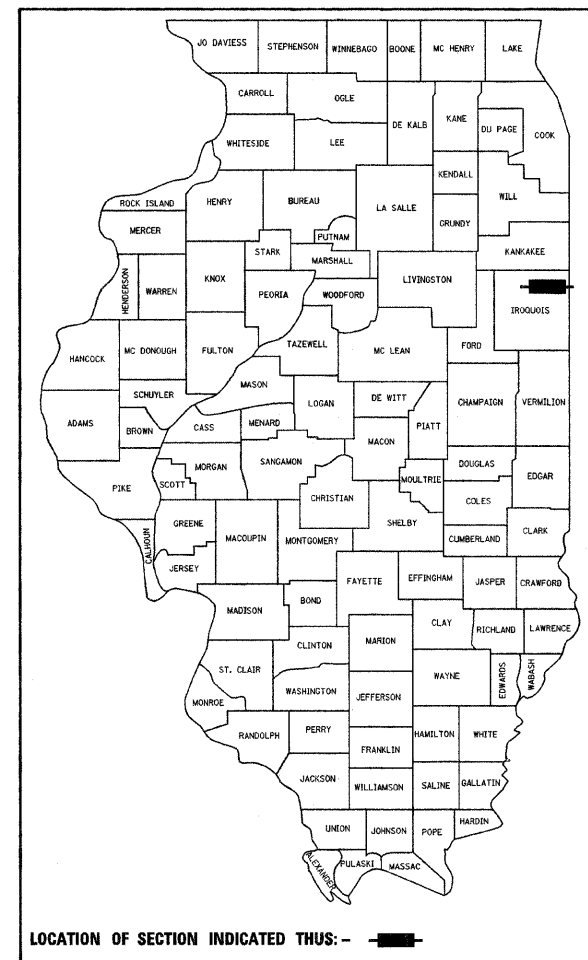


STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANS FOR PROPOSED
HIGHWAY BRIDGE PROGRAM

T.R. 55B
MARTINTON ROAD DISTRICT
SECTION 07-16121-00-BR
IROQUOIS COUNTY
C-93-100-11
PROJECT NO. BROS-075(145)

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 55B	07-16121-00-BR	IROQUOIS	33	1
ROAD DIST.	ILLINOIS	MARTINTON		

CONTRACT NO. 87487



LOCATION OF SECTION INDICATED THUS: ———

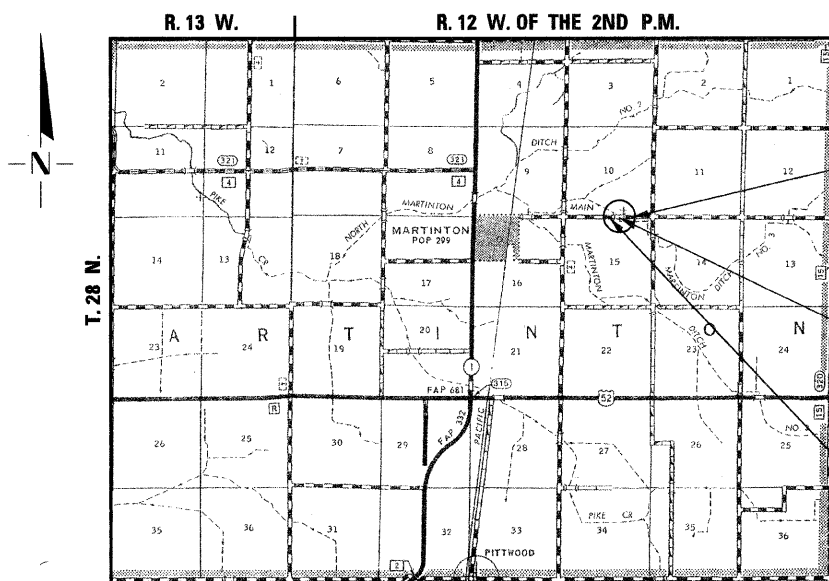
INDEX OF SHEETS	
SHEET NO.	TITLE
1.	COVER SHEET
2.	SUMMARY OF QUANTITIES, GENERAL NOTES & TYPICAL SECTIONS
3.	PLAN AND PROFILE SHEET
4.	SHOULDER AND GUARDRAIL DETAILS
5.-25.	BRIDGE PLANS
26.-33.	STATION CROSS SECTIONS

STANDARDS

000001-06	STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
280001-06	TEMPORARY EROSION CONTROL SYSTEMS
515001-03	NAME PLATE FOR BRIDGES
601101-01	CONCRETE HEADWALL FOR PIPE DRAIN
631032-07	TRAFFIC BARRIER TERMINAL, TYPE 6A
635006-03	REFLECTOR AND TERMINAL MARKER PLACEMENT
701901-02	TRAFFIC CONTROL DEVICES
720011-01	METAL POSTS FOR SIGNS, MARKERS AND DELINEATORS
728001-01	TELESCOPING STEEL SIGN SUPPORT
729001-01	APPLICATIONS OF TYPES A AND B METAL POSTS (FOR SIGNS AND MARKERS)
BLR 21-9	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

SCALES

PLAN	0' 50' 100'
PROFILE HORIZ.	0' 50' 100'
PROFILE VERT.	0' 5' 10'
CROSS SECTIONS	0' 5' 10'



LOCATION PLAN

GROSS LENGTH OF SECTION = 1000 FEET = 0.189 MILES
 NET LENGTH OF SECTION = 1000 FEET = 0.189 MILES



IMPROVEMENT ENDS
STA. 95 + 00

STA. 90 + 20 - SPECIAL BRIDGE DESIGN
 THREE SPAN CONTINUOUS COMPOSITE
 STEEL BEAM BRIDGE WITH INTEGRAL
 ABUTMENTS AND PILE BENT PIERS;
 SPANS @ 41'-3", 61'-0", 41'-3"; 45 SKEW;
 30'-6" O.-O. DECK; 147'-0 1/2" BK.-BK. ABUTS.
 EXISTING S.N. 038-4502
 PROPOSED S.N. 038-4558

IMPROVEMENT BEGINS
STA. 85 + 00



Gary J. Cartwright 3-5-12
 ILLINOIS PROFESSIONAL NO. 43408
 EXPIRES 11-30-13

CLASSIFICATION: LOCAL ROAD (NON-URBAN)
DESIGN VOLUME: 400-750 ADT
CURRENT ADT: 700 (2010)
DESIGN SPEED: 50 M.P.H.

TOLL FREE JOINT UTILITY LOCATING
 INFORMATION FOR EXCAVATORS (J.U.L.I.E.)
 TELEPHONE NUMBER 1-800-892-0123

PASSED	3-9 2012
	<i>Don DeWitt</i> ROAD DISTRICT COMMISSIONER
APPROVED	March 6, 2012
	<i>Don DeWitt</i> COUNTY ENGINEER
PASSED	MARCH 26, 2012
	<i>Don DeWitt</i> DISTRICT THREE IMPLEMENTATION ENGINEER
RELEASED FOR BID BASED ON LIMITED REVIEW	MARCH 26, 2012
	<i>Don DeWitt</i> DEPUTY DIRECTOR OF HIGHWAYS, REGION TWO ENGINEER
STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	

CONTRACT NO. 87487

4440 ASH GROVE
 SPRINGFIELD, IL 62711
 (217) 793-8800
 www.fehr-graham.com

FEHR-GRAHAM & ASSOCIATES, LLC
 ENGINEERING AND SCIENCE CONSULTANTS
 PEPPER, IL, INDIANAPOLIS, IN, ROCKFORD, IL, SPRINGFIELD, IL

SUMMARY OF QUANTITIES

CONSTRUCTION
CODE
0011

NUMBER	ITEM	UNIT	QUANTITY
20200100	EARTH EXCAVATION	CU YD	1,037
20300100	CHANNEL EXCAVATION	CU YD	2530
20400800	FURNISHED EXCAVATION	CU YD	616
20700220	POROUS GRANULAR EMBANKMENT	CU YD	102
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	112
28000305	TEMPORARY DITCH CHECKS	FOOT	60
28000400	PERIMETER EROSION BARRIER	FOOT	2,134
28000500	INLET AND PIPE PROTECTION	EACH	4
28100209	STONE RIPRAP, CLASS A5	TON	1,335
28100809	STONE DUMPED RIPRAP, CLASS A5	TON	493
28200200	FILTER FABRIC	SQ YD	1,307
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	1,554
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50200100	STRUCTURE EXCAVATION	CU YD	116
50300225	CONCRETE STRUCTURES	CU YD	76.4
50300255	CONCRETE SUPERSTRUCTURE	CU YD	138.4
50300260	BRIDGE DECK GROOVING	SQ YD	466
50300280	CONCRETE ENCASEMENT	CU YD	61.2
50300300	PROTECTIVE COAT	SQ YD	562
50500105	FURNISHING AND ERECTING STRUCTURAL STEEL	L SUM	1
50500505	STUD SHEAR CONNECTORS	EACH	2,592
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	42,990
51200957	FURNISHING METAL SHELL PILES 12" X 0.250"	FOOT	440
51200958	FURNISHING METAL SHELL PILES 14" X 0.250"	FOOT	969
51202305	DRIVING PILES	FOOT	1,409
51203200	TEST PILE METAL SHELLS	EACH	2
51500100	NAME PLATES	EACH	1
52100520	ANCHOR BOLTS 1"	EACH	24
52100530	ANCHOR BOLTS 1 1/4"	EACH	24
542D0223	PIPE CULVERTS, CLASS D, TYPE 1 18"	FOOT	194
542D0229	PIPE CULVERTS, CLASS D, TYPE 1 24"	FOOT	62
59100100	GEOCOMPOSITE WALL DRAIN	SQ YD	66
63100087	TRAFFIC BARRIER TERMINAL, TYPE 6A	EACH	2
63100167	TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT	EACH	2
67100100	MOBILIZATION	L SUM	1
70101830	TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 21	L SUM	1
78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.95
Z0046304	PIPE UNDERDRAINS FOR STRUCTURES 4"	FOOT	165
XX004633	FIELD TILE ADJUSTMENT	EACH	2
XX006199	STEEL BRIDGE RAIL, TYPE SM (SPECIAL)	FOOT	291

*SEE SPECIAL PROVISIONS
Δ SPECIALTY ITEMS

APPLICATION RATES USED IN QUANTITY CALCULATIONS

AGGREGATE SURFACE COURSE	2.05 TON/CU.YD.
STONE RIPRAP	1.65 TON/CU.YD.
STONE DUMPED RIPRAP	1.65 TON/CU.YD.

TEMPORARY EROSION CONTROL

THE FOLLOWING QUANTITIES ARE ESTIMATE ONLY. ACTUAL QUANTITIES FOR EROSION CONTROL WILL BE DETERMINED BY THE ENGINEER IN THE FIELD AND THERE WILL BE NO ADJUSTMENT IN ANY PRICE DUE TO A CHANGE IN PLAN QUANTITY.

TEMPORARY EROSION CONTROL SEEDINGS	= 112 POUND
PERIMETER EROSION BARRIER	= 2,143 FOOT
TEMPORARY DITCH CHECKS	= 60 FOOT
INLET AND PIPE PROTECTION	= 4 EACH

TEMPORARY DITCH CHECKS

LT. STA. 89+25	= 20 FOOT
LT. STA. 91+00	= 20 FOOT
LT. STA. 95+00	= 20 FOOT
TOTAL	= 60 FOOT

INLET AND PIPE PROTECTION

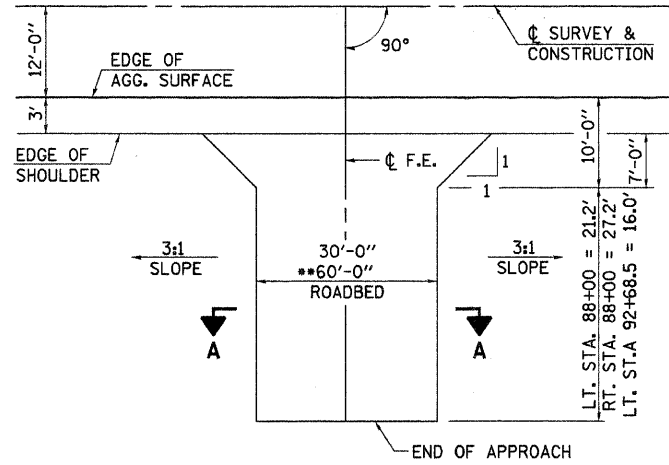
LT. STA. 87+73	= 1 EACH
RT. STA. 87+69	= 1 EACH
RT. STA. 89+49.5	= 1 EACH
LT. STA. 93+07.5	= 1 EACH
TOTAL	= 4 EACH

TEMPORARY EROSION CONTROL SEEDING

LT. STA. 85+00 TO LT. STA. 90+06	= 32 POUND
RT. STA. 85+00 TO RT. STA. 90+67	= 36 POUND
LT. STA. 90+71 TO LT. STA. 95+00	= 25 POUND
RT. STA. 90+95 TO RT. STA. 95+00	= 19 POUND
TOTAL	= 112 POUND

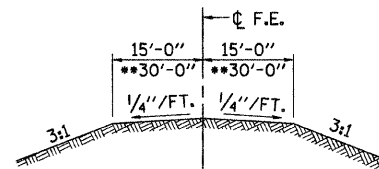
PERIMETER EROSION BARRIER

LT. STA. 85+00 TO LT. STA. 89+83	= 574 FOOT
RT. STA. 85+00 TO RT. STA. 90+67	= 640 FOOT
LT. STA. 90+71 TO LT. STA. 95+00	= 502 FOOT
RT. STA. 90+99 TO RT. STA. 95+00	= 418 FOOT
TOTAL	= 2,134 FOOT



FIELD ENTRANCE DETAIL

F.E. LT. STA. 88+00
F.E. RT. STA. 88+00
**F.E. LT. STA. 92+68.5



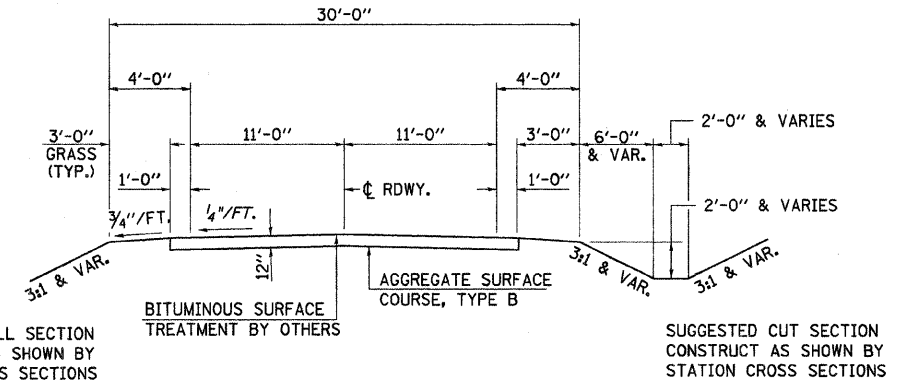
SECTION A-A

GENERAL NOTES

WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED BEFORE SUCH MONUMENTS ARE REMOVED. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL PROPERTY MARKS AND MONUMENTS UNTIL THE OWNER, AND AUTHORIZED SURVEYOR OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION.

THE AREA TO BE SEEDDED SHALL CONSIST OF ALL DISTURBED EARTH SURFACES WITHIN THE RIGHT OF WAY, AS DIRECTED BY THE ENGINEER.

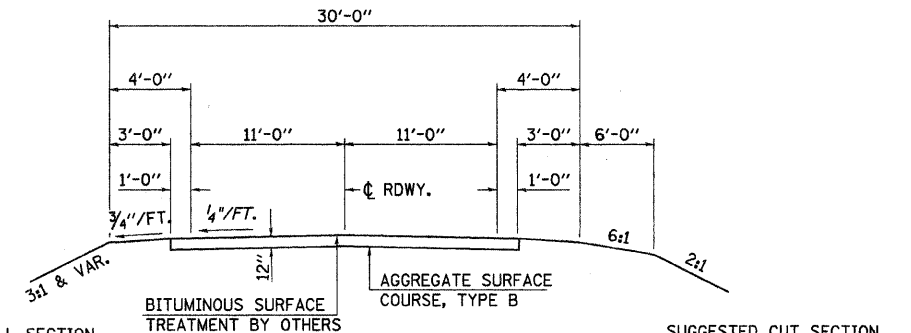
SEEDING, CLASS 2 (SPECIAL) = 0.95 ACRE



TYPICAL PROPOSED CROSS SECTION

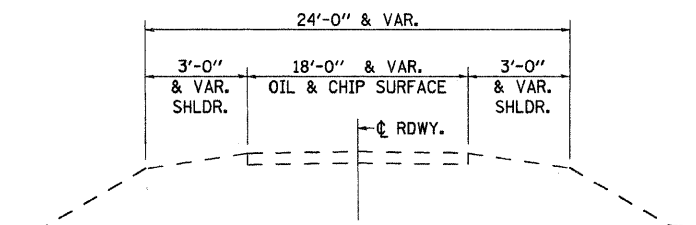
STA. 85+50 TO 91+15 & STA. 93+50 TO 94+50

TRANSITION FROM EXISTING ROADWAY TO PROPOSED ROADWAY TO BE CONSTRUCTED FROM STA. 85+00 TO STA. 85+50 AND FROM STA. 94+50 TO STA. 95+00.



TYPICAL PROPOSED CROSS SECTION

STA. 91+15 TO 93+50



EXISTING TYPICAL CROSS SECTION

FILE NAME = 09-203_SUMTY.DGN

DESIGNED - G.J.C.	REVISED -
DRAWN - S.A.P.	REVISED -
CHECKED - A.L.S.	REVISED -
DATE - 09/19/11	REVISED -

4440 ASH GROVE
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ENGINEERING AND SCIENCE CONSULTANTS
FREEPORT, IL ROCKFORD, IL ROCHELLE, IL MONROE, WI SPRINGFIELD, IL

SUMMARY OF QUANTITIES, GENERAL NOTES AND TYPICAL CROSS SECTIONS

SCALE: N/A

PROPOSED STRUCTURE @ STA. 90+20

TWP. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55B	07-16121-00-BR	IROQUOIS	33	2
MARTINTON ROAD DIST. ILLINOIS			CONTRACT NO. 87487	

W. 1/2, SE. 1/4, SEC. 10, T. 28 N., R. 12 W., 2ND P.M.

JEAN MARIE BARNLUND, ELIZABETH ANN BARNLUND,
JOLENE MARIE BARNLUND BOWEN AND JAMES WILBUR BARNLUND

PIPES TO BE REMOVED

RT. STA. 90+22, 18" CMP, 50' LONG
LT. STA. 92+62, 15" CLAY/HEADWALLS, 20' LONG
COST INCLUDED IN "EARTH EXCAVATION".

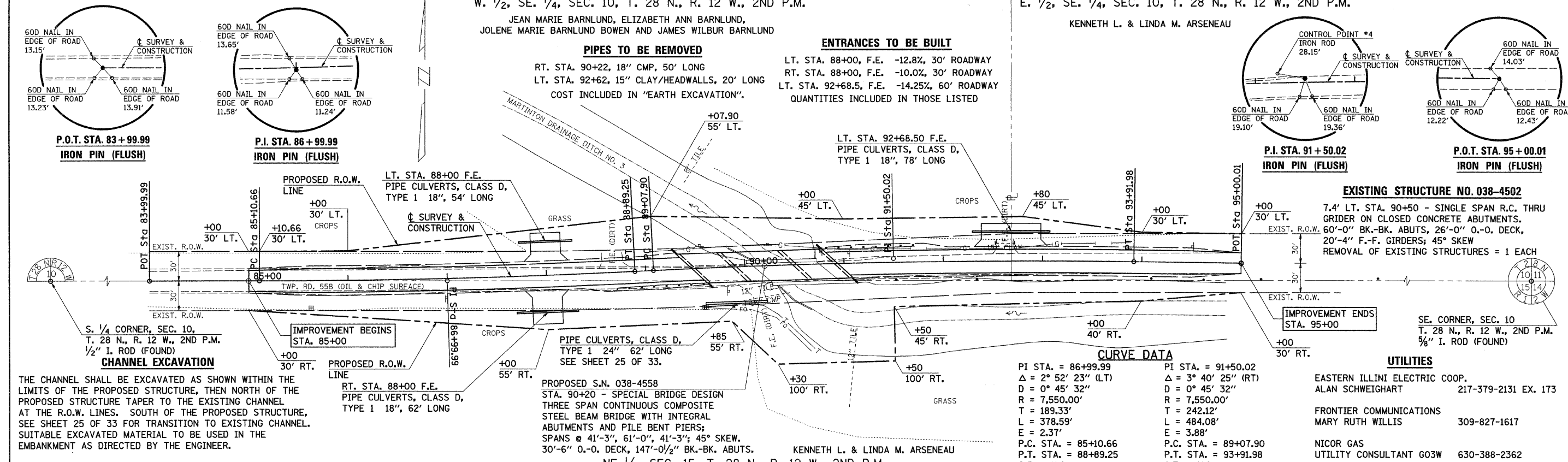
ENTRANCES TO BE BUILT

LT. STA. 88+00, F.E. -12.8%, 30' ROADWAY
RT. STA. 88+00, F.E. -10.0%, 30' ROADWAY
LT. STA. 92+68.5, F.E. -14.25%, 60' ROADWAY
QUANTITIES INCLUDED IN THOSE LISTED

E. 1/2, SE. 1/4, SEC. 10, T. 28 N., R. 12 W., 2ND P.M.

KENNETH L. & LINDA M. ARSENEAU

DATE _____ BY _____
SURVEYED _____ PLOTTED _____
CHECKED _____ REVISIONS _____
NOTE BOOK _____ NO. _____
STRUCTURE _____
DRAWING NO. _____



CHANNEL EXCAVATION
THE CHANNEL SHALL BE EXCAVATED AS SHOWN WITHIN THE LIMITS OF THE PROPOSED STRUCTURE, THEN NORTH OF THE PROPOSED STRUCTURE TAPER TO THE EXISTING CHANNEL AT THE R.O.W. LINES. SOUTH OF THE PROPOSED STRUCTURE, SEE SHEET 25 OF 33 FOR TRANSITION TO EXISTING CHANNEL. SUITABLE EXCAVATED MATERIAL TO BE USED IN THE EMBANKMENT AS DIRECTED BY THE ENGINEER.
CHANNEL EXCAVATION = 2530 CU. YD.

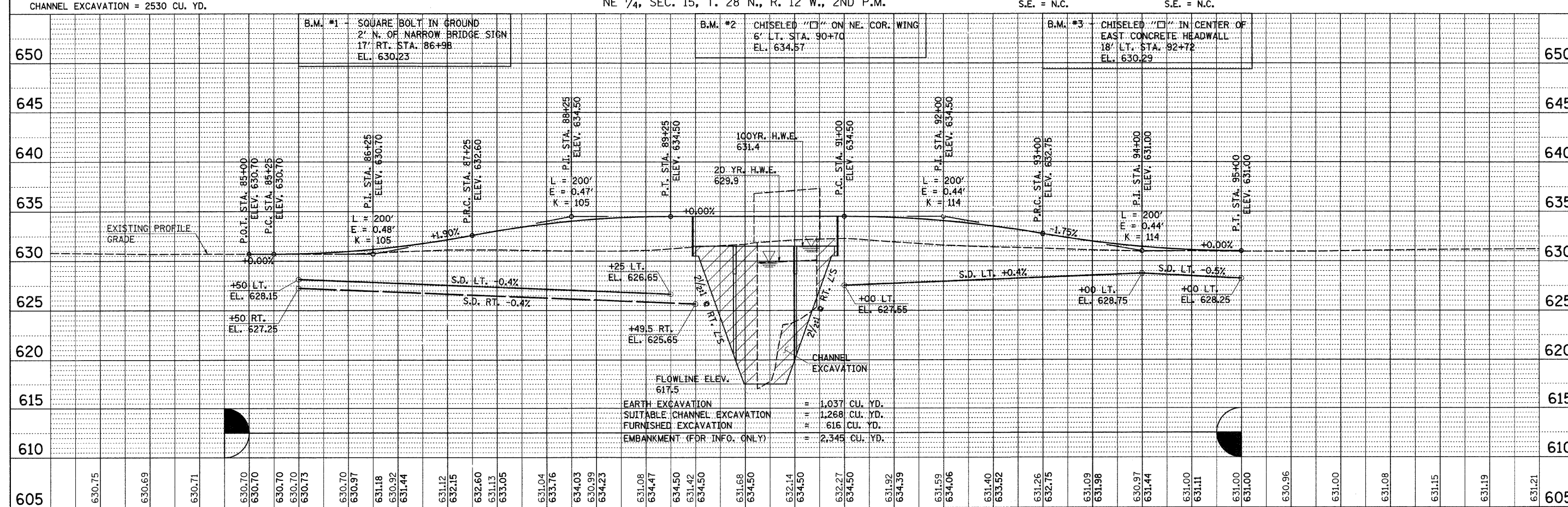
PROPOSED R.O.W. LINE
+00 30' LT.
+10.66 30' LT.
+00 30' RT.
PROPOSED R.O.W. LINE
RT. STA. 88+00 F.E.
PIPE CULVERTS, CLASS D,
TYPE 1 18", 62' LONG

PROPOSED S.N. 038-4558
STA. 90+20 - SPECIAL BRIDGE DESIGN
THREE SPAN CONTINUOUS COMPOSITE
STEEL BEAM BRIDGE WITH INTEGRAL
ABUTMENTS AND PILE BENT PIERS;
SPANS @ 41'-3", 61'-0", 41'-3"; 45° SKEW.
30'-6" O.-O. DECK, 147'-0 1/2" BK.-BK. ABUTS.

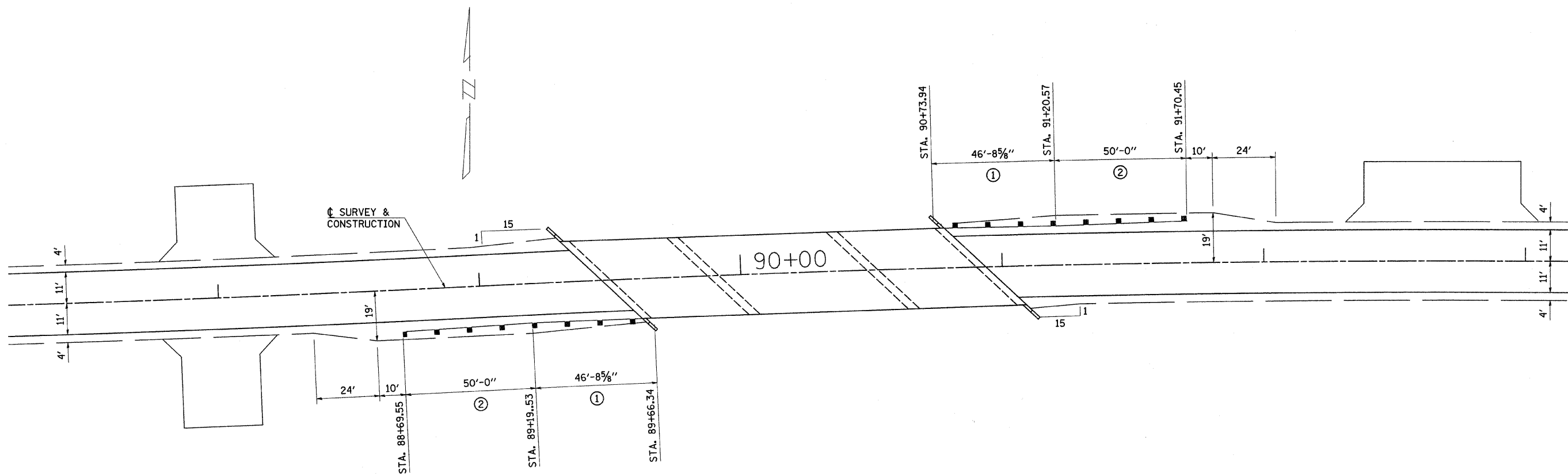
CURVE DATA
PI STA. = 86+99.99
Δ = 2° 52' 23" (LT)
D = 0° 45' 32"
R = 7,550.00'
T = 189.33'
L = 378.59'
E = 2.37'
P.C. STA. = 85+10.66
P.T. STA. = 88+89.25
S.E. = N.C.

PI STA. = 91+50.02
Δ = 3° 40' 25" (RT)
D = 0° 45' 32"
R = 7,550.00'
T = 242.12'
L = 484.08'
E = 3.88'
P.C. STA. = 89+07.90
P.T. STA. = 93+91.98
S.E. = N.C.

UTILITIES
EASTERN ILLINI ELECTRIC COOP.
ALAN SCHWEIGHART 217-379-2131 EX. 173
FRONTIER COMMUNICATIONS
MARY RUTH WILLIS 309-827-1617
NICOR GAS
UTILITY CONSULTANT G03W 630-388-2362



FILE NAME = 09-283.P&P.DGN	USER NAME = S.A.P.	DESIGNED - G.J.C.	REVISED -	FEHR-GRAHAM & ASSOCIATES, LLC ENGINEERING AND SCIENCE CONSULTANTS FREEPORT, IL ROCKFORD, IL ROCHELLE, IL MONROE, WI SPRINGFIELD, IL	PLAN & PROFILE - T.R. 55B STA. 84+00.00 TO STA. 95+00.00 MARTINTON ROAD DIST. ILLINOIS	TWP. RTE. 558	SECTION 07-16121-00-BR	COUNTY IROQUOIS	TOTAL SHEETS 33	SHEET NO. 3	CONTRACT NO. 87487
PLOT SCALE = 50.0000' / IN.	CHECKED - A.L.S.	REVISED -									
PLOT DATE = 06/24/09	DATE - 09/19/11	REVISED -									



GUARDRAIL & SHOULDER DETAIL

TRAFFIC BARRIER TERMINAL, TYPE 6A

15' RT. STA. 89+19.53 TO 15.31' RT. STA. 89+66.34 = 1 EACH
 15.19' LT. STA. 90+73.94 TO 15' LT. STA. 91+20.57 = 1 EACH
 TOTAL = 2 EACH

TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT

16' RT. STA. 88+69.55 TO 15' RT. STA. 89+19.53 = 1 EACH
 15' LT. STA. 91+20.57 TO 16' LT. STA. 91+70.45 = 1 EACH
 TOTAL = 2 EACH

LEGEND

- ① TRAFFIC BARRIER TERMINAL, TYPE 6A
- ② TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT

FILE NAME =
09-203_SHLDR.DGN

DESIGNED - G.J.C.	REVISED -
DRAWN - S.A.P.	REVISED -
CHECKED - A.L.S.	REVISED -
DATE - 09/19/11	REVISED -

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 SPRINGFIELD, IL. 62711
 (217) 793-8600
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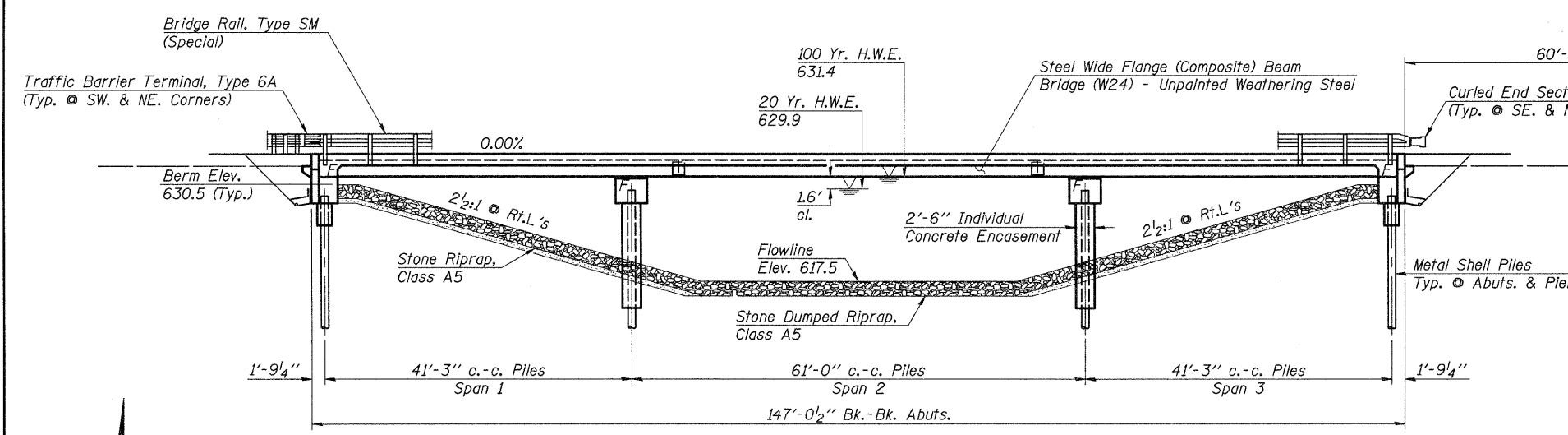


FEHR-GRAHAM & ASSOCIATES, LLC
 ENGINEERING AND SCIENCE CONSULTANTS
 FREEPORT, IL ROCKFORD, IL ROCHELLE, IL MONROE, WI SPRINGFIELD, IL

SHOULDER AND GUARDRAIL DETAIL

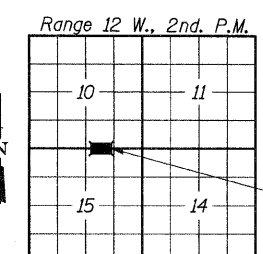
PROPOSED STRUCTURE @ STA. 90+20

TWP. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55B	07-16121-00-BR	IROQUOIS	33	4
MARTINTON ROAD DIST. ILLINOIS			CONTRACT NO. 87487	



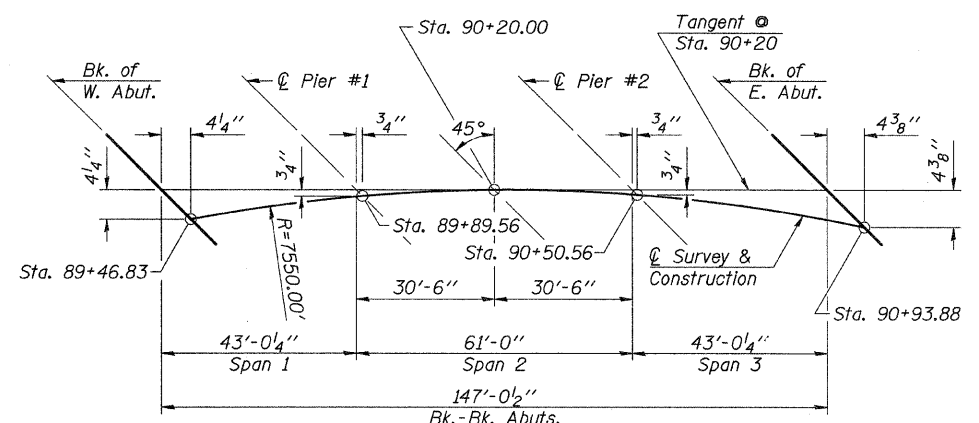
ELEVATION

LOCATION PLAN

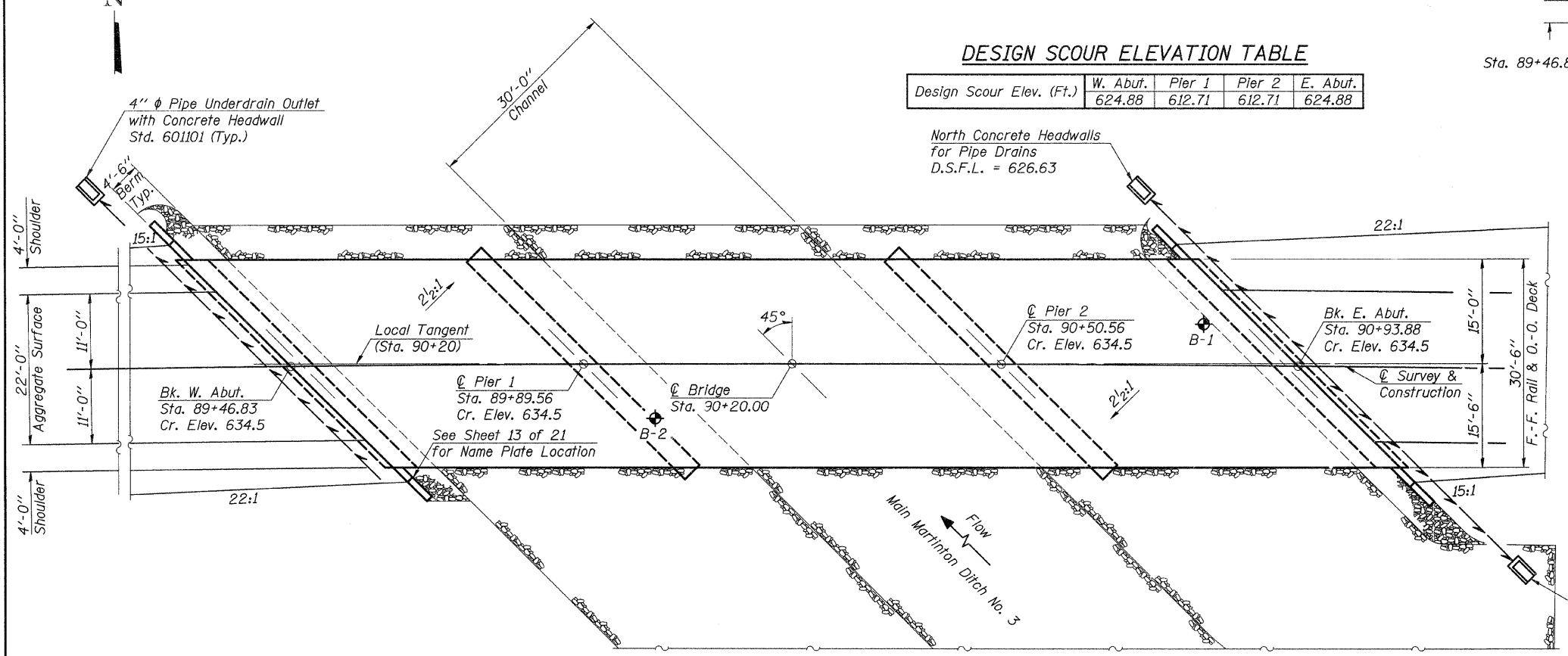


DESIGN SCOUR ELEVATION TABLE

Design Scour Elev. (Ft.)	W. Abut.	Pier 1	Pier 2	E. Abut.
	624.88	612.71	612.71	624.88



OFFSET SKETCH



PLAN

INDEX OF SHEETS

1. General Plan and Elevation
2. General Notes, Bill of Materials & Miscellaneous Details
- 3.-5. Top of Slab Elevations
- 6.-7. Superstructure
- 8.-9. Steel Railing, Type SM (Special)
- 10.-11. Structural Steel
12. Bearing Details
- 13.-14. Abutments
- 15.-16. Piers
17. Metal Shell Pile Details
18. Cantilever Forming Brackets
- 19.-20. Soil Boring Logs
21. Riprap Details

GENERAL PLAN & ELEVATION

T.R. 55B

SECTION 07-16121-00-BR

IROQUOIS COUNTY

STATION 90+20.00

S.N. 038-4558

SEISMIC DATA
 Seismic Performance Zone (SPZ) = 1
 Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.106g
 Design Spectral Acceleration at 0.2 sec. (S_{D5}) = 0.168g
 Soil Site Class = D

Note: See Sheet 21 of 21 for Riprap Details.

WATERWAY INFORMATION

DESIGNED -	A.L.S.
CHECKED -	A.R.K.
DRAWN -	S.A.P.
CHECKED -	A.L.S. & A.R.K.

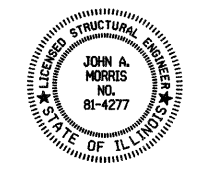
Drainage Area	18.98 Sq. Mi.
Existing Opening (20 Yr.)	320 Sq. Ft.
Required Opening (20 Yr.)	703 Sq. Ft.
Proposed Opening (20 Yr.)	703 Sq. Ft.
Design Discharge (20 Yr.)	1,076 C.F.S.
Created Head (20 Yr.)	0.0 Ft.
100 Year Discharge	1,600 C.F.S.
100 Yr. Created Head	0.1 Ft.

DESIGN STRESSES

f_c = 3,500 p.s.i. (Concrete)
 f = 60,000 p.s.i. (Reinf. Bars)
 f_y = 50,000 p.s.i. (Structural Steel M270W Gr. 50)
 LOADING HL-93
 Design Specifications: 2010 AASHTO LRFD
 50#/Sq. Ft. Included in dead load for future wearing surface.

"I certify that to the best of my knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current 'AASHTO LRFD Bridge Design Specifications'."

John A. Morris 3-5-12
 ILLINOIS STRUCTURAL NO. 4277 (Expires 11/30/12)



FEHR-GRAHAM & ASSOCIATES, LLC
 ENGINEERING AND SCIENCE CONSULTANTS
 FREEPORT, IL ROCKFORD, IL ROCHELLE, IL MONROE, WI SPRINGFIELD, IL

TWP. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55B	07-16121-00-BR	IROQUOIS	33	5
MARTINTON ROAD DIST. ILLINOIS			CONTRACT NO. 87487	
			F.A. PROJ. BROS-075(145)	

GENERAL NOTES

Fasteners shall be high strength bolts (AASHTO M 164, Type 3). Bolts $\frac{7}{8}$ " ϕ , open holes $\frac{15}{16}$ " ϕ , unless otherwise noted.

Calculated weight of Structural Steel = 95,670 Pound

All structural steel shall be AASHTO M 270 Grade 50W.

Structural steel shall only be painted for a distance equal to the depth of embedment into the concrete cap plus 3 in. Those areas shall be primed in the shop with a Department approved zinc rich primer. No field painting shall be required. All structural steel shall be cleaned as specified in Section 506 of the Standard Specifications.

Anchor Bolts shall be set before bolting diaphragms over supports.

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

Reinforcement bars shall conform to the requirements of ASTM A706 Gr 60. See Special Provisions.

Reinforcement bars designated (E) shall be epoxy coated.

Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.

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

Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of $\frac{1}{8}$ inch. Adjustment shall be made either by grinding the surface or by shimming the bearing. Two $\frac{1}{8}$ " adjusting shims, of the dimension of the bottom bearing plate, shall be provided for each bearing in addition to all other plates or shims.

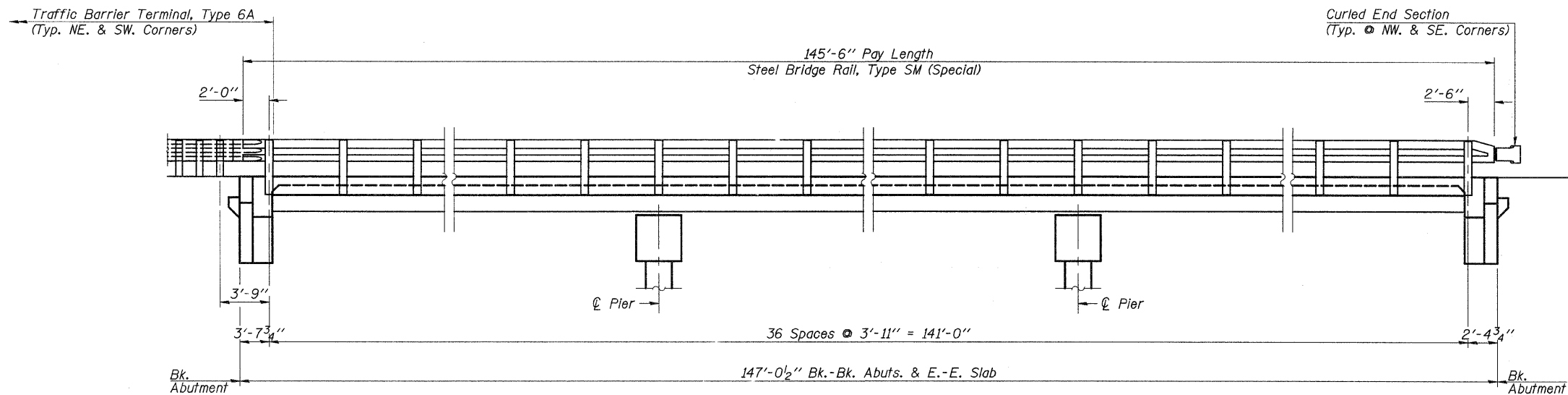
The contractor shall drive one metal shell test pile in a permanent location at the west abutment & one metal shell test pile at pier #2 as directed by the Engineer before ordering the remainder of piles.

The Contractor shall drive test piles to 110 percent of the nominal required bearing specified in production locations at the substructures specified or approved by the Engineer before ordering the remainder of piles.

All exposed portions of abutments, wing walls, and piers shall receive a rubbed finish in accordance with Article 503.15 (b) of the Standard Specifications. Cost to be included in cost of Concrete Structures.

The concrete for bridge decks finished according to Article 503.16(a) of the Standard Specifications shall be placed and compacted parallel to the skew in uniform increments along centerline of bridge. The machine used for finishing shall be set parallel to the skew for striking off and screeding the concrete.

See Sheets 19 & 20 of 21 for Soil Boring Data.



RAIL POST SPACING

(Looking North at South Rail)
(Looking South at North Rail)

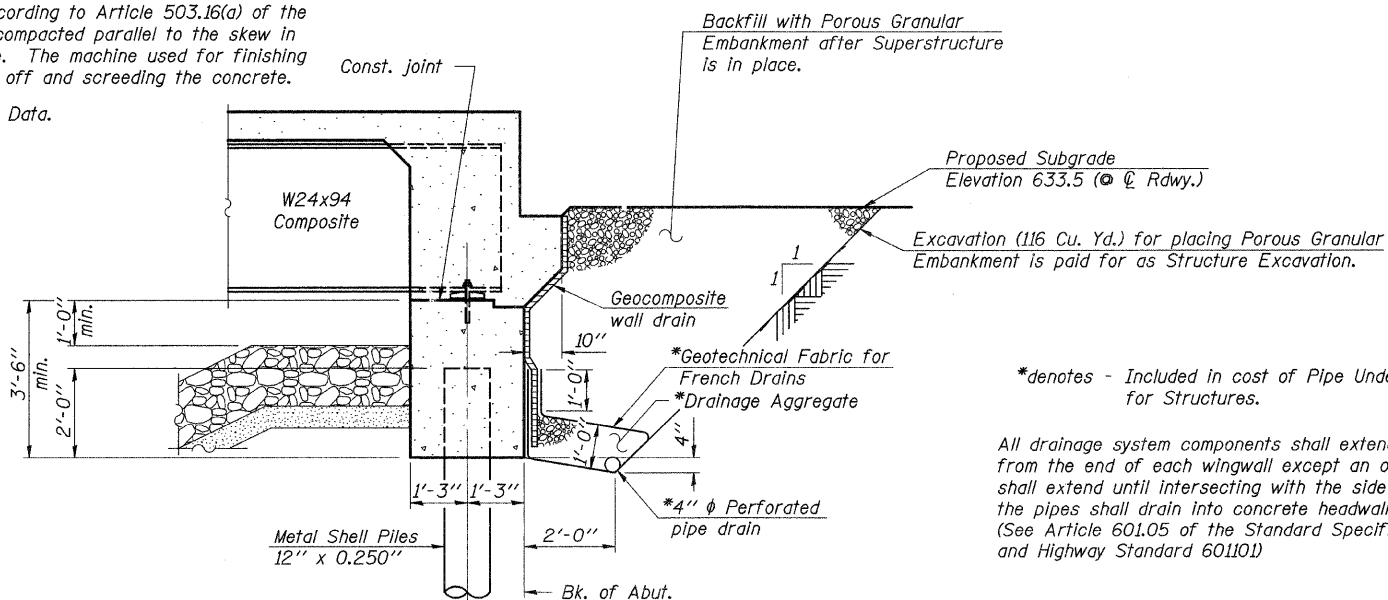
**MAIN MARTINTON DITCH NO. 3
BUILT 20__ BY
MARTINTON ROAD DISTRICT
IROQUOIS COUNTY
SEC. 07-16121-00-BR
F.A. PROJ. BROS-075(145)
STR. NO. 038-4558 LOADING HL-93**

LETTERING FOR NAME PLATE

See Std. 515001

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Porous Granular Embankment	Cu. Yd.		102	102
Stone Riprap, Class A5	Ton		1,335	1,335
Stone Dumped Riprap, Class A5	Ton		493	493
Filter Fabric	Sq. Yd.		1,307	1,307
Removal of Existing Structures	Each		1	1
Structure Excavation	Cu. Yd.		116	116
Concrete Structures	Cu. Yd.		76.4	76.4
Concrete Superstructure	Cu. Yd.	138.4		138.4
Bridge Deck Grooving	Sq. Yd.	466		466
Protective Coat	Sq. Yd.	550	12	562
Furnishing and Erecting Structural Steel	L. Sum	1		1
Stud Shear Connectors	Each	2,592		2,592
Reinforcement Bars, Epoxy Coated	Pound	34,350	8,640	42,990
Steel Bridge Rail, Type SM (Special)	Foot	291		291
Furnishing Metal Shell Piles 12" x 0.250"	Foot		440	440
Furnishing Metal Shell Piles 14" x 0.250"	Foot		969	969
Driving Piles	Foot		1,409	1,409
Test Pile Metal Shells	Each		2	2
Concrete Encasement	Cu. Yd.		61.2	61.2
Name Plates	Each		1	1
Pipe Underdrains for Structures 4"	Foot		165	165
Geocomposite Wall Drain	Sq. Yd.		66	66
Anchor Bolts 1"	Each	24		24
Anchor Bolts 1/4"	Each	24		24



*denotes - Included in cost of Pipe Underdrains for Structures.

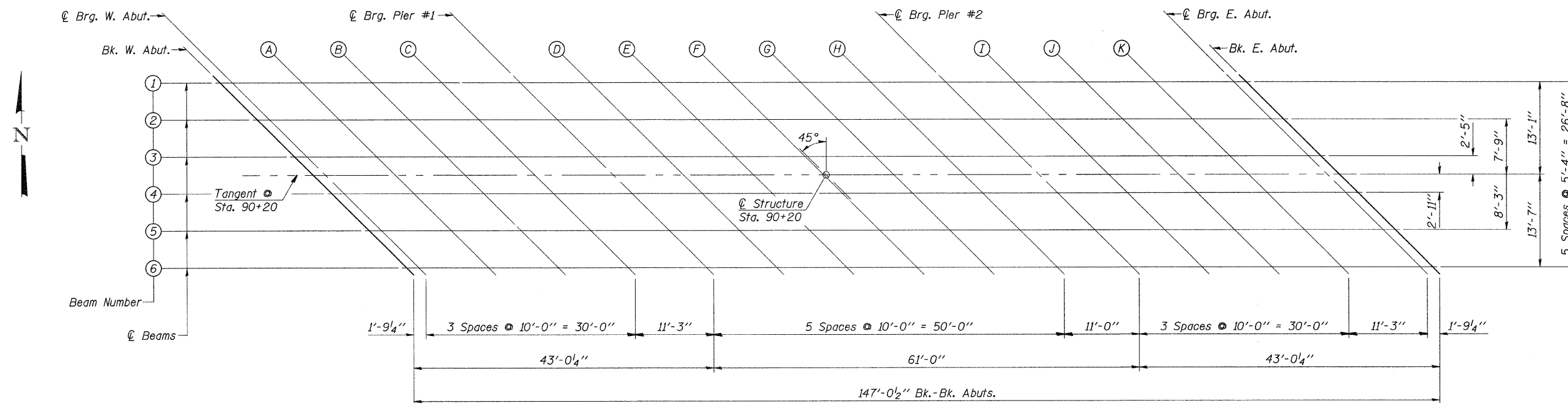
All drainage system components shall extend to 2'-0" from the end of each wingwall except an outlet pipe shall extend until intersecting with the side slopes the pipes shall drain into concrete headwalls* (See Article 601.05 of the Standard Specifications and Highway Standard 601101)

**GENERAL NOTES, BILL OF MATERIALS
& MISCELLANEOUS DETAILS
S.N. 038-4558**

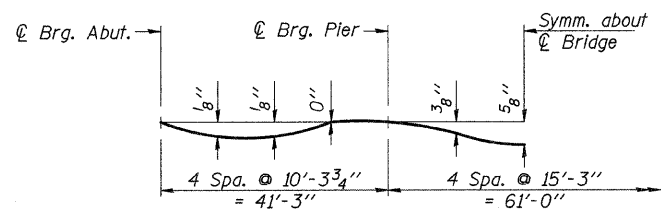
DESIGNED -	A.L.S.
CHECKED -	A.R.K.
DRAWN -	S.A.P.
CHECKED -	A.L.S. & A.R.K.

SECTION THRU INTEGRAL ABUTMENT
(Horiz. dim. @ Rt. L's)

<p>FEHR-GRAHAM & ASSOCIATES, LLC ENGINEERING AND SCIENCE CONSULTANTS FREEPORT, IL ROCKFORD, IL ROCHELLE, IL MONROE, WI SPRINGFIELD, IL</p>	TWP. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	55B	07-16121-00-BR	IROQUOIS	33	6
MARTINTON ROAD DIST. ILLINOIS			CONTRACT NO. 87487		
4440 ASH GROVE SPRINGFIELD, IL 62711 (217)-793-8600 www.fehr-graham.com			F.A. PROJ. BROS-075(145)		



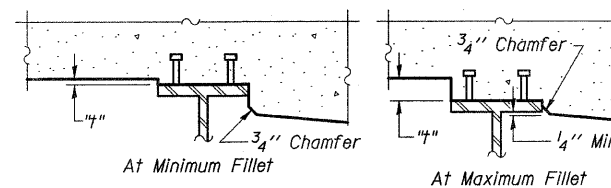
PLAN



DEAD LOAD DEFLECTION DIAGRAM

(Includes weight of concrete only.)

Note:
The above deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown on Sheets 4 & 5 of 21.



To determine "t": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown above. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown on sheets 4 & 5 of 21, minus slab thickness, equals the fillet heights "t" above top flange of beams.

FILLET HEIGHTS

TOP OF SLAB ELEVATIONS
S.N. 038-4558

DESIGNED -	A.L.S.
CHECKED -	A.R.K.
DRAWN -	S.A.P.
CHECKED -	A.L.S. & A.R.K.

FEHR-GRAHAM & ASSOCIATES, LLC ENGINEERING AND SCIENCE CONSULTANTS FREEPORT, IL ROCKFORD, IL ROCHELLE, IL MONROE, WI SPRINGFIELD, IL 4440 ASH GROVE SPRINGFIELD, IL 62711 (217)-793-8600 www.fehr-graham.com	TWP. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	55B	07-16121-00-BR	IROQUOIS	33	7
			CONTRACT NO. 87487		
MARTINTON ROAD DIST. ILLINOIS			F.A. PROJ. BROS-075(145)		

BEAM 1

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
BK. W. ABUT.	89+33.549	-13.579	634.288	634.288
⊕ BRG. W. ABUT.	89+35.314	-13.559	634.288	634.288
A	89+45.296	-13.454	634.290	634.298
B	89+55.277	-13.361	634.291	634.300
C	89+65.260	-13.282	634.292	634.294
⊕ BRG. PIER 1	89+76.490	-13.209	634.294	634.294
D	89+86.472	-13.158	634.294	634.315
E	89+96.455	-13.120	634.295	634.333
F	90+06.437	-13.096	634.295	634.347
G	90+16.420	-13.084	634.296	634.335
H	90+26.403	-13.086	634.296	634.319
⊕ BRG. PIER 2	90+37.384	-13.103	634.295	634.295
I	90+47.366	-13.133	634.295	634.296
J	90+57.349	-13.176	634.294	634.302
K	90+67.331	-13.232	634.293	634.302
⊕ BRG. E. ABUT.	90+78.561	-13.311	634.292	634.292
BK. E. ABUT.	90+80.326	-13.325	634.292	634.292

BEAM 2

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
BK. W. ABUT.	89+38.816	-8.187	634.372	634.372
⊕ BRG. W. ABUT.	89+40.581	-8.168	634.372	634.372
A	89+50.570	-8.070	634.374	634.382
B	89+60.559	-7.984	634.375	634.384
C	89+70.548	-7.912	634.376	634.378
⊕ BRG. PIER 1	89+81.787	-7.847	634.377	634.377
D	89+91.776	-7.803	634.378	634.399
E	90+01.766	-7.772	634.379	634.417
F	90+11.755	-7.755	634.379	634.430
G	90+21.745	-7.750	634.379	634.419
H	90+31.735	-7.759	634.379	634.402
⊕ BRG. PIER 2	90+42.724	-7.784	634.378	634.378
I	90+52.713	-7.821	634.378	634.379
J	90+62.703	-7.871	634.377	634.385
K	90+72.692	-7.934	634.376	634.385
⊕ BRG. E. ABUT.	90+83.930	-8.021	634.375	634.375
BK. E. ABUT.	90+85.696	-8.036	634.374	634.374

BEAM 3


Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
BK. W. ABUT.	89+44.089	-2.798	634.456	634.456
⊕ BRG. W. ABUT.	89+45.856	-2.781	634.457	634.457
A	89+55.852	-2.689	634.458	634.466
B	89+65.849	-2.611	634.459	634.467
C	89+75.845	-2.546	634.460	634.462
⊕ BRG. PIER 1	89+87.091	-2.488	634.461	634.461
D	89+97.088	-2.451	634.462	634.483
E	90+07.084	-2.428	634.462	634.500
F	90+17.081	-2.417	634.462	634.514
G	90+27.078	-2.420	634.462	634.502
H	90+37.075	-2.436	634.462	634.485
⊕ BRG. PIER 2	90+48.071	-2.469	634.461	634.461
I	90+58.068	-2.513	634.461	634.462
J	90+68.064	-2.570	634.460	634.468
K	90+78.061	-2.640	634.459	634.467
⊕ BRG. E. ABUT.	90+89.306	-2.735	634.457	634.457
BK. E. ABUT.	90+91.073	-2.751	634.457	634.457

TANGENT @ STA. 90+20

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
BK. W. ABUT.	89+46.482	-0.358	634.494	634.494
⊕ BRG. W. ABUT.	89+48.249	-0.341	634.495	634.495
A	89+58.248	-0.253	634.496	634.504
B	89+68.248	-0.177	634.497	634.505
C	89+78.247	-0.115	634.498	634.500
⊕ BRG. PIER 1	89+89.497	-0.062	634.499	634.499
D	89+99.497	-0.028	634.500	634.521
E	90+09.497	-0.007	634.500	634.538
F	90+19.497	0.000	634.500	634.551
G	90+29.497	-0.006	634.500	634.540
H	90+39.497	-0.025	634.500	634.523
⊕ BRG. PIER 2	90+50.497	-0.062	634.499	634.499
I	90+60.497	-0.109	634.498	634.499
J	90+70.496	-0.169	634.497	634.505
K	90+80.496	-0.242	634.496	634.505
⊕ BRG. E. ABUT.	90+91.745	-0.341	634.495	634.495
BK. E. ABUT.	90+93.512	-0.358	634.494	634.494

TOP OF SLAB ELEVATIONS
S.N. 038-4558

DESIGNED	A.L.S.
CHECKED	A.R.K.
DRAWN	S.A.P.
CHECKED	A.L.S. & A.R.K.

 FEHR-GRAHAM & ASSOCIATES, LLC ENGINEERING AND SCIENCE CONSULTANTS FREEPORT, IL ROCKFORD, IL ROCHELLE, IL MONROE, WI SPRINGFIELD, IL 4440 ASH GROVE SPRINGFIELD, IL 62711 (217)-793-8600 www.fehr-graham.com	TWP. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	55B	07-16121-00-BR	IROQUOIS	33	8
			CONTRACT NO. 87487		
			MARTINTON ROAD DIST. ILLINOIS	F.A. PROJ. BROS-075(145)	

BEAM 4

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
BK. W. ABUT.	89+49.371	2.586	634.460	634.460
☉ BRG. W. ABUT.	89+51.139	2.603	634.459	634.459
A	89+61.142	2.687	634.458	634.466
B	89+71.146	2.759	634.457	634.465
C	89+81.149	2.817	634.456	634.458
☉ BRG. PIER 1	89+92.403	2.866	634.455	634.455
D	90+02.407	2.896	634.455	634.476
E	90+12.411	2.913	634.454	634.493
F	90+22.415	2.916	634.454	634.506
G	90+32.418	2.906	634.455	634.494
H	90+42.422	2.883	634.455	634.478
☉ BRG. PIER 2	90+53.426	2.843	634.456	634.456
I	90+63.430	2.792	634.456	634.457
J	90+73.433	2.728	634.457	634.465
K	90+83.437	2.650	634.459	634.467
☉ BRG. E. ABUT.	90+94.690	2.547	634.460	634.460
BK. E. ABUT.	90+96.458	2.530	634.460	634.460

BEAM 5


Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
BK. W. ABUT.	89+54.659	7.968	634.376	634.376
☉ BRG. W. ABUT.	89+56.429	7.983	634.375	634.375
A	89+66.439	8.060	634.374	634.382
B	89+76.450	8.125	634.373	634.381
C	89+86.461	8.176	634.372	634.374
☉ BRG. PIER 1	89+97.723	8.217	634.372	634.372
D	90+07.734	8.240	634.371	634.392
E	90+17.745	8.250	634.371	634.409
F	90+27.755	8.246	634.371	634.423
G	90+37.766	8.229	634.371	634.411
H	90+47.777	8.199	634.372	634.395
☉ BRG. PIER 2	90+58.789	8.150	634.373	634.373
I	90+68.800	8.092	634.374	634.374
J	90+78.810	8.021	634.375	634.382
K	90+88.820	7.937	634.376	634.385
☉ BRG. E. ABUT.	91+00.082	7.826	634.378	634.378
BK. E. ABUT.	91+01.851	7.807	634.378	634.378

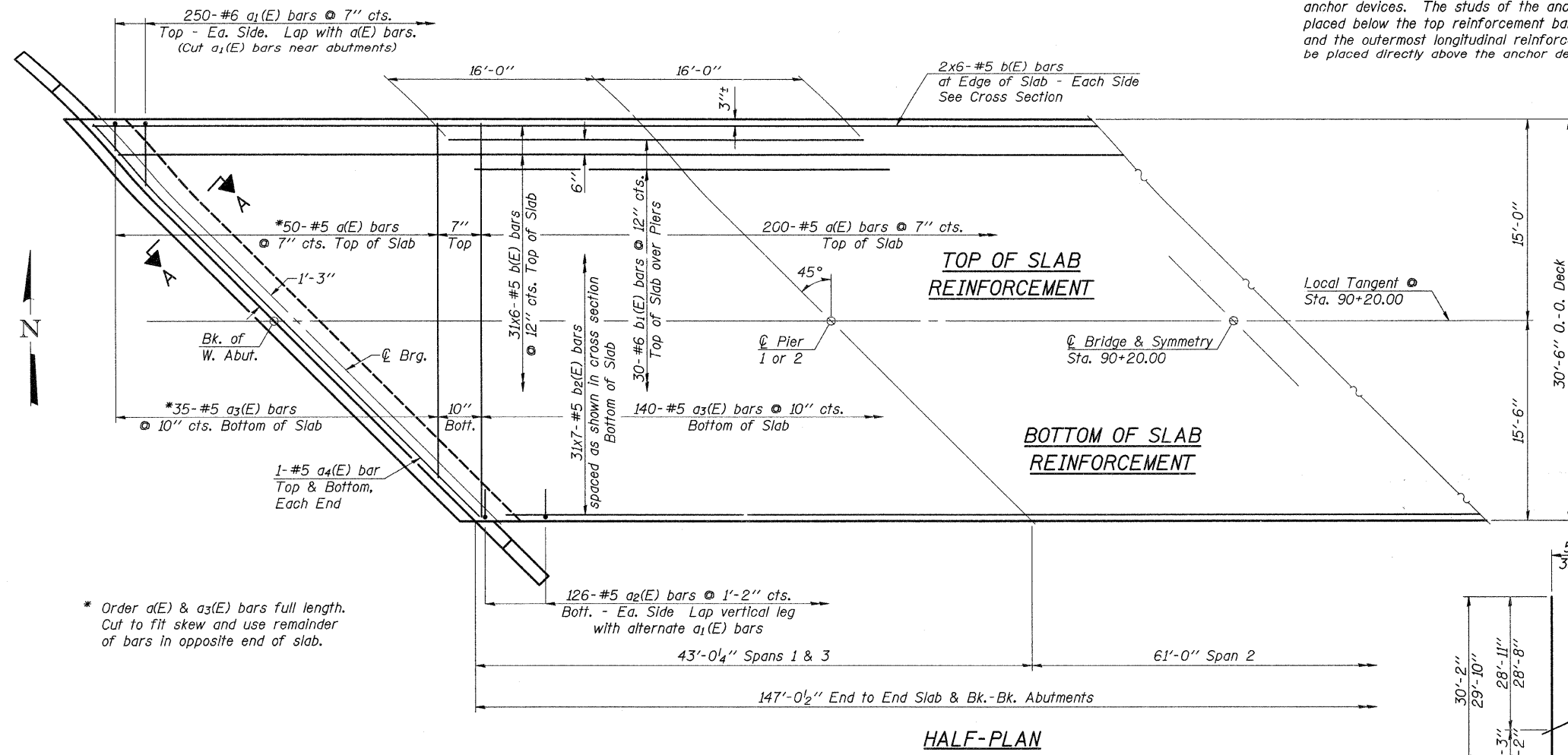
BEAM 6

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
BK. W. ABUT.	89+59.956	13.345	634.292	634.292
☉ BRG. W. ABUT.	89+61.727	13.359	634.291	634.291
A	89+71.744	13.429	634.290	634.299
B	89+81.762	13.487	634.289	634.298
C	89+91.780	13.531	634.289	634.290
☉ BRG. PIER 1	90+03.050	13.564	634.288	634.288
D	90+13.068	13.580	634.288	634.309
E	90+23.086	13.583	634.288	634.326
F	90+33.104	13.572	634.288	634.339
G	90+43.122	13.548	634.288	634.328
H	90+53.140	13.511	634.289	634.312
☉ BRG. PIER 2	90+64.159	13.454	634.290	634.290
I	90+74.177	13.389	634.291	634.292
J	90+84.194	13.311	634.292	634.300
K	90+94.211	13.219	634.293	634.302
☉ BRG. E. ABUT.	91+05.480	13.100	634.295	634.295
BK. E. ABUT.	91+07.251	13.080	634.296	634.296

DESIGNED	A.L.S.
CHECKED	A.R.K.
DRAWN	S.A.P.
CHECKED	A.L.S. & A.R.K.

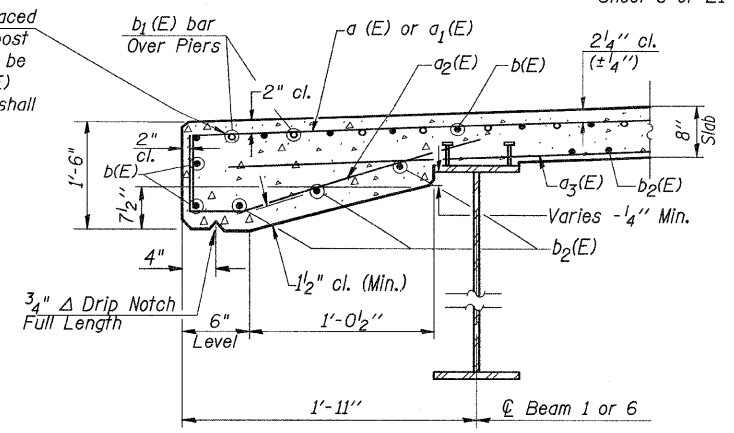
TOP OF SLAB ELEVATIONS
S.N. 038-4558

 FEHR-GRAHAM & ASSOCIATES, LLC ENGINEERING AND SCIENCE CONSULTANTS <small>FREEPORT, IL ROCKFORD, IL ROCHELLE, IL MONROE, WI SPRINGFIELD, IL</small>	TWP. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	55B	07-16121-00-BR	IROQUOIS	33	9
			CONTRACT NO. 87487		
4440 ASH GROVE SPRINGFIELD, IL 62711 (217)-793-8600 www.fehr-graham.com			MARTINTON ROAD DIST. ILLINOIS	F.A. PROJ. BROS-075(145)	



* Order a(E) & a3(E) bars full length. Cut to fit skew and use remainder of bars in opposite end of slab.

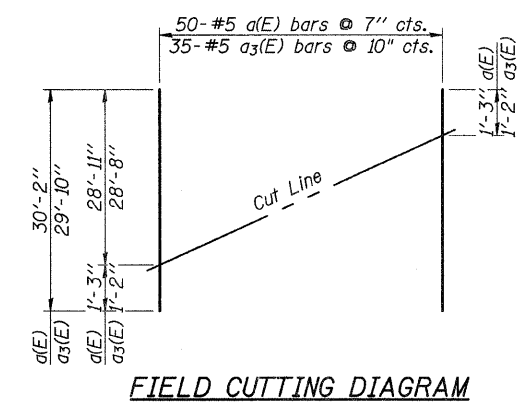
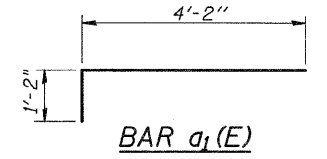
Reinforcement bars in the top of the deck shall be placed with a 2" minimum clearance in the area of the rail post anchor devices. The studs of the anchor device shall be placed below the top reinforcement bars a(E) and a1(E) and the outermost longitudinal reinforcement bar b(E) shall be placed directly above the anchor device studs.



SECTION THRU EDGE OF SLAB

MIN. BAR LAPS

- #5 2'-6"
- #6 3'-4"



FIELD CUTTING DIAGRAM

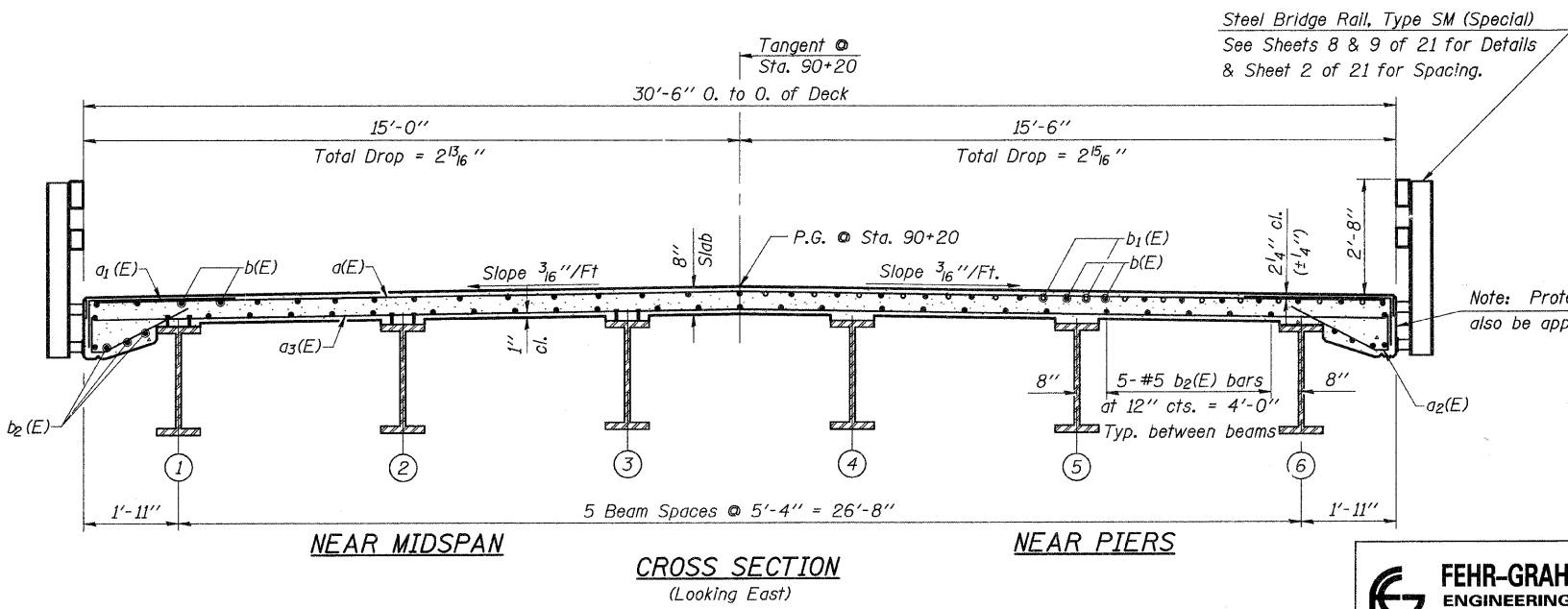
SUPERSTRUCTURE BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a (E)	250	#5	30'-2"	—
a1(E)	500	#6	5'-4"	—
a2(E)	252	#5	3'-6"	✓
a3(E)	175	#5	29'-10"	—
a4(E)	4	#5	42'-8"	—
b(E)	210	#5	26'-9"	—
b1(E)	60	#6	32'-0"	—
b2(E)	217	#5	23'-3"	—
m (E)	10	#6	42'-8"	—
m1(E)	24	#6	11'-0"	—
m2(E)	10	#6	7'-3"	—
m3(E)	4	#6	2'-3"	—
s(E)	72	#5	5'-5"	—
s1(E)	62	#4	8'-10"	—
Protective Coat	Sq. Yd.	550		
Conc. Superstructure	Cu. Yd.	138.4		
Reinforcement Bars, Epoxy Coated	Pound	34,350		
Bridge Deck Grooving	Sq. Yd.	466		

Bars indicated thus 31x6-#5 etc. indicates 31 lines of bars with 6 lengths per line.

Work this Sheet with Sheet 7 of 21.

SUPERSTRUCTURE S.N. 038-4558



NEAR MIDSPAN

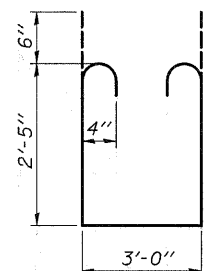
CROSS SECTION (Looking East)

NEAR PIERS

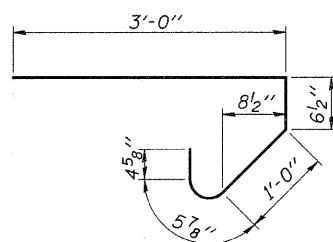
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CHECKED	A.R.K.
DRAWN	S.A.P.
CHECKED	A.L.S. & A.R.K.

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ENGINEERING AND SCIENCE CONSULTANTS
FREEPORT, IL ROCKFORD, IL ROCHELLE, IL MONROE, WI SPRINGFIELD, IL

TWP. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55B	07-16121-00-BR	IROQUOIS	33	10
MARTINTON ROAD DIST. ILLINOIS			CONTRACT NO. 87487	
4440 ASH GROVE SPRINGFIELD, IL 62711 (217)-793-8600 www.fehr-graham.com			F.A. PROJ. BROS-075(145)	



BAR $s_1(E)$

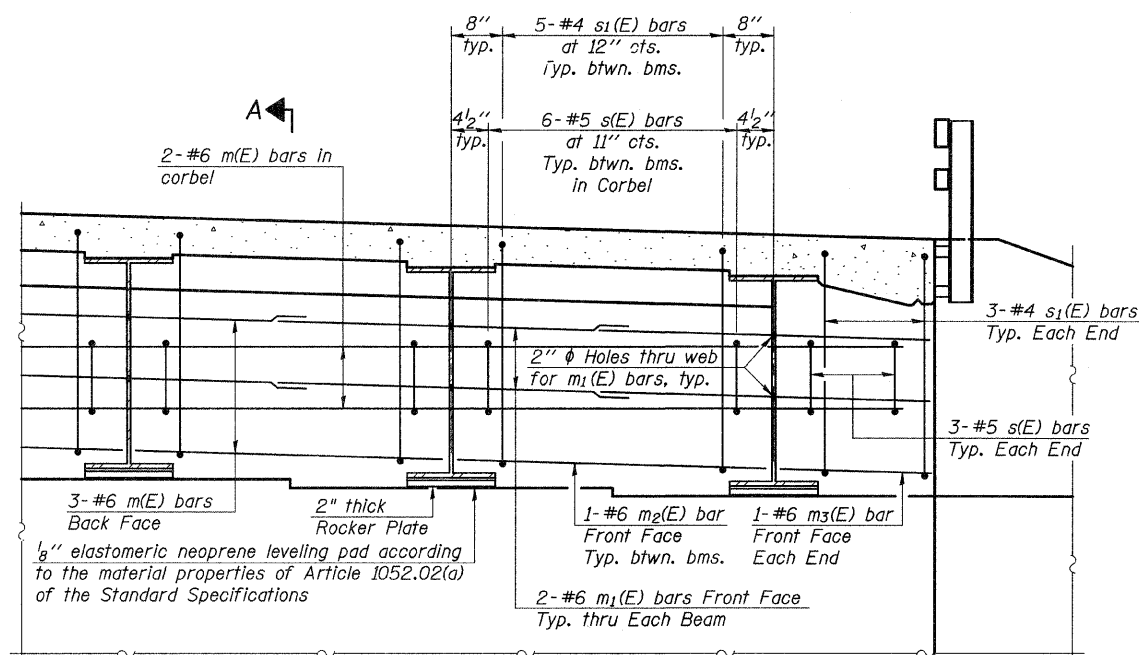


BAR $s(E)$

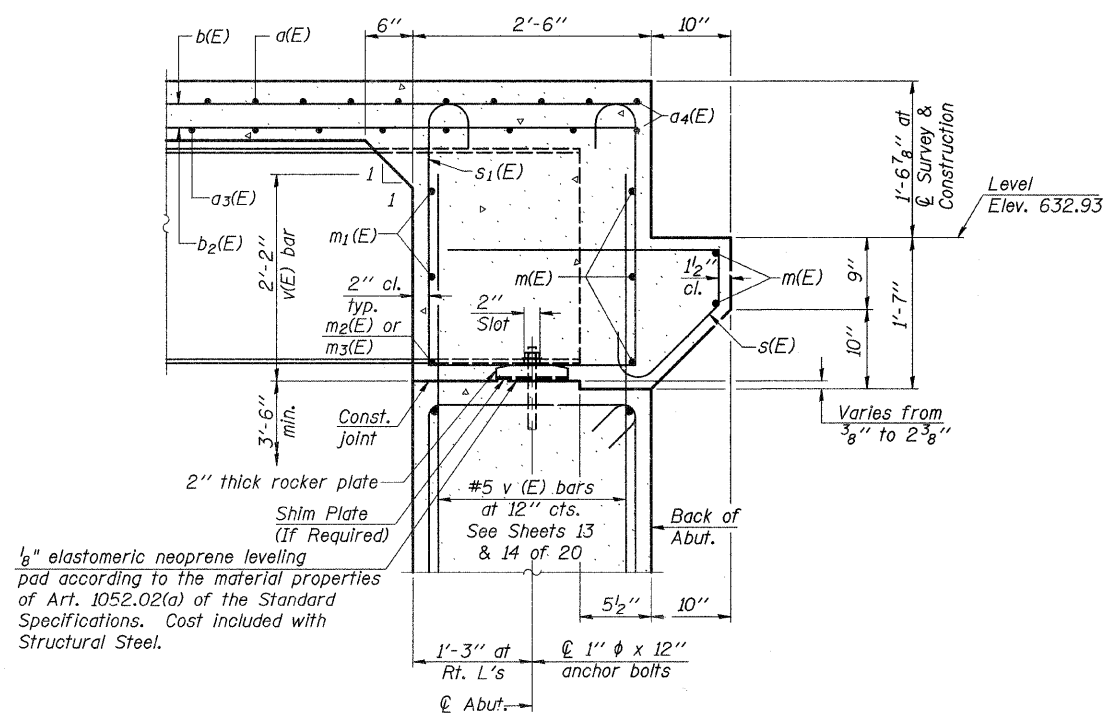
Notes:
 Reinforcement bars in diaphragm are billed with superstructure on sheet 6 of 21.
 Concrete in diaphragm is included with Concrete Superstructure on sheet 6 of 21.
 The $s(E)$ and $s_1(E)$ bars shall be placed parallel to the beams. Spacing for these bars shall be at right angles to the beams.

MIN. BAR LAP

#6 bar = 3'-4"



DIAPHRAGM ELEVATION AT ABUTMENT



SECTION A-A

Dimensions at right angles to abutment, except as shown.

Work this Sheet with Sheet 6 of 21.

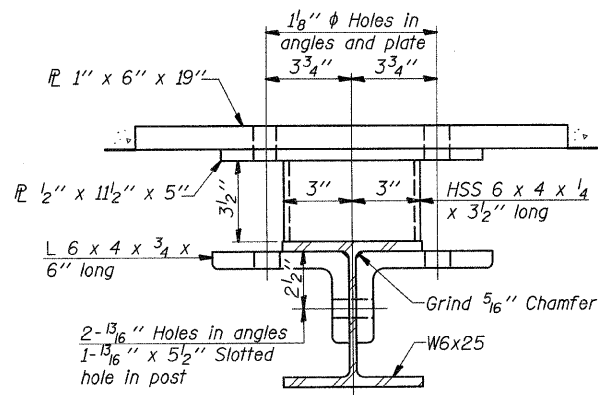
SUPERSTRUCTURE DETAILS

S.N. 038-4558

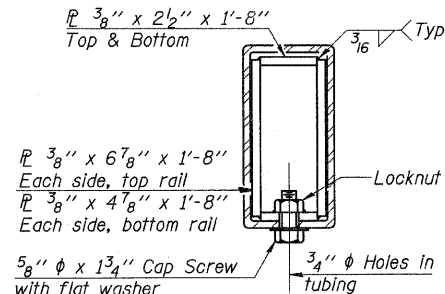
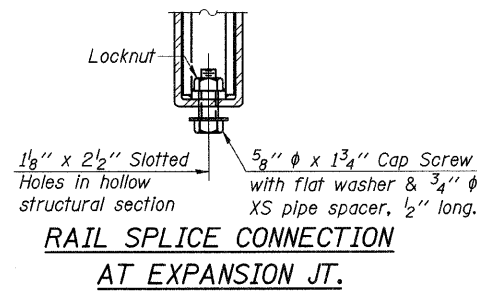
DESIGNED -	A.L.S.
CHECKED -	A.R.K.
DRAWN -	S.A.P.
CHECKED -	A.L.S. & A.R.K.

FEHR-GRAHAM & ASSOCIATES, LLC
 ENGINEERING AND SCIENCE CONSULTANTS
 FREEPORT, IL ROCKFORD, IL ROCHELLE, IL MONROE, WI SPRINGFIELD, IL
 4440 ASH GROVE SPRINGFIELD, IL 62711 (217)-793-8600 www.fehr-graham.com

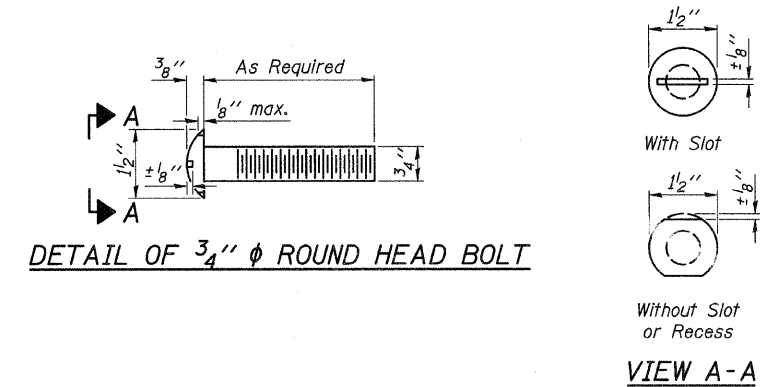
TWP. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55B	07-16121-00-BR	IROQUOIS	33	11
MARTINTON ROAD DIST. ILLINOIS			CONTRACT NO. 87487	
			F.A. PROJ. BROS-075(145)	



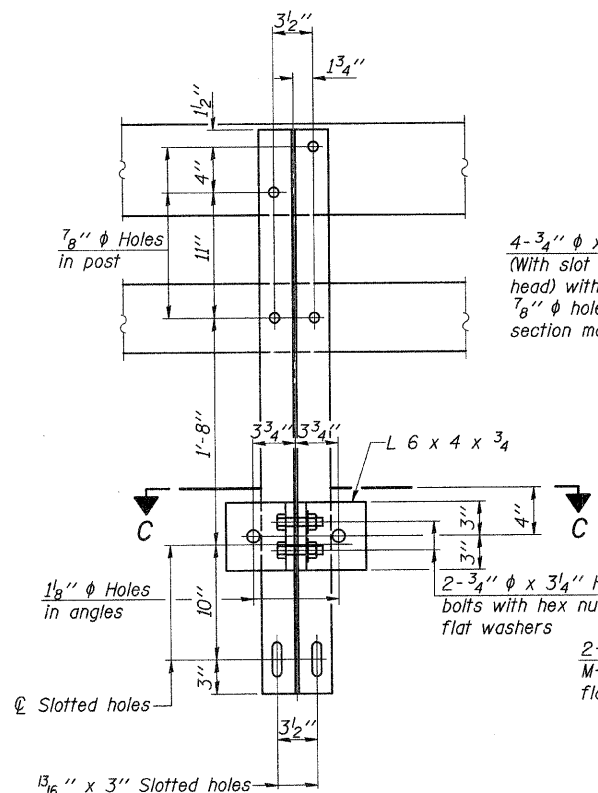
SECTION C-C



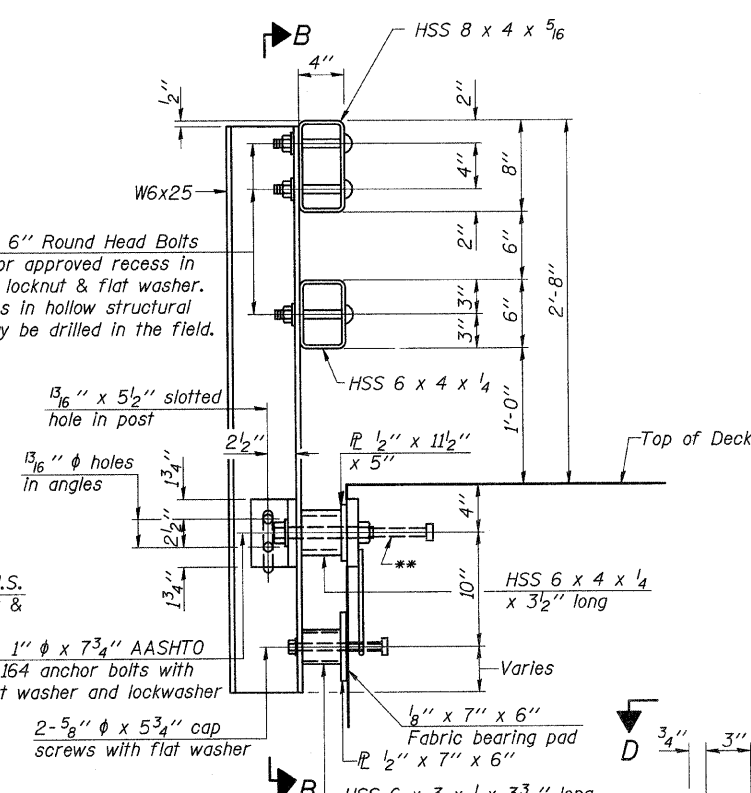
SECTION AT RAIL SPLICE



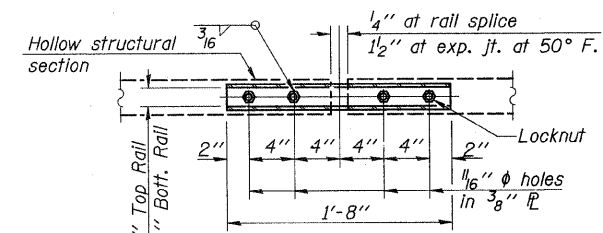
VIEW A-A



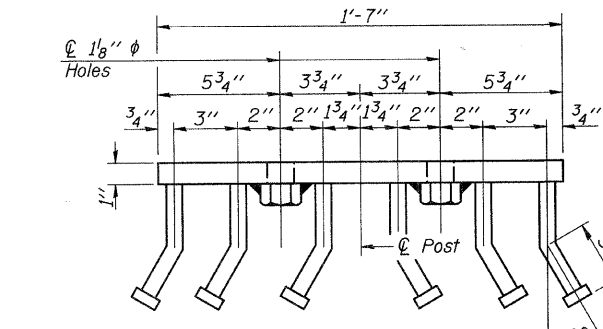
SECTION B-B



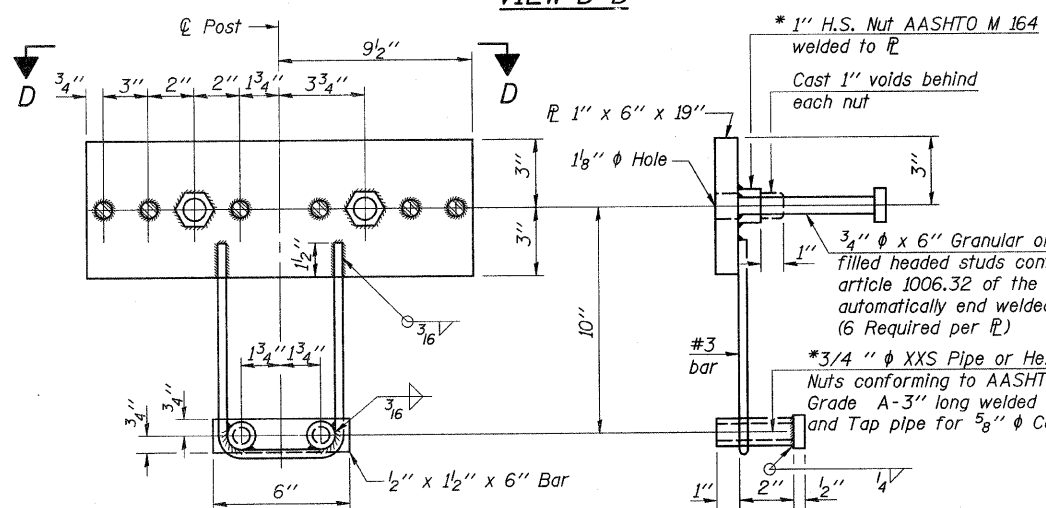
SECTION AT RAIL POST



PLAN-BOTT. SPLICE TYPICAL



VIEW D-D



ANCHOR DEVICE

Notes:
 All field drilled holes shall be coated with an approved zinc rich paint before erection.
 For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type SM.
 All steel rail members shall be galvanized according to Article 509.05 of the Standard Specifications.
 **The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.

Note: See Sheet 2 of 21 for Post Spacing and Sheet 9 of 21 for End of Rail Details.

BILL OF MATERIAL

Item	Unit	Quantity
Steel Bridge Rail, Type SM (Special)	Foot	291

BRIDGE RAIL, TYPE SM (SPECIAL)
 S.N. 038-4558

DESIGNED -	A.L.S.
CHECKED -	A.R.K.
DRAWN -	S.A.P.
CHECKED -	A.L.S. & A.R.K.

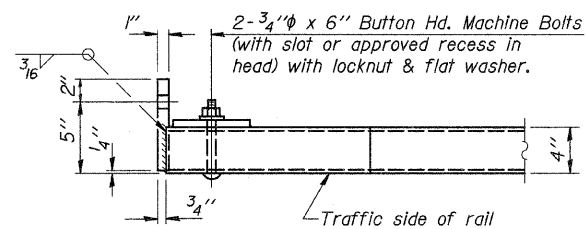
L 1/2" x 7" x 6"

L 1/2" x 11 1/2" x 5"

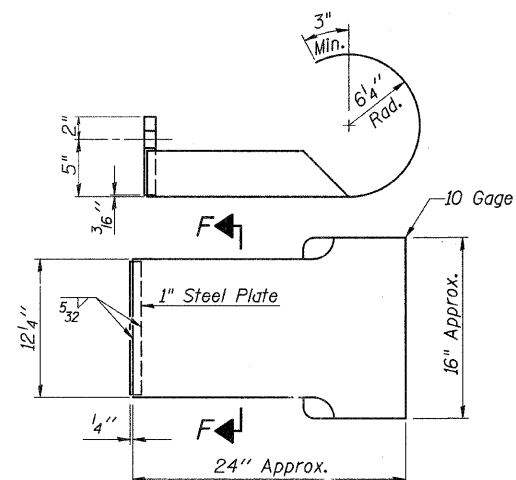
*Threaded areas shall be plugged or blocked off during casting of deck. Galvanized after fabrication.

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 4440 ASH GROVE SPRINGFIELD, IL 62711 (217)-793-8600 www.fehr-graham.com

TWP. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55B	07-16121-00-BR	IROQUOIS	33	12
MARTINTON ROAD DIST. ILLINOIS			CONTRACT NO. 87487	
			F.A. PROJ. BROS-075(145)	

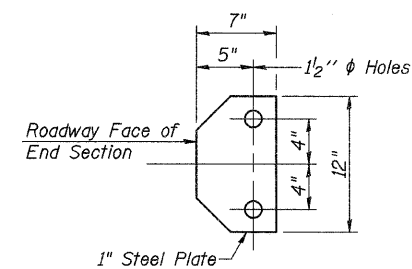


VIEW D-D



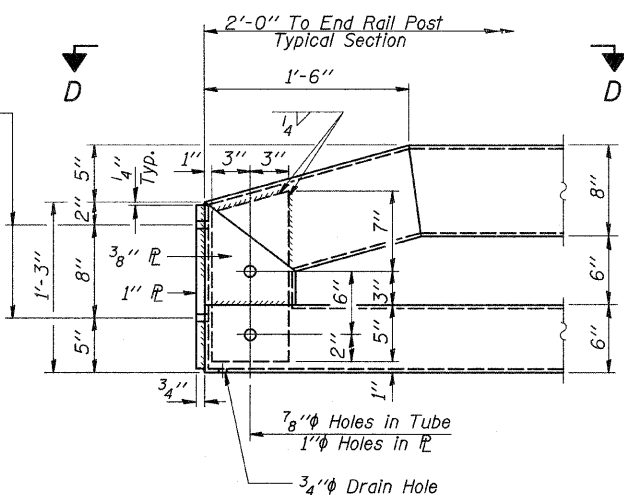
CURLED END SECTION DETAILS
(2 Required)

Cost included with Steel Bridge Rail,
Type SM (Special). (NW. & SE. Corners)



VIEW F-F

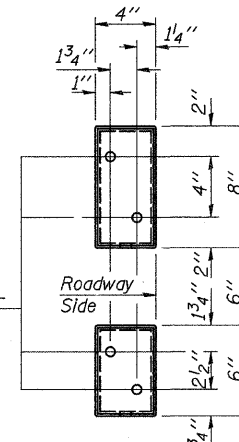
1/8" diameter Holes for 1" x 4" Round Head Bolts.
Provide 2 flat washers & locknuts for
curled end section connection.



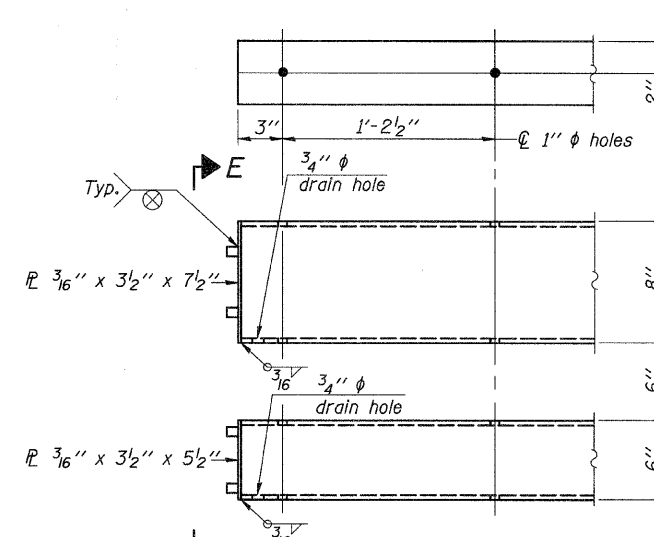
END OF RAIL DETAILS

DEPARTURE ENDS
(NW. & SE. Corners)

4 - 5/8" reduced base welded studs. Provide 4 -
5/8" washers and self-locking nuts or nuts and
jam nuts for guardrail connection shown on
Std. 631032



VIEW E-E



END OF RAIL DETAILS

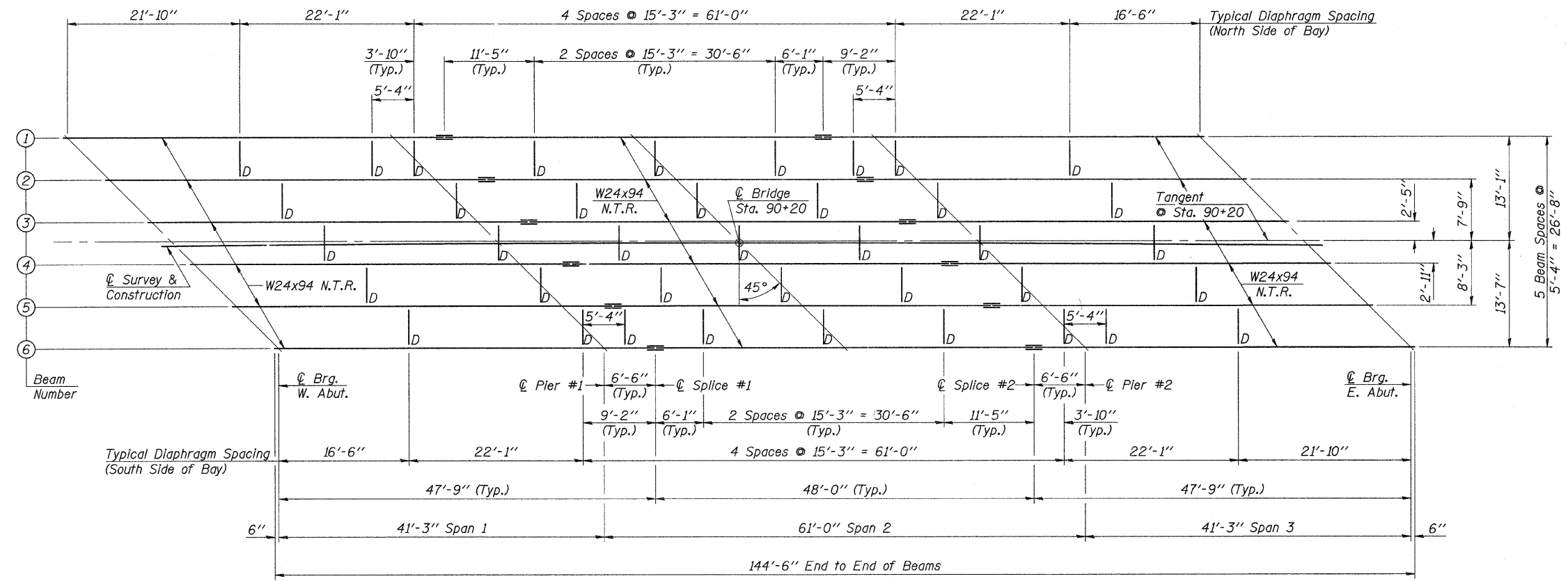
APPROACH ENDS
(SW. & NE. Corners)

Work this sheet with 8 of 21.

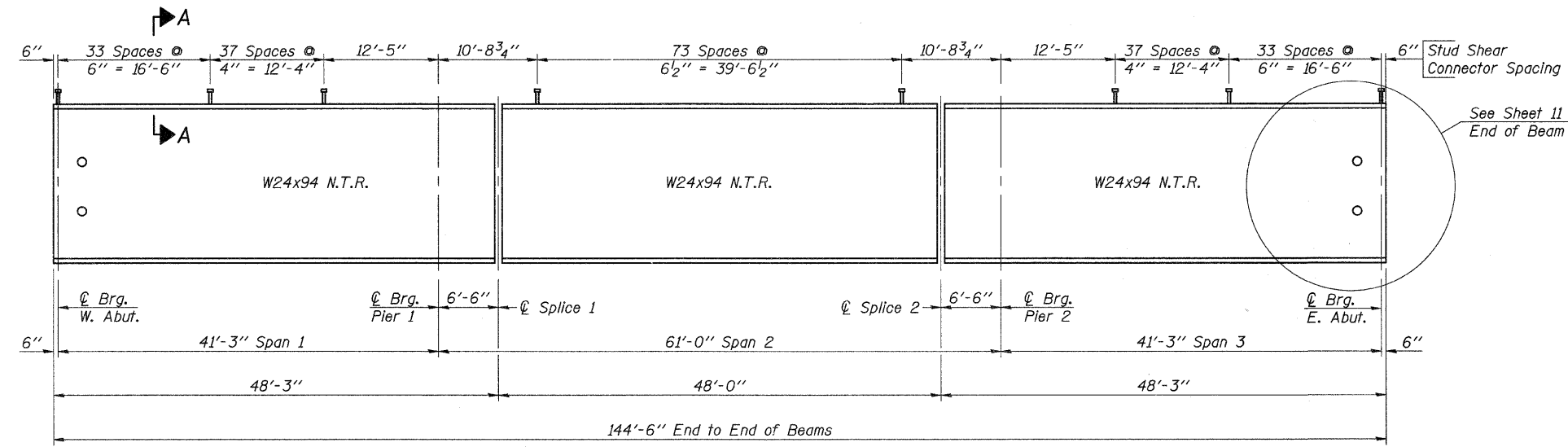
STEEL BRIDGE RAIL, TYPE SM (SPECIAL)
S.N. 038-4558

DESIGNED -	A.L.S.
CHECKED -	A.R.K.
DRAWN -	S.A.P.
CHECKED -	A.L.S. & A.R.K.

<p>FEHR-GRAHAM & ASSOCIATES, LLC ENGINEERING AND SCIENCE CONSULTANTS FREEPORT, IL ROCKFORD, IL ROCHELLE, IL MONROE, WI SPRINGFIELD, IL</p>	TWP. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	55B	07-16121-00-BR	IROQUOIS	33	13
4440 ASH GROVE SPRINGFIELD, IL 62711 (217)-793-8600 www.fehr-graham.com			MARTINTON ROAD DIST. ILLINOIS	CONTRACT NO. 87487 F.A. PROJ. BROS-075(145)	



FRAMING PLAN



ELEVATION

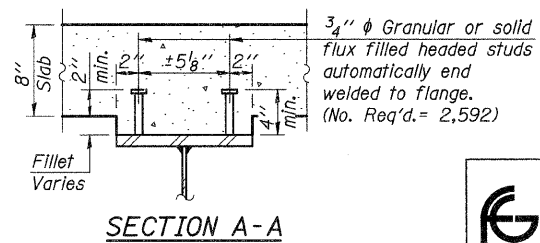
Notes: The designation "N.T.R." indicates that Notch Toughness Requirements are applicable. Load carrying components designated "N.T.R." shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.

All diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted. Individual diaphragms at supports may be temporarily disconnected to install bearing anchor rods.

Work this sheet with sheet 11 & 12 of 21.

TOP OF BEAM ELEVATIONS
(For Fabrication Only)

	Beam 1 or 6	Beam 2 or 5	Beam 3 or 4
℄ Brg. W. Abut.	633.58	633.67	633.75
℄ Brg. Pier #1	633.52	633.61	633.69
℄ Splice #1	633.51	633.60	633.68
℄ Splice #2	633.51	633.60	633.68
℄ Brg. Pier #2	633.52	633.61	633.69
℄ Brg. E. Abut.	633.58	633.67	633.75



SECTION A-A

DESIGNED -	A.L.S.
CHECKED -	A.R.K.
DRAWN -	S.A.P.
CHECKED -	A.L.S. & A.R.K.

STRUCTURAL STEEL
S.N. 038-4558

<p>FEHR-GRAHAM & ASSOCIATES, LLC ENGINEERING AND SCIENCE CONSULTANTS FREEPORT, IL ROCKFORD, IL ROCHELLE, IL MONROE, WI SPRINGFIELD, IL</p>	TWP. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	55B	07-16121-00-BR	IROQUOIS	33	14
4440 ASH GROVE SPRINGFIELD, IL 62711 (217)-793-8600 www.fehr-graham.com			MARTINTON ROAD DIST. ILLINOIS	CONTRACT NO. 87487	
			F.A. PROJ. BROS-075(145)		

INTERIOR BEAM MOMENT TABLE				
		0.4 Sp. 1 or 0.6 Sp. 3	Pier 1 or 2	0.5 Sp. 2
I_s	(in ⁴)	2,700	2,700	2,700
$I_c(n)$	(in ⁴)	8,228		8,228
$I_c(3n)$	(in ⁴)	5,997		5,997
S_s	(in ³)	222	222	222
$S_c(n)$	(in ³)	349		349
$S_c(3n)$	(in ³)	313		313
Z	(in ³)		254	
DC1	(k/ft)	0.651	0.651	0.651
MDC1	(k)	60	182	120
DC2	(k/ft)	0.033	0.033	0.033
MDC2	(k)	3.7	7.5	7.9
DW	(k/ft)	0.254	0.254	0.254
MDW	(k)	29	58	60
$M\ell + IM$	(k)	358	266	550
M_u (Strength I)	(k)	750	789	1,212
$\phi_r M_n, \phi_r M_{nc}$	(k)	1,788	1,058	1,788
f_s DC1	(ksi)	3.2	9.8	6.5
f_s DC2	(ksi)	0.2	0.4	0.4
f_s DW	(ksi)	1.1	3.1	2.3
f_s 1.3($\ell + IM$)	(ksi)	16.0	18.7	24.6
f_s (Service II)	(ksi)	20.5	32.0	33.8
f_s (Total)(Strength I)	(ksi)	27.4	42.6	45.2
V_r	(k)	21.1		19.9

*** Compact sections
 **** Non-Compact and slender sections

INTERIOR BEAM REACTION TABLE			
	Abuts.	Pier 1 & 2	
R_{DC1}	(k)	9.0	37.7
R_{DC2}	(k)	0.5	1.9
R_{DW}	(k)	3.8	14.4
$R\ell + IM$	(k)	62.1	94.4
R_{Total}	(k)	75.4	148.4

I_s, S_s : Non-composite moment of inertia and section modulus of the steel section used for computing f_s (Total-Strength I, and Service II) due to non-composite dead loads (in⁴ and in³).

$I_c(n), S_c(n)$: Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing f_s (Total-Strength I, and Service II) due to short-term composite live loads (in⁴ and in³).

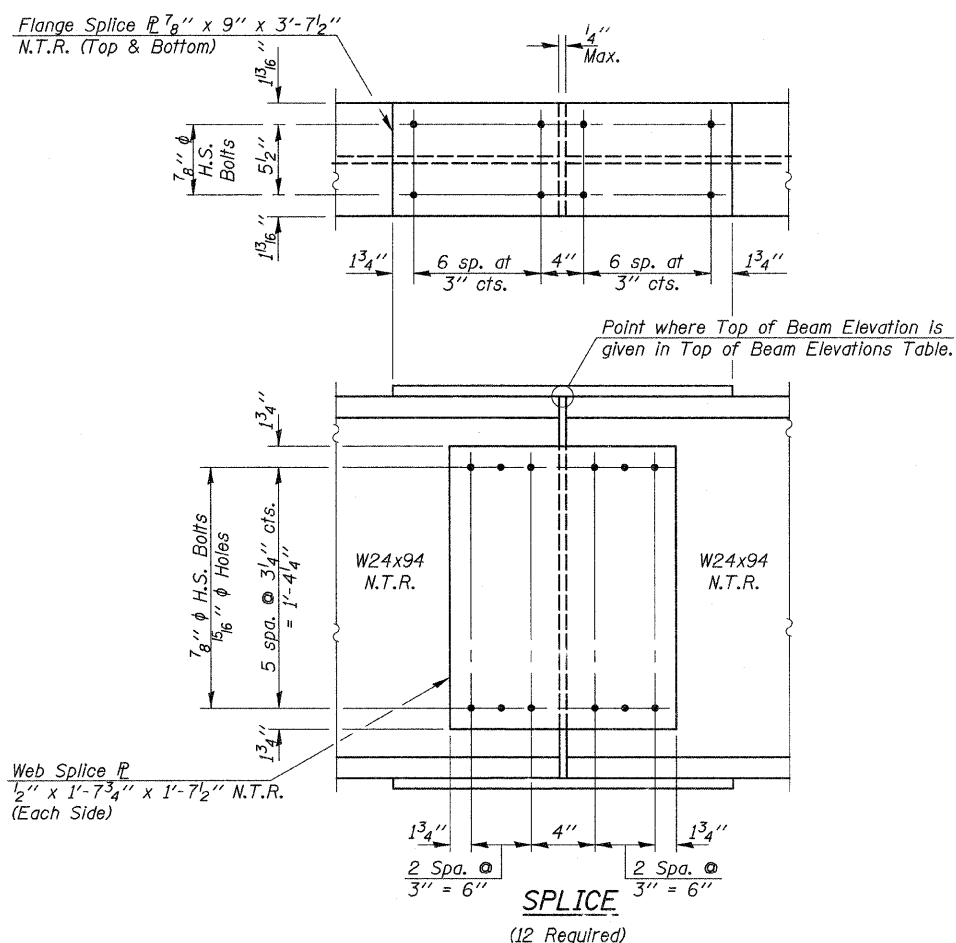
$I_c(3n), S_c(3n)$: Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing f_s (Total-Strength I, and Service II) due to long-term composite (superimposed) dead loads (in⁴ and in³).

Z: Plastic Section Modulus of the steel section in non-composite areas.

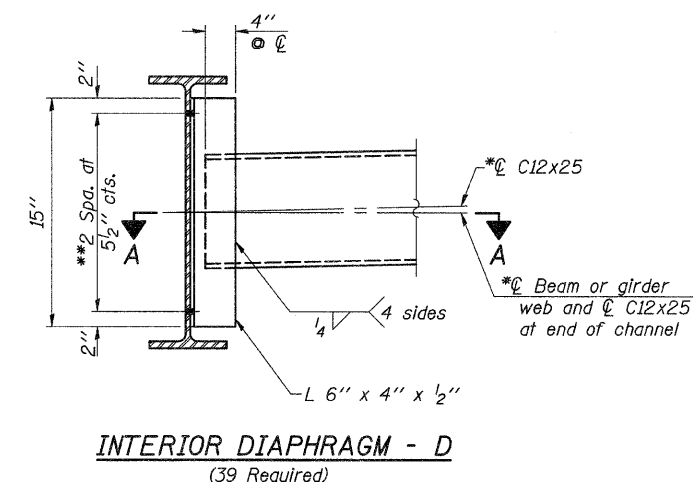
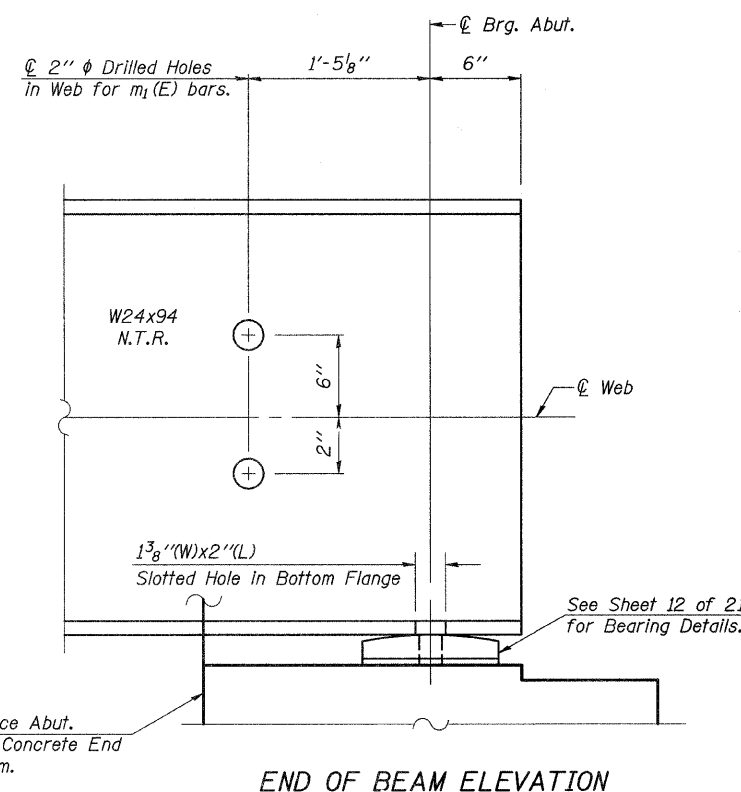
DC1: Un-factored non-composite dead load (kips/ft.).
 MDC1: Un-factored moment due to non-composite dead load (kip-ft.).
 DC2: Un-factored long-term composite (superimposed excluding future wearing surface) dead load (kips/ft.).
 MDC2: Un-factored moment due to long-term composite (superimposed excluding future wearing surface) dead load (kip-ft.).
 DW: Un-factored long-term composite (superimposed future wearing surface only) dead load (kips/ft.).
 MDW: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).

$M\ell + IM$: Un-factored live load moment plus dynamic load allowance (Impact) (kip-ft.).
 M_u (Strength I): Factored design moment (kip-ft.).
 $1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M\ell + IM$
 $\phi_r M_n$: Compact composite positive moment capacity computed according to Article 6.10.7.1 (kip-ft.).
 $\phi_r M_{nc}$: Compact non-composite negative moment capacity computed according to Article A6.1.1 (kip-ft.).

f_s (Service II): Sum of stresses as computed from the moments below (ksi).
 $M_{DC1} + M_{DC2} + M_{DW} + 1.3 M\ell + IM$
 f_s (Total)(Strength I): Sum of stresses as computed from the moments below on non-compact section (ksi).
 $1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M\ell + IM$
 V_r : Maximum factored shear range in composite portion of span computed according to Article 6.10.10.



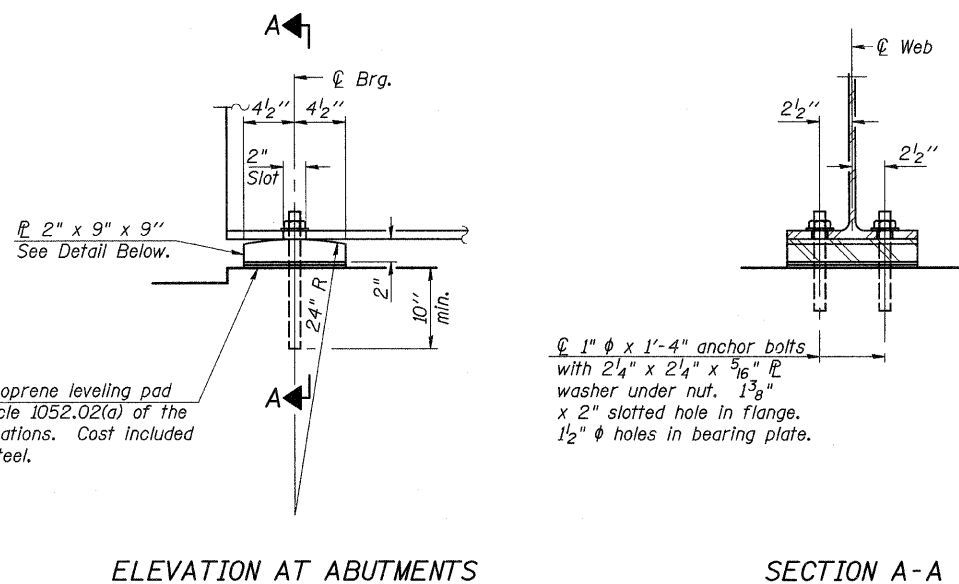
DESIGNED -	A.L.S.
CHECKED -	A.R.K.
DRAWN -	S.A.P.
CHECKED -	A.L.S. & A.R.K.



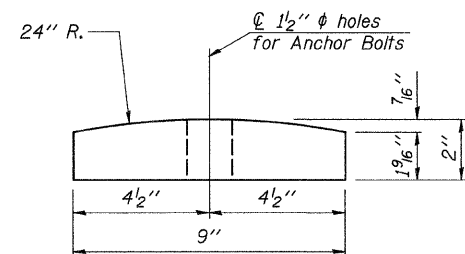
Note:
 Two hardened washers required for each set of oversized holes.
 *Alternate channels C12x30 are permitted to facilitate material acquisition. Calculated weight of structural steel is based on the lighter section. The alternate, if utilized, shall be provided at no additional cost to the Department.
 ***3/4" HS bolts, 1 5/16" holes
 Work this Sheet with Sheets 10 & 12 of 21.

STRUCTURAL STEEL
S.N. 038-4558

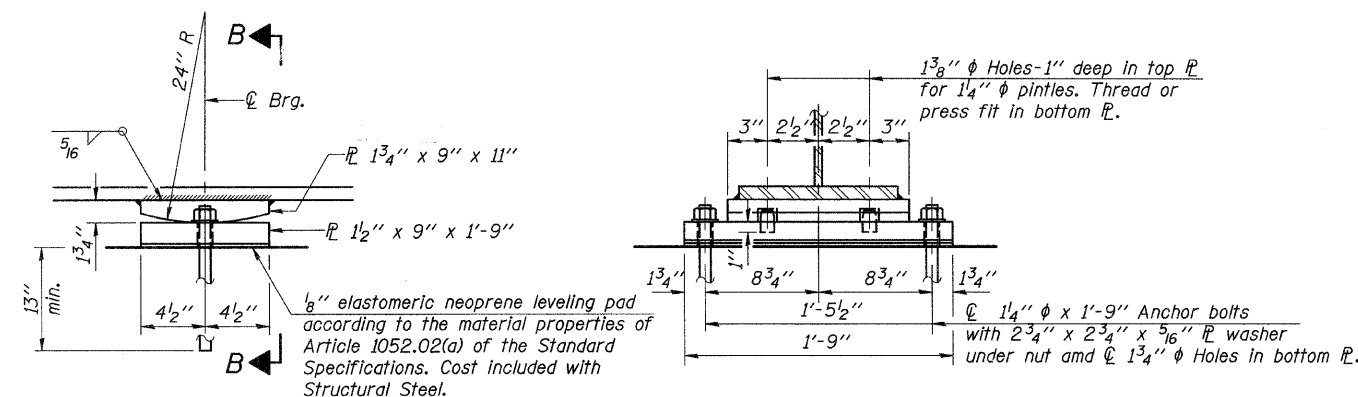
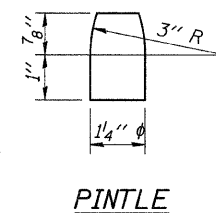
FEHR-GRAHAM & ASSOCIATES, LLC ENGINEERING AND SCIENCE CONSULTANTS FREEPORT, IL ROCKFORD, IL ROCHELLE, IL MONROE, WI SPRINGFIELD, IL 4440 ASH GROVE SPRINGFIELD, IL 62711 (217)-793-8600 www.fehr-graham.com	TWP. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	55B	07-16121-00-BR	IROQUOIS	33	15
MARTINTON ROAD DIST. ILLINOIS			CONTRACT NO. 87487		
			F.A. PROJ. BROS-075(145)		



ABUTMENT BEARING
(12 Required)
Weight included with Structural Steel.



BEARING PLATE DETAIL



ELEVATION AT PIERS 1 & 2

SECTION B-B

FIXED BEARING
(12 Required)
Weight included with Structural Steel.

Notes: Two 1/8" adjusting shims, of the dimension of the bottom bearing plate, shall be provided for each bearing in addition to all other plates or shims.

Anchor bolts shall be ASTM F1554 Grade 36, all-thread of the diameter(s) specified. ASTM A307 Grade C anchor bolts may be used in lieu of ASTM F1554 Grade 36 (Fy=36 ksi). The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.

Anchor bolts at piers may be either cast in place or installed in holes drilled after the supported member is in place.

Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.

BILL OF MATERIAL

Item	Unit	Total
Anchor Bolts 1"	Each	24
Anchor Bolts 1 1/4"	Each	24

Work this Sheet with Sheets 10 & 11 of 21.

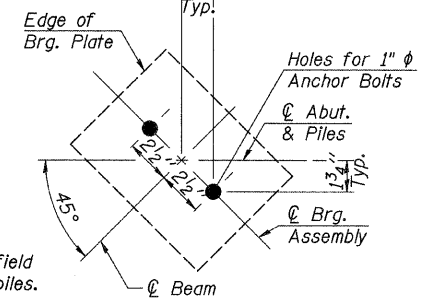
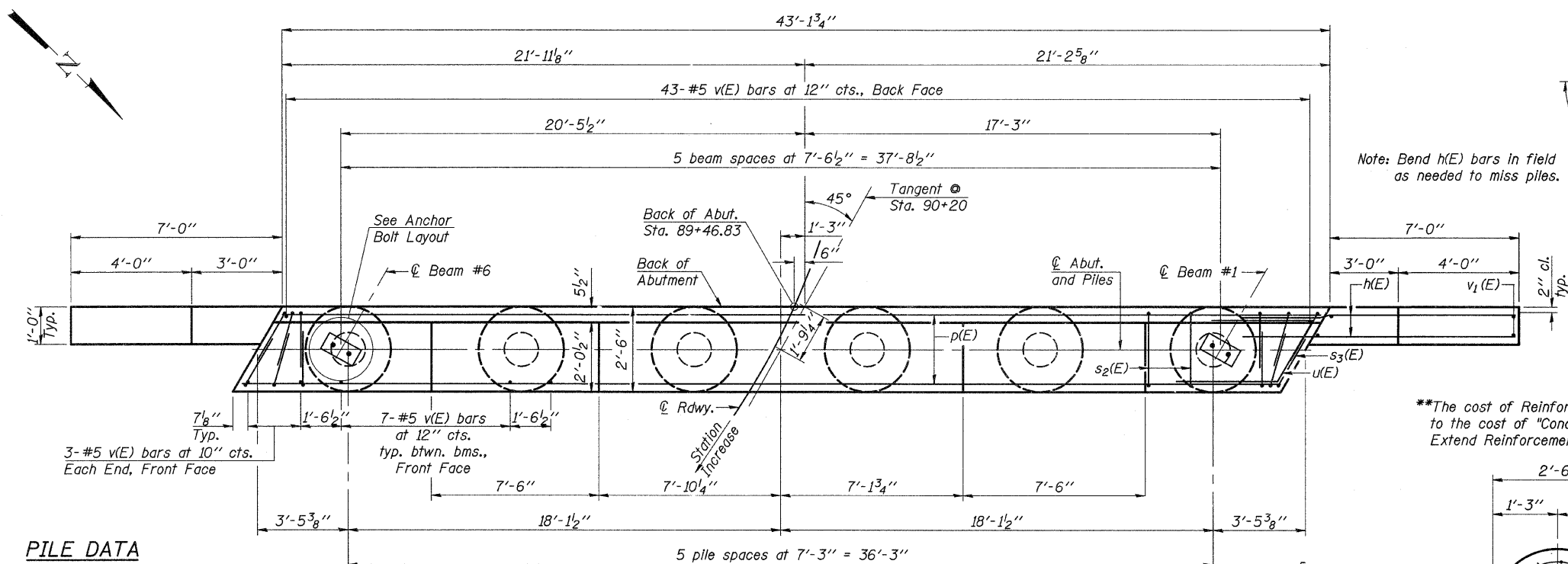
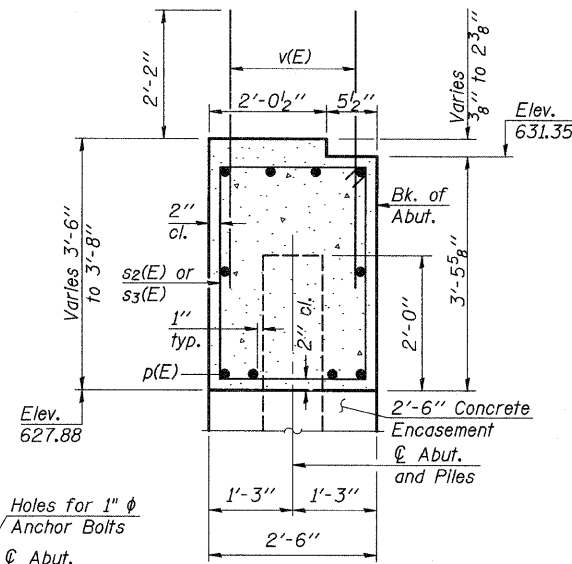
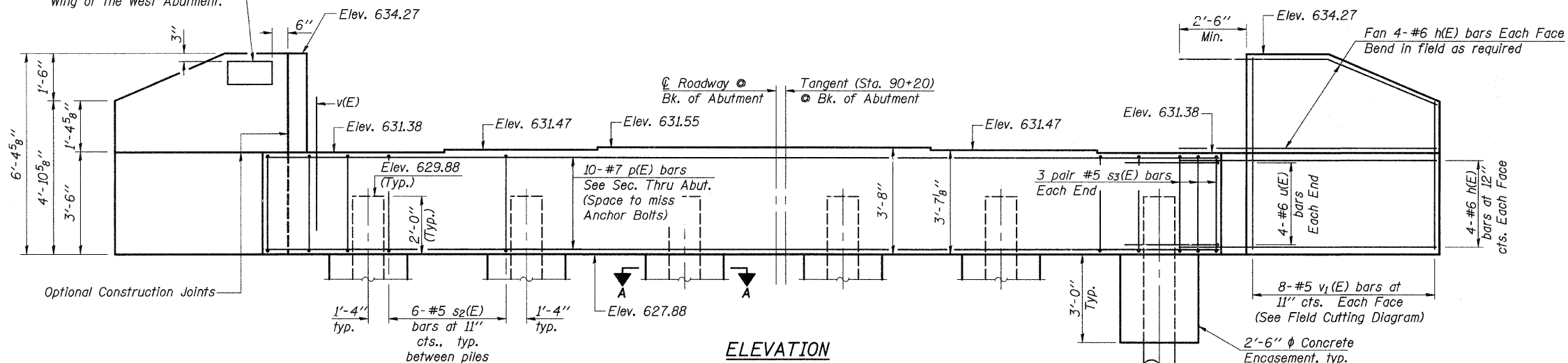
BEARING DETAILS
S.N. 038-4558

DESIGNED -	A.L.S.
CHECKED -	A.R.K.
DRAWN -	S.A.P.
CHECKED -	A.L.S. & A.R.K.

<p>FEHR-GRAHAM & ASSOCIATES, LLC ENGINEERING AND SCIENCE CONSULTANTS FREEPORT, IL ROCKFORD, IL ROCHELLE, IL MONROE, WI SPRINGFIELD, IL</p>	TWP. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	55B	07-16121-00-BR	IROQUOIS	33	16
4440 ASH GROVE SPRINGFIELD, IL 62711 (217)-793-8600 www.fehr-graham.com			MARTINTON ROAD DIST. ILLINOIS	CONTRACT NO. 87487 F.A. PROJ. BROS-075(145)	

Name Plate shall be placed on the outside face of the South Wing of the West Abutment.

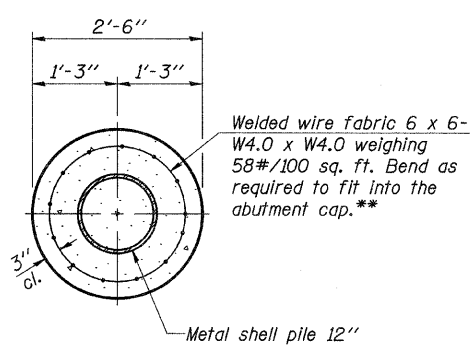
Notes: Four steps monolithically with cap.



WEST ABUTMENT BILL OF MATERIAL

Bar	No.	Size	Length	Shape	
h(E)	32	#6	10'-6"	—	
p(E)	10	#7	42'-9"	—	
s2(E)	30	#5	11'-7"	□	
s3(E)	12	#5	7'-8"	□	
u(E)	8	#6	15'-1"	┘	
v(E)	84	#5	4'-4"	—	
v1(E)	16	#5	10'-9"	—	
Concrete Structures				Cu. Yd.	17.3
Reinforcement Bars, Epoxy Coated				Pound	2,580
Furnishing Metal Shell Piles, 12" x 0.250"				Foot	200
Driving Piles				Foot	200
Test Pile, Metal Shells				Each	1
Concrete Encasement				Cu. Yd.	3.3
Protective Coat				Sq. Yd.	6
Name Plate				Each	1

**The cost of Reinforcement is incidental to the cost of "Concrete Encasement". Extend Reinforcement 2'-0" into cap.

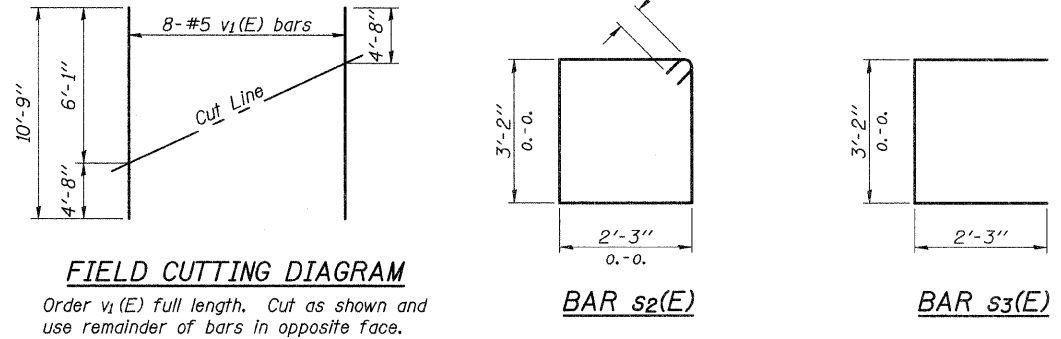


Note: Forms for encasement may be omitted when soil conditions permit.

PILE DATA
(See Special Provisions)

Type: Metal Shell - 12" Dia. x 0.250" walls
 No. Required: *6
 Nominal Required Bearing: 220 k
 Factored Resistance Available: 120 k
 Est. Length: 40 Ft.
 No. Test Piles: 1

*Includes 1 test pile to be driven in a permanent location at the abutment.
 The test piles shall be driven to 110 percent of the Nominal Required Bearing indicated above.



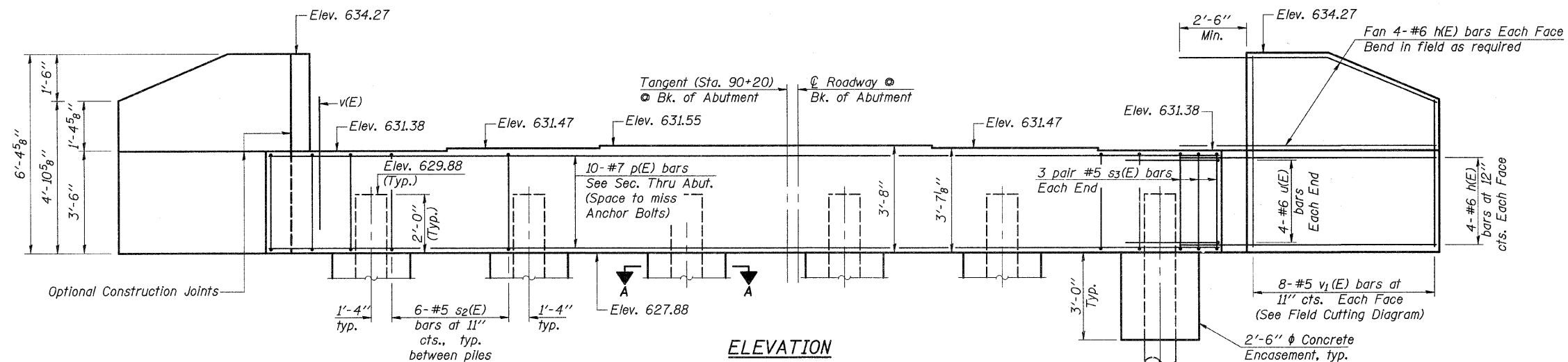
DESIGNED	A.L.S.
CHECKED	A.R.K.
DRAWN	S.A.P.
CHECKED	A.L.S. & A.R.K.

AI-R 11-1-06

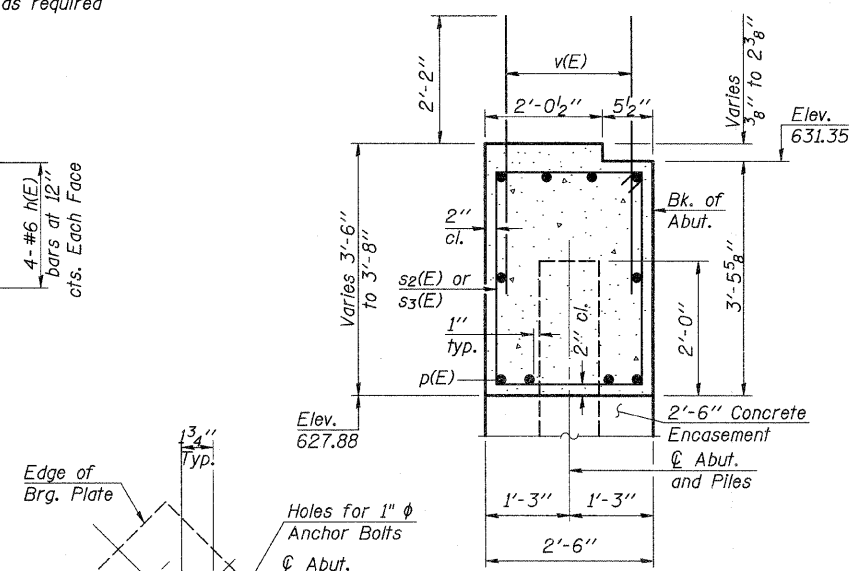
FEHR-GRAHAM & ASSOCIATES, LLC
 ENGINEERING AND SCIENCE CONSULTANTS
 FREEPORT, IL ROCKFORD, IL ROCHELLE, IL MONROE, WI SPRINGFIELD, IL

TWP. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55B	07-16121-00-BR	IROQUOIS	33	17
MARTINTON ROAD DIST. ILLINOIS			CONTRACT NO. 87487	
4440 ASH GROVE SPRINGFIELD, IL 62711 (217)-793-8600 www.fehr-graham.com			F.A. PROJ. BROS-075(145)	

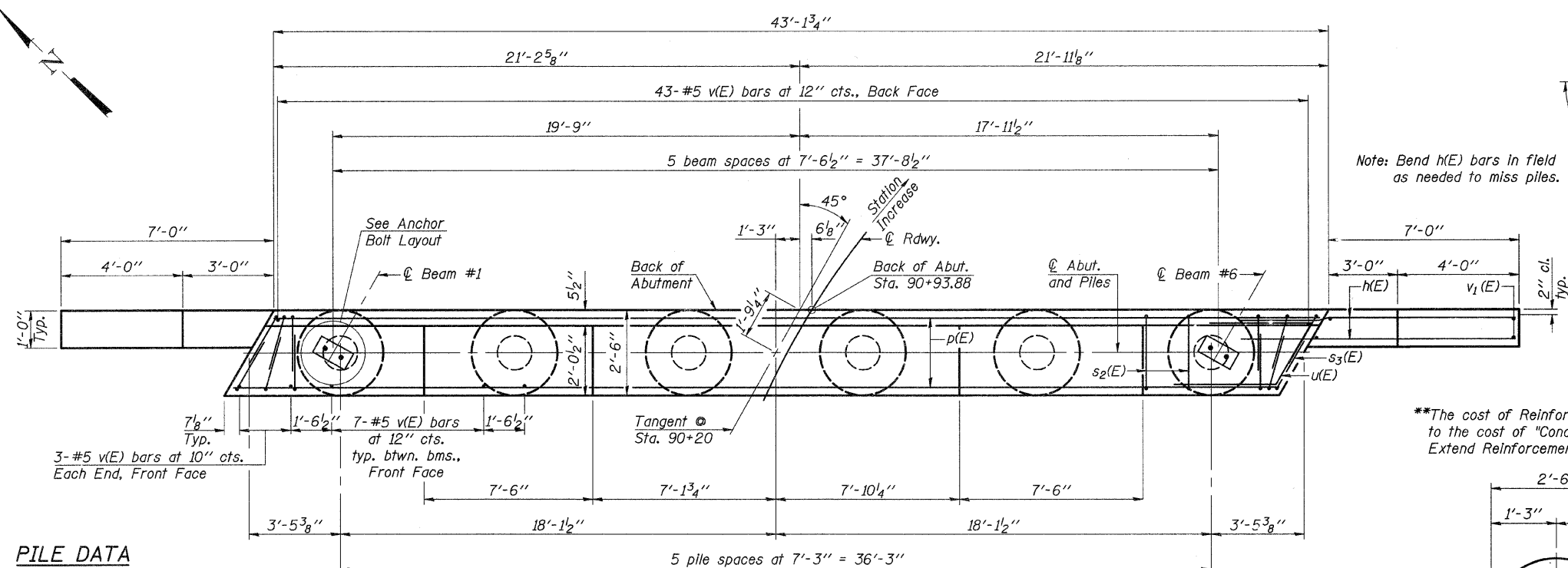
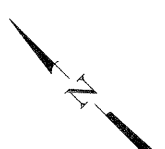
Notes: Pour steps monolithically with cap.



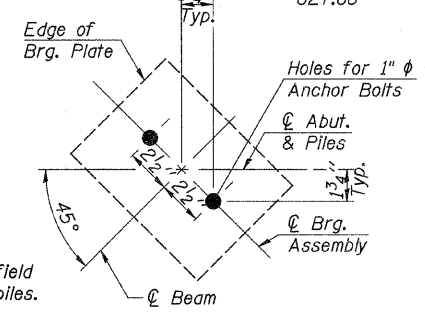
ELEVATION



SEC. THRU ABUT.



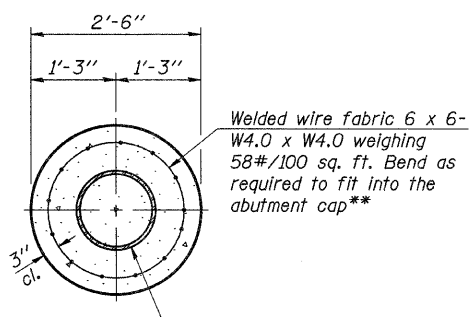
PLAN



ANCHOR BOLT LAYOUT

Note: Bend h(E) bars in field as needed to miss piles.

**The cost of Reinforcement is incidental to the cost of "Concrete Encasement". Extend Reinforcement 2'-0" into cap.



SECTION A-A PILE ENCASEMENT DETAIL

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

EAST ABUTMENT BILL OF MATERIAL

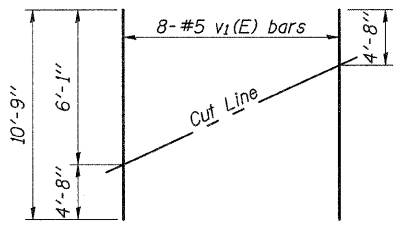
Bar	No.	Size	Length	Shape	
h(E)	32	#6	10'-6"	—	
p(E)	10	#7	42'-9"	—	
s2(E)	30	#5	11'-7"	□	
s3(E)	12	#5	7'-8"	□	
u(E)	8	#6	15'-1"	┌	
v(E)	84	#5	4'-4"	—	
v1(E)	16	#5	10'-9"	—	
Concrete Structures				Cu. Yd.	17.3
Reinforcement Bars, Epoxy Coated				Pound	2,580
Furnishing Metal Shell Piles, 12" x 0.250"				Foot	240
Driving Piles				Foot	240
Concrete Encasement				Cu. Yd.	3.3
Protective Coat				Sq. Yd.	6

For Pile Details see sheet 17 of 21.
Reinforcement Bars designated (E) shall be Epoxy Coated.

EAST ABUTMENT S.N. 038-4558

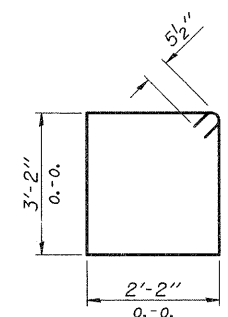
PILE DATA

(See Special Provisions)
Type: Metal Shell - 12" Dia. x 0.250 in. walls
No. Required: 6
Nominal Required Bearing: 220 k
Factored Resistance Available: 120 k
Est. Length: 40 Ft.

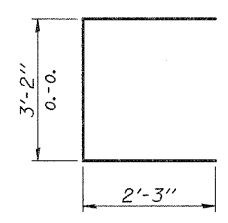


FIELD CUTTING DIAGRAM

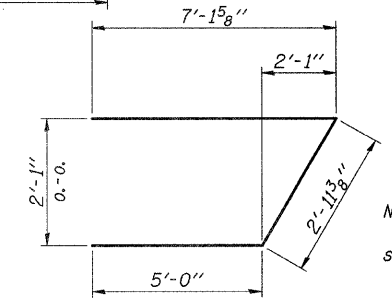
Order v1(E) full length. Cut as shown and use remainder of bars in opposite face.



BAR s2(E)



BAR s3(E)



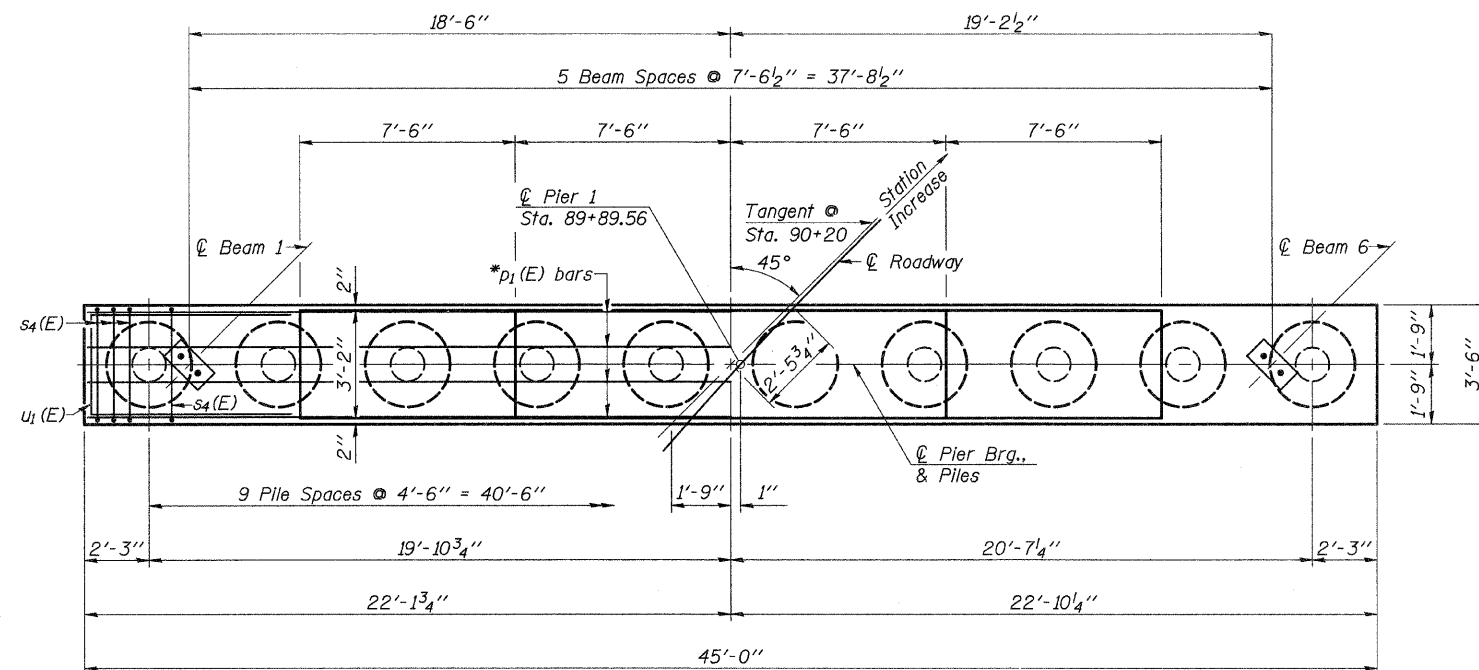
BAR u(E)

DESIGNED	A.L.S.
CHECKED	A.R.K.
DRAWN	S.A.P.
CHECKED	A.L.S. & A.R.K.

AI-R 11-1-06

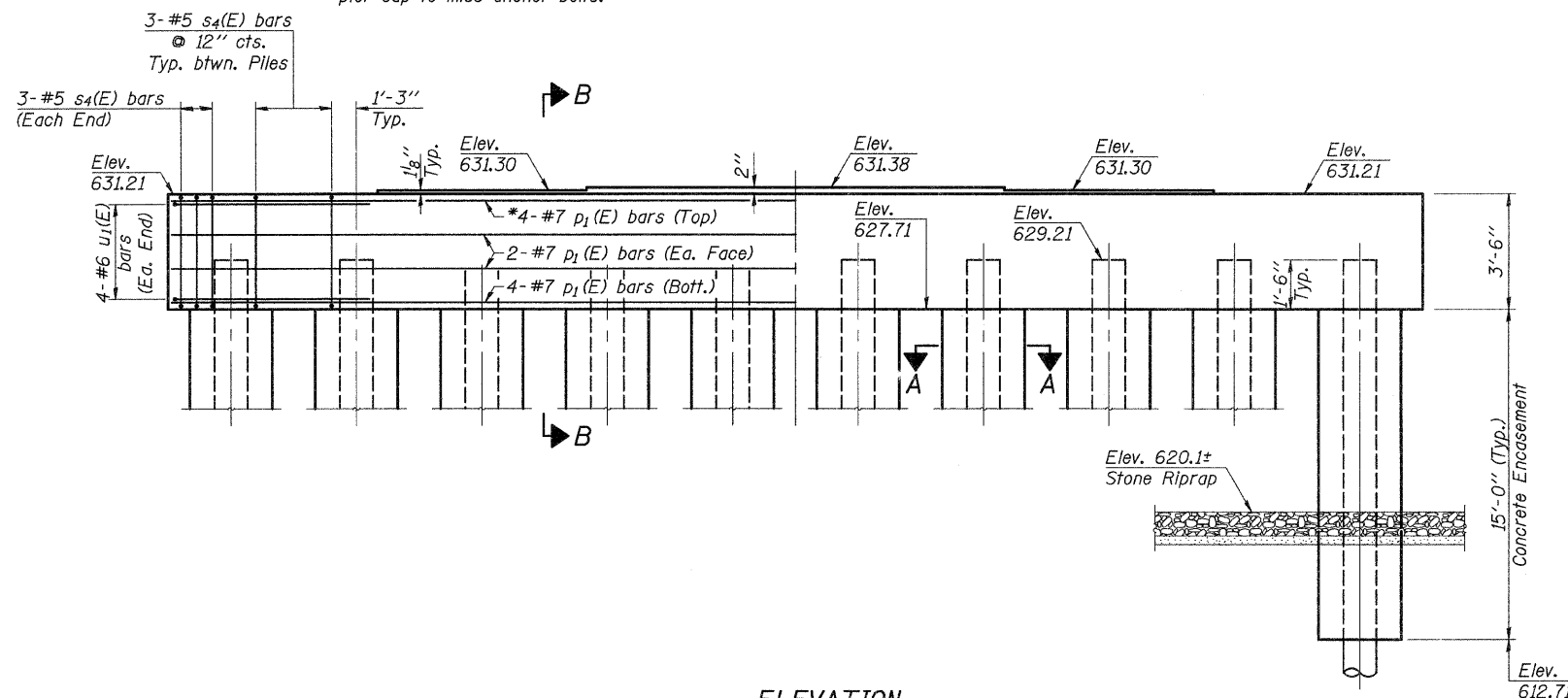
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TWP. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55B	07-16121-00-BR	IROQUOIS	33	18
MARTINTON ROAD DIST. ILLINOIS			CONTRACT NO. 87487	
			F.A. PROJ. BROS-075(145)	

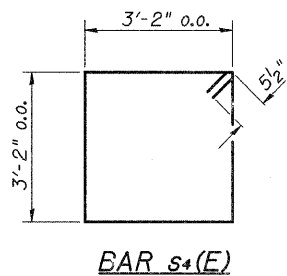
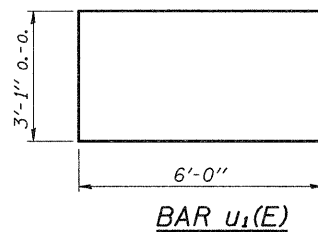


*Note: Space p₁(E) bars in top of pier cap to miss anchor bolts.

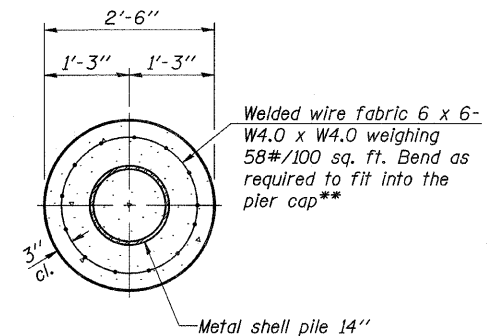
PLAN



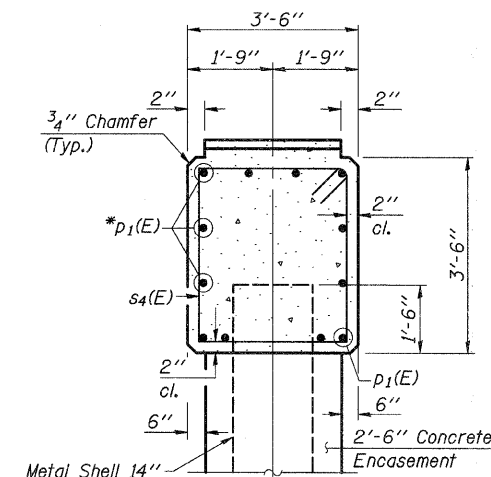
ELEVATION
(Looking East)



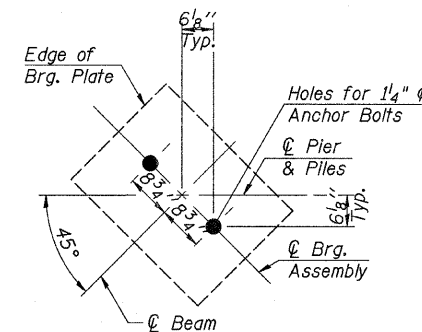
**The cost of Reinforcement is incidental to the cost of "Concrete Encasement". Extend Reinforcement 2'-0" into cap.



SECTION A-A
PILE ENCASEMENT DETAIL



SECTION B-B



ANCHOR BOLT
LAYOUT

BILL OF MATERIAL - PIER 1

BAR	NO.	SIZE	LENGTH	SHAPE
p ₁ (E)	12	#7	44'-8"	—
s ₄ (E)	33	#5	13'-7"	□
u ₁ (E)	8	#6	15'-1"	□
Concrete Structures			Cu. Yd.	20.9
Reinforcement Bars, Epoxy Coated			Pound	1,740
Furnishing Metal Shell Piles, 14" x 0.250"			Foot	510
Driving Piles			Foot	510
Concrete Encasement			Cu. Yd.	27.3

See Sheet 17 of 21 for Pile Details.
Reinforcement Bars designated (E) shall be epoxy coated.

PILE DATA

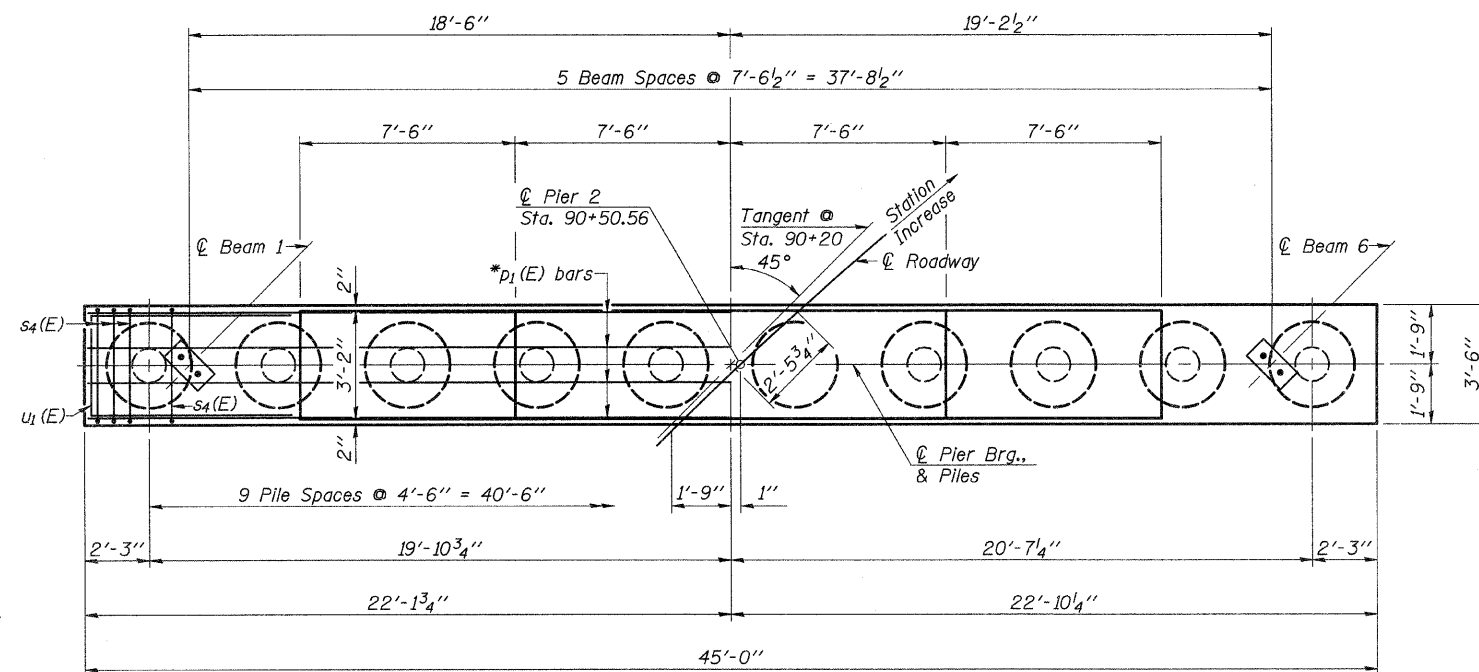
(See Special Provisions)

Type: Metal Shell - 14" Dia. x 0.250" walls
 No. Required: 10
 Nominal Required Bearing: 240 kips
 Factored Resistance Available: 130 kips
 Est. Length: 51 Foot/Pile

PIER 1
S.N. 038-4558

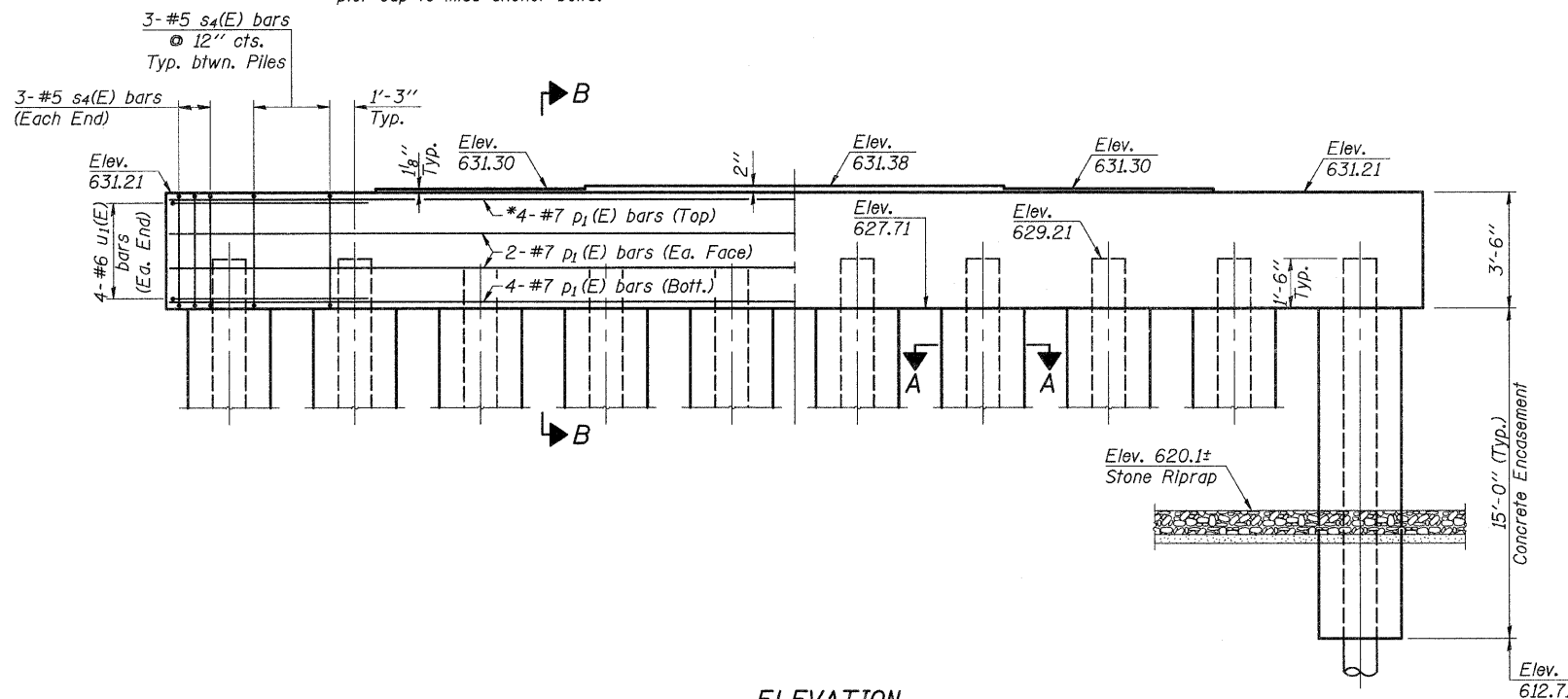
DESIGNED -	A.L.S.
CHECKED -	A.R.K.
DRAWN -	S.A.P.
CHECKED -	A.L.S. & A.R.K.

FEHR-GRAHAM & ASSOCIATES, LLC ENGINEERING AND SCIENCE CONSULTANTS FREEPORT, IL ROCKFORD, IL ROCHELLE, IL MONROE, WI SPRINGFIELD, IL	TWP. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	55B	07-16121-00-BR	IROQUOIS	33	19
4440 ASH GROVE SPRINGFIELD, IL 62711 (217)-793-8600 www.fehr-graham.com			MARTINTON ROAD DIST. ILLINOIS	CONTRACT NO. 87487	
			F.A. PROJ. BROS-075(145)		

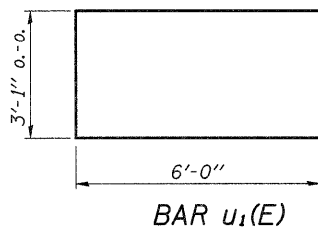


PLAN

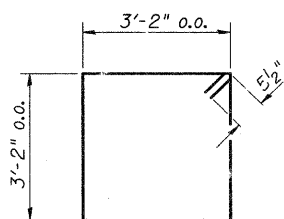
*Note: Space p₁(E) bars in top of pier cap to miss anchor bolts.



ELEVATION
(Looking East)

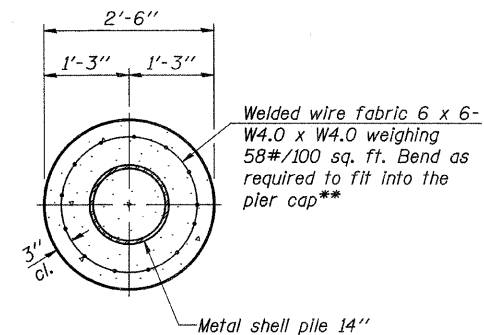


BAR u₁(E)

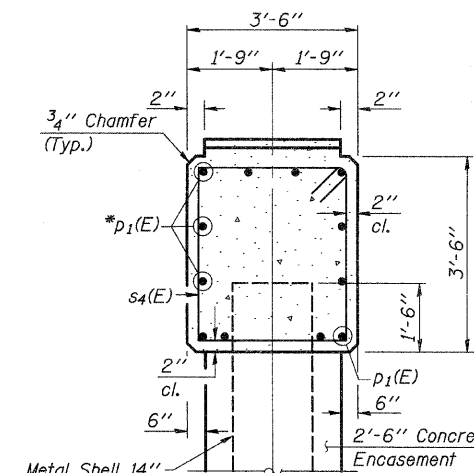


BAR s₄(E)

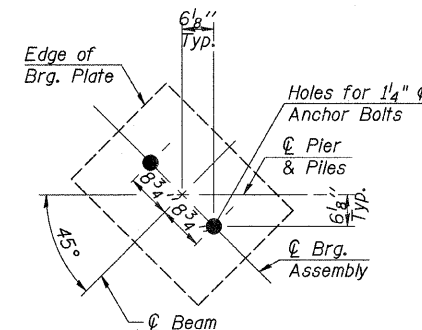
**The cost of Reinforcement is incidental to the cost of "Concrete Encasement". Extend Reinforcement 2'-0" into cap.



SECTION A-A
PILE ENCASEMENT DETAIL



SECTION B-B



ANCHOR BOLT
LAYOUT

BILL OF MATERIAL - PIER 2

BAR	NO.	SIZE	LENGTH	SHAPE
p ₁ (E)	12	#7	44'-8"	—
s ₄ (E)	33	#5	13'-7"	□
u ₁ (E)	8	#6	15'-1"	□
Concrete Structures			Cu. Yd.	20.9
Reinforcement Bars, Epoxy Coated			Pound	1,740
Furnishing Metal Shell Piles, 14" x 0.250"			Foot	459
Driving Piles			Foot	459
Test Pile, Metal Shells			Each	1
Concrete Encasement			Cu. Yd.	27.3

See Sheet 17 of 21 for Pile Details.

Reinforcement Bars designated (E) shall be epoxy coated.

PILE DATA

(See Special Provisions)

Type: Metal Shell - 14" Dia. x 0.250" walls
 No. Required: *10
 Nominal Required Bearing: 240 kips
 Factored Resistance Available: 130 kips
 Est. Length: 51 Foot/Pile

*Includes 1 Test Pile to be driven in a permanent location.

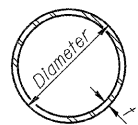
The test piles shall be driven to 110 percent of the Nominal Required Bearing indicated above.

PIER 2
S.N. 038-4558

DESIGNED -	A.L.S.
CHECKED -	A.R.K.
DRAWN -	S.A.P.
CHECKED -	A.L.S. & A.R.K.

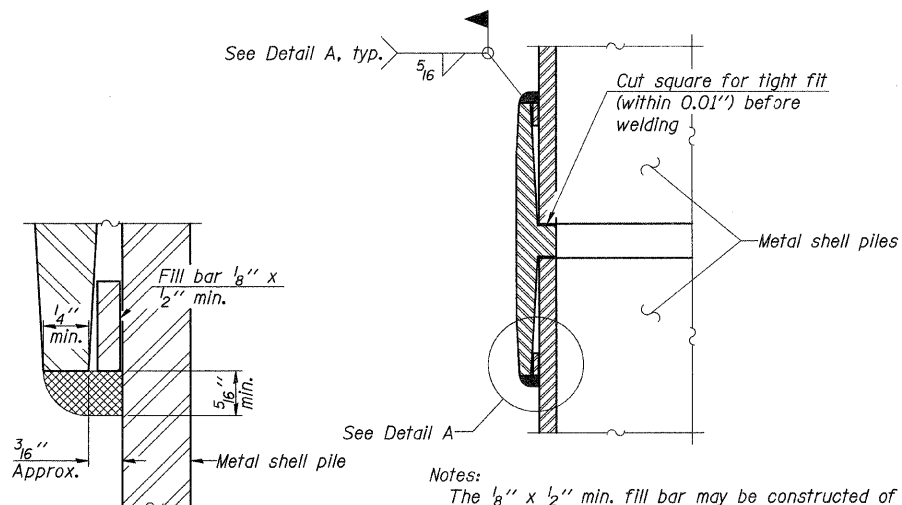
FEHR-GRAHAM & ASSOCIATES, LLC
 ENGINEERING AND SCIENCE CONSULTANTS
 FREEPORT, IL ROCKFORD, IL ROCHELLE, IL MONROE, WI SPRINGFIELD, IL

TWP. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55B	07-16121-00-BR	IROQUOIS	33	20
CONTRACT NO. 87487				
MARTINTON ROAD DIST. ILLINOIS		F.A. PROJ. BROS-075(145)		



METAL SHELL PILE TABLE

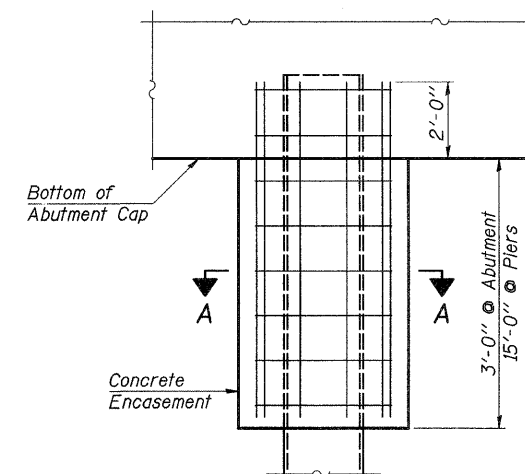
Designation and outside diameter	Wall thickness t	Weight per foot (Lbs./ft.)	Inside volume (yd. ³ /ft.)
PP12	0.179"	22.60	0.0274
PP12	0.250"	31.37	0.0267
PP14	0.250"	36.71	0.0368
PP14	0.312"	45.61	0.0361



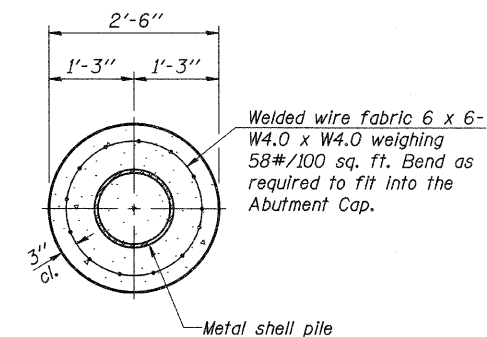
DETAIL A

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

WELDED COMMERCIAL SPLICE



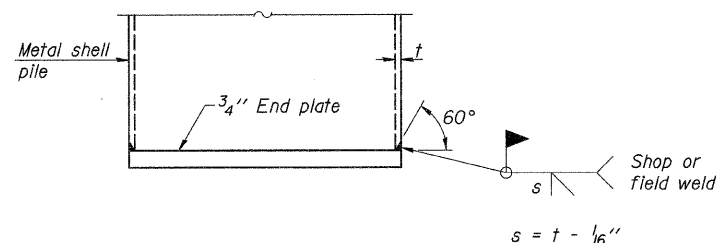
ELEVATION



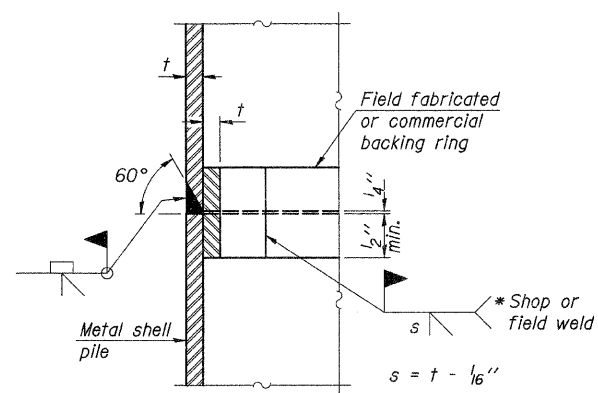
SECTION A-A

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

CONCRETE ENCASEMENT DETAILS



END PLATE ATTACHMENT



COMPLETE PENETRATION WELD SPLICE

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

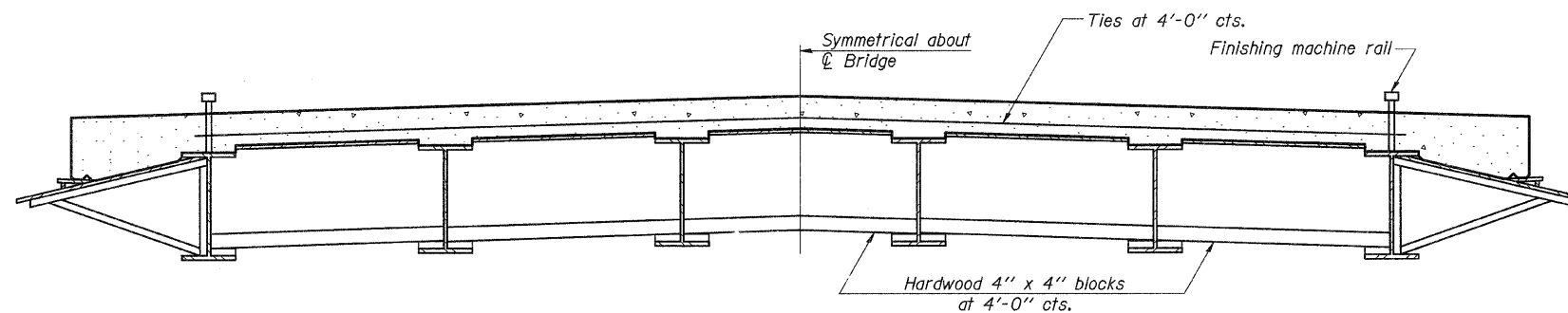
Note:
 The metal shell piles shall be according to ASTM A 252 Grade 3.

METAL SHELL PILE DETAILS
S.N. 038-4558

DESIGNED -	A.L.S.
CHECKED -	A.R.K.
DRAWN -	S.A.P.
CHECKED -	A.L.S. & A.R.K.

F-MS 02-05-09

FEHR-GRAHAM & ASSOCIATES, LLC ENGINEERING AND SCIENCE CONSULTANTS FREEPORT, IL ROCKFORD, IL ROCHELLE, IL MONROE, WI SPRINGFIELD, IL 4440 ASH GROVE SPRINGFIELD, IL 62711 (217)-793-8600 www.fehr-graham.com	TWP. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	55B	07-16121-00-BR	IROQUOIS	33	21
			CONTRACT NO. 87487		
MARTINTON ROAD DIST. ILLINOIS			F.A. PROJ. BROS-075(145)		



**FORM BRACES FOR
STANDARD CONSTRUCTION**


When cantilever forming brackets are used, the work shall be done according to Article 503.06(b) of the Standard Specifications, except as modified below and in the details shown on this sheet.
 The finishing machine rails shall be placed on the top flange of the exterior beams.
 The beams or girders, supporting cantilever forming brackets, shall be tied together at 4 foot intervals.
 For Standard construction, or Stage Construction the Hardwood bracing materials shall be placed as shown between webs of beams in each bay.

**CANTILEVER FORMING BRACKETS
FOR SUPERSTRUCTURES WITH
W27 BEAMS AND SMALLER
S.N. 038-4558**

DESIGNED -	A.L.S.
CHECKED -	A.R.K.
DRAWN -	S.A.P.
CHECKED -	A.L.S. & A.R.K.

SB-1

10-1-08

 FEHR-GRAHAM & ASSOCIATES, LLC ENGINEERING AND SCIENCE CONSULTANTS FREEPORT, IL ROCKFORD, IL ROCHELLE, IL MONROE, WI SPRINGFIELD, IL	TWP. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	55B	07-16121-00-BR	IROQUOIS	33	22
4440 ASH GROVE SPRINGFIELD, IL 62711 (217)-793-8600 www.fehr-graham.com			MARTINTON ROAD DIST. ILLINOIS	CONTRACT NO. 87487	
			F.A. PROJ. BROS-075(145)		

Midwest Testing Services, Inc.
3705 Progress Blvd.
Peru, IL 61354
Phone: 815-223-6696
Fax: 815-223-6659
e-mail: mts37@comcast.net

BORING LOG
Sheet 1 of 4

Client: Fehr-Graham & Associates LLC
Project Name: Martinton Rd District Section 07-16121-00-BR
Project Site: Iroquois County, IL

Boring No: B-1
Surface Elev: 632.20
Auger Depth: 81' Rotary Depth: NA
Start Date: 07/12/09 Finish Date: 07/13/09

Location: East Abutment
6 Lt. Station 90+80

DEPTH ELEV.	DESCRIPTION OF MATERIALS	Depth in feet	SAMPLES					DRILLED BY
			Sample No.	Sample Type	Q _v (TSF)	N Value (Blows)	Blade / Shear	
632.20		0						Randy Sifranski Diedrich D-120
631.20		1						
630.20	Medium Brownish Black Clay	2						
629.20		3	1	SS	0.8	5	B 24	
628.20		4						
627.20		5	2	SS	1.3	7	B 25	
626.20	Stiff Brownish Black Clay	6						
625.20		7	3	SS	1.5	6	B 26	
624.20		8						
623.20		9	4	SS	1.2	7	B 27	
622.20	Stiff Brown Clay	10						
621.20		11	5	SS	1.8	9	B 25	
620.20		12						
619.20		13	6	SS	1.7	12	B 26	
618.20	Stiff Gray Clay	14						
617.20		15	7	SS	1.5	10	B 26	
616.20		16	8	SS	1.5	9	B 27	
615.20		17						
614.20		18						
613.20		19						
612.20		20						

Groundwater Data: Water level at ground surface due to gas pressure from deep sand deposit.
Comments:

Midwest Testing Services, Inc.
3705 Progress Blvd.
Peru, IL 61354
Phone: 815-223-6696
Fax: 815-223-6659
e-mail: mts37@comcast.net

BORING LOG
Sheet 2 of 4

Client: Fehr-Graham & Associates LLC
Project Name: Martinton Rd District Section 07-16121-00-BR
Project Site: Iroquois County, IL

Boring No: B-1
Surface Elev: 632.20
Auger Depth: 81' Rotary Depth: NA
Start Date: 07/12/09 Finish Date: 07/13/09

Location: East Abutment
6 Lt. Station 90+80

DEPTH ELEV.	DESCRIPTION OF MATERIALS	Depth in feet	SAMPLES					DRILLED BY
			Sample No.	Sample Type	Q _v (TSF)	N Value (Blows)	Blade / Shear	
612.20		21						Randy Sifranski Diedrich D-120
611.20		22						
610.20		23	9	SS	1.4	8	B 26	
609.20		24						
608.20	Stiff Gray Clay	25	10	SS	1.9	10	B 25	
607.20		26						
606.20		27	11	SS	1.7	8	B 27	
605.20		28						
604.20		29	12	SS	1.6	8	B 27	
603.20		30						
602.20		31	13	SS	3.7	16	B 23	
601.20	Very Stiff Gray Varved Clay	32						
600.20		33						
599.20		34						
598.20		35						
597.20		36						
596.20		37						
595.20	Very Stiff Gray Clay	38						
594.20		39						
593.20		40	14	SS	3.9	18	B 24	
592.20		41						
591.20		42						

Groundwater Data: Water level at ground surface due to gas pressure from deep sand deposit.
Comments:

Midwest Testing Services, Inc.
3705 Progress Blvd.
Peru, IL 61354
Phone: 815-223-6696
Fax: 815-223-6659
e-mail: mts37@comcast.net

BORING LOG
Sheet 3 of 4

Client: Fehr-Graham & Associates LLC
Project Name: Martinton Rd District Section 07-16121-00-BR
Project Site: Iroquois County, IL

Boring No: B-1
Surface Elev: 632.20
Auger Depth: 81' Rotary Depth: NA
Start Date: 07/12/09 Finish Date: 07/13/09

Location: East Abutment
6 Lt. Station 90+80

DEPTH ELEV.	DESCRIPTION OF MATERIALS	Depth in feet	SAMPLES					DRILLED BY
			Sample No.	Sample Type	Q _v (TSF)	N Value (Blows)	Blade / Shear	
590.20		43						Randy Sifranski Diedrich D-120
589.20		44						
588.20		45	15	SS	1.0	6	B 35	
587.20		46						
586.20		47						
585.20		48						
584.20		49						
583.20	Stiff Gray Clay	50						
582.20		51	16	SS	1.2	6	B 34	
581.20		52						
580.20		53						
579.20		54						
578.20		55						
577.20		56	17	SS	1.6	10	B 31	
576.20		57						
575.20		58						
574.20		59						
573.20		60						
572.20	Stiff Gray Silty Clay Loam	61						
571.20		62	18	SS	1.6	12	B 30	
570.20		63						

Groundwater Data: Water level at ground surface due to gas pressure from deep sand deposit.
Comments:

Midwest Testing Services, Inc.
3705 Progress Blvd.
Peru, IL 61354
Phone: 815-223-6696
Fax: 815-223-6659
e-mail: mts37@comcast.net

BORING LOG
Sheet 4 of 4

Client: Fehr-Graham & Associates LLC
Project Name: Martinton Rd District Section 07-16121-00-BR
Project Site: Iroquois County, IL

Boring No: B-1
Surface Elev: 632.20
Auger Depth: 81' Rotary Depth: NA
Start Date: 07/12/09 Finish Date: 07/13/09

Location: East Abutment
6 Lt. Station 90+80


DEPTH ELEV.	DESCRIPTION OF MATERIALS	Depth in feet	SAMPLES					DRILLED BY
			Sample No.	Sample Type	Q _v (TSF)	N Value (Blows)	Blade / Shear	
569.20		64						Randy Sifranski Diedrich D-120
568.20		65						
567.20	Very Stiff Gray Silty Clay Loam Till	66	19	SS	3.7	29	S 13	
566.20		67						
565.20		68						
564.20		69						
563.20		70						
562.20		71	20	SS	---	67	---	
561.20		72						
560.20	Very Dense Gray Fine To Coarse Sand (Encountered High Pressure Gas After 71' Depth; Had To Abandon Boring After Penetrating To 81' Depth)	73						
559.20		74						
558.20		75						
557.20		76						
556.20		77						
555.20		78						
554.20		79						
553.20		80						
552.20		81						
551.20		82						
550.20		83						
549.20		84						

Groundwater Data: Water level at ground surface due to gas pressure from deep sand deposit.
Comments:

Note: Boring No. 1 encountered high pressure gas at a depth 71 feet below the existing ground surface. See Special Provisions for Driving Piles.

DESIGNED -	A.L.S.
CHECKED -	A.R.K.
DRAWN -	S.A.P.
CHECKED -	A.L.S. & A.R.K.

SOIL BORING LOG #1
S.N. 038-4558

	FEHR-GRAHAM & ASSOCIATES, LLC ENGINEERING AND SCIENCE CONSULTANTS FREEPORT, IL ROCKFORD, IL ROCHELLE, IL MONROE, WI SPRINGFIELD, IL			TWP. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	4440 ASH GROVE SPRINGFIELD, IL 62711 (217)-793-8600 www.fehr-graham.com	55B	07-16121-00-BR	IROQUOIS	33	23		
MARTINTON ROAD DIST. ILLINOIS						CONTRACT NO. 87487		
						F.A. PROJ. BROS-075(145)		

Midwest Testing Services, Inc.
3705 Progress Blvd.
Peru, IL 61354
Phone: 815-223-6696
Fax: 815-223-6659
e-mail: mts37@comcast.net

BORING LOG
Sheet 1 of 4
Boring No. B-2
Surface Elev. 632.00
Auger Depth 66' Rotary Depth NA
Start Date 07/12/09 Finish Date 07/13/09

Client: Fehr-Graham & Associates LLC
Project Name: Martinton Rd District Section 07-16121-00-BR
Project Site: Iroquois County, IL

Location: 8' Rt. Station 90+00

DEPTH ELEV.	DESCRIPTION OF MATERIALS	Sample No.	Sample Type	Q _v (TSF)	N Value (Blows)	Blade / Shear	Moisture (%)	Dry Density (PCF)	DRILLED BY	
									Randy Sufanski	Diedrich D-120
632.00										
631.00	Stiff Brownish Black Clay	1	SS	1.5	7	S	19			
629.00		2	SS	1.7	8	B	21			
628.00		3	SS	1.6	8	B	19			
627.00	Stiff Brown Clay	4	SS	1.8	9	B	20			
626.00		5	SS	1.5	8	B	22			
625.00	Very Stiff To Stiff Gray Clay	6	SS	2.0	10	B	26			
624.00		7	SS	1.7	9	B	25			
623.00		8	SS	1.3	7	B	28			

Groundwater Data: No groundwater encountered at time of subsurface investigation.
Comments:

Midwest Testing Services, Inc.
3705 Progress Blvd.
Peru, IL 61354
Phone: 815-223-6696
Fax: 815-223-6659
e-mail: mts37@comcast.net

BORING LOG
Sheet 2 of 4
Boring No. B-2
Surface Elev. 632.00
Auger Depth 66' Rotary Depth NA
Start Date 07/12/09 Finish Date 07/13/09

Client: Fehr-Graham & Associates LLC
Project Name: Martinton Rd District Section 07-16121-00-BR
Project Site: Iroquois County, IL

Location: 8' Rt. Station 90+00

DEPTH ELEV.	DESCRIPTION OF MATERIALS	Sample No.	Sample Type	Q _v (TSF)	N Value (Blows)	Blade / Shear	Moisture (%)	Dry Density (PCF)	DRILLED BY	
									Randy Sufanski	Diedrich D-120
611.00										
610.00	Stiff Gray Clay	9	SS	1.5	7	B	27			
609.00		10	SS	1.7	8	B	26			
608.00		11	SS	1.6	8	B	27			
607.00	Very Stiff Gray Varved Clay	12	SS	1.9	9	B	26			
606.00		13	SS	3.5	14	B	23			
605.00	Very Stiff Gray Clay	14	SS	3.3	15	B	25			
604.00										
603.00										

Groundwater Data: No groundwater encountered at time of subsurface investigation.
Comments:

Midwest Testing Services, Inc.
3705 Progress Blvd.
Peru, IL 61354
Phone: 815-223-6696
Fax: 815-223-6659
e-mail: mts37@comcast.net

BORING LOG
Sheet 3 of 4
Boring No. B-2
Surface Elev. 632.00
Auger Depth 66' Rotary Depth NA
Start Date 07/12/09 Finish Date 07/13/09

Client: Fehr-Graham & Associates LLC
Project Name: Martinton Rd District Section 07-16121-00-BR
Project Site: Iroquois County, IL

Location: 8' Rt. Station 90+00

DEPTH ELEV.	DESCRIPTION OF MATERIALS	Sample No.	Sample Type	Q _v (TSF)	N Value (Blows)	Blade / Shear	Moisture (%)	Dry Density (PCF)	DRILLED BY	
									Randy Sufanski	Diedrich D-120
589.00	Stiff Gray Clay	15	SS	1.2	6	B	34			
588.00		16	SS	1.5	8	B	32			
587.00		17	SS	1.5	9	B	32			
586.00	Very Stiff Gray Silty Clay Loam Till	18	SS	2.2	13	B	30			
585.00										

Groundwater Data: No groundwater encountered at time of subsurface investigation.
Comments:

Midwest Testing Services, Inc.
3705 Progress Blvd.
Peru, IL 61354
Phone: 815-223-6696
Fax: 815-223-6659
e-mail: mts37@comcast.net

BORING LOG
Sheet 4 of 4
Boring No. B-2
Surface Elev. 632.00
Auger Depth 66' Rotary Depth NA
Start Date 07/12/09 Finish Date 07/13/09

Client: Fehr-Graham & Associates LLC
Project Name: Martinton Rd District Section 07-16121-00-BR
Project Site: Iroquois County, IL


Location: 8' Rt. Station 90+00

DEPTH ELEV.	DESCRIPTION OF MATERIALS	Sample No.	Sample Type	Q _v (TSF)	N Value (Blows)	Blade / Shear	Moisture (%)	Dry Density (PCF)	DRILLED BY	
									Randy Sufanski	Diedrich D-120
569.00										
568.00	Bottom of Boring	19	SS	3.4	21	B	12			
567.00										

Groundwater Data: No groundwater encountered at time of subsurface investigation.
Comments:

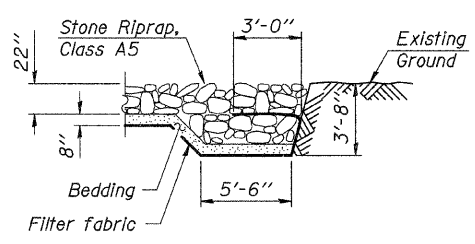
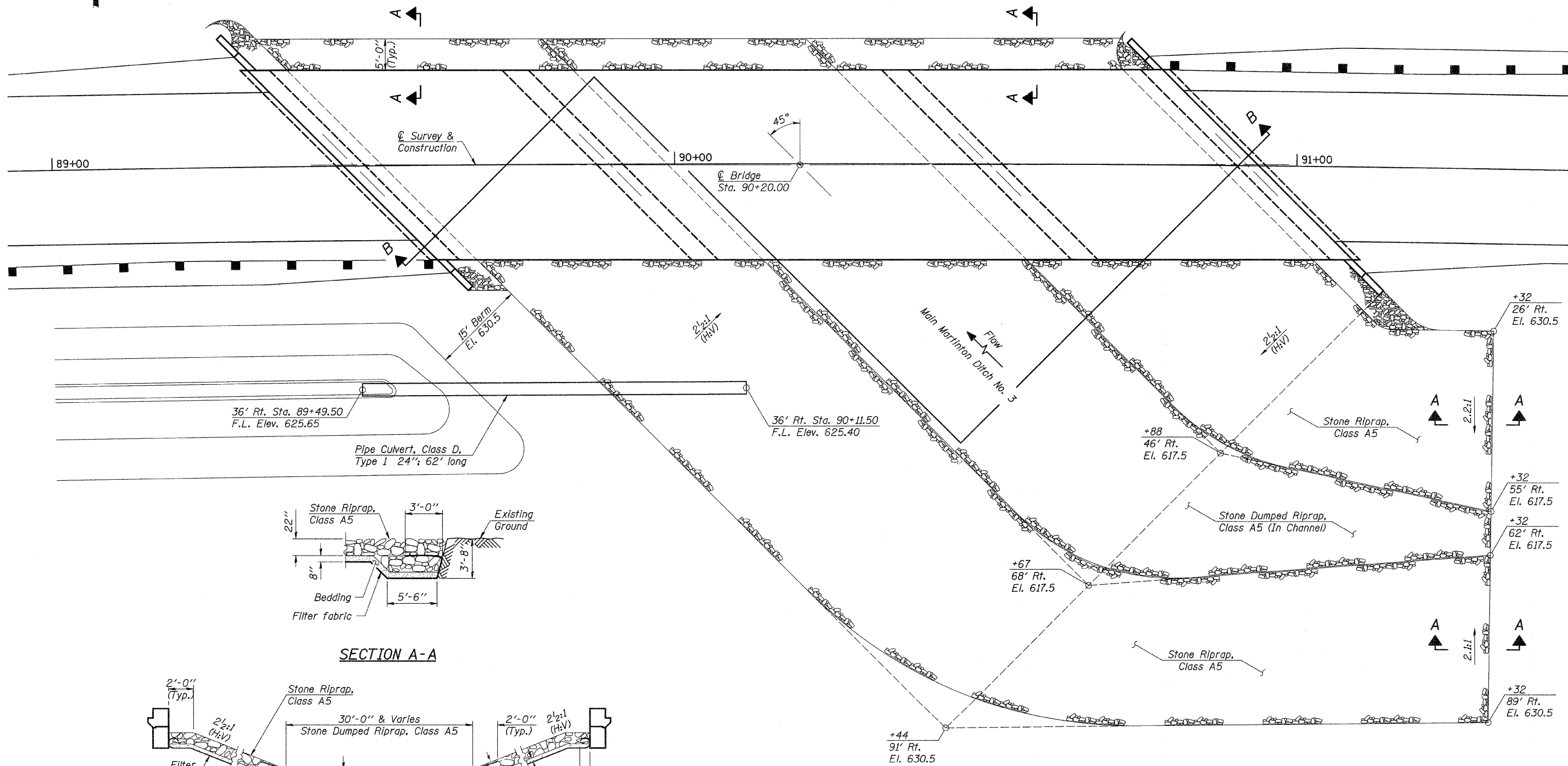
DESIGNED	A.L.S.
CHECKED	A.R.K.
DRAWN	S.A.P.
CHECKED	A.L.S. & A.R.K.

SOIL BORING LOG #2
S.N. 038-4558

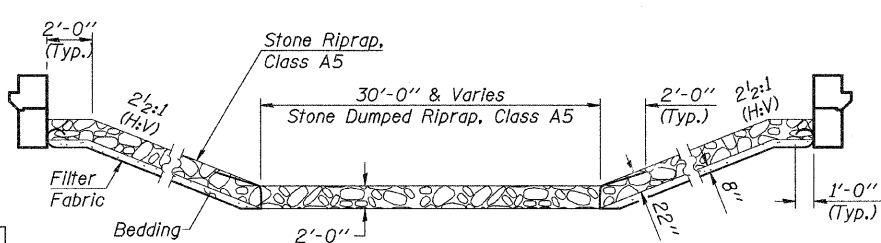
 FEHR-GRAHAM & ASSOCIATES, LLC ENGINEERING AND SCIENCE CONSULTANTS FREEPORT, IL ROCKFORD, IL ROCHELLE, IL MONROE, WI SPRINGFIELD, IL 4440 ASH GROVE SPRINGFIELD, IL 62711 (217)-793-8600 www.fehr-graham.com	TWP. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	55B	07-16121-00-BR	IROQUOIS	33	24
MARTINTON ROAD DIST., ILLINOIS			CONTRACT NO. 87487		
			F.A. PROJ. BROS-075(145)		

BILL OF MATERIAL

Item	Unit	Total
Stone Riprap, Class A5	Ton	1,335
Stone Dumped Riprap, Class A5	Ton	493
Filter Fabric	Sq. Yd.	1,307



SECTION A-A



SECTION B-B

Note: Excavation and aggregate bedding will not be paid for as separate items and shall be considered as included in Stone Riprap, Class A5.

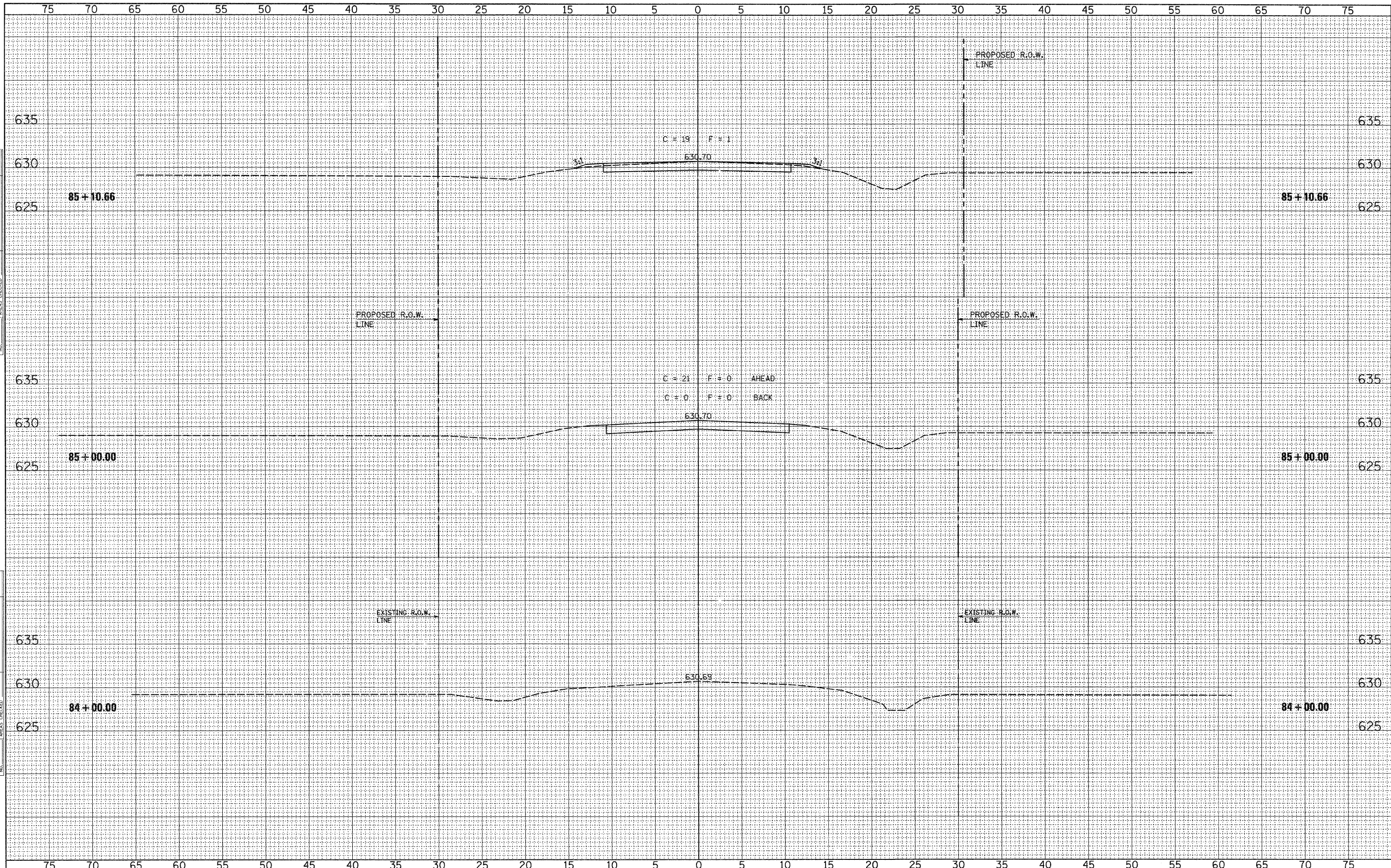
PLAN

RIPRAP DETAILS
S.N. 038-4558

DESIGNED -	A.R.K.
CHECKED -	A.L.S.
DRAWN -	S.A.P.
CHECKED -	A.L.S. & A.R.K.

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TWP. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55B	07-16121-00-BR	IROQUOIS	33	25
MARTINTON ROAD DIST. ILLINOIS			CONTRACT NO. 87487	
			F.A. PROJ. BROS-075(145)	



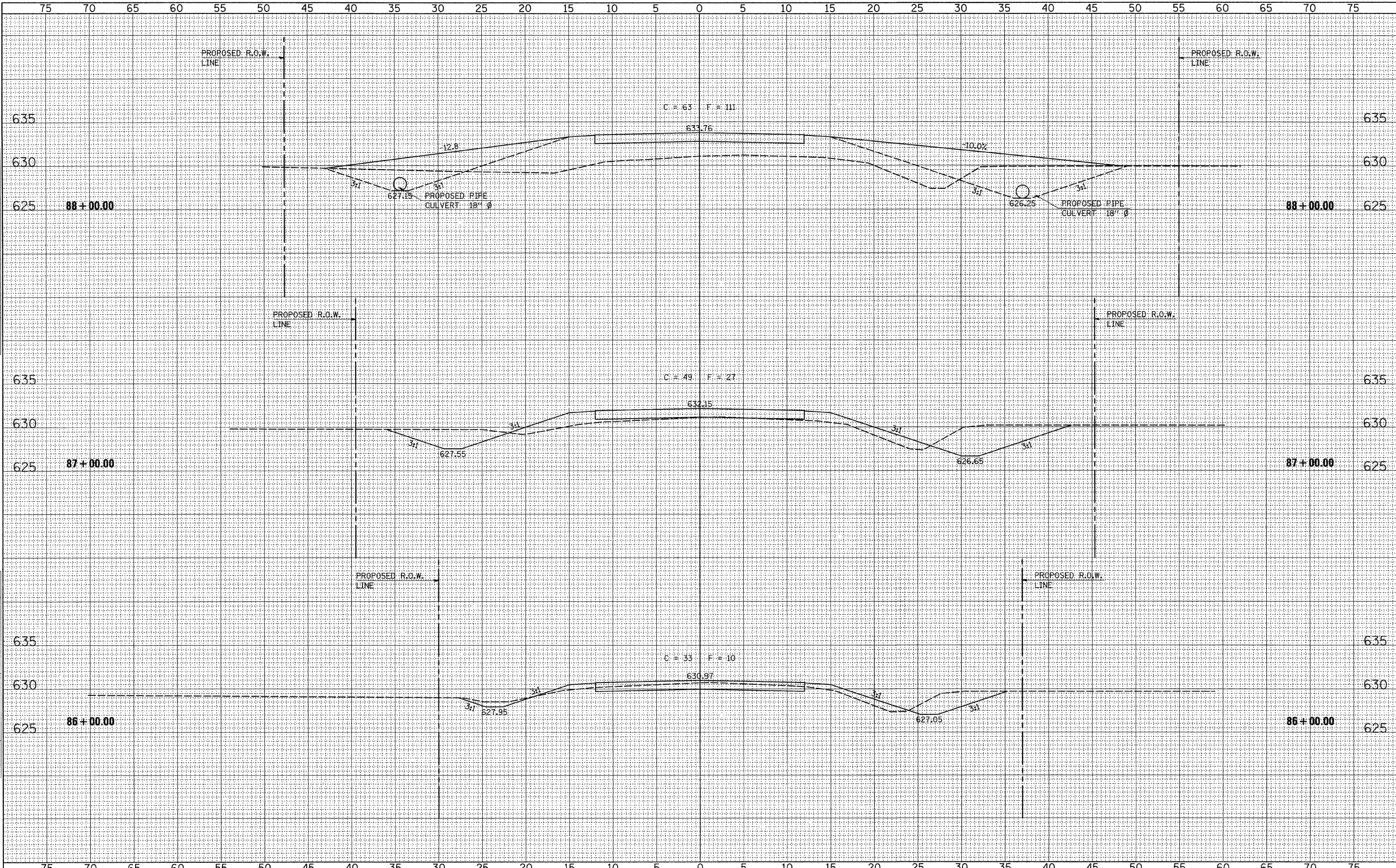
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FINAL SURVEY	SUBMITTED
NOTE BOOK	PLOTTED
NO.	TEMPLATE
	AREAS CHECKED

DATE	BY
ORIGINAL SURVEY	SUBMITTED
NOTE BOOK	PLOTTED
NO.	TEMPLATE
	AREAS CHECKED

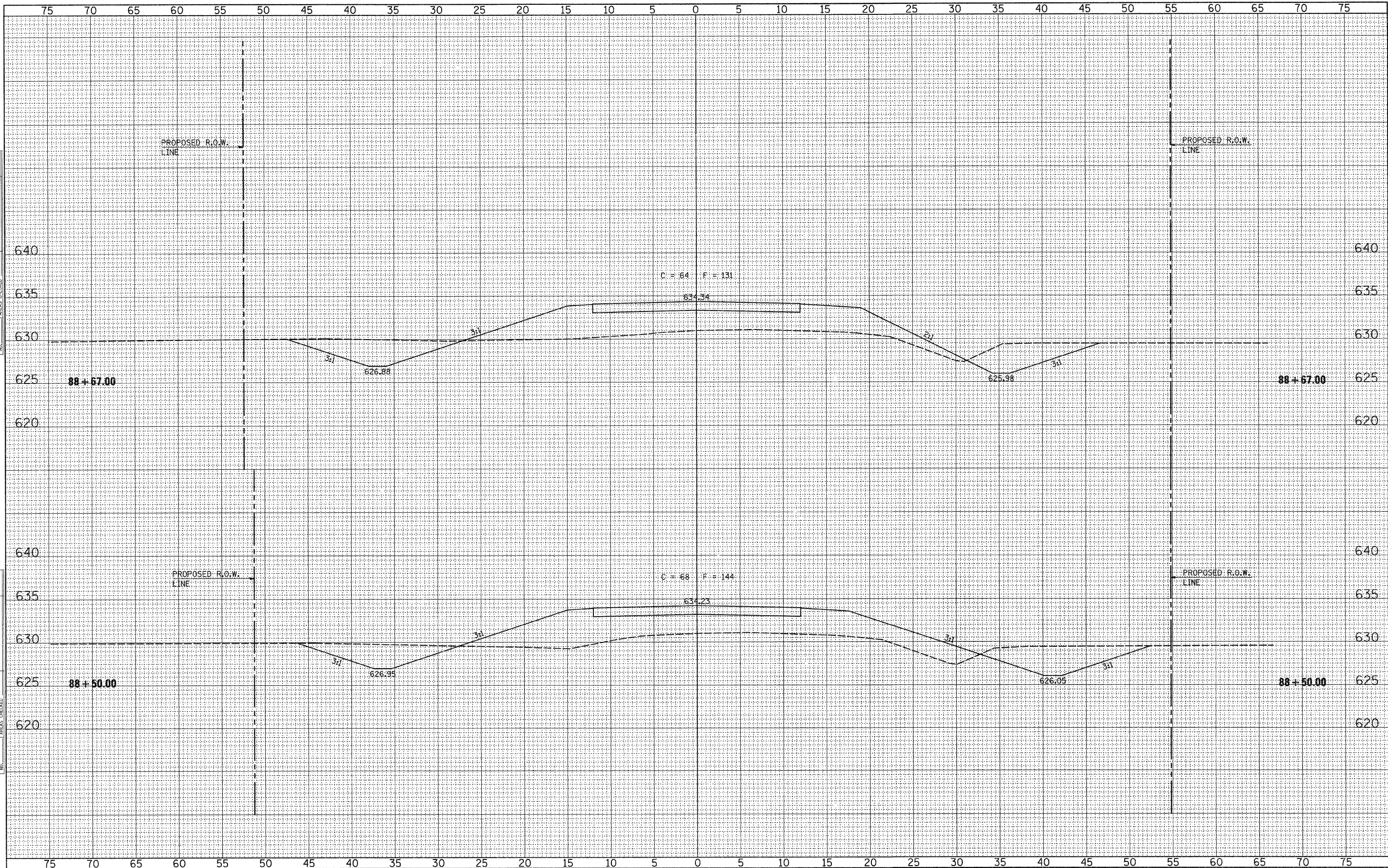
FILE NAME = 09-203.XS-SHEETS	DESIGNED - G.J.C.	REVISED -	4440 ASH GROVE SPRINGFIELD, IL. 62711 (217) 793-8600 www.fehr-graham.com	FEHR-GRAHAM & ASSOCIATES, LLC ENGINEERING AND SCIENCE CONSULTANTS FREEPORT, IL. ROCKFORD, IL. ROCHELLE, IL. MONROE, WI. SPRINGFIELD, IL.	ROADWAY CROSS SECTIONS - T.R. 55B SHEET NO. 1 OF 8 SHEETS STA. 84+00.00 TO STA. 85+10.66		TWP. R1E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
USER NAME = S.A.P.	DRAWN - S.A.P.	REVISED -					55B	07-16121-00-BR	IROQUOIS	33	26
PLOT SCALE = 5	CHECKED - A.L.S.	REVISED -					CONTRACT NO. 87487				
PLOT DATE = 05/07/09	DATE - 09/19/11	REVISED -					MARTINTON ROAD DIST. [ILLINOIS] FED. AID PROJECT				

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ORIGINAL SURVEY	
NOTE BOOK	
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FILE NAME = 09-203.XS-SHEETS	DESIGNED - G.J.C.	REVISED -	4440 ASH GROVE SPRINGFIELD, IL. 62711 (217) 793-8600 www.fehr-graham.com	FEHR-GRAHAM & ASSOCIATES, LLC ENGINEERING AND SCIENCE CONSULTANTS FREEPORT, IL. ROCKFORD, IL. ROCHELLE, IL. MONROE, WI. SPRINGFIELD, IL.	ROADWAY CROSS SECTIONS - T.R. 55B		TWP. 55B	SECTION 07-16121-00-BR	COUNTY IROQUOIS	TOTAL SHEETS 33	SHEET NO. 27		
USER NAME = S.A.P.	DRAWN - S.A.P.	REVISED -			SHEET NO. 2 OF 8 SHEETS		STA. 86+00.00	TO STA. 88+00.00	MARTINOT ROAD DIST. [ILLINOIS] FED. AID PROJECT				
PLOT SCALE = 5	CHECKED - A.L.S.	REVISED -											
PLOT DATE = 05/07/09	DATE - 09/19/11	REVISED -											



DATE	
BY	
FINAL SURVEY	
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PLOTTED	
TEMPLATE	
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CHECKED	
NO.	

DATE	
BY	
ORIGINAL SURVEY	
NOTED	
PLOTTED	
TEMPLATE	
AREAS	
CHECKED	
NO.	

FILE NAME = 09-203.XS-SHEETS
 USER NAME = S.A.P.
 PLOT SCALE = 5
 PLOT DATE = 05/07/09

DESIGNED - G.J.C.
 DRAWN - S.A.P.
 CHECKED - A.L.S.
 DATE - 09/19/11

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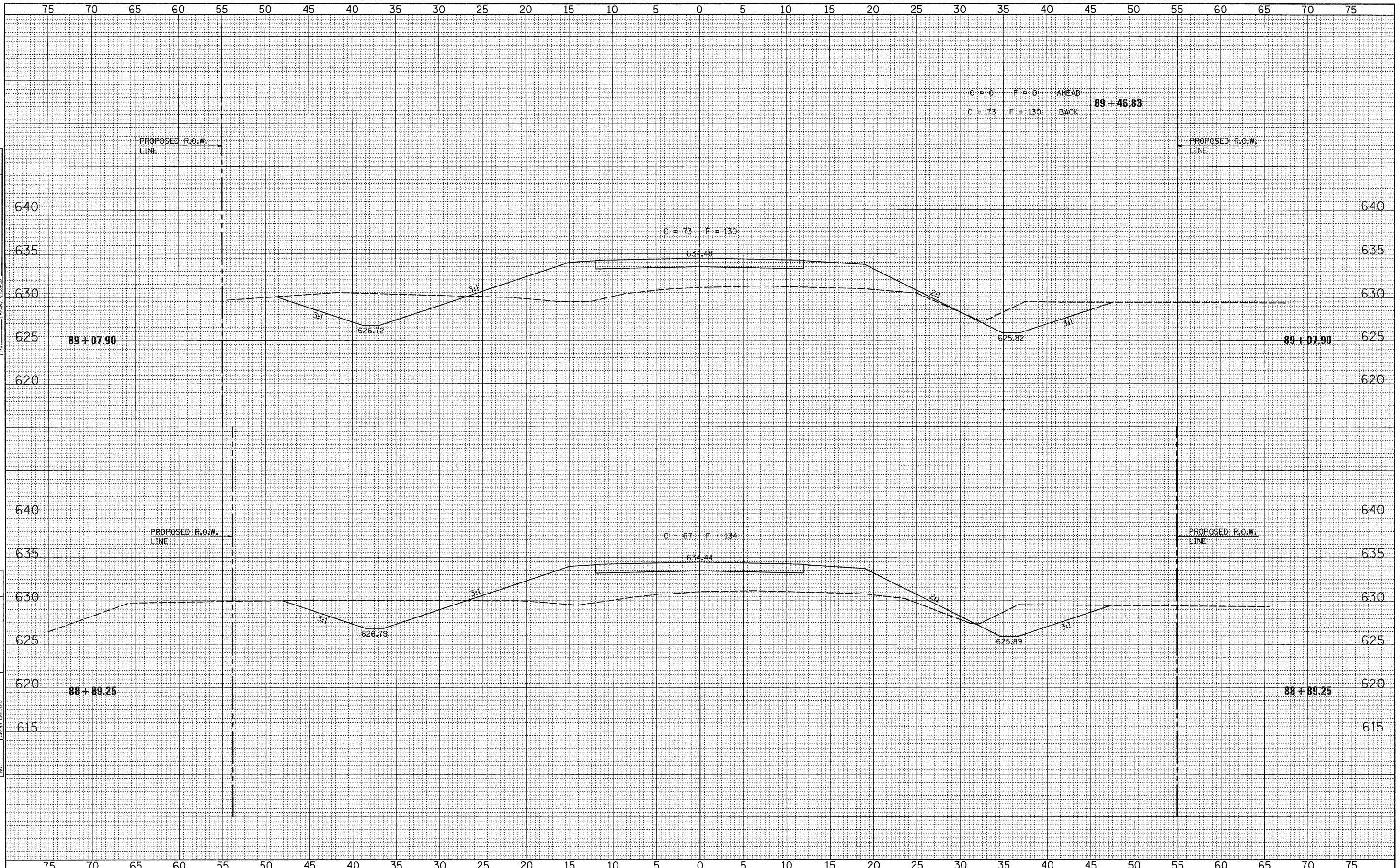
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ROADWAY CROSS SECTIONS - T.R. 55B

SHEET NO. 3 OF 8 SHEETS
 STA. 88+50.00 TO STA. 88+67.00

TWP. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55B	07-16121-00-BR	IROQUOIS	33	28
CONTRACT NO. 87487				
MARTINTON ROAD DIST. [ILLINOIS] FED. AID PROJECT				

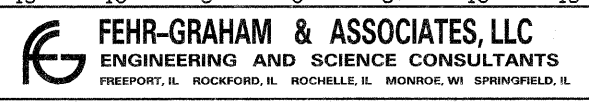


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AREAS CHECKED	
AREAS CHECKED	
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DATE	
BY	
ORIGINAL SURVEY	
NOTED	
PLOTTED	
TEMPLATE	
AREAS CHECKED	
AREAS CHECKED	
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FILE NAME = 09-283_KS-SHEETS	DESIGNED - G.J.C.	REVISED -
USER NAME = S.A.P.	DRAWN - S.A.P.	REVISED -
PLOT SCALE = 5	CHECKED - A.L.S.	REVISED -
PLOT DATE = 05/07/09	DATE - 09/19/11	REVISED -

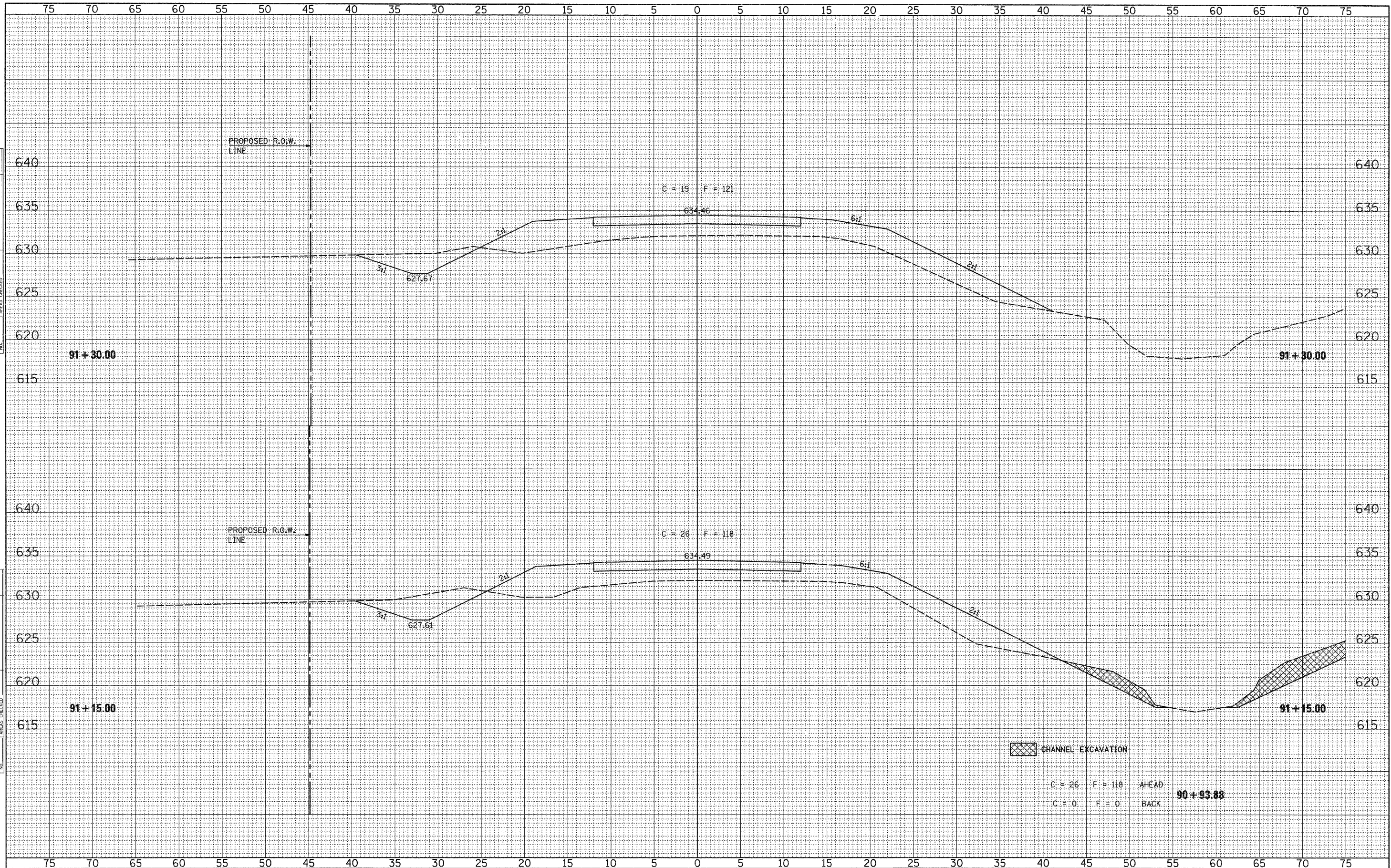
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ROADWAY CROSS SECTIONS - T.R. 55B

SHEET NO. 4 OF 8 SHEETS STA. 88+89.25 TO STA. 89+07.90

TWP. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55B	07-16121-00-BR	IROQUOIS	33	29
MARTINTON ROAD DIST. ILLINOIS FED. AID PROJECT			CONTRACT NO. 87487	



DATE	
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FINAL SURVEY NOTE BOOK NO.	

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DELETED	
ORIGINAL SURVEY NOTE BOOK NO.	

FILE NAME = 09-203_XS-SHEETS
USER NAME = S.A.P.
PLOT SCALE = 5
PLOT DATE = 05/07/09

DESIGNED - G.J.C.	REVISED -
DRAWN - S.A.P.	REVISED -
CHECKED - A.L.S.	REVISED -
DATE - 09/19/11	REVISED -

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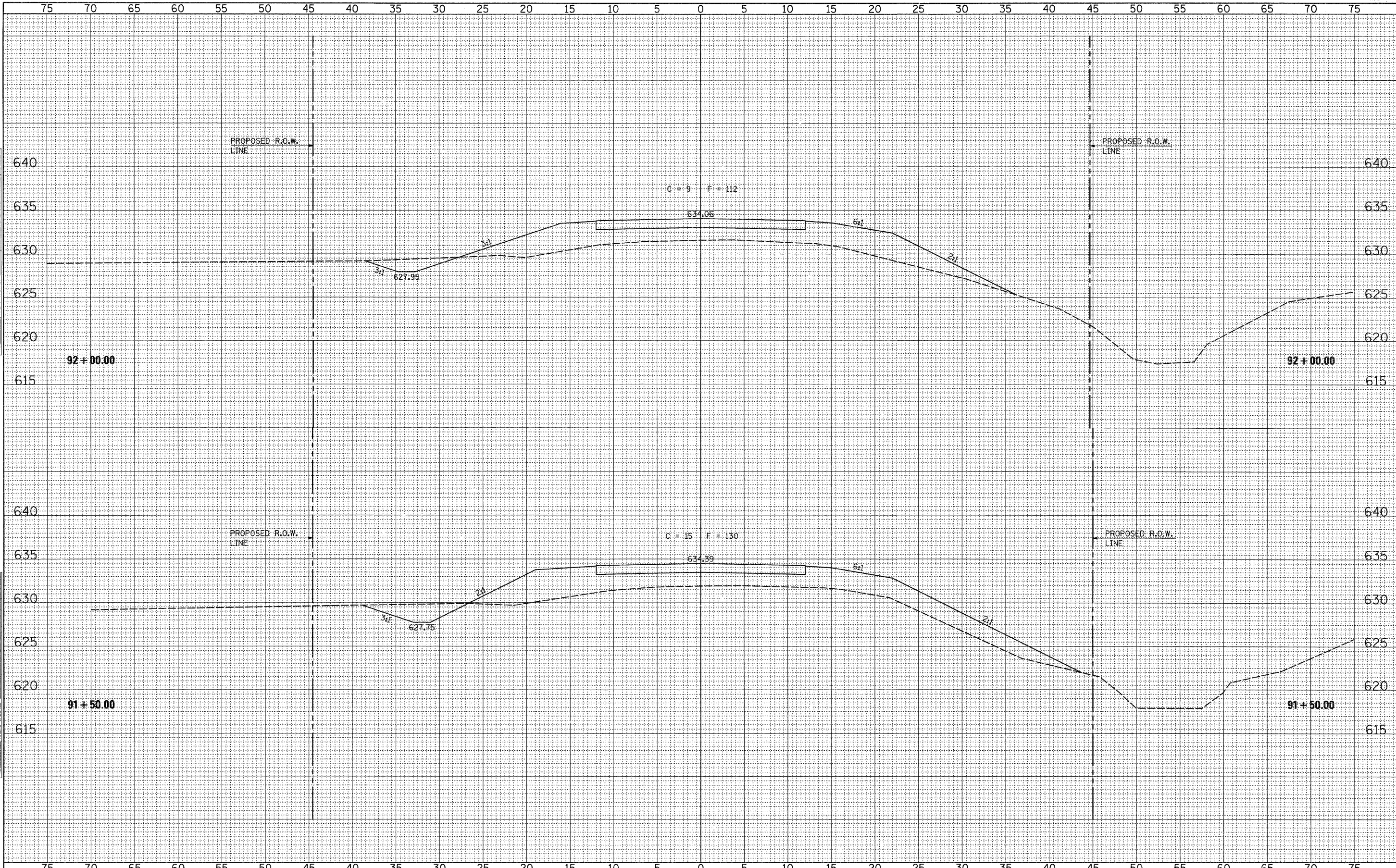
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 FREEPORT, IL. ROCKFORD, IL. ROCHELLE, IL. MONROE, WI. SPRINGFIELD, IL.

ROADWAY CROSS SECTIONS - T.R. 55B
 SHEET NO. 5 OF 8 SHEETS STA. 91+15.00 TO STA. 91+30.00

TWP. RTE. 55B	SECTION 07-16121-00-BR	COUNTY TROQUOIS	TOTAL SHEETS 33	SHEET NO. 30
MARTINTON ROAD DIST. ILLINOIS FED. AID PROJECT			CONTRACT NO. 87487	

DATE	
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FINAL SURVEY	
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DRAWN	
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ORIGINAL SURVEY	
NOTE BOOK	
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DESIGNED	
DRAWN	
DATE	



FILE NAME = 09-203.XS-SHEETS	DESIGNED - G.J.C.	REVISED -
USER NAME = S.A.P.	DRAWN - S.A.P.	REVISED -
PLOT SCALE = 5	CHECKED - A.L.S.	REVISED -
PLOT DATE = 05/07/09	DATE - 09/19/11	REVISED -

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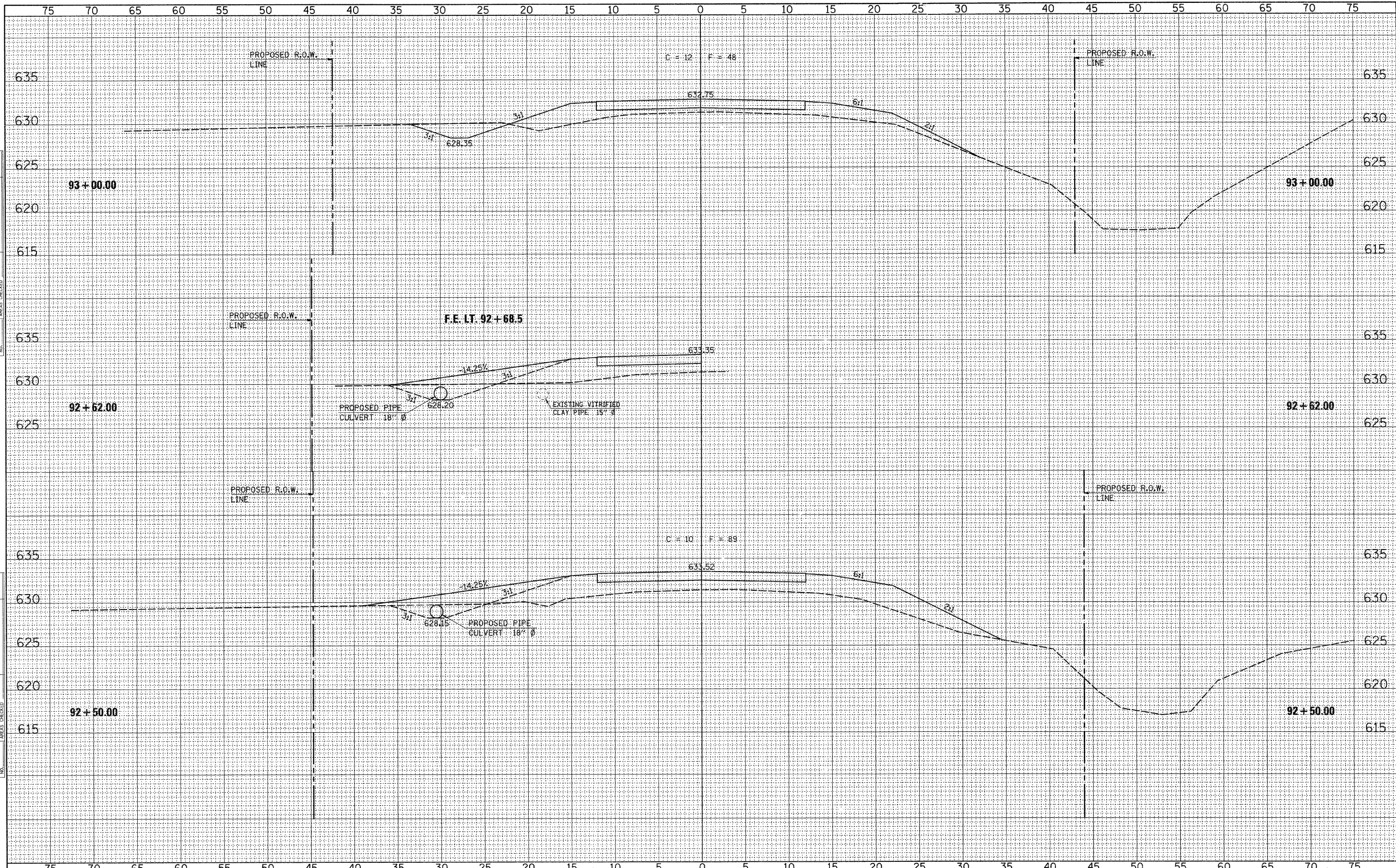
ROADWAY CROSS SECTIONS - T.R. 55B

SHEET NO. 6 OF 8 SHEETS STA. 91+50.00 TO STA. 92+00.00

TWP. RTE. 55B	SECTION 07-16121-00-BR	COUNTY IROQUOIS	TOTAL SHEETS 33	SHEET NO. 31
MARTINTON ROAD DIST. ILLINOIS FED. AID PROJECT			CONTRACT NO. 87487	

DATE	
BY	
FINAL SURVEY	
NOTE BOOK	
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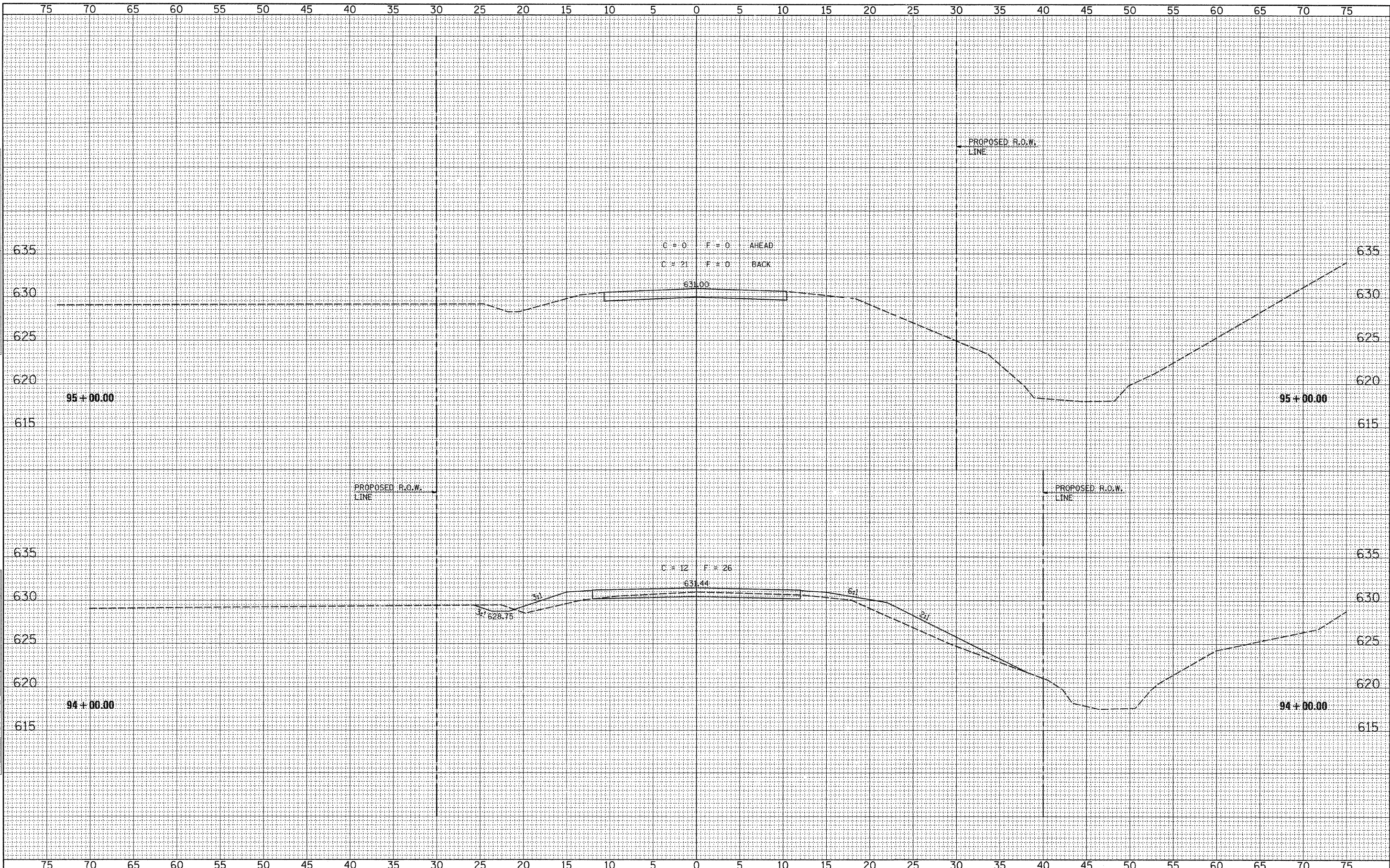
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BY	
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NOTE BOOK	
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TEMPLATE	
AREAS CHECKED	



FILE NAME = 09-203.XS-SHEETS	DESIGNED - G.J.C.	REVISED -	4440 ASH GROVE SPRINGFIELD, IL. 62711 (217) 793-8600 www.fehr-graham.com	FEHR-GRAHAM & ASSOCIATES, LLC ENGINEERING AND SCIENCE CONSULTANTS FREEPORT, IL. ROCKFORD, IL. ROCHELLE, IL. MONROE, WI. SPRINGFIELD, IL.	ROADWAY CROSS SECTIONS - T.R. 55B		TWP. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
USER NAME = S.A.P.	DRAWN - S.A.P.	REVISED -			55B	07-16121-00-BR	IROQUOIS	33	32		
PLOT SCALE = 5	CHECKED - A.L.S.	REVISED -			CONTRACT NO. 87487						
PLOT DATE = 05/07/09	DATE - 09/19/11	REVISED -			MARTINTON ROAD DIST. [ILLINOIS] FED. AID PROJECT						
SHEET NO. 7 OF 8 SHEETS				STA. 92+50.00 TO STA. 93+00.00							

DATE	BY
FINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
NO.	TEMPLATE
	AREAS CHECKED
	AREAS CHECKED

DATE	BY
ORIGINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
NO.	TEMPLATE
	AREAS CHECKED
	AREAS CHECKED



FILE NAME = 09-283.XS-SHEETS
 USER NAME = S.A.P.
 PLOT SCALE = 5
 PLOT DATE = 05/07/09

DESIGNED -	G.J.C.	REVISED -	
DRAWN -	S.A.P.	REVISED -	
CHECKED -	A.L.S.	REVISED -	
DATE -	09/19/11	REVISED -	

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ROADWAY CROSS SECTIONS - T.R. 55B
 SHEET NO. 8 OF 8 SHEETS
 STA. 94+00.00 TO STA. 95+00.00

TWP. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55B	07-16121-00-BR	IROQUOIS	33	33
MARTINTON ROAD DIST. ILLINOIS FED. AID PROJECT			CONTRACT NO. 87487	