

LOCATION MAP

N.T.S.



m | n middletown | norwalk

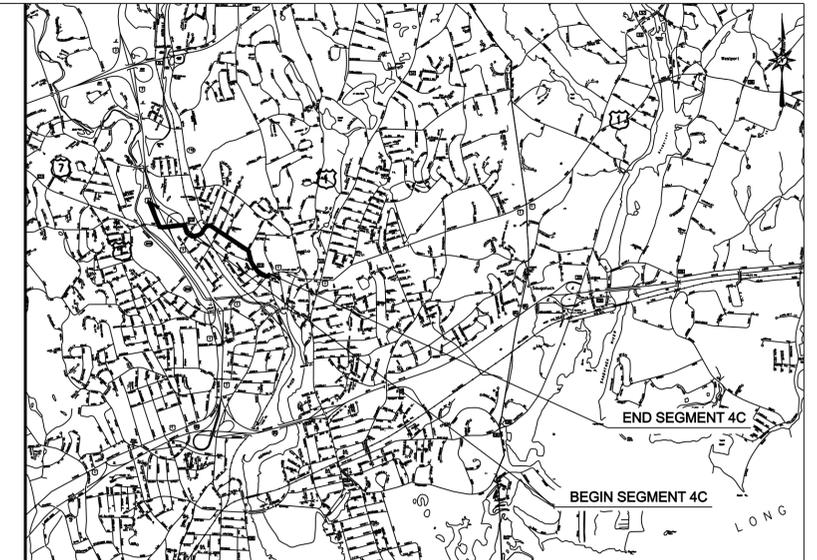
CONNECTICUT SITING COUNCIL
DOCKET NO. 272

DEVELOPMENT & MANAGEMENT PLAN
FOR THE
MIDDLETOWN-NORWALK
345-kV TRANSMISSION LINE PROJECT

SEGMENT 4C
CITY OF NORWALK, CONNECTICUT

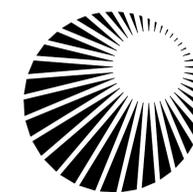
VOLUME 2 OF 3

APRIL 13, 2007



VICINITY MAP

N.T.S.



Connecticut
Light & Power
The Northeast Utilities System

DRAWING INDEX

DRAWING INDEX:

DWG NO	TITLE/DESCRIPTION
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01224-00001 PG 001	NORWALK SS TO FATHER CONLON PLACE AND NORTH AVE IN NORWALK PAGE INDEX
01224-00001 PG 004	NORWALK SS TO FATHER CONLON PLACE AND NORTH AVE IN NORWALK GENERAL NOTES AND LEGEND
01224-10002 PG 001	CITY OF NORWALK INDEX KEY MAP
01224-10002 PG 006A	CITY OF NORWALK ROUTE DATA TABLES
01224-10001 PG 001	CITY OF NORWALK P & P Sta 1+00 TO 5+00
01224-10001 PG 002	CITY OF NORWALK P & P Sta 2+50 TO 11+50
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01224-45003 PG 001	VAULT, GROUNDING AND HANDHOLE DETAILS
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01224-15003 PG 001	EROSION CONTROL DETAILS
01224-15003 PG 002	EROSION CONTROL DETAILS

DOCKET No. 272

**ISSUED FOR
CONSTRUCTION**

											
				date 6/15/06				detailed L. ROWSE			
				designed C. COURTRIGHT				checked S. NEWLAND			
				no. date revisions by chk							
				2 4/13/07 ISSUED CSC CTC							
				1 2/12/07 ISSUED 60% PRELIMINARY CTC							
				no. date revisions by chk							
								MF NO. DATE REVISIONS BY CHK APP APP			
								NORTHEAST UTILITIES SERVICE CO.			
								FOR THE CONNECTICUT LIGHT & POWER COMPANY			
								TITLE MIDDLETOWN-NORWALK 345KV TRANSMISSION PROJECT			
								NORWALK SS TO FATHER CONLON PLACE AND NORTH AVE IN NORWALK PAGE INDEX			
		BY SEN-BMCD		CHKD		APP		APP			
		DATE 6-15-06		DATE		DATE		DATE			
		SCALE AS NOTED		D		DWG. NO.		01224-00001 PG 001			

ABBREVIATIONS			
<u>BUILDINGS</u>		<u>UTILITY - GAS</u>	
GAR.	GARAGE	GG	GAS GATE
<u>GUIDE RAILS</u>		ST.	STEEL
MBR	METAL BEAM RAIL	<u>PIPE MATERIALS</u>	
CGRM	CABLE GUIDE RAIL METAL POSTS	CI	CAST IRON
CGRW	CABLE GUIDE RAIL WOOD POSTS	DI	DUCTILE IRON
TGR	TIMBER GUIDE RAIL	H.P.	HIGH PRESSURE
<u>FENCES/WALLS</u>		LP.	LOW PRESSURE
CLF	CHAIN LINK FENCE	PLA	PLASTIC
PICK.FENCE	PICKET FENCE	PVC	POLYVINYL CHLORIDE
RAIL FENCE	WOOD RAIL FENCE	RCP	REINFORCED CONCRETE PIPE
STOCK.FENCE	STOCKADE FENCE	CMP	CORRUGATED METAL PIPE
WIRE FENCE	WIRE FENCE	WRP	WRAPPED PIPE
RET.WALL	RETAINING WALL	600*	600 PSI
<u>MONUMENTATION</u>		CWD	CREOSOTE WOOD DUCT
CHD	CONN.HIGHWAY DEPT.MON.	MTD	MULTI TILED DUCTS
DH	DRILL HOLE	STD	SINGLE TILED DUCTS
I.PIN	IRON PIN	F	FIBERGLASS
I.PIPE	IRON PIPE	P	PLASTIC
MAG.NAIL	MAGNETIC NAIL	I	IRON
MON.	MONUMENT	W	WOOD
PK NAIL	*PK* NAIL	HWF	
SPIKE	SPIKE	TH	TEST HOLE
<u>SURFACE/WALL/CURB MATERIALS</u>		<u>STRUCTURES</u>	
BIT.	BITUMINOUS	*C* CB	CURBED CATCH BASIN
BOL.	BOLLARD	*C-L* CB	CURBLESS CATCH BASIN
CONC.	CONCRETE	MH	MANHOLE
GRAN.	GRANITE	SAN.	SANITARY
GRAV.	GRAVEL	STM.	STORM
B.C.L.C.	BITUMINOUS CONCRETE LIP CURB	TF	TOP OF FRAME
<u>UTILITY - WATER</u>		INV.	INVERT
WG	WATER GATE (OR CURB BOX)	BTM	BOTTOM
WM	WATER METER	N/A	NOT AVAILABLE
<u>TRAFFIC</u>		<u>MISC.</u>	
LOOP DET.	LOOP DETECTOR	(ABAN)	ABANDONED
<u>UTILITY - COMMUNICATIONS AND ELECTRIC</u>		(MAP)	COMPILED FROM EXISTING MAPPING
ELEC.MH	ELECTRIC MANHOLE	UG	UNDERGROUND
TEL.MH	TELEPHONE/COMMUNICATIONS MANHOLE	F.O.	FIBER OPTIC
TRANS.	TRANSFORMER		
UI	UNITED ILLUMINATING		
SNET	SOUTHERN NEW ENGLAND TELEPHONE		
CL&P	CONNECTICUT LIGHT AND POWER		

LEGEND	
<u>Edge Of Road</u>	<u>Easement Line</u>
Concrete Pavement	Edge of Water
Dirt Road	Stone Wall
B.C.L.C.	Transmission Tower
Curb (Type As Labeled)	Riprap
Guide Rail	Hedge Row
Concrete Median Barrier	Tree Line
Railroad Tracks	All Trees
Fence	Hand Hole
Storm	Pedestrian Signal
Sanitary	Span Pole
Gas Main	Mast Arm
Water Main	Traffic Controller
Underground Electric	Traffic Signal
Telephone Duct Bank	Sign
Underground Tele. Conduit	2-Post Sign
Overhead Wires	Double-Faced Sign
Retaining Wall	Billboard
Highway Line	Utility Pole
Street Line	Utility Pole With Light
Property Line	General Purpose Lamp
Lot Line Of Common Ownership	Light Standard
Town Line	Guy Wire
DUCT BANK	Guy Pole
Water /RR Crossing	Water Meter
Demolition	Hydrant
Approx.Limits of Thermally Approved Unbound Aggregate Backfill	Type *C-L* Catch Basin
	Type *C* Catch Basin
	Manhole
	Benchmark
	Control Point
	Monuments
	Pin, Pipe, Drillhole
	Marsh
	Wetlands Boundary
	Fiber Optic Handhole
	Splice Vault
	Test Hole
	Temperature Monitor Station

- GENERAL NOTES
1. THE UTILITIES AND NATURAL FEATURES SHOWN HEREIN ARE BASED ON FIELD SURVEYS, AERIAL PHOTOGRAPHY AND RECORD DOCUMENTS. OTHER FACILITIES MAY EXIST NOT DISCOVERED THROUGH THE RECORD CHECK. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION, BOTH HORIZONTAL AND VERTICAL, OF ALL UTILITIES THROUGH THE APPROPRIATE UTILITY COMPANIES. CALL BEFORE YOU DIG.
 2. ALL VERTICAL RADII ARE MINIMUM 400' RADIUS ON CONCAVE SIDE OF CURVES UNLESS OTHERWISE NOTED.
 3. DUCT BANK SHALL MAINTAIN MINIMUM COVER DEPTH OF 2'-6" UNLESS OTHERWISE SHOWN ON DRAWINGS. MAINTAIN 2'-0" VERTICAL CLEARANCE OVER OR UNDER EXISTING UTILITIES UNLESS OTHERWISE SHOWN ON DRAWINGS.
 4. ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE RETURNED TO THE ORIGINAL CONDITIONS AS DETERMINED BY NORTHEAST UTILITIES.
 5. COORDINATES AND STATIONING INDICATED ARE AT CENTERLINE OF DUCT BANK.
 6. SEE INDEX KEY MAPS FOR THE DESIGNATION BETWEEN MUNICIPAL ROADS AND STATE ROADS.
 7. TREES AND SHRUBS SHALL BE REMOVED AND REPLACED WITH SIMILAR TYPES AND SIZES TYPICAL OF GENERAL CONSUMER NURSERY STOCK, PROVIDED THAT NO REPLACEMENT TREE SHALL EXCEED TWELVE (12) FEET IN HEIGHT, NOR SHALL ANY REPLACEMENT SHRUB EXCEED A THREE (3) GALLON POT AND PROVIDED THAT NOTHING SHALL BE PLANTED WITHIN FIFTEEN (15) FEET OF AN INSTALLED VAULT OR WITHIN TEN (10) FEET OF AN INSTALLED CABLE DUCT BANK.
 8. COORDINATES ARE BASED ON THE CONNECTICUT STATE PLANE COORDINATE SYSTEM. (NAD 83)
 9. VERTICAL DATUM IS BASED ON NAVD 88.
 10. SILT FENCE SHALL BE USED ALONG THE DOWN SLOPE SIDE OF THE CONSTRUCTION AREA WHERE THERE IS THE POTENTIAL FOR STORM WATER RUNOFF. THIS INCLUDES ANY PERVIOUS AREAS ALONG THE ROUTE. INLET PROTECTION SHALL BE USED IN ROADWAYS WHERE STORM DRAINS ARE PRESENT AND POTENTIAL FOR STORM WATER RUNOFF EXISTS.
 11. TEMPORARY AND PERMANENT EASEMENTS WILL BE ACQUIRED FOR INSTALLATION OF THE DUCT BANK AND VAULTS ALONG PRIVATE PROPERTY. A TYPICAL VAULT LOCATION INSTALLED ALONG PRIVATE PROPERTY REQUIRES A PERMANENT EASEMENT OF APPROXIMATELY 10,000 SF AND A TEMPORARY EASEMENT OF APPROXIMATELY 6,500 SF.
 12. VAULT AND DUCT BANK LOCATIONS ARE SUBJECT TO ADJUSTMENT DUE TO UNFORESEEN CONDITIONS.
 13. NORTHING AND EASTING DESIGNATIONS FOR SPLICE VAULT LOCATIONS ARE REFERENCED TO CENTER OF SPLICE VAULT.

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DOCKET No. 272

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no.	date	revisions	by	chk
2	4/13/07	ISSUED CSC		CTC
1	2/12/07	ISSUED 60% PRELIMINARY		CTC

Burns & McDonnell
SINCE 1898

date	06/15/05	detailed	L. ROWSE
designed	C. COURTRIGHT	checked	S. NEWLAND

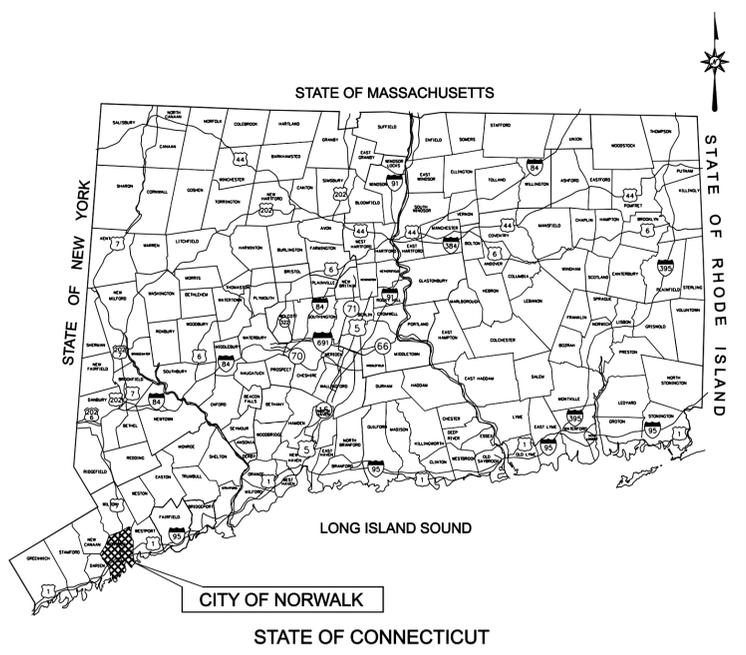
MF	NO.	DATE	REVISIONS	BY	CHK	APP	APP

NORTHEAST UTILITIES SERVICE CO.

FOR THE CONNECTICUT LIGHT & POWER COMPANY

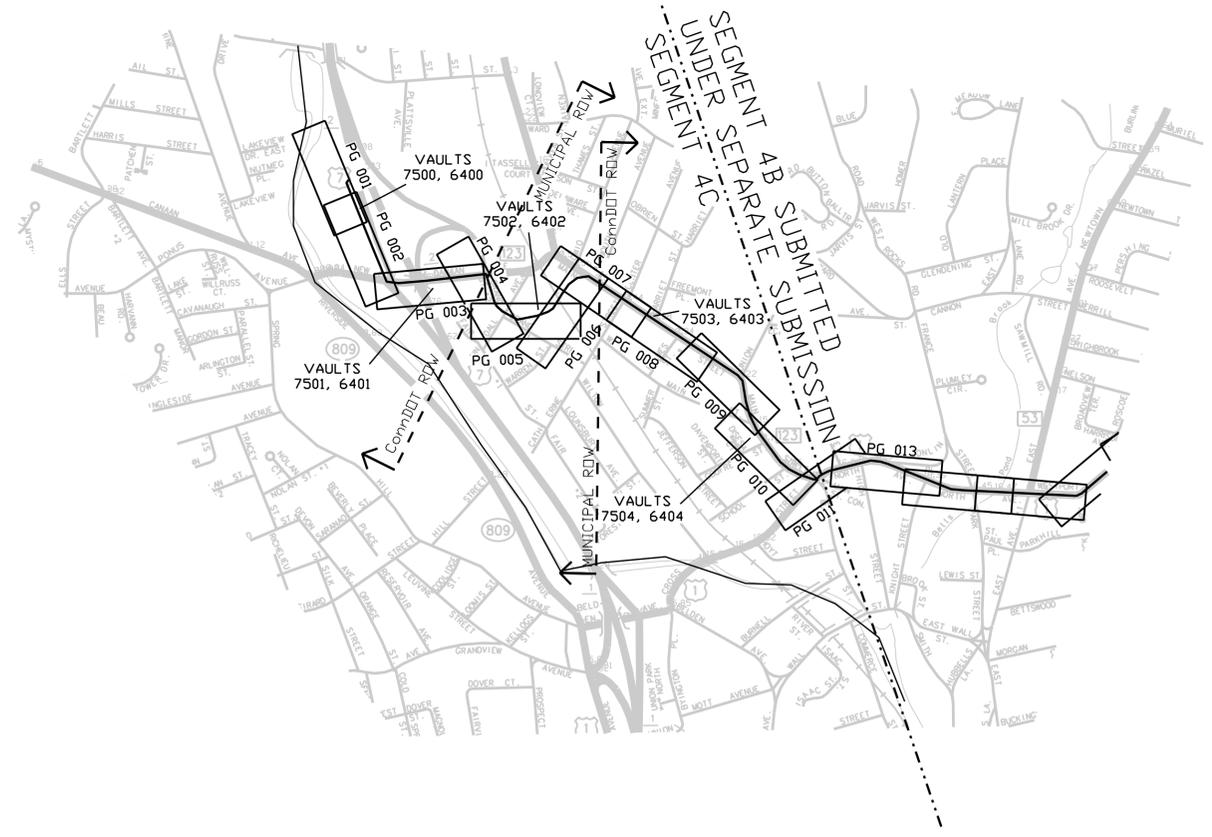
TITLE MIDDLETOWN-NORWALK 345KV TRANSMISSION PROJECT
NORWALK SS TO FATHER CONLON PLACE AND
NORTH AVE IN NORWALK
GENERAL NOTES AND LEGEND

BY SEN-BMCD	CHKD	APP	APP
DATE 6-15-06	DATE	DATE	DATE
SCALE AS NOTED	D	DWG. NO.	01224-00001 PG 004



LOCATION MAP
N.T.S.

CITY OF NORWALK
NOT TO SCALE



ISSUED FOR CONSTRUCTION

DOCKET No. 272



no.	date	revisions	by	chk
2	4/13/07	ISSUED CSC		CTC
1	2/12/07	ISSUED 60% PRELIMINARY		CTC

date 6/15/06
designed C. COURTRIGHT
detailed L. ROWSE
checked S. NEWLAND

MF	NO.	DATE	REVISIONS	BY	CHK	APP	APP

NORTHEAST UTILITIES SERVICE CO.			
FOR THE CONNECTICUT LIGHT & POWER COMPANY			
TITLE MIDDLETOWN-NORWALK 345KV TRANSMISSION PROJECT			
CITY OF NORWALK INDEX KEY MAP			
BY SEN-BMCD	CHKD	APP	APP
DATE 6-15-06	DATE	DATE	DATE
SCALE AS NOTED	D	DWG. NO. 01224-10002	PG 001

CURVE DATA TABLE								
CURVE NO.	RADIUS	CURVE LENGTH	TANGENT LENGTH	DEFLECTION ANGLE	POINT OF INTERSECTION	POINT OF CURVATURE	POINT OF TANGENCY	SHEET REFERENCE
PI-NO-01	50'	8.17'	4.09'	9°21'38.83"	N 608,339.2220 E 813,038.5493	N 608,342.7251 E 813,036.4315	N 608,335.4211 E 813,040.0692	10001 PG 001
PI-NO-02	50'	31.00'	16.02'	35°31'32.60"	N 608,182.3165 E 813,101.2914	N 608,197.1891 E 813,095.3443	N 608,173.6681 E 813,114.7734	10001 PG 001
PI-NO-03	52'	32.23'	16.65'	35°30'30.42"	N 608,145.3708 E 813,158.8862	N 608,154.3605 E 813,144.8722	N 608,129.9133 E 813,165.0726	10001 PG 002
PI-NO-04	200'	62.89'	31.71'	18°00'56.87"	N 608,032.6682 E 813,203.9922	N 608,062.1035 E 813,192.2116	N 608,001.0327 E 813,206.0915	10001 PG 002
PI-NO-05	200'	63.05'	31.79'	18°03'43.27"	N 607,969.3146 E 813,208.1963	N 608,001.0327 E 813,206.0915	N 607,939.8121 E 813,220.0315	10001 PG 002
PI-NO-06	500'	48.59'	24.31'	5°34'04.35"	N 607,675.6213 E 813,326.0137	N 607,698.1869 E 813,316.9613	N 607,652.2839 E 813,332.8339	10001 PG 002
PI-NO-07	150'	190.03'	110.16'	72°35'11.45"	N 607,484.6990 E 813,381.8096	N 607,590.4350 E 813,350.9089	N 607,482.5404 E 813,491.9472	10001 PG 002
PI-NO-08	200'	115.11'	59.20'	32°58'34.42"	N 607,478.5603 E 813,695.0264	N 607,479.7203 E 813,635.8402	N 607,509.8017 E 813,745.3089	10001 PG 003
PI-NO-09	200'	103.01'	52.68'	29°30'41.32"	N 607,537.6019 E 813,790.0528	N 607,509.8017 E 813,745.3089	N 607,539.7545 E 813,842.6858	10001 PG 003
PI-NO-10	200'	25.22'	12.62'	7°13'25.64"	N 607,544.0182 E 813,946.9369	N 607,543.5023 E 813,934.3229	N 607,542.9438 E 813,959.5158	10001 PG 003
PI-NO-11	200'	28.37'	14.21'	8°07'37.23"	N 607,527.1337 E 814,144.6229	N 607,528.3428 E 814,130.4663	N 607,523.9354 E 814,158.4664	10001 PG 003
PI-NO-12	180'	163.68'	87.99'	52°06'02.31"	N 607,491.0797 E 814,300.6800	N 607,510.8858 E 814,214.9506	N 607,411.2649 E 814,337.7128	10001 PG 004
PI-NO-13	200'	227.27'	127.68'	65°06'34.11"	N 607,157.2991 E 814,455.5487	N 607,273.1219 E 814,401.8089	N 607,157.2991 E 814,583.2316	10001 PG 005
PI-NO-14	200'	53.07'	26.69'	15°12'12.93"	N 607,157.2991 E 814,695.3890	N 607,157.2991 E 814,668.6969	N 607,150.2991 E 814,721.1468	10001 PG 005
PI-NO-15	200'	53.07'	26.69'	15°12'12.93"	N 607,143.2991 E 814,746.9047	N 607,150.2991 E 814,721.1468	N 607,143.2991 E 814,773.5968	10001 PG 005
PI-NO-16	100'	98.06'	53.37'	56°10'54.32"	N 607,143.2991 E 814,923.6082	N 607,143.2991 E 814,870.2337	N 607,187.6431 E 814,953.3144	10001 PG 006
PI-NO-17	100'	154.84'	97.79'	88°43'03.23"	N 607,498.9185 E 815,161.8387	N 607,417.6769 E 815,107.4147	N 607,446.3264 E 815,244.2781	10001 PG 006
PI-NO-18	200'	90.76'	46.18'	26°00'02.81"	N 607,261.3339 E 815,534.2579	N 607,286.1681 E 815,495.3298	N 607,221.9478 E 815,558.3592	10001 PG 007
PI-NO-19	200'	90.73'	46.16'	25°59'27.88"	N 607,182.5769 E 815,582.4512	N 607,221.9478 E 815,558.3592	N 607,157.7457 E 815,621.3601	10001 PG 008
PI-NO-20	200'	93.28'	47.51'	26°43'23.50"	N 607,090.4456 E 815,726.8151	N 607,116.0019 E 815,686.7700	N 607,085.6265 E 815,774.0751	10001 PG 008
PI-NO-21	200'	90.81'	46.20'	26°00'54.85"	N 607,080.9397 E 815,820.0384	N 607,085.6265 E 815,774.0751	N 607,056.5677 E 815,859.2889	10001 PG 008
PI-NO-22	500'	2.56'	1.28'	0°17'36.46"	N 606,997.9569 E 815,953.6802	N 606,998.6324 E 815,952.5924	N 606,997.2759 E 815,954.7645	10001 PG 008
PI-NO-23	500'	47.20'	23.62'	5°24'30.60"	N 606,943.0130 E 816,041.1631	N 606,955.5736 E 816,021.1638	N 606,928.6232 E 816,059.8895	10001 PG 008
PI-NO-24	500'	44.54'	22.29'	5°06'15.12"	N 606,904.5743 E 816,091.1859	N 606,918.1534 E 816,073.5146	N 606,892.6213 E 816,109.9952	10001 PG 008
PI-NO-25	200'	160.70'	84.97'	46°02'14.66"	N 606,630.0701 E 816,523.1465	N 606,675.6446 E 816,451.4303	N 606,546.8120 E 816,540.1268	10001 PG 009
PI-NO-26	200'	86.84'	44.12'	24°52'42.14"	N 606,341.2681 E 816,582.0471	N 606,384.4945 E 816,573.3212	N 606,305.7618 E 816,608.2300	10001 PG 009
PI-NO-27	200'	23.66'	44.84'	6°46'40.39"	N 606,296.2297 E 816,615.2591	N 606,305.7618 E 816,608.2300	N 606,287.5939 E 816,623.3640	10001 PG 010
PI-NO-28	200'	34.93'	17.51'	10°00'22.27"	N 606,236.4363 E 816,671.3766	N 606,249.2030 E 816,659.3948	N 606,221.7819 E 816,680.9579	10001 PG 010
PI-NO-29	200'	96.02'	48.95'	27°30'22.81"	N 606,137.2876 E 816,736.2017	N 606,178.2590 E 816,709.4139	N 606,088.5758 E 816,741.0389	10001 PG 010
PI-NO-30	200'	123.40'	63.73'	35°21'03.72"	N 606,025.1537 E 816,747.3368	N 606,088.5758 E 816,741.0389	N 605,977.0691 E 816,789.1686	10001 PG 010
PI-NO-31	300'	74.04'	37.21'	14°08'25.71"	N 605,841.6769 E 816,906.9547	N 605,869.7493 E 816,882.5328	N 605,820.4214 E 816,937.4948	10001 PG 010
PI-NO-32	200'	212.72'	117.67'	60°56'19.73"	N 605,726.6411 E 817,072.2387	N 605,793.8574 E 816,975.6620	N 605,778.4091 E 817,177.9041	10001 PG 010
PI-NO-33	200'	56.53'	28.46'	16°11'42.24"	N 605,802.8452 E 817,227.7816	N 605,790.3260 E 817,202.2281	N 605,807.7406 E 817,225.8127	10001 PG 011
PI-NO-34	150'	65.40'	33.23'	24°58'57.23"	N 605,826.4296 E 817,362.8264	N 605,820.7127 E 817,330.0916	N 605,845.4368 E 817,390.0840	10001 PG 011
PI-NO-35	200'	48.53'	24.39'	13°54'13.43"	N 605,859.3855 E 817,410.0873	N 605,845.4368 E 817,390.0840	N 605,868.1188 E 817,432.8562	10001 PG 011
PI-NO-36	325'	244.58'	128.41'	43°07'02.50"	N 605,959.5568 E 817,671.2455	N 605,913.5715 E 817,551.3566	N 605,911.1805 E 817,790.1897	10001 PG 013

VAULT CURVE DATA TABLE								
CURVE NO.	RADIUS	CURVE LENGTH	TANGENT LENGTH	DEFLECTION ANGLE	POINT OF INTERSECTION	POINT OF CURVATURE	POINT OF TANGENCY	SHEET REFERENCE
PI-N7500-1	52'	32.23'	16.65'	35°30'30.42"	N 608,154.6669 E 813,144.3946	N 608,163.6565 E 813,130.3806	N 608,139.2093 E 813,150.5811	10001 PG 002
PI-N7500-2	200'	43.93'	22.05'	12°35'08.46"	N 608,003.9769 E 813,204.7040	N 608,024.4528 E 813,196.5091	N 607,982.2073 E 813,208.2403	10001 PG 002
PI-N7501-1	200'	92.36'	47.02'	26°27'30.75"	N 607,527.0726 E 813,777.3129	N 607,504.4214 E 813,736.1115	N 607,528.9939 E 813,824.2910	10001 PG 003
PI-N7501-2	200'	25.22'	12.62'	7°13'25.64"	N 607,537.2504 E 814,026.1742	N 607,536.7346 E 814,013.5602	N 607,536.1761 E 814,038.7531	10001 PG 003
PI-N6402-1	100'	98.06'	53.37'	56°10'54.32"	N 607,157.2991 E 814,932.9869	N 607,157.2991 E 814,879.6123	N 607,201.6431 E 814,962.6930	10001 PG 006
PI-N6403-1	200'	78.55'	39.79'	22°30'09.31"	N 607,199.5239 E 815,574.4847	N 607,232.1347 E 815,551.6911	N 607,178.1196 E 815,608.0239	10001 PG 007
PI-N6403-2	202'	82.07'	41.61'	23°16'41.74"	N 607,090.7485 E 815,744.9289	N 607,113.1325 E 815,709.8545	N 607,084.0479 E 815,785.9943	10001 PG 008
PI-N7504-1	200'	34.93'	17.51'	10°00'22.27"	N 606,261.6154 E 816,647.7454	N 606,274.3821 E 816,635.7636	N 606,246.9610 E 816,657.3267	10001 PG 010
PI-N7504-2	200'	89.30'	45.41'	25°34'59.25"	N 606,126.9174 E 816,735.8133	N 606,164.9229 E 816,710.9646	N 606,081.9077 E 816,741.8143	10001 PG 010

VAULT LOCATION TABLE	
VAULT #	CENTER OF VAULT
6400	N 608,085.8704 E 813,181.6224
7500	N 608,116.3204 E 813,160.8188
6401	N 607,541.4417 E 813,908.4121
7501	N 607,531.9774 E 813,872.7692
6402	N 607,156.2991 E 814,799.5967
7502	N 607,144.2991 E 814,799.5967
6403	N 607,161.3447 E 815,632.4502
7503	N 607,136.3101 E 815,656.8072
6404	N 606,201.6621 E 816,697.6968
7504	N 606,221.8787 E 816,670.1417

HANDHOLE LOCATION TABLE	
HANDHOLE #	CENTER OF HANDHOLE
6400	N 608,070.2744 E 813,193.7884
7500	N 608,131.9165 E 813,148.6528
6401	N 607,547.7135 E 813,927.1715
7501	N 607,525.7225 E 813,854.0093
6402	N 607,161.7991 E 814,780.5968
7502	N 607,138.7991 E 814,818.5967
6403	N 607,179.4303 E 815,614.3349
7503	N 607,121.4524 E 815,669.8646
6404	N 606,188.7693 E 816,712.6976
7504	N 606,234.7715 E 816,655.1409

DOCKET No. 272

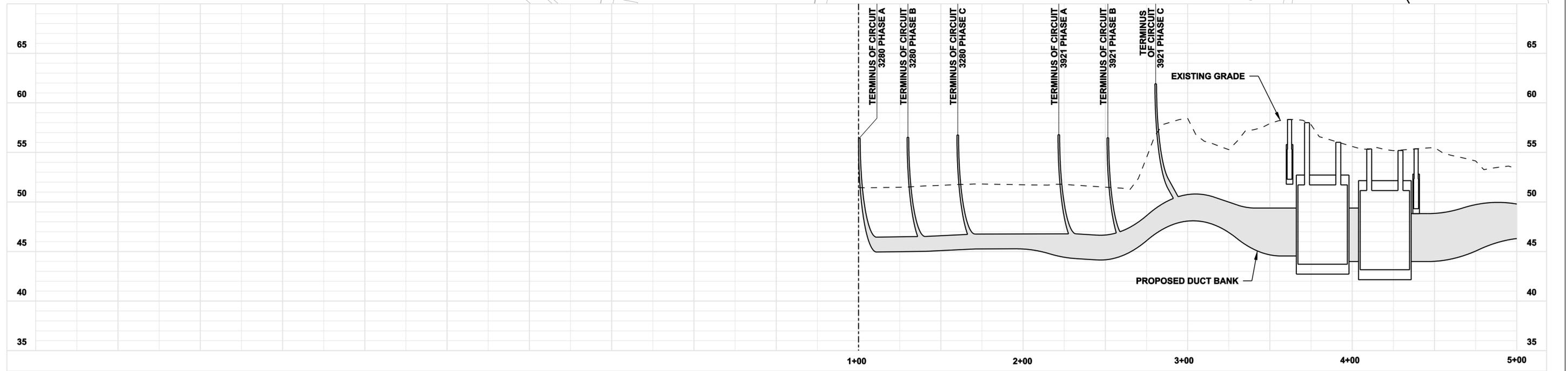
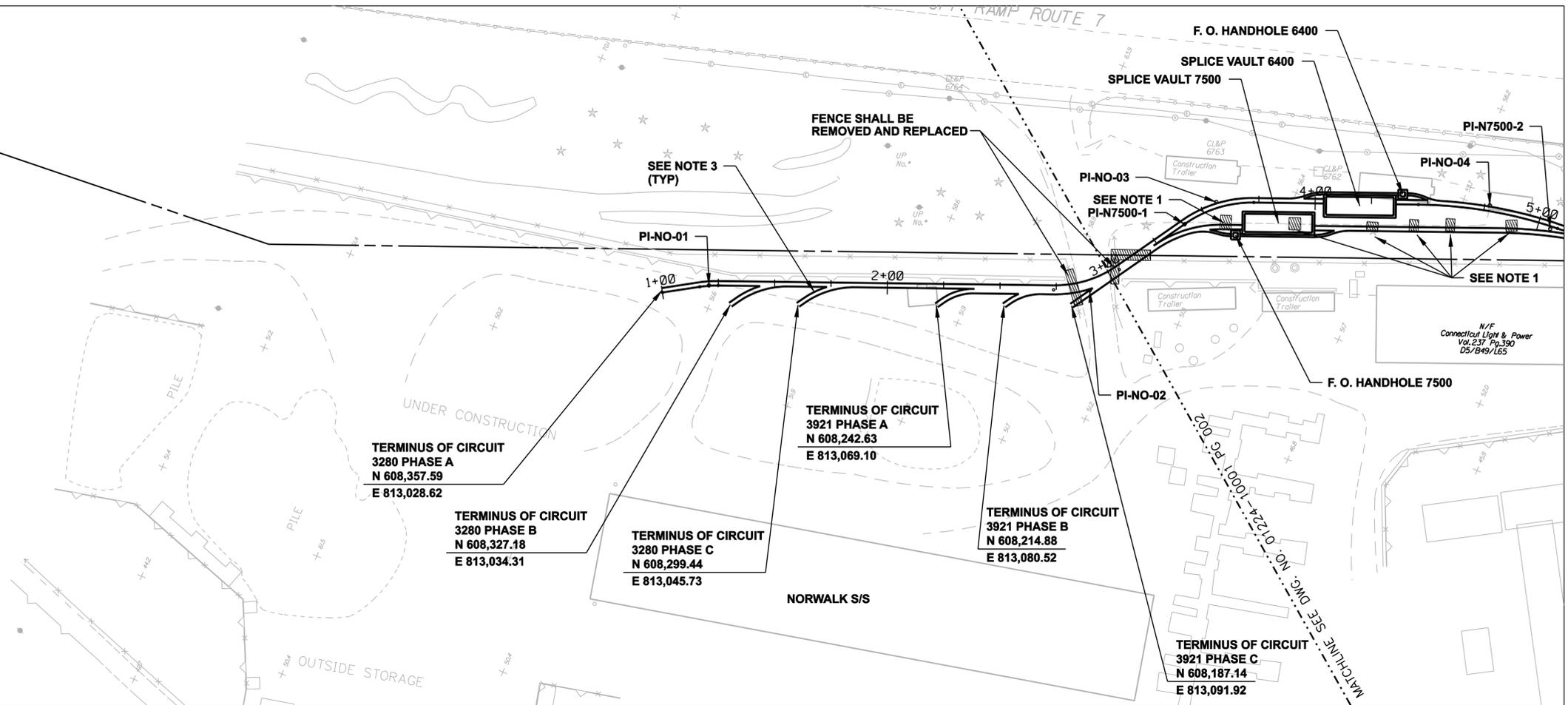
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CONSTRUCTION



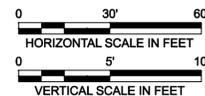
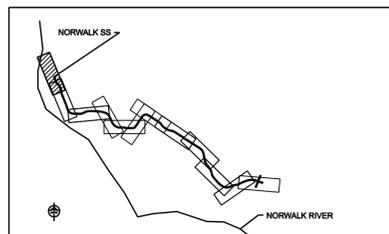
date	6/15/06	detailed	L. ROWSE
designed	C. COURTRIGHT	checked	

NORTHEAST UTILITIES SERVICE CO.											
FOR THE CONNECTICUT LIGHT & POWER COMPANY											
TITLE MIDDLETOWN-NORWALK 345KV TRANSMISSION PROJECT											
CITY OF NORWALK ROUTE DATA TABLES											
BY	SEN-BMCD	CHKD	APP	APP							
DATE	6-15-06	DATE	DATE	DATE							
SCALE	AS NOTED	DWG. NO.	01224-10002 PG 006A								
MF	NO.	DATE	REVISIONS	BY	CHK	APP	APP				
2	4/13/07	ISSUED CSC		CTC							
1	2/12/07	ISSUED 60% PRELIMINARY		CTC							
no.	date	revisions		by	chk						

- NOTE:**
1. TREES, SHRUBS AND/OR LANDSCAPING SHALL BE REMOVED.
 2. CIRCUIT 3280 ASSOCIATED WITH VAULTS 64XX, AND CIRCUIT 3921 ASSOCIATED WITH VAULTS 75XX.
 3. SEE DRAWING NO. 01224-46003 PG 005 FOR TERMINATION DETAIL.



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2	4/13/07	ISSUED CSC		CTC
1	2/12/07	ISSUED 60% PRELIMINARY		CTC

Burns & McDonnell SINCE 1898	
date	6/15/06
detailed	C. DEHART
designed	C. COURTRIGHT
checked	S. NEWLAND

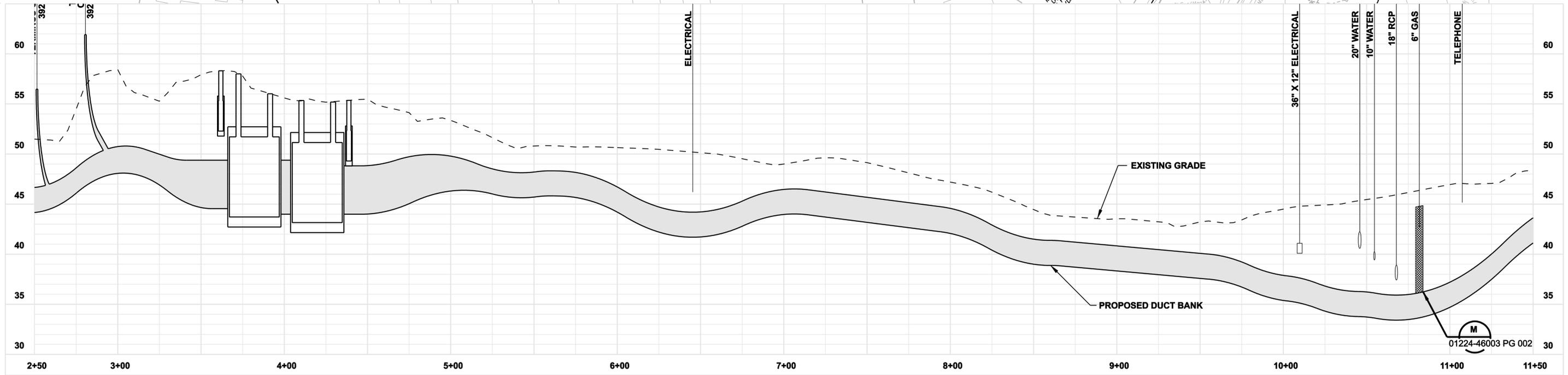
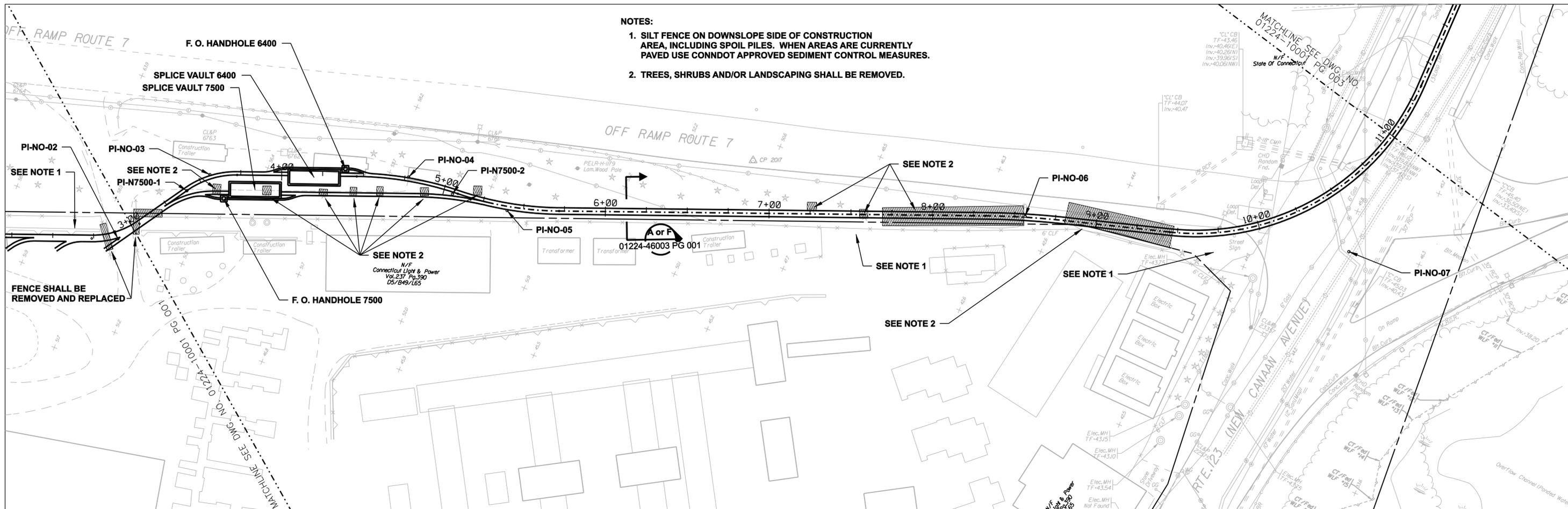
MF	NO.	DATE	REVISIONS	BY	CHK	APP	APP

NORTHEAST UTILITIES SERVICE CO.

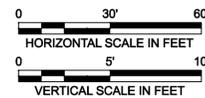
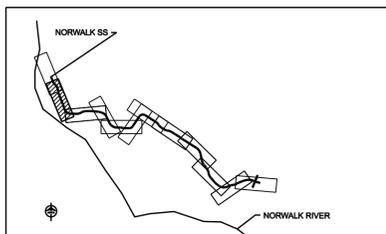
FOR THE CONNECTICUT LIGHT & POWER COMPANY			
TITLE MIDDLETOWN-NORWALK 345KV TRANSMISSION PROJECT			
CITY OF NORWALK PLAN AND PROFILE Sta. 1+00 to 5+00			
BY SEN-BMCD	CHKD	APP	APP
DATE 6-15-06	DATE	DATE	DATE
SCALE AS NOTED	D		DWG. NO. 01224-10001 PG 001

NOTES:

1. SILT FENCE ON DOWNSLOPE SIDE OF CONSTRUCTION AREA, INCLUDING SPOIL PILES. WHEN AREAS ARE CURRENTLY PAVED USE CONDOT APPROVED SEDIMENT CONTROL MEASURES.
2. TREES, SHRUBS AND/OR LANDSCAPING SHALL BE REMOVED.



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no.	date	revisions	by	chk
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1	2/12/07	ISSUED 60% PRELIMINARY		CTC

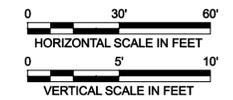
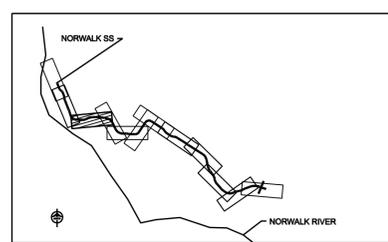
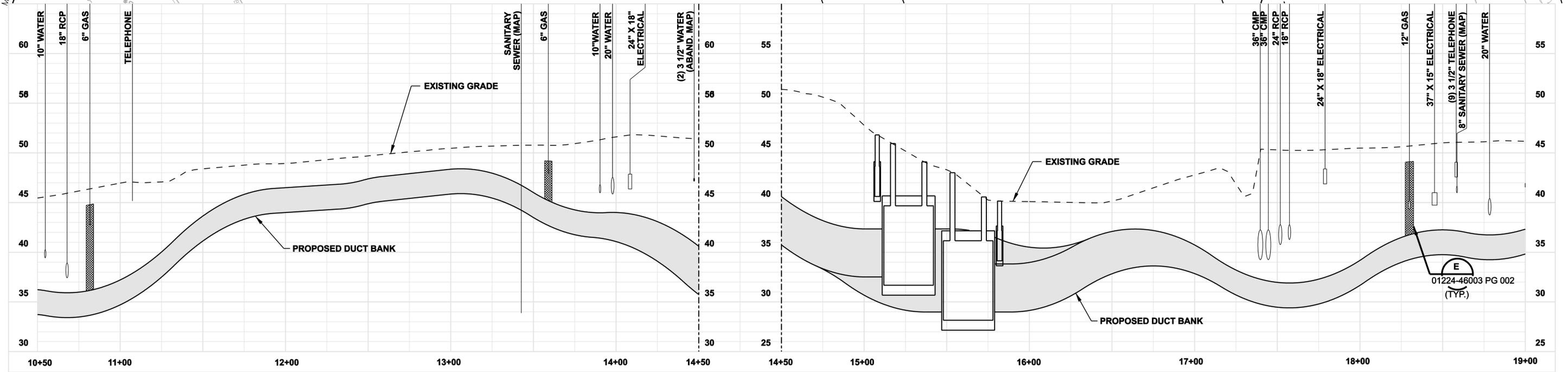
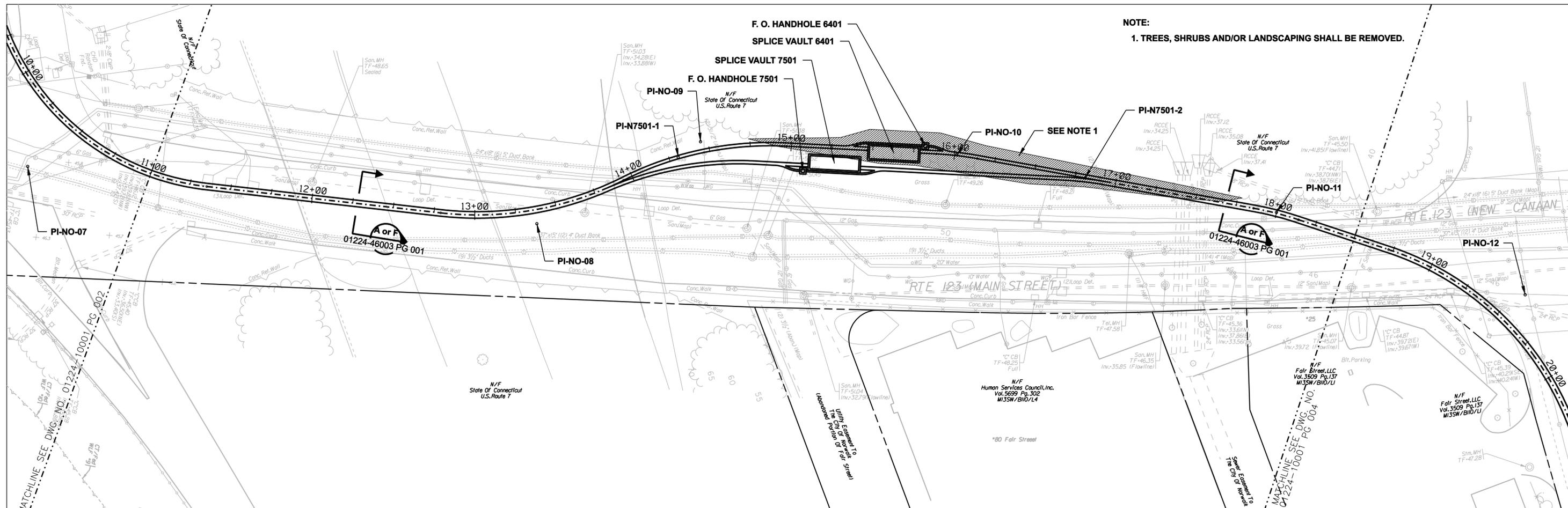


date: 6/15/06
designed: C. COURTRIGHT
detailed: C. DEHART
checked: S. NEWLAND

MF	NO.	DATE	REVISIONS	BY	CHK	APP	APP

NORTHEAST UTILITIES SERVICE CO.

FOR	THE CONNECTICUT LIGHT & POWER COMPANY		
TITLE	MIDDLETOWN-NORWALK 345KV TRANSMISSION PROJECT		
	CITY OF NORWALK PLAN AND PROFILE Sta. 2+50 to 11+50		
BY	SEN-BMCD	CHKD	APP
DATE	6-15-06	DATE	DATE
SCALE	AS NOTED	DWG. NO.	01224-10001 PG 002



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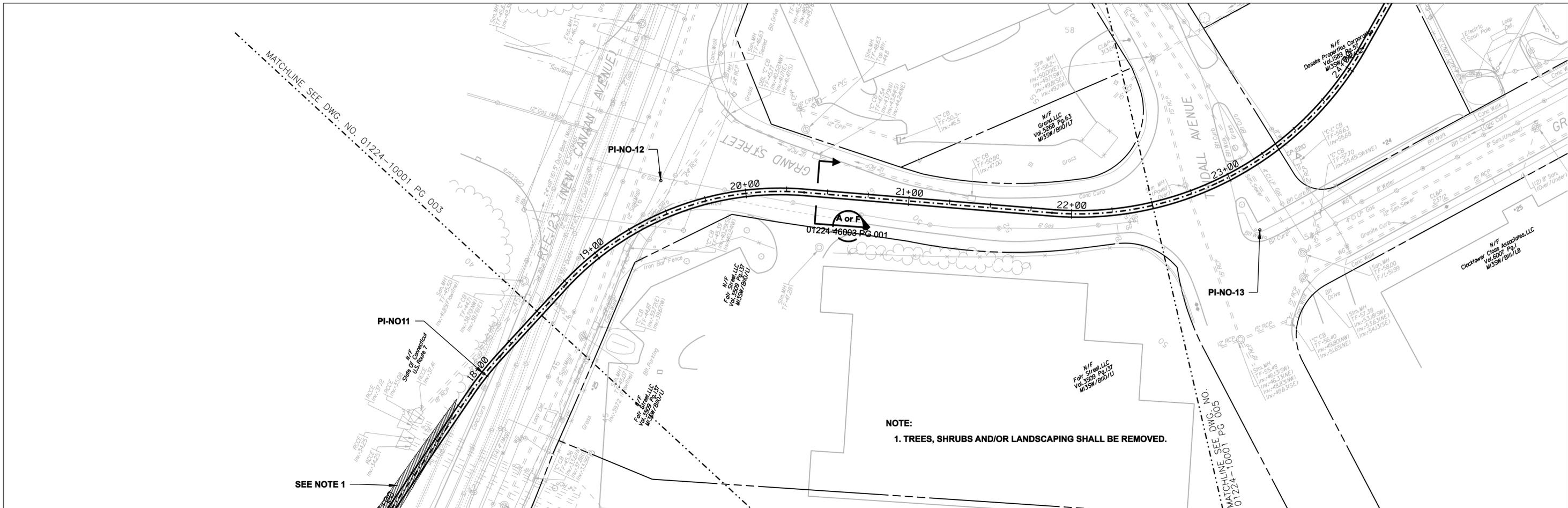
no.	date	revisions	by	chk
2	4/13/07	ISSUED CSC		CTC
1	2/12/07	ISSUED 60% PRELIMINARY		CTC

date 6/15/06
 detailed C. DEHART
 designed C. COURTRIGHT
 checked S. NEWLAND

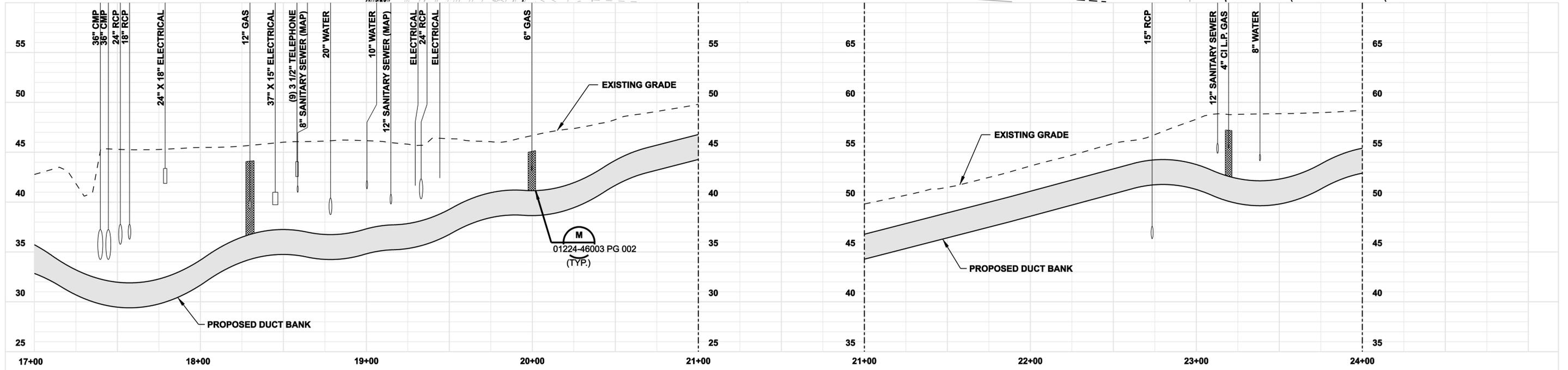
MF	NO.	DATE	REVISIONS	BY	CHK	APP	APP

NORTHEAST UTILITIES SERVICE CO.			
FOR THE CONNECTICUT LIGHT & POWER COMPANY			
TITLE MIDDLETOWN-NORWALK 345KV TRANSMISSION PROJECT			
CITY OF NORWALK PLAN AND PROFILE Sta. 10+50 to 19+00			
BY SEN-BMCD	CHKD	APP	APP
DATE 6-15-06	DATE	DATE	DATE
SCALE AS NOTED	D	DWG. NO.	01224-10001 PG 003

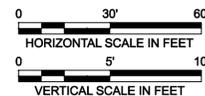
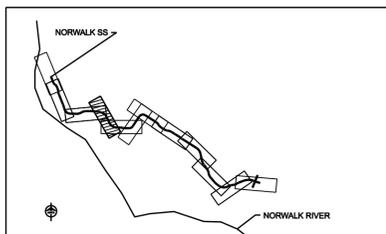
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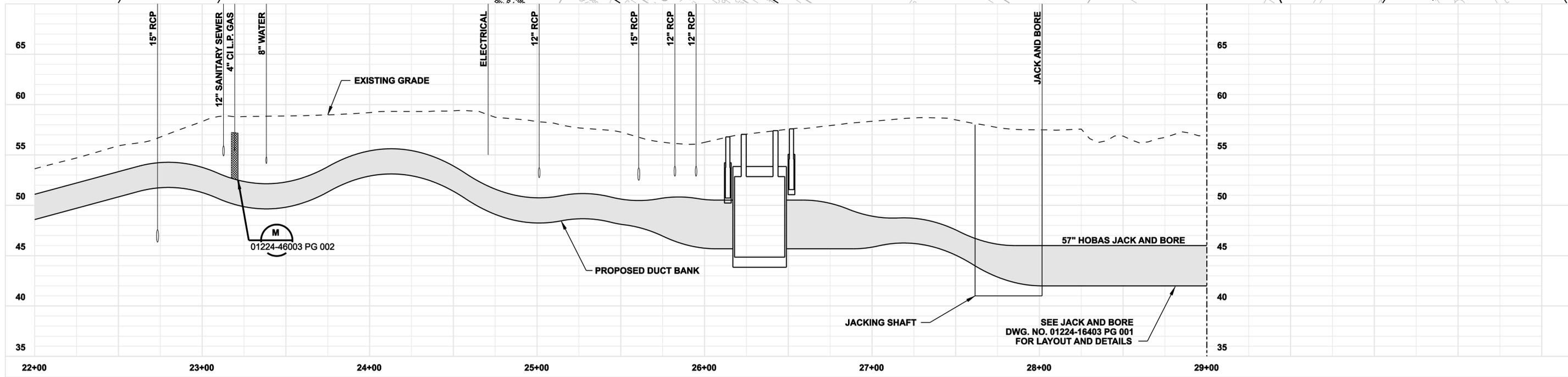
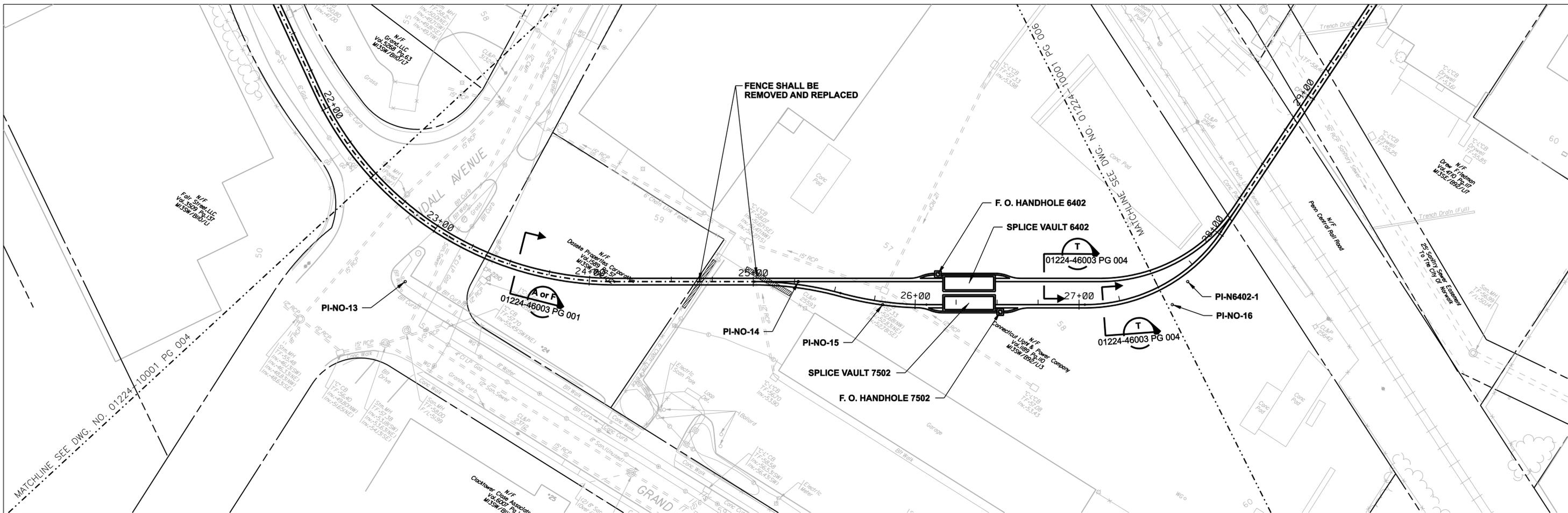
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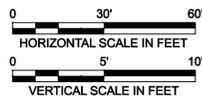
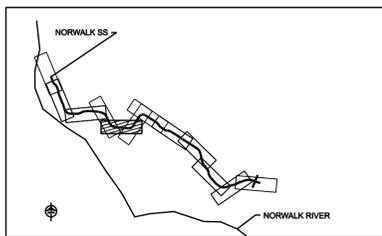
Burns & McDonnell SINCE 1898	
date	6/15/06
designed	C. COURTRIGHT
detailed	C. DEHART
checked	S. NEWLAND

MF	NO.	DATE	REVISIONS	BY	CHK	APP	APP

NORTHEAST UTILITIES SERVICE CO.			
FOR THE CONNECTICUT LIGHT & POWER COMPANY			
TITLE MIDDLETOWN-NORWALK 345KV TRANSMISSION PROJECT			
CITY OF NORWALK PLAN AND PROFILE Sta. 17+00 to 24+00			
BY SEN-BMCD	CHKD	APP	APP
DATE 6-15-06	DATE	DATE	DATE
SCALE AS NOTED	DWG. NO.		01224-10001 PG 004
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2	4/13/07	ISSUED CSC		CTC
1	2/12/07	ISSUED 60% PRELIMINARY		CTC

Burns & McDonnell
SINCE 1898

date: 6/15/06
designed: C. COURTRIGHT
detailed: C. DEHART
checked: S. NEWLAND

MF	NO.	DATE	REVISIONS	BY	CHK	APP	APP

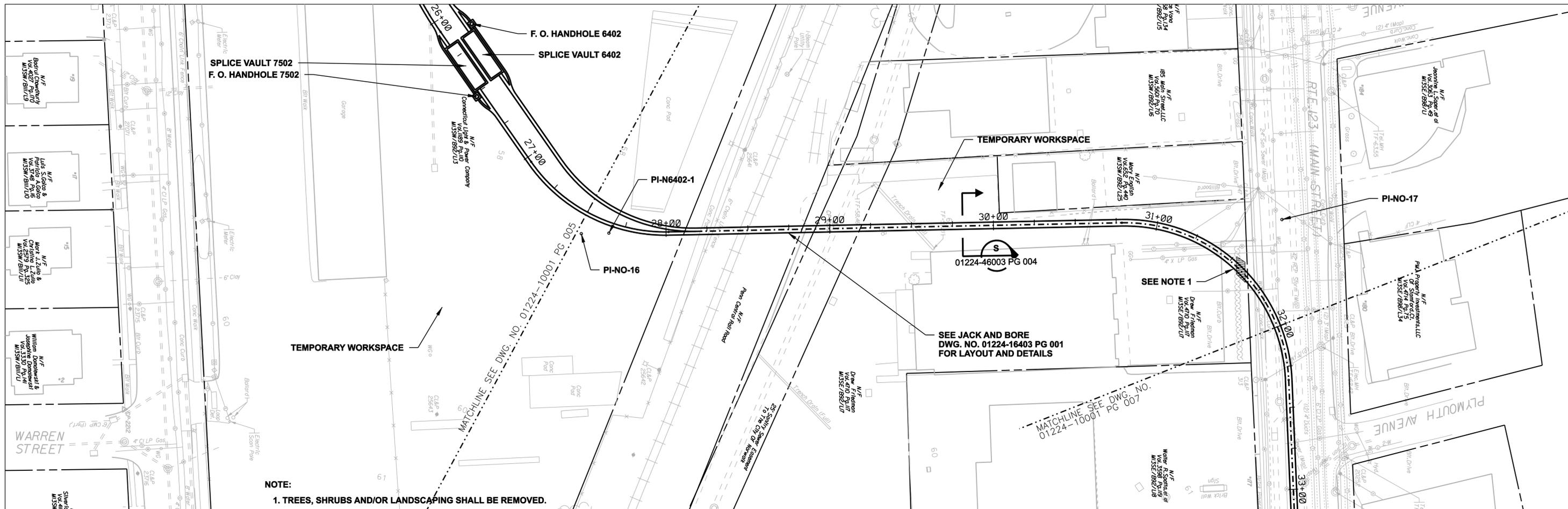
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FOR THE CONNECTICUT LIGHT & POWER COMPANY

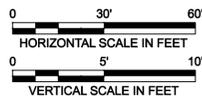
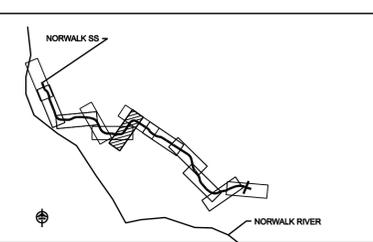
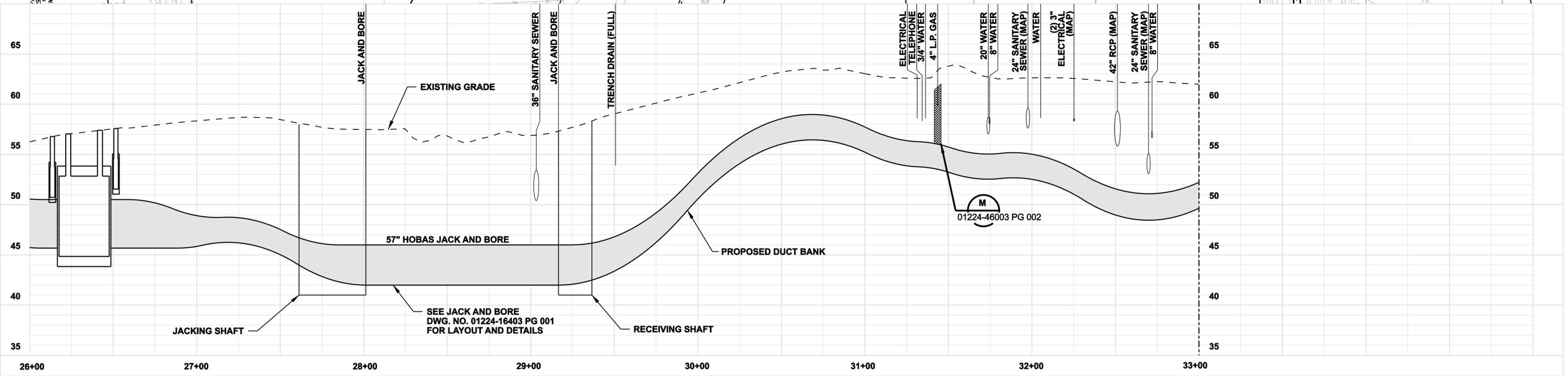
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CITY OF NORWALK
PLAN AND PROFILE Sta. 22+00 to 29+00

BY SEN-BMCD	CHKD	APP	APP
DATE 6-15-06	DATE	DATE	DATE
SCALE AS NOTED	D	DWG. NO. 01224-10001 PG 005	



NOTE:
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1	2/12/07	ISSUED 60% PRELIMINARY		CTC

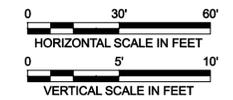
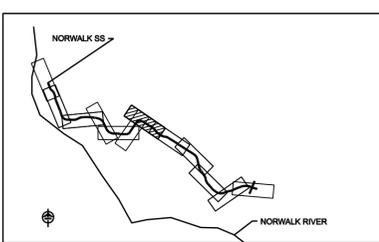
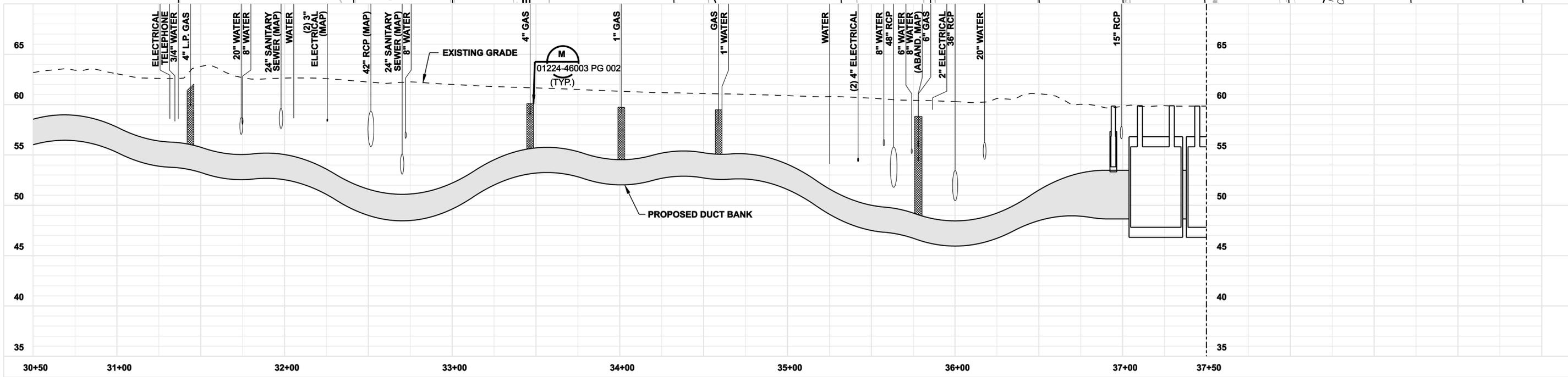
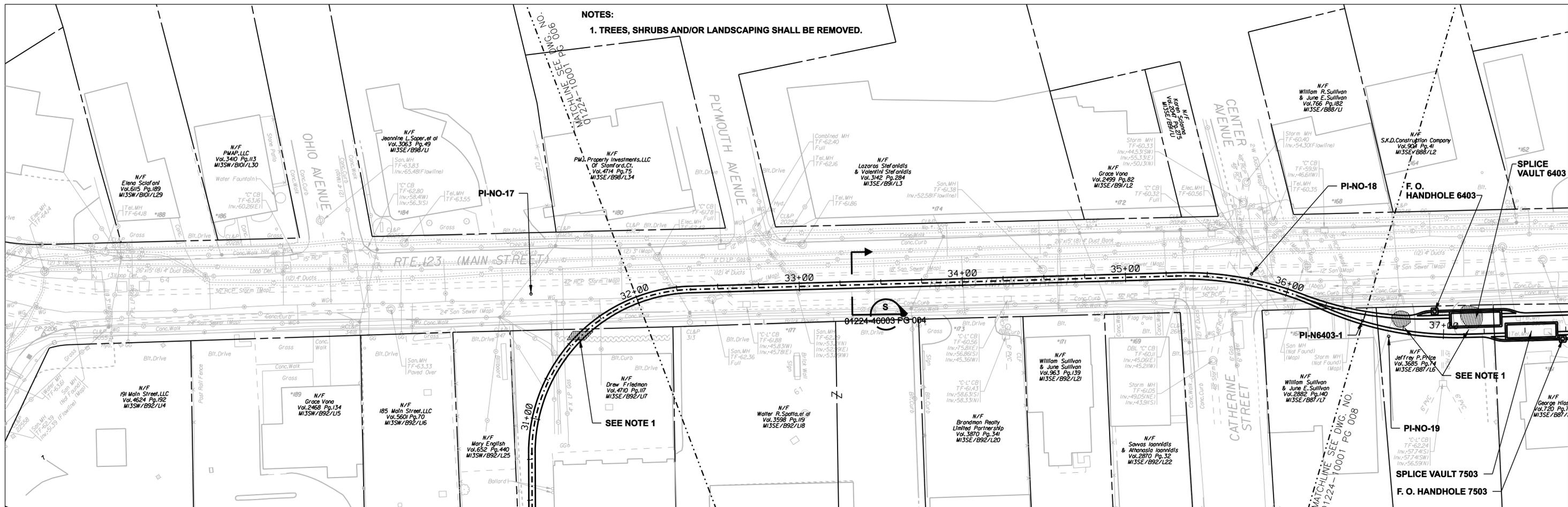
date 6/15/06
designed C. COURTRIGHT
detailed C. DEHART
checked S. NEWLAND

MF	NO.	DATE	REVISIONS	BY	CHK	APP	APP

NORTHEAST UTILITIES SERVICE CO.			
FOR THE CONNECTICUT LIGHT & POWER COMPANY			
TITLE MIDDLETOWN-NORWALK 345KV TRANSMISSION PROJECT			
CITY OF NORWALK PLAN AND PROFILE Sta. 26+00 to 33+00			
BY SEN-BMCD	CHKD	APP	APP
DATE 6-15-06	DATE	DATE	DATE
SCALE AS NOTED		DWG. NO.	
	D	01224-10001 PG 006	

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NOTES:
 1. TREES, SHRUBS AND/OR LANDSCAPING SHALL BE REMOVED.



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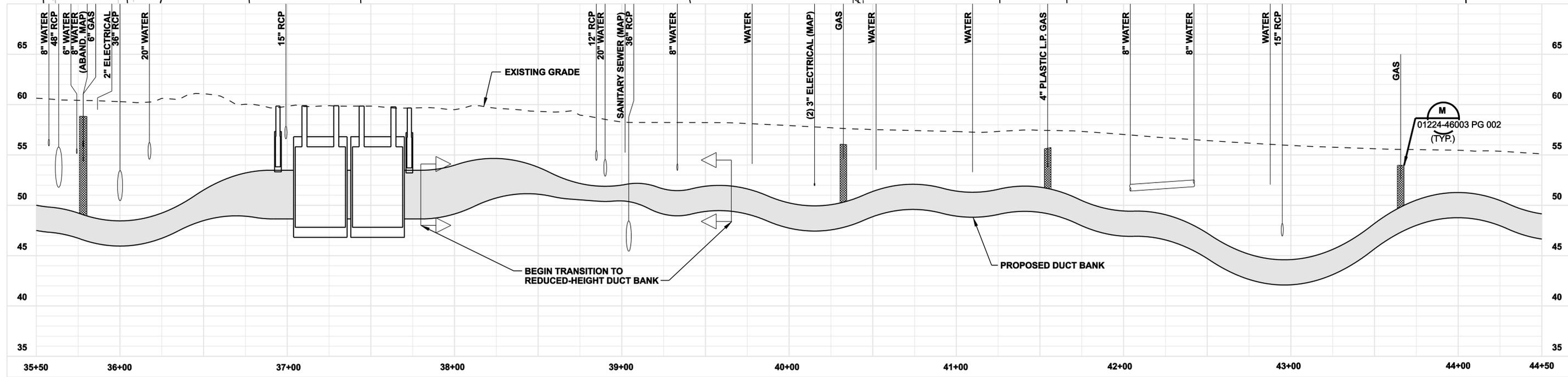
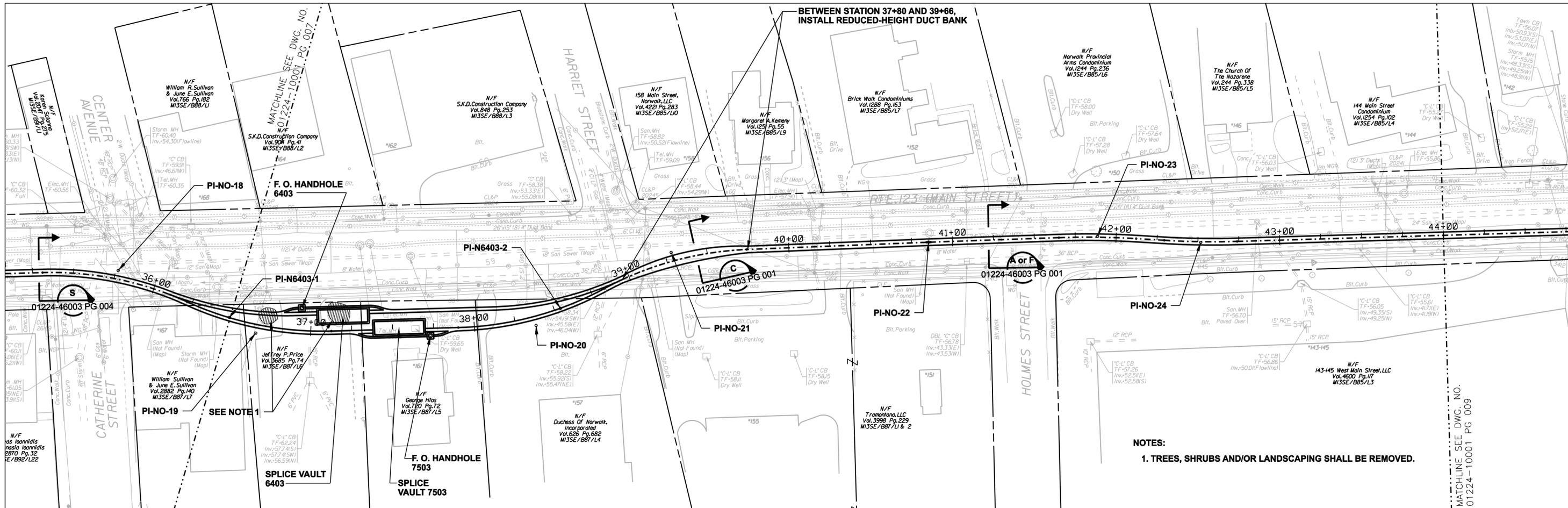
date 6/15/06
 detailed C. DEHART
 designed C. COURTRIGHT
 checked S. NEWLAND

no.	date	revisions	by	chk
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1	2/12/07	ISSUED 60% PRELIMINARY		CTC

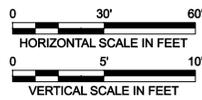
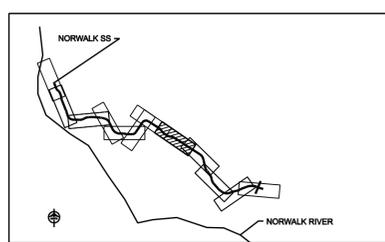
MF	NO.	DATE	REVISIONS	BY	CHK	APP	APP

NORTHEAST UTILITIES SERVICE CO.			
FOR THE CONNECTICUT LIGHT & POWER COMPANY			
TITLE MIDDLETOWN-NORWALK 345KV TRANSMISSION PROJECT			
CITY OF NORWALK PLAN AND PROFILE Sta. 30+50 to 37+50			
BY SEN-BMCD	CHKD	APP	APP
DATE 6-15-06	DATE	DATE	DATE
SCALE AS NOTED		DWG. NO.	
	D	01224-1001 PG 007	

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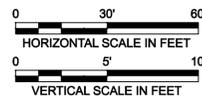
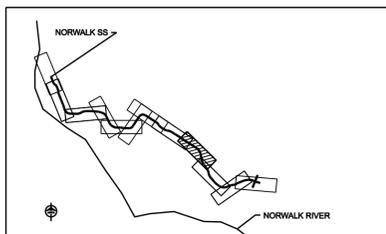
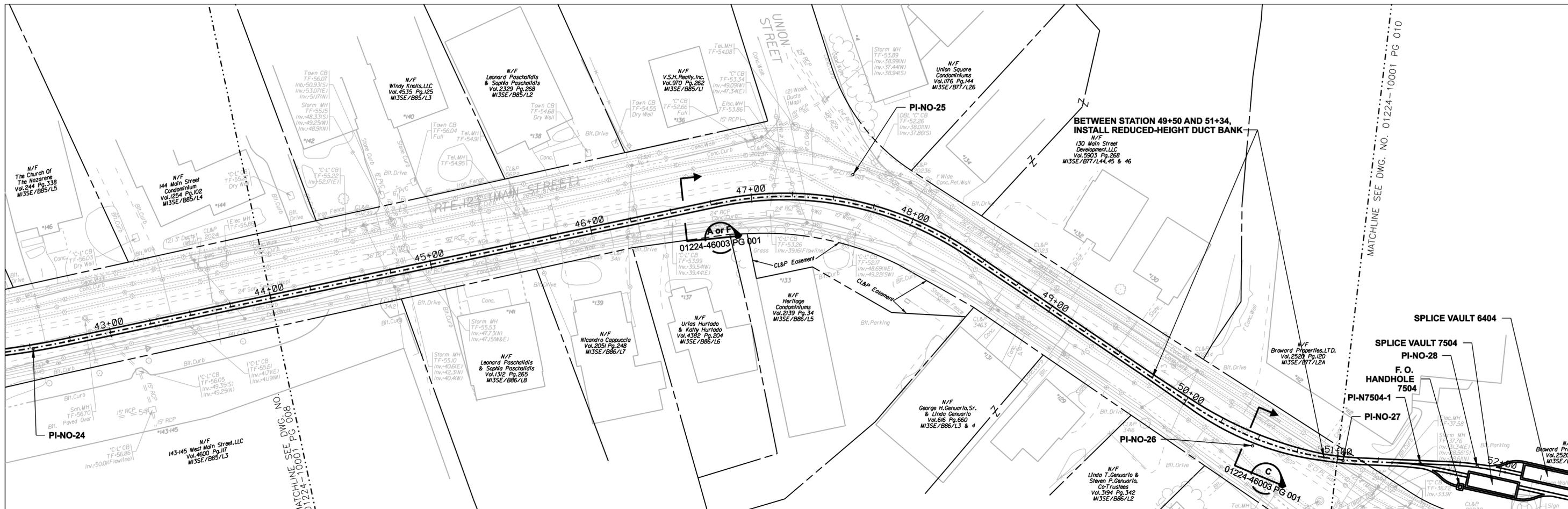


no.	date	revisions	by	chk
2	4/13/07	ISSUED CSC		CTC
1	2/12/07	ISSUED 60% PRELIMINARY		CTC

date 6/15/06
designed C. COURTRIGHT
detailed C. DEHART
checked S. NEWLAND

MF	NO.	DATE	REVISIONS	BY	CHK	APP	APP

NORTHEAST UTILITIES SERVICE CO.			
FOR THE CONNECTICUT LIGHT & POWER COMPANY			
TITLE MIDDLETOWN-NORWALK 345KV TRANSMISSION PROJECT			
CITY OF NORWALK PLAN AND PROFILE Sta. 35+50 to 44+50			
BY SEN-BMCD	CHKD	APP	APP
DATE 6-15-06	DATE	DATE	DATE
SCALE AS NOTED	D	DWG. NO.	01224-10001 PG 008



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1	2/12/07	ISSUED 60% PRELIMINARY		CTC



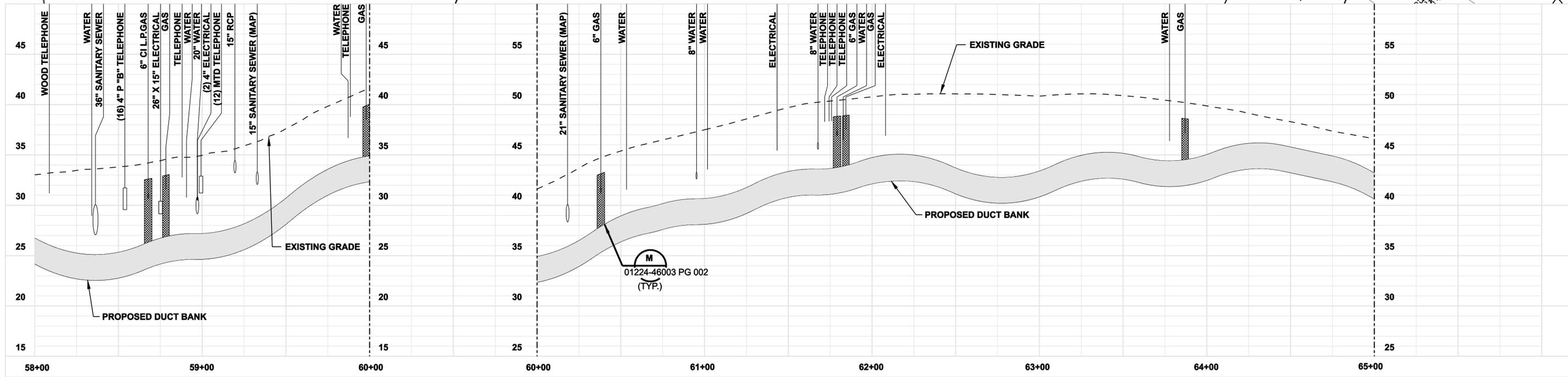
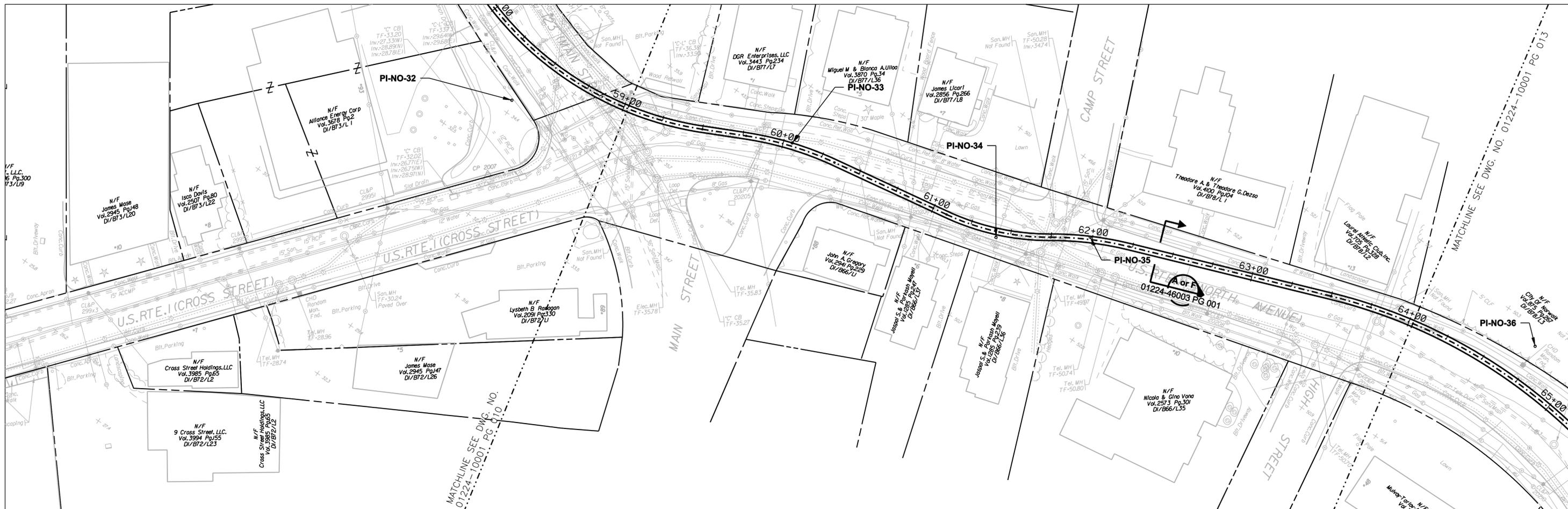
date 6/15/06
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detailed C. DEHART
checked S. NEWLAND

MF	NO.	DATE	REVISIONS	BY	CHK	APP	APP

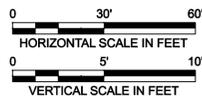
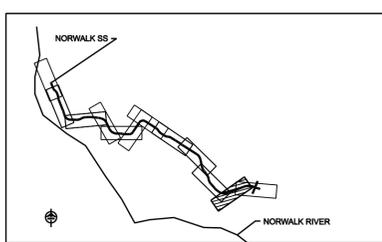
NORTHEAST UTILITIES SERVICE CO.

FOR THE CONNECTICUT LIGHT & POWER COMPANY
TITLE MIDDLETOWN-NORWALK 345KV TRANSMISSION PROJECT
CITY OF NORWALK
PLAN AND PROFILE Sta. 43+00 to 51+50

BY	SEN-BMCD	CHKD	APP	APP
DATE	6-15-06	DATE	DATE	DATE
SCALE	AS NOTED	DWG. NO.	01224-10001 PG 009	



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DOCKET No. 272

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1	2/12/07	ISSUED 60% PRELIMINARY		CTC

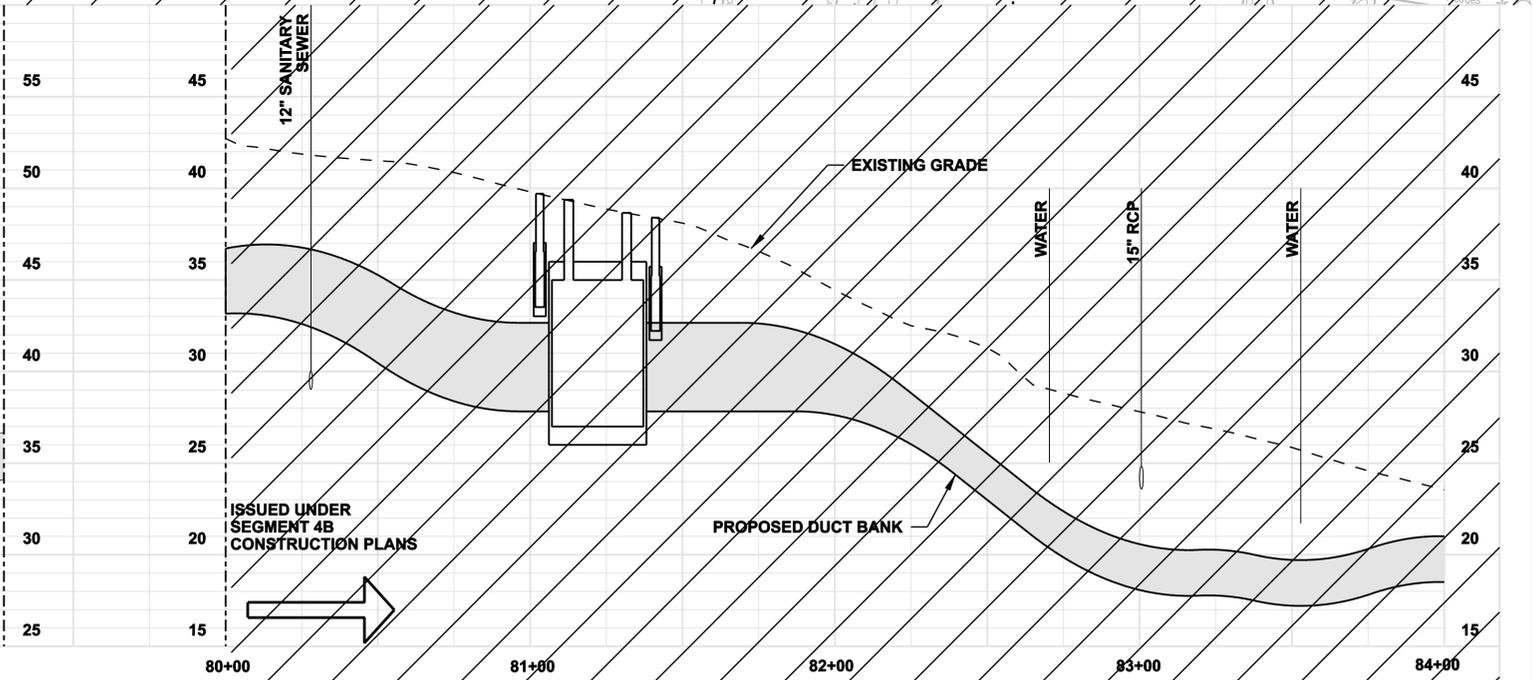
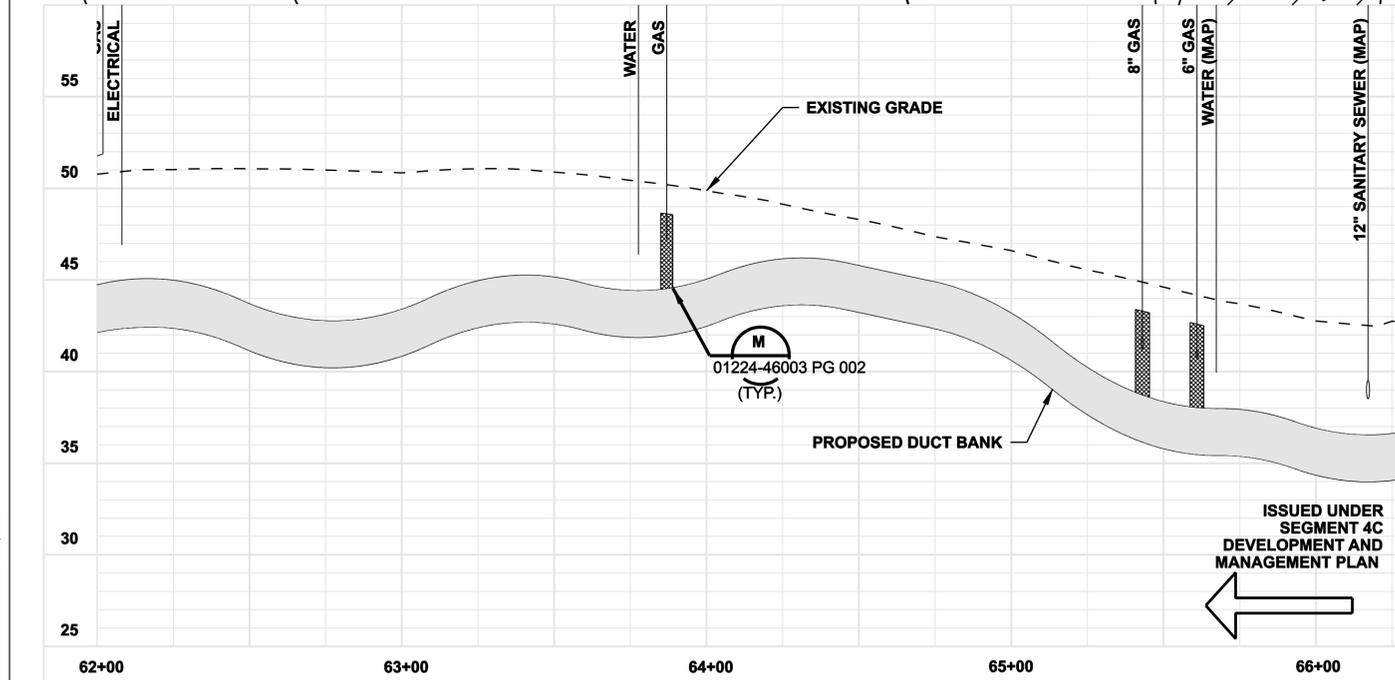
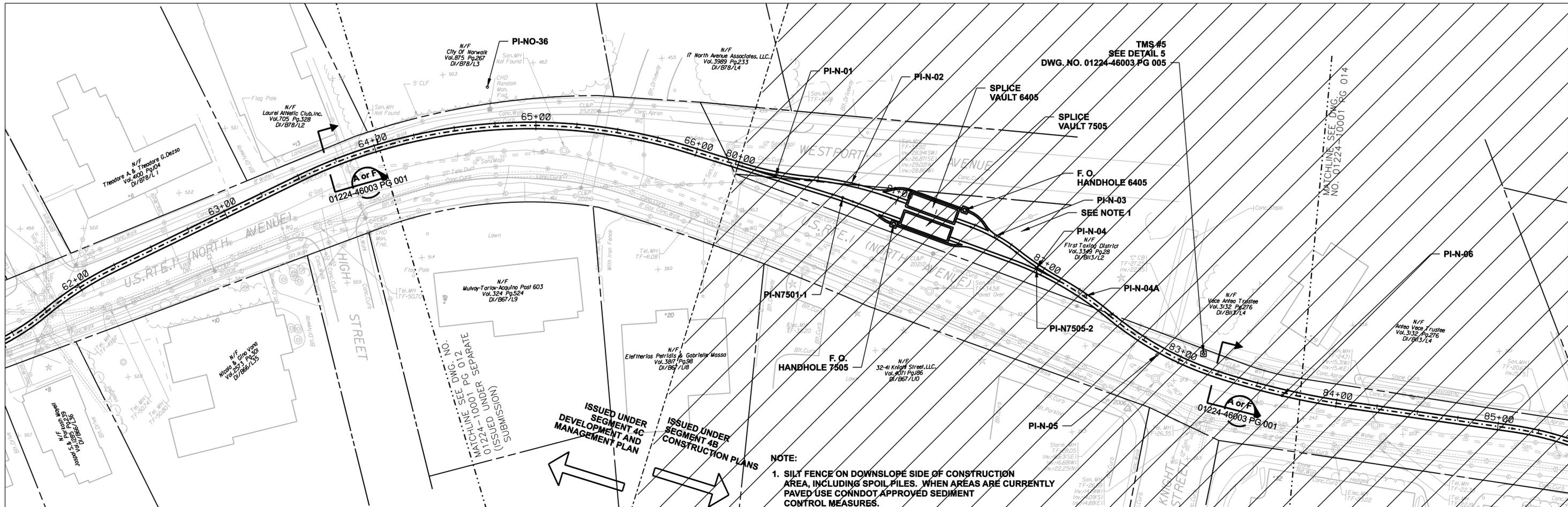


date: 6/15/06
designed: C. COURTRIGHT
detailed: C. DEHART
checked: S. NEWLAND

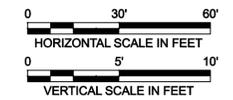
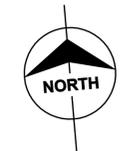
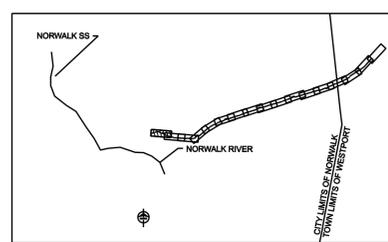
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NORTHEAST UTILITIES SERVICE CO.			
FOR THE CONNECTICUT LIGHT & POWER COMPANY			
TITLE: MIDDLETOWN-NORWALK 345KV TRANSMISSION PROJECT			
CITY OF NORWALK PLAN AND PROFILE Sta. 58+00 to 65+00			
BY SEN-BMCD	CHKD	APP	APP
DATE 6-15-06	DATE	DATE	DATE
SCALE AS NOTED	DWG. NO.		
	D		01224-10001 PG 011

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NOTE:
1. SILT FENCE ON DOWNSLOPE SIDE OF CONSTRUCTION AREA, INCLUDING SPOIL PILES. WHEN AREAS ARE CURRENTLY PAVED USE CONDOT APPROVED SEDIMENT CONTROL MEASURES.



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no.	date	revisions	by	chk
2	4/13/07	ISSUED CSC		CTC
1	2/12/07	ISSUED 60% PRELIMINARY		CTC

Burns & McDonnell
SINCE 1898

date: 11/10/05
designed: C. COURTRIGHT
detailed: L. ROWSE
checked: S. NEWLAND

MF NO.	DATE	REVISIONS	BY	CHK	APP	APP

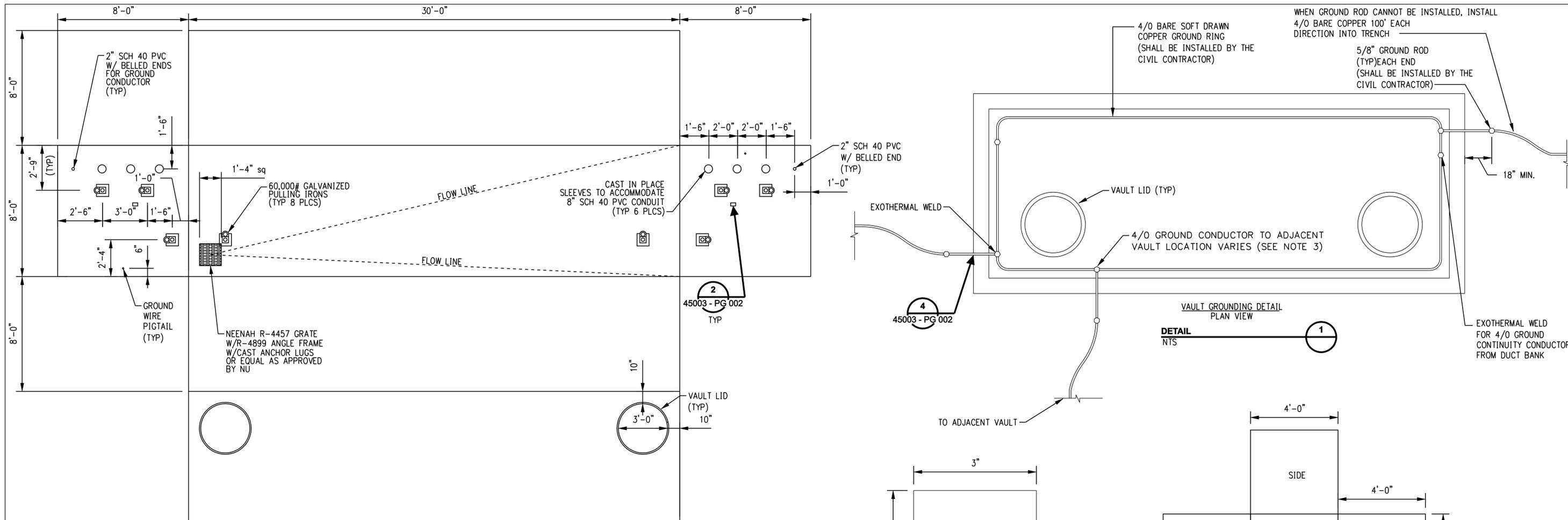
NORTHEAST UTILITIES SERVICE CO.

FOR THE CONNECTICUT LIGHT & POWER COMPANY

TITLE: MIDDLETOWN-NORWALK 345KV TRANSMISSION PROJECT

CITY OF NORWALK
PLAN AND PROFILE Sta. 62+00 to 84+00

BY SEN-BMCD	CHKD	APP	APP
DATE 11-10-05	DATE	DATE	DATE
SCALE AS NOTED	D	DWG. NO. 01224-10001 PG 013	

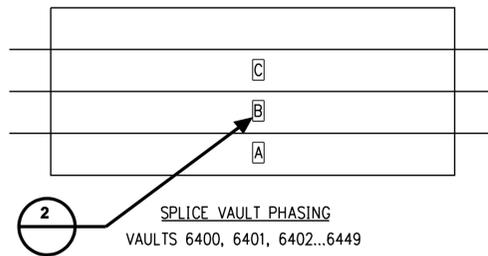


TYPICAL SPLICE VAULT DEVELOPMENT PLAN

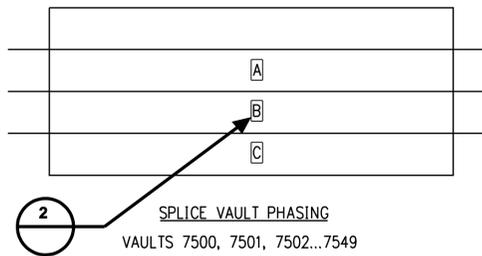
DETAIL
NTS

VAULT GROUNDING DETAIL
PLAN VIEW

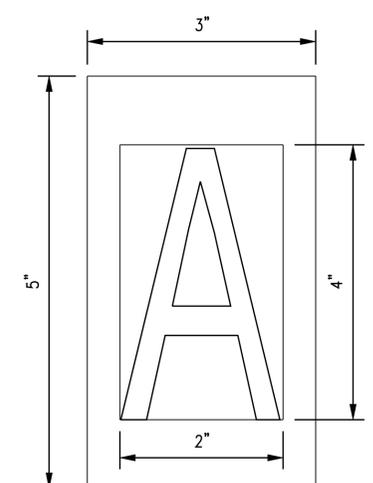
DETAIL
NTS



SPLICE VAULT PHASING
VAULTS 6400, 6401, 6402...6449



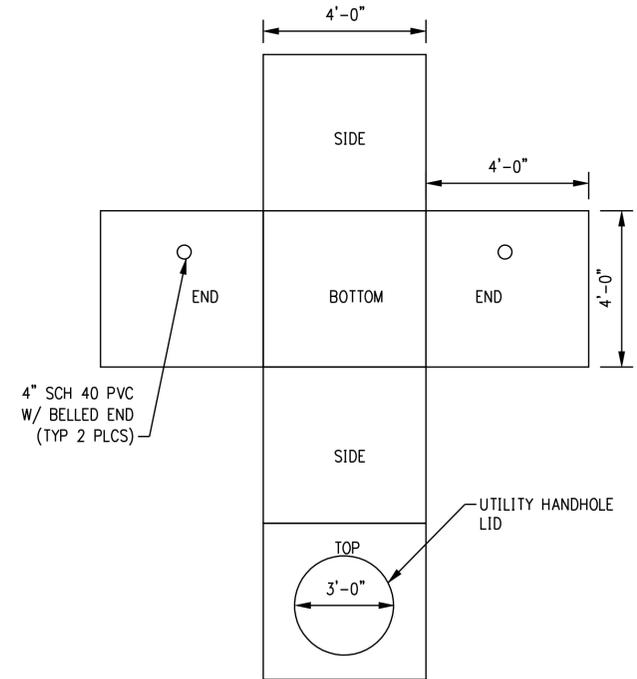
SPLICE VAULT PHASING
VAULTS 7500, 7501, 7502...7549



NOTES:

1. CHARACTER SHALL BE 4" HIGH BOLD TYPE.
2. CHARACTER SHALL BE CENTERED ON SIGN.
3. BACKGROUND: WHITE
LETTERING: BLACK
CHARACTERS: A, B & C AS SHOWN
4. ELECTRICAL CONTRACTOR SHALL ATTACH TAG TO SPLICE.

DETAIL
NTS



TYPICAL FIBER OPTIC HANDHOLE DEVELOPMENT PLAN

DETAIL
NTS

- NOTES:
1. GROUND PIGTAILS TO EXTEND A MINIMUM OF 18 INCHES FROM BOTH SIDES OF VAULT WALL PENETRATION.
 2. ALL EXTERNAL AREAS OF VAULT SHALL BE SEALED USING SONNEDORN HYDROCID 700 OR APPROVED NU EQUIVALENT.
 3. EACH VAULT SHALL HAVE AN ADDITIONAL 2" SCHEDULE 40 PVC WITH BELLED ENDS CAST IN PLACE TO CONNECT INTERNAL VAULT GROUNDING AND COMPLETE CONNECTION WITH EXOTHERMAL WELD.

DETAIL
NTS

GENERAL NOTE:

TEMPORARY AND PERMANENT EASEMENTS SHALL BE ACQUIRED FOR INSTALLATION OF THE DUCT BANK AND VAULTS ALONG PRIVATE PROPERTY. A TYPICAL VAULT LOCATION INSTALLED ALONG PRIVATE PROPERTY REQUIRES A PERMANENT EASEMENT OF APPROXIMATELY 10,000 SF AND A TEMPORARY EASEMENT OF APPROXIMATELY 6,500 SF.

ISSUED FOR
CONSTRUCTION

DOCKET No. 272



date 6/15/06
designed C. COURTRIGHT
detailed L. ROWSE
checked S. NEWLAND

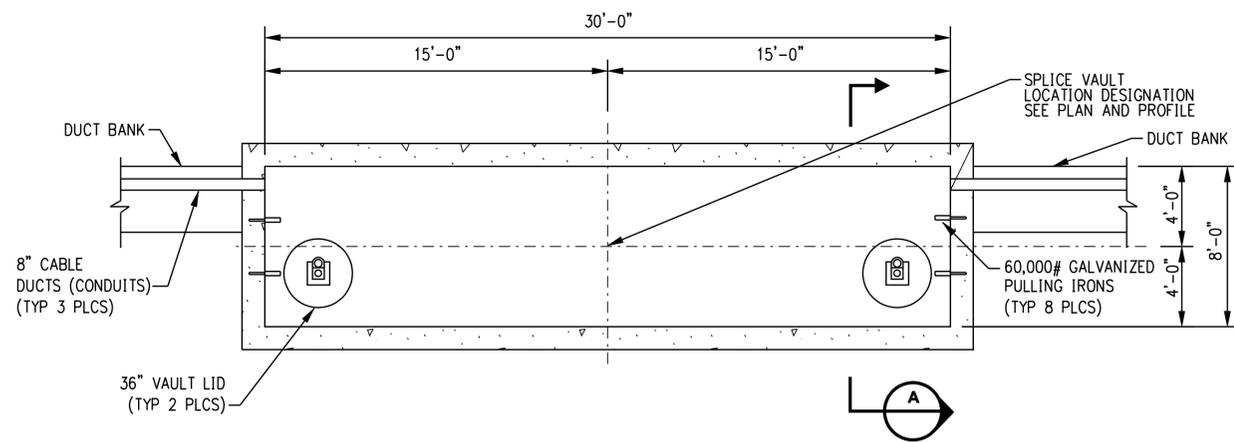
no.	date	revisions	by	chk
2	4/13/07	ISSUED CSC		CTC
1	2/12/07	ISSUED 60% PRELIMINARY		CTC

MF	NO.	DATE	REVISIONS	BY	CHK	APP	APP

NORTHEAST UTILITIES SERVICE CO.

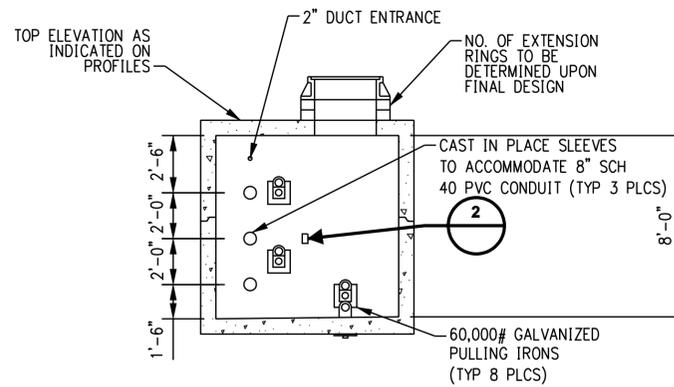
FOR THE CONNECTICUT LIGHT & POWER COMPANY
TITLE MIDDLETOWN-NORWALK 345KV TRANSMISSION PROJECT
VAULT, GROUNDING AND HANDHOLE DETAILS

BY	SEN-BMCD	CHKD	APP	APP
DATE	6-15-06	DATE	DATE	DATE
SCALE	AS NOTED	D	DWG. NO.	01224-45003 PG 001

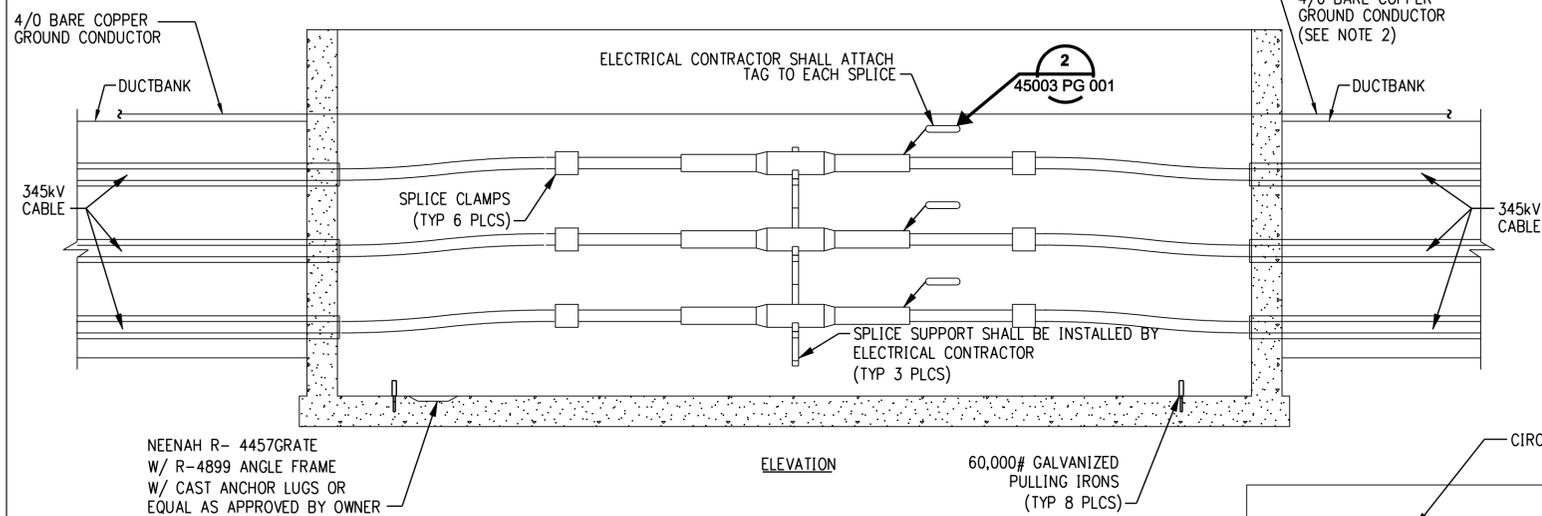


INTERIOR PLAN ELECTRICAL SPLICE VAULT

DETAIL 1
NTS

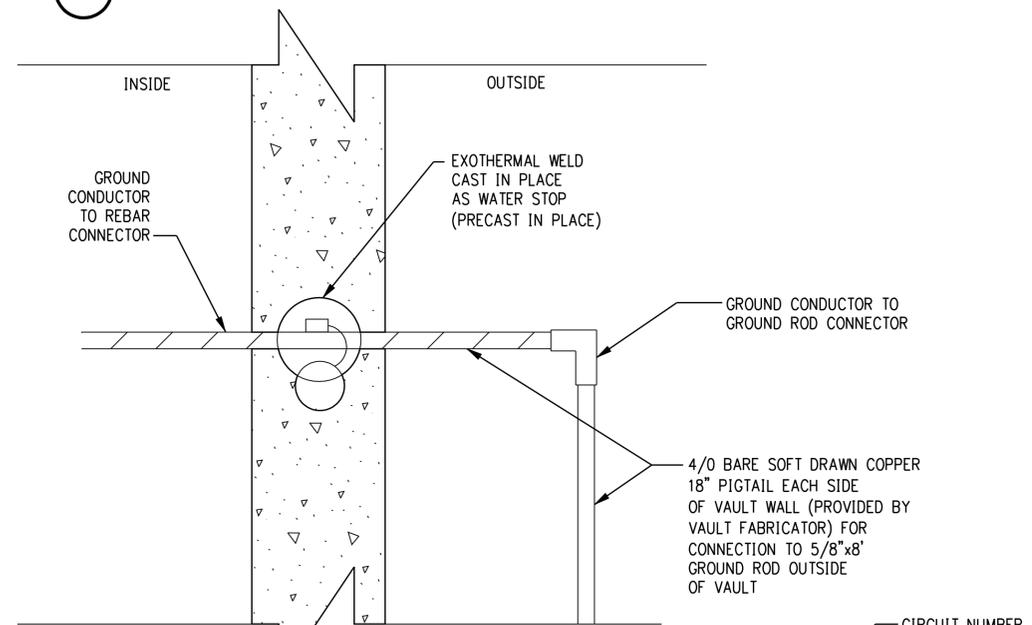


SPLICE VAULT
SECTION A
NTS



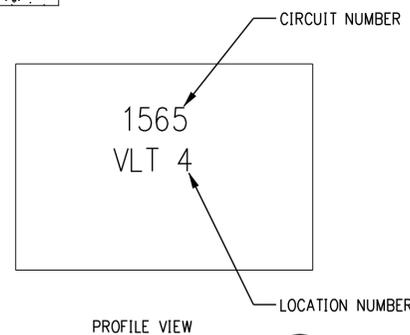
ELEVATION

SPLICE VAULT
DETAIL 3
NTS



GROUND WIRE DETAIL
PROFILE VIEW

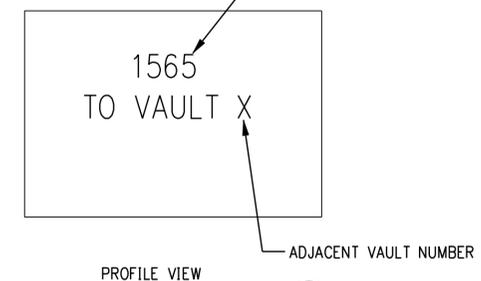
DETAIL 4
NTS



PROFILE VIEW

DETAIL 5
NTS

CIVIL CONTRACTOR SHALL ATTACH TAG 1'-6" BELOW FINISHED GRADE ON THE INSIDE OF THE EXTENSION RINGS AND ON THE VAULT WALL OPPOSITE THE RACKING



PROFILE VIEW

DETAIL 2
NTS

CIVIL CONTRACTOR SHALL ATTACH TAG TO EACH ENDWALL DESIGNATING NEXT ADJACENT VAULT IN CIRCUIT

NOTES:

- PASS GROUND CONDUCTOR THROUGH VAULT WALL AND SUPPORT ALONG VAULT WALL.
- BOND GROUNDS FROM EARTHING TO VAULT/ DUCTBANK GROUND.

GENERAL NOTE:

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CONSTRUCTION



date 6/15/06
designed C. COURTRIGHT
detailed L. ROWSE
checked S. NEWLAND

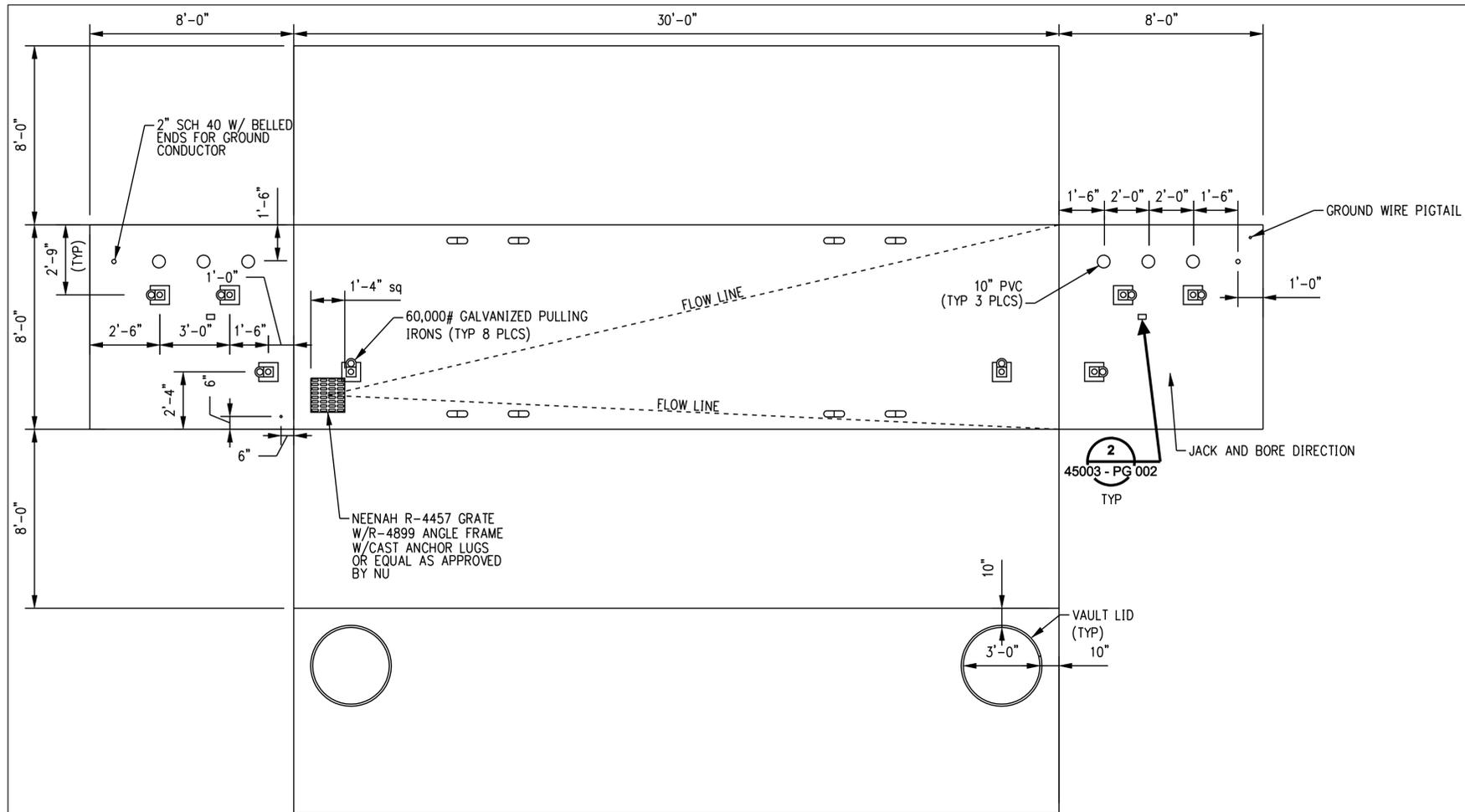
no.	date	revisions	by	chk
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1	2/12/07	ISSUED 60% PRELIMINARY		CTC

MF	NO.	DATE	REVISIONS	BY	CHK	APP	APP

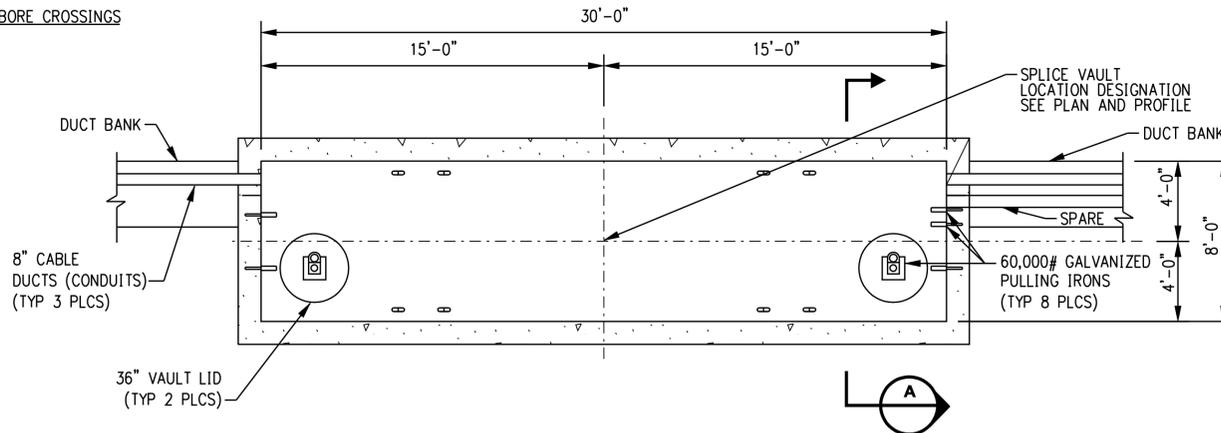
NORTHEAST UTILITIES SERVICE CO.

FOR THE CONNECTICUT LIGHT & POWER COMPANY
TITLE MIDDLETOWN-NORWALK 345KV TRANSMISSION PROJECT
VAULT AND GROUNDING DETAILS

BY	SEN-BMCD	CHKD	APP	APP
DATE	6-15-06	DATE	DATE	DATE
SCALE	AS NOTED	D	DWG. NO.	01224-45003 PG 002

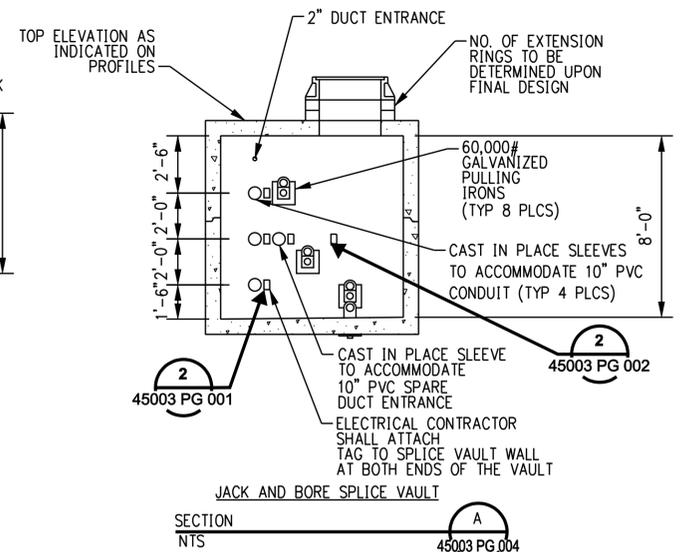


SPLICE VAULT DEVELOPMENT PLAN FOR VAULTS BETWEEN JACK AND BORE CROSSINGS



INTERIOR PLAN ELECTRICAL SPLICE VAULT FOR JACK AND BORE CROSSINGS

DETAIL 1 NTS



JACK AND BORE SPLICE VAULT SECTION A-A NTS

NOTES:

1. REBAR WITHIN SPLICE CHAMBER WALLS SHALL NOT FORM A LOOP AROUND ANY 8" CONDUIT OPENING.
2. ALL UNUSED CONDUITS SHALL BE PLUGGED AND SEALED USING WATERTIGHT DUCT PLUGS AS MANUFACTURED BY JACKMOON USA, INC. OR ACCEPTABLE EQUAL.
3. VAULT ENDS HAVING SPARE DUCTS ARE ORIENTED TOWARD TRENCHLESS CROSSINGS. (JACK AND BORES, UTILITY BRIDGES, OR HORIZONTAL DIRECTIONAL DRILLS)

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GENERAL NOTE:

TEMPORARY AND PERMANENT EASEMENTS SHALL BE ACQUIRED FOR INSTALLATION OF THE DUCT BANK AND VAULTS ALONG PRIVATE PROPERTY. A TYPICAL VAULT LOCATION INSTALLED ALONG PRIVATE PROPERTY REQUIRES A PERMANENT EASEMENT OF APPROXIMATELY 10,000 SF AND A TEMPORARY EASEMENT OF APPROXIMATELY 6,500 SF.

DOCKET No. 272

ISSUED FOR CONSTRUCTION



date 6/15/06 detailed L. ROWSE
 designed C. COURTRIGHT checked S. NEWLAND

no.	date	revisions	by	chk
2	4/13/07	ISSUED CSC	CTC	
1	2/12/07	ISSUED 60% PRELIMINARY	CTC	

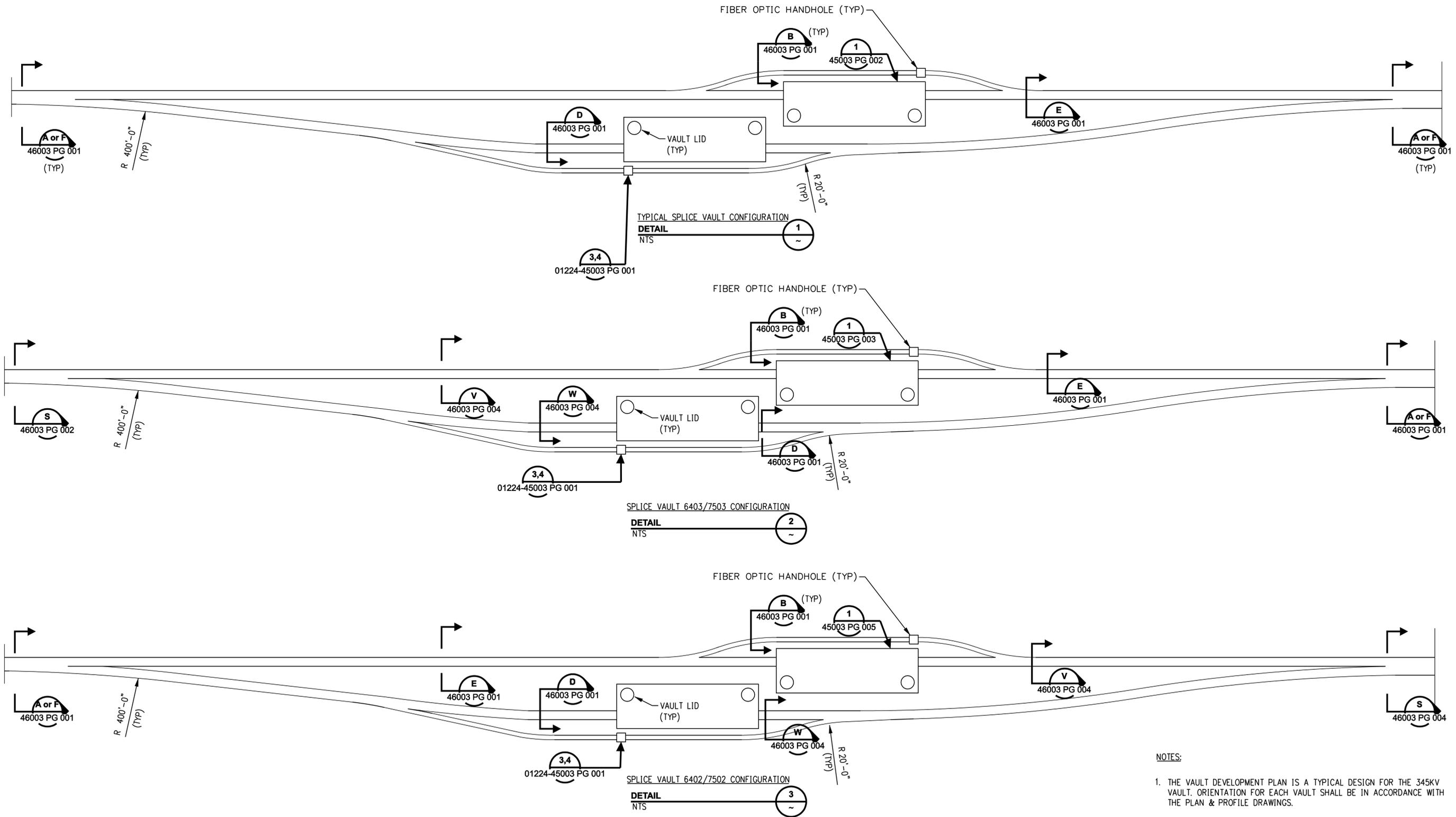
MF	NO.	DATE	REVISIONS	BY	CHK	APP	APP

NORTHEAST UTILITIES SERVICE CO.

FOR THE CONNECTICUT LIGHT & POWER COMPANY
 TITLE MIDDLETOWN-NORWALK 345KV TRANSMISSION PROJECT
 JACK AND BORE SPLICE VAULT DETAILS

BY	SEN-BMCD	CHKD	APP	APP
DATE	6-15-06	DATE	DATE	DATE
SCALE	AS NOTED	D	DWG. NO.	01224-45003 PG 005

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NOTES:
 1. THE VAULT DEVELOPMENT PLAN IS A TYPICAL DESIGN FOR THE 345KV VAULT. ORIENTATION FOR EACH VAULT SHALL BE IN ACCORDANCE WITH THE PLAN & PROFILE DRAWINGS.

DOCKET No. 272

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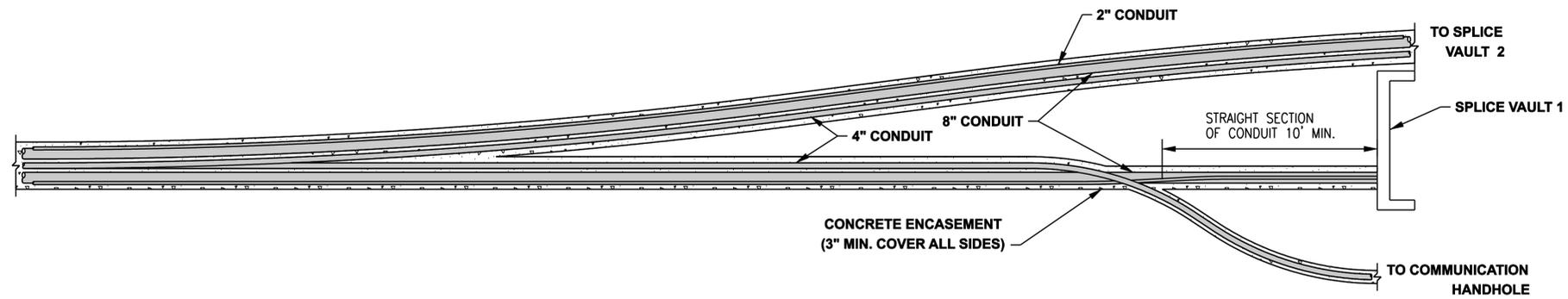
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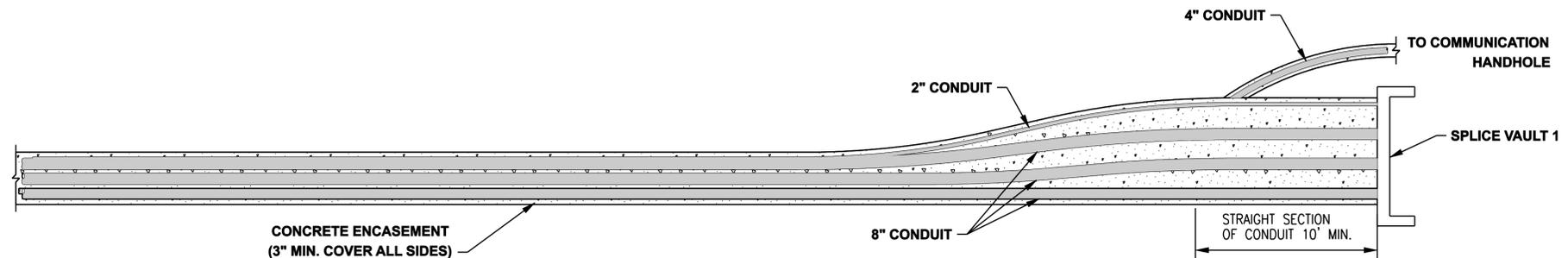
date 06/15/06
 detailed L. ROWSE
 designed C. COURTRIGHT
 checked S. NEWLAND

MF	NO.	DATE	REVISIONS	BY	CHK	APP	APP

NORTHEAST UTILITIES SERVICE CO.			
FOR THE CONNECTICUT LIGHT & POWER COMPANY			
TITLE MIDDLETOWN-NORWALK 345KV TRANSMISSION PROJECT CROSSING SPLICE VAULT DETAILS SEGMENT 4C			
BY SEN-BMCD	CHKD	APP	APP
DATE 6-15-06	DATE	DATE	DATE
SCALE AS NOTED	D	DWG. NO. 01224-45003 PG 009	



PLAN



PROFILE

DUCT BANK CONDUIT TRANSITION
DETAIL 1

DOCKET No. 272

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CONSTRUCTION**

no.	date	revisions	by	chk
2	4/13/07	ISSUED CSC	CTC	
1	2/12/07	ISSUED 60% PRELIMINARY	CTC	

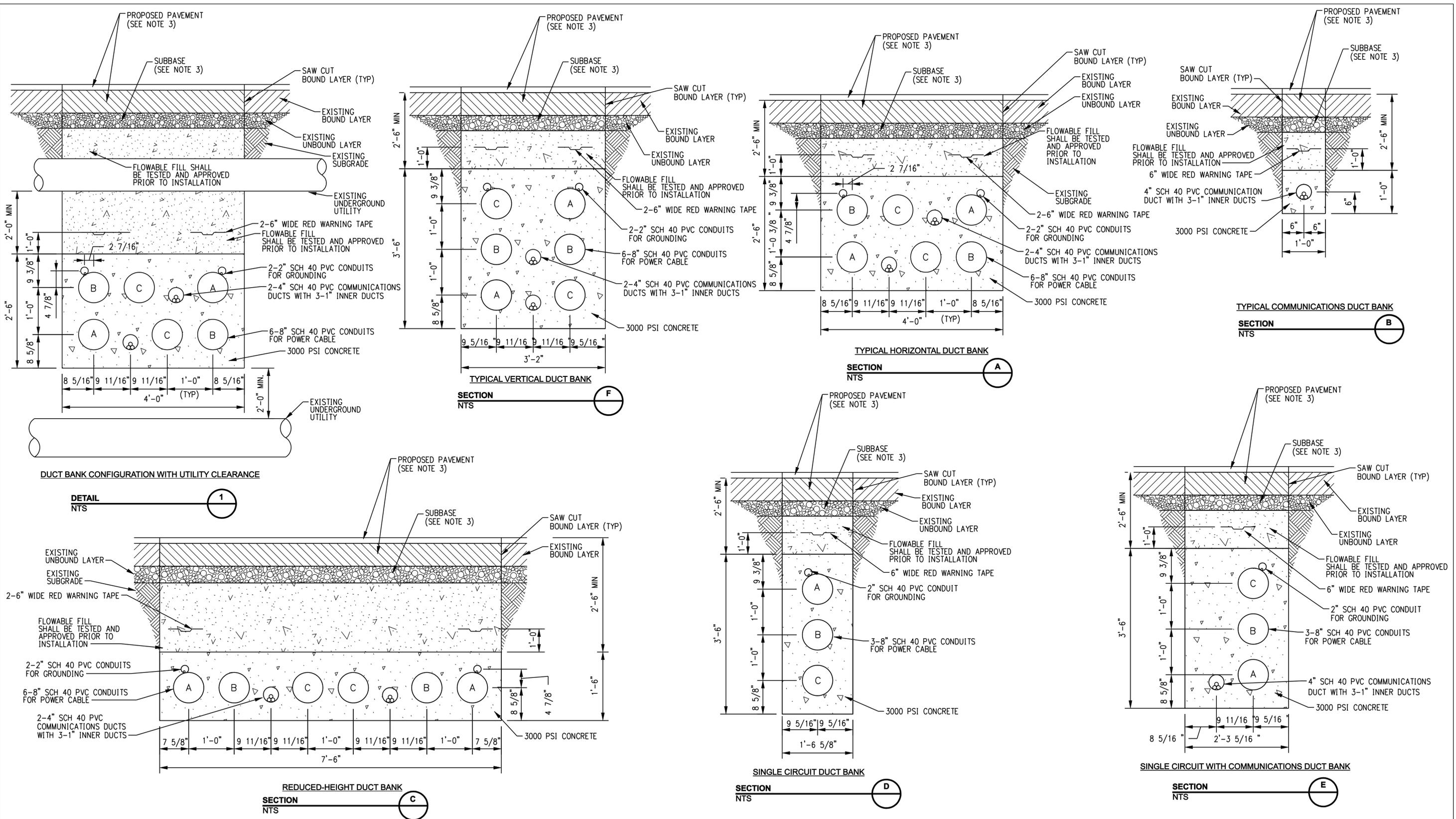


**Burns &
McDonnell**
SINCE 1898

date	6/15/06	detailed	L. ROWSE
designed	C. COURTRIGHT	checked	S. NEWLAND

MF	NO.	DATE	REVISIONS	BY	CHK	APP	APP

NORTHEAST UTILITIES SERVICE CO.			
FOR THE CONNECTICUT LIGHT & POWER COMPANY			
TITLE MIDDLETOWN-NORWALK 345KV TRANSMISSION PROJECT			
CONDUIT TRANSITIONS			
BY	SEN-BMCD	CHKD	APP
DATE	6-15-06	DATE	DATE
SCALE	AS NOTED	DWG. NO.	01224-45003 PG 010
D			



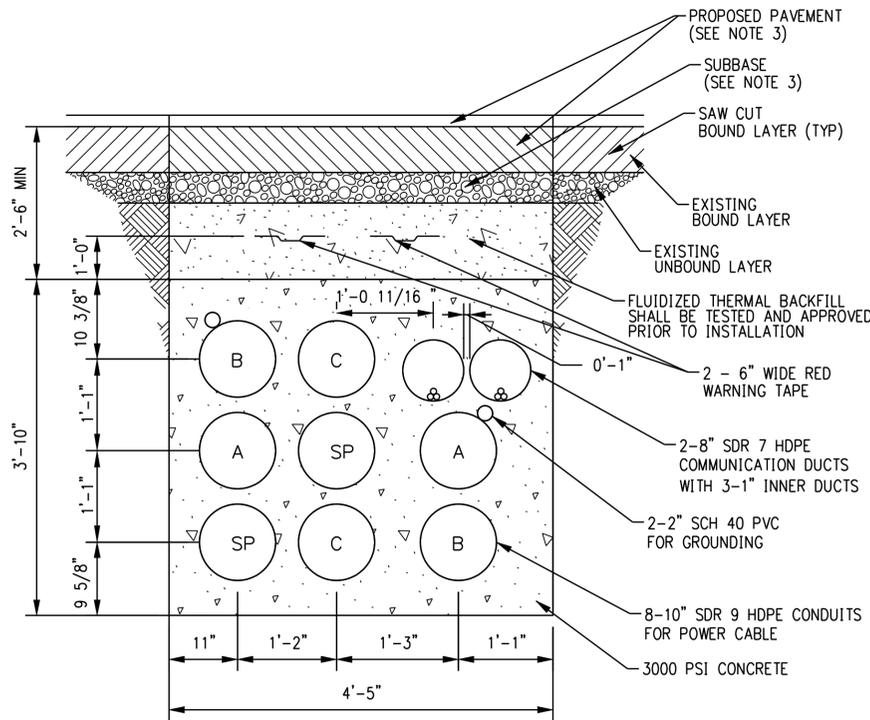
GENERAL NOTES:
 1. STANDARD TRENCH WITH PERMANENT PAVEMENT RESTORATION IN STATE HIGHWAY SHOWN. PAVEMENT RESTORATION REQUIREMENTS SHALL VARY DEPENDENT ON SPECIFIC EXISTING PAVEMENT CROSS SECTIONS AND MATERIALS.
 2. OMITTED
 3. REFERENCE RESTORATION DRAWINGS FOR PROPOSED PAVEMENT SECTIONS.

ISSUED FOR CONSTRUCTION



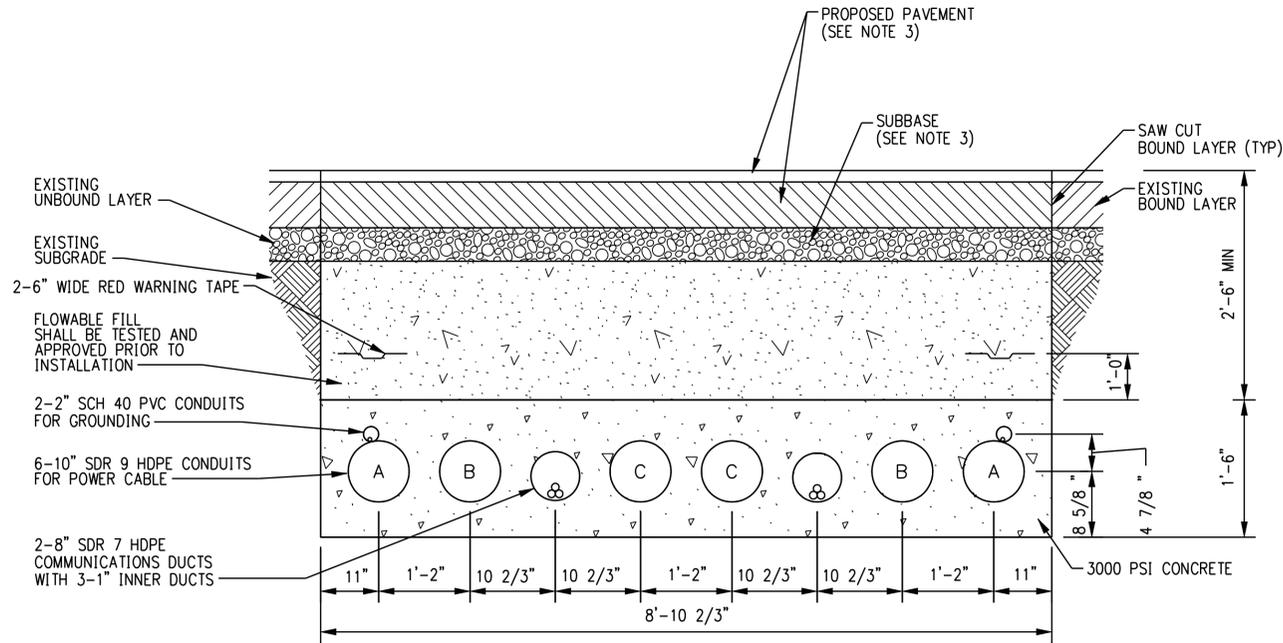
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				FOR THE CONNECTICUT LIGHT & POWER COMPANY			
				TITLE MIDDLETOWN-NORWALK 345KV TRANSMISSION PROJECT			
				TYPICAL DUCT BANK DETAILS			
2	4/13/07	ISSUED CSC	CTC	date	6/15/06	detailed	BL COMPANIES
1	2/12/07	ISSUED 60% PRELIMINARY	CTC	designed		checked	S. NEWLAND
no.	date	revisions	by	chk			
				MF	NO.	DATE	REVISIONS
				BY	CHK	APP	APP
						D	DWG. NO. 01224-46003 PG 001

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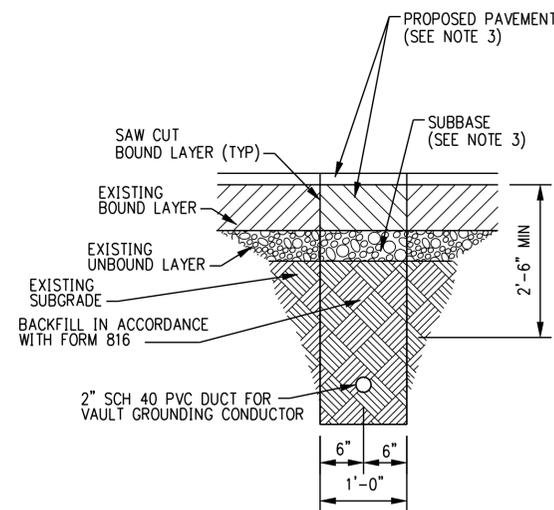
TYPICAL HORIZONTAL DIRECTIONAL DRILL DUCT BANK

SECTION NTS **Y**



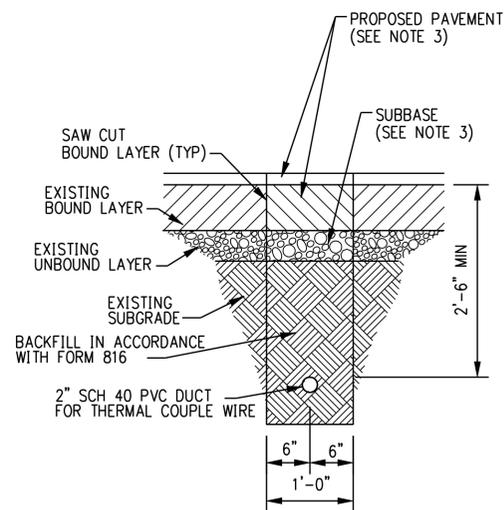
REDUCED-HEIGHT HORIZONTAL DIRECTIONAL DRILL DUCT BANK

SECTION NTS **Z**



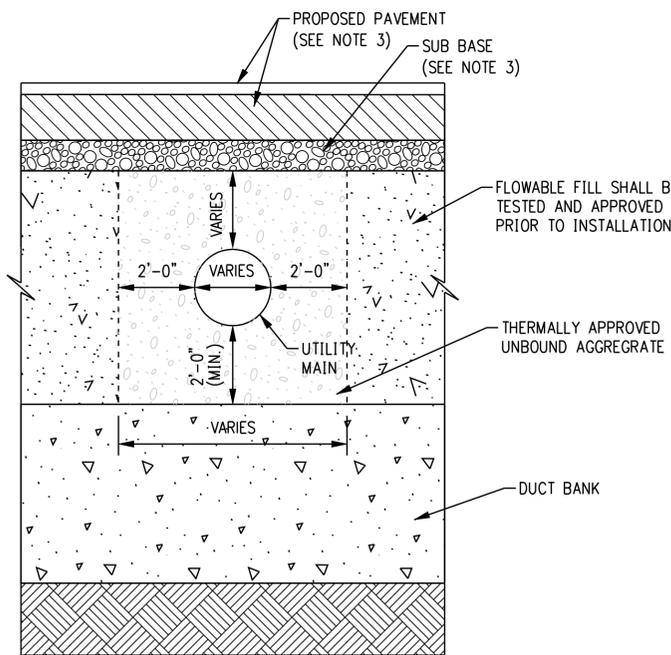
TYPICAL GROUNDING DUCT BANK

SECTION NTS **AA**



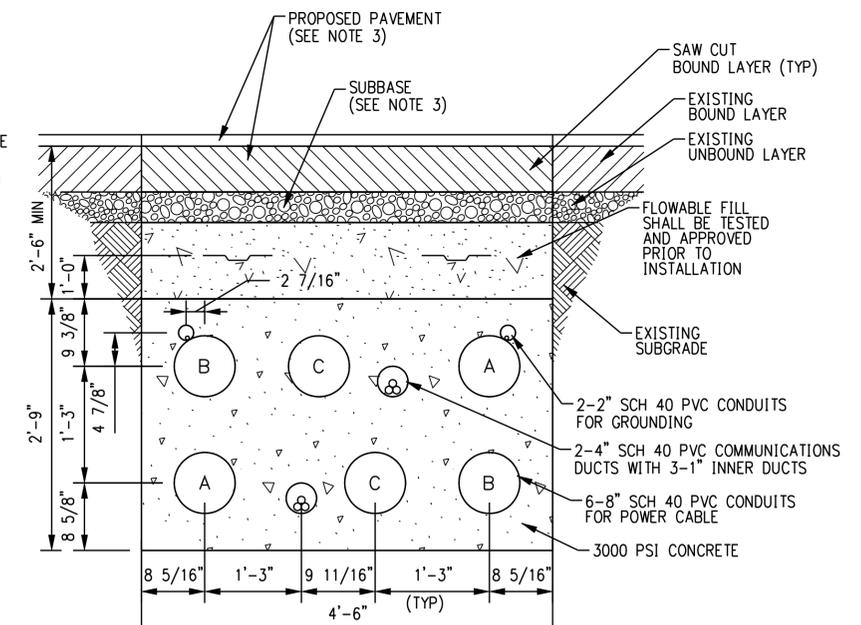
TYPICAL THERMAL COUPLE WIRE DUCT BANK

SECTION NTS **BB**



TYPICAL GAS UTILITY CROSSING

SECTION NTS **M**



15" PHASE-SPACING DUCT BANK

SECTION NTS **N**

- GENERAL NOTES:
- STANDARD TRENCH WITH PERMANENT PAVEMENT RESTORATION IN STATE HIGHWAY SHOWN. PAVEMENT RESTORATION REQUIREMENTS SHALL VARY DEPENDENT ON SPECIFIC EXISTING PAVEMENT CROSS SECTIONS AND MATERIALS.
 - ALL FIBERGLASS CONDUITS SHALL BE OF BULLET-RESISTANT GRADE OR APPROVED OTHER.
 - REFERENCE RESTORATION DRAWINGS FOR PROPOSED PAVEMENT SECTIONS.

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ISSUED FOR CONSTRUCTION

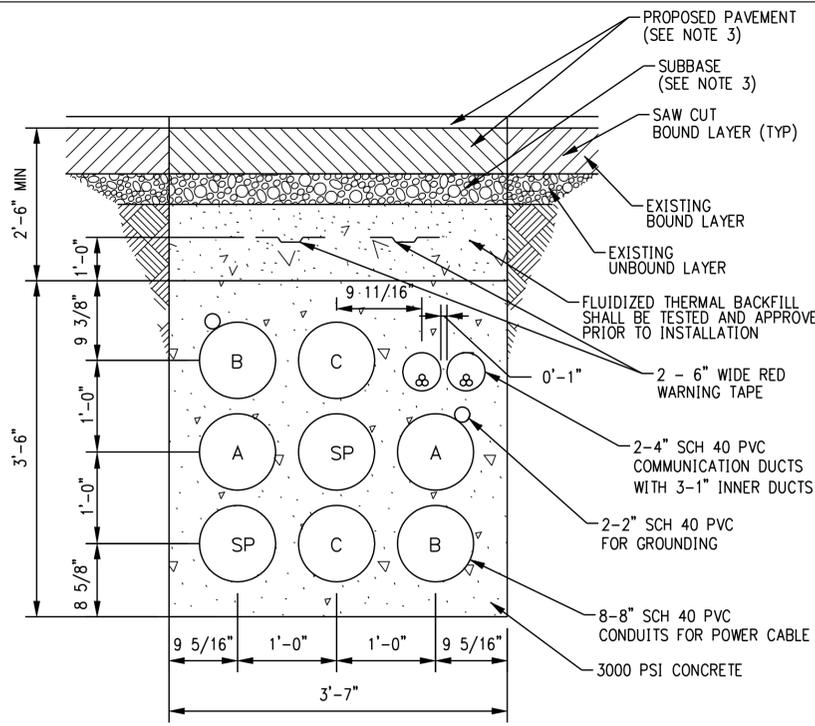


date 11/09/05
 detailed L. ROWSE
 designed C. COURTRIGHT
 checked S. NEWLAND

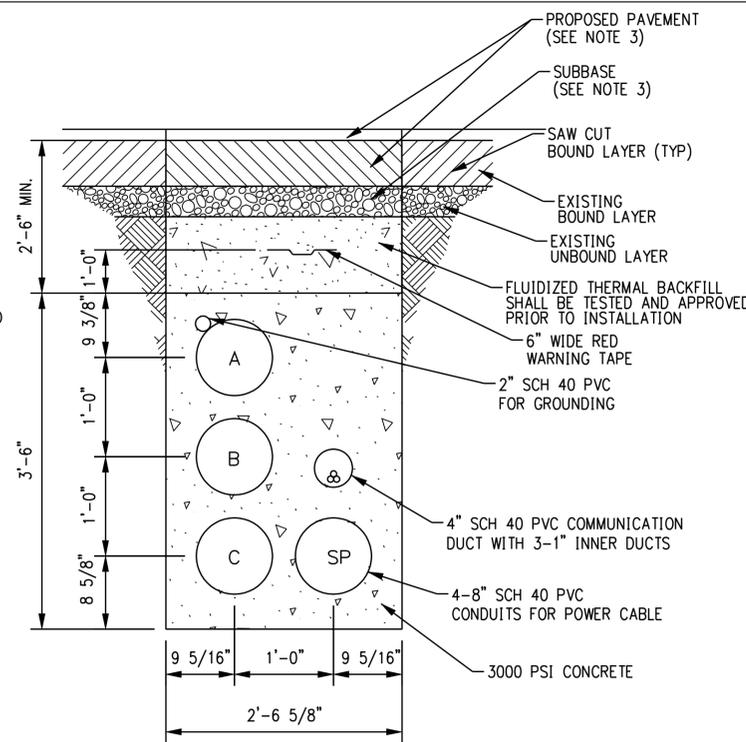
no.	date	revisions	by	chk
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1	2/12/07	ISSUED 60% PRELIMINARY		CTC

MF	NO.	DATE	REVISIONS	BY	CHK	APP	APP

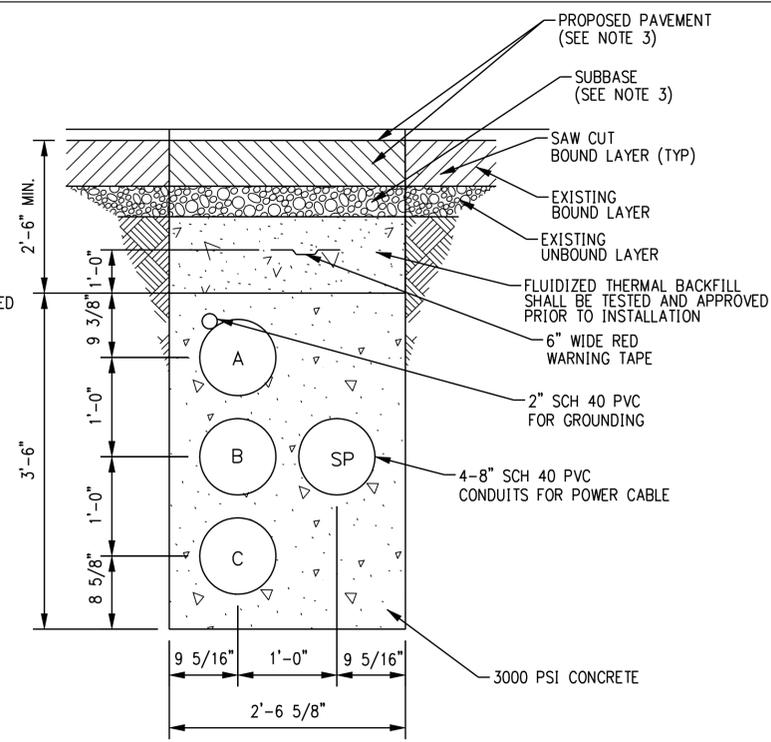
NORTHEAST UTILITIES SERVICE CO.			
FOR THE CONNECTICUT LIGHT & POWER COMPANY			
TITLE MIDDLETOWN-NORWALK 345KV TRANSMISSION PROJECT UTILITY BRIDGE DUCT BANK DETAILS AND UTILITY CROSSING DETAIL			
BY SEN-BMCD	CHKD	APP	APP
DATE 11-09-05	DATE	DATE	DATE
SCALE AS NOTED	D	DWG. NO. 01224-46003	PG 002



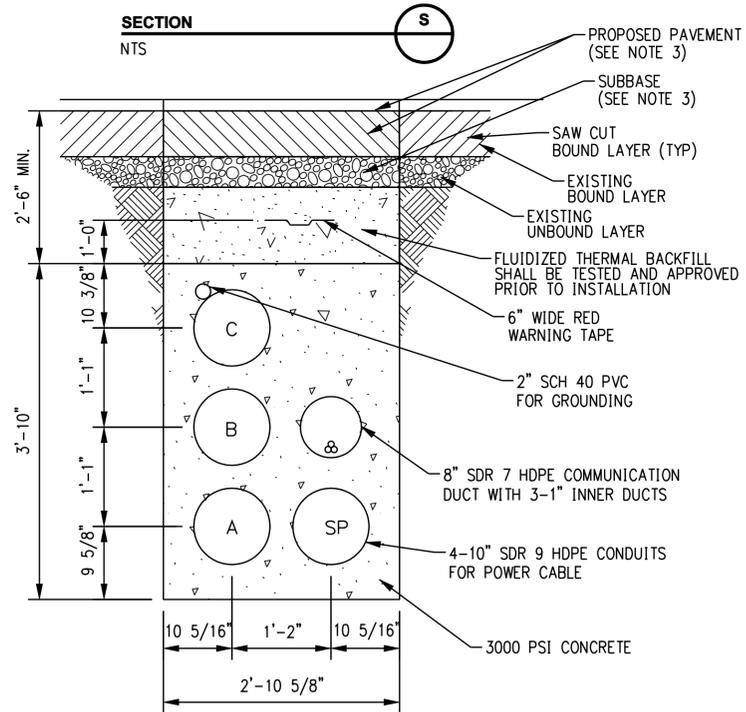
TYPICAL JACK AND BORE DUCT BANK



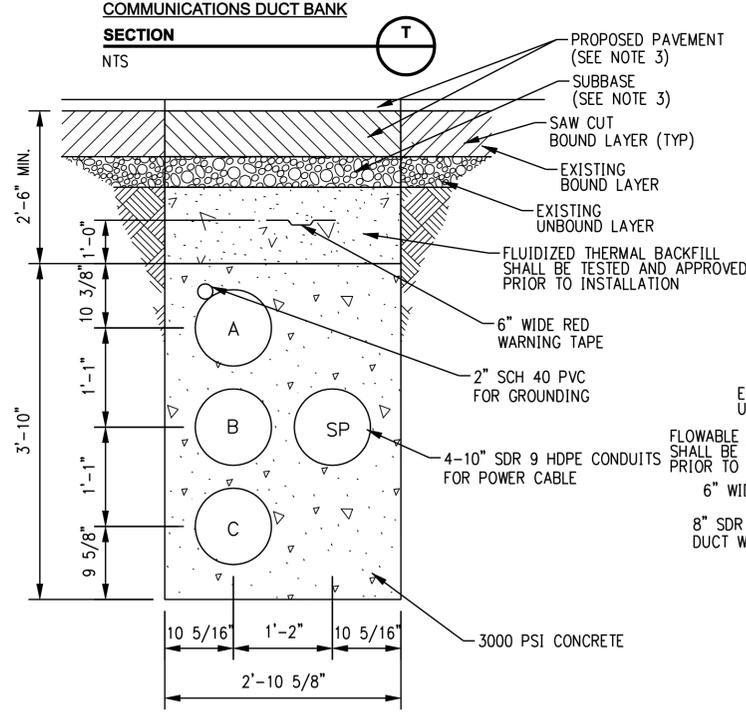
JACK AND BORE SINGLE CIRCUIT WITH COMMUNICATIONS DUCT BANK



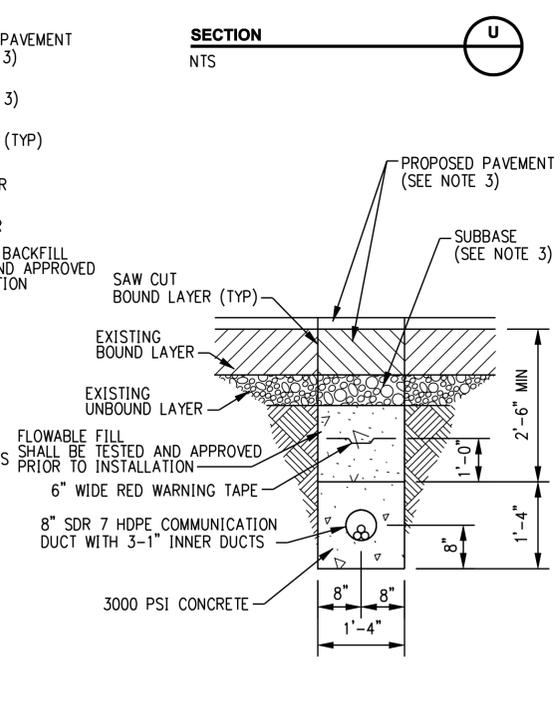
JACK AND BORE SINGLE CIRCUIT DUCT BANK



HORIZONTAL DIRECTIONAL DRILL SINGLE CIRCUIT WITH COMMUNICATIONS DUCT BANK



HORIZONTAL DIRECTIONAL DRILL SINGLE CIRCUIT DUCT BANK



HORIZONTAL DIRECTIONAL DRILL COMMUNICATIONS DUCT BANK

- GENERAL NOTES:
- STANDARD TRENCH WITH PERMANENT PAVEMENT RESTORATION IN STATE HIGHWAY SHOWN. PAVEMENT RESTORATION REQUIREMENTS SHALL VARY DEPENDENT ON SPECIFIC EXISTING PAVEMENT CROSS SECTIONS AND MATERIALS.
 - OMITTED
 - REFERENCE RESTORATION DRAWINGS FOR PROPOSED PAVEMENT SECTIONS.

DOCKET No. 272

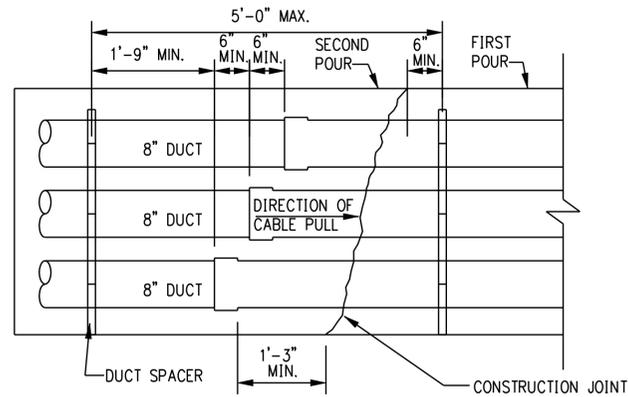
ISSUED FOR CONSTRUCTION

no.	date	revisions	by	chk
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1	2/12/07	ISSUED 60% PRELIMINARY		CTC

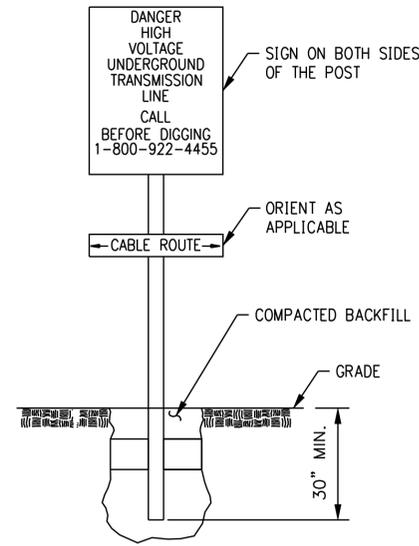
Burns & McDonnell SINCE 1898	
date	6/15/06
detailed	L. ROWSE
designed	C. COURTRIGHT
checked	S. NEWLAND

MF	NO.	DATE	REVISIONS	BY	CHK	APP	APP

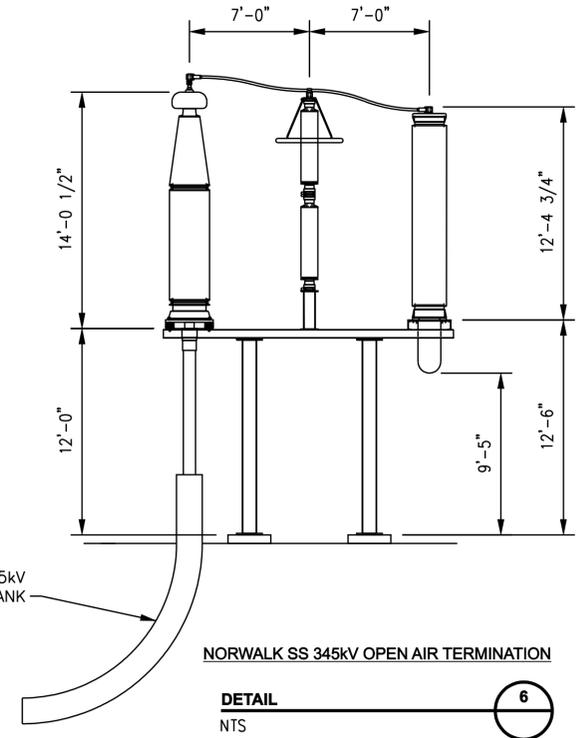
NORTHEAST UTILITIES SERVICE CO.			
FOR THE CONNECTICUT LIGHT & POWER COMPANY			
TITLE MIDDLETOWN-NORWALK 345KV TRANSMISSION PROJECT			
JACK AND BORE, HORIZONTAL DIRECTIONAL DRILL AND UTILITY BRIDGE DUCT BANK DETAILS			
BY SEN-BMCD	CHKD	APP	APP
DATE 6-15-06	DATE	DATE	DATE
SCALE AS NOTED	D	DWG. NO.	01224-46003 PG 004



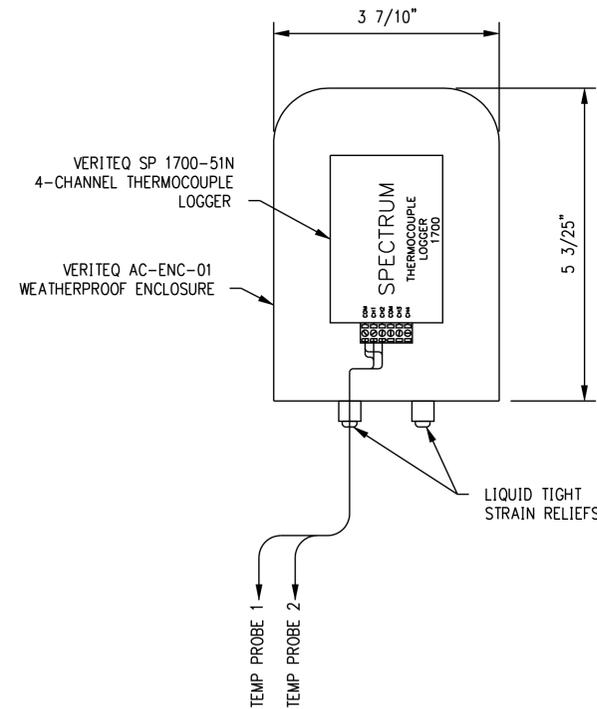
CONSTRUCTION JOINT DETAIL
DETAIL 1
 NTS



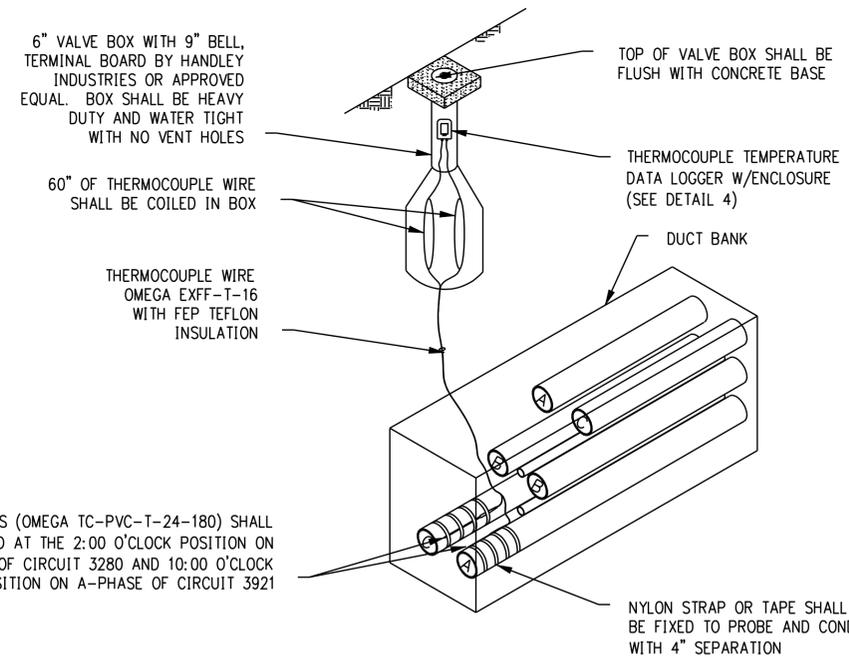
TYPICAL WARNING SIGN
DETAIL 2
 NTS



NORWALK SS 345KV OPEN AIR TERMINATION
DETAIL 6
 NTS



THERMOCOUPLE TEMPERATURE DATA LOGGER
DETAIL 4
 NTS



TEMPERATURE MONITORING STATION INSTALLATION
DETAIL 5
 NTS

TEMPERATURE PROBES (OMEGA TC-PVC-T-24-180) SHALL BE MOUNTED AT THE 2:00 O'CLOCK POSITION ON C-PHASE OF CIRCUIT 3280 AND 10:00 O'CLOCK POSITION ON A-PHASE OF CIRCUIT 3921

GENERAL NOTE:

TEMPORARY AND PERMANENT EASEMENTS SHALL BE ACQUIRED FOR INSTALLATION OF THE DUCT BANK AND VAULTS ALONG PRIVATE PROPERTY. A TYPICAL VAULT LOCATION INSTALLED ALONG PRIVATE PROPERTY REQUIRES A PERMANENT EASEMENT OF APPROXIMATELY 10,000 SF AND A TEMPORARY EASEMENT OF APPROXIMATELY 6,500 SF.

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Burns & McDonnell SINCE 1898	
date	6/15/06
detailed	L. ROWSE
designed	C. COURTRIGHT
checked	S. NEWLAND

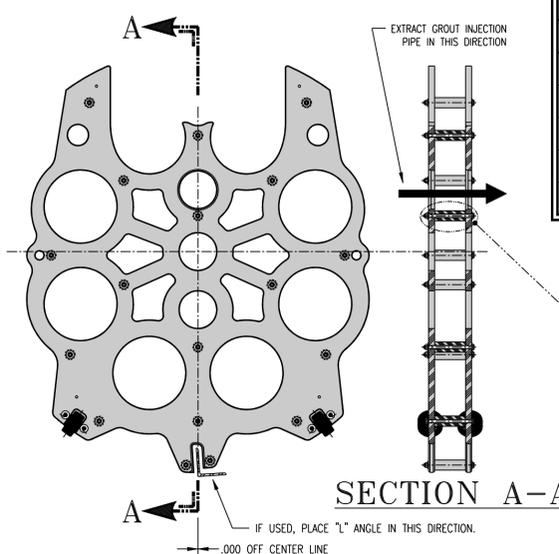
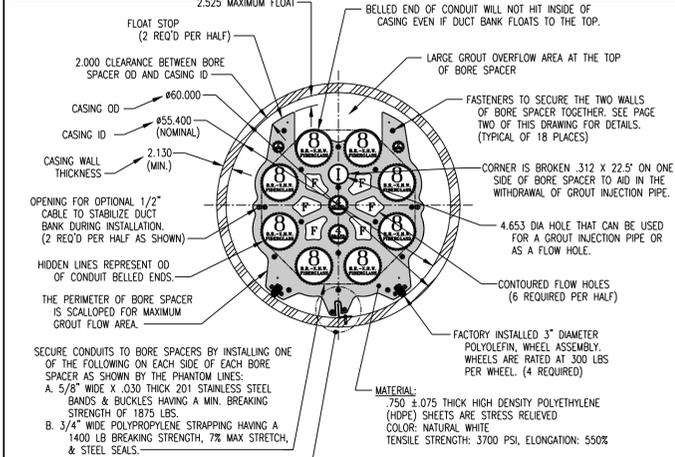
MF	NO.	DATE	REVISIONS	BY	CHK	APP	APP

NORTHEAST UTILITIES SERVICE CO.			
FOR THE CONNECTICUT LIGHT & POWER COMPANY			
TITLE MIDDLETOWN-NORWALK 345KV TRANSMISSION PROJECT			
CABLE AND TEMPERATURE MONITORING DETAILS			
BY SEN-BMCD	CHKD	APP	APP
DATE 6-15-06	DATE	DATE	DATE
SCALE AS NOTED	D	DWG. NO.	01224-46003 PG 005

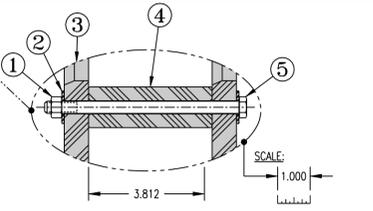
CONDUIT SIZE	MIN. DISTANCE
2 & 8	3,000
4 & 4	2,500
4 & 8	3,000
8 & 8	3,000

CTR TO CTR DISTANCE BETWEEN CONDUITS	CONDUIT SIZE	MIN. DISTANCE
2 & 8	8.517	
4 & 4	7.152	
4 & 8	9.834	
8 & 8	12.000	

- NOTES:**
- USE ONE BORE SPACER FOR EVERY 5 FEET OF DUCT BANK.
 - THE CASING ID MUST BE SMOOTH AND FREE FROM RIDGES, PROJECTIONS AND SEAMS THAT MIGHT IMPEDE THE ROLLING OF WHEELS.
 - A TROUGH OR FEEDER BRIDGE SHOULD BE CONSTRUCTED AT THE LEADING END OF THE CASING TO SUPPORT SECTIONS OF DUCT BANK AS THEY ARE ASSEMBLED AND PULLED INTO THE CASING.
 - THIS BORE SPACER IS DESIGNED FOR A CASING THAT IS STRAIGHT AND TRUE.
 - IT IS POSSIBLE THAT THE DUCT BANK WILL ROTATE (CORKSCREW) AS IT IS PULLED THRU THE CASING UNLESS AN "OFF CENTER WEIGHT TECHNIQUE", "STABILIZATION CABLES" OR "L" ANGLE & SLOT TECHNIQUE IS USED.
 - THIS BORE SPACER WILL ACCOMMODATE THE "SINGLE-END", "FLUSH COUPLED EXTRACTABLE INJECTION PIPE" OR "STATIONARY SACRIFICIAL INJECTION PIPE" METHODS OF GROUT FILLING.
 - IT IS ESSENTIAL THAT THE BORE SPACERS ARE HELD IN PLACE RELATIVE TO THE CONDUIT. REASON: AS THE GROUT IS PUMPED INTO THE CASING, THE COMPARTMENTS FORMED BETWEEN THE BORE SPACERS ARE MORE OR LESS FILLED SEQUENTIALLY, PLACING A TEMPORARY THRUST LOAD ON EACH BORE SPACER.
 - THE DUCT BANK MUST BE HELD IN POSITION AT BOTH ENDS TO ACCOMMODATE POSSIBLE UNEVEN THRUST LOADS THAT MAY BE GENERATED DURING THE GROUTING OPERATION.
 - WHEN FILLING THE AREA BETWEEN THE CONDUITS AND CASING WITH GROUT, TAKE CARE NOT TO EXCEED THE HYDRAULIC COLLAPSE PRESSURE OF THE CONDUITS.
 - DEPENDING ON THE GROUT SPECIFIC GRAVITY AND GROUT FLOW, IT IS POSSIBLE THAT THE DUCT BANK WILL FLOAT TO THE TOP OF THE CASING.
 - ACTUAL QUANTITY OF GROUT USED SHOULD BE MEASURED AND RECORDED.



ITEM NUMBER	QTY REQ'D	DESCRIPTION
①	18	3/8-16 HEX NUT (GRADE 2, CENTERLOCK LOCKING NUT, ZINC PLATED STEEL)
②	36	3/8 FLAT WASHER (.438 ID X 1.000 OD X .078 THK, USS STANDARD, ZINC PLATED STEEL)
③	2	UDI 90-4150 BLANK BORE SPACER
④	18	UDI 90-803 SPACER BUSHING (TYPE 1 PVC DARK GRAY)
⑤	18	3/8-16 X 6\" LG HEX HEAD CAP SCREW (GRADE 2, ZINC PLATED LOW CARBON STEEL)

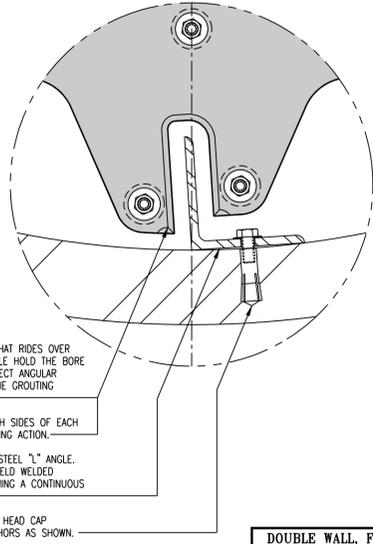


CONDUIT AND HOLE SIZES			
CONDUIT OD	FULL HOLE DIAMETER	PARTIAL HOLE DIAMETER	
2"	2.500	2.620	
4"	4.500	4.653	
8"	8.900	9.015	8.920

DOUBLE WALL, FULL COMPLEMENT BORE SPACER With 8 Ea. 8" 2 Ea. 4" & 2 Ea. 2" RTRC-XHW (Bullet-Resistant, Extra Heavy Wall Fiberglass) Conduits Per NEMA TC-2002 In A 60,000 OD X 2,130 Min. Wall HOBAS (Centrifugally Cast Fiberglass Reinforced Polymer Mortar) Casing
 See At Left Alan Armstrong B.Muehlenbeck Don McCoy
 7-7-06
 1st Designed For BURNS & MCDONNELL
 Kansas City, MO - CHRIS COURTRIGHT - Phone: 816-333-9400
 UNDERGROUND DEVICES, INC. 90-4150
 NORTHBROOK, ILLINOIS 60062 - PHONE: (847) 295-9000 PAGE 2 OF 3

DETAIL No. 1

SCALE: 4X



NOTE THAT BORE SPACER HAS A SLOT THAT RIDES OVER THE "L" ANGLE. THIS SLOT & "L" ANGLE HOLD THE BORE SPACERS AND CONDUITS IN THE CORRECT ANGULAR POSITION DURING INSTALLATION AND THE GROUTING OPERATION.
 SLOT IS CHAMFERED .094 X .45" ON BOTH SIDES OF EACH BORE SPACER WALL TO ENHANCE SLIDING ACTION.
 OPTIONAL 3,500 X 3,500 X .250 THICK STEEL "L" ANGLE. LENGTHS OF "L" ANGLE SHOULD BE FIELD WELDED TOGETHER AND GROUND SMOOTH FORMING A CONTINUOUS RAIL IN THE CASING AS SHOWN.
 SECURE "L" ANGLE TO CASING WITH HEX HEAD CAP SCREWS, WASHERS AND DROP-IN ANCHORS AS SHOWN.

DOUBLE WALL, FULL COMPLEMENT BORE SPACER With 8 Ea. 8" 2 Ea. 4" & 2 Ea. 2" RTRC-XHW (Bullet-Resistant, Extra Heavy Wall Fiberglass) Conduits Per NEMA TC-2002 In A 60,000 OD X 2,130 Min. Wall HOBAS (Centrifugally Cast Fiberglass Reinforced Polymer Mortar) Casing
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 Kansas City, MO - CHRIS COURTRIGHT - Phone: 816-333-9400
 UNDERGROUND DEVICES, INC. 90-4150
 NORTHBROOK, ILLINOIS 60062 - PHONE: (847) 295-9000 PAGE 3 OF 3

THIS BORE SPACER DESIGN IS COVERED BY ONE OR MORE PENDING PATENT APPLICATIONS. FURTHER, THIS DRAWING AND PROPRIETARY DESIGN IS SOLELY THE PROPERTY OF UNDERGROUND DEVICES, INC. AND IS SUBMITTED WITH THE UNDERSTANDING THAT IT WILL BE KEPT IN STRICT CONFIDENCE.

THIS INFORMATION IS BASED ON OUR EXPERIENCE TO DATE AND WE BELIEVE IT TO BE RELIABLE. IT IS INTENDED ONLY AS A GUIDE FOR USE AT YOUR DISCRETION AND RISK. WE CANNOT GUARANTEE FAVORABLE RESULTS AND ASSUME NO LIABILITY IN CONNECTION WITH ITS USE OR USE OF THE PRODUCTS DESCRIBED.

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UNDERGROUND DEVICES
 CATALOG NUMBER:
 BS4150W4

PATENT PENDING
 SCALE: 1:1,000



UNDERGROUND DEVICES
 CATALOG NUMBER:
 BS4150W4

PATENT PENDING
 SCALE: 1:1,000

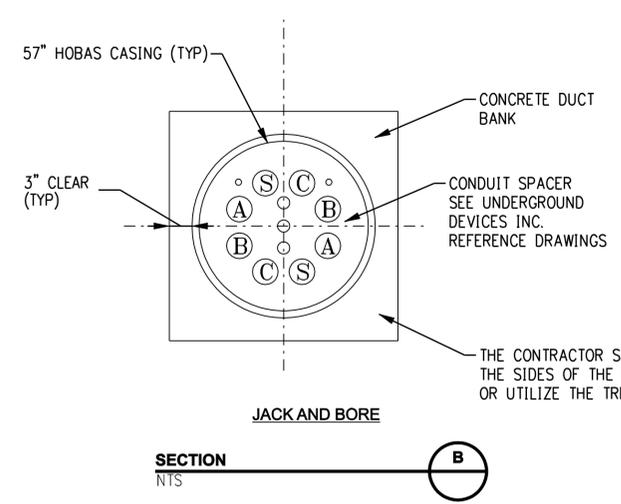
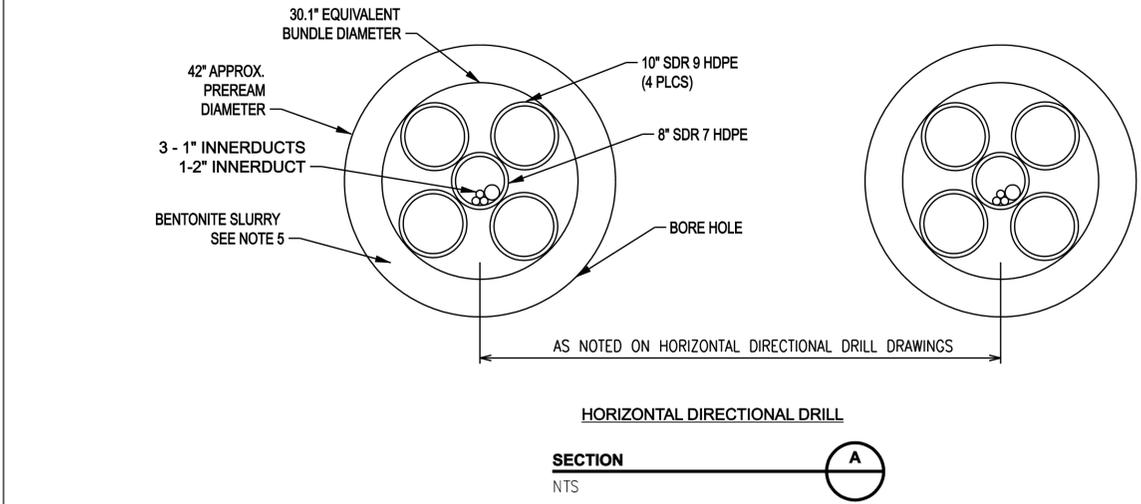


UNDERGROUND DEVICES
 CATALOG NUMBER:
 BS4150W4

PATENT PENDING
 SCALE: 1:1,000



UNDERGROUND DEVICES, INC. 90-4150
 NORTHBROOK, ILLINOIS 60062 - PHONE: (847) 295-9000 PAGE 3 OF 3



- NOTES:**
- ALL CASING SHALL BE COMPLETELY FILLED WITH A THERMALLY ACCEPTABLE GROUT. GROUT MIX DESIGN SHALL MEET PROJECT SPECIFICATIONS.
 - GROUT SAMPLES SHALL BE SUBMITTED TO THE TEST COMPANY (CONTACT TEST COMPANY FOR APPROPRIATE SIZE & METHOD OF TRANSPORTATION) IN ACCORDANCE WITH THE SPECIFICATIONS.
 - CONTRACTOR SHALL FURNISH AND INSTALL CASING PIPE SPACER. SPACERS SHALL BE INSTALLED A MAXIMUM DISTANCE OF 5 FEET APART. SPACERS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
 - CONTRACTOR SHALL SUBMIT DETAILED DESIGN OF EACH BORED CROSSING FOR REVIEW, INCLUDING AS A MINIMUM WORK PLAN, EQUIPMENT AND MATERIALS TO BE USED, WORK AREAS, BORE PIT SIZES AND LOCATIONS.
 - BENTONITE SLURRY SAMPLES SHALL BE SUBMITTED TO THE TEST COMPANY (CONTACT TEST COMPANY FOR APPROPRIATE SIZE & METHOD OF TRANSPORTATION) IN ACCORDANCE WITH THE SPECIFICATIONS.

ISSUED FOR CONSTRUCTION

no.	date	revisions	by	chk
2	4/13/07	ISSUED CSC		CTC
1	2/12/07	ISSUED 60% PRELIMINARY		CTC
1-U	3/02/06	ISSUED ADDENDUM 4 (NEW SHEET)		CTC

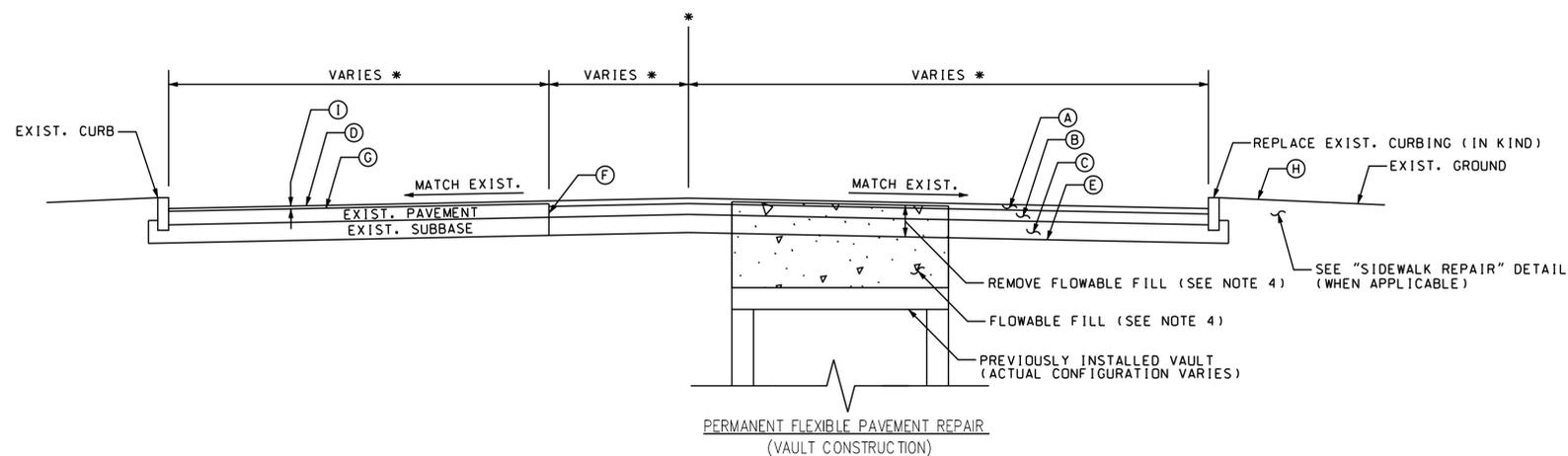
Burns & McDonnell
 SINCE 1898

date 6/15/06 detailed L. ROWSE
 designed C. COURTRIGHT checked S. NEWLAND

MF	NO.	DATE	REVISIONS	BY	CHK	APP	APP

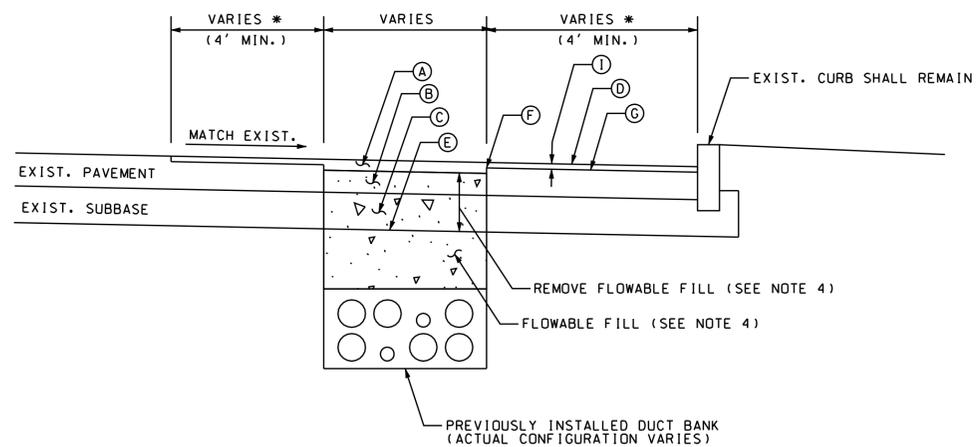
NORTHEAST UTILITIES SERVICE CO.
 FOR THE CONNECTICUT LIGHT & POWER COMPANY
 TITLE MIDDLETOWN-NORWALK 345KV TRANSMISSION PROJECT
 HORIZONTAL DIRECTIONAL DRILL AND JACK AND BORE SECTIONS

BY SEN-BMCD	CHKD	APP	APP
DATE 6/15/06	DATE	DATE	DATE
SCALE AS NOTED	D	DWG. NO. 01224-46003	PG 006



PERMANENT FLEXIBLE PAVEMENT REPAIR (VAULT CONSTRUCTION)
DETAIL 1
 NTS

* SEE MILLING AND OVERLAY PLANS FOR LIMITS.

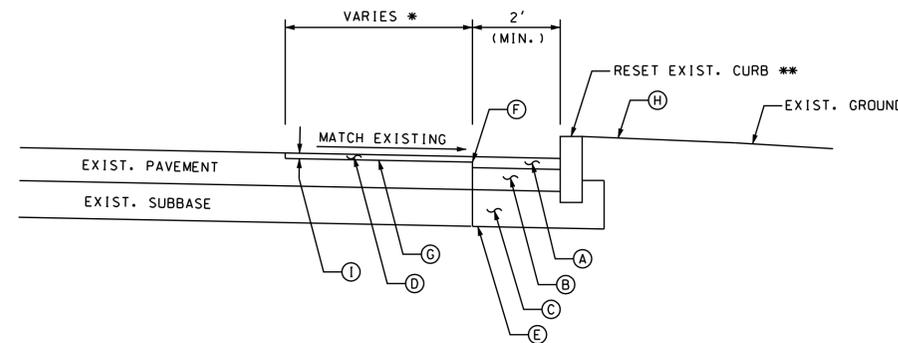


PERMANENT FLEXIBLE PAVEMENT REPAIR (DUCT BANK CONSTRUCTION)
DETAIL 2
 NTS

* SEE MILLING AND OVERLAY PLANS FOR LIMITS.

LEGEND FOR TYPICAL SECTIONS

- (A) STATE ROAD - 3" SUPERPAVE 0.5 INCH (PLACED IN TWO EQUAL LIFTS)
- LOCAL ROAD - 2" SUPERPAVE 0.5 INCH
- (B) STATE ROAD - 6" SUPERPAVE 1.5 INCH (PLACED IN TWO EQUAL LIFTS)
- LOCAL ROAD - 2" SUPERPAVE 0.375 INCH
- (C) 10" PROCESSED AGGREGATE SUBBASE
- (D) 1.5" SUPERPAVE 0.5 INCH
- (E) FORMATION OF SUBGRADE
- (F) CUT BITUMINOUS CONCRETE PAVEMENT
- (G) APPLY TACK COAT
- (H) TURF ESTABLISHMENT
- (I) MILL BITUMINOUS CONCRETE PAVEMENT (1.5")
- (J) CUT CONCRETE PAVEMENT
- (K) CONCRETE CURBING
- (L) CONCRETE SIDEWALK



RESET STONE CURBING/REPLACE CONC. CURBING
DETAIL 3
 NTS

* SEE MILLING AND OVERLAY PLANS FOR LIMITS.
 ** WHEN THE EXISTING CURBING IS DEEMED TO BE UNSUITABLE FOR REUSE BY THE ENGINEER, THE CONTRACTOR SHALL FURNISH AND INSTALL NEW CURBING OF THE SAME MATERIAL TO REPLACE IT.

NOTES:

- 1) THE LIMITS OF RESET STONE CURBING, CONCRETE CURBING AND CONCRETE SIDEWALK ARE SHOWN ON THE MILLING AND OVERLAY PLANS. THESE AREAS ARE APPROXIMATE AND MAY BE ADJUSTED BY THE ENGINEER TO RESTORE ADDITIONAL DISTURBED AREAS, IF ANY, DUE TO THE CONTRACTOR'S ACTIVITIES.
- 2) "MATERIAL FOR TACK COAT" SHALL BE APPLIED BETWEEN PAVEMENT COURSES AND TO ALL PAVEMENT JOINTS.
- 3) SEE TYPICAL DETAIL DRAWINGS FOR TEMPORARY PAVEMENT REPAIR DETAIL.
- 4) "PROCESSED AGGREGATE SUBBASE" SHALL BE USED IN PLACE OF "FLOWABLE FILL" AS THE ALTERNATE BACKFILL. "FLOWABLE FILL" AND "PROCESSED AGGREGATE SUBBASE" SHALL BE THERMALLY TESTED AND APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. SEE TECHNICAL SPECIFICATIONS FOR DETAILS.

DOCKET No. 272

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no.	date	revisions	by	chk
2	4/13/07	ISSUED CSC	CTC	
1	2/07/07	ISSUED 60% PRELIMINARY	CTC	



date 6/15/06
 detailed BL COMPANIES
 designed BL COMPANIES
 checked S. NEWLAND

MF	NO.	DATE	REVISIONS	BY	CHK	APP	APP

NORTHEAST UTILITIES SERVICE CO.

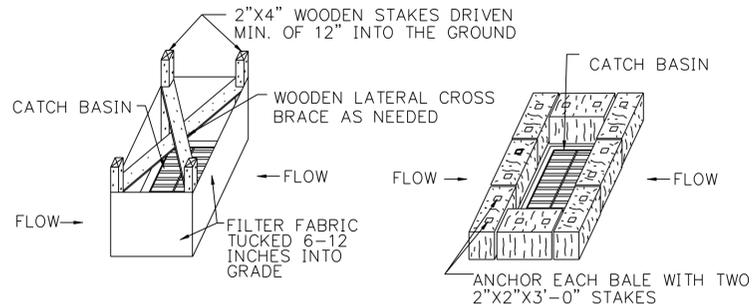
FOR THE CONNECTICUT LIGHT & POWER COMPANY

TITLE MIDDLETOWN-NORWALK 345KV TRANSMISSION PROJECT

PAVEMENT RESTORATION DETAILS

BY SEN-BMCD CHKD APP APP
 DATE 6-15-06 DATE DATE DATE

SCALE AS NOTED DWG. NO. D 01224-71003 PG 001



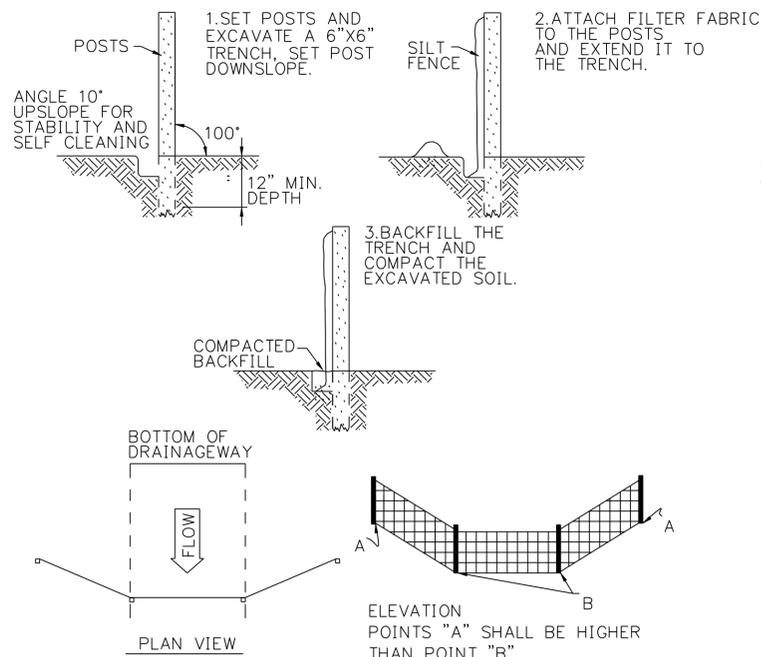
SILT FENCE INSTALLATION AT CATCH BASINS AT LOW POINTS

HAY BALE FILTER INSTALLATION AT CATCH BASIN AT LOW POINTS

STORMWATER INLETS WHICH DO NOT DISCHARGE TO SEDIMENT TRAPS OR BASINS, SHALL BE PROTECTED UNTIL THE TRIBUTARY AREAS ARE STABILIZED. SEDIMENT SHALL BE REMOVED FROM INLET PROTECTION AFTER EACH STORM EVENT.

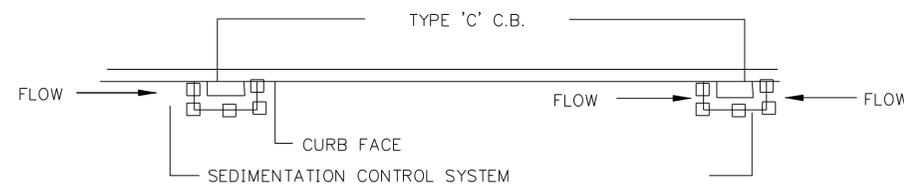
CATCH BASIN EROSION CONTROL

DETAIL NTS 1



GEOTEXTILE SILT FENCE BARRIER W/OUT HAYBALES

DETAIL NTS 6

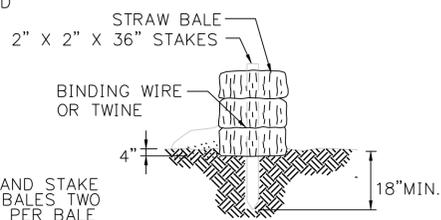


PLAN FOR TYPE 'C' C.B (ON GRADE)

PLAN FOR TYPE 'C' C.B (AT LOW POINT)

NOTE: SEDIMENTATION CONTROL SYSTEMS SHALL BE LOCATED AT ALL EXISTING OR PROPOSED BASINS WHICH ACCEPT FLOW FROM THE CONSTRUCTION AREA UNTIL TURF ESTABLISHMENT OR AS DIRECTED BY THE ENGINEER.

DETAIL NTS 2



PLACE AND STAKE STRAW BALES TWO STAKES PER BALE

STRAW BALE BARRIERS SHALL NOT BE USED FOR MORE THAN 3 MONTHS

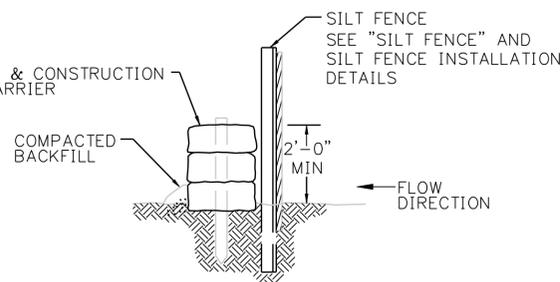
SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH 1/3 THE ABOVE GROUND HEIGHT OF THE BARRIER.

ANY SECTION OF STRAW BALE BARRIER WHICH HAS BEEN UNDERMINED OR TOPPED SHALL BE IMMEDIATELY REPLACED WITH A ROCK FILTER OUTLET.

HAYBALE BARRIER

DETAIL NTS 4

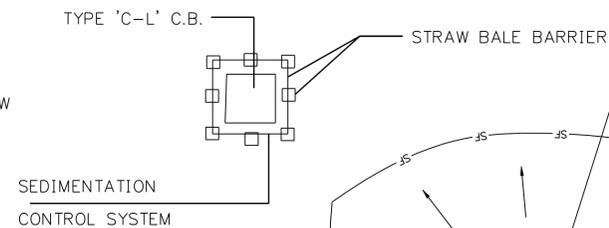
SEE "PLACEMENT & CONSTRUCTION OF HAY BALE BARRIER"



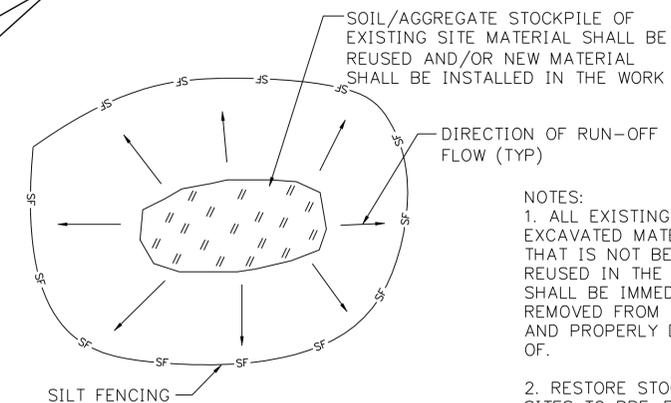
GEOTEXTILE SILT FENCE BARRIER W/ HAYBALES

DETAIL NTS 7

BACKFILL AND COMPACT THE EXCAVATED SOIL AS SHOWN ON THE UPHILL SIDE OF THE BARRIER TO PREVENT PIPING



PLAN FOR TYPE 'C-L' C.B.



MATERIALS STOCKPILE

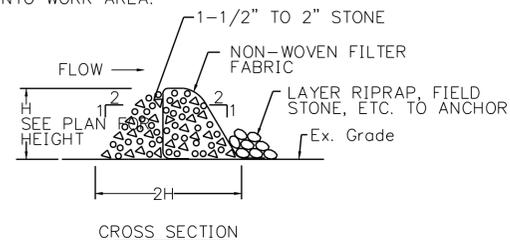
DETAIL NTS 3

NOTES: 1. ALL EXISTING EXCAVATED MATERIAL THAT IS NOT BEING REUSED IN THE WORK SHALL BE IMMEDIATELY REMOVED FROM THE SITE AND PROPERLY DISPOSED OF.

2. RESTORE STOCKPILE SITES TO PRE-EXISTING PROJECT CONDITION AND RESEED AS REQUIRED.

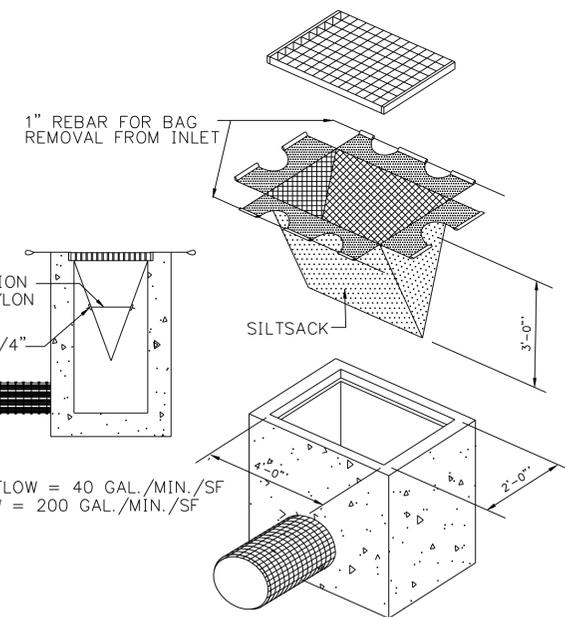
3. STOCKPILE HEIGHTS SHALL NOT EXCEED 35'. STOCKPILE SLOPES SHALL BE 2:1 OR FLATTER.

NOTE: USE FOR IN-STREAM OR SWALE SEDIMENT INTERCEPTION. LOCATE NOT TO BACKWATER ONTO WORK AREA.



STONE FILTER BERM W/ FILTER FABRIC

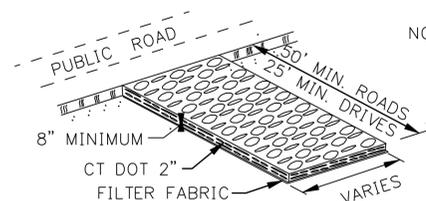
DETAIL NTS 5



NOTE: REGULAR FLOW = 40 GAL./MIN./SF
HIGH FLOW = 200 GAL./MIN./SF

SILTSACK

DETAIL NTS 9



CONSTRUCTION ENTRANCE

DETAIL NTS 8

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FOR THE CONNECTICUT LIGHT & POWER COMPANY

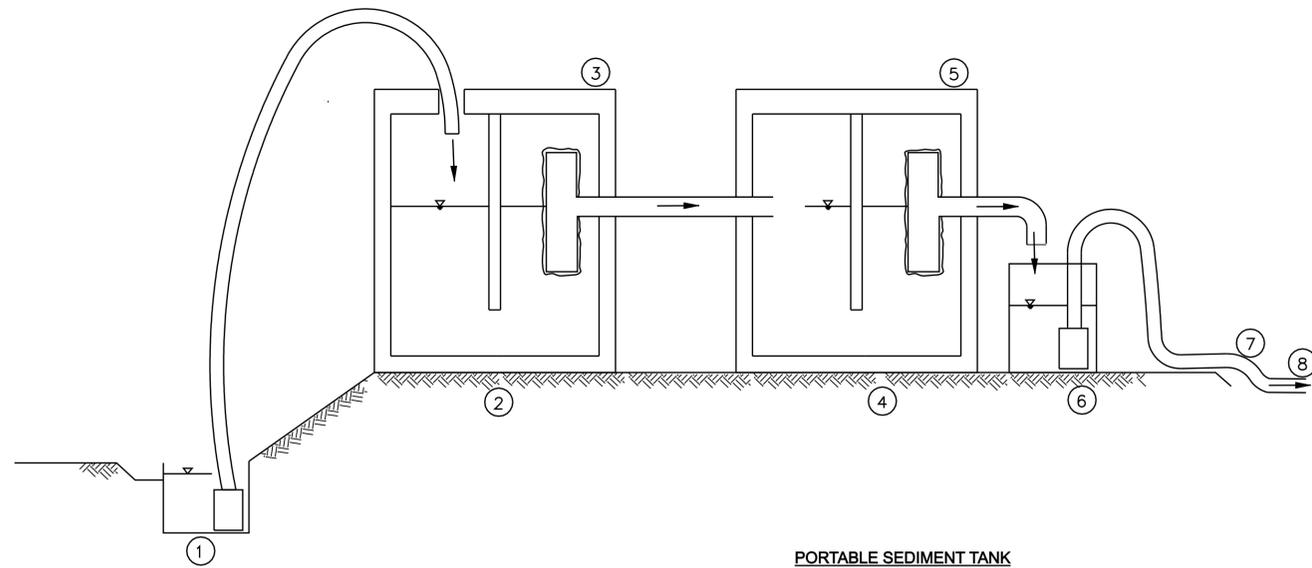
TITLE MIDDLETOWN-NORWALK 345KV TRANSMISSION PROJECT

EROSION CONTROL DETAILS

BY	DATE	CHKD	DATE	APP	DATE
SEN-BMCD	6-15-06				

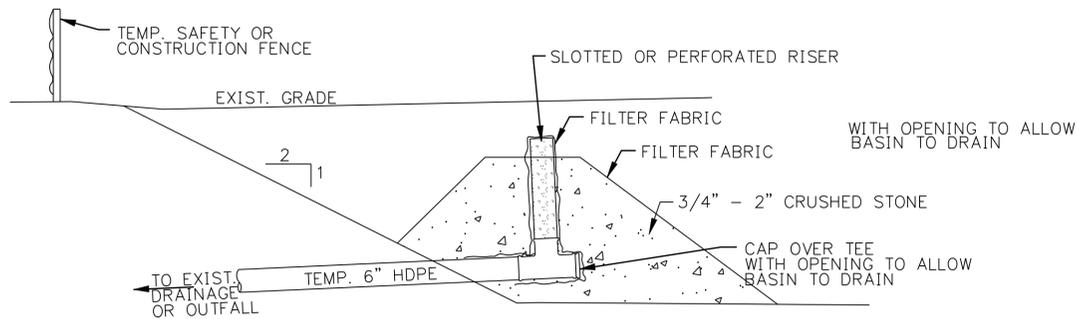
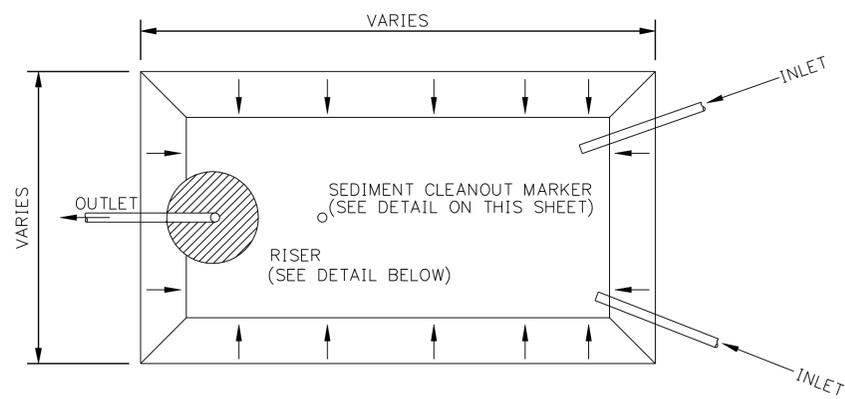
SCALE AS NOTED

DWG. NO. 01224-15003 PG 001

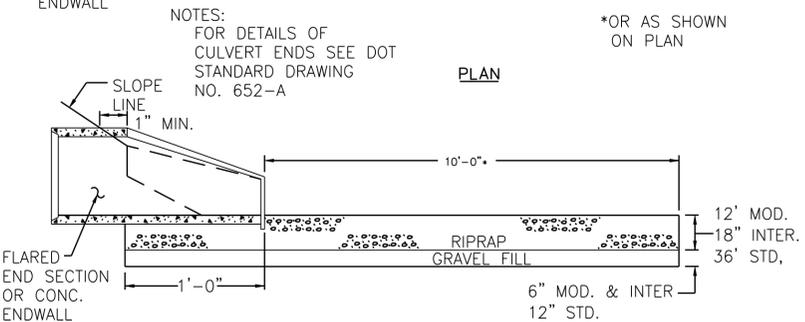
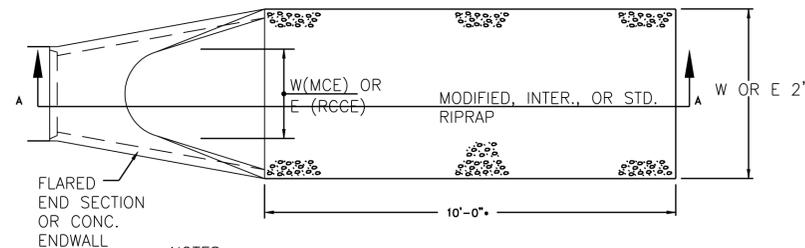


- NOTES
1. 20 GPM TRASH PUMP DEWATERS FOUNDATION EXCAVATION
 2. MUDDY WATER DISCHARGES TO 1,250 GAL SEPTIC TANK (OR DET. OUTLET STRUCTURE)
 3. 4" TEE OUTLET WRAPPED W/ FILTER FABRIC
 4. 1,250 GAL CLEAR WELL
 5. 2ND 4" TEE OUTLET WRAPPED W/ FILTER FABRIC
 6. 2ND PUMP IN 55 GAL DRUM (OR GRAVITY HOSE) DRAINS SYSTEM
 7. TEMP. OUTLET TO CATCH BASIN IN STREET
 8. 2-1,250 GAL. TANKS = 2,500 GAL. CAPACITY TOTAL

PORTABLE SEDIMENT TANK
 DETAIL NTS 1

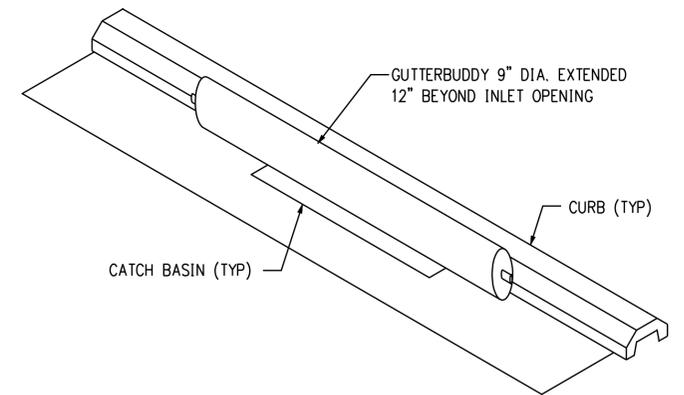


TEMPORARY SEDIMENT TRAP
 DETAIL NTS 2



RIPRAP TYPE "T" (INCHES)	THICKNESS (INCHES)
INTERMEDIATE	18
MODIFIED	12
STANDARD	36

LEVEL SPREADER
 DETAIL NTS 3



GUTTERBUDDY STORM DRAIN
 DETAIL NTS 4

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ISSUED FOR
CONSTRUCTION

no.	date	revisions	by	chk
2	4/13/07	ISSUED 60% PRELIMINARY	CTC	
1	2/12/07	ISSUED 60% PRELIMINARY	CTC	



date 6/15/06
 detailed BL COMPANIES
 designed BL COMPANIES
 checked S. NEWLAND

MF	NO.	DATE	REVISIONS	BY	CHK	APP	APP

NORTHEAST UTILITIES SERVICE CO.			
FOR THE CONNECTICUT LIGHT & POWER COMPANY			
TITLE MIDDLETOWN-NORWALK 345KV TRANSMISSION PROJECT			
EROSION CONTROL DETAILS			
BY SEN-BMCD	CHKD	APP	APP
DATE 6-15-06	DATE	DATE	DATE
SCALE AS NOTED	D	DWG. NO. 01224-15003	PG 002