IF THE CASINGS FOR THE DRILLED SHAFTS ARE TO BE WITHDRAWN, THE CONCRETE SHALL NOT BE VIBRATED UNTIL THE CASING IS COMPLETELY REMOVED AND THE SHAFT TOP IS FORMED TO THE PLAN CROSS-SECTION. CARE SHALL BE TAKEN WHEN REMOVING THE CASING SO THAT THE REINFORCING STEEL CAGE IS NOT DEFORMED BY THE FORCE OF THE DOWNWARD FLOWING CONCRETE. THE CONTRACTOR SHALL FURNISH A PRECONSTRUCTED TOP FORM FOR USE IN ACCURATELY CONFINING THE CONCRETE AT THE TOP OF THE DRILLED SHAFT WHEN THE CASING IS REMOVED. THE TOP FORM SHALL BE NOT LESS THAN 3 FEET LONG.

REINFORCING STEEL

REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF 509. THE REINFORCING STEEL SHALL BE GRADE 60. THE SPIRAL REINFORCING STEEL MAY BE PLAIN BARS ASTM A82 OR A615. THE REINFORCING STEEL CAGE SHALL BE COMPLETELY ASSEMBLED PRIOR TO PLACEMENT AND THE LENGTH SHALL BE AS NECESSARY TO CONSTRUCT EACH DRILLED SHAFT. SEE PLAN SHEETS FOR DETAILS OF REINFORCING STEEL. NOTE THAT THE LENGTHS PROVIDED IN THE REINFORCING STEEL LIST ARE ESTIMATED LENGTHS. THE REINFORCING STEEL SHOULD BE PLACED AT PLAN LOCATION.

INSPECTION

THE CONTRACTOR SHALL PROVIDE AND MAINTAIN SUITABLE MEANS FOR ACCESS AND SAFE DESCENT INTO ALL DRILLED SHAFT EXCAVATIONS THAT ARE PROTECTED BY A CASING AND HAVE A DIAMETER THAT IS LARGE ENOUGH TO ALLOW A PERSON TO SAFELY ENTER AND PERFORM THE REQUIRED INSPECTION. ACCESS MAY BE PROVIDED BY A POSITIVE FORWARD AND REVERSE HYDRAULIC WINCH OR POWER-UP AND POWER-DOWN HOIST ON A CRANE. THE METHOD CHOSEN FOR ENTERING AND LEAVING THE SHAFT SHALL BE BE CONVENIENT, SAFE, AND NOT UNCOMFORTABLE FOR THE USER. THE CONTRACTOR SHALL ALSO PROVIDE PROTECTIVE CLOTHING FOR THOSE MAKING AN INSPECTION OF THE SHAFT.

AN INSPECTION RECORD CHART HAS BEEN INCLUDED WITH THE PLANS ON SHEET 13/24 AND SHALL BE COMPLETED BY THE ENGINEER. MEASUREMENTS SHOULD BE OBTAINED PRIOR TO PLACING CONCRETE. THE CONTRACTOR SHOULD PROVIDE ALL NECESSARY EQUIPMENT NEEDED TO OBTAIN MEASUREMENTS FOR COMPLETING THE CHART. THE CONTRACTOR SHALL ASSIST THE ENGINEER IN OBTAINING THESE MEASUREMENTS. WHEN THE INSPECTION RECORD CHART CHART IS COMPLETED, THE PROJECT ENGINEER SHALL SUBMIT A COPY TO THE BUREAU OF BRIDGES, ATTENTION: FOUNDATION ENGINEER.

SAFETY PROVISIONS

THE CONTRACTOR SHALL HAVE AT THE JOB SITE ALL EQUIPMENT AND MATERIALS NEEDED TO PROVIDE SAFE CONSTRUCTION AND INSPECTION OF THE DRILLED SHAFTS AS REQUIRED BY CITY, STATE, AND FEDERAL SAFETY REQUIREMENTS.

SAFETY PROVISIONS SHALL INCLUDE, BUT NOT BE LIMITED TO, THE REQUIREMENTS SPECIFIED BY THE PLANS, SPECIAL PROVISIONS, AND PROPOSAL.

THE CONTRACTOR SHALL PROVIDE CONTINUOUS SURVEILLANCE OF ALL PERSONS IN THE DRILLED SHAFT EXCAVATIONS. AT ALL TIMES WHEN A PERSON IS IN THE DRILLED SHAFT EXCAVATION, PROVISION SHALL BE MADE FOR PUMPING FRESH AIR TO SAID PERSON. ALL LIGHTING SHALL BE WITH ELECTRICAL LIGHTS. MECHANICAL EQUIPMENT USED INSIDE THE SHAFT SHALL BE OPERATED BY AIR OR ELECTRICITY. THE USE OF GASOLINE ENGINES OR OTHER TYPES OF EQUIPMENT PRODUCING FUMES THAT MAY ENTER THE EXCAVATION WILL NOT BE PERMITTED. THE CONTRACTOR SHALL PROVIDE GAS DETECTION AND OXYGEN ANALYZERS, AND SHALL TEST THE DRILLED SHAFT EXCAVATION ATMOSPHERE QUALITATIVELY THROUGHOUT THE COLUMN'S ENTIRE LENGTH AND ASSURE THAT THE QUANTITIES OF GASES AND OXYGEN PRESENT ARE IN SAFE AMOUNT AND SAFE PROPORTION PRIOR TO PERMITTING ANY PERSON TO ENTER THE SHAFT.

METHOD OF MEASUREMENT

THE TOTAL PAY LENGTH OF EACH DRILLED SHAFT SHALL BE THE COMPLETED AND ACCEPTED LENGTH, MEASURED ALONG THE AXIS OF THE DRILLED SHAFT FROM THE BOTTOM OF THE BEDROCK SOCKET TO THE PROPOSED TOP ELEVATION, AS PER PLAN.

THE TOTAL LENGTH OF EACH DRILLED SHAFT SHALL BE DIVIDED INTO TWO SEGMENTS. THE LENGTH OF THE LOWER SEGMENT IS THE LENGTH OF THE BEDROCK SOCKET AND THE LENGTH OF THE UPPER SEGMENT IS THE LENGTH OF THE DRILLED SHAFT ABOVE THE BEDROCK SOCKET.

BASIS OF PAYMENT

PAYMENT FOR FURNISHING AND INSTALLING DRILLED SHAFTS WILL BE MADE AT THE CONTRACT UNIT PRICE PER LINEAR FOOT OF ACCEPTED SHAFT LENGTH AS PER ITEM SPECIAL "4'-0" DIAMETER DRILLED SHAFTS ABOVE THE BEDROCK SOCKET" AND ITEM SPECIAL "3'-0" DIAMETER DRILLED SHAFTS IN BEDROCK," WHICH SHALL INCLUDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO COMPLETE THE ITEMS AS SPECIFIED.

DESIGN PARAMETERS

THE CALCULATED DESIGN LATERAL LOADING FOR EACH DRILLED SHAFT IS 25 TONS APPLIED AT A LOCATION 9 FEET BELOW THE TOP OF THE DRILLED SHAFT.

Burgess & Niple, Limited
Engineers and Architects

12/24

EMBANKMENT STABILIZATION
DRILLED SHAFT NOTES

BRIDGE NO. LAK-91-0423
SR.91 OVER N&W R.R. & CONRAIL R.R.

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISED
VEA	MSM		R.G.	2-25-92	9/24/92

03-25-92 FILE MAIN/PER PR(1600)DRLSHF2\(DRLSHF2,1DRLSHF2-DDRLSHF2),FILE AUX/#IN PR(1600)FRAMES(1)\(FRAMES(1),XMULT1/RECALL PR(1600)ALL PR(1600)MULT1XWR.DRLSHF2