

UTILITIES	
VERIZON-N.J., INC.	(TELEPHONE)
ELIZABETHTOWN WATER CO.	(WATER)
N.J. AMERICAN WATER COMPANY	(WATER)
COMCAST CABLEVISION OF N.J.	(CABLE)
ELIZABETHTOWN GAS CO.	(GAS)
PUBLIC SERVICE ELECTRIC AND GAS CO.	(GAS)
GPU ENERGY	(GAS)
PUBLIC SERVICE ELECTRIC AND GAS CO.	(ELECTRIC)
JOINT MEETING OF ESSEX & UNION COUNTIES	(SANITARY SEWER)
TOWNSHIP OF MAPLEWOOD	(STORM SEWER)
TOWNSHIP OF MILLBURN	(STORM SEWER)
TOWNSHIP OF UNION	(STORM SEWER)

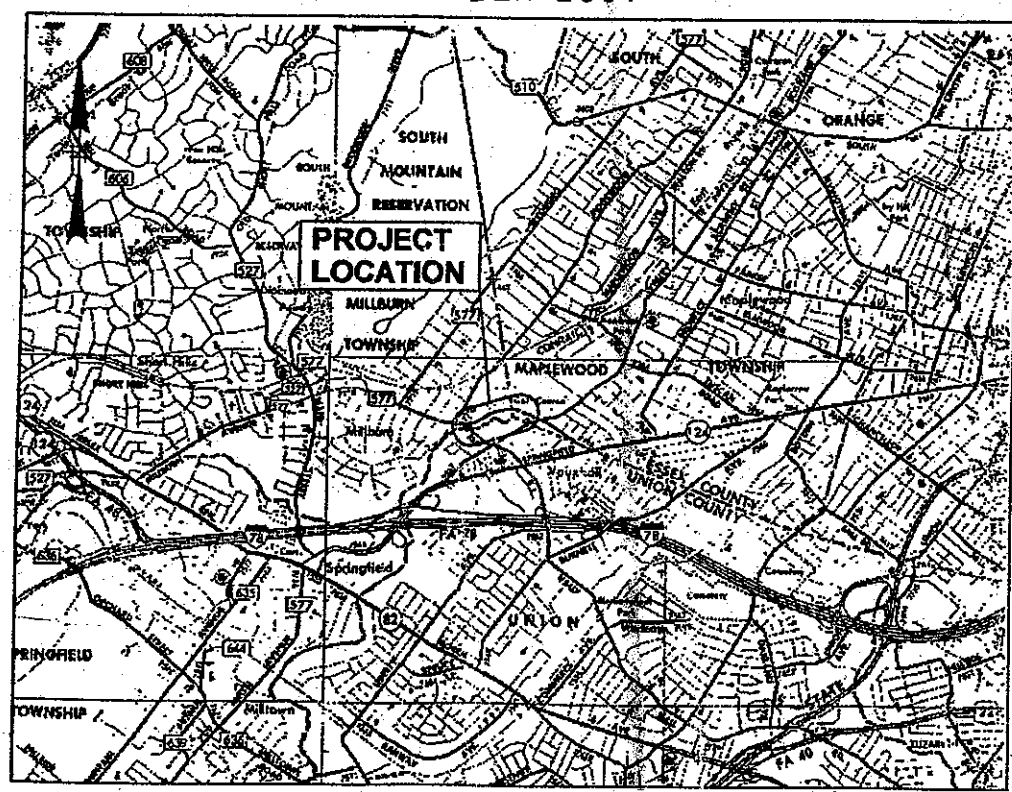
# UNION COUNTY DEPARTMENT OF OPERATIONAL SERVICES AND ESSEX COUNTY DEPARTMENT OF PUBLIC WORKS PLANS FOR CHANNEL IMPROVEMENTS AND REPLACEMENT OF THE VAUXHALL ROAD BRIDGE (STRUCTURE NO. 2019-028) AT THE EAST BRANCH OF THE RAHWAY RIVER

CET 460 SPRING 2011  
PROJECT NO. 11-1B  
CHANNEL IMPROVEMENTS

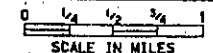
NJDOT STANDARD ROADWAY CONSTRUCTION / TRAFFIC CONTROL / BRIDGE CONSTRUCTION DETAILS BOOKLET DATED 2001 ARE APPLICABLE TO THIS PROJECT EXCEPT FOR THOSE DETAILS CONTAINED HEREIN.

TOWNSHIP OF UNION  
UNION COUNTY, NEW JERSEY  
TOWNSHIPS OF MILLBURN AND MAPLEWOOD  
ESSEX COUNTY, NEW JERSEY  
NOVEMBER 2001

INDEX OF SHEETS	
1	TITLE SHEET
2-3	ESTIMATE OF QUANTITIES
4	TYPICAL SECTION - ROADWAY
5	LEGEND AND GENERAL NOTES
6	CONSTRUCTION PLAN - ROADWAY
7	PROFILE - ROADWAY
8	SURVEY TIES AND LAYOUT
9	GRADING AND DRAINAGE PLAN
10-13	TRAFFIC CONTROL AND STAGING PLANS
14	TRAFFIC SIGNING AND STRIPING PLAN
15-16	CROSS SECTIONS
17-47	BRIDGE PLANS
48-70	CHANNEL PLANS



KEY MAP



TOTAL LENGTH OF PROJECT = 395' (ROAD) AND 1744' (CHANNEL)  
NJDOT 1989 STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION  
AS AMENDED BY THE SPECIFICATIONS SHALL GOVERN

Approved by: BRUCE CONNOR, P.E., UNION COUNTY ENGINEER Date \_\_\_\_\_  
N.J. PROFESSIONAL ENGINEER NO. 25058

Approved by: FRANK E. DANN, JR., DIRECTOR OF OPERATIONAL SERVICES Date \_\_\_\_\_

Approved by: MICHAEL J. LAPOLLA, UNION COUNTY MANAGER Date \_\_\_\_\_

Approved by: JAMES W. TREFFINGER, ESSEX COUNTY EXECUTIVE Date \_\_\_\_\_

Approved by: RAJASHEKAR R. RAVILLA, P.E., ESSEX COUNTY ENGINEER Date \_\_\_\_\_  
N.J. PROFESSIONAL ENGINEER NO. 36440

PREPARED AND RECOMMENDED FOR APPROVAL BY:  
KILLAM ASSOCIATES, CONSULTING ENGINEERS (Prime Consultants)

MICHAEL G. COX, P.E. Date \_\_\_\_\_  
N.J. PROFESSIONAL ENGINEER NO. 33824

HATCH MOTT MACDONALD, INC. (Sub-Consultants)

GERARD C. KRONER P.E. Date \_\_\_\_\_  
N.J. PROFESSIONAL ENGINEER NO. 32436



CHANGES MADE TO THESE PLANS SINCE SIGNATURE BY THE CONSULTANT MAY BE DETERMINED BY COMPARISON OF THE PLANS FILED AT THE COUNTY WITH THOSE FILED AT THE OFFICE OF THE CONSULTANT.

**Killam**  
Associates - Consulting Engineers  
A DIVISION OF  
HATCH MOTT MACDONALD GROUP, INC.  
27 BLEEKER STREET  
MILLBURN, NJ 07041-1008



**Hatch Mott MacDonald**  
HATCH MOTT MACDONALD, INC.  
P.O. BOX 1028  
21 BLEEKER STREET  
MILLBURN, NJ 07041-1021

320  
 37 → 2  
 500 ft

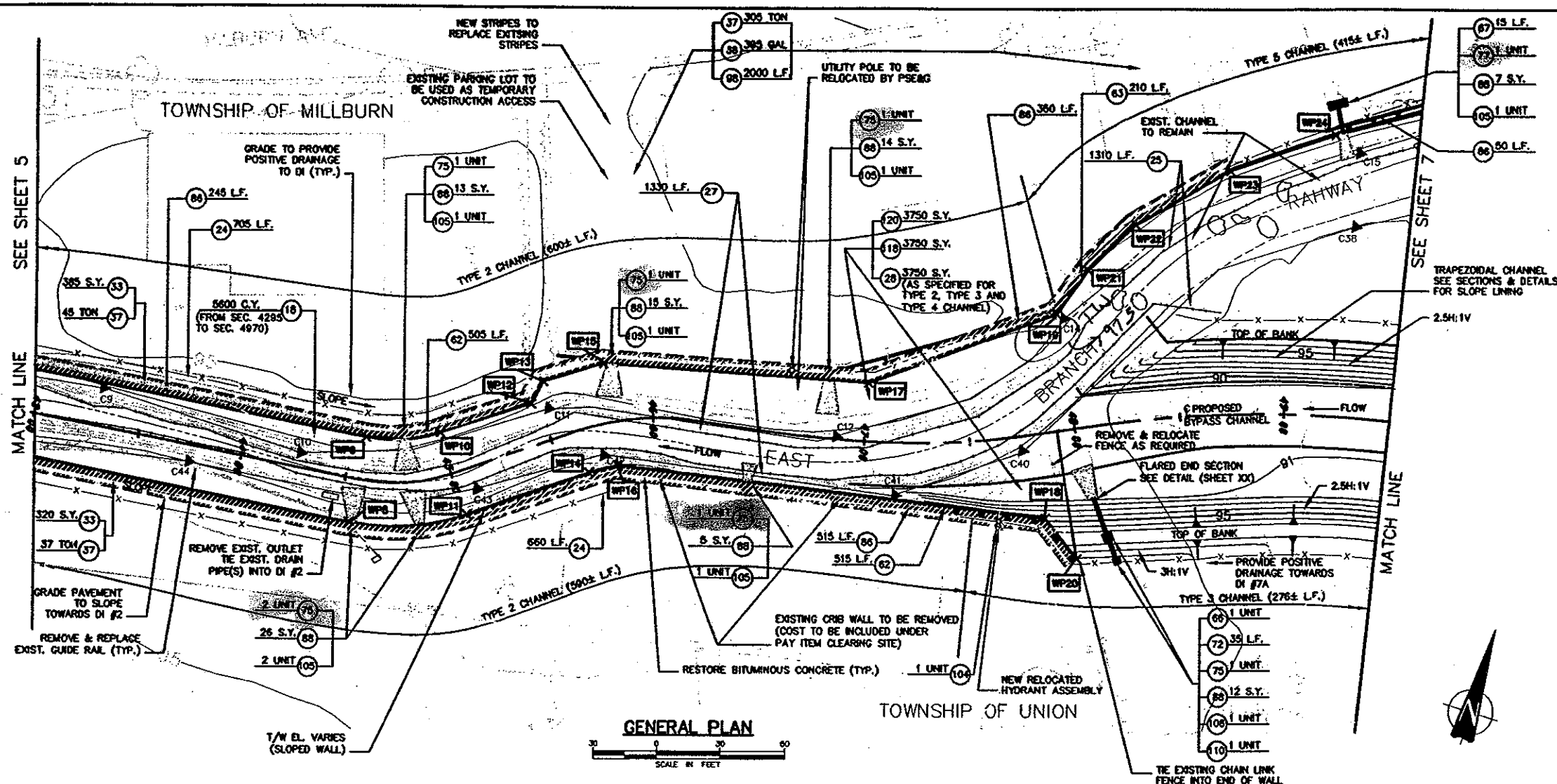
PAY ITEM NO.	STANDARD ITEM NO.	DESCRIPTION	UNIT	TOTAL CONTRACT QUANTITY	TOTAL AS-BUILT	ROADWAY		BRIDGE		CHANNEL		IF AND WHERE DIRECTED
						CONTRACT QUANTITY	AS-BUILT QUANTITY	CONTRACT QUANTITY	AS-BUILT QUANTITY	CONTRACT QUANTITY	AS-BUILT QUANTITY	
1	1C21D	FINAL CLEANUP	LUMP SUM	LUMP SUM								
2	1C21E	PERFORMANCE BOND AND PAYMENT BOND	LUMP SUM	LUMP SUM								
3	1E21C	CONSTRUCTION LAYOUT	LUMP SUM	LUMP SUM								
4	N1E41	FIELD OFFICE, TYPE C, SET-UP AND MAINTENANCE	LUMP SUM	LUMP SUM								
5	1H21D	MOBILIZATION	MONTH	16		2						
6	N1Z20	SPECIAL ADVANCE DATE OF CONSTRUCTION ADVISORY SIGN (6' x 4')	LUMP SUM	LUMP SUM								
7	9Z99Z	NO ITEM	UNIT	2								2
8	9Z99Z	NO ITEM										
9	9Z99Z	NO ITEM										
10	2A21C	CLEARING SITE										
11	2A31C	CLEARING SITE, BRIDGE (STRUCTURE NO. 2019-028)	LUMP SUM	LUMP SUM								
12	9Z99Z	NO ITEM	LUMP SUM	LUMP SUM								
13	2B41D	ROADWAY EXCAVATION, UNCLASSIFIED	C.Y.	300								
14	2B20I	HILLING, 2" AVERAGE DEPTH	S.Y.	559		224						76
15	2B50G	SANCUITING	L.F.	616		616						
16	2C02A	POROUS FILL	C.Y.	484				484				
17	2D03A	BORROW EXCAVATION, ZONE 3	C.Y.	100								100
18	2E41C	CHANNEL EXCAVATION, UNCLASSIFIED	C.Y.	14,130						14,130		
19	2F12E	FOUNDATION EXCAVATION	C.Y.	661				661				
20	2F22E	BRIDGE EXCAVATION	C.Y.	747				747				
21	N2F21	COFFERDAMS (NORTH ABUTMENT)	LUMP SUM	LUMP SUM								
22	N2F22	COFFERDAMS (SOUTH ABUTMENT)	LUMP SUM	LUMP SUM								
23	2G02E	EARTH EXCAVATION FOR TEST PITS	C.Y.	30								30
24	2L05A	SILT FENCE	L.F.	3,645						3,645		
25	2L18D	FLOATING TURBIDITY BARRIER	L.F.	3,630						3,630		
26	2L20F	CONSTRUCTION DRIVEWAY	TON	40								40
27	N2L01	BIOLOG	L.F.	3,380						3,380		
28	N2L02	EROSION CONTROL MATTRESS	S.Y.	9,975						9,975		
29	9Z99Z	NO ITEM										
30	9Z99Z	NO ITEM										
31	9Z99Z	NO ITEM										
32	9Z99Z	NO ITEM										
33	3A06D	DENSE GRADED AGGREGATE BASE COURSE, 6" THICK	S.Y.	1,423		575				848		
34	3D04C	BITUMINOUS-STABILIZED BASE COURSE, MIX 1 - 2	TON	165		165						
35	9Z99Z	NO ITEM										
36	9Z99Z	NO ITEM										
37	4D04C	BITUMINOUS CONCRETE SURFACE COURSE, MIX 1 - 4	TON	852		398				404		50
38	4D21D	TACK COAT	GAL.	795								795
39	4D31D	PRIME COAT	GAL.	160								160
40	4D31F	SAWING AND SEALING JOINTS IN BITUMINOUS CONCRETE OVERLAYS	L.F.	480								480
41	4D41F	SAWING JOINTS IN BASE COURSE	L.F.	480								480
42	9Z99Z	NO ITEM										
43	9Z99Z	NO ITEM										
44	5A12B	CONCRETE IN SUBSTRUCTURES, ABUTMENT WALLS	C.Y.	266				266				
45	5A13C	CONCRETE IN SUPERSTRUCTURE, DECK SLABS	C.Y.	94				94				
46	5A21A	CONCRETE IN STRUCTURES, FOOTINGS	C.Y.	201				201				
47	5A21E	REINFORCEMENT STEEL IN STRUCTURES	LBS.	35,000				35,000				
48	5A23C	CONCRETE IN SUPERSTRUCTURE, SIDEWALKS	C.Y.	27				27				
49	5A30H	2 1/2" X 2 3/4" PREFORMED ELASTOMERIC JOINT SEALER	L.F.	137				137				
50	5A31A	CONCRETE IN STRUCTURES, RETAINING WALLS	C.Y.	65				65				
51	5A41E	REINFORCEMENT STEEL IN STRUCTURES, GALVANIZED	LBS.	38,970				38,970				
52	5A31G	EPOXY WATERPROOFING SEAL COAT	S.Y.	54				54				
53	5C19A	STRUCTURAL STEEL	LUMP SUM	LUMP SUM								
54	5C21F	STRUCTURAL STEEL DECK JOINTS (APPROX. WT. = 11,790 LBS.)	LUMP SUM	LUMP SUM								
55	5C21H	SHEAR CONNECTORS	UNIT	2,482				2,482				
56	NSC02	ELASTOMERIC BEARINGS - STEEL REINFORCED, (FIXED)	UNIT	13				13				
57	NSC03	ELASTOMERIC BEARINGS - STEEL REINFORCED, (EXPANSION)	UNIT	13				13				
58	NSA21	CONCRETE IN SUPERSTRUCTURE, PARAPETS, 2'-8" HIGH	L.F.	159				159				
59	NSH01	ORNAMENTAL METAL RAILING (1 RAIL)	L.F.	159				159				
60	NSH02	ORNAMENTAL METAL RAILING (3 RAIL)	L.F.	37				37				
61	NS21C	TEMPORARY SHEETING	S.F.	500								
62	NS101	CHANNEL WALL, TYPE A	L.F.	1,240								
63	NS102	CHANNEL WALL, TYPE B	L.F.	1,000								
64	NS101	RECONSTRUCTION OF RETAINING WALL (BLOCK 409, LOT 13)	LUMP SUM	LUMP SUM								
65	9Z99Z	NO ITEM										
66	6B11W	REINFORCED CONCRETE END SECTIONS	UNIT	1						1		
67	6B12A	12" DUCTILE IRON CULVERT PIPE	L.F.	15						15		
68	6B03A	CLEAN EXISTING 12" TO 24" DIAMETER PIPE	L.F.	120								120
69	6B04A	CLEAN EXISTING 24" TO 48" DIAMETER PIPE	L.F.	140								140
70	6A20B	8" CORRUGATED STEEL UNDERDRAIN PIPE	L.F.	171				171				
71	6B824	8" CORRUGATED STEEL CULVERT PIPE	L.F.	5				5				
72	6B33D	15" REINFORCED CONCRETE CULVERT PIPE	L.F.	60						60		
73	6B79H	24" REINFORCED CONCRETE CULVERT PIPE	L.F.	17		17						
74	6B83H	30" REINFORCED CONCRETE CULVERT PIPE	UNIT	12		16						
75	6C21C	INLETS, TYPE A	UNIT	1						12		
76	6C26C	INLETS, TYPE B	UNIT	1						1		
77	6C36C	INLETS, TYPE E	UNIT	2						2		
78	6C41I	CAST IRON EXISTING FRAMES FOR EXISTING INLETS	UNIT	2		2						
79	6C51H	RESET CASTINGS	UNIT	5		5						

UNION COUNTY DEPARTMENT OF OPERATIONAL SERVICES			
ESSEX COUNTY DEPARTMENT OF PUBLIC WORKS			
CHANNEL IMPROVEMENTS AND REPLACEMENT OF THE VAUXHALL ROAD BRIDGE AT THE EAST BRANCH OF THE RAHWAY RIVER TOWNSHIPS OF MILLBURN, MAPLEWOOD AND UNION			
REPLACEMENT OF VAUXHALL ROAD BRIDGE ESTIMATE OF QUANTITIES			
G. BRUCE CONNOR, P.E., UNION CO. ENGINEER			
RAJASHEKAR R. RAVILLA P.E., ESSEX CO. ENGINEER			
MICHAEL G. COX, P.E.		 <small>KILLAM CONSULTING ENGINEERS A DIVISION OF KILLAM GROUP, INC. 1000 N. 1ST STREET MILLBURN, NJ 07041-1000</small>	
N.J. PROFESSIONAL ENGINEER NO. 33824 DATE		N.J. PROFESSIONAL ENGINEER NO. 32436 DATE	
GERARD C. KRONER, P.E.		 <small>HATCH MOTT MACDONALD MILLBURN, N.J. 07041 21 BLEEKER STREET</small>	
DWG. NO.	SCALE	DATE	
2	N.T.S.	11/01	
FILE NO.		PROJECT NO.	
REVISION BY C.K'D DATE			

PAY ITEM NO.	STANDARD ITEM NO.	DESCRIPTION	UNIT	TOTAL CONTRACT QUANTITY	TOTAL AS-BUILT	ROADWAY		BRIDGE		CHANNEL		IF AND WHERE DIRECTED
						CONTRACT QUANTITY	AS-BUILT QUANTITY	CONTRACT QUANTITY	AS-BUILT QUANTITY	CONTRACT QUANTITY	AS-BUILT QUANTITY	
80	6C21P	CLEANING EXISTING DRAINAGE STRUCTURES	UNIT	7								7
81	6E21F	9" x 18" CONCRETE VERTICAL CURB	L.F.	597		597						
82	6G40D	CONCRETE SIDEWALK, 4" THICK	S.Y.	288		288						
83	6G60G	CONCRETE DRIVEWAY, 6" THICK	S.Y.	142		142						
84	NG601	RECONSTRUCT BRICK PAYER SIDEWALK	S.Y.	39		39						
85	6L14D	EXTRUDER TERMINALS	UNIT	1		1						
86	6L21C	BEAM GUIDE RAIL	L.F.	1,860		140				1,720		
87	6M21C	MISCELLANEOUS CONCRETE	C.Y.	10								
88	6P50K	RIPRAP STONE CHANNEL PROTECTION, 30" THICK, (D50=15")	S.Y.	614								10
89	6Q06T	TRAFFIC DIRECTORS, FLAGGERS	HOURL	200						614		
90	6Q10F	CONSTRUCTION SIGNS	S.F.	200								200
91	6Q09W	TEMPORARY CRASH CUSHIONS, INERTIAL BARRIER SYSTEM, 9 MODULES	UNIT	2								200
92	6Q21D	DRUMS	UNIT	10								2
93	6Q22B	BREAKAWAY BARRICADES	UNIT	18								10
94	6Q30P	REMOVABLE PAVEMENT MARKING TAPE	L.F.	2,000								18
95	6Q44C	PRECAST CONCRETE CURB, CONSTRUCTION BARRIER, TYPE 4	L.F.	536								2,000
96	6Q44T	TRAFFIC DIRECTORS, MUNICIPAL POLICE	HOURL	100								536
97	6R05E	REMOVAL OF TRAFFIC STRIPES AND MARKINGS	L.F.	1,000								100
98	6Q21C	TRAFFIC STRIPES	L.F.	7,090								1,000
99	6Q41C	TRAFFIC STRIPES, LONG LIFE, EPOXY RESIN	L.F.	1,442								7,090
100	6Q30D	TRAFFIC MARKING LINES, LONG LIFE, THERMOPLASTIC	L.F.	198								1,442
101	6Q35D	TRAFFIC MARKING SYMBOLS, LONG LIFE, THERMOPLASTIC	L.F.	153								198
102	6Q03S	TEMPORARY SIDEWALK	S.Y.	148		148						153
103	6R20B	SIGNS	S.F.	11		11						
104	NG601	FIRE HYDRANT ASSEMBLIES	UNIT	1						1		
105	NG601	FLAP GATES, 12"	UNIT	13						13		
106	NG602	FLAP GATES, 24"	UNIT	1				1				
107	NG603	FLAP GATES, 30"	UNIT	1				1				
108	NGV01	TIDEFLEX GATES, 15"	UNIT	1						1		
109	NGV02	TIDEFLEX GATES, 36"	UNIT	1						1		
110	NGX01	CHECK VALVE CHAMBER	UNIT	1						1		
111	6C31E	MANHOLES	UNIT	2		2				1		
112	6E08H	GRANITE BLOCK CURBING	L.F.	50						50		
113	6C41H	INLET CASTINGS, TYPE E	UNIT	1		1						
114	6N18C	CHAIN LINK FENCE, 6' HIGH	L.F.	475						475		
115	9Z99Z	NO ITEM										
116	8C12C	TRIMMING EXISTING TREES, OVER 12" TO 18" DIAMETER	UNIT	30								30
117	8D12C	TREE REMOVAL, OVER 12" TO 18" DIAMETER	S.Y.	10,122		97				9,975		10
118	8F04C	TOPSOILING, 4" THICK	S.Y.	147		97						50
119	8H51C	FERTILIZING AND SEEDING, TYPE A-3	S.Y.	9,975						9,975		50
120	8H51C	WETLAND & TRANSITION SEED MIX	S.Y.	147								50
121	8K31C	STRAW MULCHING	S.Y.	147		97						50
122	8M01	CEPHALANTHUS OCCIDENTALIS "BUTTONBUSH", CONTAINER, 2' TO 3' HIGH	UNIT	30						30		
123	8M02	LEUCOTHE RACEMOSA "FETTERBUSH", CONTAINER, 2' TO 3' HIGH	UNIT	30						30		
124	8M03	ROSA PALUSTRIS "SWAMP ROSE", CONTAINER, 2' TO 3' HIGH	UNIT	12						12		
125	8M04	VACCINIUM CORYMBOSUM "Highbush Blueberry", CONTAINER, 3' TO 4' HIGH	UNIT	30						30		
126	8M05	ACER RUBRUM "RED MAPLE", CONTAINER, 4' TO 5' HIGH	UNIT	20						20		
127	8M06	BETULA POPULIFOLIA "GRAY BIRCH", CONTAINER, 3' TO 4' HIGH	UNIT	20						20		
128	8M06	NYSSA SYLVATICA "BLACK GUM", CONTAINER, 3' TO 4' HIGH	UNIT	25						25		
129	8M07	QUERCUS PALUSTRIS "PIN OAK", CONTAINER, 2' TO 4' HIGH	UNIT	25						25		
130	8M09	QUERCUS BICOLOR "SWAMP WHITE OAK", CONTAINER, 2' TO 4' HIGH	UNIT	15						15		
131	8M10	ACER RUBRUM "RED MAPLE", B&B, 6' TO 8' HIGH	UNIT	20						20		
132	8M11	QUERCUS MARILANDICA "BLACK JACK OAK", B&B, 3' TO 4' HIGH	UNIT	15						15		
133	8M12	KALMIA LATIFOLIA "MOUNTAIN LAUREL", B&B, 3' TO 5' HIGH	UNIT	30						30		
134	8M13	VIBURNUM DENATUM "S. ARROWWOOD", B&B, 3' TO 4' HIGH	UNIT	40						40		
135	8M14	PYRUS CALLERYANA "REDSPIRE", B&B, 2' TO 2 1/2" CALIPER, 10' TO 12' HIGH	UNIT	3		3						
136	8M15	ACER RUBRUM "RED SUNSET", B&B, 3' TO 3 1/2" CALIPER, 14' TO 16' HIGH	UNIT	3		3						
137	8N05B	NON VEGETATIVE SURFACE - BITUMINOUS CONCRETE	S.Y.	107		107						
138	9Z99Z	NO ITEM										
139	9Z99Z	NO ITEM										
140	9Z99Z	NO ITEM										
141	9Z99Z	NO ITEM										
142	9Z99Z	NO ITEM										
143	9Z99Z	NO ITEM										
144	9Z99Z	NO ITEM										
145	9Z99Z	NO ITEM										
146	9Z99Z	NO ITEM										
147	9Z99Z	NO ITEM										

UNION COUNTY DEPARTMENT OF OPERATIONAL SERVICES			
ESSEX COUNTY DEPARTMENT OF PUBLIC WORKS			
CHANNEL IMPROVEMENTS AND REPLACEMENT OF THE VAUXHALL ROAD BRIDGE AT THE EAST BRANCH OF THE RAHWAY RIVER TOWNSHIPS OF MILLBURN, MAPLEWOOD AND UNION			
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G. BRUCE CONNOR, P.E., UNION CO. ENGINEER			
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MICHAEL G. COX, P.E.		 <small>KILLAM &amp; ASSOCIATES, INC. A DIVISION OF MCDONALD GROUP, INC. 1000 N. J. 1001-1002</small>	
N.J. PROFESSIONAL ENGINEER NO. 33824 DATE		N.J. PROFESSIONAL ENGINEER NO. 32436 DATE	
GERARD C. KRONER, P.E.		 <small>HATCH MOTT MACDONALD MILLBURN, N.J. 07041 21 BLECKEN STREET</small>	
DWG. NO.	SCALE	DATE	
3	N.T.S.	11/01	
FILE NO.		PROJECT NO.	
REVISION		BY E.K.D. DATE	

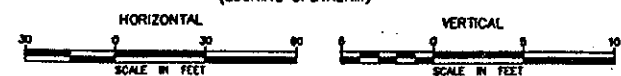
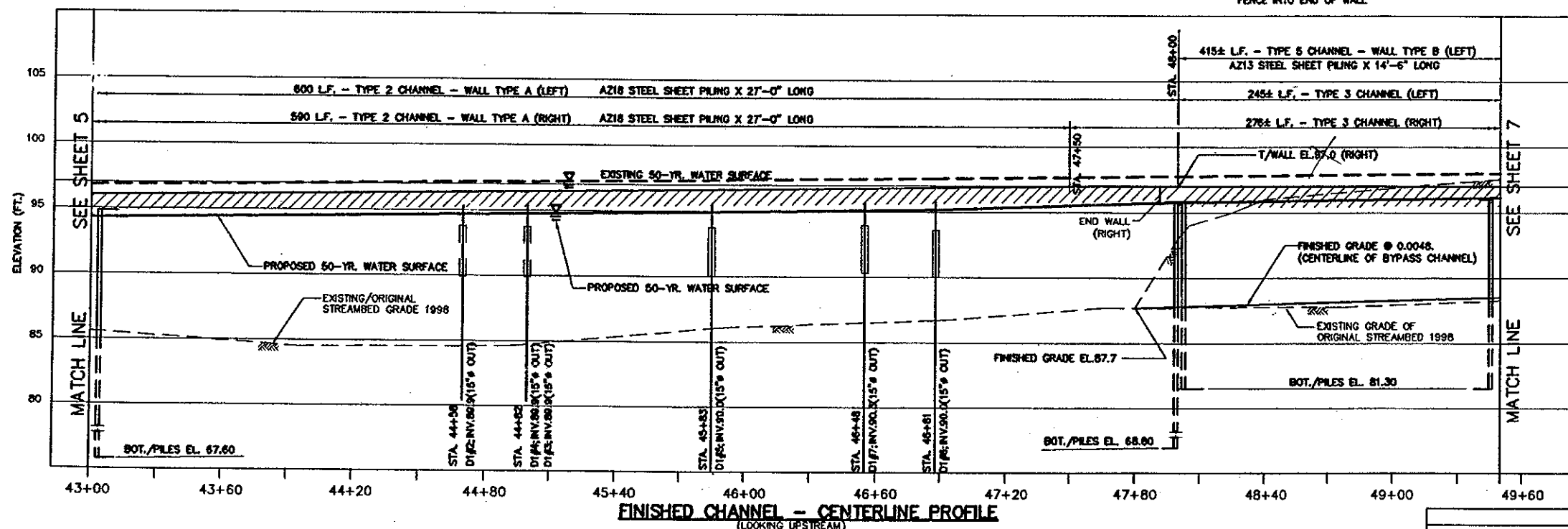




ITEM NO.	QTY	DESCRIPTION	UNIT	QUANTITY
18	2E41C	CHANNEL EXCAVATION, UNCLASSIFIED	5600 C.Y.	
24	2L08A	SILT FENCE	1365 L.F.	
25	2L18D	FLOATING TURBIDITY BARRIER	1310 L.F.	
27	N2L01	BIOLOG	1330 L.F.	
28	N2L02	EROSION CONTROL MATTRESS	3750 S.Y.	
33	3406D	DENSE GRADED AGGREGATE BASE COURSE, 6" THICK	705 S.Y.	
37	4004C	BITUMINOUS CONCRETE SURFACE COURSE, MIX 1-4	387 TON	
38	4021D	TACK COAT	395 GAL	
62	N5T01	CHANNEL WALL, TYPE A	1020 L.F.	
63	N5T02	CHANNEL WALL, TYPE B	210 L.F.	
68	6B11W	16" REINFORCED CONCRETE END SECTIONS	1 UNIT	
67	6B12A	12" DUCTILE IRON CULVERT PIPE	15 L.F.	
72	6B33D	15" REINFORCE CONCRETE CULVERT PIPE	35 L.F.	
76	6C21C	INLETS, TYPE A	7 UNIT	
77	6C36C	INLETS, TYPE E	1 UNIT	
86	6L21C	BEAM GUIDE RAIL	1160 L.F.	
88	6P50K	RIPRAP STONE CHANNEL PROTECTION, 30" THICK	92 S.Y.	
98	6Q21C	TRAFFIC STRIPES	2000 L.F.	
104	6S10A	FIRE HYDRANT ASSEMBLIES	1 UNIT	
100	N6U01	FLAP GATES, 12"	7 UNIT	
108	N6V01	TIDE FLEX GATES, 15"	1 UNIT	
110	N6X01	CHECK VALVE CHAMBER	1 UNIT	
118	6F04C	TOPSOLING, 4" THICK	3750 S.Y.	
120	N6H51	WETLAND & TRANSITION SEED MIX	3750 S.Y.	

LEGEND	
C7	STATE OPENWATER/WETLANDS BOUNDARY
DI #1	PROPOSED DRAINAGE INLET
X-X-X	TEMPORARY SILT FENCE
-X-X-	PROPOSED CHAIN LINK FENCE
---	PROPOSED GUIDE RAIL
---	RESTORE BITUMINOUS CONCRETE
WP10 X	WORKING POINT (SEE SHEET C-19)

DATUM: ALL ELEVATIONS REFERRED TO NGVD OF 1929

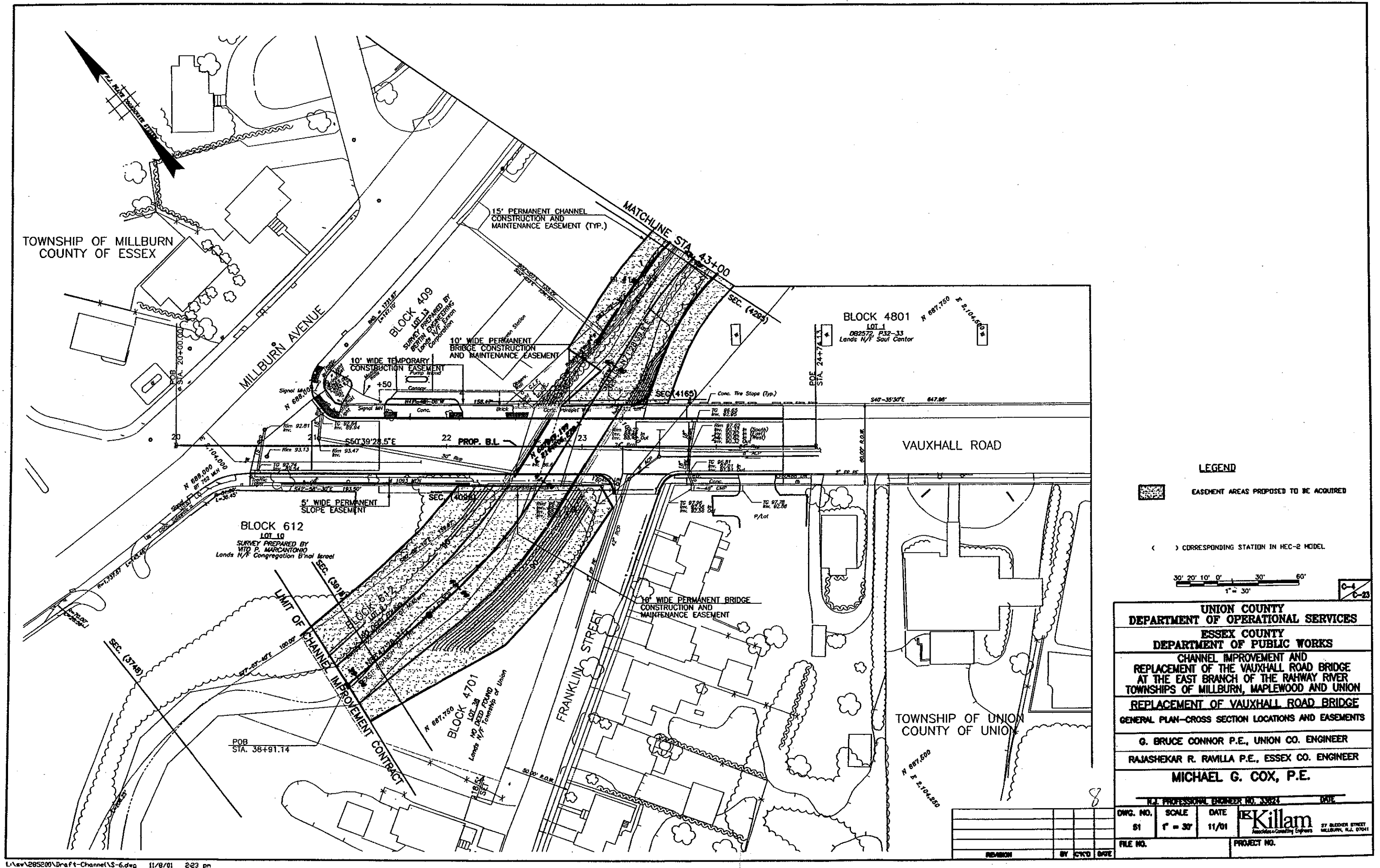


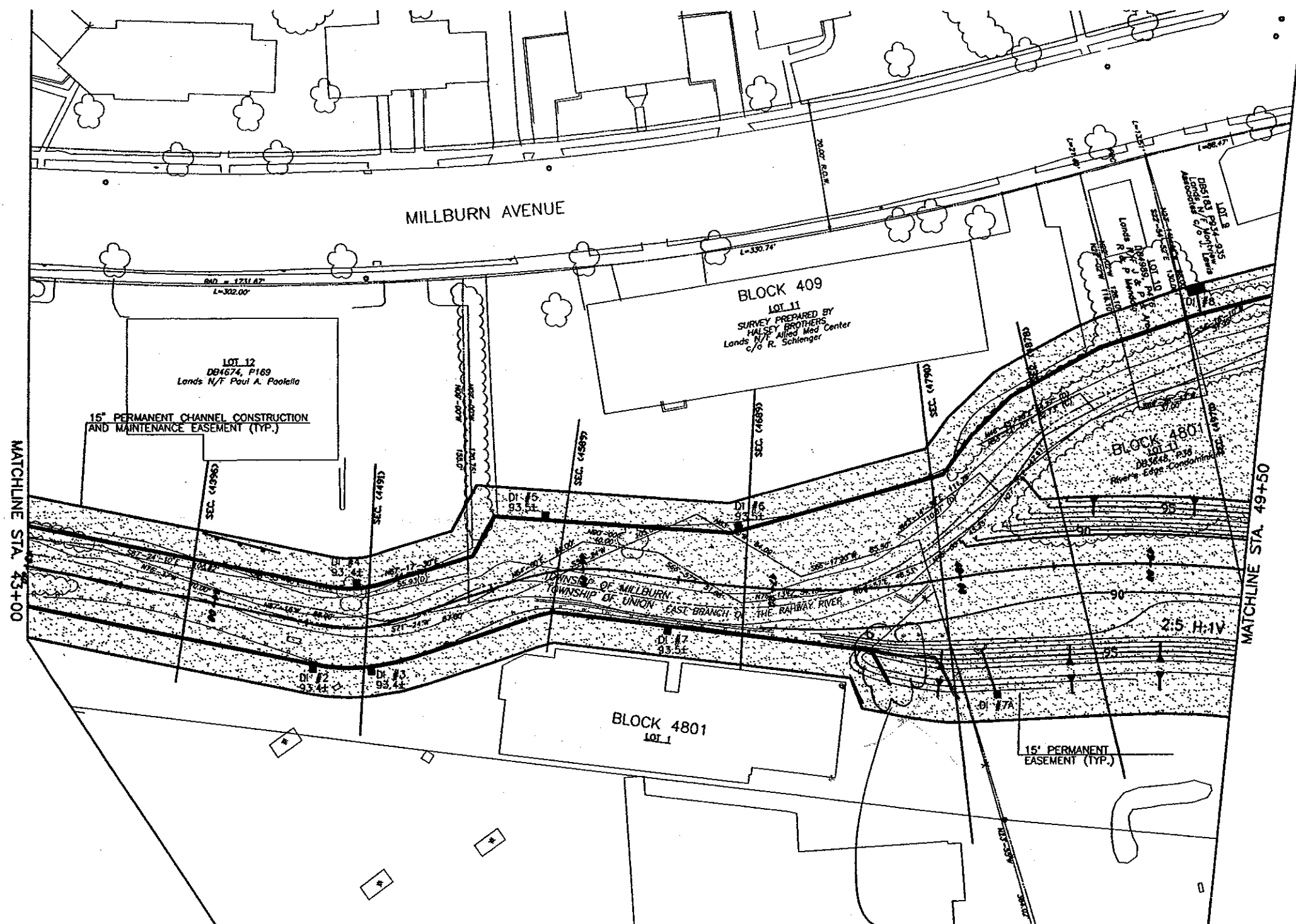
UNION COUNTY  
DEPARTMENT OF OPERATIONAL SERVICES  
ESSEX COUNTY  
DEPARTMENT OF PUBLIC WORKS  
CHANNEL IMPROVEMENT AND  
REPLACEMENT OF THE VAUXHALL ROAD BRIDGE  
AT THE EAST BRANCH OF THE RAHWAY RIVER  
TOWNSHIPS OF MILLBURN, MAPLEWOOD AND UNION  
CHANNEL IMPROVEMENT  
CONSTRUCTION PLAN  
G. BRUCE CONNOR P.E., UNION CO. ENGINEER  
RAJASHEKAR R. RAVILLA P.E., ESSEX CO. ENGINEER  
MICHAEL G. COX, P.E.

DATE	SCALE	DATE	FILE NO.	PROJECT NO.
11/01	1" = 30'	11/01		





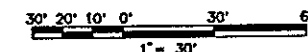




# LEGEND

EASEMENT AREAS PROPOSED TO BE ACQUIRED

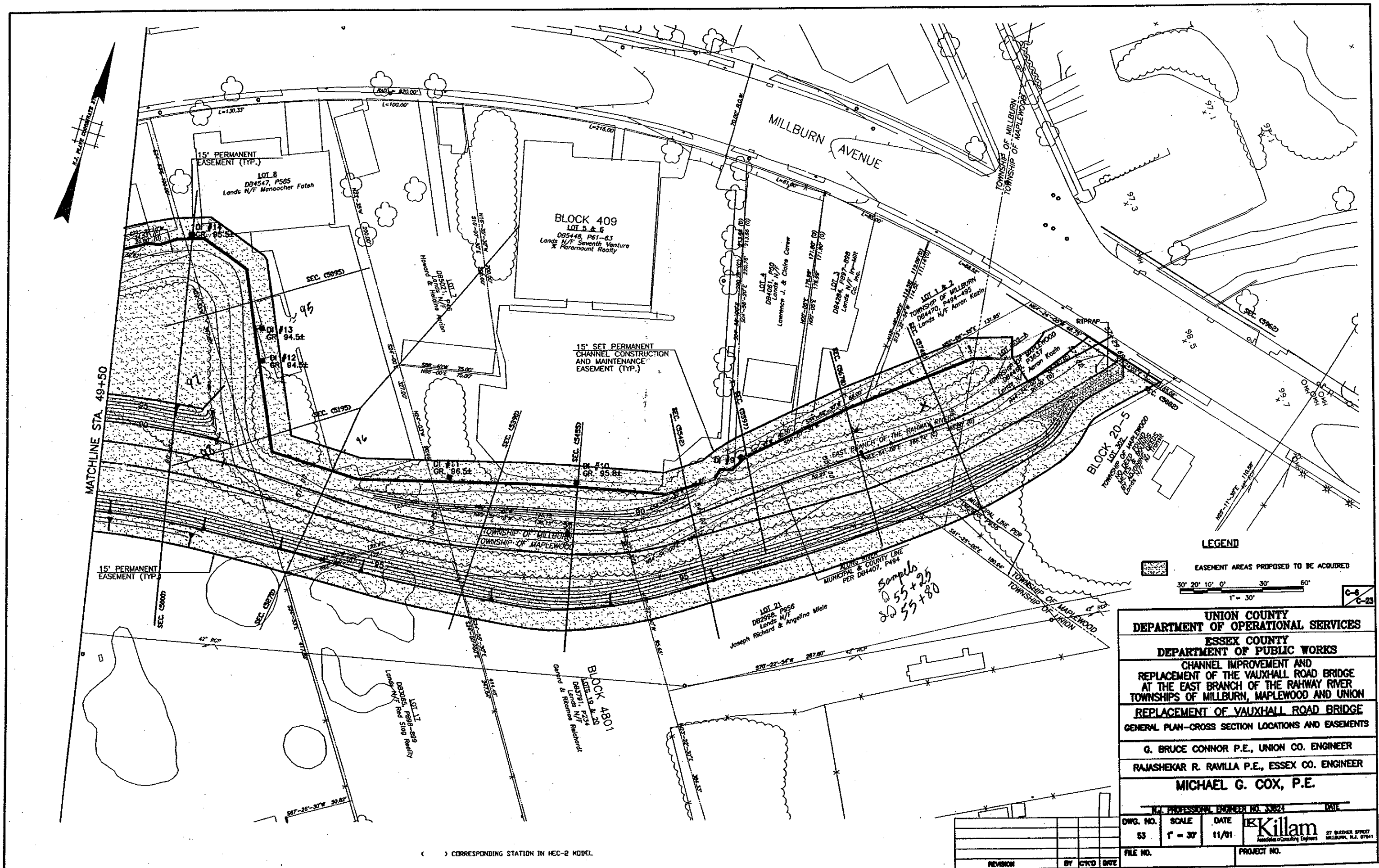
( ) CORRESPONDING STATION IN HEC-2 MODEL



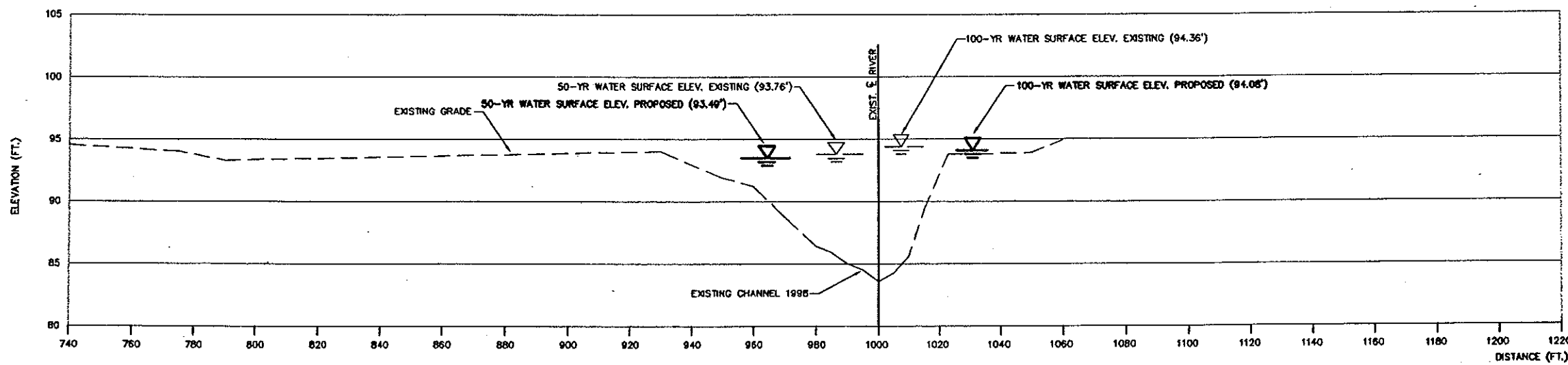
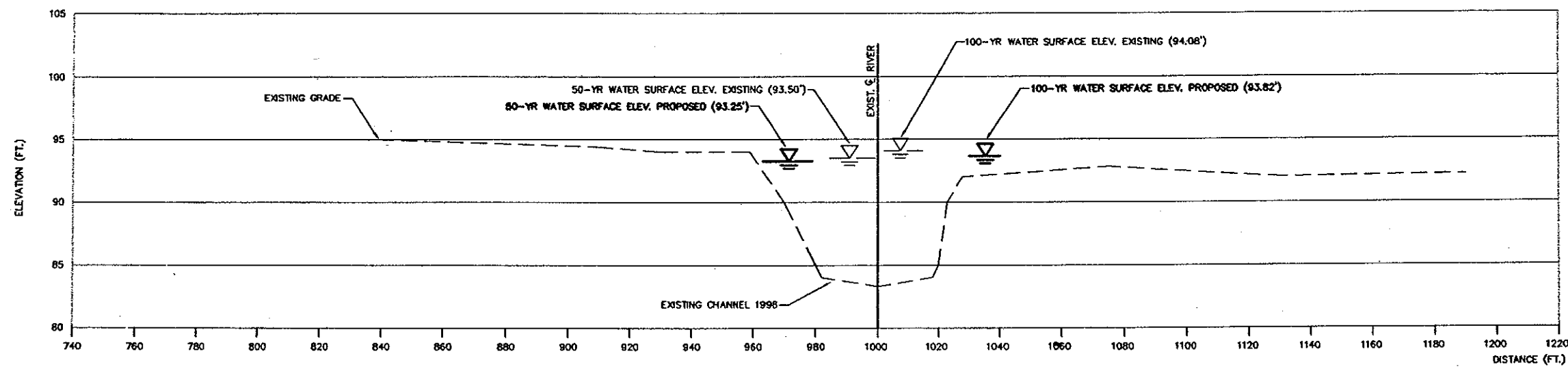
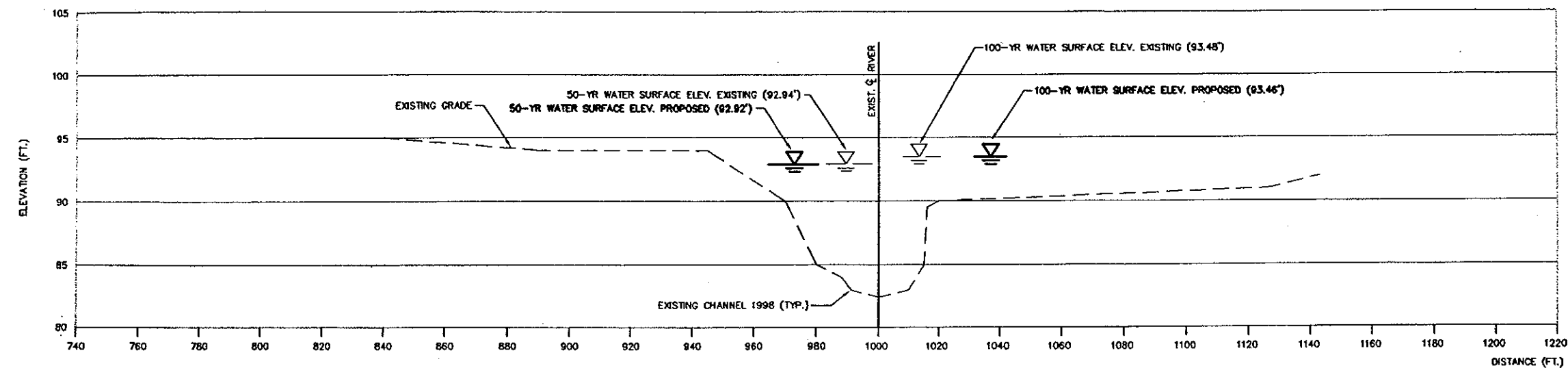
C-5  
C-23

UNION COUNTY DEPARTMENT OF OPERATIONAL SERVICES			
ESSEX COUNTY DEPARTMENT OF PUBLIC WORKS			
CHANNEL IMPROVEMENT AND REPLACEMENT OF THE VAUXHALL ROAD BRIDGE AT THE EAST BRANCH OF THE RAILWAY RIVER TOWNSHIPS OF MILLBURN, MAPLEWOOD AND UNION			
REPLACEMENT OF VAUXHALL ROAD BRIDGE GENERAL PLAN-CROSS SECTION LOCATIONS AND EASEMENTS			
G. BRUCE CONNOR P.E., UNION CO. ENGINEER			
RAJASHEKAR R. RAVILLA P.E., ESSEX CO. ENGINEER			
MICHAEL G. COX, P.E.			
P.E. PROFESSIONAL ENGINEER NO. 33824 DATE			
DWG. NO.	SCALE	DATE	Killam Associates & Consulting Engineers 27 BLACKBURN STREET MILLBURN, N.J. 07041
82	1" = 30'	11/01	
FILE NO.	PROJECT NO.		



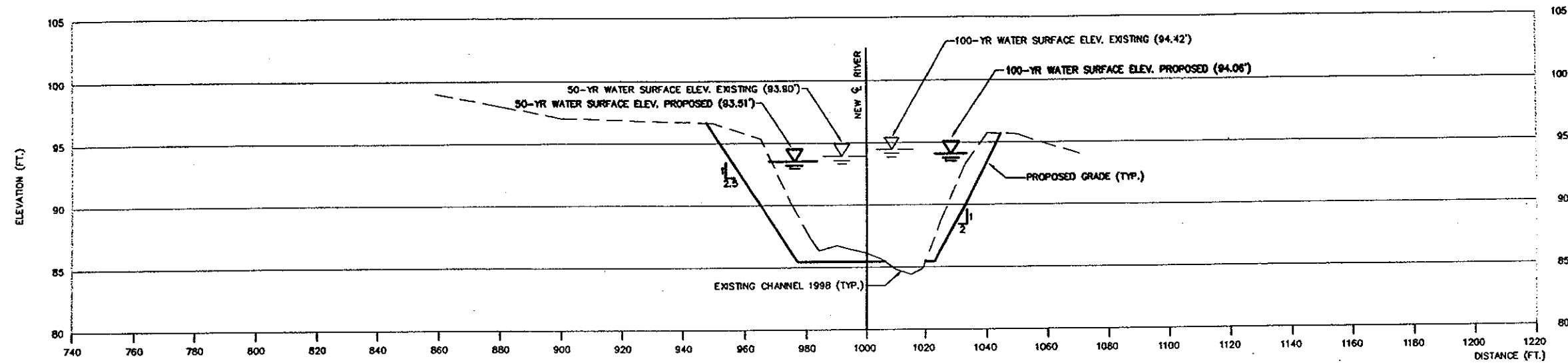




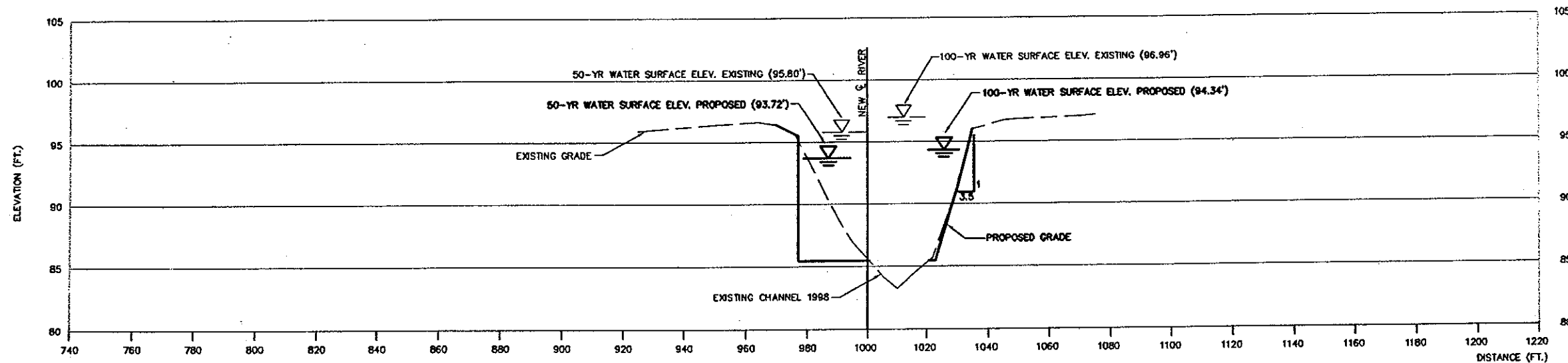


DATUM: ALL ELEVATIONS REFERRED TO NGVD OF 1929

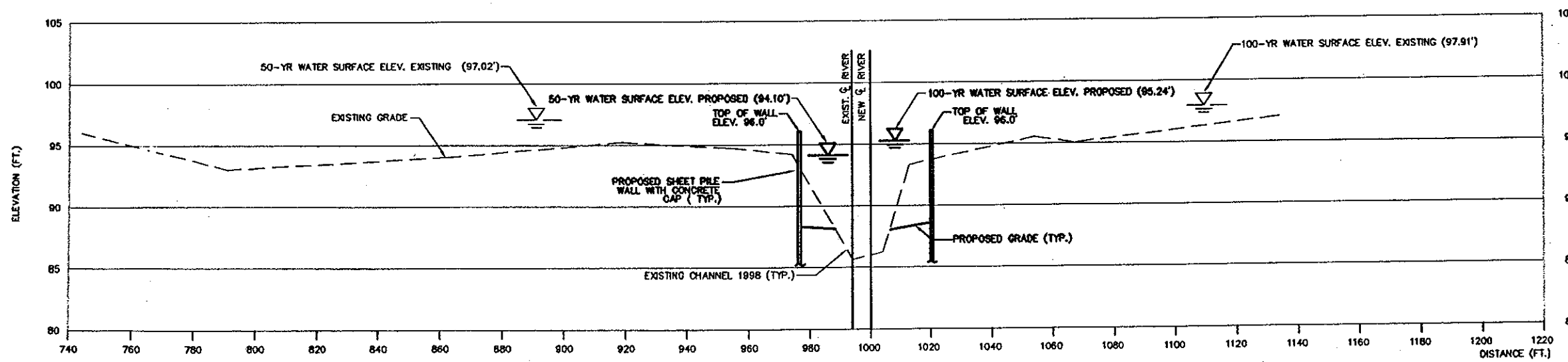
UNION COUNTY DEPARTMENT OF OPERATIONAL SERVICES			
ESSEX COUNTY DEPARTMENT OF PUBLIC WORKS			
CHANNEL IMPROVEMENT AND REPLACEMENT OF THE VAUXHALL ROAD BRIDGE AT THE EAST BRANCH OF THE RAHWAY RIVER TOWNSHIPS OF MILLBURN, MAPLEWOOD AND UNION			
CHANNEL IMPROVEMENT CROSS SECTIONS			
G. BRUCE CONNOR P.E., UNION CO. ENGINEER			
RAJASHEKAR R. RAVILLA P.E., ESSEX CO. ENGINEER			
MICHAEL G. COX, P.E.			
N.J. PROFESSIONAL ENGINEER NO. 30824 DATE			
DWG. NO.	SCALE	DATE	 <small>77 BLEEDER STREET MILLBURN, N.J. 07041</small>
85	AS SHOWN	11/01	
FILE NO.		PROJECT NO.	
REVISION	BY	DATE	



SECTION 4096 (DOWNSTREAM FACE OF VAUXHALL BRIDGE)



SECTION 4165 (UPSTREAM FACE OF VAUXHALL BRIDGE)



SECTION 4295



DATUM: ALL ELEVATIONS REFERRED TO NGVD OF 1929

UNION COUNTY DEPARTMENT OF OPERATIONAL SERVICES			
ESSEX COUNTY DEPARTMENT OF PUBLIC WORKS			
CHANNEL IMPROVEMENT AND REPLACEMENT OF THE VAUXHALL ROAD BRIDGE AT THE EAST BRANCH OF THE RAHWAY RIVER TOWNSHIPS OF MILLBURN, MAPLEWOOD AND UNION			
CHANNEL IMPROVEMENT CROSS SECTIONS			
G. BRUCE CONNOR P.E., UNION CO. ENGINEER			
RAJASHEKAR R. RAVILLA P.E., ESSEX CO. ENGINEER			
MICHAEL G. COX, P.E.			
R.E. PROFESSIONAL ENGINEER NO. 33824 DATE			
DWG. NO.	SCALE	DATE	Killam Associates & Consulting Engineers 27 BLEEDER STREET MILLBURN, N.J. 07041
56	AS SHOWN	11/01	
FILE NO.		PROJECT NO.	