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| **Section Cover Page**  | **\\goa\desktop\K_O\norman.ho\Desktop\AB-Sig 2Color Sky CMYK.jpg** |
|  **Section 01 32 17****2022-10-31 Network Analysis Schedule** |

Infrastructure Basic Master Specification contains two Sections for two types of construction schedules:

.1 Section 01 32 16 ‑ Construction Schedules which contains requirements for bar chart type of construction schedules.

.2 This Section 01 32 17 ‑ which contains requirements for network analysis (CPM) type of construction schedules.

Use this or Section 01 32 16 but not both.

Use this Section to specify Network analysis Construction Progress (CPM) type of construction schedules and sub‑schedules when:

.1 estimated cost of the project is $3,000,000.00 or more, or

.2 degree of complexity of the project (eg. Hospitals, Legislature Building, Law Courts or other high profile capital building projects) requires more sophisticated scheduling, or

.3 it is deemed that performance monitoring is essential and critical to the successful completion of the project, or

.4 a construction management type of contracting method is utilized.

Prepare this Section through early consultation with, and review of requirements Infrastructure.

This Master Specification Section contains:

.1 This Cover Sheet.

.2 Date Sheet ‑ General

.3 Specification Section Text:

.1 Related Sections

.2 Format

.3 Quality

.4 The NACP Schedule

.5 Submittals Sub‑Schedules

.6 Equipment Delivery and Installation Sub‑Schedule

.7 Facility Start‑Up Sub‑Schedule

.8 Progress Revisions

.9 Submissions

.10 Labour and Equipment Forecasts and Reports

.11 Use of NACP Schedules

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| **Change Log** | **\\goa\desktop\K_O\norman.ho\Desktop\AB-Sig 2Color Sky CMYK.jpg** |
| **2022-10-31** | **Section 01 32 17** **Network Analysis Schedule** |

**Changes made in this Section Update (2022-10-31):**

1. Added Change Log page.
2. Added Alberta Logo to all pages.
3. Capitalized defined terms.
4. Updates to formatting and auto numbering.
5. Added WBS No. to Project ID in section header
6. RELATED SECTIONS
7. Summary of Work: Section 01 11 00.
8. Contract Time and Time Control: Section 01 11 05.
9. Cash Allowances: Section 01 21 13.
10. Submittals: Section 01 33 00.
11. Facility Start‑Up Plan: Section 01 33 35.
12. Facility Start‑Up Procedures: Section 01 91 01.
13. [                          ]: Section [             ].
14. FORMAT OF SCHEDULE
15. Format of the Network Analysis Construction Progress Schedule and associated sub-schedules, hereinafter referred to as the “**NACP Schedule**”, shall be based on one of the following formats:
16. Critical Path Method.
17. Project Evaluation and Review Technique.
18. Time oriented modified Precedence Network Diagram.
19. Include concise and accurate activity descriptions.
20. Incorporate legends required to interpret symbols used.
21. Incorporate appropriate time scales covering both calendar and Working Days, months and years.
22. As a minimum requirement, indicate the earliest start date, earliest finish date, and total float time for each activity. Clearly identify the critical path and first level sub‑critical paths broken down by trade.
23. QUALITY OF SCHEDULE
24. The NACP Schedule shall be prepared and produced by an organization specializing in such work, or by the Contractor provided that such specialist capabilities exist within the Contractor's organization.
25. Prepare the NACP Schedule using a computer based project management software package acceptable to the Province.
26. Bar charts or other similar submissions will only be accepted if supported by appropriate network analysis diagrams.
27. THE NACP SCHEDULE
28. Include concise and appropriate activity descriptions.
29. Separate Contractor's work force from Subcontractors' work forces.

**SPEC NOTE:  If deemed necessary, cost information can also be required to be included in NACP Schedule by specifying the following clause. Consult with Infrastructure.**

1. Indicate dollar value for each activity, based on contract Price breakdown specified in Section 01 33 00.

**SPEC NOTE:  Include the following clause (.4) only when allowances are specified, except when such allowances are not readily definable and proper scheduling thereof is impossible. Eg. An allowance for "unforeseen work" cannot be scheduled.**

1. Provide a separate activity for each specified allowance [except for allowances for unforeseen work]. Define the activity for each allowance. Include dates for receipt of documentation or information pertaining to work covered by allowances.
2. Break down activities to provide level of detail to enable ready interpretation and facilitate performance monitoring.
3. Break down long duration activities and sub‑activities, which are continuous, repetitive or sequential in nature representing actual construction activity planned. Submit separate sub‑network diagrams as appropriate.
4. Provide all information representative of the Contractor's actual construction plan clearly showing inter‑relationships of all activities.

**SPEC NOTE:  Specify requirements under 5, 6, 7 & 8 below if required and established through early consultation with construction Division.**

1. SUBMITTALS SUB‑SCHEDULE
2. List each element of work for which submittals, such as shop drawings, product data and samples are required.
3. Indicate anticipated dates when the Province will receive each submittal.
4. Indicate dates by which each submittal must be reviewed or approved in order to maintain continued construction activity and progress of the Work.
5. EQUIPMENT DELIVERY AND INSTALLATION SUB‑SCHEDULE
6. As supplement to the NACP Schedule, submit an equipment delivery and installation sub‑schedule. Include a tabulated summary of all major equipment required to be installed.
7. FACILITY START‑UP SUB‑SCHEDULE
8. Provide a separate heading and summary task for each system.
9. Include milestone dates for the completion of tasks in the NACP Schedule which are linked to the start dates for Contractor Start‑Up tasks.
10. Group Contractor Start‑Up tasks by system under the relevant summary task.
11. Provide a separate task for each activity that comprises each of the following sub‑phases of the Contractor Start‑Up program:
12. Pre‑start tests and inspections.
13. Start‑up procedures, including manufacturer's site services where required.
14. Testing, adjusting and balancing.
15. Preparation of reports.
16. Province's review of systems and reports
17. Contract Deficiency correction.
18. PROGRESS REVISIONS
19. The Province will, during the course of the Work, request the Contractor to revise the NACP Schedule if in the Province's opinion:
20. the progress of the Work is substantially different from the latest formally accepted NACP Schedule and the Contract completion date appears to be in jeopardy,
21. the work is being performed in a sequence not in keeping with the general work sequence of the latest formally accepted NACP Schedule, or
22. a revision is necessary to reflect a required adjustment to the Contract completion date which has been authorized by the Province.
23. Actual progress of the Work shall be tracked by the Contractor and will be reviewed by the Province. If requested to do so by the Province, the Contractor shall revise the NACP Schedule to indicate actual progress, at no additional cost to the Province.
24. The Province reserves the right to:
25. accept the revised NACP Schedule as the latest formally accepted NACP Schedule, or
26. treat the revised NACP Schedule as information only, thereby holding the Contractor to the previous formally accepted NACP Schedule.
27. SUBMISSIONS
28. Within [30] [   ] Days after date of commencement of Contract, submit [6] [ ] copies of initial NACP Schedule, and required supplemental information, for the Province's review and acceptance.
29. Within [14] [  ] Days of receipt, the Province will either formally accept the submittals or return to the Contractor for revision.
30. Initial submittals returned for revision shall be revised and resubmitted to the Province within [seven (7)] [  ] Days.
31. Submit progress revisions within 14 Days after receiving notice to do so.
32. Update the accepted NACP Schedule monthly.
33. LABOUR AND EQUIPMENT FORECASTS AND REPORTS
34. Weekly Schedule Forecast:
35. The Contractor shall submit weekly forecast of labour and equipment to be utilized on site.
36. Report shall be submitted on forms supplied by the Province.
37. Report shall be submitted to the Province on the Friday prior to the applicable report day, by 11:00 hours.
38. Daily Force Report:
39. The Contractor shall submit a daily force report outlining the manpower used each day on the project.
40. Report shall be submitted on forms supplied by the Province.
41. USE OF NACP SCHEDULE
42. The NACP Schedule shall, upon formal acceptance by the Province, become the basis for measuring progress of the Work.

**SPEC NOTE:  Delete following clauses if Section 01 11 05 is being used. Detailed time control provisions are specified in Section 01 11 05.**

1. The Contractor shall bind all his Sub‑contractors and suppliers to the accepted NACP Schedule. The Province will not accept any claims arising from the Contractor's failure to comply with this requirement.
2. If, in the Province's opinion, the actual progress of the Work is behind schedule and the Contract Time appears to in jeopardy, the Contractor shall provide to the Province within seven (7) Days of receipt of written notice:
3. An outline of the means and methods which the Contractor proposes to employ to ensure completion of the Work within the Contract Time.
4. A revised NACP Schedule reflecting the outline specified above.

**END OF SECTION**