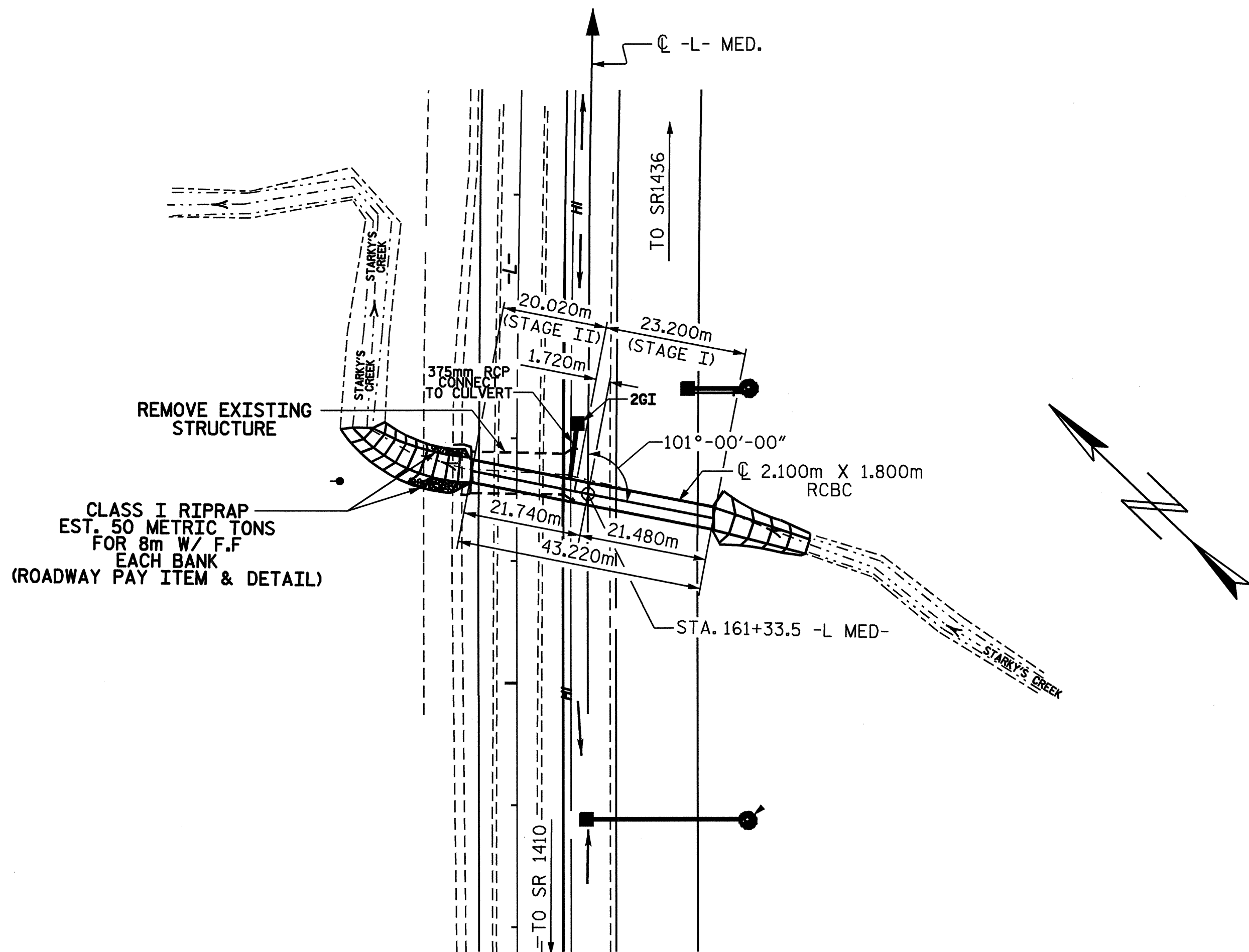
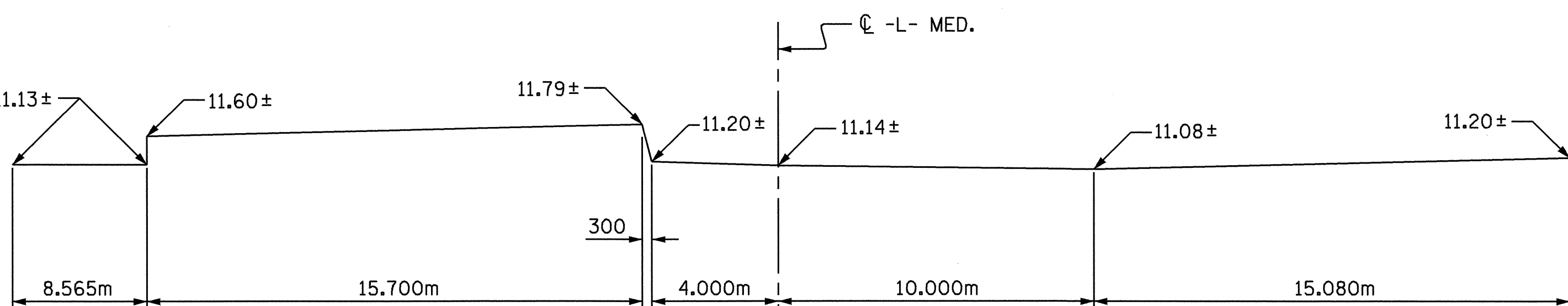


BM - 9, A NAIL IN ROOT OF 12" GUM, LOCATED AT STA. 162+08.847 -L-, OFFSET 15.45m LEFT. EL. 12.80



FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.



ROADWAY DATA

CL GR. PT. ELEV. @ STA. 161+33.500 -L- MED. = 9.775
 BED ELEV. @ STA. 161+33.500 -L- MED. = 10.940
 ROADWAY SLOPES = 2:1

HYDROGRAPHIC DATA

DESIGN DISCHARGE = 16.0 m³/s
 FREQUENCY OF DESIGN FLOOD = 50 YR.
 DESIGN HIGH WATER ELEVATION = 12.90 m
 DRAINAGE AREA = 3.6 sq. Km
 BASIC DISCHARGE (Q100) = 22 m³/s
 BASIC HIGH WATER ELEVATION = 13.31 m

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = ~34 m³/s
 FREQUENCY OF OVERTOPPING FLOOD = 500 YR.
 OVERTOPPING FLOOD ELEVATION = 14.50 m

NOTES

ASSUMED LIVE LOAD -----MS18 OR ALTERNATE LOADING.
 DESIGN FILL----- 1.800m
 FOR OTHER DESIGN DATA AND NOTES SEE STANDARD NOTE SHEET.
 76mm Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.
 CONCRETE IN CULVERTS TO BE POURED IN THE FOLLOWING ORDER:
 1. WING FOOTINGS AND FLOOR SLAB INCLUDING 100mm OF ALL VERTICAL WALLS.
 2. THE REMAINING PORTIONS OF THE WALLS AND WINGS FULL HEIGHT FOLLOWED BY ROOF SLAB AND HEADWALLS.
 THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.
 DIMENSIONS FOR WING LAYOUT AS WELL AS ADDITIONAL REINFORCING STEEL EMBEDDED IN BARREL ARE SHOWN ON WING SHEET.
 TRANSVERSE CONSTRUCTION JOINTS SHALL BE USED IN THE BARREL, SPACED TO LIMIT THE POURS TO A MAXIMUM OF 21.0m. LOCATION OF JOINTS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.
 STEEL IN THE BOTTOM SLAB MAY BE SPLICED AT THE PERMITTED CONSTRUCTION JOINT AT THE CONTRACTOR'S OPTION. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.
 AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF EXTERIOR WALL AND BOTH FACES OF INTERIOR WALLS ABOVE LOWER WALL CONSTRUCTION JOINT. THE SPLICE LENGTH SHALL BE AS PROVIDED IN THE SPLICE LENGTH CHART SHOWN ON THE PLANS. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.
 AT THE CONTRACTOR'S OPTION HE MAY SUBMIT, TO THE ENGINEER FOR APPROVAL, DESIGN AND DETAIL DRAWINGS FOR A PRECAST REINFORCED CONCRETE BOX CULVERT IN LIEU OF THE CAST-IN-PLACE CULVERT SHOWN ON THE PLANS. THE DESIGN SHALL PROVIDE THE SAME SIZE AND NUMBER OF BARRELS AS USED ON THE CAST-IN-PLACE DESIGN. FOR OPTIONAL PRECAST REINFORCED CONCRETE BOX CULVERT, SEE SPECIAL PROVISIONS.
 ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
 ALL ELEVATIONS ARE IN METERS.
 A 900mm STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.
 THE 375mm PIPETHROUGH THE SIDEWALL OF THE CULVERT WILL BE LOCATED BY THE ENGINEER. THE REINFORCING STEEL WILL BE CUT AND FIELD BENT AS NECESSARY.
 THE EXISTING 3.08m(W) x 1.22m(H) DOUBLE BARREL CULVERT SHALL BE REMOVED (APPROXIMATE LENGTH = 15.4m)

STRUCTURE QUANTITIES (STAGE I)

CLASS A CONCRETE		
BARREL @ 3.13 m ³ /m	72.6	m ³
WINGS ETC.	6.3	m ³
TOTAL	78.9	m ³

REINFORCING STEEL		
BARREL	6431	kg
WINGS ETC.	211	kg
TOTAL	6642	kg

CULVERT EXCAVATION ----- LUMP SUM
 FOUNDATION COND. MAT'L ---- 76 METRIC TONS

STRUCTURE QUANTITIES (STAGE II)

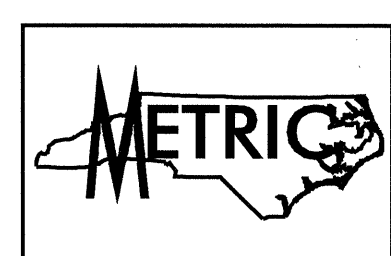
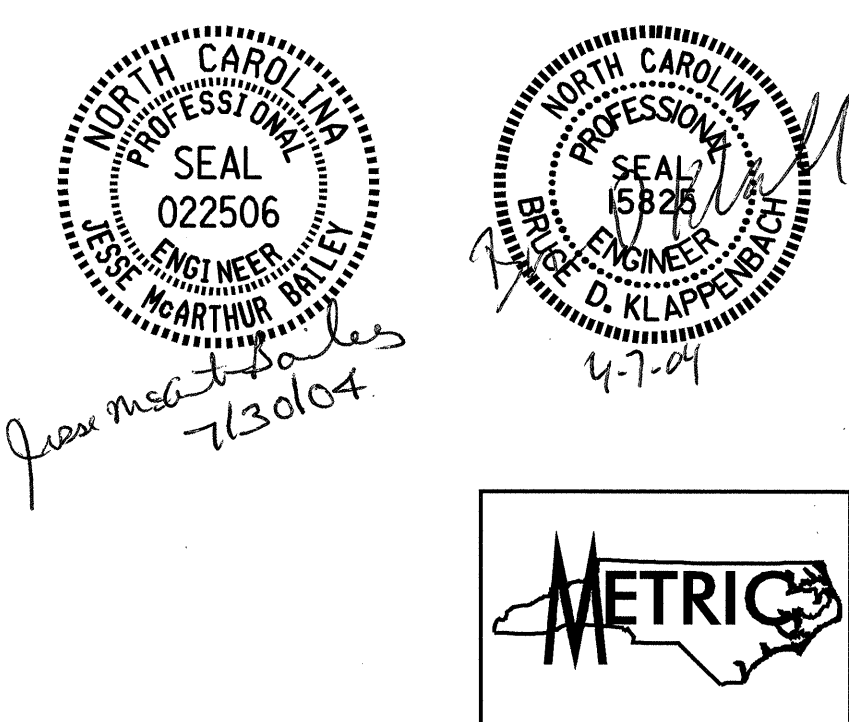
CLASS A CONCRETE		
BARREL @ 3.13 m ³ /m	62.7	m ³
WINGS ETC.	6.3	m ³
TOTAL	69.0	m ³

REINFORCING STEEL		
BARREL	5663	kg
WINGS ETC.	212	kg
TOTAL	5875	kg

CULVERT EXCAVATION ----- LUMP SUM
 FOUNDATION COND. MAT'L ---- 65 METRIC TONS
 REMOVAL OF EXISTING STRUCTURE -- LUMP SUM

TOTAL STRUCTURE QUANTITIES

	CLASS A CONCRETE	REINFORCING STEEL	FOUNDATION COND. MAT'L	CULVERT EXCAVATION	REMOVAL OF EXISTING STRUCTURE
	m ³	kg	METRIC TONS	LUMP SUM	LUMP SUM
STAGE I	78.9	6642	76	LUMP SUM	
STAGE II	69.0	5875	65	LUMP SUM	LUMP SUM
TOTAL	147.9	12517	141	LUMP SUM	LUMP SUM



PROJECT NO. R-2514A
 ONSLOW COUNTY
 STATION: 161+33.500 -L- MED.

SHEET 1 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 DOUBLE 2.100m X 1.800m
 CONCRETE BOX CULVERT
 101° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5
2			4			9

DRAWN BY : D. A. GLADDEN DATE : 4-2-03
 CHECKED BY : M. G. SHAIKH DATE : 7-03