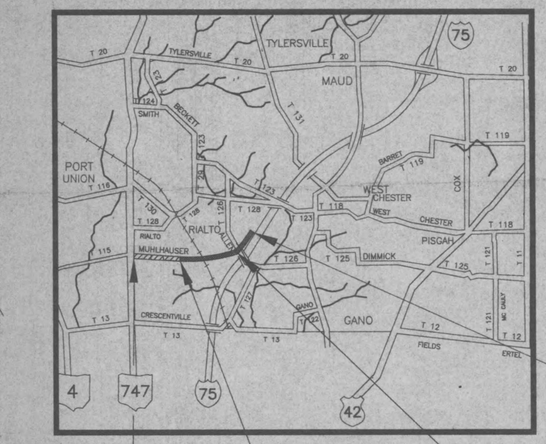
(PHASE TWO & PHASE THREE)
BUTLER COUNTY
TRANSPORTATION IMPROVEMENT DISTRICT
MUHLHAUSER ROAD
R-115-1.294
UNION TOWNSHIP, BUTLER COUNTY



BEGIN PHASE ONE
STA. 80+30.00

END PHASE ONE
BEGIN PHASE TWO
STA. 135+00.00

END PHASE TWO
STA. 169+43.10
BEGIN PHASE THREE
STA. 169+57.68

END PHASE THREE
STA. 181+50

LOCATION MAP

0 1 2 3 4
SCALE IN MILES

Portion to be Improved
State & Federal Routes
Other Roads
Detour Route

DESIGN DESIGNATION

CURRENT A.D.T. (1995)	6250
DESIGN YEAR A.D.T. (2015)	16,261
DESIGN HOURLY VOLUME (2015)	1626
DIRECTIONAL DISTRIBUTION	50%
TRUCKS (24 HOUR B&C)	4%
DESIGN SPEED	45 MPH
LEGAL SPEED	45 MPH
DESIGN FUNCTIONAL CLASSIFICATION	MAJOR COLLECTOR-URBAN

DESIGN EXCEPTIONS
NONE REQUIRED

UNDERGROUND UTILITIES
2 WORKING DAYS
BEFORE YOU DIG
Call 1-800-362-2764
UNITED UTILITY PROTECTION SERVICE
NON MEMBERS
MUST BE CALLED DIRECTLY

PHASE TWO PLANS PREPARED BY
BAYER BECKER ENGINEERS
CIVIL ENGINEERS ~ SURVEYORS ~ LAND PLANNERS

PHASE THREE PLANS PREPARED BY
DSD CONSULTANTS, INC.
Civil Engineering
9319 Cincinnati-Columbus Road Suite 22
West Chester, Ohio 45069
Phone (513) 777-9111

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PROJECT DESCRIPTION

PHASE TWO
Muhlhauser Road – International Blvd. to Allen Road.

PHASE THREE
Muhlhauser Road – New intersection with Allen and extension of Muhlhauser Road North East 1192.32 L.F.

1995 SPECIFICATIONS
The standard specifications of the State of Ohio, Department of Transportation, including changes and supplemental specifications listed in the proposal shall govern this improvement.

I hereby approve these plans and declare the making of this improvement will not require the closing to traffic of the highway and that provisions for the maintenance and safety of traffic will be as set forth on the plans and estimates.

Wherever the word "State" occurs, it is to mean Butler County T.I.D. Wherever the word "Engineer" occurs, it is to mean Butler County Engineer, limited to the particular duties entrusted in them.

Approved _____
Butler County Engineer

Approved _____
Butler County T.I.D., Darrell Barger, Director

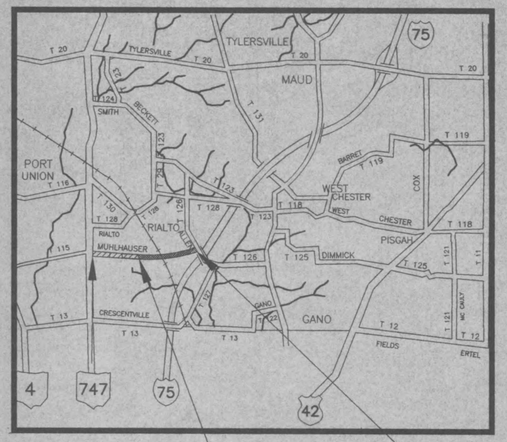
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FEDERAL PROJECT NUMBER — NON-FEDERAL
P.I.D. NUMBER —
CONSTRUCTION PROJECT NUMBER —
RAILROAD INVOLVEMENT — NORFOLK SOUTHERN RAILROAD
R-115-1.294

D:\9537\9537-pl\9537-301, Tue Feb 25 09:43:50 1997 Drawn by: Tom Barrett

(PHASE TWO)
BUTLER COUNTY
TRANSPORTATION IMPROVEMENT DISTRICT
MUHLHAUSER ROAD
R–115–1.294
UNION TOWNSHIP, BUTLER COUNTY



BEGIN PHASE TWO
STA. 135+00.00

END PROJECT
STA. 169+43.10

LOCATION MAP

0 1 2 3 4

SCALE IN MILES

Portion to be Improved
State & Federal Routes
Other Roads
Detour Route

DESIGN DESIGNATION

CURRENT A.D.T. (1995)	6250
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DIRECTIONAL DISTRUBUTION	50%
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LEGAL SPEED	45 MPH
DESIGN FUNCTIONAL CLASSIFICATION	MAJOR COLLECTOR–URBAN

DESIGN EXCEPTIONS

NONE REQUIRED

UNDERGROUND UTILITIES
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TRAFFIC CONTROL PLAN	56–58
TRAFFIC SIGNAL PLAN	59–61

PROJECT DESCRIPTION

Muhlhauser Road – International Blvd. to Allen Road.

1995 SPECIFICATIONS

The standard specifications of the State of Ohio, Department of Transportation, including changes and supplemental specifications listed in the proposal shall govern this improvement.

I hereby approve these plans and declare the making of this improvement will not require the closing to traffic of the highway and that provisions for the maintenance and safety of traffic will be as set forth on the plans and estimates.

Wherever the word "State" occurs, it is to mean Butler County T.I.D. Wherever the word "Engineer" occurs, it is to mean Butler County Engineer, limited to the particular duties entrusted in them.

Approved _____
Butler County Engineer

Approved _____
Butler County T.I.D., Darrell Barger, Director

_____

_____

STANDARD CONSTRUCTION DRAWINGS

BP–3.1	2–21–92	GR–4.2	5–6–91	HL–30.11	5–1–87	MT–101.60	7–1–92	BP–5.1	10–28–94	MH–3	12–18–84
BP–4.1	2–21–92	MC–1	6–13–69	HL–30.22	5–1–87	MT–105.10	7–1–92	BP–7.1	10–30–92		
GR–1.1	5–6–91	MC–4	7–26–76	TC–41.20	6–21–94	MT–105.11	7–1–92	CB–2–2–A&B	5–1–79		
GR–1.2	5–6–91	MC–5	6–12–75	TC–52.10	4–3–79	TC–85.20	1–20–84	CB–3	5–1–79		
GR–2.1	5–6–91	MC–7	10–15–76	TC–52.20	4–3–79	TC–82.10	8–29–84	CB–3A	5–1–79		
GR–3.1	5–6–91	MC–11	8–1–78	TC–65.10	2–1–90	TC–71.10	9–10–91	HW–D	6–1–65		
GR–4.1	5–6–91	TC–42.20	3–26–79	TC–65.12	2–1–90	TC–65.13	2–1–90	MH–1	12–18–84		

FEDERAL PROJECT NUMBER
NON–FEDERAL

P.I.D. NUMBER
—

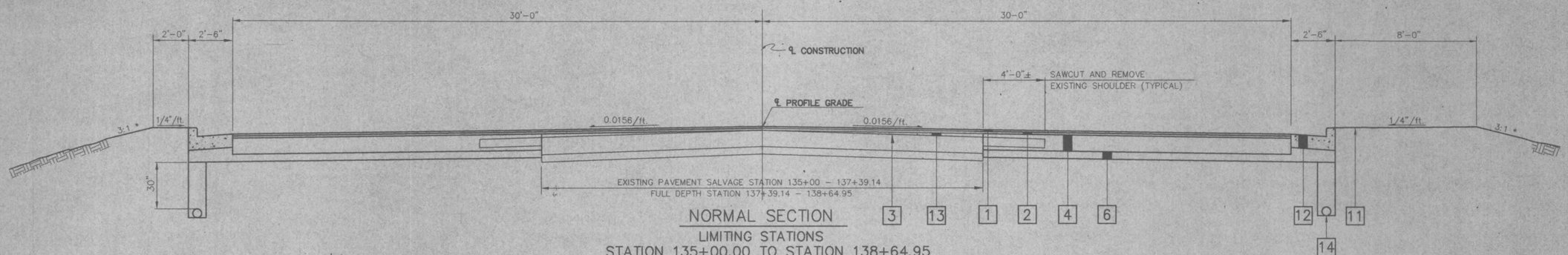
CONSTRUCTION PROJECT NUMBER
—

RAILROAD INVOLVEMENT
NORFOLK SOUTHERN RAILROAD

R–115–1.294

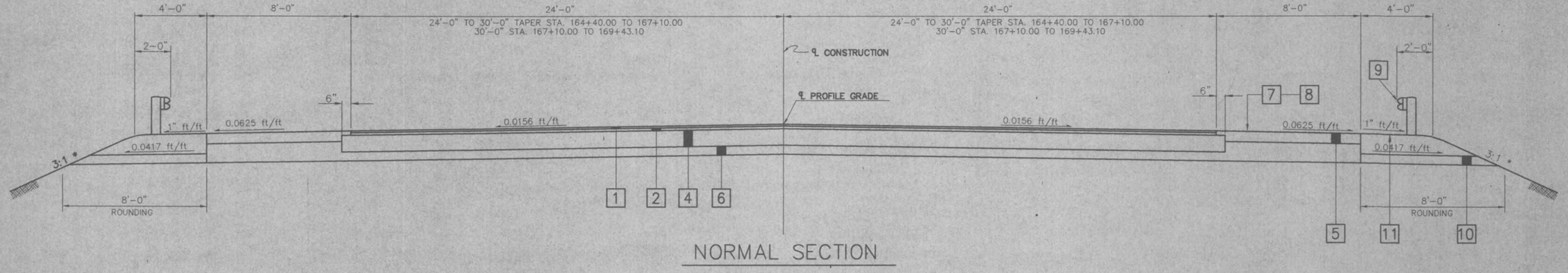
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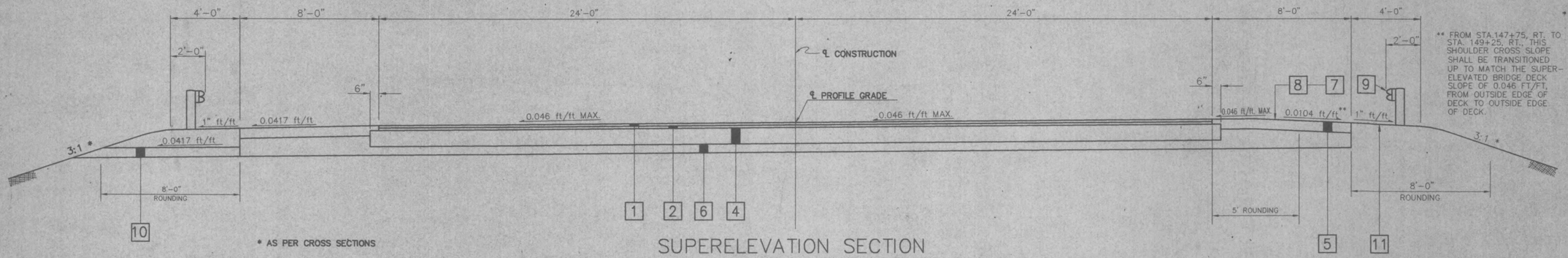
NORMAL SECTION

LIMITING STATIONS
STATION 135+00.00 TO STATION 138+64.95



NORMAL SECTION

LIMITING STATIONS
STATION 153+51.33 TO STATION 169+43.10



* AS PER CROSS SECTIONS

SUPERELEVATION SECTION

LIMITING STATIONS
STATION 141+32.14 TO STATION 149+20.14
STATION 150+92.46 TO STATION 154+03.83

NOTE: SEE SUPERELEVATION TABLE ON SHEET 6.

NOTE:

ITEM 403 IS TO BE USED AS A LEVELING COURSE TO ESTABLISH A 3/16" /FT. CROSS SLOPE. ESTIMATED QUANTITIES HAVE BEEN CALCULATED BASED ON EXAGGERATED CROSS SECTIONS.

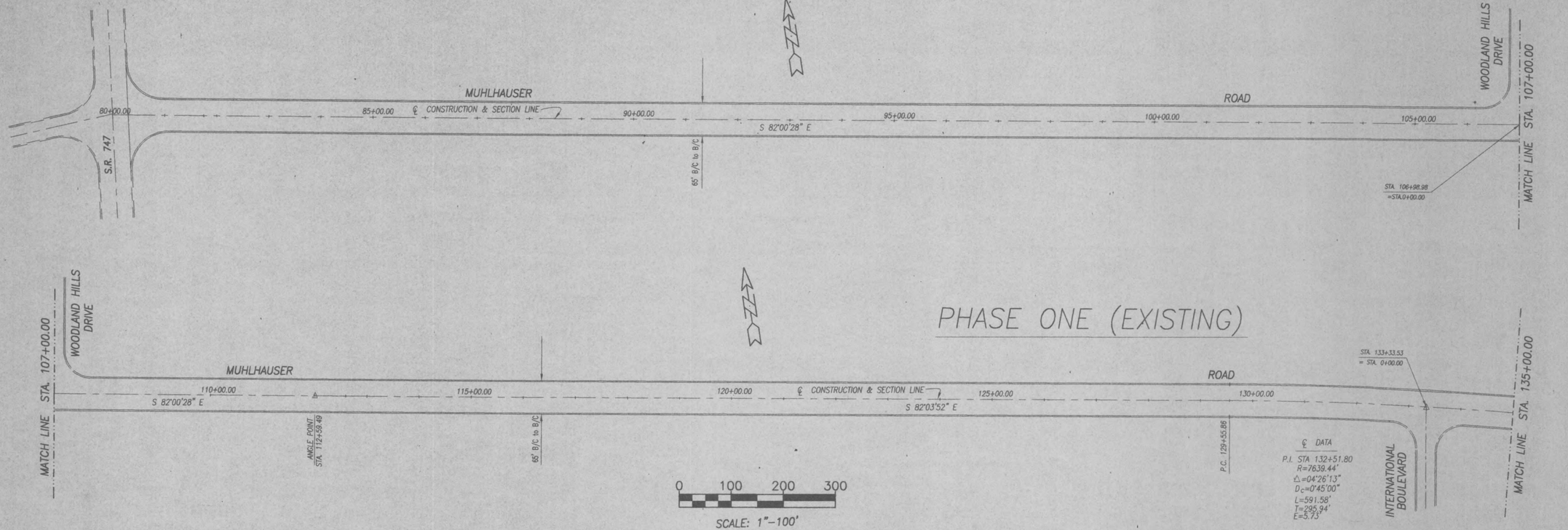
LEGEND

1. ITEM 404 1-1/4" ASPHALT CONCRETE- AC-20
2. ITEM 402 1-3/4" ASPHALT CONCRETE- AC-20
3. ITEM 407 TACK COAT (SEE GENERAL NOTE)
4. ITEM 301 11" BITUMINOUS AGGREGATE BASE AC-20 (2 LIFTS)
5. ITEM 301 7" BITUMINOUS AGGREGATE BASE AC-20
6. ITEM 304 6" AGGREGATE BASE
7. ITEM 409 SEAL COAT COVER AGGREGATE #8 AT 0.008 CY/SY
8. ITEM 409 SEAL COAT BITUMINOUS MATERIAL AT 0.30 GAL/SY.
9. ITEM 606 GUARDRAIL TYPE 5
10. ITEM 605 AGGREGATE DRAINS
11. ITEM 659 SEEDING AND MULCHING
12. ITEM 609 COMBINATION CURB & GUTTER, TYPE 2
13. ITEM 403 0" MIN. ASPHALT CONCRETE (SEE NOTE AT LEFT)
14. ITEM 605 6" SHALLOW PIPE UNDERDRAIN

CALCULATED: MAR
CHECKED: CAR

R-115-1.294 TYPICAL SECTION – MUHLHAUSER ROAD

J:\YF2\0537-2\DETAILS\0537-202 (Fri Feb 21 13:26:26 1997 Bayer Becker Engineers - RHP


MUHLHAUSER ROAD
WOODLAND HILLS DRIVE
S.R. 747
80+00.00
85+00.00
℄ CONSTRUCTION & SECTION LINE
90+00.00
95+00.00
100+00.00
105+00.00
S 82°00'28" E
65' B/C to B/C
STA. 106+98.98 = STA.0+00.00
MATCH LINE STA. 107+00.00
MATCH LINE STA. 135+00.00
PHASE ONE (EXISTING)
110+00.00
115+00.00
120+00.00
℄ CONSTRUCTION & SECTION LINE
125+00.00
130+00.00
S 82°03'52" E
STA. 133+33.53 = STA. 0+00.00
ANGLE POINT STA. 112+59.49
P.C. 129+55.88
℄ DATA
P.I. STA 132+51.80
R=7639.44'
△=04°26'13"
Dc=0°45'00"
L=591.58'
T=295.94'
E=5.73'
INTERNATIONAL BOULEVARD
0 100 200 300
SCALE: 1"=100'
BEGIN PROJECT STA. 135+00.00
R-115-1.294
PHASE TWO
S 77°37'39" E
℄ CONSTRUCTION AND SECTION LINE
PT 135+47.44
NORFOLK SOUTHERN RAILROAD
STA. 139+51.13
SUPER ELEVATION TRANSITION
PC 141+71.40
STA. 143+02.65
140+00.00
145+00.00
45'-0"
℄ DATA
P.I. STA 146+70.02
R=1432.39'
△=38°23'11"
Dc=4°00'00"
L=959.66'
T=498.62'
E=84.31'
FULL SUPER ELEVATION
STA. 150+52.31
MILL CREEK
150+00.00
STRUCTURE NO. R-115-2.429
STRUCTURE NO. R-115-2.621
PT 151+31.06
STA. 154+03.83
155+00.00
160+00.00
N 63°59'10" E
Prop. E/P
℄ CONSTRUCTION
MATCH LINE STA. 162+00.00
CENTERLINE OF CONSTRUCTION REFERENCE POINTS
(ALL REFERENCE POINTS ON STATE PLANE COORDINATES)
SET I.P.
℄ CONSTRUCTION
INTERSECTION POINT
N 485986.79
E 1412824.85
STA. 80+00.00
WOODLAND HILLS
N 485611.53
E 1415497.61
STA. 106+98.98
N 485533.60
E 1416052.68
SET P.K.
ANGLE PT.
STA. 112+59.49
N 485258.54
E 1418025.91
P.I.
STA. 132+51.80
N 484954.59
E 1419411.48
℄ CONST.
STA. 146+70.02
N 485974.42
E 1421501.15
ALLEN ROAD
STA. 169+57.68
MUHLHAUSER ROAD
165+00
STA. 169+57.68
ALLEN ROAD
END PROJECT STA. 169+43.10
R-115-1.294
SCHEMATIC PLAN
R-115-1.294
3
61
CALCULATED MAR
CHECKED CAR
D:\FP2\5637-2\DETAILS\5637-203 Mon Feb 24 08:18:12 1997 Drawn By: Tom Barnett

CONTINGENCY QUANTITIES FOR ADDITIONAL EARTHWORK FROM STA. 135+00 TO 148+50

ANY NECESSARY EXCAVATION AND EMBANKMENT REQUIRED TO CONFORM TO THE PLAN TYPICAL SECTIONS FROM STA. 135+00 TO STA. 148+50 WILL BE PAID ON A CONTINGENCY BASIS AS DIRECTED BY THE ENGINEER. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY:

203 EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION	2400 CU. YD.
203 EMBANKMENT	2400 CU. YD.

SUBGRADE REPAIR

THIS CONTINGENCY ITEM INCLUDES EXCAVATION, EMBANKMENT, AND ANY SPECIAL MATERIAL (#2 STONE) THAT IS REQUIRED BY THE ENGINEER. THIS ITEM WILL BE USED ONLY UNDER THE ENGINEER'S DIRECTION.

REMOVAL OF TREES OR STUMPS

ALL TREES AND STUMPS TO BE REMOVED AS DIRECTED IN THE FIELD BY THE COUNTY SHALL BE REMOVED UNDER THE LUMP SUM BID FOR ITEM 201, CLEARING AND GRUBBING .

TEMPORARY RAILROAD CONSTRUCTION CROSSING AND TEMPORARY MILL CREEK CROSSING AND CONSTRUCTION MAINTENANCE.

SEE SHEETS 2 OF 12 AND 2 OF 14 OF THE BRIDGE PLANS FOR DETAILS AND NOTES REGARDING THESE CROSSINGS.

MAINTENANCE OF SEWER FLOWS

THE CONTRACTOR IS TO MAINTAIN OPERATIONS SO AS TO MAINTAIN ALL TIMES SEWER FLOWS THROUGH EXISTING FACILITIES TO REMAIN IN PLACE AND THROUGH EXISTING FACILITIES TO BE REPLACED UNTIL NEW FACILITIES ARE COMPLETED AND PLACED IN USE.

PAYMENT FOR ADDITIONAL COSTS INVOLVED IN MAINTAINING THESE FLOWS BY PUMPING OR ANY OTHER MEANS APPROVED BY THE ENGINEER SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE RESPECTIVE ITEMS OF 603 CONDUIT.

ALL NEW CONDUITS, INLETS, CATCH BASINS AND MANHOLES CONSTRUCTED AS PART OF THE PROJECT SHALL BE FREE OF ALL FOREIGN MATTER AND IN A CLEAN CONDITION BEFORE THE PROJECT WILL BE EXCEPTED.

ALL EXISTING SEWERS SHALL BE MAINTAINED AND LEFT IN A CONDITION REASONABLY COMPARABLE TO THAT DETERMINED BY THE ORIGINAL INSPECTION. ANY CHANGE IN THE CONDITION RESULTING FROM THE CONTRACTOS OPERATIONS SHALL BE CORRECTED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER.

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE PERTINANT 603 CONDUIT ITEMS OF THE CONTRACT.

RESTORATION

THE CONTRACTOR SHALL PROVIDE FOR PROTECTION OF THE EXISTING STREETS AND STRUCTURES: THE MAINTENANCE OF THE STREES, DRIVEWAYS, SIDEWALKS, CURBS, GUTTERS, RESEEDING AND RESODDING, REMOVAL OF TREES, RESTORATION OF AGRICULTURAL LAND, THE MAINTENANCE OF THE CONSTRUCTION AREA DURING PROGRESSION OF THE WORK AND THE COMPLETE RESTORATION OF THE CONSTRUCTION AREA TO ITS ORIGINAL CONDITION AT THE COMPLETION OF THE WORK.

THE CONTRACTOR SHALL CONTINUOUSLY CARRY ON WITH THE FINAL RESTORATION OF THE CONSTRUCTION AREA AFTER THE BACKFILLING IS COMPLETED AND AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL PROCEED TO RESTORE TO ITS ORIGINAL CONDITION ALL STREETS, DRIVEWAYS, SIDEWALKS, CURBS, GUTTERS, STRUCTURES, AND ALL AREAS THAT WERE DAMAGED, DISTURBED, OR OCCUPIED BY THE CONTRACTOR IN CONNECTION WITH ANY PHASE OF THE WORK.

PAVEMENT, TREES, SHRUBBERY, FENCES, POLES OR OTHER PROPERTY AND SURFACE STRUCTURES WHICH HAVE BEEN DAMAGED, REMOVED, OR DISTURBED BY THE CONTRACTOR, WHETHER DELIBERATELY OR THROUGH FAILURE TO CARRY OUT THE REQUIREMENTS OF THE CONTRACT DOCUMENTS, STATE LAWS, MUNICIPAL ORDINACES, OR THE SPECIFY DIRECTION OF THE PROJECT RESPRESENTATIVE, THROUGH FAILURE TO EMPLOY USUAL AND REASONABLE SAFEGUARDS SHALL BE REPLACED AT THE EXPENSE OF THE CONTRACTOR.

TEMPORARY GRAVEL (MAINTAINING TRAFFIC)

ANY TEMPORARY AGGREGATE (ITEM #304) NEEDED TO MAINTAIN ENTRANCE TO ANY PROPERTY WITHIN THE CONSTRUCTION SITE WILL BE INCLUDED WITH THE LUMP SUM BID FOR MAINTENANCE OF TRAFFIC.

CROSSING AND CONNECTIONS TO EXISTING PIPES AND UTILITIES

WHERE PLANS PROVIDE FOR A PROPOSED CONDUIT TO BE CONNECTED TO, OR CROSS OVER OR UNDER AN EXISTING SEWER OR UNDERGROUND UTILITY, THE CONTRACTOR SHALL LOCATE THE EXISTING PIPES OR UTILITIES BOTH AS TO LINE AND GRADE BEFORE STARTING TO LAY THE PROPOSED CONDUIT.

IF IT IS DETERMINED THAT THE ELEVATION OF THE EXISTING CONDUIT, OR EXISTING APPURTENANCE TO BE CONNECTED, DIFFERS FROM THE PLAN ELEVATION OR RESULTS IN A CHANGE IN THE PLAN CONDUIT SLOPE, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WILL BE AFFECTED BY THE VARIANCE IN THE EXISTING ELEVATIONS.

IF IT IS DETERMINED THAT THE PROPOSED CONDUIT WILL INTERSECT AN EXISTING SEWER OR UNDERGROUND UTILITY IF CONSTRUCTED AS SHOWN ON THE PLAN, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WOULD BE AFFECTED BY THE INTERFERENCE WITH AN EXISTING FACILITY.

PAYMENT FOR ALL THE OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 603 CONDUIT ITEM.

CROSSING AND CONNECTIONS TO LOW STRENGTH MORTAR BACKFILL

WHENEVER WATER LINES, SEWER LINES, (STORM OR SANITARY), CULVERT PIPES, BOX CULVERTS AND/OR BRIDGE REPLACEMENTS OR REPAIRS INCLUDING ABUTMENTS CROSS COUNTY ROADWAYS THE BACKFILL REQUIRED WILL BE LOW STRENGTH MORTAR BACKFILL UNLESS OTHERWISE NOTED ON THE PLANS. THIS ITEM WILL BE BID UNDER ITEM #603 OR PERTINENT BRIDGE ITEMS. THE LIMITS OF THE LOW STRENGTH BACKFILL SHALL BE FROM BERM TO BERM AND FROM FLOW LINE TO THE SUBGRADE. WHENEVER A CUT IN PAVEMENT IS MADE FOR REMOVAL ITEMS THE BACKFILL REQUIRED WILL BE LOW STRENGTH MORTAR. THIS ITEM WILL BE UNDER THE PERTINANT ITEM #202. BACKFILL SHALL BE BROUGHT UP TO THE SUBGRADE AND WITHIN THE LIMITS OF THE ROADWAY AND BERMS.

ALL CUTS IN DRIVEWAYS SHALL BE BACKFILLED WITH LOW STRENGTH MORTAR AND BID UNDER ITEM #603. LIMITS OF BACKFILL SHALL BE THE WIDTH OF THE DRIVEWAY PLUS TWO FEET ON EACH SIDE.

ANY CUT IN COUNTY ROADWAYS FOR ANY REASON WHERE THE PAVEMENT HAS TO BE REMOVED THE BACKFILL REQUIRED WILL BE LOW STRENGTH MORTAR.

WEATHER CONDITIONS

NO CONSTRUCTION SHALL BE DONE DURING STORMY, FREEZING, OR INCLEMENT WEATHER UNLESS PERMISSION IS GIVEN BY THE COUNTY ENGINEER. WHENEVER WORK PROCEEDS DURING SUCH WEATHER THE CONTRACTOR SHALL PROVIDE APPROVED FACILITIES, INCLUDING HEAT IF REQUIRED, FOR PROTECTION OF ALL THE MATERIALS AND THE FINISHED WORK.

AGGREGATE DRAINS

AGGREGATE DRAINS SHALL BE PLACED AT FIFTY (50) FOOT INTERVALS ON EACH SIDE OF NORMAL CROWNED SECTIONS, STAGGERED SO THAT EACH DRAIN IS 25 FEET FROM THE ADJACENT DRAIN ON THE OPPOSITE SIDE, AND AT TWENTY-FIVE (25) FOOT INTERVALS ON THE LOW SIDE ONLY OF SUPERELEVATED SECTIONS. AN AGGREGATE DRAIN SHALL BE PLACED AT THE LOW POINT OF EACH SAG VERTTICAL CURVE.

MONUMENT ASSEMBLIES

MONUMENT ASSEMBLIES SHALL BE CONSTRUCTED IN ACCORDANCE WITH DETAILS AS SHOWN ON STANDARD DRAWING MC-1 AND AT THE FOLLOWING

STA. 80+00.00
PC STA.129+55.86
PI STA. 132+51.80
PI STA. 135+47.44
PC STA.141+71.40
PI STA. 146+70.02
PI STA. 151+31.06
STA. 169+43.10

CALCULATED: MAR
CHECKED: CAR

GENERAL NOTES

R-115-1.294

4A
61

Plot: 09/30/97 05:57pm D:\ENGR\DGN\DETAILS\9537-4A Wed Feb 26 14:57:18 1997 Drawn by: Tom Barrett

DUST CONTROL

THE CONTRACTOR SHALL FURNISH AND APPLY WATER AND CALCIUM CHLORIDE FOR DUST CONTROL AS DIRECTED BY THE ENGINEER. THE FOLLOWING CONTINGENCY QUANTITIES HAVE BEEN INCLUDED FOR DUST CONTROL PURPOSES:

616, WATER	100	GAL.
616, CALCIUM CHLORIDE	10	TONS

ROUNDING

THE ROUNDING AT SLOPE BREAKPOINTS SHOWN ON THE TYPICAL SECTIONS APPLY TO ALL CROSS SECTIONS EVEN THOUGH OTHERWISE SHOWN.

UTILITIES

LISTED BELOW ARE ALL UTILITIES LOCATED WITHIN THE PROJECT CONSTRUCTION LIMITS TOGETHER WITH THEIR RESPECTIVE OWNERS:

SANITARY SEWER
BUTLER CO. WATER & SEWER DEPT.
BUTLER CO. ADMINISTRATION BLDG.
130 HIGH STREET
HAMILTON, OHIO-45011
(513) 887-3061

ELECTRIC & GAS
CINCINNATI GAS & ELECTRIC CO.
139 E. FOURTH STREET
CINCINNATI, OHIO-45202
(513) 381-2000

WATER
BUTLER CO. WATER & SEWER DEPT.
BUTLER CO. ADMINISTRATION BLDG.
130 HIGH STREET
HAMILTON, OHIO-45011
(513) 887-3061

CABLE
WARNER CABLE
11252 CORNELL PARK DR.
CINCINNATI, OHIO-45242
(513) 489-5976

TELEPHONE
CINCINNATI BELL TELEPHONE CO.
225 E. FOURTH STREET
CINCINNATI, OHIO-45202
(513) 397-4664

THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS AS REQUIRED BY SECTION 153.64 O.R.C.

CONTINGENCY QUANTITIES

THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK FOR ITEMS DESIGNATED BY PLAN NOTE TO BE USED "AS DIRECTED BY THE ENGINEER" UNLESS AUTHORIZED BY THE ENGINEER. THE ACTUAL WORK LOCATIONS AND QUANTITIES USED FOR SUCH ITEMS SHALL BE INCORPORATED INTO THE FINAL CHANGE ORDER GOVERNING COMPLETION OF THIS PROJECT.

ELEVATION DATUM

ALL ELEVATIONS ARE BASED ON U.S.G.S DATUM.

MAINTENANCE OF TRAFFIC

ALL TRAFFIC CONTROL DEVICES USED ON STREET AND HIGHWAY CONTSTRUCTION OR MAINTENANCE WORK SHALL CONFORM TO THE APPLICABLE SPECIFICATIONS OF THE MANUAL OF TRAFFIC CONTROL FOR CONSTRUCTION AND MAINTENANCE OPERATIONS. (REVISION 19)

IT IS THE CONTRACTORS RESPONSIBILITY TO MAINTAIN TRAFFIC. OCCASIONALLY MODIFICATIONS IN TRAFFIC CONTROLS OR WORKING CONDITIONS MAY BE REQUIRED IN ORDER TO EXPEDITE SAFE TRAFFIC MOVEMENT AND TO PROMOTE WORKER SAFETY. IT IS ESSENTIAL THAT THE ENGINEER HAVE THE AUTHORITY TO CONTROL THE PROGRESS OF WORK ON THE PROJECT IN ITS RELATION TO OBTAINING SAFE CONDITIONS, INCLUDING THE AUTHORITY TO MODIFY CONDITIONS OR HALT WORK UNTIL APPLICABLE OR REMEDIAL SAFETY MEASURES ARE TAKEN. THE CONTRACTOR IS TO SUPPLY ALL TRAFFIC CONTROL AS THE ENGINEER DEEMS NECESSARY.

RESIDENTIAL AND COMMERCIAL DRAINAGE CONNECTIONS AND SPRING DRAINS

EXISTING ROOF DRAINS, FOOTER DRAINS, OR YARD DRAINS, DISTURBED BY THE WORK, OR ANY SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE PROVIDED WITH UNOBSTRUCTED OUTLETS BY CONNECTING A CONDUIT THROUGH THE CURB OR INTO A DRAINAGE STRUCTURE. THE LOCATION, TYPE, SIZE AND GRADE OF THE NEW CONDUIT REQUIRED TO REPLACE OR EXTEND THE EXISTING DRAIN WILL BE DETERMINED BY THE ENGINEER.

THE FOLLOWING CONDUIT TYPES MAY BE USED: 707.19 PS46 MIN, 707.17 NON-PERFORATED, SS 931, SS 942, OR SS 944. (SPRING DRAINS SHALL BE CONSTRUCTED AS PER STANDARD CONSTRUCTION DRAINING MC-1 AND ITEM 605). THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER FOR THE WORK NOTED ABOVE:

603, 6" CONDUIT, TYPE B, FOR DRAINAGE CONNECTION 100 L.F.

603, 6" CONDUIT, TYPE E, FOR DRAINAGE CONNECTION 100 L.F.

603, 6" CONDUIT, TYPE F, FOR DRAINAGE CONNECTION 100 L.F.

REMOVAL OF TREES OR STUMPS

ALL TREES AND STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE CONSTRUCTION LIMITS AND ALL TREES AND STUMPS TO BE REMOVED AS DIRECTED IN THE FIELD BY THE COUNTY SHALL BE REMOVED UNDER THE LUMP SUM BID FOR ITEM 201, CLEARING AND GRUBBING.

ITEM 659, SEEDING AND MULCHING

SEEDING AND MULCHING SHALL BE APPLIED TO ALL AREAS OF EXPOSED SOIL BETWEEN THE RIGHT-OF-WAY LINES AND WITHIN THE CONSTRUCTION LIMITS FOR AREAS OUTSIDE THE RIGHT-OF-WAY LINES COVERED BY WORK AGREEMENTS OR SLOPE EASEMENTS. QUANTITY CALCULATIONS FOR ITEM 659, SEEDING AND MULCHING, ARE BASED ON THESE LIMITS.

SEE ESTIMATED QUANTITIES (SHEET 12) FOR SEEDING AND MULCHING SUB-SUMMARY.

WATER AND MOWING PERMANENT SEEDED AREAS

THE FOLLOWING ESTIMATED QUANTITIES ARE TO BE USED AS DIRECTED BY THE ENGINEER TO PROMOTE GROWTH AND TO CARE FOR PERMANENT SEEDED AREAS PER 659.09:

659, WATER	34.04 M. GAL.
659, MOWING	35.47 M.SQ.FT.

TEMPORARY SOIL EROSION AND SEDIMENT CONTROL

THE FOLLOWING ESTIMATED QUANTITIES ARE TO BE USED AS DIRECTED BY THE ENGINEER FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES:

207, TEMPORARY SEEDING AND MULCHING	3153	SQ.YD.
207, STRAW OR HAY BALES	50	EACH
207, TEMPORARY SLOPE DRAIN	50	LIN. FT.
207, TEMPORARY BENCHES, DAMS & SEDIMENT BASINS	1000	CU.YD.
207, FILTER FABRIC FENCE	2950	LIN.FT.
659, COMMERCIAL FERTILIZER	0.14	TON
659, WATER	6.81	M GAL.
659, REPAIR SEEDING AND MULCHING	788	SQ. YD.
601, ROCK CHANNEL PROTECTION, TYPE C, WITH FILTER	8	CU. YD.
601, ROCK CHANNEL PROTECTION, TYPE C, WITHOUT FILTER	8	CU. YD.

EROSION CONTROL

ITEMS 601, 660 AND 670 ARE PROVIDED IN THE PLANS FOR EROSION CONTROL. ROCK OF A STABLE NATURE SHALL NOT BE REMOVED IN ORDER TO PLACE ANY OF THESE ITEMS AND TURF OF A STABLE NATURE SHALL NOT BE REMOVED IN ORDER TO PLACE 660 OR 670. THE ENGINEER SHALL CHECK AND NON-PERFORM QUANTITIES OR ADJUST LOCATIONS AND QUANTITIES OF THESE ITEMS WHERE INDICATED BY FIELD CONDITIONS DURING CONSTRUCTION. IN ADDITION, THESE ITEMS SHALL MEET THE REQUIREMENT OF 108.04.

UNTREATED SEPTIC CONNECTIONS

THIS PLAN MAKES NO PROVISION FOR CONNECTING, NOR SHALL THE ENGINEER OR CONTRACTOR CONNECT ANY UNTREATED SEPTIC DRAINAGE INTO THE HIGHWAY DRAINAGE SYSTEM. ANY PIPE CARRYING UNTREATED SEPTIC FLOW SHALL BE PLUGGED WITH CLASS C CONCRETE AT THE RIGHT-OF-WAY LINE. PAYMENT FOR PLUGGING SHALL BE INCLUDED IN THE CONTRACT PRICE FOR ITEM 203 EXCAVATION.

ITEM 407, TACK COAT

THE RATE OF APPLICATION OF THE 407 TACK COAT SHALL BE SUBJECT TO ADJUSTMENT AS DIRECTED BY THE ENGINEER. PLAN QUANTITIES INDICATE AN AVERAGE APPLICATION RATE OF 0.075 GALLONS PER SQUARE YARD FOR ESTIMATING PURPOSES ONLY.

REMOVAL AND REPLACEMENT OF SOFT SUBGRADE

ITEM 203 EXCAVATION.
THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER TO REMOVE AND REPLACE SOFT SUBGRADE ENCOUNTERED ON THE PROJECT.

203 EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION	3500	CU.YD.
203 EMBANKMENT	3500	CU.YD.

AS REQUIRED BY 203.09 ALL SLOPED EMBANKMENT AREAS SHALL BE BENCHED. ALL RECOMMENDATIONS SHALL BE FOLLOWED IN THE REPORT AND ADDENDUMS PREPARED BY ATEC ASSOCIATES, INC., A COPY OF WHICH IS ON FILE IN THE BUTLER COUNTY ENGINEER'S OFFICE.

REVIEW OF DRAINAGE FACILITIES

BEFORE ANY WORK IS STARTED ON THE PROJECT AND AGAIN BEFORE FINAL ACCEPTANCE BY THE COUNTY, REPRESENTATIVES OF THE COUNTY AND THE CONTRACTOR ALONG WITH LOCAL REPRENTATIVES SHALL MAKE AN INSPECTION OF ALL EXISTING SEWERS WHICH ARE TO REMAIN IN SERVICE AND WHICH MAY BE AFFECTED BY THE WORK. THE CONDITION OF THE EXISTING CONDUITS AND THEIR APPURTENANCES SHALL BE DETERMINED FROM FIELD OBSERVATIONS. RECORDS OF THE INSPECTION SHALL BE KEPT IN WRITING BY THE COUNTY.

ALL NEW CONDUITS, INLETS, CATCH BASINS, AND MANHOLES CONSTRUCTED AS A PART OF THE PROJECT SHALL BE FREE OF ALL FOREIGN MATTER AND IN A CLEAN CONDITION BEFORE THE PROJECT WILL BE ACCEPTED BY THE COUNTY.

ALL EXISTING SEWERS INSPECTED INITIALLY BY THE ABOVE MENTIONED PARTIES SHALL BE MAINTAINED AND LEFT IN A CONDITION REASONABLY COMPARABLE TO THAT DETERMINED BY THE ORGINAL INSPECTION. ANY CHANGE IN THE CONDITION RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE CORRECTED BY THE CONTRACTOR TO THE SATIFACTION OF THE ENGINEER.

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 603 CONDUIT ITEMS.

ESTIMATED QUANTITIES

THE ESTIMATED QUANTITIES UPON WHICH THE PROPOSAL IS BASED ARE APPROXIMATE ONLY. THEY SHALL BE USED IN DETERMINING THE LOWEST AND BEST BIDDER. DURING THE TERM OF THE CONTRACT, AND AT THE OPTION OF THE ENGINEER, THEY MAY BE INCREASED, DECREASED, OR NON-PERFORMED AS CONDITIONS DICTATE AND/OR WHEN THE NEED FOR ANY ITEM CANNOT BE DETERMINED UNTIL THE COMPLETION OF OTHER CONTRACTURAL ITEMS AND/OR THE PROPER INSPECTIONS HAVE BEEN MADE. THE CONTRACTOR SHALL NOT BE ENTITLED TO ANY CLAIM OR LOSS OF PROFITS OR OTHER DAMAGES SHOULD THE ACTUAL QUANTITIES OF ANY OR ALL ITEMS BE GREATER THAN OR LESS THAN THE STATED ESTIMATED QUANTITIES.

CONSTRUCTION LAYOUT STAKES

THE CONTRACTOR IS TO PROVIDE ALL LABOUR AND MATERIALS REQUIRED TO ADEQUATELY INSURE THE PROPER ELEVATIONS OF ALL ITEMS INCLUDED IN THE WORK. THIS IS TO BE PAID FOR UNDER ITEM 623, LUMP SUM, CONSTRUCTION LAYOUT STAKES. PRIOR TO CONSTRUCTION, BENCH MARKS SHALL BE RE-ESTABLISHED OUTSIDE OF THE CONSTRUCTION LIMITS. THIS WORK SHALL BE PERFORMED UNDER THE SUPERVISION OF A PROFESSIONAL SURVEYOR, REGISTERED IN THE STATE OF OHIO.

FILTER FABRIC FENCE

A FILTER FABRIC FENCE SHALL BE PLACED DOWNHILL FROM ALL GROUND TO BE DISTUBED BEFORE ANY WORK IN THAT AREA BEGINS.

CALCULATED: MAR
CHECKED: CAR

GENERAL NOTES

R-115-1.294

4
61

J:\FY2\9537-2\DETAILS\9537-204 , Thu Feb 13 08:59:58 1997 Bayer Becker Engineers - PMP

J:\9537\9537ph2\DETAILS\9537-205 Mon Mar 17 11:49:11 1997 Drawn by: R.M.P.

GENERAL SUMMARY

ITEM	SHEET NUMBER						ITEM	Contingencies	Plan Quantities	Bid Quan. GRAND TOTAL	UNIT	DESCRIPTION
	4,4A	7	12	58	60							ROADWAY
201							201				L.S.	CLEARING AND GRUBBING
202			410				202		410	410	LIN.FT.	PIPE REMOVED, 24" AND UNDER
202			4				202		4	4	EACH	CATCH BASINS REMOVED
203	5900		7549				203	1345	13449	14794	CU.YD.	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION (CHECK BORING REPORTS)
203	5900		1208				203	711	7108	7819	CU.YD.	EMBANKMENT
203			17660				203	1766	17660	19426	SQ.YD.	SUBGRADE COMPACTION
203			6				203	1	6	7	HOUR	PROOF ROLLING
605			872				605	87	872	959	LIN.FT.	AGGREGATE DRAINS
606			4577				606		4577	4577	LIN.FT.	GUARDRAIL, TYPE 5
606			2				606		2	2	EACH	ANCHOR ASSEMBLY, TYPE A
606			6				606		6	6	EACH	ANCHOR ASSEMBLY, TYPE T
606			8				606		8	8	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE 1
802							802	2600		2600	CU.YD.	SUBGRADE REPAIR
												EROSION CONTROL
207	50						207		50	50	LIN.FT.	TEMPORARY SLOPE DRAINS
207	1000						207		1000	1000	CU.YD.	TEMPORARY BENCHES, DAMS, & SEDIMENT BASINS
207	3153						207		3153	3153	SQ.YDS.	TEMPORARY SEEDING AND MULCHING
207	50	112					207		162	162	EACH	STRAW OR HAY BALES
207	2950	5000					207		7950	7950	LIN.FT.	FILTER FABRIC FENCE
601	8						601		8	8	CU.YD.	ROCK CHANNEL PROTECTION, TYPE C, WITH FILTER
601	250						601		250	250	CU.YD.	ROCK CHANNEL PROTECTION, TYPE C, WITHOUT FILTER
659	0.14		1.42				659	0.16	1.56	1.72	TONS	COMMERCIAL FERTILIZER
659	788						659		788	788	SQ.YDS.	REPAIR SEEDING AND MULCHING
659	6.81		34.04				659		40.85	40.85	M.GAL.	WATER
659			15764				659	1577	15764	17341	SQ.YDS.	SEEDING AND MULCHING
659	35.47						659		35.47	35.47	M.SQ.FT.	MOWING
												DRAINAGE
603	100						603	100		100	LIN.FT.	6" CONDUIT, TYPE B
603	100						603	100		100	LIN.FT.	6" CONDUIT, TYPE E
603	100						603	100		100	LIN.FT.	6" CONDUIT, TYPE F
603			120				603		120	120	LIN.FT.	12" CONDUIT, TYPE A, 707.01, 707.02, 16 GAGE ALUMINIZED OR 706.02
603			300				603		300	300	LIN.FT.	15" CONDUIT, TYPE A, 707.01, 707.02, 16 GAGE ALUMINIZED OR 706.02
603			12				603		12	12	LIN.FT.	15" CONDUIT, TYPE C, 707.01, 707.02, 16 GAGE ALUMINIZED OR 706.02
604			1				604		1	1	EACH	CATCH BASIN CB-3A
604			1				604		1	1	LIN.FT.	CATCH BASIN CB-3 MOD.
604			1				604		1	1	EACH	CATCH BASIN CB-3
604			1				604		1	1	EACH	MANHOLE ADJUSTED TO GRADE
605			600				605		600	600	LIN.FT.	6" SHALLOW PIPE UNDERDRAINS
												PAVEMENT
301			5144				301	515	5144	5659	CU.YDS.	BITUMINOUS AGGREGATE BASE AC-20
301			892				301	90	892	982	CU.YDS.	BITUMINUS AGGREGATE BASE AC-20 (SHOULDERS)
304			4690				304	469	4690	5159	CU.YDS.	AGGREGATE BASE
402			837				402	84	837	921	CU.YDS.	ASPHALT CONCRETE AC-20
403			51				403	6	51	57	CU.YDS.	ASPHALT CONCRETE AC-20
404			597				404	60	597	657	CU.YDS.	ASPHALT CONCRETE AC-20
404			1				404	1	1	2	CU.YDS.	ASPHALT CONCRETE AC-20 (FOR DRIVES)
407			48				407	5	48	53	GAL.	TACK COAT
408			5				408	1	5	6	GAL.	BITUMINOUS PRIME COAT
409			38				409	4	38	42	CU.YDS.	SEAL COAT COVER AGGREGATE
409			1425				409	143	1425	1568	GAL.	SEAL COAT BITUMINOUS MATERIAL
452			94				452	10	94	104	SQ.YDS.	6" PLAIN PORTLAND CEMENT CONCRETE PAVEMENT
609			730				609	73	730	803	LIN.FT.	COMBINATION CURB AND GUTTER, TYPE "2"
611			723				611		723	723	SQ.YDS.	REINFORCED CONCRETE APPROACH SLAB
												WATER WORKS
638			3				638		3	3	EACH	VALVE BOX ADJUSTED TO GRADE
												TRAFFIC CONTROL
621				117			621	12	117	129	EACH	RAISED PAVEMENT MARKER, 1 WAY, WHITE
621				110			621	11	110	121	EACH	RAISED PAVEMENT MARKER, 2 WAY, YELLOW/YELLOW
621				101			621	10	101	111	EACH	RAISED PAVEMENT MARKER, 2 WAY, WHITE/RED
630				40			630	4	40	44	SQ. FT.	SIGN, FLATSHEET, TYPE G
630				104			630	11	104	115	LIN. FT.	GROUND MOUNTED SUPPORT #3 POST
644				1.25			644	0.13	1.25	1.38	MILE	4" EDGE LINE, WHITE
644				1.33			644	0.13	1.33	1.46	MILE	DASHED LANE LINE, WHITE
644				0.79			644	0.08	0.79	0.87	MILE	4" SOLID DOUBLE YELLOW CENTER LINE
644				282			644	28	282	310	LIN. FT.	CHANNELIZING LINE
644				470			644	47	470	517	LIN. FT.	24" TRANSVERSE LINE, YELLOW
644				57			644	6	57	63	LIN. FT.	STOP LINE
644				3			644	1	3	4	EACH	LANE ARROW, 96"
644				2			644	1	2	3	EACH	WORD "ONLY" ON PAVEMENT, 96"
												TRAFFIC SIGNALS
625						5	625	1	5	6	EACH	GROUND ROD
625						1	625	1	1	2	EACH	PULL BOX, 24" CONCRETE
625						8	625	1	8	9	EACH	PULL BOX, 18" CONCRETE
625						821	625	82	821	903	LIN. FT.	TRENCH
625						739	625	74	739	813	LIN. FT.	CONDUIT, 1.5" GALVANIZED
625						26	625	3	26	29	LIN. FT.	CONDUIT, 2" GALVANIZED
625						36	625	4	36	40	LIN. FT.	CONDUIT, 3" GALVANIZED
630						4	630	1	4	5	EACH	SIGN HANGER ASSEMBLY, TYPE 1
632						1	632	1	1	2	EACH	POWER SERVICE
632						8	632	1	8	9	EACH	VEHICULAR SIGNAL HEAD, 3 SECTION, 12" LENS, 1-WAY
632						16	632	2	16	18	EACH	LOOP DETECTOR UNIT
632						1192	632	119	1192	1311	LIN. FT.	LOOP DETECTOR PAVEMENT CUTTING
632						2	632	1	2	3	EACH	CONDUIT RISER, 1.5" DIAMETER
632						4	632	1	4	5	EACH	CABLE SUPPORT ASSEMBLY
632						472	632	47	472	519	LIN. FT.	MESSENGER WIRE, LASHED 7 STRAND, 3/8" DIAMETER, WITH ACCESSORIES
632						804	632	80	804	884	LIN. FT.	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG
632						4288	632	429	4288	4717	LIN. FT.	LOOP DETECTOR WIRE, TYPE E
632						3516	632	352	3516	3868	LIN. FT.	LOOP DETECTOR LEAD-IN CABLE
632						1158	632	116	1158	1274	LIN. FT.	LOOP DETECTOR LEAD-IN CABLE, SS FIGURE 8
632						8	632	1	8	9	EACH	COVERING FOR VEHICULAR SIGNAL HEAD
632						2	632	0	2	2	EACH	STRAIN POLE, TYPE TC-81.10, DESIGN 8
632						2	632	0	2	2	EACH	STRAIN POLE, TYPE TC-81.10, DESIGN 10
632						14	632	2	14	16	CU. YD.	CONCRETE FOR ANCHOR BASE FOUNDATIONS
632						200	632	20	200	220	LIN. FT.	POWER CABLE, 3 CONDUCTOR, NO. 8 AWG
632						8	632	1	8	9	EACH	CONDUIT RISER, 2" DIAMETER
633						2	633	1	2	3	CU. YD.	CONCRETE FOR CABINET FOUNDATION
633						11	633	1	11	12	SQ. FT.	CONTROLLER WORK PAD
633						1	633	1	1	2	EACH	CONTROLLER, ACTUATED, 8-PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
625						38	625	4	38	42	LIN. FT.	CONDUIT, 1" GALVANIZED
632						4	632	0	4	4	EACH	PEDESTRIAN PUSH BUTTON
632						815	632	82	815	897	LIN.FT.	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG
												MISC.
614							614				L.S.	MAINTAINING TRAFFIC
619							619				L.S.	FIELD OFFICE, TYPE C
623							623				L.S.	CONSTRUCTION LAYOUT STAKES
624							624				L.S.	MOBILIZATION

CONTINGENCIES:
THE PAY ITEMS HAVING ADDITIONAL QUANTITIES WHICH ARE INCLUDED IN THE BID QUANTITIES ARE TO BE USED AS DIRECTED BY ENGINEER.

NOTE: SEE BRIDGE PLANS FOR BRIDGE QUANTITIES.

SHEET NUMBER	REFERENCE NUMBER *	STATION	SIDE	PAVEMENT STRUCTURE TYPE		DRIVE WIDTH (W)	DRIVE LENGTH (L)	DRIVE RADIUS (R1)	DRIVE RADIUS (R2)	LIMITS OF DEPRESSED CURB	INTER-SECTION θ	INTER-SECTION ø
				APRON	DRIVE	L.F.	L.F.	L.F.	L.F.	STATION TO STATION		
8	1-DR	136+92.32	LT.	A	B	20	5.5	15.0	10.0	136+59.00 to 137+11.64	90°	65°
9	2-DR	148+50.00	LT.	C	C	20	65	10.0	10.0	-	70°	70°
9	3-DR	148+50.00	RT.	C	C	20	110	10.0	10.0	-	70°	70°

DRIVEWAY & APRON DATA

PAVEMENT CALCULATIONS

1-P STA. 135+00 TO STA. 143+00

404 – (STA. 138+64.95 – STA. 135+00.00) X (60') X (1.25"/12")/27= = 84.48 C.Y.
(STA. 143+00.00 – STA. 141+32.14) X (48') X (1.25"/12")/27= = 31.09 C.Y.
115.57 C.Y.

402 – (364.95') X (60') X (1.75"/12")/27 = 118.27 C.Y.
(167.86') X (48') X (1.75"/12")/27 = 43.52 C.Y.
161.79 C.Y.

301 – (239.14') X (60'-24') X (11"/12")/27 = 292.28 C.Y.
(125.81') X (60') X (11"/12")/27 = 256.28 C.Y.
(167.86') X (49') X (11"/12")/27 = 279.25 C.Y.
827.81 C.Y.

304 – [(239.14') X (60'-24') X (6"/12")/27] + [239.14'X2X2.50S.F./27] = 203.71 C.Y.
[(125.81') X (60') X (6"/12")/27] + [125.81'X2X2.50S.F./27] = 163.09 C.Y.
[(167.86') X (49') X (6"/12")/27] + [167.86'X2X7.5'X14"/12"/27] = 261.12 C.Y.
627.92 C.Y.

611-REINFORCED CONCRETE APPROACH SLAB
(50') X (65')/9 361.11 SQ. YD.

2-P STA. 143+00 TO STA. 154+00

404 – (STA. 149+20.14 – STA. 143+00) X (48') X (1.25"/12")/27 = 114.84 C.Y.
(STA. 154+00.00 – STA. 150+92.46) X (48') X (1.25"/12")/27 = 56.92 C.Y.
=171.76 C.Y.

402 – (620.14') X (48') X (1.75"/12")/27 =160.78 C.Y.
(307.54') X (48') X (1.75"/12")/27 = 79.73 C.Y.
240.51 C.Y.

301 – (620.14') X (49') X (11"/12")/27 =1031.65 C.Y.
(307.54') X (49') X (11"/12")/27 = 511.62 C.Y.
1543.27 C.Y.

304 – [(620.14') X (49') X (6"/12")/27] + [620.14'X2X7.5'X(14"/12")/27] = 964.66 C.Y.
[(307.54') X (49') X (6"/12")/27] + [307.54'X2X7.5'X(14"/12")/27] = 478.40 C.Y.
1443.06 C.Y.

611-REINFORCED CONCRETE APPROACH SLAB
(50') X (65')/9 361.11 SQ. YD.

3-P STA. 154+00 TO STA. 165+00

404 – (STA. 165+00.00 – STA. 154+00.00) X (48') X (1.25"/12")/27 = 203.70 C.Y.
402 – (1100') X (48') X (1.75"/12")/27 = 285.19 C.Y.
301 – (1100') X (49') X (11"/12")/27 = 1829.94 C.Y.
304 – [(1100') X (49') X (6"/12")/27] + [1100'X2X7.5'X(14"/12")/27] = 1711.11 C.Y.

4-P STA. 165+00 TO STA. 169+43.10

404 – (210') X (54'AVG.) X (1.25"/12")/27 = 43.72 C.Y.
(233') X (60') X (1.25"/12")/27 = 53.90 C.Y.
(.2146') X (70^2) X (2) X (1.25"/12")/27 = 8.11 C.Y.
105.73 C.Y.

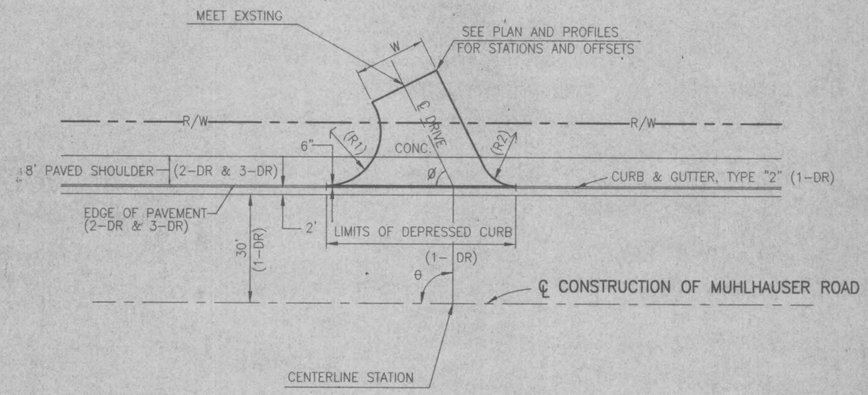
402 – (210') X (54'AVG.) X (1.75"/12")/27 = 61.24 C.Y.
(233') X (60') X (1.75"/12")/27 = 75.49 C.Y.
(.2146') X (70^2) X (2) X (1.75"/12")/27 = 11.36 C.Y.
148.09 C.Y.

301 – (210') X (55'AVG.) X (11"/12")/27 = 392.13 C.Y.
[(161.80') X (61') X (11"/12")/27] + [(71.20)X(60')X(11"/12")/27 = 480.12 C.Y.
(.2146') X (69.5^2) X (2) X (11"/12")/27 = 70.38 C.Y.
942.63 C.Y.

304 – [(210') X (55'AVG.) X (6"/12")/27] + [210'X2X7.5'X(14"/12")/27] = 350.00 C.Y.
[(161.80') X (61') X (6"/12")/27] + [161.80'X2X7.5'X(14"/12")/27] = 287.64 C.Y.
[(.2146') X (69.5^2) X (2)(14"/12")/27] + [2X0.25X2X65.75'X7.5'X14"/12"/27] = 156.52 C.Y.
794.16 C.Y.

DRIVEWAY AND APRON AREA PAVEMENT STRUCTURE

A. 8" 452 PLAIN PORTLAND CEMENT CONCRETE
B. 1-1/4" 404 ASPHALT CONCRETE
1-3/4" 402 ASPHALT CONCRETE
408 PRIME COAT AT 0.4 GALLON PER SQ. YD.
304 AGGREGATE BASE
C. 10" 304 AGGREGATE BASE



DRIVE DETAIL

LEVELING COURSE CALCULATION			
STATION	ITEM 403 (S.F.)	LENGTH	ITEM 403 (C.Y.)
135+00	3.06		
		50'	6.07
135+50	3.50		
		50'	5.46
136+00	2.40		
		50'	7.13
136+50	5.30		
		50'	14.49
137+00	10.35		
		39.14'	17.69
137+39.14	14.05		

1-DR STA. 136+92.32, LEFT

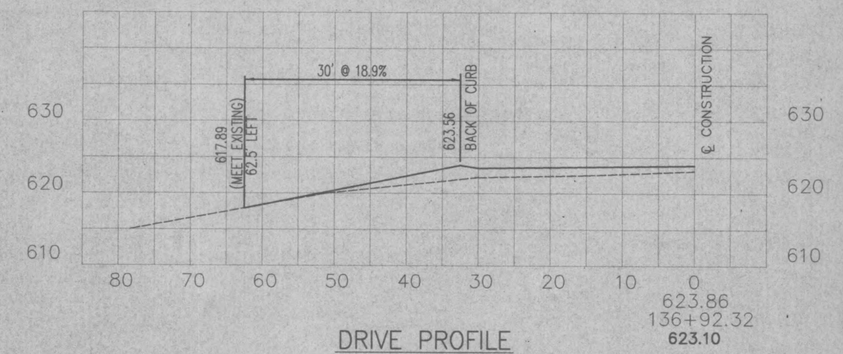
452 – FROM COMPUTER (839.60 S.F.) /9 = 93.29 S.Y.
404 – FROM COMPUTER . (111.93 S.F.) X (1.25"/12')/27 = 0.43 C.Y.
402 – (111.93 S.F.) X (1.75"/12')/27 = 0.60 C.Y.
408 – (111.93 S.F.) / 9 X (0.4) = 4.97 GAL.
304 – (111.93 S.F.) X (8"/12')/27 = 2.76 C.Y.

2-DR STA. 148+50.00, LEFT

304 – (65')X(20') + (.2146)X(10^2)X(2) X .8333/27 = 41.44 C.Y.

3-DR STA. 148+50.00, RIGHT

304 – (110X20) + (.2146)X(10^2)X(2) X .8333/27 = 69.22 C.Y.



DRIVE PROFILE
STA. 136+92.32, LT.

* FOR DRIVEWAY QUANTITIES SEE ESTIMATED QUANTITY SHEETS

SUPERELEVATION TABLE FOR MUHLHAUSER Rd PHASE 2				
STATION	CENTERLINE ELEV.	LEFT E/P	RIGHT E/P	COMMENTS
13951.13	623.077	622.528	622.528	BRIDGE STRUCTURE** BEGIN TRANSITION
13975.00	623.140	622.591	622.762	BRIDGE STRUCTURE**
14000.00	623.140	622.591	622.900	BRIDGE STRUCTURE**
14025.00	623.060	622.511	622.957	BRIDGE STRUCTURE**
14040.15	622.980	622.431	622.980	BRIDGE STRUCTURE** TANGENT RUNOUT
14050.00	622.910	622.361	622.979	BRIDGE STRUCTURE**
14075.00	622.670	622.121	622.876	BRIDGE STRUCTURE**
14100.00	622.362	621.813	622.705	BRIDGE STRUCTURE**
14125.00	621.976	621.427	622.491	APPROACH SLAB**
14129.17	621.910	621.361	622.459	APPROACH SLAB** CROWN REMOVAL
14150.00	621.512	621.056	621.968	APPROACH SLAB**
14171.40	621.054	620.502	621.606	PC
14175.00	620.972	620.396	621.548	
14200.00	620.355	619.683	621.027	
14225.00	619.661	618.893	620.429	
14250.00	618.890	618.002	619.778	
14275.00	618.043	617.059	619.027	
14300.00	617.119	616.015	618.223	
14302.65	617.026	615.922	618.130	BEGIN FULL SUPER
14325.00	616.118	615.014	617.222	
14350.00	615.040	613.936	616.144	
14375.00	613.886	612.782	614.990	
14400.00	612.654	611.550	613.758	
14425.00	611.346	610.242	612.450	
14450.00	609.962	608.858	611.066	
14475.00	608.500	607.396	609.604	
14500.00	607.181	606.077	608.285	
14525.00	605.951	604.847	607.055	
14550.00	604.809	603.705	605.913	
14575.00	603.756	602.652	604.860	
14600.00	602.791	601.687	603.895	
14625.00	601.915	600.811	603.019	
14650.00	601.127	600.023	602.231	
14675.00	600.427	599.323	601.531	
14700.00	599.816	598.712	600.920	
14725.00	599.293	598.189	600.397	
14750.00	598.859	597.755	599.963	
14775.00	598.513	597.409	599.617	
14800.00	598.256	597.152	599.360	
14825.00	598.087	596.983	599.191	
14850.00	597.963	596.859	599.067	
14875.00	597.838	596.734	598.942	
14900.00	597.713	596.609	598.817	
14925.00	597.588	596.009	599.167	APPROACH SLAB**
14950.00	597.464	595.885	599.043	BRIDGE STRUCTURE**
14975.00	597.339	595.760	598.918	BRIDGE STRUCTURE**
15000.00	597.214	595.635	598.793	BRIDGE STRUCTURE**
15025.00	597.090	595.511	598.669	BRIDGE STRUCTURE**
15050.00	596.965	595.386	598.544	BRIDGE STRUCTURE**
15052.31	596.960	595.381	598.539	BRIDGE STRUCTURE** END FULL SUPER
15075.00	596.840	595.329	598.282	APPROACH SLAB**
15100.00	596.716	595.708	597.628	
15125.00	596.591	595.631	597.383	
15131.06	596.561	595.625	597.329	PT
15150.00	596.466	595.554	597.162	
15175.00	596.342	595.502	596.918	
15200.00	596.217	595.425	596.697	
15225.00	596.092	595.708	596.476	
15250.00	595.970	595.586	596.258	
15275.00	595.842	595.458	596.010	
15300.00	595.717	595.333	595.789	
15314.81	595.660	595.276	595.660	TANGENT RUNOUT
15325.00	595.592	595.208	595.544	
15350.00	595.467	595.083	595.323	
15351.33	595.460	595.076	595.316	
15403.83	595.200	594.816	594.816	END TRANSITION

** E/P ELEVATIONS FOR BRIDGE AND APPROACH SLAB ARE 34'-4" LEFT AND 34'-4" RIGHT OF CENTERLINE. THE OTHER ELEVATIONS ARE 24'-0" LEFT OF CENTERLINE AND 24'-0" RIGHT OF CENTERLINE.

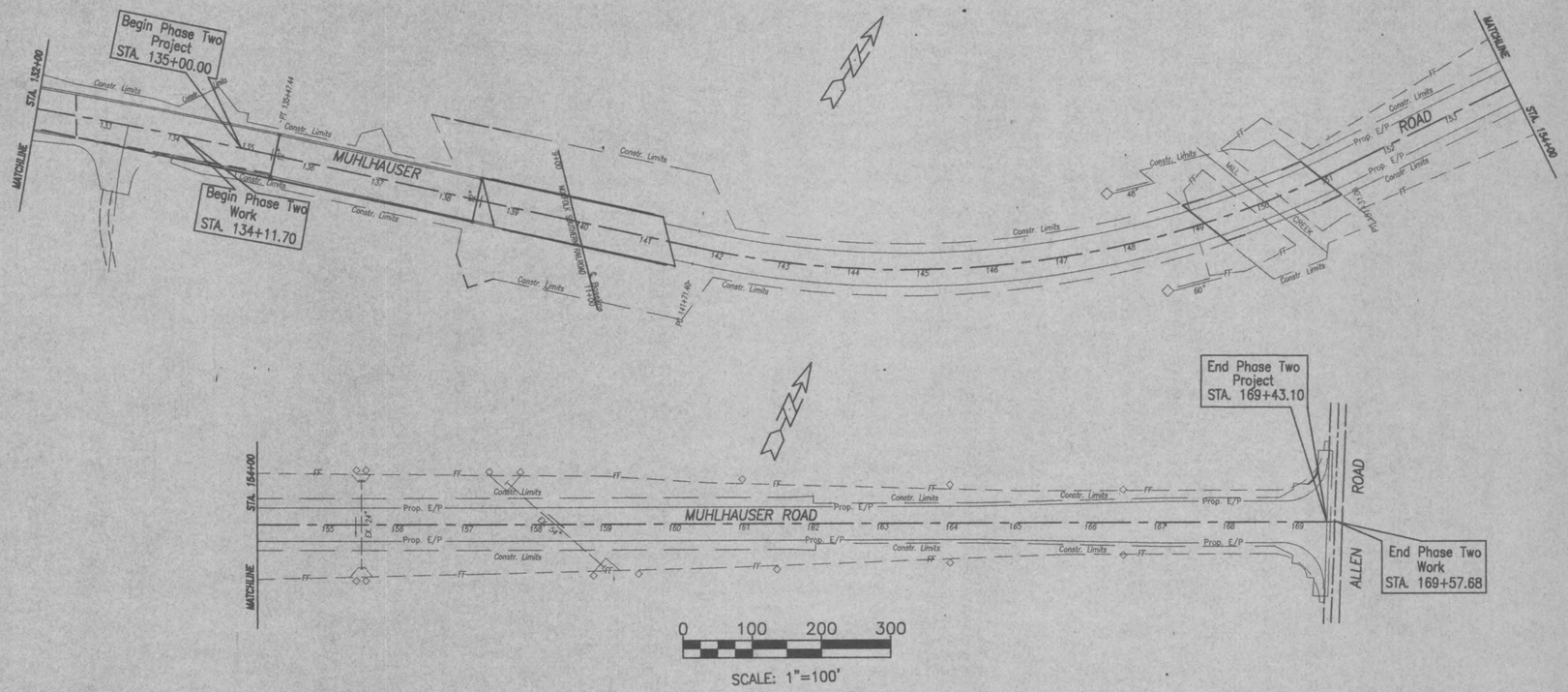
CALCULATED CLM
CHECKED CAR

PAVEMENT CALCULATIONS

R - 115 - 1.294

6
61

J:\FY2\9537-2\DETAILS\9537-206 Thu Feb 20 09:46:15 1997 Bayer Becker Engineers - PMP



NOTES: (1) THE FILTER FABRIC FENCE LOCATIONS SHOWN ON THIS SHEET ARE THE MINIMUM REQUIRED. AN ADDITIONAL QUANTITY OF FILTER FABRIC FENCE IS IN THE TEMPORARY SOIL EROSION AND SEDIMENT CONTROL SECTION OF THE GENERAL NOTES AND IS CARRIED TO THE GENERAL SUMMARY. THIS ADDITIONAL QUANTITY IS TO BE USED AS DIRECTED BY THE ENGINEER TO PROVIDE PROTECTION DOWNHILL FROM ALL GROUND TO BE DISTURBED BEFORE ANY WORK IN THAT AREA BEGINS.

(2) THE CONSTRUCTION LIMITS SHOWN ON THESE PLANS ARE FOR PERMANENT ITEMS ONLY. THE INSTALLATION OF ALL STORM WATER POLLUTION PREVENTION PLAN ITEMS SHALL BE PROVIDED BY THE CONTRACTOR WHETHER INSIDE OR OUTSIDE THESE CONSTRUCTION LIMITS.

(3) A QUANTITY FOR TEMPORARY BENCHES, DAMS, AND SEDIMENT BASINS TO BE USED AS DIRECTED BY THE ENGINEER IS SHOWN IN THE GENERAL NOTES AND IS CARRIED TO THE GENERAL SUMMARY.

LEGEND

- ▪ CATCH BASIN (8 BALES EACH), CB-3A
- ▪ CATCH BASIN (8 BALES EACH), CB-3A(MOD.)
- ▪ CATCH BASIN (8 BALES EACH),
- ◇ BALE DITCH CHECK (5 BALES EACH)
- —FF— FILTER FABRIC FENCE
- ● MANHOLE

PROJECT DATA	
RUNOFF COEFFICIENT FOR PRE-CONSTRUCTION SITE	---- 0.3 - 0.6
RUNOFF COEFFICIENT FOR POST-CONSTRUCTION SITE	---- 0.8
SOIL DATA ----	SEE ATEC REPORT DATED AUGUST 1, 1995
IMMEDIATE RECEIVING WATER ----	MILL CREEK
SUBSEQUENT RECEIVING WATER ----	OHIO RIVER

ESTIMATED QUANTITIES

LOCATION	SIDE	207 FILTER FABRIC FENCE	207 STRAW OR HAY BALES
		LIN. FT.	EACH
AT DITCH CHECKS	LT.& RT.		80
AT ALL CATCH BASINS	LT.& RT.		32
135+00 TO 169+43.10	LT.& RT.	5000	
TOTAL		5000	112

CALCULATED CAR
CHECKED CAR

STORM WATER POLLUTION PREEVENTION PLAN
STA. 135+00 TO STA. 169+43.10

R-115-1.294

7
61

D:\FF2\9637-2\DETAILS\9637-207 Mon Feb 17 17:11:56 1997 Drawn by: Tom Barnett

BENCHMARK ELEV.= 638.79
SET PK NAIL AT P.I. STA. 132+51.80

SEE SHEET 12 FOR ESTIMATED QUANTITIES.
SEE SHEET 6 FOR DRIVE DETAILS.
SEE SHEET 6 FOR SUPERELEVATION TABLE.
SEE SHEET 30–55 FOR STRUCTURE DETAILS.
SEE SHEET 56–58 FOR TRAFFIC CONTROL SHEETS.

℄ CURVE DATA
PI = STA. 132+51.80
Dc = 04°26'13"
R = 7639.44'
Δ = 04°26'13"
L = 591.58'
T = 295.94'
E = 5.73

Begin Phase Two Project STA. 135+00.00

Begin Phase Two Work STA. 134+11.70

MATCHLINE STA. 132+00

MATCHLINE STA. 143+00

BUTLER COUNTY, OHIO D.B. 1592, PG. 660

DUKE REALTY LIMITED PARTNERSHIP D.B. 1801, PG. 416

INTERNATIONAL BOULEVARD

EX. 40' C.G. & E. EASEMENT D.B. 1683, PG. 584

EX. 40' C.G. & E. EASEMENT D.B. 1660, PG. 591

EX. ASPHALT

EX. 120' PRIVATE DRAINAGE EASEMENT

EX. 50' C.G. & E. EASEMENT

EXISTING SLOPE EASEMENT

DRY RIDGE CAPITAL D.B. 1732, PG. 674

FRANK E. MINGES D.B. 509, PG. 569

NORFOLK SOUTHERN Underground Elec.

RAILROAD

MUHLHAUSER ROAD

SUPERELEVATION TRANSITION

℄ CURVE DATA
PI = STA. 146+70.02
Dc = 4°00'00"
R = 1432.39'
Δ = 38°23'11"
L = 959.66'
T = 498.62'
E = 84.31

BEGIN GUARDRAIL STA. 134+11.70 Flared End Section

10"x12" Reducer
12"x90" Bend

12"x6" Reducer Temp F.H.

Type "5" Guardrail

BEGIN GUARDRAIL STA. 134+28.59 TYP. 4 ANCHOR ASSEMBLY

END GUARDRAIL STA. 136+70.67 TYPE 4 ANCHOR ASSEMBLY

BEGIN GUARDRAIL STA. 137+04.34 TYPE 1 ANCHOR ASSEMBLY

END GUARDRAIL STA. 138+62.09

END GUARDRAIL STA. 138+93.93

BEGIN GUARDRAIL STA. 141+03.29

BEGIN GUARDRAIL STA. 141+35.00

STA. 139+94.35 =STA. 10+00.00

PT 135+47.44

STA. 135+50.00 LT. PROP. CB-3A T/GR.=626.18 INV.=621.67

STA. 138+50 LT. CB-3 T/GR.=622.12 INV.=616.72

STA. 138+50 RT. CB-3 MOD. T/GR.=622.12 12" INV.=615.53 15" INV.=612.72 42"-12" EXISTING RCP

Ex. CB-3A MOD. TO REMAIN T/GR=626.18 12" INV.=620.47 (Ex. & PROP.) 15" INV.=620.22 (PROP.)

STA. 138+50.40'RT. EXIST MH T/RIM=614.62 EX. 12" INV.=601.72 (TO BE SEALED) EX. 42" INV.=588.12 PROP. 15" INV.=610.92

EX. BUILDING

Ex. Retaining Wall

Ex. Curb

EX. CB TO REMOVED

EX. 292'-15" TO BE REMOVED

EX. 283'-12" REMOVED

EX. MH-3 TO REMAIN To Be Removed

EX. 50'-12" @ 2.03% PROP. 60'-12" STORM @ 2.03% (TYPE A)

EX. 300'-15" @ 2.50% (TYPE A)

EX. 68'-24" STM

EX. 65'-0" STM

EX. 49'-0" STM

EX. 25'-0" STM

EX. 24'-0" STM

EX. 22'-0" STM

EX. 20'-0" STM

EX. 18'-0" STM

EX. 16'-0" STM

EX. 14'-0" STM

EX. 12'-0" STM

EX. 10'-0" STM

EX. 8'-0" STM

EX. 6'-0" STM

EX. 4'-0" STM

EX. 2'-0" STM

EX. R/W

Constr. Limits

C/L Construction

C/L CONSTRUCTION

CONSTR. LIMITS

EX. R/W CONSTR. LIMITS

Bridge Terminal Assembly Type I (Typical)

DEFLECTOR PARAPET

EX. CONVERT

EX. CULVERT

EX. HEADWALL

HIGH POWER LINES

Elec. Tower

Elec. Box

EXISTING PAVEMENT, TO BE SALVAGED

BENCHMARK ELEV.= 593.37
CHISELED SQUARE ON EXISTING HW AT P.I. STA. 140+25.00;106' RT.

PHASE ONE PHASE TWO

VPC STA = 133+25
VPC EL = 635.63

-4.99%

4" TOP OF EX. 10" WATERLINE

STA. 132+64, RT
EX. CB-3A (MOD.)
T\GR= 637.68
INV.= 632.80

EX. 286'-12" STM @ 4.31% TYPE A

STA. 135+50, LT
CB-3A (MOD)
T/GR= 626.18
INV.= 621.73

300'-15" STM @ 2.50% TYPE A

STA. 32+52, LT
EX. CB-3A (MOD.)
WITH FLAT TOP
T\GR= 638.63
INV.= 633.68

STA. 35+50, RT
EX. CB TO REMAIN
T/GR= 626.18
12" INV.= 620.47
15" INV.= 620.22

CURVE LEN = 600.00
VPI STA = 136+25
VPI EL = 620.65
K = 104.36 > 45 MPH
SSD = 455.89' > 325'

STA. 138+50, 40' RT
EX STM MH
T/RIM= 614.62
PROP.15" INV.= 610.92
EX 42" INV.= 588.12

EX. HW
INV.= 587.52

VPI=VPC STA = 139+25
VPI=VPC EL = 622.92

0.76%

1'-15" STM @ 15.00%

STA. 138+50, RT
CB-3 (MOD)
T/GR= 622.12
12" INV.= 615.53
15" INV.= 612.72

EX. 75'-42" STM @ 0.80%

VP STA = 142+00
VPI EL = 625.00
K = 81.40 > 45 MPH
SSD = 328.93' > 325'
CURVE LEN = 550.00

-6.00%

628.36 627.56 626.82 626.14 625.52 624.96 624.46 624.02 623.64 623.32 623.06 622.86 622.72 622.64 622.62 622.66 622.76 622.92 623.07 623.14 623.14 623.06 622.91 622.67 622.36 621.98 621.51 620.97 620.35 619.66 618.89 618.04

623.00 622.43 622.30 622.17 622.01 597.27 592.60 589.86 589.76 589.78 590.96 608.10

660 650 640 630 620 610 600 590 580 570

132+00 133+00 134+00 135+00 136+00 137+00 138+00 139+00 140+00 141+00 142+00 143+00

CALCULATED: C.L.M.
CHECKED: C.A.R.

0 40 80

STA. 132+00 TO STA. 143+00

PLAN & PROFILE

61

E:\PJ\2637\2637-2\RPD6008 Thu Jan 23 11:20:52 1997 BAYER BECKER ENGINEERS Plotted by CLM

SEE SHEET 12 FOR ESTIMATED QUANTITIES.
SEE SHEET 6 FOR DRIVE DETAILS.
SEE SHEET 6 FOR SUPERELEVATION TABLE.
SEE SHEET 30–55 FOR STRUCTURE DETAILS.
SEE SHEET 56–58 FOR TRAFFIC CONTROL SHEETS.

* COST OF RELOCATING EXISTING CULVERT SHALL BE INCLUDED WITH ITEM 304 FOR PAYMENT.

℄ CURVE DATA
PI = STA. 146+70.02
D_C = 4°00'00"
R = 1432.39'
Δ = 38°23'11"
L = 959.66'
T = 498.62'
E = 84.31

MATCHLINE STA. 143+00

STA. 154+00 MATCHLINE

MUHLHAUSER ROAD

FRANK E. MINGES D.B. 509, PG. 569

BUTLER COUNTY, OHIO UTILITY EASEMENT O.R. 5181, PG. 276

BUTLER COUNTY, OHIO SLOPE EASEMENT O.R. 5181, PG. 274

EX. DITCH

EX. 40' R/W EASEMENT

EXISTING CULVERT TO BE RELOCATED TO * STA. 148+17, 76' LT.

PROPOSED PROFILE TO MATCH EXISTING PROFILE

END GUARDRAIL STA. 148+16.56

END GUARDRAIL STA. 148+49.56

END GUARDRAIL STA. 149+54.02

BEGIN GUARDRAIL STA. 148+30.43

BEGIN GUARDRAIL STA. 148+80.56

BEGIN GUARDRAIL STA. 150+60.90

BEGIN GUARDRAIL STA. 150+97.00

TYPE "I" ANCHOR

PROP. EDGE OF PAVED SHOULDER

CONSTR. LIMITS

EX. R/W

Ex. 48" San. Sewer

Ex. 10" San. Sewer

EX. SAN. MH-1

STA. 149+60.00, 5' RT.

EX. SAN. MH-1

Ex. 120" SAN.

EX. 6D STM

PROPOSED PROFILE TO MATCH EXISTING PROFILE

BUTLER COUNTY, OHIO UTILITY EASEMENT O.R. 5140, PG. 038

BUTLER COUNTY, OHIO UTILITY EASEMENT O.R. 5140, PG. 040

PT 151+31.06

150+52.31

SUPERELEVATION TRANSITION

JOHN JACOB & GERALDINE D. KOEBEL D.B. 1144, PG. 272

BUTLER COUNTY, OHIO O.R. 5140, PG. 034 SLOPE EASEMENT

EX. RIGHT-OF-WAY

Prop. E/P

Type "S" Guardrail

34'-0"

Ex. 100' R/W

BUTLER COUNTY, OHIO O.R. 5140, PG. 036 SLOPE EASEMENT

Ex. 82" SAN.

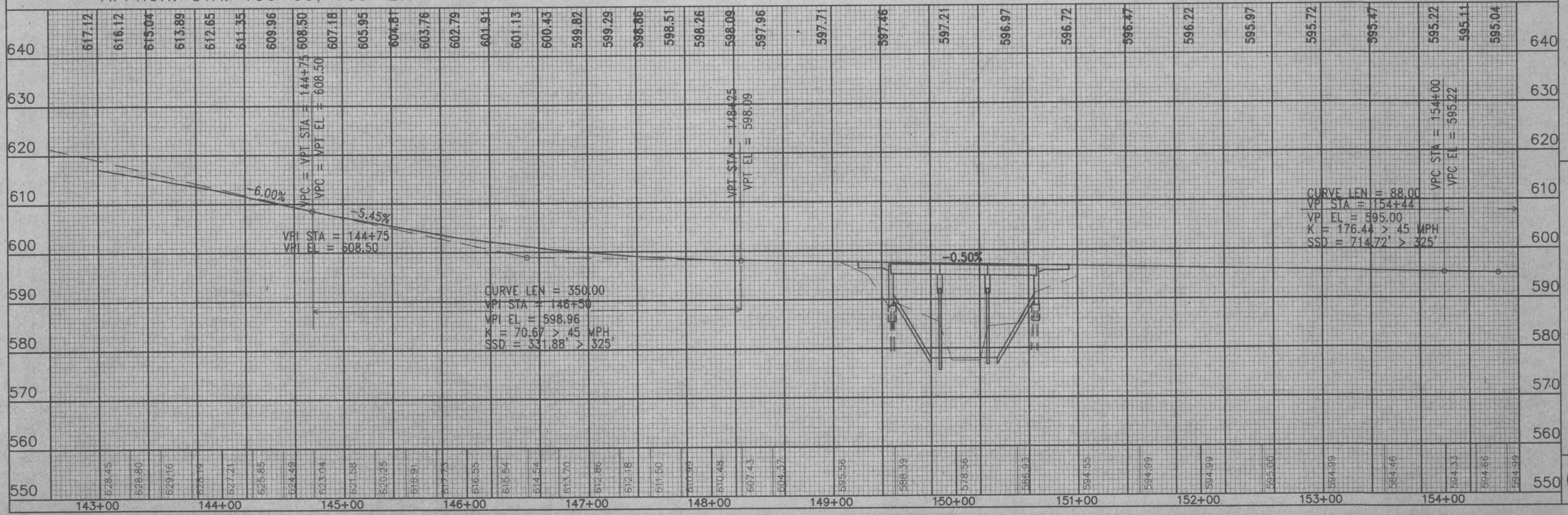
MILL 30"

OREX

BENCHMARK – ELEV.= 590.23
SET SPIKE IN TREE AT
APPROX. STA. 150+00; 100' LT.

0 40 80 120

0 10 20



CALCULATED: C.L.M. CHECKED: C.A.R.

0 40 80

STA. 143+00 TO STA. 154+00

PLAN & PROFILE

9
61

D:\FY\9537\9537-2\RDP07006 Mon Feb 24 10:19:34 1997 Drawn by: Tom Barrett

SEE SHEET 12 FOR ESTIMATED QUANTITIES.
SEE SHEET 6 FOR DRIVE DETAILS.
SEE SHEET 6 FOR SUPERELEVATION TABLE.
SEE SHEET 30–55 FOR STRUCTURE DETAILS.
SEE SHEET 56–58 FOR TRAFFIC CONTROL SHEETS.

STA. 154+00

MATCHLINE

154+03.83

SAN. MH 1
STA. 154+70, 44' LT.
RIM = 591.20
INV.=576.83

STA. 155+50, 64' LT.
EX. HW-4
INV.=583.30

STA. 155+50, 64' RT.
EX. HW-4A
INV.=583.17

JOHN JACOB & GERALDINE D. KOEBEL
D.B. 1144, PG. 272

BUTLER COUNTY, OHIO
O.R. 5140, PG. 034

BUTLER COUNTY, OHIO
O.R. 5140, PG. 036
SLOPE EASEMENT

JOHN JACOB & GERALDINE D. KOEBEL
D.B. 1144, PG. 272

STA. 157+60, 61' LT.
EX. HW-4A
INV.=583.10

FIELD LOCATE EXISTING WATERMAIN PRIOR TO CONSTRUCTING GUARD RAIL.

Ex. HW

SAN. MH 1
STA. 158+70, 44' LT.
RIM = 591.20
INV.=579.23

STA. 159+00, 62' RT.
EX. HW-4A
INV.=582.00
RCP TYPE B
14'X10'X30"

SLOPE EASEMENT

EX. RIGHT-OF-WAY

Ex. 10" San. Sewer

400'-10" SAN. @ 0.60%

Prop. E/P

Ex. 128'-24" STM. @ 0.13%

Type "A" @ 0.59%

187'-54" Conduit

MUHLHAUSER ROAD

Ex. 100' R/W

34'-0"

155 156 157 158 159 160 161 162 163 164 165

3-P 20-R 21-R 22-R 23-R

Type "5" Guardrail

Type "A" Anchor Assembly (TYPICAL)

25'-0"

N63°59'10"E

Flared End Section
END GUARDRAIL
STA. 161+99.31

END GUARDRAIL
STA. 161+97.75

SAN. MH 1
STA. 162+70, 44' LT.
RIM = 591.20
INV.=581.63

P/L

EX. FENCE, TYPE 47

HERBERT & DORIS BAUMANN
D.B. 1744, PG. 710
D.B. 1744, PG. 714

BUTLER COUNTY, OHIO
D.B. 5140, PG. 046
SLOPE EASEMENT

CONSTR. LIMITS 400'-10" SAN. @ 0.60% SDR 35

BEGIN PAVEMENT TRANSITION
STA. 164+40.00

48'

STA. 165+00

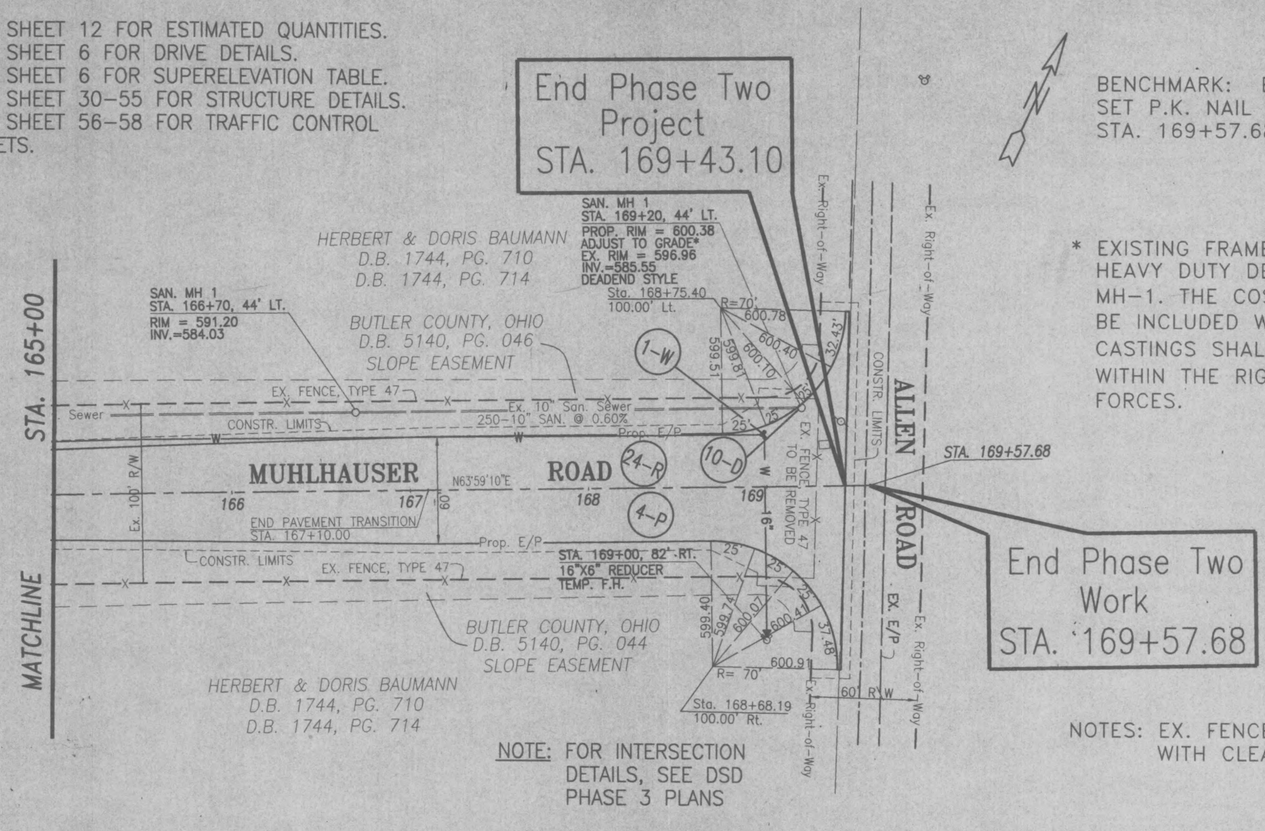
MATCHLINE

BUTLER COUNTY, OHIO
D.B. 5140, PG. 044
SLOPE EASEMENT

20 10 0
0 40 80 120

595.22 595.11 595.04 595.00 595.00 595.00

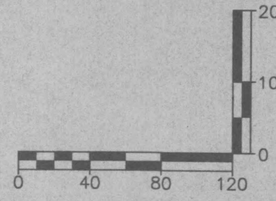
SEE SHEET 12 FOR ESTIMATED QUANTITIES.
SEE SHEET 6 FOR DRIVE DETAILS.
SEE SHEET 6 FOR SUPERELEVATION TABLE.
SEE SHEET 30-55 FOR STRUCTURE DETAILS.
SEE SHEET 56-58 FOR TRAFFIC CONTROL SHEETS.

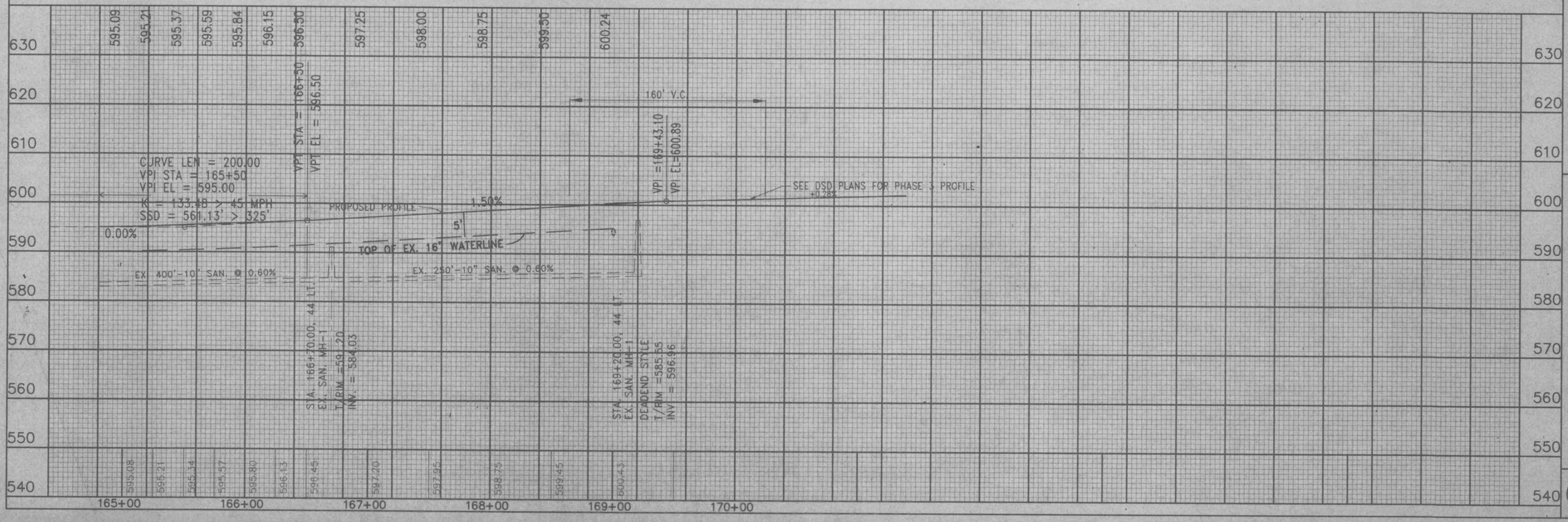


BENCHMARK: ELEV.= 601.42
SET P.K. NAIL AT ALLEN ROAD
STA. 169+57.68

* EXISTING FRAME AND GRATE SHALL BE REPLACED WITH HEAVY DUTY DESIGN AS SHOWN ON STANDARD DRAWING MH-1. THE COST OF ALL WORK AND MATERIALS SHALL BE INCLUDED WITH ITEM 604 FOR PAYMENT. ALL EXISTING CASTINGS SHALL BE CAREFULLY REMOVED AND STORED WITHIN THE RIGHT-OF-WAY FOR SALVAGE BY COUNTY FORCES.

NOTES: EX. FENCE TO REMOVED SHALL BE INCLUDED WITH CLEARING AND GRUBBING FOR PAYMENT.





CALCULATED: C.L.W.
CHECKED: C.A.R.

0 40 80

PLAN & PROFILE STA. 165+00 TO STA. 169+57.68

11/61

D:\9537\9537dn2\RDP09006, Thu Nov 20 08:34:46 1997, Drawn by: Tom Barrett

ESTIMATED QUANTITIES

PAVEMENT

REF. NO.	SHEET NO.	STATION TO STATION	SIDE	301 BITUMINOUS AGG. BASE AC-20 (PAVEMENT) CU. YD.	301 BITUMINOUS AGG. BASE AC-20 (SHOULDERS) CU. YD.	304 AGGREGATE BASE CU. YD.	403 ASPHALT CONCRETE AC-20 CU. YD.	402 ASPHALT CONCRETE AC-20 CU. YD.	404 ASPHALT CONCRETE AC-20 CU. YD.	404 ASPHALT CONC. AC-20 (DRIVES) CU. YD.	407 TACK COAT GAL.	408 BITUMINOUS PRIME COAT GAL.	409 SEAL COAT COVER AGGREGATE CU.YD.	409 SEAL COAT BITUMINOUS MATERIAL GAL.	452 PLAIN CONCRETE PAVEMENT SQ. YD.	609 COMBINATION CURB & GUTTER TYPE 2* LIN. FT.	611 REINFORCED CONCRETE APPROACH SLAB SQ. YD.
1-P	8	135+00 TO 143+00	LT & RT	827.81	55.96	627.92	50.84	161.79	115.57		47.83		2.39	89.53		729.90	361.11
2-P	9	143+00 TO 154+00	LT & RT	1543.27	309.22	1443.06		240.51	171.76				13.19	494.76			361.11
3-P	10	154+00 TO 165+00	LT & RT	1829.94	367.67	1711.11		285.19	203.70				15.64	586.67			
4-P	11	165+00 TO 169+43.10	LT & RT	942.63	158.50	794.16		148.09	105.73				6.77	253.59			
1-DR	8	136+92.32	LT			2.76		0.60		0.43		4.97			93.29		
2-DR	9	148+50	LT			41.44											
3-DR	9	148+50	RT			69.22											
			TOTAL	5143.65	891.35	4689.67	50.84	836.18	596.76	0.43	47.83	4.97	37.99	1424.55	93.29	729.90	722.22

WATER

REF. NO.	SHEET NO.	STATION TO STATION	SIDE	638 VALVE BOX ADJUSTED TO GRADE EACH
1-W	11	168+98.91	LT	3
			TOTAL	3

ROADWAY

REF. NO.	SHEET NO.	STATION TO STATION	SIDE	203 SUBGRADE COMPACTION SQ. YD.	202 CATCH BASIN OR INLET REMOVED EACH	203 PROOF ROLLING HOUR	605 AGGREGATE DRAINS LIN.FT.	606 GUARDRAIL, TYPE 5 LIN.FT.	606 ANCHOR ASSEMBLY TYPE A EACH	606 ANCHOR ASSEMBLY TYPE T EACH	606 BRIDGE TERMINAL ASSEMBLY TYPE 1 EACH	202 PIPE REMOVED, 24" AND UNDER LIN.FT.
1-R	8	135+00 TO 143+00	LT & RT	2949.25		0.98	48					
2-R	8	134+11.70 TO 136+70.61	LT					246.41		1		
3-R	8	134+26.59 TO 138+93.80	RT					442.21	1			
4-R	8	137+04.34 TO 138+37.09	LT					120.25		1		
5-R	8	138+37.09 TO 138+62.09	LT								1	
6-R	8	138+68.80 TO 138+93.80	RT								1	
7-R	8	141+35.00 TO 141+60.00	RT								1	
8-R	8	141+03.29 TO 141+28.29	LT								1	
9-R	8	141+35.00 TO 143+00.00	RT					165.00				
10-R	8	141+03.29 TO 143+00.00	LT					196.71				
11-R	9	143+00 TO 154+00	LT & RT	5256.89		1.76	293					
12-R	9	143+00.00 TO 149+10.56	LT					562.50		2		
13-R	9	143+00.00 TO 149+54.02	RT					629.02		2		
14-R	9	149+29.60 TO 149+54.02	RT								1	
15-R	9	148+84.95 TO 149+10.56	LT								1	
16-R	9	150+60.90 TO 150+86.51	LT								1	
17-R	9	150+97.00 TO 151+21.42	RT								1	
18-R	9	150+60.90 TO 154+00.00	LT					339.10				
19-R	9	150+97.00 TO 154+00.00	RT					303.00				
20-R	10	154+00 TO 165+00	LT & RT	6235.56		2.08	396					
21-R	10	154+00.00 TO 161+99.31	RT					799.31				
22-R	10	154+00.00 TO 161+72.75	LT					772.75				
23-R	10	161+72.75 TO 161+97.75	LT						1			
24-R	11	165+00 TO 169+43.10	LT & RT	3218.31		1.07	135					
25-R	8	135+50	LT & RT		2							50
26-R	8	135+50 TO 138+40	RT									292
27-R	8	138+40	LT & RT		2							68
			TOTAL	17660.01	4	5.89	872	4576.21	2	6	8	410

DRAINAGE

REF. NO.	SHEET NO.	STATION TO STATION	SIDE	603 12" STORM TYPE "A" LIN.FT.	603 15" STORM TYPE "A" LIN.FT.	603 15" STORM TYPE "C" EACH	604 CATCH BASIN CB-3A EACH	604 CATCH BASIN CB-3 MOD. EACH	604 MANHOLES ADJUSTED TO GRADE EACH	605 6" SHALLOW PIPE UNDERDRAIN LIN.FT.	604 CATCH BASIN CB-3 EACH
1-D	8	135+50	LT				1				
2-D	8	135+50	LT & RT	60							
3-D	8	135+50 TO 138+50	RT		300						
4-D	8	138+50	RT					1			
5-D	8	138+50	LT & RT	60							
6-D	8	138+50	LT								1
7-D	8	138+50	RT			12					
8-D	8	135+50 TO 138+50	LT							300	
9-D	8	135+50 TO 138+50	RT							300	
10-D	11	169+20	LT						1		
			TOTAL	120	300	12	1	1	1	600	1

EARTHWORK

SHEET NUMBERS	STATION	EARTHWORK SUMMARY EXCAVATION CU. YDS.	EARTHWORK SUMMARY EMBANKMENT CU. YDS.	659-SEEDING AND MULCHING SQ. YDS.	659-COMM. FERTILIZER TONS	659 WATER M. GALS.
9	143+00 TO 154+00	1539	855	5558	0.50	12.00
10	154+00 TO 165+00	4327	259	8457	0.76	18.26
11	165+00 TO 169+43.10	1683	94	1749	0.16	3.78
	TOTAL	7549	1208	15764	1.42	34.04

CALCULATED: MAR/CAR
CHECKED: CAR

ESTIMATED QUANTITIES

R-115-1.294

12
61

J:\FY2\9537-2\DETAILS\9537-212 Thu Feb 13 09:41:38 1997 Bayer Becker Engineers - RMF

SEEDING END WIDTH	SEEDING SQUARE YARDS

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

CALCULATED: CLM
CHECKED: MAR

130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120

630
620
610

2:1
EX. TELE.
EX. 12" STORM
3:1

STA. = 135+00
628.36

630
620
610

3:1
EX. TELE.
EX. 12" STORM

STA. = 134+50
630.14

630
620
610

EX. TELE.
EX. 12" STORM

STA. = 134+00
632.15

630
620
610
600

SEE INTERSECTION DETAILS FOR PHASE I

630
620
610

EX. TELE.
EX. 10" W.L.
EX. 12" STORM

STA. = 133+50
634.41

NOTE: ON ALL CROSS SECTION SHEETS THE PROPOSED ELEVATIONS ARE BELOW THE STATIONS.

130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120

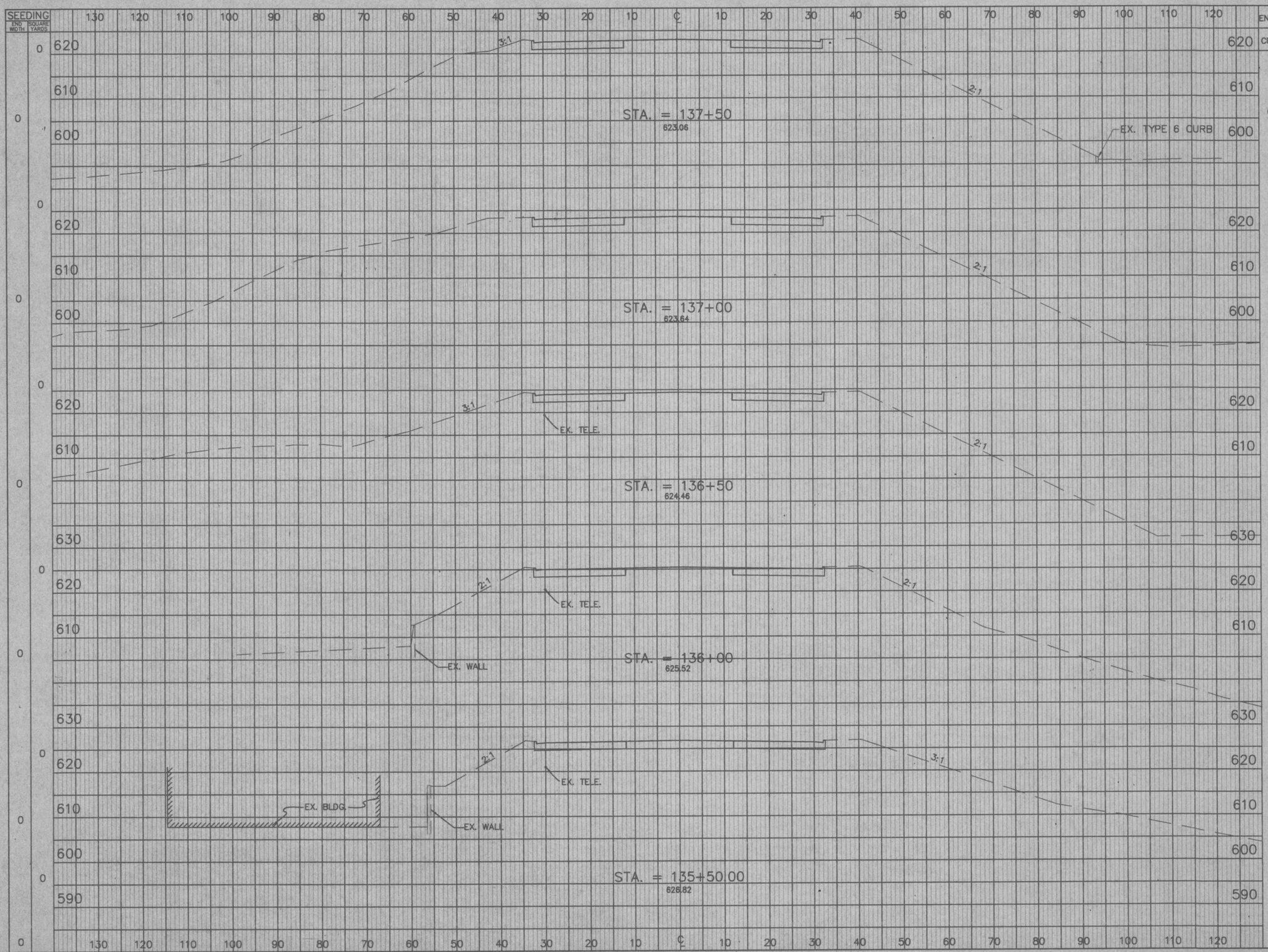
CROSS SECTIONS STA. 133+50 TO STA. 135+00

R-115-1.294

13
61

J:\FF2\9537-2\SECN2-PAGE13 Thu Feb 13 11:06:07 1997 Bayer Becker Engineers - PMP

SEEDING END WIDTH	SEEDING SQUARE YARDS
0	0
0	0
0	0
0	0
0	0
0	0
0	0



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	0		
0	0	0	0

SEEDING END WIDTH	SEEDING SQUARE YARDS
0	0
0	0
0	0
0	0
0	0

STA. = 139+50
623.07

STA. = 139+00
622.76

BRIDGE LIMIT STA. 138+89.95

STA. = 138+50
622.62

STA. = 138+00
622.72

3:1

2:1

EX. TYPE 2 PAVED GUTTER (@ TOE OF 2:1 SLOPE)

EX. WALL

EX. T-WALL

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	0		
		0	0
0	0		
0	0		
0	0		

CALCULATED: MAR

CHECKED: MAR

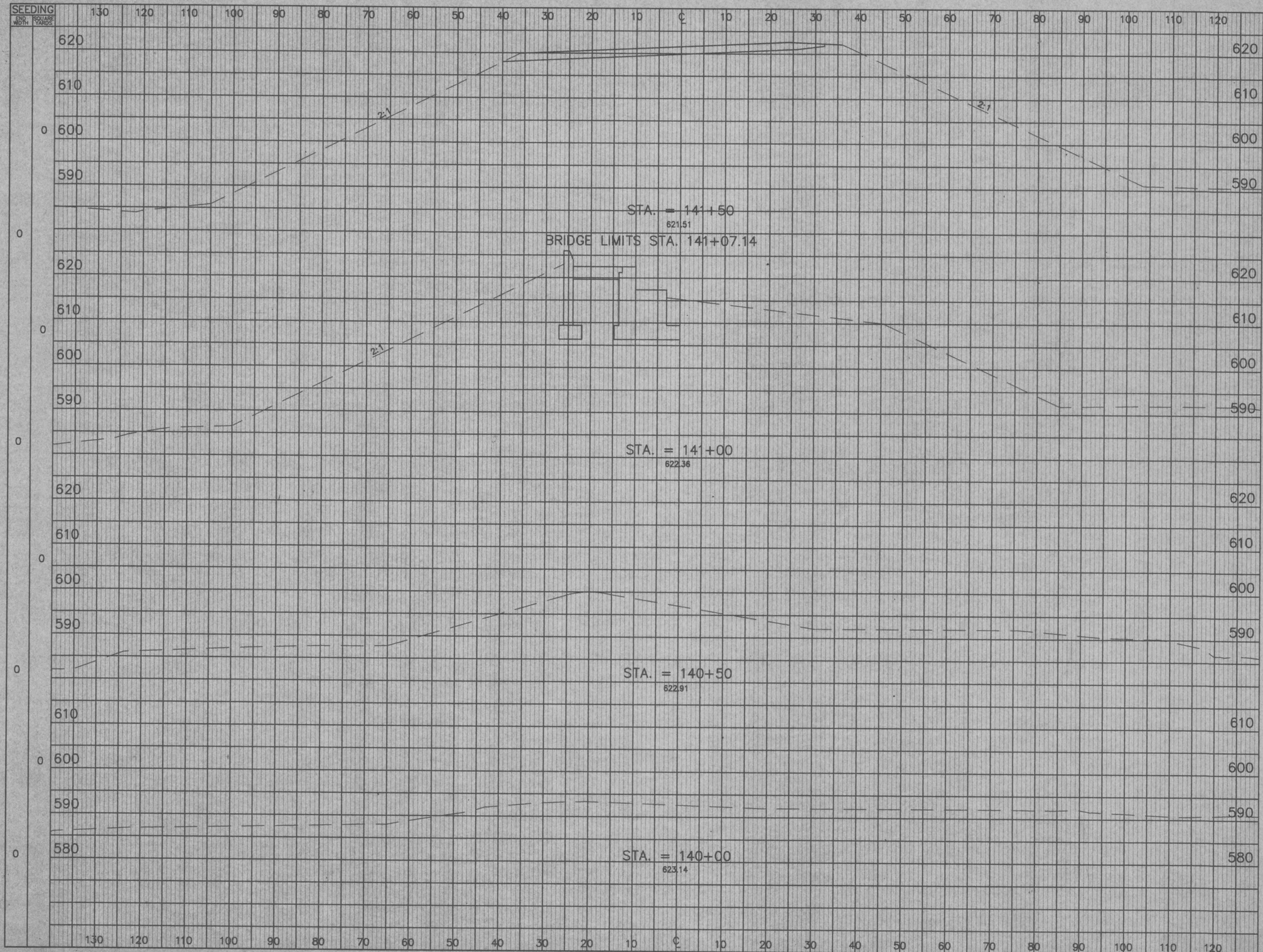
CROSS SECTIONS STA. 138+00 TO STA. 139+50

R-115-1.294

15
61

J:\FF21B537-2\XSEC\2-PAGE15 Thu Feb 13 11:08:35 1997 Bayer-Becker Engineers RMP

SEEDING END WIDTH	SEEDING SQUARE YARDS
0	0
0	0
0	0
0	0



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	0		
		0	0
0	0		
		0	0
0	0		
		0	0
0	0		

CALCULATED: MAR

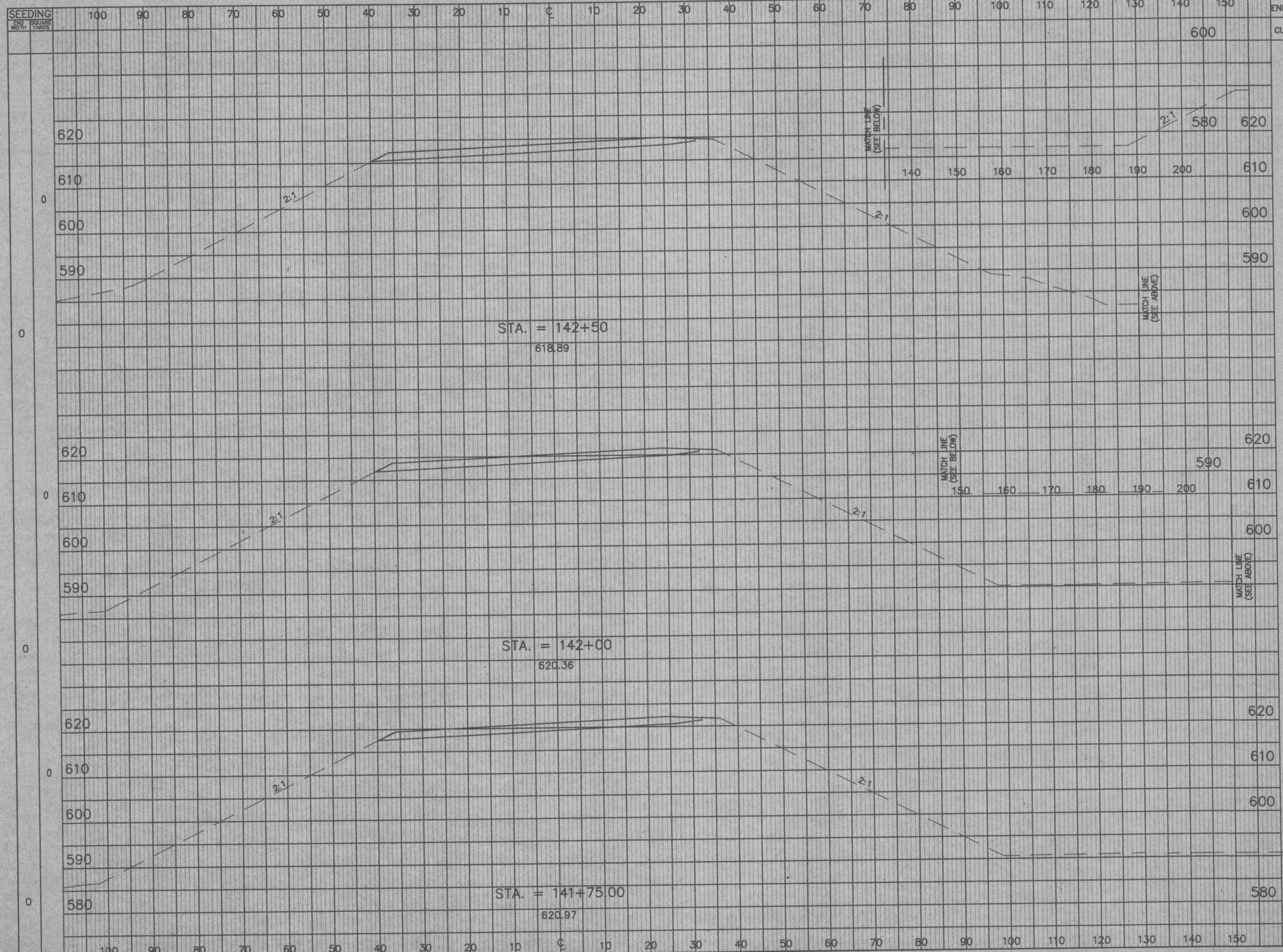
CHECKED: MAR

R-115-1.294 | CROSS SECTIONS STA. 140+00 TO STA. 141+50

16
61

J:\VF2\0637-2\VSEC\2-PAGE16 Thu Feb 13 11:18:32 1997 Bayer Becker Engineers - RMB

SEEDING END WIDTH	SEEDING SQUARE YARDS
0	0



END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	0		
0	0	0	0
0	0	0	0

CALCULATED: MAR

CHECKED: MAR

CROSS SECTIONS STA. 141+75 TO STA. 142+50

R-115-1.294

17
61

J:\FP2\0937-2\VSEC\2-PAGE17 Thu Feb 13 11:20:04 1997 Bayer Becker Engineers - RMP

SEEDING	
END WIDTH	SQUARE YARDS
0	0

END AREA		VOLUME		
CUT	FILL	CUT	FILL	CALCULATED: MAR
0	0			CHECKED: MAR

STA. = 144+00
612.65

STA. = 143+50
615.04

STA. = 143+00
617.12

MATCH LINE (SEE BELOW)

MATCH LINE (SEE ABOVE)

2:1

CROSS SECTIONS STA. 143+00 TO STA. 144+00

R-115-1.294

18
61

J:\FY2\9537-2\XSEC\C2-PAGE18 Thu Feb 13 11:21:34 1997 Bayer Becker Engineers - RNP

CROSS SECTIONS STA. 144+50 TO STA. 146+00

R-115-1.294

19
61

SEEDING END WIDTH	SEEDING SQUARE YARDS
0	0
0	0
0	0
0	0

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	0		
0	0	0	0
0	0	0	0
0	0	0	0

CALCULATED: MAR

CHECKED: MAR

STA. = 146+00
602.79

STA. = 145+50
604.81

STA. = 145+00
607.18

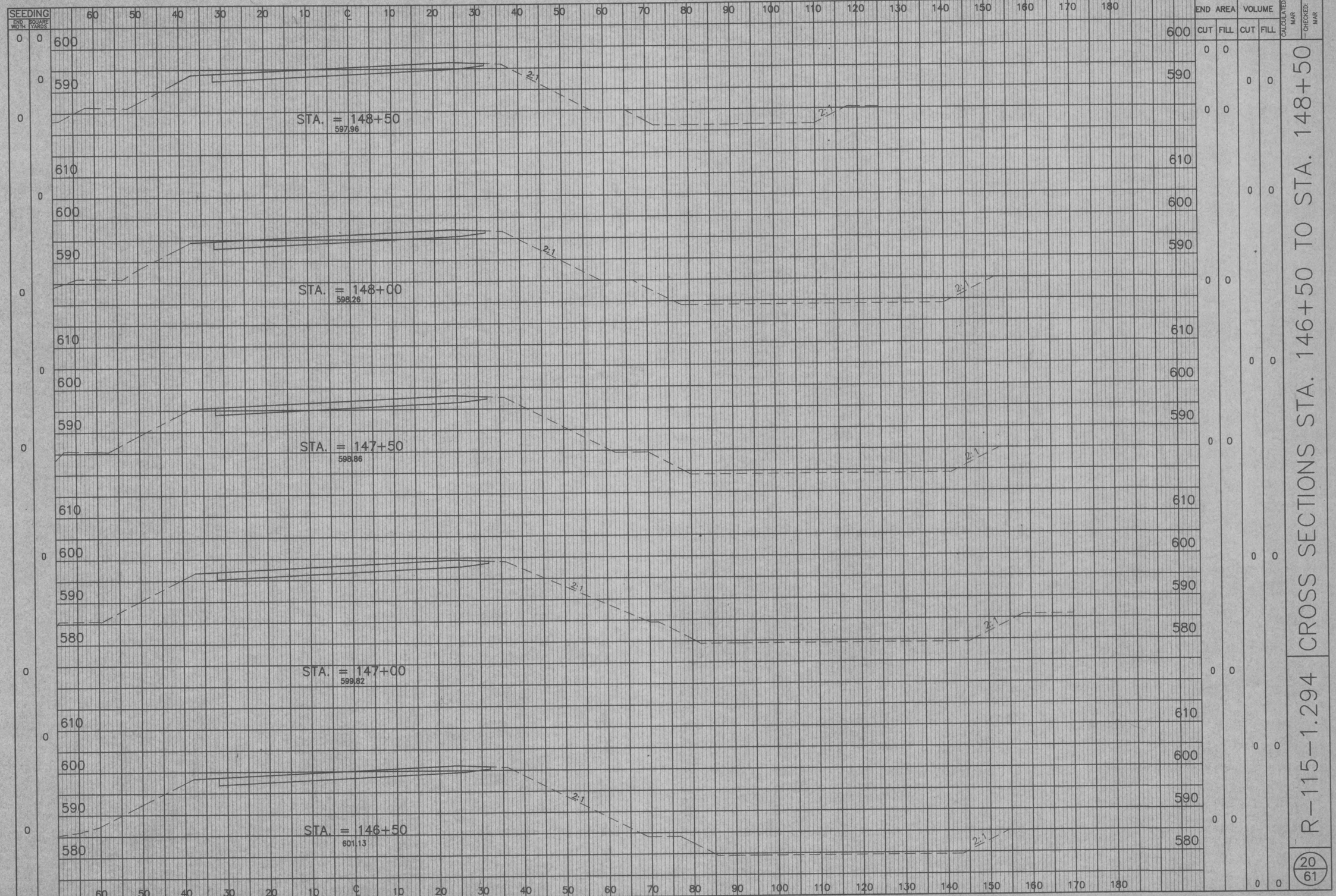
STA. = 144+50
609.96

2:1

60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180

620 610 600 590 580

J:\YFP\9637-2\XSECV2-PAGE19 Thu Feb 13 11:23:10 1997 Bayer Becker Engineers - RMP



J:\FEN\9537-EXSEC\2-PAGE20 Thu Feb 13 11:24:59 1997 Bayer Becker Engineers - MWP

SEEDING END WIDTH	SEEDING SQUARE YARDS
152	1028
154	617
68	533
124	583
86	239

SEE PHASE THREE CONSTRUCTION DRAWINGS

EX. 16" WATERMAIN

STA. = 151+00
596.72

EX. 10" SAN.

BRIDGE LIMITS STA. = 150+67.46

EX. 16" WATERMAIN

EX. 10" SAN.

STA. = 150+50
596.97

EX. 16" WATERMAIN

STA. = 150+00
597.21

EX. 10" SAN.

EX. 16" WATERMAIN

STA. = 149+50
597.46

BRIDGE LIMITS STA. = 149+45.14

EX. 16" WATERMAIN

STA. = 149+00
597.71

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
81	89		
		75	82
0	0		
		0	0
0	0		
		0	0
0	0		
		140	144
151	156		
		140	144

CALCULATED: CLM
CHECKED: MAR

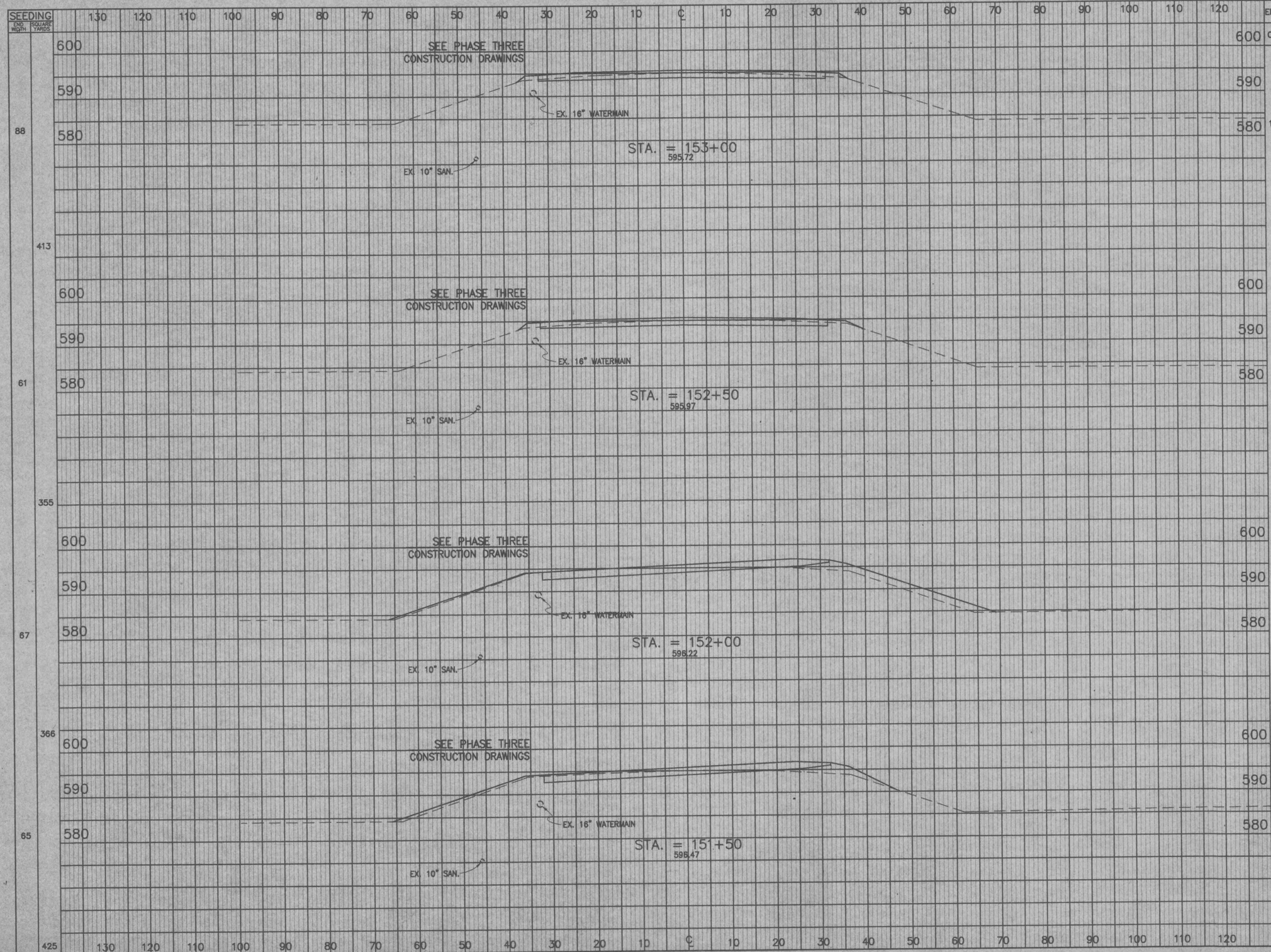
CROSS SECTIONS STA. 149+00 TO STA. 151+00

R-115-1.294

21/61

d:\FP\9637-2\XSEC\2-PABE21 Thu Feb 13 11:26:39 1997 Bayer-Becker Engineers - BWP

SEEDING END WIDTH	SEEDING SQUARE YARDS
88	413
61	
67	355
65	366
	425



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
152	0		
		256	0
124	0		
		237	68
132	74		
		233	131
120	67		
		186	144

CALCULATED: CLM
CHECKED: MAR

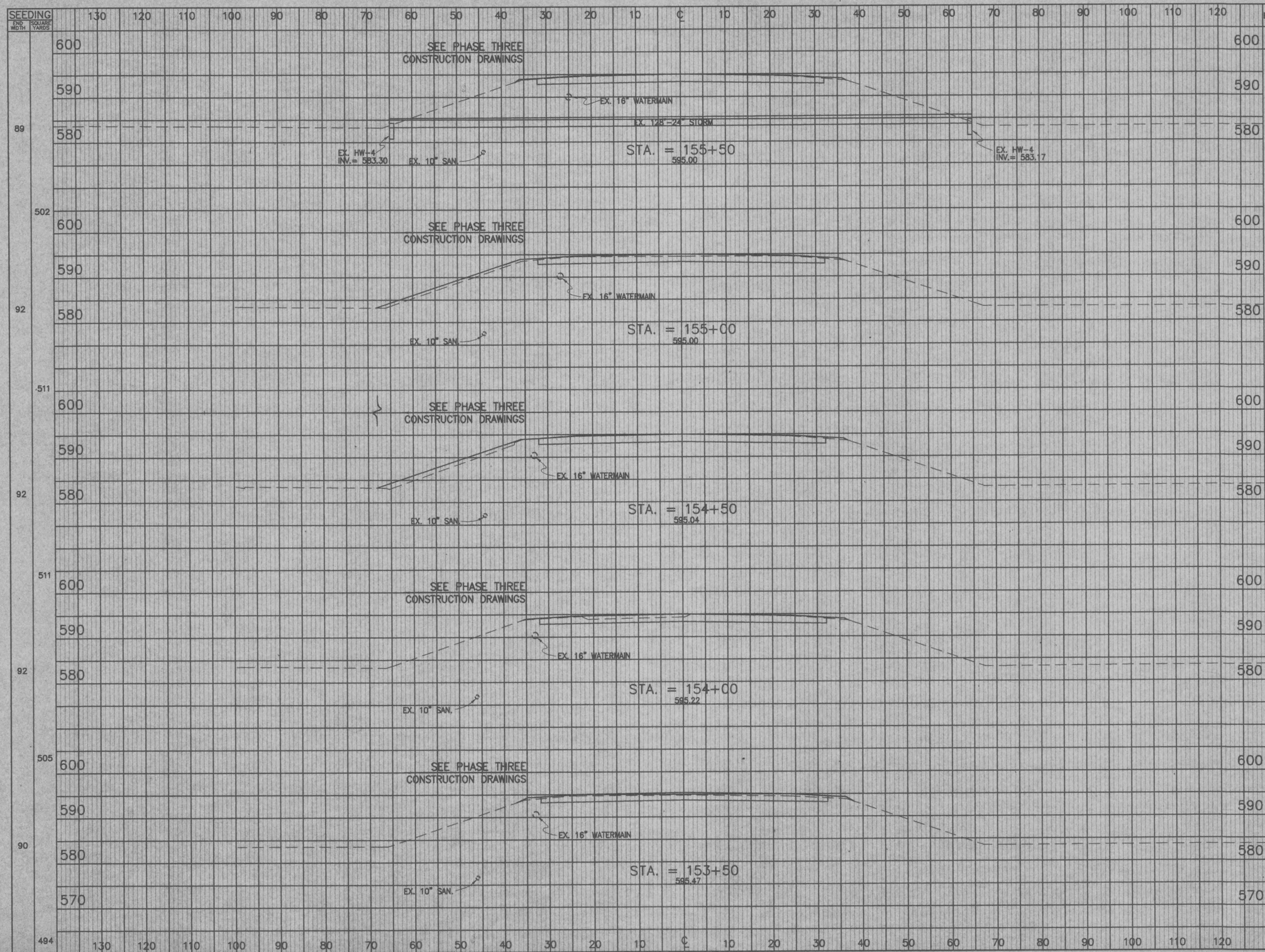
CROSS SECTIONS STA. 151+50 TO STA. 153+00

R-115-1.294

22
61

J:\FY2\9507-2\VSED\A-PAGE22 Thu Feb 13 11:28:15 1997 Bayer Becker Engineers - RMP

SEEDING END WIDTH	SEEDING SQUARE YARDS
89	502
92	511
92	511
92	505
90	494



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
107	0		
		198	46
107	50		
		198	107
107	66		
		169	106
76	49		
		101	142
33	0		
		171	0

CALCULATED: CLM

CHECKED: MAR

STA. 153+50 TO STA. 155+50

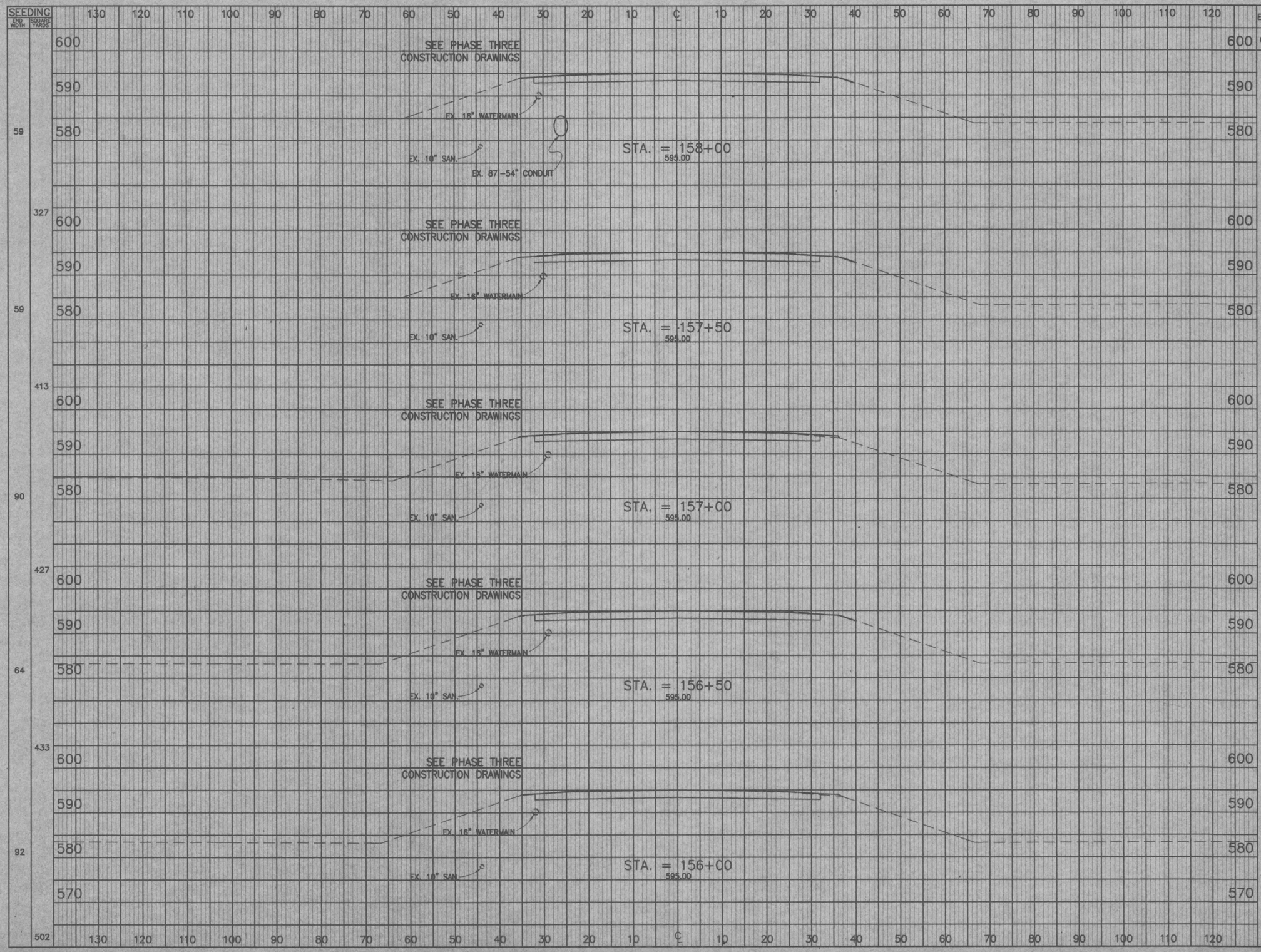
CROSS SECTIONS

R-115-1.294

23
61

J:\FY2D\537-2\MISC\C2-PAGE23 Thu Feb 13 11:30:24 1997 Bayer Becker Engineers - MAP

SEEDING END WIDTH	SEEDING SQUARE YARDS
59	327
59	413
90	427
64	433
92	502



	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
STA. = 158+00	107	0		
			198	0
STA. = 157+50	107	0		
			198	0
STA. = 157+00	107	0		
			198	0
STA. = 156+50	107	0		
			198	0
STA. = 156+00	107	0		
			198	0

CALCULATED: CLM

CHECKED: MAR

CROSS SECTIONS STA. 158+00 TO STA. 156+00

R-115-1.294

24
61

J:\YF2\0537-2\XSECS2-PAGE24 Thu Feb 13 11:31:53 1997 Beyer Becker Engineers - AMP

SEEDING END WIDTH	SEEDING SQUARE YARDS
78	447
83	475
88	480
85	483
89	411

130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120

600 590 580 570

SEE PHASE THREE CONSTRUCTION DRAWINGS

EX. 16" WATERMAIN

EX. 10" SAN.

STA. = 160+50
595.00

SEE PHASE THREE CONSTRUCTION DRAWINGS

EX. 16" WATERMAIN

EX. 10" SAN.

STA. = 160+00
595.00

SEE PHASE THREE CONSTRUCTION DRAWINGS

EX. 16" WATERMAIN

EX. 10" SAN.

STA. = 159+50
595.00

SEE PHASE THREE CONSTRUCTION DRAWINGS

EX. 16" WATERMAIN

EX. 10" SAN.

STA. = 159+00
595.00

EX. HW-4A
INV.= 582.00

SEE PHASE THREE CONSTRUCTION DRAWINGS

EX. 16" WATERMAIN

EX. 10" SAN.

STA. = 158+50
595.00

EX. 87"-54" CONDUIT

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
107	0		
		198	0
107	0		
		198	0
107	0		
		198	0
107	0		
		198	0
107	0		
		198	0

CALCULATED: CLM
CHECKED: MAR

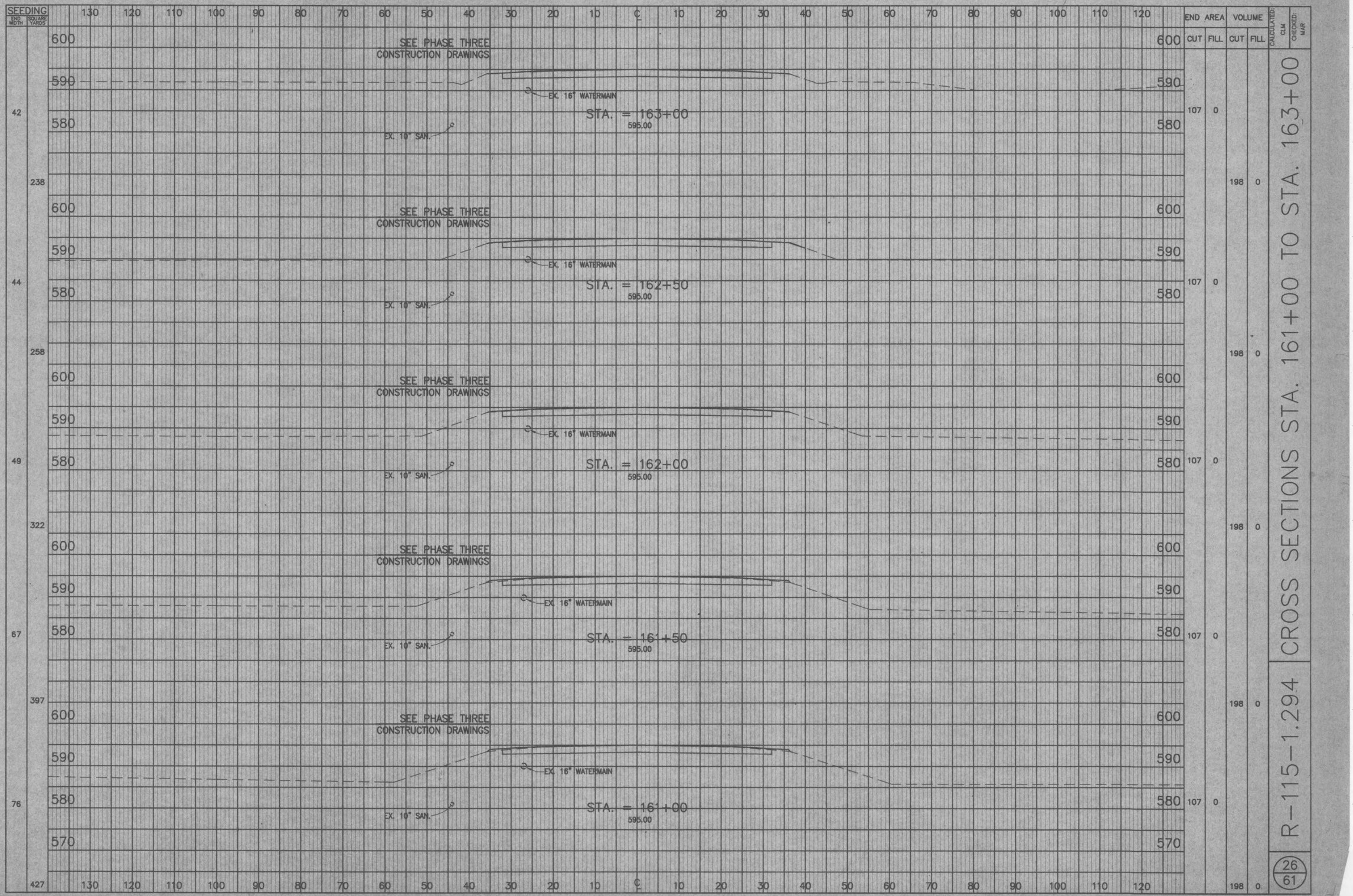
CROSS SECTIONS STA. 158+50 TO STA. 160+50

R-115-1.294

25/61

J:\YF2\9537-2\XSEC\C2-PAGE25 Thu Feb 13 11:33:13 1997 Bayer Becker Engineers - RMP

SEEDING END WIDTH	SEEDING SQUARE YARDS
42	238
44	258
49	322
67	397
76	427



	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
600				
590				
580	107	0		
			198	0
600				
590				
580	107	0		
			198	0
600				
590				
580	107	0		
			198	0
600				
590				
580	107	0		
			198	0
600				
590				
580	107	0		
570				
			198	0

CALCULATED: CLM
CHECKED: MAR

161+00 TO STA. 163+00

R-115-1.294 | CROSS SECTIONS STA. 161+00 TO STA. 163+00

26
61

J:\FY21\9537-2\XSEC\2-PAGE26 Thu Feb 13 11:34:36 1997 Bayer Becker Engineers - RWP

SEEDING END WIDTH	SEEDING SQUARE YARDS	STA.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
40	222	STA. = 165+50	107	0	198	0
40	219	STA. = 165+00	107	0	198	0
39	219	STA. = 164+50	107	0	198	0
40	225	STA. = 164+00	107	0	198	0
41	230	STA. = 163+50	107	0	198	0

SEE PHASE THREE CONSTRUCTION DRAWINGS

EX. 10" SAN.

EX. 16" WATERMAIN 595.37

EX. 16" WATERMAIN 595.09

EX. 16" WATERMAIN 595.00

EX. 16" WATERMAIN 595.00

EX. 16" WATERMAIN 595.00

600 590 580 570

130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120

CALCULATED: CLM CHECKED: MAR

CROSS SECTIONS STA. 163+50 TO STA. 165+50

R-115-1.294

27/61

J:\FF2\9537-2\VSEC\2-PAGE27 Thu Feb 13 11:37:03 1997 Bayer Becker Engineers - RMP

SEEDING END WIDTH	SEEDING SQUARE YARDS	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
36	200	107	2	198	5
36	200	107	3	198	6
36	205	107	4	198	13
38	213	107	10	198	28
39	219	107	20	198	28

CALCULATED: CJM
CHECKED: MAR

SEE PHASE THREE CONSTRUCTION DRAWINGS

STA. = 168+00
EX. 16" WATERMAIN 598.75
EX. 10" SAN.

SEE PHASE THREE CONSTRUCTION DRAWINGS

STA. = 167+50
EX. 16" WATERMAIN 598.00
EX. 10" SAN.

SEE PHASE THREE CONSTRUCTION DRAWINGS

STA. = 167+00
EX. 16" WATERMAIN 597.25
EX. 10" SAN.

SEE PHASE THREE CONSTRUCTION DRAWINGS

STA. = 166+50
EX. 16" WATERMAIN 596.50
EX. 10" SAN.

SEE PHASE THREE CONSTRUCTION DRAWINGS

STA. = 166+00
EX. 16" WATERMAIN 595.84
EX. 10" SAN.

130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120

600 590 580 570

CROSS SECTIONS STA. 168+00 TO STA. 166+00

R-115-1.294

28
61

J:\FY21\9637-21\SSC\2-PAGE28 Thu Feb 13 11:39:25 1997 Bayer Becker Engineers - RMP

SEEDING END WIDTH	SEEDING SQUARE YARDS
0	0
86	99
36	107
202	198
37	107
202	198

130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120

600
590
580

STA. = 169+50

SEE PHASE THREE CONSTRUCTION DRAWINGS

STA. = 169+00
600.24

EX. 16" WATERMAIN

EX. 10" SAN.

SEE PHASE THREE CONSTRUCTION DRAWINGS

STA. = 168+50
599.50

EX. 16" WATERMAIN

EX. 10" SAN.

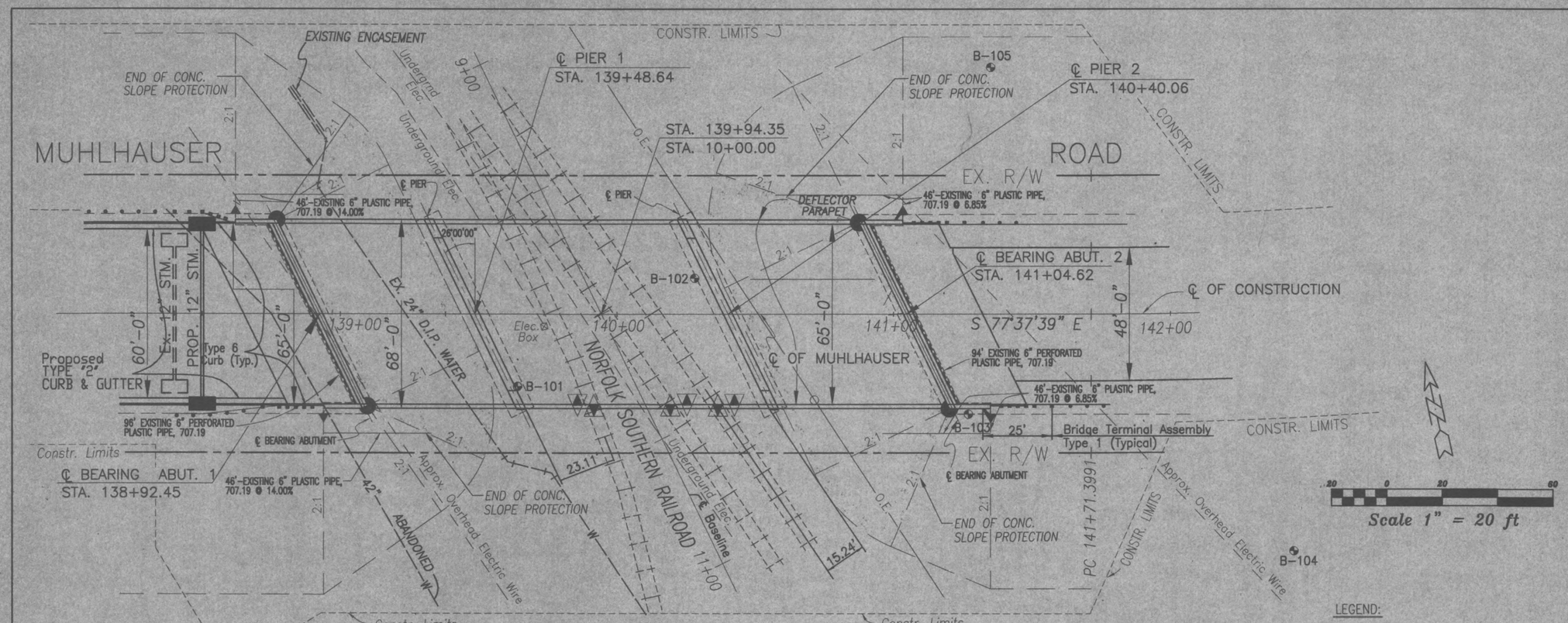
END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	0	0	0
		99	2
107	2		
		198	6
107	4		
		198	6

CALCULATED: CLM
CHECKED: MAR

R-115-1.294 CROSS SECTIONS STA. 168+50 TO STA. 169+57.68

29
61

d:\FY21\9537-21\9SECT2-PASS29 Thu Feb 13 11:40:57 1997 Bayer Becker Engineers - RMP



PROPOSED STRUCTURE

Type: Prestressed concrete box beam (CB-42-48) stub abutment and T-type pier
Span: 55'-4-1/4", 89'-9", 63'-8-3/4" c/c bearings
Roadway: 65'-0" toe to toe of deflector parapet
Loading: HS20-44 and alternate military loading
Skew: 26°00'00" Right Forward
Alignment: Tangent
Wearing Surface: Monolithic concrete
Approach Slabs: 25'-0" As Per Standard Drawing AS-1-81
Crown: 3/16" per foot with tangent runout for superelevation

DESIGNED CAR/MAR
DRAWN MWN
CHECKED MAR
REVISED RLS
REVISED BCEO 10-3-96
DATE
STRUCTURE FILE NUMBER

BUTLER COUNTY
STA. 138+89.95
STA. 141+07.14

SITE PLAN
BRIDGE NO. R-115-2.429
OVER THE NORFOLK SOUTHERN RAILROAD

R-115-1.294

1
12

30
61

D:\Y12\30637-2.BRIDGE\DGN\37-2SE Wed Feb 24 13:30:23 1997 Drawn by: Tom Bennett

GENERAL NOTES

THE INTENTIONS FOR THESE NOTES, SPECIFICATIONS, AND SEQUENCING OF CONSTRUCTION ACTIVITIES IS TO PROVIDE FOR AN ORDERLY MANNER OF CONSTRUCTION THAT WILL PROVIDE THE LEAST INCONVENIENCE TO AND THE MAXIMUM SAFETY OF THE CONTRACTOR. ANY VARIANCE FROM THIS PLAN MUST BE APPROVED IN ADVANCE BY THE BUTLER COUNTY ENGINEER AND THE CINCINNATI GAS AND ELECTRIC COMPANY.

CONTACTS:

DEAN FOSTER
BUTLER COUNTY ENGINEER
1921 FAIRGROVE AVENUE
HAMILTON, OHIO 45011
(513) 867-5744

JIM CONRAD
CINCINNATI GAS AND ELECTRIC
139 EAST FORTH STREET
CINCINNATI, OHIO 45202
(513) 287-2734

DUE TO THE CLOSE PROXIMITY OF HIGH VOLTAGE POWER LINES LOCATED AT EACH STRUCTURE, MAXIMUM SAFETY MEASURES SHALL BE PARAMOUNT. ALL OSHA CLEARANCE REGULATIONS, CONSTRUCTION METHODS AND ANY C.G.&E. REGULATIONS SHALL BE STRICTLY ADHERED TO.

EXAMINATION OF SITE

THE CONTRACTOR SHALL CAREFULLY EXAMINE THE SITE OF THE PROPOSED WORK, THE PLANS, AND THESE NOTES BEFORE SUBMITTING A PROPOSAL. THE SUBMISSION OF A BID SHALL BE CONSIDERED EVIDENCE THAT THE CONTRACTOR HAS MADE SUCH AN EXAMINATION AND IS SATISFIED AS TO THE CONDITIONS TO BE ENCOUNTERED IN PERFORMING THE WORK AND AS TO THE REQUIREMENTS OF THE PLANS AND THESE NOTES.

DETAILS AND DIMENSIONS ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE SHALL BE VERIFIED IN THE FIELD PRIOR TO BEGINNING CONSTRUCTION OR ORDERING MATERIALS. THIS SHALL BE INCLUDED IN THE LUMP SUM FOR ITEM 624. ALL SPAN LENGTHS SHALL BE VERIFIED IN THE FIELD BEFORE BOX BEAMS ARE CAST. COST SHALL BE INCLUDED IN ITEM 515.

SPECIFICATIONS

ALL WORK ON THIS PROJECT SHALL CONFORM TO THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION'S "CONSTRUCTION AND MATERIAL SPECIFICATIONS," DATED JANUARY 1, 1995, WITH SUPPLEMENTS OR CHANGES THERETO AND/OR AS NOTED. ALL RECOMMENDATIONS IN THE ATEC GEOTECHNICAL INVESTIGATION REPORT DATED AUGUST 1, 1995 SHALL BE FOLLOWED. REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

AS-1-81 DATED 11-27-81 BR-1 REVISED 12-15-94 EXJ-5-93 DATED 1-20-94
PSBD-1-93 DATED 3-4-94.

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS 1992, THE 1993,1994, AND 1995 INTERIM AASHTO SPECIFICATIONS, AND TO THE ODOT BRIDGE DESIGN MANUAL DATED JANUARY 1995.

UNDERGROUND UTILITIES:

THE LOCATION OF THE UNDERGROUND UTILIES SHOWN ON THE PLAN HAVE BEEN OBTAINED BY DILIGENT FIELD CHECKS AND SEARCHES OF AVAILABLE RECORDS. IT IS BELIVED THAT THEY ARE ESSENTIALLY CORRECT, BUT THIS DOES NOT GUARANTEE THEIR ACCURACY OR COMPLETENESS.

OHIO UTILITIES PROTECTION SERVICE
1-800-363-2764

ITEM SPECIAL-SEALING OF CONCRETE SURFACE:

AN EPOXY CONCRETE SEALER SHALL BE APPLIED TO THE FASCIA BEAM AS SHOWN ON THE TRANSVERSE CROSS SECTION ON SHEET 8/12 AND TO THE PIER CAP SURFACES AS SHOWN ON SHEET 7/12. SEE PROPOSAL NOTE FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENT AND APPLICATION PROCEDURE.

THE FOLLOWING CONCRETE SURFACES SHALL BE SEALED WITH THE TYPE OF CONCRETE SEALER SPECIFIED BELOW.

SUBSTRUCTURE
ABUTMENT BRIDGE SEATS AND EXTENDING FROM THE LEVEL OF THE BRIDGE SEAT ONE FOOT DOWN THE FACE OF BREASTWALL-EPOXY SEALER

TEMPORARY RAILROAD CONSTRUCTION CROSSING

A TEMPORARY CONSTRUCTION CROSSING IS PRESENT OVER THE NORFOLK SOUTHERN RAILROAD AS DEPICTED WITH EXISTING ASPHALT AND BARRICADES. THE CONTRACTOR SHALL USE THIS CROSSING A MINIMUM AND SHALL FOLLOW ANY CLEARANCE REGULATIONS.
A FLAGMAN FROM THE RAILROAD SHALL BE AT THE SITE DURING ALL WORK ON, ABOVE, AND ADJACENT TO THE TRACKS. COST OF FLAGMAN TO BE BCEO'S RESPONSIBILITY.
THE TEMPORARY VERTICAL CLEARANCE SHALL BE 22'-0", AND THE TEMPORARY HORIZONTAL CLEARANCE SHALL BE 13'-0".

DESIGN DATA:

DESIGN LOAD - HS-20-44 AND ALTERNATE MILITARY LOADING

CONCRETE CLASS S - COMPRESSIVE STRENGTH - 4500 P.S.I.(SUPERSTRUCTURE)

CONCRETE CLASS C - COMPRESSIVE STRENGTH - 4000 P.S.I.(SUBSTRUCTURE)

REINFORCING STEEL - ASTM A615,A616,A617
GRADE 60, MINIMUM YIELD STRENGTH 60,000 PSI

DESIGN DATA: PRESTRESSED CONCRETE MEMBERS

CONCRETE - COMPRESSIVE STRENGTH 5500 PSI

REINFORCING STEEL-ASTM A615, A616 OR A617

GRADE 60, MINIMUM YIELD STRENGTH 60,000 PSI

CONCRETE FOR PRESTRESSED BEAMS
COMPRESSIVE STRENGTH - 5500 PSI
UNIT STRESS - 2200 P.S.I. COMPRESSION
444 P.S.I. TENSION

PRESTRESSING STRAND ASTM A416
1/2" DIAMETER, SEVEN WIRE UNCOATED STRANDS,
AS=0.153 SQ. IN.
f's = 270,000 P.S.I.
INITIAL STRESS = 0.75 f's
(LOW RELAXATION STRANDS)

MILD REINFORCING STEEL FOR THE CONCRETE PRESTRESSED BEAMS GRADE 60, MINIMUM YIELD STRENGTH 60,000 PSI

MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1" THICK.

ITEM 611 REINFORCED CONCRETE APPROACH SLAB(T=15"), AS PER PLAN:

THE REINFORCING STEEL FOR THE APPROACH SLABS OF THIS STRUCTURE SHALL BE EPOXY COATED IN CONFORMANCE WITH 509.

STEEL SPLICES:

SPLICE DETAILS FOR FIELD SPLICES OF STRUCTURAL EXPANSION JOINTS SHOULD BE SHOWN OR STEEL MEMBERS SHALL BE FURNISHED IN LENGTHS AS LONG AS PRACTICABLE. ALL FIELD BUTT JOINTS SHALL BE RIGIDLY FASTENED TOGETHER AS REQUIRED PRIOR TO PLACING CONCRETE.

THE SHOP FABRICATION OF EXPANSION JOINTS AND SEALS SHALL BE BASED UPON APPROVED SHOP DRAWINGS.

ITEM 510 - DOWEL HOLES, AS PER PLAN

THE DOWEL HOLES MUST BE FILLED PER STD. DWG. PSBD-1-93, FOR EXPANSION AND CONTRACTION BEARING CONDITIONS.

GEOTECHNICAL REPORT

THE GEOTECHNICAL REPORT BY ATEC, INC. IS AVAILABLE IN THE BUTLER COUNTY ENGINEER'S OFFICE.

CONCRETE PARAPETS: AS SOON AS A CONCRETE SAW CAN BE OPERATED WITHOUT DAMAGING THE FRESHLY PLACED CONCRETE, 1 INCH DEEP CONTROL JOINTS SHALL BE SAWED INTO THE PERIMETER OF THE CONCRETE PARAPET. THE SAW CUT SHALL BE MADE IN THE COMPLETE CIRCUMFERENCE OF THE PARAPET, MINIMUM OF 6'-0" AND A MAXIMUM OF 10'-0" CENTERS. THE USE OF AN EDGE GUIDE, FENCE, OR JIG IS REQUIRED TO INSURE THAT THE CUT JOINTS IS STRAIGHT, TRUE, AND ALIGNED ON ALL FACES OF THE PARAPET. THE JOINT WIDTH SHALL BE THE WIDTH OF THE SAW BLADE, A NOMINAL WIDTH OF 1/4" INCH. THE PERIMETER OF THE DEFLECTION CONTROL JOINT SHALL BE SEALED TO A MINIMUM DEPTH OF 1 INCH WITH A CAULKING MATERIAL CONFORMING TO FEDERAL SPECIFICATION, TT-S-00227E TO A MINIMUM DEPTH OF 1 INCH.

BEARING PAD SHIMS: 1/8 INCH THICK PREFORMED BEARING PAD SHIMS, PLAN AREA 12 INCHES BY 7 INCHES SHALL BE PLACED UNDER THE ELASTOMERIC BEARING PADS WHERE REQUIRED FOR PROPER BEARING. THE AMOUNT SUPPLIED IS SUFFICIENT FOR 2 SHIMS PER BEAM. PAYMENT WILL BE MADE AT THE CONTRACT BID PRICE FOR ITEM 516-1/8 INCH PREFORMED BEARING PADS. ANY UNUSED SHIMS SHALL BECOME THE PROPERTY OF THE STATE.

CINCINNATI BELL CONDUIT & SUPPORTS AS PER PLAN: FOR BOTH THE MUHLHAUSER ROAD BRIDGE OVER THE RAILROAD AND THE MUHLHAUSER ROAD BRIDGE OVER THE MILL CREEK CONCRETE INSERTS (PART NO. UB3234 OR PART NO. UB3117) SHALL BE PLACED INSIDE THE PARAPET FORMS BEFORE THE CONCRETE IS PLACED. THE CONDUIT SHALL BE PVC TYPE "D" (REFER TO THE PLANS FOR THE OTHER NOTES AND DETAILS). EXPANSION ANCHOR DETAILS FOR BOTH BRIDGES SHALL BE AS PER CONDUIT SUPPORT SYSTEMS, OSBURN ASSOCIATES, 1-800-523-8917.

IPANEX, A CORROSION INHIBITING ADMIXTURE, SHALL BE USED BY THE FABRICATOR OF THE BOX BEAMS, AS DIRECTED BY BCEO. IT SHALL BE INCLUDED WITH ITEM 515 FOR PAYMENT.

ELASTOMERIC BEARINGS SHALL COMPLY WITH ITEM 516 AND, ARTICLES 18.2.5 THROUGH 18.2.8 OF SECTION 18, BEARING DEVICES, DIVISION II, CONSTRUCTION OF THE AASHTO STANDARD SPECIFICATION FOR HIGHWAY BRIDGES. BEARINGS SHALL BE GRADE 3,50 DUROMETER ELASTOMER, AND SHALL BE SUBJECTED TO THE LOAD TESTING REQUIREMENTS CORRESPONDING TO DESIGN METHOD A TESTING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE BEARINGS, EACH.

BRIDGE NO. R-115-2.429 ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION
503	LUMP	SUM	UNCLASSIFIED EXCAVATION
509	104051	POUND	EPOXY COATED REINFORCING STEEL
511	575	CU. YD.	CLASS C CONCRETE
511	447	CU. YD.	CLASS S CONCRETE, SUPERSTRUCTURE
515	17	EACH	PRESTRESSED CONCRETE BOX BEAMS, WEST SPAN
515	17	EACH	PRESTRESSED CONCRETE BOX BEAMS, CENTER SPAN
515	17	EACH	PRESTRESSED CONCRETE BOX BEAMS, EAST SPAN
516	136	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES ONLY:12"X7"X1".
516	68	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES ONLY:12"X7"X2.0747"
516	119	SQ. FT.	1/8 INCH PREFORMED BEARING PADS, 711.21
516	153	LIN. FT.	STUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL
518	141	CU. YD.	POROUS BACKFILL WITH FILTER FABRIC
601	1200	SQ. YD.	CONCRETE SLOPE PROTECTION
623	LUMP	SUM	CONSTRUCTION LAYOUT STAKES
624	LUMP	SUM	MOBILIZATION
SPECIAL	664	SQ. YD.	SEALING OF CONCRETE SURFACES WITH EPOXY SEALER
SPECIAL	LUMP	SUM	CINCINNATI BELL CONDUIT & SUPPORTS AS PER PLAN*

*CONTRACTOR WILL BE PAID BY CINCINNATI BELL FOR THIS ITEM.

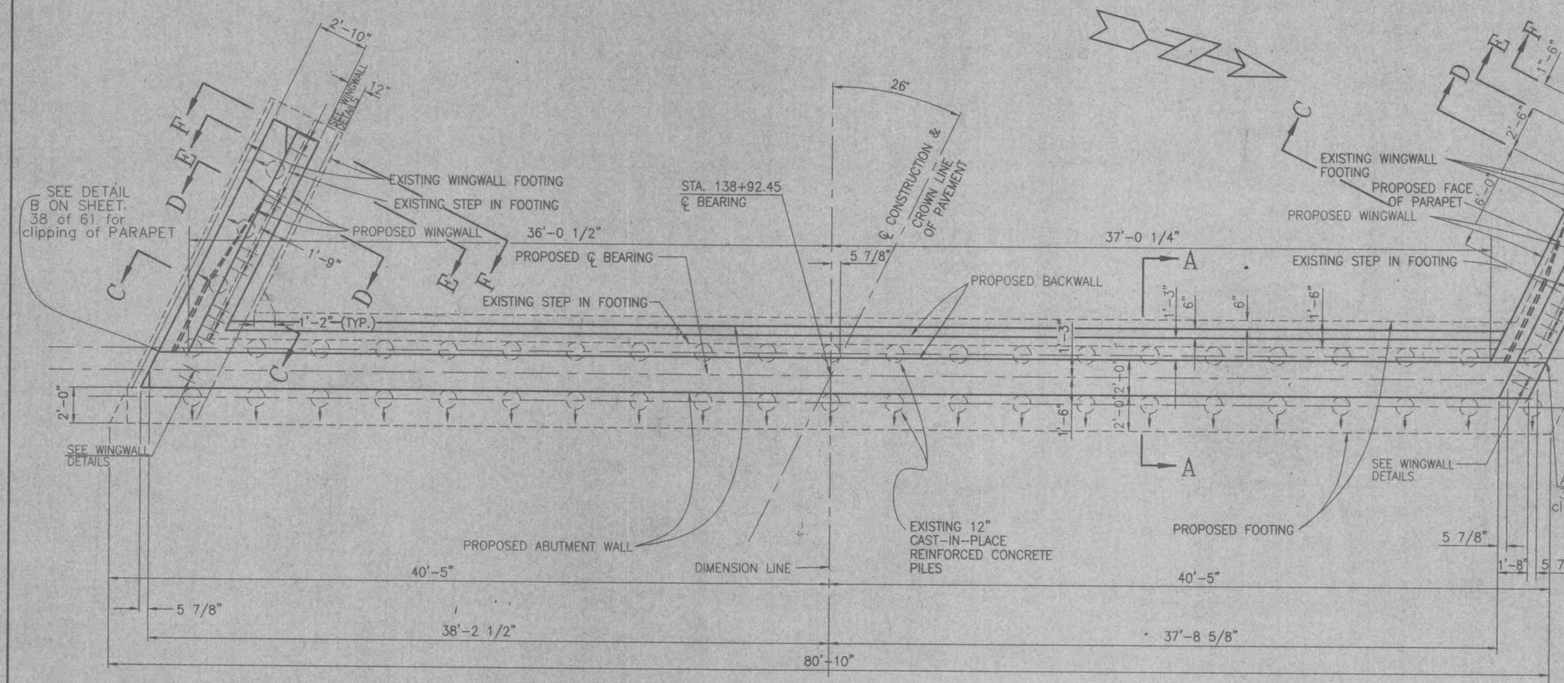
REVIEWED BCEO 10-3-96 DATE
FILE NUMBER
DRAWN MWN
REVISED 5-97
DESIGNED CAR
CHECKED RS
BUTLER COUNTY

GENERAL NOTES AND ESTIMATED QUANTITIES
BRIDGE NO. R-115-2.429 OVER THE NORFOLK SOUTHERN RAILROAD

R-115-1.294

2/12
31/61

J:\95\9537\9537dn2\BRIDGE\9537-231 Wed Jun 11 14:38:05 1997 Mike Pleva - Bayer Becker Engineers



NOTE: SEE SHEET 6/12 FOR SECTIONS C-C, D-D, E-E, F-F, AND WALL DETAILS.

*THIS IS MEASURED PERPENDICULAR TO ℄ OF ROADWAY.

NOTES: (1) REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SHALL BE ACCURATELY PLACED TO AVOID INTERFERENCE WITH THE DRILLING OF BEARING ANCHOR HOLES.

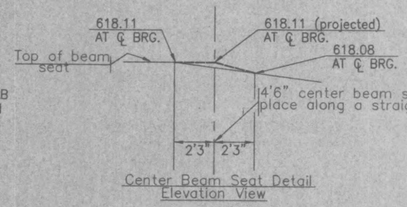
(2) ABUTMENT CONCRETE ABOVE THE BRIDGE SEAT CONSTRUCTION JOINT SHALL NOT BE PLACED UNTIL THE PRESTRESSED CONCRETE BOX BEAMS HAVE BEEN ERECTED.

(3) IN ADDITION TO THE PROVISIONS OF 511.08 BACKWALL CONCRETE ABOVE THE OPTIONAL CONSTRUCTION JOINT AT THE APPROACH SLAB SEAT SHALL NOT BE PLACED UNTIL AFTER THE DECK CONCRETE IN THE SPAN ADJACENT TO THE ABUTMENT HAS BEEN PLACED.

(4) POROUS BACKFILL SHALL EXTEND VERTICALLY FROM THE TOP OF THE FOOTING TO THE PLANE OF THE SUBGRADE AND LATERALLY TO THE ENDS OF THE ABUTMENT WALLS.

(5) ALL ELEVATIONS SHOWN FOR BRIDGE SEAT ARE LOCATED ON THE ℄ OF BEARING.

ABUTMENT PLAN

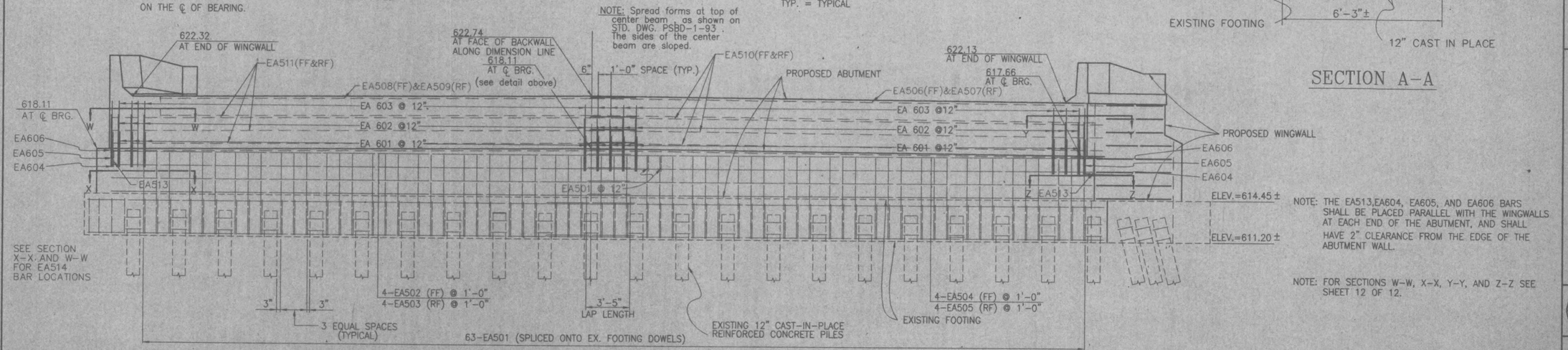


Center Beam Seat Detail
Elevation View

LEGEND

= 1 ON 4 BATTERED PILE (EXISTING)

EF = EACH FACE
FF = FRONT FACE
RF = REAR FACE
TYP. = TYPICAL



ELEVATION

SECTION A-A

NOTE: THE EA513,EA604, EA605, AND EA606 BARS SHALL BE PLACED PARALLEL WITH THE WINGWALLS AT EACH END OF THE ABUTMENT, AND SHALL HAVE 2" CLEARANCE FROM THE EDGE OF THE ABUTMENT WALL.

NOTE: FOR SECTIONS W-W, X-X, Y-Y, AND Z-Z SEE SHEET 12 OF 12.

DESIGNED	CAR
DRAWN	MWN
CHECKED	RS
REVISED	5-97
REVIEWED	BECO 10-3-96
DATE	
STRUCTURE FILE NUMBER	

BUTLER COUNTY
STA.138+89.95
STA.141+07.14

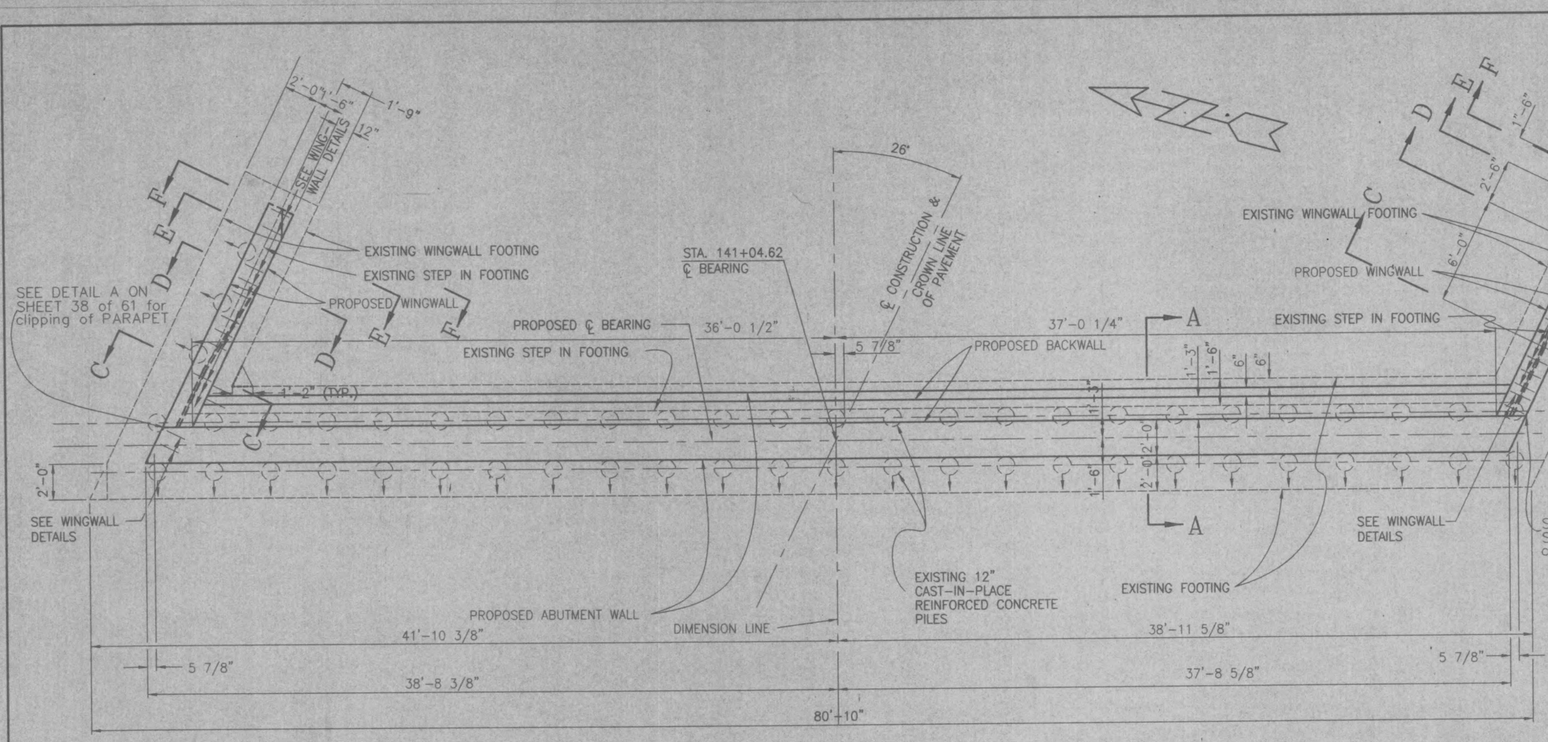
ABUTMENT 1 DETAILS
BRIDGE NO. R-115-2.429
OVER THE NORFOLK SOUTHERN RAILROAD

R-115-1.294

3/12

32/61

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ABUTMENT PLAN

NOTES: (1) REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SHALL BE ACCURATELY PLACED TO AVOID INTERFERENCE WITH THE DRILLING OF BEARING ANCHOR HOLES.

(2) ABUTMENT CONCRETE ABOVE THE BRIDGE SEAT CONSTRUCTION JOINT SHALL NOT BE PLACED UNTIL THE PRESTRESSED CONCRETE BOX BEAMS HAVE BEEN ERECTED.

(3) IN ADDITION TO THE PROVISIONS OF 511.08 BACKWALL CONCRETE ABOVE THE OPTIONAL CONSTRUCTION JOINT AT THE APPROACH SLAB SEAT SHALL NOT BE PLACED UNTIL AFTER THE DECK CONCRETE IN THE SPAN ADJACENT TO THE ABUTMENT HAS BEEN PLACED.

(4) POROUS BACKFILL SHALL EXTEND VERTICALLY FROM THE TOP OF THE FOOTING TO THE PLANE OF THE SUBGRADE AND LATERALLY TO THE ENDS OF THE ABUTMENT WALLS.

(5) ALL ELEVATIONS SHOWN FOR BRIDGE SEAT ARE LOCATED ON THE ℄ OF BEARING.

Center Beam Seat Detail
Elevation View

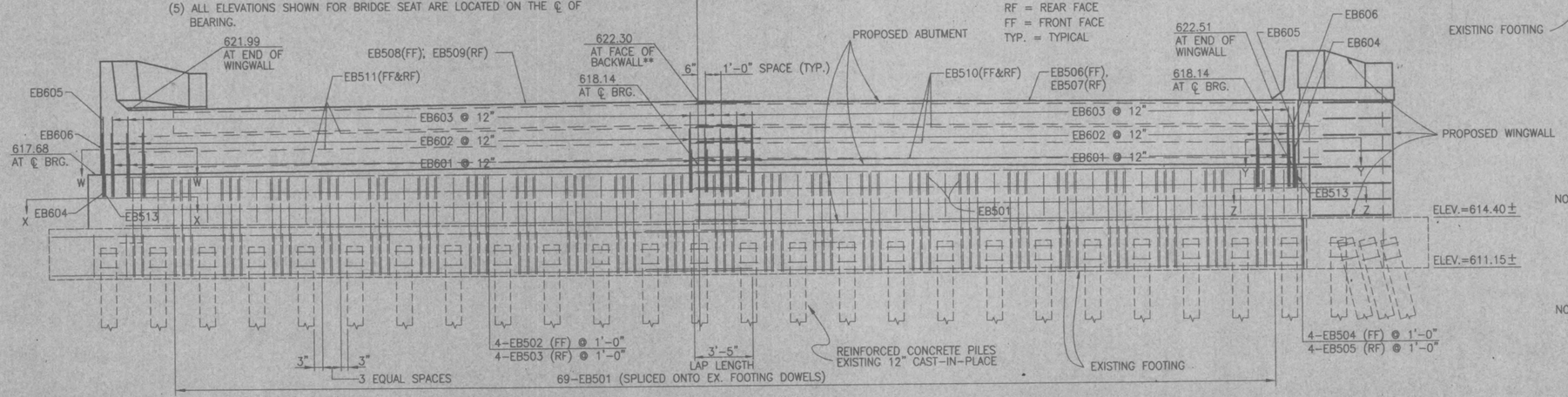
NOTE: The sides of the center beam are sloped .

**ALONG DIMENSION LINE

LEGEND

= 1 ON 4 BATTERED PILE (EXISTING)

EF = EACH FACE
RF = REAR FACE
FF = FRONT FACE
TYP. = TYPICAL



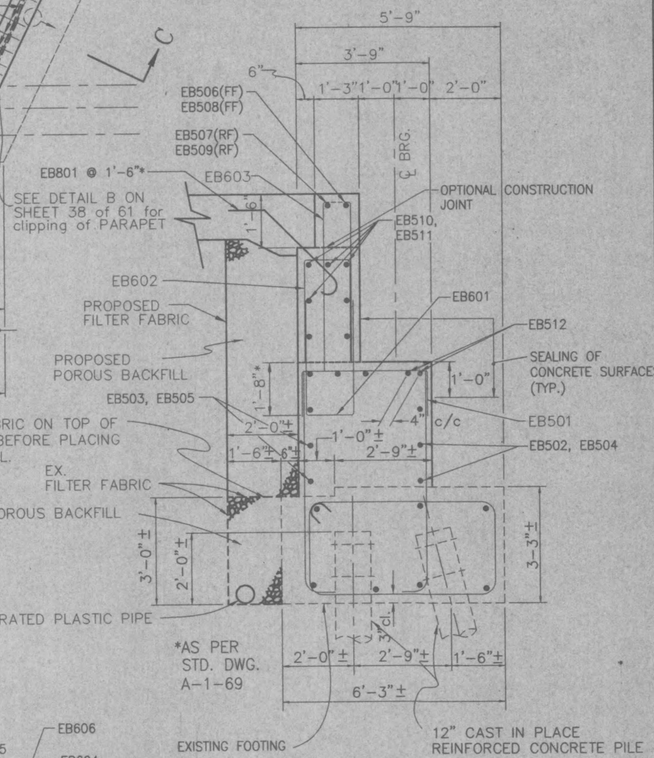
ELEVATION

NOTE: THE EB513,EB604, EB605, AND EB606 BARS SHALL BE PLACED PARALLEL WITH THE WINGWALLS AT EACH END OF THE ABUTMENT, AND SHALL HAVE 2" CLEARANCE FROM THE EDGE OF THE ABUTMENT WALL.

NOTE: FOR SECTIONS W-W, X-X, Y-Y, AND Z-Z SEE SHEET 12 OF 12.

NOTE: SEE SHEET 6/12 FOR SECTIONS C-C, D-D, E-E, F-F, AND WALL DETAILS.

*THIS IS MEASURED PERPENDICULAR TO ℄ OF ROADWAY



SECTION A-A

DESIGNED CAR	DRAWN MWN
CHECKED RS	REVISED 5-97
REVIEWED BECO	DATE 10-3-96
STRUCTURE FILE NUMBER	

BUTLER COUNTY
STA.138+89.95
STA.141+07.14

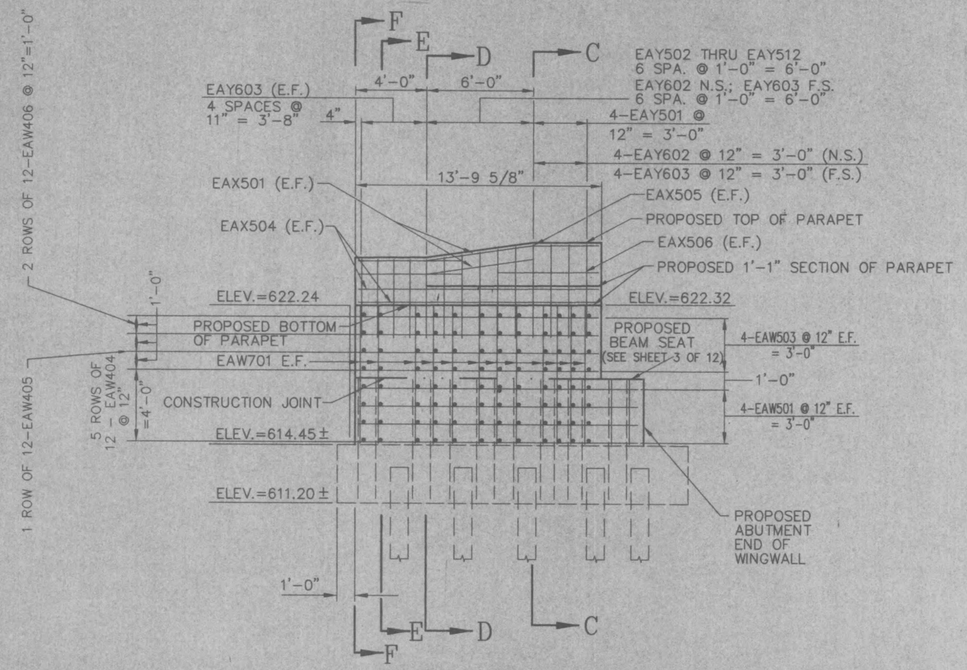
ABUTMENT 2 DETAILS
BRIDGE NO. R-115-2.429
OVER THE NORFOLK SOUTHERN RAILROAD

R-115-1.294

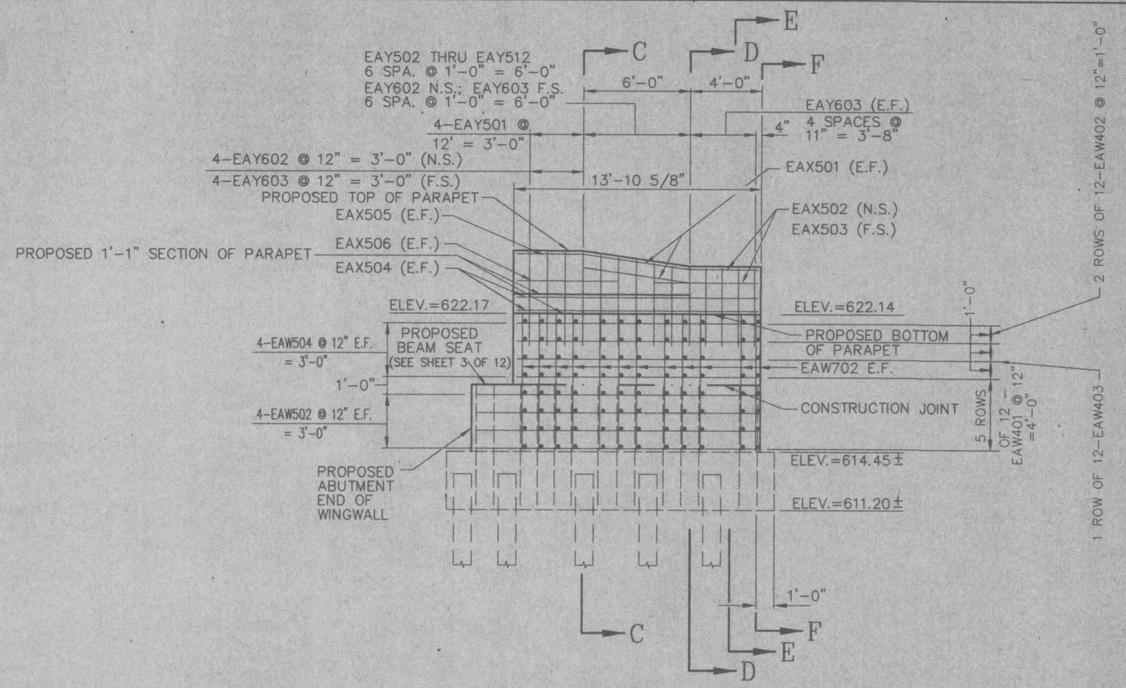
4/12

33/61

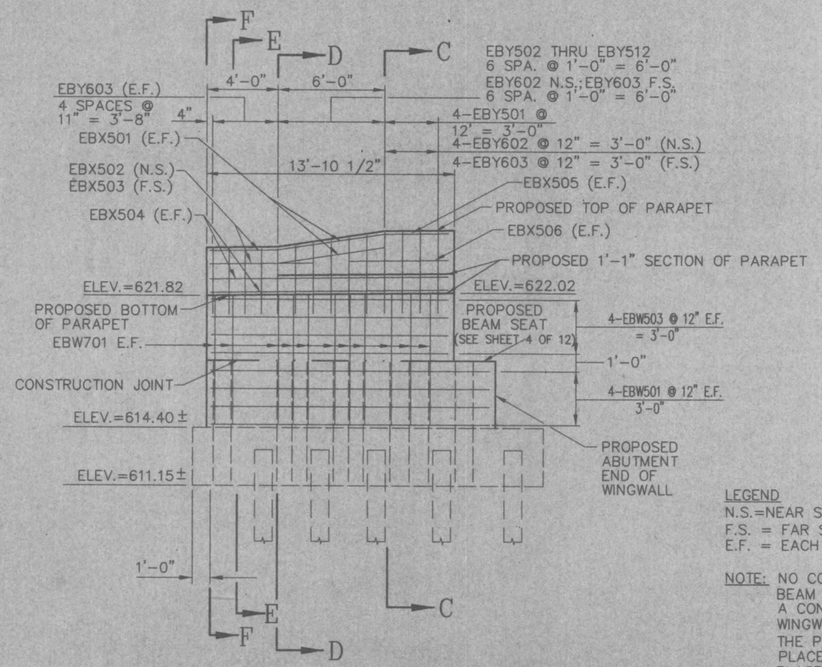
J:\95\9537\9537PH2\BRIDGE\9537-234 Thu Jul 24 09:17:00 1997 Mike Pleva - Bayer Becker Engineers



ABUTMENT 1, SOUTH WINGWALL
BRIDGE NO. R-115-2.429 OVER
THE NORFOLK SOUTHERN RAILROAD



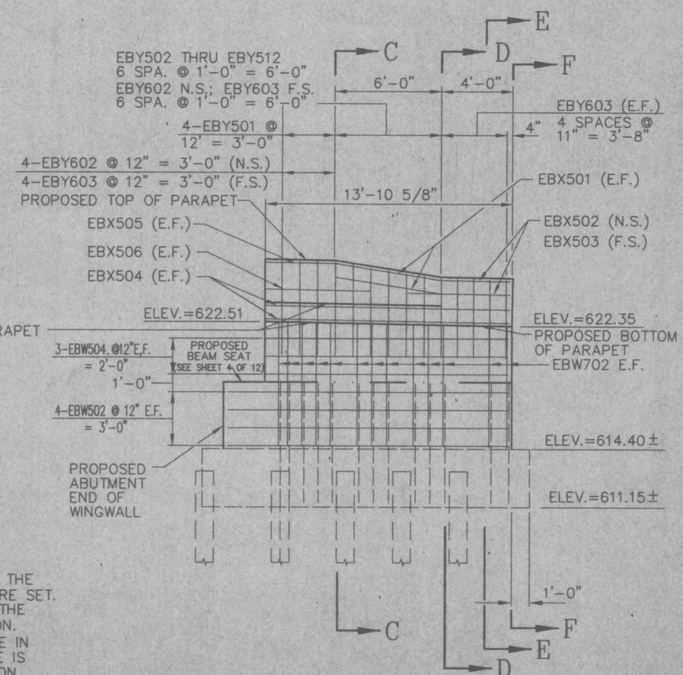
ABUTMENT 1, NORTH WINGWALL
BRIDGE NO. R-115-2.429 OVER
THE NORFOLK SOUTHERN RAILROAD



ABUTMENT 2, NORTH WINGWALL
BRIDGE NO. R-115-2.429 OVER
THE NORFOLK SOUTHERN RAILROAD

LEGEND
N.S.=NEAR SIDE (OUTSIDE)
F.S. = FAR SIDE (ROADWAY SIDE)
E.F. = EACH FACE

NOTE: NO CONCRETE SHALL BE PLACED ABOVE THE BEAM SEATS UNTIL AFTER THE BEAMS ARE SET. A CONSTRUCTION JOINT IS REQUIRED IN THE WINGWALLS AT THE BEAM SEAT ELEVATION. THE PARAPETS ON THE BRIDGE SHALL BE IN PLACE BEFORE ANY WINGWALL CONCRETE IS PLACED ABOVE THE BEAM SEAT ELEVATION. THE PARAPETS ON THE WINGWALLS SHALL BE PLACED TO LINE UP WITH THE PARAPETS ON THE BRIDGE ACCOUNTING FOR BOX BEAM FIT-UP.



ABUTMENT 2, SOUTH WINGWALL
BRIDGE NO. R-115-2.429 OVER
THE NORFOLK SOUTHERN RAILROAD

BUTLER COUNTY
STA. 149+45.14
STA. 150+67.46

DESIGNED	DRAWN	REVIEWED	DATE
CAR	MWN	BCEO	10-03-96
CHECKED	REVISED	STRUCTURE FILE NUMBER	
RS	5-97		

BEDA AGENCY

MISCELLANEOUS DETAILS
BRIDGE NO. R-115-2.429
OVER THE NORFOLK SOUTHERN RAILROAD

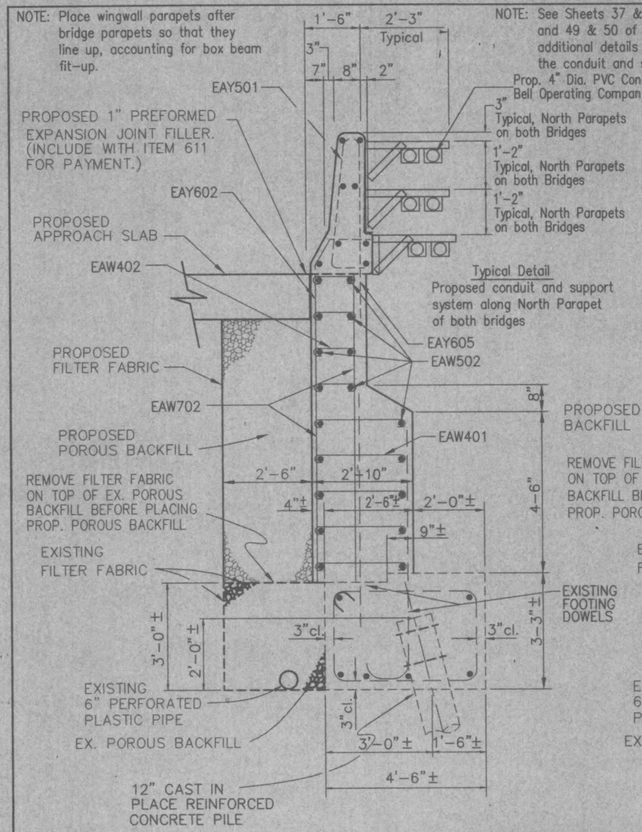
R-115-1.294

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NOTE: Place wingwall parapets after bridge parapets so that they line up, accounting for box beam fit-up.



NOTE: See Sheets 37 & 38 of 61, and 49 & 50 of 61 for additional details regarding the conduit and support system.

Prop. 4" Dia. PVC Conduits (Typical) Type "D" As Per Bell Operating Company Specification CA 08546.

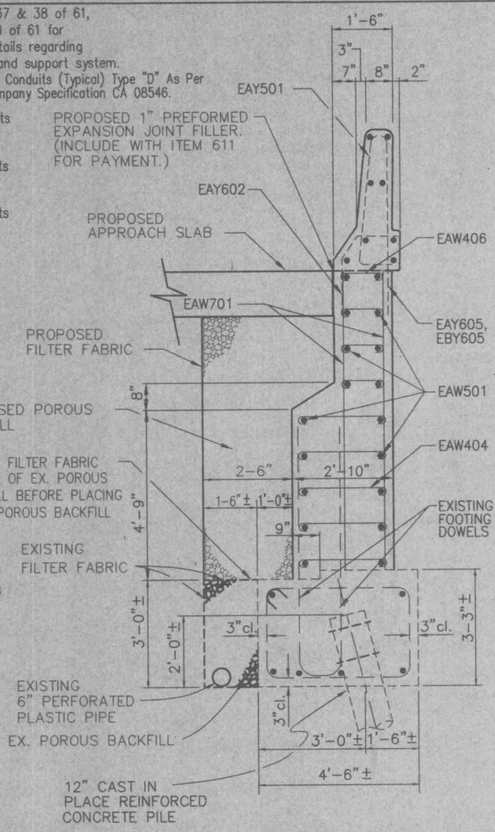
3" Typical, North Parapets on both Bridges

1'-2" Typical, North Parapets on both Bridges

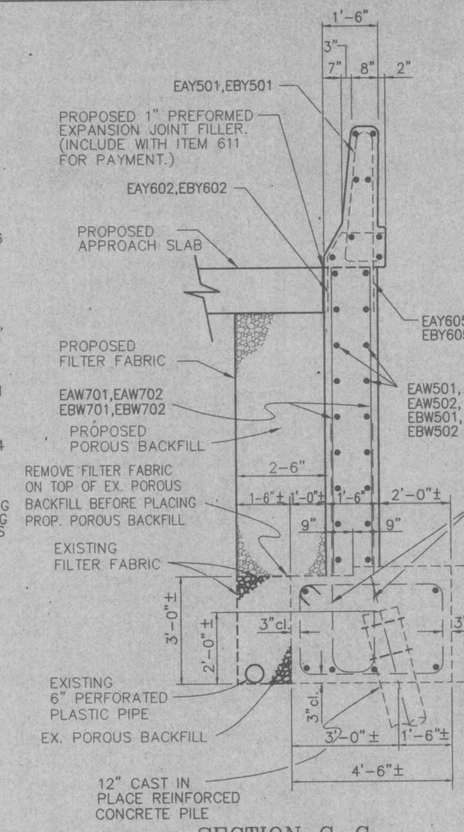
1'-2" Typical, North Parapets on both Bridges

Typical Detail
Proposed conduit and support system along North Parapet of both bridges

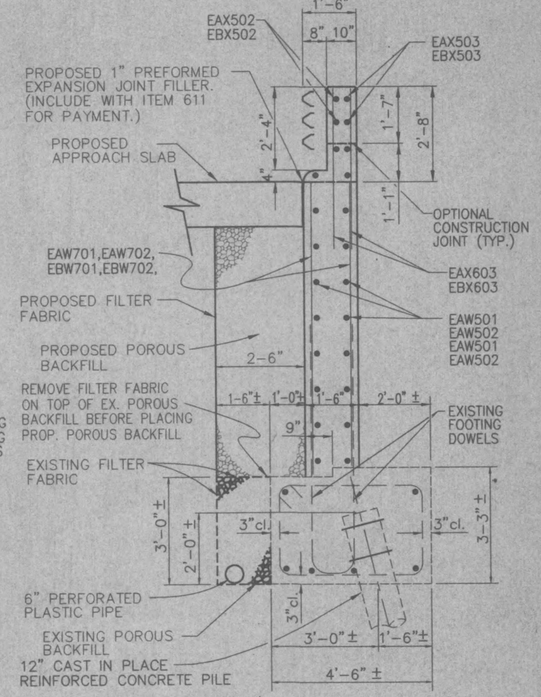
SECTION C-C
(ABUTMENT 1, NORTH WINGWALL)



SECTION C-C
(ABUTMENT 1, SOUTH WINGWALL)

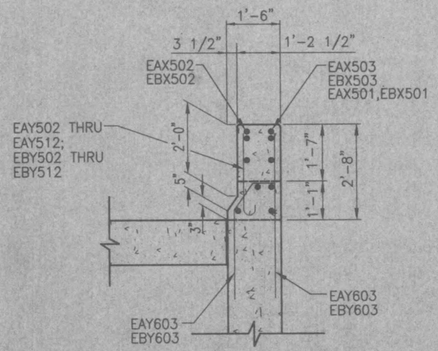


SECTION C-C
(ABUTMENT 2 NORTH & SOUTH WINGWALL)

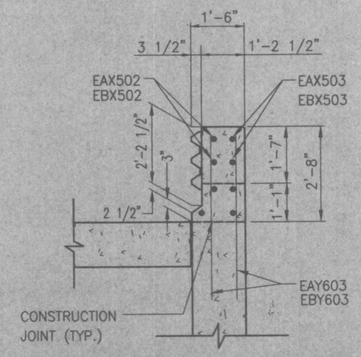


SECTION F-F
(ABUTMENT 2 NORTH & SOUTH WINGWALL)

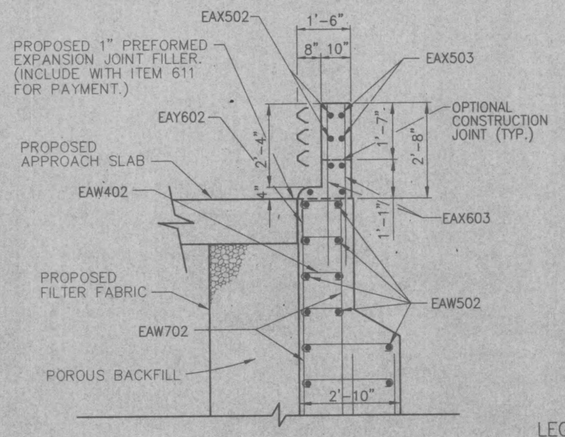
NOTE: POROUS BACKFILL WITH FILTER FABRIC, 2'-6" THICK, SHALL EXTEND UP TO THE PLANE OF THE SUBGRADE, TO ONE FOOT BELOW THE EMBANKMENT SURFACE, AND LATERALLY TO THE ENDS OF THE WINGWALL.



SECTION D-D
ABUTMENT 1 & 2 WINGWALL

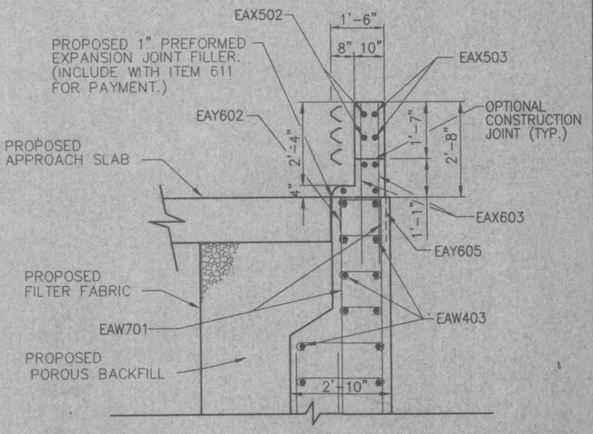


SECTION E-E
ABUTMENT 1 & 2 WINGWALL



SECTION F-F
(ABUTMENT 1 NORTH WINGWALL)

LEGEND
TYP. = TYPICAL



SECTION F-F
(ABUTMENT 1 SOUTH WINGWALL)

DESIGN AGENCY

DATE REVISED BCEO 10-3-96
STRUCTURE FILE NUMBER

DRAWN MWN REVISED 5-97
DESIGNED CAR
CHECKED RS

BUTLER COUNTY
STA. 149+45.14
STA. 150+67.46

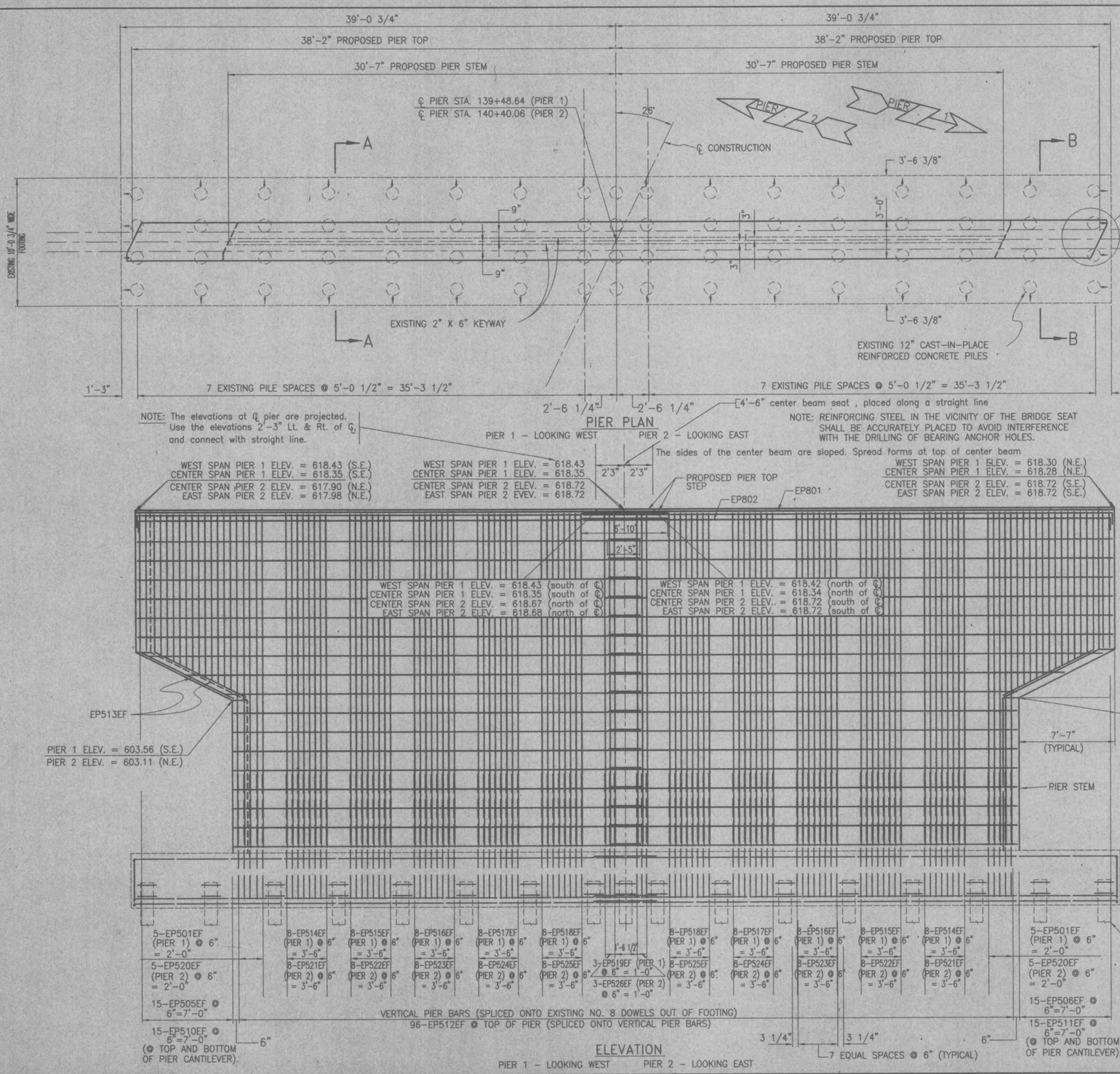
MISCELLANEOUS DETAILS
BRIDGE NO. R-115-2.429
OVER THE NORFOLK SOUTHERN RAILROAD

R-115-1.294

6/12

35/61

J:\95\0637\0637PHC\BRIDGE\0637-238 Mon Jun 02 10:54:08 1997 Mike Pleva - Bayer Becker Engineers



DESIGNED CAR | DRAWN MWH | REVIEWED BCED 10-3-96 | DATE
CHECKED RS | REVISED 5-97 | STRUCTURE FILE NUMBER

BUTLER COUNTY STA.138+89.95 STA.141+07.14

PIER PLAN
BRIDGE NO.R-115-2.429
OVER THE NORFOLK SOUTHERN RAIROAD

R-115-1.294

7/12

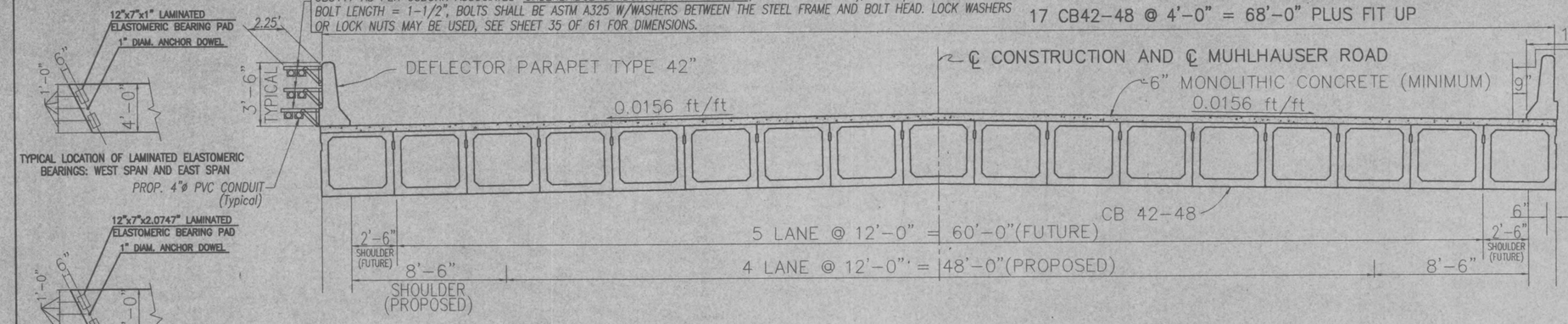
36/61

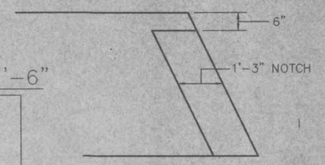
J:\95\9537\9537PH2\BRIDGE\9537-233 Mon Jun 02 11:16:25 1997 Mike Pleva - Bayer Becker Engineers

PART NO. UB5311 AS PER OSBURN ASSOCIATES' CONDUIT SUPPORT SYSTEMS, WITH CONCRETE INSERT (PART NO. UB3234 OR UB3117 AS PER OSBURN ASSOCIATES' UNDERBRIDGE CONDUIT SUPPORT SYSTEMS, 1-800-523-8917), AND 3/4" DIAMETER BOLTS, BOLT LENGTH = 1-1/2", BOLTS SHALL BE ASTM A325 W/WASHERS BETWEEN THE STEEL FRAME AND BOLT HEAD. LOCK WASHERS OR LOCK NUTS MAY BE USED, SEE SHEET 35 OF 61 FOR DIMENSIONS.

NOTE: PLACE CONCRETE INSERTS IN FORMS BEFORE POURING PARAPET

17 CB42-48 @ 4'-0" = 68'-0" PLUS FIT UP



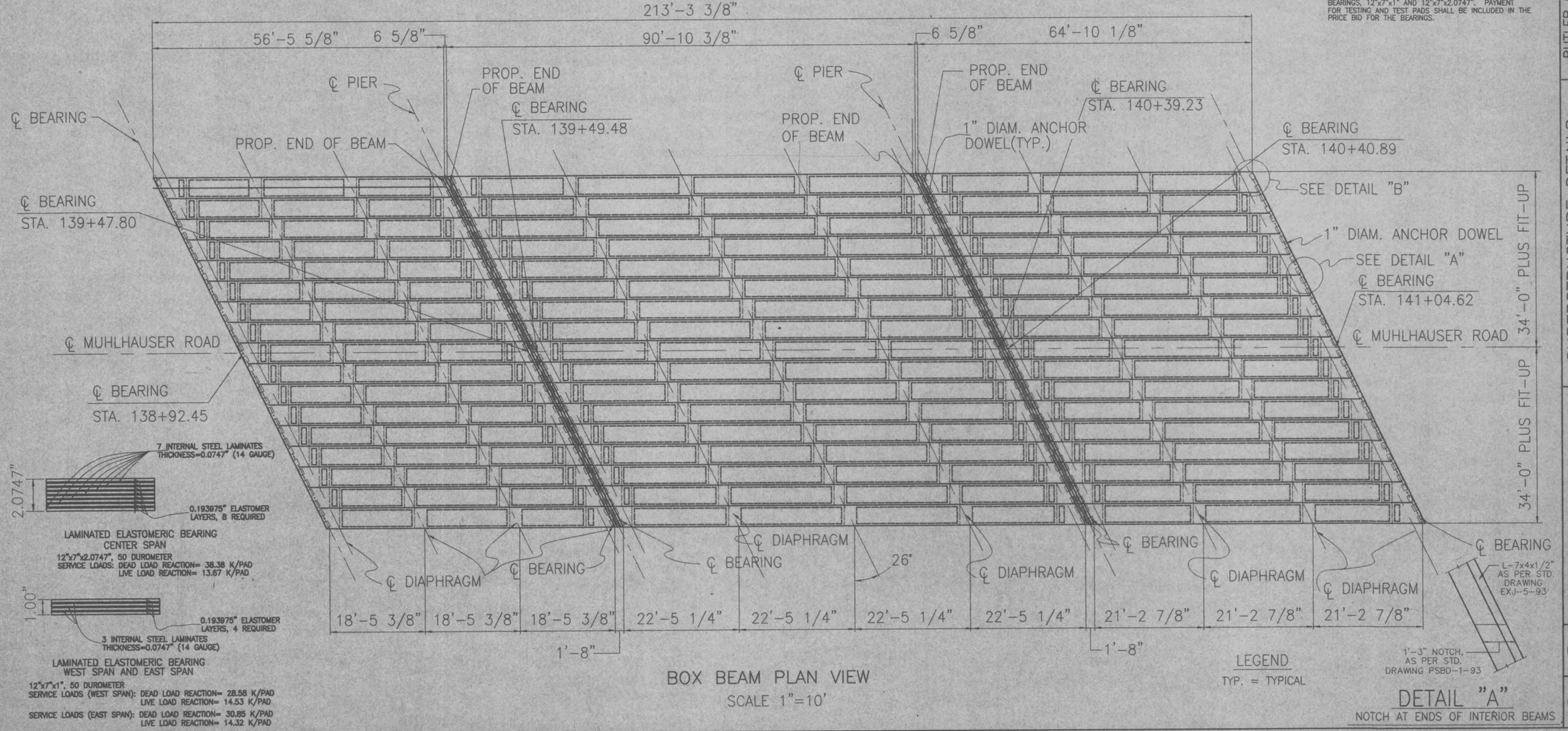


DETAIL "B"
TYPICAL NOTCH AT ALL END BEAM CORNERS

SEALING OF CONCRETE SURFACES (TYP.)

TRANSVERSE SECTION AT RAILROAD BRIDGE R-115-2.429

BASIS OF PAYMENT FOR BEARING PADS
THE UNIT PRICE SHALL INCLUDE ALL MATERIALS, LABOR, AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL LAMINATED ELASTOMERIC BEARINGS. PAYMENT WILL BE MADE AT THE CONTRACT PRICE FOR ITEM 516 LAMINATED ELASTOMERIC BEARINGS, 12"x7"x1" AND 12"x7"x2.0747". PAYMENT FOR TESTING AND TEST PADS SHALL BE INCLUDED IN THE PRICE BID FOR THE BEARINGS.



BOX BEAM PLAN VIEW
SCALE 1"=10'

LEGEND
TYP. = TYPICAL

DETAIL "A"
NOTCH AT ENDS OF INTERIOR BEAMS

BUTLER COUNTY
STA. 138+89.95
STA. 141+07.14

DESIGNED	DRAWN	REVIEWED	DATE
CAR	MWN	BCEO	10-3-96
CHECKED	REVISED	STRUCTURE FILE NUMBER	
RS			

SUPERSTRUCTURE DETAILS
BRIDGE NO. R-115-2.429
OVER THE NORFOLK SOUTHERN RAILROAD

R-115-1.294

8/12

37/61

D:\FY2\9637-2\BRIDGE\9637-2SS Mon Feb 24 12:43:16 1997 Drawn by: Tom Barnett

SUPERSTRUCTURE REINFORCING STEEL LIST

MARK	NO.	LENGTH	WEIGHT	TYPE	DIMENSION					
					A	B	C	D	E	F
ES401	16	39'-0"	417	STRAIGHT						
ES501	456	7'-1"	3369	SEE DIAGRAM	8"	3'-0"	3'-3"			
ES502	80	40'-0"	3338	STRAIGHT						
ES503	16	34'-5"	575	STRAIGHT						
ES504	204	4'-5"	940	SEE DIAGRAM	3'-3"					
ES601	230	40'-0"	13819	STRAIGHT						
ES602	23	VARIES	622	STRAIGHT	FROM 1'-6" TO 34'-6" INCRE. 1'-6"					
ES603	21	36'-0"	1136	STRAIGHT						
ES604	478	35'-8"	25607	STRAIGHT						
ES605	21	VARIES	663	STRAIGHT	FROM 6'-0" TO 36'-0" INCRE. 1'-6"					
ES606	23	VARIES	622	STRAIGHT	FROM 1'-6" TO 34'-6" INCRE. 1'-6"					
ES607	90	37'-0"	5002	STRAIGHT						
ES608	46	34'-5"	2378	STRAIGHT						
ES609	21	VARIES	663	STRAIGHT	FROM 6'-0" TO 36'-0" INCRE. 1'-6"					
ES610	21	36'-0"	1136	STRAIGHT						
ES611	456	4'-1"	2797	SEE DIAGRAM	14"	16 1/2"	13"	6"	11 1/2"	
ES612	4	39'-6"	238	STRAIGHT						

NOTE: REINFORCING STEEL DIMENSIONS ARE OUT-TO-OUT.

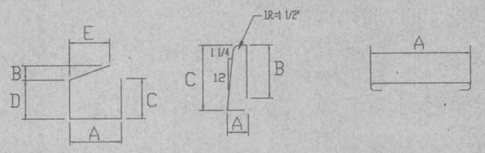
EXPANSION JOINT DETAILS

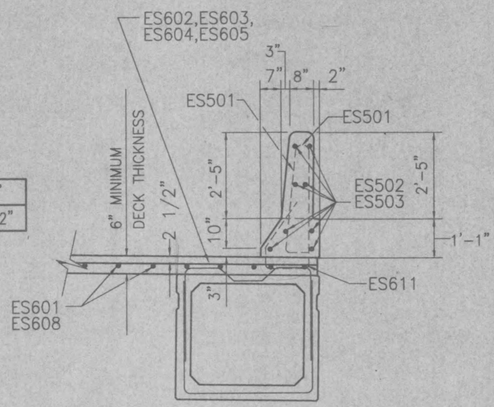
JOINT OPENING BETWEEN RETAINERS SHALL BE ADJUSTED FOR THE AMBIENT TEMPERATURE AT THE TIME OF BACKWALL CONCRETE PLACEMENT, AS FOLLOWS:

TEMPERATURE, °F	30°	40°	50°	60°	70°	80°
DIM. "A" (JOINT OPENING) *	1 7/8"	1 13/16"	1 3/4"	1 5/8"	1 9/16"	1 1/2"

* SEE STANDARD DRAWING EXJ-5-93.
SEAL GLAND SIZE = 3" SEAL

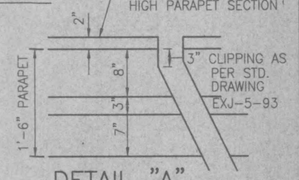
NOTE: EXPANSION JOINT SHALL NOT BE SET IF TEMPERATURE IS ABOVE 80°F.



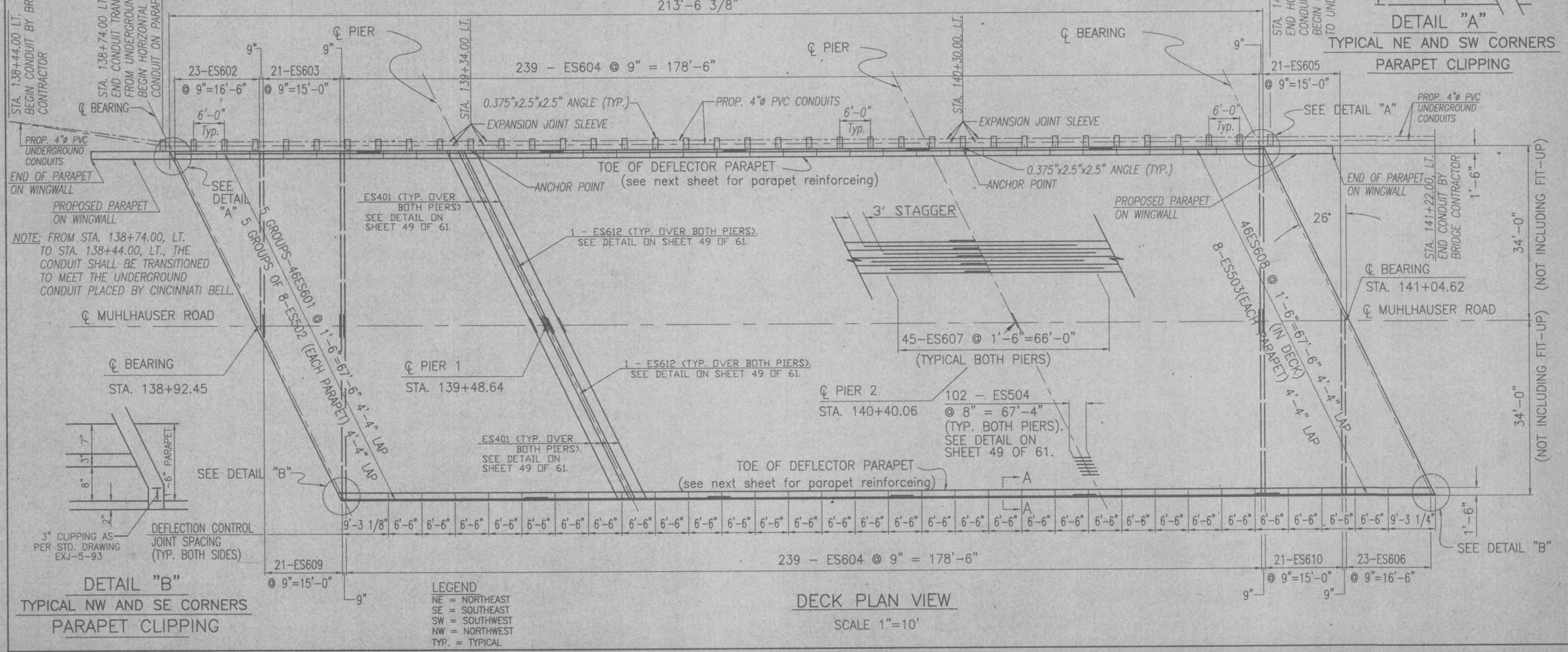


SECTION A-A

NOTE: FROM STA. 140+90.00, LT. TO STA. 141+22.00, LT., THE CONDUIT SHALL BE TRANSITIONED TO MEET THE UNDERGROUND CONDUIT PLACED BY CINCINNATI BELL.



DETAIL "A"
TYPICAL NE AND SW CORNERS
PARAPET CLIPPING



DETAIL "B"
TYPICAL NW AND SE CORNERS
PARAPET CLIPPING

LEGEND
NE = NORTHEAST
SE = SOUTHEAST
SW = SOUTHWEST
NW = NORTHWEST
TYP. = TYPICAL

DECK PLAN VIEW
SCALE 1"=10'

BUTLER COUNTY
STA. 138+89.95
STA. 141+07.14

DESIGNED CAR
DRAWN MWN
CHECKED RLS
REVISED 5-97
REVISED BCEO 10-3-96
DATE
STRUCTURE FILE NUMBER

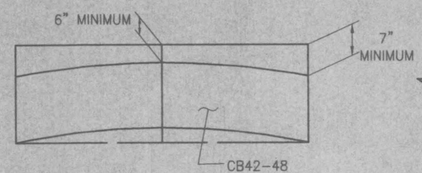
SUPERSTRUCTURE DETAILS
BRIDGE NO. R-115-2.429
OVER THE NORFOLK SOUTHERN RAILROAD

R-115-1.294

19
12

38
61

L:\1953\9537\953PW2\B1D0E\9537-236 Mon Jun 02 12:30:08 1997 Mike Pleva - Bayer Becker Engineers

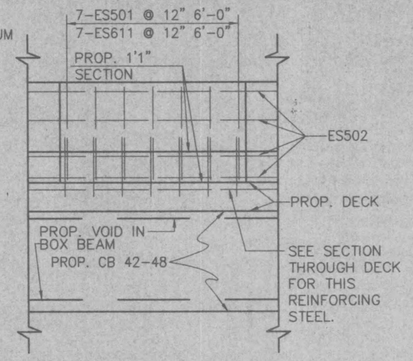


CONCRETE THICKNESS DIAGRAM
WEST SPAN

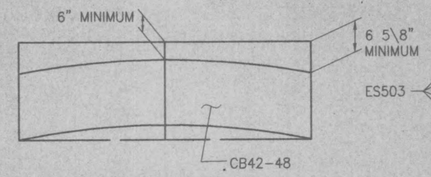
CALCULATED CAMBER AT TIME OF PLACING DECK, INCLUDING ALLOWANCE FOR CAMBER GROWTH DUE TO CREEP, IS 0.772".

CALCULATED DEFLECTION DUE TO WEIGHT OF SLAB AND PARAPET IS 0.184".

NET FINAL CAMBER OF BEAMS IS 0.588".



DEFLECTOR PARAPET DETAIL: INTERIOR SECTION

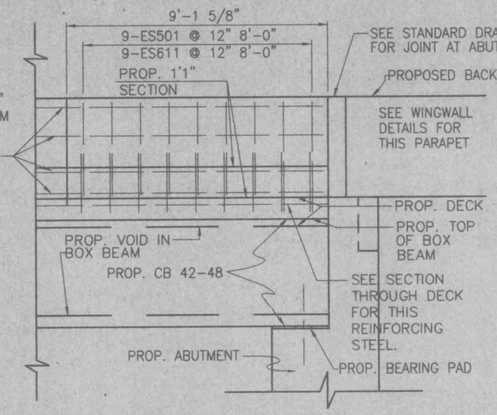


CONCRETE THICKNESS DIAGRAM
CENTER SPAN

CALCULATED CAMBER AT TIME OF PLACING DECK, INCLUDING ALLOWANCE FOR CAMBER GROWTH DUE TO CREEP, IS 2.356".

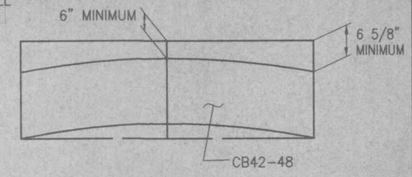
CALCULATED DEFLECTION DUE TO WEIGHT OF SLAB AND PARAPET IS 1.290".

NET FINAL CAMBER OF BEAMS IS 1.066".



DEFLECTOR PARAPET DETAIL: END SECTION

NOTE: SEE STANDARD DRAWING PSBD-1-93, SHEET 1 OF 4, FOR ANCHOR DOWEL AND HOLE DETAILS.



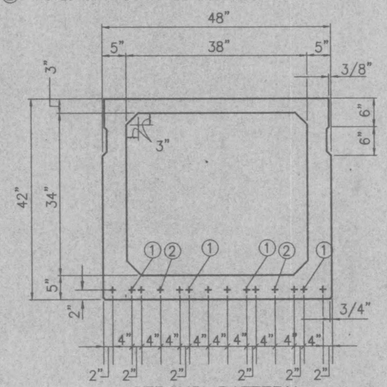
CONCRETE THICKNESS DIAGRAM
EAST SPAN

CALCULATED CAMBER AT TIME OF PLACING DECK, INCLUDING ALLOWANCE FOR CAMBER GROWTH DUE TO CREEP, IS 0.948".

CALCULATED DEFLECTION DUE TO WEIGHT OF SLAB AND PARAPET IS 0.344".

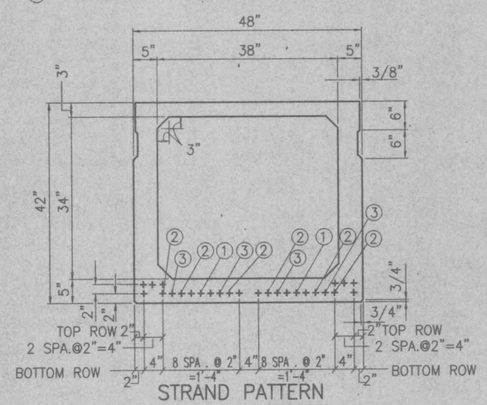
NET FINAL CAMBER OF BEAMS IS 0.604".

① NOTES STRANDS TO BE DEBONDED 6'- 0" FROM ENDS
② NOTES STRANDS TO BE DEBONDED 9'- 0" FROM ENDS



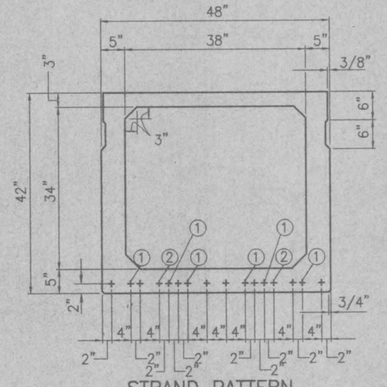
STRAND PATTERN
BEAM SECTION CB 42-48
WEST SPAN (LENGTH = 56'-5 5/8" OUT-TO-OUT)*
*SEE "EXAMINATION OF SITE" NOTE ON SHEET 2 OF 12.

① NOTES STRANDS TO BE DEBONDED 3'-0" FROM ENDS
② NOTES STRANDS TO BE DEBONDED 6'-0" FROM ENDS
③ NOTES STRANDS TO BE DEBONDED 9'-0" FROM ENDS



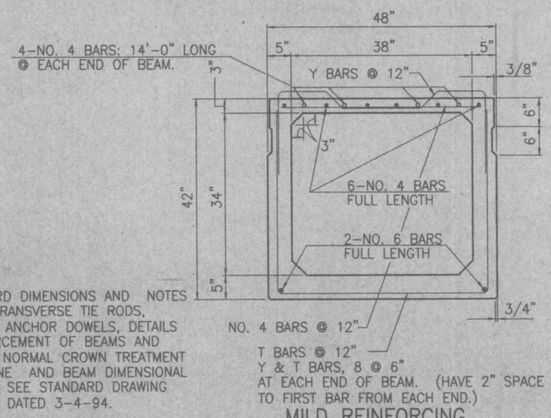
STRAND PATTERN
BEAM SECTION CB 42-48
CENTER SPAN (LENGTH = 90'-10 3/8" OUT-TO-OUT)*
*SEE "EXAMINATION OF SITE" NOTE ON SHEET 2 OF 12.

① NOTES STRANDS TO BE DEBONDED 6'-0" FROM ENDS
② NOTES STRANDS TO BE DEBONDED 9'-0" FROM ENDS



STRAND PATTERN
BEAM SECTION CB 42-48
EAST SPAN (LENGTH = 64'-10 1/8" OUT-TO-OUT)*
*SEE "EXAMINATION OF SITE" NOTE ON SHEET 2 OF 12.

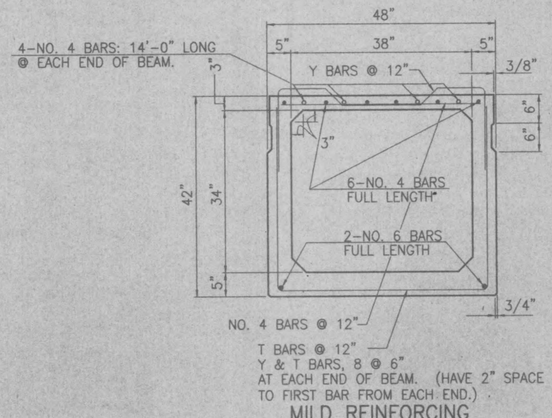
NOTE: REINFORCING STEEL EXTENDING OUT OF BOX BEAMS SHALL BE EPOXY COATED.



NOTE: FOR STANDARD DIMENSIONS AND NOTES REGARDING TRANSVERSE TIE RODS, GALVANIZING, ANCHOR DOWELS, DETAILS AND REINFORCEMENT OF BEAMS AND BEAM ENDS, NORMAL CROWN TREATMENT AT CENTERLINE AND BEAM DIMENSIONAL TOLERANCES, SEE STANDARD DRAWING PSBD-1-93, DATED 3-4-94.

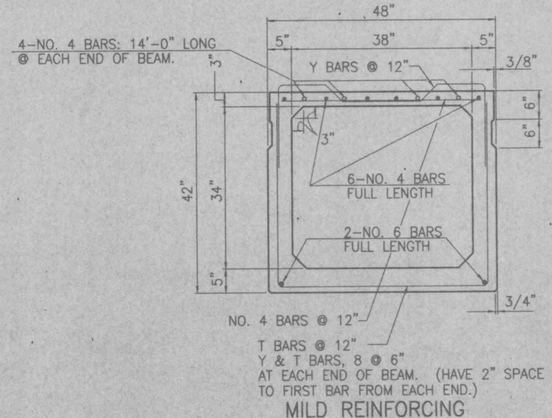
AT EACH END OF BEAM. (HAVE 2" SPACE TO FIRST BAR FROM EACH END.)

MILD REINFORCING
PER PSBD-1-93
BEAM SECTION CB42-48
WEST SPAN (LENGTH = 56'-5/8" OUT-TO-OUT)*



AT EACH END OF BEAM. (HAVE 2" SPACE TO FIRST BAR FROM EACH END.)

MILD REINFORCING
PER PSBD-1-93
BEAM SECTION CB42-48
CENTER SPAN (LENGTH = 90'-10 3/8" OUT-TO-OUT)*



AT EACH END OF BEAM. (HAVE 2" SPACE TO FIRST BAR FROM EACH END.)

MILD REINFORCING
PER PSBD-1-93
BEAM SECTION CB42-48
EAST SPAN (LENGTH = 64'-10 1/8" OUT-TO-OUT)*

NOTE: SEE DETAIL ON SHEET 47 OF 61 FOR SECTION OVER PIERS.

DESIGNED CAR | DRAWN MMN | CHECKED RS | REVISED | REVIEWED BCED | DATE 10-3-96 | STRUCTURE FILE NUMBER

BUTLER COUNTY
STA.138+89.95
STA.141+07.14

MISC. DETAILS
BRIDGE NO. R-115-2.429
OVER THE NORFOLK SOUTHERN RAILROAD

R-115-1.294

10/12

39/61

J:\DESIGN\PROJECTS\BRIDGES\R115-294 Wed Jun 04 14:30:19 1997 Mike Pleva - Beyer Becker Engineers

NOTE: REINFORCING STEEL DIMENSIONS ARE OUT-TO-OUT.
ALL BARS ARE EPOXY COATED.

REINFORCING STEEL LIST

ABUTMENT 1

MARK	NO.	LENGTH	WEIGHT	TYPE	DIMENSION A	B	C	D	E	F
EA501	63	10'-4"	679	2	3'-7"	3'-5"				
EA502	4	40'-3"	168	STRAIGHT						
EA503	4	38'-7"	161	STRAIGHT						
EA504	4	39'-0"	163	STRAIGHT						
EA505	4	40'-9"	170	STRAIGHT						
EA506	1	39'-10"	42	STRAIGHT						
EA507	1	40'-0"	42	STRAIGHT						
EA508	1	39'-0"	41	STRAIGHT						
EA509	1	39'-4"	41	STRAIGHT						
EA510	7	39'-9"	291	STRAIGHT						
EA511	7	40'-6"	296	STRAIGHT						
EA512	5	39'-10"	208	STRAIGHT						
EA513	5	40'-0"	209	STRAIGHT						
EA601	77	7'-9"	896	2	3'-4"	1'-5"				
EA602	77	6'-1"	704	2	2'-6"	1'-5"				
EA603	77	8'-7"	993	2	4'-0"	11"				
EA604	2	7'-11"	24	2	3'-4"	1'-7"				
EA605	2	6'-3"	19	2	2'-6"	1'-7"				
EA606	2	8'-8"	26	2	4'-0"	12"				
EA801	44	5'-6"	646	12	3'-3"	1'-0"				

ABUTMENT 2

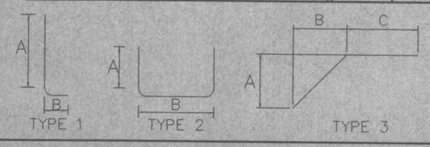
MARK	NO.	LENGTH	WEIGHT	TYPE	DIMENSION A	B	C	D	E	F
EB501	69	10'-4"	744	2	3'-7"	3'-5"				
EB502	4	40'-3"	168	STRAIGHT						
EB503	4	38'-9"	162	STRAIGHT						
EB504	4	39'-0"	163	STRAIGHT						
EB505	4	40'-7"	170	STRAIGHT						
EB506	1	40'-0"	42	STRAIGHT						
EB507	1	39'-10"	42	STRAIGHT						
EB508	1	39'-3"	41	STRAIGHT						
EB509	1	38'-10"	41	STRAIGHT						
EB510	7	39'-9"	291	STRAIGHT						
EB511	7	40'-0"	292	STRAIGHT						
EB512	5	39'-10"	208	STRAIGHT						
EB513	5	40'-0"	209	STRAIGHT						
EB601	77	7'-9"	896	2	3'-4"	1'-5"				
EB602	77	6'-1"	704	2	2'-6"	1'-5"				
EB603	77	8'-7"	993	2	4'-0"	11"				
EB604	2	7'-11"	24	2	3'-4"	1'-7"				
EB605	2	6'-3"	19	2	2'-6"	1'-7"				
EB606	2	8'-8"	26	2	4'-0"	12"				
EB801	44	5'-6"	646	12	3'-3"	1'-0"				

PIER 1

MARK	NO.	LENGTH	WEIGHT	TYPE	DIMENSION A	B	C	D	E	F
EP501	20	25'-10"	539	STRAIGHT						
EP502	24	40'-7"	1016	STRAIGHT						
EP503	4 SETS OF 2 = 8	VARIES	320	STRAIGHT	FROM 40'-1" TO 36'-7" INCRE. 3'-6"					
EP504	36	32'-0"	1202	STRAIGHT						
EP505	2 SETS OF 15 = 30	VARIES	388	STRAIGHT	FROM 14'-3 1/2" TO 10'-6" INCRE. 3 1/4"					
EP506	2 SETS OF 15 = 30	VARIES	388	STRAIGHT	FROM 14'-3 1/2" TO 10'-6" INCRE. 3 1/4"					
EP507	12	8'-7"	108	11	2'-5"	1'-4"	2'-8"	2'-5"		
EP508	4	8'-7"	36	11	2'-5"	1'-4"	2'-8"	2'-5"		
EP509	18	8'-7"	161	11	2'-5"	1'-4"	2'-8"	2'-5"		
EP510	30	7'-3"	228	2	2'-5"	2'-8"				
EP511	30	7'-3"	228	2	2'-5"	2'-8"				
EP512	96	7'-3"	726	2	2'-5"	2'-8"				
EP513	4	8'-0"	34	STRAIGHT						
EP514	32	25'-11"	865	STRAIGHT						
EP515	32	26'-0"	868	STRAIGHT						
EP516	32	26'-1"	871	STRAIGHT						
EP517	32	26'-2"	874	STRAIGHT						
EP518	32	26'-3"	876	STRAIGHT						
EP519	16	26'-4"	440	STRAIGHT						
		NOTE: EP520 - EP526 ARE NOT USED IN PIER 1.								
EP801	8	43'-2"	923	1	40'-7"	2'-6"				
EP802	8	43'-2"	923	1	40'-7"	2'-6"				

PIER 2

MARK	NO.	LENGTH	WEIGHT	TYPE	DIMENSION A	B	C	D	E	F
EP502	24	40'-7"	1016	STRAIGHT						
EP503	4 SETS OF 2 = 8	VARIES	320	STRAIGHT	FROM 40'-1" TO 36'-7" INCRE. 3'-6"					
EP504	36	32'-0"	1202	STRAIGHT						
EP505	2 SETS OF 15 = 30	VARIES	388	STRAIGHT	FROM 14'-3 1/2" TO 10'-6" INCRE. 3 1/4"					
EP506	2 SETS OF 15 = 30	VARIES	388	STRAIGHT	FROM 14'-3 1/2" TO 10'-6" INCRE. 3 1/4"					
EP507	12	8'-7"	108	11	2'-5"	1'-4"	2'-8"	2'-5"		
EP508	4	8'-7"	36	11	2'-5"	1'-4"	2'-8"	2'-5"		
EP509	18	8'-7"	161	11	2'-5"	1'-4"	2'-8"	2'-5"		
EP510	30	7'-3"	228	2	2'-5"	2'-8"				
EP511	30	7'-3"	228	2	2'-5"	2'-8"				
EP512	96	7'-3"	726	2	2'-5"	2'-8"				
EP513	4	8'-0"	34	STRAIGHT						
EP520	20	27'-4"	570	STRAIGHT						
EP521	32	26'-9"	893	STRAIGHT						
EP522	32	26'-10"	896	STRAIGHT						
EP523	32	26'-11"	898	STRAIGHT						
EP524	32	27'-0"	901	STRAIGHT						
EP525	32	27'-1"	904	STRAIGHT						
EP526	16	27'-2"	453	STRAIGHT						
		NOTE: EP501 AND EP514 - EP519 ARE NOT USED IN PIER 2.								
EP801	8	43'-2"	923	1	40'-7"	2'-6"				
EP802	8	43'-2"	923	1	40'-7"	2'-6"				



CALCULATED CAR
CHECKED RLS

REINFORCING STEEL LIST
BRIDGE NO. R-115-2.429 OVER THE NORFOLK SOUTHERN RAILROAD

R - 115 - 1.294

11/12

40/61

J:\DBS\9537\9537PHC\DRAWINGS\9537-240 Wed Jun 04 14:48:32 1997 Mike Pieve - Bayer Becker Engineers

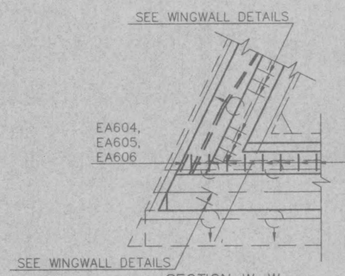
NOTE: REINFORCING STEEL DIMENSIONS ARE OUT-TO-OUT.
ALL BARS ARE EPOXY COATED.

REINFORCING STEEL LIST

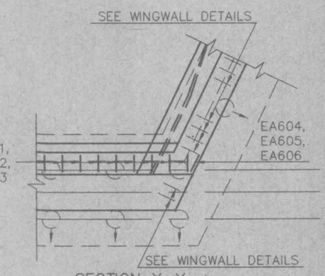
MARK	NO.	LENGTH	WEIGHT	TYPE	DIMENSION A	B	C	D	E	F
WINGWALLS: ABUTMENT 1										
EAW503	8	13'-4"	111	STRAIGHT						
EAW501	8	16'-0"	267	STRAIGHT						
EAW502	8	16'-0"	267	STRAIGHT						
EAW701	28	7'-9"	444	STRAIGHT						
EAW702	28	7'-8"	439	STRAIGHT						
EAW504	8	13'-4"	111	STRAIGHT						
EAW401*	60	3'-6"	140	13	2'-6"					
EAW402*	24	2'-0"	32	13	1'-0"					
EAW403*	12	2'-6"	20	13	1'-6"					
EAW404*	60	3'-6"	140	13	2'-6"					
EAW405*	12	2'-6"	20	13	1'-6"					
EAW406*	24	2'-0"	32	13	1'-0"					
*EAW401 THROUGH EAW406 ARE HOOK BARS IN WIDENED SECTION OF WINGWALLS.										
PARAPETS ON WINGWALLS: ABUTMENT 1										
EAY501	14	7'-1"	103	8	3'-0"	8"	3'-3"			
EAY502	2	3'-10"	8	9	3'-3"					
EAY504	2	3'-8"	8	9	3'-1"					
EAY505	2	3'-7"	8	9	3'-0"					
EAY507	2	3'-5"	7	9	2'-10"					
EAY509	2	3'-3"	7	9	2'-8"					
EAY510	2	3'-2"	7	9	2'-7"					
EAY512	2	3'-0"	7	9	2'-5"					
EAY602	22	3'-8"	121	6	2'-3"	8 1/2"	6"	8"		
EAY603	22	4'-6"	149	STRAIGHT						
EAX501	8	6'-0"	50	STRAIGHT						
EAX502	4	5'-8"	24	10	1'-10"	2'-5"	1'-5"	1 1/2"	5"	6 1/2"
EAX503	4	5'-8"	24	STRAIGHT						
EAX504	8	16'-0"	134	STRAIGHT						
EAX505	4	6'-0"	25	STRAIGHT						
EAX506	4	8'-0"	34	STRAIGHT						

REINFORCING STEEL LIST

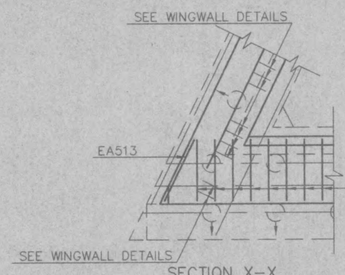
MARK	NO.	LENGTH	WEIGHT	TYPE	DIMENSION A	B	C	D	E	F
WINGWALLS: ABUTMENT 2										
EBW501	8	15'-6"	129	STRAIGHT						
EBW502	8	15'-6"	129	STRAIGHT						
EBW503	8	13'-3"	111	STRAIGHT						
EBW504	6	13'-3"	83	STRAIGHT						
EBW701	28	7'-9"	444	STRAIGHT						
EBW702	28	8'-8"	439	STRAIGHT						
PARAPETS ON WINGWALLS: ABUTMENT 2										
EBY501	14	7'-1"	103	8	3'-0"	8"	3'-3"			
EBY502	2	3'-10"	8	9	3'-3"					
EBY504	2	3'-8"	8	9	3'-1"					
EBY505	2	3'-7"	8	9	3'-0"					
EBY507	2	3'-5"	7	9	2'-10"					
EBY509	2	3'-3"	7	9	2'-8"					
EBY510	2	3'-2"	7	9	2'-7"					
EBY512	2	3'-0"	7	9	2'-5"					
EBY602	22	3'-8"	121	6	2'-3"	8 1/2"	6"	8"		
EBY603	22	4'-6"	149	STRAIGHT						
EBX501	8	6'-0"	50	STRAIGHT						
EBX502	4	5'-8"	24	10	1'-10"	2'-5"	1'-5"	1 1/2"	5"	6 1/2"
EBX503	4	5'-8"	24	STRAIGHT						
EBX504	8	16'-0"	134	STRAIGHT						
EBX505	4	6'-0"	25	STRAIGHT						
EBX506	4	8'-0"	34	STRAIGHT						



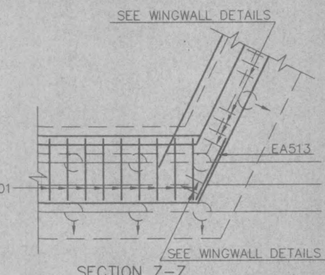
SECTION W-W
ABUTMENT 1
RAILROAD BRIDGE



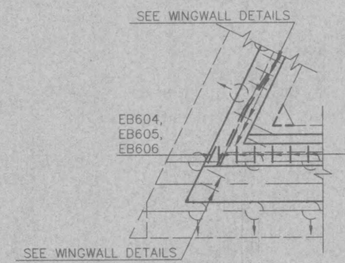
SECTION Y-Y
ABUTMENT 1
RAILROAD BRIDGE



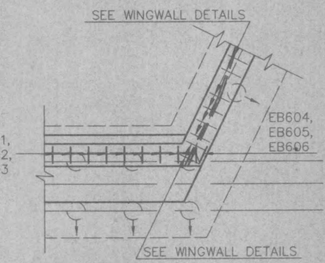
SECTION X-X
ABUTMENT 1
RAILROAD BRIDGE



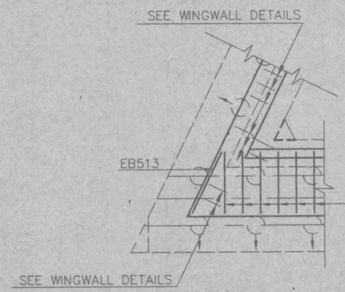
SECTION Z-Z
ABUTMENT 1
RAILROAD BRIDGE



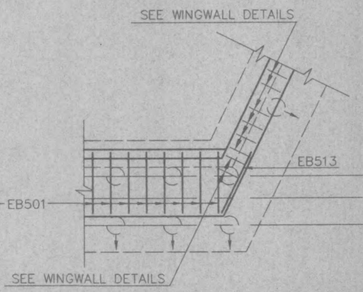
SECTION W-W
ABUTMENT 2
RAILROAD BRIDGE



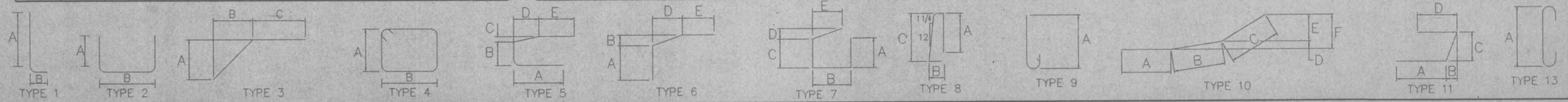
SECTION Y-Y
ABUTMENT 2
RAILROAD BRIDGE



SECTION X-X
ABUTMENT 2
RAILROAD BRIDGE



SECTION Z-Z
ABUTMENT 2
RAILROAD BRIDGE



REINFORCING STEEL LIST AND ABUTMENT HORIZONTAL SECTIONS

BRIDGE NO. R-115-2.429 OVER THE NORFOLK SOUTHERN RAILROAD

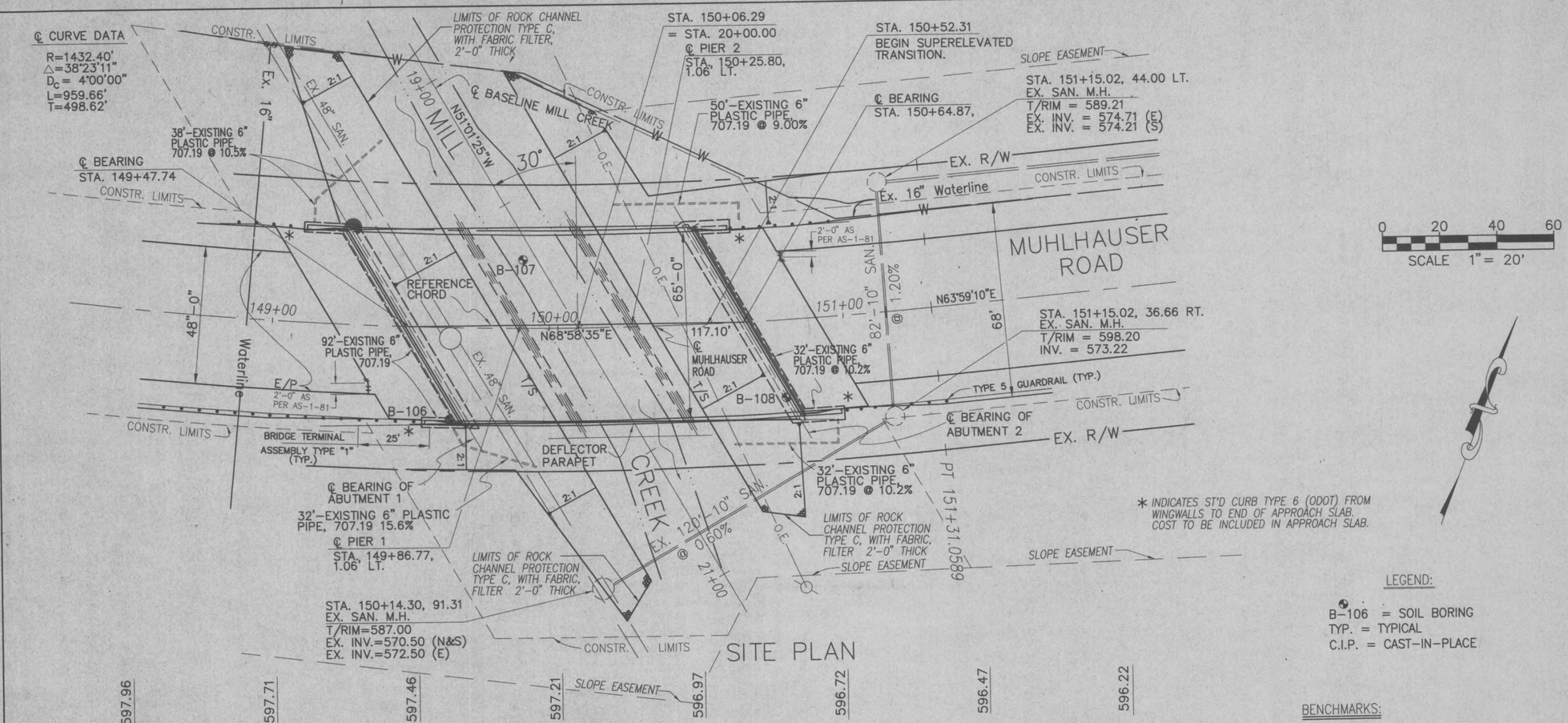
CALCULATED CAR
CHECKED R.L.S.

R - 115 - 1.294

12/12

41/61

J:\95\0537\0537prhC\DRGS\0537-241 - Wed Jun 11 15:13:43 1997 - Mike Pleva - Bayer Becker Engineers



BENCHMARKS:

BENCHMARK – ELE.=593.37
CHISELED SQUARE ON EXISTING HEADWALL
AT P.I. STA. 140+25.00 ; 106' RIGHT

BENCHMARK – ELE.=590.23
SET SPIKE IN TREE AT
APPROXIMATELY STA. 150+00 ±; 100' LEFT

BENCHMARK – ELE.=601.42
SET P.K. NAIL ON ALLEN ROAD AT
STA. 169+57.68.

NOTE: EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

DRAINAGE AREA =18.1 SQUARE MILES

HYDRAULIC DATA
Q_{100} = 6500 cfs
HW_{100} = 592.2
V_{100} = 6.0 fps

PROPOSED STRUCTURE

Type: Prestressed composite concrete box beam (CB-17-48)
Span: 38'-2 1/2", 37'-4 1/4", 38'-2 1/2" c/c bearings
Roadway: 65'-0" toe to toe of deflector parapet
Loading: HS20-44 and alternate military loading
Skew: 30°00'00" R.F.
Alignment: As shown
Wearing Surface: Monolithic concrete
Approach Slabs: 25'-0" As Per Standard Drawing AS-1-81
Crown: Superelevated 0.046 ft/ft max.

DESIGNED MAR | DRAWN MWN | REVIEWED RLS | DATE 2/21/97
CHECKED CAR | REVISED ADT | STRUCTURE FILE NUMBER

BUTLER COUNTY
STA. 149+45.14
STA. 150+67.46

SITE PLAN
BRIDGE NO. R-115-2.621
OVER THE MILL CREEK

R-115-1.294

1/12

42/61

J:\95\9537\9537-242 Sat Feb 22 13:05:57 1997 T. TUTTLE

ITEM SPECIAL–SEALING OF CONRETE SURFACE:

AN EPOXY CONCRETE SEALER SHALL BE APPLIED TO THE FASCIA BEAM AS SHOWN ON THE TRANSVERSE CROSS SECTION ON SHEET 8/12, THE PIER CAP SURFACES AS SHOWN ON SHEET 7/12, AND ABUTMENT BRIDGE SEATS EXTENDING FROM THE LEVEL OF THE BRIDGE SEAT ONE FOOT DOWN THE FACE OF THE BREASTWALL AS SHOWN ON SHEETS 3/12 AND 4/12. SEE PROPOSAL NOTE FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENT AND APPLICATION PROCEDURE.

EXAMINATION OF SITE

THE CONTRACTOR SHALL CAREFULLY EXAMINE THE SITE OF THE PROPOSED WORK, THE PLANS, AND THESE NOTES BEFORE SUBMITTING A PROPOSAL. THE SUBMISSION OF A BID SHALL BE CONSIDERED EVIDENCE THAT THE CONTRACTOR HAS MADE SUCH AN EXAMINATION AND IS SATISFIED AS TO THE CONDITIONS TO BE ENCOUNTERED IN PERFORMING THE WORK AND AS TO THE REQUIREMENTS OF THE PLANS AND THESE NOTES.

DETAILS AND DIMENSIONS ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE SHALL BE VERIFIED IN THE FIELD PRIOR TO BEGINNING CONSTRUCTION OR ORDERING MATERIALS. THIS SHALL BE INCLUDED IN THE LUMP SUM FOR ITEM 624. ALL SPAN LENGTHS SHALL BE VERIFIED IN THE FIELD BEFORE BOX BEAMS ARE CAST. COST SHALL BE INCLUDED IN ITEM 515.

SPECIFICATIONS

ALL WORK ON THIS PROJECT SHALL CONFORM TO THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION'S "CONSTRUCTION AND MATERIAL SPECIFICATIONS," DATED JANUARY 1, 1995, WITH SUPPLEMENTS OR CHANGES THERETO AND/OR AS NOTED. REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

AS–1–81	DATED	9–15–94
BR–1	REVISED	12–15–94
EXJ–5–93	DATED	1–20–94
PSBD–1–93	DATED	3–04–94

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS 1992, THE 1993,1994, AND 1995 INTERIM AASHTO SPECIFICATIONS, AND TO THE ODOT BRIDGE DESIGN MANUAL DATED JANUARY 1995.

STREAM CROSSINGS AND CONSTRUCTION MAINTENANCE

THE CONTRACTOR SHALL BE RESPONSIBLE FOR CARE TAKEN TO PREVENT ANY EXCAVATION AND/OR DISPLACEMENT OF SOIL INTO THE MILL CREEK. ALSO, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER PLACEMENT AND MOVEMENT OF ANY TEMPORARY STREAM CROSSING OR CONSTRUCTION MATERIALS AND EQUIPMENT WITHIN THE CREEK AREA. THIS SHALL BE STRICKLY ADHERED TO AND IS SUBJECTED TO FINAL ACCEPTANCE BY THE ENGINEER.

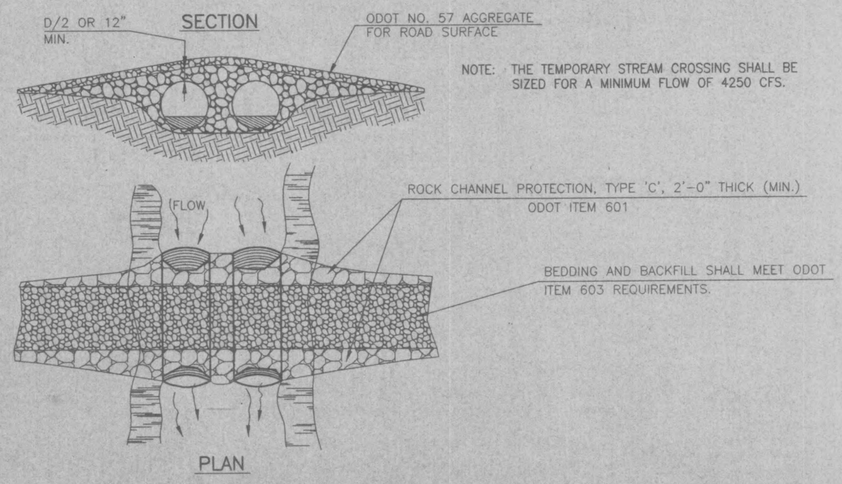
GEOTECHNICAL REPORT

THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT BY ATEC, INC. DATED AUGUST 1, 1995 SHALL BE FOLLOWED AND IS AVAILABLE AT THE BUTLER COUNTY ENGINEER'S OFFICE.

TEMPORARY STREAM CROSSING

THE CROSSING SHALL CONSIST OF CLEAN NON–TOXIC GRANULAR OR ROCK MATERIAL, PROPERLY MAINTAINED TO PREVENT EROSION, WITH PROVISIONS FOR CONVEYANCE OF ANTICIPATED HIGH FLOWS, AND SHALL NOT IMPEDE THE MOVEMENT OF AQUATIC LIFE. CONSTRUCTION SHALL BE IN ACCORDANCE WITH PART 330, APPENDIX A, SPECIFIC CATEGORIES OF DISCHARGES–NATIONALLY PERMITTED, PARAGRAPH (A14), MINOR ROAD CROSSING FILLS – THE FEDERAL REGISTER – CORPS OF ENGINEERS FINAL REGULATIONS, CURRENT EDITION.

ALL MATERIALS NECESSARY FOR TEMPORARY ROAD OR STREAM CROSSING AND ANY EROSION CONTROL ITEMS WILL BE PAID UNDER ITEM 624, MOBILIZATION, NOT AS A SEPARATE PAY ITEM.



TEMPORARY STREAM CROSSING

DESIGN DATA:

DESIGN LOAD – HS–20–44 AND ALTERNATE MILITARY LOADING

CONCRETE CLASS S – COMPRESSIVE STRENGTH – 4500 P.S.I.(SUPERSTRUCTURE)

CONCRETE CLASS C – COMPRESSIVE STRENGTH – 4000 P.S.I.(SUBSTRUCTURE)

REINFORCING STEEL – ASTM A615, A616, A617 GRADE 60, MINIMUM YIELD STRENGTH 60,000 PSI.

CORROSION INHIBITING ADMIXTURES SHALL BE USED IN PRESTRESSED CONCRETE BOX BEAMS AND CLASS S CONCRETE. COST TO BE INCLUDED IN ITEMS 511 AND 515.

DESIGN DATA: PRESTRESSED CONCRETE MEMBERS

CONCRETE FOR PRESTRESSED BEAMS COMPRESSIVE STRENGTH – 5500 PSI
UNIT STRESS – 2200 P.S.I. COMPRESSION
444 P.S.I. TENSION

MILD REINFORCING STEEL FOR THE CONCRETE PRESTRESSED BEAMS GRADE 60, MINIMUM YIELD STRENGTH 60,000 PSI – ASTM A615, A616 OR A617.

PRESTRESSING STRAND ASTM A416
1/2" DIAMETER SEVEN WIRE, UNCOATED STRANDS,
As=0.153 SQ.IN.
f's = 270,000 P.S.I.
INITIAL STRESS = 0.75 f's
(LOW RELAXATION STRANDS)

MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1" THICK.

ITEM 611 REINFORCED CONCRETE APPROACH SLAB(T=15"), AS PER PLAN:

THE REINFORCING STEEL FOR THE APPROACH SLABS OF THIS STRUCTURE SHALL BE EPOXY COATED IN CONFORMANCE WITH 509.

STEEL SPLICES:

SPLICE DETAILS FOR FIELD SPLICES OF STRUCTURAL EXPANSION JOINTS SHOULD BE SHOWN OR STEEL MEMBERS SHALL BE FURNISHED IN LENGTHS AS LONG AS IT IS PRACTICAL. ALL FIELD BUTT JOINTS SHALL BE RIGIDLY FASTENED TOGETHER AS REQUIRED PRIOR TO PLACING CONCRETE. THE SHOP FABRICATION OF EXPANSION JOINTS AND SEALS SHALL BE BASED UPON APPROVED SHOP DRAWINGS.

CONCRETE PARAPETS: AS SOON AS A CONCRETE SAW CAN BE OPERATED WITHOUT DAMAGING THE FRESHLY PLACED CONCRETE, 1 INCH DEEP CONTROL JOINTS SHALL BE SAWED INTO THE PERIMETER OF THE CONCRETE PARAPET. THE SAW CUT SHALL BE MADE IN THE COMPLETE CIRCUMFERENCE OF THE PARAPET, MINIMUM OF 6'–0" AND A MAXIMUM OF 10'–0" CENTERS. THE USE OF AN EDGE GUIDE, FENCE, OR JIG IS REQUIRED TO INSURE THAT THE CUT JOINTS IS STRAIGHT, TRUE, AND ALIGNED ON ALL FACES OF THE PARAPET. THE JOINT WIDTH SHALL BE THE WIDTH OF THE SAW BLADE, A NOMINAL WIDTH OF 1/4" INCH. THE PERIMETER OF THE DEFLECTION CONTROL JOINT SHALL BE SEALED TO A MINIMUM DEPTH OF 1 INCH WITH A CAULKING MATERIAL CONFORMING TO FEDERAL SPECIFICATION, TT–S–00227E TO A MINIMUM DEPTH OF 1 INCH.

BEARING PAD SHIMS: 1/8 INCH THICK PREFORMED BEARING PAD SHIMS, PLAN AREA 10 INCHES BY 6 INCHES SHALL BE PLACED UNDER THE ELASTOMERIC BEARING PADS WHERE REQUIRED FOR PROPER BEARING. THE AMOUNT SUPPLIED IS SUFFICIENT FOR 2 SHIMS PER BEAM. PAYMENT WILL BE MADE AT THE CONTRACT BID PRICE FOR ITEM 516–1/8 INCH PREFORMED BEARING PADS. ANY UNUSED SHIMS SHALL BECOME THE PROPERTY OF THE STATE.

ITEM 510 – DOWEL HOLES, AS PER PLAN
THE DOWEL HOLES MUST BE FILLED PER STD. DWG. PSBD–1–93, FOR EXPANSION AND CONTRACTION BEARNG CONDITIONS.

ELASTOMERIC BEARINGS SHALL COMPLY WITH ITEM 516 AND, ARTICLES 18.2.5 THROUGH 18.2.8 OF SECTION 18, BEARING DEVICES, DIVISION II, CONSTRUCTION OF THE AASHTO STANDARD SPECIFICATION FOR HIGHWAY BRIDGES. BEARINGS SHALL BE GRADE 3,50 DUROMETER ELATOMER, AND SHALL BE SUBJECTED TO THE LOAD TESTING REQUIREMENTS CORRESPONDING TO DESIGN METHOD A TESTING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE BEARINGS, EACH.

UNDERGROUND UTILITIES:

THE LOCATION OF THE UNDERGROUND UTILIES SHOWN ON THE PLAN HAVE BEEN OBTAINED BY DILIGENT FIELD CHECKS AND SEARCHES OF AVAILABLE RECORDS. IT IS BELIVED THAT THEY ARE ESSENTIALLY CORRECT, BUT THIS DOES NOT GUARANTEE THEIR ACCURACY OR COMPLETENESS.

OHIO UTILITIES PROTECTION SERVICE
1–800–363–2764

SEALING WITH HMWM RESIN: AFTER DECK SLAB CONCRETE HAS BEEN DRY AIR CURED FOR NOT LESS THAN 7 DAYS, AND IMMEDIATELY AFTER A MINIMUM 48 HOUR PERIOD WITHOUT PRECIPITATION, VERTICAL CONSTRUCTION JOINTS IN THE SLAB, HORIZONTAL JOINTS AT AND ADJACENT TO THE ROADWAY SURFACE (AT THE BASE OF SIDEWALKS, CURVES, BARRIERS, ETC.), AND CRACKS IN THE ROADWAY SURFACE THAT ARE VISIBLE TO THE UNAIDED EYE, SHALL BE SEALED WITH A HIGH MOLECULAR WEIGHT METHACRYLATE (HMWM) RESIN AS DESCRIBED IN THE HMWM PROPOSAL NOTE. SEALANT SHALL BE APPLIED BY BRUSH, SPRAY, OR OTHER SUITABLE APPLICATOR ALONG THE SURFACE OF JOINTS AND CRACKS. IF NECESSARY, MULTIPLE APPLICATIONS SHALL BE MADE UNTIL COMPLETE PENETRATION HAS BEEN ACHIEVED. AFTER SEALANT HAS BEEN CURED, IT SHALL BE SANDED AS SPECIFIED TO ROUGHEN THE SEALANT SURFACE AND RESTORE ITS SUITABILITY FOR VEHICULAR TRAFFIC. FOR OVERCOATING WITH A CONCRETE SURFACE SEALANT OR AS PREPARATION FOR A CONCRETE OVERLAY, TREATED SURFACES SHALL BE ROUGHENED BY ABRASIVE BLASTING AND OTHERWISE CLEANED AS SPECIFIED FOR THE SUBSEQUENT APPLICATION. SEALING CONSTRUCTION JOINTS AND CRACKS, AS DESCRIBED ABOVE, SHALL BE INCLUDED WITH THE DECK SLAB CONCRETE FOR PAYMENT.

CONSTRUCTION JOINTS AND CRACKS IN OVERLAYS AND BUTT JOINTS BETWEEN OVERLAYS AND ABUTTING CONCRETE OR METAL DECK ELEMENTS (i.e. SCUPPERS, END DAMS, ETC.) SHALL ALSO BE SEALED. SEALANT SHALL BE APPLIED TO THE FRESH OVERLAY, BUT ONLY AFTER A DRY AIR CURE OF 7 DAYS, AND IMMEDIATELY AFTER A MINIMUM OF 48 HOUR PERIOD WITHOUT PRECIPITATION. TREATED AREAS IN THE TRAVELED WAY SHALL BE SANDED AS REQUIRED. SEALING JOINTS AND CRACKS IN AND ADJACENT TO OVERLAYS AS DESCRIBED ABOVE SHALL BE INCLUDED WITH THE OVERLAY FOR PAYMENT.

IPANEX, A CORROSION INHIBITING ADMIXTURE, SHALL BE USED BY THE FABRICATOR OF THE BOX BEAMS, AS DIRECTED BY BCEO. IT SHALL BE INCLUDED WITH ITEM 515 FOR PAYMENT.

BRIDGE NO. R–115–2.621 ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION
201	LUMP	SUM	CLEARING AND GRUBBING
503	LUMP	SUM	UNCLASSIFIED EXCAVATION
509	62883	POUND	EPOXY COATED REINFORCING STEEL
511	267	CU. YD.	CLASS C CONCRETE
511	203	CU. YD.	CLASS S CONCRETE SUPERSTRUCTURE
515	17	EACH	PRESTRESSED COMPOSITE CONCRETE BOX BEAMS, CB 17–48
515	17	EACH	PRESTRESSED COMPOSITE CONCRETE BOX BEAMS, CB 17–48
515	17	EACH	PRESTRESSED COMPOSITE CONCRETE BOX BEAMS, CB 17–48
516	204	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES ONLY:10"X6X1"
516	85	SQ. FT.	1/8–INCH PREFORMED BEATING PADS, 711.21
516	159	LIN. F.T.	STRUCTUAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL
518	107	CU. YD.	POROUS BACKFILL WITH FILTER FABRIC
601	851	CU. YD.	ROCK CHANNEL PROTECTION, TYPE B
623	LUMP	SUM	CONSTRUCTION LAYOUT STAKES
624	LUMP	SUM	MOBILIZATION
SPECIAL	630	SQ. YD.	SEALING OF CONCRETE SURFACES WITH EPOXY SEALER
SPECIAL	LUMP	SUM	CINCINNATI BELL CONDUIT AND SUPPORTS, AS PER PLAN*

*CONTRACTOR WILL BE PAID BY CINCINNATI BELL FOR THIS ITEM.

DESIGNED CAR | DRAWN MWM | REVIEWED BCEO | DATE 10–3–96
CHECKED RWB | REVISED 5–97 | FILE NUMBER

BUTLER COUNTY

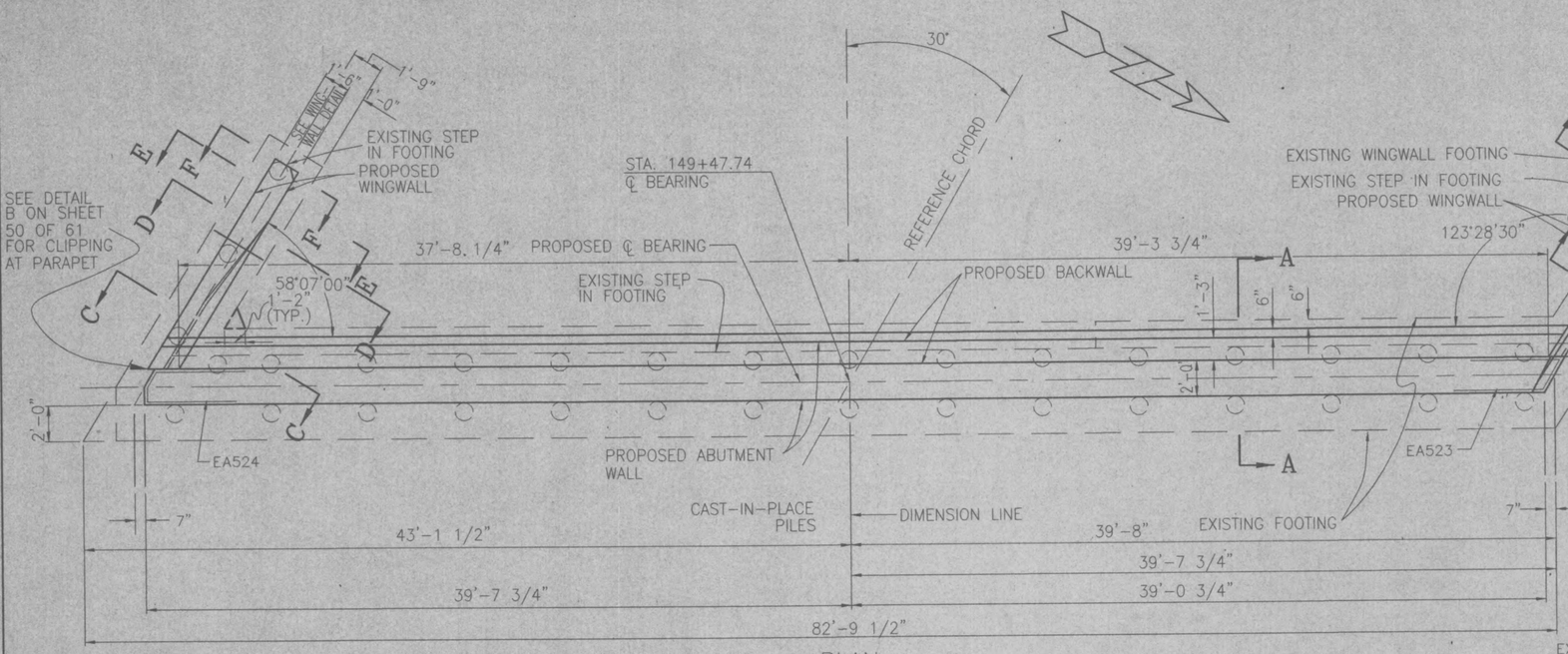
ESTIMATED QUANTITIES AND NOTES
BRIDGE NO. R–115–2.621 OVER THE MILL CREEK

R–115–1.294

2/12

43/61

J:\1951937\1951937p02\DRTDGE\1951937-243 Wed Jun 11 15:10:14 1997 Mike Pleva - Bayer Becker Engineers



PLAN

NOTE: SEE SHEET 6/12 FOR SECTIONS C-C, D-D, E-E, F-F, AND WALL DETAILS.

*THIS IS MEASURED PERPENDICULAR TO ℄ OF ROADWAY.

NOTES: (1) REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SHALL BE ACCURATELY PLACED TO AVOID INTERFERENCE WITH THE DRILLING OF BEARING ANCHOR HOLES.

(2) ABUTMENT CONCRETE ABOVE THE BRIDGE SEAT CONSTRUCTION JOINT SHALL NOT BE PLACED UNTIL THE PRESTRESSED CONCRETE BOX BEAMS HAVE BEEN ERECTED.

(3) IN ADDITION TO THE PROVISIONS OF 511.08 BACKWALL CONCRETE ABOVE THE OPTIONAL CONSTRUCTION JOINT AT THE APPROACH SLAB SEAT SHALL NOT BE PLACED UNTIL AFTER THE DECK CONCRETE IN THE SPAN ADJACENT TO THE ABUTMENT HAS BEEN PLACED.

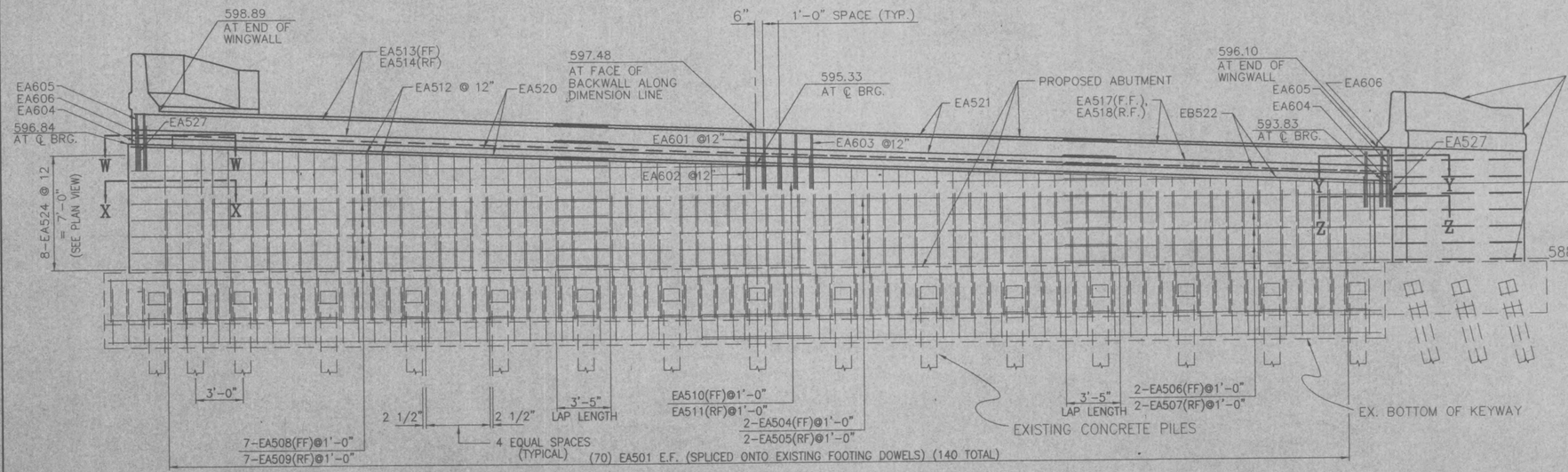
(4) POROUS BACKFILL SHALL EXTEND VERTICALLY FROM THE TOP OF THE FOOTING TO THE PLANE OF THE SUBGRADE AND LATERALLY TO THE ENDS OF THE ABUTMENT WALLS.

(5) ALL ELEVATIONS SHOWN FOR BRIDGE SEAT ARE LOCATED ON THE ℄ OF BEARING.

LEGEND

◯ = EXISTING PILE
EF = EACH FACE
RF = REAR FACE
FF = FRONT FACE
TYP. = TYPICAL

NOTE: REMOVE EX. FILTER FABRIC ON TOP OF EX. POROUS BACKFILL BEFORE PLACING PROP. POROUS BACKFILL.



ELEVATION

SECTION A-A

NOTE: THE EA527,EA604,EA605, AND EA606 BARS SHALL BE PLACED PARALLEL WITH THE WINGWALLS AT EACH END OF THE ABUTMENT, AND SHALL HAVE 2" CLEARANCE FROM THE EDGE OF THE ABUTMENT WALL.

NOTE: FOR SECTIONS W-W, X-X, Y-Y, Z-Z SEE SHEET 12/12.

BUTLER COUNTY
STA. 149+45.14
STA. 150+67.46

DESIGNED CAR
DRAWN MWN
CHECKED RLS
REVIEWED RWB
DATE 5-97

BRIDGE ABSTRACT
STRUCTURE FILE NUMBER

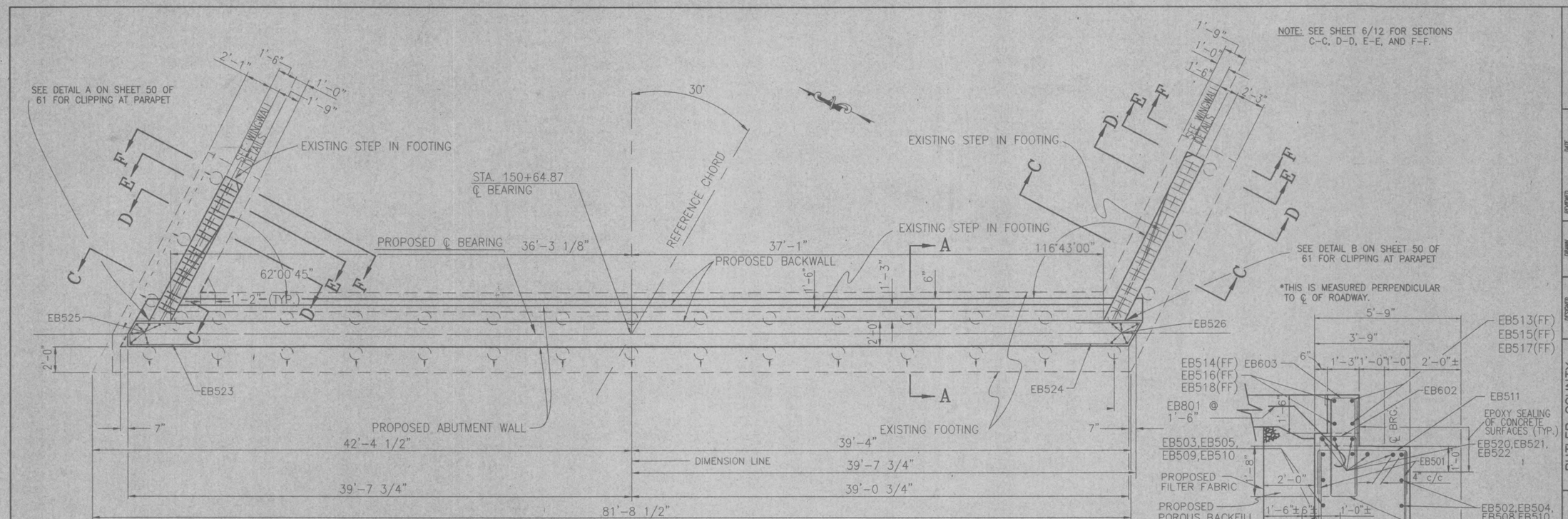
ABUTMENT 1 DETAILS
BRIDGE NO. R-115-2.621
OVER THE MILL CREEK

R-115-1.294

3/12

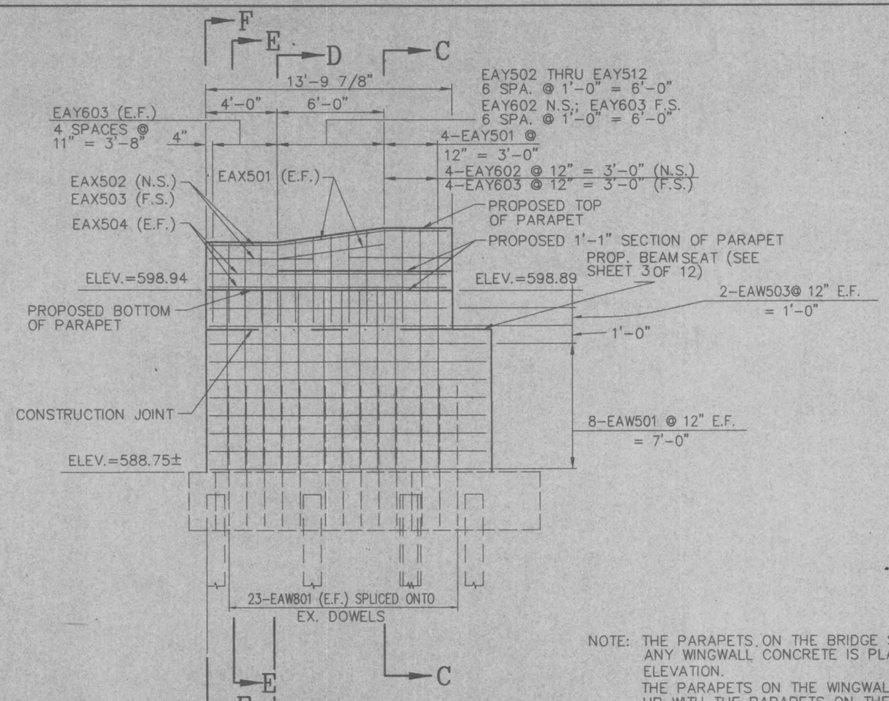
44/61

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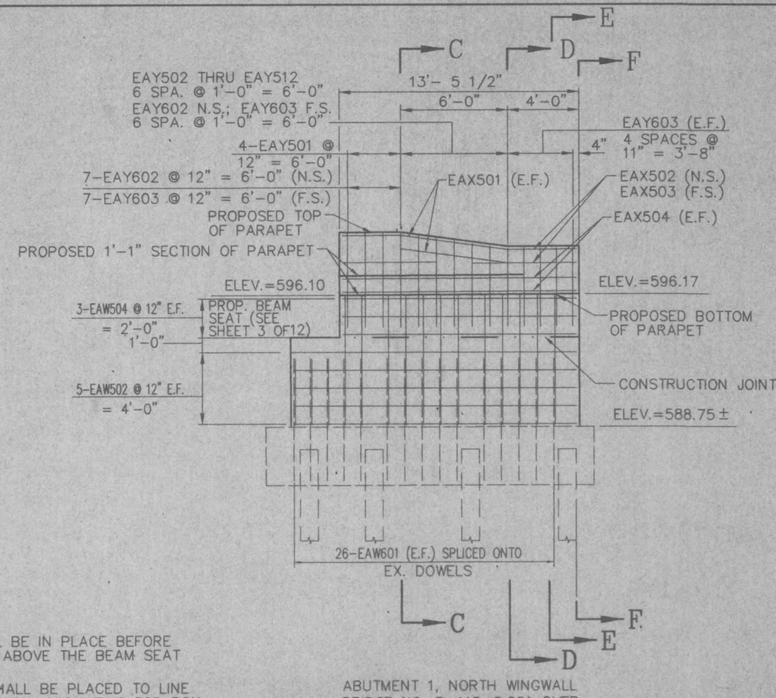


REVIEWED RWB DATE
STRUCTURE FILE NUMBER
DRAWN MWN REVIEWED 5-97
DESIGNED CAR CHECKED RLS
BUTLER COUNTY
STA. 149+45.14
STA. 150+67.46
ABUTMENT 2 DETAILS
BRIDGE NO. R-115-2.621
OVER THE MILL CREEK
R-115-1.294
4
12
45
61

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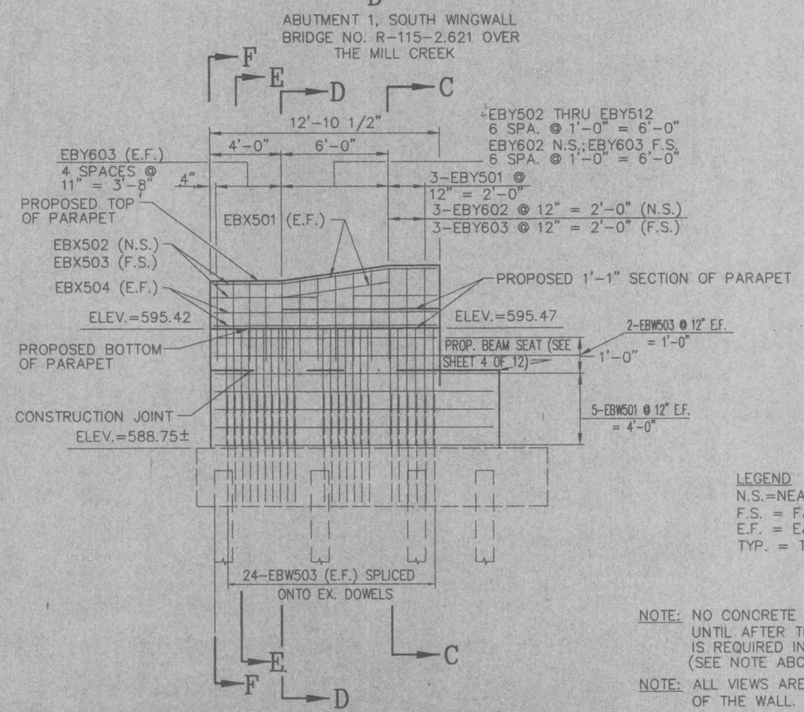


ABUTMENT 1, SOUTH WINGWALL
BRIDGE NO. R-115-2.621 OVER
THE MILL CREEK



ABUTMENT 1, NORTH WINGWALL
BRIDGE NO. R-115-2.621 OVER
THE MILL CREEK

NOTE: THE PARAPETS ON THE BRIDGE SHALL BE IN PLACE BEFORE ANY WINGWALL CONCRETE IS PLACED ABOVE THE BEAM SEAT ELEVATION.
THE PARAPETS ON THE WINGWALLS SHALL BE PLACED TO LINE UP WITH THE PARAPETS ON THE BRIDGE, ACCOUNTING FOR BOX BEAM FIT-UP.

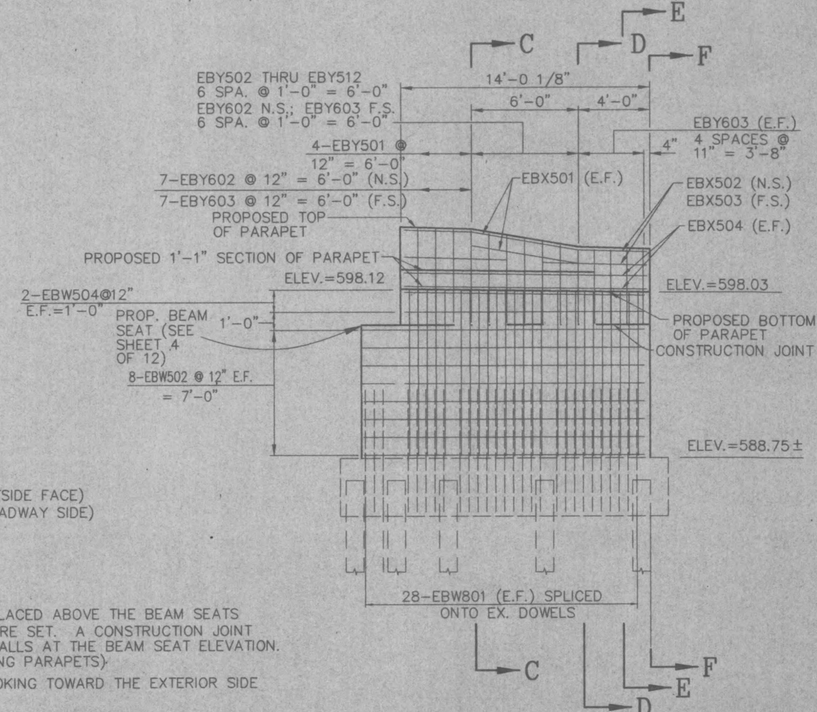


ABUTMENT 2, NORTH WINGWALL
BRIDGE NO. R-115-2.621 OVER
THE MILL CREEK

LEGEND
N.S.=NEAR SIDE (OUTSIDE FACE)
F.S. = FAR SIDE (ROADWAY SIDE)
E.F. = EACH FACE
TYP. = TYPICAL

NOTE: NO CONCRETE SHALL BE PLACED ABOVE THE BEAM SEATS UNTIL AFTER THE BEAMS ARE SET. A CONSTRUCTION JOINT IS REQUIRED IN THE WINGWALLS AT THE BEAM SEAT ELEVATION. (SEE NOTE ABOVE REGARDING PARAPETS).

NOTE: ALL VIEWS ARE SHOWN LOOKING TOWARD THE EXTERIOR SIDE OF THE WALL.



ABUTMENT 2, SOUTH WINGWALL
BRIDGE NO. R-115-2.621 OVER
THE MILL CREEK

DESIGN AGENCY

DESIGNED	DRAWN	REVISED	DATE
CAR	MWN	RWB	
CHECKED	REVISED	STRUCTURE FILE NUMBER	
RLS	5-97		

BUTLER COUNTY
STA. 149+45.14
STA. 150+67.46

MISCELLANEOUS DETAILS
BRIDGE NO. R-115-2.621
OVER THE MILL CREEK

R-115-1.294

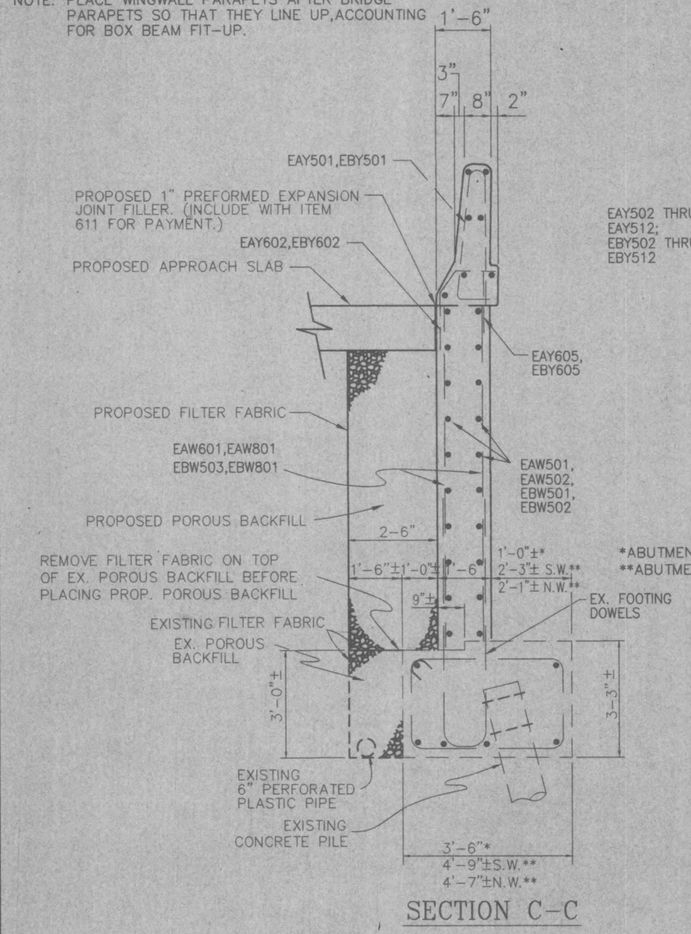
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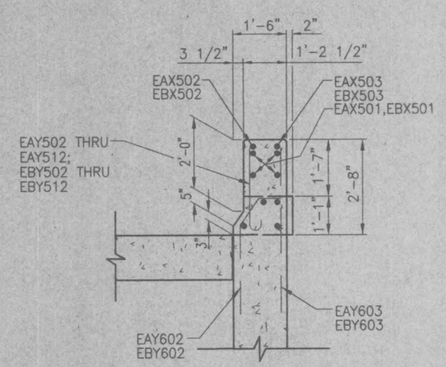
NOTE: FOR DETAIL OF CINCINNATI BELL CONDUITS AND SUPPORT SYSTEM ON THE NORTH PARAPET OF BOTH BRIDGES SEE SHEET 35 OF 61.

NOTE: PLACE WINGWALL PARAPETS AFTER BRIDGE PARAPETS SO THAT THEY LINE UP, ACCOUNTING FOR BOX BEAM FIT-UP.

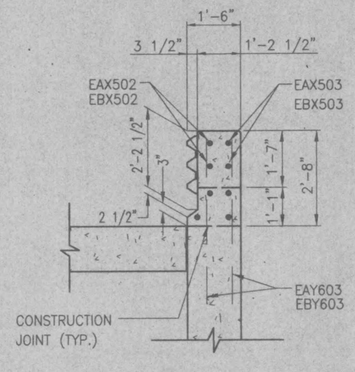


SECTION C-C

NOTE: POROUS BACKFILL WITH FILTER FABRIC, 2'-6" THICK, SHALL EXTEND UP TO THE PLANE OF THE SUBGRADE, TO ONE FOOT BELOW THE EMBANKMENT SURFACE, AND LATERALLY TO THE ENDS OF THE WINGWALL.



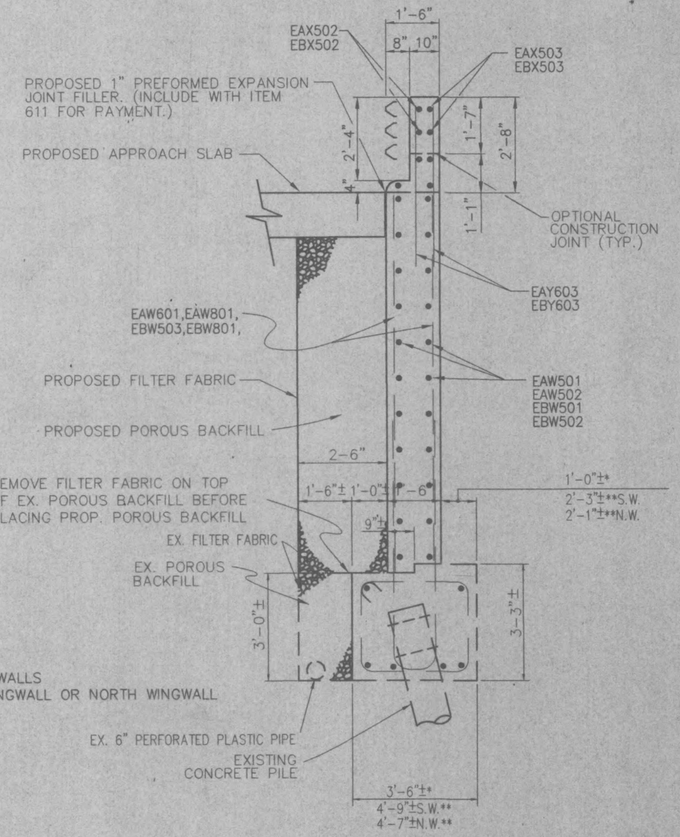
SECTION D-D



SECTION E-E

*ABUTMENT 1: BOTH WINGWALLS
**ABUTMENT 2: SOUTH WINGWALL OR NORTH WINGWALL

LEGEND:
N.S. = NEAR SIDE (ROADWAY SIDE)
F.S. = FAR SIDE (OUTSIDE)
E.F. = EACH FACE
S.W. = SOUTH WINGWALL
N.W. = NORTH WINGWALL
TYP. = TYPICAL



SECTION F-F

*ABUTMENT 1: BOTH WINGWALLS
**ABUTMENT 2: SOUTH WINGWALL OR NORTH WINGWALL

DESIGN AGENCY

DATE: 2/21/97

REVIEWED: RLS
STRUCTURE FILE NUMBER

DRAWN:
REVISED: 5-97

DESIGNED: CAR
CHECKED: RWB

BUTLER COUNTY
STA. 149+45.14
STA. 150+67.46

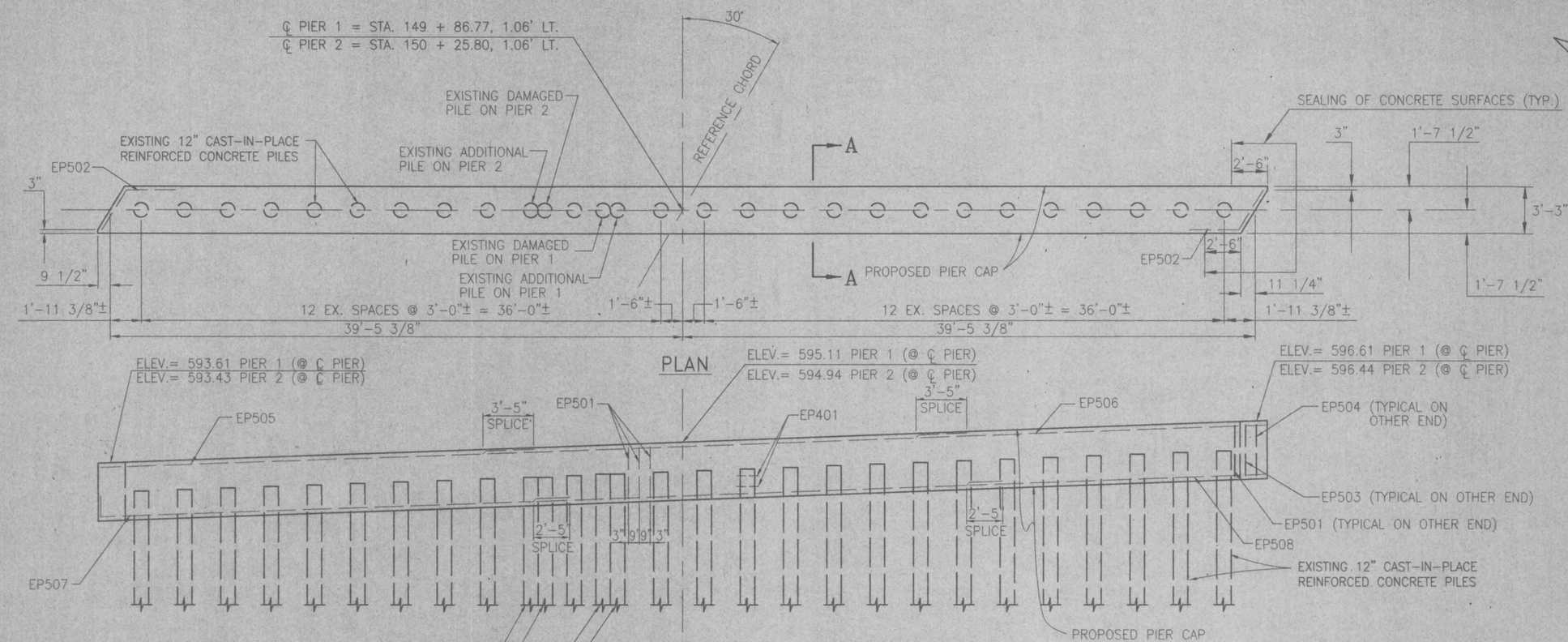
MISCELLANEOUS DETAILS
BRIDGE NO. R-115-2.621
OVER THE MILL CREEK

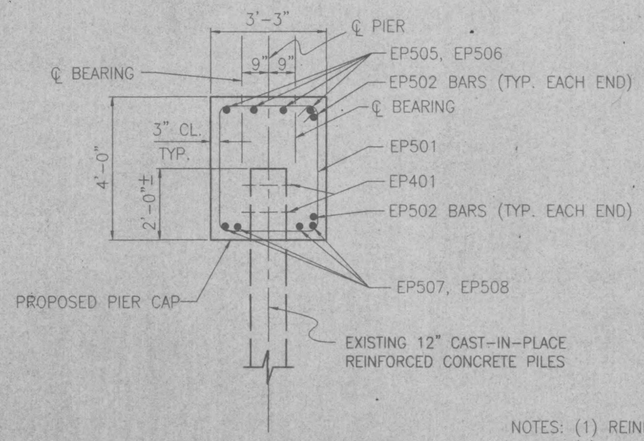
R-115-1.294

6
12

47
61

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SECTION A-A

NOTE:
CONTRACTOR TO VERIFY TOP OF PILE ELEVATIONS PRIOR TO CONSTRUCTION OF PILE CAP. MINIMUM EMBEDMENT OF PILE INTO PILE CAP AS SHOWN ON PLAN IS REQUIRED. ANY ADJUSTMENTS NEEDED WILL BE PAID FOR UNDER ITEM NO. 511,CLASS C CONCRETE.

NOTES: (1) REINFORCING STEEL IS TYPICAL FOR BOTH PIERS.
(2) REINFORCING STEEL IN THE VICINTY OF THE BRIDGE SEAT SHALL BE ACCURATELY PLACED TO AVOID INTERFERENCE WITH THE DRILLING OF BEARING ANCHOR HOLES.

DESIGNED CAR
DRAWN MWN
CHECKED RLS
REVIEWED RWB 2/21/97
DATE
STRUCTURE FILE NUMBER
5-97

BUTLER COUNTY
STA. 149+45.14
STA. 150+67.46

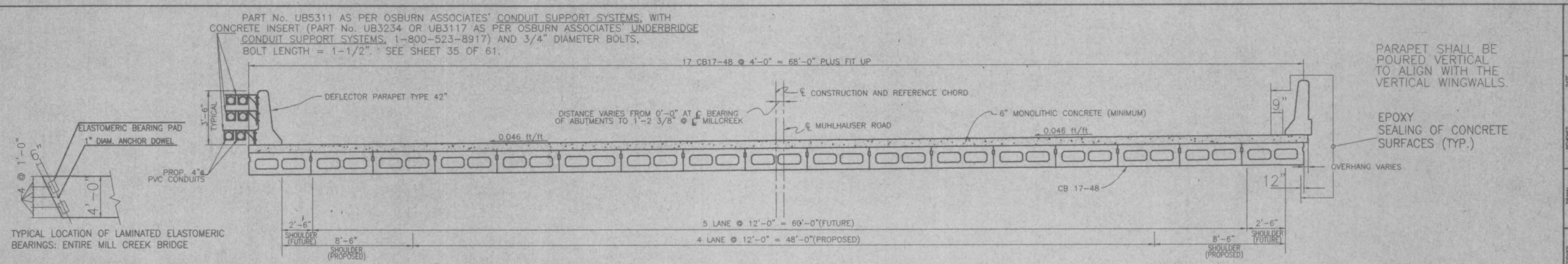
PIER PLAN
BRIDGE NO. R-115-2.621
OVER THE MILL CREEK

R-115-1.294

7/12

48/61

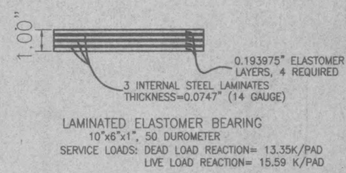
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TRANSVERSE SECTION AT MILL CREEK BRIDGE R-115-2.621

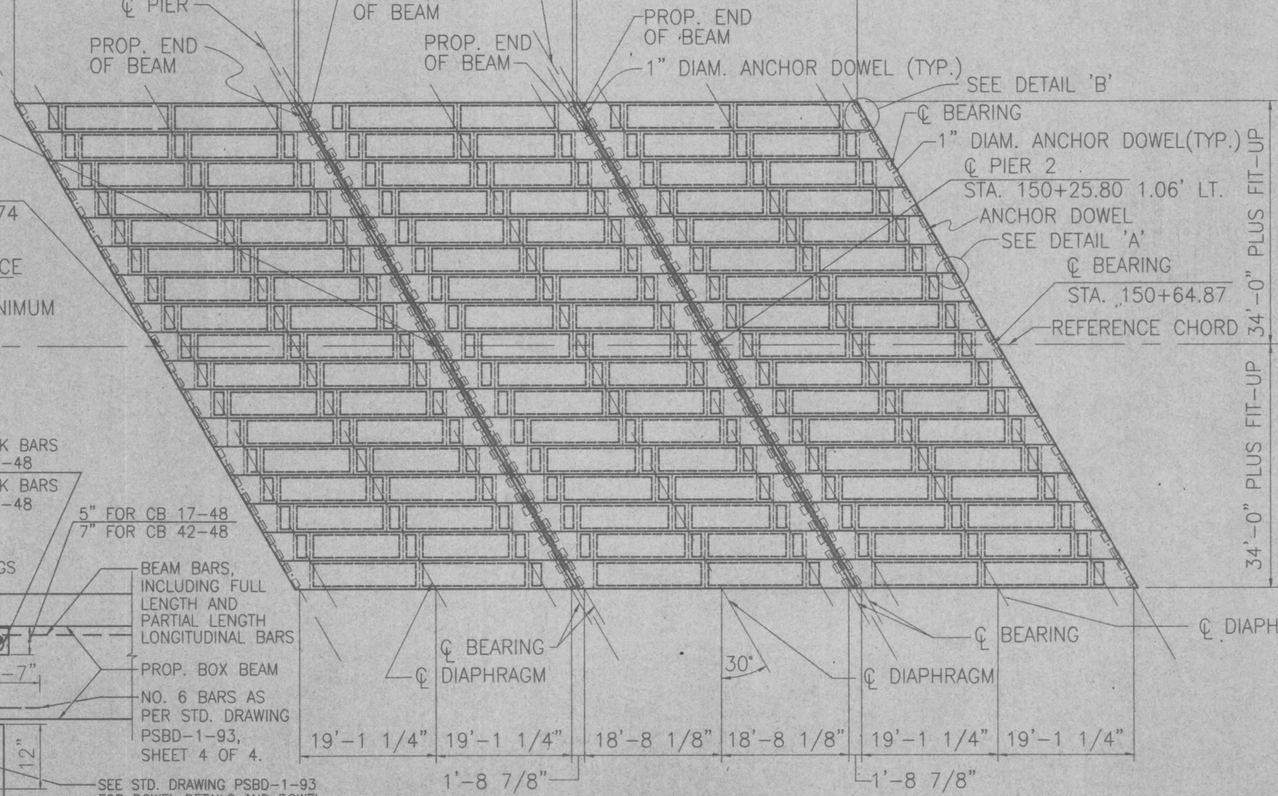
LEGEND

C.I.P. = CAST IN PLACE
TYP. = TYPICAL



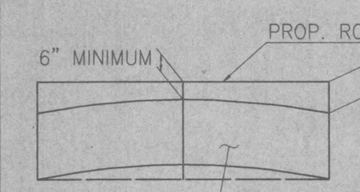
LAMINATED ELASTOMER BEARING
10"x6"x1", 50 DUROMETER
SERVICE LOADS: DEAD LOAD REACTION= 13.35K/PAD
LIVE LOAD REACTION= 15.59 K/PAD

BASIS OF PAYMENT FOR BEARING PADS
THE UNIT PRICE SHALL INCLUDE ALL MATERIALS, LABOR, AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL LAMINATED ELASTOMERIC BEARINGS. PAYMENT WILL BE MADE AT THE CONTRACT PRICE FOR ITEM 516 LAMINATED ELASTOMERIC BEARINGS, 10"x6"x1". PAYMENT FOR TESTING AND TEST PADS SHALL BE INCLUDED IN THE PRICE BID FOR THE BEARINGS.

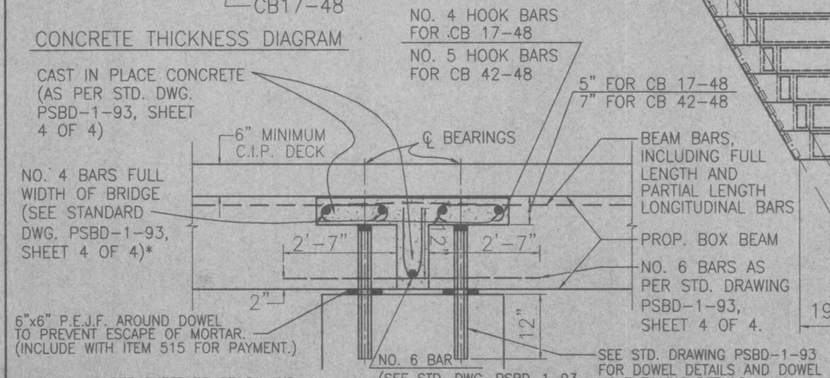


BOX BEAM PLAN VIEW
SCALE 1"=10'

NOTE: BEAMS ARE PARALLEL TO AND SYMMETRICAL ABOUT THE REFERENCE CHORD.

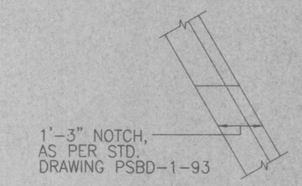


CONCRETE THICKNESS DIAGRAM

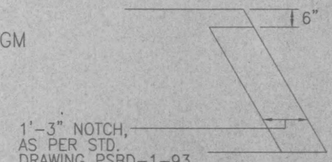


* SEE SHEET 38 OF 61 AND 50 OF 61 FOR THESE BARS.

TYPICAL SECTION OVER PIER: BOTH BRIDGES



DETAIL 'A'
NOTCH AT ALL ENDS OF INTERIOR BEAMS



DETAIL 'B'
TYPICAL NOTCH AT ALL END BEAM CORNERS

DESIGNED CAR
DRAWN MWN
CHECKED RWB
REVISED 5-97
REVIEWED RLS 2/21/97
DATE
STRUCTURE FILE NUMBER

BUTLER COUNTY
STA. 149+45.14
STA. 150+67.46

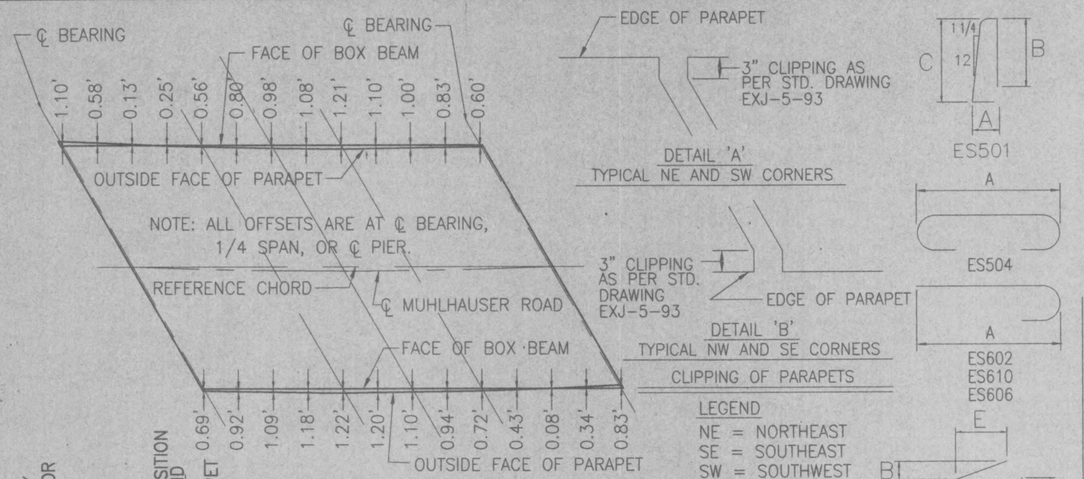
SUPERSTRUCTURE DETAILS
BRIDGE NO. R-115-2.621
OVER THE MILL CREEK

R-115-1.294

8/12

49/61

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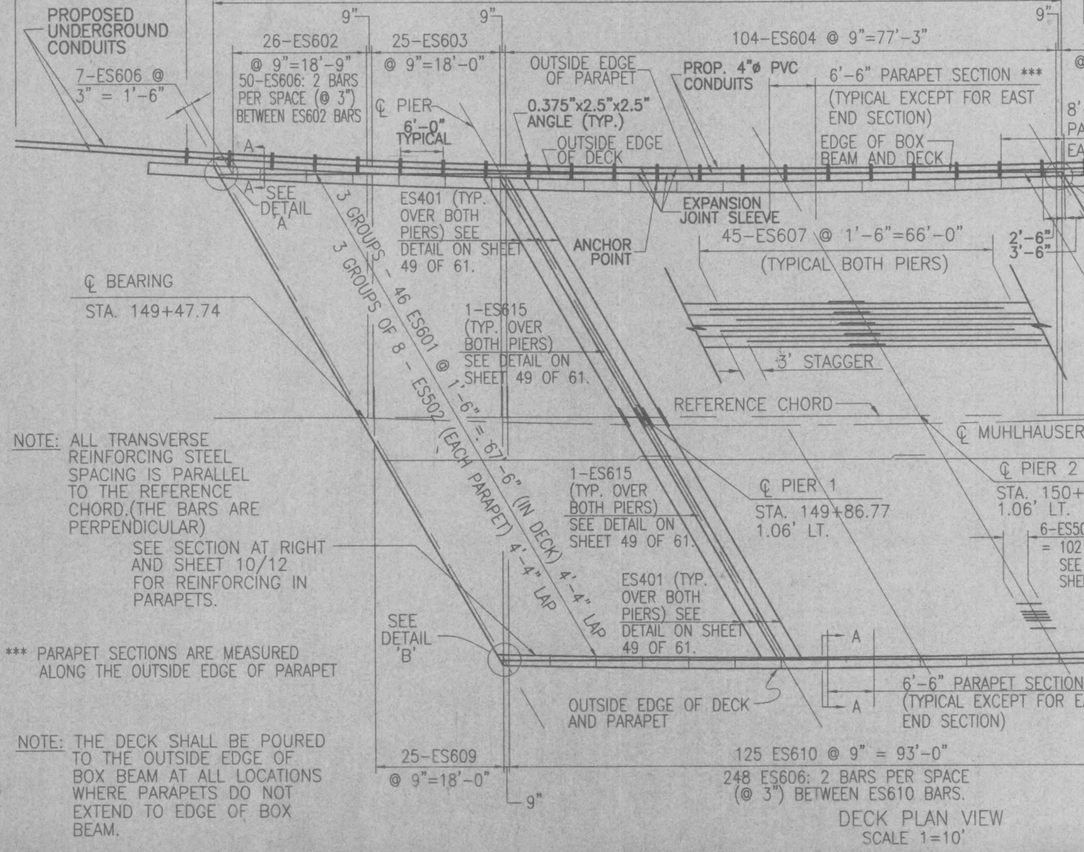


NOTE: THE CONDIUT SHALL BE TRANSITIONED BACK TO MEET THE UNDERGROUND CONDUIT PLACED BY CINCINNATI BELL AT STA. 148+96.00 LT.

BEGIN TRANSITION TO UNDERGROUND END HORIZONTAL CONDUIT ON PARAPET

STA.148+96.00 BEGIN CONDUIT BY BRIDGE CONTRACTOR

END CONDUIT TRANSITION FROM UNDERGROUND BEGIN HORIZONTAL CONDUIT ON PARAPET



NOTE: ALL TRANSVERSE REINFORCING STEEL SPACING IS PARALLEL TO THE REFERENCE CHORD.(THE BARS ARE PERPENDICULAR)

SEE SECTION AT RIGHT AND SHEET 10/12 FOR REINFORCING IN PARAPETS.

*** PARAPET SECTIONS ARE MEASURED ALONG THE OUTSIDE EDGE OF PARAPET

NOTE: THE DECK SHALL BE POURED TO THE OUTSIDE EDGE OF BOX BEAM AT ALL LOCATIONS WHERE PARAPETS DO NOT EXTEND TO EDGE OF BOX BEAM.

STA.150+78.00 END CONDUIT BY BRIDGE CONTRACTOR

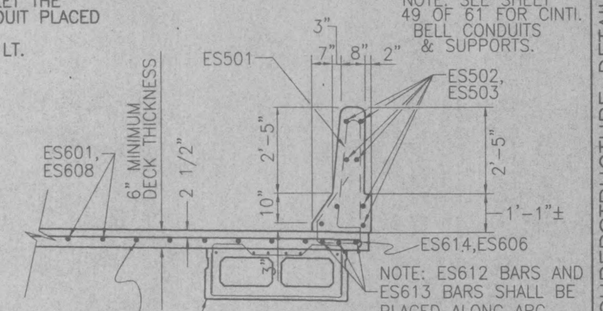
NOTE: THE CONDUIT SHALL BE TRANSITIONED TO MEET THE UNDERGROUND CONDUIT PLACED BY CINCINNATI BELL AT STA. 150+78.00 LT.

SUPERSTRUCTURE REINFORCING STEEL LIST

MARK	NO.	LENGTH	WEIGHT	TYPE	DIMENSION					
					A	B	C	D	E	F
ES401	16	40'-6"	433	STRAIGHT						
ES501	252	7'-1"	1862	(SEE DIAGRAM)	8"	3'-0"	3'-3"			
ES502	48	40'-0"	2003	STRAIGHT						
ES503	16	10'-0"	167	STRAIGHT						
ES504	204	4'-5"	940	(SEE DIAGRAM)	3'-3"					
ES601	138	40'-0"	8291	STRAIGHT						
ES602	26	VARIES	710	(SEE DIAGRAM)	VARIES FROM 3'-0" TO 33'-4" IN 1'-1" INCREMENTS.					
ES603	25	33'-6"	1258	STRAIGHT						
ES604	104	33'-8"	5259	STRAIGHT						
ES605	25	VARIES	664	STRAIGHT	VARIES FROM 1'-8" TO 33'-8" IN 1'-4" INCREMENTS.					
ES606	305	5'-8"	2596	(SEE DIAGRAM)	5'-0"					
ES607	90	18'-0"	2433	STRAIGHT						
ES608	46	10'-0"	691	STRAIGHT						
ES609	25	VARIES	864	STRAIGHT	VARIES FROM 7'-0" TO 39'-0" IN 1'-4" INCREMENTS.					
ES610	125	40'-0"	7510	(SEE DIAGRAM)	39'-4"					
ES611	29	VARIES	842	STRAIGHT	VARIES FROM 2'-0" TO 36'-8" IN 1'-2 7/8" INCREMENTS.					
ES612	6	40'-0"	361	STRAIGHT						
ES613	3	10'-0"	45	STRAIGHT						
ES614	252	4'-1"	1546	(SEE DIAGRAM)	14"	16 1/2"	13"	6"	11 1/2"	
ES615	4	40'-11"	246	STRAIGHT						

NOTE: REINFORCING STEEL DIMENSIONS ARE OUT-TO-OUT.

NOTE: SEE SHEET 49 OF 61 FOR CINTI. BELL CONDUITS & SUPPORTS.



NOTE: ES612 BARS AND ES613 BARS SHALL BE PLACED ALONG ARC UNDER PARAPET ALONG EACH SIDE OF DECK. (NORTH SIDE AND SOUTH SIDE)

SECTION THROUGH FASCIA BEAM, DECK, AND PARAPET

SECTION 'A-A'

** ES602 AND ES610 SHALL HAVE HOOKS ON THE ENDS BECAUSE THESE SECTIONS OF DECK HANG OVER THE BOX BEAMS. BARS SHALL BE ROTATED 45° TO PROVIDE 2-1/2" CLEAR COVER.

EXPANSION JOINT DETAILS

JOINT OPENING BETWEEN RETAINERS SHALL BE ADJUSTED FOR THE AMBIENT TEMPERATURE AT THE TIME OF BACKWALL CONCRETE PLACEMENT, AS FOLLOWS:

JOINT SHALL NOT BE PLACED WHEN AMBIENT AIR TEMPERATURE IS ABOVE 90° OR BELOW 30°F.

* SEE STANDARD DRAWING EXJ-5-93. SEAL GLAND SIZE = 3" SEAL

TEMPERATURE, °F	30°	40°	50°	60°	70°	80°	90°
DIM. "A" (JOINT OPENING) *	1 13/16"	1 3/4"	1 11/16"	1 5/8"	1 5/8"	1 9/16"	1 1/2"

DESIGNED CAR | DRAWN MWN | CHECKED RWB | REVISED 5-97 | REVIEWED RLS 2/21/97 | DATE | STRUCTURE FILE NUMBER

BUTLER COUNTY
STA. 149+45.14
STA. 150+67.46

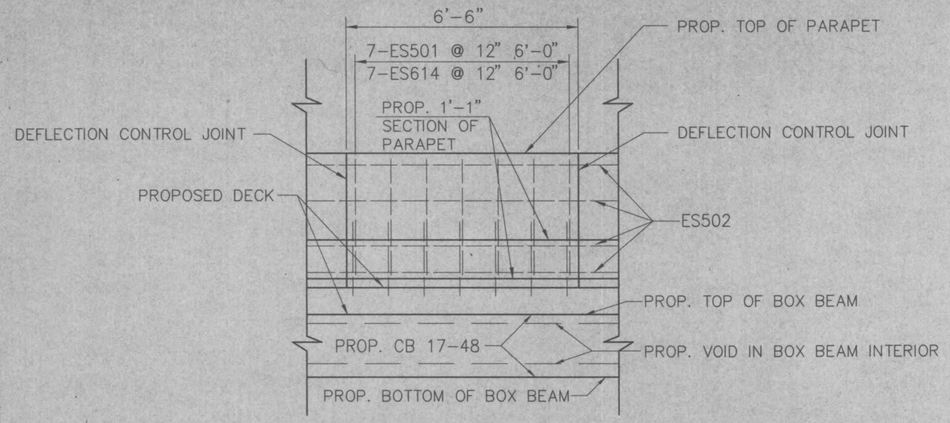
SUPERSTRUCTURE DETAILS
BRIDGE NO. R-115-2.621
OVER THE MILL CREEK

R-115-1.294

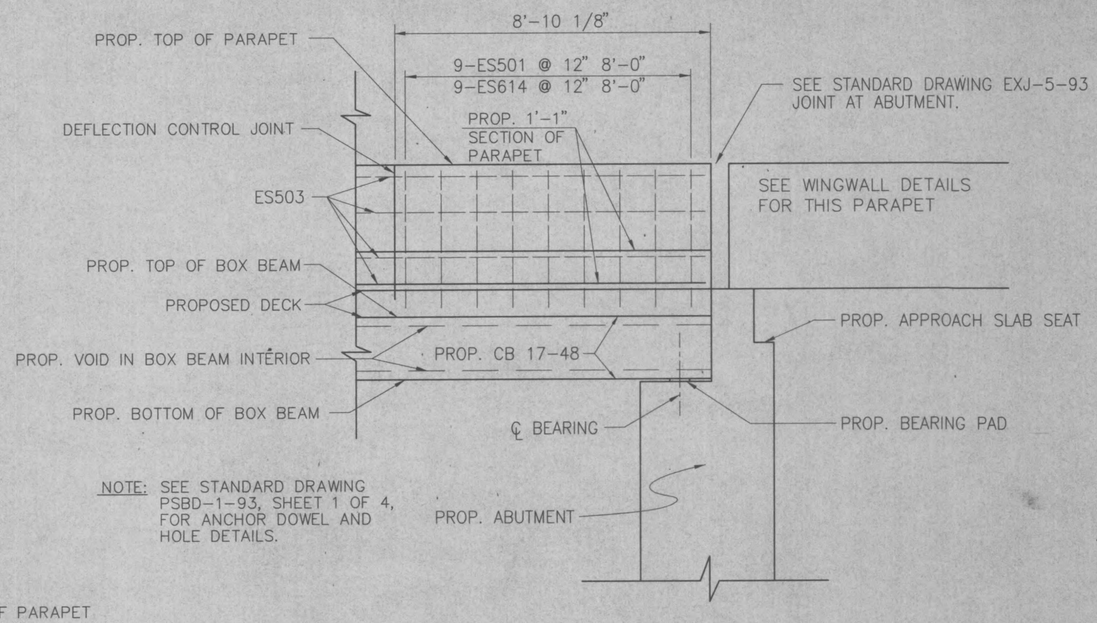
9/12

50/61

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DEFLECTOR PARAPET DETAIL: INTERIOR SECTION



NOTE: SEE STANDARD DRAWING PSBD-1-93, SHEET 1 OF 4, FOR ANCHOR DOWEL AND HOLE DETAILS.

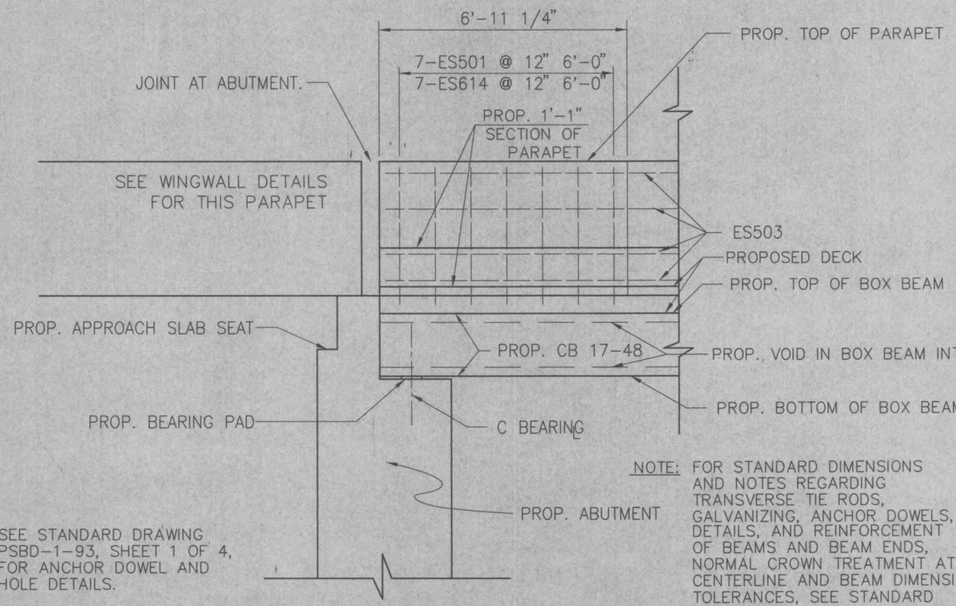
DEFLECTOR PARAPET DETAIL: NORTHEAST END SECTION

CALCULATED CAMBER AT TIME OF PLACING DECK, INCLUDING ALLOWANCE FOR CAMBER GROWTH DUE TO CREEP, IS 1.442".

CALCULATED DEFLECTION DUE TO WEIGHT OF SLAB AND PARAPET IS 0.386".

NET FINAL CAMBER OF BEAMS IS 1.056". (SEE SHEET 8/12)

NOTE: REINFORCING STEEL EXTENDING OUT OF THE BOX BEAMS SHALL BE EPOXY COATED.

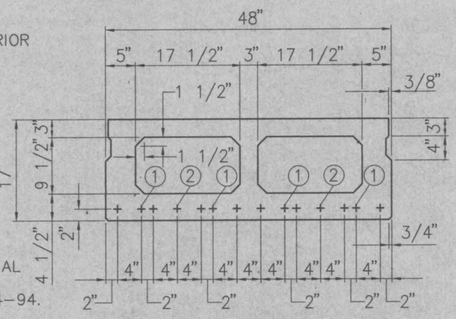


NOTE: SEE STANDARD DRAWING PSBD-1-93, SHEET 1 OF 4, FOR ANCHOR DOWEL AND HOLE DETAILS.

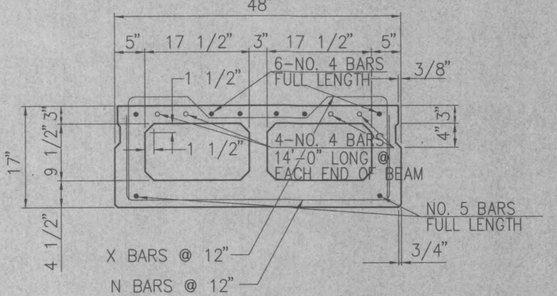
NOTE: FOR STANDARD DIMENSIONS AND NOTES REGARDING TRANSVERSE TIE RODS, GALVANIZING, ANCHOR DOWELS, DETAILS, AND REINFORCEMENT OF BEAMS AND BEAM ENDS, NORMAL CROWN TREATMENT AT CENTERLINE AND BEAM DIMENSIONAL TOLERANCES, SEE STANDARD DRAWING PSBD-1-93, DATED 3-4-94.

DEFLECTOR PARAPET DETAIL: SOUTHEAST END SECTION

① NOTES STRANDS TO BE DEBONDED 3'-0" FROM ENDS
② NOTES STRANDS TO BE DEBONDED 6'-0" FROM ENDS



STRAND PATTERN



X & N BARS: 2" SPACE FROM EACH END, THEN 3 @ 2", THEN 5 @ 8", THEN 12" O.C.

MILD REINFORCING
PER PSBD-1-93

BEAM SECTION
CB17-48

WEST SPAN LENGTH = 39'- 4 3/8" (OUT-TO-OUT)*
CENTER SPAN LENGTH = 38'- 6 1/8" (OUT-TO-OUT)*
EAST SPAN LENGTH = 39'- 4 3/8" (OUT-TO-OUT)*

*SEE "EXAMINATION OF SITE" NOTE ON SHEET 2 OF 12.

DESIGNED CAR	DRAWN MWN	REVIEWED RWB	DATE
CHECKED RLS	REVISED	STRUCTURE FILE NUMBER	

BUTLER COUNTY
STA.149+45.14
STA.150+67.46

MISC. DETAILS
BRIDGE NO. R-115-2.621
OVER THE MILL CREEK

R-115-1.294

10/12

51/61

J:\05\0537\0537249 Sat Feb 22 15:09:23 1997 CSS

NOTE: REINFORCING STEEL DIMENSIONS ARE OUT-TO-OUT.
ALL BARS ARE EPOXY COATED.

REINFORCING STEEL LIST

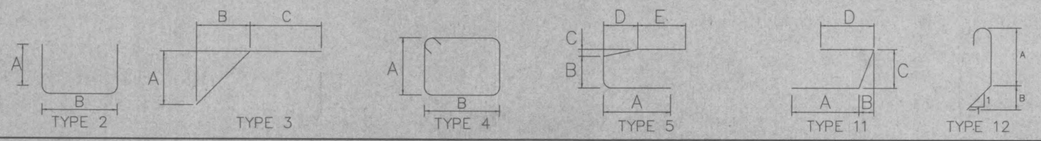
MARK	NO.	LENGTH	WEIGHT	TYPE	DIMENSION A	B	C	D	E	F
ABUTMENT 1										
EA501	TWO SETS OF 70	VARIES	940	STRAIGHT	VARIES FROM 5'-0" TO 7'-10 1/2" IN 1/2" INCREMENTS					
EA502	5	30'-6"	159	STRAIGHT						
EA503	5	29'-0"	151	STRAIGHT						
EA504	5	36'-0"	188	STRAIGHT						
EA505	5	36'-0"	188	STRAIGHT						
EA506	5	20'-10"	109	STRAIGHT						
EA507	5	23'-3"	122	STRAIGHT						
EA508	7	30'-0"	219	STRAIGHT						
EA509	7	30'-0"	219	STRAIGHT						
EA510	1	35'-6"	37	STRAIGHT						
EA511	1	35'-6"	37	STRAIGHT						
EA512	79	7'-10"	645	2	2'-5"	3'-3"				
EA513	2	30'-0"	63	STRAIGHT						
EA514	2	30'-0"	63	STRAIGHT						
EA515	2	35'-6"	74	STRAIGHT						
EA516	2	35'-6"	74	STRAIGHT						
EA517	2	20'-6"	43	STRAIGHT						
EA518	2	20'-6"	43	STRAIGHT						
EA519	16	3'-0"	50	STRAIGHT						
EA520	8	30'-0"	251	STRAIGHT						
EA521	8	35'-6"	297	STRAIGHT						
EA522	8	20'-6"	171	STRAIGHT						
EA523	6	11'-7"	73	11	5'-0"	10"	1'-6"	5'-0"		
EA524	8	11'-4"	95	5	5'-0"	9"	9"	5"	5'-0"	
EA525	17	3'-4"	59	STRAIGHT						
EA601	79	6'-10"	811	2	3'-7"	11"				
EA602	79	3'-10"	455	2	2'-1"	1'-5"				
EA603	79	6'-10"	811	2	3'-7"	11"				
EA604	2	7'-0"	21	2	3'-7"	1'-0"				
EA605	2	4'-2"	13	2	2'-1"	1'-7"				
EA606	2	7'-0"	21	2	3'-7"	1'-0"				
EA801	44	5'-6"	646	12	3'-3"	1'-0"				

REINFORCING STEEL LIST

MARK	NO.	LENGTH	WEIGHT	TYPE	DIMENSION A	B	C	D	E	F
ABUTMENT 2										
EB501	TWO SETS OF 70	VARIES	767	STRAIGHT	VARIES FROM 4'-2" TO 6'-2" IN 11/32" INCREMENTS					
EB502	5	29'-7"	155	STRAIGHT						
EB503	5	27'-0"	141	STRAIGHT						
EB504	5	30'-6"	159	STRAIGHT						
EB505	5	30'-6"	159	STRAIGHT						
EB506	5	26'-0"	136	STRAIGHT						
EB507	5	27'-6"	144	STRAIGHT						
EB508	1	30'-6"	32	STRAIGHT						
EB509	1	30'-6"	32	STRAIGHT						
EB510	2	26'-0"	54	STRAIGHT						
EB511	2	7'-10"	58	STRAIGHT						
EB512	79	27'-6"	645	2	2'-5"	3'-3"				
EB513	2	29'-0"	61	STRAIGHT						
EB514	2	29'-0"	61	STRAIGHT						
EB515	2	30'-0"	63	STRAIGHT						
EB516	2	30'-0"	63	STRAIGHT						
EB517	2	26'-0"	55	2						
EB518	2	26'-0"	55	STRAIGHT						
EB519	18	7'-0"	131	STRAIGHT						
EB520	2	28'-6"	60	STRAIGHT						
EB521	2	30'-0"	63	STRAIGHT						
EB522	2	26'-0"	55	STRAIGHT						
EB523	5	10'-10"	57	5	5'-0"	9"	9"	6"	4'-6"	
EB524	8	11'-6"	96	11	5'-0"	10"	1'-6"	5'-0"		
EB525	19	4'-0"	79	STRAIGHT						
EB601	78	8'-3"	967	2	3'-7"	11"				
EB602	78	3'-10"	449	2	2'-1"	1'-5"				
EB603	78	6'-10"	801	2	3'-7"	11"				
EB604	2	7'-0"	21	2	3'-7"	1'-0"				
EB605	2	4'-2"	13	2	2'-1"	1'-7"				
EB606	2	7'-0"	21	2	3'-7"	1'-0"				
EB801	44	5'-6"	646	12	3'-3"	1'-0"				

REINFORCING STEEL LIST

MARK	NO.	LENGTH	WEIGHT	TYPE	DIMENSION A	B	C	D	E	F
PIER 1										
EP401	52	6'-5"	502	4	1'-1½"	1'-1½"				
EP501	77	12'-11"	1038	4	3'-6"	2'-9"				
EP502	4	6'-4"	27	3	3'-3"	1'-5"	3'-5"			
EP503	2	10'-7"	22	4	3'-6"	1'-10"				
EP504	2	9'-3"	20	4	3'-6"	11"				
EP505	8	30"-0"	251	STRAIGHT						
EP506	4	25'-10"	108	STRAIGHT						
EP507	8	30'-0"	251	STRAIGHT						
EP508	4	23'-8"	99	STRAIGHT						
PIER 2										
EP401	52	6'-5"	502	4	1'-1½"	1'-1½"				
EP501	77	12'-11"	1038	4	3'-6"	2'-9"				
EP502	4	6'-4"	27	3	3'-3"	1'-5"	3'-5"			
EP503	2	10'-7"	22	4	3'-6"	1'-10"				
EP504	2	9'-3"	20	4	3'-6"	11"				
EP505	8	30"-0"	251	STRAIGHT						
EP506	4	25'-10"	108	STRAIGHT						
EP507	8	30'-0"	251	STRAIGHT						
EP508	4	23'-8"	99	STRAIGHT						



CALCULATED CAR
CHECKED RLS

REINFORCING STEEL LIST
BRIDGE NO. R-115-2.621 OVER THE MILL CREEK

R - 115 - 1.294

11/12
52/61

J:\DR\9537\9537-254 Sat Feb 22 15:54:56 1997 T. TUTTLE

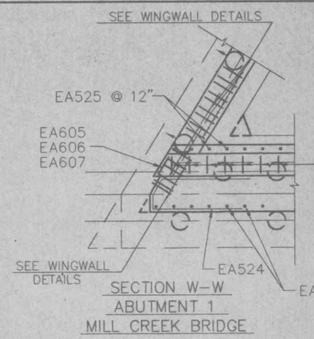
NOTE: REINFORCING STEEL DIMENSIONS ARE OUT-TO-OUT.
ALL BARS ARE EPOXY COATED.

REINFORCING STEEL LIST

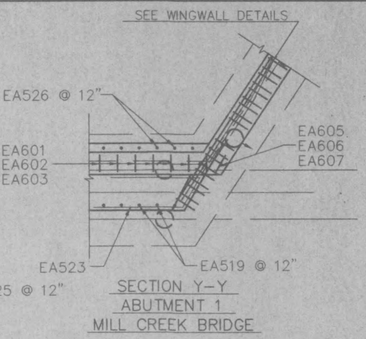
MARK	NO.	LENGTH	WEIGHT	TYPE	DIMENSION A	B	C	D	E	F
WINGWALLS: ABUTMENT 1										
EAW501	16	15'-8"	262	STRAIGHT						
EAW502	10	15'-8"	164	STRAIGHT						
EAW601	52	7'-5"	580	STRAIGHT						
EAW801	46	10'-2"	1249	STRAIGHT						
EAW503	4	13'-0"	55	STRAIGHT						
EAW504	6	13'-0"	82	STRAIGHT						
PARAPETS ON WINGWALLS: ABUTMENT 1										
EAY501	14	7'-1"	103	8	3'-0"	8"	3'-3"			
EAY502	2	3'-10"	8	9	3'-3"					
EAY504	2	3'-8"	8	9	3'-1"					
EAY505	2	3'-7"	8	9	3'-0"					
EAY507	2	3'-5"	7	9	2'-10"					
EAY509	2	3'-3"	7	9	2'-8"					
EAY510	2	3'-2"	7	9	2'-7"					
EAY512	2	3'-0"	7	9	2'-5"					
EAY602	22	3'-8"	121	6	2'-3"	8 1/2"	6"	8"		
EAY603	22	4'-6"	149	STRAIGHT						
EAX501	8	6'-0"	50	STRAIGHT						
EAX502	4	5'-8"	24	10	1'-10"	2'-5"	1'-5"	1 1/2"	5"	6 1/2"
EAX503	4	5'-8"	24	STRAIGHT						
EAX504	8	16'-0"	134	STRAIGHT						
EAX505	4	6'-0"	25	STRAIGHT						
EAX506	4	8'-0"	34	STRAIGHT						

REINFORCING STEEL LIST

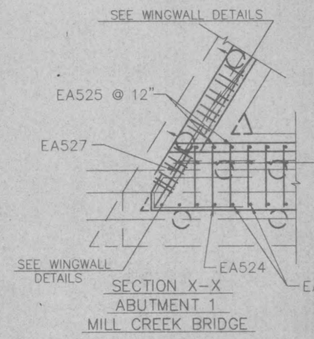
MARK	NO.	LENGTH	WEIGHT	TYPE	DIMENSION A	B	C	D	E	F
WINGWALLS: ABUTMENT 2										
EBW501	10	15'-8"	164	STRAIGHT						
EBW502	16	15'-8"	262	STRAIGHT						
EBW503	48	6'-9"	338	STRAIGHT						
EBW801	56	9'-3"	1383	STRAIGHT						
EBW503	4	12'-6"	53	STRAIGHT						
EBW504	4	13'-0"	55	STRAIGHT						
PARAPETS ON WINGWALLS: ABUTMENT 2										
EBY501	14	7'-1"	103	8	3'-0"	8"	3'-3"			
EBY502	2	3'-10"	8	9	3'-3"					
EBY504	2	3'-8"	8	9	3'-1"					
EBY505	2	3'-7"	8	9	3'-0"					
EBY507	2	3'-5"	7	9	2'-10"					
EBY509	2	3'-3"	7	9	2'-8"					
EBY510	2	3'-2"	7	9	2'-7"					
EBY512	2	3'-0"	7	9	2'-5"					
EBY602	22	3'-8"	121	6	2'-3"	8 1/2"	6"	8"		
EBY603	22	4'-6"	149	STRAIGHT						
EBX501	8	6'-0"	50	STRAIGHT						
EBX502	4	5'-8"	24	10	1'-10"	2'-5"	1'-5"	1 1/2"	5"	6 1/2"
EBX503	4	5'-8"	24	STRAIGHT						
EBX504	8	16'-0"	134	STRAIGHT						
EBX505	4	6'-0"	25	STRAIGHT						
EBX506	4	8'-0"	34	STRAIGHT						



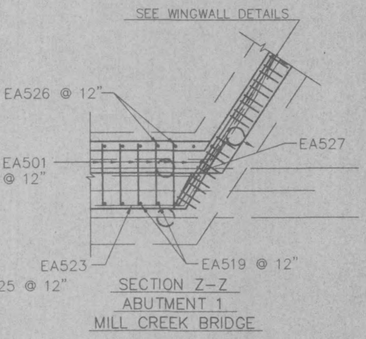
SECTION W-W
ABUTMENT 1
MILL CREEK BRIDGE



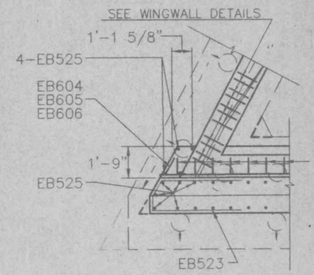
SECTION Y-Y
ABUTMENT 1
MILL CREEK BRIDGE



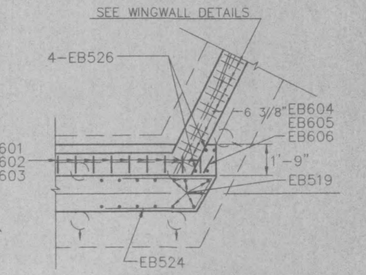
SECTION X-X
ABUTMENT 1
MILL CREEK BRIDGE



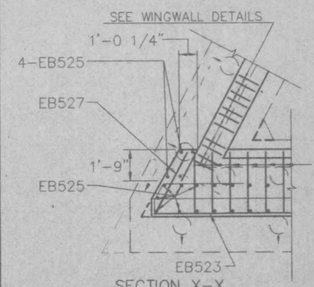
SECTION Z-Z
ABUTMENT 1
MILL CREEK BRIDGE



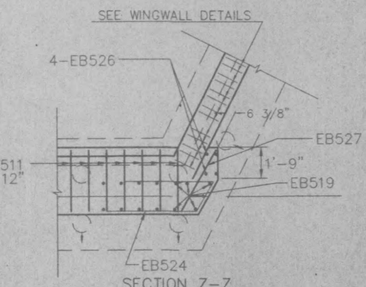
SECTION W-W
ABUTMENT 2
MILL CREEK BRIDGE



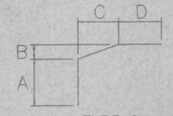
SECTION Y-Y
ABUTMENT 2
MILL CREEK BRIDGE



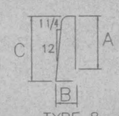
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ABUTMENT 2
MILL CREEK BRIDGE



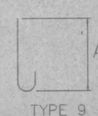
SECTION Z-Z
ABUTMENT 2
MILL CREEK BRIDGE



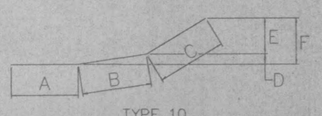
TYPE 6



TYPE 8



TYPE 9



TYPE 10

CALCULATED CAR
CHECKED KLS

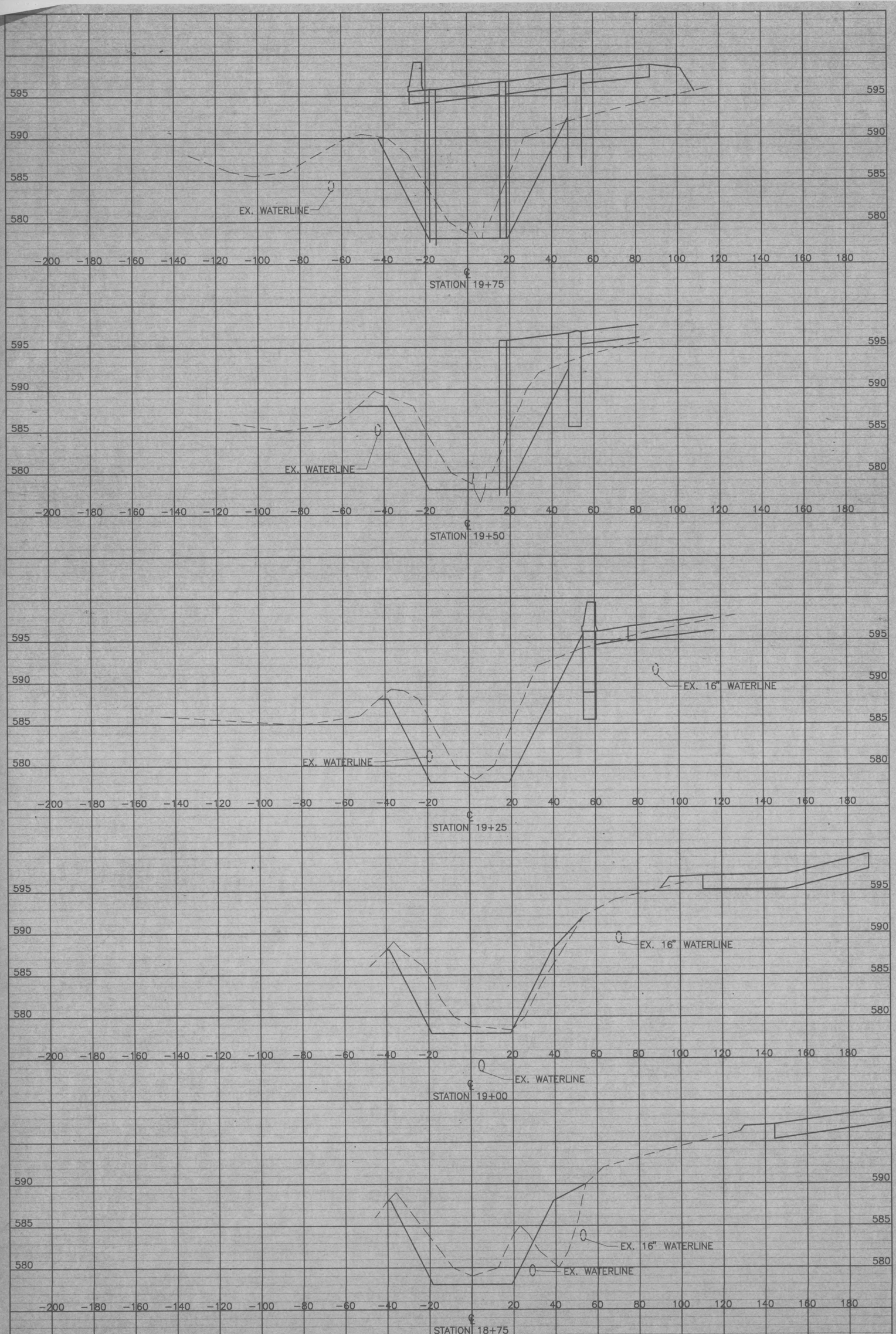
REINFORCING STEEL LIST AND ABUTMENT HORIZONTAL SECTIONS
BRIDGE NO. R-115-2.621 OVER THE MILL CREEK

R - 115 - 1.294

12/12

53/61

J:\95\9637\9637on2\9B10GE\9637-295 Thu Jun 12 07:31:13 1997 Nike Pleva - Bayer Becker Engineers



54
61

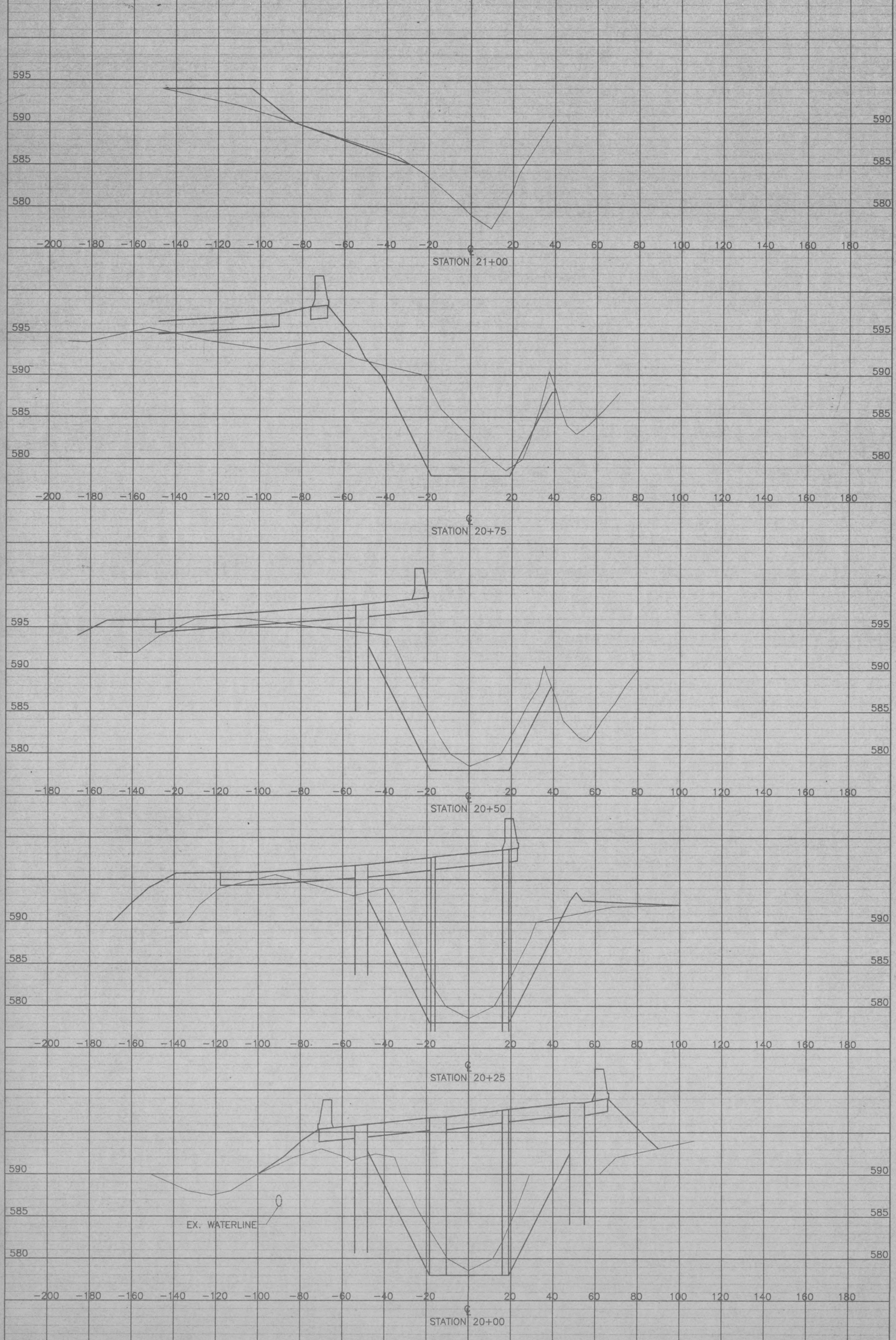
R – 115 – 1.294

MILL CREEK CHANNEL SECTIONS

CALCULATED

CHECKED

C:/986/PP/9537-2/BRIDGE/9537-2S2 Fri Nov 22 14:07:02 1996 BAYER BECKER ENGINEERS



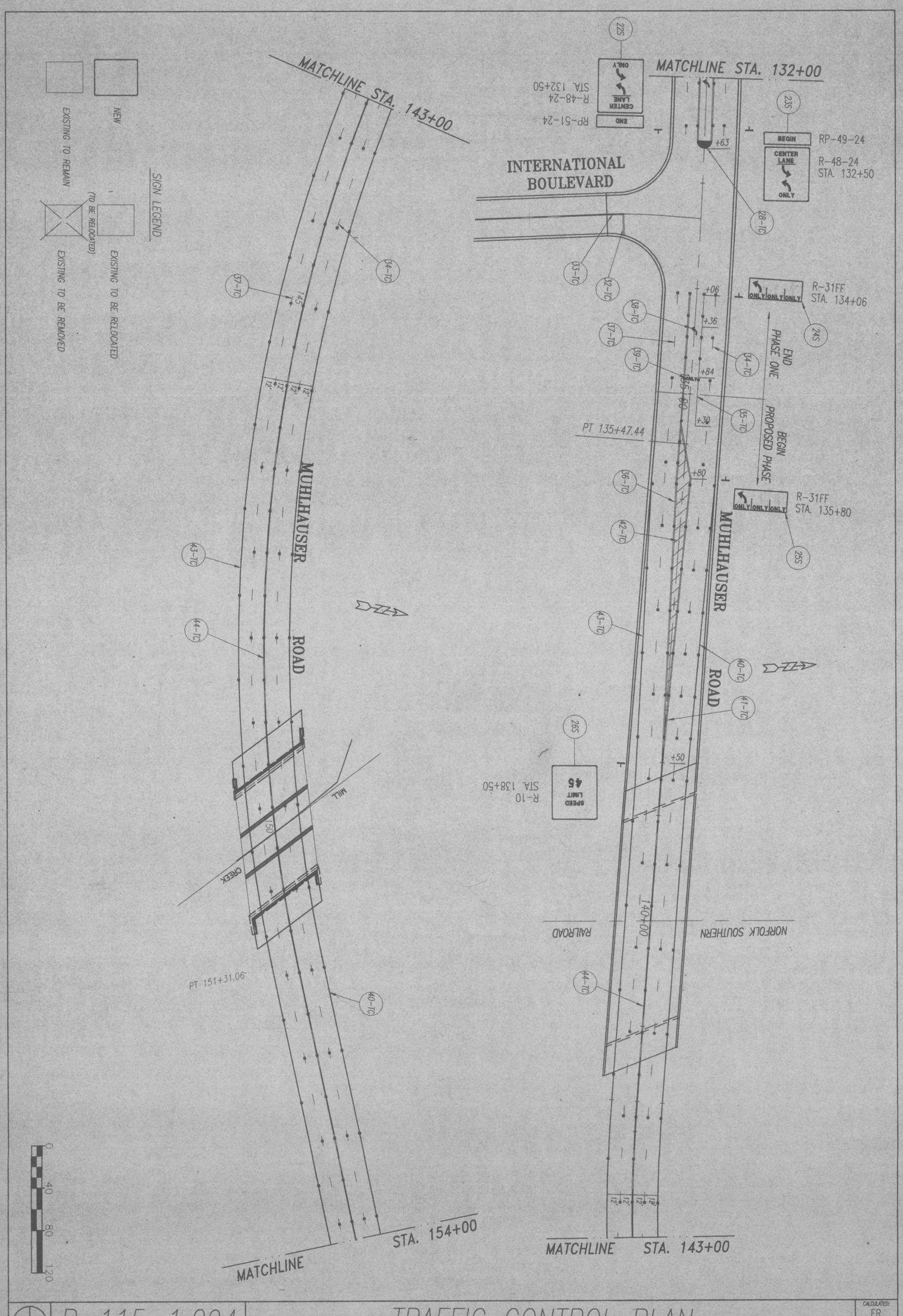
55/61	R – 115 – 1.294	MILL CREEK CHANNEL SECTIONS

CALCULATED

CHECKED

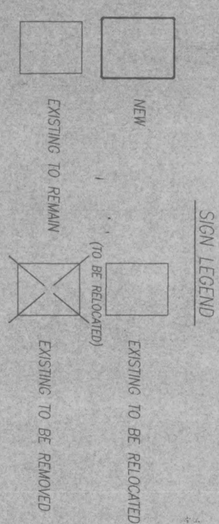
C:\BDE/ft/9837-2/BRIDGE/9837-2S3 Fri Nov 22 14:14:47 1996 BAYER BECKER ENGINEERS

D:\F12\9537-2\DETAILS\9537-256 Tue Feb 18 15:21:47 1997 Drawn by: Tom Barrett

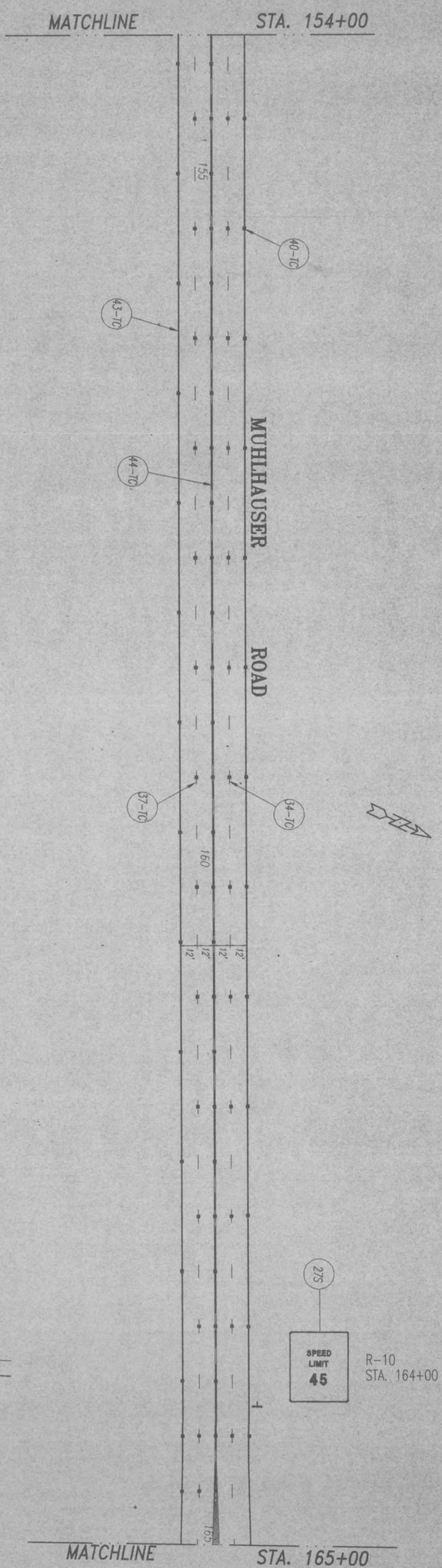


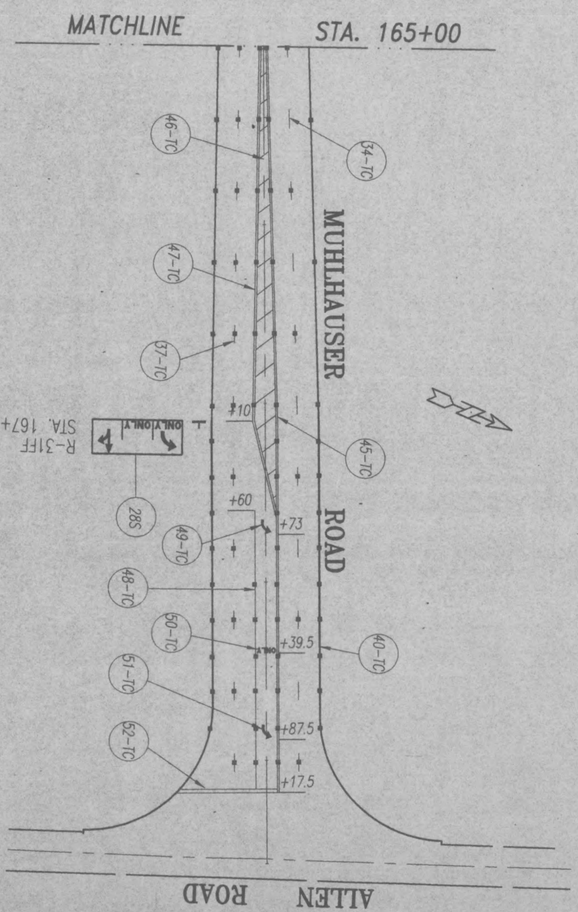
56/61	R-115-1.294	TRAFFIC CONTROL PLAN	CALCULATED: ER CHECKED: CAR

D:\F12\9537-2\DETAILS\9537-257 Tue Feb 18 15:32:01 1997 Drawn by: Tom Barrett



SIGN LEGEND







57/61

R-115-1.294

TRAFFIC CONTROL PLAN

CALCULATED: ER
CHECKED: CAR

ITEM 644

SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	SIDE	DASHED LANE LINE, WHITE	24" TRANSVERSE LINE, YELLOW	4" EDGE LINE, WHITE	4" SOLID DOUBLE YELLOW CENTER LINE	CHANNELIZING LINE		STOP LINE
						LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.		LIN. FT.
	34-TC	MUHLHAUSER ROAD	134+06	169+17.5	LT	3511.5				124		
	35-TC	"	134+06	135+30	LT				444			
	36-TC	"	134+06	138+50	RT							
	37-TC	"	134+06	169+17.5	RT	3511.5						
	38-TC	"	134+36									
	39-TC	"	134+84									
	40-TC	"	135+80	168+82	LT			3302				
	41-TC	"	135+30	138+50	LT				320			
	42-TC	"	135+30	138+50	RT		235					
	43-TC	"	135+80	168+82	RT			3302				
	44-TC	"	138+50	164+40	LT				2590			
	45-TC	"	164+40	169+17.5	LT				477.5			
	46-TC	"	164+40	167+60	RT		235					
	47-TC	"	164+40	167+60	RT				320			
	48-TC	"	167+60	169+17.5	RT					157.5		
	49-TC	"	167+73									
	50-TC	"	168+39.5									
	51-TC	"	168+87.5									57
	52-TC	"	169+17.5									
		TOTALS CARRIED TO GENERAL SUMMARY				7023	470	6604	4151.5	281.5		57

ITEM 621

LANE ARROW, 96"	WORD ON PAVEMENT, 96"			RAISED PAVEMENT MARKER, 1 WAY, WHITE	RAISED PAVEMENT MARKER, 2 WAY, YELLOW/YELLOW	RAISED PAVEMENT MARKER, 2 WAY, WHITE/RED
EACH	EACH			EACH	EACH	EACH
				5		50
					15	
						51
1						
	1					
				53		
					7	
				53		
					65	
					17	
					6	
				6		
1						
	1					
1						
3	2			117	110	101

ITEM 630

SHEET NO.	REFERENCE NO.	STATION	SIDE	CODE	SIZE (INCHES)	SIGN, FLATSHEET, TYPE G		GROUND MOUNTED SUPPORT, #3 POST
						SQ. FT.		LIN. FT.
	24-S	134+06	LT	R-31FF	48X30	10		26
	25-S	135+80	LT	R-31FF	48X30	10		26
	26-S	138+50	RT	R3-10-24	24X30	5		13
	27-S	164+00	LT	R3-10-24	24X30	5		13
	28-S	167+10	RT	R-31C	48X30	10		26
		TOTALS CARRIED TO GENERAL SUMMARY				40		104

CALCULATED ER
CHECKED MWN

TRAFFIC CONTROL PLAN

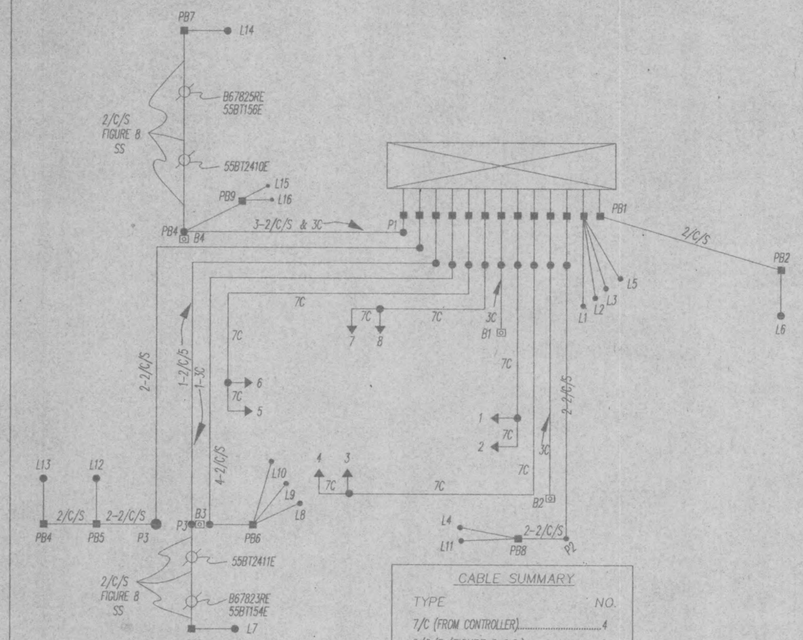
R - 115 - 1.294

58
61

D:\Projects\9537-2\DETAILS\9537-258 Mon Feb 24 09:40:39 1997 Drawn by: Tom Barrett

CABLE DIAGRAM

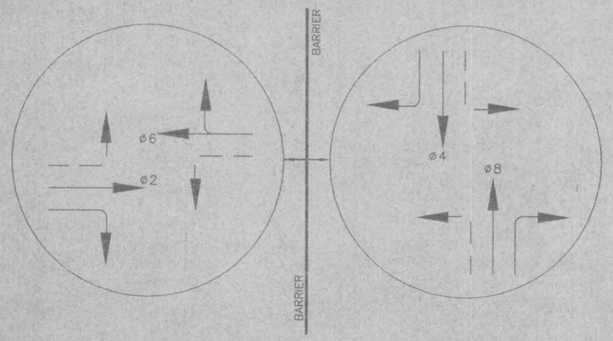
NOT TO SCALE



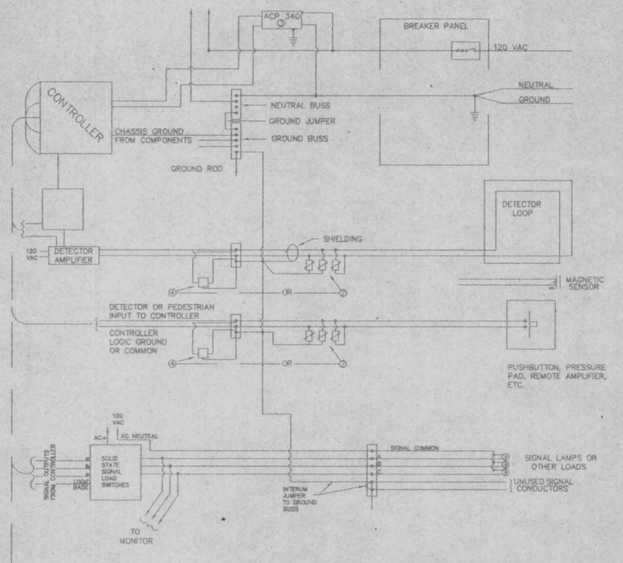
CABLE SUMMARY

TYPE	NO.
7/C (FROM CONTROLLER)	4
2/C/S (FIGURE 8 S.S.)	2
2/C/S	12

CONTROLLER PHASING DIAGRAM

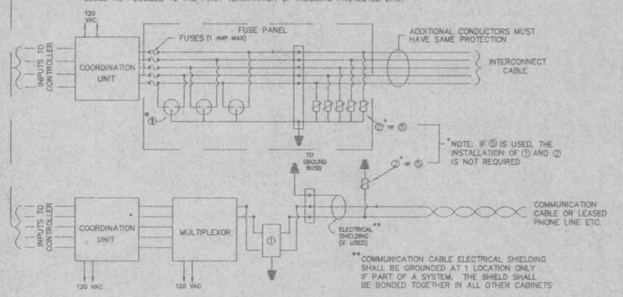


LIGHTNING PROTECTION SYSTEM



DEVICE DESCRIPTION	
	1–COMMUNICATION LINE ARRESTOR – PCG42C–008D
	2–V150 LA20A METAL OXIDE VARISTOR
	3–POWER LINE ARRESTOR–SURRESTOR ACP340
	4–SURRESTOR SRA 16
	5–SURRESTOR SPA 60B

NOTE: ALL UNUSED CONDUCTORS MUST BE GROUNDED AT BOTH ENDS AND ALL ARRESTORS SHOULD BE MOUNTED AS CLOSE AS POSSIBLE TO THE FIRST TERMINATION OF INCOMING PROTECTED LINE.



**COMMUNICATION CABLE ELECTRICAL SHIELDING SHALL BE GROUNDED AT 1 LOCATION ONLY IF PART OF A SYSTEM. THE SHIELD SHALL BE BONDED TOGETHER IN ALL OTHER CABINETS

A. FUNCTIONAL SPECIFICATION FOR HIGH–ENERGY TRANSIENT SURGE PROTECTION FOR TRAFFIC SIGNALS

HIGH–ENERGY TRANSIENT SURGE PROTECTION SHALL BE PROVIDED AS FOLLOWS:

1) A SURRESTOR ACP 340 POWERLINE ARRESTOR SHALL BE INSTALLED ON THE LOAD SIDE AT THE BREAKER PANEL IN THE CONTROL HOUSING FOR EACH 120 V.A.C. POWER SERVICE.

2) A SURRESTOR SRA–16 SHALL BE INSTALLED ON EACH DETECTOR INPUT PRIOR TO THE DETECTOR AMPS.

3) A SURRESTOR SRA–16 SHALL BE INSTALLED ON EACH PEDESTRIAN INPUT.

4) A V150 LA 20A METAL OXIDE VARISTOR (M.O.V.) IN PARALLEL WITH A T11 317A 3 ELECTRODE GAS TUBE AND INDIVIDUAL FUSING (1 AMP MAX) SHALL BE INSTALLED ON EACH CIRCUIT OF THE INTERCONNECT CABLE. THE ARRESTORS SHALL BE MOUNTED ON THE LINE SIDE OF THE FUSES AND BE ON THE SAME PANEL. A SURRESTOR SPA 60B IS ACCEPTABLE ON EACH CIRCUIT AS A SUBSTITUTE FOR THE V150 LA 20 M.O.V. AND T11 317A TUBE.

ALL PROTECTION DEVICES MUST BE MOUNTED SO THEY ARE CLEARLY VISIBLE AND ACCESSIBLE WITHOUT THE REMOVAL OF PANELS, COMPONENTS, ETC. THE DRAWING ABOVE SHALL GOVERN THE DESIGN OF THIS PROTECTION.

RELIABILITY & TESTING
ALL EQUIPMENT BID SHALL HAVE BEEN IN MANUFACTURE AND SUCCESSFULLY FIELD TESTED FOR A MINIMUM OF TWO (2) YEARS.

SIGNAL TIMING

TRAFFIC SIGNAL CONTROLLER TIMING CHART

INTERSECTION MUHLHAUSER ROAD @ ALLEN ROAD

START UP
START IN: Y/R FLASH ○; ALL RED ⊗
TIME FOR FLASH OR ALL RED 5 sec
FIRST PHASE(S) # 2 & # 6
COLOR DISPLAYED: GREEN ⊗; YELLOW ○

DUAL ENTRY ⊗
REST IN RED: RING 1 ○ ; RING 2 ○

OVERLAP PHASES	A	B	C	D

INTERVAL OR FEATURE	CONTROLLER MOVEMENT No. 1	2	3	4	5	6	7	8
INTERSECTION MOVEMENT	W/B LEFT	E/B	N/B LEFT	S/B	E/B LEFT	W/B	S/B LEFT	N/B
MINIMUM GREEN (INITIAL) (SEC.)		18		5		18		5
*ADDED INITIAL (SEC/ACTUATION)		2.4		2.4		2.4		2.4
*MAXIMUM INITIAL (SEC.)		31		38		31		38
PASSAGE TIME (PRESET GAP (SEC.)								
TIME BEFORE REDUCTION (SEC.)								
*MINIMUM GAP (SEC.)								
*TIME TO REDUCE (SEC.)								
MAXIMUM GREEN I (SEC.)		57		38		57		38
MAXIMUM GREEN II (SEC.)								
YELLOW CHANGE (SEC.)		5		5		5		5
ALL RED CLEARANCE (SEC.)		1.2		1.5		1.2		1.5
WALK (SEC.)								
PEDESTRIAN CLEARANCE (SEC.)								
RECALL MAXIMUM (NO/YES)	NO	NO	NO	NO	NO	NO	NO	NO
RECALL MINIMUM (NO/YES)	NO	YES	NO	NO	NO	YES	NO	NO
RECALL PEDESTRAIN (NO/YES)	NO	NO	NO	NO	NO	NO	NO	NO
MEMORY (L=LOCK, N=NON–LOCK)	N	N	N	N	N	N	N	N
CALL TO NON–ACTUATED No. 1 / No. 2								

Flash	Signal Head Number	21 ——— 25 R/	Clear To	22 ——— 26 R/	Clear To	Barrier	23 ——— 27 R/	Clear To	24 ——— 28 R/	Clear To
		W 22–26	21–26 22–25 BARR	W 21–25	21–26 22–25 BARR		W 24–28	23–28 24–27 BARR	W 23–27	23–28 24–27 BARR
Y	1			G	Y R		R	G	R	R R
Y	2			G	Y R		R	G	R	R R
R	3			R	R R		R	Y	R	Y R
R	4			R	R R		G	R	G	R R
Y	5			G	Y R		G	R	G	R R
Y	6			G	Y R		R	R	R	R R
R	7			R	R R		G	R	G	Y R
R	8			R	R R		G	R	G	Y R

Flash	Signal Head Number	21 ——— 26 R/	Clear To	22 ——— 25 R/	Clear To	Barrier	23 ——— 28 R/	Clear To	24 ——— 27 R/	Clear To
		W 21–25	22–25 21–26 BARR	W 21–25	22–25 21–26 BARR		W 23–27	24–27 23–28 BARR	W 23–27	24–27 23–28 BARR
Y	1									
Y	2									
R	3									
R	4									
Y	5									
Y	6									
R	7									
R	8									

HORIZONTAL SCALE IN FEET
0

CALCULATED E.R.
CHECKED C.A.R.

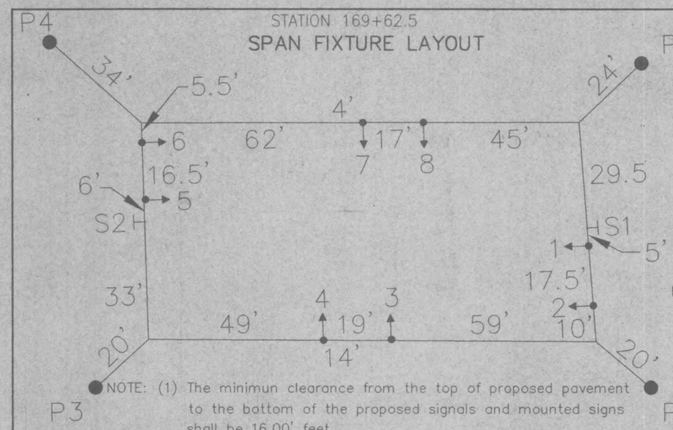
MUHLHAUSER ROAD @ ALLEN ROAD
Signal Timing, Lightning Protection Sytem, Phasing & Wiring Diagram

PROJECT NO: R–115–1.294

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STATION 169+62.5
SPAN FIXTURE LAYOUT

NOTE: (1) The minimun clearance from the top of proposed pavement to the bottom of the proposed signals and mounted signs shall be 16.00' feet.
(2) The maximum sag of the loaded messenger wire shall not be greater than 5 percent , or less than 3 percent of the span, as shown in the following table , ,

Span	Length	Allowable range of Max. Sag
S1	62'	1.9' TO 3.1'
S2	127'	3.8' TO 6.4'
S3	61'	1.8' TO 3.1'
S4	128'	3.8' TO 6.4'

PROPOSED SPAN WIRE MOUNTED SIGNS



R-26A
30"X36"
S1,S2

NOTE: SEE TRAFFIC CONTROL PLAN FOR GROUND MOUNTED SIGNS & LAYOUT

STATION 169+62.5 (Muhlhauser Road)
376' LT.
PROPOSED SIGNAL HEADS

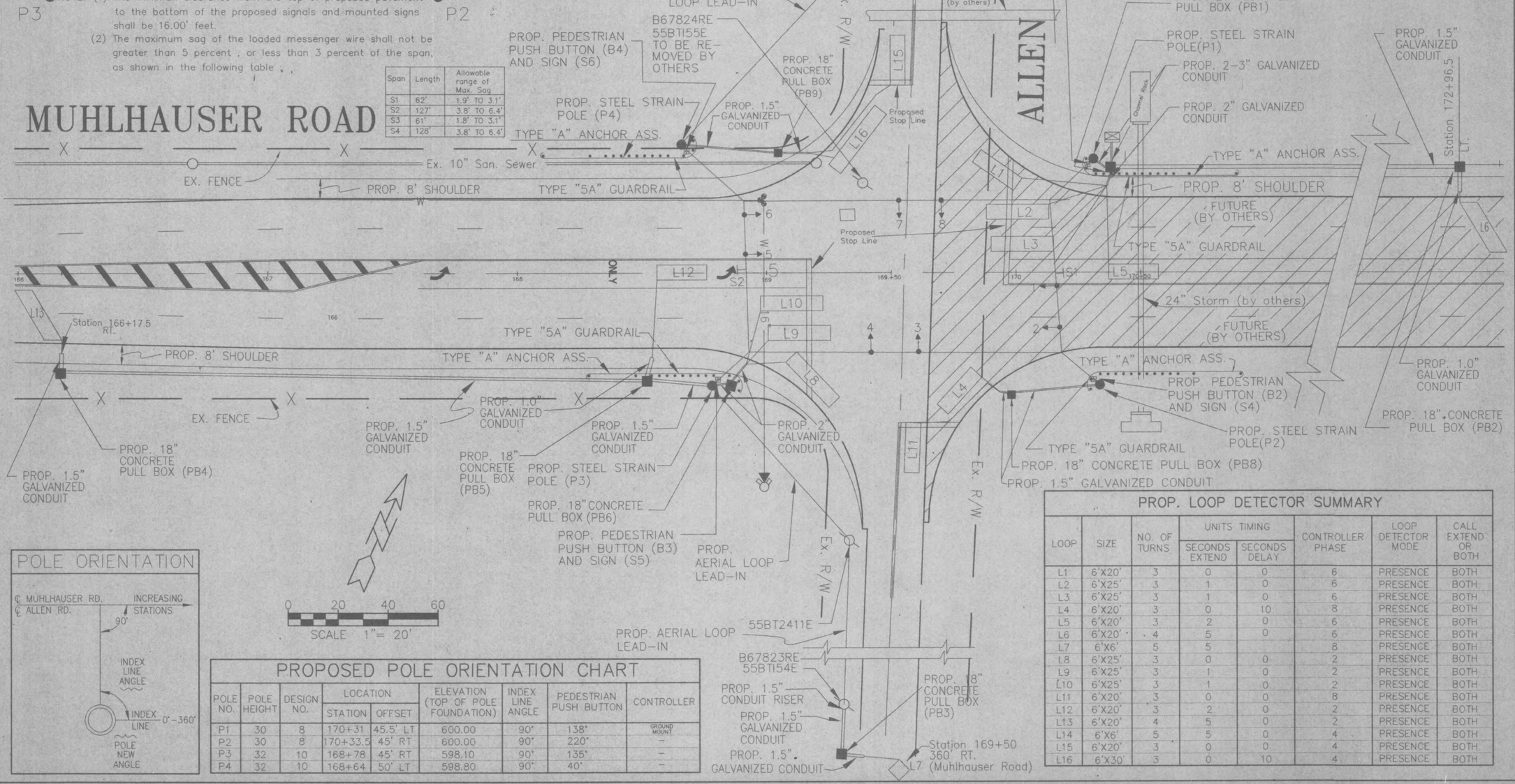


PUSH BUTTON FOR GREEN LIGHT
R-73B
9"X12"
S3,S4,S5,S6

LEGEND

PROP. PED. PUSH BUTTON	⊕
PROP. UNDERGROUND CONDUIT	═══
PROP. VEHICLE SIGNAL	●→
PROP. SIGN ON SPAN WIRE	TT
PROP. CONCRETE PULL BOX	■
PROP. SIGNAL CONTROLLER & WORK PAD	⊠

NOTE: Guardrail posts directly over a culvert or conduit shall not be driven. They shall be set in holes with concrete encasement for the maximum post depth available. Concrete encasement shall extend to a minimum of 4" outside the edge of the post, and shall be included in the price of the guardrail for payment. Guardrail and anchor assembles shown on this sheet shall be incidental to the other signalization quantities rather than being a separate pay item.



POLE ORIENTATION

PROPOSED POLE ORIENTATION CHART

POLE NO.	POLE HEIGHT	DESIGN NO.	LOCATION STATION	LOCATION OFFSET	ELEVATION (TOP OF POLE FOUNDATION)	INDEX LINE ANGLE	PEDESTRIAN PUSH BUTTON	CONTROLLER
P1	30	8	170+31	45.5' LT	600.00	90°	138°	GROUND MOUNT
P2	30	8	170+33.5	45' RT	600.00	90°	220°	–
P3	32	10	168+78	45' RT	598.10	90°	135°	–
P4	32	10	168+64	50' LT	598.80	90°	40°	–

PROP. LOOP DETECTOR SUMMARY

LOOP	SIZE	NO. OF TURNS	UNITS TIMING SECONDS EXTEND	UNITS TIMING SECONDS DELAY	CONTROLLER PHASE	LOOP DETECTOR MODE	CALL EXTEND OR BOTH
L1	6'X20'	3	0	0	6	PRESENCE	BOTH
L2	6'X25'	3	1	0	6	PRESENCE	BOTH
L3	6'X25'	3	1	0	6	PRESENCE	BOTH
L4	6'X20'	3	0	10	8	PRESENCE	BOTH
L5	6'X20'	3	2	0	6	PRESENCE	BOTH
L6	6'X20'	4	5	0	6	PRESENCE	BOTH
L7	6'X6'	5	5		8	PRESENCE	BOTH
L8	6'X25'	3	0	0	2	PRESENCE	BOTH
L9	6'X25'	3	1	0	2	PRESENCE	BOTH
L10	6'X25'	3	1	0	2	PRESENCE	BOTH
L11	6'X20'	3	0	0	8	PRESENCE	BOTH
L12	6'X20'	3	2	0	2	PRESENCE	BOTH
L13	6'X20'	4	5	0	2	PRESENCE	BOTH
L14	6'X6'	5	5	0	4	PRESENCE	BOTH
L15	6'X20'	3	0	0	4	PRESENCE	BOTH
L16	6'X30'	3	0	10	4	PRESENCE	BOTH

CALCULATED ER
CHECKED CAR

TRAFFIC SIGNAL PLAN
MUHLHAUSER ROAD @ ALLEN ROAD

R-115-1.294

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SIGNALIZATION ESTIMATED QUANTITIES

Item	Qty.	Unit	Description
625	5	Each	Ground Rod
625	1	Each	Pull Box, 24" Concrete
625	8	Each	Pull Box, 18" Concrete
625	821	Lin.Ft.	Trench
625	739	Lin.Ft.	Conduit, 1.5" Galvanized
625	26	Lin.Ft.	Conduit, 2" Galvanized
625	36	Lin.Ft.	Conduit, 3" Galvanized
625	38	Lin.Ft.	Conduit, 1" Galvanized
630	4	Each	Sign Hanger Assembly, Type 1
632	4	Each	Pedestrian Push Button
632	1	Each	Power Service
632	8	Each	Vehicular Signal Head, 3 section, 12" lens, 1-way
632	16	Each	Loop Detector Unit
632	1192	Lin.Ft.	Loop Detector Pavement Cutting
632	2	Each	Conduit Riser, 1.5" Diameter
632	4	Each	Cable Support Assembly
632	472	Lin.Ft.	Messenger Wire, Lashed 7 strand, 3/8" diameter, with accessories
632	804	Lin.Ft.	Signal Cable, 7 Conductor, No.14 AWG
632	4288	Lin.Ft.	Loop Detector Wire, Type E
632	3516	Lin.Ft.	Loop Detector Lead-in Cable
632	1158	Lin.Ft.	Loop Detector Lead-in Cable, SS Figure 8
632	8	Each	Covering for Vehicular Signal Head
632	2	Each	Strain Pole, Type TC-81.10, Design 8
632	2	Each	Strain Pole, Type TC-81.10, Design 10
632	13.3	Cu.Yd.	Concrete for Anchor Base Foundations
632	200	Lin.Ft.	Power Cable, 3 conductor, No. 8 AWG
632	815	Lin.Ft.	Signal Cable, 7 conductor, No. 14 AWG.
633	1.85	Cu.Yd.	Concrete for Cabinet Foundation
633	10.42	Sq.Ft.	Controller Work Pad
633	1	Each	Controller, Actuated, 8-Phase, Solid State Digital Microprocessor, As Per Plan

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SIGNALIZATION ESTIMATED QUANTITIES

R-115-1.294

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