



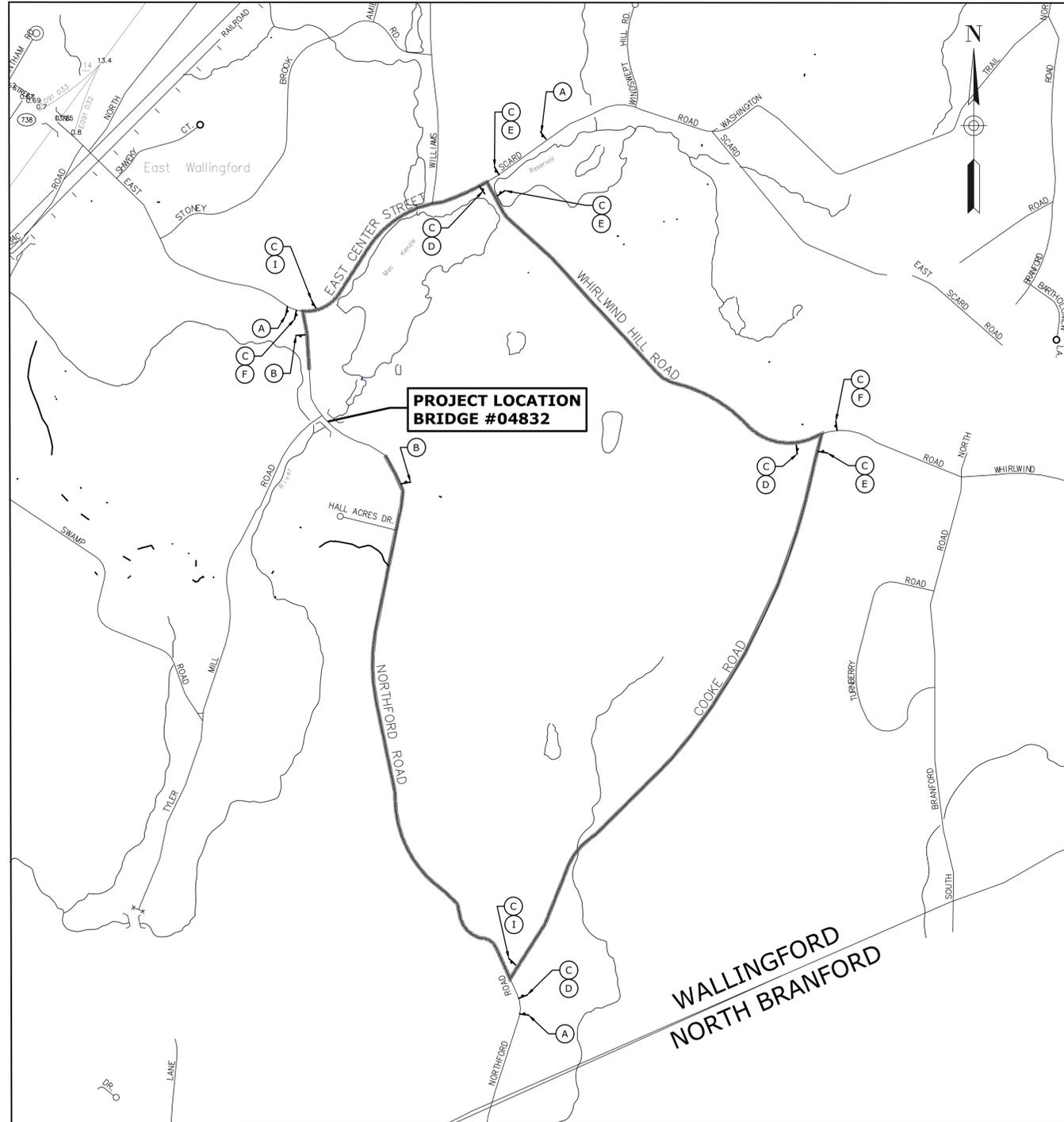
### NORTHFORD ROAD BRIDGE REPLACEMENT CONSTRUCTION SIGNING

SIGN	CONNDOT	DIMENSION	DESCRIPTION	NO. REQ.'D
* A	80-9929	72" X 48"	NORTHFORD ROAD CLOSED TO THRU TRAFFIC EFFECTIVE MONDAY (00/00)	3
B	80-9078	60" X 30"	BRIDGE CLOSED 0.1 MILES AHEAD. LOCAL TRAFFIC ONLY	2
C	80-9913	60" X 10"	NORTHFORD ROAD	10
D	80-9710	30" X 24"	DETOUR (RIGHT ARROW)	3
E	80-9710	30" X 24"	DETOUR (LEFT ARROW)	3
F	80-9710	30" X 24"	DETOUR (STRAIGHT ARROW)	2
G	80-9080	48" X 30"	ROAD CLOSED	2
** H	31-0552	30"	STOP	2
** I	80-9708	24" X 18"	END DETOUR	2

\* INDICATES SIGNS TO BE VISIBLE AT LEAST 2 WEEKS PRIOR TO CONSTRUCTION  
 \*\* INDICATES SIGNS THAT REQUIRE A BARRICADE WARNING LIGHT - HIGH INTENSITY

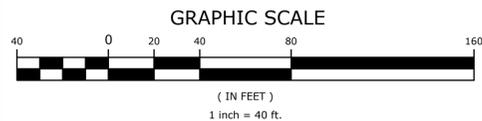
### MAINTENANCE AND PROTECTION OF TRAFFIC NOTES

1. THE CONTRACTOR SHALL LOCATE AND PLACE ALL SIGNS AS INDICATED ON THIS SHEET OR AS DIRECTED BY THE ENGINEER.
2. THE CONTRACTOR SHALL CLOSE NORTHFORD ROAD FOR THE DURATION OF THE BRIDGE REPLACEMENT AND ROADWAY CONSTRUCTION.
3. ALL TRAFFIC OVER NORTHFORD ROAD SHALL BE DETOURED TO COOKE ROAD, WHIRLWIND HILL ROAD, EAST CENTER STREET.
4. TEMPORARY PRECAST CONCRETE BARRIER CURBS (TPCBC) SHALL BE PROVIDED AT BOTH ENDS OF THE WORK AREA TO ADEQUATELY WARN, AND PROHIBIT MOTORISTS AND PEDESTRIANS FROM USING THE BRIDGE DURING CONSTRUCTION. THE TPCBC SHALL EXTEND ACROSS THE FULL WIDTH OF THE EXISTING ROADWAY AND BEYOND. THE CONTRACTOR SHALL ALSO PROVIDE MOVEABLE TYPE III CONSTRUCTION BARRICADE IN FRONT OF THE TPCBC, OR AS ORDERED BY THE ENGINEER, TO FURTHER INSURE MOTORIST AND PEDESTRIAN SAFETY. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO ENSURE THE UPRIGHT STABILITY OF THE TYPE III CONSTRUCTION BARRICADES AT ALL TIMES.
5. ALL TRAFFIC CONTROL AND PROTECTION DEVICES, INCLUDING PAVEMENT MARKINGS, SHALL BE IN PLACE BEFORE RESPECTIVE CONSTRUCTION OPERATION COMMENCES.
6. THE CONTRACTOR SHALL POST THE ADVANCE NOTICE SIGNS AT LEAST 2 WEEKS PRIOR TO CLOSING THE ROAD. NOTICE TO PROCEED WILL BE GIVEN TO INSTALL THE ADVANCED NOTICE SIGNS, BUT THE ROAD MUST REMAIN OPEN UNTIL THE DATE ON THE ADVANCE NOTICE SIGNS.
7. ALL EXISTING CONFLICTING SIGNS SHALL BE COVERED OR REMOVED WHILE THE DETOUR IS IN EFFECT. ANY REMOVED SIGN SHALL BE REINSTALLED BEFORE THE BRIDGE IS REOPENED TO TRAFFIC.
8. ALL DETOUR SIGNS SHALL BE COVERED WHILE THE DETOUR IS NOT IN EFFECT.



**PROJECT LOCATION  
BRIDGE #04832**

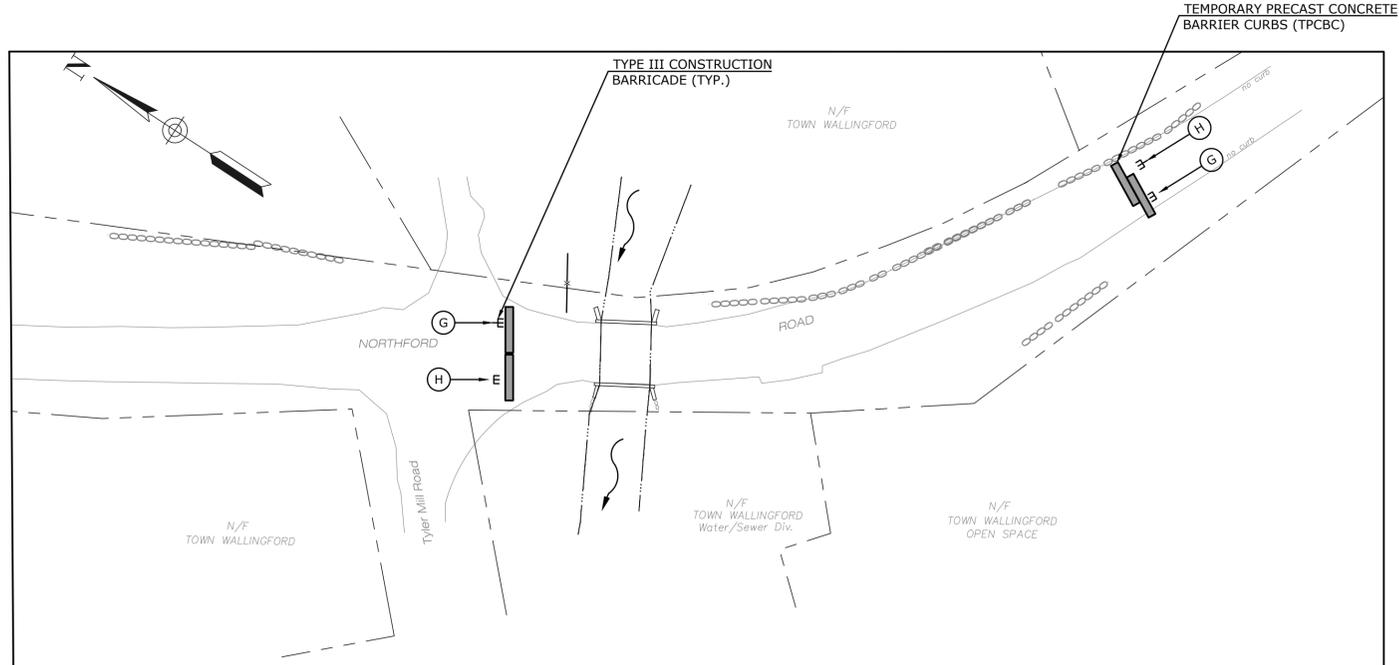
**DETOUR PLAN**  
SCALE: 1" = 800'



THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE TOWN AND IS IN NO WAY WARRANTED TO INDICATE THE TRUE CONDITIONS OR ACTUAL QUANTITIES OR DISTRIBUTION OF QUANTITIES OF WORK WHICH WILL BE REQUIRED.

		SUPV.	J.A.C.
		DESIGN	J.A.W.
		DRAWN	D.R.B.
		CHECKED	J.A.W.
NO.	DATE	DESCRIPTION	DATE
			7/31/2020

**REVISIONS**



**PROJECT AREA DETAIL**  
SCALE: 1" = 40'-0"

**WMC**  
CONSULTING ENGINEERS

• WENGELL, McDONNELL & COSTELLO •  
87 HOLMES ROAD  
NEWINGTON, CT 06111  
(860) 667-9624

**PREPARED FOR**  
TOWN OF WALLINGFORD  
45 SOUTH MAIN STREET  
WALLINGFORD, CT 06492

**REPLACEMENT OF NORTHFORD ROAD BRIDGE  
OVER MUDDY RIVER  
DETOUR PLAN**

D - NORTHFORD ROAD	S.F.D. - 16022.10	REV. OF	SHEET 3
SIZE PROJECT	FILE NAME	NUMBER	REV. OF

THE INFORMATION INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE TOWN OF WALLINGFORD AND IS NO WAY WARRANTED TO INDICATE THE TRUE CONDITIONS OR ACTUAL QUANTITIES OR DISTRIBUTION OF QUANTITIES OF WORK WHICH WILL BE REQUIRED.

WHEREVER THE PAY UNITS IN THE LEFT COLUMN APPEAR ON THE DETAILED ESTIMATE SHEET, THEY SHALL BE CONSTRUED TO MEAN THE EQUIVALENT PAY UNITS IN THE RIGHT COLUMN ON THE PROPOSAL FORM.

c.y.	C.Y.
l.f.	L.F.
ton	TON
s.y.	S.Y.
lb.	LB.
sq.	S.F.
gal.	GAL.
cf.	C.F.
cl.	C.I.

FOR THE CONSTRUCTION OF REPLACEMENT OF NORTHFORD ROAD BRIDGE OVER MUDDY RIVER IN THE TOWN OF WALLINGFORD, CONNECTICUT

ROADWAY ITEMS														
ITEM NUMBER	ITEM DESCRIPTION	UNITS												
		L.S.	C.Y.	L.F.	S.Y.	C.Y.	C.Y.	L.F.	TON	TON	TON	Gal.	C.Y.	Ea.
TOTAL		L.S.	1	1	1	1	1	1	1	1	1	1	1	1
TOTAL	#		1	1	1	1	1	1	1	1	1	1	1	1

BRIDGE ITEMS												
ITEM NUMBER	ITEM DESCRIPTION	UNITS										
		L.S.	C.Y.	C.Y.	C.Y.	L.F.	C.Y.	C.Y.	TON	TON	Gal.	L.S.
TOTAL		L.S.	1	1	1	1	1	1	1	1	1	L.S.
TOTAL	#		1	1	1	1	1	1	1	1	1	#

TO BE PROVIDED UPON FINAL DESIGN

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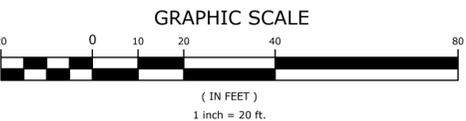
REPLACEMENT OF NORTHFORD ROAD BRIDGE  
OVER MUDDY RIVER  
DETAILED ESTIMATE SHEET

D	NORTHFORD ROAD	S.F.D.	16022.10		SHEET	2
SIZE	PROJECT	FILE NAME	NUMBER	REV.	OF	23



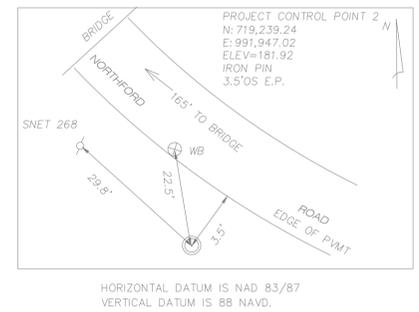
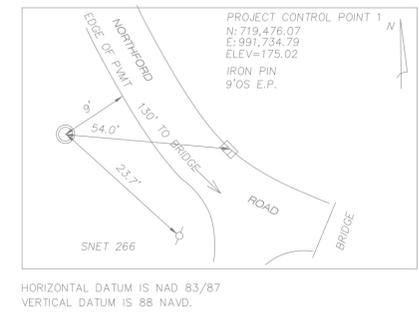
- NOTES**
1. WETLANDS FLAGGED BY SOIL SCIENCE SERVICE AND ENVIRONMENTAL SERVICES, ROCKY HILL CT AND FIELD LOCATED BY WILLIAM HEARN, L.S.
  2. HORIZONTAL DATUM PER GPS ON 10-2016 BULK OF FIELD SURVEY PERFORMED NOVEMBER 2016.
  3. TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON. THIS SURVEY AND MAP HAS BEEN PREPARED IN ACCORDANCE WITH SECTIONS 20-300B-1 THROUGH 20-300B-20 OF THE REGULATIONS OF CONNECTICUT'S DEPT. OF CONSUMER PROTECTION "STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996. PROPERTY BOUNDARY DATA BASED ON A DEPENDENT RESURVEY CONFORMING TO HORIZONTAL ACCURACY CLASS D.
  4. THE TYPE OF SURVEY PERFORMED AND THE MAPPED FEATURES DEPICTED HEREON ARE IN ACCORDANCE WITH THE REQUIREMENTS OF A PROPERTY/BOUNDARY SURVEY AND A TOPOGRAPHIC SURVEY.
  5. THE HORIZONTAL BASELINE CONFORMS TO A CLASS A-2 ACCURACY.
  6. THE TOPOGRAPHIC SURVEY CONFORMS TO A CLASS T-2 ACCURACY.

- MAP REFERENCES**
1. "IN FAVOR OF THE TOWN OF WALLINGFORD MAP SHOWING EXTENT OF FLOOD POOL ENCROACHMENT ON LAND OF ESTER LEETE SMITH" DAVID JULIANO, L.S. 1"=200' FEB 1984
  2. "MAP SHOWING OPEN SPACE LAND ACQUISITION BY TOWN OF WALLINGFORD PINE RIVER WATERSHED WALLINGFORD CONNECTICUT" SCALE 1"=100' 4/78 KRATZERT AND JONES
  3. "TOWN OF WALLINGFORD DEPARTMENT OF PUBLIC UTILITIES WATER DIVISION VALVE AND PIPING CONFIGURATION AT NORTHFORD ROAD PRESSURE REDUCING STATION (INACTIVE)" 1"=10' 4-29-2013
  4. "MAP OF PARCEL OF LAND TO BE ACQUIRED FROM BARBARA F. AUSTIN AND WILLIAM E. AUSTIN BY THE TOWN OF WALLINGFORD EAST CENTER ST., NORTHFORD RD., AND TYLER MILL RD WALLINGFORD, CONNECTICUT" THE CENTER FOR ENGINEERING, INC. 9-28-89 ROBERT JACKSON, L.S.



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NO.	DATE	DESCRIPTION
<b>REVISIONS</b>		



**CONTROL POINTS**  
N.T.S.

**EXISTING PLAN**  
SCALE: 1" = 20'-0"

APPROXIMATE BORING LOCATIONS

**WMC**  
CONSULTING ENGINEERS

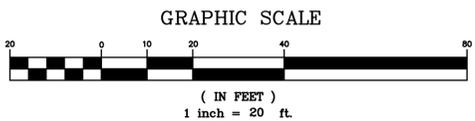
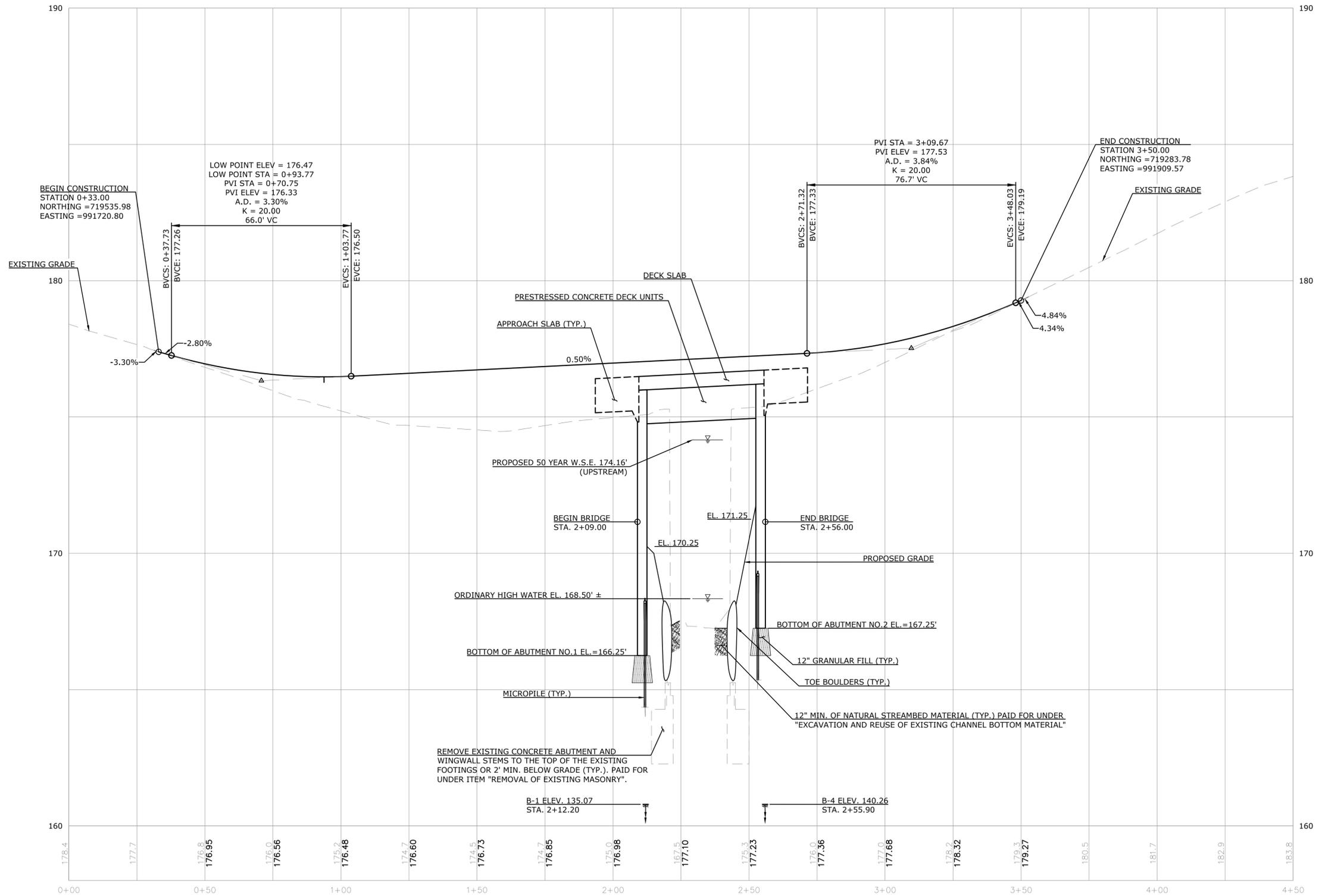
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**PREPARED FOR**  
TOWN OF WALLINGFORD  
45 SOUTH MAIN STREET  
WALLINGFORD, CT 06492

**REPLACEMENT OF NORTHFORD ROAD BRIDGE  
OVER MUDDY RIVER  
EXISTING CONDITIONS PLAN**

D - NORTHFORD ROAD	S.F.D.	16022.10	SHEET	4
SIZE	PROJECT	FILE NAME	NUMBER	REV. OF
				23





**PROPOSED PROFILE**  
 HORIZONTAL SCALE: 1" = 20'-0"  
 VERTICAL SCALE: 1" = 2'-0"

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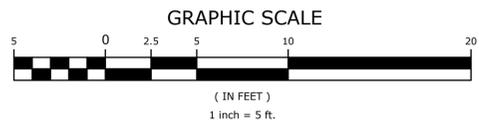
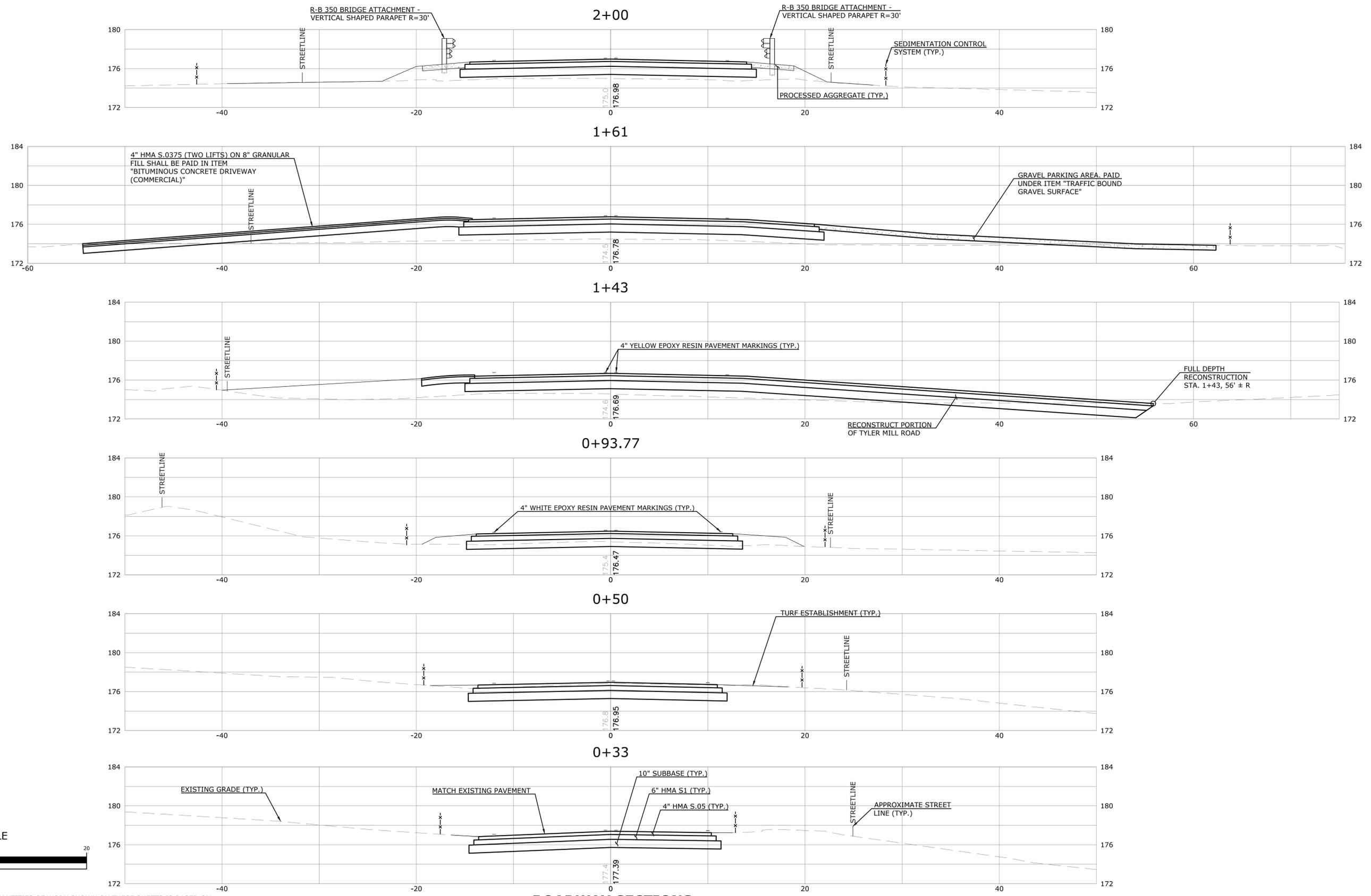
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**REPLACEMENT OF NORTHFORD ROAD BRIDGE  
 OVER MUDDY RIVER  
 ROADWAY PROFILE**

D - NORTHFORD ROAD	S.F.D.	16022.10	SHEET	6
SIZE	PROJECT	FILE NAME	NUMBER	REV. OF
				23





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<b>REVISIONS</b>			

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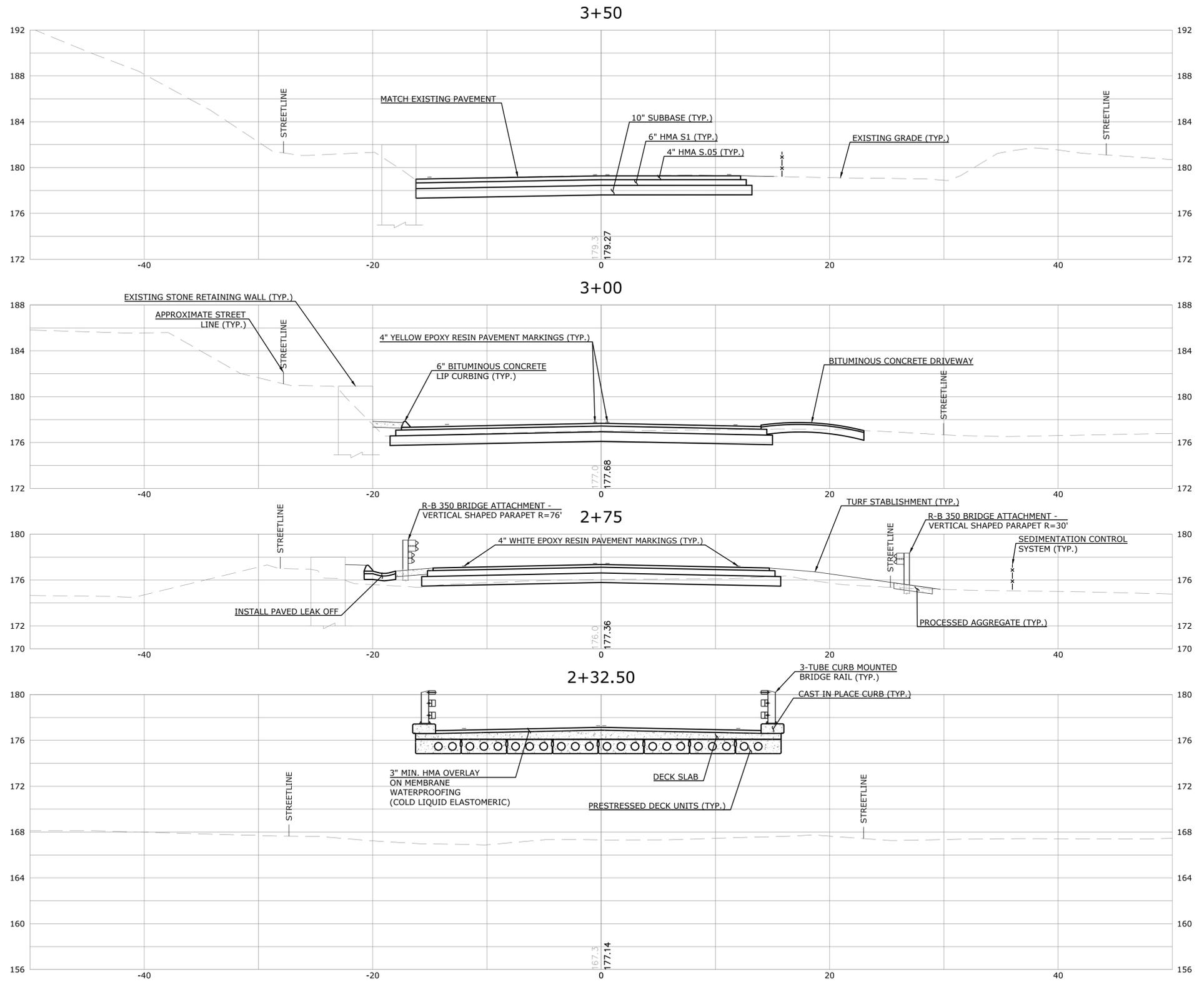
**ROADWAY SECTIONS**  
 SCALE: 1"=5'-0"

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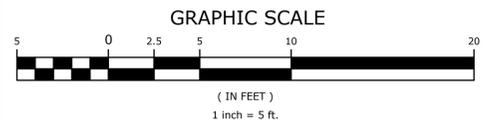
**PREPARED FOR**  
 TOWN OF WALLINGFORD  
 45 SOUTH MAIN STREET  
 WALLINGFORD, CT 06492

**REPLACEMENT OF NORTHFORD ROAD BRIDGE  
 OVER MUDDY RIVER  
 ROADWAY SECTIONS**

D - NORTHFORD ROAD	S.F.D.	16022.10	SHEET	8
SIZE	PROJECT	FILE NAME	NUMBER	REV.
			OF	23



**ROADWAY SECTIONS**  
SCALE: 1"=5'-0"



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<b>REVISIONS</b>			

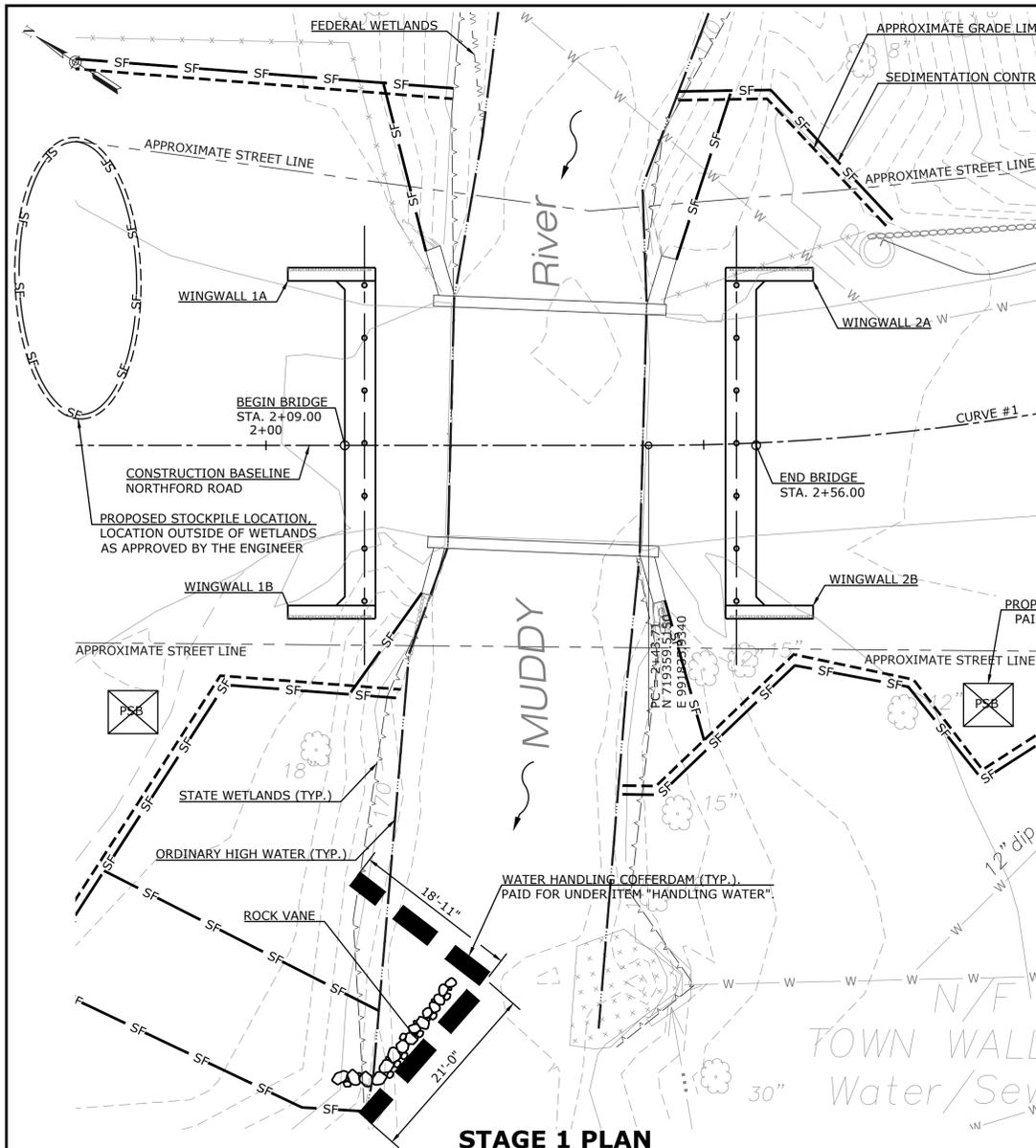


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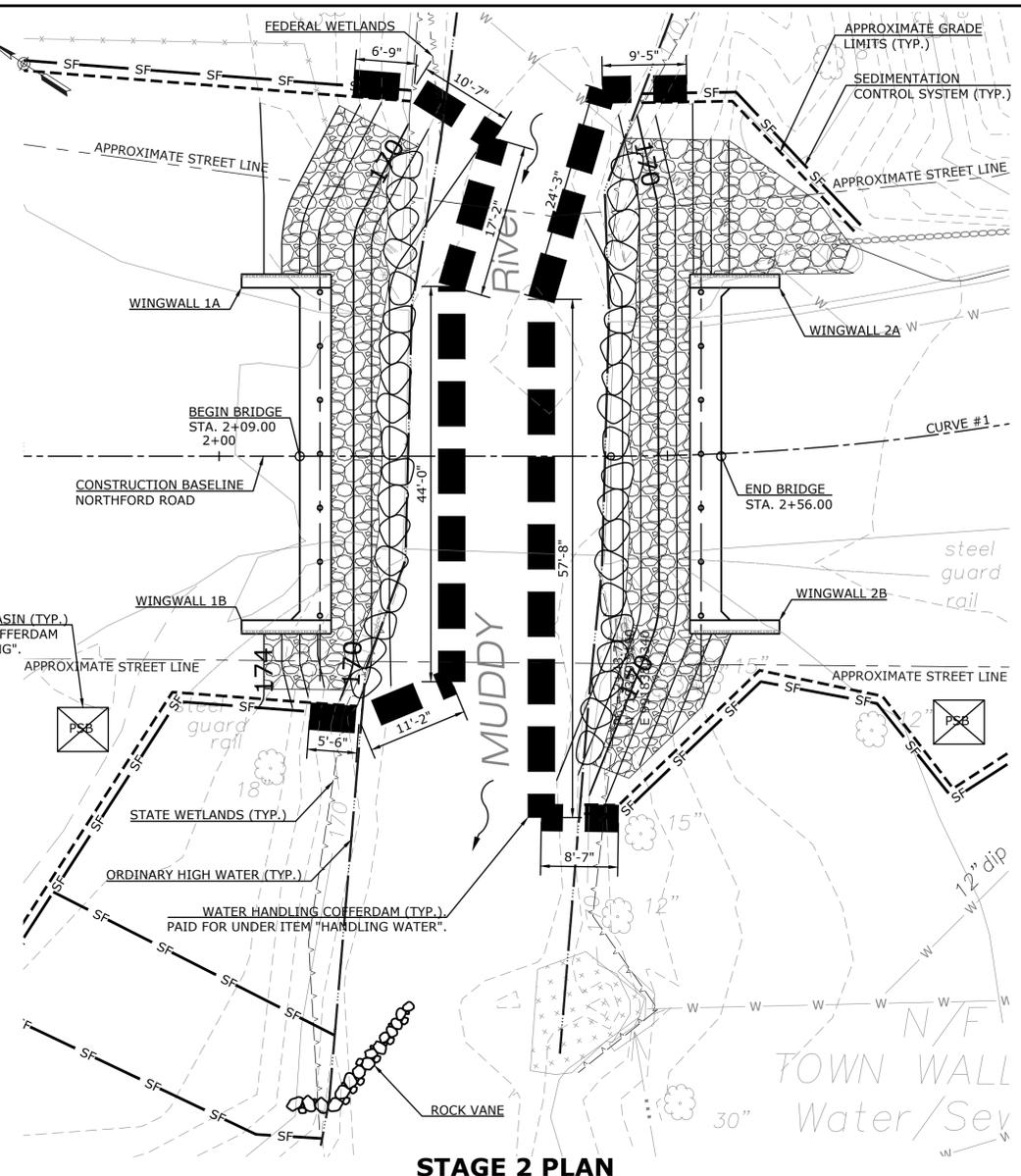
**PREPARED FOR**  
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WALLINGFORD, CT 06492

**REPLACEMENT OF NORTHFORD ROAD BRIDGE  
OVER MUDDY RIVER  
ROADWAY SECTIONS**

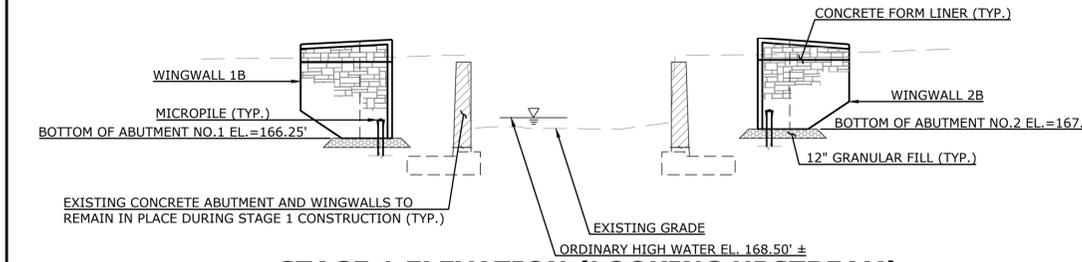
D - NORTHFORD ROAD	S.F.D.	16022.10		SHEET	9
SIZE	PROJECT	FILE NAME	NUMBER	REV.	OF
					23



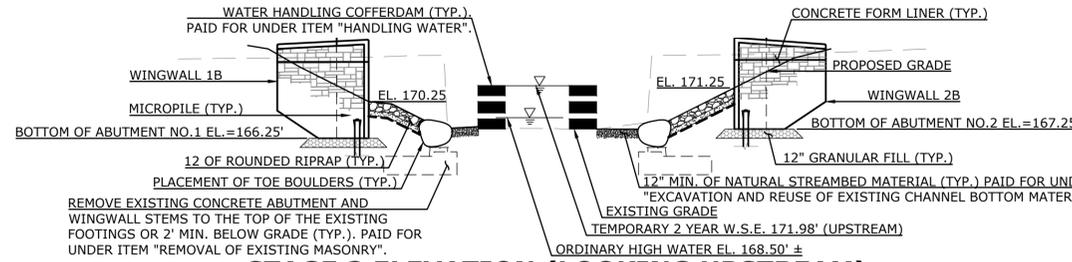
**STAGE 1 PLAN**  
SCALE: 1"=20'-0"



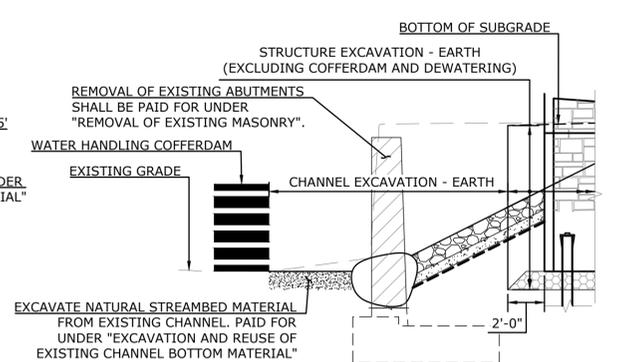
**STAGE 2 PLAN**  
SCALE: 1"=20'-0"



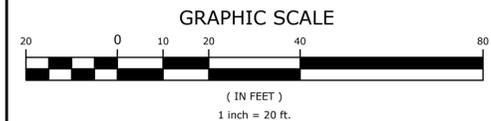
**STAGE 1 ELEVATION (LOOKING UPSTREAM)**  
SCALE: 1"=10'-0"



**STAGE 2 ELEVATION (LOOKING UPSTREAM)**  
SCALE: 1"=10'-0"



**CHANNEL EXCAVATION DETAIL**  
SCALE: 1"=5'-0"



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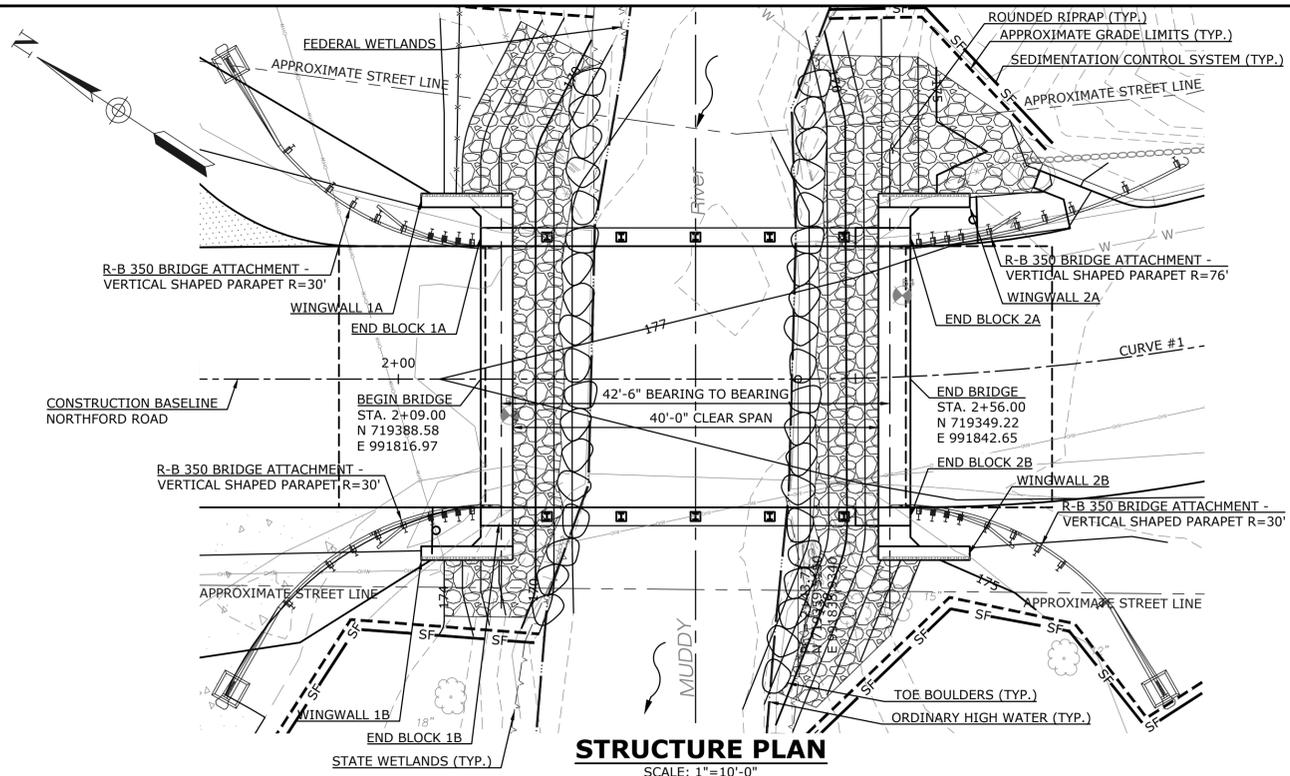
TEMPORARY FACILITIES HYDRAULICS	
AVERAGE DAILY FLOW	16 CFS
AVERAGE SPRING FLOW	32 CFS
2 YEAR FREQUENCY DISCHARGE	402 CFS
TEMPORARY DESIGN DISCHARGE	402 CFS
TEMPORARY DESIGN FREQUENCY	2 YEAR
TEMPORARY WATER SURFACE ELEVATION UPSTREAM	171.98 FT.
TEMPORARY WATER SURFACE ELEVATION DOWNSTREAM	171.61 FT.

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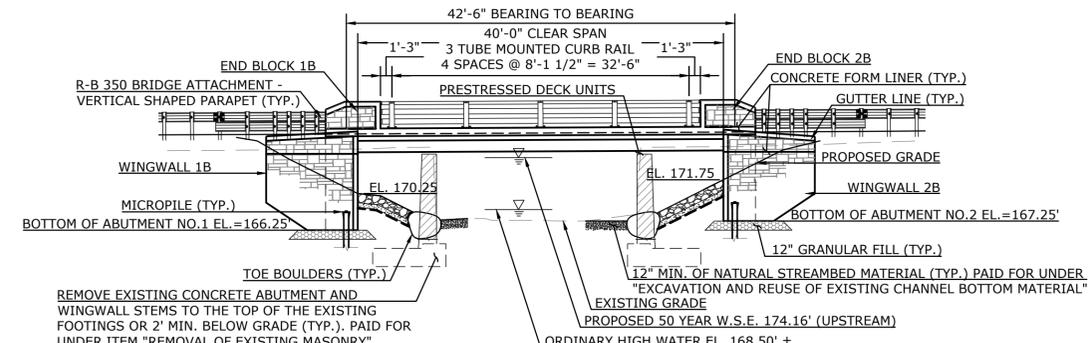
**PREPARED FOR**  
TOWN OF WALLINGFORD  
45 SOUTH MAIN STREET  
WALLINGFORD, CT 06492

**REPLACEMENT OF NORTHFORD ROAD BRIDGE OVER MUDDY RIVER STAGING PLAN**

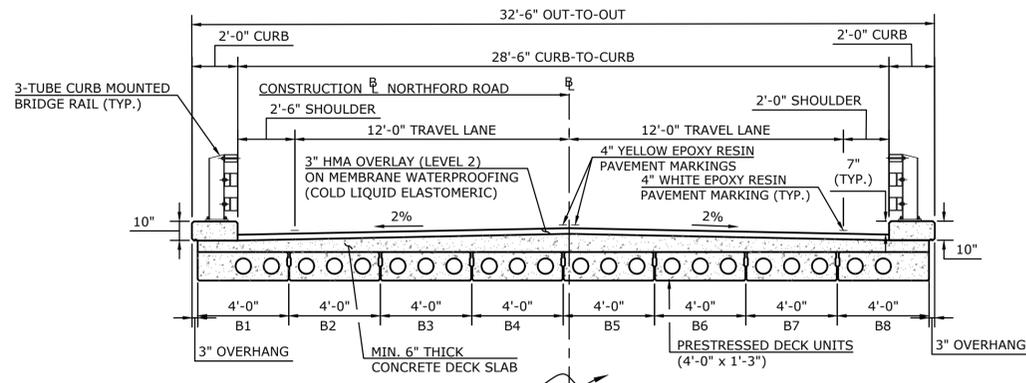
D - NORTHFORD ROAD	S.F.D.	16022.10	SHEET	10
SIZE	PROJECT	FILE NAME	NUMBER	REV. OF
				23



**STRUCTURE PLAN**  
SCALE: 1"=10'-0"



**STRUCTURE ELEVATION (LOOKING UPSTREAM)**  
SCALE: 1"=10'-0"



**BRIDGE SECTION**  
SCALE: 1" = 4'-0"

CONCRETE DISTRIBUTION	
ABUTMENT AND WALL CONCRETE	108 C.Y.
BRIDGE DECK CONCRETE	43 C.Y.
APPROACH SLAB CONCRETE	50 C.Y.
FOOTING CONCRETE	0 C.Y.
TOTAL	201 C.Y.

HYDRAULIC DATA	
DRAINAGE AREA	8.88 SQ. MILES
DESIGN FREQUENCY	50 YEAR
DESIGN DISCHARGE	1,067 C.F.S.
AVERAGE DAILY FLOW ELEVATION	171 FT. ± (ESTIMATED)
UPSTREAM DESIGN WATER SURFACE ELEVATION	174.16 FT.
DOWNSTREAM DESIGN WATER SURFACE ELEVATION	173.88 FT.
MAXIMUM SCOUR ELEVATION	162.73 FT.
FREQUENCY	200 -YR.
DISCHARGE	1,371 C.F.S.
WORST CASE SCOUR SUB-STRUCTURE UNIT	ABUT 2

TRANSPORTATION DIMENSIONS AND WEIGHT				
MEMBER	SHIPPING LENGTH	SHIPPING HEIGHT	SHIPPING WIDTH	SHIPPING WEIGHT
B1 AND B8	44'-0"	1'-3"	4'-0"	28,400 LBS
B2 THRU B7	44'-0"	1'-3"	4'-0"	26,270 LBS

NOTICE TO BRIDGE INSPECTORS	
COMPONENT OR DETAIL	BRIDGE SHEET REF.
NONE	NONE

**GENERAL NOTES:**  
**SPECIFICATIONS:** CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, FACILITIES AND INCIDENTAL CONSTRUCTION FORM 818 (2020), SUPPLEMENTAL SPECIFICATIONS DATED JANUARY 2020, AS WELL AS ANY SPECIAL PROVISIONS,  
**DESIGN SPECIFICATIONS:** AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS (AASHTO EIGHTH EDITION, DATED 2017 INCLUDING INTERIM SPECIFICATIONS UP TO 2018), AS SUPPLEMENTED BY THE CONNECTICUT DEPARTMENT OF TRANSPORTATION BRIDGE DESIGN MANUAL REVISED (2019).  
**MATERIAL STRENGTHS:**  
 CONCRETE:  
 CLASS PCC 03340 ..... F'C = 3,000 PSI  
 CLASS PCC 04462 ..... F'C = 4,000 PSI  
 CLASS PCC 04460 ..... F'C = 4,000 PSI  
 CLASS PCC 07262 ..... F'C = 6,500 PSI  
 REINFORCEMENT: (ASTM A615 GRADE 60) FY = 60,000 P.S.I.  
 THE CONCRETE STRENGTH, F'C, USED IN DESIGN OF THE CONCRETE COMPONENTS IS NOTED ABOVE. THE COMPRESSIVE STRENGTH OF THE CONCRETE IN THE CONSTRUCTED COMPONENTS SHALL CONFORM TO THE REQUIREMENTS OF 6.01 - CONCRETE FOR STRUCTURES, AND M.03 - PORTLAND CEMENT CONCRETE.

**REINFORCEMENT:**  
 (ASTM A615 GRADE 60) FY = 60,000 P.S.I.  
**LIVE LOAD:** HL-93, LEGAL AND PERMIT VEHICLES  
**BITUMINOUS CONCRETE OVERLAY:** THIS SHALL CONSIST OF 2" OF HMA S0.5 ON TOP OF 1" OF HMA S0.25 ON MEMBRANE WATERPROOFING (COLD LIQUID ELASTOMERIC).  
**FOUNDATION PRESSURES AND PILE LOADS:** THE VARIOUS GROUP LOADINGS NOTED ON THE SUBSTRUCTURE PLAN SHEETS REFER TO THE GROUP LOADS AS GIVEN IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.  
**DIMENSIONS:** WHEN DECIMAL DIMENSIONS ARE GIVEN TO LESS THAN THREE DECIMAL PLACES, THE OMITTED DIGITS SHALL BE ASSUMED TO BE ZEROS.  
**EXISTING DIMENSIONS:** DIMENSIONS OF THE EXISTING STRUCTURE SHOWN ON THESE PLANS ARE FOR GENERAL REFERENCE ONLY. THEY HAVE BEEN TAKEN FROM THE ORIGINAL DESIGN DRAWINGS AND ARE NOT GUARANTEED. THE CONTRACTOR SHALL TAKE ALL FIELD MEASUREMENTS NECESSARY TO ASSURE PROPER FIT OF THE FINISHED WORK AND SHALL ASSUME FULL RESPONSIBILITY FOR THEIR ACCURACY. WHEN SHOP DRAWINGS BASED ON FIELD MEASUREMENTS ARE SUBMITTED FOR REVIEW, THE FIELD MEASUREMENTS SHALL ALSO BE SUBMITTED FOR REFERENCE BY THE REVIEWER.  
**SUPERSTRUCTURE REMOVAL:** BEFORE INITIATING CONSTRUCTION, CONTRACTOR SHALL SUBMIT A PLAN FOR APPROVAL DEFINING METHOD FOR PROTECTION OF THE STREAM AREA DURING REMOVAL OF EXISTING BRIDGE SUPERSTRUCTURE. COST TO BE INCLUDED IN THE COST OF REMOVAL OF SUPERSTRUCTURE.  
**COFFERDAMS AND DEWATERING:** BEFORE INITIATING CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT A PLAN FOR APPROVAL THAT DEFINES METHODS AND MATERIALS FOR CONTROLLING STREAM WATER (COFFERDAMS, ETC.), DEWATERING, STRUCTURE EXCAVATION AND PROTECTING THE STREAM DURING VARIOUS STAGES OF CONSTRUCTION. THE COST OF THIS WORK SHALL BE INCLUDED IN THE COST OF "HANDLING WATER".  
**UTILITY RELOCATIONS:** OVERHEAD OR UNDERGROUND UTILITY LINES MAY BE IN CONFLICT WITH TEMPORARY SHEETING OR COFFERDAMS, SETTING OF PRECAST CONCRETE BOX BEAMS, DRIVING STEEL PILES OR OTHER CONSTRUCTION. DEPENDING UPON THE CONTRACTOR'S CONSTRUCTION OPERATIONS, THESE UTILITIES MAY NEED TO BE RELOCATED TO TEMPORARY LOCATIONS FOR PORTIONS OF THE CONSTRUCTION OPERATIONS AND THEN MOVED BACK TO PERMANENT LOCATIONS WHICH MAY BE OTHER THAN CURRENT LOCATIONS. THE ACTUAL UTILITY RELOCATIONS (PERMANENT OR TEMPORARY) WILL BE THE RESPONSIBILITY OF THE INDIVIDUAL UTILITY OWNER, HOWEVER THE CONTRACTOR WILL BE REQUIRED TO COORDINATE ALL UTILITY RELOCATIONS WITH EACH UTILITY OWNER AND TO PHASE HIS WORK AS REQUIRED TO ACCOMMODATE TEMPORARY AND PERMANENT UTILITY RELOCATION WORK. THE CONTRACTOR SHALL HAVE NO RIGHT TO CLAIM EXTRA COMPENSATION FOR DELAYS OR STAGING AND PHASING OF HIS WORK DUE TO UTILITY RELOCATION WORK.

**CONCRETE NOTES:**  
 THE FOLLOWING PAY ITEMS AND CONCRETE CLASSES ARE REQUIRED FOR CAST-IN-PLACE BRIDGE COMPONENTS:

ITEM	BRIDGE COMPONENTS	PCC CLASS
FOOTING CONCRETE	ABUTMENT AND WINGWALL FOOTINGS	PCC03340
ABUTMENT AND WALL CONCRETE	ABUTMENT AND WINGWALL STEMS	PCC03340
BRIDGE DECK CONCRETE	BRIDGE DECK, CHECKWALL AND BACKWALL	PCC04462
PARAPET CONCRETE	BRIDGE CURD/ENDWALL	PCC04462
APPROACH SLAB CONCRETE	APPROACH SLAB	PCC04462

**JOINT SEAL:** SEE SECTION 6.01 "CONCRETE FOR STRUCTURE".  
**EXPOSED EDGES:** EXPOSED EDGES OF CONCRETE SHALL BE BEVELED 1"x1" UNLESS DIMENSIONED OTHERWISE.  
**CONCRETE COVER:** ALL REINFORCEMENT SHALL HAVE TWO INCHES COVER UNLESS DIMENSIONED OTHERWISE.  
**REINFORCEMENT:** REINFORCEMENT: ALL REINFORCEMENT SHALL BE GALVANIZED AFTER FABRICATION UNLESS NOTED OTHERWISE. ALL REINFORCEMENT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A767, CLASS 1, INCLUDING SUPPLEMENTAL REQUIREMENTS. THE COST OF FURNISHING AND PLACING THIS REINFORCEMENT SHALL BE INCLUDED IN THE ITEM "DEFORMED STEEL BARS - GALVANIZED."  
**PREFORMED EXPANSION JOINT FILLER:** THE COST OF FURNISHING AND INSTALLING PREFORMED EXPANSION JOINT FILLER IS PAID FOR AS "(THICKNESS AND TYPE) JOINT FILLER FOR BRIDGES."  
**CONSTRUCTION JOINTS:** CONSTRUCTION JOINTS, OTHER THAN THOSE SHOWN ON THE PLANS, WILL NOT BE PERMITTED WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.

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DRAWN	D.R.B.
CHECKED	J.A.W.
DATE	7/31/2020

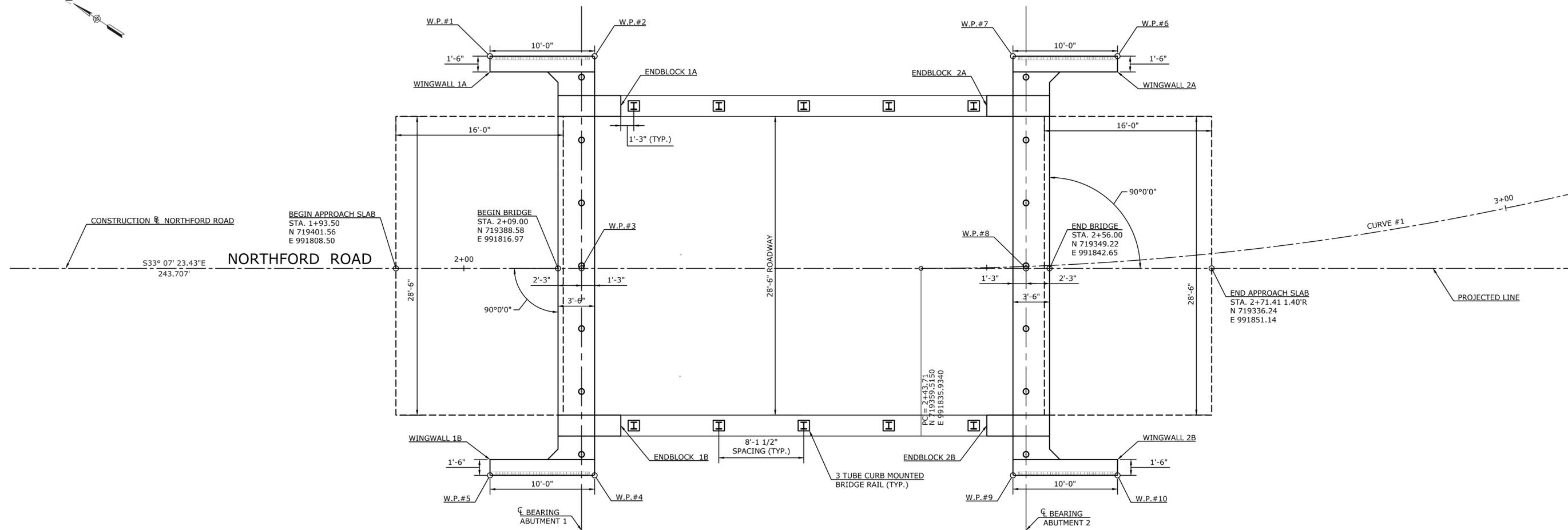
**WMC**  
 CONSULTING ENGINEERS  
 WENGELL, McDONNELL & COSTELLO  
 87 HOLMES ROAD  
 NEWINGTON, CT 06111  
 (860) 667-9624

**PREPARED FOR**  
 TOWN OF WALLINGFORD  
 45 SOUTH MAIN STREET  
 WALLINGFORD, CT 06492

**REPLACEMENT OF NORTHFORD ROAD BRIDGE OVER MUDDY RIVER**  
**STRUCTURE PLAN, ELEVATION AND SECTION**

SIZE	PROJECT	FILE NAME	NUMBER	REV.	OF	SHEET
D	NORTHFORD ROAD	S.F.D.	16022.10			11
						23

MUDDY RIVER



CONSTRUCTION OF NORTHFORD ROAD

S33° 07' 23.43"E  
243.707'

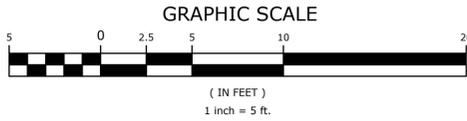
NORTHFORD ROAD

BEGIN APPROACH SLAB  
STA. 1+93.50  
N 719401.56  
E 991808.50

BEGIN BRIDGE  
STA. 2+09.00  
N 719388.58  
E 991816.97

END BRIDGE  
STA. 2+56.00  
N 719349.22  
E 991842.65

END APPROACH SLAB  
STA. 2+71.41 1.40'R  
N 719336.24  
E 991851.14



**STRUCTURE LAYOUT PLAN**  
SCALE: 1" = 5'-0"

WORKING POINTS		
W.P. #	NORTHING	EASTING
1	719405.09	991830.38
2	719396.72	991835.84
3	719386.70	991818.20
4	719374.86	991802.34
5	719383.23	991796.88
6	719354.84	991863.16
7	719363.22	991857.70
8	719351.10	991841.42
9	719341.36	991824.20
10	719332.98	991829.66

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**PREPARED FOR**  
TOWN OF WALLINGFORD  
45 SOUTH MAIN STREET  
WALLINGFORD, CT 06492

**REPLACEMENT OF NORTHFORD ROAD BRIDGE  
OVER MUDDY RIVER  
STRUCTURE LAYOUT PLAN**

D - NORTHFORD ROAD	S.F.D.	16022.10	SHEET	12
SIZE	PROJECT	FILE NAME	NUMBER	REV. OF

**B-1**  
 STATION=Z+12.20  
 OFFSET=3.97R  
 NORTHING=719383.73  
 EASTING=991815.39  
 ELEV.=175.07

Jaime Liret DRILLER		TEST BORING REPORT ASSOCIATED BORINGS CO., INC. 119 MARGARET CIRCLE, NAUGATUCK, CT 06770 Tel (203) 729-5435 Fax (203) 729-5116										SHEET 1 OF 2		
INSPECTOR		PROJECT NAME: Northford Road Bridge										CME-55 DRILLING EQUIPMENT Wengill McDonnell Costello		
SOILS ENGINEER		PROJECT NUMBER: Bridge No. 04832										CLIENT		
Surface Elevation:		LOCATION: Wallingford, Connecticut										Hole No. <b>B-1</b>		
Date Started: 9/22/2016		Type: HSA		Auger		Casing		Sampler		Core Bar		Line & Station		
Date Finished: 9/22/2016		Size I. D.:		in		3.25		2		in		Offset		
Groundwater Observations		Hammer		140		lb		BT		N Coordinate		E. Coordinate		
AT 9		AFTER		0		HRS		Fall		30		in		
D E P T H	Casing blows per foot	DEPTH IN FEET FROM - TO		PEN. REC. INCH INCH TYPE		BLOWS PER 6 INCHES ON SAMPLER		STRATA CHANGE DEPTH, ELEV.		FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)				
		NO.	NO.	0-6	6-12	12-18	18-24	DEPTH, ELEV.						
5		5.0-5.9	1	6	6	D	15	502	X	X	Bluish-grey Concrete Road Base/Gravel			
10		10.0-12.0	2	24	10	D	16	20	40	15	Red Br. C-F Sand and C-F Gravel, Little Silt, Cobbles			
15		15.0-17.0	3	24	3	D	3	5	8	10	Red Br. C-F Sand and C-F Gravel, Little Silt, Cobbles			
20		20.0-22.0	4	24	6	D	5	6	6	7	Red Br. C-F Sand, Some Silt			
25		25.0-27.0	5	24	12	D	3	5	7	8	Red Br. M-F Sand and Silt			
30		30.0-32.0	6	24	12	D	4	9	9	13	Red Br. C-F Sand and C-F Gravel, Little Silt (Decomposed Rock/Till)			
35		35.0-36.0	7	12	12	D	21	60	X	X	Cored Run #1 From 35.0 feet to 40.0 feet Recovery - 60" ROD - 45/60 = 80%			
40											End of Boring - 50.0			
From Ground Surface to		Feet Used		Inch Casing Then		Inch Casing For		Feet						
Footage in Earth		40.0		Footage in Rock		0.0		No. of Samples		7		Hole No. B-1		
SAMPLE TYPE CODING:		D = DRIVEN		C = CORE		A = AUGER		UP = UNDISTURBED PISTON						
PROPORTIONS USED:		TRACE = 1-10%		LITTLE = 10-20%		SOME = 20-35%		AND = 35-50%						

Jaime Liret DRILLER		TEST BORING REPORT ASSOCIATED BORINGS CO., INC. 119 MARGARET CIRCLE, NAUGATUCK, CT 06770 Tel (203) 729-5435 Fax (203) 729-5116										SHEET 2 OF 2		
INSPECTOR		PROJECT NAME: Northford Road Bridge										CME-55 DRILLING EQUIPMENT Wengill McDonnell Costello		
SOILS ENGINEER		PROJECT NUMBER: Bridge No. 04832										CLIENT		
Surface Elevation:		LOCATION: Wallingford, Connecticut										Hole No. <b>B-1</b>		
Date Started: 9/22/2016		Type: HSA		Auger		Casing		Sampler		Core Bar		Line & Station		
Date Finished: 9/22/2016		Size I. D.:		in		3.25		2		in		Offset		
Groundwater Observations		Hammer		140		lb		BT		N Coordinate		E. Coordinate		
AT 9		AFTER		0		HRS		Fall		30		in		
D E P T H	Casing blows per foot	DEPTH IN FEET FROM - TO		PEN. REC. INCH INCH TYPE		BLOWS PER 6 INCHES ON SAMPLER		STRATA CHANGE DEPTH, ELEV.		FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)				
		NO.	NO.	0-6	6-12	12-18	18-24	DEPTH, ELEV.						
45		40.0-45.0	1	60	60	C					Cored Run #1 From 40.0 feet to 45.0 feet Recovery - 60" ROD - 45/60 = 75%			
50		45.0-50.0	2	60	60	C					Cored Run #2 From 45.0 feet to 50.0 feet Recovery - 57" ROD - 48/60 = 80%			
55											End of Boring - 50.0			
60														
65														
70														
75														
80														
From Ground Surface to		Feet Used		Inch Casing Then		Inch Casing For		Feet						
Footage in Earth		0.0		Footage in Rock		10.0		No. of Samples		0		Hole No. B-1		
SAMPLE TYPE CODING:		D = DRIVEN		C = CORE		A = AUGER		UP = UNDISTURBED PISTON						
PROPORTIONS USED:		TRACE = 1-10%		LITTLE = 10-20%		SOME = 20-35%		AND = 35-50%						

**B-4**  
 STATION=Z+55.50  
 OFFSET=8.87L  
 NORTHING=719354.95  
 EASTING=991849.80  
 ELEV.=175.26

Jaime Liret DRILLER		TEST BORING REPORT ASSOCIATED BORINGS CO., INC. 119 MARGARET CIRCLE, NAUGATUCK, CT 06770 Tel (203) 729-5435 Fax (203) 729-5116										SHEET 1 OF 2		
INSPECTOR		PROJECT NAME: Northford Road Bridge										CME-55 DRILLING EQUIPMENT Wengill McDonnell Costello		
SOILS ENGINEER		PROJECT NUMBER: Bridge No. 04832										CLIENT		
Surface Elevation:		LOCATION: Wallingford, Connecticut										Hole No. <b>B-4</b>		
Date Started: 9/23/2016		Type: HSA		Auger		Casing		Sampler		Core Bar		Line & Station		
Date Finished: 9/23/2016		Size I. D.:		in		3.25		2		in		Offset		
Groundwater Observations		Hammer		140		lb		BT		N Coordinate		E. Coordinate		
AT 9		AFTER		0		HRS		Fall		30		in		
D E P T H	Casing blows per foot	DEPTH IN FEET FROM - TO		PEN. REC. INCH INCH TYPE		BLOWS PER 6 INCHES ON SAMPLER		STRATA CHANGE DEPTH, ELEV.		FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)				
		NO.	NO.	0-6	6-12	12-18	18-24	DEPTH, ELEV.						
5		5.0-7.0	1	24	13	D	5	3	4	3	Bluish-grey Concrete Road Base/Gravel			
10		10.0-12.0	2	24	10	D	5	5	5	5	Red Br. C-F Sand and C-F Gravel, Cobbles, Boulders (Fill)			
15		15.0-17.0	3	24	6	D	16	23	20	15	Red Br. M-F Sand, Some C-F Gravel, Little Silt			
20		20.0-22.0	4	24	3	D	4	9	9	10	Red Br. M-F Sand and Silt			
25		25.0-27.0	5	24	8	D	19	35	30	50	Red Br. C-F Sand and C-F Gravel, Little Silt (Decomposed Rock/Till)			
30		30.0-30.2	6	2	0	D	502	X	X	X	Cored Run #1 From 35.0 feet to 40.0 feet Recovery - 60" ROD - 14/60 = 23%			
35		35.0-40.0	1	60	60	C					Cored Run #2 From 35.0 feet to 40.0 feet Recovery - 60" ROD - 14/60 = 23%			
40											End of Boring - 45.0			
From Ground Surface to		Feet Used		Inch Casing Then		Inch Casing For		Feet						
Footage in Earth		35.0		Footage in Rock		5.0		No. of Samples		6		Hole No. B-4		
SAMPLE TYPE CODING:		D = DRIVEN		C = CORE		A = AUGER		UP = UNDISTURBED PISTON						
PROPORTIONS USED:		TRACE = 1-10%		LITTLE = 10-20%		SOME = 20-35%		AND = 35-50%						

Jaime Liret DRILLER		TEST BORING REPORT ASSOCIATED BORINGS CO., INC. 119 MARGARET CIRCLE, NAUGATUCK, CT 06770 Tel (203) 729-5435 Fax (203) 729-5116										SHEET 2 OF 2		
INSPECTOR		PROJECT NAME: Northford Road Bridge										CME-55 DRILLING EQUIPMENT Wengill McDonnell Costello		
SOILS ENGINEER		PROJECT NUMBER: Bridge No. 04832										CLIENT		
Surface Elevation:		LOCATION: Wallingford, Connecticut										Hole No. <b>B-4</b>		
Date Started: 9/23/2016		Type: HSA		Auger		Casing		Sampler		Core Bar		Line & Station		
Date Finished: 9/23/2016		Size I. D.:		in		3.25		2		in		Offset		
Groundwater Observations		Hammer		140		lb		BT		N Coordinate		E. Coordinate		
AT 9		AFTER		0		HRS		Fall		30		in		
D E P T H	Casing blows per foot	DEPTH IN FEET FROM - TO		PEN. REC. INCH INCH TYPE		BLOWS PER 6 INCHES ON SAMPLER		STRATA CHANGE DEPTH, ELEV.		FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)				
		NO.	NO.	0-6	6-12	12-18	18-24	DEPTH, ELEV.						
45		40.0-45.0	2	60	60	C					Cored Run #2 From 40.0 feet to 45.0 feet Recovery - 60" ROD - 36/60 = 60%			
50											End of Boring - 45.0			
55														
60														
65														
70														
75														
80														
From Ground Surface to		Feet Used		Inch Casing Then		Inch Casing For		Feet						
Footage in Earth		0.0		Footage in Rock		5.0		No. of Samples		0		Hole No. B-4		
SAMPLE TYPE CODING:		D = DRIVEN		C = CORE		A = AUGER		UP = UNDISTURBED PISTON						
PROPORTIONS USED:		TRACE = 1-10%		LITTLE = 10-20%		SOME = 20-35%		AND = 35-50%						

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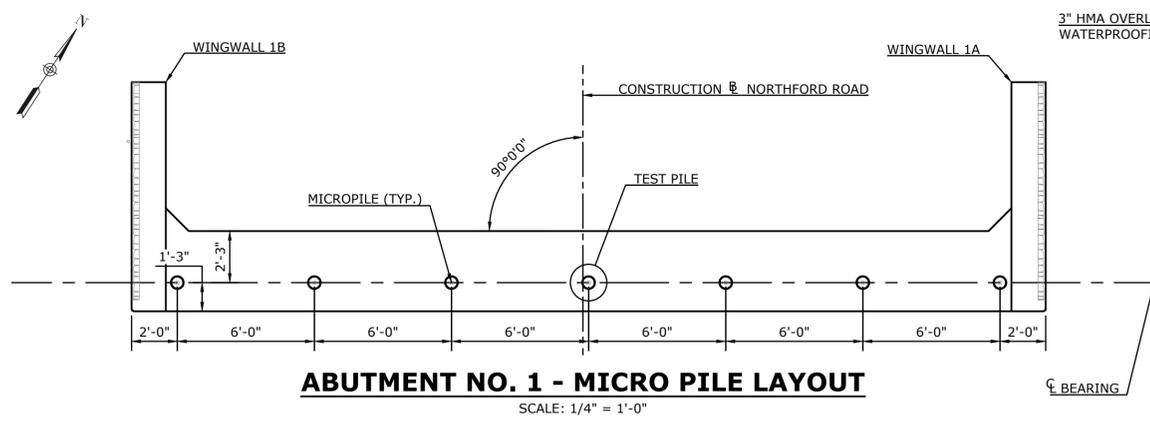


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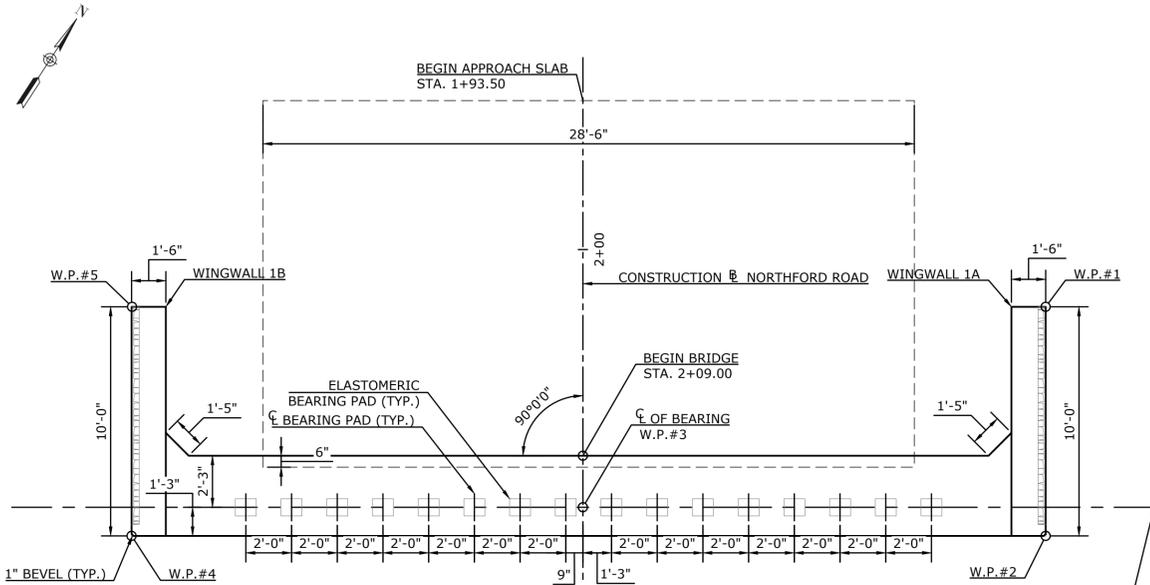
**PREPARED FOR**  
 TOWN OF WALLINGFORD  
 45 SOUTH MAIN STREET  
 WALLINGFORD, CT 06492

REPLACEMENT OF NORTHFORD ROAD BRIDGE  
 OVER MUDDY RIVER  
 BORING LOGS

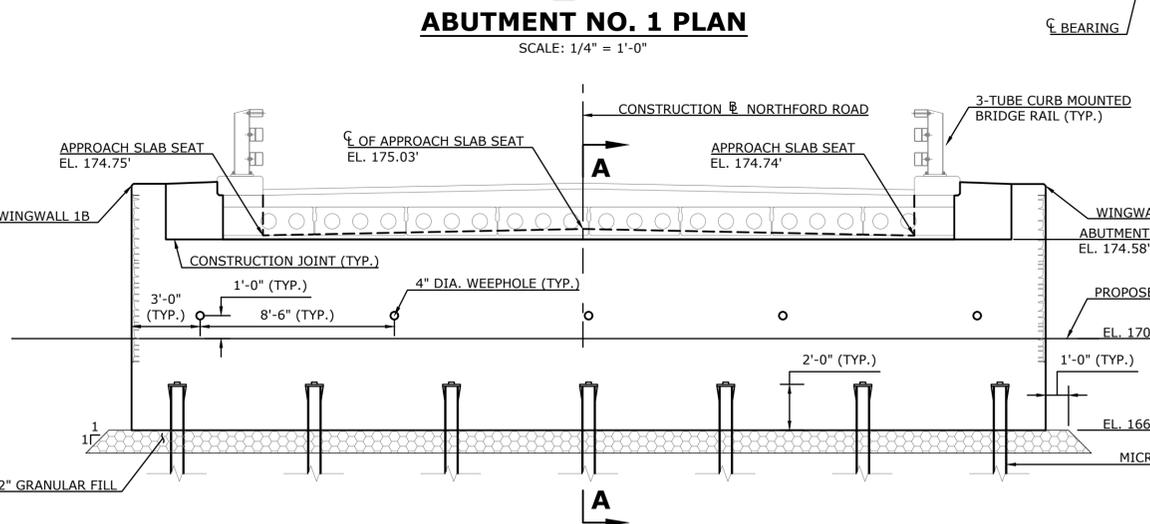
D - NORTHFORD ROAD	P.D.	16022.10	SHEET	13
SIZE	PROJECT	FILE NAME	NUMBER	REV. OF
				23



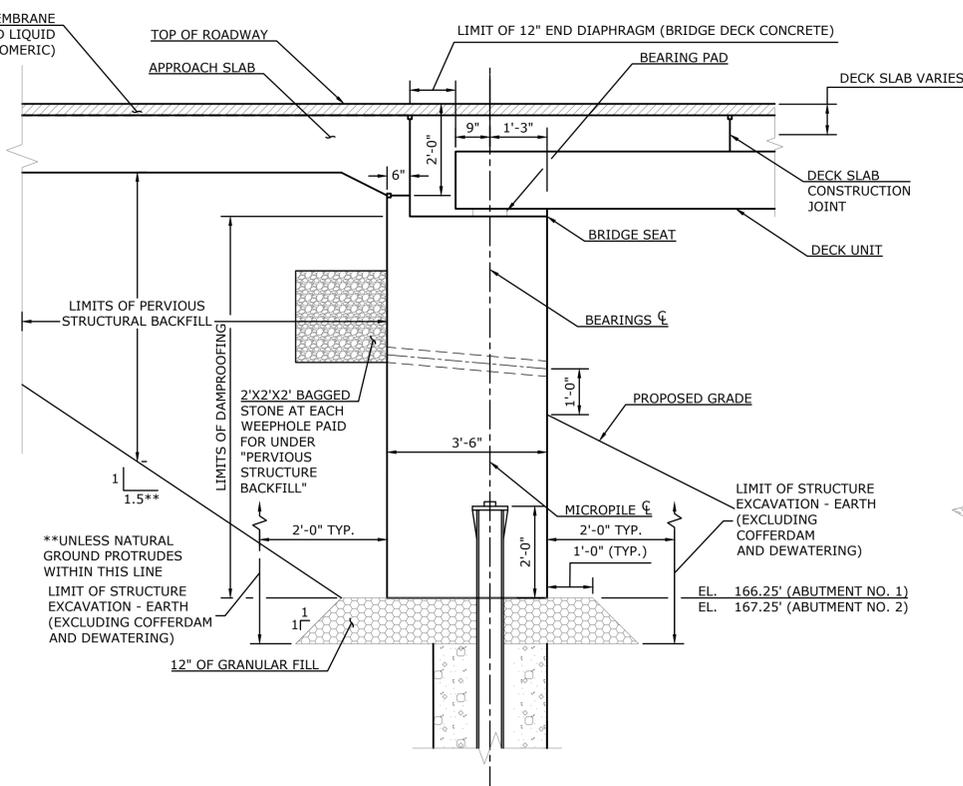
**ABUTMENT NO. 1 - MICRO PILE LAYOUT**  
SCALE: 1/4" = 1'-0"



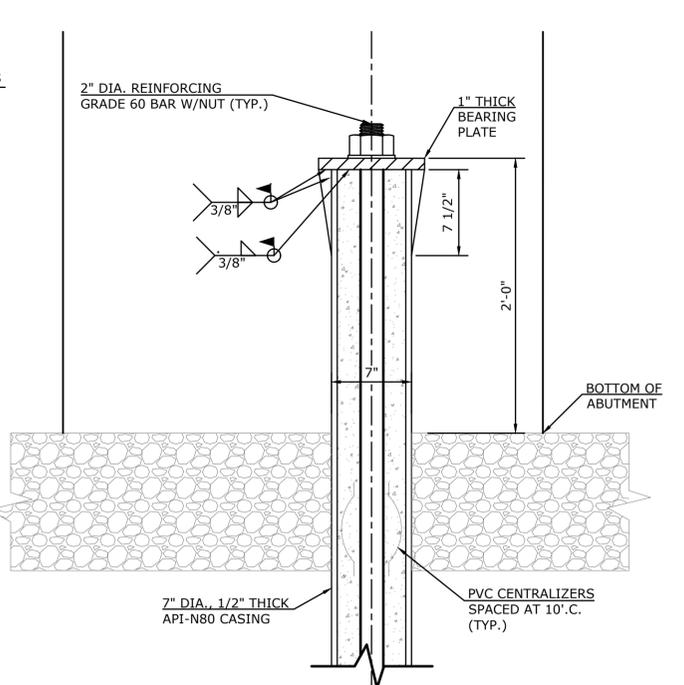
**ABUTMENT NO. 1 PLAN**  
SCALE: 1/4" = 1'-0"



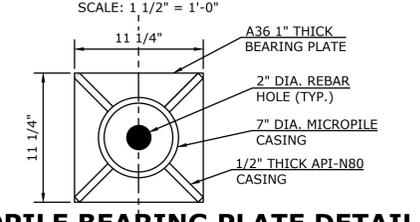
**ABUTMENT NO. 1 ELEVATION**  
SCALE: 1/4" = 1'-0"



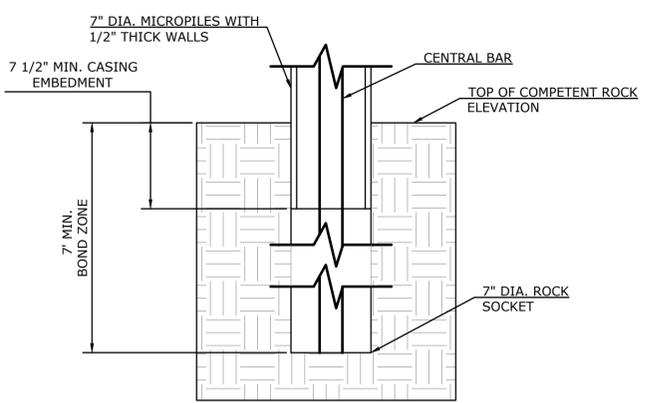
**TYPICAL ABUTMENT PILE SECTION (SECTION A-A)**  
SCALE: 1/2" = 1'-0"



**MICROPILE DETAIL**  
SCALE: 1 1/2" = 1'-0"



**MICROPILE BEARING PLATE DETAIL**  
SCALE: 1 1/2" = 1'-0"



**MICROPILE ROCK SOCKET DETAIL**  
SCALE: 1 1/2" = 1'-0"

- NOTES:**
1. THE PRELIMINARY MINIMUM SIZE IS 7" DIA. MICROPILES WITH 1/2" THICK WALLS AND API-N80 CASING. INTERNAL REBAR SHALL BE 2" DIA. GALVANIZED, GRADE 60.
  2. MAXIMUM STRENGTH LIMIT PILE LOAD = 72.3 TONS  
MAXIMUM SERVICE LIMIT PILE LOAD = 52.0 TONS  
ULTIMATE PILE CAPACITY = 131.3 TONS
  3. ESTIMATED LENGTH OF PILES:  
ABUTMENT 1 (BASED ON BORING B-4) = 38.2'  
ABUTMENT 2 (BASED ON BORING B-2) = 39.0'
  4. ESTIMATED CASING LENGTH:  
ABUTMENT 1 (BASED ON BORING B-4) = 31.8'  
ABUTMENT 2 (BASED ON BORING B-2) = 32.6'

LOCATION	TOP OF PILE ELEVATION	ESTIMATED BOTTOM OF PILE ELEVATION
ABUTMENT 1	166.25	128.0'
ABUTMENT 2	167.25	128.25'

- NOTES:**
1. NEAT CEMENT GROUT SHALL HAVE AN ANTI-WASHOUT ADDITIVE FOR GROUTING BELOW THE WATER TABLE.
  2. GROUTING PRESSURE SHALL BE AS DETERMINED BY THE MICROPILE CONTRACTOR.
  3. IF SPLICE IS NEEDED FOR THE CENTRAL BAR, THE COUPLERS SHALL BE RATED AT 125% OF THE YIELD STRENGTH OF THE BAR.
  4. UPPER AND LOWER MOST CENTRALIZER SHALL BE LOCATED A MAXIMUM OF 3 FEET FROM THE TOP AND BOTTOM OF THE MICROPILE.
  5. THE MICROPILE DETAILS ARE A PRELIMINARY MINIMUM RECOMMENDATION. FINAL DESIGN SHALL BE PROVIDED BY THE CONTRACTOR.
  6. IT IS NOTED THAT COBBLES AND BOULDERS WERE ENCOUNTERED IN THE EXISTING FILL MATERIAL AND SOME DIFFICULTIES MAY BE EXPECTED DURING THE DRILLING OPERATIONS AT ISOLATED LOCATIONS. THE CONTRACTOR SHOULD BE EQUIPPED TO HANDLE OBSTRUCTIONS.

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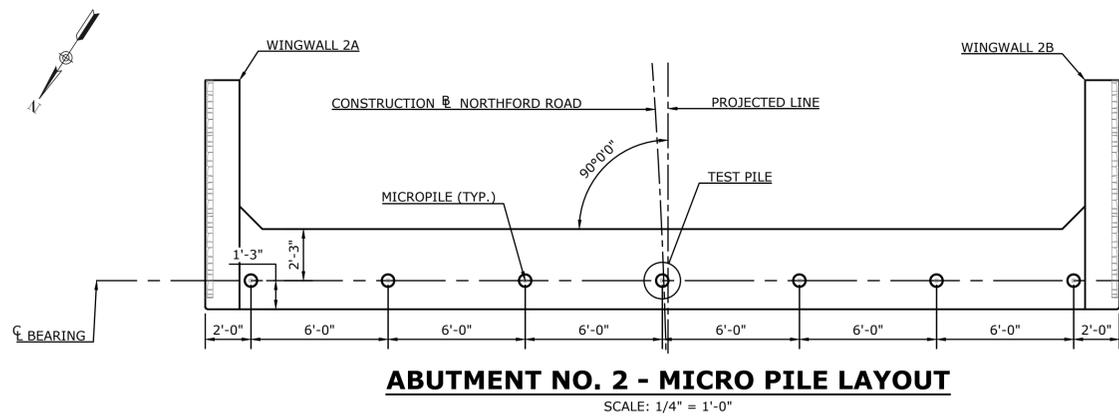
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NEWINGTON, CT 06111  
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**PREPARED FOR**  
TOWN OF WALLINGFORD  
45 SOUTH MAIN STREET  
WALLINGFORD, CT 06492

**REPLACEMENT OF NORTHFORD ROAD BRIDGE OVER MUDDY RIVER  
ABUTMENT NO.1 PLAN & ELEVATION**

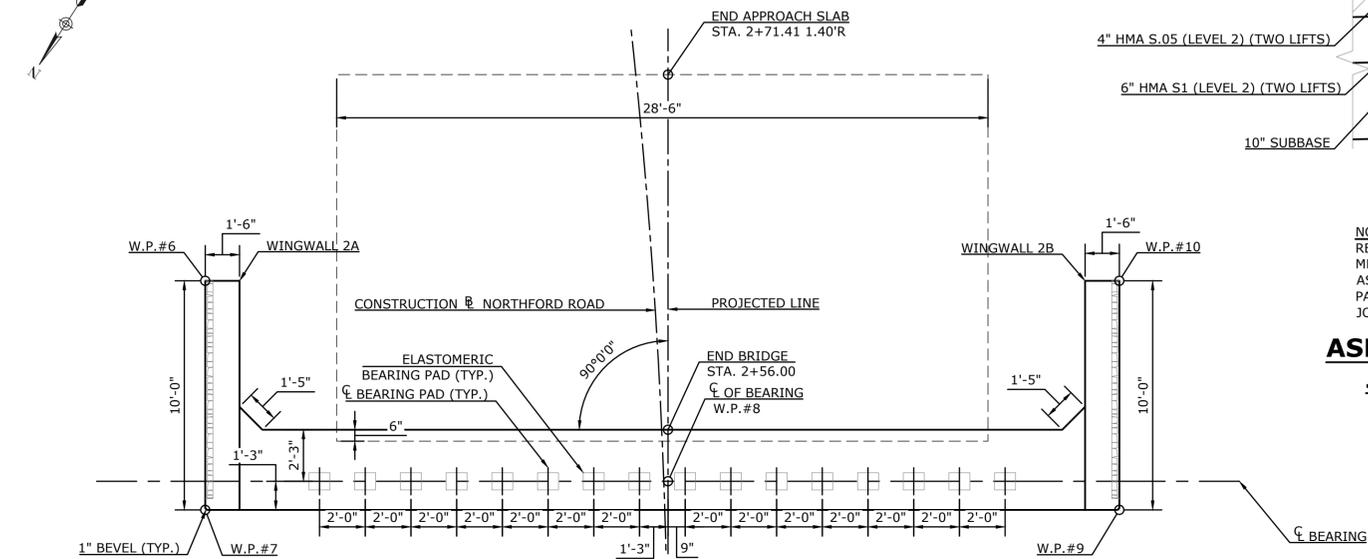
SIZE	PROJECT	FILE NAME	NUMBER	REV.	OF
D	NORTHFORD ROAD	S.F.D.	16022.10		23

SHEET 14



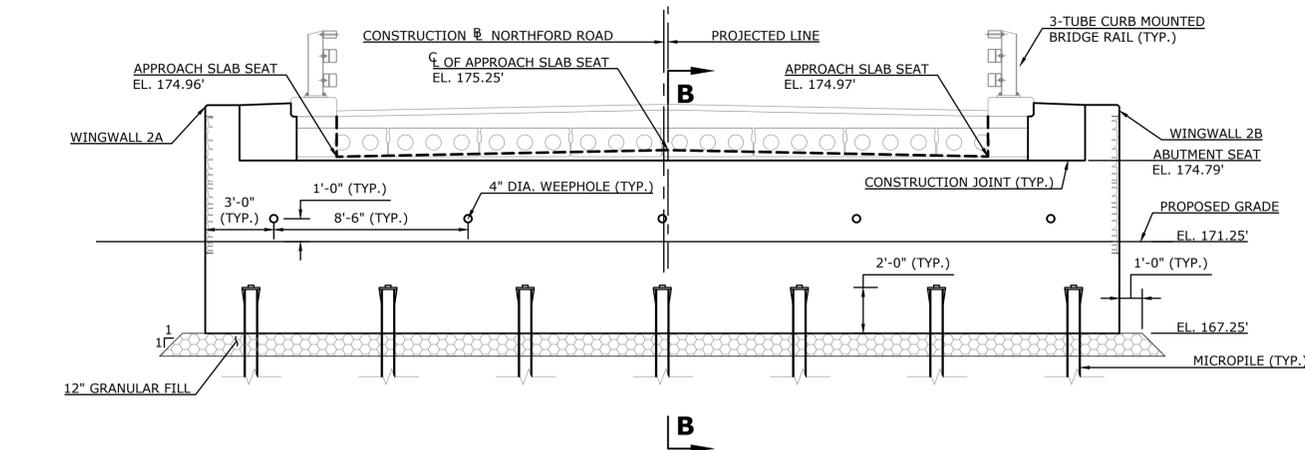
**ABUTMENT NO. 2 - MICRO PILE LAYOUT**

SCALE: 1/4" = 1'-0"



**ABUTMENT NO. 2 PLAN**

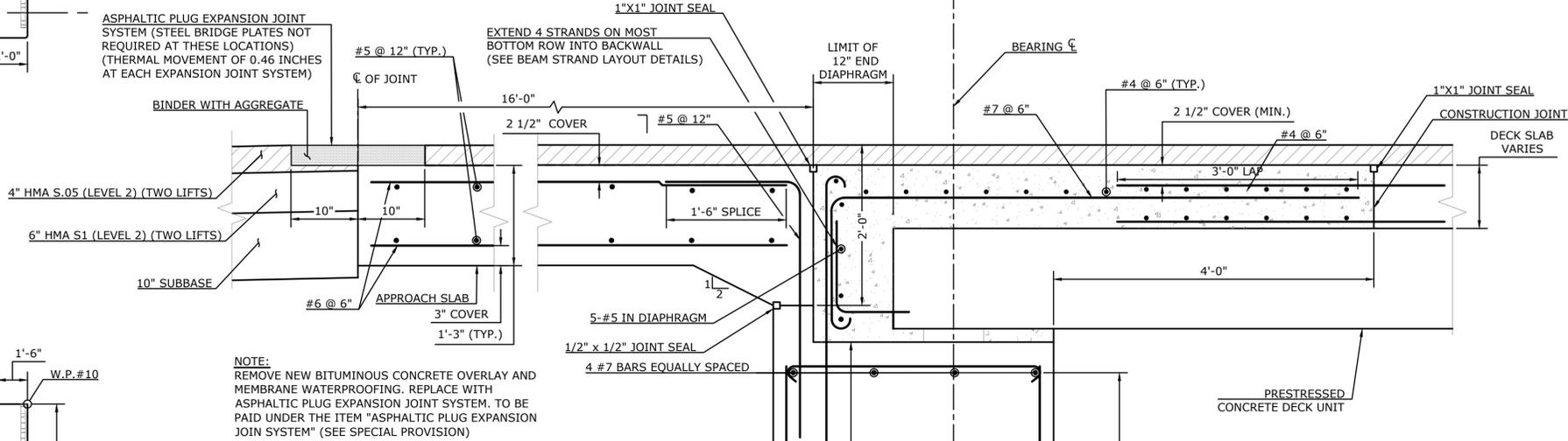
SCALE: 1/4" = 1'-0"



**ABUTMENT NO. 2 ELEVATION**

SCALE: 1/4" = 1'-0"

ASPHALTIC PLUG EXPANSION JOINT SYSTEM (STEEL BRIDGE PLATES NOT REQUIRED AT THESE LOCATIONS) (THERMAL MOVEMENT OF 0.46 INCHES AT EACH EXPANSION JOINT SYSTEM)



**ASPHALTIC PLUG EXPANSION JOINT SYSTEM SECTION**

SCALE: 1" = 1'-0"

NOTE: REMOVE NEW BITUMINOUS CONCRETE OVERLAY AND MEMBRANE WATERPROOFING. REPLACE WITH ASPHALTIC PLUG EXPANSION JOINT SYSTEM. TO BE PAID UNDER THE ITEM "ASPHALTIC PLUG EXPANSION JOINT SYSTEM" (SEE SPECIAL PROVISION)

**TYPICAL ABUTMENT REINFORCEMENT DETAIL (SECTION B-B)**

SCALE: 1" = 1'-0"

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REVISIONS		NO.	DATE	DESCRIPTION
SUPV.		J.A.C.		
DESIGN		J.A.W.		
DRAWN		D.R.B.		
CHECKED		J.A.W.		
DATE		7/31/2020		

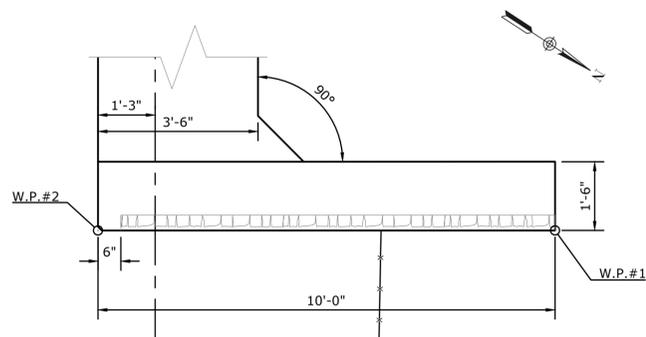
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NEWINGTON, CT 06111  
(860) 667-9624

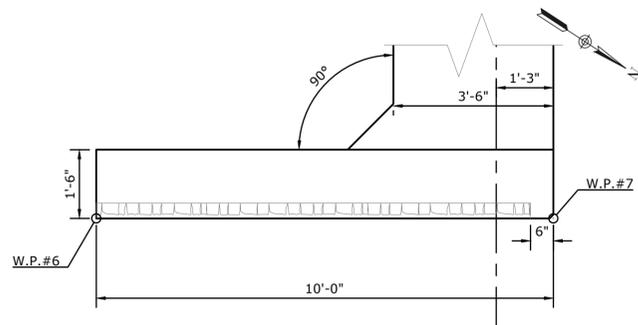
**PREPARED FOR**  
TOWN OF WALLINGFORD  
45 SOUTH MAIN STREET  
WALLINGFORD, CT 06492

REPLACEMENT OF NORTHFORD ROAD BRIDGE  
OVER MUDDY RIVER  
ABUTMENT NO.2 PLAN & ELEVATION

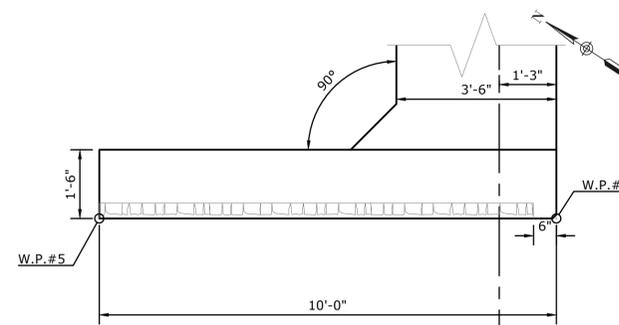
D - NORTHFORD ROAD	S.F.D.	16022.10	SHEET	15
SIZE	PROJECT	FILE NAME	NUMBER	REV. OF
				23



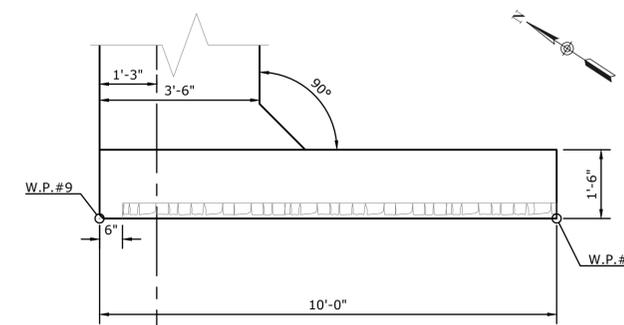
**WINGWALL 1A PLAN**  
SCALE: 1/2" = 1'-0"



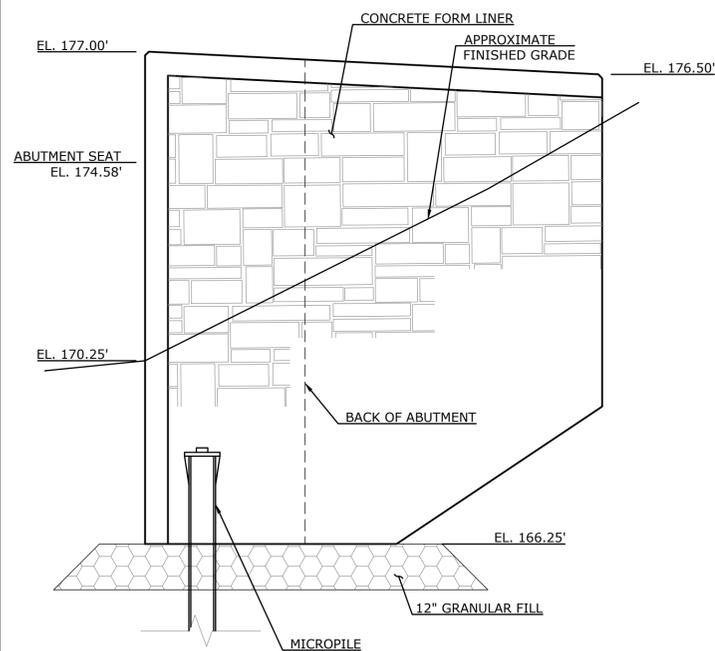
**WINGWALL 2A PLAN**  
SCALE: 1/2" = 1'-0"



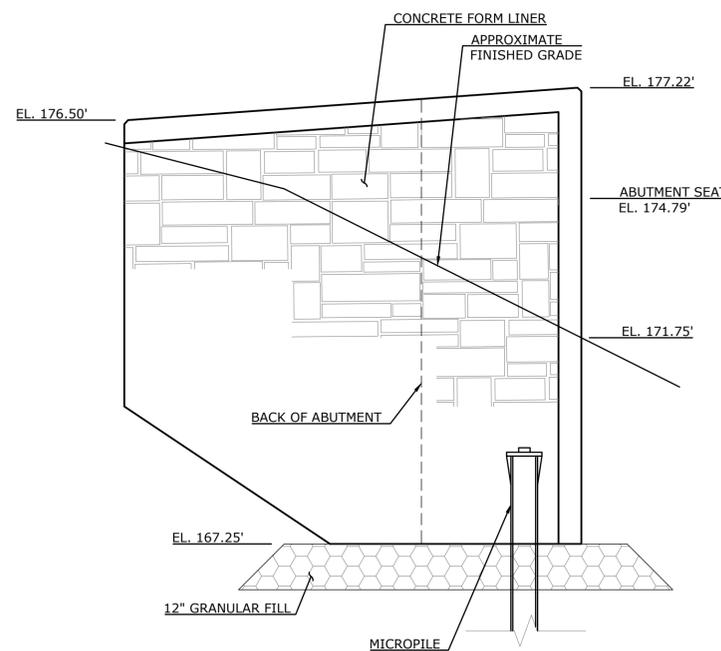
**WINGWALL 1B PLAN**  
SCALE: 1/2" = 1'-0"



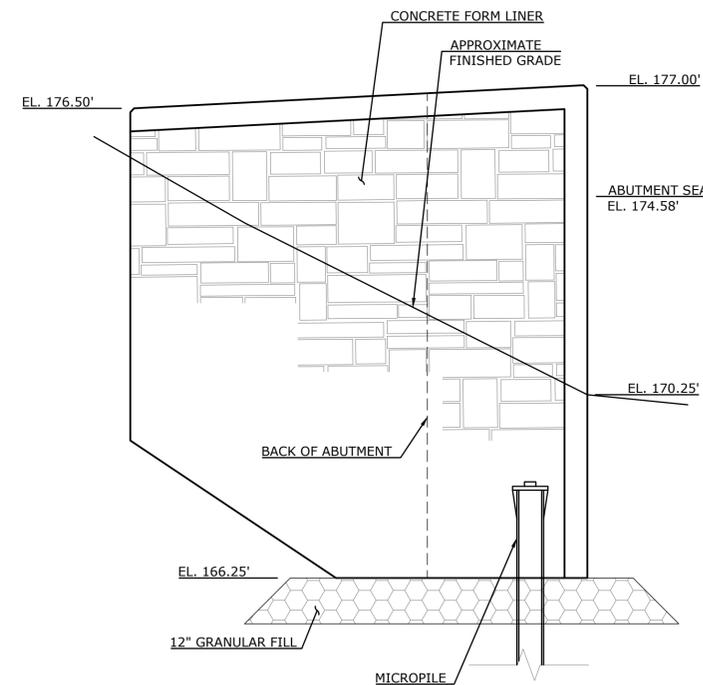
**WINGWALL 2B PLAN**  
SCALE: 1/2" = 1'-0"



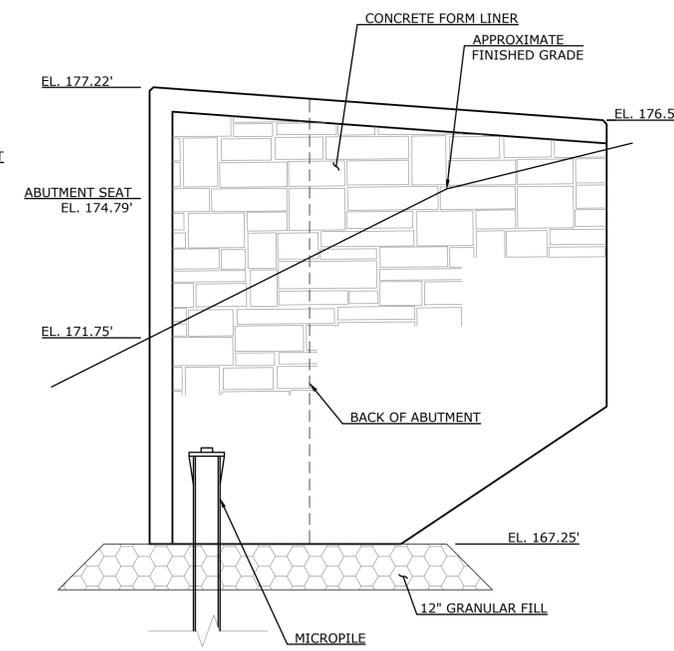
**WINGWALL 1A ELEVATION VIEW**  
SCALE: 1/2" = 1'-0"



**WINGWALL 2A ELEVATION VIEW**  
SCALE: 1/2" = 1'-0"



**WINGWALL 1B ELEVATION VIEW**  
SCALE: 1/2" = 1'-0"



**WINGWALL 2B ELEVATION VIEW**  
SCALE: 1/2" = 1'-0"

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NO.	DATE	DESCRIPTION	
<b>REVISIONS</b>			

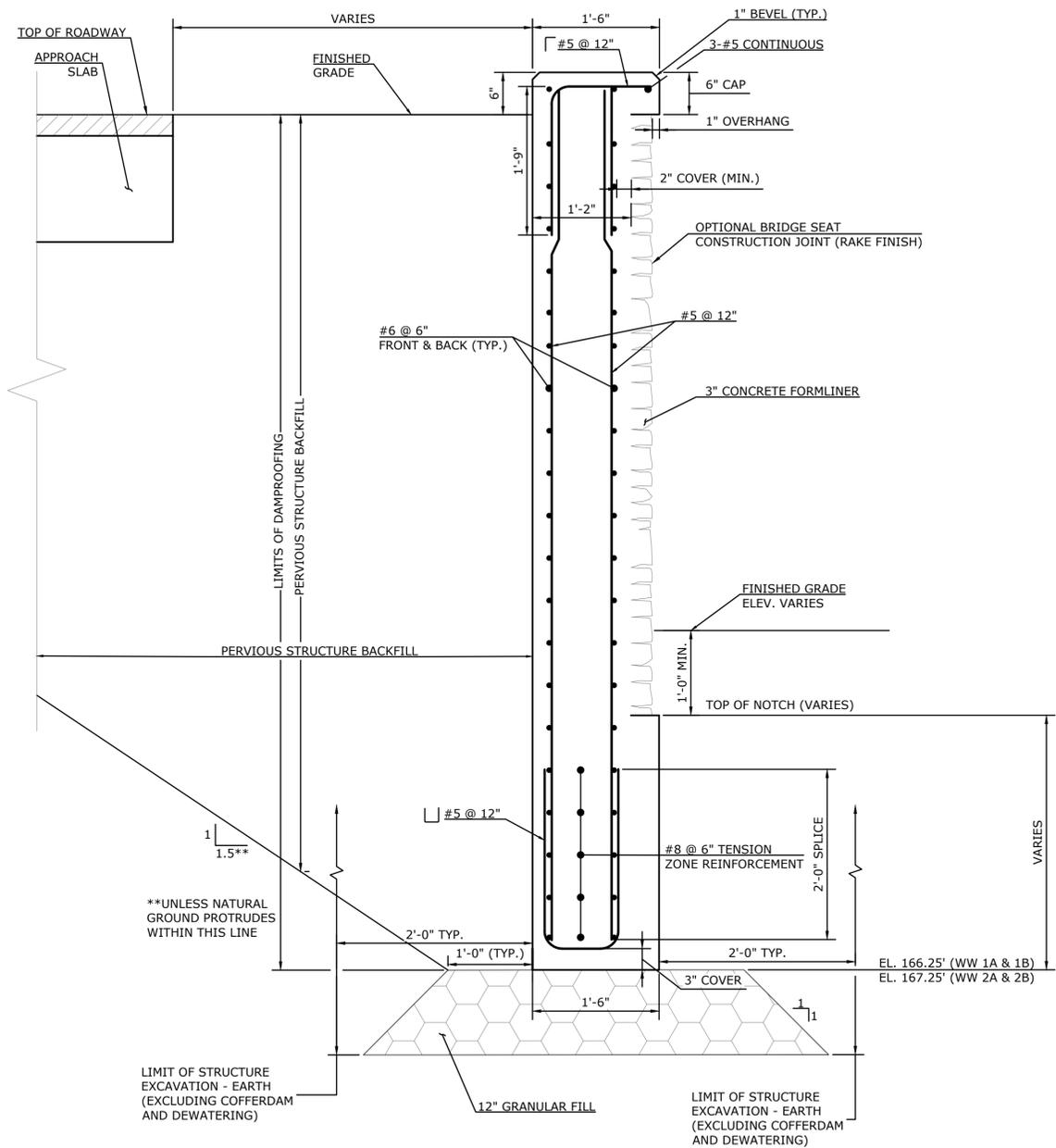


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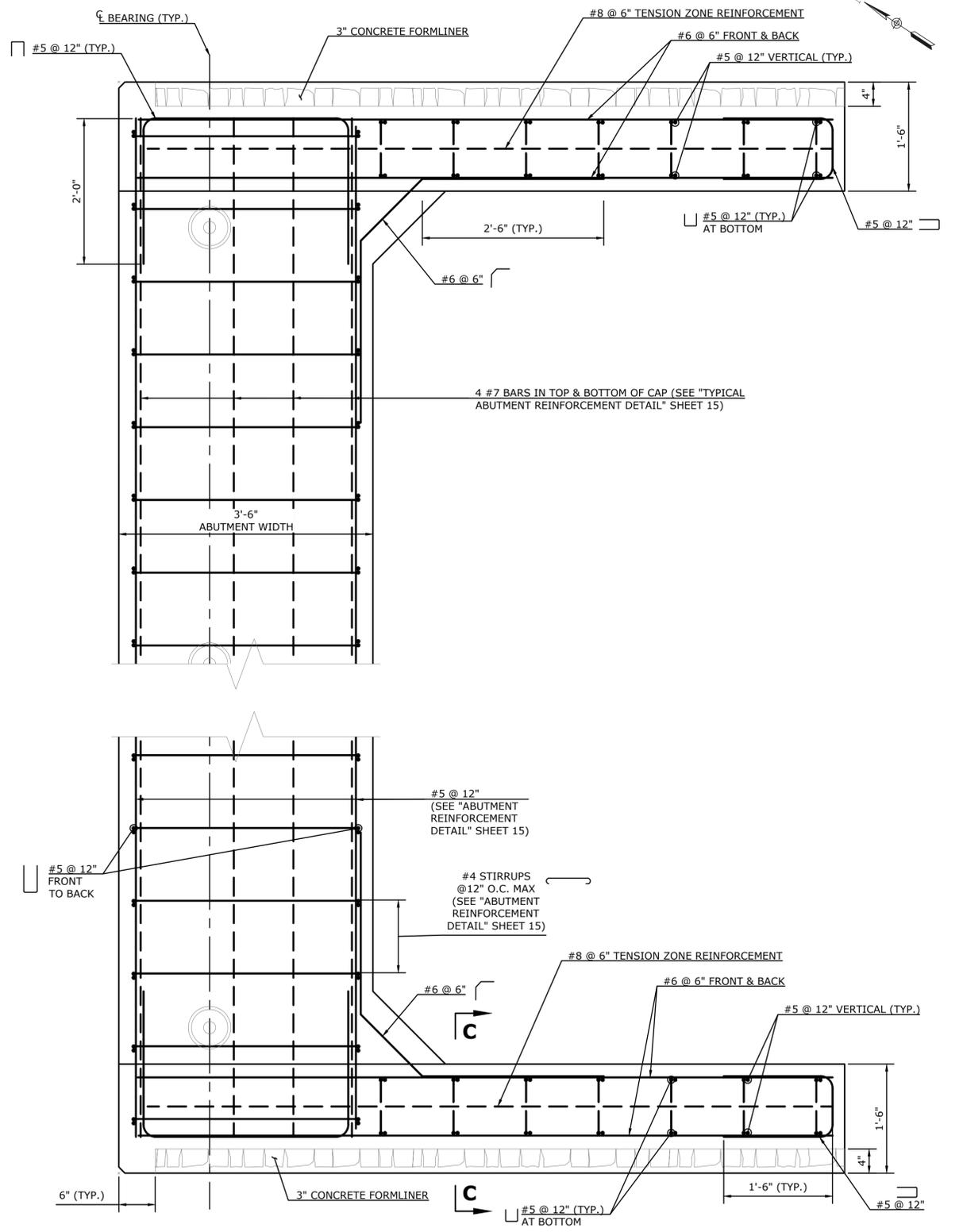
**PREPARED FOR**  
TOWN OF WALLINGFORD  
45 SOUTH MAIN STREET  
WALLINGFORD, CT 06492

REPLACEMENT OF NORTHFORD ROAD BRIDGE  
OVER MUDDY RIVER  
WINGWALL PLANS & ELEVATIONS

D - NORTHFORD ROAD	S.F.D.	16022.10	SHEET	16
SIZE	PROJECT	FILE NAME	NUMBER	REV. OF
				23



**SECTION "C-C" WINGWALL REINFORCEMENT**  
SCALE: 1" = 1'-0"



**PILE CAP & WINGWALL REINFORCEMENT SECTION (PLAN)**  
SCALE: 1" = 1'-0"

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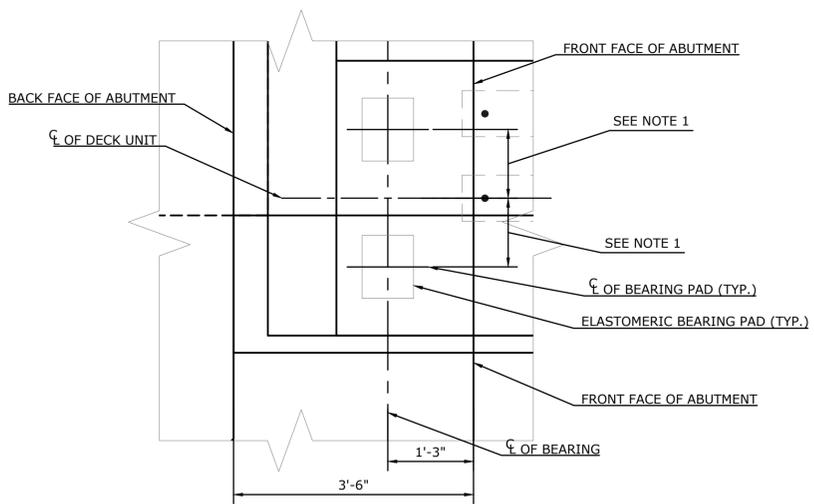
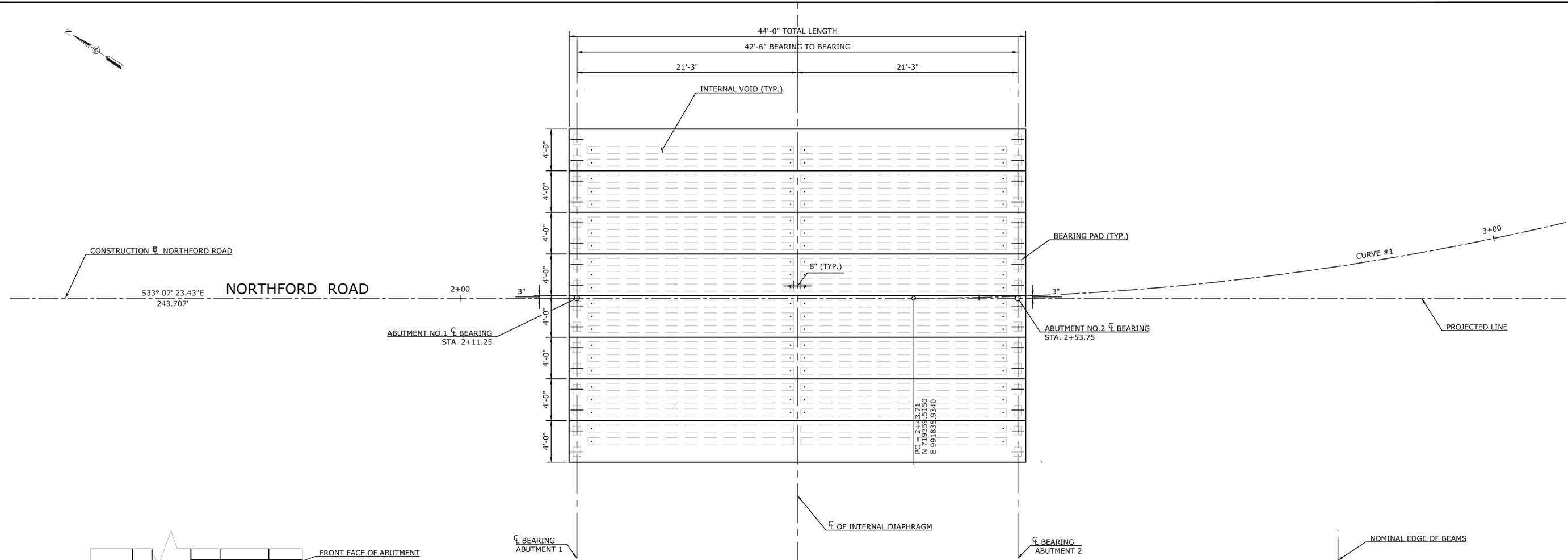
		SUPV.	J.A.C.
		DESIGN	J.A.W.
		DRAWN	D.R.B.
		CHECKED	J.A.W.
		DATE	7/31/2020
NO.	DATE	DESCRIPTION	
<b>REVISIONS</b>			

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**PREPARED FOR**  
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45 SOUTH MAIN STREET  
WALLINGFORD, CT 06492

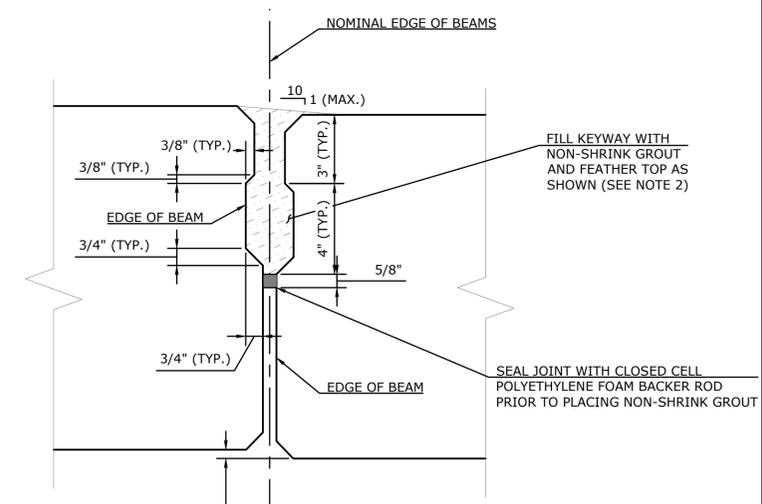
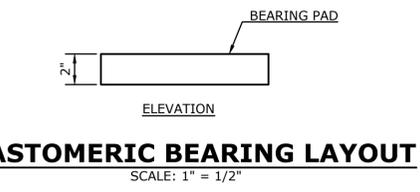
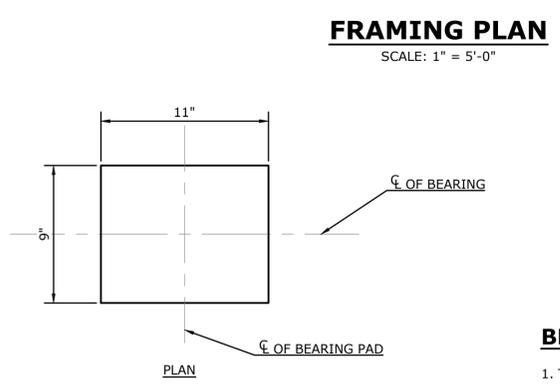
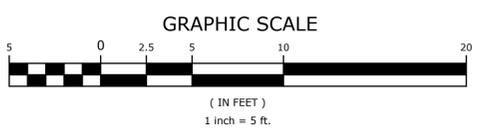
REPLACEMENT OF NORTHFORD ROAD BRIDGE  
OVER MUDDY RIVER  
WINGWALL & ABUTMENT  
REINFORCEMENT DETAILS

D - NORTHFORD ROAD	S.F.D.	16022.10	SHEET	17
SIZE	PROJECT	FILE NAME	NUMBER	REV. OF
				23



**NOTES:**  
1. 12" FOR 4'-0" DECK UNIT  
9" FOR 3'-0" DECK UNIT

**ELASTOMERIC BEARING LAYOUT**  
SCALE: 3/4" = 1'-0"



ALLOWABLE DIFFERENTIAL CAMBER  
1/4" PER 10'-0" (3/4" MAX.)

**TYPICAL LONGITUDINAL JOINT - PRESTRESSED CONCRETE DECK UNITS**  
SCALE: 3" = 1'-0"

**BEARING ASSEMBLY NOTES:**

1. THE ELASTOMER SHALL BE TYPE CR, GRADE 3 AS DEFINED BY ASTM D4014 AND SHALL HAVE A SHORE A DUROMETER HARDNESS OF 70+/-5 POINTS AND A SHEAR MODULUS WITHIN LIMITS OF 200 TO 250 PSI.
2. THE ELASTOMERIC BEARINGS SHALL BE INSTALLED WHEN THE AMBIENT AIR TEMPERATURE IS BETWEEN 41°F AND 77°F AND HAS BEEN WITHIN THIS RANGE FOR MORE THAN TWO HOURS.
3. THE CONCRETE ABUTMENT SEATS SHALL BE CAREFULLY FINISHED SMOOTH TO AN EVEN, LEVEL SURFACE AND SHALL SHOW NO VARIATIONS FROM A TRUE PLANE GREATER THAN 1/16".

**NOTES:**

1. THE DECK UNITS SHALL BE PLACED AT THE NOMINAL SPACING SHOWN ON THE PLAN WITH A GAP BETWEEN THE UNITS. THE WIDTH OF THE GAPS WILL VARY DUE TO THE SWEEP OF THE UNITS
2. GROUT FOR SHEAR KEYS SHALL BE RODDED OR VIBRATED TO ENSURE THAT ALL VOIDS IN THE SHEAR KEYS ARE FILLED.

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		DATE	7/31/2020
NO.	DATE	DESCRIPTION	
<b>REVISIONS</b>			

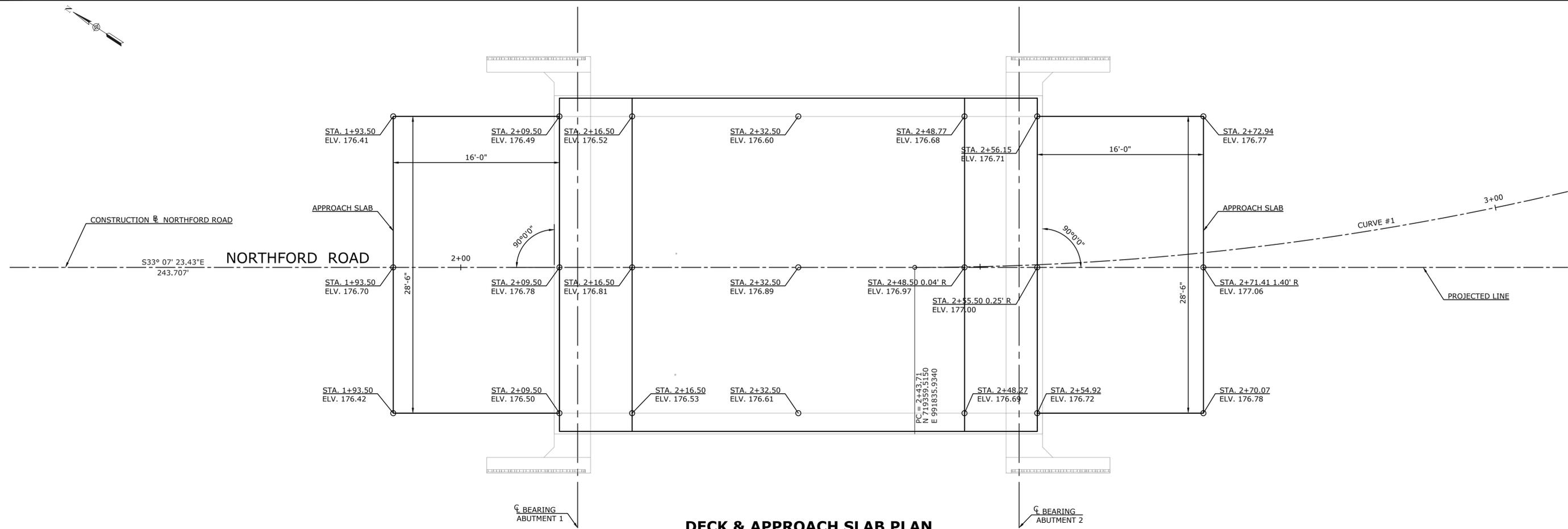
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**PREPARED FOR**  
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WALLINGFORD, CT 06492

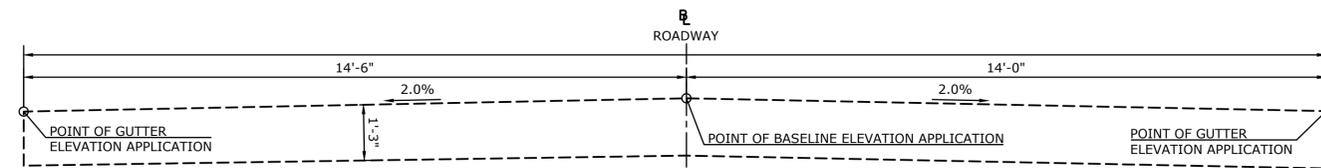
**REPLACEMENT OF NORTHFORD ROAD BRIDGE OVER MUDDY RIVER FRAMING PLAN**

D - NORTHFORD ROAD	S.F.D.	16022.10	SHEET	18
SIZE	PROJECT	FILE NAME	NUMBER	REV. OF
				23



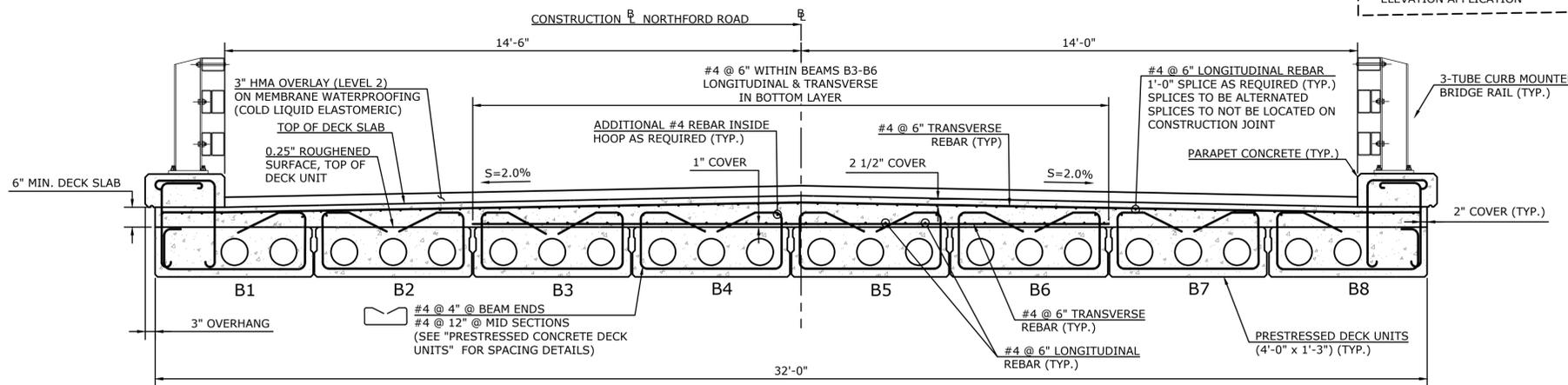
**DECK & APPROACH SLAB PLAN**

SCALE: 1" = 5'-0"



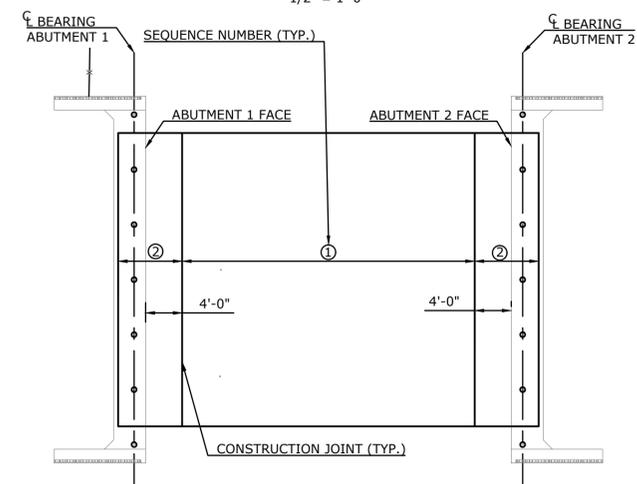
**APPROACH SLAB SECTION**

SCALE: 1/2" = 1'-0"



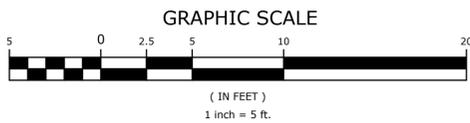
**DECK SLAB REINFORCEMENT DETAIL**

SCALE: 1/2" = 1'-0"



**DECK SLAB PLACEMENT/POUR SEQUENCE**

SCALE: 1" = 10'-0"



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NO.	DATE	DESCRIPTION	
<b>REVISIONS</b>			

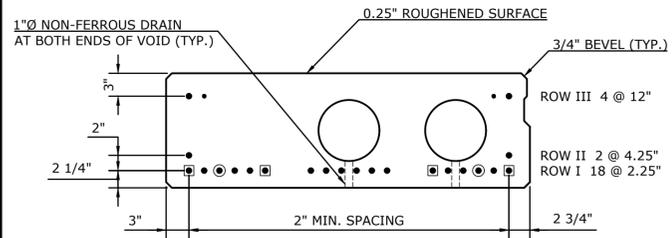


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45 SOUTH MAIN STREET  
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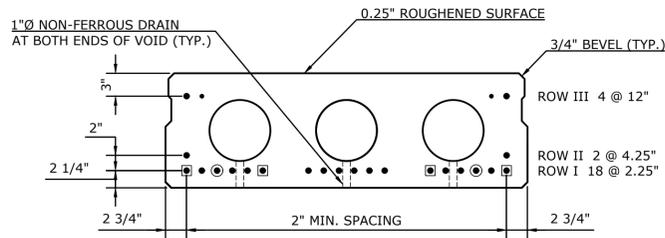
**REPLACEMENT OF NORTHFORD ROAD BRIDGE  
OVER MUDDY RIVER  
DECK PLAN**

D - NORTHFORD ROAD	S.F.D.	16022.10	SHEET	19
SIZE	PROJECT	FILE NAME	NUMBER	REV.
			OF	23



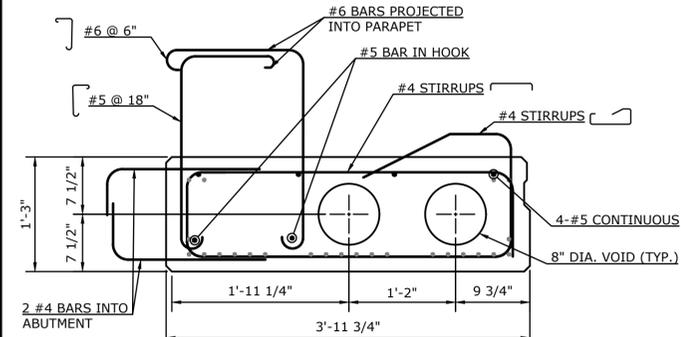
**BEAM B1 & B8 STRAND LAYOUT**

SCALE: 1" = 1'-0"



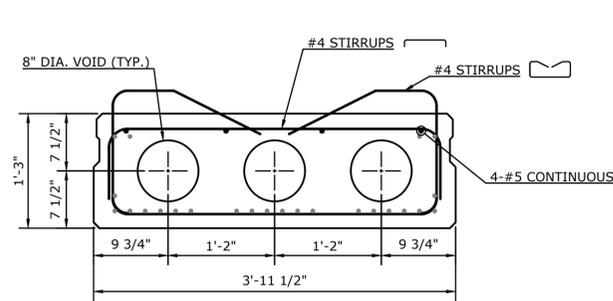
**BEAM B2 - B7 STRAND LAYOUT**

SCALE: 1" = 1'-0"



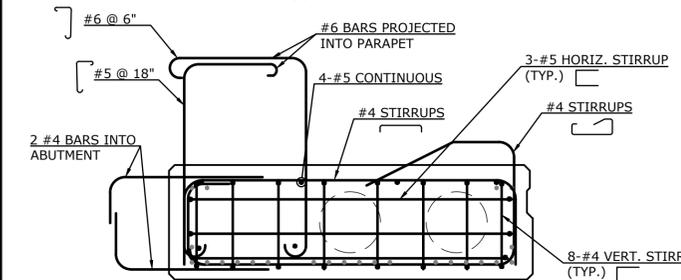
**DIMENSIONS FOR BEAMS B1 & B8**

SCALE: 1" = 1'-0"



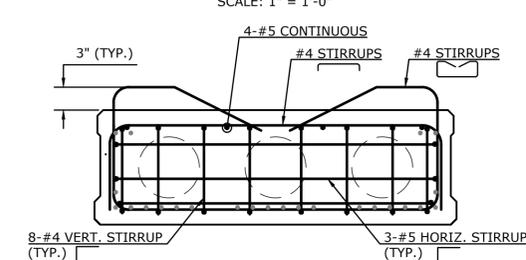
**DIMENSIONS FOR BEAMS B2 - B7**

SCALE: 1" = 1'-0"



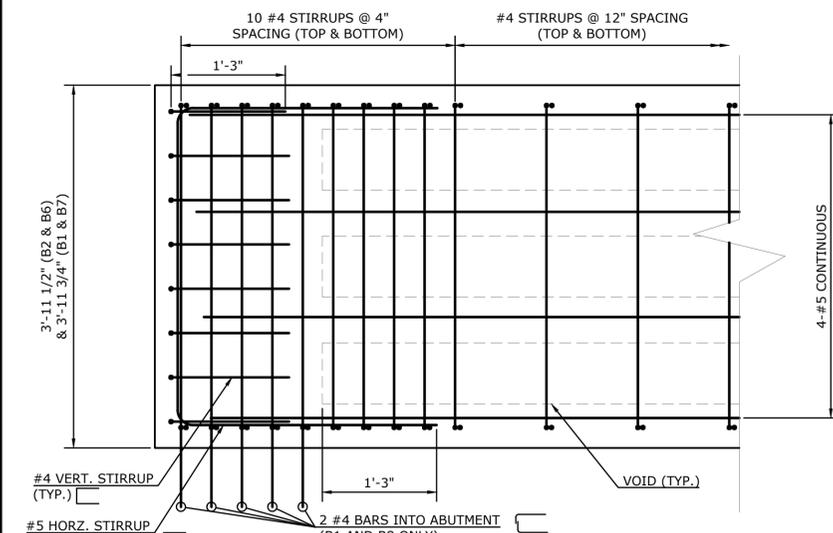
**END SECTION FOR BEAMS B1 & B8**

SCALE: 1" = 1'-0"



**END SECTION FOR BEAMS B2 - B7**

SCALE: 1" = 1'-0"



**PLAN VIEW FOR BEAMS B1 - B8  
(STRANDS NOT SHOWN FOR CLARITY)**

SCALE: 1" = 1'-0"

**NOTE**  
B1 AND B8 SHALL ONLY HAVE TWO VOIDS.

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NO.	DATE	DESCRIPTION
<b>REVISIONS</b>		

SUPV.	J.A.C.
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DRAWN	D.R.B.
CHECKED	J.A.W.
DATE	7/31/2020

STRAND LEGEND	
•	FULLY BONDED
○	DEBONDED 4'-0" FROM ENDS
◻	FULLY BONDED & EXTENDED P/S STRANDS 1'-6" WITH 90 DEGREE BEND

**NOTES:**

- 1) EXTEND LONGITUDINAL LEGS OF HORIZONTAL STIRRUPS A MINIMUM DISTANCE EQUAL TO THE DEPTH OF THE BEAM OR 12" INTO THE WEB OF THE VOIDED SECTION, WHICHEVER IS LARGER.
- 2) HORIZONTAL LEGS OF THE VERTICAL STIRRUPS ARE EQUAL TO THE DEPTH OF THE BEAMS.

**PRESTRESSED BOX BEAMS NOTES:**

1. PRESTRESSED BOX BEAMS SHALL CONFORM TO THE FOLLOWING REQUIREMENTS.  
F'C = 6000 PSI  
F'CI = 5,000 PSI
2. ALL PRESTRESSED STRANDS SHALL CONFORM TO THE FOLLOWING REQUIREMENTS.  
ULTIMATE STRENGTH (F<sub>s</sub>) = 270,000 PSI  
JACKING TENSION (F<sub>j</sub>) = 43,900 LBS. PER STRAND
3. PRESTRESSED STRANDS SHALL BE PLACED 2" ON CENTERS MINIMUM AND SHALL HAVE A MINIMUM COVER OF 2".
4. THE DRILLING OF HOLES IN PRESTRESSED BOX BEAMS, OR THE USE OF POWER ACTUATED TOOLS ON PRESTRESSED BOX BEAMS WILL NOT BE PERMITTED.
5. ALL PRESTRESSING STRANDS SHALL BE 0.6" DIAMETER, UNCOATED SEVEN WIRE, LOW RELAXATION STRANDS CONFORMING TO AASHTO M203 (ASTM DESIGNATION A416).
6. FURNISHING AND INSTALLING ALL BOX BEAM REINFORCEMENT SHALL BE INCLUDED IN THE COST OF THE PRESTRESSED BOX BEAM UNDER THE ITEMS "PRESTRESSED DECK UNITS (4'-0" X 1'-3")".
7. ALL NON-PRESTRESSED REINFORCING BARS SHALL BE GALVANIZED AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM A615, GRADE 60, AFTER FABRICATION, TO THE REQUIREMENTS OF ASTM A 767, CLASS 1, INCLUDING SUPPLEMENTAL REQUIREMENTS. BARS SHALL BE SECURELY TIED TO PREVENT DISLOCATION. ALL TIES SHALL BE GALVANIZED.
8. PRECAST MANUFACTURING PLANT FURNISHING PRECAST PRESTRESSED BRIDGE MEMBERS SHALL BE CERTIFIED BY THE PRECAST PRESTRESSED CONCRETE INSTITUTE PLANT CERTIFICATION PROGRAM. THE CERTIFICATION SHALL BE AS A MINIMUM IN THE B3 CATEGORY. THE MANUFACTURER SHALL SUBMIT PROOF OF CERTIFICATION PRIOR TO THE START OF PRODUCTION.
9. TOLERANCES FOR PRESTRESSED MEMBERS SHALL CONFORM TO THE LIMITS SPECIFIED IN THE "MANUAL FOR QUALITY CONTROL FOR PLANS AND PRODUCTION OF PRECAST PRESTRESSED CONCRETE PRODUCTS".
10. PROPER BEAM HANDLING HOOKS LOCATED ON THE TOP OF THE PRESTRESSED BOX BEAMS SHALL BE PROVIDED BY THE FABRICATOR. THE FABRICATOR SHALL CONSIDER THE LOCATION OF THE CENTER OF GRAVITY. DURING HANDLING, THE BEAMS MUST BE MAINTAINED IN AN UPRIGHT POSITION AT ALL TIMES AND MUST BE PICKED UP ONLY BY MEANS OF APPROVED LIFTING DEVICES AT THEIR APPROVED SUPPORT POINTS.
11. ANY STRUCTURAL MEMBERS DAMAGED DURING FABRICATION, SHIPPING OR ERECTION, SUCH THAT THEIR STRUCTURAL INTEGRITY IS COMPROMISED, SHALL BE REJECTED AND REPLACED AT THE CONTRACTOR'S OWN EXPENSE. THE ENGINEER SHALL BE THE SOLE JUDGE IN DETERMINING THE STRUCTURAL INTEGRITY OF DAMAGED PRESTRESSED MEMBERS.
12. INSERTS, ANCHORS AND ANY OTHER ITEMS REQUIRED TO BE CAST INTO THE BOX BEAMS SHALL BE SHOWN ON THE SHOP DRAWINGS. ALL HARDWARE SHALL BE GALVANIZED.
13. NO ADDITIONAL DEAD LOADS OR LIVE LOADS SHALL BE APPLIED TO THE PRESTRESSED BOX BEAMS UNTIL THE GROUT IN THE LONGITUDINAL SHEAR KEYS HAS REACHED A SEVEN-DAY COMPRESSIVE STRENGTH OF 4500 PSI. NO ADDITIONAL DEAD LOADS OR LIVE LOADS SHALL BE APPLIED TO THE PRESTRESSED BOX BEAMS UNTIL THE CAST-IN-PLACE DECK SLAB HAS REACHED A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI.
14. GROUT FOR SHEAR KEYS SHALL BE RODDED OR VIBRATED TO ENSURE THAT ALL VOIDS IN THE SHEAR KEY ARE FILLED.
15. TOPS OF BEAMS ARE TO BE INTENTIONALLY ROUGHENED (RAKED FINISH) TO PROVIDE ADEQUATE CONTACT SURFACE WITH THE CONCRETE SHEAR SLAB.
16. THE PRESTRESSED BOX BEAMS SHALL BE PLACED AT THE NOMINAL SPACING SHOWN ON THE PLANS WITH A 1/2" WIDE GAP BETWEEN THE BEAMS. THE WIDTH OF THIS GAP CAN VARY DUE TO SWEEP OF THE UNITS.

CAMBER TABLE				
MEMBER NUMBER	ESTIMATED CAMBER AT MIDSPAN			
	AT TRANSFER	AT ERECTION	TOTAL CAMBER	FINAL
B1 & B8	0.989"	1.749"	1.302"	0.822"
B2 - B7	1.049"	1.854"	1.411"	1.020"

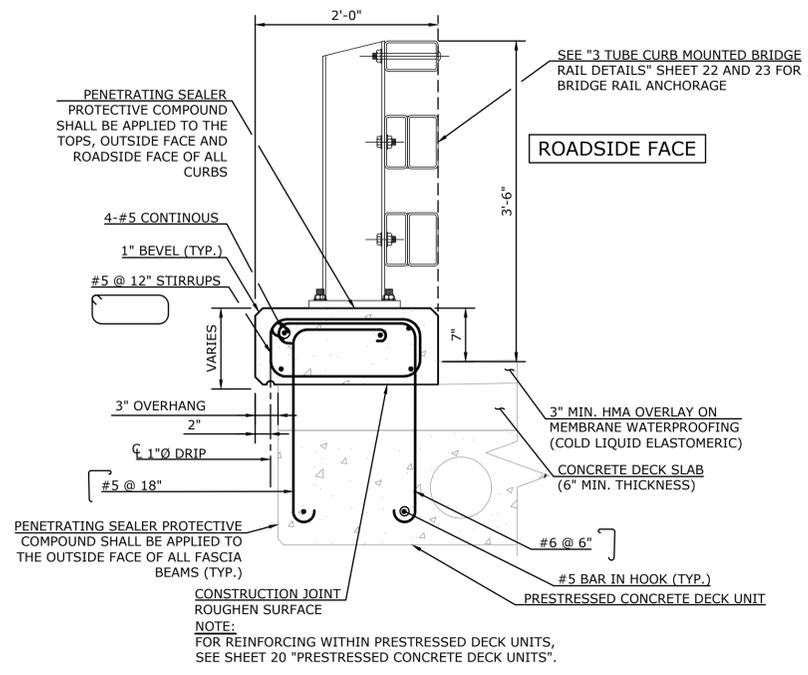
STRAND DATA			
MEMBER NUMBER	NUMBER OF STRANDS	C.G. OF STRANDS (INCHES)	
		END (A)	MIDSPAN (B)
B1, B8	24	4.20	4.04
B2 - B7	24	4.20	4.04

**PREPARED FOR**  
TOWN OF WALLINGFORD  
45 SOUTH MAIN STREET  
WALLINGFORD, CT 06492

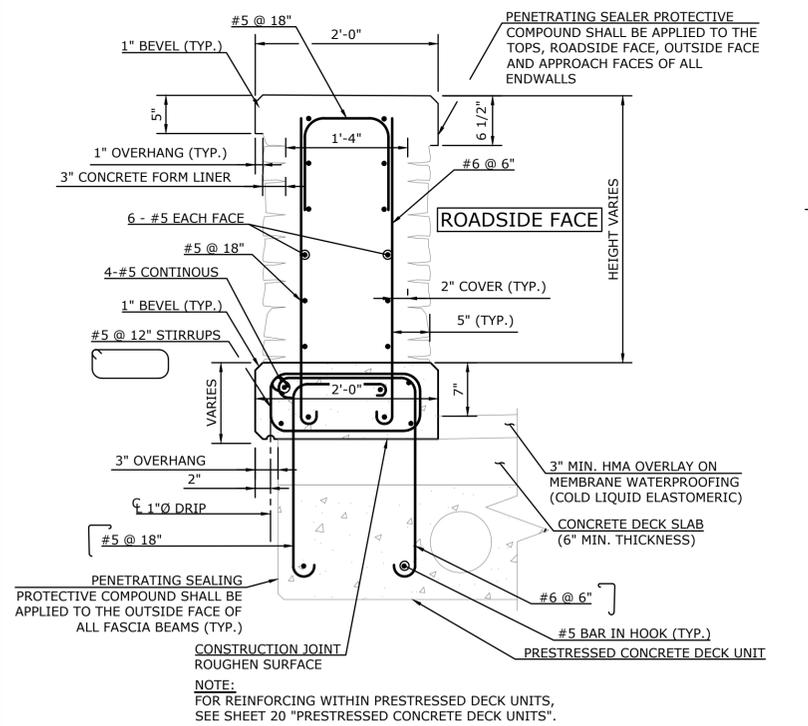
**WMC**  
CONSULTING ENGINEERS  
WENGELL, McDONNELL & COSTELLO  
87 HOLMES ROAD  
NEWINGTON, CT 06111  
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**REPLACEMENT OF NORTHFORD ROAD BRIDGE  
OVER MUDDY RIVER  
PRESTRESSED CONCRETE DECK UNITS**

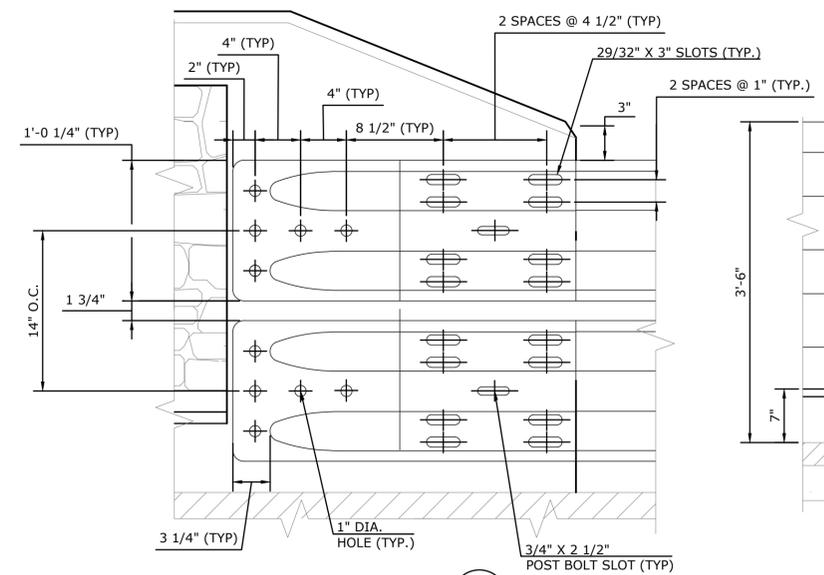
D - NORTHFORD ROAD	S.F.D.	16022.10	SHEET 20
SIZE PROJECT	FILE NAME	NUMBER	REV. OF 23



**TYPICAL CURB SECTION**  
SCALE: 1" = 1'

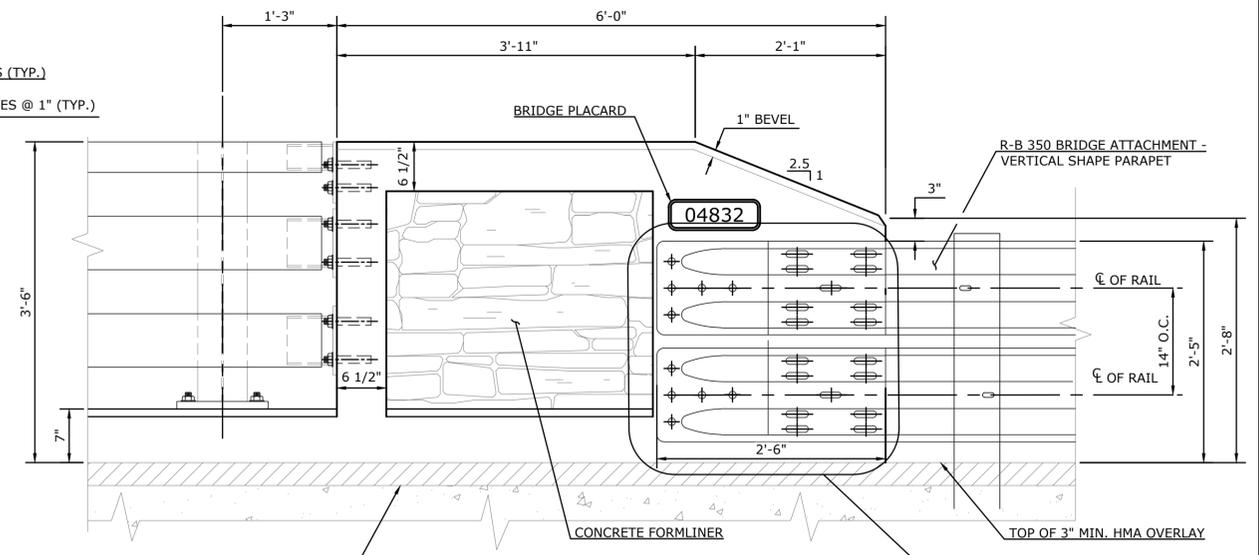


**TYPICAL ENDWALL SECTION AT DECK UNIT**  
SCALE: 1" = 1'-0"

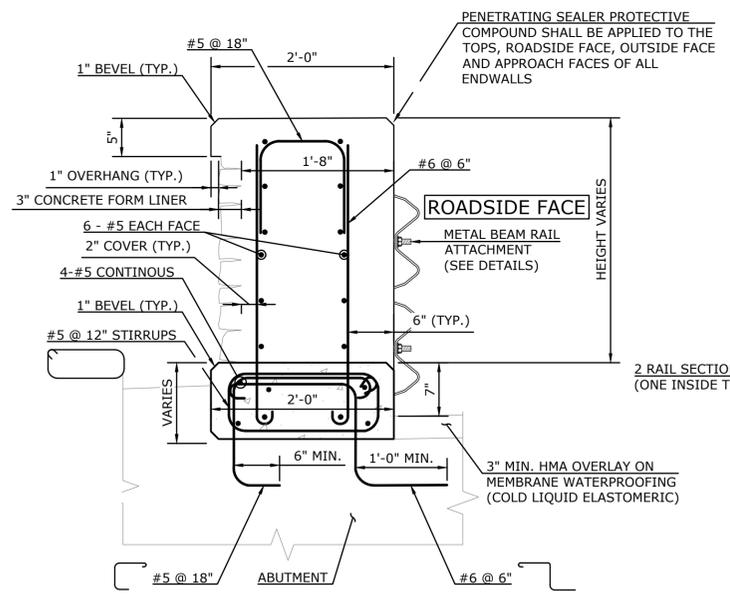


**DETAIL A**  
SCALE: 1 1/2" = 1'-0"

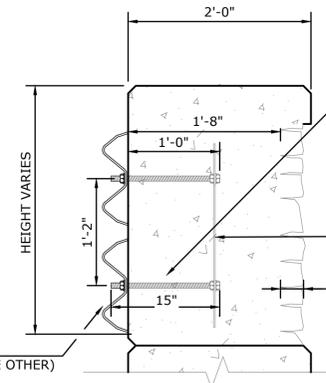
- NOTES:**
1. ANCHOR BOLTS TO BE ASTM A499
  2. HEX NUTS TO BE ASTM A563 GRADE B
  3. SEE "DETAIL C" ON "CONNDOT STANDARD SHEET HW-910\_07" FOR DETAILS
  4. IN LIEU OF USING CAST-IN-PLACE ANCHOR BOLTS, CHEMICALLY ANCHORED BOLTS MAY BE USED.
  5. SEE ADDITIONAL NOTES ON SHEET 23.



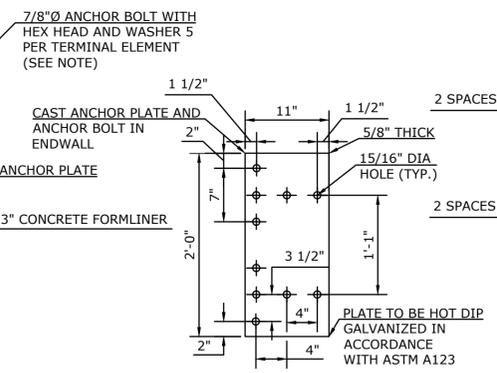
**ENDWALL 2A ELEVATION (R-B 350 BRIDGE ATTACHMENT - VERTICAL SHAPE PARAPET)**  
SCALE: 1" = 1'-0"



**TYPICAL ENDWALL SECTION AT ABUTMENT**  
SCALE: 1" = 1'-0"

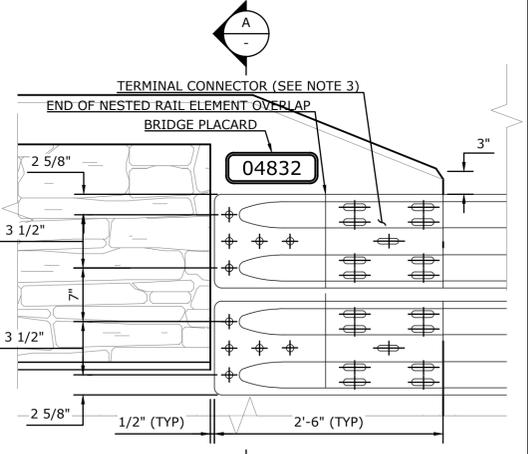


**SECTION A**



**ANCHOR PLATE DETAIL**

**R-B 350 METAL BEAM RAIL ANCHORED TO ENDWALL 2A DETAILS**  
SCALE: 1" = 1'-0"



**ELEVATION VIEW**

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DRAWN		D.R.B.
CHECKED		J.A.W.
NO.	DATE	DESCRIPTION
<b>REVISIONS</b>		
	DATE	7/31/2020

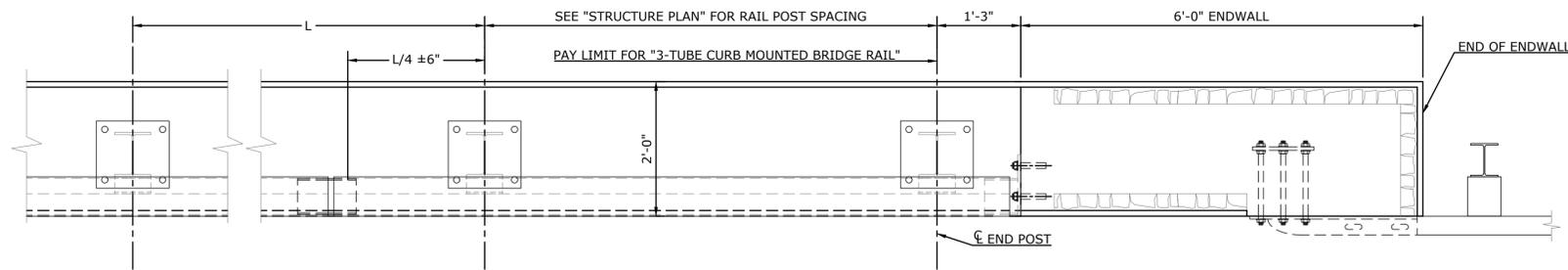
**WMC**  
CONSULTING ENGINEERS

• WENGELL, McDONNELL & COSTELLO •  
87 HOLMES ROAD  
NEWINGTON, CT 06111  
(860) 667-9624

**PREPARED FOR**  
TOWN OF WALLINGFORD  
45 SOUTH MAIN STREET  
WALLINGFORD, CT 06492

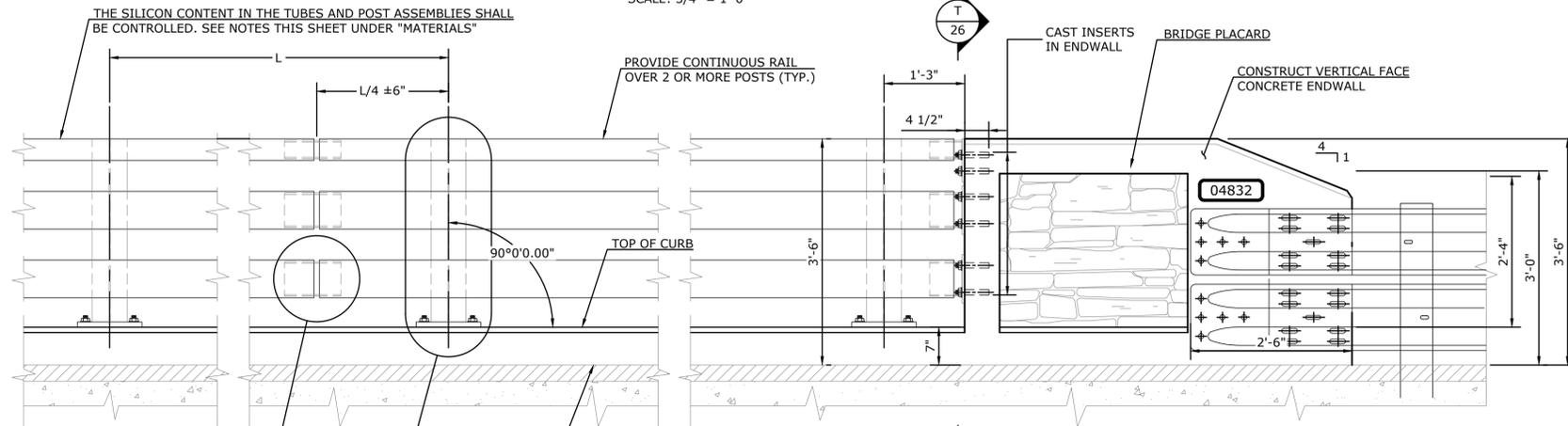
REPLACEMENT OF NORTHFORD ROAD BRIDGE  
OVER MUDDY RIVER  
MISCELLANEOUS STRUCTURE DETAILS

D - NORTHFORD ROAD	S.F.D.	16022.10	SHEET	21
SIZE	PROJECT	FILE NAME	NUMBER	REV. OF
				23



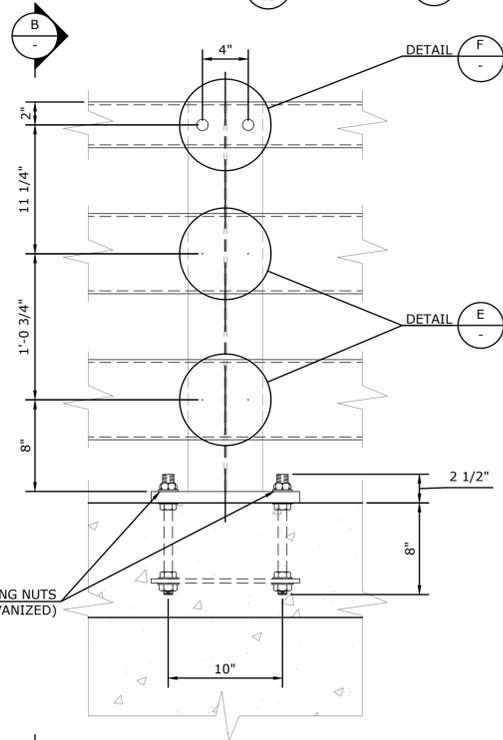
**PLAN**

SCALE: 3/4" = 1'-0"



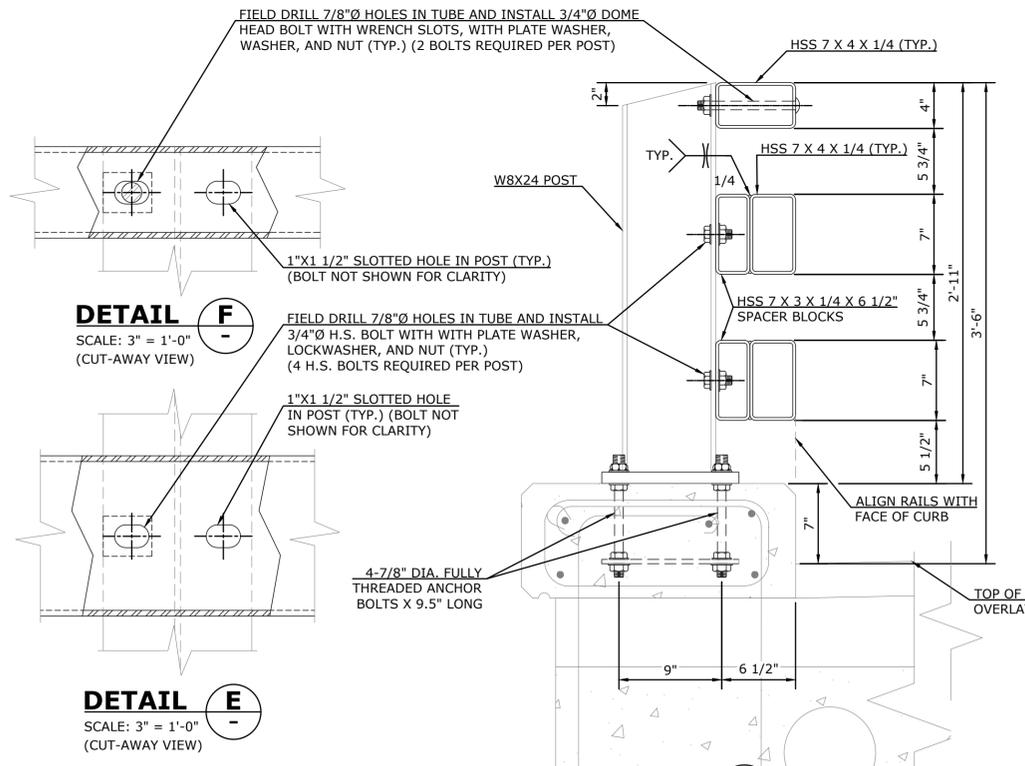
**ELEVATION**

SCALE: 3/4" = 1'-0"



**DETAIL A**

SCALE: 1 1/2" = 1'-0"

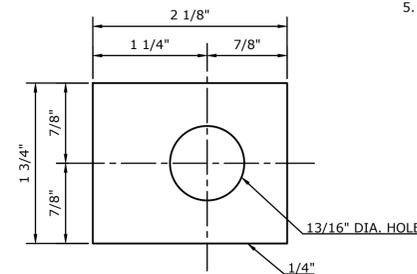


**SECTION B**

SCALE: 1 1/2" = 1'-0"

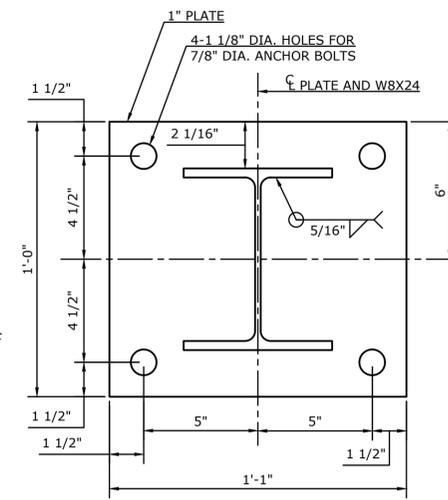
**CURB AND POST DETAILS**

SCALE: AS NOTED



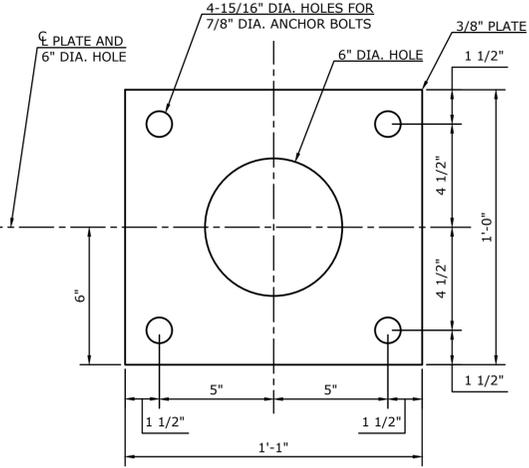
**PLATE WASHER DETAIL**

SCALE: 1" = 1'



**BASE PLATE DETAIL**

SCALE: 3" = 1'-0"



**ANCHORAGE PLATE DETAIL**

SCALE: 3" = 1'-0"

**GENERAL NOTES:**

- THIS SHEET IS BASED ON A DESIGN DEVELOPED BY THE OREGON DEPARTMENT OF TRANSPORTATION WHICH MET ALL THE EVALUATION CRITERIA FOR AN NCHRP REPORT 350 BRIDGE RAIL AT TEST LEVEL 4 (TL-4). THIS DESIGN WAS TESTED BY THE TEXAS TRANSPORTATION INSTITUTE TO NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) REPORT 350 TEST LEVEL 4 (TL-4) AND DOCUMENTED IN THREE SEPARATE REPORTS, ALL DATED MAY 2000, ENTITLED "NCHRP REPORT 350 TEST 4-10 OF THE OREGON 3-TUBE BRIDGE RAIL", "NCHRP REPORT 350 TEST 4-11 OF THE OREGON 3-TUBE BRIDGE RAIL", AND "NCHRP REPORT 350 TEST 4-12 OF THE OREGON 3-TUBE BRIDGE RAIL", RESPECTIVELY. THIS SYSTEM WAS ACCEPTED FOR USE ON THE NATIONAL HIGHWAY SYSTEM (NHS) BY THE FHWA BY MEMORANDUM DATED APRIL 22, 2003.
- THIS RAIL SYSTEM IS ACCEPTABLE FOR USE AS A TL-4 RAIL SYSTEM AS A TRAFFIC RAIL (ADJACENT TO VEHICULAR TRAFFIC) AND ALSO AS A COMBINATION BARRIER (ALONG OUTER EDGES OF BRIDGE SIDEWALKS) AS DEFINED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
- FABRICATE RAILS TO THE HORIZONTAL AND VERTICAL ALIGNMENT OF THE STRUCTURE.
- WEIGHT: WEIGHT OF SYSTEM IS 75 POUNDS PER LINEAR FOOT. THIS INCLUDES WEIGHT OF THE POSTS AT AN ASSUMED SPACING OF 10' 0" MAX. BUT NOT THE WEIGHT OF THE CONCRETE CURB.
- ALL POSTS TO BE PLUMB WHEN GRADE EXCEED 1.5% FOR PROFILE GRADES LESS THAN 1.5% POSTS SHALL BE SET PERPENDICULAR TO GRADE.

**MATERIALS:**

- 7/8" DIA. THREADED ANCHOR BOLTS FOR USE AS ANCHORAGES IN CONCRETE SHALL CONFORM TO ASTM A449. ANCHOR BOLTS SHALL BE BOLTED TO THE BASE PLATES USING 2 LEVELING NUTS AND WASHERS BELOW THE BASE PLATE AND STANDARD NUTS ABOVE THE BASE PLATE. ALL SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153.
- BOLTS USED FOR ATTACHING THE LOWER TUBES TO POSTS SHALL CONFORM TO ASTM A325. NUTS SHALL CONFORM TO ASTM A563 GRADES DH, DH3, C, C3, AND D OR A194 GRADES 2 OR 2H. WASHERS SHALL CONFORM TO ASTM F436. DOME HEAD BOLTS WITH WRENCH SLOTS USED FOR THE TOP RAIL SHALL CONFORM TO ASTM A307. ALL HARDWARE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153.
- TUBULAR MEMBERS SHALL CONFORM TO ASTM A500 GRADE B OR A501. STEEL CONFORMING TO A513 OR A618 MAY BE SUBSTITUTED IN ACCORDANCE WITH THE SPECIAL PROVISION.
- ALL OTHER STEEL SHALL CONFORM TO ASTM A572, GRADE 50 UNLESS NOTED OTHERWISE.
- HOT-DIP GALVANIZE STRUCTURAL STEEL INCLUDING FASTENERS AFTER FABRICATION, SILICON CONTENT OF DENOTED STEEL SHALL BE LIMITED TO BETWEEN 0 TO 0.04% OR 0.15% TO 0.25%.

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REPLACEMENT OF NORTHFORD ROAD BRIDGE  
OVER MUDDY RIVER  
3 TUBE CURB MOUNTED BRIDGE RAIL DETAILS  
1 OF 2

D - NORTHFORD ROAD	S.F.D.	16022.10	SHEET	22
SIZE	PROJECT	FILE NAME	NUMBER	REV. OF
				23

**NOTES FOR GUIDE RAIL ATTACHMENTS:**

THE 7/8" DIAMETER ANCHOR BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A449.

NUTS SHALL BE HEAVY HEX AND CONFORM TO THE REQUIREMENTS OF ASTM A563, PROPERTY CLASS 10S.

WASHERS SHALL BE CIRCULAR, HARDENED WASHERS CONFORMING TO THE REQUIREMENTS OF ASTM F436.

ALL ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153.

ANCHOR PLATES SHALL CONFORM TO ASTM A36 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123.

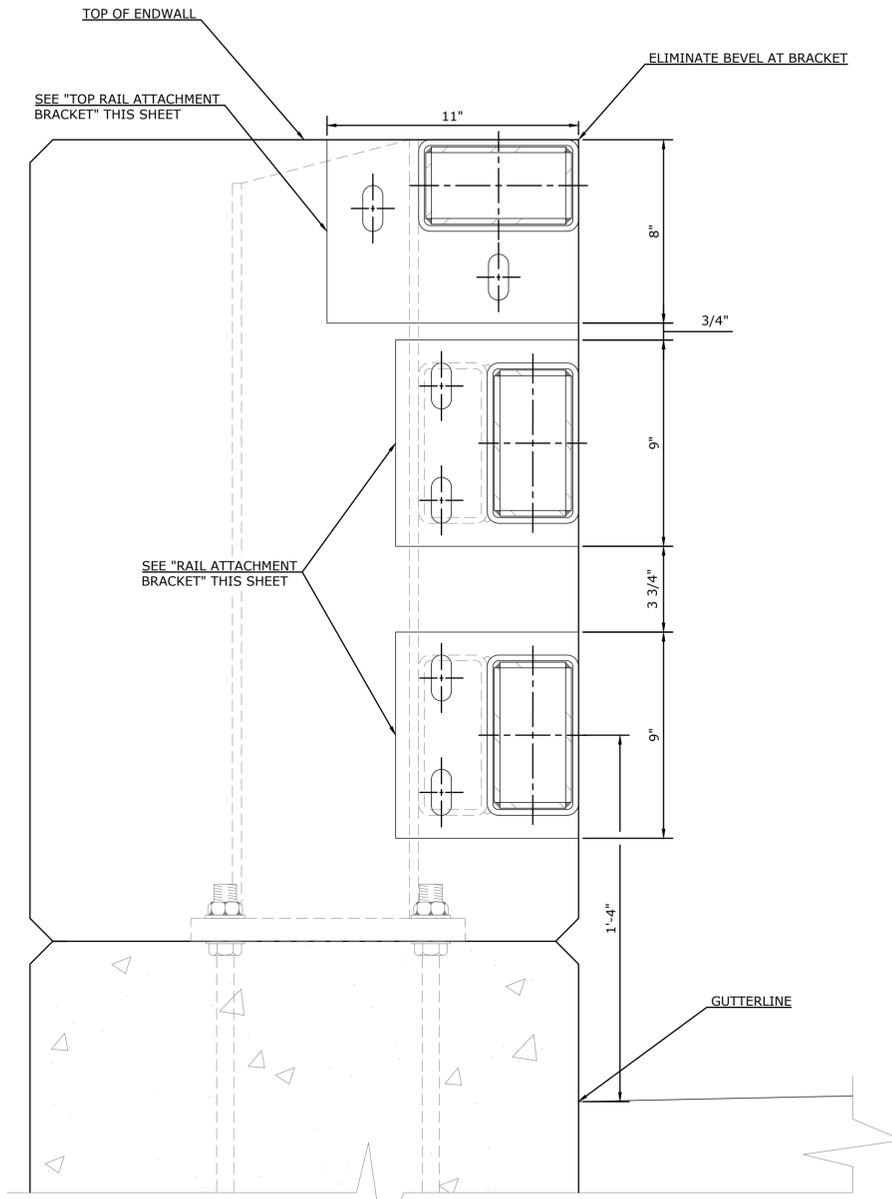
ALL ANCHORAGE MATERIALS-INCLUDING THE ANCHOR PLATES, ANCHOR BOLTS AND HARDWARE SHALL BE INCLUDED FOR PAYMENT UNDER ITEM "R-B 350 BRIDGE ATTACHMENT - VERTICAL SHAPED PARAPET" OR "THRIE BEAM ATTACHMENT" AS APPLICABLE.

**CONCRETE INSERTS: \***

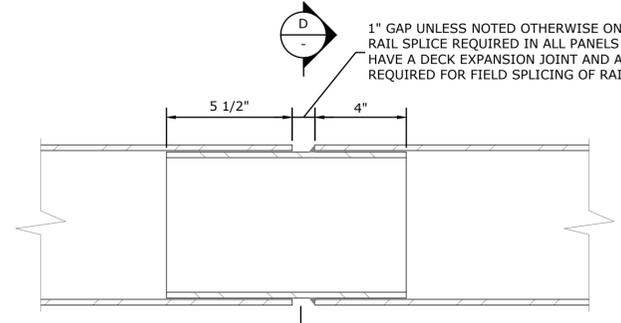
HOT-DIP GALVANIZED EXPANDED COIL CONCRETE INSERTS WITH CLOSED-BACK INSERTS THREADED TO RECEIVE 3/4" DIA. ASTM A307 BOLTS. MINIMUM INSERT LENGTH = 4" MINIMUM SAFE WORKING LOAD IN TENSION = 4000 LBS.

**\***

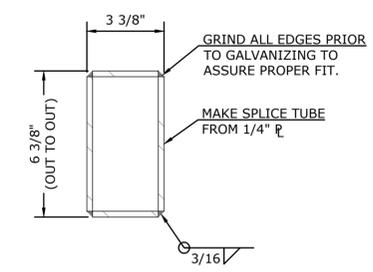
AS AN ALTERNATIVE TO CAST IN INSERTS, THE CONTRACTOR MAY FIELD DRILL HOLES IN THE COMPLETED END BLOCKS AND INSTALL A THREADED ROD/NUT SYSTEM TO SECURE THE BRACKETS. DRILLING METHODS SHALL BE BY CORE DRILLING AND SHALL NOT DAMAGE THE CONCRETE. IF THE CONTRACTOR ELECTS TO USE A DRILLED IN SYSTEM HE/SHE SHALL SUBMIT HIS/HER METHODS AND MATERIALS TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION OF THE END BLOCKS. ALL MATERIALS SHALL MEET OR EXCEED THE REQUIREMENTS INDICATED FOR THE CONCRETE INSERTS.



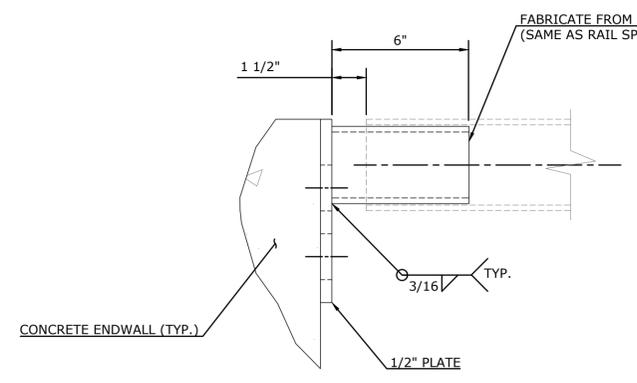
**SECTION T**  
SCALE: 3" = 1'-0"



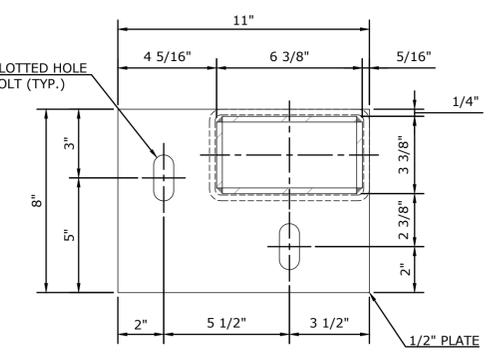
**DETAIL C**  
SCALE: 3" = 1'-0"



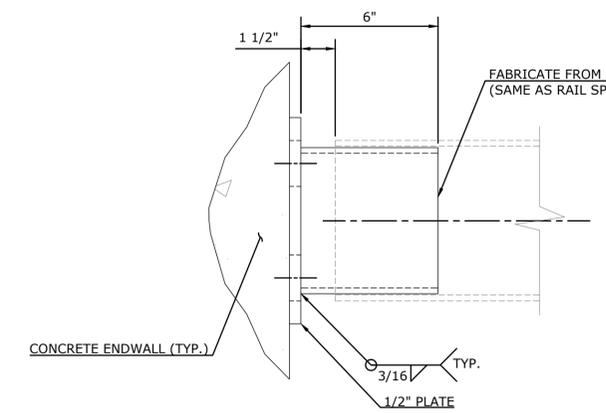
**SECTION D**  
SCALE: 3" = 1'-0"



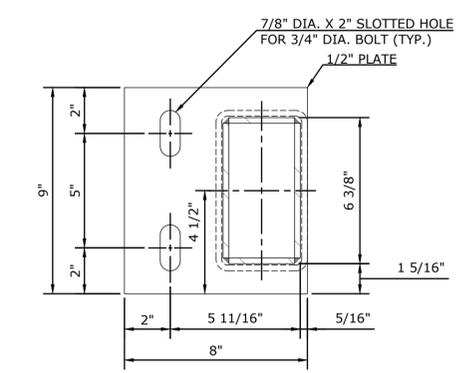
**TOP RAIL ATTACHMENT BRACKET DETAIL ELEVATION**  
SCALE: 3" = 1'-0"



**TOP RAIL ATTACHMENT BRACKET DETAIL PLAN**  
SCALE: 3" = 1'-0"



**RAIL ATTACHMENT BRACKET DETAIL ELEVATION**  
SCALE: 3" = 1'-0"



**RAIL ATTACHMENT BRACKET DETAIL PLAN**  
SCALE: 3" = 1'-0"

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