PDN Stage 2 – Roadway Design QC Checklist

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| --- | --- |
| **SPOT ID/Project TIP #:** |  Click or tap to edit. |
| **County:** |  Click or tap to edit. |

2RD1 Alignment Defined

| **Item #** | **Review Item** | **Yes** | **No** | **N/A** |
| --- | --- | --- | --- | --- |
|  | **Initial Lighting Assessment** |  |  |  |
|  | Review the following conditions to determine if a lighting evaluation is needed:\_\_\_ The corridor and/or interchange(s) is full C/A\_\_\_ The project is not pavement rehab only\_\_\_ The summation of the projected traffic along the -L- and -Y- lines at interchanges is 60,000 or greater. |[ ] [ ] [ ]
|  | For projects involving existing facilities review the following conditions to determine if a lighting evaluation is needed:\_\_\_ Existing lighting modified by the project does not require a lighting evaluation.\_\_\_ Existing lighting more than halfway through service life should be considered for replacement. Perform a  lighting evaluation to determine replacement costs. |[ ] [ ] [ ]
|  | **Initial Evaluation Report** |  |  |  |
|  | Verify that all interchanges and continuous sections of the project are included in the evaluation. |[ ] [ ] [ ]
|  | Verify that the begin year listed on the report is the let year and future year is 20 years from let year. |[ ] [ ] [ ]
|  | Confirm the following Tables are included in the evaluation report:\_\_\_ TDP Evaluation (Table A)\_\_\_ Interchange Details (Table B)\_\_\_ Continuous Details (Table C)\_\_\_ ADT Table (Table D) |[ ] [ ] [ ]
|  | Confirm the following Charts are included in the evaluation report:\_\_\_ Priority Index Begin Year (Charts A)\_\_\_ Priority Index End Year (Chart B)\_\_\_ Begin Year Construction Cost Estimate (Chart C)\_\_\_ Annual Electrical Energy Cost (Chart D) |[ ] [ ] [ ]
|  | Confirm that a Lighting Evaluation Report detailing the findings is included. |[ ] [ ] [ ]
|  | Confirm that a memo addressed to the State Roadway Design Engineer was developed to briefly detail the results of the evaluation. |[ ] [ ] [ ]
|  | Verify that a signed memo and Lighting Evaluation Report including all Tables and Charts was electronically distributed to all members of the Lighting Committee. |[ ] [ ] [ ]

*For items marked* ***No*** *that require further explanation, provide comments or action items in the table below.*

| **Item #** | **Comments and Action Items** |
| --- | --- |
|  Click to edit. |  Click to edit. |

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| ***This checklist may not be comprehensive to every project. It is the responsibility of the reviewer to ensure that an adequate review is performed.*** |
| **QC Reviewer Name:** |  Click to edit. | **Date:** |  Click to edit. |
| **QC Reviewer (Signature):** |  |  |  |

PDN Stage 3 – Roadway Design QC Checklist

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| **County:** |  Click or tap to edit. |

3RD1 Complete Roadway Design

| **Item #** | **Review Item** | **Yes** | **No** | **N/A** |
| --- | --- | --- | --- | --- |
|  | **Lighting and Electrical** |  |  |  |
|  | Lighting Photometric Layout |[ ] [ ] [ ]
|  | Verify that calculations on all roadway surfaces were performed using photometric software. |[ ] [ ] [ ]
|  | Verify that the lighting design achieves a minimum of 0.8 foot-candle (fc) at 4:1 (average to minimum) uniformity ratio on the roadway surface. |[ ] [ ] [ ]
|  | Verify that high mast poles are located at a minimum offset of 50’ from EOT. |[ ] [ ] [ ]
|  | Verify that cobrahead poles are located at a minimum offset of 15’ from EOT |[ ] [ ] [ ]
|  | Review design to ensure that the use of high mast poles is maximized to the greatest extent possible to minimize future maintenance and reduce roadside obstacles |[ ] [ ] [ ]
|  | Verify the Engineer of Record has complied with NCGS § 133-3 and NCDOT policy number F.25.0101 regarding the use of proprietary products. |[ ] [ ] [ ]
|  | Verify that underpass lighting is included when the structure width is 200 feet or greater. |[ ] [ ] [ ]
|  | Lighting Plan Preparation |[ ] [ ] [ ]
|  | Verify that the pole locations in plans are the same as what is shown in the photometric calculation. |[ ] [ ] [ ]
|  | Verify that all single arm and twin arm poles labeled and stationed. |[ ] [ ] [ ]
|  | Verify that all high mast poles labeled and stationed and offset provided. |[ ] [ ] [ ]
|  | Verify that the Lighting Control Panel is located near the top of a ramp in a relatively flat area that is easily accessible. |[ ] [ ] [ ]
|  | Verify that no more than 6 circuits are shown for each Lighting Control Panel. |[ ] [ ] [ ]
|  | Verify junction boxes are:\_\_\_ Placed on each side of the road when circuitry crosses under the road.\_\_\_ Located 5’ from each ground mounted cobrahead pole.\_\_\_ Located 10’ from each high mast pole.\_\_\_ Spaced at 300’ typical, 400’ maximum.\_\_\_ Sized appropriately. |[ ] [ ] [ ]
|  | Verify that circuitry that crosses under the road is shown in a protective sleeve. |[ ] [ ] [ ]
|  | Verify that a raceway is used where multiple circuits cross under the road in the same electrical duct |[ ] [ ] [ ]
|  | Verify conductors are sized to achieve a maximum of 3% end to end voltage drop. |[ ] [ ] [ ]
|  | Verify that the circuity runs include the correct circuit label and size. |[ ] [ ] [ ]
|  | Verify that the E1 Sheet is complete:\_\_\_ TIP Number and Sheet Number included.\_\_\_ Design Criteria clearly shown.\_\_\_ All items in the plans shown in the Legend.\_\_\_ All Delta Notes from Sheets E2-Ex included and described.\_\_\_ Appropriate Standard Drawings for Lighting referenced.\_\_\_ Circuitry conductor table describing all components of each circuit plan symbol included.\_\_\_ List of Abbreviations included |[ ] [ ] [ ]
|  | Verify that the E1x Sheet is complete for each lighting control panel on the project.\_\_\_ TIP Number and Sheet Number included\_\_\_ Junction box summary table complete with station, offset, and correct size.\_\_\_ Duct summary table complete with station, offset, and correct length. |[ ] [ ] [ ]
|  | Verify that the E2-Ex Sheets are complete:\_\_\_ Delta notes included for all special circumstances\_\_\_ TIP Number and Sheet Number included\_\_\_ Load Schedule included on sheet(s) with lighting control panels |[ ] [ ] [ ]
|  | Verify that all required special detail sheet(s) are included. |[ ] [ ] [ ]
|  | Verify that all lighting plan sheets are signed and sealed. |[ ] [ ] [ ]
|  | Lighting Special Provisions |[ ] [ ] [ ]
|  | Verify that all special provisions are included for all non-standard lighting pay items. |[ ] [ ] [ ]
|  | For Division let project or Purchase Order Contract, verify that Standard Provisions SP09R005 (Foundations and Anchor Rod Assemblies for Metal Poles) and SP14R004 (Roadway Lighting Foundations) are included. |[ ] [ ] [ ]
|  | Verify that all Special Provisions are signed and sealed. |[ ] [ ] [ ]
|  | Lighting Calculation of Quantities |[ ] [ ] [ ]
|  | Verify that all lighting pay items reference the correct pay item number. |[ ] [ ] [ ]
|  | Confirm that all pay item quantities have been entered in the Pay Items & Quantities (PIQ) tool and that all pay items and quantities are correct. |[ ] [ ] [ ]
|  | Notify Lighting & Electrical Team Lead when quantities are complete. |[ ] [ ] [ ]
|  | Confirm that the Lighting & Electrical Team Lead has provided pay item pricing to Estimating Group. |[ ] [ ] [ ]

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