

| INDEX OF SHEETS | | | | | | FINAL HYDRAULIC REPORT | | | | | | | | | | | | | | | | | |
|--------------------|------------------------------------|--------|---|------------|--|--|--|--|--|--|--|--|--|--|--|--|--|---|--|--|--|--|--|
| PLAN SHEETS | | | | | | STANDARDS LIST | | | | | | HYDROLOGIC DATA | | | | | | PROPOSED STRUCTURE | | | | | |
| 1 | TITLE SHEET | E-121 | STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD | 08-08-1995 | | DRAINAGE AREA : 2.75 sq. mi. Date: 7/02/2013 CHARACTER OF TERRAIN : Hilly to mountainous, mostly forested STREAM CHARACTERISTICS : Stable, Moderately entrenched, Moderately Sinuous NATURE OF STREAMBED : Gravel and cobbles | | | | | | STRUCTURE TYPE: Single span voided slab bridge CLEAR SPAN(NORMAL TO STREAM): 45 ft VERTICAL CLEARANCE ABOVE STREAMBED: 10.8 ft WATERWAY OF FULL OPENING: 270 sf | | | | | | | | | | | |
| 2 | PRELIMINARY INFORMATION SHEET | E-164 | SQUARE STEEL SIGN POST | 06-08-2009 | | PEAK FLOW DATA Q 2.33 = 150 cfs Q 50 = 700 cfs Q 10 = 380 cfs Q 100 = 800 cfs Q 25 = 525 cfs Q 500 = 1,040 cfs | | | | | | WATER SURFACE ELEVATIONS AT: Q2.33 = 1055.0 ft VELOCITY= 7.4 ft/s Q10 = 1056.2 ft " 9.5 ft/s Q25 = 1056.8 ft " 10.5 ft/s Q50 = 1057.3 ft " 11.5 ft/s Q100 = 1057.7 ft " 11.9 ft/s | | | | | | | | | | | |
| 3 | TYPICAL BRIDGE SECTION | G-1 | STEEL BEAM GUARDRAIL DETAILS (POST, DELINEATOR, TYPICALS) | 01-03-2000 | | DATE OF FLOOD OF RECORD: 1927 ESTIMATED DISCHARGE: Unknown WATER SURFACE ELEV.: Unknown NATURAL STREAM VELOCITY: @ Q25 = 14.3 ft/s ICE CONDITIONS : Moderate DEBRIS: Moderate DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? Yes IS ORDINARY RISE RAPID? Yes IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No IF YES, DESCRIBE: | | | | | | IS THE ROADWAY OVERTOPPED BELOW Q100: No FREQUENCY: Above Q100 RELIEF ELEVATION: 1064.8 DISCHARGE OVER ROAD @Q100: 0 cfs | | | | | | | | | | | |
| 4 | TYP EARTHWORK AND ROADWAY SECTIONS | G1-D | STEEL BEAM GUARDRAIL DETAILS (END TERMINAL, ANCHOR, MEDIAN) | 01-03-2000 | | WATERSHED STORAGE: < 1% HEADWATERS: UNIFORM: X IMMEDIATELY ABOVE SITE: | | | | | | WATER SURFACE ELEVATIONS AT: Q2.33 = 1055.0 ft VELOCITY = 7.4 ft/s Q10 = 1056.2 ft " 9.5 ft/s Q25 = 1056.8 ft " 10.2 ft/s Q50 = 1057.3 ft " 11.1 ft/s Q100 = 1057.9 ft " 11.7 ft/s | | | | | | | | | | | |
| 5 - 6 | PROJECT NOTES | S-367B | GUARDRAIL APPROACH SECTION, GALVANIZED HD STEEL BEAM | 05-24-2012 | | EXISTING STRUCTURE INFORMATION | | | | | | PERMIT INFORMATION | | | | | | | | | | | |
| 7 - 8 | QUANTITY SHEETS | T-1 | TRAFFIC CONTROL GENERAL NOTES | 08-06-2012 | | STRUCTURE TYPE: Single span, rolled steel beam supported by concrete stub abutments YEAR BUILT: Built 1939, reconstructed in 1966 CLEAR SPAN(NORMAL TO STREAM): 34' (measured from stone retaining wall) VERTICAL CLEARANCE ABOVE STREAMBED: 11.7 ft WATERWAY OF FULL OPENING: 265 sf DISPOSITION OF STRUCTURE: Remove and replace with a new bridge TYPE OF MATERIAL UNDER SUBSTRUCTURE: See boring information | | | | | | AVERAGE DAILY FLOW: 10 cfs DEPTH OR ELEVATION: ORDINARY LOW WATER: 1.0 cfs Depth = 0.1 ft ORDINARY HIGH WATER: 60 cfs Depth = 1.1 ft | | | | | | | | | | | |
| 9 | CONVENTIONAL SYMBOLOGY SHEET | T-10 | CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING | 08-06-2012 | | WATER SURFACE ELEVATIONS AT: Q2.33 = 1055.0 ft VELOCITY = 7.4 ft/s Q10 = 1056.2 ft " 9.5 ft/s Q25 = 1056.8 ft " 10.2 ft/s Q50 = 1057.3 ft " 11.1 ft/s Q100 = 1057.9 ft " 11.7 ft/s | | | | | | TEMPORARY BRIDGE REQUIREMENTS | | | | | | | | | | | |
| 10 | TIE SHEET | T-30 | CONSTRUCTION SIGN DETAILS | 08-06-2012 | | LONG TERM STREAMBED CHANGES: None noted | | | | | | STRUCTURE TYPE: No temporary bridge required. CLEAR SPAN (NORMAL TO STREAM): VERTICAL CLEARANCE ABOVE STREAMBED: WATERWAY AREA OF FULL OPENING: | | | | | | | | | | | |
| 11 | LAYOUT SHEET | T-35 | CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS | 08-06-2012 | | UPSTREAM STRUCTURE | | | | | | ADDITIONAL INFORMATION | | | | | | | | | | | |
| 12 | PROFILE | | | | | TOWN: Guilford DISTANCE: 1,000 ft HIGHWAY #: T.H. 10 STRUCTURE #: 55 CLEAR SPAN: 25 ft CLEAR HEIGHT: YEAR BUILT: 1966 FULL WATERWAY: STRUCTURE TYPE: Steel stringer with bituminous wearing surface | | | | | | | | | | | | | | | | | |
| 13 | TRAFFIC CONTROL PLAN | | | | | DOWNSTREAM STRUCTURE | | | | | | TRAFFIC MAINTENANCE NOTES | | | | | | | | | | | |
| 14 | TRAFFIC SIGN SHEET | | | | | TOWN: Guilford DISTANCE: 1,690 ft HIGHWAY #: T.H. 10 STRUCTURE #: 64 CLEAR SPAN: 55 ft CLEAR HEIGHT: YEAR BUILT: 1964 FULL WATERWAY: STRUCTURE TYPE: Steel stringer with bituminous wearing surface | | | | | | 1. MAINTAIN TRAFFIC ON AN OFF SITE DETOUR. 2. TRAFFIC SIGNALS ARE NOT NECESSARY. 3. SIDEWALKS ARE NOT NECESSARY | | | | | | | | | | | |
| 15 | TRAFFIC SIGN SUMMARY SHEET | | | | | LRFR LOAD RATING FACTORS | | | | | | DESIGN VALUES | | | | | | | | | | | |
| 16 | BORING INFORMATION SHEET | | | | | LOADING LEVELS TRUCK H-20 HL-93 3S2 6 AXLE 3A STR. 4A STR. 5A SEMI TONNAGE 20 36 36 66 30 34.5 38 INVENTORY 2.31 1.49 | | | | | | 1. DESIGN LIVE LOAD HL-93 2. FUTURE PAVEMENT Δp: 7.0 INCH 3. DESIGN SPAN L: 55.00 FT | | | | | | | | | | | |
| 17 - 18 | BORING LOGS | | | | | POSTING OPERATING COMMENTS: | | | | | | 4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS) Δ: SEE NOTES 5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX) fy: 270 KSI 6. PRESTRESSED CONCRETE STRENGTH f'c: 6.0 KSI 7. PRESTRESSED CONCRETE RELEASE STRENGTH f'ci: 4.8 KSI 8. CONCRETE, HIGH PERFORMANCE CLASS AA f'c: --- 9. CONCRETE, HIGH PERFORMANCE CLASS A f'c: --- 10. CONCRETE, HIGH PERFORMANCE CLASS B f'c: --- 11. CONCRETE, CLASS C f'c: --- 12. REINFORCING STEEL fy: 60 KSI 13. STRUCTURAL STEEL AASHTO M270 fy: --- 14. SOIL UNIT WEIGHT γ: 0.140 KCF 15. NOMINAL BEARING RESISTANCE OF SOIL qn: --- 16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD) φ: --- 17. NOMINAL BEARING RESISTANCE OF ROCK qn: 10.0 KSF 18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD) φ: --- 19. NOMINAL AXIAL PILE RESISTANCE qp: --- 20. PILE YIELD STRENGTH ASTM A572 fy: 50 KSI 21. PILE SIZE HP 14X 89 22. EST. AVG PILE LENGTH Lp: 34.0 ft | | | | | | | | | | | |
| 19 | PLAN AND ELEVATION | | | | | AS BUILT "REBAR" DETAIL | | | | | | TRAFFIC DATA | | | | | | | | | | | |
| 20 | FRAMING PLAN | | | | | LEVEL I LEVEL II LEVEL III TYPE: TYPE: TYPE: GRADE: GRADE: GRADE: | | | | | | YEAR ADT DHV % D % T ADTT 2012 80 10 58 7.2 5 2032 85 10 58 8.8 5 | | | | | | | | | | | |
| 21 - 22 | BOX BEAM DETAILS | | | | | * SEE PROJECT NOTES PILE DRIVING AND TESTING REQUIREMENTS 1. NOMINAL PILE DRIVING CAPACITY Rnd: * 2. PILE TEST RESISTANCE FACTOR φ: 0.65 3. MAXIMUM PILE TIP ELEVATION * 4. A MINIMUM OF 3 DYNAMIC TESTS SHALL BE PERFORMED DURING INSTALLATION. NO LESS THAN 1 TEST SHOULD BE PERFORMED AT EACH ABUTMENT. THE REMAINING PILES SHOULD BE CALIBRATED BY WAVE EQUATION ANALYSIS. | | | | | | 23. PILE RESISTANCE FACTOR φ: --- 24. LATERAL PILE DEFLECTION Δ: --- 25. BASIC WIND SPEED V3s: --- 26. MINIMUM GROUND SNOW LOAD pg: --- 27. SEISMIC DATA PGA: --- S: --- | | | | | | | | | | | |
| 23 | BEARING DETAILS | | | | | | | | | | | | | | | | | 20 year ESAL for flexible pavement from 2012 to 2032 : 19000 40 year ESAL for flexible pavement from 2012 to 2052 : 38000 Design Speed : 25 mph | | | | | |
| 24 | ABUTMENT PLAN & ELEVATION | | | | | PROJECT NAME: GUILFORD PROJECT NUMBER: BRO 1442(36) FILE NAME: z10j062pi.dgn PLOT DATE: 9/11/2013 PROJECT LEADER: S.E. BURBANK DRAWN BY: D.A. GINGRAS DESIGNED BY: A.J. GOUDREAU CHECKED BY: S.E. BURBANK PRELIMINARY INFORMATION SHEET SHEET 2 OF 42 | | | | | | AS BUILT "REBAR" DETAIL | | | | | | | | | | | |
| 25 | ABUTMENT REINFORCING | | | | | | | | | | | | | | | | | | | | | | |
| 26 | WINGWALL DETAILS | | | | | AS BUILT "REBAR" DETAIL | | | | | | PROJECT NAME: GUILFORD PROJECT NUMBER: BRO 1442(36) FILE NAME: z10j062pi.dgn PLOT DATE: 9/11/2013 PROJECT LEADER: S.E. BURBANK DRAWN BY: D.A. GINGRAS DESIGNED BY: A.J. GOUDREAU CHECKED BY: S.E. BURBANK PRELIMINARY INFORMATION SHEET SHEET 2 OF 42 | | | | | | | | | | | |
| 27 | RETAINING WALL DETAILS | | | | | | | | | | | | | | | | | | | | | | |
| 28 | BRIDGE RAIL LAYOUT | | | | | AS BUILT "REBAR" DETAIL | | | | | | PROJECT NAME: GUILFORD PROJECT NUMBER: BRO 1442(36) FILE NAME: z10j062pi.dgn PLOT DATE: 9/11/2013 PROJECT LEADER: S.E. BURBANK DRAWN BY: D.A. GINGRAS DESIGNED BY: A.J. GOUDREAU CHECKED BY: S.E. BURBANK PRELIMINARY INFORMATION SHEET SHEET 2 OF 42 | | | | | | | | | | | |
| 29 | BRIDGE RAIL DETAILS | | | | | | | | | | | | | | | | | | | | | | |
| 30 - 32 | ROADWAY CROSS SECTIONS | | | | | AS BUILT "REBAR" DETAIL | | | | | | PROJECT NAME: GUILFORD PROJECT NUMBER: BRO 1442(36) FILE NAME: z10j062pi.dgn PLOT DATE: 9/11/2013 PROJECT LEADER: S.E. BURBANK DRAWN BY: D.A. GINGRAS DESIGNED BY: A.J. GOUDREAU CHECKED BY: S.E. BURBANK PRELIMINARY INFORMATION SHEET SHEET 2 OF 42 | | | | | | | | | | | |
| 33 - 36 | CHANNEL CROSS SECTIONS | | | | | | | | | | | | | | | | | | | | | | |
| 37 | EPSC NARRATIVE | | | | | AS BUILT "REBAR" DETAIL | | | | | | PROJECT NAME: GUILFORD PROJECT NUMBER: BRO 1442(36) FILE NAME: z10j062pi.dgn PLOT DATE: 9/11/2013 PROJECT LEADER: S.E. BURBANK DRAWN BY: D.A. GINGRAS DESIGNED BY: A.J. GOUDREAU CHECKED BY: S.E. BURBANK PRELIMINARY INFORMATION SHEET SHEET 2 OF 42 | | | | | | | | | | | |
| 38 | EPSC EXISTING CONDITIONS PLAN | | | | | | | | | | | | | | | | | | | | | | |
| 39 | EPSC CONSTRUCTION CONDITIONS PLAN | | | | | AS BUILT "REBAR" DETAIL | | | | | | PROJECT NAME: GUILFORD PROJECT NUMBER: BRO 1442(36) FILE NAME: z10j062pi.dgn PLOT DATE: 9/11/2013 PROJECT LEADER: S.E. BURBANK DRAWN BY: D.A. GINGRAS DESIGNED BY: A.J. GOUDREAU CHECKED BY: S.E. BURBANK PRELIMINARY INFORMATION SHEET SHEET 2 OF 42 | | | | | | | | | | | |
| 40 | EPSC FINAL CONDITIONS PLAN | | | | | | | | | | | | | | | | | | | | | | |
| 41 - 42 | EROSION CONTROL DETAILS | | | | | AS BUILT "REBAR" DETAIL | | | | | | PROJECT NAME: GUILFORD PROJECT NUMBER: BRO 1442(36) FILE NAME: z10j062pi.dgn PLOT DATE: 9/11/2013 PROJECT LEADER: S.E. BURBANK DRAWN BY: D.A. GINGRAS DESIGNED BY: A.J. GOUDREAU CHECKED BY: S.E. BURBANK PRELIMINARY INFORMATION SHEET SHEET 2 OF 42 | | | | | | | | | | | |
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