PRECAST CONCRETE DECK AND POST-TENSIONING

33. DESIGN VALUES:
    A. PRECAST CONCRETE COMPRESSIVE STRENGTH: f'c = 5,000 PSI
    B. REINFORCING STEEL, LEVEL I - EPOXY COATED: fy = 60,000 PSI
    C. POST TENSIONING STRANDS: 0.6 INCH DIAMETER, 270 KSI, LOW RELAXATION 7-WIRE STRANDS.
    D. ASSUMED MODULUS OF ELASTICITY: 28,500 KSI
    E. THERE SHALL BE THREE STRANDS PER CONDUIT.
    F. DESIGN BASED ON THE FOLLOWING POST-TENSION CONDUIT PARAMETERS:
       COEFFICIENT OF FRICTION = 0.23
       WOBBLE FRICTION COEFFICIENT = 0.0002/FT
       NET FINAL COMPRESSIVE STRESS = 750 PSI
       IF THE PROPOSED CONDUIT DOES NOT MEET THESE VALUES, THEN THE CONTRACTOR SHALL ADJUST THE JACKING FORCE TO PRODUCE THE FINAL POST-TENSIONING FORCE LISTED BELOW.
    G. JACKING FORCE PER STRAND: 32.7 KIPS
    H. FINAL FORCE PER STRAND: 30.35 KIPS (AFTER ALL LOSES DUE TO FRICTION, ANCHORAGE SET, AND ELASTIC SHORTENING).
    I. FINAL FORCE IN STRANDS SHALL BE UNIFORM ACROSS THE PANEL.

34. ALL DECK PANELS SHALL BE CAST FOR A MINIMUM OF 56 DAYS PRIOR TO POST-TENSIONING.

35. DECK PANELS SHALL BE ALLOWED TO SLIDE ON THE BEAMS DURING POST TENSIONING.

36. CONDUIT SHALL BE GROUTED WITH A CEMENTIOUS, PRE-BAGGED NON-SHRINK GROUT SPECIFICALLY FORMULATED FOR POST TENSIONING DUCTS.

37. POST-TENSIONING AND GROUTING SHALL BE PERFORMED BY QUALIFIED PERSONNEL WITH PREVIOUS EXPERIENCE IN PRECAST DECK PLACEMENT.

38. SHEAR KEY FACES SHALL HAVE ⅛" COARSE AGGREGATE EXPOSED WITH A PROFILE SIMILAR TO ICRI ROUGHNESS PLAQUE CSP #7 COPYRIGHT 1997.

39. BEGIN POST-TENSIONING AT THE CENTER OF PANELS. DO NOT ALLOW MORE THAN 12.5 PERCENT OF THE POST-TENSIONING FORCE TO BE ECCENTRIC AT ANY TIME. SUBMIT STRESSING SEQUENCE TO THE ENGINEER AS PART OF THE FABRICATION DRAWINGS AND ERECTION PLAN.

40. THE CONTRACTOR IS RESPONSIBLE FOR DESIGN OF ALL LIFTING POINTS, PRESTRESSING (IF REQUIRED FOR ERECTION), LEVELING DEVICES, POST-TENSIONING ELEMENTS IN THE ANCHORAGE ZONE INCLUDING, BUT NOT LIMITED TO, THE BEARING PLATE ANCHOR HEADS AND METAL TRUMPETS, AND ADDITIONAL REINFORCEMENT IN THE ANCHORAGE ZONE (REQUIRED FOR SPLITTING, BURSTING, SPALLING, ETC.) INCLUDING THE LOCAL ZONE (REGION IMMEDIATELY SURROUNDING THE POST-TENSIONING DEVICE). THE CONTRACTOR IS RESPONSIBLE FOR CONSIDERATION OF STRENGTH, SERVICEABILITY, STIFFNESS, AND STABILITY OF THE PRECAST CONCRETE ELEMENTS AND ANY ADDITIONAL STRESSES ON THE PRECAST CONCRETE ELEMENTS FOR LOADS GENERATED DURING FABRICATION, TRANSPORTATION, ERECTION, AND CONSTRUCTION OPERATIONS.

41. ANY DAMAGE TO THE PRECAST CONCRETE DECK SLABS DUE DIRECTLY TO THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST TO THE STATE.

PRECAST CONCRETE DECK AND POST-TENSIONING (CONTINUED)

42. GALVANIZE BEARING PLATE ANCHOR HEADS AND METAL TRUMPETS AT ANCHORAGES ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. DO NOT GALVANIZE GRIPPING WEDGES.

43. POST-TENSIONING STRANDS AND CONDUIT SHALL MEET THE REQUIREMENTS OF SECTION 510.

44. ANCHOR ASSEMBLIES, CONDUIT, GROUT FOR THE CONDUIT AND PANEL JOINTS, SPLIT SLEEVE CONNECTORS, AND POST-TENSIONING STRANDS SHALL BE INCLUDED IN ITEM 540.10, "PRECAST CONCRETE STRUCTURE (9" DECK SLABS)".

45. SHEAR CONNECTOR BLOCKOUTS, SHEAR KEYS, HAUNCHES, LEVELING DEVICE BLOCKOUTS, AND HANDHOLES FOR DUCT CONNECTIONS SHALL BE FILLED WITH MORTAR, TYPE IV CONFORMING TO THE REQUIREMENTS OF SUBSECTION 707.03 EXCEPT AS NOTED IN NOTE 46. COST FOR MORTAR WILL BE CONSIDERED INCIDENTAL TO ITEM 540.10, "PRECAST CONCRETE STRUCTURE (9" DECK SLABS)".

46. MORTAR, TYPE IV WITH EXPANSIVE ADDITIVES THAT REQUIRE ALL SURFACES TO BE CONFINED SHALL NOT BE USED FOR THE GROUT BEDS UNLESS THE CONTRACTOR PROVIDES A METHOD AND MEANS FOR CONFINEMENT THAT IS ACCEPTABLE TO THE ENGINEER.

47. THE DRILLING OF HOLES IN THE PRECAST CONCRETE ELEMENTS SHALL NOT BE PERMITTED. ANY LIFTING HOLES SHALL BE FILLED WITH MORTAR, TYPE IV CONFORMING TO THE REQUIREMENTS OF SUBSECTION 707.03. COST FOR MORTAR WILL BE CONSIDERED INCIDENTAL ITEM 540.10, "PRECAST CONCRETE STRUCTURE (9" DECK SLABS)".

48. PROPOSED SEQUENCE OF CONSTRUCTION:

    A. ERECT DECK SLABS.
    B. ADJUST SLABS TO GRADE USING LEVELING DEVICES. ALL LEVELING BOLTS SHALL BE TORQUED TO APPROXIMATELY THE SAME VALUE WITHIN 20 PERCENT.
    C. INSTALL POST TENSIONING STRANDS LOOSE IN CONDUIT AND SEAL CONDUIT.
    D. PLACE MORTAR, TYPE IV IN TRANVERSE JOINTS ONLY. THE MORTAR SHALL BE RODDED OR VIBRATED TO ENSURE ALL VOIDS ARE FILLED.
    E. MORTAR SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 1000 PSI BASED ON MANUFACTURER'S RECOMMENDATIONS PRIOR TO STRESSING. THE GROUT NEED NOT BE CURED FOR THREE DAYS PRIOR TO COMMENCING POST-TENSIONING.
    F. PROVIDE APPROPRIATE CUBE MOLDS AS DESCRIBED IN AASHTO T106 FOR 3 SETS OF 3 DAY CUBES, 3 SETS OF 28 DAY CUBES, AND A MINIMUM OF 3 MORE CUBES TO TEST FOR THE 1000 PSI MINIMUM.
    G. STRESS POST-TENSIONING STRANDS USING A CALIBRATED JACK.
    H. INSTALL SHEAR CONNECTORS.
    I. GROUT POST TENSIONING CONDUIT, SHEAR CONNECTOR BLOCKOUTS, AND HAUNCHES BETWEEN THE BEAMS AND THE BOTTOM OF THE PRECAST DECK SLABS WITH MORTAR, TYPE IV.
    J. POUR THE END CLOSURE POUR CONCRETE.
    K. REMOVE LEVELING BOLTS AND GROUT RECESS WITH MORTAR, TYPE IV.

ALTERNATE SEQUENCE OF CONSTRUCTION MAY BE SUBMITTED FOR APPROVAL BY THE ENGINEER.

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PROJECT NUMBER:	STP DECK(39)
FILE NAME: z15b109notes-99.dgn	PLOT DATE: 8/3/2016
PROJECT LEADER: J. BYATT	DRAWN BY: M. SMITH
DESIGNED BY: S. BEAUMONT	CHECKED BY: N. CARON
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