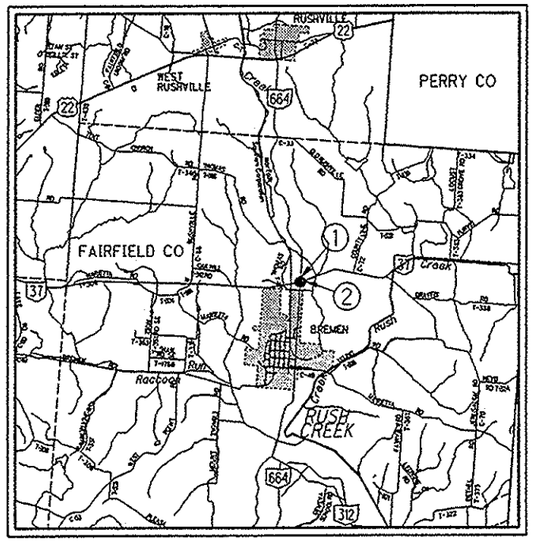
LOCATION MAP



SCALE IN MILES

0 2 4 6 8

LATITUDE: N 39° 43' 06" LONGITUDE: W 82° 25' 32"

PORTION TO BE IMPROVED
INTERSTATE & DIVIDED HIGHWAY
UNDIVIDED STATE & FEDERAL ROUTES
OTHER ROADS

DESIGN EXCEPTIONS: NONE

DESIGN DESIGNATION	LOCATIONS	
	1	2
Opening Year ADT (2012)	5900	5500
Design Year ADT (2032)	7100	6400
Design Hourly Volume (2032)	710	640
Directional Distribution	55%	55%
Trucks (24 Hour B&C)	3%	7%
Design Speed	55mph	55mph
Legal Speed	55mph	55mph

DESIGN FUNCTIONAL CLASSIFICATION
SR 37: MAJOR COLLECTOR (RURAL)
SR 664: MAJOR COLLECTOR (RURAL)

ROADWAY ENGINEERS SEAL:

STATE OF OHIO Barry C. Thompson E-56894 REGISTERED PROFESSIONAL ENGINEER

SIGNED Barry Thompson
DATE: 6 MAR 2012

P:\FAI\86847\DESIGN\ROADWAY\PI

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
FAI-37/664-25.01/4.21
RUSHCREEK TOWNSHIP
FAIRFIELD COUNTY

INDEX OF SHEETS

*ADDED SHEETS: 78A,78B,87A&87B

LOC	COUNTY	ROUTE	PROJECT TERMINI		NET LENGTH MILES	CITY/VILLAGE
			BEGIN	END		
1	FAI	SR 37	24.87	25.22	0.35	
2	FAI	SR 664	4.20	4.50	0.30	BREMEN

STANDARD CONSTRUCTION DRAWINGS

										SUPPLEMENTAL SPECIFICATIONS	
BP-3.1	10-19-07	DM-1.1	1-21-11	MT-35.10	4-20-01	TC-21.20	4-15-11	TC-71.10	1-21-11	800	4-20-12
BP-4.1	7-16-04	DM-1.4	7-15-11	MT-97.10	10-15-10	TC-41.20	1-19-01	TC-73.10	10-21-11	802	4-15-11
GR-1.1	7-16-04	DM-4.3	4-17-09	MT-97.12	10-15-10	TC-41.30	1-19-07	TC-82.10	1-21-11	817	4-15-11
GR-2.1	1-16-04	DM-4.4	4-17-09	MT-99.20	1-16-09	TC-41.40	7-16-04			823	7-15-11
GR-4.1	1-21-11	HL-20.11	1-19-07	MT-101.60	4-17-09	TC-41.41	1-21-11	TC-83.10	1-19-07	832	5-5-09
GR-4.2	1-19-07	HL-30.11	1-16-09	MT-101.90	10-21-11	TC-42.20	1-21-11	TC-83.20	1-21-11		
HW-2.1	7-30-07	HL-30.22	4-17-09	MT-105.10	1-16-09	TC-61.30	7-15-11	TC-84.20	1-21-11	WATERWAY PERMITS CONDITIONS	
HW-2.2	7-30-07			MT-120.00	1-16-09	TC-65.10	1-21-05				
		MH-1.2	1-20-06			TC-65.11	1-21-05			ODOT 9-12-11 RGP	

PROJECT DESCRIPTION

THIS PROJECT CONSISTS OF A SAFETY UPGRADE FOR THE INTERSECTION OF SR 37 AND SR 664 BY ADDING LEFT TURN LANES ON BOTH APPROACHES OF SR 664 AND THE INSTALLATION OF TRAFFIC SIGNALS.

EARTH DISTURBED AREA

PROJECT EARTH DISTURBED AREA:	3.9 Ac
ESTIMATED CONTRACTOR EARTH DISTRUBED AREA:	0.6 Ac
NOTICE OF INTENT EARTH DISTURBED AREA:	4.9 Ac

2010 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 THAT THE MAKING OF THIS IMPROVEMENT WILL REQUIRE THE CLOSING TO TRAFFIC OF SR 664 AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

APPROVED _____ DISTRICT DEPUTY DIRECTOR
DATE 3/6/12

APPROVED _____ DIRECTOR, DEPARTMENT OF TRANSPORTATION
DATE 4-2-12

UNDERGROUND UTILITIES
CONTACT BOTH SERVICES
CALL TWO WORKING DAYS
BEFORE YOU DIG
CALL
1-800-362-2764
(TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY
OIL & GAS PRODUCERS PROTECTIVE SERVICE CALL: 1-800-925-0988

PLAN PREPARED BY:
OHIO DEPT. OF TRANSPORTATION
DISTRICT 5
PRODUCTION OFFICE

FEDERAL PROJECT NO. E090 (990)
PID NO. 86847
CONSTRUCTION PROJECT NO.
RAILROAD INVOLVEMENT NORFOLK SOUTHERN
FAI-37/664-25.01/4.21
1/102

SR 37
P.I.= Sta. 266+31.97
D = 9° 45′ 00″ (LT)
Dc = 1° 00′ 00″
R = 5,729.58′
T = 488.68′
L = 975.00′
E = 20.80′
emax = 0.036
C = 973.82′
C.B. = N 74° 35′ 34″ E

RXR CROSSING
STA. 257+98.24

BEGIN WORK
SR 37, STA. 257+50.00

BEGIN PROJECT
SR 37, STA. 258+25.00 RT & LT

PC Sta. 261+43.29

℄ SURVEY & CONSTRUCTION SR 664

STA. 20+00.00 ℄ SURVEY SR 664 =
STA. 264+82.78 ℄ SURVEY SR 37

℄ SURVEY & CONSTRUCTION SR 37

END WORK
SR 664, STA. 28+50.00 RT & LT

BEGIN PAVEMENT WIDENING
SR 664, STA. 13+30.00 LT

BEGIN WORK
SR 664, STA. 13+08.00 RT

END PROJECT
SR 37, STA. 271+90.00 RT & LT

END WORK
SR 37, STA. 275+18.00

PT Sta. 271+18.29

N 69° 43′ 04″ E

N 3° 31′ 22″ E

E090 (990)

BENCHMARK LIST

BENCHMARK #1
TOP OF 5/8 INCH REBAR WITH ODOT CAP;
17.74 FEET LEFT OF EXISTING SR 664
℄ SURVEY STATION 14+94.13
ELEVATION = 805.98

BENCHMARK #2
TOP OF 5/8 INCH REBAR WITH ODOT CAP;
72.92 FEET LEFT OF EXISTING SR 664
℄ SURVEY STATION 19+40.80
ELEVATION = 811.24

BENCHMARK #3
TOP OF 5/8 INCH REBAR WITH ODOT CAP;
19.49 FEET LEFT OF EXISTING SR 664
℄ SURVEY STATION 28+46.96
ELEVATION = 810.03

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED BCT
CHECKED DNM

SCHEMATIC PLAN

FAI-37/664-25.01/4.21

P:\FAI\86847\DESIGN\ROADWAY\PLAN_SHEETS\GENERAL\86847_SCHEMATIC.DGN

ODOT R/W PORTION OF DRAINAGE FOR AREAS 1 & 2 = 0.59 + 0.41 = 1.00 > 0.78 = 20% PROJECT EDA

ODOT R/W PORTION OF DRAINAGE AREA

RXR CROSSING

PC Sta. 261+43.29

PT Sta. 271+18.29

AREA #1

AREA #2

AREA #3

AREA #4

AREA #5

AREA #6

VEGETATED BIOFILTER FOR AREA 1:
5' DITCH WIDTH FOR 490' FROM
STA. 20+60 LT TO STA. 25+50 LT

VEGETATED BIOFILTER FOR AREA 2:
4' DITCH WIDTH FOR 170' FROM
STA. 21+10 RT TO STA. 22+80 RT

℄ SURVEY & CONSTRUCTION SR 664

℄ SURVEY & CONSTRUCTION SR 37

USGS QUADRANT NO. 433-10-NW
BREMEN, OHIO
LONGITUDE: 82° 25' 32"
LATITUDE: 39° 43' 06"
LONGITUDE AND LATITUDE ARE APPROXIMATE TO THE CENTER OF THE PROJECT.
LAND USES:
RESIDENTIAL, COMMERCIAL & AGRICULTURAL

PROJECT DESCRIPTION

SAFETY UPGRADE FOR THE INTERSECTION OF SR 37 AND SR 664 BY ADDING LEFT TURN LANES ON BOTH APPROACHES OF SR 664. THE INSTALLATION OF TRAFFIC SIGNALS AND CONSTRUCTION OF A 138 FT BOX CULVERT.

PROJECT DATA	
TOTAL AREA (RIGHT-OF-WAY):	7.59 AC
PROJECT EARTH DISTURBED AREA:	3.9 AC
CONTRACTOR EARTH DISTURBED AREA:	0.6 AC
NOTICE OF INTENT EARTH DISTURBED AREA:	4.9 AC
IMPERVIOUS (PAVED) AREA (PRE-CONSTRUCTION):	1.76 AC
IMPERVIOUS (PAVED) AREA (POST-CONSTRUCTION):	2.26 AC
RUN-OFF COEFFICIENT (PRE-CONSTRUCTION):	0.63 AC
RUN-OFF COEFFICIENT (POST-CONSTRUCTION):	0.69 AC
IMMEDIATE RECEIVING WATER:	ROADSIDE DITCH
SUBSEQUENT RECEIVING WATER:	LITTLE RUSH CREEK

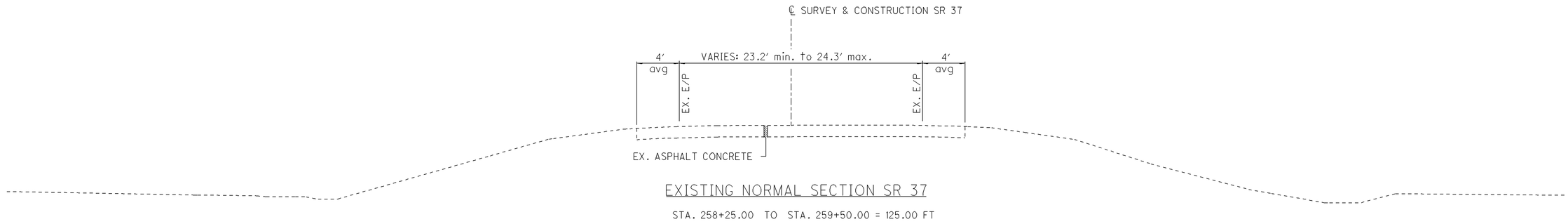
HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED BCT
CHECKED DNM

PROJECT SITE PLAN

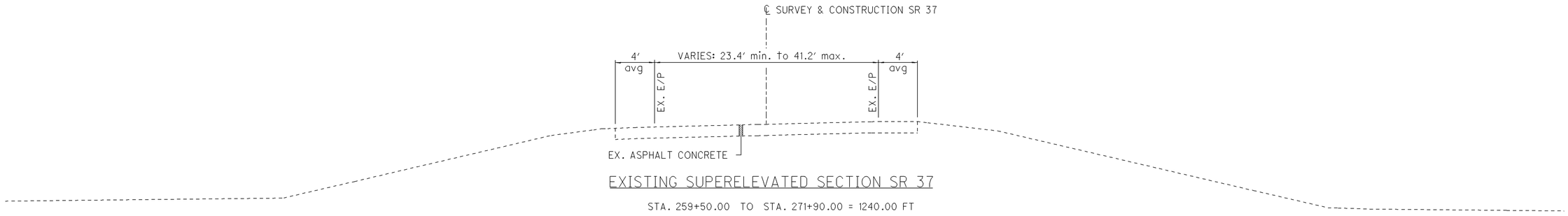
FAI-37/664-25.01/4.21

P:\FAI\86847\DESIGN\ROADWAY\PLAN_SHEETS\GENERAL\86847_SITE_PLAN.DGN



EXISTING NORMAL SECTION SR 37

STA. 258+25.00 TO STA. 259+50.00 = 125.00 FT

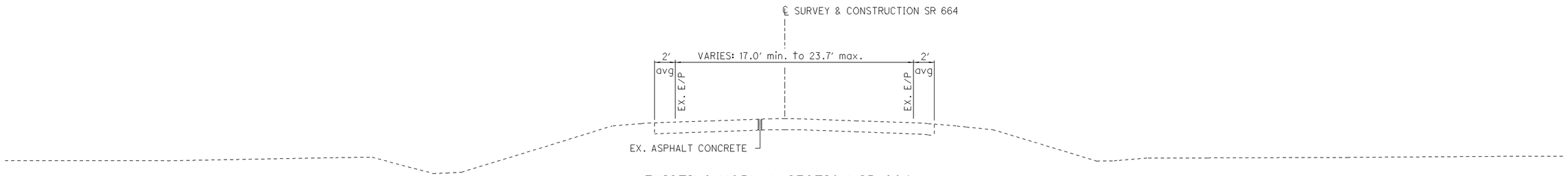


EXISTING SUPERELEVATED SECTION SR 37

STA. 259+50.00 TO STA. 271+90.00 = 1240.00 FT

LOCATION 1

LOCATION 2



EXISTING NORMAL SECTION SR 664

STA. 13+08.00 TO STA. 28+50.00 = 1542.00 FT

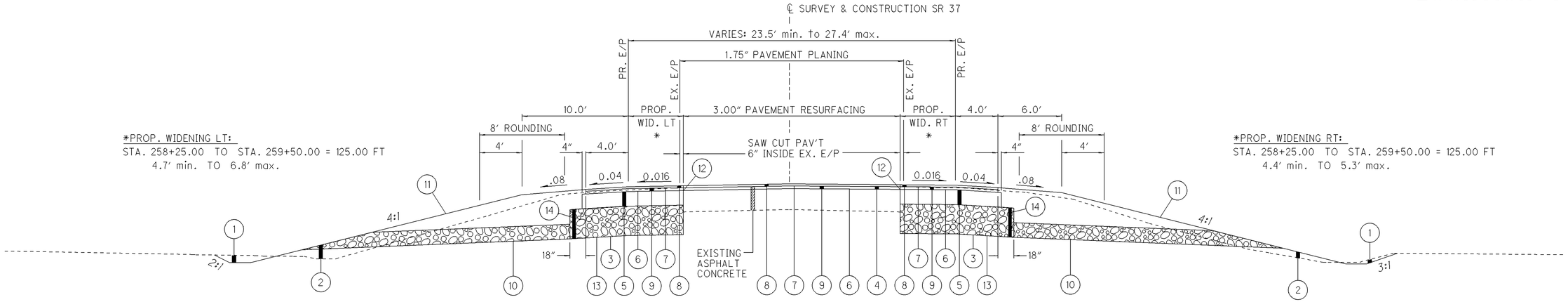
CALCULATED BCT
CHECKED DNM

SR 37 & SR 664 EXISTING TYPICAL SECTIONS

FAI-37/664-25.01/4.21

P:\FAI\86847\DESIGN\ROADWAY\PLAN_SHEETS\GENERAL\86847_TYPICAL_EXISTING.DGN

LOCATION 1



NORMAL SECTION

PAVEMENT PLANING & RESURFACING:

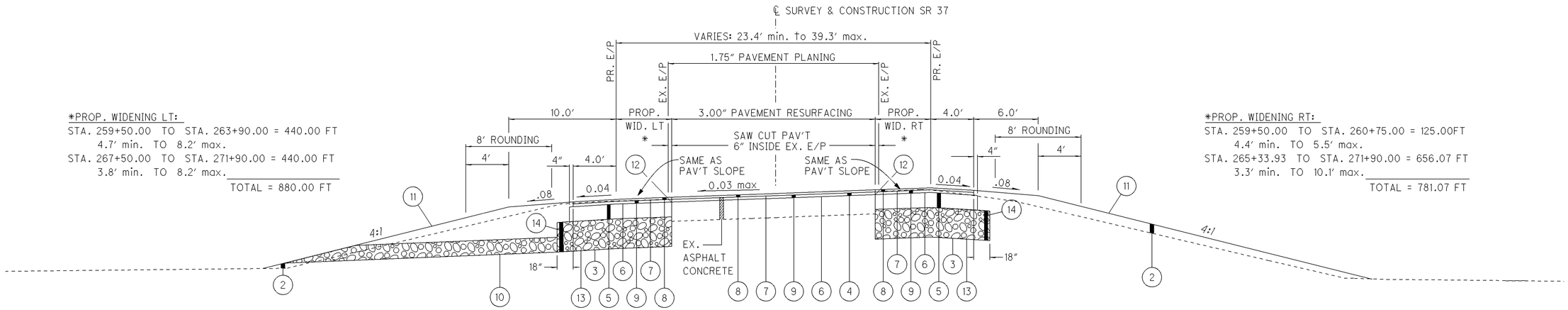
STA. 257+50.00 TO STA. 259+50.00 = 200.00 FT

STA. 273+00.00 TO STA. 275+78.00 = 278.00 FT

TOTAL = 478.00 FT

MARK	ITEM	DESCRIPTION
1	203	EXCAVATION
2	203	EMBANKMENT
3	204	SUBGRADE COMPACTION
3	204	PROOF ROLLING
4	254	PAVEMENT PLANING ASPHALT CONCRETE (1.75″)
5	301	BITUMINOUS AGGREGATE BASE, PG 64-22 (9.0″)
6	407	TACK COAT (@ 0.075 GAL./SQ. YD.)
7	407	TACK COAT FOR INTERMEDIATE COURSE (@ 0.05 GAL./SQ. YD.)

MARK	ITEM	DESCRIPTION
8	448	1.25″ ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG70-22M
9	448	1.75″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, PG64-22
10	605	AGGREGATE DRAINS
11	659	SEEDING AND MULCHING
12	690	SPECIAL-REINFORCED MESH FOR TRANSVERSE AND/OR LONGITUDINAL JOINTS AND CRACKS (FOR REINFORCED MESH DETAILS, SEE SHEET 12)
13	204	GEOTEXTILE FABRIC
14	204	GRANULAR MATERIAL TYPE B (18″)
14	204	EXCAVATION OF SUBGRADE



SUPERELEVATED SECTION

PAVEMENT PLANING & RESURFACING:

STA. 259+50.00 TO STA. 273+00.00 = 1350.00 FT

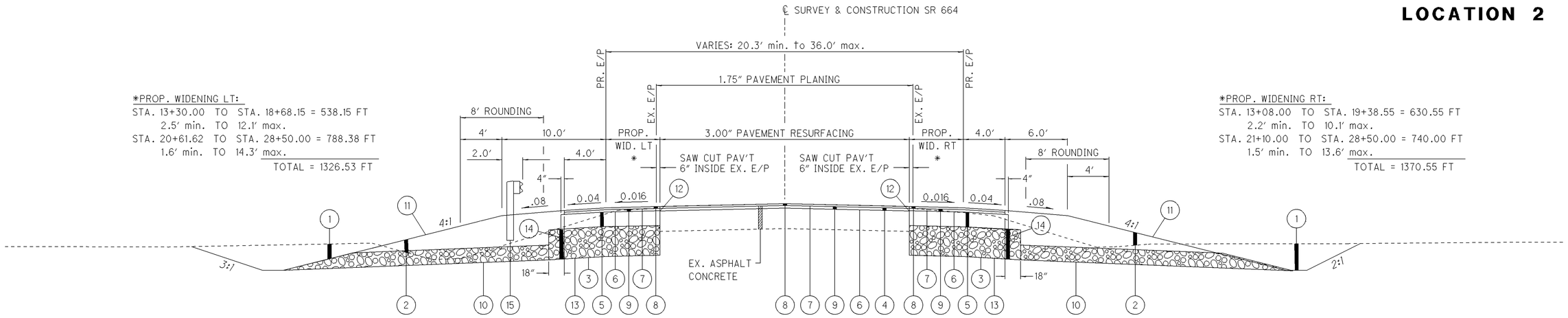
CALCULATED BCT
CHECKED DNM

SR 37 RESURFACING & WIDENING TYPICAL SECTIONS

FAI-37/664-25.01/4.21

P:\FAI\86847\DESIGN\ROADWAY\PLAN_SHEETS\GENERAL\86847_TYPICAL_37.DGN

LOCATION 2



*PROP. WIDENING LT:
STA. 13+30.00 TO STA. 18+68.15 = 538.15 FT
2.5′ min. TO 12.1′ max.
STA. 20+61.62 TO STA. 28+50.00 = 788.38 FT
1.6′ min. TO 14.3′ max.
TOTAL = 1326.53 FT

*PROP. WIDENING RT:
STA. 13+08.00 TO STA. 19+38.55 = 630.55 FT
2.2′ min. TO 10.1′ max.
STA. 21+10.00 TO STA. 28+50.00 = 740.00 FT
1.5′ min. TO 13.6′ max.
TOTAL = 1370.55 FT

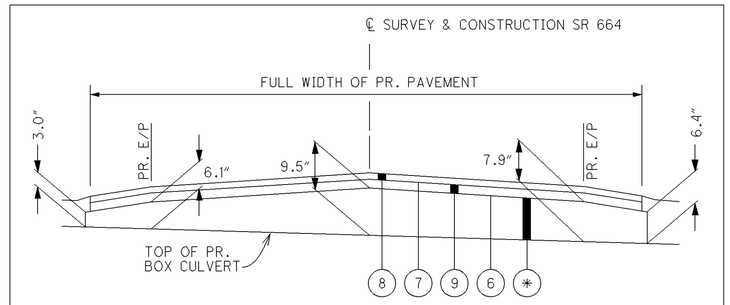
NORMAL SECTION

PAVEMENT PLANING & RESURFACING:
STA. 13+08.00 TO STA. 14+23.00 = 115.00 FT
STA. 14+52.00 TO STA. 18+68.15 = 416.15 FT
STA. 21+10.00 TO STA. 28+50.00 = 740.00 FT
TOTAL = 1271.15 FT

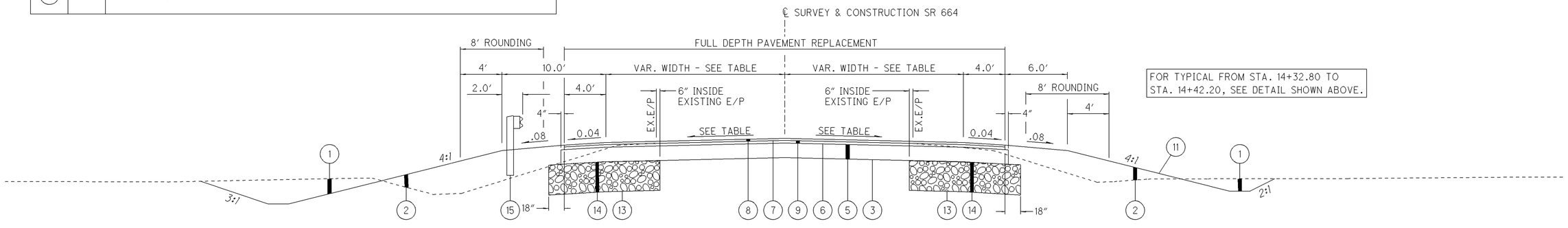
MARK	ITEM	DESCRIPTION
1	203	EXCAVATION
2	203	EMBANKMENT
3	204	SUBGRADE COMPACTION
3	204	PROOF ROLLING
4	254	PAVEMENT PLANING ASPHALT CONCRETE (1.75″)
5	301	BITUMINOUS AGGREGATE BASE, PG 64-22 (9.0″)
6	407	TACK COAT (@ 0.075 GAL./SQ. YD.)
7	407	TACK COAT FOR INTERMEDIATE COURSE (@ 0.05 GAL./SQ. YD.)
8	448	1.25″ ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG70-22M
9	448	1.75″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, PG64-22
10	605	AGGREGATE DRAINS
11	659	SEEDING AND MULCHING
12	690	SPECIAL-REINFORCED MESH FOR TRANSVERSE AND/OR LONGITUDINAL JOINTS AND CRACKS (FOR REINFORCED MESH DETAILS, SEE SHEET 12)
13	204	GEOTEXTILE FABRIC
14	204	GRANULAR MATERIAL TYPE B
14	204	EXCAVATION OF SUBGRADE
15	606	GUARDRAIL, TYPE 5 (STA. 14+26.20 LT TO STA. 18+01.50 LT)

PAVEMENT TABLE

LEFT		℄ SR 664		RIGHT	
ELEV.	WIDTH	STATION	ELEV.	WIDTH	ELEV.
806.31	13.45	14+23.00	806.36	13.67	806.08
806.34	13.61	14+32.80	806.40	13.84	806.09
806.38	13.75	14+42.20	806.45	14.01	806.11
806.42	13.90	14+52.00	806.50	14.19	806.12



TYPICAL PAVEMENT BUILDUP OVER PR. BOX CULVERT
STA. 14+32.80 TO STA. 14+42.20 = 9.4 FT
(*) ITEM 301 BITUMINOUS AGGREGATE BASE, PG 64-22 (VAR. THICK.)
(TYPICAL SHOWS SECTION TAKEN ALONG ℄ OF CULVERT)



FOR TYPICAL FROM STA. 14+32.80 TO STA. 14+42.20, SEE DETAIL SHOWN ABOVE.

NORMAL SECTION

FULL DEPTH PAVEMENT REPLACEMENT:
STA. 14+23.00 TO STA. 14+32.80 = 9.8 FT
STA. 14+42.20 TO STA. 14+52.00 = 9.8 FT
TOTAL = 19.60 FT

CALCULATED BCT
CHECKED DNM

SR 664 RESURFACING & WIDENING TYPICAL SECTIONS

FAI-37/664-25.01/4.21

P:\FAI\86847\DESIGN\ROADWAY\PLAN_SHEETS\GENERAL\86847_TYPICAL_664.DGN

UTILITIES

BELOW IS A LIST OF UTILITIES LOCATED IN THE WORK AREA. HOWEVER, THIS DOES NOT EXCLUDE THE POSSIBLE EXISTENCE OF OTHER UTILITIES WITHIN THE WORK ZONE. THE SIZE, DEPTH AND LOCATION OF BURIED UTILITIES SHOWN OR NOT, ARE NOT WARRANTED.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION OF ALL UTILITIES WITHIN THE CONSTRUCTION LIMITS PRIOR TO CONSTRUCTION.

VILLAGE OF BREMEN WATER AND WASTE WATER
9090 MARIETTA ROAD
BREMEN, OHIO 43107
ATTN: BYRON BOWERSOCK
740-569-4100

AMERICAN ELECTRIC POWER CO.
850 TECH CENTER DRIVE
GAHANNA, OHIO 43230
ATTN: PAUL PAXTON
614-883-6831

SOUTHEASTERN OHIO NATURAL GAS
P.O. BOX 430
NASHPORT, OHIO 43822
ATTN: BOB MORAN
740-828-2892

NATIONAL GAS AND OIL CORP.
1500 GRANVILLE ROAD
P.O. BOX 4970
NEWARK, OHIO 43058-4970
ATTN: GREG WILSON
740-348-1254

AT&T OHIO
160 NORTH SIXTH STREET
ZANESVILLE, OHIO 43701
ATTN: SANDI RANDOLPH
740-454-3455

FRONTIER TELEPHONE
500 LANCASTER PIKE
CIRCLEVILLE, OHIO 43113
ATTN: MICHAEL EDWARDS
740-474-7197

VERIZON
500 LANCASTER PIKE
CIRCLEVILLE, OHIO 43113
ATTN: MICHAEL EDWARDS
740-474-7197

TIME WARNER CABLE TV
3760 INTERCHANGE DR.
COLUMBUS, OHIO 43204
ATTN: TERRY ALLEN
614-255-6349

ROUNDING

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

WORK LIMITS

THE WORK LIMITS SHOWN ON THE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. INSTALLATION AND OPERATION OF ALL TEMPORARY TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS SHALL BE PROVIDED BY THE CONTRACTOR WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.

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.

NOTIFICATION OF ROAD CLOSURE OR RESTRICTION

IN ORDER FOR ODOT TO PROPERLY PERMIT OVERSIZE LOADS, PREPARE PROPER SIGNING WHEN REQUIRED AND FURTHER TO NOTIFY THE GENERAL MOTORING PUBLIC, THE CONTRACTOR SHALL NOTIFY, IN WRITING, THE DISTRICT 5 CONSTRUCTION ENGINEER WITH COPIES FOR THE DISTRICT 5 ROADWAY SERVICES MANAGER AND PROJECT ENGINEER NOT LESS THAN 21 DAYS BEFORE SUCH CLOSURE OR LANE RESTRICTIONS. THE STATE OF OHIO WILL INSTALL, MAINTAIN, AND SUBSEQUENTLY REMOVE THE DETOUR SIGNING.

PLEASE SEND NOTIFICATION WITH COPIES TO THE FOLLOWING:
DISTRICT 5 CONSTRUCTION ENGINEER
P.O. BOX 306
JACKSONSTOWN, OH 43030
PHONE: (740) 323-5241

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.

TACK COAT FOR INTERMEDIATE COURSE

THE RATE OF APPLICATION OF THE 407 TACK COAT FOR INTERMEDIATE COURSE SHALL BE SUBJECT TO ADJUSTMENT AS DIRECTED BY THE ENGINEER. PLAN QUANTITIES INDICATE AN AVERAGE APPLICATION RATE OF 0.05 GALLONS PER SQUARE YARD FOR ESTIMATING PURPOSES ONLY.

ELEVATION DATUM

ALL ELEVATIONS ARE ORTHOMETRIC HEIGHTS USING THE NORTH AMERICAN VERTICAL DATUM OF 1988 (GPS DERIVED) AND THE GEOID03 GEOID. HORIZONTAL POSITIONS ARE BASED ON THE OHIO STATE PLANE SOUTH ZONE, A LAMBERT CONFORMAL CONIC MAP PROJECTION, THE NORTH AMERICAN DATUM OF 1983 ADJUSTED TO THE NATIONAL SPATIAL REFERENCE SYSTEM OF 2007 (NAD 83(NSRS 2007)), AND THE GRS80 ELLIPSOID.

VILLAGE OF BREMEN SOURCE WATER PROTECTION AREA

THE PROJECT IS LOCATED WITHIN THE OUTER PROTECTION ZONE OF THE VILLAGE OF BREMEN SOURCE WATER PROTECTION AREA. ANY SPILLS OF FUELS, OILS, CHEMICALS OR OTHER MATERIALS WHICH COULD POSE A THREAT TO THE DRINKING WATER SOURCE AREA SHALL BE CLEANED UP IMMEDIATELY BY THE CONTRACTOR. IF THE SPILL IS A REPORTABLE AMOUNT, THE CONTRACTOR SHOULD CONTACT THE OHIO EPA'S SPILL HOT LINE AT 800-282-9378 FOR CLEAN UP OF THE SPILL.

FEATHERING

FEATHERING OF THE ASPHALT CONCRETE SHALL BE DONE IN ACCORDANCE WITH SCD DRAWING BP-3.1.

CALCULATED BCT
CHECKED DNM

GENERAL NOTES

FAI-37/664-25.01/4.21

7
102

P:/FAI/86847/DESIGN/ROADWAY/Plan_Sheets/GENERAL/86847_GNOTE01.dgn

ITEM 201 CLEARING AND GRUBBING

THE DEPARTMENT HAS NOT MARKED INDIVIDUAL TREES AND STUMPS FOR REMOVAL. UNLESS SPECIFICALLY DESIGNATED AS "DO NOT DISTURB" IN THE PLANS, REMOVE ALL TREES AND STUMPS WITHIN THE CONSTRUCTION LIMITS UNDER THE LUMP SUM BID FOR ITEM 201 CLEARING AND GRUBBING.

ITEM 614 WORK ZONE MARKING SIGNS

A QUANTITY OF WORK ZONE MARKING SIGNS HAS BEEN CARRIED TO THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER.

WORK ZONE MARKING SIGNS	LOCATIONS		
	1	2	
W8-H12a (NO EDGE LINES)	2	2	
W20-1 (ROAD WORK AHEAD)	2	2	
G20-2 (END ROAD WORK)	2	2	
W8-H15 (GROOVED PAVEMENT)	2	2	
R4-1 (DO NOT PASS)	2	2	
R4-2 (PASS WITH CARE)	0	0	
TOTAL	10	10	

IN ADDITION, THE CONTRACTOR SHALL ERECT A "GROOVED PAVEMENT" SIGN 250 FT IN ADVANCE OF ANY SECTION OF ROADWAY WHERE TRAFFIC MUST TRAVEL ON A PLANED SURFACE. ENSURE THESE SIGNS ARE IN PLACE BEFORE OPENING THE ROADWAY TO TRAFFIC. ERECT SIGNS AT INTERSECTIONS OF THROUGH ROUTES TO WARN TRAFFIC OF THIS SURFACE CONDITION.

EROSION AND SEDIMENT CONTROL

THE FOLLOWING ITEMS ARE TO BE USED BY THE CONTRACTOR WITH THE ENGINEER'S CONCURRENCE:

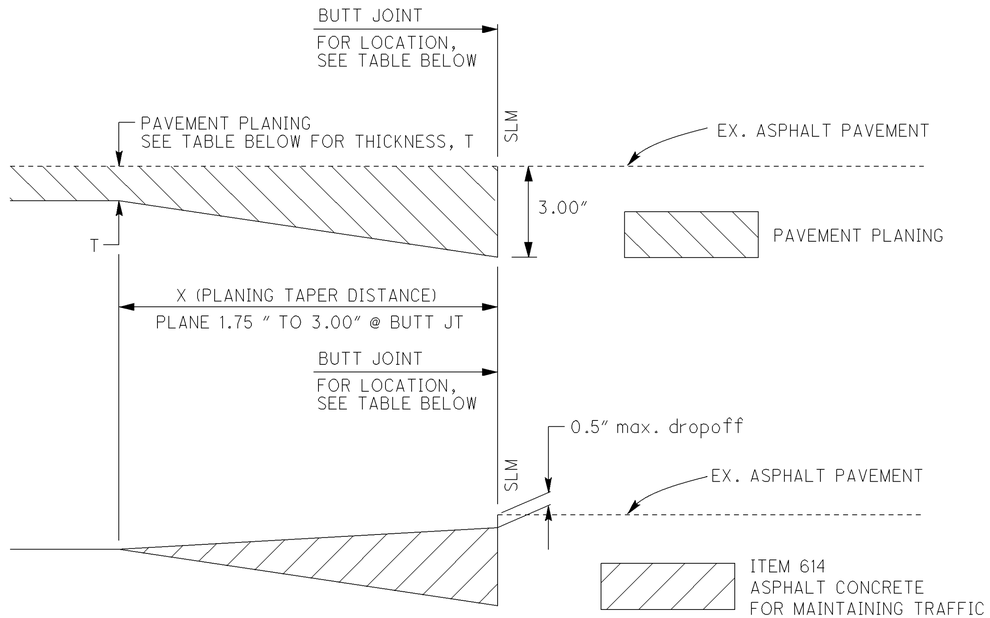
ITEM 832 STORM WATER POLLUTION PREVENTION PLAN LUMP
ITEM 832 EROSION CONTROL 5000 EACH

PROFILE AND ALIGNMENT

PLACE THE PROPOSED PAVEMENT TO FOLLOW THE ALIGNMENT AND PROFILE OF THE EXISTING PAVEMENT. (PREVIOUS CONSTRUCTION PLANS, PROJECT NO. 19640532, SHOWING THE ORIGINAL ALIGNMENT AND PROFILE, ARE AVAILABLE FOR INSPECTION AT THE ODOT DISTRICT 5 OFFICE). PLACE THE PROPOSED ASPHALT CONCRETE OVERLAY WITH A UNIFORM THICKNESS OF 3.0 INCHES.

BUTT JOINT

A BUTT JOINT WILL BE REQUIRED AT LOCATIONS SPECIFIED BELOW AND AT EXTRA AREAS WITH WEARING COURSE REMOVED. AFTER THE JOINT IS CONSTRUCTED, THE DROP OFF CREATED SHALL BE MINIMIZED BY IMMEDIATELY PLACING THE PROPOSED 448 INTERMEDIATE COURSE TO WITHIN 0.5" OF EXISTING ROADWAY SURFACE OR BY PLACING WEDGE AS SHOWN. BUTT JOINTS SHALL BE AS PER SCD BP-3.1.



ASPHALT CONCRETE FOR MAINTAINING TRAFFIC DETAIL

LOC.	ROUTE	DESCRIPTION	SLM	T	X	614 ASPHALT CONCRETE FOR MAINTAINING TRAFFIC
				INCH	FT	CU.YD.
1	SR 37	BEGIN WORK	24.87	1.75	44	1.3
1	SR 37	END WORK	25.22	1.75	44	1.3
		SUBTOTAL				2.6
		LOC 1 - USE				3
2	SR 664	BEGIN WORK	4.21	1.75	44	1.3
2	SR 664	END WORK	4.46	1.75	44	1.3
		SUBTOTAL				2.6
		LOC 2 - USE				3

CALCULATED BCT
CHECKED DNM

GENERAL NOTES

FAI-37/664-25.01/4.21

P:/FAI/86847/DESIGN/ROADWAY/Plan_Sheets/GENERAL/86847_GNOTE02.dgn

ITEM 621 RAISED PAVEMENT MARKER REMOVED

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE PLANS TO REMOVE RAISED PAVEMENT MARKERS FOR DISPOSAL BY THE CONTRACTOR. RPM REMOVAL SHALL NOT OCCUR SOONER THAN 10 DAYS PRIOR TO RESURFACING OF THE ROADWAY. ALL RPM'S REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

ITEM 621 RAISED PAVEMENT MARKER REMOVED

LOCATION 1 (SR 37) - 36 EACH LOCATION 2 (SR 664) - 18 EACH

ITEM 254 PAVEMENT PLANING, ASPHALT CONCRETE

DEPTH OF PAVEMENT PLANING SHALL BE AS DESCRIBED BELOW OR AS DIRECTED BY THE ENGINEER. ROADWAY SHALL BE PLANED SUCH THAT POSITIVE DRAINAGE IS CREATED FROM THE CENTER LINE TO THE EDGE OF PAVEMENT IN TANGENT SECTIONS AND SHALL FOLLOW EXISTING SUPERELEVATIONS WHERE APPLICABLE. ALL SPECIFICATIONS OF ITEM 254 SHALL APPLY.

LOCATION 1 (SR 37 SLM 24.87 TO SLM 25.22):
PLANE 1.75" IN DEPTH FOR FULL WIDTH OF PAVEMENT
LOCATION 2 (SR 664 SLM 4.21 TO SLM 4.46)
PLANE 1.75" IN DEPTH FOR FULL WIDTH OF PAVEMENT

DUST CONTROL

THE CONTRACTOR SHALL FURNISH AND APPLY WATER FOR DUST CONTROL AS DIRECTED BY THE ENGINEER. THE FOLLOWING QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR DUST CONTROL PURPOSES:

ITEM 616 WATER

LOCATION 1 - 4.5 MGAL LOCATION 2 - 7.0 MGAL

ITEM 253 PAVEMENT REPAIR

ITEM 253 PAVEMENT REPAIR, AS PER PLAN, HAS BEEN INCLUDED IN THE PLAN FOR REPAIRING PAVEMENT AT RAILROAD CROSSING ON SR 37. THE PROPOSED REPAIRS SHALL BE FROM STA. 275+88.00 TO STA. 257+95.85 (OUTSIDE OF FIRST RAIL) AND FROM STA. 258+00.64 (OUTSIDE OF THE SECOND RAIL) TO STA. 258+09.00. NO ROADWAY WORK SHALL BE PERFORMED BETWEEN THE RAILS. REPAIRS SHALL BE COMPLETED PRIOR TO THE PAVING OPERATIONS. THE DEPTH OF REPAIR SHALL BE ABOUT 7" OR AS DIRECTED BY THE ENGINEER. AFTER REMOVAL IS COMPLETED, THE EXPOSED PAVEMENT FACES OF THE REPAIR SHALL BE TACKED WITH RUBBERIZED ASPHALT EMULSION CONFORMING TO 702.13. THE REPLACEMENT MATERIAL SHALL BE ITEM 301 ASPHALT CONCRETE BASE, PG64-22, PLACED AND COMPACTED AS DIRECTED. ALL EXCAVATION, MATERIALS, LABOR, EQUIPMENT, TOOLS, TRAFFIC CONTROL AND INCIDENTALS NEEDED TO COMPLETE THE WORK DESCRIBED ABOVE SHALL BE PAID FOR UNDER ITEM 253 PAVEMENT REPAIR.

LOCATION 1:
ITEM 253 PAVEMENT REPAIR 9.0 CY
45.2 SY (CARRIED FROM SHEET 19)
45.2 x 0.195 = 8.8 CY USE 9.0 CY

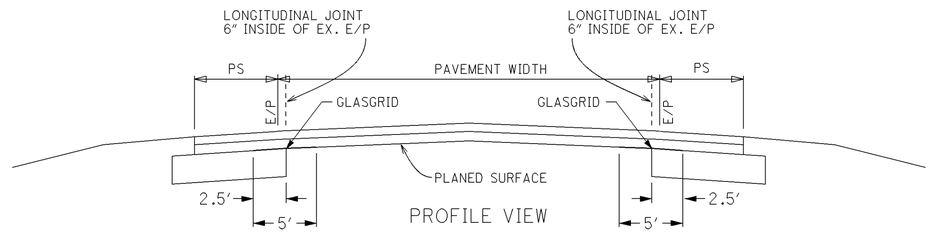
ITEM 690 SPECIAL-REINFORCED MESH FOR TRANSVERSE AND/OR LONGITUDINAL JOINTS AND CRACKS

THIS ITEM SHALL BE USED TO REINFORCE LONGITUDINAL JOINTS CONSTRUCTED ALONG EDGE OF PAVEMENT ON SR 37 AND SR 664. PLACE REINFORCING MESH ON PLANED SURFACE, 5.0' WIDE, CENTERED OVER LONGITUDINAL JOINT (SEE DETAIL BELOW) AND THEN OVERLAY WITH TOTAL OF 3.00" OF ASPHALT CONCRETE. REINFORCING MATERIAL SHALL BE GLASGRID CG100 OR EQUIVALENT AND SHALL BE PLACED ACCORDING TO THIS NOTE AND THE MANUFACTURER'S SPECIFICATIONS. ALL MATERIALS, LABOR, EQUIPMENT, TRAFFIC CONTROL AND INCIDENTALS NECESSARY TO COMPLETE PLACING OF REINFORCING MESH SHALL BE INCLUDED FOR PAYMENT IN THE UNIT PRICE BID FOR ITEM 690 SPECIAL - REINFORCED MESH FOR TRANSVERSE AND/OR LONGITUDINAL JOINTS AND CRACKS.

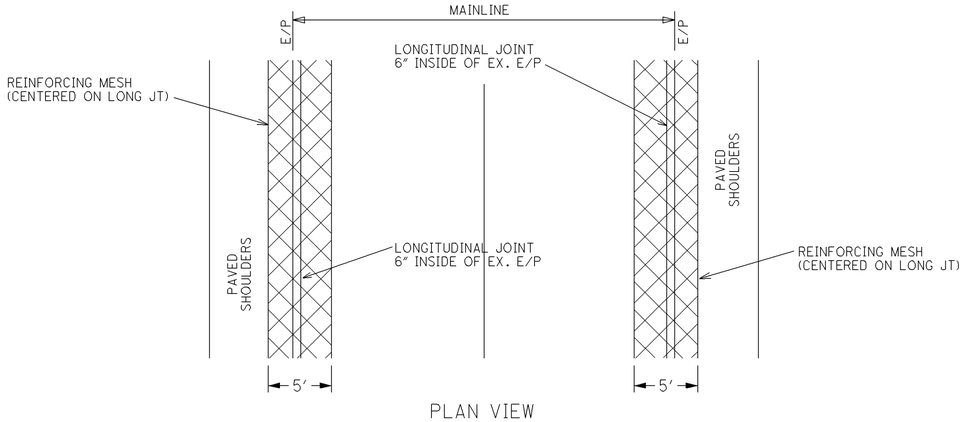
LOCATION 1, SR 37 RT:
STA. 258+25.00 TO STA. 260+75.00 = 250.0 FT
STA 265+33.93 TO STA. 271+90.00 = 656.1 FT
LOCATION 1, SR 37 LT:
STA. 258+25.00 TO STA. 263+90.00 = 565.0 FT
STA 267+50.00 TO STA. 271+90.00 = 440.0 FT
RADIUS RETURNS:
77.0 + 101.0 + 122.0 + 135.0 = 435.0 FT
LOCATION 1 ITEM 690:
(250.0 + 656.1 + 565.0 + 440.0 + 435.0) x 5' / 9 = 1304 SY

LOCATION 2, SR 664 RT:
STA. 13+08.00 TO STA. 19+38.55 = 630.6 FT
STA 21+10.00 TO STA. 28+50.00 = 740.0 FT
LOCATION 2, SR 664 LT:
STA. 13+30.00 TO STA. 18+68.15 = 538.2 FT
STA 20+61.62 TO STA. 28+50.00 = 788.4 FT
LOCATION 2 ITEM 690:
(630.6 + 740.0 + 538.2 + 788.4) x 5' / 9 = 1499 SY

(QUANTITIES CARRIED TO SUBSUMMARIES)



PROFILE VIEW



PLAN VIEW

CALCULATED BCT
CHECKED DNM

GENERAL NOTES

FAI-37/664-25.01/4.21

9
102

P:/FAI/86847/DESIGN/ROADWAY/Plan_Sheets/GENERAL/86847_GNOTE03.dgn

ITEM 204 - SUBGRADE COMPACTION AND PROOF ROLLING

CONSTRUCT THE SUBGRADE AS FOLLOWS AND IN THE FOLLOWING SEQUENCE:

1. SHAPE THE SUBGRADE TO WITHIN 0.2 FEET OF THE PLAN SUBGRADE ELEVATION.
2. EXCAVATE AND REPLACE UNSUITABLE SUBGRADE BEFORE PROOF ROLLING. EXCAVATION DEPTH AND LOCATIONS FOR UNSUITABLE SUBGRADE ARE SHOWN IN THE TYPICAL SECTIONS UNDER ITEM 204 EXCAVATION OF SUBGRADE. UNSUITABLE SUBGRADE INCLUDES UNSUITABLE SOIL (A-4B, A-2-5, A-5, A-7-5, AND SOIL WITH A LIQUID LIMIT GREATER THAN 65) AND ANY COAL, SHALE, OR ROCK WHICH NEEDS TO BE REMOVED ACCORDING TO 204.05. IF THERE IS UNSUITABLE SUBGRADE IN A SHALLOW FILL LOCATION, EXCAVATE AND REPLACE THE UNSUITABLE SUBGRADE BEFORE CONSTRUCTING THE SHALLOW FILL AND SHAPING THE SUBGRADE.
3. COMPACT THE SUBGRADE ACCORDING TO 204.03.
4. PROOF ROLL THE COMPACTED SUBGRADE ACCORDING TO 204.06. BASED ON PROOF ROLLING RESULTS AND VISUAL OBSERVATIONS, THE ENGINEER WILL IDENTIFY LOCATIONS FOR EXCAVATION OF UNSTABLE SUBGRADE, IF ANY.
5. EXCAVATE UNSTABLE SUBGRADE AS DIRECTED BY THE ENGINEER AND STABILIZE BY REPLACING WITH MATERIALS SPECIFIED UNDER 204.07. EXCAVATIONS SHALL EXTEND 18 INCHES BEYOND THE EDGE OF PAVEMENT, PAVED SHOULDERS OR PAVED MEDIANS.
6. TO VERIFY STABILITY, PROOF ROLL THE STABILIZED AREAS ACCORDING TO 204.06.
7. FINE GRADE THE SUBGRADE TO THE SPECIFIED GRADE.

THE QUANTITIES FOR EXCAVATING THE UNSUITABLE SUBGRADE AND UNSTABLE SUBGRADE ARE BOTH PAID UNDER ITEM 204 EXCAVATION OF SUBGRADE.
THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY TO BE USED AS DESCRIBED AND AS DIRECTED BY THE PROJECT ENGINEER:

ITEM 204 PROOF ROLLING
LOCATION 1: 1762 SY (SUBGRADE COMPACTION) / 2000 = 0.9 USE 1 HOUR
LOCATION 2: 3946 SY (SUBGRADE COMPACTION) / 2000 = 2 HOUR

NOTE: FOR CALCULATION OF SUBGRADE COMPACTION, SEE SHEETS 14 AND 15.

ITEM 603 15" CONDUIT, TYPE A, 707.01 (0.079), 707.01 AL. COATED, 707.21

THIS WORK INVOLVES CONNECTING CORRUGATED METAL PIPE TO THE EXISTING CONDUIT SUCH THAT THE INLET AND OUTLET OF THE STRUCTURE EXTEND BEYOND THE LIMITS OF THE PROPOSED EMBANKMENT. CONDUITS SHALL BE JOINED USING COUPLING BANDS AS PER 603.06. FOR LOCATIONS OF PROPOSED WORK, SEE SHEET 34.

ITEM 511 WINGWALLS, HEADWALLS, AND FOOTERS FOR 603 ITEMS

FOR ITEMS 706.05, 706.051, 706.052 AND 706.053 WITH A CAST-IN-PLACE WINGWALL, HEADWALL, OR FOOTER, A PRECAST ALTERNATIVE MAY BE FURNISHED PER 602.03. THE PRECAST ALTERNATIVE WILL MEET THE CAST-IN-PLACE STRUCTURAL DESIGN LOADINGS, DESIGN HEIGHT, AND DESIGN LENGTH DIMENSIONS.

FULL COMPENSATION FOR THE PRECAST WINGWALL, HEADWALL, OR FOOTER IS THE NUMBER OF CUBIC YARDS OF ITEM 511 OR SUPPLEMENTAL SPECIFICATION 898, AND POUNDS OF ITEM 509 FOR THE CORRESPONDING CAST-IN-PLACE STRUCTURE.

FARM DRAINS

ALL FARM DRAINS, WHICH ARE ENCOUNTERED DURING CONSTRUCTION, SHALL BE PROVIDED WITH UNOBSTRUCTED OUTLETS. EXISTING COLLECTORS WHICH ARE LOCATED BELOW THE ROADWAY DITCH ELEVATIONS, AND WHICH CROSS THE ROADWAY, SHALL BE REPLACED WITHIN THE (RIGHT-OF-WAY)(CONSTRUCTION) LIMITS BY ITEM 603 CONDUIT, TYPE B, ONE COMMERCIAL SIZE LARGER THAN THE EXISTING CONDUIT.

EXISTING COLLECTORS AND ISOLATED FARM DRAINS, WHICH ARE ENCOUNTERED ABOVE THE ELEVATION OF ROADWAY DITCHES, SHALL BE OUTLETTED INTO THE ROADWAY DITCH BY 603 TYPE F CONDUIT. THE OPTIMUM OUTLET ELEVATION SHALL BE ONE FOOT ABOVE THE FLOWLINE ELEVATION OF THE DITCH. LATERAL FIELD TILES WHICH CROSS THE ROADWAY SHALL BE INTERCEPTED BY 603, TYPE E CONDUIT, AND CARRIED IN A LONGITUDINAL DIRECTION TO AN ADEQUATE OUTLET OR ROADWAY CROSSING.
THE LOCATION, TYPE, SIZE AND GRADE OF REPLACEMENTS SHALL BE DETERMINED BY THE ENGINEER AND PAYMENT SHALL BE MADE ON FINAL MEASUREMENTS.

EROSION CONTROL PADS AND ANIMAL GUARDS SHALL BE PROVIDED AT THE OUTLET END OF ALL FARM DRAINS AS PER STANDARD CONSTRUCTION DRAWING DM-1.1, EXCEPT WHEN THEY OUTLET INTO A DRAINAGE STRUCTURE.

PAYMENT FOR THE EROSION CONTROL PADS AND ANIMAL GUARDS AND ANY NECESSARY BENDS OR BRANCHES SHALL BE INCLUDED FOR PAYMENT IN THE PERTINENT CONDUIT ITEM.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE WORK NOTED ABOVE:

ITEM 603, 8" CONDUIT, TYPE B	50 FT
ITEM 603, 8" CONDUIT, TYPE E	50 FT
ITEM 603, 8" CONDUIT, TYPE F	50 FT

CROSSINGS AND CONNECTIONS TO EXISTING PIPES & 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.

CALCULATED BCT
CHECKED DNM

GENERAL NOTES

FAI-37/664-25.01/4.21

10
102

P:/FAI/86847/DESIGN/ROADWAY/Plan_Sheets/GENERAL/86847_GNOTE04.dgn

ITEM 614 PORTABLE CHANGEABLE MESSAGE SIGN, A.P.P.

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND REMOVE, WHEN NO LONGER NEEDED, A CHANGEABLE MESSAGE SIGN THE SIGN SHALL BE OF A TYPE SHOWN ON A LIST OF APPROVED PCMS UNITS MAINTAINED BY THE DIRECTOR (OFFICE OF MATERIALS MANAGEMENT). THE APPROVED LIST OF PORTABLE CHANGEABLE MESSAGE SIGNS CAN BE FOUND ON THE ODOT WEBSITE BY CLICKING ON THE SERVICES MENU, THEN CLICKING ON MATERIALS MANAGEMENT. THE LIST CONTAINS CLASS A AND B UNITS WITH MINIMUM LEGIBILITY DISTANCES OF 650 FT AND 475 FT, RESPECTIVELY.
EACH SIGN SHALL BE TRAILER MOUNTED AND EQUIPPED WITH A FUNCTIONAL DIMMING MECHANISM, TO DIM THE SIGN DURING DARKNESS, AND A TAMPER AND VANDAL PROOF ENCLOSURE. EACH SIGN SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS TO ENABLE ON-SITE PERSONNEL TO OPERATE AND TROUBLE-SHOOT THE UNIT. THE SIGN SHALL ALSO BE CAPABLE OF BEING POWERED BY AN ELECTRICAL SERVICE DROP FROM A LOCAL UTILITY COMPANY. PCMS TRAILERS SHOULD BE DELINEATED ON A PERMANENT BASIS BY AFFIXING CONSPICUITY TAPE CONFORMING TO CMS 614.03, IN A CONTINOUS LINE ON THE FACE OF THE TRAILER AS SEEN BY ONCOMING ROAD USERS.

PLACEMENT, OPERATION, MAINTENANCE AND ALL ACTIVATION OF THE SIGNS BY THE CONTRACTOR SHALL BE AS DIRECTED BY THE ENGINEER. THE PCMS SHALL BE LOCATED IN A HIGHLY VISIBLE POSITION YET PROTECTED FROM TRAFFIC. THE CONTRACTOR SHALL, AT THE DIRECTION OF THE ENGINEER, RELOCATE THE PCMS TO IMPROVE VISIBILITY OR ACCOMMODATE CHANGED CONDITIONS. WHEN NOT IN USE, THE PCMS SHALL BE TURNED OFF. ADDITIONALLY, WHEN NOT IN USE FOR EXTENDED PERIODS OF TIME, THE PCMS SHALL BE TURNED, FACING AWAY FROM ALL TRAFFIC, AND SHALL DISPLAY ONE OR MORE YELLOW RETROREFLECTIVE SHEETING SURFACES OF 9-INCH BY 15-INCH MINIMUM SIZE FACING TRAFFIC.

THE ENGINEER SHALL BE PROVIDED ACCESS TO EACH SIGN UNIT AND SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS TO ENABLE ODOT PERSONNEL TO OPERATE AND TROUBLE-SHOOT THE UNIT AND TO REVISE SIGN MESSAGES, IF NECESSARY.

(THE CONTRACTOR SHALL IMPLEMENT A SYSTEM WHEREBY CHANGEABLE MASSAGES WILL BE IMPLEMENTED WITHIN 2 HOURS FOLLOWING TELEPHONE NOTIFICATION FROM THE PROJECT ENGINEER TO A DESIGNATED PHONE.)

ALL MESSAGES TO BE DISPLAYED ON THE SIGN WILL BE PROVIDED BY THE ENGINEER. A LIST OF ALL REQUIRED PRE-PROGRAMMED MESSAGES WILL BE GIVEN TO THE CONTRACTOR AT THE PROJECT PRECONSTRUCTION CONFERENCE. THE SIGN SHALL HAVE THE CAPABILITY TO STORE UP TO 99 MESSAGES. MESSAGE MEMORY OF PRE-PROGRAMMED DISPLAYS SHALL NOT BE LOST AS A RESULT OF POWER FAILURES TO THE ON-BOARD COMPUTER. THE SIGN LEGEND SHALL BE CAPABLE OF BEING CHANGED IN THE FIELD. THREE-LINE PRESENTATION FORMATS WITH UP TO SIX MESSAGE PHASES SHOULD BE EMPLOYED. MESSAGE PHASES SHALL BE SUPPORTED. PCMS FORMAT SHALL PERMIT THE COMPLETE MESSAGE FOR EACH PHASE TO BE READ AT LEAST TWICE.

THE PCMS SHALL CONTAIN AN ACCURATE CLOCK AND PROGRAMMING LOGIC WHICH WILL ALLOW THE SIGN TO BE ACTIVATED, DEACTIVATED OR MESSAGES CHANGED AUTOMATICALLY AT DIFFERENT TIMES OF THE DAY FOR DIFFERENT DAYS OF THE WEEK.

THE PCMS SHALL CONTAIN A CELLULAR TELEPHONE DATA LINK WHICH WILL (IN ACTIVE CELLULAR PHONE AREAS) ALLOW REMOTE SIGN ACTIVATION, MESSAGE CHANGES, MESSAGE ADDITIONS AND REVISIONS TO TIME OF DAY PROGRAMS. THE SYSTEM SHALL ALSO PERMIT VERIFICATION OF CURRENT AND PROGRAMMED MESSAGES. ONE REMOTE DATA INPUT DEVICE (LAPTOP COMPUTER PLUS MODEM OR EQUIVANT) SHALL BE FURNISHED FOR USE BY THE DISTRICT TRAFFIC ENGINEER, OR EQUIVALENT, AND SHALL BE INSURED AGAINST THEFT.

THE PCMS UNIT SHALL BE MAINTAINED IN GOOD WORKING ORDER BY THE CONTRACTOR IN ACCORD-ANCE WITH THE PROVISIONS OF CMS 614.07. THE CONTRACTOR SHALL, PRIOR TO ACTIVATING THE UNIT, MAKE ARRANGEMENTS, WITH AN AUTHORIZED SERVICE AGENT FOR THE PCMS, TO ASSURE PROMPT SERVICE IN THE EVENT OF FAILURE. ANY FAILURE SHALL NOT RESULT IN THE SIGN BEING OUT OF SERVICE FOR MORE THAN 12 HOURS, INCLUDING WEEKENDS. FAILURE TO COMPLY MAY RESULT IN AN ORDER TO STOP WORK AND OPEN ALL TRAFFIC LANES AND/OR IN THE DEPARTMENT TAKING APPROPRIATE ACTION TO SAFELY CONTROL TRAFFIC. THE ENTIRE COST TO CONTROL TRAFFIC, ACCRUED BY THE DEPARTMENT DUE TO THE CONTRACTOR'S NONCOMPLIANCE, WILL BE DEDUCTED FROM MONEYS DUE, OR TO BECOME DUE TO THE CONTRACTOR ON HIS CONTRACT.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR 24-HOURS-PER-DAY OPERATION AND MAINTENANCE OF THESE SIGNS ON THE PROJECT FOR THE DURATION OF THE PHASES WHEN THE PLAN REQUIRES THEIR USE.

PAYMENT FOR THE ABOVE DESCRIBED ITEM SHALL BE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, FUELS, LUBRICATING OILS, SOFTWARE, HARDWARE, AND INCIDENTALS TO PERFORM THE ABOVE DESCRIBED WORK. THE CONTRACTOR SHALL ONLY BE PAID FOR PCMS UNITS WHEN THEY ARE IN OPERATION ON THE PROJECT AS SPECIFIED IN THE PLANS OR BY THE ENGINEER.

THIS PROJECT SHALL REQUIRE 2 (TWO) PORTABLE CHANGEABLE MESSAGE SIGNS.

THE FOLLOWING QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY TO PERFORM THE WORK AS DESCRIBED ABOVE.

ITEM 614, PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN 120 DAY

IITEM 614 LAW ENFORCEMENT OFFICER (WITH PATROL CAR)

FOR ASSISTANCE DURING CONSTRUCTION OPERATIONS

USE OF LAW ENFORCEMENT OFFICERS (LEOS) BY CONTRACTORS OTHER THAN THE USES SPECIFIED BELOW WILL NOT BE PERMITTED AT PROJECT COST. LEOS SHOULD NOT BE USED WHERE THE OMUTCD INTENDS THAT FLAGGERS BE USED.

IN ADDITION TO THE REQUIREMENTS OF ITEM 614 AND THE OMUTCD, A UNIFORMED LAW ENFORCEMENT OFFICER AND OFFICIAL PATROL CAR WITH WORKING TOP MOUNTED EMERGENCY FLASHING LIGHTS SHALL BE PROVIDED FOR CONTROLLING TRAFFIC FOR THE FOLLOWING TASKS:

- DURING THE ENTIRE ADVANCE PREPARATION AND CLOSURE SEQUENCE WHERE COMPLETE BLOCKAGE OF TRAFFIC IS REQUIRED.
- DURING A TRAFFIC SIGNAL INSTALLATION WHEN IMPACTING THE NORMAL FUNCTION OF THE SIGNAL OR THE FLOW OF TRAFFIC OR WHEN TRAFFIC NEEDS TO BE DIRECTED THROUGH AN ENERGIZED TRAFFIC SIGNAL CONTRARY TO THE SIGNAL DISPLAY (E.G., DIRECTING MOTORISTS THROUGH A RED LIGHT).

IN ADDITION TO THE REQUIREMENT OF CMS 614 AND THE OMUTCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP-MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHOULD BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS:

- FOR LANE CLOSURES: DURING INITIAL SET-UP PERIODS, TEAR DOWN PERIODS, SUBSTANTIAL SHIFTS OF A CLOSURE POINT OR WHEN NEW LANE CLOSURE ARRANGEMENTS ARE INITIATED FOR LONG-TERM LANE CLOSURES/SHIFTS (FOR THE FIRST AND LAST DAY OF MAJOR CHANGES IN TRAFFIC CONTROL SETUP). IN GENERAL, LEOS SHOULD BE POSITIONED AT THE POINT OF LANE RESTRICTION OR ROAD CLOSURE AND TO MANUALLY CONTROL TRAFFIC MOVEMENTS THROUGH INTERSECTIONS IN WORK ZONES.
- WHEN CONSTRUCTION VEHICLES ARE ENTERING/EXITING THE ZONE DIRECTLY FROM/INTO AN OPEN LANE OF TRAFFIC. IF A LANE HAS BEEN CLOSED TO PROVIDE AN ACCELERATION/DECELERATION LANE FOR THE VEHICLE, THE LEO WILL NOT BE REQUIRED.

LEOS SHOULD NOT FORGO THEIR TRAFFIC CONTROL RESPONSIILITIES TO APPREHEND MOTORISTS FOR ROUTINE TRAFFIC VIOLATIONS. HOWEVER, IF A MOTORIST'S ACTIONS ARE CONSIDERED TO BE RECKLESS, THEN PURSUIT OF THE MOTORIST IS APPROPRIATE.

THE LEOS WORK AT THE DIRECTION OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR SECURING THE SERVICES OF THE LEOS WITH THE APPROPRIATE AGENCIES AND COMMUNICATING THE INTENTIONS OF THE PLANS WITH RESPECT TO DUTIES OF THE LEOS. THE ENGINEER SHALL HAVE FINAL CONTROL OVER THE LEOS' DUTIES AND PLACEMENT, AND WILL RESOLVE ANY ISSUES THAT MAY ARISE BETWEEN THE TWO PARTIES.

THE LEO SHALL REPORT IN TO THE CONTRACTOR PRIOR TO THE START OF THE SHIFT, IN ORDER TO RECEIVE INSTRUCTIONS REGARDING SPECIFIC WORK ASSIGN-MENTS DURING HIS/HER SHIFT. THE LEO IS EXPECTED TO STAY AT THE PROJECT SITE FOR THE ENTIRE DURATION OF HIS/HER SHIFT. THE LEO SHALL REPORT TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT. ONCE THE LEO HAS COMPLETED THE DUTIES DESCRIBED ABOVE AND STILL HAS TIME REMAINING ON HIS/HER SHIFT, THE LEO MAY BE ASKED TO PATROL THROUGH THE WORK ZONE (WITH FLASHING LIGHTS OFF) OR BE PLACED AT A LOCATION TO DETER MOTORISTS FROM SPEEDING. SHOULD IT BE NECESSARY TO LEAVE THE PROJECT SITE, THE LEO SHALL NOTIFY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE THE LEO WITH A TWO-WAY COMMUNICATION DEVICE WHICH SHALL BE RETURNED TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT.

LEOS (WITH PATROL CAR) REQUIRED BY THE TRAFFIC MAINTENANCE TASKS ABOVE SHALL BE PAID FOR ON A UNIT PRICE (HOURLY) BASIS UNDER ITEM 614, LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE

50 HOURS

THE HOURS PAID SHALL INCLUDE MINIMUM SHOW-UP TIME REQUIRED BY THE LAW ENFORCEMENT AGENCY INVOLVED.

ANY ADDITIONAL COSTS (ADMINISTRATIVE OR OTHERWISE) INCURRED BY THE CONTRACTOR TO OBTAIN THE SERVICES OF AN LEO ARE INCLUDED WITH THE BID UNIT PRICE FOR ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE.

CALCULATED BCT
CHECKED DNM

GENERAL NOTES

FAI-37/664-25.01/4.21

P:/FAI/86847/DESIGN/ROADWAY/Plan_Sheets/GENERAL/86847_GNOTE05.dgn

ITEM 614 MAINTAINING TRAFFIC

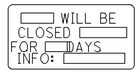
TRAFFIC SHALL NOT BE MAINTAINED ON A PLANED SURFACE. ALL PLANED SURFACES SHALL BE OVERLAYED WITH AT LEAST ASPHALT CONCRETE INTERMEDIATE COURSE BEFORE OPENING TO TRAFFIC. EITHER TEMPORARY (CLASS II) OR PERMANENT PAVEMENT MARKINGS SHALL BE IN PLACE BEFORE OPENING ANY LANES TO TRAFFIC. ALL TRAFFIC CONTROL PLANS, INCLUDING DURATION OF CLOSURES, SHALL BE AT THE APPROVAL OF THE PROJECT ENGINEER.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR TRAFFIC MAINTENANCE AT ALL TIMES IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM 614, MAINTAINING TRAFFIC. THE CONTRACTOR SHALL MAINTAIN ACCESS TO LOCAL DRIVEWAYS, IF ANY, AT ALL TIMES.

THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN STANDARD 48"x30" "ROAD CLOSED" SIGNS, SIGN SUPPORTS, BARRICADES, GATES, AND LIGHTS, AS DETAILED IN STANDARD CONSTRUCTION DRAWING MT-101.60 AT LOCATIONS APPROVED BY THE PROJECT ENGINEER.

THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN SIGNS AND SIGN SUPPORTS, AS DETAILED IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. TYPE III BARRICADES SHALL BE ERECTED AT THE FOLLOWING LOCATIONS DURING PERIODS IN WHICH THE OFFERED ROADS ARE CLOSED TO TRAFFIC (SR 664 JUST SOUTH OF INTERSECTION WITH SR 37).

NOTICE OF CLOSURE SIGNS, AS SHOWN IN DETAIL BELOW, SHALL BE ERECTED BY THE CONTRACTOR AT LEAST TWO WEEKS IN ADVANCED OF THE SCHEDULED ROAD CLOSURE. THE SIGNS SHALL BE ERECTED ON THE RIGHT-HAND SIDE OF THE ROAD FACING TRAFFIC. THEY SHALL BE PLACED SO AS NOT TO INTERFERE WITH THE VISIBILITY OF ANY OTHER TRAFFIC CONTROL SIGNS AND SHALL BE ERECTED AT THE POINT OF CLOSURE OR AS DIRECTED BY THE PROJECT ENGINEER.



W20-H13-60
CLOSURE SIGN DETAIL

NO WORK SHALL BE PERFORMED AND ALL EXISTING LANES SHALL BE OPEN TO TRAFFIC DURING THE FOLLOWING DESIGNATED HOLIDAYS OR EVENTS:
MEMORIAL DAY, FOURTH OF JULY, LABOR DAY, THANKSGIVING

THE PERIOD OF TIME THAT THE LANES ARE TO BE OPEN DEPENDS ON THE DAY OF THE WEEK ON WHICH THE HOLIDAY FALLS. THE FOLLOWING SCHEDULE SHALL BE USED TO DETERMINE THIS PERIOD:

DAY OF THE WEEK	TIME ALL LANES MUST BE OPEN TO TRAFFIC
SUNDAY	12:00N FRIDAY THROUGH (6:00am OR 12:00N) MONDAY
MONDAY	12:00N FRIDAY THROUGH (6:00am OR 12:00N) TUESDAY
TUESDAY	12:00N MONDAY THROUGH (6:00am OR 12:00N) WEDNESDAY
WEDNESDAY	12:00N TUESDAY THROUGH (6:00am OR 12:00N) THURSDAY
THURSDAY	12:00N WEDNESDAY THROUGH (6:00am OR 12:00N) FRIDAY
THURSDAY (THANKSGIVING ONLY)	12:00N WEDNESDAY THROUGH (6:00am OR 12:00N) MONDAY
FRIDAY	12:00N THURSDAY THROUGH (6:00am OR 12:00N) MONDAY
SATURDAY	12:00N FRIDAY THROUGH (6:00am OR 12:00N) MONDAY

NO EXTENSIONS OF TIME SHALL BE GRANTED FOR DELAYS IN MATERIAL DELIVERIES UNLESS SUCH DELAYS ARE INDUSTRY-WIDE, OR FOR LABOR STRIKES UNLESS SUCH STRIKES ARE AREA-WIDE.

SHOULD THE CONTRACTOR FAIL TO MEET ANY OF THESE REQUIREMENTS, THE CONTRACTOR SHALL BE ASSESSED A DISINCENTIVE IN THE AMOUNT OF $_____ FOR EACH MINUTE THE ABOVE DESCRIBED LANE CLOSURE RESTRICTIONS ARE VIOLATED.

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. PAYMENT FOR ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS INCLUDING BARRELS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR 614, MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

THE FOLLOWING QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY:

ITEM 614 MAINTAINING TRAFFIC LUMP SUM

INCENTIVE/DISINCENTIVE CONTRACT

AT ALL TIMES, A MINIMUM OF ONE LANE OF TRAFFIC SHALL BE MAINTAINED IN EACH DIRECTION EXCEPT DURING THE CONSTRUCTION OF THE DRAINAGE STRUCTURE GIVEN BELOW WHEN THROUGH TRAFFIC MAY BE DETOURED AS SHOWN ON SHEET 64. THE CONTRACTOR SHALL HAVE TEN (10) CONSECUTIVE CALENDER DAYS FROM COMMENCEMENT OF TRAFFIC RESTRICTION TO COMPLETE ALL CRITICAL WORK BEFORE REOPENING THE ROADWAY TO THE SAFE TRAVEL OF THE MOTORING PUBLIC. AT ALL TIMES, THE CONTRACTOR SHALL MAINTAIN ACCESS FOR ALL LOCAL PROPERTY OWNERS.

AN INCENTIVE/DISINCENTIVE SHALL BE ASSESSED AS PER THE PROVISIONS OF THE PROPOSAL NOTE 121, "INCENTIVE/DISINCENTIVE CONTRACT" AND THE FOLLOWING TABLE:

INCENTIVE/DISINCENTIVE CONTRACT TABLE

DESCRIPTION OR LOCATION OF CRITICAL WORK	COMPLETION DATE	TIME PERIOD	DISINCENTIVE $ PER TIME PERIOD	INCENTIVE $ PER TIME PERIOD	MAXIMUM INCENTIVE $
DRAINAGE STRUCTURE: FAI-664-4.22 (SEE SHT 66)	✳	DAY	$3000	$3000	$12,000

✳ TEN (10) DAYS FROM COMMENCEMENT OF TRAFFIC RESTRICTION.

TRENCH FOR WIDENING

TRENCH EXCAVATION FOR BASE WIDENING SHALL BE ONLY ON ONE SIDE OF THE PAVEMENT AT A TIME. THE OPEN TRENCH SHALL BE ADEQUATELY MAINTAINED AND PROTECTED WITH DRUMS OR BARRICADES AT ALL TIMES. PLACEMENT OF PROPOSED SUBBASE AND BASE MATERIAL SHALL FOLLOW AS CLOSELY AS POSSIBLE BEHIND EXCAVATION OPERATIONS. THE LENGTH OF WIDENING TRENCH WHICH IS OPEN AT ANY ONE TIME SHALL BE HELD TO A MINIMUM AND SHALL AT ALL TIMES BE SUBJECT TO APPROVAL OF THE ENGINEER.

OVERNIGHT TRENCH CLOSING

THE BASE WIDENING SHALL BE COMPLETED TO A DEPTH OF NO MORE THAN 5 INCHES BELOW THE EXISTING PAVEMENT BY THE END OF EACH WORK DAY. NO TRENCH SHALL BE LEFT OPEN OVERNIGHT EXCEPT FOR A SHORT LENGTH (25 FEET OR LESS) OF A WORK SECTION AT THE END OF THE TRENCH. IN CASE WORK MUST BE SUSPENDED BECAUSE OF INCLEMENT WEATHER OR OTHER REASONS, THE TRENCH FOR THE UNCOMPLETED BASE WIDENING SHALL BE BACKFILLED AT THE DIRECTION OF THE ENGINEER.

ITEM 209 PREPARING SUBGRADE FOR SHOULDER PAVING, AS PER PLAN

PREPARE THE SHOULDER FOR PAVING A CONSISTENT SAFETY EDGE IN BOTH THICKNESS AND WIDTH.

PRIOR TO PAVING THE SAFETY EDGE, GRADE AN AREA 10 INCHES WIDE, BEGINNING AT THE EDGE OF THE PAVED ROADWAY, TO PROVIDE A LEVEL SURFACE FREE OF VEGETATION FOR CONSTRUCTION OF THE SAFETY EDGE. IF NEDESSARY, EXCAVATE THE GRADED AREA TO THE DEPTH NECESSARY TO CONSTRUCT THE SAFETY EDGE. COMPACT THE GRADED SHOULDER ACCORDING TO 617.05, OR AS DIRECTED BY THE ENGINEER.

THE FOLLOWING QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR THE PURPOSE DESCRIBED ABOVE:

ITEM 209 PREPARING SUBGRADE FOR SHOULDER PAVING, AS PER PLAN

LOCATION 1 - 0.70 MILE
LOCATION 2 - 0.60 MILE

CALCULATED BCT
CHECKED DNM

GENERAL NOTES

FAI-37/664-25.01/4.21

DATED 5/30/2012

86847_GNOTE06.dgn

SAFETY EDGE PLAN NOTE

IN ADDITION TO THE REQUIREMENTS OF 401.12, ATTACH A DEVICE TO THE SCREED OF THE PAVER THAT CONFINES THE MATERIAL AT THE END GATE AND EXTRUDES THE ASPHALT MATERIAL IN SUCH A WAY THAT RESULTS IN A CAMPACTED WEDGE SHAPE PAVEMENT EDGE OF APPROXIMATELY 30 DEGREES (NOT STEEPER THAN 40 DEGREES). ENSURE THE DEVICE MAINTAINS CONTACT WITH THE EXISTING SURFACE, AND ALLOW FOR AUTOMATIC TRANSITION TO CROSS ROADS, DRIVEWAYS AND OBSTRUCTIONS. DO NOT USE CONVENTIONAL SINGLE PLATE STRIKE OFF.

CONSTRUCTION OF SAFETY EDGE CAN BE OMITTED AT LOCATIONS WHERE EXISTING WIDTH OF GRADED SHOULDER OR BERM IS LESS THAN 12". PROJECTS WITH VARYING CONDITIONS SHOULD USE SAFETY EDGE WHERE POSSIBLE. PLAN PREPARATION HAS MADE EVERY REASONABLE ATTEMPT TO IDENTIFY POSSIBLE SAFETY EDGE LOCATIONS.

USE THE TRANS TECH SHOULDER WEDGE MAKER, THE CARLSON SAFETY EDGE END GATE, THE ADVANT-EDGER, THE TROXLER SAFETSLOPE OR A SIMILAR APPROVED-EQUAL DEVICE THAT PRODUCES THE SAME WEDGE CONSOLIDATION RESULTS. CONTACT INFORMATION FOR THESE WEDGE SHAPE COMPACTION DEVICES IS THE FOLLOWING:

TransTech Systems, Inc. .
1594 State Street
Schenectady, NY 12304
1-800-724-6306
www.transtechsys.com

Advant-Edge Paving Equipment, LLC.
P.O. Box 9163
Niskayuna, NY 12309-0163
518-280-6090
www.advantaedgepaving.com

Carlson Safety Edge End Gate
18425 50th Avenue East
Tacoma, WA 98446
253-875-8000

Troxler Electronics Laboratories, Inc.
3008 E. Cornwallis Rd.
Research Triangle Park, NC 27709
1-877-TROXLER
www.troxlerlabs.com

IF ELECTING TO USE A SIMILAR DEVICE, PROVIDE PROOF THAT THE DEVICE HAS BEEN USED ON PREVIOUS PROJECTS WITH ACCEPTABLE RESULTS OR CONSTRUCT A TEST SECTION PRIOR TO THE BEGINNING OF WORK AND DEMONSTRATE WEDGE COMPACTION TO THE SATISFACTION OF THE ENGINEER. SHORT SECTIONS OF HANDWORK WILL BE ALLOWED WHEN NECESSARY FOR TRANSITIONS AND TURNOUTS OR OTHERWISE AUTHORIZED BY THE ENGINEER.

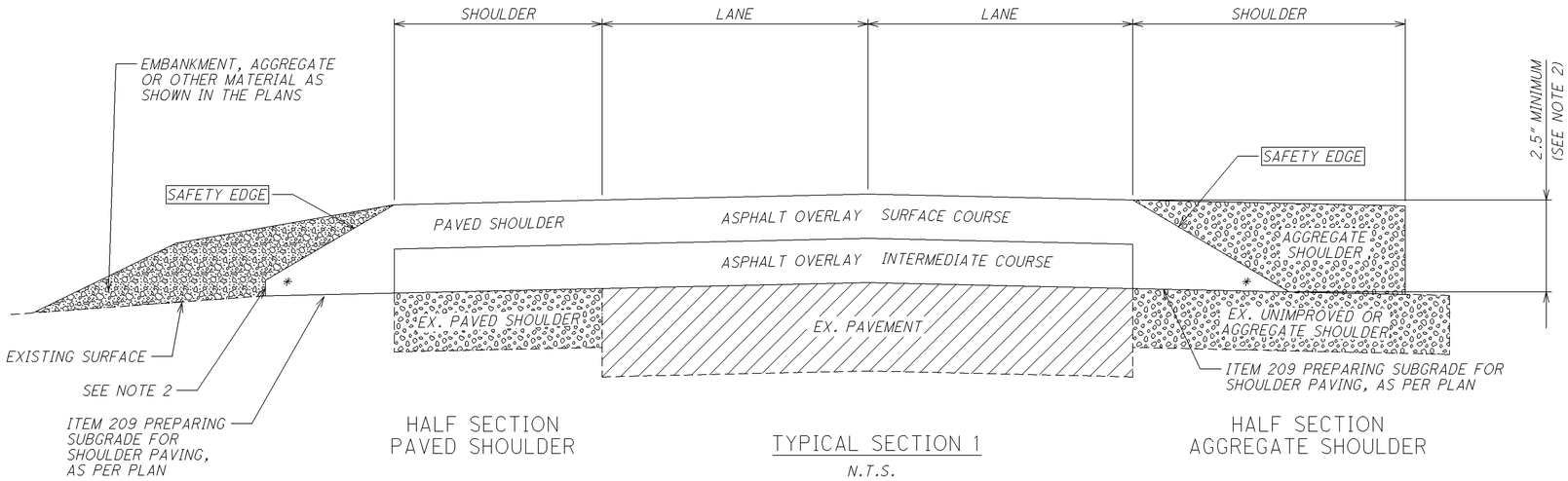
IN ADDITION TO THE REQUIREMENTS OF 401.16, MAKE THE FIRST ROLLER PASS 8 TO 12 INCHES AWAY FROM TAPERED EDGE. DO NOT ROLL THE TAPER.

THE FOLLOWING QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY TO PROVIDE EXTRA ASPHALT FOR CONSTRUCTION OF THE SAFETY EDGE:

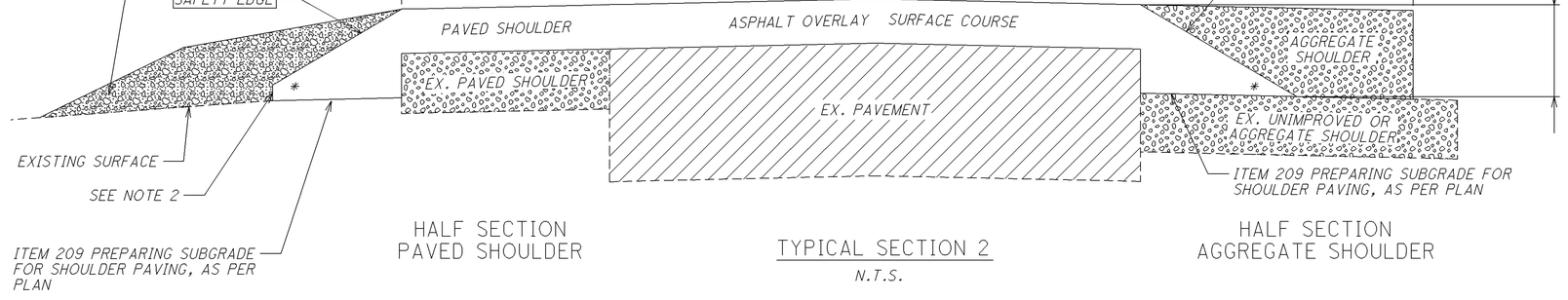
ITEM 448 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG 70-22M

LOCATION 1 – 7.4 C.Y.

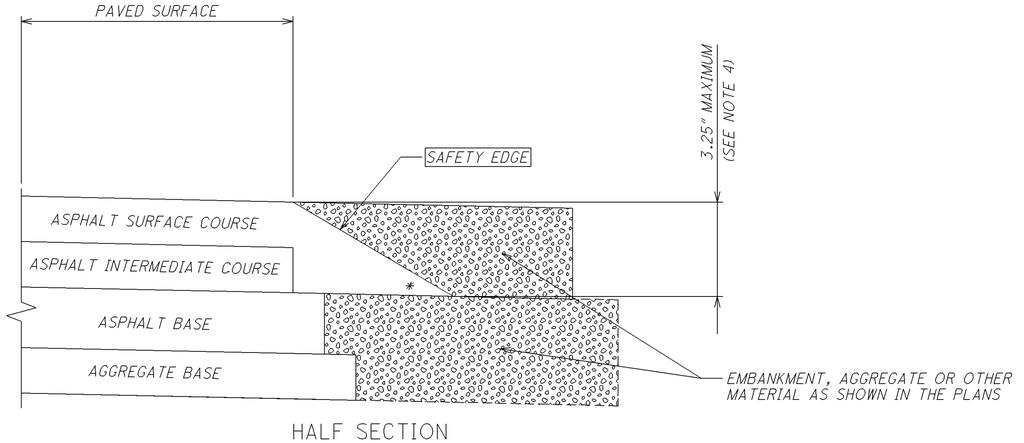
LOCATION 2 – 6.4 C.Y.



TYPICAL SECTION 1
N.T.S.



TYPICAL SECTION 2
N.T.S.



TYPICAL SECTION 3
N.T.S.

NOTES:

1.) SAFETY EDGES ARE REQUIRED AT THE OUTSIDE EDGES OF THE PAVED ROADWAY (EDGE OF TRAVEL LANE OR EDGE OF PAVED SHOULDER).

2.) CONSTRUCT THE SAFETY EDGE THE FULL ASPHALT CONCRETE OVERLAY THICKNESS OR 2.5" (63MM) WHICHEVER IS GREATER, NOT TO EXCEED THE MAXIMUM SAFETY EDGE THICKNESS OF 6" (150MM). CONSTRUCT A NEAR-VERTICAL FACE BELOW THE SAFETY EDGE FOR THICKNESS GREATER THAN 6" (150 MM).

3.) BLADE AND SHAPE EXISTING SHOULDER MATERIAL TO FORM A UNIFORM SURFACE UNDER THE SAFETY EDGE PRIOR TO PLACEMENT OF THE ASPHALT CONCRETE OVERLAY.

4.) FOR NEW PAVEMENT CONSTRUCT THE SAFETY EDGE THE FULL THICKNESS OF THE SURFACE AND INTERMEDIATE COURSES, NOT TO EXCEED 3.25" (82 MM).

* 40° MAX

CALCULATED DNM
CHECKED DNM

SAFETY EDGE DETAIL

FAI-37 / 664-25.01 / 4.21

12A
102

86847_SED_001.dgn dated 05/30/2012

ITEM SPECIAL - MAILBOX SUPPORT

THIS WORK SHALL CONSIST OF FURNISHING AND ERECTING MAILBOX SUPPORTS AND ANY ASSOCIATED MOUNTING HARDWARE IN ACCORDANCE WITH PLAN DETAILS, AND ATTACHING AN OWNER-SUPPLIED MAILBOX AT LOCATIONS SPECIFIED IN THE PLAN, OR OTHERWISE ESTABLISHED BY THE ENGINEER.

WOOD POSTS SHALL BE NOMINAL 4 INCHES BY 4 INCHES SQUARE OR 4.5 INCHES DIAMETER ROUND, AND CONFORM TO 710.14.

STEEL POSTS SHALL BE NOMINAL PIPE SIZE 2 INCHES I.D., AND CONFORM TO AASHTO M 181.

ALL HARDWARE INCLUDING BUT NOT LIMITED TO PLATES, SCREWS, BOLTS, AND ETC. SHALL BE COMMERCIAL-GRADE GALVANIZED STEEL.

POSTS SHALL BE SET PER THE FIRST PARAGRAPH OF 606.03, AND SHALL IN NO INSTANCE BE ENCASED IN CONCRETE.

SUPPORT HARDWARE SHALL ACCOMMODATE EITHER A SINGLE OR A DOUBLE MAILBOX INSTALLATION, AND NO MORE THAN TWO BOXES MAY BE MOUNTED ON A SINGLE POST.

THE MAILBOX SHALL BE SECURELY AND NEATLY ATTACHED BY THE CONTRACTOR TO THE NEW SUPPORT. THE CONTRACTOR SHALL FURNISH ALL NECESSARY ATTACHMENT HARDWARE (NUTS, BOLTS, PLATES, SPACERS, AND WASHERS) AS NECESSARY TO ACCOMMODATE THE COMPLETE INSTALLATION.

IN THE ABSENCE OF A NEW BOX SUPPLIED BY THE OWNER, THE CONTRACTOR SHALL SALVAGE THE EXISTING BOX AND PLACE IT ON THE NEW SUPPORT. DUE CARE SHALL BE EXERCISED IN SUCH AN OPERATION, AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING OR REPLACING ANY BOX DAMAGED BY IMPROPER HANDLING ON HIS PART, AS JUDGED AND DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE LOCAL POST MASTER REGARDING THE TIMING OF THE MOVEMENT OF ANY MAILBOX TO A NEW LOCATION.

PAYMENT UNDER THIS ITEM SHALL BE LIMITED TO FINAL PERMANENT INSTALLATIONS. TEMPORARY INSTALLATIONS SHALL BE IN ACCORDANCE WITH 107.10. HOWEVER, THE SAME MATERIAL AND SIZE LIMITATIONS AS FOR PERMANENT INSTALLATIONS SHALL APPLY.

MAILBOX SUPPORTS, COMPLETE IN PLACE, WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER EACH, FOR ITEM SPECIAL MAILBOX SUPPORT SYSTEM, (SINGLE) (DOUBLE). PAYMENT WILL BE MADE UNDER:

ITEM	UNIT	DESCRIPTION
690	EACH	SPECIAL-MAILBOX SUPPORT SYSTEM SINGLE

THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO SUBSUMMARY FOR THE ABOVE PURPOSE.

SPECIAL MAILBOX SUPPORT SYSTEM SINGLE
LOCATION 2 - 2 EACH

CALCULATED BCT | CHECKED DNM

MAILBOX DETAILS AND QUANTITIES

FAI-37/664-25.01/4.21

13
102

P:/FAI/86847/DESIGN/ROADWAY/Plan_Sheets/GENERAL/86847_GNOTE07.dgn

SR 37 PAVEMENT WIDENING LT

WIDENING LT:

STA. 258+25.00 TO STA. 260+50.00 = 225.00 FT
(225.00)(6.5 avg) = 1463 SF
STA. 260+50.00 TO STA. 261+50.00 = 100.00 FT
(100.00)(8.1 avg) = 810 SF
STA. 261+50.00 TO STA. 263+90.00 = 240.00 FT
(240.00)(6.9 avg) = 1656 SF
STA. 267+50.00 TO STA. 271+50.00 = 400.00 FT
(400.00)(6.8 avg) = 2720 SF
STA. 271+50.00 TO STA. 271+90.00 = 40.00 FT
(40.00)(4.6 avg) = 184 SF

TOTAL AREA WIDENING LT:

1463 + 810 + 1656 + 2720 + 184 = 6833 SF
6833 / 9 = 759.3 SY USE 760 SY

LENGTH WIDENING LT:

225 + 100 + 240 + 400 + 40 = 1005 FT

EXTRA AREA FOR 4" STEP:

1005 x 0.333 / 9 = 37.2 SY USE 38 SY

SR 37 PAVEMENT WIDENING RT

WIDENING RT:

STA. 258+25.00 TO STA. 260+75.00 = 250.00 FT
(250.00)(5.0 avg) = 1250 SF
STA. 265+33.93 TO STA. 266+50.00 = 116.1 FT
(116.1)(4.7 avg) = 546 SF
STA. 266+50.00 TO STA. 267+50.00 = 100.00 FT
(100.00)(7.5 avg) = 750 SF
STA. 267+50.00 TO STA. 269+50.00 = 200.00 FT
(200.00)(9.8 avg) = 1960 SF
STA. 269+50.00 TO STA. 271+50.00 = 200.00 FT
(200.00)(7.4 avg) = 1480 SF
STA. 271+50.00 TO STA. 271+90.00 = 40.00 FT
(40.00)(4.0 avg) = 160 SF

TOTAL AREA WIDENING RT:

1250 + 546 + 750 + 1960 + 1480 + 160 = 6146 SF
6146 / 9 = 682.9 SY USE 683 SY

LENGTH WIDENING RT:

250 + 116.1 + 100 + 200 + 200 + 40 = 906.1 FT

EXTRA AREA FOR 4" STEP:

906.1 x 0.333 / 9 = 33.6 SY USE 34 SY

WIDENING QUANTITIES

ITEM 203 EXCAVATION*
594 CY
ITEM 203 EMBANKMENT*
1689 CY
ITEM 204 SUBGRADE COMPACTION
LT: 760 + (1005)(1.5) / 9 = 927.5 USE 928 SY
RT: 683 + (906.1)(1.5) / 9 = 834.0
TOTAL = 928 + 834 = 1762 SY
ITEM 301 ASPHALT CONCRETE BASE, PG 64-22 (9")
(760 + 38 + 683 + 34) x 0.25 = 378.8 CY
ITEM 407 TACK COAT
(760 + 693) x 0.075 GAL/SY = 108.3 GAL
ITEM 407 TACK COAT FOR INTERMEDIATE COURSE
(760 + 693) x 0.05 GAL/SY = 72.2 GAL
ITEM 448 ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG 64-22
(760 + 693) x 0.049 = 70.7 CY
ITEM 448 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG 70-22M
(760 + 693) x 0.035 = 50.5 CY
ITEM 659 SEEDING AND MULCHING, CLASS 3A*
9192 SY
ITEM 659 COMMERCIAL FERTILIZER
9192 SY x 9 x 20/1000/2000 = 0.83 TON
ITEM 659 LIME
9192 SY / 43,560 = 0.21 ACRE
ITEM 659 WATER
9192 SY x 9/1000 x 120/1000 = 9.9 MGAL

*NOTE: EXCAVATION, EMBANKMENT & SEEDING QUANTITIES CARRIED FROM SHEET 22.

SR 37 RESURFACING/PLANING (EB & WB LANES):

STA. 257+50.00 TO STA. 257+88.00 = 38.00 FT
(38.00)(32.0 avg) = 1216.0 SF (INCLUDES LT & RT PAVED SHOULDERS)
STA. 258+09.00 TO STA. 258+25.00 = 16.00 FT
(16.00)(32.0 avg) = 512.0 SF (INCLUDES LT & RT PAVED SHOULDERS)
STA. 258+25.00 TO STA. 260+75.00 = 250.00 FT
(250.00)(23.9 avg) = 5975.0 SF
STA. 260+75.00 TO STA. 262+50.00 = 175.00 FT
(175.00)(37.1 avg) = 6492.5 SF (INCLUDES RT PAVED SHOULDER)
STA. 262+50.00 TO STA. 263+90.00 = 140.00 FT
(140.00)(25.2 avg) = 3528.0 SF (INCLUDES RT PAVED SHOULDER)
STA. 265+90.85 TO STA. 267+50.00 = 159.15 FT
(159.15)(41.2 avg) = 6557.0 SF (INCLUDES LT PAVED SHOULDER)
STA. 267+50.00 TO STA. 269+50.00 = 200.00 FT
(200.00)(25.3 avg) = 5060.0 SF
STA. 269+50.00 TO STA. 271+50.00 = 200.00 FT
(200.00)(22.1 avg) = 4420.0 SF
STA. 271+50.00 TO STA. 271+90.00 = 40.00 FT
(40.00)(22.5 avg) = 900.0 SF
STA. 271+90.00 TO STA. 275+54.00 = 364.00 FT
(364.00)(30.2 avg) = 10992.8 SF (INCLUDES LT & RT PAVED SHOULDERS)
STA. 275+54.00 TO STA. 275+78.00 = 24.00 FT
(24.00)(44.6 avg) = 1070.4 SF (INCLUDES LT & RT PAVED SHOULDERS)

TOTAL AREA:

1216.0 + 512.0 + 5975.0 + 6492.5 + 3528.0 + 6557.0 + 5060.0 + 4420.0 +
900.0 + 10992.8 + 1070.4 = 46723.7 SF → 46723.7 / 9 = 5191.5 SY USE 5192 SY

ITEM 254 PAVEMENT PLANING ASPHALT CONCRETE
5192 SY
ITEM 407 TACK COAT
5192 x 0.075 GAL/SY = 389.4 GAL
ITEM 407 TACK COAT FOR INTERMEDIATE COURSE
5192 x 0.05 GAL/SY = 259.6 GAL
ITEM 448 ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG 64-22
5192 x 0.049 = 254.4 CY
ITEM 448 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG 70-22M
5192 x 0.035 = 181.7 CY

SR 37 SUBTOTALS CARRIED TO SHEET 16

ITEM 203 EXCAVATION
594 CU.YD.
ITEM 203 EMBANKMENT
1689 CU.YD.
ITEM 204 SUBGRADE COMPACTION
1762 SY
ITEM 254 PAVEMENT PLANING ASPHALT CONCRETE
5192 SY
ITEM 301 ASPHALT CONCRETE BASE, PG 64-22
378.8 CY
ITEM 407 TACK COAT
108.3 + 389.4 = 497.7 GAL
ITEM 407 TACK COAT FOR INTERMEDIATE COURSE
72.2 + 259.6 = 331.8 GAL
ITEM 448 ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG 64-22
70.7 + 254.4 = 325.1 CY
ITEM 448 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG 70-22M
50.5 + 181.7 = 232.2 CY
ITEM 659 SEEDING AND MULCHING, CLASS 3A
9192 SO.YD.
ITEM 659 COMMERCIAL FERTILIZER
0.83 TON
ITEM 659 LIME
0.21 MACRE
ITEM 659 WATER
9.9 MGAL

CALCULATED BCT | CHECKED DNM

PAVEMENT CALCULATIONS LOCATION 1: SR 37

FAI-37/664-25.01/4.21

SR 664 PAVEMENT WIDENING LT

WIDENING LT:

STA. 13+30.00 TO STA. 13+80.00 = 50.00 FT
(50.00)(4.1 avg) = 205 SF
STA. 13+80.00 TO STA. 14+23.00 = 43.00 FT
(43.00)(6.2 avg) = 267 SF
STA. 14+52.00 TO STA. 15+80.00 = 128.00 FT
(128.00)(8.6 avg) = 1101 SF
STA. 15+80.00 TO STA. 17+15.00 = 135.00 FT
(135.00)(11.0 avg) = 1485 SF
STA. 17+15.00 TO STA. 18+68.15 = 153.15 FT
(153.15)(12.1 avg) = 1854 SF
SW & NW RETURNS 2014 SF (SEE SHT 49)
STA. 20+61.62 TO STA. 24+30.00 = 368.38 FT
(368.38)(14.0 avg) = 5158 SF
STA. 24+30.00 TO STA. 28+00.00 = 370.00 FT
(370.00)(11.6 avg) = 4292 SF
STA. 28+00.00 TO STA. 28+50.00 = 50.00 FT
(50.00)(4.8 avg) = 240 SF

TOTAL AREA WIDENING LT:

205 + 267 + 1101 + 1485 + 1854 + 2014 + 5158 + 4292 + 240
= 16616 SF → 16616 / 9 = 1846.2 SY USE 1847 SY

SECTION LENGTHS:

50 + 43 + 128 + 135 + 153.15 + 368.38 + 370 + 50 = 1297.53 FT

LENGTH ALONG PR. E/P OF SW & NW RETURNS:

L2 + L4 = 199.4 FT (SEE SHT 49)

TOTAL LENGTH WIDENING LT:

1297.53 + 199.4 = 1497 FT

EXTRA AREA FOR 4" STEP:

1497 x 0.333 / 9 = 55.4 SY USE 56 SY

SR 664 PAVEMENT WIDENING RT

WIDENING RT:

STA. 13+08.00 TO STA. 13+30.00 = 22.00 FT
(22.00)(3.8 avg) = 84 SF
STA. 13+30.00 TO STA. 14+23.00 = 93.00 FT
(93.00)(6.4 avg) = 596 SF
STA. 14+52.00 TO STA. 15+80.00 = 128.00 FT
(128.00)(7.8 avg) = 999 SF
STA. 15+80.00 TO STA. 19+38.55 = 358.55 FT
(358.55)(9.3 avg) = 3335 SF
SE & NE RETURNS 2345 SF (SEE SHT 49)
STA. 21+10.00 TO STA. 22+80.00 = 170.00 FT
(170.00)(12.8 avg) = 2176 SF
STA. 22+80.00 TO STA. 27+60.00 = 480.00 FT
(480.00)(9.4 avg) = 4512 SF
STA. 27+60.00 TO STA. 28+50.00 = 90.00 FT
(90.00)(3.6 avg) = 324 SF

TOTAL AREA WIDENING RT:

84 + 596 + 999 + 3335 + 2345 + 2176 + 4512 + 324 = 14371 SF
14371 / 9 = 1596.8 USE 1597 SY

SECTION LENGTHS:

22 + 93 + 128 + 358.55 + 170 + 480 + 90 = 1341.55 FT

LENGTH ALONG PR. E/P OF SE & NE RETURNS:

L1 + L3 = 169.4 FT (SEE SHT 49)

TOTAL LENGTH WIDENING RT:

1341.55 + 169.4 = 1511 FT

EXTRA AREA FOR 4" STEP:

1511 x 0.333 / 9 = 56 SY

*NOTE: EXCAVATION & EMBANKMENT QUANTITIES CARRIED FROM SHEETS 36, 50 AND 70.

*NOTE:
SEEDING QUANTITIES CARRIED FROM SHEETS 36, 49 AND 70.

WIDENING QUANTITIES

ITEM 203 EXCAVATION*
1708 + 144 + 6 = 1858 CY
ITEM 203 EMBANKMENT*
1495 + 438 + 12 = 1945 CY
ITEM 204 SUBGRADE COMPACTION
LT: 1847 + (1497)(1.5) / 9 = 2096.5 USE 2097 SY
RT: 1597 + (1511)(1.5) / 9 = 1848.8 USE 1849
TOTAL = 2097 + 1849 = 3946 SY
ITEM 301 ASPHALT CONCRETE BASE, PG 64-22 (9")
(1847 + 56 + 1597 + 56) x 0.25 = 889.0 CY
ITEM 407 TACK COAT
(1847 + 1597) x 0.075 GAL/SY = 258.3 GAL
ITEM 407 TACK COAT FOR INTERMEDIATE COURSE
(1847 + 1597) x 0.05 GAL/SY = 172.2 GAL
ITEM 448 ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG 64-22
(1847 + 1597) x 0.049 = 168.8 CY
ITEM 448 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG 70-22M
(1847 + 1597) x 0.035 = 120.5 CY
ITEM 659 SEEDING AND MULCHING, CLASS 3A*
8879 + 1004 + 97 = 9980 SY
ITEM 659 COMMERCIAL FERTILIZER
9980 SY x 9 x 20/1000/2000 = 0.90 TON
ITEM 659 LIME
9980 SY / 43,560 = 0.23 ACRE
ITEM 659 WATER
9980 SY x 9/1000 x 120/1000 = 10.8 MGAL

PAVEMENT QUANTITIES AT BOX CULVERT

STA. 14+23.00 TO STA. 14+52.00 = 29.00 FT
(29.00)(35.6 avg) / 9 = 114.7 SY USE 115 SY
ITEM 407 TACK COAT
115 x 0.075 GAL/SY = 8.6 GAL
ITEM 407 TACK COAT FOR INTERMEDIATE COURSE
115 x 0.05 GAL/SY = 5.8 GAL
ITEM 448 ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG 64-22
115 x 0.049 = 5.6 CY
ITEM 448 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG 70-22M
115 x 0.035 = 4.0 CY

STA. 14+23.00 TO STA. 14+32.80 = 9.80 FT
(9.80)(28.0 avg) / 9 = 30.5 SY
STA. 14+42.20 TO STA. 14+52.00 = 9.80 FT
(9.80)(28.6 avg) / 9 = 31.2 SY
ITEM 301 ASPHALT CONCRETE BASE, PG 64-22 (9")
(30.5 + 31.2) x 0.25 = 15.5 CY

STA. 14+32.80 TO STA. 14+42.20 = 9.40 FT
(9.40)(36.3) / 9 = 37.9 SY
ITEM 301 ASPHALT CONCRETE BASE, PG 64-22 (9")
37.9 x 0.22avg = 8.4 CY

SR 664 RESURFACING/PLANING

NB & SB LANES:

STA. 13+08.00 TO STA. 13+30.00 = 22.00 FT
(22.00)(25.1 avg) = 552.2 SF (INCLUDES LT PAVED SHOULDER)
STA. 13+30.00 TO 14+23.00 = 93.00 FT
(93.00)(22.2 avg) = 2064.6 SF
STA. 14+52.00 TO 18+68.15 = 416.15 FT
(416.15)(22.2 avg) = 9238.6 SF
INTERSECTION AREA (CARRIED FROM SHT 49):
15688 SF
STA. 21+10.00 TO STA. 28+50.00 = 740.00 FT
(740.00)(17.1 avg) = 12654.0 SF

TOTAL AREA:

552.2 + 2064.6 + 9238.6 + 15688 + 12654.0 = 40197.4 SF
40197.4 / 9 = 4466.4 SY USE 4467 SY

RESURFACING & PLANING QUANTITIES

ITEM 254 PAVEMENT PLANING ASPHALT CONCRETE
4467 SY
ITEM 407 TACK COAT
4467 x 0.075 GAL/SY = 335.0 GAL
ITEM 407 TACK COAT FOR INTERMEDIATE COURSE
4467 x 0.05 GAL/SY = 223.4 GAL
ITEM 448 ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG 64-22
4467 x 0.049 YD = 218.9 CY
ITEM 448 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG 70-22M
4467 x 0.035 YD = 156.4 CY

SR 664 SUBTOTALS CARRIED TO SHEET 16

ITEM 203 EXCAVATION
1858 CU.YD.
ITEM 203 EMBANKMENT
1945 CU.YD.
ITEM 204 SUBGRADE COMPACTION
3946 SY
ITEM 254 PAVEMENT PLANING ASPHALT CONCRETE
4467 SY
ITEM 301 ASPHALT CONCRETE BASE, PG 64-22
889.0 + 15.5 + 8.4 = 912.9 CY
ITEM 407 TACK COAT
258.3 + 335.0 + 8.6 = 601.9 GAL
ITEM 407 TACK COAT FOR INTERMEDIATE COURSE
172.2 + 223.4 + 5.8 = 401.4 GAL
ITEM 448 ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG 64-22
168.8 + 218.9 + 5.6 = 393.3 CY
ITEM 448 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG 70-22M
120.5 + 156.4 + 4.0 = 280.9 CY
ITEM 659 SEEDING AND MULCHING, CLASS 3A
9980 SQ.YD.
ITEM 659 COMMERCIAL FERTILIZER
0.90 TON
ITEM 659 LIME
0.23 ACRE
ITEM 659 WATER
10.8 MGAL

CALCULATED BCT CHECKED DNM

PAVEMENT CALCULATIONS LOCATION 2, SR 664

FAI-37/664-25.01/4.21

P:\FAI\86847\DESIGN\ROADWAY\PLAN_SHEETS\GENERAL\86847_CALC02.DGN

ITEM	DESCRIPTION	SUBTOTAL LOCATION 1: SR 37 CARRIED FROM SHEET 14	SUBTOTAL LOCATION 2: SR 664 CARRIED FROM SHEET 15
203	EXCAVATION	594	1858
203	EMBANKMENT	1686	1945
204	SUBGRADE COMPACTION	1762	3946
254	PAVEMENT PLANING ASPHALT CONCRETE	5192	4467
301	ASPHALT CONCRETE BASE, PG 64-22	378.8	912.9
407	TACK COAT	497.7	601.9
407	TACK COAT FOR INTERMEDIATE COURSE	331.8	401.4
448	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG 64-22	325.1	393.3
448	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG 70-22M	232.2	280.9
659	SEEDING AND MULCHING, CLASS 3A	9192	9980
659	COMMERCIAL FERTILIZER	0.83	0.90
659	LIME	0.21	0.23
659	WATER	9.9	10.8

SUBTOTALS CARRIED TO SUBSUMMARIES

CALCULATED BCT
CHECKED DNM

SR 37 & SR 664 PAVEMENT CALCULATION TOTALS

FAI-37/664-25.01/4.21

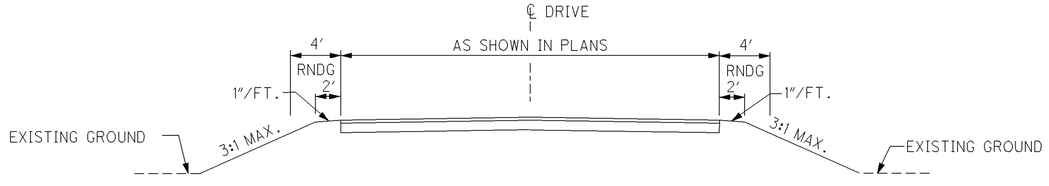
P:\FAI\86847\DESIGN\ROADWAY\PLAN_SHEETS\GENERAL\86847_CALC03.DGN

LOCATION 1 DRIVE CALCULATIONS

MARK	SHEET	STATE ROUTE	STATION	SIDE	DRIVE TYPE	AREA	304		203	
							DEPTH	AGGREGATE BASE	EXCAVATION	EMBANKMENT
						CU. YD.	INCH	CU. YD.	CU. YD.	CU. YD.
D6	19	37	259+00.00	LT	FIELD	63	6	10.5	10	2
D7	19	37	259+00.00	RT	FIELD	66	6	11.0	11	3
		SUBTOTALS LOCATION 1 CARRIED TO SUBSUMMARY						21.5	21	5

LOCATION 2 DRIVE CALCULATIONS

MARK	SHEET	STATE ROUTE	STATION	SIDE	DRIVE TYPE	AREA	407		301				448		203	
							TACK COAT @ 0.04 GAL/SY		DEPTH	BITUMINOUS AGGREGATE BASE, PG 64-22 (DRIVEWAYS)	DEPTH	BITUMINOUS AGGREGATE BASE, PG 64-22 (DRIVEWAYS)	DEPTH	SURFACE COURSE, TYPE 1, PG 64-22 (DRIVEWAYS)	EXCAVATION	EMBANKMENT
						SQ. YD.	GAL.		INCH	CU. YD.	INCH	CU. YD.	INCH	CU. YD.	CU. YD.	CU. YD.
D1	33	664	14+14.0	LT	COMMERCIAL	100	4.0				4.75	13.2	1.25	3.5	14	3
D2	33	664	15+81.1	RT	RESIDENTIAL	66	2.7		3.75	6.9			1.25	2.3	5	18
D3	34	664	18+05.1	RT	COMMERCIAL	68	2.8				4.75	9.0	1.25	2.4	17	3
D4	35	664	23+60.0	RT	COMMERCIAL	174	7.0				4.75	23.0	1.25	6.1	16	15
D5	35	664	26+61.8	LT	COMMERCIAL	125	5.0				4.75	16.5	1.25	4.4	12	3
		SUBTOTALS ITEM 301 BITUMINOUS AGGREGATE BASE								6.9		61.7				
		SUBTOTALS LOCATION 2 CARRIED TO SUBSUMMARY					21.5		68.6					18.7	64	42



RESIDENCE DRIVE

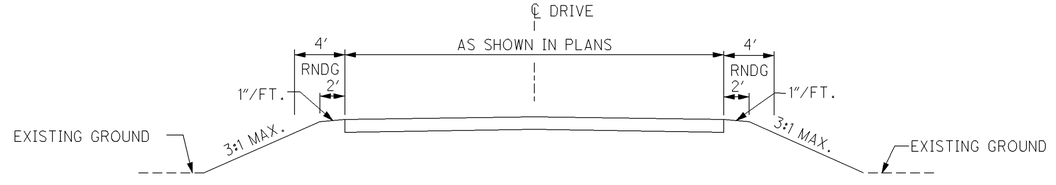
1¼″ - ITEM 448 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG 64-22 (DRIVEWAYS)

3¾″ - ITEM 301 BITUMINOUS AGGREGATE BASE, PG 64-22 (DRIVEWAYS)

COMMERCIAL DRIVE

1¼″ - ITEM 448 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG 64-22 (DRIVEWAYS)

4¾″ - ITEM 301 BITUMINOUS AGGREGATE BASE, PG 64-22 (DRIVEWAYS)



FIELD DRIVE

6″ - ITEM 304 AGGREGATE BASE

CALCULATED BCT CHECKED DNM

PROPOSED DRIVE TYPICALS AND CALCULATIONS

FAI-37/664-25.01/4.21

17
102

P:\FAI\86847\DESIGN\ROADWAY\PLAN_SHEETS\GENERAL\86847_DRIVES.DGN

REF NO.	SHEET NO.	LOCATION	FROM		TO		SIDE	606					626		202	
								GUARDRAIL, TYPE 5		ANCHOR ASSEMBLY, TYPE A	ANCHOR ASSEMBLY, TYPE T		BARRIER REFLECTOR, TYPE A		GUARDRAIL REMOVED	
								TANGENT RAIL	RADIUS RAIL							
			STATION	OFFSET	STATION	OFFSET		FT	FT	EACH	EACH		EACH		FT	
GR1	33	SR 664	14+26.26	44.7′	14+51.55	21.9′	LT		37.5′@25′R		1					
GR1	33,34	SR 664	14+51.55	21.9′	16+89.02	26.0′	LT	237.5		1			6			
GR1	34	SR 664	16+89.02	26.0′	17+14.02	26.0′	LT									
R2	33	SR 664	14+27.95	34.8′	14+84.11	18.5′	LT								70	
R3	33	SR 664	13+95.95	16.5′	14+85.15	18.1′	RT								90	
SUBTOTALS								237.5	37.5							
TOTALS CARRIED TO LOCATON 2 SUBSUMMARY								275.0		1	1		6		160	

LOCATION OF GUARDRAIL

THE LOCATION OF PROPOSED GUARDRAIL SHALL BE AS SHOWN IN PLAN SHEETS AND SUBJECT TO ADJUSTMENT PRIOR TO FINAL ACCEPTANCE.

CALCULATED BCT
CHECKED DNM

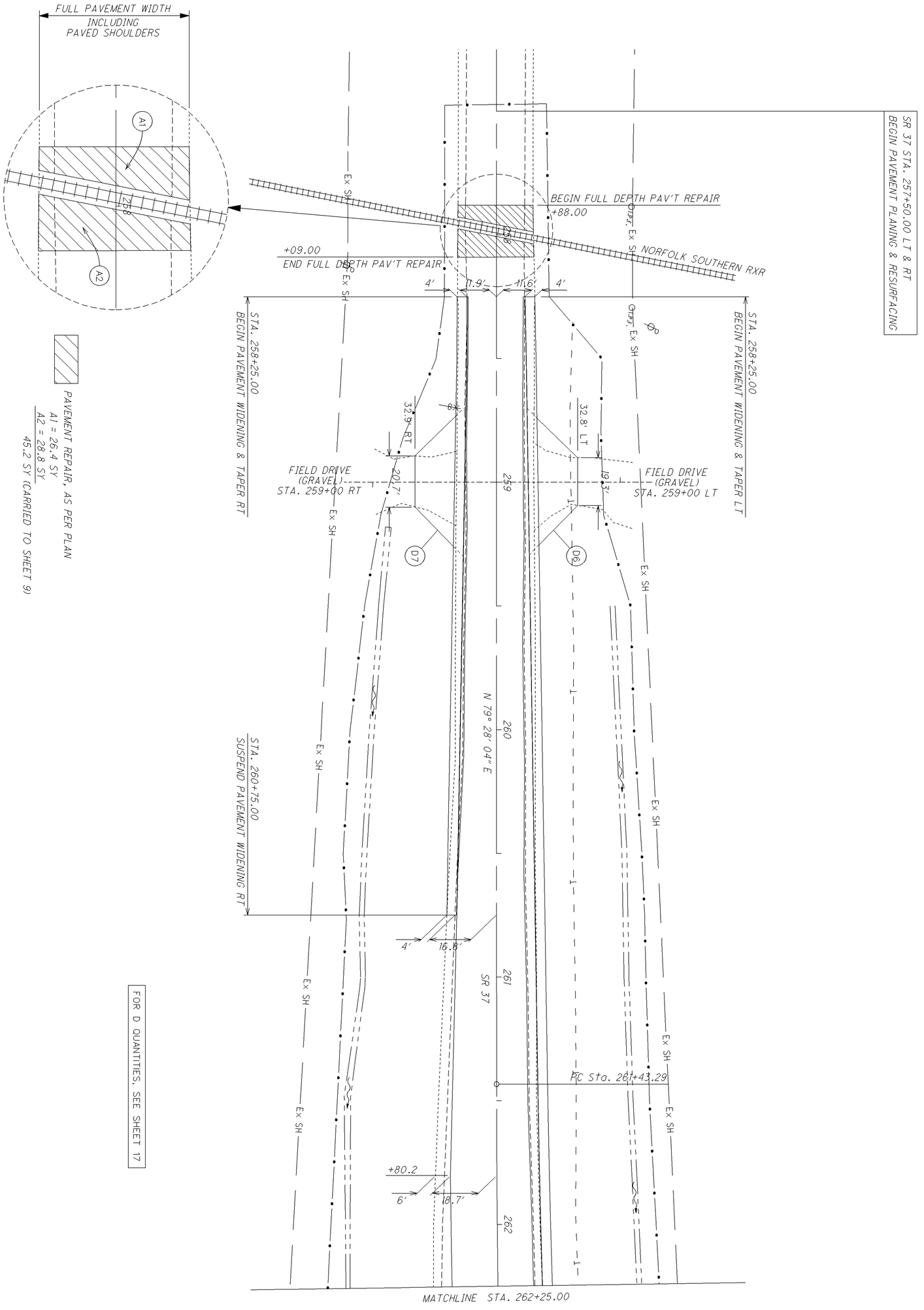
GUARDRAIL TABLE - LOCATION 2 (SR 664)

GUARDRAIL

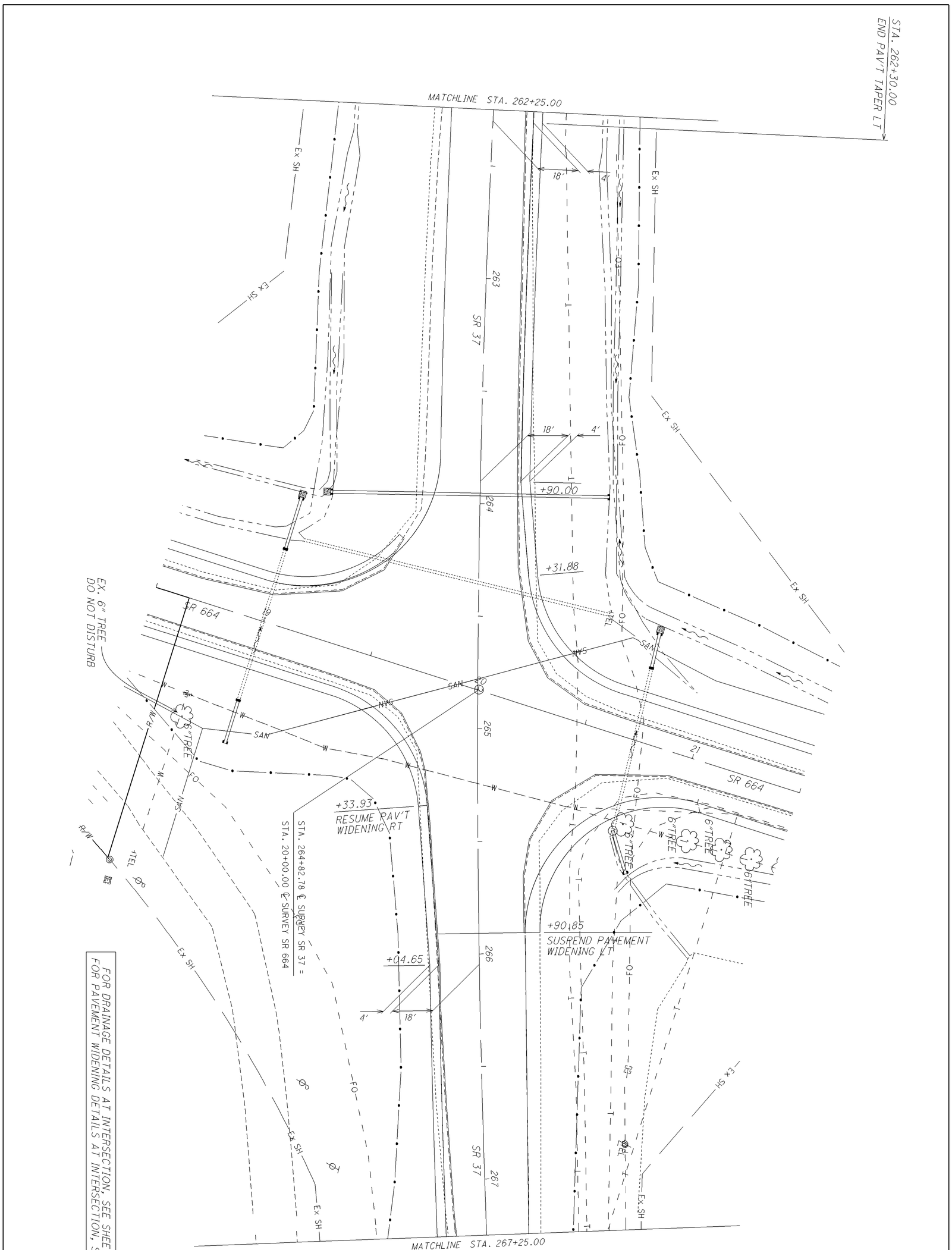
FAI-37/664-25.01/4.21

P:\FAI\86847\DESIGN\ROADWAY\PLAN_SHEETS\GENERAL\GUARDRAIL_01.DGN

P:\FAI\86847\DESIGN\ROADWAY\PALN_SHEETS\PLAN_PROFILE\86847_SR37_PLAN01.DGN

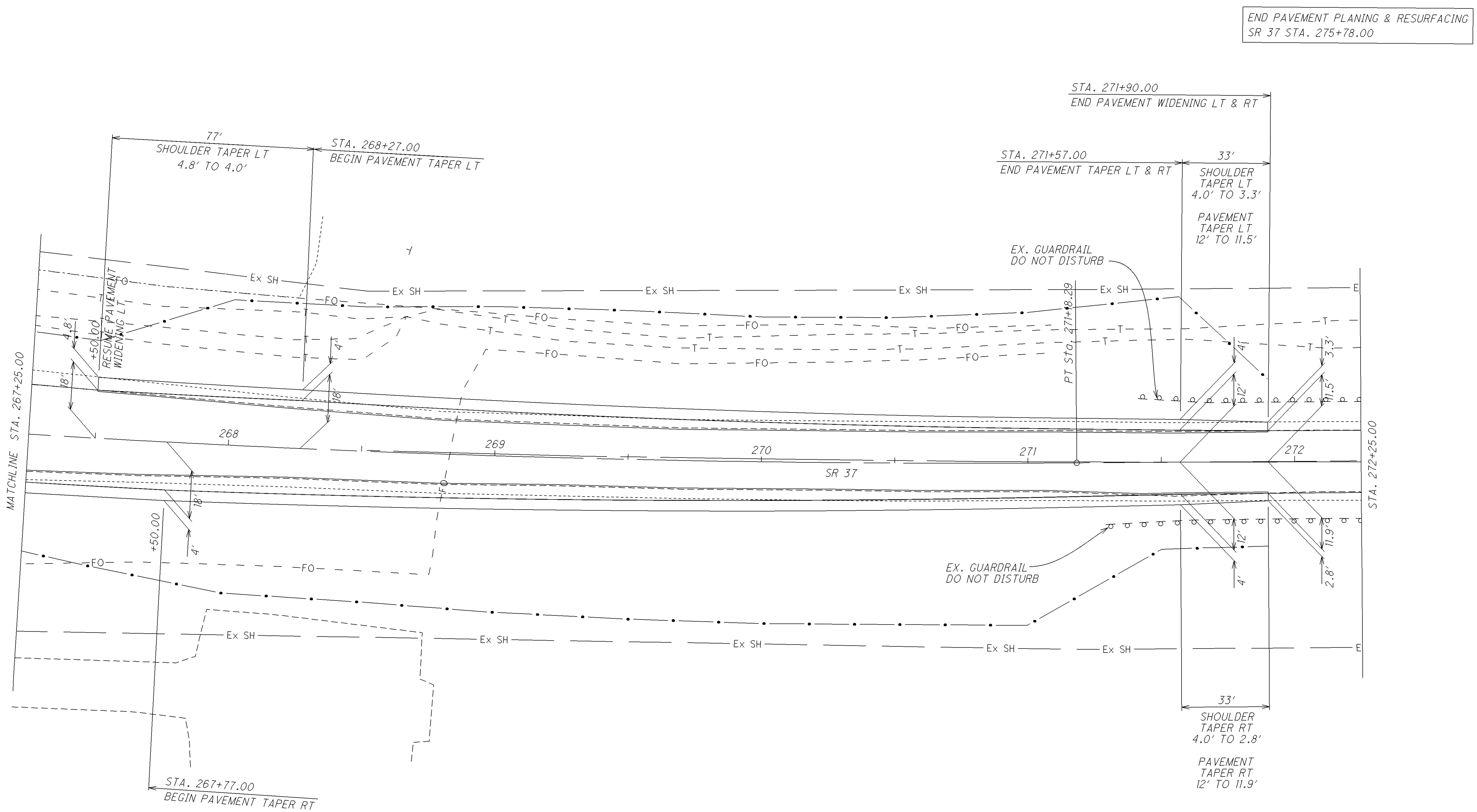


P:\FAI\86847\DESIGN\ROADWAY\PALN_SHEETS\PLAN_PROFILE\86847_SR37_PLAN02.DGN



FOR DRAINAGE DETAILS AT INTERSECTION, SEE SHEETS 34 & 54
FOR PAVEMENT WIDENING DETAILS AT INTERSECTION, SEE SHEET 49

20/102	FAI-37/664-25.01/4.21	PLAN SHEET SR 37 STA. 262+25.00 TO STA. 267+25.00	CALCULATED BCT CHECKED DNM	0 10 20 40 HORIZONTAL SCALE IN FEET



HORIZONTAL SCALE IN FEET: 0 10 20 40

CALCULATED BCT
CHECKED DNM

PLAN SHEET SR 37

STA. 267+25.00 TO STA. 272+25.0

FAI-37/664-25.01/4.21

P:\FAI\86847\DESIGN\ROADWAY\PALN_SHEETS\PLAN_PROFILE\86847_SR37_PLAN03.DGN

SEEDING END WIDTH	SEEDING SQ. YDS.
	367
49	
	317
65	
	146
40	
50	
20	
0	
	880
	9192

65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60

G/T = AREA OF SUBGRADE EXCAVATION & GRANULAR MATERIAL CONSTRUCTION (FOR QUANTITIES, SEE SHEETS 73-75)

820 / 815 / 810 / 805 / 800

END DRIVE 32.8′ LT — BEGIN DRIVE 12.8′ LT — 12.8′ — 12.9′ — BEGIN DRIVE 12.9′ RT — END DRIVE 32.9′ RT

16′ VC PVI 0+21.3 EL=812.11′

16′ VC PVI 0+20.9 EL=811.94′

EARTHWORK QUANTITIES FOR DRIVES AT STA 259+00.00 LT/RT ARE SHOWN ON SHT 17.

809.81 — -20.0% — 812.45 — -4.0% — 812.26 — -4.0% — -16.0% — 810.02

EX SH

C-6 — G/T-12 — 5.9′ — 22.9′ — C-6 — G/T-10 — 4.9′

FIELD DRIVE — FIELD DRIVE

Ex. Telephone

812.61
259+00.00
812.51

12′ — 12′

F-13 — 4:1 — C-7 — G/T-11 — 5.3′ — 11.5′ — C-6 — G/T-9 — 4.5′ — F-14 — 4:1

Ex. Telephone

812.76
258+50.00
812.66

BEGIN PAVEMENT TAPER STA 258+25.00 LT

11.6′ — 11.9′

C-7 — G/T-10 — 4.8′ — 11.4′ — C-6 — G/T-9 — 4.5′ — F-9 — 4:1

812.79
258+25.00
812.69

BEGIN PAVEMENT WIDENING STA 258+25.00 LT & RT

BEGIN PAVEMENT PLANING & RESURFACING STA 257+50.00

TOTAL CARRIED TO SHTS 14

TOTALS CARRIED TO SHTS 14

℄ SURVEY & CONSTRUCTION SR 37

	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
			18	42
STA. 259+20.00 A	16	37		
STA. 259+20.00 B	12	0		
			18	0
STA. 258+80.00 A	12	0		
STA. 258+80.00 B	13	27		
			15	30
	13	27		
			12	17
STA. 258+25.00 A	13	9		
STA. 258+25.00 B	0	9		
			0	3
STA. 258+10.00 A	0	0		
STA. 258+10.00 B				
SHT TOTAL			63	92
TOTAL SHTS 22-31			594	1689

CALCULATED BCT — CHECKED DNM

CROSS SECTIONS SR 37
STA. 258+25.00 TO STA. 259+00.00

FAI-37/664-25.01/4.21

22
102

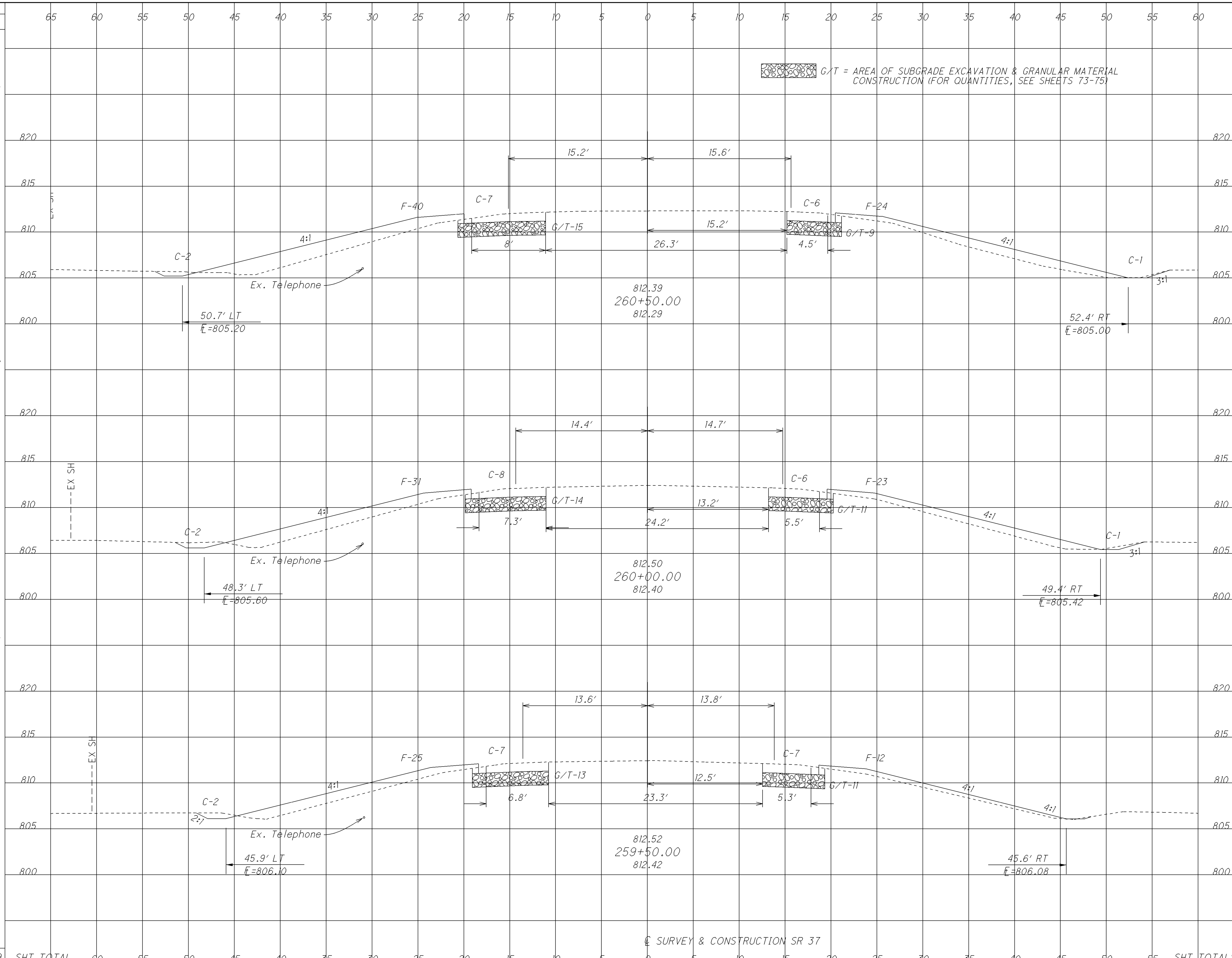
P:/FAI/86847/Design/Roadway/Plan_Sheets/Cross_Sections/FAI_37_pxs.dgn

CROSS SECTIONS SR 37
STA. 259+50.00 TO STA. 260+50.00

FAI-37/664-25.01/4.21

CALCULATED BCT — CHECKED DNM

SEEDING END WIDTH	SEEDING SQ. YDS.
	248
92	
	503
89	
	478
83	
	1229



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		15	54
16	64		
		31	110
17	54		
		31	85
16	37		
		77	249

P:/FAI/86847/Design/Roadway/PlanSheets/Cross_Sections/FAI_37_pxs.dgn

SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	262			19	87
46		10	40		
	256			20	74
46		11	40		
	128			11	37
46	STA. 260+75.00 A	11	40		
86	STA. 260+75.00 B	15	52		
	646 SHT TOTAL			50	198 SHT TOTALS

CALCULATED BCT
CHECKED DNM

G/T = AREA OF SUBGRADE EXCAVATION & GRANULAR MATERIAL CONSTRUCTION (FOR QUANTITIES, SEE SHEETS 73-75)

16.7′ | F-44 | C-7 | G/T-15 | 8.1′ | 12.6′ | 4:1 | C-3 | 53.2′ LT ℄=804.80 | Ex. Telephone | 812.58 261+50.00 812.48

15.9′ | F-40 | C-8 | G/T-15 | 7.9′ | 12′ | 4:1 | C-3 | 51.9′ LT ℄=805.00 | Ex. Telephone | 812.49 261+00.00 812.39

15.6′ | 16.3′ | SUSPEND PAVEMENT WIDENING STA 260+75.00 RT | F-40 | C-7 | G/T-15 | 8.1′ | 27.7′ | C-5 | F-12 | G/T-8 | 3.8′ | 16.3′ | 4:1 | C-3 | 51.5′ LT ℄=805.10 | Ex. Telephone | 53.5′ RT ℄=804.92 | 812.27 260+75.00 812.17

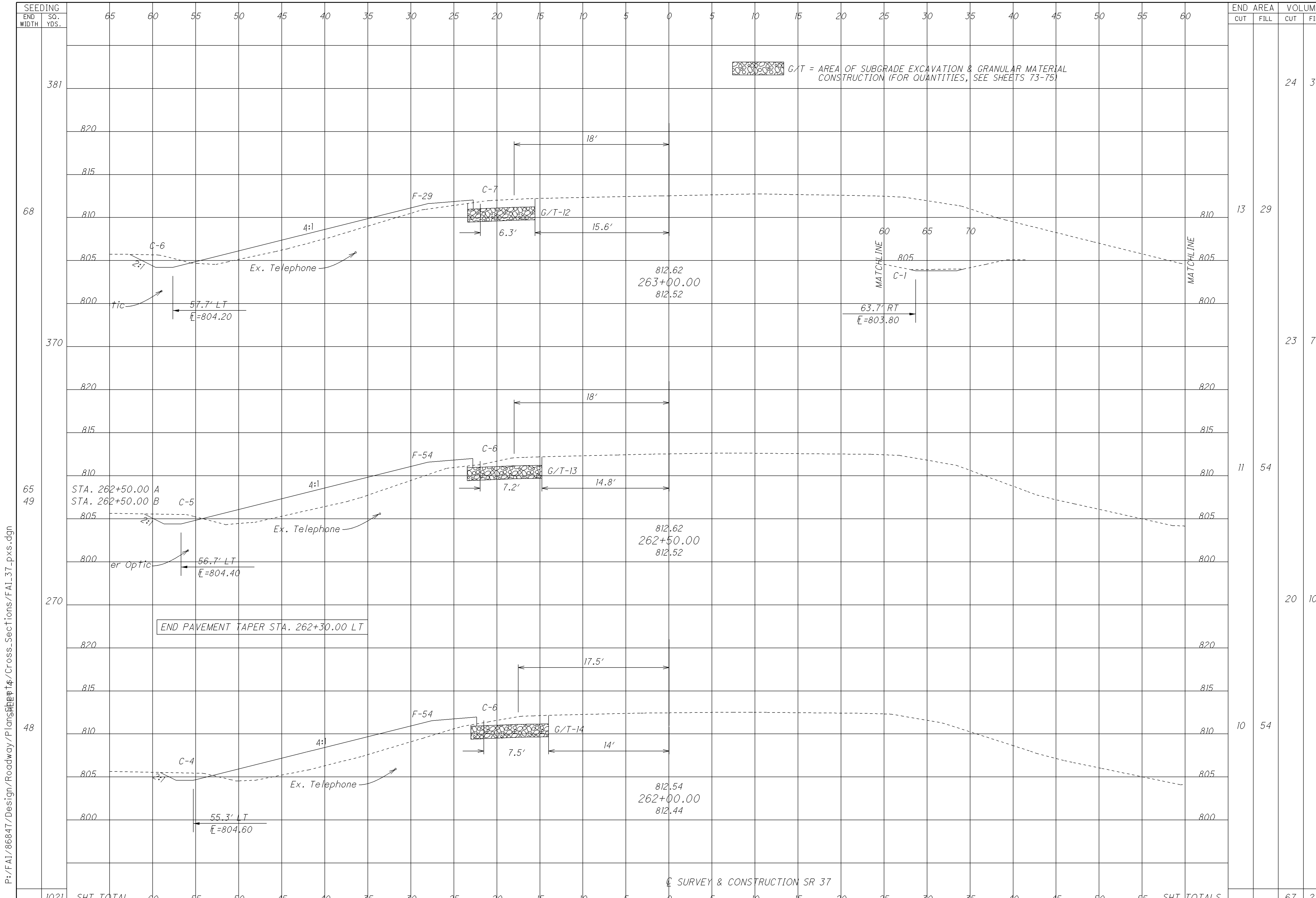
℄ SURVEY & CONSTRUCTION SR 37

CROSS SECTIONS SR 37 STA. 260+75.00 TO STA. 261+50.00

FAI-37/664-25.01/4.21

24
102

P:\FAI\86847\Design\Roadway\Plans\Sheets\Cross Sections\FAI_37_pxs.dgn

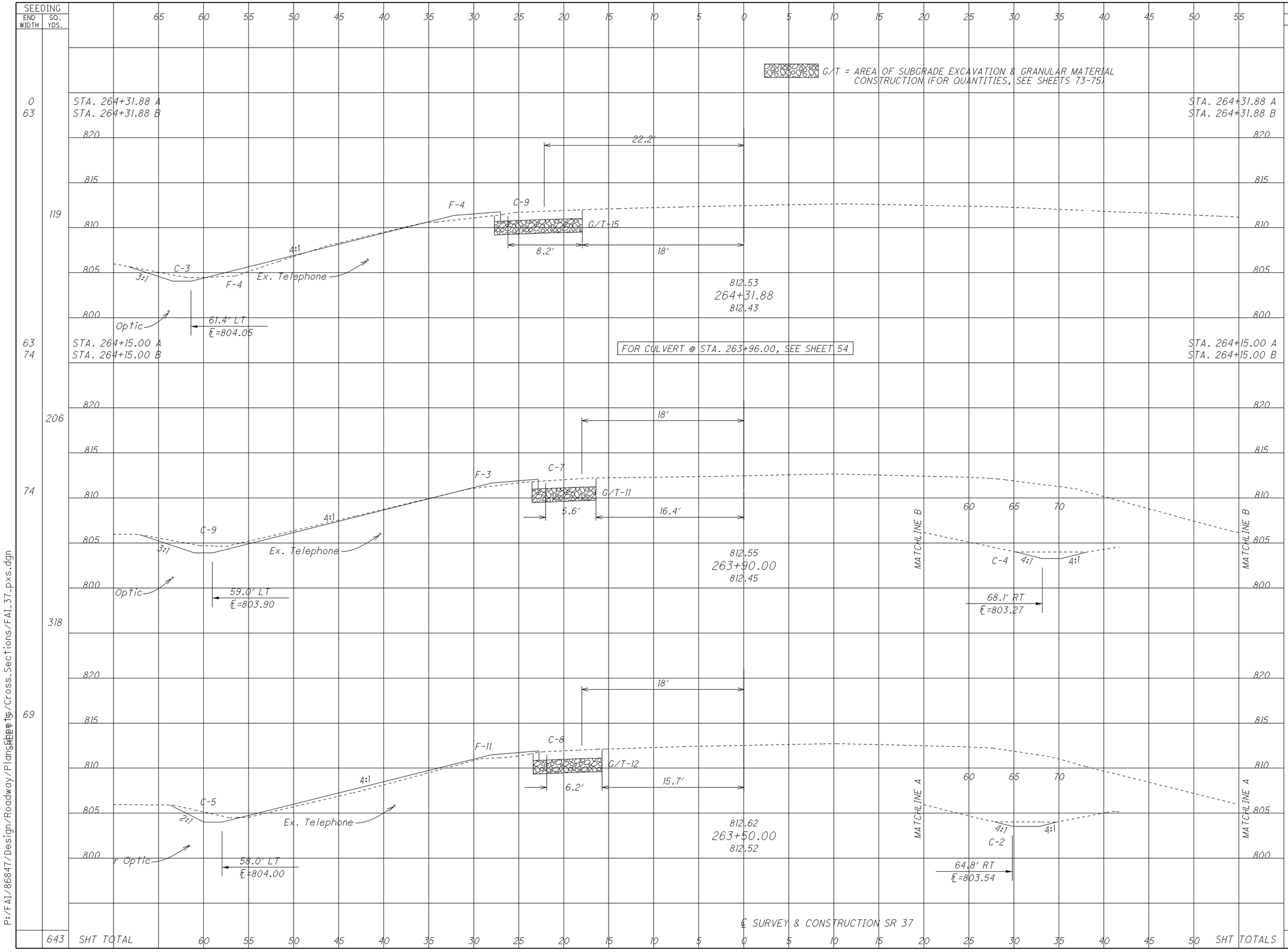


CALCULATED BCT
CHECKED DNM

CROSS SECTIONS SR 37
STA. 262+00.00 TO STA. 263+00.00

FAI-37/ 664-25.01/ 4.21

SEEDING END WIDTH	SEEDING SQ. YDS.		END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0		STA. 264+31.88 A	0	0		
63	119	STA. 264+31.88 B	12	4	8	3
63		STA. 264+15.00 A	12	4		
74	206	STA. 264+15.00 B	16	3	15	3
74		STA. 263+90.00 A	16	3		
69	318	STA. 263+90.00 B	13	11	22	11
		STA. 263+50.00 A				
	643	SHT TOTAL			45	17

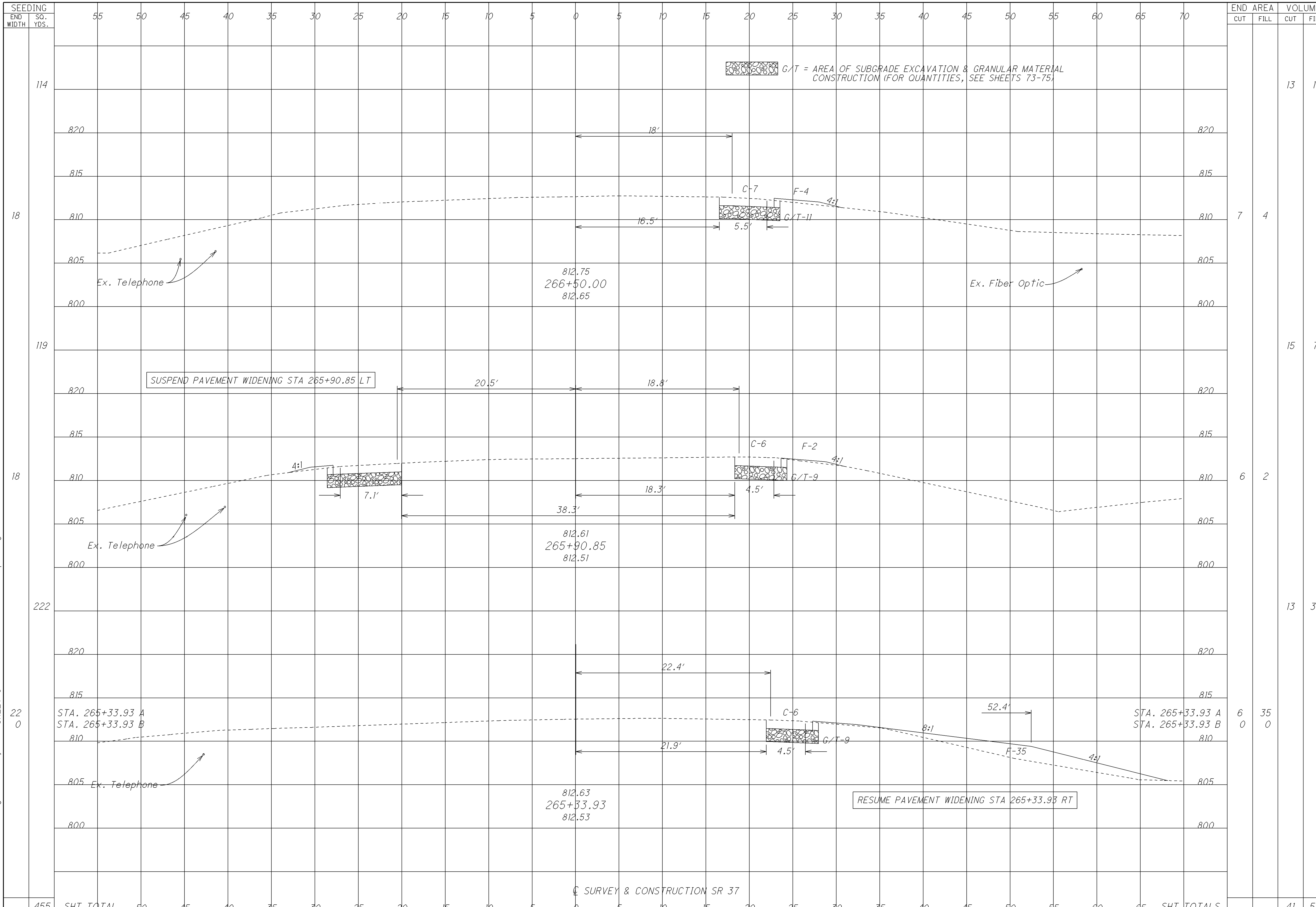


P:/FAI/86847/Design/Roadway/Plans/Sheets/Cross_Sections/FAI_37_pxs.dgn

CALCULATED BCT
CHECKED DNM

CROSS SECTIONS SR 37
STA. 263+50.00 TO STA. 264+31.88

FAI-37/664-25.01/4.21

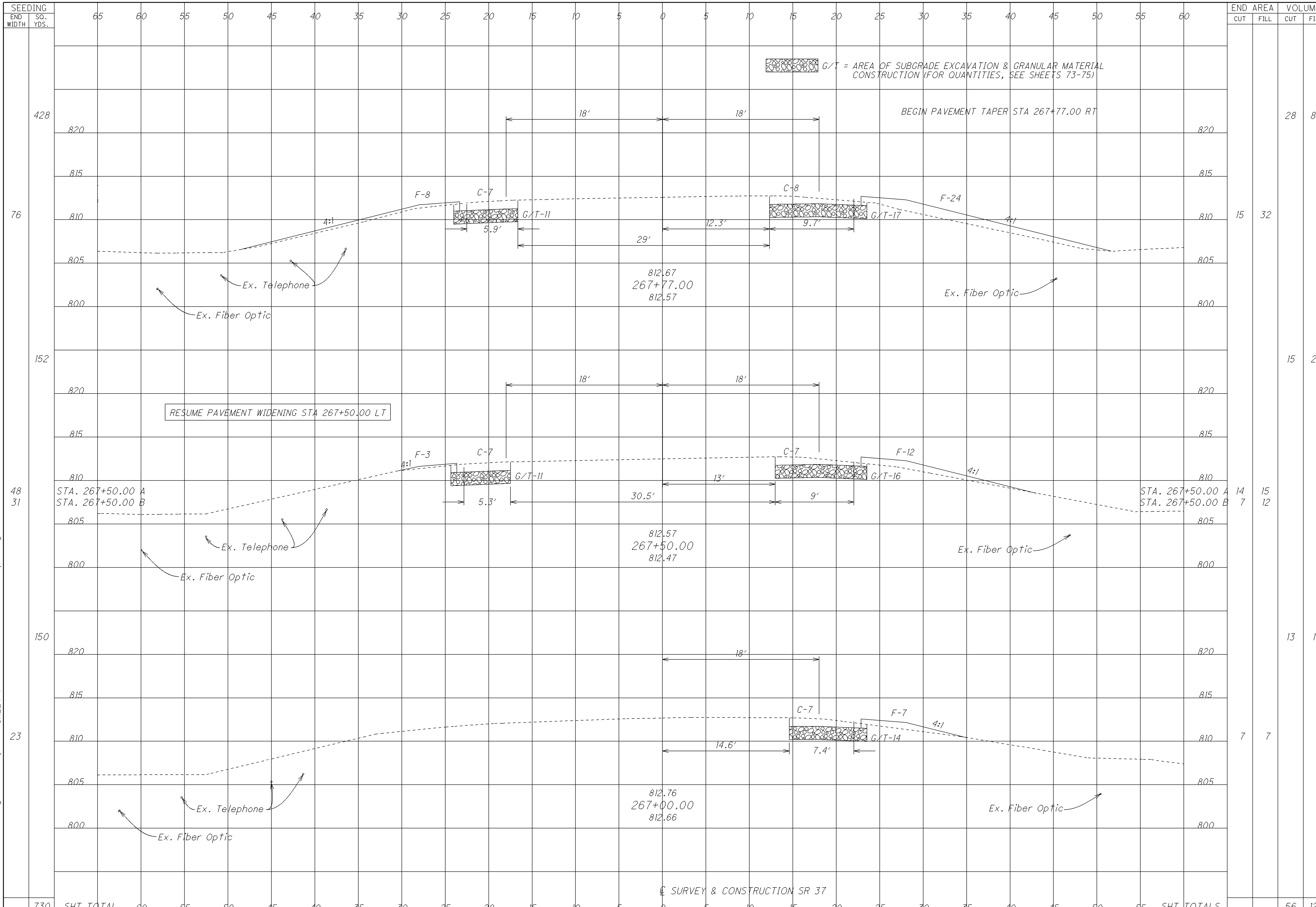


CALCULATED BCT
CHECKED DNM

CROSS SECTIONS SR 37
STA. 265+33.93 TO STA. 266+50.00

FAI-37/664-25.01/4.21

P:/FAI/86847/Design/Roadway/PlanSheets/Cross_Sections/FAI_37_pxs.dgn



CALCULATED BCT
CHECKED DNM

CROSS SECTIONS SR 37
STA. 267+00.00 TO STA. 268+00.00

FAI-37/664-25.01/4.21

SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
87	487	16	72	29	122
84	475	16	60	30	123
78	657	15	58	42	160
	1619 SHT TOTAL			101	405 SHT TOTALS

CALCULATED BCT
CHECKED DNM

G/T = AREA OF SUBGRADE EXCAVATION & GRANULAR MATERIAL CONSTRUCTION (FOR QUANTITIES, SEE SHEETS 73-75)

EX SH
F-38
4:1
C-8
G/T-14
15.8′
19.3′
7.8′
22.2′
10.2′
9.1′
C-8
G/T-16
F-34
4:1
Ex. Telephone
Ex. Fiber Optic
Ex. Fiber Optic
813.50
269+50.00
813.40

F-31
4:1
C-8
G/T-15
16.7′
16.1′
8.2′
23′
10.5′
9.6′
C-8
G/T-17
F-29
4:1
Ex. Telephone
Ex. Fiber Optic
813.18
269+00.00
813.08

BEGIN TAPER STA. 268+27.00 LT
EX SH
F-24
4:1
C-7
G/T-14
18′
17.2′
7.2′
25.7′
10.9′
10.3′
C-8
G/T-18
F-34
4:1
Ex. Fiber Optic
Ex. Telephone
Ex. Fiber Optic
812.83
268+27.00
812.73

℄ SURVEY & CONSTRUCTION SR 37

P:/FAI/86847/Design/Roadway/Plans/Sheets/Cross_Sections/FAI_37_pxs.dgn

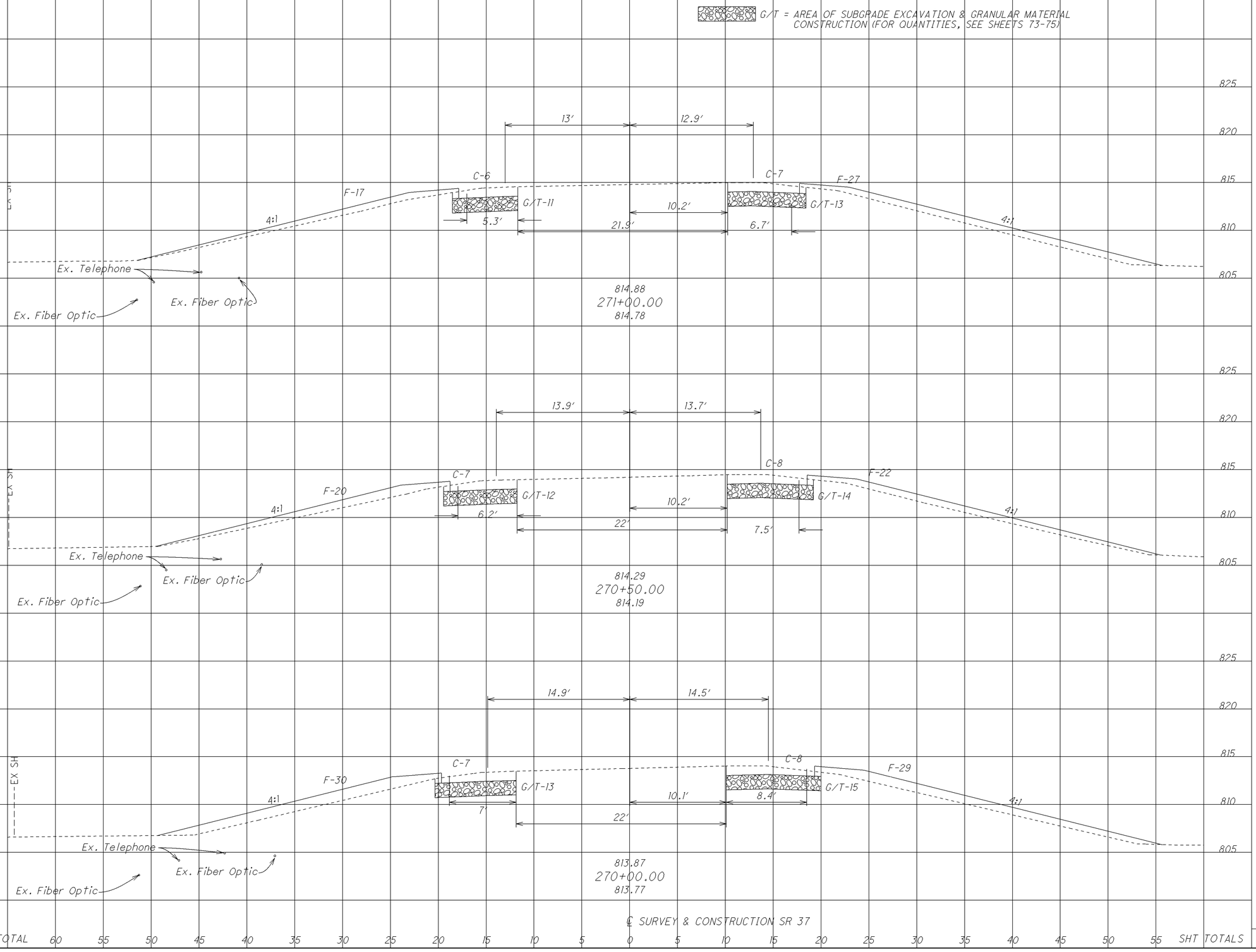
CROSS SECTIONS SR 37
STA. 268+50.00 TO STA. 269+50.00

FAI-37/664-25.01/4.21

29
102

SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	550			24	91
94		13	44		
	512			26	80
90		15	42		
	495			28	94
88		15	59		
	1557 SHT TOTAL			78	265 SHT TOTALS

G/T = AREA OF SUBGRADE EXCAVATION & GRANULAR MATERIAL CONSTRUCTION (FOR QUANTITIES, SEE SHEETS 73-75)



CALCULATED BCT
CHECKED DNM

CROSS SECTIONS SR 37
STA. 270+00.00 TO STA. 271+00.00

FAI-37/664-25.01/4.21

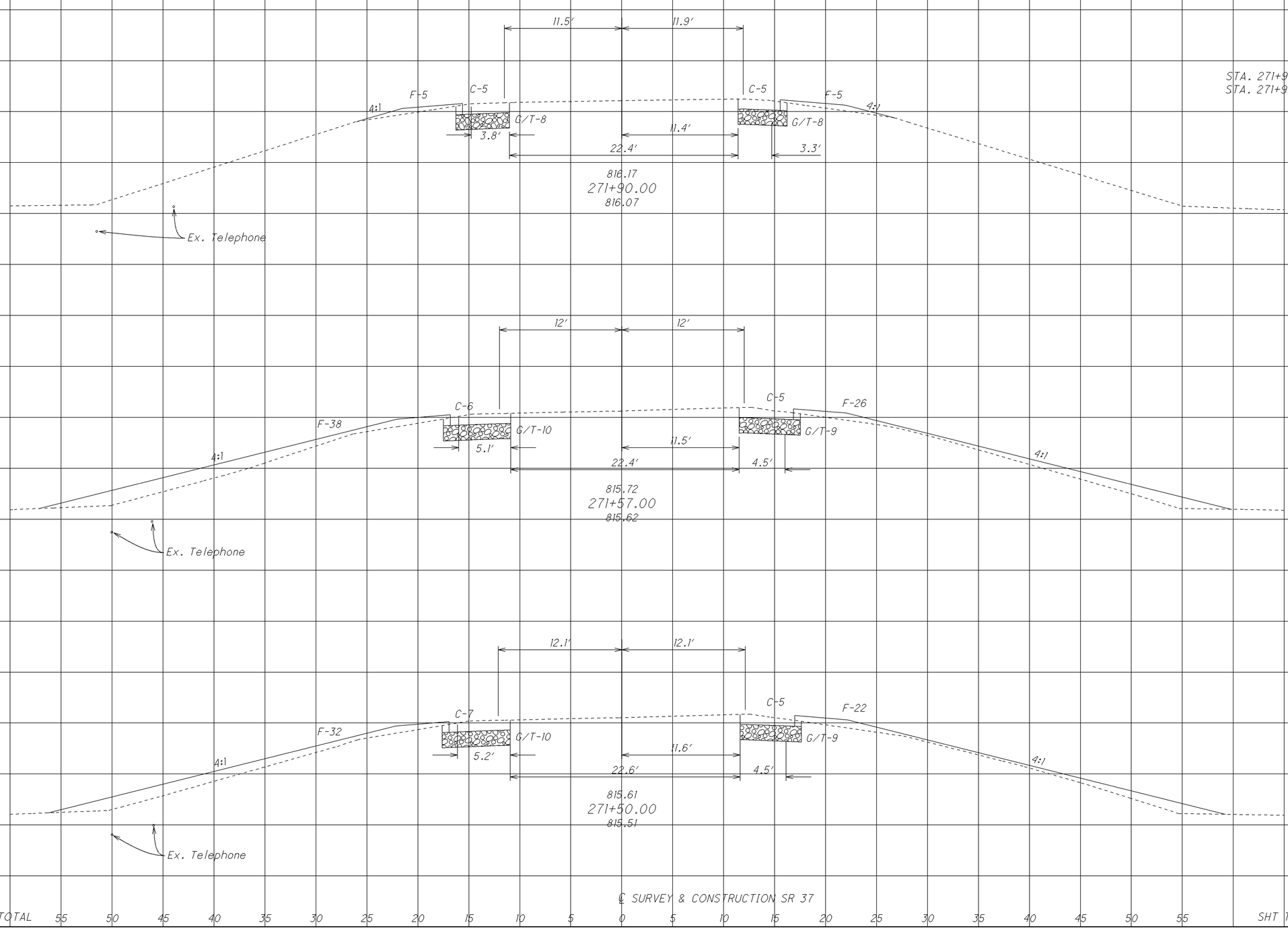
30
102

P:\FAI\86847\Design\Roadway\Plans\Sheets\Cross_Sections\FAI_37_pxs.dgn

SEEDING END WIDTH	SEEDING SQ. YDS.	
0		STA. 272+05.00 A
30		STA. 272+05.00 B
	60	
42		
	270	
105		
	82	
104		
	412	SHT TOTAL

END PAVEMENT PLANING & RESURFACING STA. 271+90.00 LT & RT
END PAVEMENT TAPER & WIDENING STA. 271+90.00 LT & RT

G/T = AREA OF SUBGRADE EXCAVATION & GRANULAR MATERIAL CONSTRUCTION (FOR QUANTITIES, SEE SHEETS 73-75)



℄ SURVEY & CONSTRUCTION SR 37

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
STA. 272+05.00 A	0	0	
STA. 272+05.00 B	0	3	
		0	4
STA. 271+90.00 A	0	10	
STA. 271+90.00 B	10	10	
		13	46
	11	64	
		3	16
	12	54	
SHT TOTALS		16	66

CALCULATED BCT
CHECKED DNM

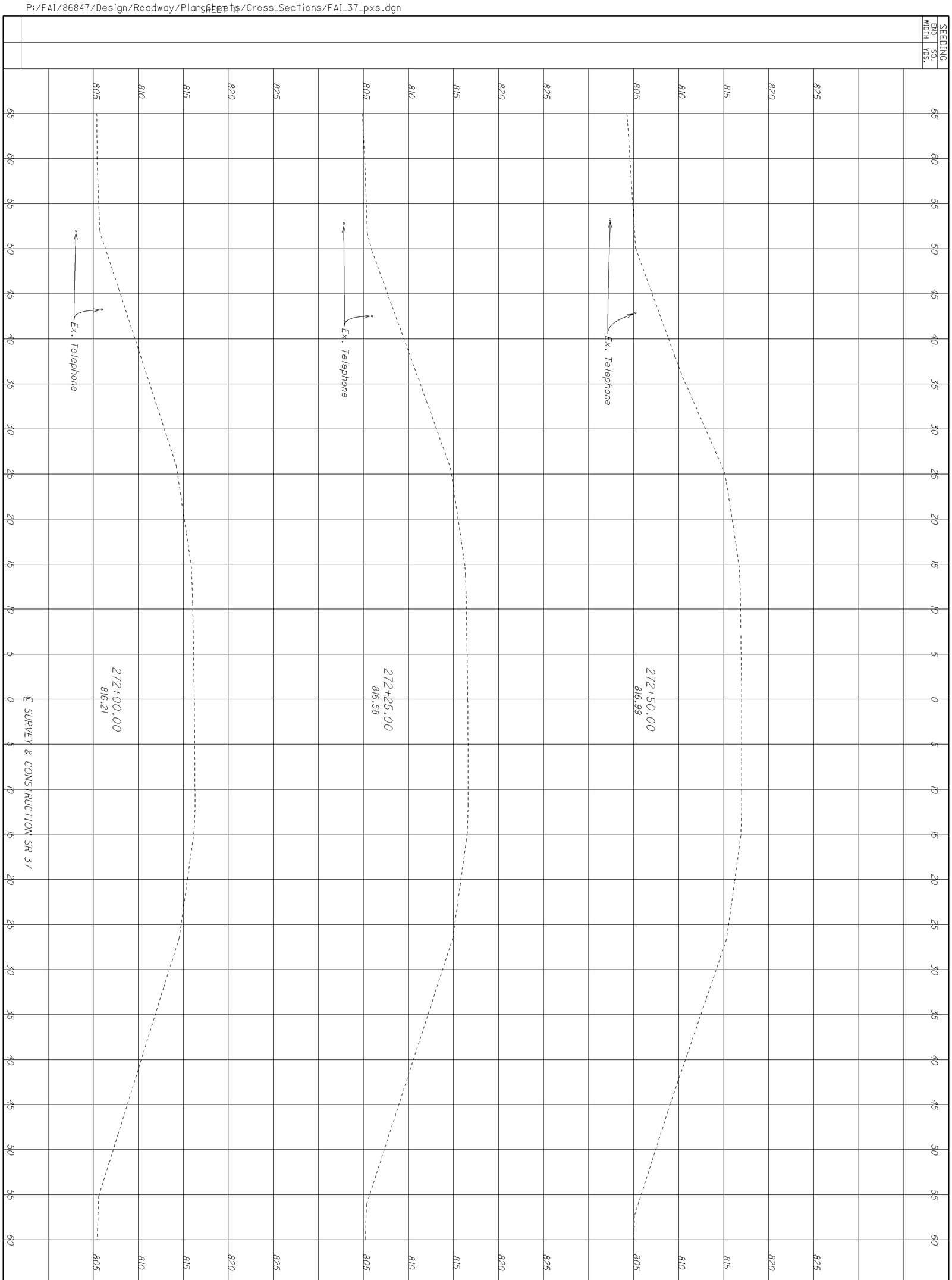
CROSS SECTIONS SR 37
STA. 271+50.00 TO STA. 271+90.00

FAI-37/664-25.01/4.21

31
102

P:/FAI/86847/Design/Roadway/Plan_Sheets/Cross_Sections/FAI_37_pxs.dgn

P:/FAI/86847/Design/Roadway/PlanSheets/Cross_Sections/FAI_37_pxs.dgn



32 / 102	**FAI-37 / 664-25.01 / 4.21**	**CROSS SECTIONS SR 37** **STA. 272+00.00 TO STA. 272+50.00**

CALCULATED BCT
CHECKED DNM

BENCHMARK #1
TOP OF 5/8 INCH REBAR WITH ODOT CAP;
17.74 FEET LEFT OF EXISTING SR 664
℄ SURVEY STATION 14+94.13
ELEVATION = 805.98

SR 664 STA. 13+08.00 LT & RT
BEGIN PAVEMENT PLANING & RESURFACING

(R1) EX. 30" CMP, STA. 14+32.1
42 FT TO BE REMOVED (CROSSING SR 664)

(R4) STA. 14+42.8 RT TO STA. 15+91.3 RT
FILL & PLUG EX. 10" CLAY PIPE
CONCRETE HEADWALLS @ INLET &
OUTLET TO BE REMOVED

STA. 13+30.00
BEGIN PAV'T WIDENING & TAPER LT

STA. 17+15.00
END PAVEMENT TAPER LT

50'
SHOULDER TAPER LT
2.0' TO 4.0'

VILLAGE OF
BREMEN CORP.

COMMERCIAL DRIVE
(ASPHALT)
STA. 14+14 LT

PROPOSED GUARDRAIL SHALL BE LOCATED SUCH THAT
ONLY ONE (1) POST IS MOUNTED TO BOX CULVERT.
REFER TO GR 1.1, NOTE "SPECIAL POST MOUNTINGS".

48.6' LT
20'
TMP
35' R
25' R
BM #1
GR1
D1
R2
R3
R1
R10
R4
MB1
D2
C1
R11
Ex SH
R/W
EX. 2" GAS LINE,
30" DEEP, DO NOT DISTURB
STA.15+45.8, 29.4'RT
EX. CONCRETE R/W
MONUMENT TO BE REMOVED
12"TREE
48"TREE
15"TREE
6"TREE
30" STUMP
51.0' RT
13.2'
25' R
SR 664
MATCHLINE STA. 17+25.00
STA. 16+86.7, 46.0'RT
EX. CONCRETE R/W
MONUMENT TO BE
REMOVED
22'
SHOULDER TAPER RT
1.7' TO 4.0'
PROP. 8'x5' BOX CULVERT
SEE SHTS 65-69 FOR DETAILS
RESIDENTIAL DRIVE
(ASPHALT)
STA. 15+81.1 RT
STA. 13+30.00
BEGIN PAVEMENT TAPER RT
STA. 16+65.00
END PAVEMENT TAPER RT
STA. 13+08.00
BEGIN PAVEMENT WIDENING RT

℄ RES. DRIVE D1
SR 664 STA. 15+81.1, 43.6' RT

STA. 15+64.63, 44.5' RT
℄=802.89

STA. 15+96.63, 43.3' RT
℄=802.76

FOR C QUANTITIES, SEE SHEET 54
FOR D QUANTITIES, SEE SHEET 17
FOR GR QUANTITIES, SEE SHEET 18
FOR MB QUANTITIES, SEE SHEET 13
FOR R1, R4, R10 & R11 QUANTITIES, SEE SHEET 54
FOR R2 & R3 QUANTITIES, SEE SHEET 18

(C1) 12" CONDUIT, TYPE D, 706.02 OR 706.33
STA. 15+64.63, 44.5' RT, ℄=802.89
STA. 15+96.63, 43.3' RT, ℄=802.76

N

HORIZONTAL
SCALE IN FEET
0 10 20 40

CALCULATED BCT
CHECKED DNM

PLAN SHEET SR 664
STA. 12+25.00 TO STA. 17+25.00

FAI-37/664-25.01/4.21

P:\FAI\86847\DESIGN\ROADWAY\PALN_SHEETS\PLAN_PROFILE\86847_SR664_PLAN01.DGN

BENCHMARK #2
TOP OF 5/8 INCH REBAR WITH ODOT CAP;
72.92 FEET LEFT OF EXISTING SR 664
℄ SURVEY STATION 19+40.80
ELEVATION = 811.24

(C2) 15" CONDUIT, TYPE A, 707.01 (0.079),
707.01 AL. COATED, 707.21, 20 FT
STA. 19+00.10, 36.7' RT, ℄ 803.91
STA. 19+00.21, 56.7' RT, ℄ 804.06
(HEADWALL AS PER SCD HW-2.1)

(C3) 15" CONDUIT, TYPE A, 707.01 (0.079),
707.01 AL. COATED, 707.21, 24 FT
STA. 18+99.62, 33.7' LT, ℄ 802.78
STA. 18+99.46, 57.7' LT, ℄ 802.51
(HEADWALL AS PER SCD HW-2.1)

(C4) CONDUIT, BORED AND JACKED: 15", 124 FT
SR 37 STA. 263+96.00, 57.60' LT, ℄ 803.81
SR 37 STA. 263+96.00, 66.40 RT, ℄ 803.22
HEADWALLS AS PER SCD HW-2.1
(FOR PROFILE VIEW & HYDRAULIC DATA, SEE SHT 54)

(C5) 15" CONDUIT, TYPE A, 707.01 (0.079),
707.01 AL. COATED, 707.21, 16 FT
STA. 20+70.61, 32.8' LT, ℄ 804.69
STA. 20+69.33, 48.7' LT, ℄ 804.59
(HEADWALL AS PER SCD HW-2.1)

(C6) 15" CONDUIT, TYPE A, 707.01 (0.079),
707.01 AL. COATED, 707.21, 20 FT
STA. 20+76.20, 41.3' RT, ℄ 805.14
STA. 20+87.46, 57.8' RT, ℄ 805.21
(HEADWALL AS PER SCD HW-2.1)
MANHOLE, NO. 3
STA. 20+76.20, 41.3' RT
GRATE EL. 809.10
INVERT EL. 805.10

FOR C QUANTITIES, SEE SHEET 54
FOR D QUANTITIES, SEE SHEET 17
FOR GR QUANTITIES, SEE SHEET 18
FOR R QUANTITIES, SEE SHEET 54

RIPRAP USING 6" REINFORCED CONCRETE SLAB 3'x3'/9 = 1.0 SY (USE CUTOFF WALLS AS PER HW-2.1)

BM #2

CONCRETE COLLAR, AS PER SCD DM-1.1

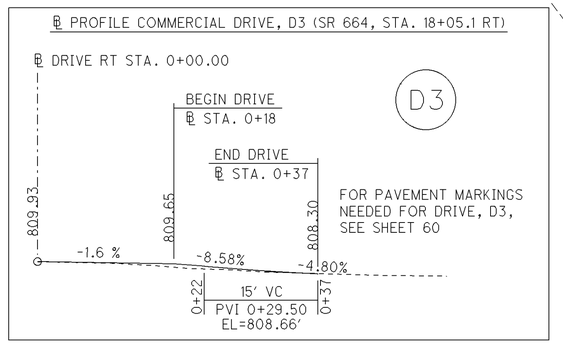
EX. 6" TREE DO NOT DISTURB

STA. 18+67.2, 121.5' RT
EX. CONCRETE R/W MONUMENT
DO NOT DISTURB

STA. 20+00.00 ℄ SURVEY SR 664 =
STA. 264+82.78 ℄ SURVEY SR 37

COMMERCIAL DRIVE / FOR D3 PROFILE, SEE DETAIL SHOWN BELOW

℄ PROFILE COMMERCIAL DRIVE, D3 (SR 664, STA. 18+05.1 RT)



FOR PAVEMENT MARKINGS NEEDED FOR DRIVE, D3, SEE SHEET 60

(R5) EX. 15" CMP, STA. 19+00.1 RT
4 FT TO BE REMOVED FROM INLET END

(R6) EX. 15" CMP, STA. 18+99.6 LT
4 FT TO BE REMOVED FROM OUTLET END

(R7) EX. 15" CMP, USR 37 STA. 264+35.2 CL
4 FT TO BE REMOVED AT OUTLET END
4 FT TO BE REMOVED AT INLET END
THEN FILL AND PLUG REMAINING CONDUIT, 132 FT

(R8) EX. 15" CMP, STA. 20+70.5 LT
4 FT TO BE REMOVED FROM OUTLET END

(R9) EX. 15" CMP, STA. 20+76.4 RT
4 FT TO BE REMOVED FROM INLET END

FOR PAVEMENT WIDENING DETAILS AT INTERSECTION, SEE SHEET 49
FOR SR 37 DETAILS, SEES HEETS 19-21

FOR INTERSECTION DETAILS, SEE SHEET 49

N

HORIZONTAL SCALE IN FEET
0 10 20 40

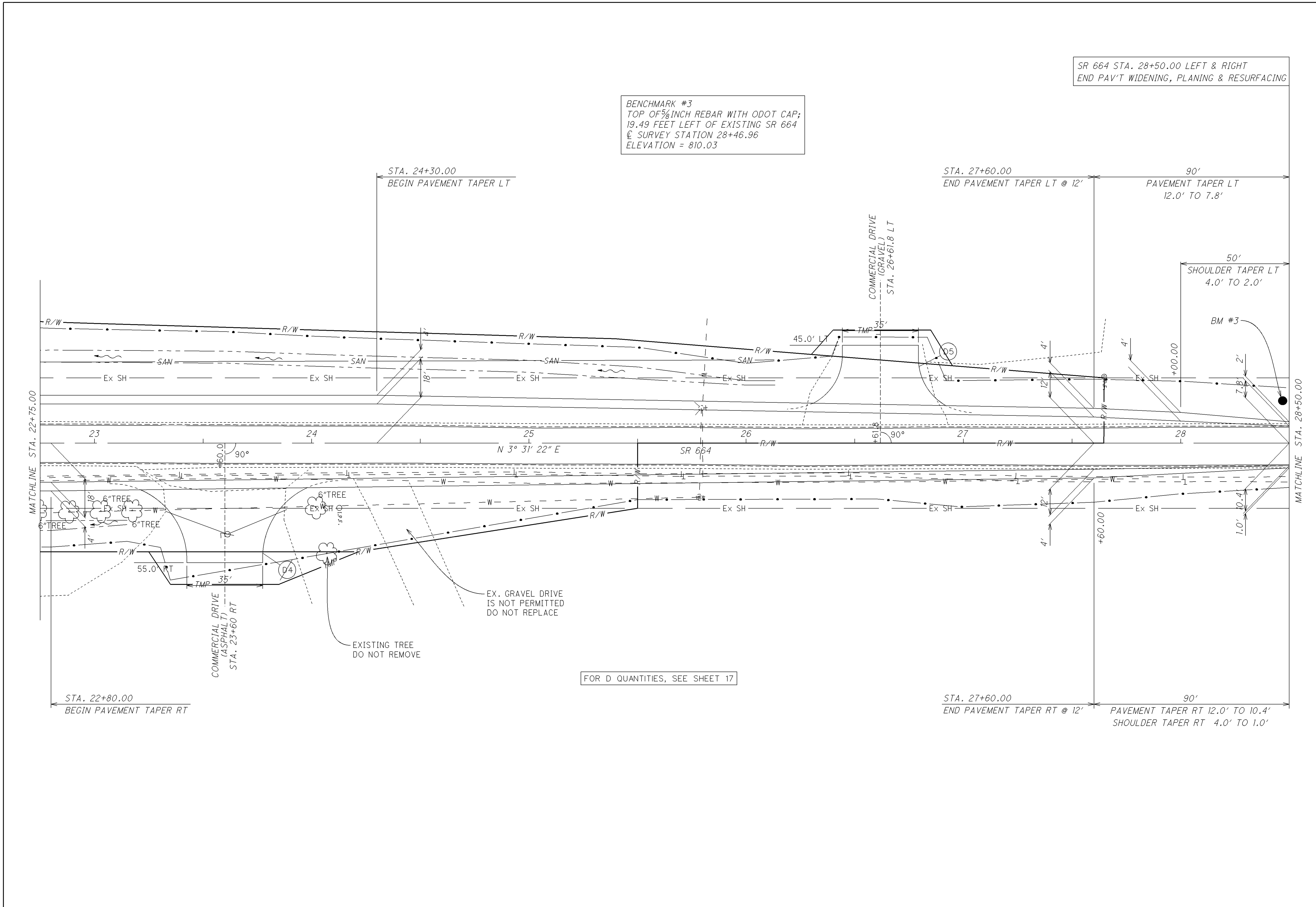
CALCULATED BCT
CHECKED DNM

PLAN SHEET SR 664
STA. 17+25.00 TO STA. 22+75.00

FAI-37/664-25.01/4.21

34
102

P:\FAI\86847\DESIGN\ROADWAY\PALN_SHEETS\PLAN_PROFILE\86847_SR664_PLAN02.DGN



HORIZONTAL SCALE IN FEET

CALCULATED BCT | CHECKED DNM

PLAN SHEET SR 664
STA. 22+75.00 TO STA. 28+50.00

FAI-37/664-25.01/4.21

SEEDING END WIDTH	SEEDING SQ. YDS.	
	70	
31		STA. 13+30.00 A
21		STA. 13+30.00 B
	46	
16		
	15	
10		STA. 12+98.00 A
0		STA. 12+98.00 B
131	8879	SHT TOTAL / TOTAL SHTS 36+48

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL	
		11	3	
12	4			STA. 13+30.00 A
8	3			STA. 13+30.00 B
		5	3	
3	3			STA. 13+08.00 A
0	3			STA. 13+08.00 B
		0	1	
0	0			STA. 12+98.00
		16	7	SHT TOTALS
		1708	1495	TOTALS SHTS 36-48

BEGIN PAVEMENT WIDENING & TAPER STA 13+30.00 LT

BEGIN PAVEMENT TAPER STA 13+30.00 RT

G/T = AREA OF SUBGRADE EXCAVATION & GRANULAR MATERIAL CONSTRUCTION (FOR QUANTITIES, SEE SHEETS 73-75)

BEGIN PAVEMENT WIDENING STA 13+08.00 RT

BEGIN PAVEMENT PLANING & RESURFACING STA 13+08.00 LT & RT

TOTAL CARRIED TO SHT 15

TOTALS CARRIED TO SHT 15

℄ SURVEY & CONSTRUCTION SR 664

CALCULATED BCT

CHECKED DNM

CROSS SECTIONS SR 664
STA. 12+75.00 TO STA. 13+30.00

FAI-37/664-25.01/4.21

36
102

P:/FAI/86847/Design/Roadway/Plan_Sheets/Cross_Sections/FAI_664_pxs.dgn

SEEDING END WIDTH	SEEDING SQ. YDS.
0	
38	
	186
38	
	117
32	
	303

STA. 14+24.00 A
STA. 14+24.00 B

G/T = AREA OF SUBGRADE EXCAVATION & GRANULAR MATERIAL CONSTRUCTION (FOR QUANTITIES, SEE SHEETS 73-75)

BEGIN CULVERT WORK STA. 14+23.00A

STA. 14+23.00 A
STA. 14+23.00 B

COMMERCIAL DRIVE
STA. 14+14.0 LT

EX SH

END DRIVE
48.6' LT

BEGIN DRIVE
13.3' LT

13.3'

13.5'

806.30

806.11

EARTHWORK WITH DRIVE
SEE SHT 17

-4.00%

+2.34%

C-9

G/T-13

2.5'

22'

20' VC
PVI 0+23.3
EL= 805.71'

806.32
14+14.00
806.22

C-8

11.1'

F-1

G/T-12

6.4'

Ex. Telephone

Ex. 8" Sanitary

Ex. Fiber Optic

Ex. 8" Waterline

EARTHWORK QUANTITIES FOR DRIVE AT STA 14+14.00 LT ARE SHOWN ON SHT 17.

C-9

2:1

2:1

44.9' RT
℄=803.80

STA. 14+04.00 A
STA. 14+04.00 B

EX SH

12.8'

12.9'

F-1

C-8

G/T-11

5.7'

21.5'

806.16
13+80.00
806.06

C-8

10.4'

F-2

G/T-12

6.5'

Ex. Telephone

Ex. 8" Sanitary

C- 3

2:1

2:1

31.6' RT
℄=803.90

Ex. Fiber Optic

Ex. 8" Waterline

R/W

EX SH

12.3'

12.4'

20.4' RT

28.9' RT
℄=804.00

F-1

C-6

G/T-8

3.7'

21.5'

806.06
13+50.00
805.96

C-7

10.1'

F-3

G/T-12

4:1

6.3'

Ex. Telephone

Ex. 8" Sanitary

C- 3

Ex. Telephone

Ex. 8" Waterline

Ex. Fiber Optic

R/W

℄ SURVEY & CONSTRUCTION SR 664

	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
STA. 14+23.00 A	0	0		
STA. 14+23.00 B	26	1		
			19	1
STA. 14+04.00 A	26	1		
STA. 14+04.00 B	19	3		
			17	3
	19	3		
			20	4
	16	4		
SHT TOTALS			56	8

CALCULATED BCT
CHECKED DNM

CROSS SECTIONS SR 664
STA. 13+50.00 TO STA. 14+14.00

FAI-37/664-25.01/4.21

37
102

P:/FAI/86847/Design/Roadway/Plan_Sheets/Cross_Sections/FAI_664_pxs.dgn

SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	294			49	37
85		54	40		
	473			112	83
85		67	49		
	412			120	79
100		94	57		
	89			28	17
100		94	57		
0		0	0		
	1268 SHT TOTAL		SHT TOTALS	309	216

G/T = AREA OF SUBGRADE EXCAVATION & GRANULAR MATERIAL CONSTRUCTION (FOR QUANTITIES, SEE SHEETS 73-75)

STA. 14+52.00 A
STA. 14+52.00 B

END CULVERT WORK STA. 14+52.00 B

STA. 14+52.00 A
STA. 14+52.00 B

℄ SURVEY & CONSTRUCTION SR 664

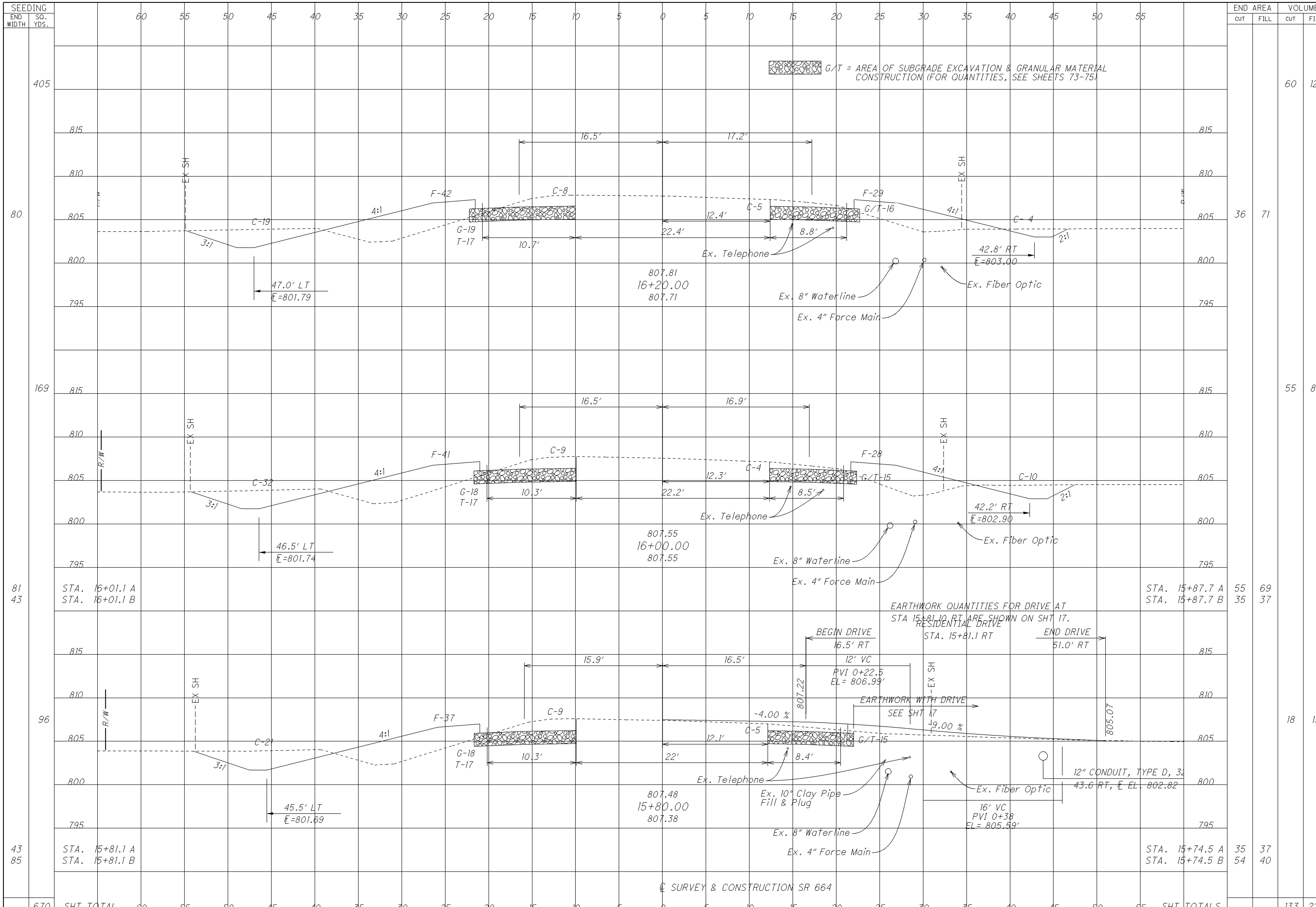
CALCULATED BCT
CHECKED DNM

CROSS SECTIONS SR 664
STA. 14+60.00 TO STA. 15+50.00

FAI-37/664-25.01/4.21

38
102

P:\FAI\86847\Design\Roadway\Plan_Sheets\Cross_Sections\FAI_664_pxs.dgn


SEEDING
END WIDTH
SQ. YDS.
END AREA
CUT
FILL
VOLUME
CUT
FILL
G/T = AREA OF SUBGRADE EXCAVATION & GRANULAR MATERIAL CONSTRUCTION (FOR QUANTITIES, SEE SHEETS 73-75)
405
60
125
80
36
71
16.5'
17.2'
EX SH
C-8
F-42
F-29
C-5
G/T-16
4:1
C-19
C-4
3:1
2:1
G-19
T-17
10.7'
12.4'
22.4'
8.8'
Ex. Telephone
42.8' RT
℄=803.00
47.0' LT
℄=801.79
807.81
16+20.00
807.71
Ex. 8" Waterline
Ex. Fiber Optic
Ex. 4" Force Main
169
55
84
16.5'
16.9'
R/W
C-9
F-41
F-28
C-4
G/T-15
C-32
C-10
G-18
T-17
10.3'
12.3'
22.2'
8.5'
42.2' RT
℄=802.90
46.5' LT
℄=801.74
807.55
16+00.00
807.55
81 STA. 16+01.1 A
43 STA. 16+01.1 B
STA. 15+87.7 A 55 69
STA. 15+87.7 B 35 37
EARTHWORK QUANTITIES FOR DRIVE AT STA 15+81.10 RT ARE SHOWN ON SHT 17.
RESIDENTIAL DRIVE
STA. 15+81.1 RT
BEGIN DRIVE
16.5' RT
END DRIVE
51.0' RT
12' VC
PVI 0+22.5
EL= 806.99'
807.22
805.07
EARTHWORK WITH DRIVE
SEE SHT 17
-4.00 %
-9.00 %
96
18
19
15.9'
16.5'
C-9
F-37
C-21
C-5
G/T-15
G-18
T-17
10.3'
12.1'
22'
8.4'
Ex. Telephone
Ex. 10" Clay Pipe Fill & Plug
12" CONDUIT, TYPE D, 32
43.6 RT, ℄ EL. 802.82
16' VC
PVI 0+38
EL= 805.59'
45.5' LT
℄=801.69
807.48
15+80.00
807.38
Ex. 8" Waterline
Ex. 4" Force Main
43 STA. 15+81.1 A
85 STA. 15+81.1 B
STA. 15+74.5 A 35 37
STA. 15+74.5 B 54 40
℄ SURVEY & CONSTRUCTION SR 664
670 SHT TOTAL
SHT TOTALS
133
228

CALCULATED BCT
CHECKED DNM

CROSS SECTIONS SR 664
STA. 15+80.00 TO STA. 16+20.00

FAI-37/664-25.01/4.21

P:/FAI/86847/Design/Roadway/Plan_Sheets/Cross_Sections/FAI_664_pxs.dgn

SEEDING END WIDTH	SEEDING SQ. YDS.
70	389
	300
84	462
82	
	1151 SHT TOTAL

G/T = AREA OF SUBGRADE EXCAVATION & GRANULAR MATERIAL CONSTRUCTION (FOR QUANTITIES, SEE SHEETS 73-75)

END PAVEMENT TAPER STA 17+15.00 LT

END PAVEMENT TAPER STA 16+65.00 RT

℄ SURVEY & CONSTRUCTION SR 664

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		45	96
32	69		
		43	92
34	73		
		64	141
35	79		
		152	329 SHT TOTALS

CALCULATED BCT
CHECKED DNM

CROSS SECTIONS SR 664
STA. 16+65.00 TO STA. 17+50.00

FAI-37/664-25.01/4.21

40
102

P:/FAI/86847/Design/Roadway/Plan_Sheets/Cross_Sections/FAI_664_pxs.dgn

SEEDING END WIDTH	SEEDING SQ. YDS.
	222
47	103
	275
83	580
70	
	1077

G/T = AREA OF SUBGRADE EXCAVATION & GRANULAR MATERIAL CONSTRUCTION (FOR QUANTITIES, SEE SHEETS 73-75)

HYDRAULIC DESIGN DATA		
DRAINAGE AREA = 0.53 ACRES	25 YR	100 YR
HW ELEV.	804.86	804.96
Q (CFS)	2.2	2.7
V (FPS)	5.6	6.0
CULVERT FILE NO. 2306640429		

PR. 15" CONDUIT, TYPE A, 24 FT
33.7' LT, EL. 802.84
57.7' LT, EL. 802.51

PR. 15" CONDUIT, TYPE A, 20 FT
36.7' RT, EL. 803.85
56.7' RT, EL. 804.06

STA. 18+94.73 A
STA. 18+94.73 B

CUTOFF WALL AS PER HW-2.1

STA. 18+99.5, 57.7' LT
℄=802.51

EX. 15" CMP
REMOVE 4' SECTION
FROM OUTLET END
33.7' LT TO 37.7' LT

EX. 15" CMP LOCATED AT STA. 19+00.00
CULVERT FILE NO. 2306640429

811.36
18+94.73
811.26

EX. 15" CMP
REMOVE 4' SECTION
FROM INLET END
40.7' RT TO 44.7' RT

Ex. 8" Waterline

Ex. 4" Force Main

STA. 19+00.2
56.7' RT, ℄=804.06

STA 18+68.15 LT FORWARD,
SEE SHEETS 50-53 FOR
EARTHWORK AT INTERSECTION

58.2' LT
℄=802.4

810.78
18+68.15
810.78

Ex. 8" Waterline

Ex. 4" Force Main

Ex. Fiber Optic

COMMERCIAL DRIVE STA. 18+05.1 RT
FOR PROFILE, SEE SHEET 34

EARTHWORK WITH DRIVE, SEE SHT 17
FOR PROFILE, SEE SHT 34

54.9' LT
℄=802.24

809.89
18+00.00
809.79

Ex. 8" Waterline

Ex. 4" Force Main

Ex. Fiber Optic

Ex. Telephone

℄ SURVEY & CONSTRUCTION SR 664

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		17	96
16	66		
45	152		
		39	118
33	88		
		56	148
33	88		
33	69		
		44	91
33	69		
32	69		
		156	453

SHT TOTAL — SHT TOTALS

CALCULATED BCT
CHECKED DNM

CROSS SECTIONS SR 664
STA. 18+00.00 TO STA. 18+94.73

FAI-37/664-25.01/4.21

41
102

P:/FAI/86847/Design/Roadway/Plan_Sheets/Cross_Sections/FAI_664_pxs.dgn

SEEDING END WIDTH	SEEDING SQ. YDS.
85	395
52	
	280
	0
52	
0	
	0
0	
44	
	675

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		82	40
49	33		
36	20		
		53	54
23	40		
0	0		
0	0		
0	0		
5	52		
		0	0
		135	94

CALCULATED BCT
CHECKED DNM

G/T = AREA OF SUBGRADE EXCAVATION & GRANULAR MATERIAL CONSTRUCTION (FOR QUANTITIES, SEE SHEETS 73-75)

STA. 21+10.00 A
STA. 21+10.00 B
F-20
C-30
3:1
4:1
5.0′
16.9′ LT
℄=804.41
Ex. 4″ Force Main
G-24
T-22
C-6
18′
14.3′
18′
17.7′
C-4
10′
G/T-21
12′
Ex. Telephone
F-13
4:1
C- 9
3:1
Ex. 8″ Waterline
43.3′ RT
℄=805.32
4.0′
STA. 21+10.00 A
STA. 21+10.00 B
810.07
21+10.00
809.97
STA 21+10.00 RT BACK, SEE SHEETS 50-53 FOR EARTHWORK AT INTERSECTION

PR. 15″ CONDUIT, TYPE A, 16 FT
32.8′ LT, EL. 804.69
48.7′ LT, EL. 804.59
CUTOFF WALL AS PER HW-2.1
STA. 20+69.33, 48.7′ LT
℄=804.59
EX. 15″ CMP REMOVE 4′ SECTION FROM OUTLET END
18.1′
29.2′
810.86
20+73.03
810.76
CROSS SECTION TAKEN ALONG ℄ OF EX. 15″ CMP
EX. 15″ CMP CULVERT FILE NO. 236640436
PR. MANHOLE, NO. 3
STA. 20+76.20, 41.3′ RT
GRATE EL. 809.10
INVERT EL. 805.10
PR. 15″ CONDUIT, TYPE A, 20 FT
41.3′ RT, EL. 805.14
57.8′ RT, EL. 805.21
EX. 15″ CMP REMOVE 4′ SECTION FROM INLET END
STA. 20+87.46, 57.8′ RT
℄=805.21

HYDRAULIC DESIGN DATA		
DRAINAGE AREA = 0.41 ACRES	25 YR	100 YR
HW ELEV.	806.91	807.51
Q (CFS)	2.2	2.7
V (FPS)	4.1	4.3
CULVERT FILE NO. 236640436		

STA. 20+61.62 A
STA. 20+61.62 B
C-14
3:1
4:1
5.0′
51.8′ LT
℄=804.17
F-40
C-9
G/T-24
14.1′
7.9′
STA 20+61.62 LT BACK, SEE SHEETS 50-53 FOR EARTHWORK AT INTERSECTION
Ex. 4″ Force Main
811.03
20+61.62
810.93
Ex. 8″ Waterline
STA. 20+61.62 A
STA. 20+61.62 B

STA. 19+38.55 A
STA. 19+38.55 B
C-5
G/T-16
13′
9′
18′
38.0′
8:1
4:1
F-52
STA 19+38.55 RT FORWARD, SEE SHEETS 50-53 FOR EARTHWORK AT INTERSECTION
812.09
19+38.55
811.99
Ex. 4″ Force Main
Ex. 8″ Waterline
STA. 19+38.55 A
STA. 19+38.55 B

℄ SURVEY & CONSTRUCTION SR 664

SHT TOTAL
SHT TOTALS

CROSS SECTIONS SR 664
STA. 19+38.55 TO STA. 21+10.00

FAI-37/664-25.01/4.21

42
102

P:\FAI\86847\Design\Roadway\Plan_Sheets\Cross_Sections\FAI_664_pxs.dgn

SEEDING END WIDTH	SEEDING SQ. YDS.
67	294
69	355
73	303
	952 SHT TOTAL

65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60

G/T = AREA OF SUBGRADE EXCAVATION & GRANULAR MATERIAL CONSTRUCTION (FOR QUANTITIES, SEE SHEETS 73-75)

820 815 810 805 800

EX SH — R/W — 18′ — 18′

C-26 — 3:1 — F-4 — 4:1 — C-5 — G/T-23 — 13.8′ — 17.2′ — C-12 — 9′ — G/T-22 — 13′ — F-3 — 4:1 — C- 7

Ex. 4" Force Main — 36.6′ LT — ℄=806.17 — 5.0′

Ex. Telephone

Ex. 8" Waterline — 35.8′ RT — ℄=805.93 — 4.0′

808.81
22+40.00
808.71

C-29 — 3:1 — F-4 — 4:1 — C-5 — G/T-24 — 13.9′ — 17.3′ — C-9 — 9.2′ — G/T-22 — 12.8′ — F-3 — 4:1 — C- 8

Ex. 4" Force Main — 39.4′ LT — ℄=805.02 — 5.0′

Ex. Telephone

Ex. 8" Waterline — 36.5′ RT — ℄=805.74 — 4.0′

808.79
22+00.00
808.69

C-27 — 3:1 — F-10 — 4:1 — C-7 — G-24 — T-23 — 14.1′ — 17.3′ — C-6 — 9.4′ — G/T-22 — 12.6′ — F-5 — 4:1 — C- 9

Ex. 4" Force Main — 41.1′ LT — ℄=804.63 — 5.0′

Ex. Telephone

Ex. 8" Waterline — 37.5′ RT — ℄=805.53 — 4.0′

809.17
21+55.00
809.07

℄ SURVEY & CONSTRUCTION SR 664

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		70	10
50	7		
		75	11
51	7		
		84	19
49	15		
		229	40

CALCULATED BCT
CHECKED DNM

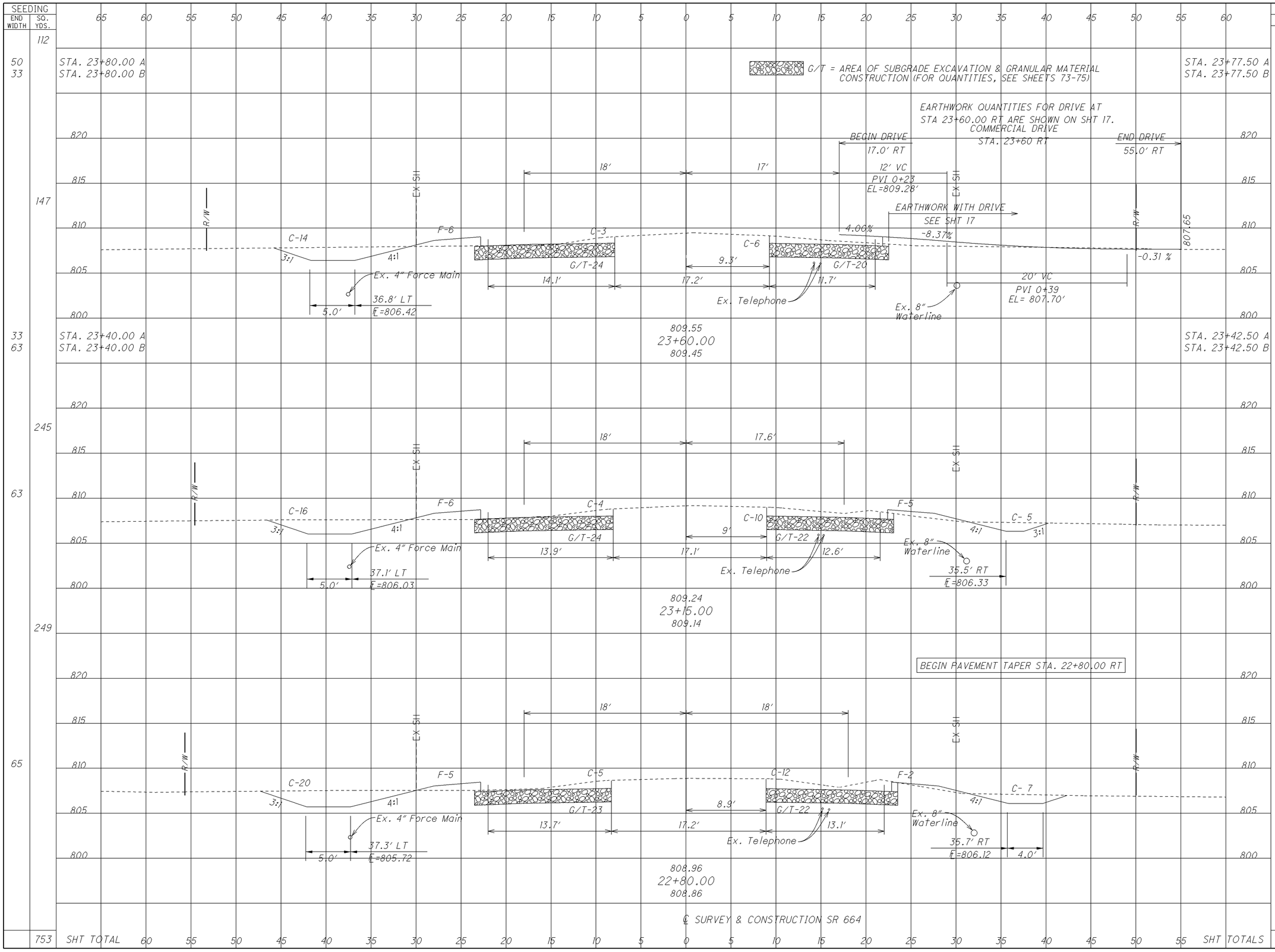
CROSS SECTIONS SR 664
STA. 21+55.00 TO STA. 22+40.00

FAI-37/664-25.01/4.21

43
102

P:/FAI/86847/Design/Roadway/Plan_Sheets/Cross_Sections/FAI_664_pxs.dgn

SEEDING END WIDTH	SEEDING SQ. YDS.		END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	112				22	9
50 33		STA. 23+80.00 A STA. 23+80.00 B				
		G/T = AREA OF SUBGRADE EXCAVATION & GRANULAR MATERIAL CONSTRUCTION (FOR QUANTITIES, SEE SHEETS 73-75)				
		STA. 23+77.50 A STA. 23+77.50 B	26 23	10 6		
	147				34	8
33 63		STA. 23+40.00 A STA. 23+40.00 B				
		STA. 23+42.50 A STA. 23+42.50 B	23 35	6 11		
	245				36	12
63			35	11		
	249				52	11
65			44	6		
	753	SHT TOTAL			140	40



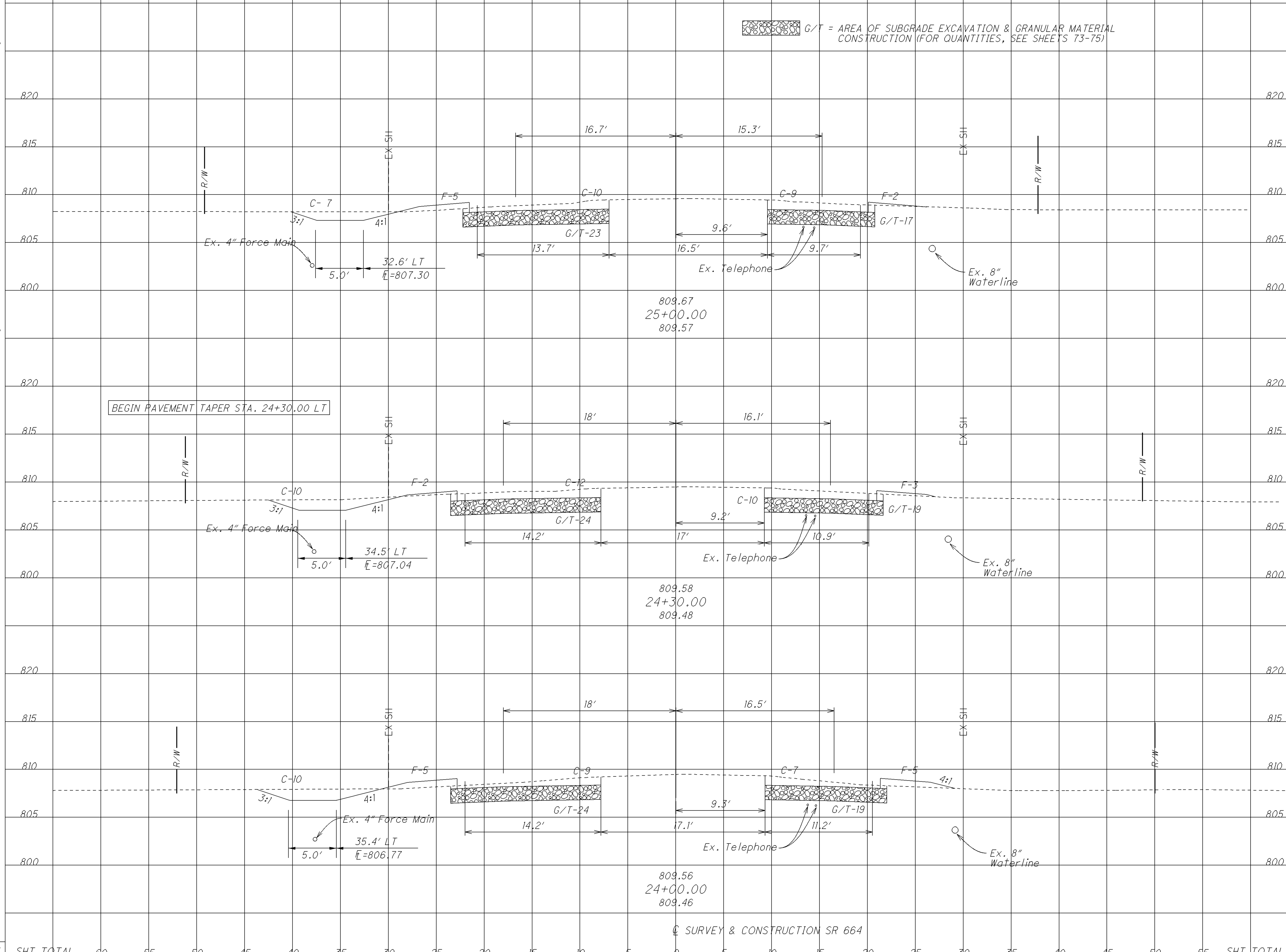
CALCULATED BCT
CHECKED DNM

CROSS SECTIONS SR 664
STA. 22+80.00 TO STA. 23+60.00

FAI-37/664-25.01/4.21

44
102

P:/FAI/86847/Design/Roadway/Plan_Sheets/Cross_Sections/FAI_664_pxs.dgn



SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	239			62	9
46		26	7		
	362			76	16
47		32	5		
	162			33	9
50		26	10		
	763 SHT TOTAL		SHT TOTALS	171	34

CALCULATED BCT
CHECKED DNM

CROSS SECTIONS SR 664
STA. 24+00.00 TO STA. 25+00.00

FAI-37/ 664-25.01/ 4.21

P:/FAI/86847/Design/Roadway/Plan_Sheets/Cross_Sections/FAI_664_pxs.dgn

SEEDING END WIDTH	SEEDING SQ. YDS.		END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	80				13	5
36		STA. 26+80.00 A				
18		STA. 26+80.00 B				
		STA. 26+79.30 A	17	6		
		STA. 26+79.30 B	20	2		
	72				33	4
14		STA. 26+40.00 A				
37		STA. 26+40.00 B				
		STA. 26+44.30 A	20	2		
		STA. 26+44.30 B	30	3		
	165				50	5
37			30	3		
	214				65	5
40			40	2		
	531	SHT TOTAL			161	19

G/T = AREA OF SUBGRADE EXCAVATION & GRANULAR MATERIAL CONSTRUCTION (FOR QUANTITIES, SEE SHEETS 73-75)

EARTHWORK QUANTITIES FOR DRIVE AT STA. 26+61.79 LT ARE SHOWN ON SHT 17.

COMMERCIAL DRIVE
STA. 26+61.79 LT

END DRIVE
45.0' LT

BEGIN DRIVE
13.8' LT

EARTHWORK WITH DRIVE
SEE SHT 17

TMP

809.20

R/W

EX SH

-1.37%

-4.00%

C-12

G/T-19

11'

20' VC
PVI 0+23.8
EL= 809.49'

13.8'

13.2'

C-8

10.1'

16.9'

F-2

G/T-13

7.1'

810.11
26+60.00
810.01

Ex. Telephone

14.9'

14'

C- 7

F-1

C-14

3:1

4:1

G/T-21

12'

26.7' LT
℄=808.63

Ex. 4" Force Main

C-9

17'

8'

G/T-15

809.96
26+00.00
809.86

15.8'

14.6'

C-15

C-10

9.6'

12.7'

16.8'

9'

G/T-16

G/T-22

29.5' LT
℄=807.97

5.0'

Ex. 8" Waterline

809.79
25+50.00
809.69

℄ SURVEY & CONSTRUCTION SR 664

CALCULATED BCT
CHECKED DNM

CROSS SECTIONS SR 664
STA. 25+50.00 TO STA. 26+60.00

FAI-37/664-25.01/4.21

46
102

P:/FAI/86847/Design/Roadway/Plan_Sheets/Cross_Sections/FAI_664_pxs.dgn

SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
32	189	9	8	16	15
35	149	11	8	15	12
36	237	17	6	32	16
	575 SHT TOTAL			63	43 SHT TOTALS

CALCULATED BCT
CHECKED DNM

G/T = AREA OF SUBGRADE EXCAVATION & GRANULAR MATERIAL CONSTRUCTION (FOR QUANTITIES, SEE SHEETS 73-75)

BEGIN SHOULDER TAPER STA 28+00.00 LT

EX SH

11.3′ 11.3′

4:1 F-6 C-4 F-2 C-5 G/T-8 G/T-13

10.2′

6.8′ 17.5′ 3.8′

810.49
28+00.00
810.39

Ex. Telephone

R/W — EX SH

12′ 12′

BEGIN SHOULDER TAPER STA 27+60.00 RT

4:1 F-6 C-5 F-2 C-6 G/T-16 G/T-11

9.1′ 10.2′ 17.1′ 5.8′

810.35
27+60.00
810.25

Ex. Telephone

END PAVEMENT TAPER STA 27+60.00 LT @ 12′
BEGIN PAVEMENT TAPER STA 27+60.00 LT @ 12′
END PAVEMENT TAPER STA 28+50.00 LT @ 7.8′

END PAVEMENT TAPER STA 27+60.00 RT @ 12′
BEGIN PAVEMENT TAPER STA 27+60.00 RT @ 12′
END PAVEMENT TAPER STA 28+50.00 RT @ 10.4′

BEGIN PAVEMENT TAPER STA 27+60.00 LT & RT

R/W — EX SH

13.1′ 12.7′

4:1 F-4 C-10 C-7 F-2 G/T-18 G/T-13

9.9′

10.1′ 16.8′ 6.9′

810.17
27+00.00
810.07

Ex. Telephone

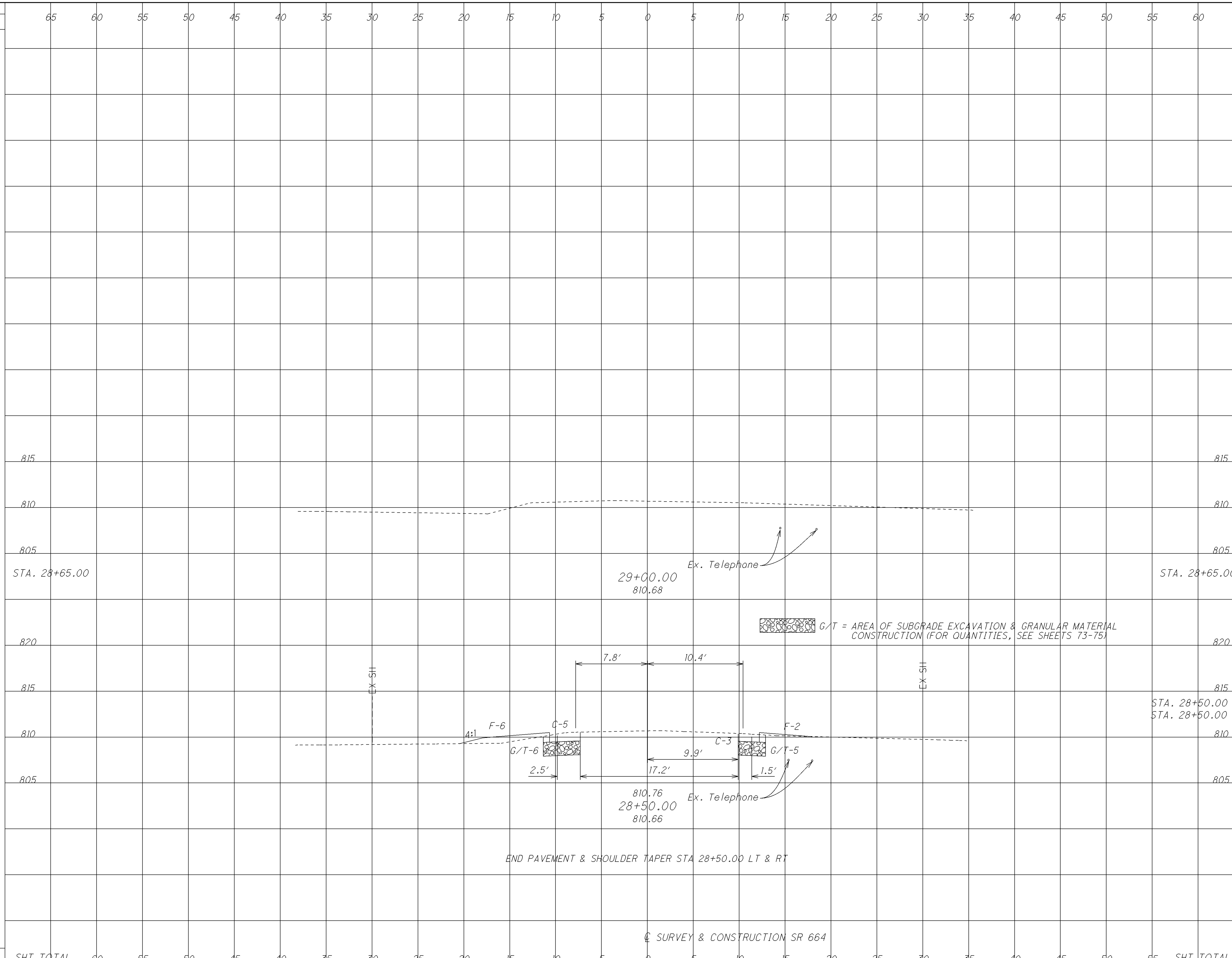
℄ SURVEY & CONSTRUCTION SR 664

CROSS SECTIONS SR 664
STA. 27+00.00 TO STA. 28+00.00

FAI-37/664-25.01/4.21

47
102

P:/FAI/86847/Design/Roadway/Plan_Sheets/Cross_Sections/FAI_664_pxs.dgn



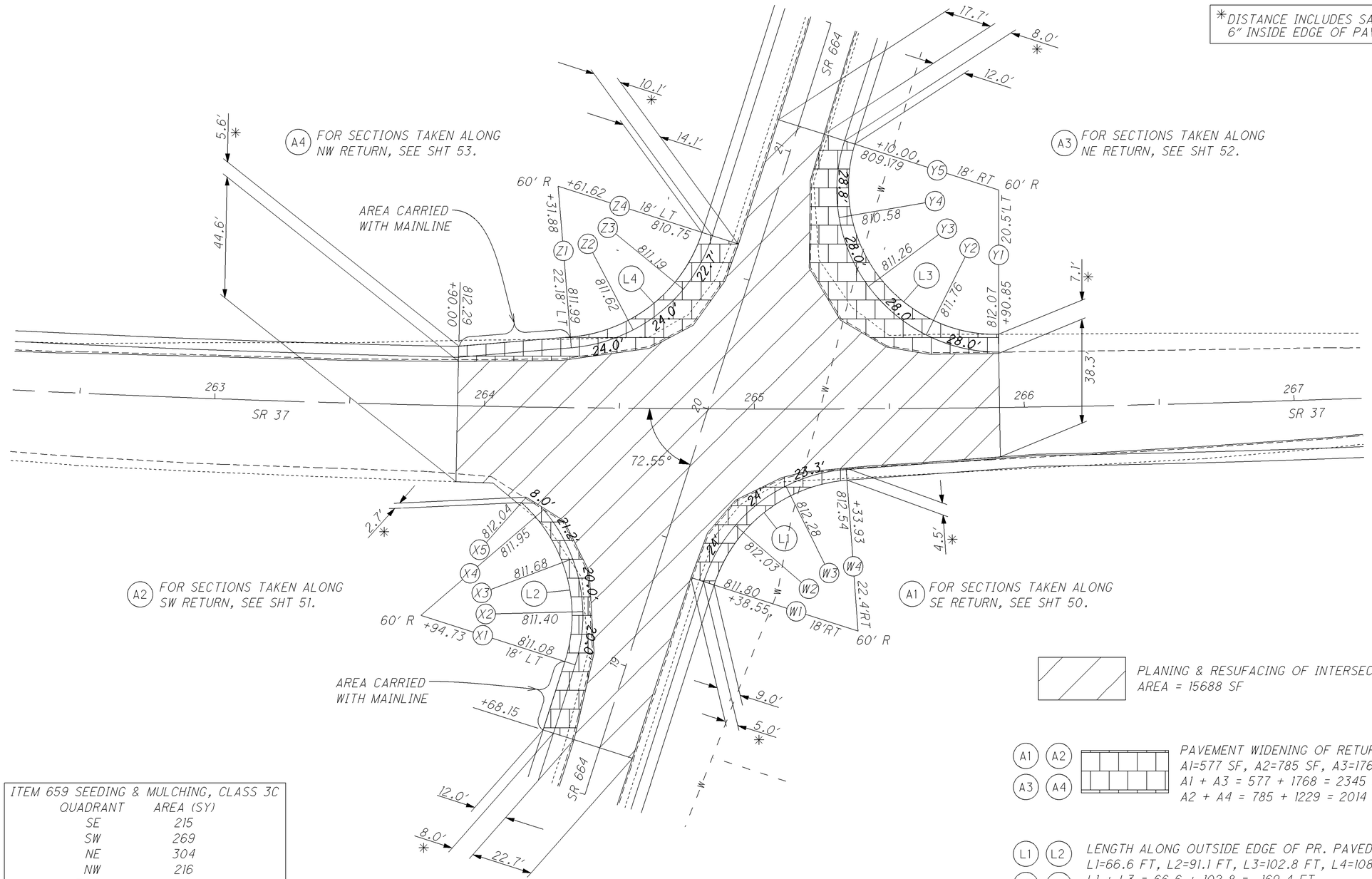
SEEDING END WIDTH	SEEDING SQ. YDS.	STATION	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0		STA. 28+65.00	0	0		
	30				0	3
36		STA. 28+50.00 A	0	8		
		STA. 28+50.00 B	8	8		
	30	SHT TOTAL(S)			0	3

CALCULATED BCT
CHECKED DNM

CROSS SECTIONS SR 664
STA. 28+50.00 TO STA. 29+00.00

FAI-37/664-25.01/4.21

P:/FAI/86847/Design/Roadway/Plan_Sheets/Cross_Sections/FAI_664_pxs.dgn



ITEM 659 SEEDING & MULCHING, CLASS 3C	
QUADRANT	AREA (SY)
SE	215
SW	269
NE	304
NW	216
TOTAL	1004

QUANTITY CARRIED TO SHT 15

PLANING & RESUFACING OF INTERSECTION AREA:
AREA = 15688 SF

A1 A2 A3 A4 PAVEMENT WIDENING OF RETURN AREAS:
A1=577 SF, A2=785 SF, A3=1768 SF, A4=1229 SF
A1 + A3 = 577 + 1768 = 2345 SF
A2 + A4 = 785 + 1229 = 2014 SF

L1 L2 L3 L4 LENGTH ALONG OUTSIDE EDGE OF PR. PAVED SHOULDER:
L1=66.6 FT, L2=91.1 FT, L3=102.8 FT, L4=108.3 FT
L1 + L3 = 66.6 + 102.8 = 169.4 FT
L2 + L4 = 91.1 + 108.3 = 199.4 FT

MEASUREMENTS CARRIED TO SHEET 15

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED BCT
CHECKED DNM

SR 37 & SR 664 INTERSECTION DETAIL

FAI-37/664-25.01/4.21

P:\FAI\86847\DESIGN\ROADWAY\PLAN_SHEETS\PLAN_PROFILE\86847_INTERSECT01.DGN

SEEDING	
END WIDTH	SQ. YDS.

65 60 55 50 45 40 35 30 25 20 15 10 5 E/P 5 10 15 20 25 30 35 40 45 50 55 60

G/T = AREA OF SUBGRADE EXCAVATION & GRANULAR MATERIAL CONSTRUCTION (FOR QUANTITIES, SEE SHEET 75)

815 810 805

W4
4′
C-6
G/T-9
4.5′
812.54
8:1
30.0′
F-35
4:1

LENGTH W3 - W4 (FT)	
CUT	23.3
FILL	12.5

W3
4′
C-7
G/T-14
7.4′
812.28
8:1
30.0′
F-39
4:1

LENGTH W2 - W3 (FT)	
CUT	24.7
FILL	14.6

W2
4′
C-8
G/T-18
10′
812.03
8:1
27.0′
F-47
4:1

LENGTH W1 - W2 (FT)	
CUT	24.9
FILL	16.0

W1
4′
C-5
G/T-16
9′
811.80
8:1
20.1′
F-52
4:1

END AREA		VOLUME	
CUT	FILL	CUT	FILL
6	35		
		6	18
7	39		
		7	24
8	47		
		6	30
5	52		
SHEET TOTALS		19	72
TOTAL RETURNS CARRIED TO SHEET 15		149	315

CALCULATED BCT
CHECKED DNM

CROSS SECTIONS SE RETURN

FAI-37/664-25.01/4.21

50
102

SEEDING	
END WIDTH	SQ. YDS.

65 60 55 50 45 40 35 30 25 20 15 10 5 E/P 5 10 15 20 25 30 35 40 45 50 55 60

810 / 805 / 800

X5

2.7′ C-4 G/T-7 4′ 812.04

G = AREA OF GRANULAR MATERIAL CONSTRUCTION

T = AREA OF SUBGRADE EXCAVATION (FOR G & T QUANTITIES, SEE SHEET 75)

LENGTH X4 - X5 (FT.)	
CUT	8.0
FILL	7.7

X4

4′ C-5 G/T-9 4.5′ 811.95 F-16 4:1 C-3 2:1 41.0′ LT E=803.57

LENGTH X3 - X4 (FT.)	
CUT	21.2
FILL	15.0

X3

4′ C-5 G/T-14 7.4′ 811.68 F-53 4:1 C-5 2:1 41.8′ LT E=803.08

LENGTH X2 - X3 (FT.)	
CUT	20.2
FILL	13.8

X2

4′ C-4 G-14 T-13 7.3′ 811.40 F-83 4:1 C-12 2:1 41.8′ LT E=802.80

LENGTH X1 - X2 (FT.)	
CUT	20.7
FILL	14.7

X1

4′ C-4 G-17 T-14 9.9′ 811.08 F-89 4:1 C-21 2:1 41.8′ LT E=802.48

END AREA		VOLUME	
CUT	FILL	CUT	FILL
4	0		
		2	3
8	16		
		7	20
10	53		
		10	35
16	83		
		16	47
25	89		
SHEET TOTALS		33	105

CALCULATED BCT

CHECKED DNM

CROSS SECTIONS SW RETURN

FAI-37/664-25.01/4.21

51/102

SEEDING	
END WIDTH	SQ. YDS.

65 60 55 50 45 40 35 30 25 20 15 10 5 EXP 5 10 15 20 25 30 35 40 45 50 55 60

G = AREA OF GRANULAR MATERIAL CONSTRUCTION

T = AREA OF SUBGRADE EXCAVATION
(FOR G & T QUANTITIES, SEE SHEET 75)

815 810 805

Y5
C-4
G-21
4′
T-20
12′
809.79
F-13
4:1
C-7
3:1
25.3′ RT
℄=805.32

LENGTH Y4 - Y5 (FT)	
CUT	31.8
FILL	23.3

Y4
C-5
G-25
4′
T-20
15.1′
810.58
F-38
4:1
C-6
3:1
28.8′ RT
℄=805.25

LENGTH Y3 - Y4 (FT)	
CUT	30.4
FILL	21.7

Y3
C-10
G-32
4′
T-27
19.4′
811.26
F-52
4:1
C-2
31.6′ RT
℄=805.23

LENGTH Y2 - Y3 (FT)	
CUT	30.8
FILL	23.0

Y2
C-11
G/T-20
4′
11.2′
811.76
4:1
F-6

LENGTH Y1 - Y2 (FT)	
CUT	28.1
FILL	24.0

Y1
C-8
G/T-13
4′
7.1′
812.07
F-2
4:1

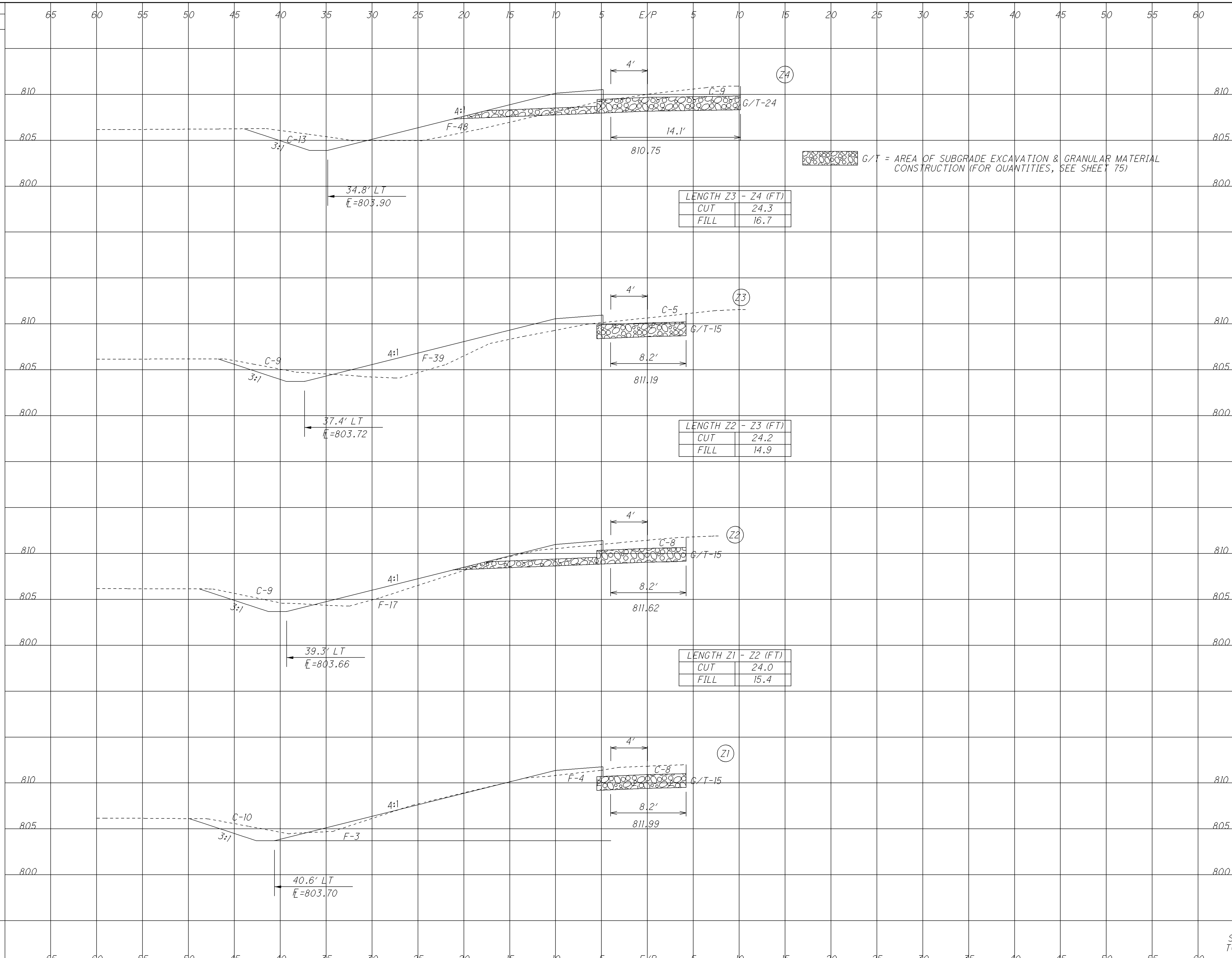
	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
	11	13		
			13	22
	11	38		
			13	37
	12	52		
			14	25
	11	6		
			10	4
	8	2		
SHEET TOTALS			50	88

CALCULATED BCT
CHECKED DNM

CROSS SECTIONS NE RETURN

FAI-37/664-25.01/4.21

52
102



LENGTH Z3 - Z4 (FT)	
CUT	24.3
FILL	16.7

LENGTH Z2 - Z3 (FT)	
CUT	24.2
FILL	14.9

LENGTH Z1 - Z2 (FT)	
CUT	24.0
FILL	15.4

SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		22	48		
				17	27
		14	39		
				14	16
		17	17		
				16	7
		18	7		
SHEET TOTALS				47	50

CALCULATED BCT
CHECKED DNM

CROSS SECTIONS NW RETURN

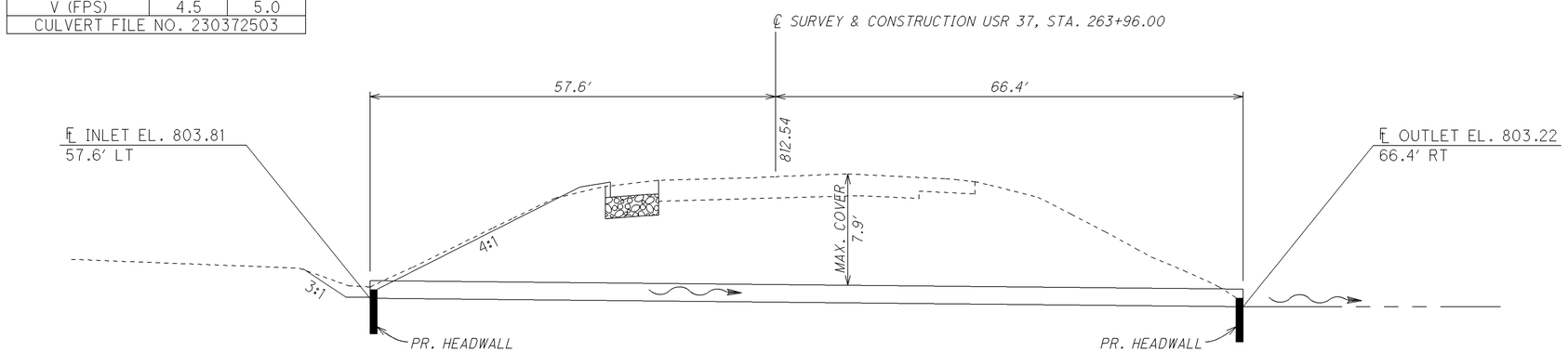
FAI-37/664-25.01/4.21

DRAINAGE SUMMARY - LOCATION 2 (SR 664)

REF NO.	SHEET NO.	SR	SIDE	STATION FROM	STATION TO	604 MANHOLE, NO. 3	603 12" CONDUIT, TYPE D, 706.02 OR 706.33	603 15" CONDUIT, TYPE A, 707.01 (0.079), 707.01 AL. COATED, 707.21	603 CONDUIT, BORED OR JACKED: 18" CONDUIT, TYPE A, 706.02	602 CONCRETE MASONRY (FOR HEADWALL)	601 RIP-RAP USING 6" REINFORCED CONCRETE SLAB	202 PIPE REMOVED, 24" AND UNDER	202 PIPE REMOVED, OVER 24"	202 SPECIAL - FILL AND PLUG EXISTING CONDUIT	202 HEADWALL REMOVED	202 MONUMENT ASSEMBLY REMOVED
				FROM	TO	EACH	FT	FT	FT	CY	SY	FT	FT	FT	EACH	EACH
C1	33	664	RT	15+64.6	15+96.6		32									
C2	34	664	RT	19+00.1				20		0.27						
C3	34	664	LT	18+99.6				24		0.27	1.0					
C4	34	37	CL	263+96.0					124	2 x 0.27	1.0					
C5	34	664	LT	20+70.6				16		0.27	1.0					
C6	34	664	RT	20+76.2		1		20		0.27						
R1	33	664	CL	14+32.1									42			
R4	33	664	RT	14+42.80	15+91.3									149	2	
R5	34	664	RT	19+00.1								4				
R6	34	664	LT	18+99.6								4				
R7	34	37	CL	264+35.2								8*		132		
R8	34	664	LT	20+70.0								4				
R9	34	664	RT	20+76.4								4				
R10	33	664	RT	15+45.8												1
R11	33	664	RT	16+86.7												1
TOTALS CARRIED TO SUBSUMMARY						1	32	80	124	1.62	3.0	24	42	281	2	2

*R7-REMOVE 4' FROM BOTH INLET AND OUTLET ENDS

HYDRAULIC DESIGN DATA		
DRAINAGE AREA = 1.92 ACRES	25 YR	100 YR
HW ELEV.	805.81	806.41
Q (CFS)	9	11
V (FPS)	4.5	5.0
CULVERT FILE NO. 230372503		



CONDUIT BORED OR JACKED: 18" CONDUIT, TYPE A, 706.02 @ 0.476%
(DRAINAGE STRUCTURE C4, SEE SHT 34 FOR PLAN VIEW)

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED BCT
CHECKED DNM

DRAINAGE SUMMARY - LOCATION 2

FAI-37/664-25.01/4.21

54
102

P:\FAI\86847\DESIGN\ROADWAY\PLAN_SHEETS\Drainage\86847_Drainage01.dgn

ITEM 605 AGGREGATE DRAINS

LOCATION 1: SR 37		
STATION	SIDE	LENGTH
258+50.00	LT	18
258+50.00	RT	18
259+50.00	LT	19
259+75.00	RT	16
260+00.00	LT	19
260+25.00	RT	16
260+50.00	LT	19
260+75.00	RT	18
261+00.00	LT	19
261+50.00	LT	19
262+00.00	LT	19
262+50.00	LT	19
263+00.00	LT	19
263+50.00	LT	19
264+00.00	LT	20
265+75.00	RT	18
265+90.85	LT	22
266+25.00	RT	25
266+75.00	RT	25
267+25.00	RT	22
267+50.00	LT	21
267+75.00	RT	18
268+00.00	LT	19
268+25.00	RT	18
268+50.00	LT	19
268+75.00	RT	17
269+00.00	LT	20
269+25.00	RT	17
269+50.00	LT	19
269+75.00	RT	17
270+00.00	LT	19
270+25.00	RT	17
270+50.00	LT	19
270+75.00	RT	17
271+00.00	LT	19
271+25.00	RT	18
271+50.00	LT	19
271+75.00	RT	18
271+90.00	LT	16
TOTAL SR 37		736

LOCATION 2: SR 664		
STATION	SIDE	LENGTH
14+75.00	LT	22
15+00.00	RT	24
15+25.00	LT	20
15+50.00	RT	20
15+75.00	LT	15
16+20.00	RT	18
16+25.00	LT	16
16+65.00	RT	16
16+75.00	LT	16
17+15.00	RT	16
18+25.00	LT	16
18+60.00	RT	17
18+75.00	LT	16
18+94.00	RT	20
SE RETURN:W1	RT	20
SE RETURN:W2	RT	25
SW RETURN:X2	LT	14
SW RETURN:X4	LT	14
NE RETURN:Y3	RT	15
NW RETURN:Z2	LT	14
NW RETURN:Z4	LT	14
21+10.00	RT	16
21+25.00	LT	16
21+50.00	RT	16
21+75.00	LT	15
22+00.00	RT	13
22+25.00	LT	15
22+75.00	LT	15
TOTAL SR 664		474

FOR AGGREGATE DRAIN LOCATIONS (W1, W2, X2, X4, Y3, Z2 AND Z4) ALONG RETURNS, SEE SHEET 49.

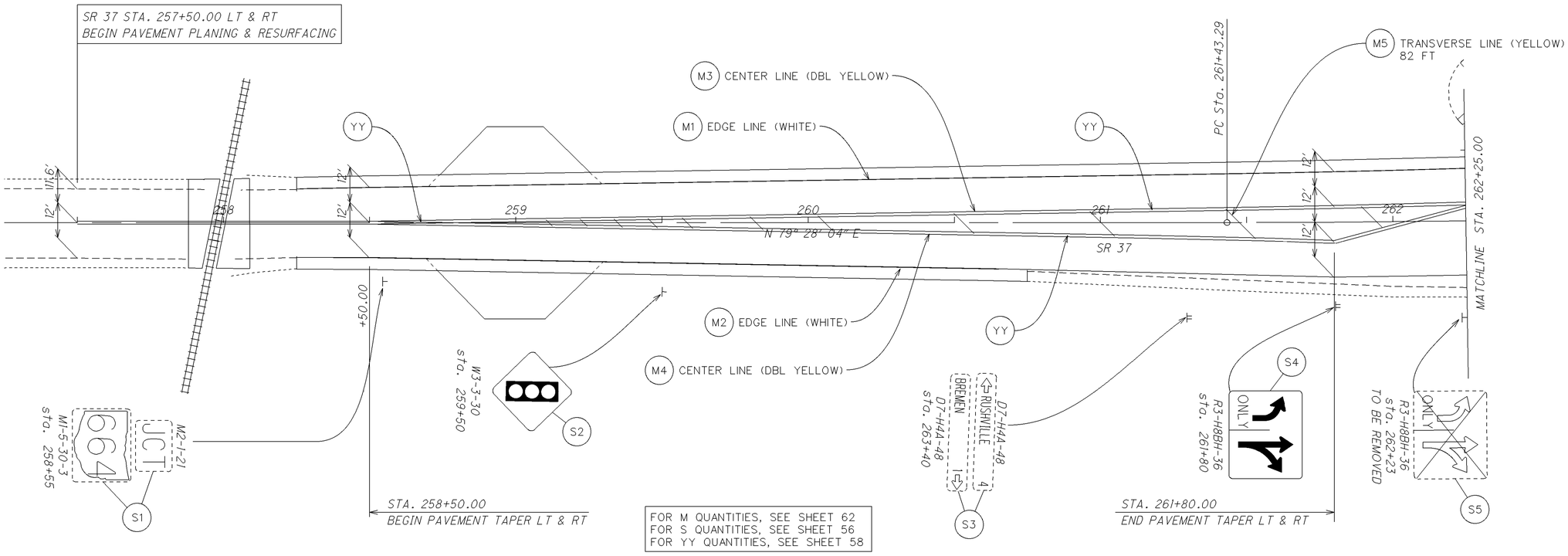
TOTALS CARRIED TO SUBSUMMARIES

CALCULATED BCT | CHECKED DNM

AGGREGATE DRAINS LOCATIONS 1 & 2

FAI-37/664-25.01/4.21

P:\FAI\86847\DESIGN\ROADWAY\PLAN_SHEETS\DRAINAGE\86847_DRAINAGE02.DGN



REFERENCE NUMBER (SEE SHTS 56-58)	STATION	SIDE	CODE	SIZE	CODE	SIZE	ITEM 630						REMARKS
							GROUND MOUNTED SUPPORT, NO 2 POST, TYPE S	GROUND MOUNTED SUPPORT, NO 3 POST, TYPE S	SIGN, FLAT SHEET	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	REMOVAL OF GROUND MOUNTED SIGN AND RE-ERECTION	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	
							FT	FT	SQ.FT.	EACH	EACH	EACH	
S1	258+55	RT	M1-5-30-3	30" x 24"	M2-1-21	21" x 15"		12			2	1	
S2	259+50	RT	W3-3-30	30" x 30"				12	6.25				
S3	263+40	RT	D7-H4A-48	48" x 8"	D7-H4A-48	48" x 8"	2@12=24				2	2	
S4	261+80	RT	R3-H8BH-36	36" x 30"				12	7.50				
S5	262+23	RT	R3-H8BH-36	36" x 30"						1		1	
S6	264+07	RT	R3-H8BH-36	36" x 30"				12	7.50				
S7	262+25	LT	W10-1-24	24" x 24"				12			1	1	
S8	263+83	LT	M1-5-30-2	30" x 30"	M3-4-24	21" x 15"		12			2	1	
S9	264+69	LT	M1-5-30-3	30" x 24"	M6-4-21	21" x 15"		12			2	1	RELOCATE AS DIRECTED
S10	264+92	RT	M1-5-30-3	30" x 24"	M6-4-21	21" x 15"		12			2	1	RELOCATE AS DIRECTED
S11	265+79	RT	M1-5-30-2	30" x 30"	M3-2-24	21" x 15"		12			2	1	
S12	265+58	LT	R3-H8BH-36	36" x 30"				12	7.50				
S13	266+42	LT	W10-1-24	24" x 24"				12			1	1	
S14	267+88	LT	R3-H8BH-36	36" x 30"						1		1	
S15	268+27	LT	R3-H8BH-36	36" x 30"				12	7.50				
S16	270+00	LT	W3-3-30	30" x 30"				12	6.25				
S17	270+35	LT	D7-H4A-48	48" x 8"	D7-H4A-48	48" x 8"	2@12=24				2	2	
LOCATION 1 SUBTOTALS CARRIED TO SUBSUMMARY							48	156	42.5	2	16	13	

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED BCT
CHECKED DNM

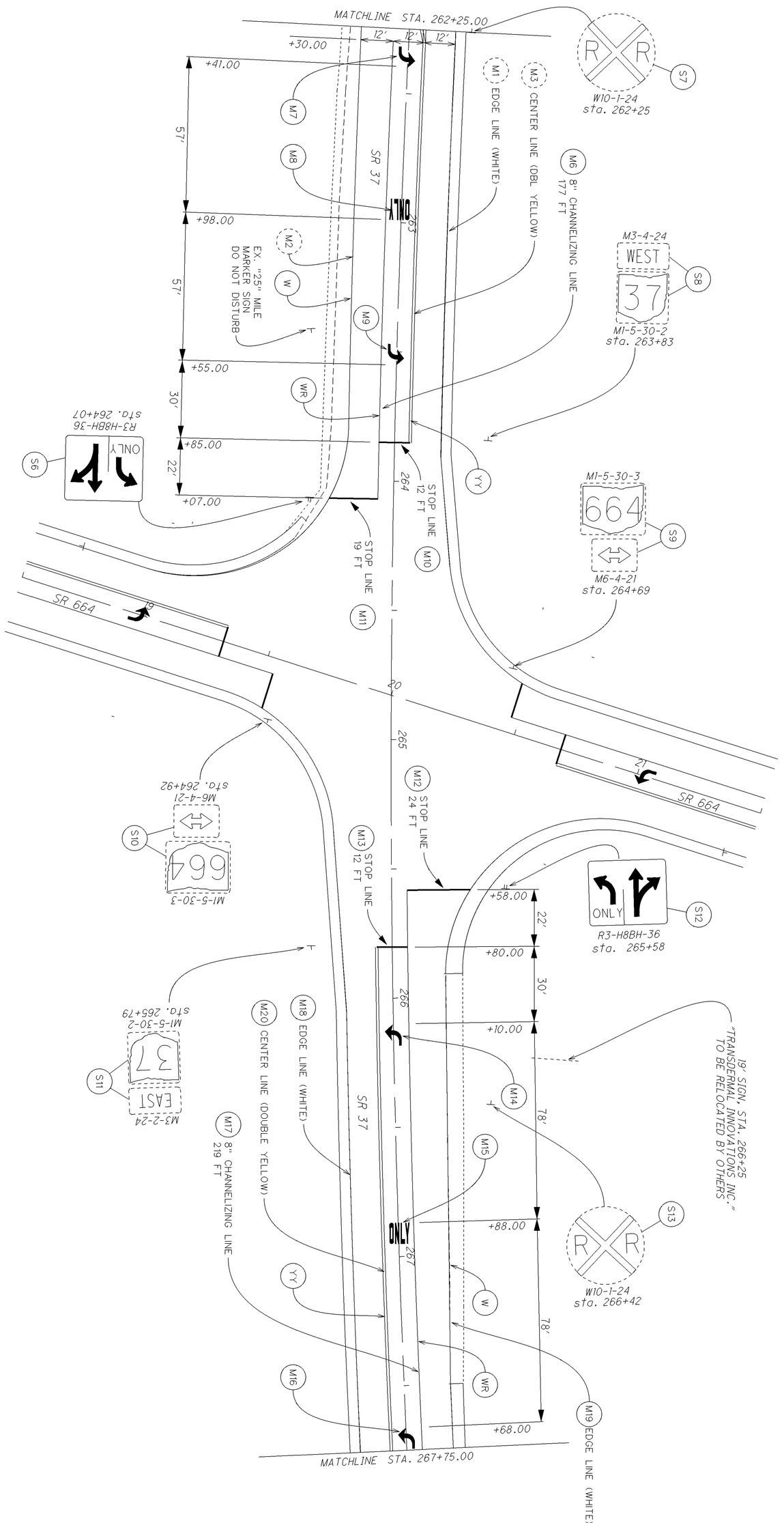
RPM, SIGNING & PAVEMENT MARKING
SR 37 STA. 257+25.00 TO STA. 262+25.00

FAI-37/664-25.01/4.21

56
102

P:\FAI\86847\DESIGN\ROADWAY\PLAN_SHEETS\TRAFFIC\86847_SR37_PVTMRK01.DGN

P:\FAI\86847\DESIGN\ROADWAY\PLAN_SHEETS\TRAFFIC\86847_SR37_PVTMRK02.DGN

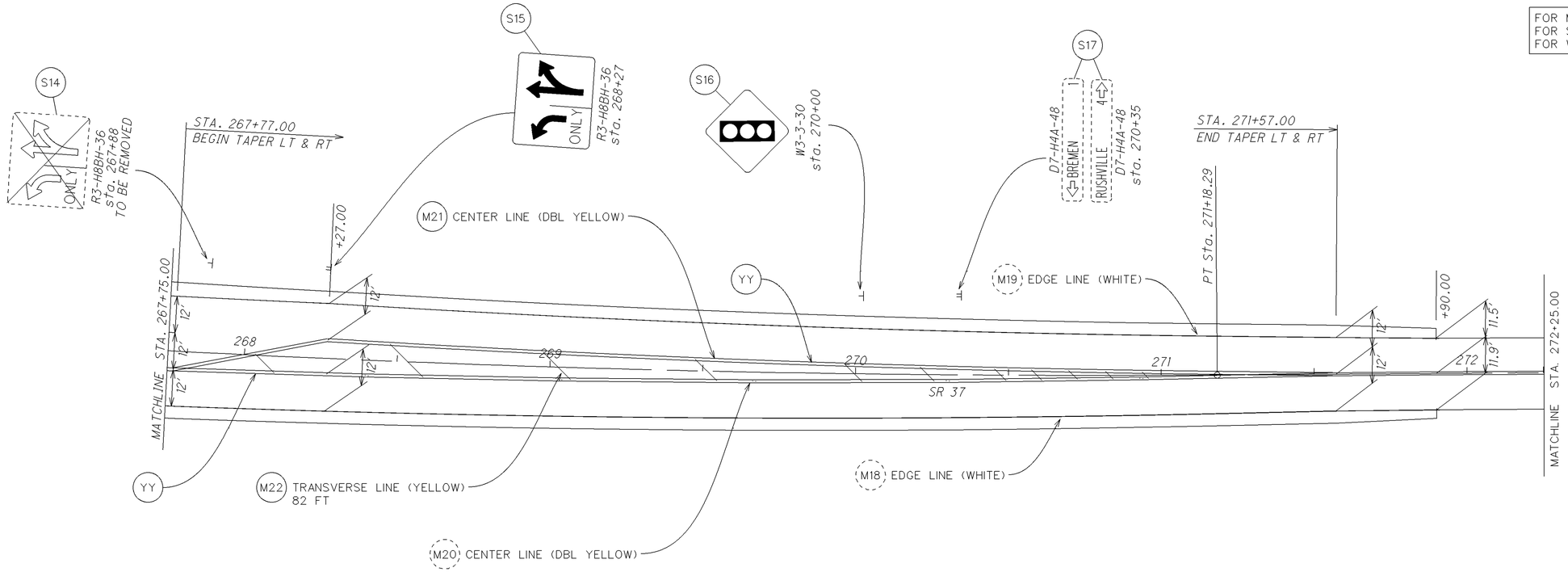


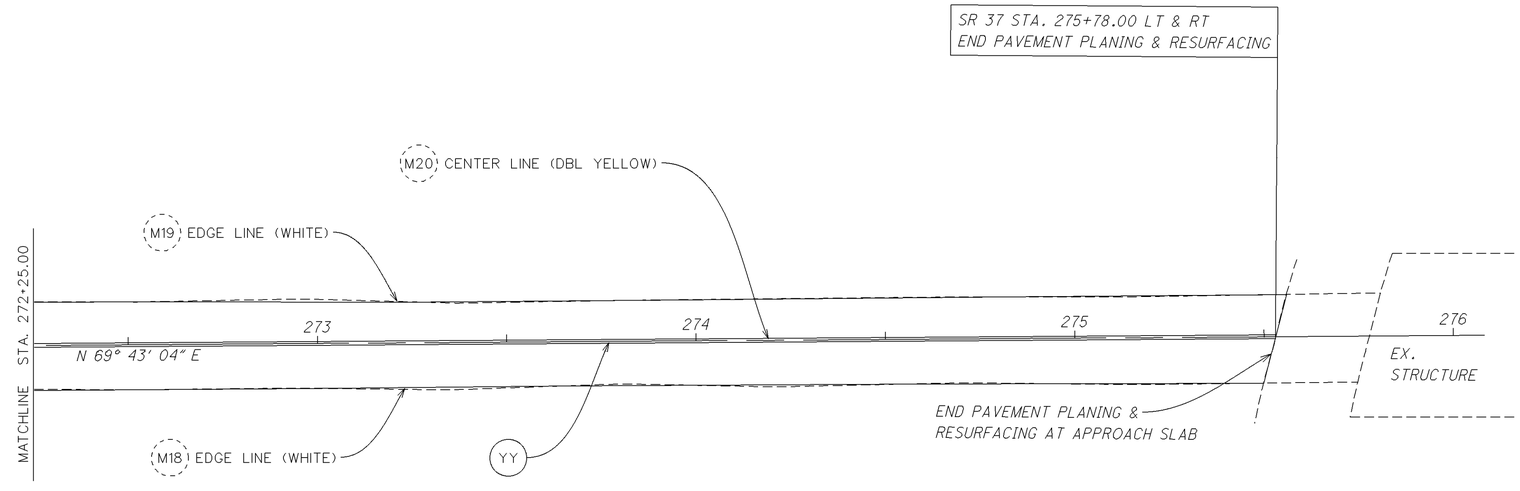
FOR INTERSECTION DETAILS, SEE SHEET 49.

FOR M QUANTITIES, SEE SHEET 62
FOR S QUANTITIES, SEE SHEET 56
FOR W, YY & WR QUANTITIES, SEE SHEET 58

57/102	FAI-37/664-25.01/4.21	RPM, SIGNING & PAVEMENT MARKING SR 37 STA. 262+25.00 TO STA. 267+75.00	CALCULATED BCT CHECKED DNM	0 20 10 40 HORIZONTAL SCALE IN FEET

FOR M QUANTITIES, SEE SHEET 62
FOR S QUANTITIES, SEE SHEET 56
FOR W, YY & WR QUANTITIES, SEE SHEET 58





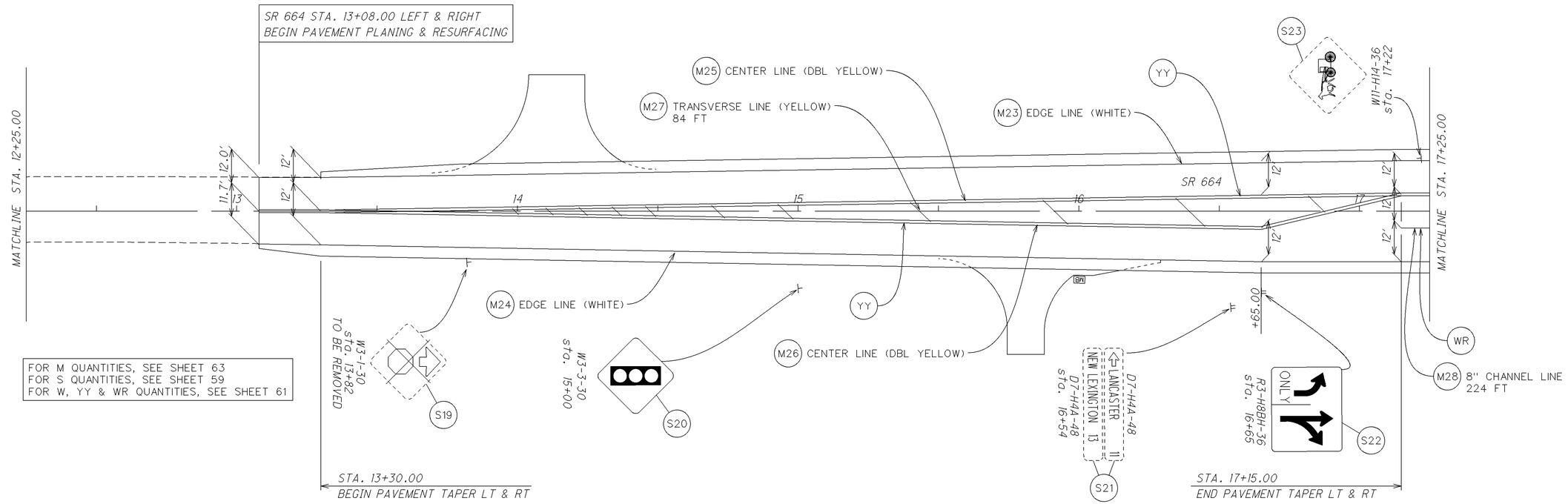
SHEET NO.	MARK	SR 37	ITEM 621				
			RPM	1-WAY WHITE 40' SPACING	1-WAY WHITE 80' SPACING	2-WAY YELLOW/YELLOW 80' SPACING	2-WAY WHITE/RED 40' SPACING
		STATION TO STATION	EACH	EACH	EACH	EACH	EACH
56,57	YY	257+50.00 TO 263+85.00	9			9	
56,57	YY	258+50.00 TO 262+30.00	6			6	
57	WR	262+30.00 TO 264+07.00	6				6
57	W	262+87.00 TO 263+67.00	5		5		
57	W	263+67.00 TO 264+07.00	11	11			
57,58	YY	265+80.00 TO 275+78.00	14			14	
57	W	265+58.00 TO 265+98.00	11	11			
57	W	265+98.00 TO 266+78.00	5		5		
57,58	WR	265+58.00 TO 267+77.00	7				7
58	YY	267+77.00 TO 271+57.00	6			6	
		SUB-TOTAL		22	10		
TOTAL (CARRIED TO LOCATION 1 SUBSUMMARY)			80	32		35	13

HORIZONTAL SCALE IN FEET
0 10 20 40
CALCULATED BCT
CHECKED DNM

RPM, SIGNING & PAVEMENT MARKING
SR 37 STA. 267+75.00 TO STA. 275+78.00

FAI-37/664-25.01/4.21

P:\FAI\86847\DESIGN\ROADWAY\PLAN_SHEETS\TRAFFIC\86847_SR37_PVTMRK03.DGN



FOR M QUANTITIES, SEE SHEET 63
FOR S QUANTITIES, SEE SHEET 59
FOR W, YY & WR QUANTITIES, SEE SHEET 61

REFERENCE NUMBER (SEE SHTS 59-61)	STATION	SIDE	CODE	SIZE	CODE	SIZE	ITEM 630								REMARKS
							GROUND MOUNTED SUPPORT, NO 2 POST, TYPE S	GROUND MOUNTED SUPPORT, NO 3 POST, TYPE S	SIGN, FLAT SHEET	SIGN POST REFLECTOR	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	REMOVAL OF GROUND MOUNTED SIGN AND STORAGE	REMOVAL OF GROUND MOUNTED SIGN AND RE-ERECTION	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	
							FT	FT	SQ.FT.	EACH	EACH	EACH	EACH	EACH	
S19	13+82	RT	W3-1-30	30" x 30"											
S20	15+00	RT	W3-3-30	30" x 30"				12	6.25		1			1	
S21	16+54	RT	D7-H4A-48	48" x 8"	D7-H4A-48	48" x 8"	2@12=24						2	2	
S22	16+65	RT	R3-H8BH-36	36" x 30"				12	7.50						
S23	17+22	LT	W11-H14-36	36" x 36"				12					1	1	
S24	18+27	RT	R1-1-30	30" x 30"				12	6.25	1	1			1	
S25	18+69	LT	M1-5-30-3	30" x 24"	M3-3-24	21" x 15"		12					2	1	
S26	19+29	LT	R1-1-30	30" x 30"								1		1	
S27	19+32	LT	M1-5-30-2	30" x 30"	M6-4-21	21" x 15"		12					1	1	RELOCATE AS DIRECTED
S28	19+53	RT	R1-1-30	30" x 30"	W4-4P-24	24" x 12"					1	1		2	
S29	19+54	RT	R3-H8BH-36	36" x 30"				12	7.50						
S30	20+47	LT	R3-H8BH-36	36" x 30"				12	7.50						
S31	20+54	LT	R1-1-30	30" x 30"	W4-4P-24	24" x 12"					1	1		2	
S32	20+59	RT	M1-5-30-2	30" x 30"	M6-4-21	21" x 15"		12					2	1	RELOCATE AS DIRECTED
S33	20+63	RT	R1-1-30	30" x 30"								1		1	
S34	21+41	RT	M1-5-30-3	30" x 24"	M3-1-24	21" x 15"		12					2	1	
S35	23+30	LT	R3-H8BH-36	36" x 30"				12	7.50						
S36	24+21	LT	D7-H4A-48	48" x 8"	D7-H4A-48	48" x 8"	2@12=24						2	2	
S37	25+22	LT	W3-3-30	30" x 30"				12	6.25						
S38	27+15	LT	M1-5-30-2	30" x 30"	M2-1-21	21" x 15"		12					2	1	
S39	30+60	LT	W3-1-30	30" x 30"							1			1	
S40	30+60	RT	W3-1-30	30" x 30"							1			1	
LOCATION 2 SUBTOTALS CARRIED TO SUBSUMMARY							48	156	48.75	1	6	4	14	20	

N

HORIZONTAL SCALE IN FEET
0 10 20 40

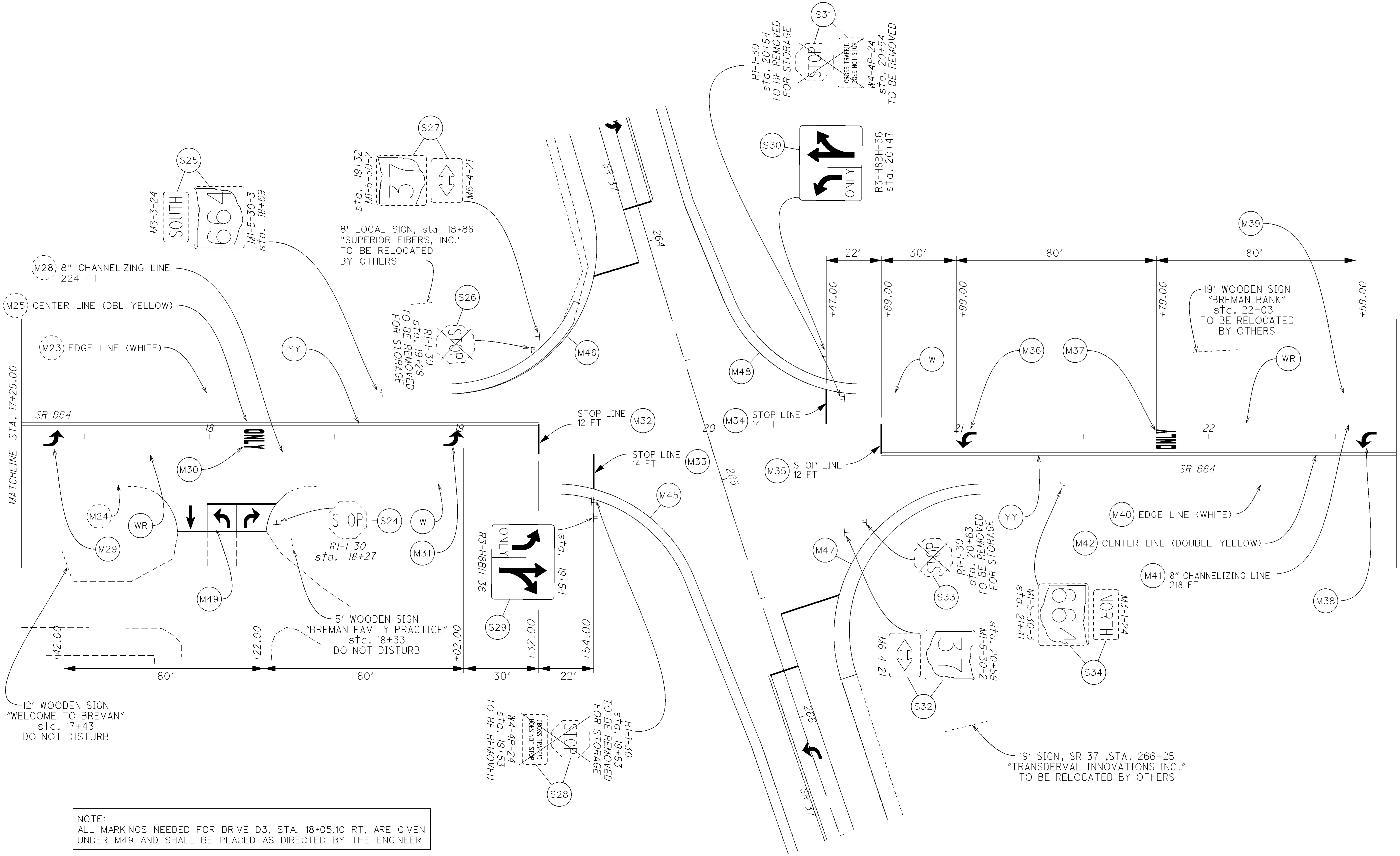
CALCULATED BCT
CHECKED DNM

RPM, SIGNING & PAVEMENT MARKING
SR 664 STA. 12+25.00 TO STA. 17+25.00

FAI-37/664-25.01/4.21

P:\FAI\86847\DESIGN\ROADWAY\PLAN_SHEETS\TRAFFIC\86847_SR664_PVTMRK01.DGN

FOR M QUANTITIES, SEE SHEET 63
FOR S QUANTITIES, SEE SHEET 59
FOR W, YY & WR QUANTITIES, SEE SHEET 61



S25
M3-3-24
SOUTH
664
M1-5-30-3
sta. 18+69
S27
sta. 19+32
M1-5-30-2
37
M6-4-21
8' LOCAL SIGN, sta. 18+86
"SUPERIOR FIBERS, INC."
TO BE RELOCATED
BY OTHERS
S26
R1-1-30
sta. 19+29
TO BE REMOVED
FOR STORAGE
STOP
M28 8" CHANNELIZING LINE
224 FT
M25 CENTER LINE (DBL YELLOW)
M23 EDGE LINE (WHITE)
YY
M46
SR 37
264
S31
R1-1-30
sta. 20+54
TO BE REMOVED
FOR STORAGE
W4-4P-24
sta. 20+54
TO BE REMOVED
CROSS TRAFFIC DOES NOT STOP
S30
ONLY
R3-H8BH-36
sta. 20+47
M39
22'
30'
80'
80'
+47.00
+69.00
+99.00
+79.00
+59.00
19' WOODEN SIGN
"BREMAN BANK"
sta. 22+03
TO BE RELOCATED
BY OTHERS
M48
W
M36
M37
WR
MATCHLINE STA. 17+25.00
SR 664
18
19
ONLY
STOP LINE
12 FT
M32
STOP LINE
14 FT
M33
20
M34 STOP LINE
14 FT
M35 STOP LINE
12 FT
21
22
SR 664
MATCHLINE STA. 22+75.00
M30
M24
WR
M29
M49
R1-1-30
sta. 18+27
S24
W
M31
R3-H8BH-36
sta. 19+54
S29
M45
265
YY
M40 EDGE LINE (WHITE)
M42 CENTER LINE (DOUBLE YELLOW)
M41 8" CHANNELIZING LINE
218 FT
M38
M47
R1-1-30
sta. 20+63
TO BE REMOVED
FOR STORAGE
S33
M1-5-30-3
sta. 21+41
NORTH
M3-1-24
S34
M6-4-21
M1-5-30-2
sta. 20+59
S32
5' WOODEN SIGN
"BREMAN FAMILY PRACTICE"
sta. 18+33
DO NOT DISTURB
+42.00
+22.00
+02.00
+32.00
+54.00
80'
80'
30'
22'
12' WOODEN SIGN
"WELCOME TO BREMAN"
sta. 17+43
DO NOT DISTURB
W4-4P-24
sta. 19+53
TO BE REMOVED
R1-1-30
sta. 19+53
TO BE REMOVED
FOR STORAGE
S28
266
SR 37
19' SIGN, SR 37 ,STA. 266+25
"TRANSDERMAL INNOVATIONS INC."
TO BE RELOCATED BY OTHERS

NOTE:
ALL MARKINGS NEEDED FOR DRIVE D3, STA. 18+05.10 RT, ARE GIVEN UNDER M49 AND SHALL BE PLACED AS DIRECTED BY THE ENGINEER.

0 10 20 40
HORIZONTAL SCALE IN FEET

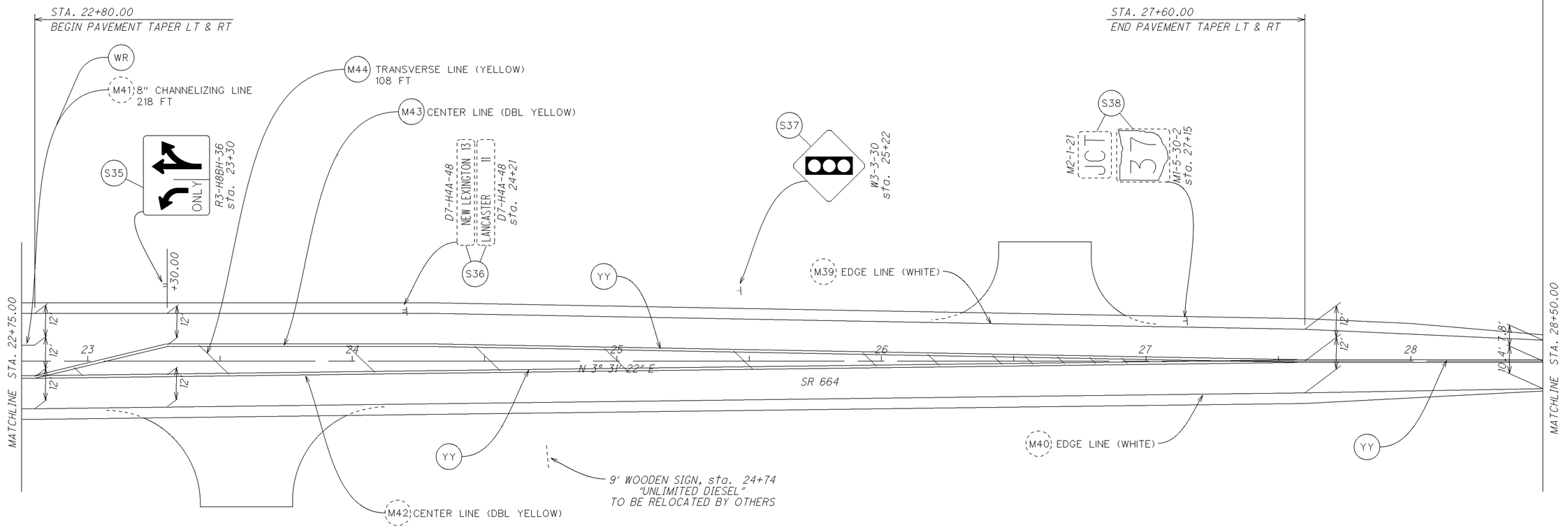
CALCULATED BCT
CHECKED DNM

RPM, SIGNING & PAVEMENT MARKING
SR 664 STA. 17+25.00 TO STA. 22+75.00

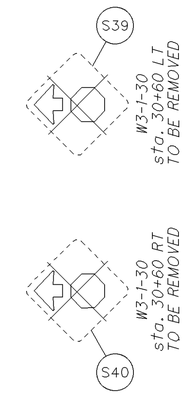
FAI-37/664-25.01/4.21

P:\FAI\86847\DESIGN\ROADWAY\PLAN_SHEETS\TRAFFIC\86847_SR664_PVTMRK02.DGN

SR 664 STA. 28+50.00 LEFT & RIGHT
END PAVEMENT PLANING & RESURFACING



SHEET NO.	MARK	SR 664	ITEM 621				
			RPM	1-WAY WHITE 40' SPACING	1-WAY WHITE 80' SPACING	2-WAY YELLOW/YELLOW 80' SPACING	2-WAY WHITE/RED 40' SPACING
		STATION TO STATION	EACH	EACH	EACH	EACH	EACH
59,60	YY	13+08.00 TO 19+32.00	9			9	
59	YY	13+08.00 TO 17+15.00	6			6	
59,60	WR	17+15.00 TO 19+54.00	7				7
60	W	18+34.00 TO 19+14.00	5		5		
60	W	19+14.00 TO 19+54.00	11	11			
60,61	YY	20+69.00 TO 28+50.00	11			11	
61	W	20+47.00 TO 20+87.00	11	11			
61	W	20+87.00 TO 21+67.00	5		5		
60,61	WR	20+69.00 TO 22+80.00	6				6
61	YY	22+80.00 TO 27+60.00	7			7	
		SUB-TOTAL		22	10		
TOTAL (CARRIED TO LOCATION 2 SUBSUMMARY)			78	32		33	13



FOR M QUANTITIES, SEE SHEET 63
FOR S QUANTITIES, SEE SHEET 59
FOR W, YY & WR QUANTITIES, SEE THIS SHEET

N

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED BCT
CHECKED DNM

RPM, SIGNING & PAVEMENT MARKING
SR 664 STA. 22+75.00 TO STA. 28+50.00

FAI-37/664-25.01/4.21

61
102

P:\FAI\86847\DESIGN\ROADWAY\PLAN_SHEETS\TRAFFIC\86847_SR664_PVTMRK03.DGN

PAVEMENT MARKINGS - LOCATION 1 (SR 37)

REFERENCE NO. (SEE SHTS 56-58)	STATIONING		LENGTH	ITEM 614			ITEM 817		ITEM 644 - THERMOPLASTIC										
				WORK ZONE CENTER LINE, CLASS III, 642 PAINT	WORK ZONE STOP LINE, CLASS I	WORK ZONE CHANNEL LINE, CLASS III, 642 PAINT	CENTER LINE, TYPE 1 (YELLOW)	EDGE LINE, TYPE 1 (WHITE)	STOP LINE	WORD ON PAVEMENT		LANE ARROW				24" TRANSVERSE/ DIAGONAL LINE		8" CHANNEL LINE
										ONLY		COMBINATION		TURN					
									24"	72"	96"	LT/TH	RT/TH	LT	RT	TH	WHITE	YELLOW	
	FROM	TO	FT	MILE	FT	FT	MILE	MILE	FT	EACH		EACH					FT		FT
M1	257+50	263+90	640					0.122											
M2	257+50	263+90	640					0.122											
M3	257+50	263+85	635	0.242			0.121												
M4	258+50	262+30	380	0.144			0.072												
M5	258+50	262+30	380															82	
M6	262+30	264+07	177			354													177
M7	262+41													1					
M8	262+98										1								
M9	263+55													1					
M10	263+85				24				12										
M11	264+07				38				19										
M12	265+58				48				24										
M13	265+80				24				12										
M14	266+10													1					
M15	266+88										1								
M16	267+68													1					
M17	265+58	267+77	219			438													219
M18	265+33.93	275+78	1044.1					0.198											
M19	265+90.85	275+78	987.2					0.187											
M20	265+80	275+78	998	0.380			0.190												
M21	267+77	271+57	380	0.144			0.072												
M22	267+77	271+57	380															82	
LANE ARROW SUBTOTAL														4					
LOCATION 1 SUBTOTALS CARRIED SUBSUMMARY				0.91	134	792	0.46	0.63	67		2	4					164		396

N

0 10 20 40 HORIZONTAL SCALE IN FEET

CALCULATED BCT | CHECKED DNM

LOCATION 1
PAVEMENT MARKING SR 37

FAI-37 / 664-25.01 / 4.21

PAVEMENT MARKINGS - LOCATION 2 (SR 664)

REFERENCE NO. (SEE SHTS 59-61)	STATIONING		LENGTH	ITEM 614			ITEM 817		ITEM 642					ITEM 644 - THERMOPLASTIC						
				WORK ZONE CENTER LINE, CLASS III, 642 PAINT	WORK ZONE STOP LINE, CLASS I, 740.06, TYPE 1	WORK ZONE CHANNEL LINE, CLASS III, 642 PAINT	CENTER LINE, TYPE 1 (YELLOW)	EDGE LINE, TYPE 1 (WHITE)	STOP LINE, TYPE 1	LANE ARROW, TYPE 1			8" CHANNEL LINE, TYPE 1	STOP LINE	WORD ON PAVEMENT	LANE ARROW			24" TRANSVERSE / DIAGONAL LINE	8" CHANNEL LINE
										TURN					ONLY	TURN				
									24"	LT	RT	TH		24"	96"	LT	RT	TH	YELLOW	
	FROM	TO	FT	MILE	FT	FT	MILE	MILE	FT	EACH			FT	FT	EACH	EACH				FT
M23	13+08	18+94.73	586.7					0.112												
M24	13+08	19+38.55	630.6					0.120												
M25	13+08	19+32	624	0.238			0.119													
M26	13+30	17+15	385	0.146			0.073													
M27	13+30	17+15	385																84	
M28	17+15	19+54	239			448														224
M29	17+42														1					
M30	18+22														1					
M31	19+02														1					
M32	19+32				24									12						
M33	19+54				28									14						
M34	20+47				28									14						
M35	20+69				24									12						
M36	20+99															1				
M37	21+79														1					
M38	21+59															1				
M39	20+61.62	28+50	788.4					0.150												
M40	21+10	28+50	740					0.141												
M41	20+47	22+80	233			436														218
M42	20+69	28+50	781	0.296			0.148													
M43	20+80	27+60	680	0.258			0.129													
M44	20+80	27+60	680																108	
M45	SE RADIUS RETURN							0.014												
M46	SW RADIUS RETURN							0.019												
M47	NE RADIUS RETURN							0.021												
M48	NW RADIUS RETURN							0.021												
M49	18+05.1 RT (DRIVE, D3)								28	1	1	1	2 @ 11							
LANE ARROW SUBTOTAL										1	1	1				4				
SUBSUMMARY				0.94	104	884	0.47	0.60	28	3			22	52	2	4			192	442

N

0 10 20 40 HORIZONTAL SCALE IN FEET

CALCULATED BCT | CHECKED DNM

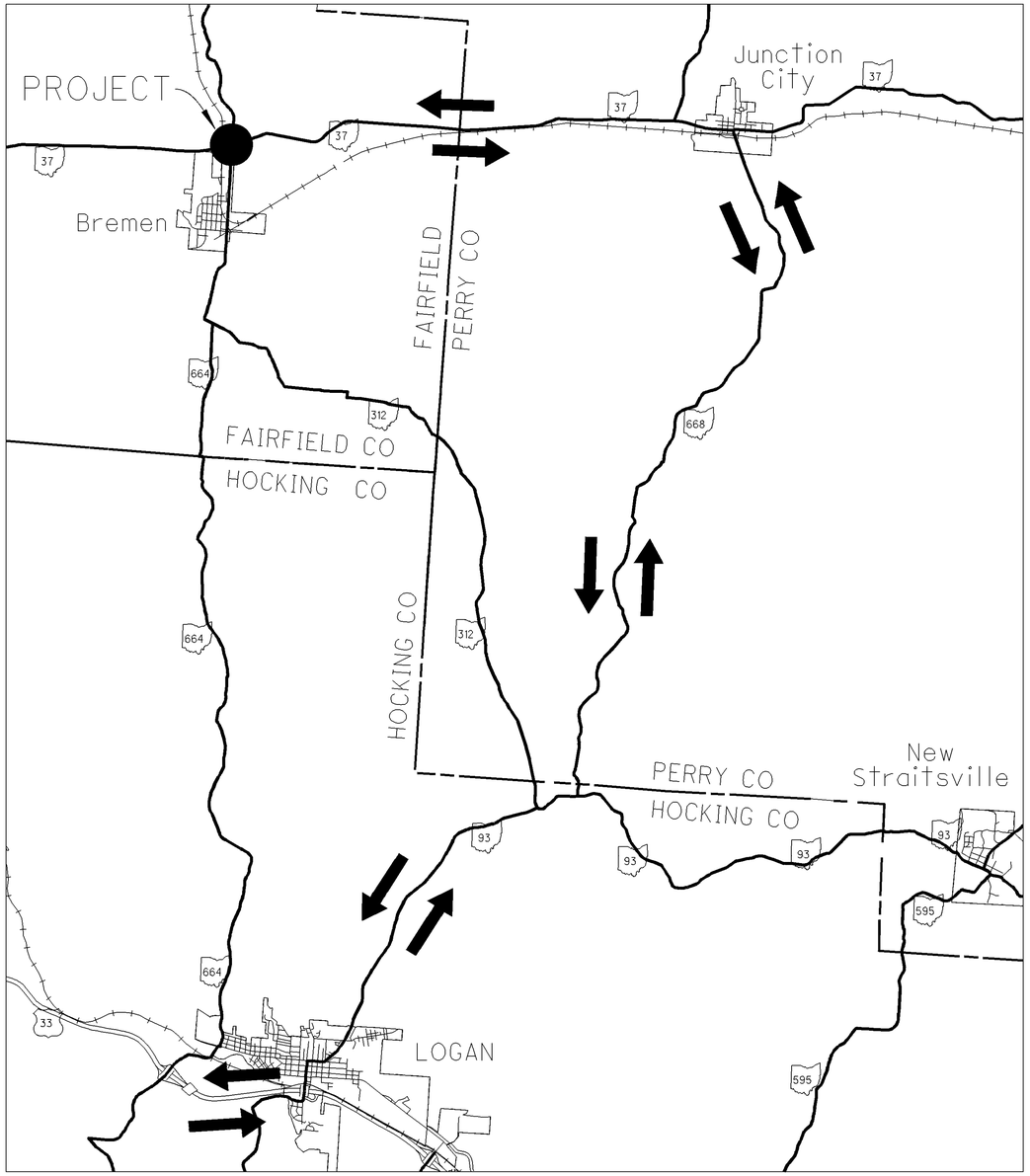
LOCATION 2
PAVEMENT MARKING SR 664

FAI-37/664-25.01/4.21

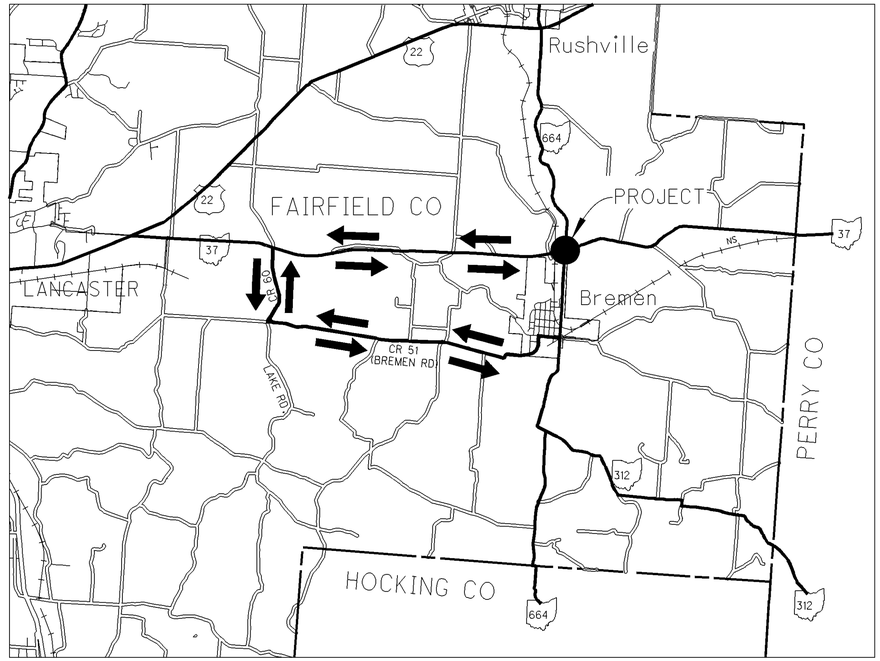
63
102

P:\FAI\86847\DESIGN\ROADWAY\PLAN_SHEETS\TRAFFIC\86847_SR37_PVTMRK0b.DGN

STATE DETOUR MAP



LOCAL DETOUR MAP



DESIGNATED STATE DETOUR ROUTE

THE STATE DETOUR ROUTE WHICH IS USR 33 (1.94mi), SR 93 (5.91mi), SR 668 (10.35mi) AND SR 37 (6.88 mi) SHALL BE SIGNED AND MAINTAINED BY STATE FORCES.

DESIGNATED LOCAL DETOUR ROUTE

IN ADDITION TO THE OFFICIAL, SIGNED DETOUR ROUTE, A LOCAL ROUTE HAS BEEN DETERMINED TO BE THE SECONDARY, UNSIGNED DETOUR ROUTE OR "DESIGNATED LOCAL DETOUR ROUTE". THIS ROUTE IS SHOWN ON THIS SHEET. DURING THE TIME THAT TRAFFIC IS DETOURED, THE CONTRACTOR SHALL MAINTAIN THIS ROUTE IN A CONDITION WHICH IS REASONABLY SMOOTH AND FREE FROM HOLES, RUTS, RIDGES, BUMPS, DUST AND STANDING WATER. ONCE THE DETOUR IS REMOVED AND TRAFFIC RETURNED TO ITS NORMAL PATTERN, THE DESIGNATED LOCAL DETOUR ROUTE SHALL BE RESTORED TO A CONDITION THAT IS EQUIVALENT TO THAT WHICH EXISTED PRIOR TO ITS USE FOR THIS PURPOSE. ALL SUCH WORK SHALL BE PERFORMED WHEN AND AS DIRECTED BY THE ENGINEER. THE FOLLOWING ESTIMATED QUANTITIES ARE PROVIDED FOR USE AS DIRECTED BY THE ENGINEER TO MAINTAIN AND SUBSEQUENTLY RESTORE THE CR 51 AND CR 60.

LOCAL DETOUR IS 3.77 MILES OF SR 37, 0.88 MILES OF CR 60 (LAKE RD) AND 3.54 MILES OF CR 51 (BREMAN RD).

448 ASHALT CONCRETE, MISC.: SPOT TREATMENT 70 CU.YD.
407 TACK COAT 150 GAL.

QUANTITIES CARRIED TO GENERAL SUMMARY.

CALCULATED BCT CHECKED DNM

DETOUR MAPS

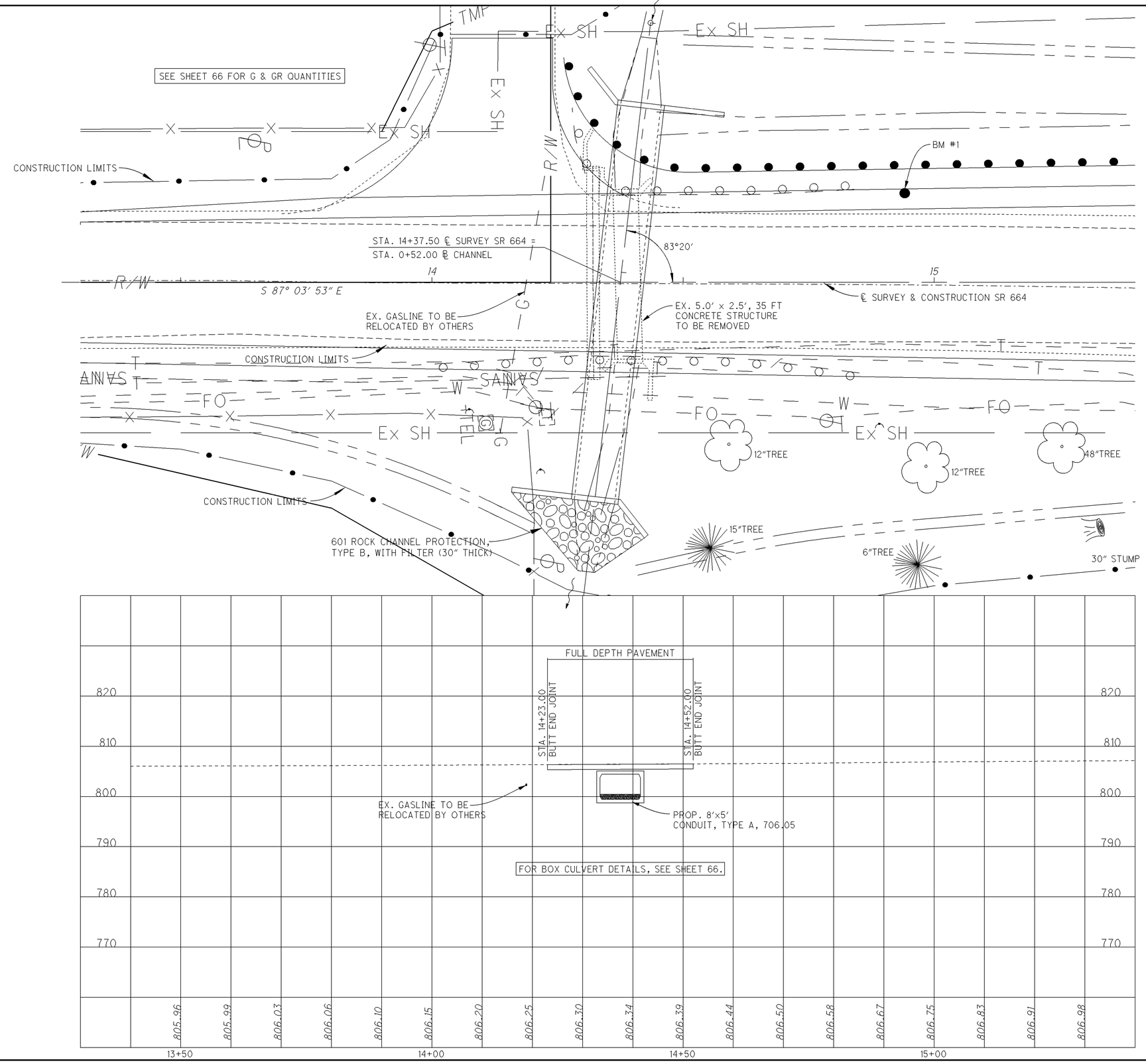
FAI-37/664-25.01/4.21

P:\FAI\86847\DESIGN\ROADWAY\PLAN_SHEETS\General\86847_Detour.dgn

PROPOSED STRUCTURE
FILE NO. 236640421 TYPE: CONCRETE BOX CULVERT LENGTH: 108′ SPAN: 8.0′ RISE: 5.0′ SKEW: 83°20′ ROADWAY: 24′
EXISTING STRUCTURE
FILE NO. 236640420 TYPE: CONCRETE STRUCTURE LENGTH: 35′ SPAN: 5.0′ RISE: 2.5′ GRADE TO STREAM BED: 5.1′ DISPOSITION: TO BE REMOVED

VERTICAL DATUM = N.A.V.D. 1988 (GPS DERIVED)

BENCHMARK #1 TOP OF ⅝INCH REBAR WITH ODOT CAP; 17.74 FEET LEFT OF EXISTING SR 664 ℄ SURVEY STATION 14+94.13 ELEVATION = 805.98
BENCHMARK #2 TOP OF ⅝INCH REBAR WITH ODOT CAP; 72.92 FEET LEFT OF EXISTING SR 664 ℄ SURVEY STATION 19+40.80 ELEVATION = 811.24
BENCHMARK #3 TOP OF ⅝INCH REBAR WITH ODOT CAP; 19.49 FEET LEFT OF EXISTING SR 664 ℄ SURVEY STATION 28+46.96 ELEVATION = 810.03



N

HORIZONTAL SCALE IN FEET
0 5 10 20

CALCULATED BCT
CHECKED DNM

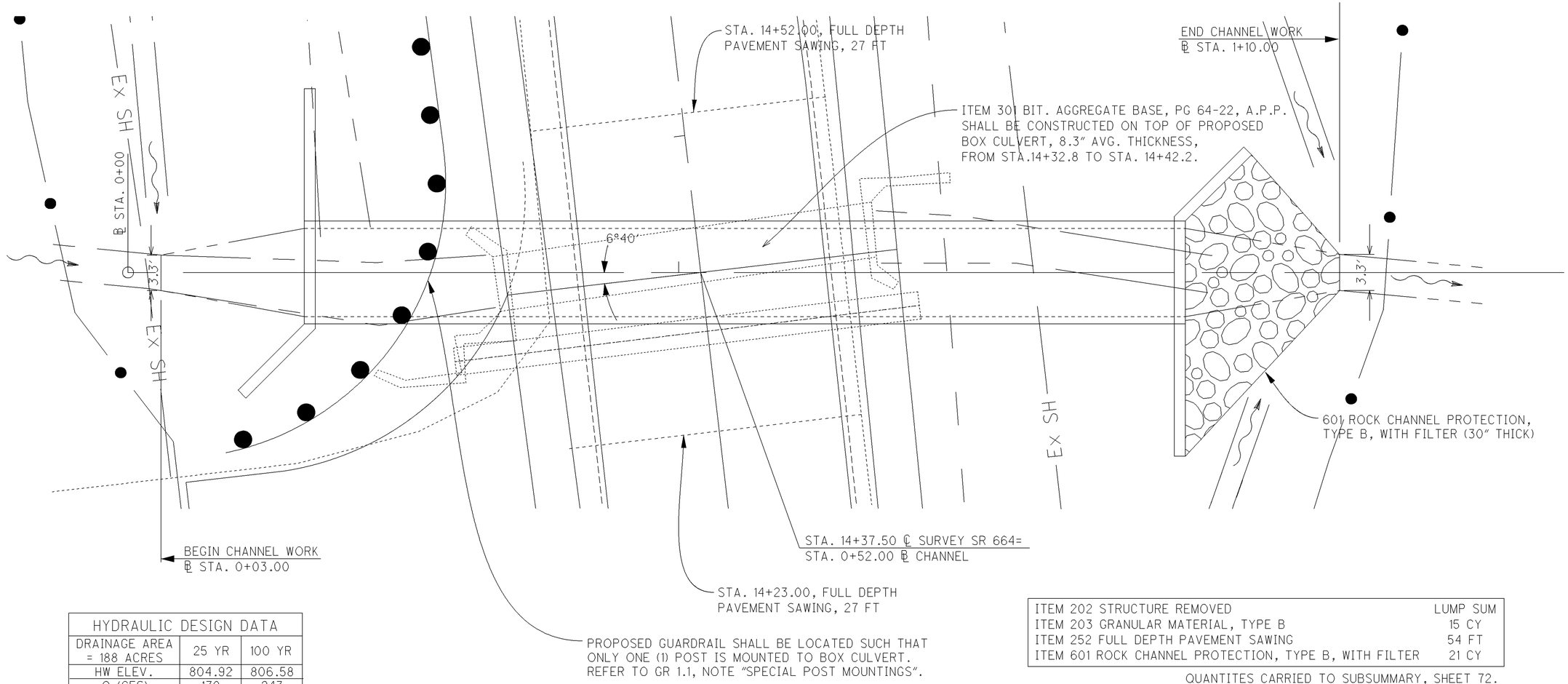
PLAN AND PROFILE BOX CULVERT

FAI-37/664-25.01/4.21

1/5

65
102

P:\DFA1\86847\DESIGN\ROADWAY\PALN_SHEETS\DRAINAGE\86847_BOX_PPP.DGN

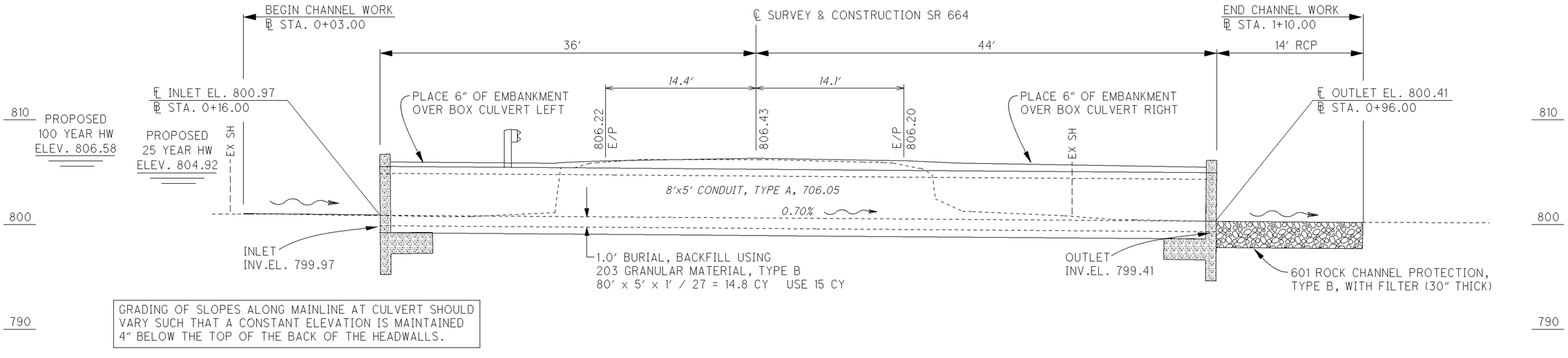


HYDRAULIC DESIGN DATA		
DRAINAGE AREA = 188 ACRES	25 YR	100 YR
HW ELEV.	804.92	806.58
Q (CFS)	170	243
V (FPS)	12	13
ORDINARY HIGH WATER = 803.2		
CULVERT FILE NO. 236640421		

ITEM 202 STRUCTURE REMOVED	LUMP SUM
ITEM 203 GRANULAR MATERIAL, TYPE B	15 CY
ITEM 252 FULL DEPTH PAVEMENT SAWING	54 FT
ITEM 601 ROCK CHANNEL PROTECTION, TYPE B, WITH FILTER	21 CY

QUANTITES CARRIED TO SUBSUMMARY, SHEET 72.

ITEM 601 ROCK CHANNEL PROTECTION, TYPE B, WITH FILTER
224 SF x 2.5 FT / 27 = 21 CY



GRADING OF SLOPES ALONG MAINLINE AT CULVERT SHOULD VARY SUCH THAT A CONSTANT ELEVATION IS MAINTAINED 4" BELOW THE TOP OF THE BACK OF THE HEADWALLS.

HORIZONTAL SCALE IN FEET
0 5 10 20

CALCULATED BCT
CHECKED DNM

CULVERT DETAIL

FAI-37/664-25.01/4.21

2 / 5

66
102

P:\FAI\86847\DESIGN\ROADWAY\PLAN_SHEETS\DRAINAGE\86847_BOX_DETAIL.DGN

GENERAL NOTES

DESIGN SPECIFICATIONS:
THIS STANDARD DRAWING CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2002 AND THE ODOT BRIDGE DESIGN MANUAL.

DESIGN DATA:
THE FOLLOWING DESIGN DATA IS ASSUMED:
- INTERNAL ANGLE OF FRICTION (ϕ) = 30 DEGREES
- COEFFICIENT OF FRICTION (μ) = 0.30
- UNIT WEIGHT OF SOIL = 120 PCF
- UNIT WEIGHT OF CONCRETE = 150 PCF
- SLOPE OF BACKFILL = 2:1
- HEIGHT OF LIVE LOAD SURCHARGE = 2 FT
- MAXIMUM FOUNDATION BEARING PRESSURE = 2000 P.S.F.

CONCRETE CLASS C - COMPRESSIVE STRENGTH 4000 PSI (FOOTING, WINGWALL AND FORESLOPE WALL)

REINFORCING STEEL - ASTM A615, A616, OR A617
GRADE 60 MINIMUM YIELD STRENGTH
60,000 PSI (ALL REINFORCING SHALL BE EPOXY COATED)

PRECAST CONCRETE:
AT THE OPTION OF THE CONTRACTOR, PRECAST HEADWALLS MAY BE FURNISHED PER ITEM 602.03 PRECAST STRUCTURES, PROVIDED THEY ARE SIZED TO MEET THE SOIL LOADING AND RESISTANCE PARAMETERS, AND MEET OR EXCEED THE MATERIAL STRENGTHS AND WALL LIMITS AS SHOWN AND SPECIFIED. FULL COMPENSATION FOR THE PRECAST SUBSTITUTION IS THE VOLUME OF CONCRETE AND THE WEIGHT OF THE REINFORCING STEEL FOR THE CORRESPONDING CAST-IN-PLACE STRUCTURE.

FORESLOPE WALL ANCHOR DOWELS:
ANCHOR PER CMS 510 WITH NONSHRINK, NONMETALLIC GROUT CONFORMING TO CMS 705.20 AND TO A DEPTH OF 5 ". PAYMENT FOR DOWEL HOLES, GROUT AND INSTALLATION SHALL BE INCLUDED WITH ITEM 511.

AS AN ALTERNATIVE TO RESIN BONDING, THREADED INSERTS OR NONPROTRUDING MECHANICAL CONNECTORS CAST INTO THE CULVERT BY THE MANUFACTURER MAY BE USED PROVIDED THEY CAN RESIST AN ULTIMATE PULL-OUT STRENGTH OF 12 KIPS AND MAINTAIN A MINIMUM COVER OF 3 INCHES AT THE BOTTOM OF THE CULVERT SLAB. MECHANICAL CONNECTORS MUST PROVIDE AN "L-SHAPED" BAR INSIDE THE CULVERT WITH A MINIMUM HORIZONTAL LENGTH OF 12 INCHES. PAYMENT FOR INSERTS OR MECHANICAL CONNECTORS SHALL BE INCLUDED WITH ITEM 603.

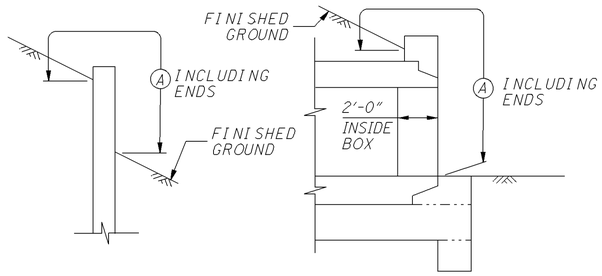
BACKFILL LIMITATION:
WHEN THE DESIGN HEIGHT IS GREATER THAN 10 FT, THE BACKFILL BEHIND THE WINGWALLS SHALL NOT BE PLACED HIGHER THAN THE ELEVATION OF THE SOIL ABOVE THE TOE. WHEN THE SOIL ABOVE THE TOE IS AT ITS FINISHED ELEVATION, THE REMAINDER OF THE BACKFILL MAY BE PLACED.

POROUS BACKFILL WITH FILTER FABRIC 1'-6" THICK SHALL BE PLACED BEHIND THE WINGWALLS ONLY AND SHALL EXTEND TO 12" BELOW THE EMBANKMENT SURFACE. GEOTEXTILE FABRIC SHALL BE PLACED BETWEEN THE POROUS BACKFILL AND REPLACED EXCAVATION ADJACENT TO THE STRUCTURE. IT SHALL TURN UNDER THE BOTTOM OF THE POROUS BACKFILL AND RETURN 6" ABOVE THE TOP ELEVATION OF THE WEEPHOLE.

WEEPHOLES SHALL BE PLACED 6" TO 12" ABOVE THE NORMAL WATER ELEVATION OR GROUND LINE AND SHALL HAVE A MAXIMUM SPACING OF 10'-0". A MINIMUM OF ONE WEEPHOLE SHALL BE PROVIDED PER WINGWALL.

PREFORMED EXPANSION JOINT FILLER: PREFORMED EXPANSION JOINT FILLER (PEJF) CONFORMING TO CMS 705.03, 1 INCH THICK, SHALL BE PLACED ABOVE THE FOOTING BETWEEN THE SIDES OF THE BOX CULVERT AND THE ENDS OF THE WINGWALLS. PAYMENT FOR MATERIALS AND INSTALLATION SHALL BE INCLUDED WITH ITEM 516 - 1" PREFORMED EXPANSION JOINT FILLER.

SEALING OF FORESLOPE WALL AND WINGWALLS: ALL EXPOSED FORESLOPE WALL AND WINGWALL CONCRETE SHALL BE SEALED WITH EPOXY-URETHANE SEALER. THE LIMITS SHALL BE AS SHOWN IN THE DIAGRAMS BELOW. PAYMENT FOR THE EPOXY-URETHANE SEALER SHALL BE PER ITEM 512 - SEALING OF CONCRETE SURFACES.



WINGWALL

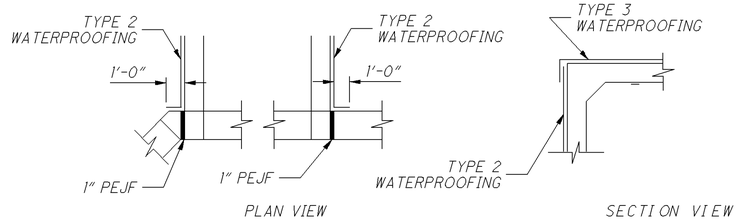
FORESLOPE WALL AND PRECAST BOX (CULVERT OUTLET BEVEL SHOWN)

LIMITS OF ITEM 512-SEALING CONCRETE SURFACES

(A) - SEAL ENTIRE CONCRETE SURFACE AREA

WATERPROOFING: TYPE 2 WATERPROOFING, PER CMS 512.09 AND 711.25, SHALL EXTEND VERTICALLY DOWN THE ENTIRE SIDES OF THE PRECAST CULVERT SECTIONS FOR ALL PORTIONS OF THE CULVERT WHICH SHALL BE IN CONTACT WITH THE BACKFILL. PAYMENT FOR THE MEMBRANE WATERPROOFING SHALL BE AT THE CONTRACT PRICE BID PER SQUARE YARD FOR ITEM 512 - TYPE 2 WATERPROOFING.

TYPE 3 WATERPROOFING, PER CMS 512.10 AND 711.29 SHALL BE APPLIED TO THE ENTIRE TOP SURFACE OF THE PRECAST CULVERT SECTIONS AND SHALL EXTEND ONE FOOT VERTICALLY DOWN THE SIDES FOR ALL PORTIONS OF THE CULVERT WHICH SHALL BE IN CONTACT WITH THE BACKFILL. PAYMENT FOR THE MEMBRANE WATERPROOFING SHALL BE AT THE CONTRACT PRICE BID PER SQUARE YARD FOR ITEM 512 - TYPE 3 WATERPROOFING.

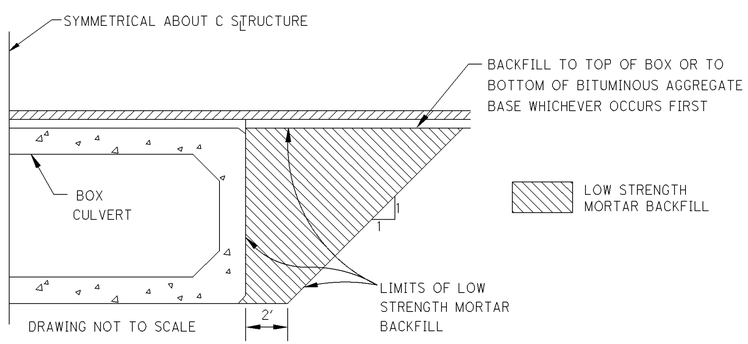


PLAN VIEW

SECTION VIEW

WATERPROOFING DETAILS

BASIS OF PAYMENT: ALL LABOR, EQUIPMENT AND INCIDENTALS REQUIRED TO CONSTRUCT THE FOOTING, CUTOFF WALL, WINGWALLS AND FORESLOPE WALL SHALL BE INCLUDED WITH ITEM 511 - CLASS C CONCRETE (RET-WALL/ WINGWALL- INCLUDING FOOTING). PAYMENT FOR REINFORCING STEEL SHALL BE INCLUDED WITH ITEM 509 - EPOXY COATED REINFORCING STEEL.



ITEM SPECIAL - LOW STRENGTH MORTAR BACKFILL

ESTIMATED QUANTITIES

ITEM	ITEM EXT	INLET	OUTLET	TOTAL	UNIT	DESCRIPTION
503	11100			LUMP		COFFERDAMS, CRIBS, AND SHEETING
503	21300			LUMP		UNCLASSIFIED EXCAVATION (WINGWALL FOOTING)
509	10000	1612	1612	3224	LB.	EPOXY COATED REINFORCING STEEL
511	46000	5.4	5.4	10.8	CU.YD.	CLASS C CONCRETE, RETAINING WALL OR WINGWALL
511	46500	12.6	12.6	25.2	CU.YD.	CLASS C CONCRETE, FOOTING
511	46600	0.3	0.4	0.7	CU.YD.	CLASS C CONCRETE, HEADWALLS
512	10100	24.2	24.2	48.4	SQ.YD.	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)
512	33000			113	SQ.YD.	TYPE 2 WATERPROOFING
512	33010			101	SQ.YD.	TYPE 3 WATERPROOFING
516	13600	15	15	30	SQ.FT.	1" PREFORMED EXPANSION JOINT FILLER
518	21230			LUMP		POROUS BACKFILL WITH FILTER FABRIC
603	94900			80	FT	8'x 5' CONDUIT, TYPE A, 706.05
613	41200			78	CU.YD.	LOW STRENGTH MORTAR BACKFILL

QUANTITIES CARRIED TO SUBSUMMARY, SHEET 72.

DESIGN AGENCY
OHIO D.O.T.
DISTRICT 5 P&E OFFICE

CULVERT FILE NUMBER
236640421

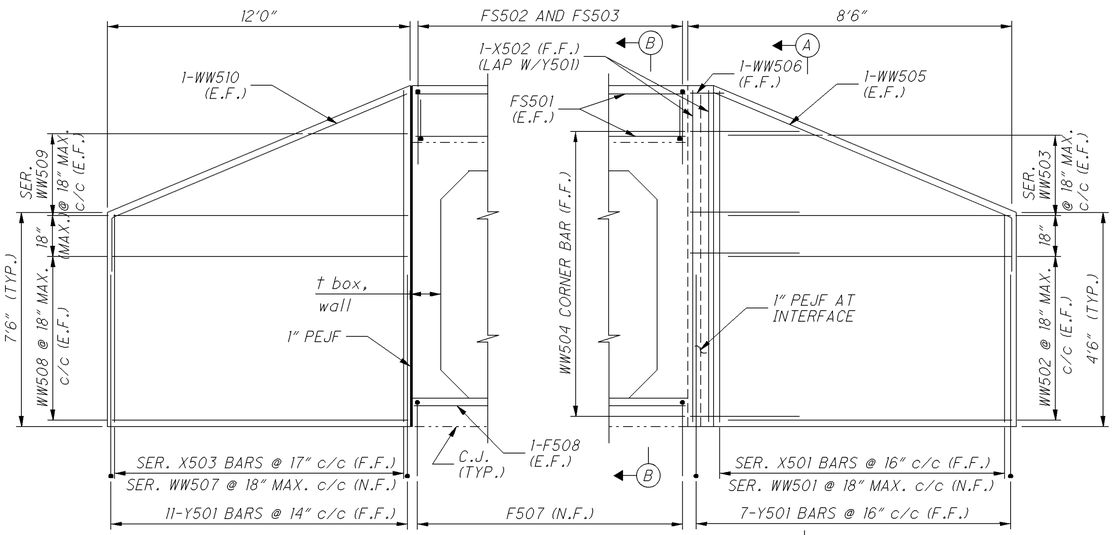
HEADWALL DETAILS

FAI-37/664-25.01/4.21

3/5

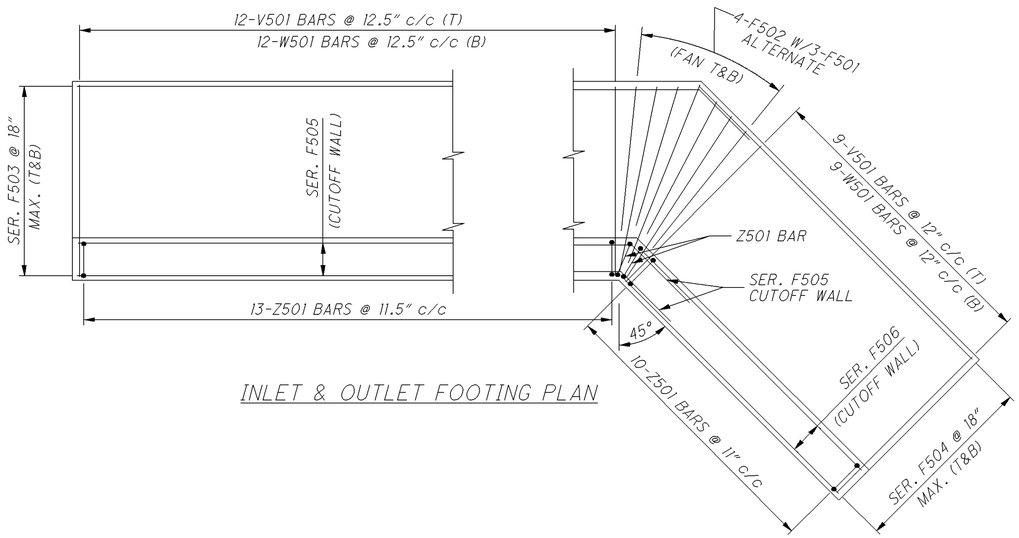
67
102

P:/FAI/86847/DESIGN/ROADWAY/Plan_Sheets/Drainage/Box_Insert01.dgn

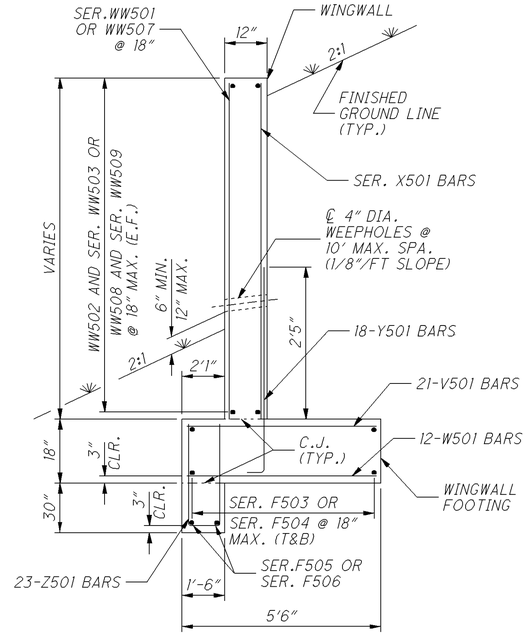


INLET & OUTLET WINGWALL ELEVATION

(FOOTING NOT SHOWN)

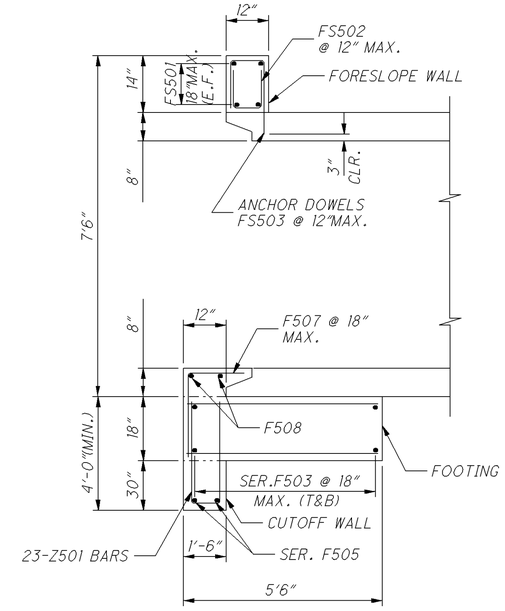


INLET & OUTLET FOOTING PLAN



SECTION A-A

(POROUS BACKFILL NOT SHOWN FOR CLARITY)



SECTION B-B

(CULVERT INLET BEVEL SHOWN)

NOTES

1. FOR CULVERT LOCATION PLAN, SEE SHEET 65.
2. FOR PRECAST BOX CULVERT DETAILS, SEE SHEET 66.
3. THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE, WW501 IS A NO.5 BAR. BAR DIMENSIONS SHOWN ARE OUT TO OUT. ALL REINFORCING STEEL SHALL BE EPOXY COATED.
4. THE LAP SPLICE LENGTHS USED IN THESE DETAILS ARE AS FOLLOWS: 2'-5" FOR #5 BARS; 2'-11" FOR #6 BARS.

LEGEND:

C.J.	CONSTRUCTION JOINT	N.F.	NEAR FACE
CLR.	CLEAR	SER.	SERIES
DIA.	DIAMETER	STR.	STRAIGHT
E.F.	EACH FACE	(T)	TOP
F.F.	FAR FACE	(B)	BOTTOM
MAX.	MAXIMUM	T&B	TOP AND BOTTOM
MIN.	MINIMUM	TYP.	TYPICAL
PEJF	PREFORMED EXPANSION JOINT FILLER	INC.	INCREMENT

θ = ℄ CULVERT SKEW FROM LINE NORMAL TO ROADWAY (ROUNDED TO NEAREST 15° INCREMENT FROM 0° TO 45°)

DESIGN AGENCY
OHIO D.O.T.
DISTRICT 5 P&E OFFICE

CULVERT FILE NUMBER
236640421

HEADWALL DETAILS

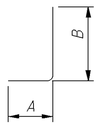
FAI-37/664-25.01/4.21

P:\FAI\86847\DESIGN\ROADWAY\Plan_Sheets\Drainage\BoXSinsertB1.dgn

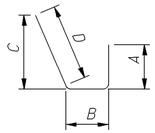
TYPE B HEADWALL REINFORCING SCHEDULE

BAR MARK	NUMBER	LENGTH	WEIGHT (LBS.)	TYPE	BAR TYPE DIMENSIONS A	B	C	D	INC.
					WINGWALLS				
	1	4'- 4''							
X501	SERIES	TO	43	STR.					0'- 6 ''
	of 7	7'- 4''							
X502	2	7'- 4''	16	STR.					
	1	7'- 4''							
X503	SERIES	TO	69	STR.					0'- 0 ''
	of 9	7'- 4''							
Y501	18	4'- 0''	76	1	0'- 6''	3'- 8''			
	1	4'- 4''							
WW501	SERIES	TO	43	STR.					0'- 6 ''
	of 7	7'- 4''							
WW502	6	8'- 2''	52	STR.					
	2	4'- 1''							
WW503	SERIES	TO	26	STR.					4'- 1 ''
	of 2	8'- 2''							
WW504	5	3'- 6''	19	2	0'- 7''	0'- 2 ''	2'- 1/4''	2'- 10 ''	
WW505	2	11'- 1''	24	3	2'- 5''	2'- 10''	8'- 2''		
WW506	1	1'- 1''	2	8	0'- 7''	0'- 2 ''			
	1	7'- 4''							
WW507	SERIES	TO	69	STR.					0'- 0 ''
	of 9	7'- 4''							
WW508	10	11'- 8''	122	STR.					
	0	0'- 0''							
WW509	SERIES	TO	0	STR.					0'- 0 ''
	of 0	0'- 0''							
WW510	2	11'- 8''	25	3	11'- 8''	0'- 0''	0'- 0''		
					FOOTING & CUTOFF WALL				
V501	21	5'- 2''	114	STR.					
W501	21	5'- 2''	114	STR.					
Z501	23	8'- 2''	196	5	3'- 7''	1'- 2''			
F501	6	4'- 8''	30	STR.					
F502	8	3'- 8''	31	STR.					
	2	22'- 10''			20'- 4 1/2''				
F503	SERIES	TO	250	3	TO	1'- 8 3/4''	1'- 8 3/4''		0'- 6 1/2''
	of 5	25'- 0''			22'- 6 1/4''				
	2	7'- 6''							
F504	SERIES	TO	90	STR.					0'- 6 1/4''
	of 5	9'- 7''							
	1	22'- 10''			20'- 4 1/2''				
F505	SERIES	TO	49	3	TO	1'- 8 3/4''	1'- 8 3/4''		0'- 6 ''
	2	23'- 4''			20'- 10 1/2''				
	1	7'- 6''							
F506	SERIES	TO	17	STR.					0'- 6 ''
	2	8'- 0''							
F507	7	3'- 10''	28	1	2'- 1''	1'- 10''			
F508	2	9'- 0''	19	STR.					
					FORESLOPE WALL				
FS501	4	9'- 0''	38	STR.					
FS502	10	2'- 1''	22	5	0'- 10''	0'- 8''			
FS503	10	2'- 8''	28	7	0'- 10''	0'- 8''	1'- 5''		
		TOTAL	1,612						

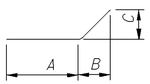
USE REINFORCING SCHEDULE FOR BOTH INLET & OUTLET HEADWALLS



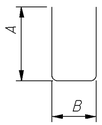
TYPE-1



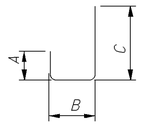
TYPE-2



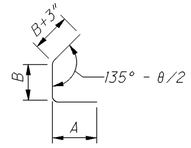
TYPE-3



TYPE-5



TYPE-7



TYPE-8

DESIGN AGENCY
OHIO D.O.T.
DISTRICT 5 P&E OFFICE

CULVERT FILE NUMBER
236640421

REINFORCING SCHEDULE
INLET & OUTLET HEADWALLS

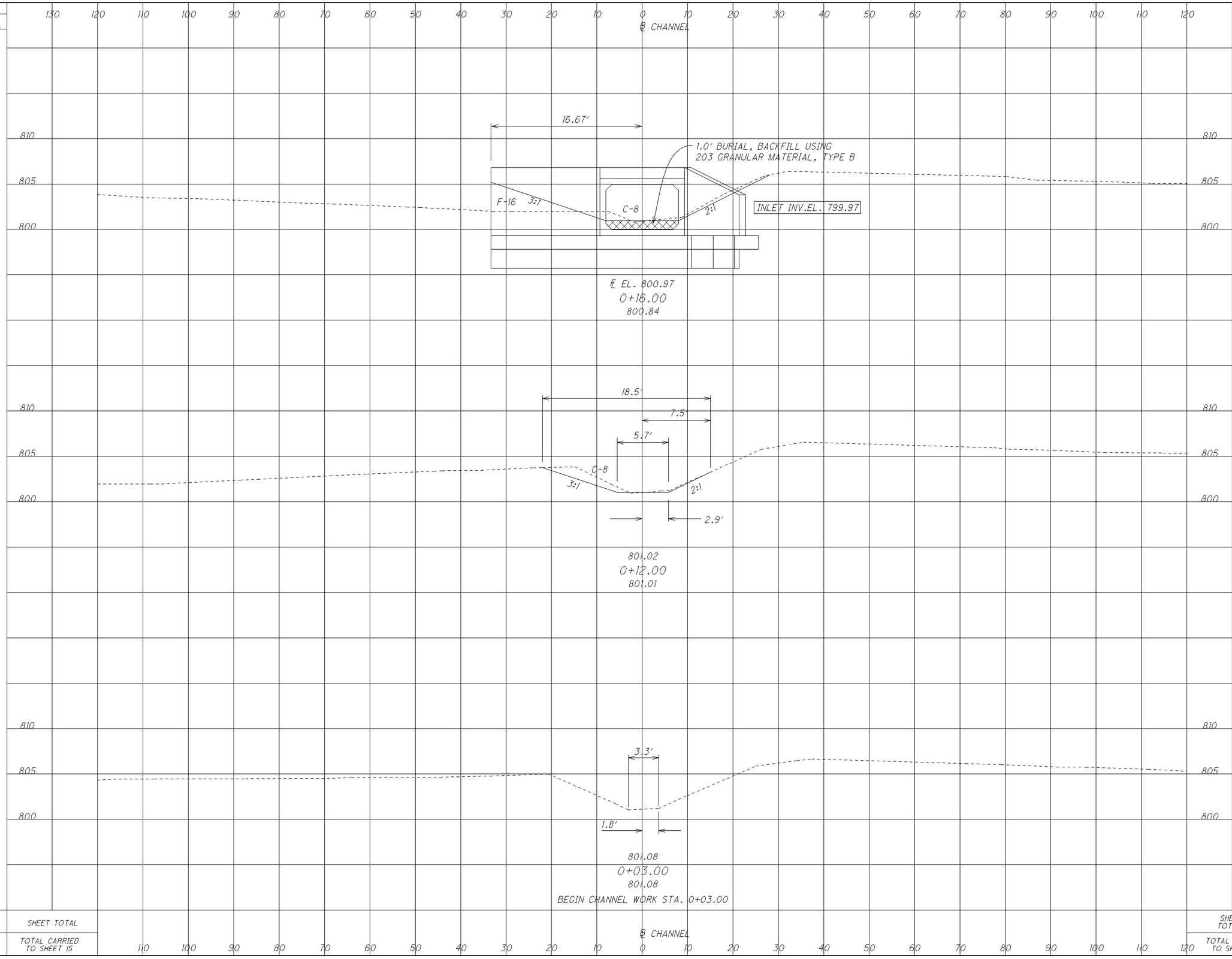
FAI-37/664-25.01/4.21

5 / 5

69
102

P:/FAI/86847/DESIGN/ROADWAY/Plan_Sheets/Drainage/Box_Insert82.dgn

SEEDING END WIDTH	SEEDING SQ. YDS.
65	25
46	33
20	
58	SHEET TOTAL
97	TOTAL CARRIED TO SHEET 15



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	0		
8	16		
		2	2
8	0		
		2	0
0	0		
SHEET TOTALS		4	2
TOTAL CARRIED TO SHEET 15		6	12

CALCULATED BCT
CHECKED DNM

CHANNEL SECTIONS
STA. 0+04.00 TO STA. 0+20.00

FAI-37/664-25.01/4.21

70
102

P:\FAI\86847\DESIGN\ROADWAY\PLAN_SHEETS\Cross_Sections\FAI_boxculv_pxs.dgn

SEEDING	
END WIDTH	SQ. YDS.
	39
SHEET TOTAL	39

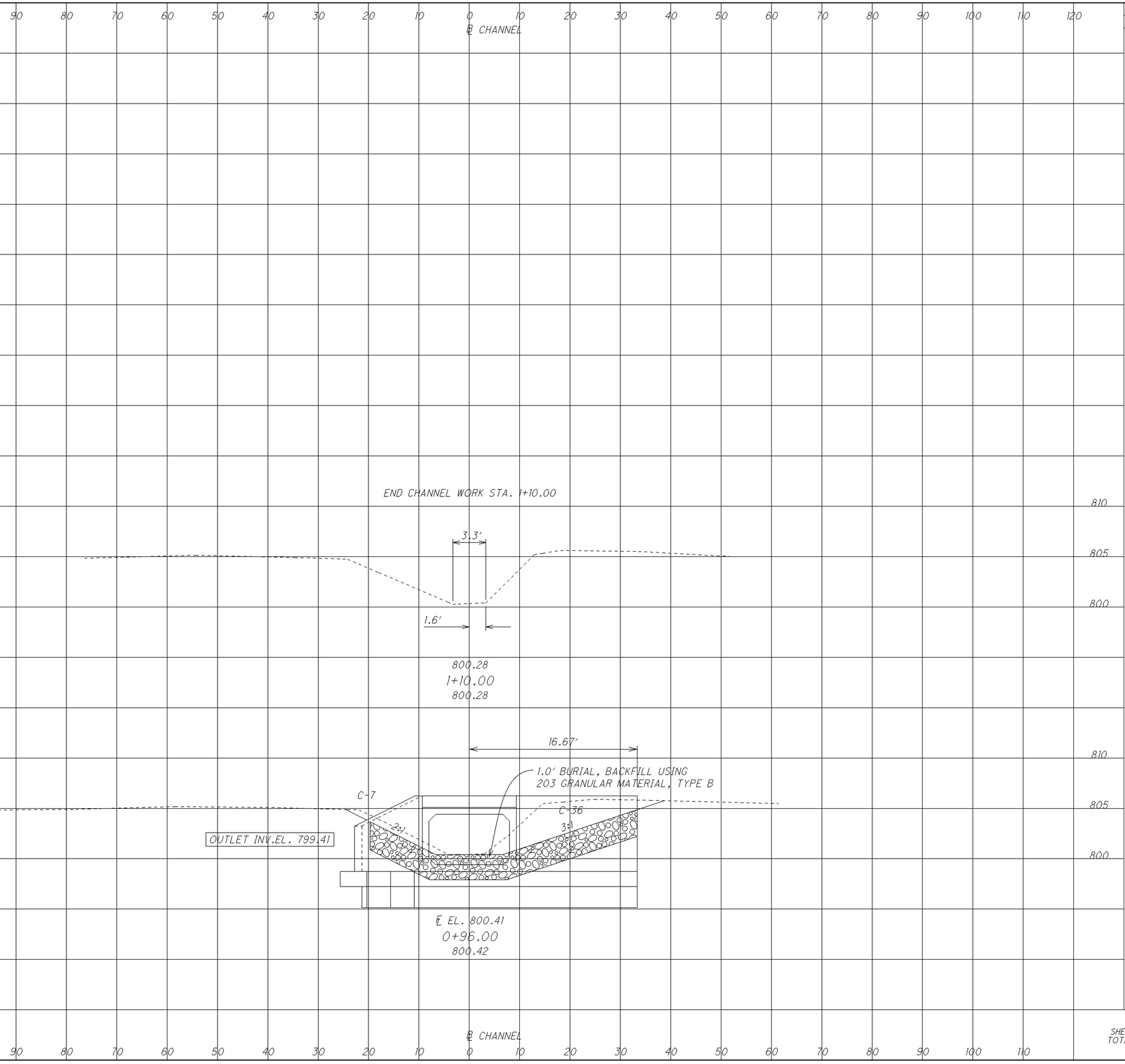
END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	0		
		2	10
7	36		
SHEET TOTALS		2	10

CALCULATED BCT
CHECKED DNM

CHANNEL SECTIONS
STA. 0+96.00 TO STA. 0+98.00

FAI-37/664-25.01/4.21

71
102



P:\FAI\86847\DESIGN\ROADWAY\PLAN_SHEETS\Cross_Sections\FAI_boxculv2_pxs.dgn

SHEET NUMBER				ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHT
66		67							
LUMP				202	11000	LUMP		STRUCTURE REMOVED	
15				203	35110	15	CU YD	GRANULAR MATERIAL, TYPE B	
54				252	01500	54	FT	FULL DEPTH PAVEMENT SAWING	
		LUMP		503	11100	LUMP		COFFERDAMS, CRIBS AND SHEETING	
		LUMP		503	21300	LUMP		UNCLASSIFIED EXCAVATION	
		3224		509	10000	3224	POUND	EPOXY COATED REINFORCING STEEL	
		10.8		511	46000	11.0	CU YD	CLASS C CONCRETE, RETAINING WALL OR WINGWALL	
		25.2		511	46500	26.0	CU YD	CLASS C CONCRETE, FOOTING	
		0.7		511	46600	1.0	CU YD	CLASS C CONCRETE, HEADWALL	
		48.4		512	10100	49	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	
		113		512	33000	113	SQ YD	TYPE 2 WATERPROOFING	
		101		512	33010	101	SQ YD	TYPE 3 WATERPROOFING	
		30		516	13600	30	SQ FT	1" PREFORMED EXPANSION JOINT FILLER	
		LUMP		518	21230	LUMP		POROUS BACKFILL WITH FILTER FABRIC	
21				601	32100	21	CU YD	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER	
		80		603	94900	80	FT	8' X 5' CONDUIT, TYPE A, 706.05	
		78		613	41200	78	CU YD	LOW STRENGTH MORTAR BACKFILL	

QUANTITIES CARRIED TO GENERAL SUMMARY, SHEETS 93 & 94.

CALCULATED BCT CHECKED DNM

CULVERT SUBSUMMARY FAI-664-4.22

FAI-37/664-25.01/4.21

72/102

P:/FAI/86847/DESIGN/ROADWAY/Plan_Sheets/Drainage/86847_SUBSUM_CULV.dgn

ITEM 204 EXCAVATION OF SUBGRADE
ITEM 204 GRANULAR MATERIAL TYPE B (18")

STA. 258+25.00 TO STA. 258+50.00 = 25'
(19 + 20) / 2) x 25 = 488 CF

STA. 258+50.00 TO STA. 259+00.00 = 50'
(20 + 22) / 2) x 50 = 1050 CF

STA. 259+00.00 TO STA. 259+50.00 = 50'
(22 + 24) / 2) x 50 = 1150 CF

STA. 259+50.00 TO STA. 260+00.00 = 50'
(24 + 25) / 2) x 50 = 1225 CF

STA. 260+00.00 TO STA. 260+50.00 = 50'
(25 + 24) / 2) x 50 = 1225 CF

STA. 260+50.00 TO STA. 260+75.00 = 25'
(24 + 23) / 2) x 25 = 588 CF

STA. 260+75.00 LT TO STA. 261+00.00 LT = 25'
(15 + 15) / 2) x 25 = 375 CF

STA. 261+00.00 LT TO STA. 261+50.00 LT = 50'
(15 + 15) / 2) x 50 = 750 CF

STA. 261+50.00 LT TO STA. 262+00.00 LT = 50'
(15 + 14) / 2) x 50 = 725 CF

STA. 262+00.00 LT TO STA. 262+50.00 LT = 50'
(14 + 13) / 2) x 50 = 675 CF

STA. 262+50.00 LT TO STA. 263+00.00 LT = 50'
(13 + 12) / 2) x 50 = 625 CF

STA. 263+00.00 LT TO STA. 263+50.00 LT = 50'
(12 + 12) / 2) x 50 = 600 CF

STA. 263+50.00 LT TO STA. 263+90.00 LT = 40'
(12 + 11) / 2) x 40 = 460 CF

STA. 263+90.00 LT TO STA. 264+31.88 LT = 41.88'
(11 + 15) / 2) x 41.88 = 545 CF

STA. 265+33.93 RT TO STA. 265+90.85 RT = 56.92'
(9 + 9) / 2) x 56.92 = 513 CF

STA. 265+90.85 RT TO STA. 266+50.00 RT = 59.15'
(9 + 11) / 2) x 59.15 = 592 CF

STA. 266+50.00 RT TO STA. 267+00.00 RT = 50'
(11 + 14) / 2) x 50 = 625 CF

STA. 267+00.00 RT TO STA. 267+50.00 RT = 50'
(14 + 16) / 2) x 50 = 750 CF

STA. 267+50.00 TO STA. 267+77.00 = 27'
(27 + 28) / 2) x 27 = 743 CF

STA. 267+77.00 TO STA. 268+27.00 = 50'
(28 + 32) / 2) x 50 = 1500 CF

STA. 268+27.00 TO STA. 269+00.00 = 73'
(32 + 32) / 2) x 73 = 2336 CF

STA. 269+00.00 TO STA. 269+50.00 = 50'
(32 + 30) / 2) x 50 = 1550 CF

STA. 269+50.00 TO STA. 270+00.00 = 50'
(30 + 28) / 2) x 50 = 1450 CF

STA. 270+00.00 TO STA. 270+50.00 = 50'
(28 + 26) / 2) x 50 = 1350 CF

STA. 270+50.00 TO STA. 271+00.00 = 50'
(26 + 24) / 2) x 50 = 1250 CF

STA. 271+00.00 TO STA. 271+50.00 = 50'
(24 + 19) / 2) x 50 = 1075 CF

STA. 271+50.00 TO STA. 271+57.00 = 7 '
(19 + 19) / 2) x 7 = 133 CF

STA. 271+57.00 TO STA. 271+90.00 = 33'
(19 + 16) / 2) x 33 = 578 CF

TOTAL = 24876 / 27 = 922 CY

ITEM 204 GEOTEXTILE FABRIC

STA. 258+25.00 TO STA. 258+50.00 = 25'
(13 + 13) / 2) x 25 = 325 SF

STA. 258+50.00 TO STA. 259+00.00 = 50'
(13 + 14) / 2) x 50 = 675 SF

STA. 259+00.00 TO STA. 259+50.00 = 50'
(14 + 16) / 2) x 50 = 750 SF

STA. 259+50.00 TO STA. 260+00.00 = 50'
(16 + 16) / 2) x 50 = 800 SF

STA. 260+00.00 TO STA. 260+50.00 = 50'
(16 + 16) / 2) x 50 = 800 SF

STA. 260+50.00 TO STA. 260+75.00 = 25'
(16 + 15) / 2) x 25 = 388 SF

STA. 260+75.00 LT TO STA. 261+00.00 LT = 25'
(12 + 11) / 2) x 25 = 288 SF

STA. 261+00.00 LT TO STA. 261+50.00 LT = 50'
(11 + 11) / 2) x 50 = 550 SF

STA. 261+50.00 LT TO STA. 262+00.00 LT = 50'
(11 + 11) / 2) x 50 = 550 SF

STA. 262+00.00 LT TO STA. 262+50.00 LT = 50'
(11 + 11) / 2) x 50 = 550 SF

STA. 262+50.00 LT TO STA. 263+00.00 LT = 50'
(11 + 10) / 2) x 50 = 525 SF

STA. 263+00.00 LT TO STA. 263+50.00 LT = 50'
(10 + 10) / 2) x 50 = 500 SF

STA. 263+50.00 LT TO STA. 263+90.00 LT = 40'
(10 + 9) / 2) x 40 = 380 SF

STA. 263+90.00 LT TO STA. 264+31.88 LT = 41.88'
(9 + 12) / 2) x 41.88 = 440 SF

STA. 265+33.93 RT TO STA. 265+90.85 RT = 56.92'
(8 + 8) / 2) x 56.92 = 456 SF

STA. 265+90.85 RT TO STA. 266+50.00 RT = 59.15'
(8 + 9) / 2) x 59.15 = 503 SF

STA. 266+50.00 RT TO STA. 267+00.00 RT = 50'
(9 + 11) / 2) x 50 = 500 SF

STA. 267+00.00 RT TO STA. 267+50.00 RT = 50'
(11 + 12) / 2) x 50 = 575 SF

STA. 267+50.00 TO STA. 267+77.00 = 27'
(18 + 19) / 2) x 27 = 500 SF

STA. 267+77.00 TO STA. 268+27.00 = 50'
(19 + 21) / 2) x 50 = 1000 SF

STA. 268+27.00 TO STA. 269+00.00 = 73'
(21 + 21) / 2) x 73 = 1533 SF

STA. 269+00.00 TO STA. 269+50.00 = 50'
(21 + 20) / 2) x 50 = 1025 SF

STA. 269+50.00 TO STA. 270+00.00 = 50'
(20 + 19) / 2) x 50 = 975 SF

STA. 270+00.00 TO STA. 270+50.00 = 50'
(19 + 17) / 2) x 50 = 900 SF

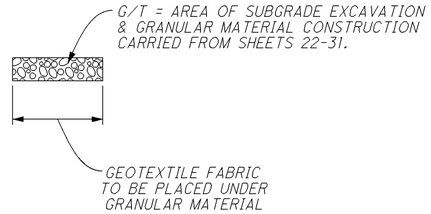
STA. 270+50.00 TO STA. 271+00.00 = 50'
(17 + 15) / 2) x 50 = 800 SF

STA. 271+00.00 TO STA. 271+50.00 = 50'
(15 + 13) / 2) x 50 = 700 SF

STA. 271+50.00 TO STA. 271+57.00 = 7 '
(13 + 13) / 2) x 7 = 91 SF

STA. 271+57.00 TO STA. 271+90.00 = 33'
(13 + 10) / 2) x 33 = 380 SF

TOTAL = 17459 SF / 9 = 1940 SY



TOTALS CARRIED TO LOCATION 1 SUBSUMMARY

CALCULATED BCT
CHECKED JHC

UNDERCUT CALCULATIONS - LOCATION 1 SR 37

FAI-37/664-25.01/4.21

P:\FAI\86847\DESIGN\ROADWAY\PLAN_SHEETS\GENERAL\86847_Undercut01.DGN

ITEM 204 GRANULAR MATERIAL TYPE B (18")

STA. 13+08.00 RT TO STA. 13+30.00 RT = 22'
(6 + 11) / 2) x 22 = 187 CF

STA. 13+30.00 TO STA. 13+50.00 = 20'
(17 + 20) / 2) x 20 = 370 CF

STA. 13+50.00 TO STA. 13+80.00 = 30'
(20 + 23) / 2) x 30 = 645 CF

STA. 13+80.00 TO STA. 14+14.00 = 34'
(23 + 25) / 2) x 34 = 816 CF

STA. 14+14.00 TO STA. 14+60.00 = 46'
(25 + 28) / 2) x 46 = 1219 CF

STA. 14+60.00 TO STA. 15+00.00 = 40'
(28 + 29) / 2) x 40 = 1140 CF

STA. 15+00.00 TO STA. 15+50.00 = 50'
(29 + 32) / 2) x 50 = 1525 CF

STA. 15+50.00 TO STA. 15+80.00 = 30'
(32 + 33) / 2) x 30 = 975 CF

STA. 15+80.00 TO STA. 16+00.00 = 20'
(33 + 33) / 2) x 20 = 660 CF

STA. 16+00.00 TO STA. 16+20.00 = 20'
(33 + 35) / 2) x 20 = 680 CF

STA. 16+20.00 TO STA. 16+65.00 = 45'
(35 + 37) / 2) x 45 = 1620 CF

STA. 16+65.00 TO STA. 17+15.00 = 50'
(37 + 38) / 2) x 50 = 1875 CF

STA. 17+15.00 TO STA. 17+50.00 = 35'
(38 + 38) / 2) x 35 = 1330 CF

STA. 17+50.00 TO STA. 18+00.00 = 50'
(38 + 38) / 2) x 50 = 1900 CF

STA. 18+00.00 TO STA. 18+68.15 = 68.15'
(38 + 38) / 2) x 68.15 = 2590 CF

STA. 18+68.1 TO STA. 18+94.73 = 26.63'
(38 + 33) / 2) x 26.63 = 946 CF

STA. 18+94.73 RT TO STA. 19+38.55 RT = 43.82'
(16 + 16) / 2) x 43.82 = 701 CF

STA. 20+61.62 LT TO STA. 21+10.00 LT = 48.38'
(24 + 24) / 2) x 48.38 = 1162 CF

STA. 21+10.00 TO STA. 21+55.00 = 45'
(45 + 46) / 2) x 45 = 2048 CF

STA. 21+55.00 TO STA. 22+00.00 = 45'
(46 + 46) / 2) x 45 = 2025 CF

STA. 22+00.00 TO STA. 22+40.00 = 40'
(46 + 45) / 2) x 40 = 1820 CF

STA. 22+40.00 TO STA. 22+80.00 = 40'
(45 + 45) / 2) x 40 = 1800 CF

STA. 22+80.00 TO STA. 23+15.00 = 35'
(45 + 46) / 2) x 35 = 1593 CF

STA. 23+15.00 TO STA. 23+60.00 = 45'
(46 + 44) / 2) x 45 = 2070 CF

STA. 23+60.00 TO STA. 24+00.00 = 40'
(44 + 43) / 2) x 40 = 1740 CF

STA. 24+00.00 TO STA. 24+30.00 = 30'
(43 + 43) / 2) x 30 = 1290 CF

STA. 24+30.00 TO STA. 25+00.00 = 70'
(43 + 40) / 2) x 70 = 2905 CF

STA. 25+00.00 TO STA. 25+50.00 = 50'
(40 + 38) / 2) x 50 = 1950 CF

ITEM 204 GRANULAR MATERIAL TYPE B (18")

STA. 25+50.00 TO STA. 26+00.00 = 50'
(38 + 36) / 2) x 50 = 1850 CF

STA. 26+00.00 TO STA. 26+60.00 = 60'
(36 + 32) / 2) x 60 = 2040 CF

STA. 26+60.00 TO STA. 27+00.00 = 40'
(32 + 31) / 2) x 40 = 1260 CF

STA. 27+00.00 TO STA. 27+60.00 = 60'
(31 + 27) / 2) x 60 = 1740 CF

STA. 27+60.00 TO STA. 28+00.00 = 40'
(27 + 21) / 2) x 40 = 960 CF

STA. 28+00.00 TO STA. 28+50.00 = 50'
(21 + 11) / 2) x 50 = 800 CF

SUBTOTAL = 48232 / 27 = 1787 CY

ITEM 204 EXCAVATION OF SUBGRADE

STA. 13+08.00 TO STA. 13+30.00 = 22'
(6 + 11) / 2) x 22 = 187 CF

STA. 13+30.00 TO STA. 13+50.00 = 20'
(17 + 20) / 2) x 20 = 370 CF

STA. 13+50.00 TO STA. 13+80.00 = 30'
(20 + 23) / 2) x 30 = 645 CF

STA. 13+80.00 TO STA. 14+14.00 = 34'
(23 + 25) / 2) x 34 = 816 CF

STA. 14+14.00 TO STA. 14+60.00 = 46'
(25 + 28) / 2) x 46 = 1219 CF

STA. 14+60.00 TO STA. 15+00.00 = 40'
(28 + 29) / 2) x 40 = 1140 CF

STA. 15+00.00 TO STA. 15+50.00 = 50'
(29 + 32) / 2) x 50 = 1525 CF

STA. 15+50.00 TO STA. 15+80.00 = 30'
(32 + 32) / 2) x 30 = 960 CF

STA. 15+80.00 TO STA. 16+00.00 = 20'
(32 + 32) / 2) x 20 = 640 CF

STA. 16+00.00 TO STA. 16+20.00 = 20'
(32 + 33) / 2) x 20 = 650 CF

STA. 16+20.00 TO STA. 16+65.00 = 45'
(33 + 33) / 2) x 45 = 1485 CF

STA. 16+65.00 TO STA. 17+15.00 = 50'
(33 + 33) / 2) x 50 = 1650 CF

STA. 17+15.00 TO STA. 17+50.00 = 35'
(33 + 33) / 2) x 35 = 1155 CF

STA. 17+50.00 TO STA. 18+00.00 = 50'
(33 + 33) / 2) x 50 = 1650 CF

STA. 18+00.00 TO STA. 18+68.15 = 68.15'
(33 + 33) / 2) x 68.15 = 2215 CF

STA. 18+68.1 TO STA. 18+94.73 = 26.63'
(33 + 32) / 2) x 26.63 = 826 CF

STA. 18+94.73 RT TO STA. 19+38.55 RT = 43.82'
(16 + 16) / 2) x 43.82 = 701 CF

STA. 20+61.62 LT TO STA. 21+10.00 LT = 48.38'
(24 + 22) / 2) x 48.38 = 1113 CF

STA. 21+10.00 TO STA. 21+55.00 = 45'
(43 + 45) / 2) x 45 = 1980 CF

STA. 21+55.00 TO STA. 22+00.00 = 45'
(45 + 46) / 2) x 45 = 2048 CF

ITEM 204 EXCAVATION OF SUBGRADE

STA. 22+00.00 TO STA. 22+40.00 = 40'
(46 + 45) / 2) x 40 = 1820 CF

STA. 22+40.00 TO STA. 22+80.00 = 40'
(45 + 45) / 2) x 40 = 1800 CF

STA. 22+80.00 TO STA. 23+15.00 = 35'
(45 + 46) / 2) x 35 = 1593 CF

STA. 23+15.00 TO STA. 23+60.00 = 45'
(46 + 44) / 2) x 45 = 2025 CF

STA. 23+60.00 TO STA. 24+00.00 = 40'
(44 + 43) / 2) x 40 = 1740 CF

STA. 24+00.00 TO STA. 24+30.00 = 30'
(43 + 43) / 2) x 30 = 1290 CF

STA. 24+30.00 TO STA. 25+00.00 = 70'
(43 + 40) / 2) x 70 = 2905 CF

STA. 25+00.00 TO STA. 25+50.00 = 50'
(40 + 38) / 2) x 50 = 1950 CF

STA. 25+50.00 TO STA. 26+00.00 = 50'
(38 + 36) / 2) x 50 = 1850 CF

STA. 26+00.00 TO STA. 26+60.00 = 60'
(36 + 32) / 2) x 60 = 2040 CF

STA. 26+60.00 TO STA. 27+00.00 = 40'
(32 + 31) / 2) x 40 = 1260 CF

STA. 27+00.00 TO STA. 27+60.00 = 60'
(31 + 27) / 2) x 60 = 1740 CF

STA. 27+60.00 TO STA. 28+00.00 = 40'
(27 + 21) / 2) x 40 = 960 CF

STA. 28+00.00 TO STA. 28+50.00 = 50'
(21 + 11) / 2) x 50 = 800 CF

SUBTOTAL = 46748 / 27 = 1732 CY

ITEM 204 GEOTEXTILE FABRIC

STA. 13+08.00 TO STA. 13+30.00 = 22'
(4 + 11) / 2) x 22 = 165 SF

STA. 13+30.00 TO STA. 13+50.00 = 20'
(11 + 13) / 2) x 20 = 240 SF

STA. 13+50.00 TO STA. 13+80.00 = 30'
(13 + 16) / 2) x 30 = 435 SF

STA. 13+80.00 TO STA. 14+14.00 = 34'
(16 + 12) / 2) x 34 = 476 SF

STA. 14+14.00 TO STA. 14+60.00 = 46'
(12 + 18) / 2) x 46 = 690 SF

STA. 14+60.00 TO STA. 15+00.00 = 40'
(18 + 20) / 2) x 40 = 760 SF

STA. 15+00.00 TO STA. 15+50.00 = 50'
(20 + 21) / 2) x 50 = 1025 SF

STA. 15+50.00 TO STA. 15+80.00 = 30'
(21 + 22) / 2) x 30 = 645 SF

STA. 15+80.00 TO STA. 16+00.00 = 20'
(22 + 22) / 2) x 20 = 440 SF

STA. 16+00.00 TO STA. 16+20.00 = 20'
(22 + 23) / 2) x 20 = 450 SF

STA. 16+20.00 TO STA. 16+65.00 = 45'
(23 + 24) / 2) x 45 = 1058 SF

STA. 16+65.00 TO STA. 17+15.00 = 50'
(24 + 25) / 2) x 50 = 1225 SF

ITEM 204 GEOTEXTILE FABRIC

STA. 17+15.00 TO STA. 17+50.00 = 35'
(25 + 25) / 2) x 35 = 875 SF

STA. 17+50.00 TO STA. 18+00.00 = 50'
(25 + 25) / 2) x 50 = 1250 SF

STA. 18+00.00 TO STA. 18+68.15 = 68.15'
(25 + 25) / 2) x 68.15 = 1704 SF

STA. 18+68.1 TO STA. 18+94.73 = 26.63'
(25 + 23) / 2) x 26.63 = 640 SF

STA. 18+94.73 RT TO STA. 19+38.55 RT = 43.82'
(11 + 11) / 2) x 43.82 = 482 SF

STA. 20+61.62 LT TO STA. 21+10.00 LT = 48.38'
(16 + 16) / 2) x 48.38 = 774 SF

STA. 21+10.00 TO STA. 21+55.00 = 45'
(30 + 30) / 2) x 45 = 1350 SF

STA. 21+55.00 TO STA. 22+00.00 = 45'
(30 + 30) / 2) x 45 = 1350 SF

STA. 22+00.00 TO STA. 22+40.00 = 40'
(30 + 30) / 2) x 40 = 1200 SF

STA. 22+40.00 TO STA. 22+80.00 = 40'
(30 + 30) / 2) x 40 = 1200 SF

STA. 22+80.00 TO STA. 23+15.00 = 35'
(30 + 30) / 2) x 35 = 1050 SF

STA. 23+15.00 TO STA. 23+60.00 = 45'
(30 + 29) / 2) x 45 = 1328 SF

STA. 23+60.00 TO STA. 24+00.00 = 40'
(29 + 29) / 2) x 40 = 1160 SF

STA. 24+00.00 TO STA. 24+30.00 = 30'
(29 + 28) / 2) x 30 = 855 SF

STA. 24+30.00 TO STA. 25+00.00 = 70'
(28 + 27) / 2) x 70 = 1925 SF

STA. 25+00.00 TO STA. 25+50.00 = 50'
(27 + 25) / 2) x 50 = 1300 SF

STA. 25+50.00 TO STA. 26+00.00 = 50'
(25 + 23) / 2) x 50 = 1200 SF

STA. 26+00.00 TO STA. 26+60.00 = 60'
(23 + 22) / 2) x 60 = 1350 SF

STA. 26+60.00 TO STA. 27+00.00 = 40'
(22 + 20) / 2) x 40 = 840 SF

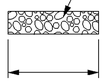
STA. 27+00.00 TO STA. 27+60.00 = 60'
(20 + 18) / 2) x 60 = 1140 SF

STA. 27+60.00 TO STA. 28+00.00 = 40'
(18 + 14) / 2) x 40 = 640 SF

STA. 28+00.00 TO STA. 28+50.00 = 50'
(14 + 7) / 2) x 50 = 525 SF

SUBTOTAL = 31747 SF / 9 = 3528 SY

G/T = AREA OF SUBGRADE EXCAVATION & GRANULAR MATERIAL CONSTRUCTION CARRIED FROM SHTS SHEETS 36-48.



SUBTOTALS CARRIED TO SHEET 75

CALCULATED BCT
CHECKED JHC

UNDERCUT CALCULATIONS - LOCATION 2 SR 664

FAI-37/664-25.01/4.21

P:\FAI\86847\DESIGN\ROADWAY\PLAN_SHEETS\GENERAL\86847_Undercut02.DGN

SE RETURN (SEE SHT 50)

ITEM 204 EXCAVATION OF SUBGRADE
ITEM 204 GRANULAR MATERIAL TYPE B (18")

FROM SECTION "W1" TO "W2"
(16 + 18) / 2) x 24 = 408 CF

FROM SECTION "W2" TO "W3"
(18 + 14) / 2) x 24 = 384 CF

FROM SECTION "W3" TO "W4"
(14 + 9) / 2) x 23.3 = 268 CF

SUBTOTAL = 1060 / 27 = 40 CY

SW RETURN (SEE SHT 51)

ITEM 204 EXCAVATION OF SUBGRADE

FROM SECTION "X1" TO "X2"
(14 + 13) / 2) x 20 = 270 CF

FROM SECTION "X2" TO "X3"
(13 + 14) / 2) x 20 = 270 CF

FROM SECTION "X3" TO "X4"
(14 + 9) / 2) x 21.2 = 244 CF

FROM SECTION "X4" TO "X5"
(9 + 7) / 2) x 8 = 64 CF

SUBTOTAL = 848 / 27 = 32 CY

SW RETURN (SEE SHT 51)

ITEM 204 GRANULAR MATERIAL TYPE B (18")

FROM SECTION "X1" TO "X2"
(17 + 14) / 2) x 20 = 310 CF

FROM SECTION "X2" TO "X3"
(14 + 14) / 2) x 20 = 280 CF

FROM SECTION "X3" TO "X4"
(14 + 9) / 2) x 21.2 = 244 CF

FROM SECTION "X4" TO "X5"
(9 + 7) / 2) x 8 = 64 CF

SUBTOTAL = 898 / 27 = 34 CY

NE RETURN (SEE SHT 52)

ITEM 204 EXCAVATION OF SUBGRADE

FROM SECTION "Y1" TO "Y2"
(13 + 20) / 2) x 28 = 462 CF

FROM SECTION "Y2" TO "Y3"
(20 + 32) / 2) x 28 = 728 CF

FROM SECTION "Y3" TO "Y4"
(32 + 25) / 2) x 28 = 798 CF

FROM SECTION "Y4" TO "Y5"
(25 + 21) / 2) x 28.8 = 663 CF

SUBTOTAL = 2651 / 27 = 99 CY

NE RETURN (SEE SHT 52)

ITEM 204 GRANULAR MATERIAL TYPE B (18")

FROM SECTION "Y1" TO "Y2"
(13 + 20) / 2) x 28 = 462 CF

FROM SECTION "Y2" TO "Y3"
(20 + 32) / 2) x 28 = 728 CF

FROM SECTION "Y3" TO "Y4"
(27 + 20) / 2) x 28 = 658 CF

FROM SECTION "Y4" TO "Y5"
(20 + 20) / 2) x 28.8 = 576 CF

SUBTOTAL = 2424 / 27 = 90 CY

NW RETURN (SEE SHT 53)

ITEM 204 EXCAVATION OF SUBGRADE
ITEM 204 GRANULAR MATERIAL TYPE B (18")

FROM SECTION "Z1" TO "Z2"
(15 + 15) / 2) x 24 = 360 CF

FROM SECTION "Z2" TO "Z3"
(15 + 15) / 2) x 24 = 360 CF

FROM SECTION "Z3" TO "Z4"
(15 + 24) / 2) x 22.7 = 443 CF

SUBTOTAL = 1163 / 27 = 44 CY

SE RETURN (SEE SHT 50)

ITEM 204 GEOTEXTILE FABRIC

FROM SECTION "W1" TO "W2"
(11 + 12) / 2) x 24 = 276 SF

FROM SECTION "W2" TO "W3"
(12 + 9) / 2) x 24 = 252 SF

FROM SECTION "W3" TO "W4"
(9 + 6) / 2) x 23.3 = 175 SF

SUBTOTAL = 703 / 9 = 79 SY

SW RETURN (SEE SHT 51)

ITEM 204 GEOTEXTILE FABRIC

FROM SECTION "X1" TO "X2"
(12 + 9) / 2) x 20 = 210 SF

FROM SECTION "X2" TO "X3"
(9 + 9) / 2) x 20 = 180 SF

FROM SECTION "X3" TO "X4"
(9 + 6) / 2) x 21.2 = 159 SF

FROM SECTION "X4" TO "X5"
(6 + 6) / 2) x 8 = 48 SF

SUBTOTAL = 597 / 9 = 67 SY

NE RETURN (SEE SHT 52)

ITEM 204 GEOTEXTILE FABRIC

FROM SECTION "Y1" TO "Y2"
(9 + 13) / 2) x 28 = 308 SF

FROM SECTION "Y2" TO "Y3"
(13 + 21) / 2) x 28 = 476 SF

FROM SECTION "Y3" TO "Y4"
(21 + 17) / 2) x 28 = 532 SF

FROM SECTION "Y4" TO "Y5"
(17 + 14) / 2) x 28.8 = 447 SF

SUBTOTAL = 1763 / 9 = 196 SY

NW RETURN (SEE SHT 53)

ITEM 204 GEOTEXTILE FABRIC

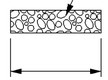
FROM SECTION "Z1" TO "Z2"
(10 + 10) / 2) x 24 = 240 SF

FROM SECTION "Z2" TO "Z3"
(10 + 10) / 2) x 24 = 240 SF

FROM SECTION "Z3" TO "Z4"
(10 + 16) / 2) x 22.7 = 295 SF

SUBTOTAL = 775 / 9 = 87 SY

G/T = AREA OF SUBGRADE EXCAVATION & GRANULAR MATERIAL CONSTRUCTION CARRIED FROM SHEETS 50-53.



GEOTEXTILE FABRIC

ITEM	DESCRIPTION	SE RETURN	SW RETURN	NE RETURN	NW RETURN	QUANTITIES CARRIED FROM SHEET 74	TOTAL
204	EXCAVATION OF SUBGRADE	40 CY	32 CY	99 CY	44 CY	1732 CY	1947 CY
204	GRANULAR MATERIAL TYPE B (18")	40 CY	34 CY	90 CY	44 CY	1787 CY	1995 CY
204	GEOTEXTILE FABRIC	79 SY	67 SY	196 SY	87 SY	3528 SY	3957 SY

TOTALS CARRIED TO LOCATION 2 SUBSUMMARY

CALCULATED BCT CHECKED JHC

UNDERCUT CALCULATIONS - LOCATION 2 SUBTOTALS

FAI-37/664-25.01/4.21

P:\FAI\86847\DESIGN\ROADWAY\PLAN_SHEETS\GENERAL\86847_Undercut03.DGN

GENERAL

THE CONTRACTOR SHALL FURNISH AND INSTALL TRAFFIC CONTROL EQUIPMENT AND MATERIALS IN CONFORMANCE TO THESE PLANS AND SPECIFICATIONS AND THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS (2010) AND ALL SUPPLEMENTAL SPECIFICATIONS. BEFORE ANY EQUIPMENT IS ORDERED OR INSTALLATION IS BEGUN, THREE (3) SETS OF A COMPLETE SCHEDULE OF EQUIPMENT INCLUDING CATALOG CUTS, DIAGRAMS, DRAWINGS, BROCHURES OR OTHER DESCRIPTIVE DATA SHALL BE SUBMITTED TO THE ENGINEER. ONE COPY WILL BE RETURNED MARKED "APPROVED" IF FOUND SATISFACTORY. WORK MAY BEGIN WHEN THE APPROVED COPY IS RECEIVED BY THE CONTRACTOR.

THE CONTRACTOR SHALL SUBMIT IN WRITING A SCHEDULE OF WORK FOR THE PROJECT TO THE PROJECT ENGINEER FOR APPROVAL. THIS SCHEDULE SHALL BE SUBMITTED NOT LESS THAN TWO (2) WEEKS IN ADVANCE OF STARTING WORK.

REFERENCE TO A PARTICULAR TRADE NAME, MANUFACTURER'S CATALOG OR MODEL NUMBER IS MADE FOR DESCRIPTIVE PURPOSES TO GUIDE THE BIDDER. IN INTERPRETING THE REQUIREMENTS OF THE CONTRACT, THEY SHOULD NOT BE CONSTRUED AS EXCLUDING PROPOSALS ON OTHER MATERIALS, EQUIPMENT OR SUPPLIES THAT ARE EQUAL TO OR BETTER THAN THOSE REFERRED TO.

ANY EQUIPMENT OR MATERIAL NOT SPECIFICALLY CALLED FOR IN THESE SPECIFICATIONS BUT NECESSARY TO PROVIDE A COMPLETE AND SUCCESSFULLY OPERATING SYSTEM SHALL BE FURNISHED AS INCIDENTAL TO THE CONTRACT. PAYMENT FOR SUCH ITEMS WILL BE MADE UNDER THE APPROPRIATE RELATED ITEM AT THE CONTRACT BID PRICE, COMPLETE AND IN PLACE.

MAINTENANCE OF TRAFFIC SIGNAL INSTALLATION

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE TRAFFIC SIGNAL INSTALLATIONS WITHIN THE PROJECT UNDER THE FOLLOWING CONDITIONS:

A) FOR NEW SIGNAL INSTALLATIONS OR DEVICES, INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THESE FROM THE TIME OF INSTALLATION UNTIL THE WORK IS ACCEPTED.

THE CONTRACTOR SHALL CORRECT AS QUICKLY AS POSSIBLE ALL OUTAGES OR MALFUNCTIONS. THE CONTRACTOR SHALL PROVIDE THE STATE AND THE ENGINEER ADDRESSES AND PHONE NUMBERS WHERE THE CONTRACTOR'S MAINTENANCE FORCES CAN BE CONTACTED. THE CONTRACTOR SHALL ALSO PROVIDE ONE OR MORE PERSONS TO RECEIVE ALL CALLS AND DISPATCH THE NECESSARY MAINTENANCE FORCES TO CORRECT OUTAGES. SUCH A PERSON OR PERSONS MAY BE USED TO PERFORM OTHER DUTIES AS LONG AS PROMPT ATTENTION IS GIVEN TO THESE CALLS AND A PERSON IS CONTINUALLY AVAILABLE 24 HOURS A DAY, 7 DAYS A WEEK. ALL LAMP OUTAGES, CABLE OUTAGES, ELECTRICAL FAILURES, EQUIPMENT MALFUNCTIONS AND MIS-ALIGNED SIGNAL HEADS SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK INTO SERVICE WITHIN FOUR HOURS AFTER THE CONTRACTOR HAS BEEN NOTIFIED OF THE OUTAGE.

IN THE EVENT NEW SIGNALS ARE DAMAGED PRIOR TO ACCEPTANCE, ALL DAMAGED EQUIPMENT EXCEPT POLES AND CONTROL EQUIPMENT SHALL BE REPLACED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER AND THE SIGNAL SHALL BE BACK IN SERVICE WITHIN 8 HOURS AFTER THE CONTRACTOR HAS BEEN NOTIFIED OF THE OUTAGE. THE CONTRACTOR SHALL ARRANGE FOR FULL TRAFFIC CONTROL UNTIL THE SIGNAL IS BACK IN OPERATION.

IF POLES AND/OR CONTROL EQUIPMENT ARE DAMAGED AND MUST BE REPLACED, THE CONTRACTOR SHALL MAKE TEMPORARY REPAIRS AS NECESSARY TO BRING THE SIGNAL BACK INTO FULL OPERATION WITHIN THE ALLOWED 8 HOUR PERIOD, AND SHALL MAKE PERMANENT REPAIRS OR REPLACEMENT AS SOON THEREAFTER AS POSSIBLE.

MAINTENANCE OF TRAFFIC SIGNAL INSTALLATION, (CONTINUED)

NONE OF THE ABOVE SHALL BE CONSTRUED AS COLLECTIVE OR CONSECUTIVE OUTAGE TIME PERIODS AT ANY ONE LOCATION. THAT IS, WHEN MORE THAN ONE OUTAGE OCCURS AT ANY ONE LOCATION, THEN THE ALLOTTED TIME LIMIT SHALL BE FOR THE WORST SINGLE OUTAGE.

WHEN OUTAGES ARE THE DIRECT RESULT OF A VEHICLE ACCIDENT THE RESPONSE OF THE CONTRACTOR SHALL BE AS OUTLINED ABOVE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COLLECTION OF ANY COMPENSATION FOR THIS WORK FROM THOSE PARTIES RESPONSIBLE FOR THE DAMAGE.

WHEN THE CONTRACTOR HAS FAILED TO, OR CANNOT RESPOND TO AN OUTAGE OR SIGNAL EQUIPMENT MALFUNCTION AT THE LOCATIONS WITHIN HIS RESPONSIBILITY, WITHIN THE PERIODS SPECIFIED ABOVE, THE ENGINEER MAY INVOKE THE PROVISIONS OF SECTION 105.15, AND ANY SUBSEQUENT BILLINGS TO THE STATE FOR POLICE SERVICES AND MAINTENANCE SERVICES BY STATE FORCES SHALL BE DEDUCTED FROM MONIES DUE OR TO BECOME DUE THE CONTRACTOR IN ACCORDANCE WITH PROVISIONS OF SECTION 105.15.

THE CONTRACTOR SHALL PROVIDE THE MAINTENANCE SERVICE ENTIRELY WITH HIS FORCES OR HE MAY CHOOSE TO ENTER INTO A COOPERATIVE UNDERSTANDING WITH THE LOCAL MAINTAINING AGENCY TO PROVIDE THE MAINTENANCE. THE CONTRACTOR SHALL INFORM THE ENGINEER, IN WRITING, OF THE MAINTENANCE METHOD SELECTED.

ANY SIGNALIZED INTERSECTION, WHERE THE SIGNAL IS OUT OF SERVICE DUE TO CONSTRUCTION PROCEDURES, OR DUE TO AN OUTAGE OR MALFUNCTION OF EQUIPMENT AS DESCRIBED ABOVE, SHALL BE PROTECTED, BY THE CONTRACTOR, BY THE INSTALLATION OF TEMPORARY "STOP" SIGNS.

ANY VEHICULAR TRAFFIC SIGNAL HEAD, EITHER NEW OR EXISTING WHICH WILL BE OUT OF OPERATION SHALL BE COVERED IN THE MANNER DESCRIBED IN 632.25.

THE CONTRACTOR SHALL MAINTAIN COMPLETE RECORDS OF MALFUNCTIONS INCLUDING:

1. TIME OF NOTIFICATION OF MALFUNCTION;

2. TIME OF WORK CREWS ARRIVAL TO CORRECT THE MALFUNCTION;

3. ACTIONS TAKEN TO CORRECT THE MALFUNCTION, INCLUDING A LIST OF PARTS REPAIRED OR REPLACED;

4. A DIAGNOSIS OF REASON FOR THE MALFUNCTION AND PROBABILITY OF REOCCURRENCE;

5. TIME OF COMPLETION OF THE REPAIR AND SYSTEM RESTORED TO FULL SERVICE.

A COPY OF THESE RECORDS SHALL BE PROVIDED TO THE ENGINEER WITHIN THREE (3) WORKING DAYS FOLLOWING COMPLETION OF EACH REPAIR.

ALL COSTS RESULTING FROM THE ABOVE REQUIREMENTS SHALL BE CONSIDERED TO BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614, MAINTAINING TRAFFIC.

PLAN AND SPECIFICATION COMPLIANCE

THESE SPECIFICATIONS, TOGETHER WITH THE ACCOMPANYING PLANS, ARE INTENDED TO DESCRIBE THE TYPE, SIZE AND LOCATION OF THE PRODUCTS AND MATERIALS TO BE PROVIDED AND INSTALLED UNDER VARIOUS BID ITEMS RELATED TO TRAFFIC CONTROL. THE CONTRACTOR SHALL FURNISH AND INSTALL TRAFFIC CONTROL DEVICES AND RELATED MATERIALS IN COMPLIANCE WITH THESE PLANS AND SPECIFICATIONS, AS WELL AS THE 2010 OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS, THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, THE TRAFFIC ENGINEERING MANUAL, AND THE STANDARD CONSTRUCTION DRAWINGS ISSUED BY THE OHIO DEPARTMENT OF TRANSPORTATION. THESE SPECIFICATIONS SET FORTH THE MINIMUM PERFORMANCE AND OPERATING REQUIREMENTS OF THE TRAFFIC CONTROL ITEMS REFERRED TO HEREIN.

TRAFFIC SIGNAL CONTROL EQUIPMENT SHALL MEET OR EXCEED THE STANDARDS SPECIFIED IN THE FOLLOWING DOCUMENTS:

(A) SPECIFICATIONS LISTED IN THIS PLAN
(B) NEMA STANDARDS PUBLICATION NO. TS1-1989 AND/OR TS2-1992 (OR CURRENT NEMA ISSUE) SECTIONS 1, 2, 5, 6, 8, 11, 13, & 14.
(C) 2010 ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS 625, 632, 633, 725, 732 AND 733.

IN CASE OF A CONFLICTING SPECIFICATION STATEMENT, THE SPECIFICATION DOCUMENT HIERARCHY SHALL BE IN THE ORDER LISTED FROM (A) – HIGHEST TO (C) - LOWEST.

GUARANTEE

THE CONTRACTOR SHALL GUARANTEE THAT THE TRAFFIC CONTROL SYSTEM INSTALLED AS PART OF THIS CONTRACT SHALL OPERATE SATISFACTORILY FOR A PERIOD OF 90 DAYS FOLLOWING COMPLETION OF THE 10-DAY PERFORMANCE TEST. IN THE EVENT OF UNSATISFACTORY OPERATION THE CONTRACTOR SHALL CORRECT FAULTY INSTALLATIONS, MAKE REPAIRS AND REPLACE DEFECTIVE PARTS WITH NEW PARTS OF EQUAL OR BETTER QUALITY. EQUIPMENT, MATERIAL AND LABOR COSTS INCURRED IN CORRECTING AN UNSATISFACTORY OPERATION SHALL BE BORNE BY THE CONTRACTOR.

THE GUARANTEE SHALL COVER THE FOLLOWING ITEMS OF THE TRAFFIC CONTROL SYSTEM: CONTROLLERS AND ASSOCIATED EQUIPMENT AND DETECTOR UNITS.

CUSTOMARY MANUFACTURER'S GUARANTEES FOR THE FOREGOING ITEMS SHALL BE TURNED OVER TO THE STATE OR THE MAINTAINING AGENCY FOLLOWING ACCEPTANCE OF THE EQUIPMENT.

THE COST OF GUARANTEEING THE TRAFFIC CONTROL SYSTEM WILL BE INCIDENTAL TO AND INCLUDED IN THE CONTRACT UNIT PRICE OF THE VARIOUS ITEMS MAKING UP THE SYSTEM.

UNDERGROUND UTILITIES

THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS OF THE UTILITIES AS REQUIRED BY SECTION 153.64 OF THE OHIO REVISED CODE. ODOT ASSUMES NO RESPONSIBILITY FOR THE LOCATION OR THE DEPTHS OF THE UNDERGROUND FACILITIES SHOWN ON THESE PLANS.

AT LEAST 48 HOURS BEFORE DIGGING, THE CONTRACTOR SHALL CALL THE OHIO UTILITIES PROTECTION SERVICE AT THE NUMBER LISTED ON THE TITLE SHEET. NON-MEMBER UTILITY COMPANIES MUST BE CALLED DIRECTLY. SEE SHEET **3** OF **31** FOR THE NAMES AND ADDRESSES OF THE UTILITIES LOCATED WITHIN THE PROJECT CONSTRUCTION LIMITS.

CALCULATED DNM CHECKED BFB

TRAFFIC SIGNAL GENERAL NOTES

TRAFFIC

FAI-37 / 664-25.01 / 4.21

ELECTRICAL INSPECTION BY STATE LICENSED INSPECTOR

MOST ELECTRIC COMPANIES REQUIRE THAT ALL NEW OR RELOCATED ELECTRIC SERVICE ENCLOSURES ARE TO BE INSPECTED BY A LICENSED STATE INSPECTOR PRIOR TO CONNECTION TO A UTILITY DISTRIBUTION LINE. THIS IS A NEW SITUATION FOR ODOT BECAUSE INSPECTIONS ARE NOW BEING REQUIRED FOR TRAFFIC CONTROL DEVICES.

THE CONTRACTOR SHALL HIRE A LICENSED ELECTRICAL INSPECTOR(S); PAY THE APPROPRIATE FEE(S), AND ADVISE THE ODOT PROJECT ENGINEER OF THE TIME OF THE INSPECTION(S) SO THAT HE/SHE MAY HAVE A REPRESENTATIVE IN ATTENDANCE. IT IS TO BE NOTED THAT THE INSPECTION DOES NOT SUBSTITUTE FOR ODOT'S FINAL INSPECTION, NOR DOES IT SUPERSEDE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS.

THE COST OF THE INSPECTIONS SHALL BE CONSIDERED AS INCIDENTAL TO AND INCLUDED IN THE CONTRACT UNIT PRICE OF THE VARIOUS ITEMS MAKING UP THE TRAFFIC CONTROL DEVICES.

ITEM 633, CONTROLLER UNIT, TYPE 2070L, WITH CABINET, TYPE 332, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF CMS 633 AND 733, THE FOLLOWING REQUIREMENTS SHALL APPLY:

A PERMANENT MARKING DECAL SHALL BE CLEARLY AFFIXED TO THE CONTROLLER SHOWING DATE OF DELIVERY TO THE PROJECT. CPU BOARDS SHALL CONTAIN THE CURRENT OS IMAGE VERSION, AS LISTED ON THE LATEST ODOT-APPROVED CALTRANS QUALIFIED PRODUCT LIST. CONTROLLERS SHALL BE SHIPPED TO THE ODOT SIGNAL SHOP, 1606 WEST BROAD STREET, COLUMBUS, OHIO 43223, EITHER DIRECTLY OR VIA THE ODOT DISTRICT OFFICE (CONTACT BRIAN BOSCH AT 740-323-5182). ANY CONTROLLERS DELIVERED TO THE ODOT SIGNAL SHOP THAT DO NOT CONTAIN THE LATEST CALTRANS CPU OS IMAGE VERSION WILL BE REJECTED AND RETURNED TO THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR UPDATING THE CPU TO THE CURRENT CALTRANS OS IMAGE VERSION. THE ODOT SIGNAL SHOP WILL LOAD CONTROLLERS RECEIVED WITH THE REQUIRED SOFTWARE. THE CONTROLLER WILL THEN BE PERFORMANCE TESTED BY THE ODOT SIGNAL SHOP. EVERY EFFORT SHALL BE MADE TO HAVE LOADING AND PERFORMANCE TESTING COMPLETED BY THE ODOT SIGNAL SHOP WITHIN 2 WEEKS OF RECEIPT OF AN INDIVIDUAL CONTROLLER; LARGER GROUPS OF CONTROLLERS SUBMITTED AT THE SAME TIME MAY TAKE LONGER. SHOULD ANY CONTROLLER FAIL THIS PERFORMANCE TEST AFTER BEING LOADED WITH ODOT-LICENSED SOFTWARE, THE SOFTWARE WILL BE REMOVED BY THE ODOT SIGNAL SHOP AND THE CONTROLLER REJECTED. REJECTED CONTROLLERS WILL BE RETURNED, EITHER DIRECTLY TO THE CONTRACTOR OR TO THE ODOT DISTRICT OFFICE. CONTROLLERS PASSING THE PERFORMANCE TEST WILL BE LABELED BY THE ODOT SIGNAL SHOP WITH THE OS IMAGE NUMBER, CPU SERIAL NUMBER, SOFTWARE REVISION NUMBER, AND UPLOAD DATE. THIS LABEL IS NOT TO BE REMOVED BY THE CONTRACTOR AND SERVES AS PROOF THAT THE CONTROLLER HAS BEEN LOADED, TESTED AND APPROVED FOR INITIAL INSTALLATION ON THE PROJECT. SUCH PROOF DOES NOT ALTER THE REQUIRED 10-DAY PERFORMANCE TEST OUTLINED IN CMS SECTIONS 632 AND 633.

THE CONTRACTOR SHALL NOT REASSIGN THE DETECTOR INPUTS IN ORDER TO REDUCE THE NUMBER OF 2-CHANNEL DETECTOR UNITS SUPPLIED, BUT SHALL USE THE STANDARD CALTRANS INPUT FILE DESIGNATIONS.

THE CONTRACTOR SHALL PROVIDE AND INSTALL A GENERATOR POWER PANEL AS SPECIFIED ON SHEET 87 TO THE CONTROLLER CABINET. INSTALLATION SHALL INCLUDE ALL THE HARDWARE AND INCIDENTALS NECESSARY TO PROVIDE AUXILIARY POWER TO THE CONTROLLER CABINET THROUGH THE GENERATOR POWER PANEL

ITEM 632, VEHICULAR SIGNAL HEAD, (LED) BLACK, BY TYPE, WITH BACKPLATES, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF CMS 632 AND 732, THE FOLLOWING REQUIREMENTS SHALL ALSO APPLY:

SIGNAL SECTIONS:

1. SIGNAL HEADS AND VISORS SHALL BE CONSTRUCTED OF BLACK POLYCARBONATE PLASTIC AND MEET ITE SPECIFICATIONS.
2. PIPE, SPACERS AND FITTINGS CONSTRUCTED OF POLYCARBONATE PLASTIC SHALL BE USED IN LIEU OF GALVANIZED STEEL OR ALUMINUM.
3. PROPER EXTERIOR COLORS SHALL BE OBTAINED BY USE OF COLORED PLASTIC MATERIAL RATHER THAN PAINTING.

MOUNTING HARDWARE:

1. ALL UPPER SIGNAL SUPPORT HARDWARE AND PIPING UP TO AND INCLUDING THE WIRE INLET FITTING SHALL BE FERROUS METAL FOR SIGNAL DISPLAYS OF TWO OR MORE SECTIONS.
2. THE ENTRANCE FITTING SHALL BE OF THE TRI-STUD DESIGN WITH SERRATED RINGS IN ORDER TO ACHIEVE POSITIVE LOCKING.
3. ALL BALANCE ADJUSTERS SHALL HAVE A MINIMUM THREE-QUARTER INCH EYE BOLT AND THREE-QUARTER INCH WIDE SLOT. EYE BOLTS ARE CAST FROM 316 STAINLESS STEEL AND PROVIDED WITH A SATIN FINISH. THREE-QUARTER INCH BODY HALVES ARE CAST FROM A MINIMUM 65-45-12 DUCTILE IRON AND PROVIDED WITH A BRIGHT ZINC FINISH (ZN1). BALANCE ADJUSTERS SHALL ONLY BE USED WHERE SPECIFIED.

THE DEPARTMENT WILL MEASURE VEHICULAR SIGNAL HEAD, (LED) BLACK, BY TYPE, WITH BACKPLATES, AS PER PLAN BY THE NUMBER OF COMPLETE UNITS FURNISHED AND INSTALLED, AND WILL INCLUDE ALL SUPPORT AND MOUNTING HARDWARE, DISCONNECT HANGERS, CLOSURE CAPS, DIMMERS, AND LAMPS AS SPECIFIED.

STRAIN POLE FOUNDATION ELEVATIONS

ELEVATIONS SHOWN IN THE PLANS FOR STRAIN POLE FOUNDATIONS ARE FOR COMPUTATIONAL PURPOSES ONLY. THE ACTUAL ELEVATION OF THE FOUNDATION SHALL BE IN ACCORDANCE WITH SCD TC-21.20 PROVIDED THE EXISTING SLOPE IS LESS THAN 6:1.

AT LOCATIONS WHERE THE EXISTING SLOPE IS 6:1 OR GREATER, THE BURIED DEPTH OF FOUNDATION, AS SHOWN IN SCD TC-21.20 SHALL APPLY TO THE LOW SIDE OF THE SLOPE. THE TOP OF THE FOUNDATION SHALL BE SET 2 INCHES ABOVE THE EXISTING SURFACE ON THE HIGH SIDE OF THE SLOPE.

THE ADDITIONAL DEPTH OF FOUNDATION NECESSARY TO MEET THESE REQUIREMENTS SHALL BE ADDED TO THE FORMED TOP.

ITEM 633, CABINET FOUNDATION, AS PER PLAN

THIS ITEM SHALL INCLUDE THE ADDITIONAL EXCAVATION AND CONCRETE NECESSARY TO EXTEND THE CABINET FOUNDATION IN ORDER TO SUPPORT THE UNINTERRUPTIBLE POWER SUPPLY (UPS). IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A FOUNDATION LARGE ENOUGH TO ACCOMMODATE THE UPS BEING PROVIDED BY SEPARATE BID ITEM. AS A MINIMUM, THE ADDITIONAL FOUNDATION SHALL BE 36" X 20" AND BE OTHERWISE CONSTRUCTED IN ACCORDANCE WITH THE 332 CABINET FOUNDATIONS SHOWN ON TC-83.20.

PAYMENT FOR ITEM 633 "CABINET FOUNDATION, AS PER PLAN" SHALL INCLUDE ALL EQUIPMENT, LABOR AND MATERIALS NECESSARY TO INSTALL THE FOUNDATION, INCLUDING CONDUIT ELLS AND ANCHOR BOLTS, RESTORATION OF DISTURBED AREA AND DISPOSAL OF SURPLUS MATERIAL AS PER CMS 104.04.

ITEM 632, POWER SERVICE, AS PER PLAN

THE POWER SUPPLYING AGENCY FOR THIS PROJECT IS:

AEP SOLUTION CENTER
1-800-672-2231

POWER SERVICE SHALL BE AS PER CMS ITEM 632 AND STD. DWG. TC-83.10 WITH THE FOLLOWING EXCEPTIONS:

1. THE METER BASE MOUNTING HEIGHT SHALL BE NO MORE THAN 5 FEET HIGH TO THE CENTER OF THE METER BASE FROM THE GROUND.
2. THE CONTRACTOR SHALL SUPPLY THE NECESSARY METER BASE.
3. ALL POWER SERVICES SHALL BE METERED. THE METER SHALL HAVE A LEVER OPERATED BYPASS.

DISCONNECT SWITCH ENCLOSURES FURNISHED IN ACCORDANCE WITH CMS ITEM 632, POWER SERVICE, AS PER PLAN, SHALL INCLUDE A PADLOCK EQUAL TO MASTER NO. 4BKA OR WILSON BOHANNON 660. WITH LOCK BODY OF BRONZE OR BRASS AND KEYING SHALL BE TO THE STATE MASTER.

THE CONTRACTOR SHALL CONTACT THE METER SECTION OF THE POWER COMPANY FOR INFORMATION REGARDING THE METER BASE INSTALLATION PRIOR TO ORDERING POLES. THE CONTRACTOR WILL BE RESPONSIBLE FOR REQUESTING AND SCHEDULING ANY INSPECTIONS THE POWER COMPANY MAY REQUIRE FOR THE POWER SERVICE HOOK UP. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT THE POWER COMPANY FOR THE ELECTRICAL SERVICE CONNECTION. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR SPLICE POWER CABLE INTO THE POWER COMPANY'S CIRCUITS. THE VOLTAGE SUPPLIED SHALL BE NOMINALLY 120 VOLTS. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY NECESSARY PERMITS AND THE PAYING OF ALL FEES. THE CONTRACTOR SHALL PAY ALL POWER CHARGES UNTIL THE SIGNAL AND LIGHTING IS ACCEPTED BY THE MAINTAINING AGENCY.

CALCULATED DNM CHECKED BFB

TRAFFIC SIGNAL GENERAL NOTES

FAI-37/664-25.01/4.21

ITEM 633 UNINTERRUPTIBLE POWER SUPPLY, 1000 WATT, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF CMS 633 AND 733, THE CONTRACTOR SHALL FURNISH, INSTALL AND TEST UNINTERRUPTIBLE POWER SUPPLY (UPS) STATUS INDICATOR LAMPS THAT ALLOW MAINTENANCE PERSONNEL AND LAW ENFORCEMENT TO QUICKLY ASSESS WHETHER A TRAFFIC SIGNAL CABINET IS BEING POWERED BY A UPS. A 1-INCH (25 MM) WATERPROOF NEMA 4X OR IP66 LAMP WITH A DOMED RED LENS SHALL BE USED TO INDICATE THE CABINET IS OPERATING UNDER UPS BACKUP POWER (THE "BACKUP" OPERATING CONDITION). THIS LAMP SHALL BE WIRED USING MINIMUM 20GA STRANDED, INSULATED HOOKUP WIRE TO THE STATUS RELAY OUTPUTS OF THE UPS. THE WIRES SHALL BE TERMINATED BY LUGS AT THE DISPLAY END AND PERMANENTLY LABELED "BACKUP POWER STATUS DISPLAY," WITH WIRE POLARITY INDICATED. THIS ITEM INCLUDES PROGRAMMING THE UPS STATUS RELAY OUTPUTS TO PRODUCE THE LAMP STATUS DISPLAYS. THE STATUS DISPLAY SHALL BE SOLID 100% DUTY CYCLE (NOT FLASHING). THE LAMP SHALL BE PLACED IN THE UPS CABINET WALL (NOT THE ROOF) IN SUCH A MANNER AS TO BE SEALED FROM WATER INTRUSION AND VISIBLE FROM A VEHICLE AT THE STOP LINE IN THE CLOSEST LANE OF AT LEAST ONE APPROACH TO THE SIGNALIZED INTERSECTION. THE OPERATING VOLTAGE OF THE LED LAMP SHALL BE 120V AC.

PAYMENT FOR ITEM 633 "UNINTERRUPTIBLE POWER SUPPLY, AS PER PLAN" SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH CABINET, IN PLACE. COMPLETELY INSTALLED IN THE LOCATION SHOWN IN THE PLANS, WIRED, TESTED AND ACCEPTED.

ITEM 633, CONTROLLER WORK PAD, AS PER PLAN

THIS ITEM SHALL INCLUDE THE INSTALLATION OF A WORK PAD FOR THE GROUND MOUNTED 332 CABINET AS DETAILED ON STANDARD DRAWING TC-83.20.

IN ADDITION TO THE WORK PAD FOR THE 332 CABINET, THE CONTRACTOR SHALL INSTALL A WORK PAD FOR THE UNINTERRUPTIBLE POWER SUPPLY (UPS).

PROVIDE A 36" SQUARE WORK PAD IN FRONT OF THE UPS. EXCAVATE A MINIMUM OF 9" BELOW GRADE. PLACE AND COMPACT 6" OF MATERIAL CONFORMING TO 304.02 AND INSTALL A CAST-IN-PLACE WORK PAD THAT IS A MINIMUM OF 4" THICK.

PAYMENT FOR ITEM 633, CONTROLLER WORK PAD, AS PER PLAN, SHALL INCLUDE ALL EQUIPMENT, LABOR AND MATERIALS NECESSARY TO INSTALL THE CONCRETE WORK PAD.

GROUNDING AND BONDING

THE REQUIREMENTS OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS (C&MS) AND THE HL AND TC SERIES OF STANDARD CONSTRUCTION DRAWINGS ARE MODIFIED AS FOLLOWS:

1) ALL METALLIC PARTS CONTAINING ELECTRICAL CONDUCTORS SHALL BE PERMANENTLY JOINED TO FORM AN EFFECTIVE GROUND FAULT CURRENT PATH BACK TO THE GROUNDED CONDUCTOR IN THE POWER SERVICE DISCONNECT SWITCH.

   A. PROVIDE AN EQUIPMENT GROUNDING CONDUCTOR IN METALLIC CONDUITS (725.04) IN ADDITION TO THE CONDUCTORS SPECIFIED AND BOND THE CONDUIT TO THIS GROUNDING CONDUCTOR.

   B. WHEN AN EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED IN PLASTIC CONDUIT (725.05), THE INSTALLATION SHALL INCLUDE A SEPARATE EQUIPMENT GROUNDING CONDUCTOR IN ADDITION TO THE CONDUCTORS SPECIFIED.

   C. METALLIC CONDUIT CARRYING THE LOOP WIRES FROM IN THE PAVEMENT TO THE PULL BOX SPLICE LOCATION WILL ONLY BE BONDED AT THE PULL BOX END, AND WILL NOT CONTAIN AN EQUIPMENT GROUNDING CONDUCTOR.

   D. METAL PULL BOX LIDS SHALL BE BONDED BY ATTACHMENT OF THE EQUIPMENT GROUNDING CONDUCTOR TO THE FRAME DIAGONAL AS PROVIDED ON HL-30.11.

   E. IF MULTIPLE CONDUIT RUNS BEGIN AND END AT THE SAME POINTS, ONLY ONE EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED.

   F. IF AN EQUIPMENT GROUNDING CONDUCTOR IS NEEDED IN CONDUIT BETWEEN SIGNALIZED INTERSECTIONS FOR UNDERGROUND INTERCONNECT CABLE, THE GROUNDING SYSTEM FOR EACH SIGNALIZED INTERSECTION WILL BE SEPARATED ABOUT MIDWAY BETWEEN THE INTERSECTIONS.

   G. THE MESSENGER WIRE AT SIGNALIZED INTERSECTIONS WILL BE USED AS THE CONDUCTIVE PATH FROM CORNER TO CORNER IF CONDUIT IS NOT PROVIDED UNDER THE ROADWAY. WHEN CONDUIT CONNECTS THE CORNERS OF AN INTERSECTION, AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE USED IN THE CONDUIT.

2) CONDUITS.

   A. THE 725.04 CONDUIT SHALL HAVE GROUNDING BUSHINGS INSTALLED AT ALL TERMINATION POINTS. THE BUSHING MATERIAL SHALL BE COMPATIBLE WITH GALVANIZED STEEL CONDUIT AND THE GROUNDING LUG MATERIAL SHALL BE COMPATIBLE FOR USE WITH COPPER WIRE. THREADED OR COMPRESSION TYPE BUSHINGS MAY BE USED.

   B. THE 725.05 CONDUIT SHALL HAVE THE INSIDE AND OUTSIDE DIAMETERS OF THE CONDUIT DEBURRED AT ALL TERMINATION POINTS.

   C. BOTH ENDS OF METALLIC CONDUIT SHALL BE BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.

   D. METALLIC CONDUIT MAY BE BONDED TO METALLIC BOXES THROUGH THE USE OF CONDUIT FITTINGS UL APPROVED FOR THIS TYPE OF CONNECTION, WITH THE BOX BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.

3) WIRE FOR GROUNDING AND BONDING.

   A. USE INSULATED, COPPER WIRE FOR THE EQUIPMENT GROUNDING CONDUCTOR. BONDING JUMPERS IN BOXES AND ENCLOSURES MAY BE BARE OR INSULATED COPPER WIRE. WIRE SIZE SHALL BE AS FOLLOWS:

      I) USE 4 AWG BETWEEN THE POWER SERVICE AND SUPPORTS, POLES, PEDESTALS, CONTROLLER OR FLASHER CABINETS.

      II) USE A MINIMUM 8 AWG BETWEEN LOOP DETECTOR PULL BOXES AND THE FIRST CONDUIT THAT REQUIRES A LARGER SIZE AS SPECIFIED IN 3.A.I ABOVE.

      III) USE A MINIMUM 8 AWG BETWEEN THE "PREPARE TO STOP WHEN FLASHING" INSTALLATION (INCLUDING SUPPORT) AND THE FIRST CONDUIT THAT REQUIRES A LARGER SIZE AS SPECIFIED IN 3.A.I ABOVE.

      IV) THE INSULATION SHALL BE GREEN OR GREEN WITH YELLOW STRIPE(S). FOR 4 AWG OR LARGER, INSULATION MAY ALSO BE BLACK WITH GREEN TAPE/LABELS INSTALLED AT ALL ACCESS POINTS.

   B. IN A HIGHWAY LIGHTING SYSTEM, THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE THE SAME WIRE SIZE AS THE DUCT CABLE OR DISTRIBUTION CABLE CIRCUIT CONDUCTORS, WITH THE MINIMUM CONDUCTOR SIZE OF 4 AWG. BONDING JUMPERS WILL BE MINIMUM SIZE 4 AWG.

4) GROUND ROD.

   A. A 3/4 INCH SCHEDULE 40 PVC CONDUIT WILL BE USED IN FOUNDATIONS AND CONCRETE WALLS FOR THE GROUNDING CONDUCTOR (GROUND WIRE) RACEWAY TO THE GROUND ROD. SHOULD METALLIC CONDUIT BE USED, BOTH ENDS OF THE CONDUIT SHALL BE BONDED TO THE GROUNDING CONDUCTOR.

   B. THE TYPICAL GROUNDING CONDUCTOR (GROUND WIRE) SHALL BE 4 AWG INSULATED, COPPER.

5) THE GREEN CONDUCTOR IN SIGNAL CABLES (CONDUCTOR #4) SHALL NOT BE USED TO SUPPLY POWER TO A SIGNAL INDICATION. IT WILL BE CONNECTED TO THE SIGNAL BODY AS AN EQUIPMENT GROUND IN ALUMINUM HEADS AND IT WILL BE UNUSED IN PLASTIC HEADS. UNUSED CONDUCTORS SHALL BE GROUNDED IN THE CABINET. TYPICAL USE OF CONDUCTORS IS AS FOLLOWS:

COND. NO.	COLOR	VEHICLE SIGNAL	PEDESTRIAN SIGNAL
1	BLACK	GREEN BALL	#1 WALK
2	WHITE	AC NEUTRAL	AC NEUTRAL
3	RED	RED BALL	#1 DW/FDW
4	GREEN	EQUIPMENT GROUND	EQUIPMENT GROUND
5	ORANGE	YELLOW BALL	#2 DW/FDW
6	BLUE	GREEN ARROW	# 2 WALK
7	WHITE/BLACK STRIPE	YELLOW ARROW	NOT USED

6) POWER SERVICE AND DISCONNECT SWITCH.

   A. AT THE POWER SERVICE LOCATION, THE GROUNDING CONDUCTOR (GROUND WIRE) FROM THE DISCONNECT SWITCH NEUTRAL (AC-) BAR TO THE GROUND ROD SHALL BE A CONTINUOUS, UNSPLICED CONDUCTOR. IF SPLICED, IT SHALL BE AN EXOTHERMIC WELD BUTT SPICE.

   B. THE SERVICE NEUTRAL (AC-) SHALL ONLY BE CONNECTED TO GROUND AT THE PRIMARY POWER SERVICE DISCONNECT SWITCH.

      I) NEMA CONTROLLER CABINETS: IF A POWER SERVICE DISCONNECT SWITCH IS LOCATED BEFORE THE CONTROLLER CABINET, THE NEUTRAL (AC-) AND THE GROUNDING BARS IN THE CONTROLLER CABINET SHALL NOT BE CONNECTED TOGETHER AS SHOWN IN NEMA TS-2, FIGURE 5-4.

      II) IF SECONDARY DISCONNECT SWITCHES ARE CONNECTED AFTER THE PRIMARY DISCONNECT SWITCH, THE NEUTRAL (AC-) SHALL ONLY BE GROUNDED AT THE PRIMARY SWITCH. EQUIPMENT GROUNDING CONDUCTORS SHALL BE BROUGHT TO THE PRIMARY SWITCH, BUT SHALL BE GROUNDED AT BOTH SECONDARY AND PRIMARY SWITCHES.

7) STRUCTURE GROUNDING: HL-50.21 SHOWS A 1/0 AWG STRANDED COPPER CABLE USED FOR STRUCTURE GROUNDING. ADDITIONALLY, THIS SAME CABLE SHALL BE INSULATED AND ANY CONNECTIONS AND BARE COPPER STRANDS EXPOSED TO CONCRETE SHALL BE COVERED WITH MASTIC TO PREVENT CONTACT WITH THE CONCRETE.

8) PAYMENT.

   A. ALL MATERIALS AND WORK REQUIRED TO COMPLETE THE EFFECTIVE GROUND FAULT CURRENT PATH SYSTEM ARE INCIDENTAL TO THE CONDUCTORS INSTALLED BY CONTRACT.

   B. WORK ON BRIDGES MAY BE INCLUDED IN THE BID ITEM FOR "ITEM 625, STRUCTURE GROUNDING."

   B. IN A 3-WIRE HIGHWAY LIGHTING SYSTEM, THE THIRD CONDUCTOR OF THE DUCT CABLE OR DISTRIBUTION CABLE WILL BE USED AS THE EQUIPMENT GROUNDING CONDUCTOR AND MAY AS SUCH BE PART OF THE CABLE BID ITEM.

CALCULATED DNM CHECKED BFB

TRAFFIC SIGNAL GENERAL NOTES

FAI-37 / 664-25.01 / 4.21

86847_sgn_03.dgn dated 1/10/2012

ADVANCE/DILEMMA ZONE DETECTION SYSTEM (ALTERNATE BID)

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING AN ADVANCE/DILEMMA ZONE DETECTION UNIT CAPABLE OF INTERSECTION ADVANCE DETECTION CONTROL UTILIZING ABOVE GROUND DIGITAL WAVE RADAR TECHNIQUES INSTEAD OF THE CONVENTIONAL LOOP DETECTORS, LOOP LEAD-IN WIRE, PULL BOXES, AND CONDUIT THAT IS SHOWN IN THE PLAN.

THE UNIT SHALL BE NON-INTRUSIVE AND SHALL DETECT VEHICLES FROM 50 FT. UP TO 500 FT. FROM THE UNIT. THE UNIT SHALL PROVIDE UP TO 8 DETECTION ZONES SIMULTANEOUSLY FOR INTERSECTION CONTROL. ONE UNIT SHALL BE PROVIDED PER APPROACH, WHERE SPECIFIED IN THE PLANS, COVERING MULTIPLE LANES WHERE ADVANCE DETECTION IS REQUIRED. THE DETECTION UNIT SHALL INCLUDE THE FOLLOWING LIST OF FEATURES AND CAPABILITIES:

- THE UNIT SHALL PROVIDE ACCURATE PRESENCE-DETECTION OF BOTH STOPPED AND MOVING VEHICLES. THE UNIT SHALL BE MOUNTED IN A FORWARD-FIRE, LOOKING AT EITHER APPROACHING OR DEPARTING TRAFFIC AND SHALL ONLY DETECT VEHICLES IN ONE DIRECTION OF TRAVEL.
- THE UNIT SHALL BE TESTED TO MEET NEMA TS2 ENVIRONMENTAL STANDARDS AND MAINTAIN ACCURATE PERFORMANCE IN THE FOLLOWING OPERATING CONDITIONS:

RAIN UP TO 4 IN. PER HOUR	SNOW
FREEZING RAIN	DUST
CHANGING TEMPERATURE	WIND
CHANGING LIGHTING	FOG

- THE RADAR DESIGN FOR EACH UNIT SHALL CONFORM TO THE FOLLOWING:
  - OPERATING FREQUENCY: 10.5–10.55 GHZ (X-BAND)
  - MATRIX OF A MINIMUM OF 16 RADARS
  - NO MANUAL TUNING TO CIRCUITRY
  - TRANSMITS MODULATED SIGNALS GENERATED DIGITALLY
  - NO TEMPERATURE-BASED COMPENSATION NECESSARY
  - BANDWIDTH STABLE WITHIN 1%
  - PRINTED CIRCUIT BOARD ANTENNAS
  - ANTENNA VERTICAL 6 DB BEAM WIDTH (TWO-WAY PATTERN): 80 DEGREES
  - ANTENNA HORIZONTAL 6 DB BEAM WIDTH (TWO-WAY PATTERN): 10.5 DEGREES
  - ANTENNA TWO-WAY SIDELOBES: -40 DB
  - TRANSMIT BANDWIDTH: 45 MHZ
  - UN-WINDOWED RESOLUTION: 11 FT.
  - RF CHANNELS: 4
- THE UNIT SHALL INCLUDE A SIMPLE SETUP ROUTINE THAT SHALL AUTOMATICALLY CONFIGURE AND CALIBRATE THE UNIT FOR PROPER OPERATION DURING INSTALLATION. THE UNIT SHALL ALSO BE CAPABLE OF BEING PROGRAMMED AND UPDATED FROM A LAPTOP COMPUTER OR OTHER PORTABLE PROGRAMMING DEVICE, SUCH AS A POCKET PC, VIA A LOCAL OR REMOTE ETHERNET CONNECTION USING VENDOR SUPPLIED SOFTWARE. THE SOFTWARE SHALL SUPPORT TCP/IP CONNECTIVITY, UNIT CONFIGURATION BACK-UP AND RESTORE, AND VIRTUAL SENSOR CONNECTIONS. THE GRAPHICAL USER INTERFACE SHALL OPERATE ON A WINDOWS PLATFORM.
- THE UNIT SHALL HAVE ONE FULL-DUPLEX RS2-232 AND ONE HALF-DUPLEX RS-485 COMMUNICATION PORTS AND SHALL HAVE THE ABILITY TO UPGRADE FIRMWARE OVER ANY COMMUNICATION PORT.
- THE UNIT SHALL BE MOUNTED DIRECTLY TO A POLE OR MAST ARM, AS RECOMMENDED BY THE MANUFACTURER. CABLE(S) SHALL BE PROVIDED AS REQUIRED AND RECOMMENDED BY THE MANUFACTURER.

ADVANCE/DILEMMA ZONE DETECTION SYSTEM (ALTERNATE BID), CONT'D

- SURGE PROTECTION DEVICES, AS RECOMMENDED BY THE MANUFACTURER, SHALL BE INCLUDED BOTH AT THE POLE WHERE THE UNIT IS LOCATED TO PROTECT THE UNIT AND IN THE TRAFFIC CABINET TO PROTECT THE CABINET ELECTRONICS.
- POWER SHALL BE PROVIDED FROM THE TRAFFIC CABINET. THE UNIT SHALL CONSUME LESS THAN 10 WATTS AND OPERATE FROM A DC INPUT BETWEEN 9 VDC AND 28 VDC. COMPLETE AND AUTOMATIC RECOVERY FROM A POWER FAILURE SHALL BE WITHIN 15 SECONDS AFTER RESUMPTION OF NORMAL POWER.
- ALL REQUIRED INPUTS CARDS SHALL BE INCLUDED IN THE TRAFFIC CABINET AND SHALL BE COMPATIBLE WITH CALTRANS, NEMA TS1 AND NEMA TS2 DETECTOR RACKS. THE CARDS SHALL PROVIDE TRUE PRESENCE DETECTOR CALLS OR CONTACT CLOSURE TO THE TRAFFIC CONTROLLER.
- THE MANUFACTURER'S REPRESENTATIVE SHALL BE ON SITE DURING INSTALLATION AND TESTING AND SHALL PROVIDE ONSITE TRAINING ON THE SETUP, OPERATION, AND MAINTENANCE OF THE UNIT.
- THE UNIT SHALL COME WITH A 2-YEAR MANUFACTURER SUPPLIED WARRANTY.

PAYMENT FOR ITEM 633, ADVANCE/DILEMMA ZONE DETECTION SYSTEM SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH UNIT, COMPLETE AND IN PLACE INCLUDING ALL REQUIRED CABINET HARDWARE, MOUNTING BRACKETS, CABLES, CONDUIT, CONNECTIONS TESTED AND ACCEPTED, AND ANY OTHER NECESSARY HARDWARE TO ESTABLISH A FULLY FUNCTIONAL DETECTION SYSTEM.

A QUANTITY OF 4 HAS BEEN CARRIED TO THE GENERAL SUMMARY.

STOP BAR DETECTION RADAR (ALTERNATE BID)

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING A STOP BAR DETECTION UNIT CAPABLE OF INTERSECTION DETECTION CONTROL UTILIZING ABOVE GROUND DIGITAL WAVE RADAR TECHNIQUES INSTEAD OF THE CONVENTIONAL LOOP DETECTORS, LOOP LEAD-IN WIRE, PULL BOXES, AND CONDUIT THAT IS SHOWN IN THE PLAN.

THE UNIT SHALL BE NON-INTRUSIVE AND SHALL DETECT VEHICLES FROM 6 FT. UP TO 140 FT. FOR A 90 DEGREE FIELD OF VIEW FROM THE UNIT. THE UNIT SHALL PROVIDE REAL-TIME PRESENCE DATA FOR AT LEAST 10 LANES. THE UNIT SHALL PROVIDE AT LEAST SIXTEEN DETECTION ZONES SIMULTANEOUSLY FOR INTERSECTION CONTROL. ONE UNIT SHALL BE PROVIDED PER APPROACH, WHERE SPECIFIED IN THE PLANS, COVERING MULTIPLE LANES WHERE STOP BAR DETECTION IS REQUIRED. THE DETECTION UNIT SHALL INCLUDE THE FOLLOWING LIST OF FEATURES AND CAPABILITIES:

- THE UNIT SHALL PROVIDE ACCURATE PRESENCE-DETECTION OF MOVING VEHICLES. THE UNIT SHALL BE MOUNTED IN A FORWARD-FIRE OR SIDE-FIRE POSITION, LOOKING AT EITHER APPROACHING OR DEPARTING TRAFFIC AND SHALL ONLY DETECT VEHICLES IN ONE DIRECTION OF TRAVEL.
- THE UNIT SHALL BE TESTED TO MEET NEMA TS2 ENVIRONMENTAL STANDARDS AND MAINTAIN ACCURATE PERFORMANCE IN THE FOLLOWING OPERATING CONDITIONS:

RAIN UP TO 4 IN. PER HOUR	SNOW
FREEZING RAIN	DUST
CHANGING TEMPERATURE	WIND
CHANGING LIGHTING	FOG

STOP BAR DETECTION RADAR (ALTERNATE BID), CONT'D

- THE RADAR DESIGN FOR EACH UNIT SHALL CONFORM TO THE FOLLOWING:
  - OPERATING FREQUENCY: 24.0–24.25 GHZ (K-BAND)
  - MATRIX OF 16 RADARS
  - NO MANUAL TUNING TO CIRCUITRY
  - TRANSMITS MODULATED SIGNALS GENERATED DIGITALLY
  - NO TEMPERATURE-BASED COMPENSATION NECESSARY
  - BANDWIDTH STABLE WITHIN 1%
  - PRINTED CIRCUIT BOARD ANTENNAS
  - ANTENNA VERTICAL 6 DB BEAM WIDTH (TWO-WAY PATTERN): 65 DEGREES
  - HORIZONTAL FIELD OF VIEW: 90 DEGREES
  - ANTENNA TWO-WAY SIDELOBES: -40 DB
  - TRANSMIT BANDWIDTH: 245 MHZ
  - UN-WINDOWED RESOLUTION: 2 FT.
  - RF CHANNELS: 8
  - SELF-TEST FOR VERIFYING HARDWARE FUNCTIONALITY
  - DIAGNOSTICS MODE FOR VERIFYING SYSTEM FUNCTIONALITY
- THE UNIT SHALL INCLUDE A SIMPLE SETUP ROUTINE THAT SHALL AUTOMATICALLY CONFIGURE AND CALIBRATE THE UNIT FOR PROPER OPERATION DURING INSTALLATION. THE UNIT SHALL ALSO BE CAPABLE OF BEING PROGRAMMED AND UPDATED FROM A LAPTOP COMPUTER OR OTHER PORTABLE PROGRAMMING DEVICE, SUCH AS A POCKET PC, VIA A LOCAL OR REMOTE ETHERNET CONNECTION USING VENDOR SUPPLIED SOFTWARE. THE SOFTWARE SHALL SUPPORT TCP/IP CONNECTIVITY, UNIT CONFIGURATION BACK-UP AND RESTORE, AND REAL-TIME TRAFFIC VISUALIZATION FOR PERFORMANCE VERIFICATION AND TRAFFIC DISPLAY. THE GRAPHICAL USER INTERFACE SHALL OPERATE ON A WINDOWS PLATFORM.
- THE UNIT SHALL HAVE TWO HALF-DUPLEX RS-485 COMMUNICATION PORTS AND SHALL HAVE THE ABILITY TO UPGRADE FIRMWARE OVER ANY COMMUNICATION PORT.
- THE UNIT SHALL BE MOUNTED DIRECTLY TO A POLE OR MAST ARM, AS RECOMMENDED BY THE MANUFACTURER. CABLE(S) SHALL BE PROVIDED AS REQUIRED AND RECOMMENDED BY THE MANUFACTURER.
- SURGE PROTECTION DEVICES, AS RECOMMENDED BY THE MANUFACTURER, SHALL BE INCLUDED BOTH AT THE POLE WHERE THE UNIT IS LOCATED TO PROTECT THE UNIT AND IN THE TRAFFIC CABINET TO PROTECT THE CABINET ELECTRONICS.
- POWER SHALL BE PROVIDED FROM THE TRAFFIC CABINET. THE UNIT SHALL CONSUME LESS THAN 10 WATTS AND OPERATE FROM A DC INPUT BETWEEN 9 VDC AND 28 VDC. COMPLETE AND AUTOMATIC RECOVERY FROM A POWER FAILURE SHALL BE WITHIN 15 SECONDS AFTER RESUMPTION OF NORMAL POWER.
- ALL REQUIRED INPUTS CARDS SHALL BE INCLUDED IN THE TRAFFIC CABINET AND SHALL BE COMPATIBLE WITH CALTRANS, NEMA TS1 AND NEMA TS2 DETECTOR RACKS. THE CARDS SHALL PROVIDE TRUE PRESENCE DETECTOR CALLS OR CONTACT CLOSURE TO THE TRAFFIC CONTROLLER.
- THE MANUFACTURER'S REPRESENTATIVE SHALL BE ON SITE DURING INSTALLATION AND TESTING AND SHALL PROVIDE ONSITE TRAINING ON THE SETUP, OPERATION, AND MAINTENANCE OF THE UNIT.
- THE UNIT SHALL COME WITH A 2-YEAR MANUFACTURER SUPPLIED WARRANTY.

CALCULATED DNM | CHECKED BFB

SIGNAL GENERAL NOTES

TRAFFIC SIGNAL GENERAL NOTES

FAI-37/664-25.01/4.21

78A
102

86847_sgn_04.dgn dated 3/06/2012

STOP BAR DETECTION RADAR (ALTERNATE BID), CONT'D

PAYMENT FOR ITEM 633, STOP BAR DETECTION RADAR SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH UNIT, COMPLETE AND IN PLACE INCLUDING ALL REQUIRED CABINET HARDWARE, MOUNTING BRACKETS, CABLES, CONDUIT, AND CONNECTIONS TESTED AND ACCEPTED.

A QUANTITY OF 4 HAS BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 625, CONDUIT, 2", 725.05, AS PER PLAN

THIS ITEM IS NEEDED TO INSTALL THE STOP BAR AND ADVANCE DETECTOR LOOPS AS SHOWN IN THE PLANS. IF THE WIRELESS ALTERNATE BID ITEMS DISCRIBED ON SHEET 78A ARE SELECTED, THIS ITEM WILL NOT BE NEEDED.

ITEM 625, CONDUIT, 3", 725.04, AS PER PLAN

THIS ITEM IS NEEDED TO INSTALL THE STOP BAR AND ADVANCE DETECTOR LOOPS AS SHOWN IN THE PLANS. IF THE WIRELESS ALTERNATE BID ITEMS DISCRIBED ON SHEET 78A ARE SELECTED, THIS ITEM WILL NOT BE NEEDED.

ITEM 625, TRENCH, 24" DEEP, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF 625.12 AND THE STANDARD CONSTRUCTION DRAWINGS, WITHIN EACH TRENCH, THE LOCATION OF UNDERGROUND CABLE OR CONDUIT SHALL BE MARKED BY THE USE OF A CONTINUOUS IDENTIFYING TAPE BURIED IN THE TRENCH ABOVE THE LINE. THE IDENTIFYING TAPE SHALL BE AN INERT MATERIAL, APPROXIMATELY 6.0" WIDE, COMPOSED OF POLYETHYLENE PLASTIC, HIGHLY RESISTANT TO ALKALIS ACIDS OR OTHER CHEMICAL COMPONENTS LIKELY TO BE ENCOUNTERED IN SOILS. THE TAPE SHALL BE BRIGHT RED WITH IDENTIFYING PRINTING "ELECTRIC" IN BLACK LETTERS, ONE SIDE ONLY. TAPES SHALL BE SUPPLIED IN CONTINUOUS ROLLS WITH THE IDENTIFYING LETTERING REPEATED CONTINUOUSLY THE FULL LENGTH OF THE TAPE. IDENTIFYING TAPES SHALL BE BURIED IN THE ELECTRIC LINE TRENCH WITH ONE STRIP PLACED APPROXIMATELY 8.0" TO 12.0" BELOW THE FINISHED GRADE. THE TAPE SHALL BE PLACED PARALLEL WITH THE FINISHED SURFACE. THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO INSURE THAT THE TAPE IS NOT PULLED, DISTORTED OR OTHERWISE MISPLACED IN COMPLETING THE TRENCH BACKFILL. THE TAPE SHALL BE ALLEN SYSTEM'S, TERRA TAPE OR EQUAL, AS APPROVED BY THE ENGINEER.

THIS ITEM IS NEEDED TO INSTALL THE STOP BAR AND ADVANCE DETECTOR LOOPS AS SHOWN IN THE PLANS. IF THE WIRELESS ALTERNATE BID ITEMS DISCRIBED ON SHEET 78A ARE SELECTED, THIS ITEM WILL NOT BE NEEDED.

PAYMENT SHALL BE INCLUDED IN THE BID PRICE PER LINEAR FOOT OF ITEM 625, TRENCH, 24" DEEP, AS PER PLAN, COMPLETE AND IN PLACE.

ITEM 625, TRENCH IN PAVED AREA, TYPE B, AS PER PLAN

THIS ITEM IS NEEDED TO INSTALL THE STOP BAR AND ADVANCE DETECTOR LOOPS AS SHOWN IN THE PLANS. IF THE WIRELESS ALTERNATE BID ITEMS DISCRIBED ON SHEET 78A ARE SELECTED, THIS ITEM WILL NOT BE NEEDED.

ITEM 625, PULL BOX, 725.08, 18", AS PER PLAN

THIS ITEM IS NEEDED TO INSTALL THE STOP BAR AND ADVANCE DETECTOR LOOPS AS SHOWN IN THE PLANS. IF THE WIRELESS ALTERNATE BID ITEMS DISCRIBED ON SHEET 78A ARE SELECTED, THIS ITEM WILL NOT BE NEEDED.

ITEM 632, DETECTOR LOOP, AS PER PLAN

THIS ITEM IS NEEDED TO INSTALL THE STOP BAR AND ADVANCE DETECTOR LOOPS AS SHOWN IN THE PLANS. IF THE WIRELESS ALTERNATE BID ITEMS DISCRIBED ON SHEET 78A ARE SELECTED, THIS ITEM WILL NOT BE NEEDED.

ITEM 632, LOOP DETECTOR LEAD-IN CABLE, AS PER PLAN

THIS ITEM IS NEEDED TO INSTALL THE STOP BAR AND ADVANCE DETECTOR LOOPS AS SHOWN IN THE PLANS. IF THE WIRELESS ALTERNATE BID ITEMS DISCRIBED ON SHEET 78A ARE SELECTED, THIS ITEM WILL NOT BE NEEDED.

CALCULATED DNM
CHECKED BFB

TRAFFIC SIGNAL GENERAL NOTES

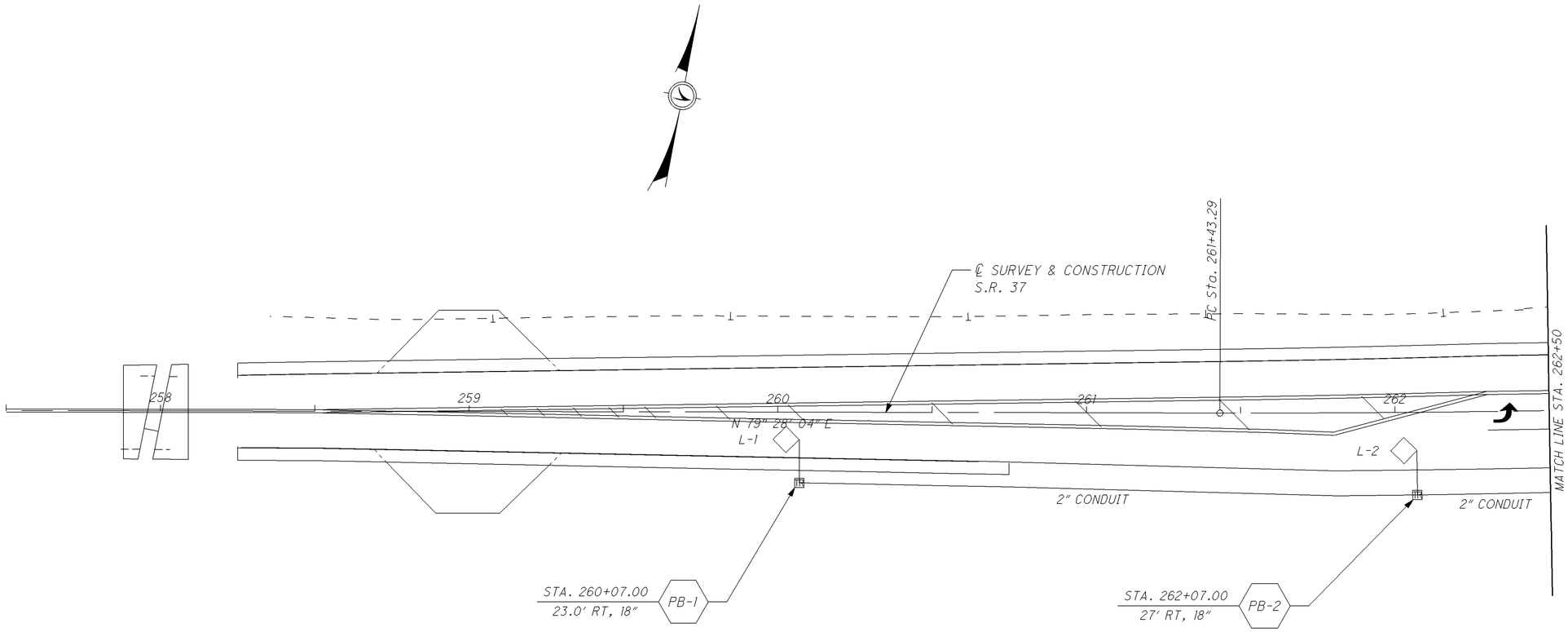
FAI-37 / 664-25.01 / 4.21

78B
102

86847_sgn_05.dgn dated 3/12/2012

CROSS REFERENCES	
SHEET(S)	DESCRIPTION
84	WIRING DIAGRAM AND SIGNAL HEAD PLACEMENT
85	DETECTOR CHART AND SIGNAL PHASING
88	TRAFFIC SIGNAL SUBSUMMARY

NOTE: ALL CONDUIT IS 2" UNLESS OTHERWISE SPECIFIED



LEGEND

6' X 6' DETECTOR LOOP .....

6' X 25' POWERHEAD DETECTOR LOOP .....

18" OR 24" PULL BOX .....

0 10 20 40 HORIZONTAL SCALE IN FEET

CALCULATED DNM CHECKED BFB

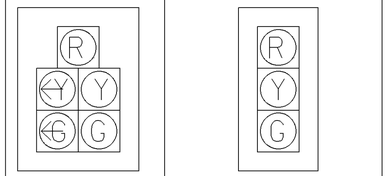
S.R. 37 SIGNAL PLAN SHEET STA. 257+50 TO STA. 262+50

FAI-37/664-25.01/4.21

79 102

86847_sds_01.dgn 1/10/2012

SIGNAL INDICATIONS
ALL 12" LENS WITH BACKPLATES



CROSS REFERENCES	
SHEET(S)	DESCRIPTION
84	WIRING DIAGRAM AND SIGNAL HEAD PLACEMENT
85	DETECTOR CHART AND SIGNAL PHASING
86	SIGNAL POLE OREINTATION AND DETIALS
87A	OVERHEAD SIGNAL ATTACHEMENT DETAILS
87B	SIGNAL TETHER ATTACHMENT DETAILS
88	TRAFFIC SIGNAL SUBSUMMARY

NOTE: ALL CONDUIT IS 2" UNLESS OTHERWISE SPECIFIED

LEGEND

- 6' X 25' POWERHEAD DETECTOR LOOP .....
- 18" OR 24" PULL BOX .....
- STRAIN POLE .....
- SIGNAL HEAD STD ONE WAY .....
- CONTROLLER CABINET W/CONCRETE PAD .....

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED DNM
CHECKED BFB

S.R. 37 SIGNAL PLAN SHEET
STA. 262+50 TO STA. 267+50

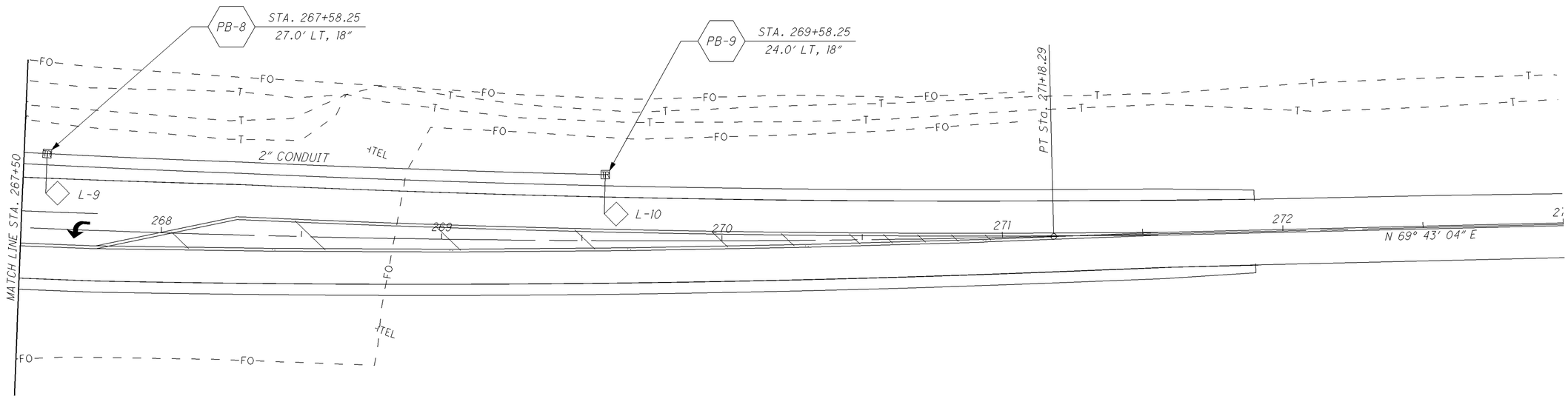
FAI-37/664-25.01/4.21

80
102

86847_sds_02.dgn 1/11/2012

CROSS REFERENCES	
SHEET(S)	DESCRIPTION
84	WIRING DIAGRAM AND SIGNAL HEAD PLACEMENT
85	DETECTOR CHART AND SIGNAL PHASING
88	TRAFFIC SIGNAL SUBSUMMARY

NOTE: ALL CONDUIT IS 2" UNLESS OTHERWISE SPECIFIED



LEGEND

6' X 6' DETECTOR LOOP .....

6' X 25' POWERHEAD DETECTOR LOOP .....

18" OR 24" PULL BOX .....

CALCULATED DNM
CHECKED BFB

0 10 20 40 HORIZONTAL SCALE IN FEET

S.R. 37 SIGNAL PLAN SHEET
STA. 267+50 TO STA. 273+00

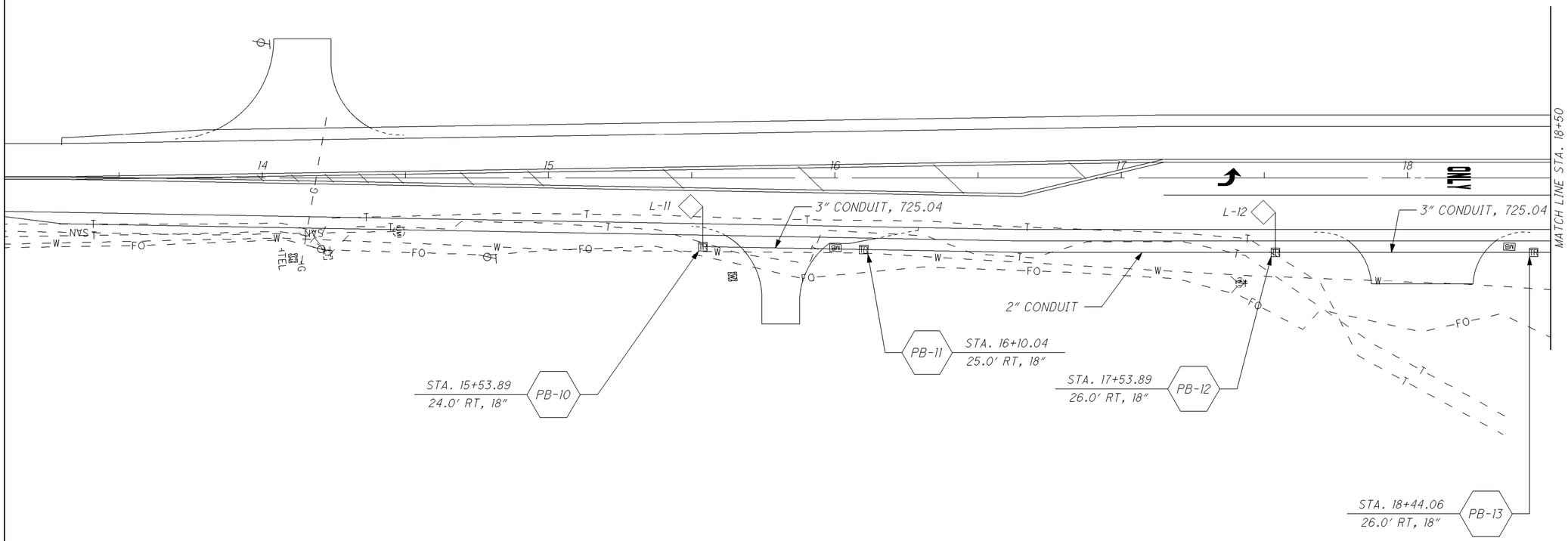
FAI-37/664-25.01/4.21

81
102

86847_sds_03.dgn 1/12/2012

CROSS REFERENCES	
SHEET(S)	DESCRIPTION
84	WIRING DIAGRAM AND SIGNAL HEAD PLACEMENT
85	DETECTOR CHART AND SIGNAL PHASING
88	TRAFFIC SIGNAL SUBSUMMARY

NOTE: ALL CONDUIT IS 2" UNLESS OTHERWISE SPECIFIED



LEGEND

6' X 6' DETECTOR LOOP .....

6' X 25' POWERHEAD DETECTOR LOOP .....

18" OR 24" PULL BOX .....

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED DNM
CHECKED BFB

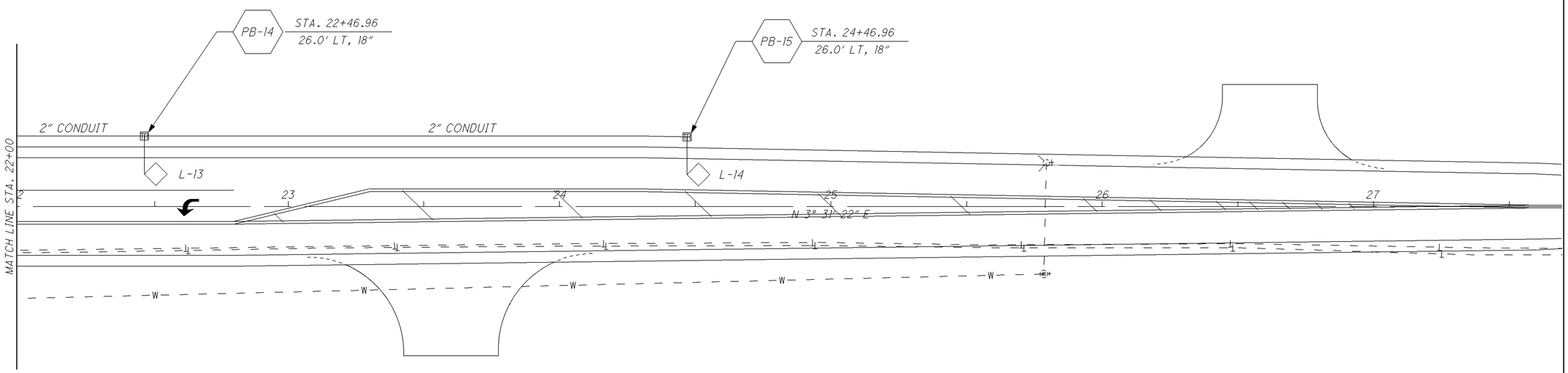
S.R. 664 SIGNAL PLAN SHEET
STA. 13+50.00 TO STA. 18+50.00

FAI-37/664-25.01/4.21

86847_sds_04.dgn 1/12/2012

CROSS REFERENCES	
SHEET(S)	DESCRIPTION
84	WIRING DIAGRAM AND SIGNAL HEAD PLACEMENT
85	DETECTOR CHART AND SIGNAL PHASING
88	TRAFFIC SIGNAL SUBSUMMARY

NOTE: ALL CONDUIT IS 2" UNLESS OTHERWISE SPECIFIED



LEGEND

6' X 6' DETECTOR LOOP .....

6' X 25' POWERHEAD DETECTOR LOOP .....

18" OR 24" PULL BOX .....

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED DNM
CHECKED BFB

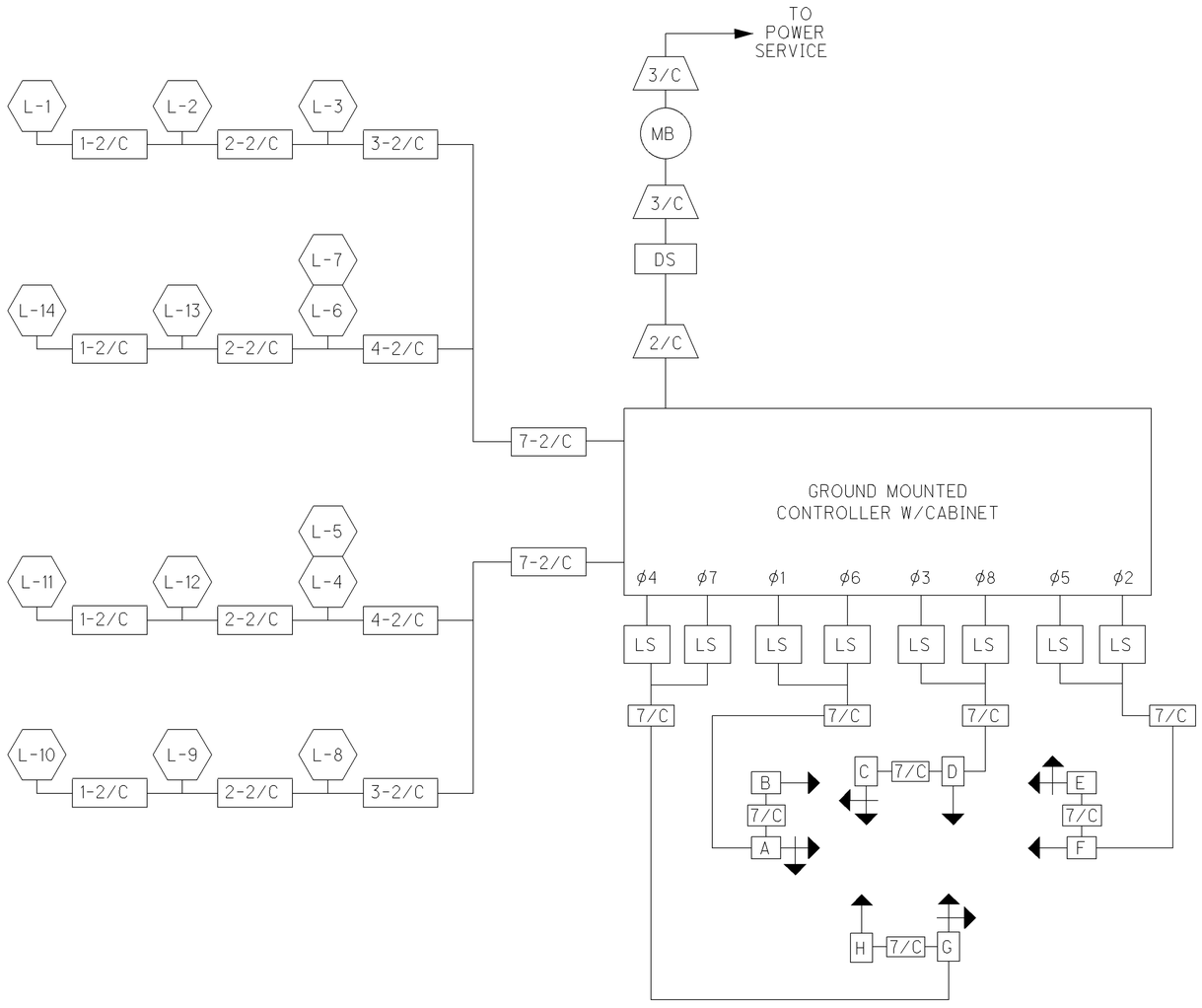
PLAN SHEET
STA. 22+00.00 TO STA. 27+50.00

FAI-37/664-25.01/4.21

83
102

86847_sds_05.dgn 1/12/2012

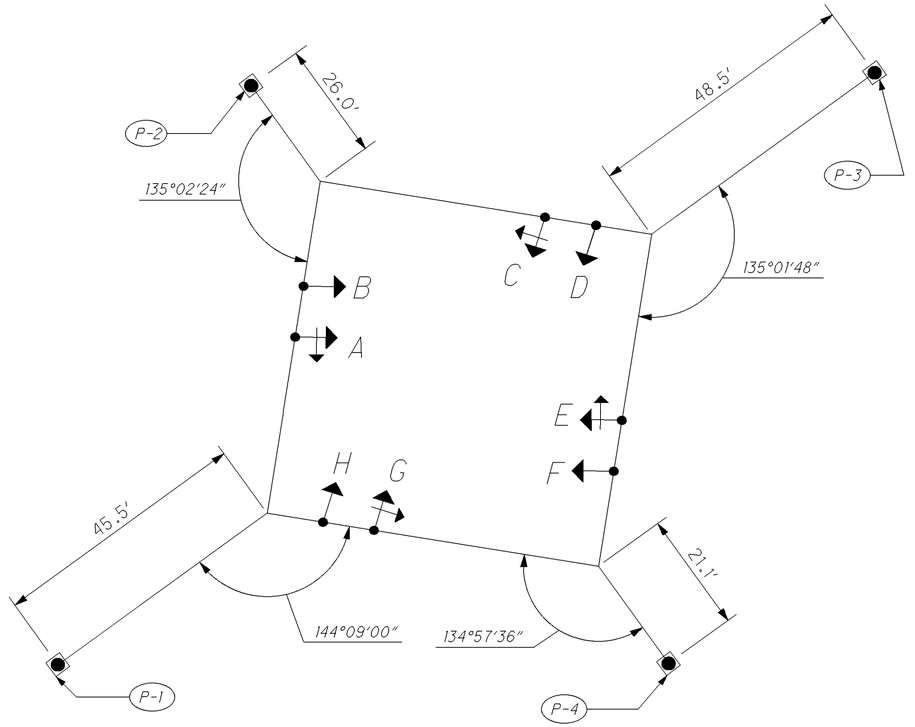
TRAFFIC SIGNAL WIRING DIAGRAM

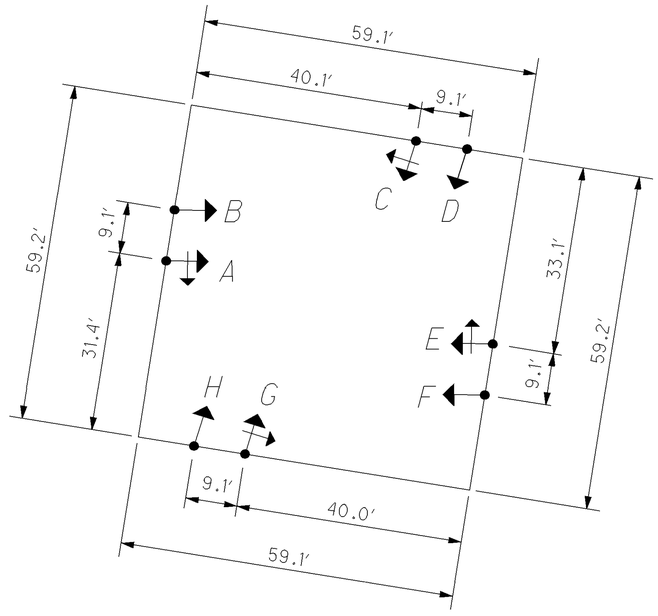


LEGEND

- SIGNAL HEAD WITH TURN ARROW
- SIGNAL HEAD
- L-1 — VEHICLE DETECTOR LOOP
- DS — 30 AMP DISCONNECT SWITCH
- MB — METER BASE
- 2/C OR 3/C #8 AWG POWER CABLE
- LS — LOAD SWITCH
- 2/C — 2/C #14 AWG (LEAD-IN CABLE)
- 7/C — 7/C #14 AWG SIGNAL CABLE

TRAFFIC SIGNAL HEAD PLACEMENT





CALCULATED DNM
CHECKED BFB

TRAFFIC SIGNAL PLAN DETAILS

FAI-37/664-25.01/4.21

84
102

86847_sds_06.dgn 1/17/2012

FIELD WIRING HOOK-UP CHART

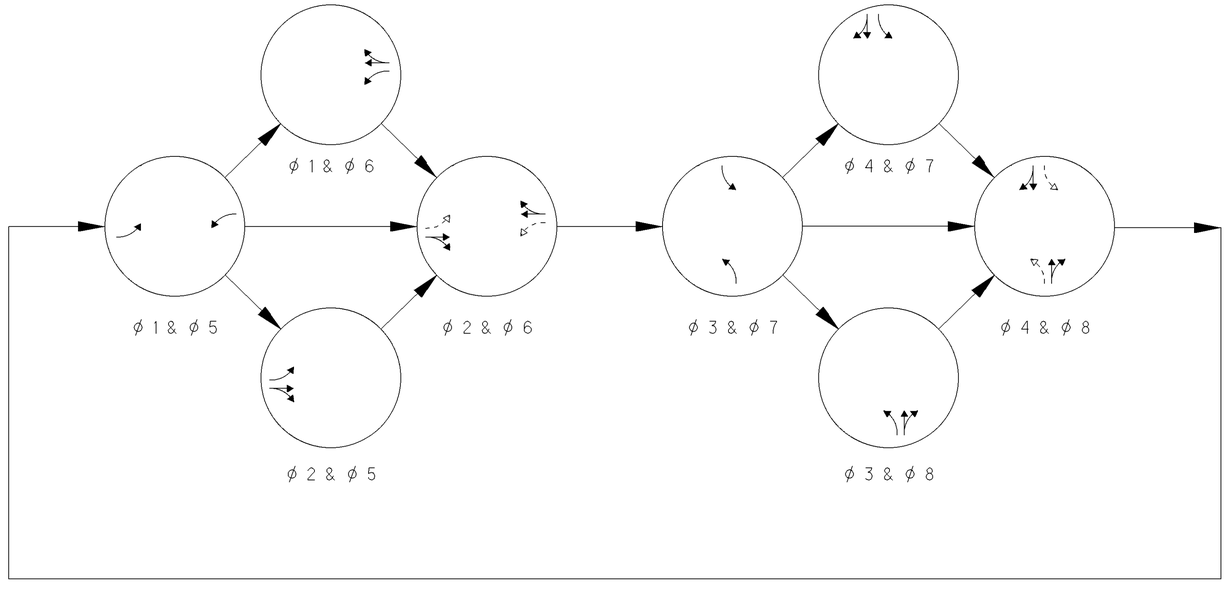
SIGNAL HEAD	INDICATION	FIELD TERMINAL	FLASH	SIGNAL HEAD	INDICATION	FIELD TERMINAL	FLASH
A (WBLT)	R	ϕ6 R	R	E (EBLT)	R	ϕ2 R	R
	Y	ϕ6 Y			Y	ϕ2 Y	
	G	ϕ6 G			G	ϕ2 G	
	~~Y~~	ϕ1 Y			~~Y~~	ϕ5 Y	
	~~G~~	ϕ1 G			~~G~~	ϕ5 G	
B (WB)	R	ϕ6 R	R	F (EB)	R	ϕ2 R	R
	Y	ϕ6 Y			Y	ϕ2 Y	
	G	ϕ6 G			G	ϕ2 G	
C (NBLT)	R	ϕ8 R	R	G (SBLT)	R	ϕ4 R	R
	Y	ϕ8 Y			Y	ϕ4 Y	
	G	ϕ8 G			G	ϕ4 G	
	~~Y~~	ϕ3 Y			~~Y~~	ϕ7 Y	
	~~G~~	ϕ3 G			~~G~~	ϕ7 G	
D (NB)	R	ϕ8 R	R	H (SB)	R	ϕ4 R	R
	Y	ϕ8 Y			Y	ϕ4 Y	
	G	ϕ8 G			G	ϕ4 G	

TRAFFIC SIGNAL DETECTOR CHART

LOOP DESIGNATION	CONTROLLER PHASE	SIZE (FT)	PULSE OR PRESENCE	EXTENSION (SEC.)	DELAY (SEC.)	DELAY INHIBITED DURING	CONNECT TO DETECTOR UNIT (Unit-Channel)	LOOP DETECTION TYPE
L-1	2	39'	PULSE				1-1	A.D.D.
L-2	2	39'	PULSE				2-1	A.D.D.
L-3	5	6'X25'	PRESENCE		8	ϕ5	1-2	P.D.
L-4	3	6'X25'	PRESENCE		2	ϕ4	3-1	P.D.
L-5	8	6'X25'	PRESENCE		10	ϕ4	2-2	P.D.
L-6	4	6'X25'	PRESENCE		3	ϕ3	4-1	P.D.
L-7	7	6'X25'	PRESENCE		2	ϕ8	3-2	P.D.
L-8	1	6'X25'	PRESENCE		10	ϕ8	4-2	P.D.
L-9	6	39'	PULSE				1-3	A.D.D.
L-10	6	39'	PULSE				2-3	A.D.D.
L-11	8	39'	PULSE		10	ϕ8	3-3	A.D.D.
L-12	8	39'	PULSE				4-3	A.D.D.
L-13	4	39'	PULSE				1-4	A.D.D.
L-14	4	39'	PULSE				2-4	A.D.D.

A.D.D. - ANGULAR DESIGN DETECTION LOOP P.D. - POWERHEAD DETECTION LOOP

SIGNAL PHASING

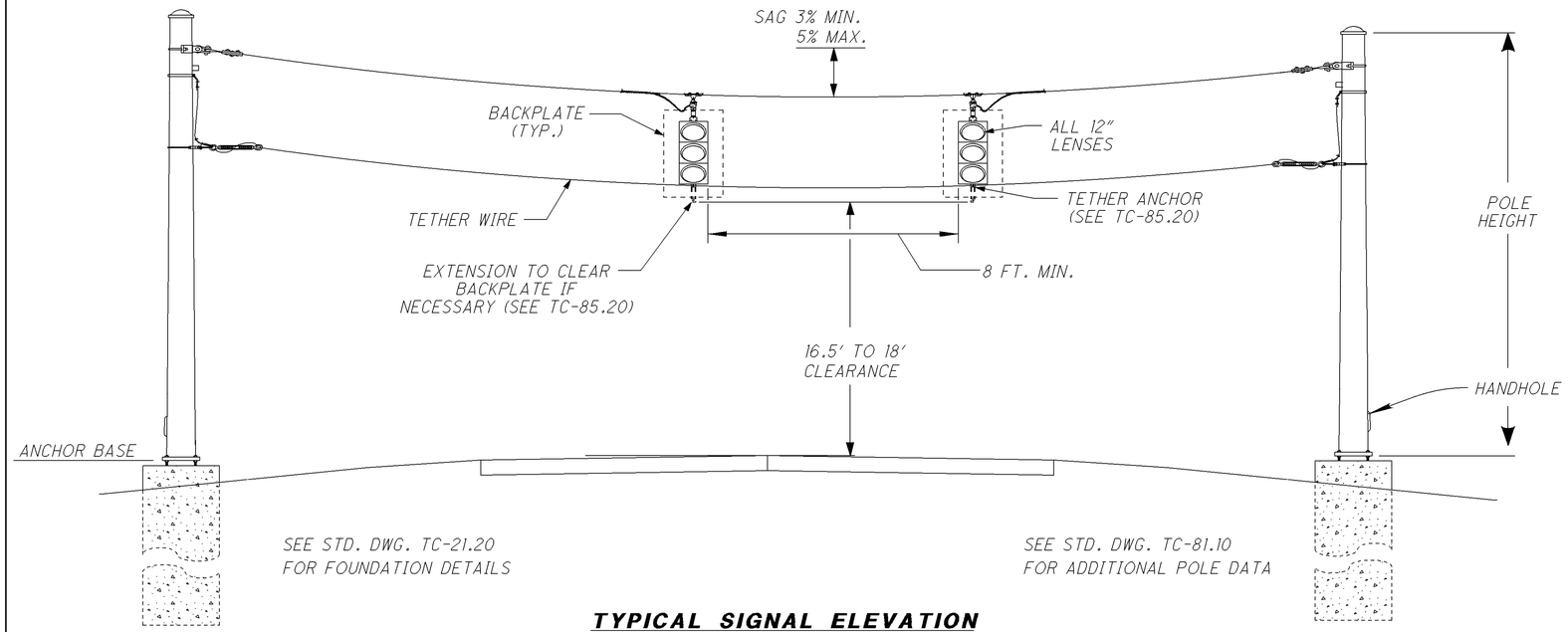


CALCULATED DNM
CHECKED BFB

TRAFFIC SIGNAL PLAN DETAILS

FAI-37 / 664-25.01 / 4.21

86847_sds_07.dgn 1/17/2012

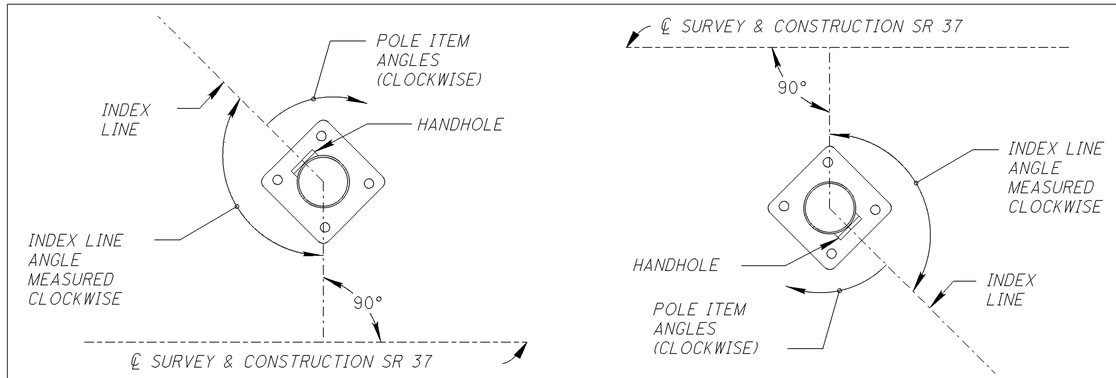


TYPICAL SIGNAL ELEVATION

NOTES:

(1) THE ATTACHEMENT HEIGHTS FOR THE MIN. SAG (3%) AND MAX. SAG (5%) HAVE BEEN PROVIDED IN THE TABLE. THE CONTRACTOR SHALL ATTACH THE MESSENGER WIRE AT A HEIGHT THAT PROVIDES ADEQUATE CLEARANCE TO THE SIGNAL HEADS AS SHOWN IN THE SIGNAL ELEVATION VIEW. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO PROVIDE THE PROPER CLEARANCE WITHOUT THE USE OF DROP PIPES.

(2) ELECTRICAL SERVICE SHALL BE AS PER TC-83.10, AND ORIENTATED AT THE ANGLE SHOWN IN THE TABLE.



SUPPORT NO.	REFERENCE ROADWAY	MINIMUM STANDARD DESIGN NO.	POLE HEIGHT (FEET)	STATION	OFFSET	FOUNDATION ELEVATION	ATTACHMENT HEIGHT ABOVE POLE BASE (MINIMUM SAG)	ATTACHMENT HEIGHT ABOVE POLE BASE (MAXIMUM SAG)	INDEX LINE ANGLE	ANGLES FROM INDEX LINE		
										POWER SERVICE	CABLE ENTRANCE 12" FROM TOP	HANDHOLE
1	SR 37	10	35	264+09.42	44.5' RT	808.05	30.00'	33.00'	242.30°		180°	0°
2	SR 37	10	35	264+42.88	56.0' LT	810.56	30.00'	33.00'	143.57°		180°	0°
3	SR 37	10	35	265+56.80	54.0' LT	809.92	30.00'	33.00'	234.64°		180°	0°
4	SR 37	10	35	265+19.82	49.7' RT	810.50	30.00'	33.00'	144.35°	0°	180°	0°

SIGNAL POLE DIAGRAM

CALCULATED DNM
CHECKED BFB

TRAFFIC SIGNAL PLAN DETAILS

FAI-37/664-25.01/4.21

86847_sds_08.dgn 1/17/2012

MATERIAL SPECIFICATIONS FOR GENERATOR POWER PANEL EQUIPMENT

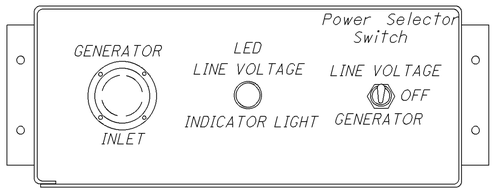
GENERATOR INLET --- The inlet shall be 30 amp, 125/250V, locking, four (4) wire grounding and meet the NEMA configuration number L14-30-P 30A 125/250V specification. The inlet shall be a Hubbell catalog #2715.

LINE VOLTAGE GENERATOR SWITCH --- The switch shall be 30 amp, 125/250V AC, two (2) pole, three (3) position (On, Off, On). The switch shall be a Hubbell catalog #1388.

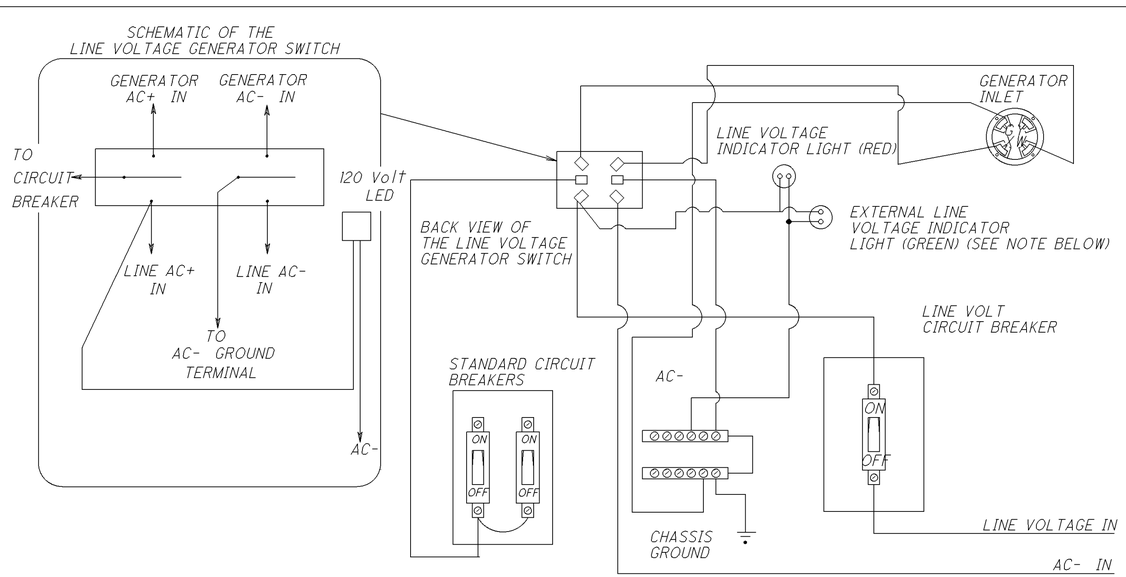
LINE VOLTAGE INDICATOR LIGHT --- The indicator light shall be a 125V AC light emitting diode with a red lens.

LINE VOLTAGE CIRCUIT BREAKER --- The circuit breaker shall be single pole single throw and a minimum of 30 amps. The amperage shall be increased to accomodate greater loads, if necessary. The gauge of the power cable shall be of proper size per the N.E.C.

EXTERNAL LINE VOLTAGE INDICATOR LIGHT --- The indicator light shall be a 1-inch (25mm) waterproof NEMA 4X or IP66 LED lamp with a GREEN lens.



FRONT VIEW OF GENERATOR POWER PANEL

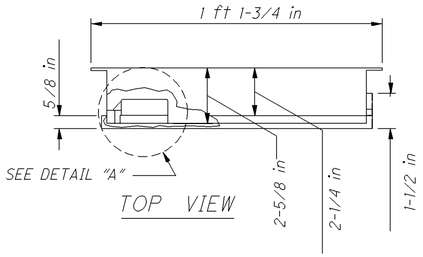


ELECTRICAL HOOKUP DETAIL FOR THE GENERATOR POWER PANEL

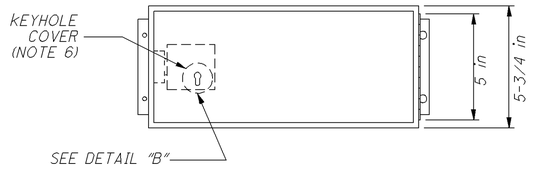
NOTE : EXTERNAL LINE VOLTAGE INDICATOR LIGHT required when called for in the plans. EXTERNAL LINE VOLTAGE INDICATOR LIGHT shall be located on the enclosure exterior for visibility from the adjacent roadway when all cabinet, and generator panel doors are closed.

86847_sds_09.dgn 1/12/2012

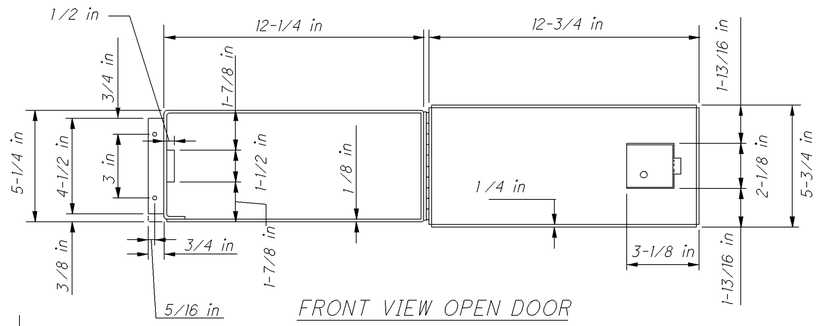
GENERATOR POWER PANEL ENCLOSURE



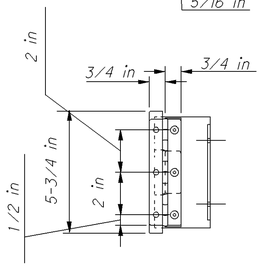
TOP VIEW



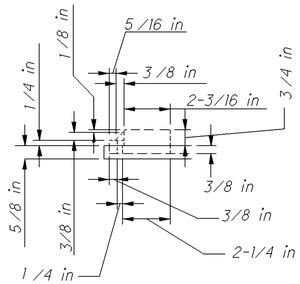
FRONT VIEW CLOSED DOOR



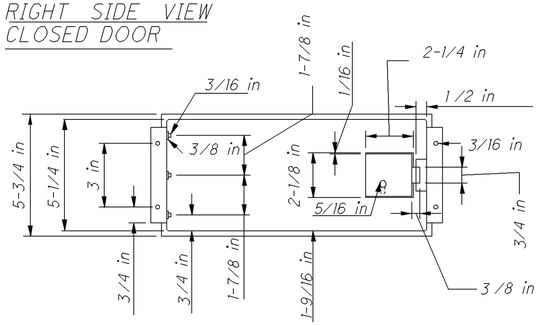
FRONT VIEW OPEN DOOR



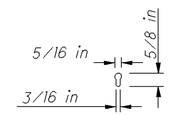
RIGHT SIDE VIEW
CLOSED DOOR



DETAIL "A"



BACK VIEW CLOSED DOOR



DETAIL "B"

NOTES

1. The enclosure shall be constructed Of 1/8 inch thick aluminum.
2. The lock shall be the standard police door type, keyed with the standard flasher door skeleton key.
3. The door shall be sealed with a foam rubber gasket to prevent moisture from entering the enclosure.
4. The enclosure shall be mounted onto the outside of the controller cabinet with non-accessible bolts and sealed with a high quality silicon caulk at all surfaces touching the cabinet.
5. The hinge shall be of stainless steel or equivalent corrosive-resistant material.
6. Keyhole shall be covered with a movable circular aluminum cover with top pivot pin.

OFFICE OF TRAFFIC ENGINEERING

DESIGNED | REVIEWED LAM

REVISION DATE 10/21/11 | CHECKED

PIS NUMBER 203010

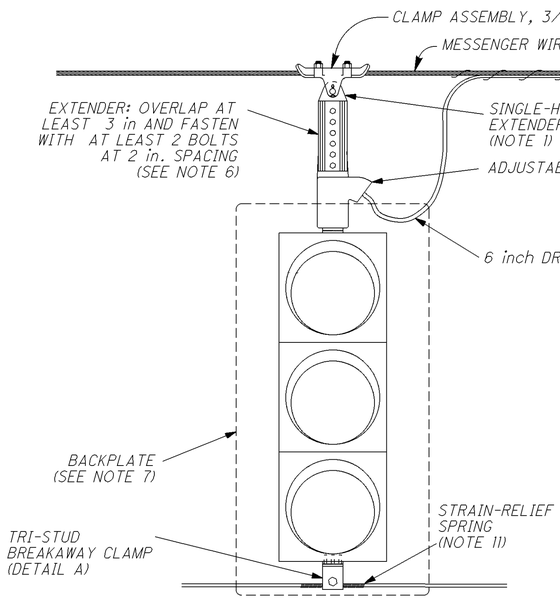
PLAN INSERT SHEET

GENERATOR POWER PANEL

FAI-37/664-25.01/4.21

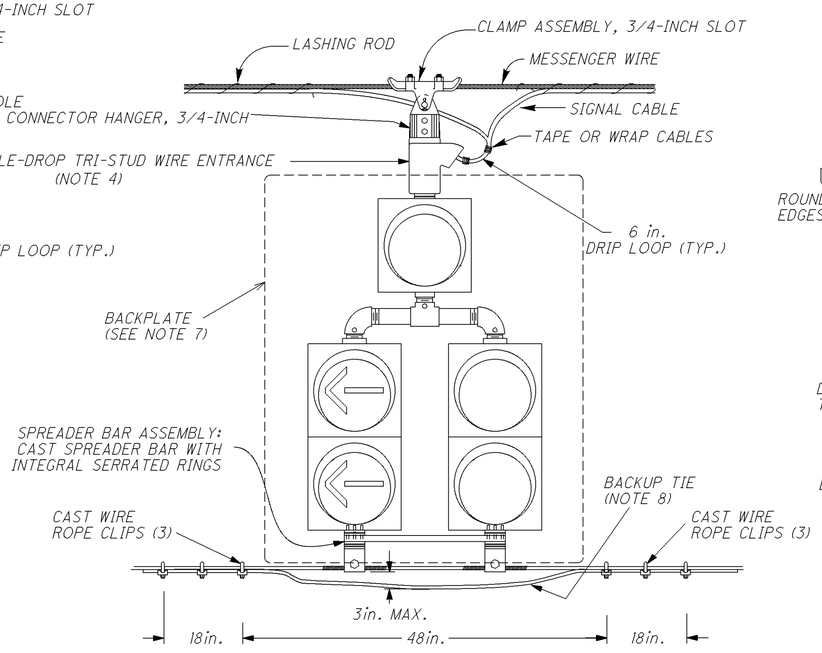
1 / 1

87
102



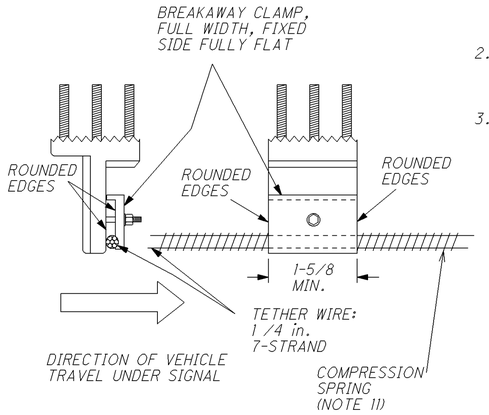
1-4 SECTION SIGNAL HEAD SUSPENSION

(NOTE 10)



5-SECTION SIGNAL HEAD SUSPENSION

(NOTE 10)

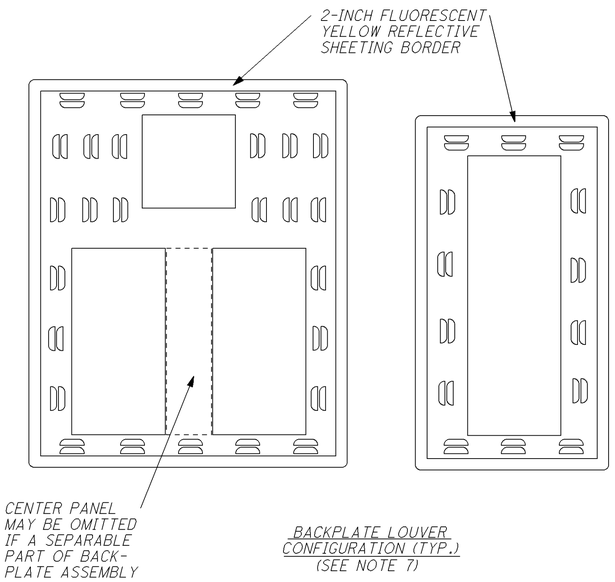


DETAIL A: BREAKAWAY TETHER ANCHOR

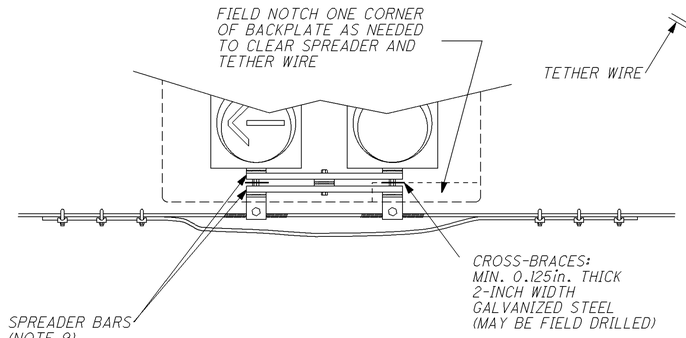
(TYPICAL, SEE NOTE 6)

NOTES

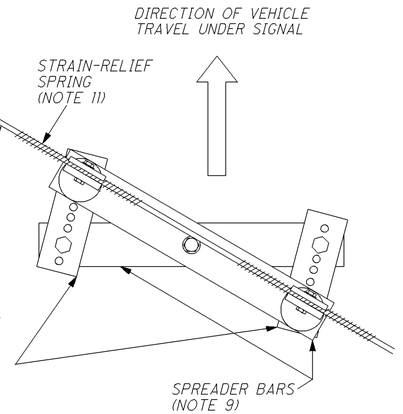
1. Adjust hanger and span wire clamp to eliminate all play between hanger and clamp by using shim washers as necessary. Cast 3/4-inch aluminum matching clamps and hangers with a tight initial fit shall be used.
2. All signal head assemblies shall be installed in a plumb position and perpendicular to the approach lane.
3. All signal heads shall be installed with their lowest part (including tether attachment hardware and backplates) with a clearance above the roadway pavement at all points of 17 feet to 19 feet It is intended that this clearance be obtained without the use of bottom extenders, but rather by the careful selection of foundation heights, attachment heights, span wire sag, and other factors during the installation. If the installation cannot be adjusted to the proper clearance the contractor shall advise the engineer of all signals which exceed the maximum. The engineer will, in consultation with the maintaining agency, direct the use of extenders or waive the maximum clearance requirement for each head. If extenders are necessary, adjustable signal hangers as detailed may be used. Only top extenders shall be used; see Note 6.
4. Signal head rotation shall be prevented by the use of serrated rings and tri-studs or other positive devices incorporated in the signal housing and at critical locations in the supporting hardware. Only single-piece tri-stud entrance ports shall be used, not inserts.
5. All conductors shall have adequate clearance between hangers, thimbles, bullrings, etc. in order to avoid damage from rubbing.
6. For all tethered installations, breakaway tether anchor(s) shall be installed in bottom bracket. Bottom tether anchor extender shall be used only if there is interference between backplate and tether wire. Signal height adjustment shall be made by top-mounted extenders only. Breakaway clamp shall be full width with rounded edges. Clamp shall compress tether wire only against a flat surface (Detail A).
7. All backplates shall have louvers and 2 inch fluorescent yellow reflective border. Border shall not be applied over louvers. Louvers shall be oriented to scoop air from the front side and oriented with the openings facing alternate directions by groups, as shown. Louver open area shall be at least 8 percent of the total backplate area.
8. Backup tie shall be 1/4-inch, 7-strand wire identical to tether wire. Three cast wire rope clips on each side shall be used with 18in. ovelap and spacing as shown. Tie shall hang no lower than 16.5 feet. above pavement, and must not rub against the breakaway clamp. Ties under 3-section heads are recommended in windy areas; shall be installed if specified in plans, or if directed by the Engineer. Spacing of clips may be adjusted to accomodate adjacent heads. Closely spaced adjacent heads may share a single backup tie and wire rope clips; there shall be a minimum of three wire rope clips between heads.
9. On diagonal spans, a double spreader bar assembly shall be used. Each spreader bar shall be cast aluminum or steel with intergral serrations, 2 on the ends, one in the middle on the opposite side. These shall be attached as shown in Details B1 and B2.
10. Multi-way heads with backplates shall not be used on tethered spans. Existing multi-way heads shall be separated as directed by the Engineer. Rewire as necessary to separate the heads per the proper alignment.
11. Compression spring, 0.375-inch OD, 0.054-inch wire diameter, 10-12 coils per inch, stainless steel 6-inch minimum length.



BACKPLATE LOUVER CONFIGURATION (TYP.)
(SEE NOTE 7)



DETAIL B1:
DOUBLE SPREADER BARS AND CROSS-BRACING ON DIAGONAL SPANS
(FRONT VIEW)



DETAIL B2:
DOUBLE SPREADER BARS AND CROSS-BRACING ON DIAGONAL SPANS
(BOTTOM VIEW)

OFFICE OF TRAFFIC ENGINEERING

DESIGNED | REVIEWED LAM

REVISION DATE 10/21/11 | CHECKED

PIS NUMBER 208522

OVERHEAD SIGNAL ATTACHMENT DETAILS

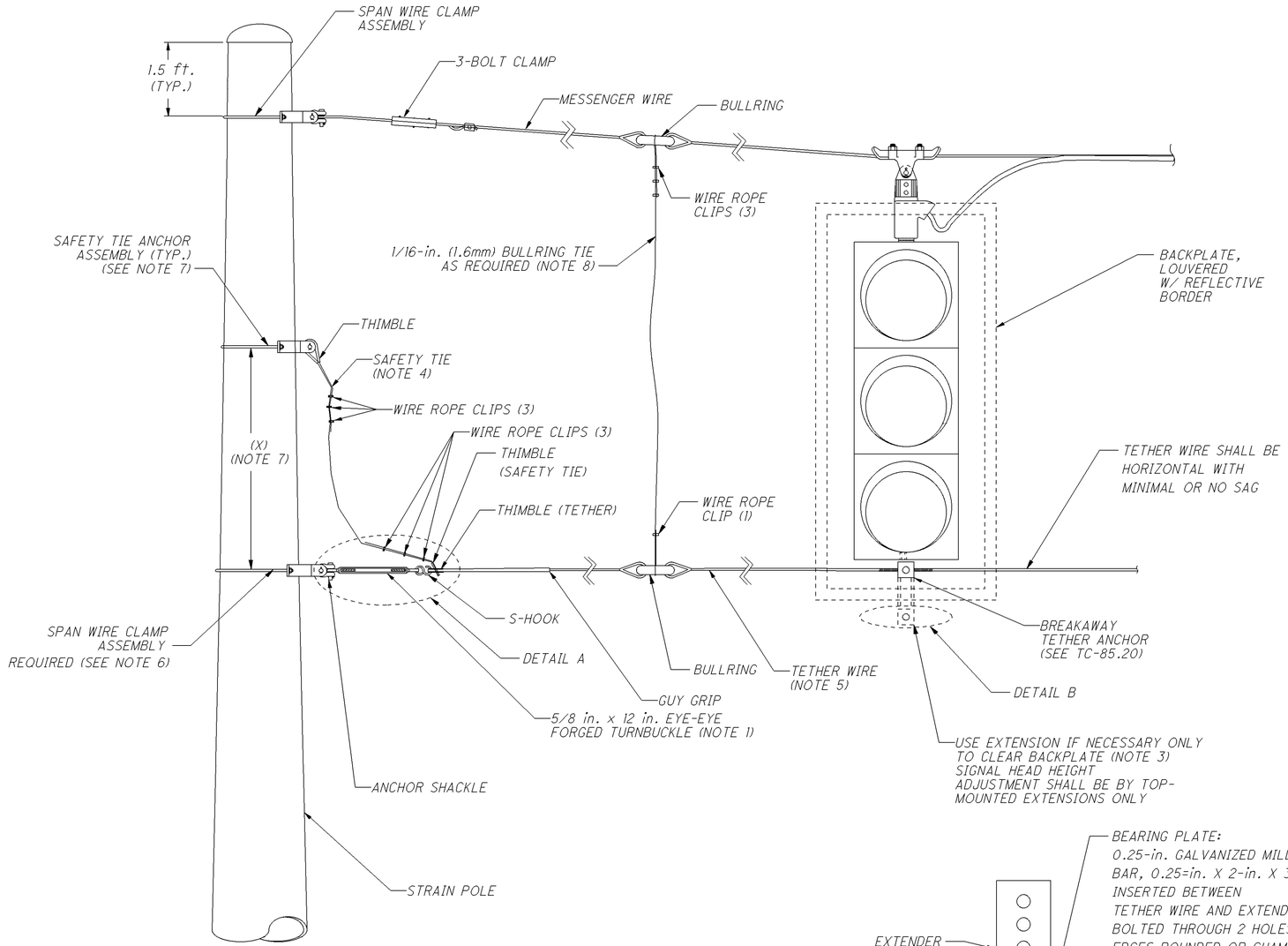
PLAN INSERT SHEET

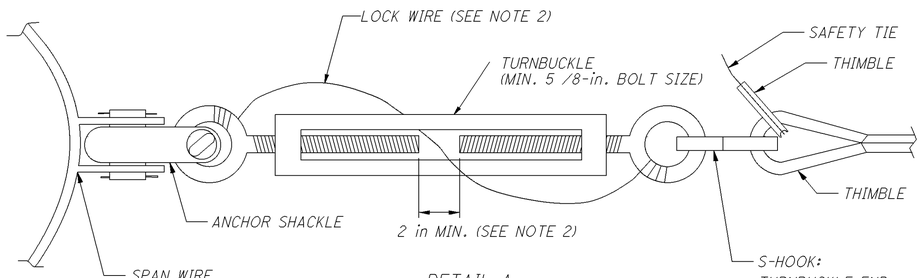
FAI-37/664-25.01/4.21

1 / 1

87A
102

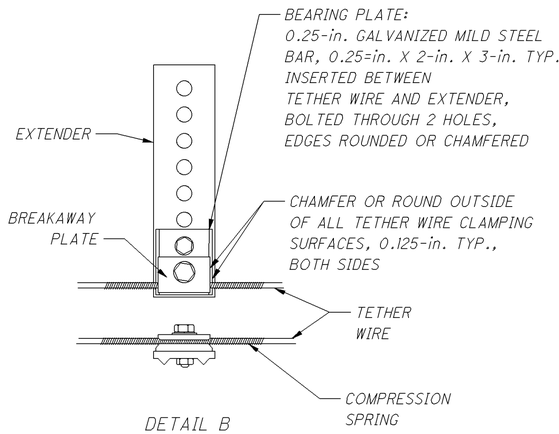
86847_sds_011.dgn 1/12/2012





DETAIL A

(TOP VIEW)
(NOT TO SCALE)



DETAIL B

(FRONT VIEW)
(BOTTOM VIEW)

NOTES

1. S-Hook is matched to the strain pole design number (see table). S-Hook and turnbuckle are required only at one end of simple spans, all ends of complex spans. S-hook shall be closed at pole end. If S-hook begins to yield during installation, it shall be removed and replaced.
2. Lock wire shall be stainless steel, 1/8 inch soft temper, wound to prevent turning of the turnbuckle body. Finished span shall have at least 2 inches of space for turnbuckle adjustment. Turnbuckle shall not be overtightened. Use 8-inch hand tools, maximum.
3. If signal orientation is not perpendicular to span and tether wire, then use an anchor extension. Clamp assembly must be attached to the flat side of the extender bar.
4. Install safety tie at each turnbuckle. This wire shall be 1x19, 1/8 inch stainless steel. Tie should be slack, but not so slack as to contact pole. Use 3 clips per end at 3-1/4 inch spacing.
5. Tether wire shall be 7-strand ASTM A475 HS or EHS Grade 1/4 inch. On all spans, install tether horizontally. Maintain clearance of 17 feet to 19 feet over roadway.
6. Span wire clamp as per Standard Construction Drawing TC-81.10 required for tether wire attachment. Alternate attachment method shall not be permitted.
7. Safety tie anchor height above tether is adjusted in the field before S-hook is installed. Dimension X (Safety Tie Height) shall be adjusted so that the minimum vertical clearance of the sagging tether wire above the pavement without the S-hook installed is at least 14 feet. Minimum distance between the safety tie clamp and tether clamp shall be 1.5 feet and contain enough slack for head to sway in high winds. Safety tie anchor may be any galvanized or stainless steel pole clamp assembly rated at 3000 pounds. or higher.
8. On spans with bullrings, a tie shall be provided between messenger and tether bullrings if a 14 foot clearance cannot be maintained after S-hook opening. This vertical tie shall be 1x19, 1/16 inch stainless steel. Tie shall be slightly slack, tied back using cast wire rope clips as shown. Wire rope clips shall not be over-tightened.

Strain Pole Design No.	Galvanized Mild Steel S-Hook Wire Diameter (Inches)	S-hook yield point (+10%/-20%) (Pounds)
1	1/4	1000
2	1/4	1000
3	1/4	1000
4	1/4	1000
5	1/4	1000
6	3/8	2000
7	3/8	2000
8	3/8	2000
9	3/8	2000
10	3/8	2000
11	1/2	3300
12	1/2	3300
13	1/2	3300
14	1/2	3300

OFFICE OF TRAFFIC ENGINEERING

DESIGNED | REVIEWED LAM

REVISION DATE 07/15/11 | CHECKED

PIS NUMBER 208521

PLAN INSERT SHEET

SIGNAL TETHER ATTACHMENT DETAILS

FAI-37/664-25.01/4.21

1 / 1

87B / 102

1/12/2012

86847_sds_10.dgn

SHEET NO.	LOCATION			SIDE	625										632												
	BR = BULL RING * - PULL BOX IN QUANTITIES				CONDUIT, 2", 725.05 FT.	CONDUIT, 2", 725.05, AS PER PLAN	CONDUIT, 3", 725.05 FT.	CONDUIT, 3", 725.04, AS PER PLAN FT.	TRENCH, 24" DEEP FT.	TRENCH, 24" DEEP, AS PER PLAN FT.	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN FT.	PULL BOX, 725.08, 18", AS PER PLAN EACH	PULL BOX, 725.08, 24" EACH	GROUND ROD EACH	VEHICULAR SIGNAL HEAD, (LED), BLACK, 3-SECTION, 12" LENS, 1-WAY, WITH BACKPLATE, A.P.P. EACH	VEHICULAR SIGNAL HEAD, (LED), BLACK, 5-SECTION, 12" LENS, 1-WAY, WITH BACKPLATE, A.P.P. EACH	COVERING OF VEHICULAR SIGNAL HEAD EACH	DETECTOR LOOP, AS PER PLAN EACH	LOOP DETECTOR LEAD-IN CABLE, AS PER PLAN FT.	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG. FT.	POWER SERVICE, AS PER PLAN EACH	POWER CABLE, 2-CONDUCTOR, NO. 8 AWG. FT.	POWER CABLE, 3-CONDUCTOR, NO. 8 AWG. FT.	TETHER WIRE, WITH ACCESSORIES FT.	STRAIN POLE FOUNDATION EACH	STRAIN POLE, TYPE TC-81.10, DESIGN 10 EACH	MESSENGER WIRE, 7 STRAND, 3/8" DIAMETER WITH ACCESSORIES EACH
	S.R. 37/S.R. 664																										
79	* PB-1	TO	* PB-2	RT		200				200		2						1	210								
	PB-2	TO	STA. 262+50	RT		43				43								1	96								
80	STA. 262+50	TO	* PB-3	RT		116				116		1							242								
	PB-3	TO	P-1	RT		52				49								1	186								
	P-1	TO	P-1(BR)	RT										1					252				46	1	1	46	
	STA. 22+00	TO	* PB-4	LT		124				124		1							258								
	PB-4	TO	P-2	LT		48				45								2	232								
	P-2	TO	P-2(BR)	LT										1					256				26	1	1	26	
	P-2(BR)	TO	P-1(BR)	CL											1	1	2		240	57			60			60	
	P-1(BR)	TO	P-4(BR)	CL											1	1	2		420	125			60			60	
	STA. 267+50	TO	*PB-7	LT		145				145		1							300								
	PB-7	TO	P-3	LT		46				43								1	168								
	P-3	TO	P-3(BR)	LT										1					261				49	1	1	49	
	P-2(BR)	TO	P-3(BR)	CL											1	1	2			35			60			60	
	P-3(BR)	TO	P-4(BR)	CL											1	1	2		180	102			60			60	
	P-4(BR)	TO	P-4	RT										1					600	240			22	1	1	22	
	P-4	TO	* PB-6	RT			14		8				1						240	96							
	STA. 18+50	TO	*PB-5	RT		79				79		1							168								
	PB-5	TO	PB-6	RT		55				55								2	260								
	PB-6	TO	CC-1	RT			14		3					1					238	68							
	P-4	TO	CC-1	RT	17				9													21					
	CC-1	TO	Power Supply	RT																	1		157				
81	STA. 267+50	TO	* PB-8	LT		9				9		1						1	28								
	PB-8	TO	* PB-9	LT		200				200		1						1	210								
82	* PB-10	TO	* PB-11	RT				57		27	30	2						1	67								
	PB-11	TO	* PB-12	RT		144				144		1							154								
	PB-12	TO	* PB-13	RT				91		47	44	1						1	202								
	PB-13	TO	STA. 18+50	RT		6				6									22								
83	STA. 22+00	TO	* PB-14	LT		47				47		1						1	104								
	PB-14	TO	* PB-15	LT		200				200		1						1	210								
TOTALS (CARRIED TO GENERAL SUMMARY)					17	1,514	28	148	20	1,579	74	14	1	5	4	4	8	14	5,804	723	1	21	157	383	4	4	383

SHEET NO.	LOCATION			SIDE	633				
	BR = BULL RING * - PULL BOX IN QUANTITIES				CONTROLLER UNIT, TYPE 2070L, WITH CABINET, TYPE 332, AS PER PLAN EACH	CABINET RISER EACH	CABINET FOUNDATION, AS PER PLAN EACH	CONTROLLER WORK PAD, AS PER PLAN EACH	UNINTERRUPTIBLE POWER SUPPLY, 1000 WATT, AS PER PLAN EACH
	S.R. 37/S.R. 664								
80	PB-6	TO	CC-1	RT	1	1	1	1	1
TOTALS (CARRIED TO GENERAL SUMMARY)					1	1	1	1	1

CALCULATED DNM
CHECKED BFB

TRAFFIC SIGNAL SUB-SUMMARY

FAI-37/664-25.01/4.21

86847_SSS_01.DGN 1/12/2012

SHEET NUMBER											ITEM	ITEM EXT.	SUB TOTAL	UNIT	DESCRIPTION
8	9	10	12	12A	16	17	55	58	62	73					
					594	21					203	10000	615	CU YD	EXCAVATION
					1,689	5					203	20000	1,694	CU YD	EMBANKMENT
					1,762						204	10000	1,762	SQ YD	SUBGRADE COMPACTION
										922	204	13000	922	CU YD	EXCAVATION OF SUBGRADE
										922	204	30010	922	CU YD	GRANULAR MATERIAL, TYPE B
		1									204	45000	1	HOUR	PROOF ROLLING
										1,940	204	50000	1,940	SQ YD	GEOTEXTILE FABRIC
			0.70								209	72051	0.70	MILE	PREPARING SUBGRADE FOR SHOULDER PAVING, AS PER PLAN
	9										253	02000	9	CU YD	PAVEMENT REPAIR
					5,192						254	01000	5,192	SQ YD	PAVEMENT PLANING, ASPHALT CONCRETE
					378.8						301	46000	379	CU YD	ASPHALT CONCRETE BASE, PG64-22
						21.5					304	20000	22	CU YD	AGGREGATE BASE
					497.7						407	10000	498	GALLON	TACK COAT
					331.8						407	14000	332	GALLON	TACK COAT FOR INTERMEDIATE COURSE
					325.1						448	46020	326	CU YD	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, PG64-22
				7.4	232.2						448	46904	240	CU YD	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG70-22M
							736				605	31100	736	FT	AGGREGATE DRAINS
10											614	12460	10	EACH	WORK ZONE MARKING SIGN
3											614	13000	3	CU YD	ASPHALT CONCRETE FOR MAINTAINING TRAFFIC
									0.91		614	21550	0.91	MILE	WORK ZONE CENTER LINE, CLASS III, 642 PAINT
									792		614	23680	792	FT	WORK ZONE CHANNELIZING LINE, CLASS III, 642 PAINT
									134		614	26400	134	FT	WORK ZONE STOP LINE, CLASS I, 740.06, TYPE I
	4.5										616	10000	4.5	M GAL	WATER
								80			621	00100	80	EACH	RPM
	36										621	54000	36	EACH	RAISED PAVEMENT MARKER REMOVED

P:/FAI/86847/DESIGN/ROADWAY/Plan_Sheets/GENERAL/86847_SUBSUMLOC1.dgn

CALCULATED BCT CHECKED DNM

SUB-SUMMARY - LOCATION 1 (SR 37)

FAI-37/664-25.01/4.21

SHEET NUMBER					ITEM	ITEM EXT.	SUB TOTAL	UNIT	DESCRIPTION	SEE SHT
12	16		56	62						
			48		630	02100	48	FT	GROUND MOUNTED SUPPORT, NO. 2 POST	
			156		630	03100	156	FT	GROUND MOUNTED SUPPORT, NO. 3 POST	
			42.50		630	80100	42.50	SQ FT	SIGN, FLAT SHEET	
			2		630	84900	2	EACH	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	
			16		630	85100	16	EACH	REMOVAL OF GROUND MOUNTED SIGN AND REERECTION	
			13		630	86002	13	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	
				396	642	00400	396	FT	CHANNELIZING LINE, TYPE 1	
				67	642	00500	67	FT	STOP LINE, TYPE 1	
				4	642	01300	4	EACH	LANE ARROW, TYPE 1	
				164	644	00700	164	FT	TRANSVERSE/DIAGONAL LINE	
				2	644	01410	2	EACH	WORD ON PAVEMENT, 96"	
	9192				659	00520	9192	SQ YD	SEEDING AND MULCHING, CLASS 3A	
	0.83				659	20000	0.83	TON	COMMERCIAL FERTILIZER	
	0.21				659	31000	0.21	ACRE	LIME	
	9.9				659	35000	9.9	M GAL	WATER	
1304					690	12050	1304	SQ YD	SPECIAL - REINFORCED MESH FOR TRANSVERSE AND/OR LONGITUDINAL JOINTS AND CRACKS	
				0.63	817	00100	0.63	MILE	EDGE LINE, TYPE 1	
				0.46	817	00300	0.46	MILE	CENTER LINE, TYPE 1	

CALCULATED BCT
CHECKED DNM

SUB-SUMMARY - LOCATION 1 (SR 37)

FAI-37/664-25.01/4.21

90
62

P:/FAI/86847/DESIGN/ROADWAY/Plan_Sheets/GENERAL/86847_SUBSUMLOC1a.dgn

SHEET NUMBER									ITEM	ITEM EXT.	SUB TOTAL	UNIT	DESCRIPTION
10	12	12A	16	17	18	54	55	75					
						2			202	20010	2	EACH	HEADWALL REMOVED
						24			202	35100	24	FT	PIPE REMOVED, 24" AND UNDER
						42			202	35200	42	FT	PIPE REMOVED OVER 24"
					160				202	38000	160	FT	GUARDRAIL REMOVED
						2			202	60010	2	EACH	MONUMENT ASSEMBLY REMOVED
						281			202	70000	281	FT	SPECIAL - FILL AND PLUG EXISTING CONDUIT
			1,858	64					203	10000	1,922	CU YD	EXCAVATION
			1,945	42					203	20000	1,987	CU YD	EMBANKMENT
			3,946						204	10000	3,946	SQ YD	SUBGRADE COMPACTION
								1,947	204	13000	1,947	CU YD	EXCAVATION OF SUBGRADE
								1,995	204	30010	1,995	CU YD	GRANULAR MATERIAL, TYPE B
2									204	45000	2	HOUR	PROOF ROLLING
								3,957	204	50000	3,957	SQ YD	GEOTEXTILE FABRIC
	0.60								209	72051	0.60	MILE	PREPARING SUBGRADE FOR SHOULDER PAVING, AS PER PLAN
			4,467						254	01000	4,467	SQ YD	PAVEMENT PLANING, ASPHALT CONCRETE
			912.9						301	46000	913	CU YD	ASPHALT CONCRETE BASE, PG64-22
				68.6					301	48000	69	CU YD	ASPHALT CONCRETE BASE, PG64-22 (DRIVEWAYS)
			601.9	21.5					407	10000	624	GALLON	TACK COAT
			401.4						407	14000	402	GALLON	TACK COAT FOR INTERMEDIATE COURSE
			393.3						448	46020	394	CU YD	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, PG64-22
		6.4	280.9						448	46904	288	CU YD	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG70-22M
				18.7					448	48020	19	CU YD	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22 (DRIVEWAYS)
						3			601	11000	3	SQ YD	RIPRAP USING 6" REINFORCED CONCRETE SLAB
						1.62			602	20000	1.62	CU YD	CONCRETE MASONRY
						32			603	04900	32	FT	12" CONDUIT, TYPE D, 706.02 OR 706.33
						80			603	05700	80	FT	15" CONDUIT, TYPE A, 707.01 (0.079), 707.01 AL. COATED, 707.21
						124			603	96600	124	FT	CONDUIT, BORED OR JACKED: 18" CONDUIT, TYPE A, 706.02
						1			604	31500	1	EACH	MANHOLE, NO. 3
							474		605	31100	474	FT	AGGREGATE DRAINS
					275.00				606	13000	275.00	FT	GUARDRAIL, TYPE 5
					1				606	25000	1	EACH	ANCHOR ASSEMBLY, TYPE A
					1				606	26500	1	EACH	ANCHOR ASSEMBLY, TYPE T

CALCULATED BCT CHECKED DNM

SUB-SUMMARY - LOCATION 2 (SR 664)

FAI-37/664-25.01/4.21

P:/FAI/86847/DESIGN/ROADWAY/Plan_Sheets/GENERAL/86847_SUBSUMLOC2.dgn

SHEET NUMBER										ITEM	ITEM EXT.	SUB TOTAL	UNIT	DESCRIPTION	SEE SHT
8	9		13	16	18		59	61	63						
10										614	12460	10	EACH	WORK ZONE MARKING SIGN	
3										614	13000	3	CU YD	ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	
									0.94	614	21550	0.94	MILE	WORK ZONE CENTER LINE, CLASS III, 642 PAINT	
									884	614	23680	884	FT	WORK ZONE CHANNELIZING LINE, CLASS III, 642 PAINT	
									104	614	26400	104	FT	WORK ZONE STOP LINE, CLASS I, 740.06, TYPE I	
	7.0									616	10000	7.0	M GAL	WATER	
								78		621	00100	78	EACH	RPM	
	18									621	54000	18	EACH	RAISED PAVEMENT MARKER REMOVED	
					6					626	00100	6	EACH	BARRIER REFLECTOR	
							48			630	02100	48	FT	GROUND MOUNTED SUPPORT, NO. 2 POST	
							156			630	03100	156	FT	GROUND MOUNTED SUPPORT, NO. 3 POST	
							1			630	08600	1	EACH	SIGN POST REFLECTOR	
							48.75			630	80100	48.75	SQ FT	SIGN, FLAT SHEET	
							6			630	84900	6	EACH	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	
							4			630	85000	4	EACH	REMOVAL OF GROUND MOUNTED SIGN AND STORAGE	
							14			630	85100	14	EACH	REMOVAL OF GROUND MOUNTED SIGN AND REERECTION	
							20			630	86002	20	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	
									22	642	00400	22	FT	CHANNELIZING LINE, TYPE 1	
									28	642	00500	28	FT	STOP LINE, TYPE 1	
									3	642	01300	3	EACH	LANE ARROW, TYPE 1	
									442	644	00400	442	FT	CHANNELIZING LINE	
									52	644	00500	52	FT	STOP LINE	
									192	644	00700	192	FT	TRANSVERSE/DIAGONAL LINE	
									4	644	01300	4	EACH	LANE ARROW	
									2	644	01410	2	EACH	WORD ON PAVEMENT, 96"	
				9980						659	00520	9980	SQ YD	SEEDING AND MULCHING, CLASS 3A	
				0.90						659	20000	0.90	TON	COMMERCIAL FERTILIZER	
				0.23						659	00100	0.23	EACH	SOIL ANALYSIS TEST	
				10.8						659	31000	10.8	ACRE	LIME	
	1499									690	12050	1499	SQ YD	SPECIAL - REINFORCED MESH FOR TRANSVERSE AND/OR LONGITUDINAL JOINTS AND CRACKS	
			2							690	50100	2	EACH	SPECIAL - MAILBOX SUPPORT SYSTEM, SINGLE	
									0.60	817	00100	0.60	MILE	EDGE LINE, TYPE 1	
									0.47	817	00300	0.47	MILE	CENTER LINE, TYPE 1	

CALCULATED BCT CHECKED DNM

SUB-SUMMARY - LOCATION 2 (SR 664)

FAI-37/664-25.01/4.21

92 102

P:/FAI/86847/DESIGN/ROADWAY/Plan_Sheets/GENERAL/86847_SUBSUMLOC2a.dgn

SHEET NUMBER							ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET
8	64		72	89		91						
LUMP							201	11000	LUMP		CLEARING AND GRUBBING	
			LUMP				202	11000	LUMP		STRUCTURE REMOVED	
						2	202	20010	2	EACH	HEADWALL REMOVED	
						24	202	35100	24	FT	PIPE REMOVED, 24" AND UNDER	
						42	202	35200	42	FT	PIPE REMOVED, OVER 24"	
						160	202	38000	160	FT	GUARDRAIL REMOVED	
						2	202	60010	2	EACH	MONUMENT ASSEMBLY REMOVED	
						281	202	70000	281	FT	SPECIAL - FILL AND PLUG EXISTING CONDUIT	
				615		1,922	203	10000	2,537	CU YD	EXCAVATION	
				1,694		1,987	203	20000	3,681	CU YD	EMBANKMENT	
			15				203	35110	15	CU YD	GRANULAR MATERIAL, TYPE B	
				1,762		3,946	204	10000	5,708	SQ YD	SUBGRADE COMPACTION	
				922		1,947	204	13000	2,869	CU YD	EXCAVATION OF SUBGRADE	
				922		1,995	204	30010	2,917	CU YD	GRANULAR MATERIAL, TYPE B	
				1		2	204	45000	3	HOUR	PROOF ROLLING	
				1,940		3,957	204	50000	5,897	SQ YD	GEOTEXTILE FABRIC	
				0.70		0.60	209	72051	1.30	MILE	PREPARING SUBGRADE FOR SHOULDER PAVING, AS PER PLAN	12
			54				252	01500	54	FT	FULL DEPTH PAVEMENT SAWING	
				9			253	02000	9	CU YD	PAVEMENT REPAIR	
				5,192		4,467	254	01000	9,659	SQ YD	PAVEMENT PLANING, ASPHALT CONCRETE	
				379		913	301	46000	1,292	CU YD	ASPHALT CONCRETE BASE, PG64-22	
						69	301	48000	69	CU YD	ASPHALT CONCRETE BASE, PG64-22 (DRIVEWAYS)	
				22			304	20000	22	CU YD	AGGREGATE BASE	
	150			498		624	407	10000	1,272	GALLON	TACK COAT	
				332		402	407	14000	734	GALLON	TACK COAT FOR INTERMEDIATE COURSE	
				326		394	448	46020	720	CU YD	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, PG64-22	
				240		288	448	46904	528	CU YD	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG70-22M	
						19	448	48020	19	CU YD	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22 (DRIVEWAYS)	
	70						448	90000	70	CU YD	ASPHALT CONCRETE, MISC.: SPOT TREATMENT	
			LUMP				503	11100	LUMP		COFFERDAMS AND EXCAVATION BRACING	
			LUMP				503	21300	LUMP		UNCLASSIFIED EXCAVATION	
			3,224				509	10000	3,224	POUND	EPOXY COATED REINFORCING STEEL	
			11.0				511	46000	11.0	CU YD	CLASS C CONCRETE, RETAINING WALL OR WINGWALL	
			26.0				511	46500	26.0	CU YD	CLASS C CONCRETE, FOOTING	
			1.0				511	46600	1.0	CU YD	CLASS C CONCRETE, HEADWALL	

CALCULATED BCT CHECKED DNM

GENERAL SUMMARY

FAI-37/664-25.01/4.21

93 62

P:/FAI/86847/DESIGN/ROADWAY/Plan_Sheets/GENERAL/86847_GENSUM01.dgn

SHEET NUMBER							ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHT
10	11	72		89	91	92						
		49					512	10100	49	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	
		113					512	33000	113	SQ YD	TYPE 2 WATERPROOFING	
		101					512	33010	101	SQ YD	TYPE 3 WATERPROOFING	
		30					516	13600	30	SQ FT	1" PREFORMED EXPANSION JOINT FILLER	
		LUMP					518	21230	LUMP		POROUS BACKFILL WITH FILTER FABRIC	
					3		601	11000	3	SQ YD	RIPRAP USING 6" REINFORCED CONCRETE SLAB	
		21					601	32100	21	CU YD	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER	
					1.62		602	20000	1.62	CU YD	CONCRETE MASONRY	
50							603	01800	50	FT	8" CONDUIT, TYPE B	
50							603	02500	50	FT	8" CONDUIT, TYPE E	
50							603	02600	50	FT	8" CONDUIT, TYPE F	
					32		603	04900	32	FT	12" CONDUIT, TYPE D, 706.02 OR 706.33	
					80		603	05700	80	FT	15" CONDUIT, TYPE A, 707.01 (0.079), 707.01 AL. COATED, 707.21	
		80					603	94900	80	FT	8' X 5' CONDUIT, TYPE A, 706.05	
					124		603	96600	124	FT	CONDUIT, BORED OR JACKED: 18" CONDUIT, TYPE A, 706.02	
					1		604	31500	1	EACH	MANHOLE, NO. 3	
				736	474		605	31100	1,210	FT	AGGREGATE DRAINS	
					275.00		606	13000	275.00	FT	GUARDRAIL, TYPE 5	
					1		606	25000	1	EACH	ANCHOR ASSEMBLY, TYPE A	
					1		606	26500	1	EACH	ANCHOR ASSEMBLY, TYPE T	
		78					613	41200	78	CU YD	LOW STRENGTH MORTAR BACKFILL	
	50						614	11110	50	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	
				10		10	614	12460	20	EACH	WORK ZONE MARKING SIGN	
				3		3	614	13000	6	CU YD	ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	
	120						614	18401	120	DAY	PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN	
				0.91		0.94	614	21550	1.85	MILE	WORK ZONE CENTER LINE, CLASS III, 642 PAINT	
				792		884	614	23680	1,676	FT	WORK ZONE CHANNELIZING LINE, CLASS III, 642 PAINT	
				134		104	614	26400	238	FT	WORK ZONE STOP LINE, CLASS I, 740.06, TYPE I	
				4.5		7.0	616	10000	11.5	M GAL	WATER	
				80		78	621	00100	158	EACH	RPM	
				36		18	621	54000	54	EACH	RAISED PAVEMENT MARKER REMOVED	

CALCULATED BCT CHECKED DNM

GENERAL SUMMARY

FAI-37/664-25.01/4.21

94/102

P:/FAI/86847/DESIGN/ROADWAY/Plan_Sheets/GENERAL/86847_GENSUM02.dgn

SHEET NUMBER					ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHT
78A	78B	88	90	92						
		17			625	25402	17	FT	CONDUIT, 2", 725.05	
		1514			625	25403	1,514	FT	CONDUIT, 2", 725.05, AS PER PLAN	78B
		148			625	25501	148	FT	CONDUIT, 3", 725.04, AS PER PLAN	78B
		28			625	25502	28	FT	CONDUIT, 3", 725.05	
		20			625	29002	20	FT	TRENCH, 24" DEEP	
		1579			625	29003	1,579	FT	TRENCH, 24" DEEP, AS PER PLAN	78B
		74			625	29601	74	FT	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN	78B
		14			625	30701	14	EACH	PULL BOX, 725.08, 18", AS PER PLAN	78B
		1			625	30706	1	EACH	PULL BOX, 725.08, 24"	
		5			625	32000	5	EACH	GROUND ROD	
				6	626	00100	6	EACH	BARRIER REFLECTOR	
			48	48	630	02100	96	FT	GROUND MOUNTED SUPPORT, NO. 2 POST	
			156	156	630	03100	312	FT	GROUND MOUNTED SUPPORT, NO. 3 POST	
				1	630	08600	1	EACH	SIGN POST REFLECTOR	
			42.50	48.75	630	80100	91.25	SQ FT	SIGN, FLAT SHEET	
			2	6	630	84900	8	EACH	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	
				4	630	85000	4	EACH	REMOVAL OF GROUND MOUNTED SIGN AND STORAGE	
			16	14	630	85100	30	EACH	REMOVAL OF GROUND MOUNTED SIGN AND REERECTION	
			13	20	630	86002	33	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	
		4			632	04911	4	EACH	VEHICULAR SIGNAL HEAD, (LED) BLACK, 3-SECTION, 12" LENS, 1-WAY, WITH BACKPLATE, AS PER PLAN	77
		4			632	04921	4	EACH	VEHICULAR SIGNAL HEAD, (LED) BLACK, 5-SECTION, 12" LENS, 1-WAY, WITH BACKPLATE, AS PER PLAN	77
		8			632	25000	8	EACH	COVERING OF VEHICULAR SIGNAL HEAD	
		14			632	26501	14	EACH	DETECTOR LOOP, AS PER PLAN	78B
		383			632	30200	383	FT	MESSENGER WIRE, 7 STRAND, 3/8" DIAMETER WITH ACCESSORIES	
		383			632	30600	383	FT	TETHER WIRE, WITH ACCESSORIES	
		723			632	40700	723	FT	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG	
		4			632	64000	4	EACH	STRAIN POLE FOUNDATION	
		5804			632	65201	5,804	FT	LOOP DETECTOR LEAD-IN CABLE, AS PER PLAN	78B
		21			632	67200	21	FT	POWER CABLE, 2 CONDUCTOR, NO. 8 AWG	
		157			632	67300	157	FT	POWER CABLE, 3 CONDUCTOR, NO. 8 AWG	
		1			632	70001	1	EACH	POWER SERVICE, AS PER PLAN	77
		4			632	83000	4	EACH	STRAIN POLE, TYPE TC-81.10, DESIGN 10	
		1			633	01681	1	EACH	CONTROLLER UNIT, TYPE 2070L, WITH CABINET, TYPE 332, AS PER PLAN	77
		1			633	67000	1	EACH	CABINET RISER	
		1			633	67101	1	EACH	CABINET FOUNDATION, AS PER PLAN	77
		1			633	67201	1	EACH	CONTROLLER WORK PAD, AS PER PLAN	78
		1			633	75001	1	EACH	UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000 WATT, AS PER PLAN	78
									ALTERNATE BID	
4					633	69000	4	EACH	ADVANCE/DILEMMA ZONE DETECTION SYSTEM (ALTERNATE BID)	78A
	4				633	69100	4	EACH	STOP BAR DETECTION RADAR (ALTERNATE BID)	78A

CALCULATED BCT CHECKED DNM

GENERAL SUMMARY

FAI-37/664-25.01/4.21

95 102

P:/FAI/86847/DESIGN/ROADWAY/Plan_Sheets/GENERAL/86847_GENSUM03.dgn

SHEET NUMBER							ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHT
8		12		90		92						
				396		22	642	00400	418	FT	CHANNELIZING LINE, TYPE 1	
				67		28	642	00500	95	FT	STOP LINE, TYPE 1	
				4		3	642	01300	7	EACH	LANE ARROW, TYPE 1	
						442	644	00400	442	FT	CHANNELIZING LINE	
						52	644	00500	52	FT	STOP LINE	
				164		192	644	00700	356	FT	TRANSVERSE/DIAGONAL LINE	
						4	644	01300	4	EACH	LANE ARROW	
				2		2	644	01410	4	EACH	WORD ON PAVEMENT, 96"	
				9192		9980	659	00520	19,172	SQ YD	SEEDING AND MULCHING, CLASS 3A	
				0.83		0.90	659	20000	1.73	TON	COMMERCIAL FERTILIZER	
				0.21		0.23	659	31000	0.44	ACRE	LIME	
				9.9		10.8	659	35000	20.7	M GAL	WATER	
				1304		1499	690	12050	2,803	SQ YD	SPECIAL - REINFORCED MESH FOR TRANSVERSE AND/OR LONGITUDINAL JOINTS AND CRACKS	
						2	690	50100	2	EACH	SPECIAL - MAILBOX SUPPORT SYSTEM, SINGLE	
				0.63		0.60	817	00100	1.23	LUMP	EDGE LINE	
				0.46		0.47	817	00300	0.93	LUMP	CENTER LINE	
LUMP							832	15000	LUMP		STORM WATER POLLUTION PREVENTION PLAN	
5000							832	30000	5,000	EACH	EROSION CONTROL	
		LUMP					614	11000	LUMP		MAINTAINING TRAFFIC	
							619	16010	2	MONTH	FIELD OFFICE, TYPE B	
							623	10000	LUMP		CONSTRUCTION LAYOUT STAKES	
							624	10000	LUMP		MOBILIZATION	

CALCULATED BCT CHECKED DNM

GENERAL SUMMARY

FAI-37/664-25.01/4.21

96 62

P:/FAI/86847/DESIGN/ROADWAY/Plan_Sheets/GENERAL/86847_GENSUM04.dgn

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY LEGEND SHEET
FAI-37/664-25.01/4.21

VILLAGE OF BREMEN
SECTIONS 9, 10, 15 & 16, R17W, T16N
RUSHCREEK TOWNSHIP
FAIRFIELD COUNTY

PROJECT DESCRIPTION

THIS PROJECT CONSISTS OF A SAFETY UPGRADE FOR THE INTERSECTION OF SR 37 AND SR 664 BY ADDING LEFT TURN LANES ON BOTH APPROACHES OF SR 664 AND THE INSTALLATION OF TRAFFIC SIGNALS.

PLAN PREPARED BY:

FIRM NAME: ODOT, DISTRICT 5
PLANS PREPARED BY: CANDY SHOEMAKER
FIELD REVIEW BY: CHUCK PRICE & CANDY SHOEMAKER
OWNERSHIP VERIFIED BY: CHARLES PRICE, JR.
DATE COMPLETED: 02/22/11

INDEX OF SHEETS:

UTILITY OWNERS	
AT & T OHIO 160 NORTH SIXTH STREET ZANESVILLE, OHIO 43701 ATTN: SANDY RANDOLPH 740-454-3455	AMERICAN ELECTRIC POWER 850 TECH CENTER DRIVE GAHANNA, OHIO 43230 ATTN: PAUL PAXTON 614-883-6831
TIME WARNER CABLE 3706 INTERCHANGE DRIVE COLUMBUS, OHIO 43204 ATTN: TERRY ALLEN 614-255-6349	OHIO OIL GATHERING CORPORATION 9320 BLACK RUN RD. NASHPORT, OHIO 43830 ATTN: BOB MORAN 740-828-2892
VERIZON 500 LANCASTER PIKE CIRCLEVILLE, OHIO 43113 ATTN: MICHAEL EDWARDS 740-474-7197	VILLAGE OF BREMEN WATER AND WASTE WATER 9090 MARIETTA ROAD BREMEN, OHIO 43107 ATTN: BRYON BOWERSOCK 740-569-4100

UNDERGROUND UTILITIES
CONTACT BOTH SERVICES
CALL TWO WORKING DAYS
BEFORE YOU DIG
CALL
1-800-362-2764
(TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY
OIL & GAS PRODUCERS PROTECTIVE SERVICE CALL: 1-800-925-0988

NOTE:
THE LOCATION OF THE UNDERGROUND UTILITES SHOWN ON THE PLANS ARE OBTAINED FROM THE OWNER OF THE UTILITIES AS REQUIRED BY SECTION 153.64 O.R.C.

STRUCTURE KEY

- RESIDENTIAL
- COMMERCIAL
- OUT-BUILDING

LEGEND:
WL = FEE SIMPLE WITH LIMITATION OF ACCESS
WD = WARRANTY DEED
BS = BILL OF SALE
PRW = PROPERTY RIGHT FEE SIMPLE
SH = STANDARD HIGHWAY EASEMENT
LA = LIMITED ACCESS EASEMENT
T = TEMPORARY EASEMENT
SL = SLOPE EASEMENT
S = SEWER EASEMENT
CH = CHANNEL EASEMENT
FL = FLOW EASEMENT
U = UTILITY EASEMENT
A = AERIAL EASEMENT
PRE = PROPERTY RIGHT
SC = SCENIC EASEMENT
V = IN NAME OF ANOTHER STATE AGENCY, LPA, ETC.
R = SPECIAL RESERVATION
WA = WORK AGREEMENT
SA = SPECIAL AGREEMENT AND WAIVER OF DAMAGES

CONVENTIONAL SYMBOLS

County Line
Township Line
Section Line
Corporation Line or
Fence Line (Ex) (Pr)
Center Line
Right of Way (Ex) Ex R/W
Right of Way (Pr) R/W
Standard Highway Ease.(Ex) Ex SH
Temporary Right of Way TMP
Channel Ease. (Pr) CH
Utility Ease. (Ex) Ex U
Railroad or
Guardrail (Ex) (Pr)
Construction Limits
Edge of Pavement (Ex)
Edge of Pavement (Pr)
Edge of Shoulder (Ex)
Edge of Shoulder (Pr)
Ditch / Creek (Ex)
Ditch / Creek (Pr)
Tree Line (Ex)
Ownership Hook Symbol , Example
Property Line Symbol , Example
Break Line Symbol , Example
Tree (Pr) , Tree (Ex) , Shrub (Ex)
Tree (Remove) , Shrub (Remove)
Evergreen (Ex) , Stump
Evergreen (Remove) , Stump (Remove)
Wetland (Pr) , Grass (Pr) , Aerial Target
Post (Ex) , Mailbox (Ex) MB , Mailbox (Pr) MB
Light (Ex) , Telephone Marker (Ex) TEL
Fire Hydrant (Ex) , Water Meter (Ex) W
Water Valve (Ex) , Utility Valve Unknown (Ex.)
Telephone Pole (Ex) , Power Pole (Ex)
Light Pole (Ex)

I, Charles W. Price, Jr., P. S. have conducted a survey of the existing conditions for the Ohio Department of Transportation in January, 2010. The results of that survey are contained herein.

Underground utility locations are shown for informational purposes only. Though they are believed to be accurate, their location is as marked on the ground by the utility company per OUPS Confirmation Number A000500115 and those markings subsequently being surveyed as a part of this project.

The horizontal coordinates expressed herein are based on the Ohio State Plane Coordinates system, NAD 83, South Zone.

As a part of this project I have reestablished the locations of the existing property lines and centerline of existing Right of Way for property takes contained herein.

As a part of this project I have established the proposed property lines, calculated the Gross Take, present roadway occupied (PRO), Net Take and Net Residue; as well as prepared the legal descriptions necessary to acquire the parcels as shown herein.

As a part of this work I have set monuments at the proposed property corners, and other points shown herein.

The iron pins and caps will be 3/4" x 30" rebar with aluminum cap stamped "Odot R/W District 5". All of my work contained herein was conducted in accordance with Ohio Administrative Code 4733-37 commonly known as "A Minimum Standards for Boundary Surveys in the State of Ohio" unless so noted.

The words I and my as used herein are to mean that either myself or someone working under my direct supervision.

Charles W. Price, Jr., Professional Land Surveyor # 7825

Date: _____

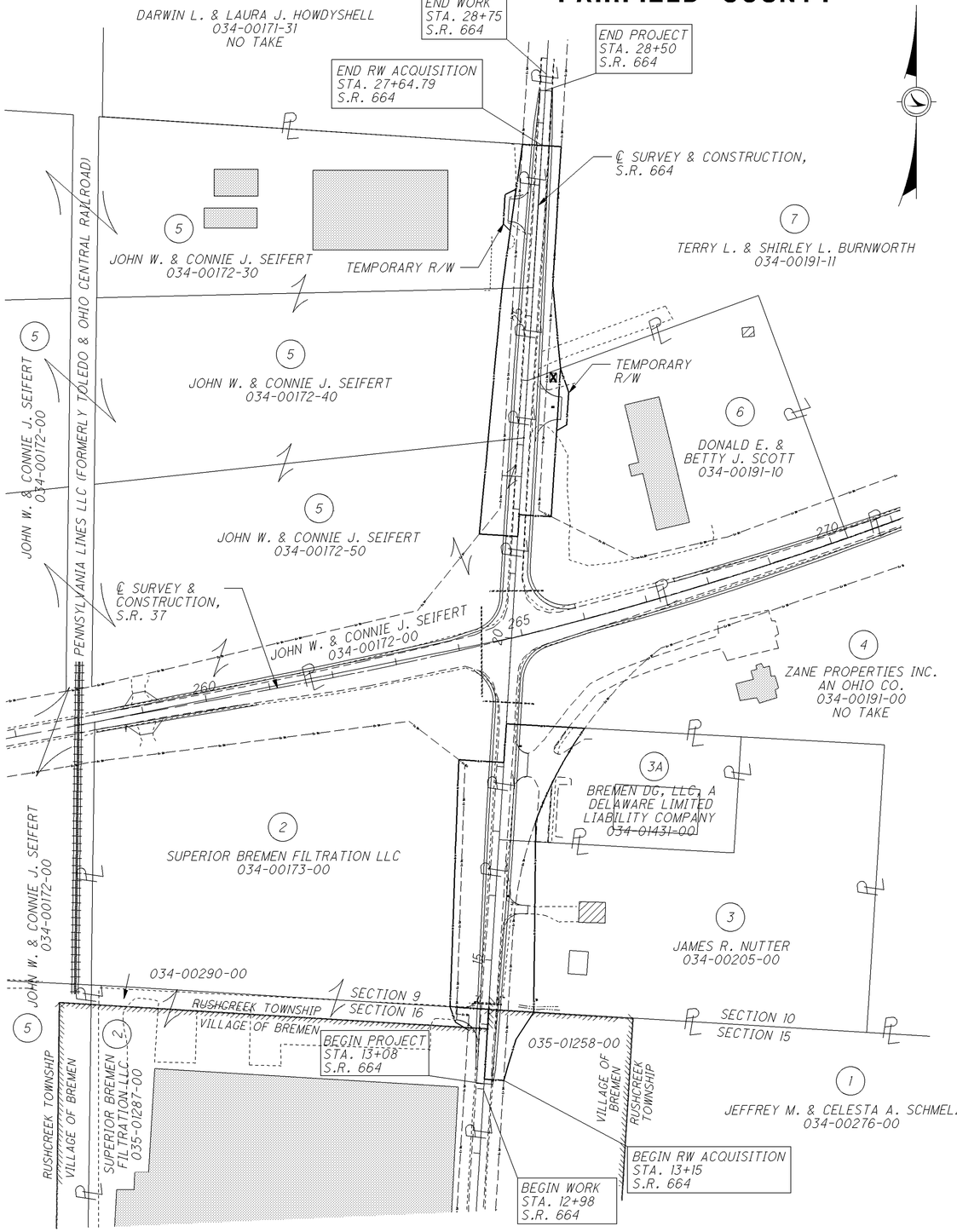
SURVEYORS SEAL

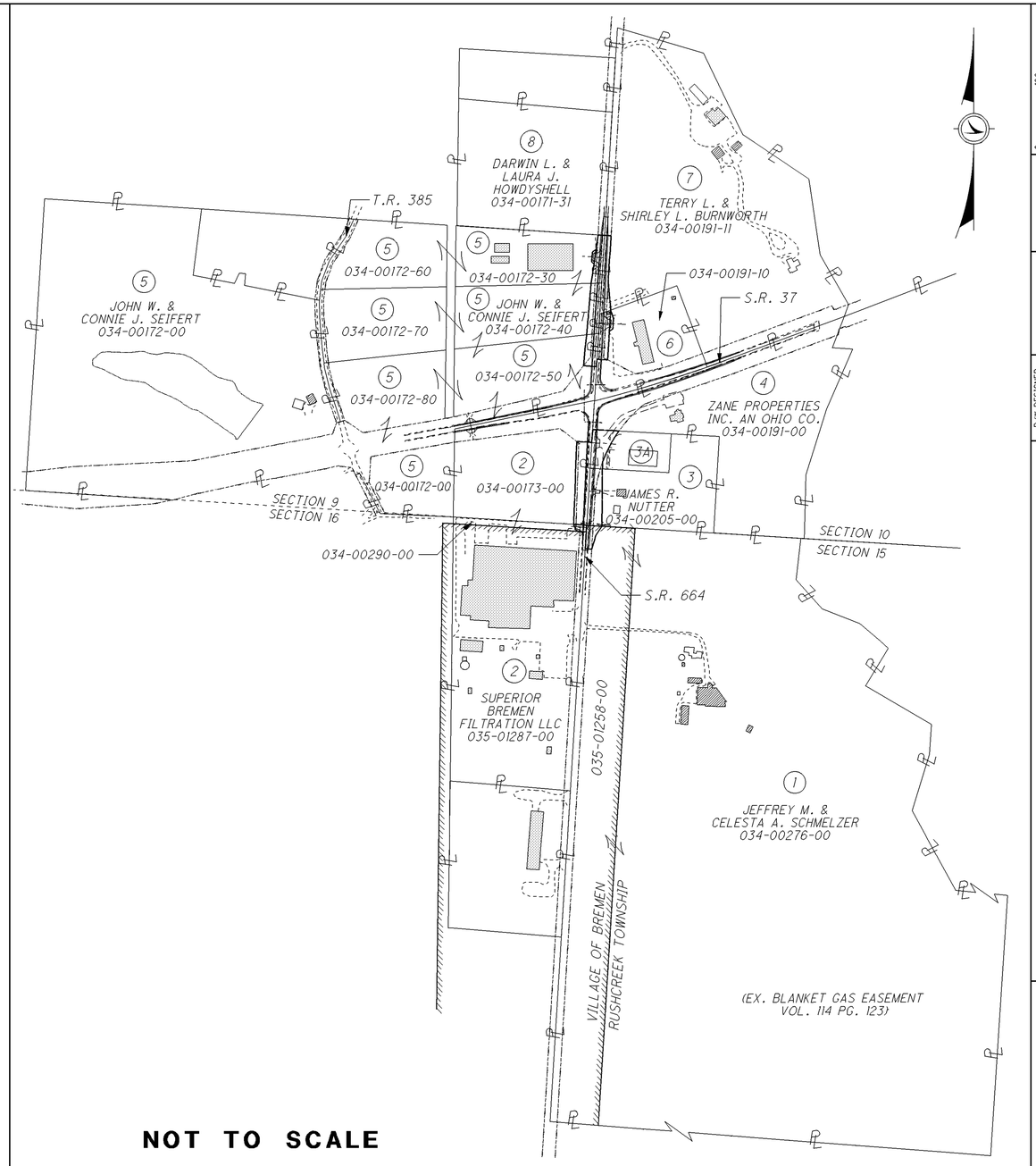
SIGNED: _____
DATE: _____

FEDERAL PROJECT NO. E090 (990)
PID NO. 86847
RAILROAD INVOLVEMENT NONE
RIGHT OF WAY LEGEND SHEET
FAI-37/664-25.01/4.21
1 / 6
97 / 102

P:\FAI\86847\DESIGN\RIGHT_OF_WAY\PLAN_SHEETS\86847_0001_LRTS.dgn 02/25/11

VILLAGE OF BREMEN
SECTIONS 9, 10, 15 & 16, R17W, T16N
RUSHCREEK TOWNSHIP
FAIRFIELD COUNTY





NOT TO SCALE

REV. BY	DATE	DESCRIPTION
CS	10/31/11	SPLIT PORTION OF PARCEL 3 INTO 3A

FIELD REVIEW BY: CP & CS
OWNERSHIP VERIFIED BY: CP
DATE COMPLETED: 02/25/11

HORIZONTAL SCALE IN FEET
0 50 100 200

PID NO. 86847
STATE JOB NO.
R/W DESIGNER CS
R/W REVIEWER CP

PROPERTY MAP & SUMMARY OF ADDITIONAL RIGHT OF WAY

FAI-37/664-25.01/4.21

2 / 6

98
102

P:\FAI\86847\DESIGN\RIGHT_OF_WAY\PLAN_SHEETS\86847_0001_RPM.dgn 10/31/11

TOTAL NUMBER OF :

6 OWNERSHIPS
10 PARCELS
0 TOTAL TAKES
0 OWNERSHIPS W/ STRUCTURES INVOLVED

RECORD AREA - TOTAL PRO - NET TAKE = NET RESIDUE
GROSS TAKE - PRO IN TAKE = NET TAKE

ALL AREAS IN

GRANTEE:

ALL RIGHT OF WAY ACQUIRED IN THE NAME OF STATE OF OHIO UNLESS OTHERWISE SHOWN.

* DENOTES RIGHT OF WAY ENCROACHMENT

PARCEL NO.	OWNER	SHEET NO.	OWNERS RECORD INSTRUMENT NUMBER	AUDITOR'S PARCEL	RECORD AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRUCTURE	NET RESIDUE LEFT	NET RESIDUE RIGHT	TYPE FUND FEDERAL/STATE	REMARKS	AS ACQUIRED BOOK	AS ACQUIRED PAGE
1-WD	JEFFREY M. & CELESTA A. SCHMELZER	4	DV 606 PG. 772	035-01258-00	14.19	1.909	0.114	0.075	0.039	NO		12.242		* ENCROACHING FENCE	OR 1586	3048
				034-00276-00	101.81											
2-WD	SUPERIOR BREMEN FILTRATION LLC	4-5	OR 1444 PG. 3528	034-00173-00	7.53	1.874	0.572	0.483	0.089	S (1)	5.567			PARCEL TWO; * ENCROACHING PRIVATE SIGN	OR 1580	1287
2-T		4		034-00290-00	**0.706	**0.039	0.011	0.000	0.011	NO				TO CONSTRUCT DRIVE; **= CALC. AC.; 0.37 AC. AUDITOR'S SITE	OR 1580	1292
				035-01287-00	16.11	0.811	0.0003	0.000	0.0003	NO				TO CONSTRUCT DRIVE		
3-WD	JAMES R. NUTTER	4	OR 1215 PG. 544	034-00205-00	**4.527	0.199	0.383	0.199	0.184	NO		4.144		**4.527 ACRES AS RECORDED ON NUTTER SUBDIVION PLAT PH. 1 (201100013726) (CAB. 2 SLOT 200)	OR 1584	2268
3A-WD	BREMEN DG, LLC, A DELAWARE LIMITED LIABILITY COMPANY	4-5	OR 1577 PG. 1300	034-01431-00	1.508	0.324	0.327	0.324	0.003	NO		1.181			OR 1584	2273
4	ZANE PROPERTIES INC. AN OHIO CORP.	5	OR 671 PG. 851	034-00191-00	13.04	2.272								NO TAKE		
5-WD	JOHN W. & CONNIE J. SEIFERT	5-6	OR 1373 PG. 241	034-00172-50	3.801	0.040	0.117	0.040	0.077	NO	3.684			TRACT SIX	OR 1586	3038
			OR 1373 PG. 241	034-00172-40	4.004	0.162	0.278	0.162	0.116	NO	3.726			TRACT FOUR		
			OR 1373 PG. 241	034-00172-30	3.921	0.153	0.199	0.153	0.046	NO	3.722			TRACT TWO		
			OR 1373 PG. 241	034-00172-00	41.27	7.926	0.079	0.079	0.000	NO	33.344					
5-T		6	OR 1373 PG. 241	034-00172-30			0.017	0.000	0.017	NO				TO CONSTRUCT DRIVE	OR 1586	3044
			OR 1384 PG. 391	034-00172-60	3.642	0.167								NO TAKE; TRACT ONE		
			OR 1384 PG. 391	034-00172-70	4.203	0.156								NO TAKE; TRACT THREE		
			OR 1384 PG. 391	034-00172-80	3.640	0.129								NO TAKE; TRACT FIVE		
6-WD	DONALD E. & BETTY J. SCOTT	5-6	OR 1324 PG. 2169	034-00191-10	4.16	1.238	0.252	0.150	0.102	YES; S(1)		2.820		STRUCTURE TO BE REMOVED; * ENCROACHING PRIVATE SIGN & PARKING LOT; ORNAMENTAL TREES TO BE REMOVED	OR 1584	2252
6-T		5-6					0.025	0.000	0.025	NO				TO CONSTRUCT DRIVE	OR 1584	2257
7-WD	TERRY L. & SHIRLEY L. BURNWORTH	6	DV 568 PG. 33	034-00191-11	24.65	1.917	0.278	0.247	0.031	S (1)		22.702		* 1 ENCROACHING PRIVATE SIGN (LOCATED ABOUT 60' LT. STA. 270+27 S.R. 37); & ENCROACHING DRIVEWAY	OR 1583	626

LEGEND:

WL = FEE SIMPLE WITH LIMITATION OF ACCESS
WD = WARRANTY DEED
BS = BILL OF SALE
PRW = PROPERTY RIGHT FEE SIMPLE
SH = STANDARD HIGHWAY EASEMENT
LA = LIMITED ACCESS EASEMENT
T = TEMPORARY EASEMENT
SL = SLOPE EASEMENT
S = SEWER EASEMENT
CH = CHANNEL EASEMENT
FL = FLOW EASEMENT
U = UTILITY EASEMENT
A = AERIAL EASEMENT
PRE = PROPERTY RIGHT
SC = SCENIC EASEMENT
V = IN NAME OF ANOTHER STATE AGENCY, LPA, ETC.
R = SPECIAL RESERVATION
WA = WORK AGREEMENT
SA = SPECIAL AGREEMENT AND WAIVER OF DAMAGES

NOTE: ALL TEMPORARY PARCELS TO BE OF 12 MONTH DURATION.

NOTE: UNDER NO CIRCUMSTANCES ARE TEMPORARY EASEMENTS TO BE USED FOR STORAGE OF MATERIAL OR EQUIPMENT BY THE CONTRACTOR UNLESS NOTED OTHERWISE.

REV. BY	DATE	DESCRIPTION
CS	11/29/11	REVISED PROPERTY LINE AND ACREAGE ON 3A-WD
CS	10/31/11	SPLIT PORTION OF PARCEL 3-WD INTO 3A-WD

FIELD REVIEW BY: CP & CS DATE: 02/24/11
OWNERSHIP VERIFIED BY: CHUCK PRICE DATE: 02/22/11
DATE COMPLETED: 02/25/11

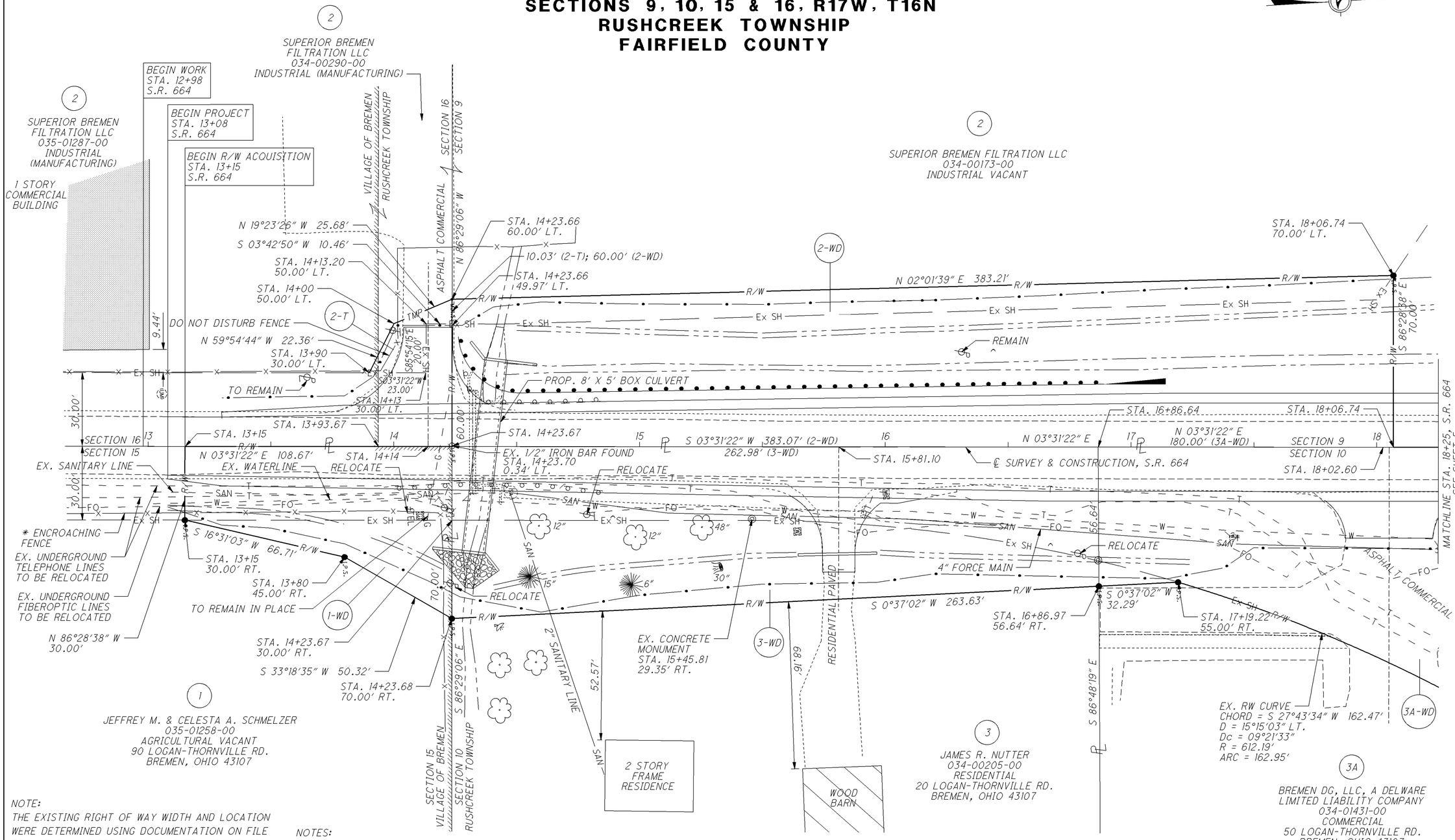
FEDERAL PROJECT NO. E090990
PID NO. 86847
STATE JOB NO.
R/W DESIGNER CS
R/W REVIEWER CP

SUMMARY OF ADDITIONAL RIGHT OF WAY

FAI-37/664-25.01/4.21

P:\FAI\86847\DESIGN\RIGHT_OF_WAY\PLAN_SHEETS\86847_0001.RSS.DGN 01/26/12

VILLAGE OF BREMEN
SECTIONS 9, 10, 15 & 16, R17W, T16N
RUSHCREEK TOWNSHIP
FAIRFIELD COUNTY



NOTE:
THE EXISTING RIGHT OF WAY WIDTH AND LOCATION WERE DETERMINED USING DOCUMENTATION ON FILE FROM THE OHIO DEPARTMENT OF TRANSPORTATION, DISTRICT 5 OFFICE, JACKSONTOWN, OHIO.

FAI-37-(19.59-27.31)
FAI-37-25.03
FAI-664-03.58
ICH 357 SEC. L

CO. RD. AND TWP RD. RIGHT OF WAY DETERMINED FROM THE FAIRFIELD COUNTY ENGINEERS OFFICE FAIRFIELD COUNTY, OHIO

NOTES:
ALL EXISTING FENCE LOCATED INSIDE OF PROPOSED RIGHT OF WAY IS TO BE REMOVED.

THE DISPOSITION OF EXISTING CONSTRUCTION ITEMS WITHIN WORK LIMITS ARE SHOWN ON THE CONSTRUCTION PLANS.

NOTE:
ALL STATIONS AND OFFSETS ARE FROM THE CENTERLINE OF SURVEY AND CONSTRUCTION, S.R. 664 UNLESS OTHERWISE STATED.

REFERENCES CITED:
PREVIOUS SURVEYS, TAX MAPS, DEEDS AND PLATS ON FILE IN THE FAIRFIELD COUNTY RECORDER'S OFFICE AND ENGINEER'S OFFICE.

LEGEND

◎ - EXISTING R/W MONUMENT
○I.P.F. - I.P. FOUND (AS NOTED)
● - ¾" X 30" REBAR WITH ALUMINUM CAP STAMPED "ODOT R/W DISTRICT 5"
• M.N.S. - MAG NAIL SET

REV	DATE	DESCRIPTION
2	11/29/11	REVISED NORTH PROPERTY LINE ON PARCEL 3A-WD
1	10/31/11	SPLIT PORTION OF PARCEL 3-WD INTO 3A-WD

COMPLETION DATE: 02/25/11

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED C.S.
CHECKED C.P.

RIGHT OF WAY DETAIL SHEET
STA. 12+50 TO STA. 18+25, S.R. 664

FAI-37/664-25.01/4.21

4 / 6

100
102

P:\FAI\86847\DESIGN\RIGHT_OF_WAY\PLAN_SHEETS\86847_0001_RDS.dgn 11/29/11

SECTIONS 9 & 10, R17W, T16N
RUSHCREEK TOWNSHIP
FAIRFIELD COUNTY

NOTE:
THE EXISTING RIGHT OF WAY WIDTH AND LOCATION WERE DETERMINED USING DOCUMENTATION ON FILE FROM THE OHIO DEPARTMENT OF TRANSPORTATION, DISTRICT 5 OFFICE, JACKSONTOWN, OHIO.

FAI-37-(19.59-27.31)
FAI-37-25.03
FAI-664-03.58
ICH 357 SEC. L

CO. RD. AND TWP RD. RIGHT OF WAY DETERMINED FROM THE FAIRFIELD COUNTY ENGINEERS OFFICE FAIRFIELD COUNTY, OHIO

S.R. 37 CURVE DATA
P.I. STA. 266+31.97
D = 09°45'00" LT.
Dc = 01°00'00"
R = 5,729.58'
T = 488.68'
L = 975.00'
E = 20.80'

(2) SUPERIOR BREMEN FILTRATION LLC
034-00173-00
INDUSTRIAL VACANT

(5) JOHN W. & CONNIE J. SEIFERT
034-00172-00

(5) JOHN W. & CONNIE J. SEIFERT
034-00172-50, TRACT SIX
AGRICULTURAL VACANT
225 LANCASTER-NEW LEXINGTON RD.
BREMEN, OHIO 43107

(5) JOHN W. & CONNIE J. SEIFERT
034-00172-40, TRACT FOUR
AGRICULTURAL VACANT
225 LANCASTER-NEW LEXINGTON RD.
BREMEN, OHIO 43107

(3A) BREMEN DG, LLC, A DELWARE LIMITED LIABILITY COMPANY
034-01431-00
COMMERCIAL
50 LOGAN-THORNVILLE RD.
BREMEN, OHIO 43107

(4) ZANE PROPERTIES INC. AN OHIO CORP.
034-00191-00
COMMERCIAL (MEDICAL CLINICS AND OFFICES)
80 LOGAN-THORNVILLE RD.
BREMEN, OHIO 43107

(6) DONALD E. & BETTY J. SCOTT
034-00191-10
COMMERCIAL (COMMERCIAL WAREHOUSES)
160 LOGAN-THORNVILLE RD.
BREMEN, OHIO 43107

NOTES:
ALL EXISTING FENCE LOCATED INSIDE OF PROPOSED RIGHT OF WAY IS TO BE REMOVED.

THE DISPOSITION OF EXISTING CONSTRUCTION ITEMS WITHIN WORK LIMITS ARE SHOWN ON THE CONSTRUCTION PLANS.

NOTE:
ALL STATIONS AND OFFSETS ARE FROM THE CENTERLINE OF SURVEY AND CONSTRUCTION, S.R. 664 UNLESS OTHERWISE STATED.

LEGEND
◎ - EXISTING R/W MONUMENT
○I.P.S. - I.P. FOUND (AS NOTED)
● - ¾" X 30" REBAR WITH ALUMINUM CAP STAMPED "ODOT R/W DISTRICT 5"
• M.N.S. - MAG NAIL SET

REFERENCES CITED:
PREVIOUS SURVEYS, TAX MAPS, DEEDS AND PLATS ON FILE IN THE FAIRFIELD COUNTY RECORDER'S OFFICE AND ENGINEER'S OFFICE.

REV	DATE	DESCRIPTION
2	11/29/11	REVISED NORTH PROPERTY LINE ON PARCEL 3A-WD
1	10/31/11	SPLIT PORTION OF PARCEL 3-WD INTO 3A-WD

COMPLETION DATE: 02/25/11

HORIZONTAL SCALE IN FEET
0 10 20 40
CALCULATED C.S.
CHECKED C.P.

RIGHT OF WAY DETAIL SHEET
STA. 18+25 TO STA. 23+50, S.R. 664

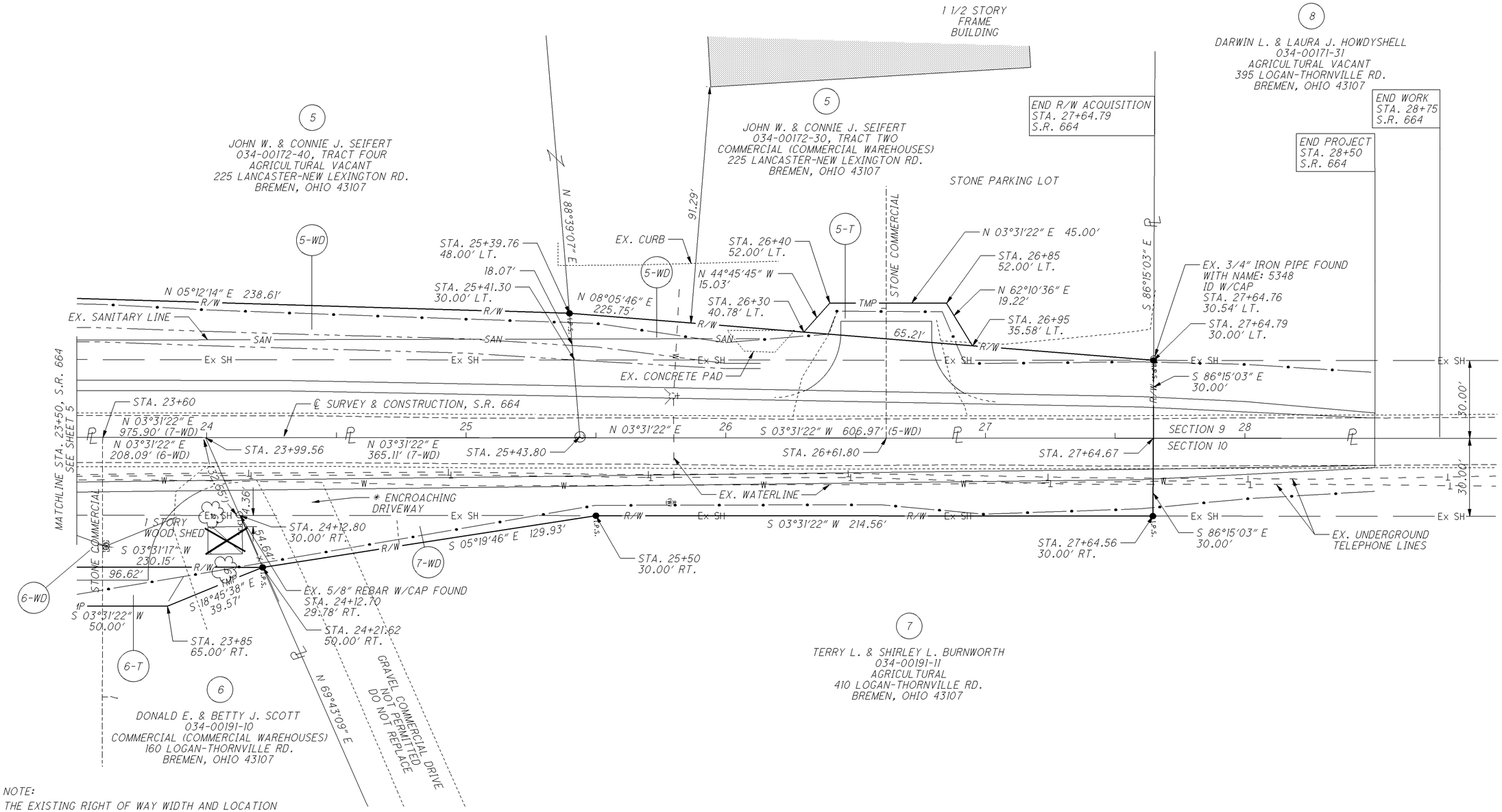
FAI-37/664-25.01/4.21

5 / 6

101
102

P:\FAI\86847\DESIGN\RIGHT_OF_WAY\PLAN_SHEETS\86847_0002_RDS.dgn 11/29/11

SECTIONS 9 & 10, R17W, T16N
RUSHCREEK TOWNSHIP
FAIRFIELD COUNTY



NOTE:
THE EXISTING RIGHT OF WAY WIDTH AND LOCATION WERE DETERMINED USING DOCUMENTATION ON FILE FROM THE OHIO DEPARTMENT OF TRANSPORTATION, DISTRICT 5 OFFICE, JACKSONTOWN, OHIO.

FAI-37-(19.59-27.31)
FAI-37-25.03
FAI-664-03.58
ICH 357 SEC. L

CO. RD. AND TWP RD. RIGHT OF WAY DETERMINED FROM THE FAIRFIELD COUNTY ENGINEERS OFFICE FAIRFIELD COUNTY, OHIO

NOTES:
ALL EXISTING FENCE LOCATED INSIDE OF PROPOSED RIGHT OF WAY IS TO BE REMOVED.

THE DISPOSITION OF EXISTING CONSTRUCTION ITEMS WITHIN WORK LIMITS ARE SHOWN ON THE CONSTRUCTION PLANS.

NOTE:
ALL STATIONS AND OFFSETS ARE FROM THE CENTERLINE OF SURVEY AND CONSTRUCTION, S.R. 664 UNLESS OTHERWISE STATED.

REFERENCES CITED:
PREVIOUS SURVEYS, TAX MAPS, DEEDS AND PLATS ON FILE IN THE FAIRFIELD COUNTY RECORDER'S OFFICE AND ENGINEER'S OFFICE.

LEGEND

◎ - EXISTING R/W MONUMENT
○I.P.F. - I.P. FOUND (AS NOTED)
● - ¾" X 30" REBAR WITH ALUMINUM CAP STAMPED "ODOT R/W DISTRICT 5"
• M.N.S. - MAG NAIL SET

REV	DATE	DESCRIPTION

COMPLETION DATE: 02/25/11

N

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED C.S.
CHECKED C.P.

RIGHT OF WAY DETAIL SHEET
STA. 23+50 TO STA. 29+00, S.R. 664

FAI-37 / 664-25.01 / 4.21

6 / 6

102
102

P:\FAI\86847\DESIGN\RIGHT_OF_WAY\PLAN_SHEETS\86847_0003_RDS.dgn 03/11/11