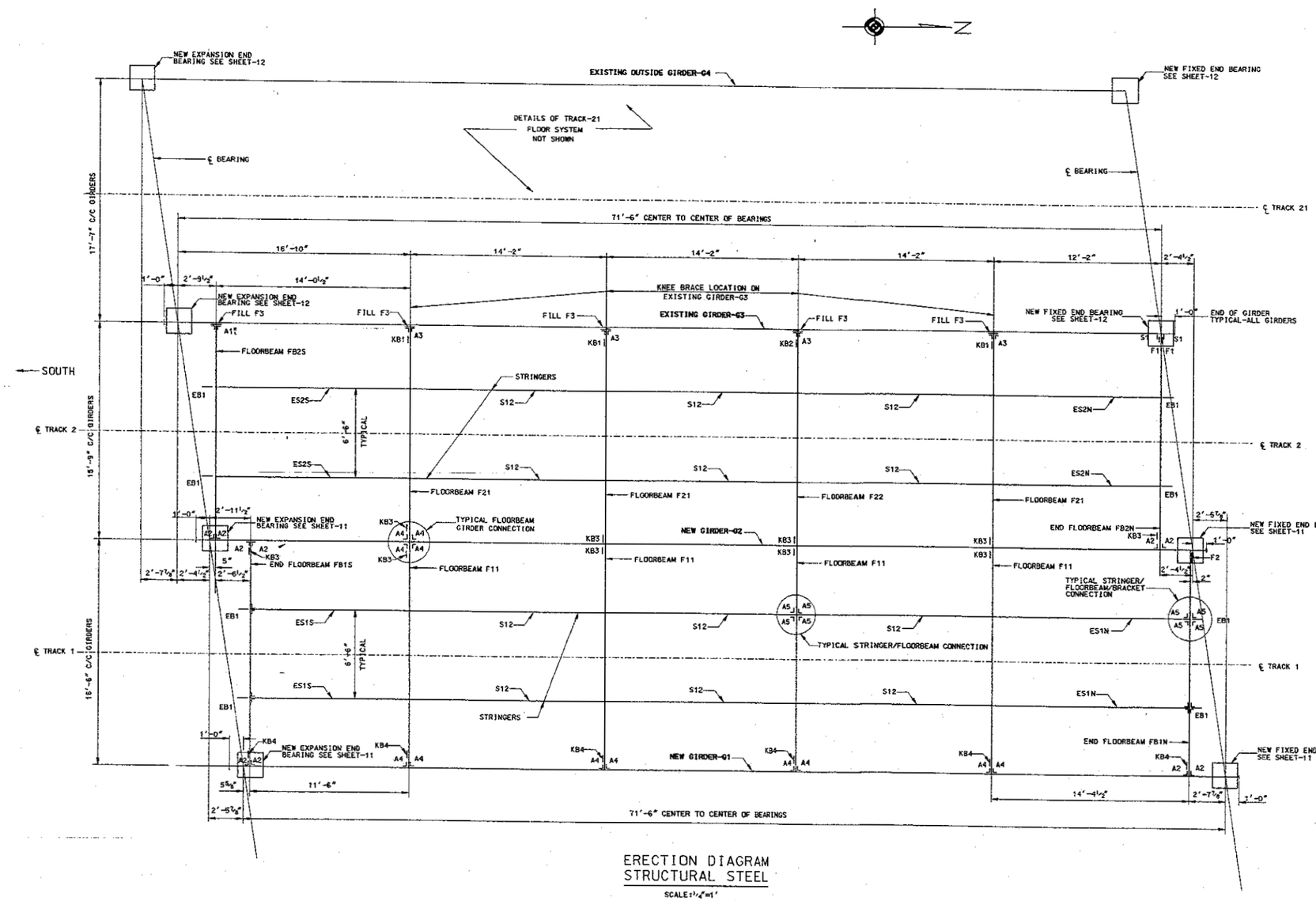
IHB INDIANA HARBOR BELT RAILROAD COMPANY
21 161st STREET
HAMMOND, IN 46323-1099

BRIDGE. 156
ST. CHARLES ROAD
BELLWOOD, ILLINOIS
RETAINING WALLS
GENERAL DETAILS

NIEMEYER & ASSOCIATES
ENGINEERS
4415 BECK LANE
ROSWOOD, IL 60072 - 9688
PHONE (815) 633-9400 FAX (815) 728-0220

DESIGNED BY: JRI	ORIGINAL SIGNED BY:		ORIGINAL SIGNED BY:
DRAWN BY: DJD	DATE DRAWN:		DATE ISSUED: 5-06-04
CHECKED BY: JRI	REVISION DATE:	REVISION	DRAWING NO:
CAD FILENAME: IHB156retnwalls.dgn			SHEET 3 OF 21

\\IHBfs\drawings\15.dgn 05/06/2004 11:25:55 AM



ERECTION DIAGRAM
STRUCTURAL STEEL
SCALE: 1/4"=1'

MATERIAL LIST—STRUCTURAL STEEL

ITEM	DESCRIPTION	MARK	REFERENCE SHEET NUMBER
1	PLATE GIRDER	G1	5 & 6
1	PLATE GIRDER	G2	5 & 6
4	INTERIOR FLOORBEAMS	FB11	7
3	INTERIOR FLOORBEAMS	FB21	7
1	INTERIOR FLOORBEAM	FB22	7
1	END FLOORBEAM	FB1N	8
1	END FLOORBEAM	FB1S	8
1	END FLOORBEAM	FB2N	8
1	END FLOORBEAM	FB2S	8
2	END STRINGERS	ES1N	9
2	END STRINGERS	ES1S	9
2	END STRINGERS	ES2N	9
2	END STRINGERS	ES2S	9
12	INTERIOR STRINGERS	S12	9
8	END BRACKETS	EB1	9
3	KNEE BRACES	KB1	10
1	KNEE BRACES	KB2	10
10	KNEE BRACES	KB3	10
6	KNEE BRACES	KB4	10
1	CONNECTION ANGLE	A1[k]	9
1	CONNECTION ANGLE	A1[c]	9
10	CONNECTION ANGLES	A2	9
8	CONNECTION ANGLES	A3	9
24	CONNECTION ANGLES	A4	9
96	CONNECTION ANGLES	A5	9
2	FILL PLATES	F1	9
1	FILL PLATE	F2	9
5	FILL PLATES	F3	9
2	SPLICE PLATES	S1	9
	NEW GIRDERS—G1 & G2		
2	FIXED END BEARING ASSEMBLIES		11
2	EXPANSION END BEARING ASSEMBLIES		
	EXISTING GIRDERS—G3 & G4		
2	FIXED END BEARING ASSEMBLIES		12
2	EXPANSION END BEARING ASSEMBLIES		

ESTIMATED WEIGHTS
STRUCTURAL STEEL——134,572 LBS
FIXED & EXPANSION BEARINGS—8,788 LBS
BRONZE SLIDING PLATES——332 LBS

IHB INDIANA HARBOR BELT RAILROAD COMPANY
21 161st STREET
HAMMOND, IN 46323-1099

BRIDGE.156
ST. CHARLES ROAD
BELLWOOD, ILLINOIS
ERECTION DIAGRAM
STRUCTURAL STEEL

NIEMEYER & ASSOCIATES
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4415 BECK LANE
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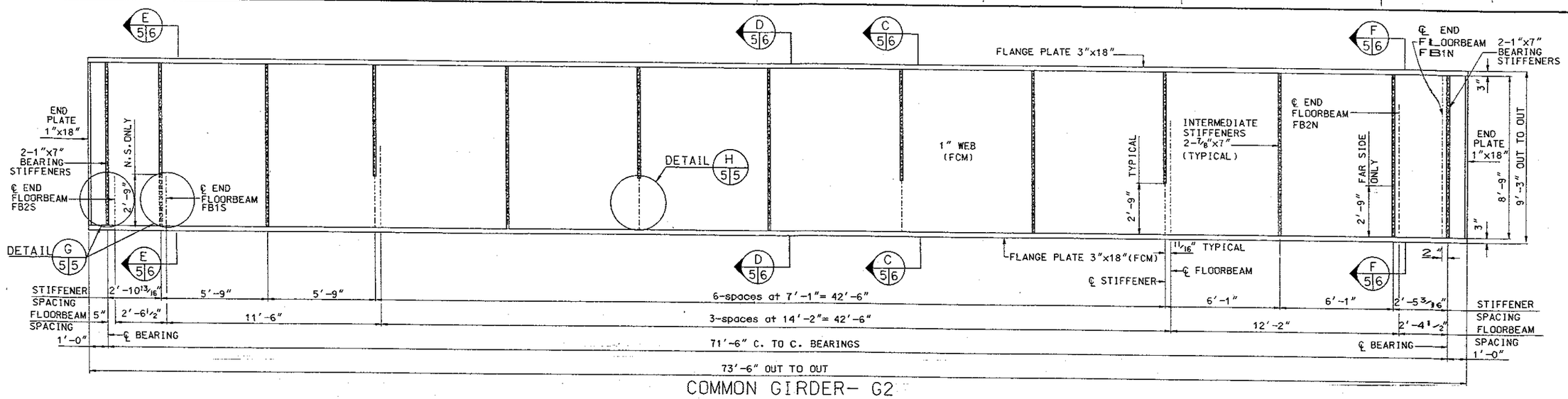
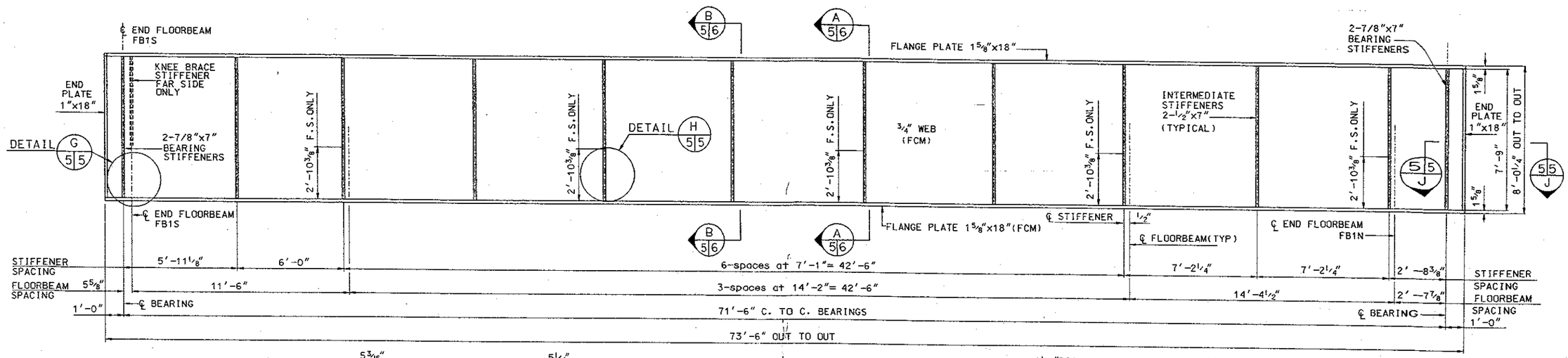
DESIGNED BY: JRI	ORIGINAL SIGNED BY:	ORIGINAL SIGNED BY:	
DRAWN BY: DJD	DATE DRAWN:	DATE ISSUED: 5-06-04	
CHECKED BY: JRI	REVISION DATE:	REVISION:	DRAWING NO:
CAD FILENAME: 385-IHB-Br.156erecdiag.dgn			SHEET 4 OF 21

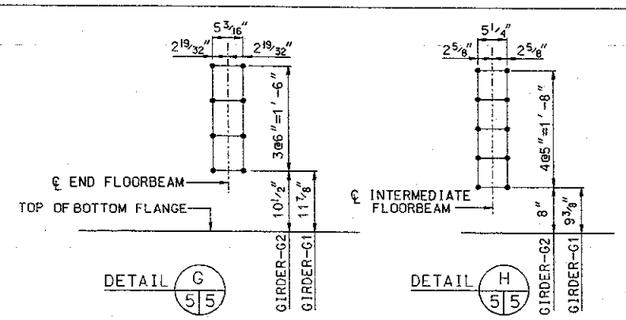


COMMON GIRDER- G2



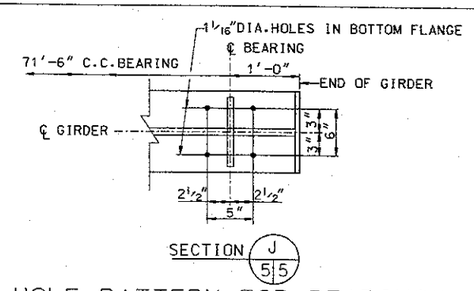
OUTSIDE GIRDER- G1

SCALE: 3/8"= 1"-0"
(DO NOT SCALE)



FLOORBEAM-GIRDER CONNECTION HOLE PATTERN

SCALE: 1"= 1"-0"
(DO NOT SCALE)



HOLE PATTERN FOR BEARINGS

TYPICAL BOTH ENDS BOTH GIRDERS
SCALE: 1"= 1"-0"
(DO NOT SCALE)

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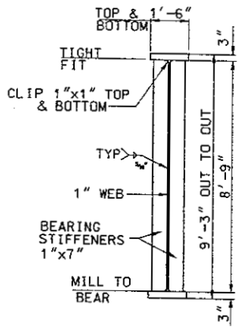
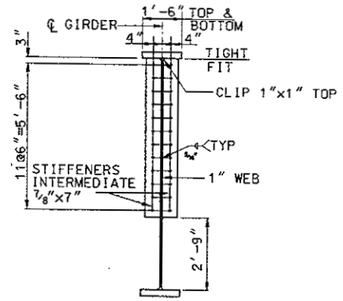
IHB INDIANA HARBOR BELT RAILROAD COMPANY
2121 161st STREET
HAMMOND, IN 46323-1099

BRIDGE. 156
ST. CHARLES ROAD
BELLWOOD, ILLINOIS
GIRDERS-G1 AND G2

DESIGNED BY: JRI	ORIGINAL SIGNED BY:		ORIGINAL SIGNED BY:
DRAWN BY: DJD	DATE DRAWN:		DATE ISSUED: 5-06-04
CHECKED BY: JRI	REVISION DATE:	REVISION	DRAWING NO
CAD FILENAME: 385-IHB-Br.156girdersG1 G2.dgn			SHEET 5 OF 21

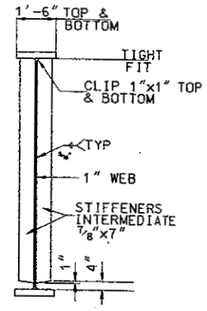


BEARING STIFFENERS



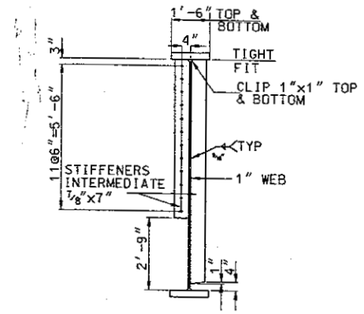
INTERMEDIATE STIFFENERS AT FLOORBEAMS

SECTION C 5/6



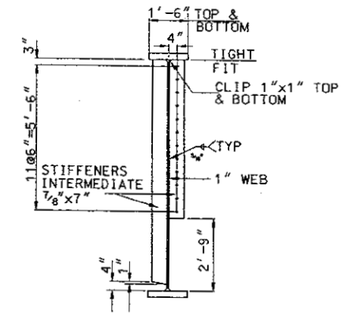
INTERMEDIATE STIFFENERS BETWEEN FLOORBEAMS

SECTION D 5/6



STIFFENERS AT END FLOORBEAM-FB1S (TRACK-1 SIDE)

SECTION E 5/6

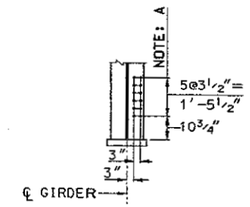


STIFFENERS AT END FLOORBEAM-FB2N (TRACK-2 SIDE)

SECTION F 5/6

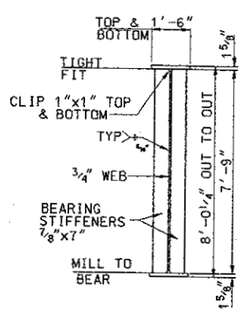
NOTE: A

HOLES SHOWN ARE ONLY IN BEARING STIFFENER ON G2, NORTH END, TRACK 1 SIDE ONLY. FOR CONNECTION OF WEST END OF FLOORBEAM FB1N.

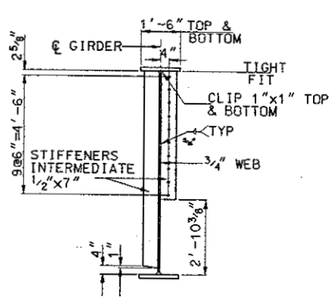


COMMON GIRDER- G2

SCALE: 3/8"= 1"-0"

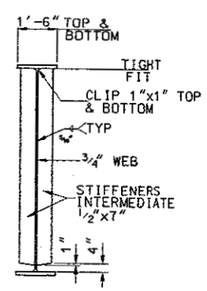


BEARING STIFFENERS



INTERMEDIATE STIFFENERS AT INTERIOR FLOORBEAMS

SECTION A 5/6

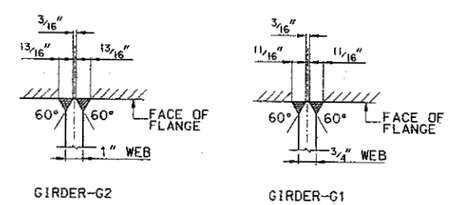


INTERMEDIATE STIFFENERS BETWEEN INTERIOR FLOORBEAMS

SECTION B 5/6

OUTSIDE GIRDER- G1

SCALE: 3/8"= 1"-0"



FLANGE TO WEB WELD

(FRACTURE CRITICAL WELD AT BOTTOM FLANGE)
TC-U5-S
(NOT TO SCALE)

IHB INDIANA HARBOR BELT RAILROAD COMPANY
2136 1st STREET
HAMMOND, IN 46323-1099

BRIDGE.156
ST. CHARLES ROAD
BELLWOOD, ILLINOIS
STIFFENERS GIRDERS-G1 AND G2

NIEMEYER & ASSOCIATES
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4445 BECK LANE
RINGWOOD, IL. 60072 - 9668
PHONE (815) 653-9440 FAX (815) 728-0220

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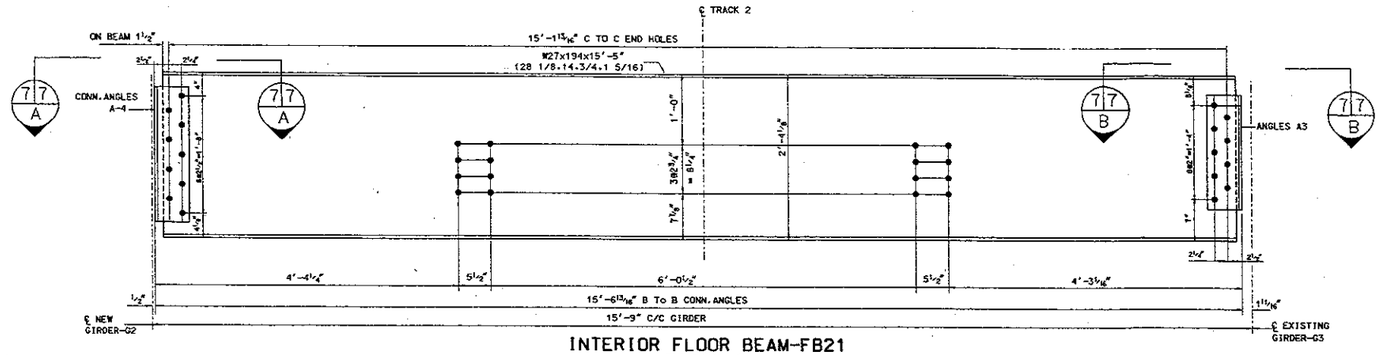
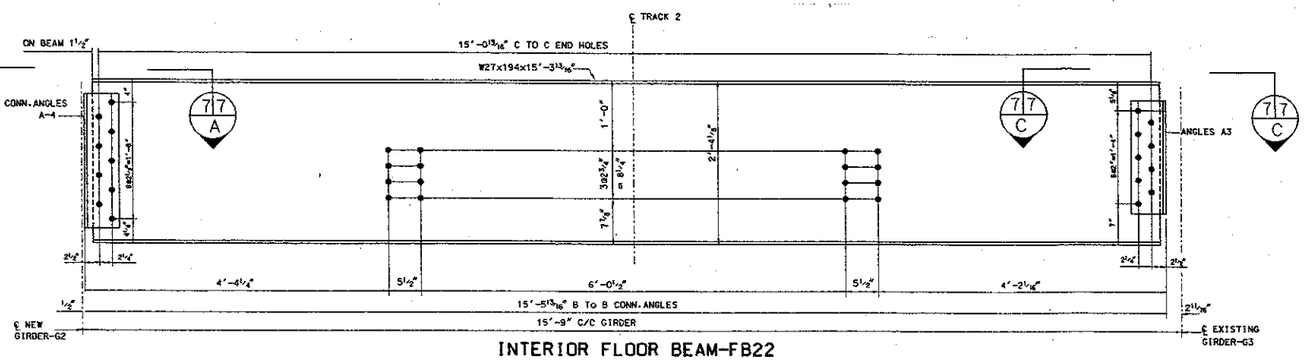
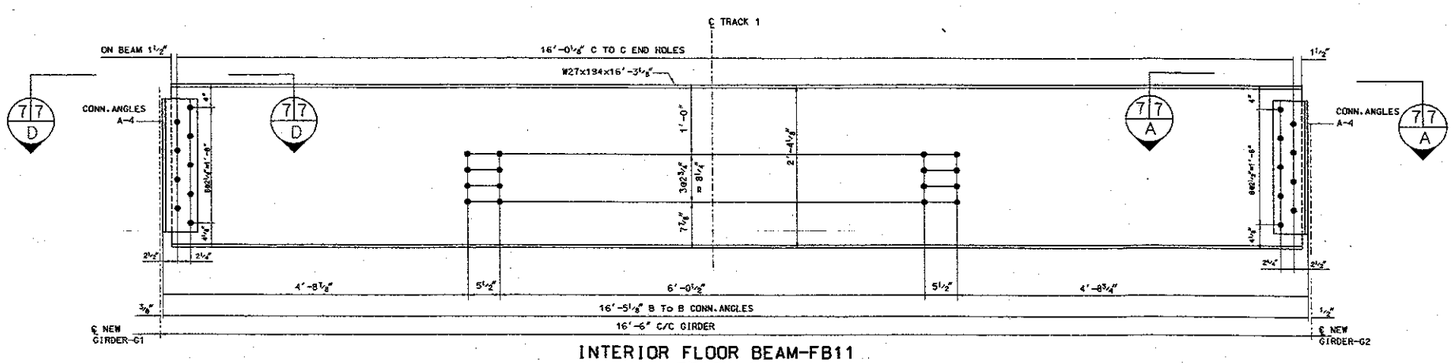
DRAWN BY: DJD	DATE DRAWN:	DATE ISSUED: 5-06-04	
CHECKED BY: JRI	REVISION DATE: REVISION	DRAWING NO	SHEET 6 OF 21
CAD FILENAME: 385-IHB-Br.156stiffeners.dgn			



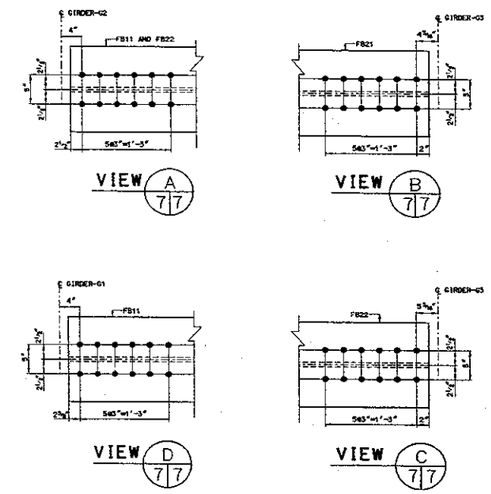
INTERIOR FLOOR BEAM-FB21
TRACK-2



INTERIOR FLOOR BEAM-FB22
TRACK-2



INTERIOR FLOOR BEAM-FB11
TRACK-1



KNEE BRACE CONNECTIONS
TOP FLANGE ONLY

IHB INDIANA HARBOR BELT RAILROAD COMPANY
21 161st STREET
HAMMOND, IN 46323-1099

BRIDGE.156
ST. CHARLES ROAD
BELLWOOD, ILLINOIS
INTERIOR FLOORBEAMS
TRACK-1 AND TRACK-2

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4418 BECK LANE
RINGWOOD, IL. 60072 - 9688
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DESIGNED BY: JRI	ORIGINAL SIGNED BY:	ORIGINAL SIGNED BY:	
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CHECKED BY: JRI	REVISION DATED: REVISION:	DRAWING NO:	SHEET 7 OF 21
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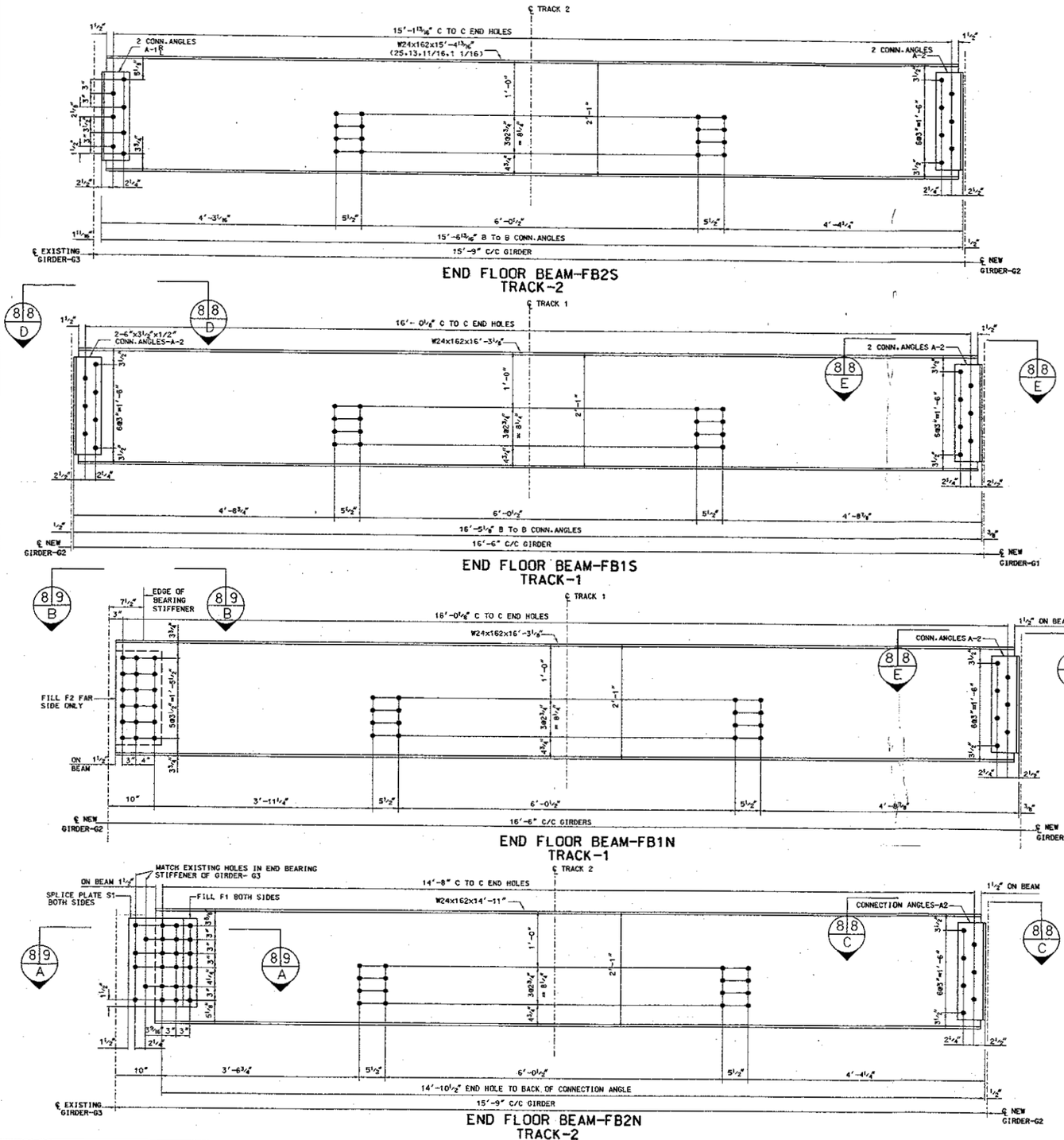

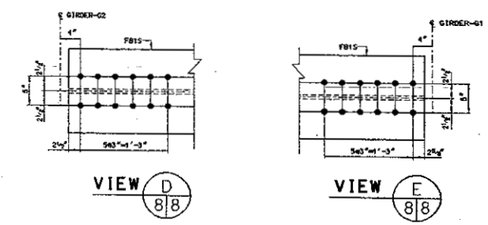

KNEE BRACE CONNECTIONS
TOP FLANGE ONLY

IHB INDIANA HARBOR BELT RAILROAD COMPANY
21 161st STREET
HAMMOND, IN 46323-1099

BRIDGE.156
ST. CHARLES ROAD
BELLWOOD, ILLINOIS
END FLOORBEAMS
TRACK-1 AND TRACK-2

DESIGNED BY: JRI	ORIGINAL SIGNED BY:	ORIGINAL SIGNED BY:	
DRAWN BY: DJD	DATE DRAWN:	DATE ISSUED: 5-06-04	
CHECKED BY: JRI	REVISION DATE: REVISION	DRAWING NO	SHEET 8 OF 21
CAD FILENAME: 385-IHB-Br.156flrbmstring.dgn			

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4415 BECK LANE
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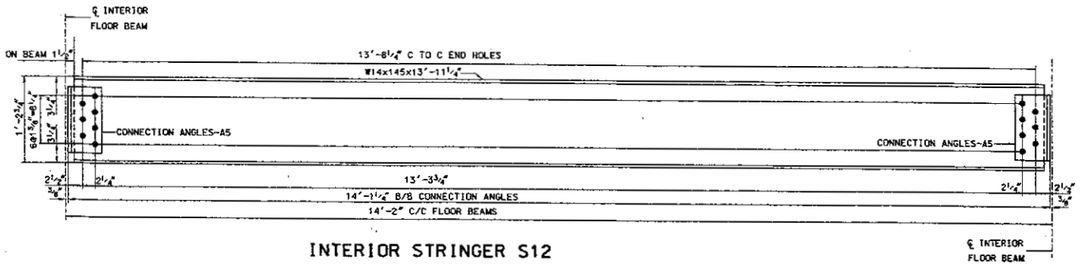
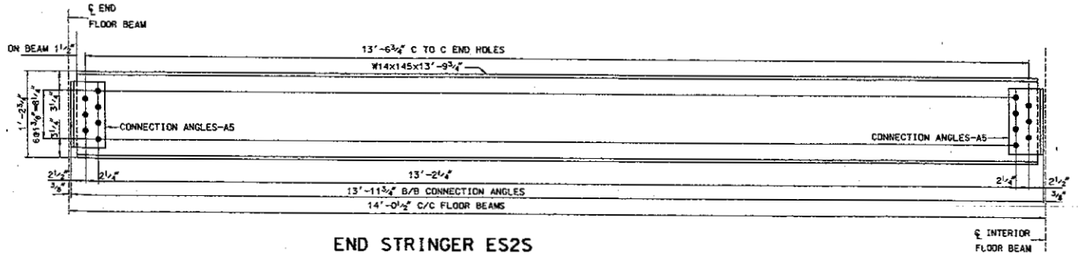
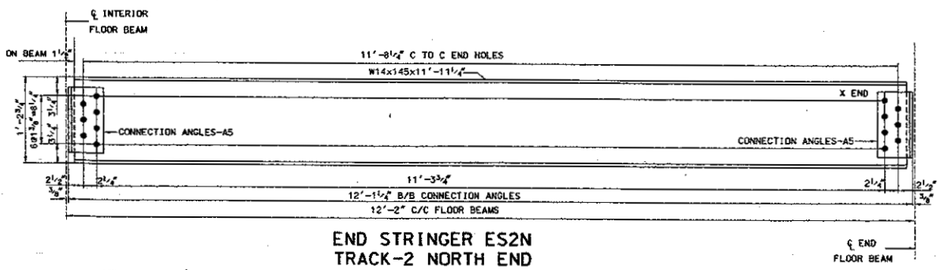


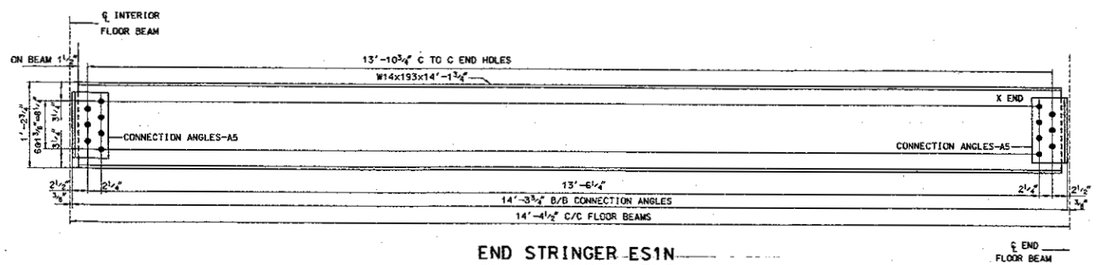
INTERIOR STRINGER S12



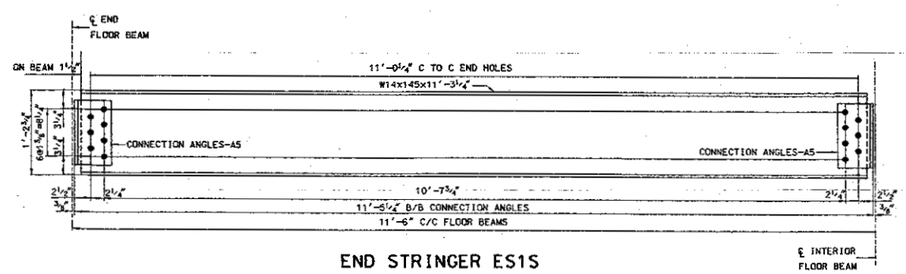
END STRINGER ES2S
TRACK-2 SOUTH END



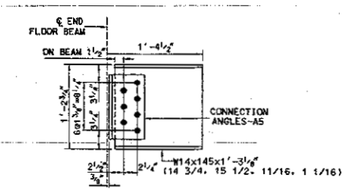
END STRINGER ES2N
TRACK-2 NORTH END



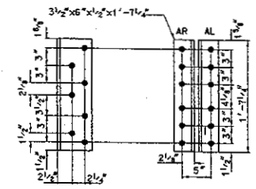
END STRINGER ES1N
TRACK-1 NORTH END



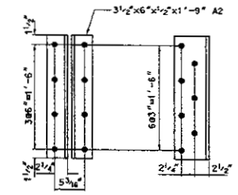
END STRINGER ES1S
TRACK-1 SOUTH END



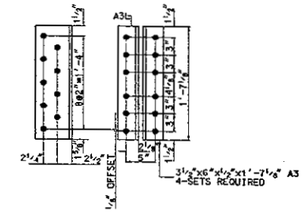
END BRACKET EB1



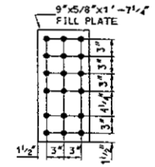
CONNECTION ANGLES A1



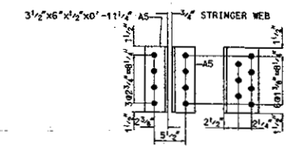
CONNECTION ANGLES A2



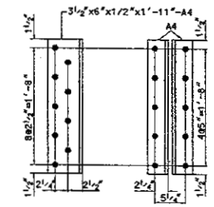
CONNECTION ANGLES A3



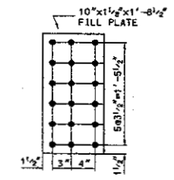
FILL PLATE-F1



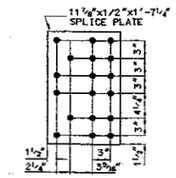
CONNECTION ANGLES A5



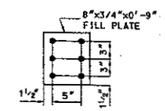
CONNECTION ANGLES A4



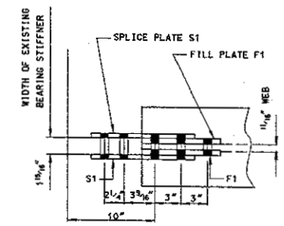
FILL PLATE-F2



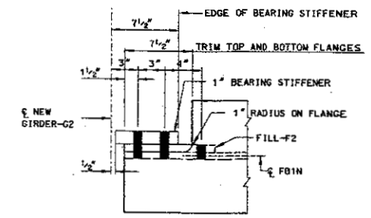
SPLICE PLATE-S1



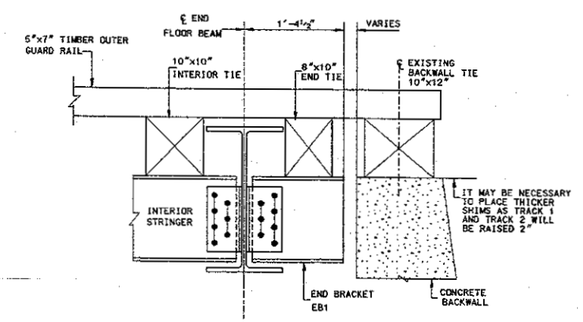
FILL PLATE-F3



FLOORBEAM-FB2N
SECTION A 8 9
SCALE: 1½"=1'-0"
(DO NOT SCALE)



FLOORBEAM-FB1N
SECTION B 8 9
SCALE: 1½"=1'-0"
(DO NOT SCALE)



END TIE BRACKET EB1
(TYPICAL)
SCALE: 1"=1'-0"

IHB INDIANA HARBOR BELT RAILROAD COMPANY
2115 1st STREET
HAMMOND, IN 46323-1099

BRIDGE.156
ST. CHARLES ROAD
BELLWOOD, ILLINOIS
STRINGERS, ANGLES, PLATES, & BRACKETS
TRACK-1 AND TRACK-2

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4415 BECK LANE
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DESIGNED BY: JRI	ORIGINAL SIGNED BY:	ORIGINAL SIGNED BY:	
DRAWN BY: DJD	DATE DRAWN:	DATE ISSUED: 5-06-04	
CHECKED BY: JRI	REVISION DATE: REVISION	DRAWING NO:	SHEET 9 OF 21
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