
NAVAL FACILITIES ENGINEERING COMMAND
GUIDE PERFORMANCE WORK STATEMENT (GPWS)
FOR
RAIL FACILITIES MAINTENANCE AND REPAIR
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USER'S GUIDE FOR SPECIFICATION PREPARATION
RAIL FACILITIES MAINTENANCE AND REPAIR

I. INTRODUCTION

A. Purpose. This NAVFAC Guide Performance Work Statement (GPWS) has been written to provide assistance in preparing facilities support contracts to procure rail facilities maintenance and repair services. Contracts for such services may be a continuing contracting effort or a conversion of services from in-house to contract performance under the Commercial Activities (CA) program. This NAVFAC GPWS may be used in either application. This GPWS Package consists of a User's Guide, guide contract sections B, C, and J in the Uniform Contract Format, and a Quality Assurance (QA) Guide.

1. The NAVFAC manual MO-327, *Service Contracts: Specifications and Surveillance*, provides extensive information on the preparation of NAVFAC facilities support contracts, from guidance on making the initial decision to contract a given function through the entire PWS and surveillance program development process. This User's Guide is designed to supplement and to be used in conjunction with the MO-327 in developing a PWS for rail facilities maintenance and repair services. It provides specific guidance on developing and tailoring the GPWS, special items which must be considered if the specification is being written in conjunction with a CA program study, and general guidance on required pre-award actions. Additional guidance on implementing CA program requirements can be found in the Supplement to OMB Circular A-76 and in OPNAVINST 4860.7B.

2. Sections B, C, and J provide suggested formats for displaying contract line (bid) items, technical specifications which the user may tailor to site specific needs, and attachments which provide supplemental information, historical data, etc.

3. The QA guide is designed to provide the framework for development of a comprehensive contract surveillance program. The user should modify and expand upon the sample QA plans provided as the GPWS is tailored.

B. Function Definition

1. The rail facilities maintenance and repair function in this NAVFAC GPWS is defined to include all labor, supervision, technical engineering, transportation, equipment, repair/replacement parts, and materials required to maintain and repair rail facilities. Rail facilities include all items reported under cost account code 7510 (as described in NAVCOMPT MANUAL VOL 2, Chapter 4) and as inventoried under DOD/NAVY CATEGORY CODE 860. The rail facilities function can be divided into four subfunctional areas, which are defined as follows:

Z997A Railroad Trackage (Cat Code 860-10): Includes narrow and standard gauge two-rail tracks including spurs, sidings, yards, turnouts, frogs, switches, ties, ballast, roadbed, drainage facilities, and accessories and appurtenances (scales and scalehouses).

Z997B Explosive Barricade for Suspect Track and Railroad Cars (Cat Code 860-20): Includes suspect track and rail facilities which provide a holding area, barricaded on three sides, having rail sidings to

accommodate two railcars and a paved area for four trucks, to park suspect incoming ordinance shipments.

Z997C Railroad Bridges and Trestles (Cat Code 860-30): Includes work on structures and substructures. Work on rail systems and ties crossing bridges and trestles is included in subfunction Z997A.

Z997D Crane Trackage (Cat Code 860-40): Crane trackage applies to track for all weight handling equipment that operates in the major working level of an activity. Also referred to as ground-level crane trackage, this includes, but is not limited to, trackage systems for portal, gantry, hammerhead, tower, and the ground level rail for semi-gantry cranes. Crane trackage for Category Code 860-40 does not include elevated crane trackage such as trackage used by overhead or bridge cranes, wall cranes, semi-gantry cranes, and floating drydock cranes. Four rail crane systems which may also be used by railroad traffic should be categorized by primary use.

2. Maintenance and repair of railroad and crane trackage (Z997A and Z997D) is provided for in this GPWS. Weed control, pavement repair, drainage, bridges and trestles, and several other items of work are covered in the technical specification, but it may be more appropriate in some situations if they are provided in function S710C (Plant Pest Control), Z992 (Buildings and Structures), or Z993 (Grounds and Surfaced Areas). Maintenance and repair of the structure and substructure of bridges and trestles should be included in subfunction Z997B (Grounds Facilities and Surfaced Areas).

C. Responsibilities

1. Experience has shown that the best method of developing a facilities support contract specification is to involve a number of activity personnel, each having a portion of the knowledge and experience required to put the entire package together. A team of experienced activity personnel should be formed and a team leader appointed. At least one member of the team must be intimately familiar with each of the following areas:

a. Must be familiar with and understand the applicable GPWS(s) and QA Guide(s).

b. Must have working knowledge of basic contracting procedures.

c. Must have first hand knowledge of the services, and/or equipment/system operations, repairs, and maintenance to be provided by contract.

d. Must be able to identify local needs/requirements that are different from the GPWS and apply specifically to the activity.

2. The following activity personnel are suggested as members of the specification development team.

a. Specification Writer. The Rail Facilities specification is most properly prepared by an engineer or engineering technician at the activity who has had some experience in writing facilities support contracts. The use of a planner and estimator (P&E) is also appropriate if one is experienced with

writing contract specifications. The writer, regardless of who he/she is, should have attended the Civil Engineer Corps Officers School (CECOS) course on Facilities Support Contracts. Assistance and guidance may be requested from the geographical NAVFACENGCOM Engineering Field Division (EFD), Code 10.

b. Functional Manager/Customer. The functional manager is the technical representative of the team who is most familiar with the function to be contracted. Early in the tailoring process the rail facilities functional expert(s) must determine the total scope of the services required, and the specific needs of the activity which may differ from this GPWS.

c. Contract Specialist. The Contract Specialist provides overall contractual guidance in the preparation of the specification. This person will work with the writer in the preparation of sections B, C, and J, and will prepare the majority of the clauses in sections E, F, G, H, I, K, L, and M. Additionally, there are many pre-award and post-award contract actions to be initiated by the Contract Specialist.

d. CA Program Manager. If the specification is being prepared under the CA program, the CA Program Manager provides overall guidance on the CA program, and will ensure that the specification is developed in conjunction with required Most Efficient Organization and Management Studies.

3. The tailored specification should be reviewed by customer and functional manager representatives, the activity's Facilities Support Contract Manager (FSCM) and Quality Assurance Evaluators (QAEs), and the Engineering Division Director and Facilities Management Engineering Director. Consult appropriate EFD instructions to determine if EFD review/approval is required prior to solicitation.

II. GPWS DEVELOPMENT AND USER CONSIDERATIONS. This section of the User's Guide discusses certain assumptions which were made and special items that were considered during the development of the Rail Facilities Maintenance and Repair GPWS, and provides general information and considerations that the user should be aware of during the tailoring process.

A. Development of the GPWS. In developing this GPWS, a functional analysis, as described in NAVFAC MO-327, was used to identify each of the major subfunctions for rail facilities maintenance and repair. These subfunctions were further subdivided to develop basic work requirements and attributes for each subfunction. Once all of the basic work requirements were identified for each subfunction, a functional analysis chart was developed and the requirements were put in narrative form. The following functional analysis chart, Figure 1, illustrates the rail facilities subfunctions and work items addressed in this GPWS.

FIGURE 1
FUNCTIONAL ANALYSIS

- 1.0 Provide Rail Facilities Maintenance Administration
 - 1.1 Maintain Facility History and Condition Records
 - 1.2 Maintain Supervision and Quality Control
- 2.0 Rail Facilities Inspection Program

- 2.1 Scheduled Inspection
 - 2.1.1 Establish Scheduled Inspection Plan
 - 2.1.2 Perform Scheduled Inspections
 - 2.1.3 Prepare Facility Condition Report
- 2.2 Unscheduled Inspection (after storm, flood, fire, accident, derailment, etc.)
 - 2.2.1 Perform Unscheduled Inspection
 - 2.2.2 Prepare Facility Condition Report
- 3.0 Rail Facilities Maintenance
 - 3.1 Preventive Maintenance (PM) Program
 - 3.1.1 Establish PM Plan
 - 3.1.2 Perform PM Inspection
 - 3.1.3 Perform PM Service
 - 3.1.4 Prepare PM Report
 - 3.2 Service Call Work
 - 3.2.1 Establish Historical Data
 - 3.2.2 Establish Service Call Limits
 - 3.2.2.1 16 hours of labor and \$250 (or \$400) worth of materials
 - 3.2.2.2 Time Response Limit for Emergency, Urgent, and Routine
 - 3.3 Minor Maintenance and Repair Work
 - 3.2.1 Prepare Work Schedule Monthly
 - 3.2.2 Perform Minor Work
 - 3.2.3 Prepare Status Report of Completed Minor Work

B. GPWS User Considerations. The clauses and provisions of this GPWS are arranged in the uniform contract format as required by the Federal Acquisition Regulation (FAR). The sections to which they are assigned shall not be changed.

1. This GPWS contains sections B, C, and J only. These sections contain information and clauses peculiar to the technical services required, while Sections D through E and K through M contain contract clauses and provisions more closely related to administrative and contractual requirements. Since the latter group will generally be the same in the majority of NAVFAC contracts, their inclusion in each GPWS would be unnecessary duplication. Therefore, this group, to be referred to as the standard facilities support contract clauses, shall be packaged at each geographical EFD and contracting office, and made available to specification writers as required.

2. FAR clauses and provisions may be added or deleted as required by the FAR for specific functions, dollar limitations, bonding, small businesses, etc. They may not be altered unless specifically authorized by the FAR. The clauses in sections I and L, other than those requiring tailoring (i.e. blanks to be

completed), may be included by reference. All other FAR clauses and provisions shall be included in full text. Procurement offices shall make available to bidders the full text of all clauses incorporated by reference upon request.

3. The "SCHEDULE OF DEDUCTIONS" and "CONSEQUENCES OF CONTRACTOR'S FAILURE TO PERFORM REQUIRED SERVICES" clauses are NAVFAC, not FAR clauses, and shall not be altered without NAVFAC approval. All other non-FAR clauses and provisions in the standard facilities support contract clauses should be used substantially as shown or deleted if not applicable to the solicitation. Extensive deliverable performance requirements should not be added to these clauses, but should be included in Section C.

4. Technical Specification

a. Section C, which describes the services to be provided, should be a performance specification. That is, over defining the Contractor's responsibilities in terms of methods or procedures should be avoided in writing the technical specifications since we hope to purchase not only the Contractor's labor, but also his/her expertise in the services to be provided and management of those services. A performance oriented specification should minimize the use of words describing "how to" and emphasize the performance standards to which the Contractor must maintain the rail facilities. Outputs must be described specifically and as explicitly as possible while leaving the Contractor latitude to manage his/her own work force and choose his/her own methods for accomplishing the work.

b. On the other hand, the specification must provide enough information to clearly and precisely define the magnitude (number of services we want to buy) and quality of each of the services to be provided, as well as the scope or limit of each. This is accomplished in the GPWS by specifying, in addition to the desired outputs, schedules of accomplishment and/or specific time limitations in which all services must be completed; listing mandatory operating procedures or steps that the Contractor must follow for some services; and providing historical data on the magnitude of services provided under previous contracts or by in-house forces. Such information will only slightly restrict the Contractor's latitude in managing his/her workforce, but will help ensure all bidders clearly visualize the magnitude of effort which will be required to provide the clearly defined scope of work. Typically this will result in more accurate/realistic Contractor bids, make payment deductions for unsatisfactorily performed or nonperformed work easier to calculate, and reduce the number of contract administration problems.

5. As you use this GPWS, you will find that anytime a choice of options is available, there is a "NOTE TO THE SPECIFICATION WRITER". The note informs the user to select the appropriate clause, provide additional information, or delete the clause in its entirety. There are many areas in the GPWS where space has been left to fill in a blank; i.e., start times, dates, quantities, etc. All that is required is to complete the blanks and then delete the adjoining notes. If the final document is to be printed from the DISKETTE, it is not necessary to delete the notes as the equipment will print a justified copy without the notes.

6. The Maximum Allowable Defect Rates (MADRs) (formerly Acceptable Quality Level (AQL)) provided in the Performance Requirements Summary Table are

sample rates only. Refer to NAVFAC MO-327 and select rates that are appropriate to your activity.

III. TAILORING THE GPWS. The NAVFAC GPWS for Rail Facilities Maintenance and Repair services is not intended to fit the requirements of a specific activity, but rather, is to serve as a model to be tailored by activities in preparing their specific PWS. The first step in tailoring a GPWS to a specific case is for the user to become intimately familiar with the GPWS and its User's Guide. The user must know what is, and is not, included in the GPWS and what was intended before he/she can assess modifications required. The PWS is the instrument that lays out the functional and technical requirements and ultimately becomes part of a contract. The User's Guide provides the user with information concerning the GPWS and provides instructions on tailoring it to his/her use. Users should not assume that the GPWS can be "plugged" into their application with little or no effort. A detailed analysis of the activity's requirements will be required.

A. Getting Started

1. The first step in tailoring this GPWS to a specific user activity must be to determine one of the following:

a. Requirements are currently contracted and this will be a continuation of the contracted services or consolidation of several contracts. If this is the case, the GPWS may be tailored to accomplish any desired scope of work and level of performance.

b. Requirements to be included are subject to a CA cost comparison study under OMB Circular A-76. If this is the case, it is mandatory that the scope of work and level of performance specified be equivalent to the current in-house effort or to the level of effort that can be achieved by the Most Efficient Organization (MEO) if the function is retained in-house. Additional information on tailoring of the GPWS for a CA program study is included in paragraph IV of this User's Guide.

2. The next step should be a thorough review of Chapters 3 and 4 of the NAVFAC MO-327. These two chapters outline in detail how to perform a functional analysis to determine just how the specification should be written and how Contractor performance is to be monitored. As the functional analysis is being performed, the user should compare his unique activity requirements with GPWS requirements to determine if any major changes are required, or if some of the questions being identified in the functional analysis have already been answered in the GPWS. If major changes are required, the user will need to re-write the affected GPWS section. A thorough functional analysis will make the actual tailoring of the GPWS and re-writing of paragraphs relatively easy since all required data will be readily available and the functions to be contracted will be well defined.

B. Contract Line Item (Section B) Requirements. A combination fixed-price and indefinite quantity contract is used in this GPWS. The contract line items shown are intended to encompass all of the services to be provided in the technical specifications. Of course they must be tailored to account for work items added or deleted during the functional analysis process and the projected start date of contract performance. The line items are made up of two types of

work items: fixed-price items and fixed unit price (indefinite quantity) items. All new work items added by the user must fall into one of these two categories.

1. Fixed-Price Requirements. Fixed-price items are bid and payment is made for the total performance of a given work item over a given period of time (usually one month). These work items are either fixed in scope (time, location, frequency, quantity, etc. are known) or adequate historical data is available to make a biddable estimate. Because the scope of work is known, the Contractor agrees to perform a given function for a total price, and in essence there is one work order which is the contract. The Contractor performs the work as scheduled and invoices are submitted for the services provided.

a. Examples of fixed-price items in this GPWS are: Provide maintenance of facility history files, scheduled inspections, preventive maintenance inspections and service work, work reception, and work schedule and status reports. Some of these work items, such as service work, are limited in scope to specified labor and/or dollar amounts. Work beyond these limits will either not be required by the contract, or will be included in the indefinite quantity portion of the contract. The higher the labor/dollar limits specified, the more historical data that must be provided.

b. Fixed-price work items added by the user must either have clearly defined scopes, or additional historical data will also have to be added to Attachment J-C9 of the PWS.

2. Indefinite Quantity Work Items. All items not included in fixed-price portion of the contract are considered indefinite quantity work items. That is, the Contractor agrees to perform this work on an "as ordered" basis, and a fixed unit price to perform one occurrence or a given quantity of each type of work is bid. Payment for this type of work is based on the unit price bid per unit times the number of units performed. Because each Government order for indefinite quantity work is paid for separately, each and every work order must be inspected and accepted as being satisfactorily complete before payment may be made. Indefinite quantity work in this GPWS is divided into two separate categories, each with its own contract line item and set of subline items.

a. Unit Priced Tasks. Bid prices for unit priced tasks include all labor, materials, and equipment for performing a given quantity of work, such as installing rail to match, replacing cross ties, ballast, etc. The unit prices bid are multiplied by an estimated quantity of units to be ordered during the contract term, but only for purposes of bid evaluation, since work will only be paid for as ordered and completed.

b. Engineered Performance Standards (EPS) Hour Labor. This type of indefinite quantity work, which is also referred to as "level of effort work", should be used only in connection with maintenance, repairs, and alterations to facilities and/or equipment, and then only when such work cannot be identified in advance in sufficient detail to be included in the fixed-price or indefinite quantity - unit priced portions of the contract. The unit prices bid for labor include all costs to provide one EPS estimated hour of labor. The Contractor is reimbursed for the cost of materials (except for pre-expended bin materials) and equipment, as specified in the "ESTIMATES" clause of Section C. NOTE: Level of effort provisions used in a CA program PWS are considerably different than those in non CA studies, Refer to paragraph IV.B of this User's Guide for further guidance.

c. As many indefinite quantity work requirements as possible should be included as unit priced tasks vice as level of effort work since unit priced tasks are easier to understand, easier for Contractors to bid on, the work is easier to order and administer, and materials and equipment costs are included in the unit prices bid. In fact, if the user is able to define all potential indefinite quantity work items as unit priced tasks, the level of effort contract line items and technical provisions of this GPWS may be deleted completely. Regardless of which of the two types of indefinite quantity work are used, the estimated quantities provided in the solicitation for bid evaluation must be realistic estimates of the anticipated quantities to be ordered during the contract term.

3. Partial First Year of Performance

a. Because of funding restrictions, only four types of maintenance service contracts may be awarded for a 12-month period to begin at any time during the fiscal year. All other contracts, including those for rail facilities maintenance and repair services must be funded using funds from the fiscal year in which the work will be performed. This means that only contracts with terms beginning on 1 October may be awarded for a full 12-month period. Contract terms beginning on any other date must be awarded for something less than 12 months, and must end on or before 30 September. Normally such contracts will not be awarded for less than three months. For example, a contract which begins on 1 April would have a six-month initial term, and then options to extend for up to 54 additional months. However, no single option period could be more than 12 months long, and the total term of contract could not exceed 60 months.

b. Section B of this GPWS assures that the initial contract period will be less than 12 months. The user must also consider each of the following items in this situation.

(1) As illustrated in this GPWS, at least two sets of contract line items will be required in Section B. One set for the initial period for performance of work from the specified contract start date through 30 September. The other set will be for performance during the first 12-month option period, if the Government exercises its option to extend the contract. In most cases, only the initial performance period may be pre-priced unless the specification is being written for a CA program study. See paragraph IV.C of the User's Guide.

(2) Section C, the technical specifications, must clearly outline the scope of work for both the initial and first 12-month option periods since the work load can vary significantly from month to month. For example, the specification must state whether or not annual preventive maintenance inspections will be performed during the initial period.

(3) Two Schedules of Deductions, one for the initial period and one for the first option period, must be included. Of course the items of work and number of units in the Schedules of Deductions must agree with the fixed-price contract line items in Section B and the scopes of work defined in Section C. Paragraph III.C of this User's Guide provides more in depth information on the development of Schedules of Deductions.

(4) The "TERM OF THE CONTRACT" clause in Section F should read as follows:

"TERM OF CONTRACT. The initial contract term shall be for a(n) !INSERT NUMBER OF MONTHS!-month period commencing on !INSERT DATE! and ending on 30 September !INSERT YEAR!. The Government has the option to extend the term of the contract in accordance with the "OPTION TO EXTEND THE TERM OF THE CONTRACT-SERVICES" clause in Section I. In the option periods the Government will adjust the prices, as required, based on new Department of Labor Wage Rate Determinations."

(5) The "BASIS FOR AWARD" clause should read as follows:

"BASIS FOR AWARD. The low bidder for purposes of award shall be the conforming, responsive, responsible bidder offering the lowest total price for Contract Line Item Numbers (CLINs) 0001, 0002, 0003, 0004, 0005, and 0006. However, the initial award will include only CLINs 0001, 0002, and 0003. Bids are solicited on an "all or none" basis and provision 52.214-10 (CONTRACT AWARD - SEALED BIDDING (Apr 1985)) in Section L is hereby modified. FAILURE TO SUBMIT BIDS FOR ALL ITEMS AND QUANTITIES LISTED SHALL BE CAUSE FOR REJECTION OF THE BID."

c. If the initial contract term will be projected to begin on 1 October, make the following changes to the GPWS contract line items, Section B:

(1) The dates shown in CLINs 0001, 0002, and 0003 should read "(1 October !INSERT YEAR! through 30 September !INSERT YEAR!)".

(2) Delete CLINs line items 0004, 0005, and 0006 in their entirety, unless the PWS is being written under the CA program (see paragraph IV.C of this User's Guide).

C. Schedule of Deductions. The Schedule of Deductions is one of the most important items that the specification writer must consider in tailoring of this GPWS since it directly affects the degree of difficulty required to make payment deductions for unsatisfactory performance or nonperformance of work. The schedule, which is used in conjunction with the "CONSEQUENCES OF CONTRACTOR'S FAILURE TO PERFORM REQUIRED SERVICES" clause, Section E, requires the successful bidder to break the fixed-price portion of the bid down for each of the fixed-price work items in the PWS. The completed schedule must be provided by the Contractor within 15 days after award of the contract. The Schedule of Deductions clause and suggested schedule formats for the base and first option periods follow. The user should contact the activity's EFD concerning placement of the Schedule of Deductions in the contract, since requirements vary from EFD to EFD.

"SCHEDULE OF DEDUCTIONS"

a. Within 15 days after contract award, the successful Contractor shall provide an acceptable Schedule of Deductions for the Base period of the contract. No work may commence until such Schedule of Deductions is approved by the ACO. The total of the Schedule of Deductions must equal the amount entered for CLIN 0001. If this contract is modified, the Contractor shall revise the Schedule of Deductions within 15 days of the agreement to modify the contract. Prices shown in the Schedule of Deductions will be utilized in conjunction with the "CONSEQUENCES OF CONTRACTOR'S FAILURE TO PERFORM REQUIRED SERVICES" clause, Section E, in making payment deductions for nonperformance or unsatisfactory

performance. Unbalancing in the Schedule of Deductions submitted shall be cause for withholding approval and requiring resubmittal of a balanced schedule, and may be grounds for TERMINATION FOR DEFAULT. The Government reserves the right to unilaterally establish a Schedule of Deductions in the event the successful Contractor presents a Schedule of Deductions which is unbalanced or materially deficient. The approved Schedule of Deductions shall be a part of the contract. DO NOT SUBMIT THE SCHEDULE OF DEDUCTIONS WITH BID.

b. The Government's estimate of the value of work will be based on the Schedule of Deductions for the fixed-price portion of the contract and the Schedule of Indefinite Quantity Work for the indefinite quantity portion of the contract in all instances except the following: for partially performed fixed-price work items, the Engineered Performance Standards (EPS) manuals (See Attachment J-E1) or, if not applicable, other estimating sources will be utilized to estimate the workhour value of the unperformed portion of the work. For deductions of partially performed work, the Government may estimate the Contractor's cost based on wage rates extracted from attached wage determination, locally determined rate for Contractor's overhead and profit, and employees fringe benefits times the estimated manhours, plus material costs if applicable."

**SCHEDULE OF DEDUCTIONS FOR THE BASE PERIOD
(DO NOT SUBMIT SCHEDULE OF DEDUCTIONS WITH BID)**

<u>ITEM</u>	<u>CONTRACT REQUIREMENT</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>UNIT PRICE</u>	<u>TOTAL PRICE</u>
1.	Maintain and Submit Records/Reports				
	a. Facility History File (paragraph C.7)	MONTH	!INSERT!	\$_____	\$_____
	b. Track Charts (paragraph C.7)	MONTH	!INSERT!	\$_____	\$_____
	c. Annual Inspection Plan (paragraph C.8.a)	PLAN	1	\$_____	\$_____
	d. Work Schedule (paragraph C.13)	MONTH	!INSERT!	\$_____	\$_____
2.	Scheduled Inspection Services (paragraph C.8)	MILE	!INSERT!	\$_____	\$_____
3.	Preventive Maintenance Inspection and Service (paragraph C.11.a)	MONTH	!INSERT!	\$_____	\$_____
4.	Work Reception (paragraph C.10)	MONTH	!INSERT!	\$_____	\$_____
5.	Service Calls				
	a. Emergency [paragraph C.11.b(1)]	MONTH	!INSERT!	\$_____	\$_____
	b. Urgent [paragraph C.11.b(2)]	MONTH	!INSERT!	\$_____	\$_____
	c. Routine [paragraph C.11.b(3)]	MONTH	!INSERT!	\$_____	\$_____

<u>ITEM</u>	<u>CONTRACT REQUIREMENT</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>UNIT PRICE</u>	<u>TOTAL PRICE</u>
TOTAL (Must equal amount bid for CLIN 0001)					\$_____

**SCHEDULE OF DEDUCTIONS FOR FIRST OPTION PERIOD
(DO NOT SUBMIT SCHEDULE OF DEDUCTIONS WITH BID.)**

<u>ITEM</u>	<u>CONTRACT REQUIREMENT</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>UNIT PRICE</u>	<u>TOTAL PRICE</u>
1.	Maintain and Submit Records/Reports				
	a. Facility History File (paragraph C.7)	MONTH	12	\$_____	\$_____
	b. Track Charts (paragraph C.7)	MONTH	12	\$_____	\$_____
	c. Annual Inspection Plan (paragraph C.8.a)	PLAN	1	\$_____	\$_____
	d. Work Schedule (paragraph C.13)	MONTH	12	\$_____	\$_____
2.	Scheduled Inspection Services (paragraph C.8)	MILE	!INSERT!	\$_____	\$_____
3.	Preventive Maintenance Inspection and Service (paragraph C.11.a)	MONTH	12	\$_____	\$_____
4.	Work Reception (paragraph C.10)	MONTH	12	\$_____	\$_____
5.	Service Calls				
	a. Emergency [paragraph C.11.b(1)]	MONTH	12	\$_____	\$_____
	b. Urgent [paragraph C.11.b(2)]	MONTH	12	\$_____	\$_____
	c. Routine [paragraph C.11.b(3)]	MONTH	12	\$_____	\$_____
TOTAL (Must equal amount bid for CLIN 0004)					\$_____

D. Davis-Bacon Considerations

1. A Contractor providing maintenance, repair, and/or alteration services to Government facilities must pay his/her employees not less than the minimum wages and fringe benefits specified in the applicable Davis-Bacon wage determination, if the total cost (labor and materials) of the one-time work effort exceeds \$2000. While any facilities support contract may contain Davis-Bacon wage provisions, only CA program contracts may contain options to extend the Davis-Bacon portion of the work. Therefore, Davis-Bacon wage provisions will not normally be included in non CA program contracts.

2. In the case of this GPWS for Rail Facilities Maintenance and Repair, the \$2000 Davis-Bacon limit applies to any individual order for maintenance or repair. Because most non CA program facilities support contracts do not contain Davis-Bacon provisions, no single work order may exceed \$2000 in total cost. Work requirements greater than \$2000 would be considered out of the scope of a non CA contract and would have to be procured by a separate contract or performed by in-house forces. Since many of the individual line items in the Schedule of Indefinite Quantity Work - Unit Priced Tasks in Section B are high cost items, the user must review each of the unit priced tasks carefully. If it appears likely that a unit price of more than \$2000 would be bid, the item should be deleted.

3. If the activity historically has many work orders exceeding \$2000 in cost, the user may want to develop an indefinite quantity maintenance construction contract to be used in conjunction with, or instead of this maintenance service contract. Such a contract would contain only Davis-Bacon wage rates, and would have a term of no longer than 12 months. The Schedule of Indefinite Work - Unit Priced Tasks in Section B of this GPWS would be an excellent guide for developing the bid items in such a contract.

4. Note that many of the items in the Schedule of Indefinite Quantity Work - Unit Priced Tasks in Section B.

E. Performance Requirements Summary (PRS). As the GPWS is being tailored a Performance Requirements Summary Table should be prepared. This table will be used primarily in the preparation of QA Plans (as discussed in the QA Guide to this GPWS), but it will also be of use to the ACO, FSCM, and customers to provide a convenient overview of services to be provided, standards of performance for those services, intended methods of surveillance, and MADRs. A sample PRS Table, which reflects the work requirements of this GPWS, is provided as Figure 2. NAVFAC MO-327 provides guidance on the development of PRS tables.

FIGURE 2
PERFORMANCE REQUIREMENTS SUMMARY TABLE

<u>CONTRACT REQUIREMENT</u>	<u>STANDARD INDICATOR OF PERFORMANCE</u>	<u>METHODS OF SURVEILLANCE</u>	<u>MADR</u>
A. Maintain and submit records and reports	Facility history files, paragraph C.7; preventive maintenance report, paragraph C.11; monthly work schedule and status report, paragraph C.13 a. Timeliness b. Accuracy c. Completeness	Planned sampling for facility history files, 100% inspection for all other reports	Five defects per month
B. Perform preventive maintenance inspection and storage	a. Accomplished per approved schedule b. Performed on all facilities per paragraph C.11 and the PM checklist	Planned sampling of PM inspections supported by documented customer complaints and unscheduled inspections	3% of check points

<u>CONTRACT REQUIREMENT</u>	<u>STANDARD INDICATOR OF PERFORMANCE</u>	<u>METHODS OF SURVEILLANCE</u>	<u>MADR</u>
C. Perform specific maintenance and repair work	a. Documentation b. Response time c. Completion time d. Quality of work (work identified in paragraphs C.14 - C.17 performed per paragraph C.11.c)	100 % inspection	10% of check points
D. Maintain work reception	a. Responsive b. Correct work classification	Planned sampling	10%
E. Emergency service calls	a. Timely b. Responsive c. Completion d. Quality of work	100% inspection	5%
F. Urgent service calls	a. Timely response b. Completion c. Quality of work	Planned sampling, customer complaints, and unscheduled inspections	10%
G. Routine service calls	a. Timely response b. Completion c. Quality of work	Planned sampling, customer complaints, and unscheduled inspections	15%

IV. COMMERCIAL ACTIVITIES (CA) PROGRAM CONSIDERATIONS. This section of the User's Guide discusses some of the special items which must be considered when using this GPWS to prepare a PWS as part of a CA program study. Included are provisions and changes which must be considered by the user.

A. Scope of Work. The user must remember that the scope of work and standards if performance specified in the PWS must be equivalent to the projected capabilities of the MEO. This GPWS has been written with a somewhat limited scope in that single instances of maintenance and repair are limited to a total cost of \$2000 or less. In CA program solicitations repairs costing more than \$2000 (Davis-Bacon type work) will normally be included, and will result in some modifications to the contract line items (Section B) and technical specifications (Section C).

B. Level of Effort (LOE) WORK. When LOE work is used in a CA program PWS, labor bids in Section B must be based on EPS craft hours vice full EPS hours. This results in additional changes being required to the "DEFINITIONS - TECHNICAL" and "ESTIMATES" clauses of Section C. Since it is important that the user fully understands the concept of craft hours, the geographical EFD should be contacted for guidance.

C. Pre-Priced Options to Extend. OMB Circular A-76 requires in-house and Contractor bids to be evaluated on at least a three year basis, unless contract funding limitations prevent the initial term from being a full 12 months in

length. In this situation pre-priced options must be included to cover at least two fiscal years after the initial term. This means that Section B must contain contract line items for the base period and at least two, one-year, pre-priced option periods. For example:

1. If the contract term is projected to begin on 1 October, Section B would include contract line items for the base year (12 months) of performance (CLINs 0001, 0002, and 0003) and at least two, one year, pre-priced option periods (CLINs 0004, 0005, and 0006; and 0007, 0008, and 0009).

2. If the contract term is projected to begin on 1 April, Section B would include contract line items for the initial six month base period of performance through 30 September (items 0001, 0002, and 0003) and two one year, pre-priced option periods (items 0004, 0005, and 0006; and 0007, 0008, and 0009).

3. In no case may the total contract term exceed 60 months.

D. Continuity of Services. The PWS should address certain issues and requirements relative to the change-over from in-house to contracted performance of services. Therefore, add the following "CONTINUITY OF SERVICES" clause to Section C:

"CONTINUITY OF SERVICES"

To insure continuity of essential services, the successful bidder shall be prepared to fully commence work on the start date of this contract. The phase-in of Contractor forces will occur in conjunction with a major reduction-in-force of in-house Government employees. The Contractor should not assume that Government employees will be available to guide, direct, or specifically orient each Contractor employee."

At the time of the contract start date the Contractor shall be prepared to accept approximately !INSERT! backlogged minor delivery orders for which materials are already on hand. These proposed delivery orders shall be provided to the Contractor and a joint inventory by the Contractor and a Government Representative of all materials on hand shall be conducted within !INSERT! calendar days after the contract start date. The Contractor shall assume custody of these materials (which shall be used only for the delivery order for which specifically designated) upon completion of the inventory. The Contractor shall prepare an estimate for each of the backlogged delivery orders following the procedures outlined in the "ESTIMATES" clause of this Section. Completed estimates shall be provided to the ACO within !INSERT! calendar days after receipt of backlogged urgent minor work and within !INSERT! calendar days of receipt of other backlogged delivery orders. The Contractor's estimate will be evaluated to determine if: (1) the scope has been clearly and accurately identified, (2) the EPS standards (including work content comparison) have been accurately applied, (3) work which is not covered by EPS has been properly estimated with supporting data presented, (4) equipment and material estimates are reasonable and properly documented, and (5) unit price work has been estimated using the unit prices that were bid. After the estimate has been reviewed and there are no mathematical, typographical, scope or estimating errors, the ACO will approve the estimate. The approved estimate then shall be a fixed price for the work described in the delivery order. Completion dates for each backlogged minor delivery order shall be negotiated."

E. Multi-Function CA Contracts. In many instances, CA program studies involve contracts containing more than one functional area or service. For example, the user may want to study grounds maintenance services in conjunction with rail facilities maintenance and repair services, and issue a single solicitation. Since most NAVFAC GPWSs are written in the same format, the technical requirements of Sections C and J of this guide may be easily combined with other GPWSs to produce a tailored multi-function PWS.

V. PRE-AWARD CONSIDERATIONS. Prior to award it is essential that the activity consider the following aspects of the operation and administration of a maintenance service contract.

A. Quality Assurance Evaluator Training. It is vitally important to have an adequate number of qualified QAEs on board prior to the contract start date. In fact NAVFAC EFD contract offices will not allow contracts to be advertised until the activity provides assurance that such resources will be provided. Ideally, the QAE should attend the QAE training course provided by each of the EFDs. If this training has not been received, the activity should take steps to have the QAE(s) attend the next available course and in the meantime should develop a local training program. EFD Code 10s (Facilities Divisions) should be contacted for QAE training scheduling or assistance. The QAE should have a good working knowledge of maintenance and inspection procedures, requirements for rail facilities, and preferably attended a training course on inspection and maintenance of rail facilities. Prior to bid opening it is essential that the QAE becomes familiar with the rail facilities specification.

B. Questions to Ask. The user should be asking the following questions prior to contract award:

1. Is Government furnished property, if any, ready for turnover?
2. Are railroad operation personnel designated to act as focal points for customer complaints? If so, have they been properly trained? Are they familiar with the specification? Has a method been developed for customers to submit complaints to the QAE, ACO, or his/her designated representatives?
3. Are QA Plans prepared?
4. Is the specification sufficiently clear to insure that bids will be competitive and developed on the same basis by all competitors?
5. Is the specification over specifying?
6. Are there any restricted areas included in the contract? If so, can the successful Contractor get the required clearance? Are restrictions spelled out in the specification?

C. Site Visits. The QAE or other Government representative should be prepared to conduct site visits with potential bidders after inviting bids. The purpose of these visits is to familiarize the Contractor with the location of contract requirements, not to provide additional information which should have been included in the PWS. QAE's must be briefed by the ACO or the Contract Specialist as to what can be said to potential bidders during site visits. Customers must be briefed by the ACO, or his/her representative, on precautions

to be taken so as not to reveal sensitive information to potential bidders during these visits.

END OF USER'S GUIDE

GUIDE PERFORMANCE WORK STATEMENT
FOR
RAIL FACILITIES MAINTENANCE AND REPAIR

PART I - THE SCHEDULE

SECTION B: SUPPLIES OR SERVICES AND PRICES/COSTS

!*****!
 NOTE TO SPECIFICATION WRITER: Some NAVFAC Engineering Field Divisions (EFDs) require additional clauses to be added to Section B. The user must contact the appropriate geographical EFD to identify any additional clauses which may be required. Delete any items in the Schedule of Indefinite Quantity Work with unit prices that are expected to be more than \$2000. See User's Guide, III.D.
 *****!

SCHEDULE

ITEM	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001	<u>FIXED-PRICE WORK:</u> Price for labor and material for the BASE PERIOD (!DATE! through 30 September !YEAR!) for all work specified in Section C except for work specifically identified as being included in the Indefinite Quantity portion of the contract.	!NUMBER!	MONTH	\$_____	\$_____
	TOTAL PRICE FOR CLIN 0001				\$_____
0002	<u>INDEFINITE QUANTITY WORK - Unit PRICED TASKS:</u> Price for labor and material in the BASE PERIOD (!DATE! through 30 September !YEAR!) to perform the Unit Priced Tasks listed in the Schedule of Indefinite Quantity Work below. The quantities listed are realistic estimates provided solely for the purpose of bid evaluation and for establishing the penal sums of bonds (if required). The price for this bid item is the total of the subline items listed in the Schedule of Indefinite Quantity Work - Unit Priced Tasks.				

SCHEDULE

ITEM	SUPPLIES/SERVICES	ESTIMATED QUANTITY	* UNIT	UNIT PRICE	AMOUNT
SCHEDULE OF INDEFINITE QUANTITY WORK - UNIT PRICED TASKS					
0002AA	Unscheduled inspections per paragraph C.8.b	!INSERT!	TF	\$_____	\$_____
	<u>Railroad Trackage Flexible Support (ties and ballast)</u>				
0002BA	Vertical alignment per paragraph C.14.c(1)	!INSERT!	TF	\$_____	\$_____
0002BB	Horizontal alignment per paragraph C.14.c(1)	!INSERT!	TF	\$_____	\$_____
0002BC	Regage per paragraph C.14.c(13)	!INSERT!	TF	\$_____	\$_____
0002BD	Ballast per paragraph C.14.c(18)	!INSERT!	TON	\$_____	\$_____
0002BE	Gauge rods per paragraph C.14.c(22)	!INSERT!	EA	\$_____	\$_____
0002BF	Stripping per paragraph C.14.c(18)(a)	!INSERT!	TF	\$_____	\$_____
0002BG	Cribbing for cross ties per paragraph C.14.c(18)(b)	!INSERT!	TF	\$_____	\$_____
0002BH	Cribbing for switch ties per paragraph C.14.c(18)(b)	!INSERT!	TF	\$_____	\$_____
0002BI	Ground Straps per paragraph C.14.f)	!INSERT!	EA	\$_____	\$_____
0002BJ	Cross ties per paragraph C.14.c(4)	!INSERT!	EA	\$_____	\$_____
0002BK	Switch ties per paragraph C.14.c(4)	!INSERT!	EA	\$_____	\$_____
0002BL	Straighten skewed ties per paragraph C.14.c(4)	!INSERT!	EA	\$_____	\$_____
0002BM	Install tie plates to match existing rail or as indicated per paragraph C.14.c(5)	!INSERT!	EA	\$_____	\$_____

SCHEDULE

ITEM	SUPPLIES/SERVICES	ESTIMATED QUANTITY	* UNIT	UNIT PRICE	AMOUNT
0002BN	Install rail (sized to match existing or as indicated size varies from 80 to 100 lbs) per paragraph C.14.c(2); includes alignment and gaging	!INSERT!	LF	\$_____	\$_____
0002BO	Install 115 lb rail per paragraph C.14.c(2); includes alignment and gaging	!INSERT!	LF	\$_____	\$_____
0002BP	Install crane rail (sized to match existing or as indicated size varies from 132 to 135 lbs) per paragraph C.14.c(2); includes alignment and gaging	!INSERT!	LF	\$_____	\$_____
0002BQ	Install rail anchors per paragraph C.14.c(9)	!INSERT!	EA	\$_____	\$_____
0002BR	Install spikes per paragraph C.14.c(6)	!INSERT!	EA	\$_____	\$_____
	<u>Railroad & Crane Trackage Rigid Support (Concrete Beam)</u>				
0002CA	Remove existing asphalt per paragraph C.14.m	!INSERT!	CY	\$_____	\$_____
0002CB	Horizontal alignment per paragraph C.14.c(1); includes regaging when only one rail is moved	!INSERT!	LF	\$_____	\$_____
0002CC	Vertical alignment per paragraph C.14.c(1)	!INSERT!	LF	\$_____	\$_____
0002CD	Install anchor studs per paragraph C.14.d(4); includes either removing concrete and welding studs to rebar, or drilling new holes and setting with epoxy, including rail clips, nut and leveling, nut and washers	!INSERT!	EA	\$_____	\$_____
0002CE	Install steel plates (1" x 10" x 5'0" minimum length for crane rail) per paragraph C.14.d(5)	!INSERT!	LF	\$_____	\$_____

SCHEDULE

ITEM	SUPPLIES/SERVICES	ESTIMATED QUANTITY	* UNIT	UNIT PRICE	AMOUNT
0002CF	Install steel plates (½" x 10" x 5'0" minimum length for railroad) per paragraph C.14.d(5)	!INSERT!	LF	\$_____	\$_____
0002CG	Install grout (½" minimum thickness) per paragraph C.14.d(5)	!INSERT!	LF	\$_____	\$_____
0002CH	Removal of concrete per paragraph C.14.n(1)	!INSERT!	CY	\$_____	\$_____
0002CI	Concrete per paragraph C.14.n(2)	!INSERT!	CY	\$_____	\$_____
0002CJ	Install rail (sized to match existing or as indicated size varies from 80 to 100 lbs) per paragraph C.14.d(1); includes alignment and gaging	!INSERT!	LF	\$_____	\$_____
0002CK	Install 115 lb rail per paragraph C.14.d(1); includes alignment and gaging	!INSERT!	LF	\$_____	\$_____
0002CL	Install crane rail (sized to match existing or as indicated size varies from 132 to 135 lbs) per paragraph C.14.d(1); includes alignment and gaging	!INSERT!	LF	\$_____	\$_____
<u>General Track Repair</u>					
0002DA	Bolts with nuts and washers per paragraph C.14.c(3)	!INSERT!	EA	\$_____	\$_____
0002DB	Joint bars (pair provided; sized to match existing rail; includes bolts, nuts and washers) per paragraph C.14.c(3)	!INSERT!	EA	\$_____	\$_____
0002DC	Pair compromise joint bars per paragraph C.14.c(3)	!INSERT!	EA	\$_____	\$_____
0002DD	No. 6 turnout (115 lb rail included, AREA split switch standard) per paragraph C.14.c(10)	!INSERT!	EA	\$_____	\$_____

SCHEDULE

ITEM	SUPPLIES/SERVICES	ESTIMATED QUANTITY	* UNIT	UNIT PRICE	AMOUNT
0002DE	Switch stand per paragraph C.14.c(10)(c)	!INSERT!	EA	\$_____	\$_____
0002DF	Replace switch points per paragraph C.14.c(10)(f)	!INSERT!	EA	\$_____	\$_____
0002DG	Switch plates per paragraph C.14.c(10)(b)	!INSERT!	EA	\$_____	\$_____
0002DH	Gage plates per paragraph C.14.c(10)(a)	!INSERT!	EA	\$_____	\$_____
0002DI	Install rail stops, to include painting, per paragraph C.14.c(21)	!INSERT!	EA	\$_____	\$_____
0002DJ	Remove existing asphalt per paragraph C.14.m(1)	!INSERT!	CY	\$_____	\$_____
0002DK	Asphaltic concrete, includes prime coat, per paragraph C.14.m(2)	!INSERT!	TON	\$_____	\$_____
0002DL	Stabilized aggregate per paragraph C.15)	!INSERT!	TON	\$_____	\$_____
0002DM	Install new derails per paragraph C.14.c(20)	!INSERT!	EA	\$_____	\$_____
0002DN	Guardrails per paragraph C.14.c(11)	!INSERT!	EA	\$_____	\$_____
0002DO	Install field welded joint (weld furnished, installed, and tested) per paragraph C.14.e	!INSERT!	EA	\$_____	\$_____
TOTAL PRICE FOR CLIN 0002					\$_____

!*****
 NOTE TO SPECIFICATION WRITER: If all indefinite quantity work required for maintenance and repair of rail facilities may be accomplished with unit priced tasks, contract line items 0003 and 0006 may be deleted and the remaining items renumbered, as appropriate.
 *****!

SCHEDULE

ITEM	SUPPLIES/SERVICES	ESTIMATED QUANTITY	* UNIT	UNIT PRICE	AMOUNT
0003	<u>INDEFINITE QUANTITY WORK-EPS</u> <u>HR LABOR:</u> Price for labor in the BASE PERIOD (!DATE! through 30 September !YEAR!) to perform maintenance and repair work requirements that cannot be identified in sufficient detail to be included in Contract Line Items 0001 and 0002. This work is described in clauses C.11 through C.16 of Section C. The quantities listed below are realistic estimates provided solely for the purpose of bid evaluation and for establishing penal sums of bonds (if required). The price for this bid item is the total of the subline items listed in the Schedule of Indefinite Quantity Work-EPS Hour Labor.				

SCHEDULE OF INDEFINITE QUANTITY WORK - EPS HOUR LABOR

0003AA	Trackage	!INSERT!	HR	\$_____	\$_____
0003AB	Moving/Rigging	!INSERT!	HR	\$_____	\$_____
0003AC	Grounds/Surface	!INSERT!	HR	\$_____	\$_____
TOTAL PRICE FOR CLIN 0003					\$_____

- * CY - Cubic Yard
- EA - Each
- HR - EPS Estimated Hour. See definitions in Section C.
- LF - Linear Feet
- TF - Track Feet

SCHEDULE

ITEM	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0004	<p><u>FIXED-PRICE WORK:</u> Price for labor and material for the FIRST OPTION PERIOD (1 October !YEAR! through 30 September !YEAR!) for all work specified in Section C except for work specifically identified as being included in the Indefinite Quantity portion of the contract.</p>	12	MONTH	\$ _____	\$ _____
TOTAL PRICE FOR CLIN 0004					\$ _____
0005	<p><u>INDEFINITE QUANTITY WORK - Unit PRICED TASKS:</u> Price for labor and material in the FIRST OPTION PERIOD (1 October !YEAR! through 30 September !YEAR!) to perform the Unit Priced Tasks listed in the Schedule of Indefinite Quantity Work below. The quantities listed are realistic estimates provided solely for the purpose of bid evaluation and for establishing the penal sums of bonds (if required). The price for this bid item is the total of the subline items listed in the Schedule of Indefinite Quantity Work - Unit Priced Tasks.</p>				

SCHEDULE

ITEM	SUPPLIES/SERVICES	ESTIMATED QUANTITY	* UNIT	UNIT PRICE	AMOUNT
SCHEDULE OF INDEFINITE QUANTITY WORK - UNIT PRICED TASKS					
0005AA	Unscheduled inspections per paragraph C.8.b	!INSERT!	TF	\$_____	\$_____
	<u>Railroad Trackage Flexible Support (ties and ballast)</u>				
0005BA	Vertical alignment per paragraph C.14.c(1)	!INSERT!	TF	\$_____	\$_____
0005BB	Horizontal alignment per paragraph C.14.c(1)	!INSERT!	TF	\$_____	\$_____
0005BC	Regage per paragraph C.14.c(13)	!INSERT!	TF	\$_____	\$_____
0005BD	Ballast per paragraph C.14.c(18)	!INSERT!	TON	\$_____	\$_____
0005BE	Gauge rods per paragraph C.14.c(22)	!INSERT!	EA	\$_____	\$_____
0005BF	Stripping per paragraph C.14.c(18)(a)	!INSERT!	TF	\$_____	\$_____
0005BG	Cribbing for cross ties per paragraph C.14.c(18)(b)	!INSERT!	TF	\$_____	\$_____
0005BH	Cribbing for switch ties per paragraph C.14.c(18)(b)	!INSERT!	TF	\$_____	\$_____
0005BI	Ground Straps per paragraph C.14.f)	!INSERT!	EA	\$_____	\$_____
0005BJ	Cross ties per paragraph C.14.c(4)	!INSERT!	EA	\$_____	\$_____
0005BK	Switch ties per paragraph C.14.c(4)	!INSERT!	EA	\$_____	\$_____
0005BL	Straighten skewed ties per paragraph C.14.c(4)	!INSERT!	EA	\$_____	\$_____
0005BM	Install tie plates to match existing rail or as indicated per paragraph C.14.c(5)	!INSERT!	EA	\$_____	\$_____

SCHEDULE

ITEM	SUPPLIES/SERVICES	ESTIMATED QUANTITY	* UNIT	UNIT PRICE	AMOUNT
0005BN	Install rail (sized to match existing or as indicated size varies from 80 to 100 lbs) per paragraph C.14.c(2); includes alignment and gaging	!INSERT!	LF	\$_____	\$_____
0005BO	Install 115 lb rail per paragraph C.14.c(2); includes alignment and gaging	!INSERT!	LF	\$_____	\$_____
0005BP	Install crane rail (sized to match existing or as indicated size varies from 132 to 135 lbs) per paragraph C.14.c(2); includes alignment and gaging	!INSERT!	LF	\$_____	\$_____
0005BQ	Install rail anchors per paragraph C.14.c(9)	!INSERT!	EA	\$_____	\$_____
0005BR	Install spikes per paragraph C.14.c(6)	!INSERT!	EA	\$_____	\$_____
	<u>Railroad & Crane Trackage</u> <u>Rigid Support (Concrete Beam)</u>				
0005CA	Remove existing asphalt per paragraph C.14.m	!INSERT!	CY	\$_____	\$_____
0005CB	Horizontal alignment per paragraph C.14.c(1); includes regaging when only one rail is moved	!INSERT!	LF	\$_____	\$_____
0005CC	Vertical alignment per paragraph C.14.c(1)	!INSERT!	LF	\$_____	\$_____
0005CD	Install anchor studs per paragraph C.14.d(4); includes either removing concrete and welding studs to rebar, or drilling new holes and setting with epoxy, including rail clips, nut and leveling, nut and washers	!INSERT!	EA	\$_____	\$_____
0005CE	Install steel plates (1" x 10" x 5'0" minimum length for crane rail) per paragraph C.14.d(5)	!INSERT!	LF	\$_____	\$_____

SCHEDULE

ITEM	SUPPLIES/SERVICES	ESTIMATED QUANTITY	* UNIT	UNIT PRICE	AMOUNT
0005CF	Install steel plates (½" x 10" x 5'0" minimum length for railroad) per paragraph C.14.d(5)	!INSERT!	LF	\$_____	\$_____
0005CG	Install grout (½" minimum thickness) per paragraph C.14.d(5)	!INSERT!	LF	\$_____	\$_____
0005CH	Removal of concrete per paragraph C.14.n(1)	!INSERT!	CY	\$_____	\$_____
0005CI	Concrete per paragraph C.14.n(2)	!INSERT!	CY	\$_____	\$_____
0005CJ	Install rail (sized to match existing or as indicated size varies from 80 to 100 lbs) per paragraph C.14.d(1); includes alignment and gaging	!INSERT!	LF	\$_____	\$_____
0005CK	Install 115 lb rail per paragraph C.14.d(1); includes alignment and gaging	!INSERT!	LF	\$_____	\$_____
0005CL	Install crane rail (sized to match existing or as indicated size varies from 132 to 135 lbs) per paragraph C.14.d(1); includes alignment and gaging	!INSERT!	LF	\$_____	\$_____
<u>General Track Repair</u>					
0005DA	Bolts with nuts and washers per paragraph C.14.c(3)	!INSERT!	EA	\$_____	\$_____
0005DB	Joint bars (pair provided; sized to match existing rail; includes bolts, nuts and washers) per paragraph C.14.c(3)	!INSERT!	EA	\$_____	\$_____
0005DC	Pair compromise joint bars per paragraph C.14.c(3)	!INSERT!	EA	\$_____	\$_____
0005DD	No. 6 turnout (115 lb rail included, AREA split switch standard) per paragraph C.14.c(10)	!INSERT!	EA	\$_____	\$_____
0005DE	Switch stand per paragraph C.14.c(10)(c)	!INSERT!	EA	\$_____	\$_____

SCHEDULE

ITEM	SUPPLIES/SERVICES	ESTIMATED QUANTITY	* UNIT	UNIT PRICE	AMOUNT
0005DF	Replace switch points per paragraph C.14.c(10)(f)	!INSERT!	EA	\$_____	\$_____
0005DG	Switch plates per paragraph C.14.c(10)(b)	!INSERT!	EA	\$_____	\$_____
0005DH	Gage plates per paragraph C.14.c(10)(a)	!INSERT!	EA	\$_____	\$_____
0005DI	Install rail stops, to include painting, per paragraph C.14.c(21)	!INSERT!	EA	\$_____	\$_____
0005DJ	Remove existing asphalt per paragraph C.14.m(1)	!INSERT!	CY	\$_____	\$_____
0005DK	Asphaltic concrete, includes prime coat, per paragraph C.14.m(2)	!INSERT!	TON	\$_____	\$_____
0005DL	Stabilized aggregate per paragraph C.15)	!INSERT!	TON	\$_____	\$_____
0005DM	Install new derails per paragraph C.14.c(20)	!INSERT!	EA	\$_____	\$_____
0005DN	Guardrails per paragraph C.14.c(11)	!INSERT!	EA	\$_____	\$_____
0005DO	Install field welded joint (weld furnished, installed, and tested) per paragraph C.14.e	!INSERT!	EA	\$_____	\$_____
TOTAL PRICE FOR CLIN 0005					\$_____

SCHEDULE

ITEM	SUPPLIES/SERVICES	ESTIMATED QUANTITY	* UNIT	UNIT PRICE	AMOUNT
0006	<u>INDEFINITE QUANTITY WORK-EPS</u> <u>HR LABOR:</u> Price for labor in the FIRST OPTION PERIOD (1 October !YEAR! through 30 September !YEAR!) to perform maintenance and repair work requirements that cannot be identified in sufficient detail to be included in Contract Line Items 0004 and 0005. This work is described in clauses C.11 through C.16 of Section C. The quantities listed below are realistic estimates provided solely for the purpose of bid evaluation and for establishing penal sums of bonds (if required). The price for this bid item is the total of the subline items listed in the Schedule of Indefinite Quantity Work-EPS Hour Labor.				

SCHEDULE OF INDEFINITE QUANTITY WORK - EPS HOUR LABOR

0006AA	Trackage	!INSERT!	HR	\$_____	\$_____
0006AB	Moving/Rigging	!INSERT!	HR	\$_____	\$_____
0006AC	Grounds/Surface	!INSERT!	HR	\$_____	\$_____
TOTAL PRICE FOR CLIN 0006					\$_____

- * CY - Cubic Yard
- EA - Each
- HR - EPS Estimated Hour. See definitions in Section C.
- LF - Linear Feet
- TF - Track Feet

END OF SECTION B

PART I - THE SCHEDULE

SECTION C: DESCRIPTION/SPECIFICATION/WORK STATEMENT

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PART I - THE SCHEDULE

SECTION C: DESCRIPTION/SPECIFICATION/WORK STATEMENT

C.1 GENERAL INTENTION. It is the intention of this solicitation to obtain maintenance and repair services for rail facilities at !INSERT NAME OF ACTIVITY! by means of a combination fixed-price and indefinite quantity contract.

!*****
NOTE TO SPECIFICATION WRITER: A "WORK EXCLUDED" paragraph in Section C is optional but should be used with extreme care in order to avoid giving bidders the impression that if the work is not specifically excluded, it is automatically included. A "WORK EXCLUDED" paragraph may be useful to clarify the scope of work if some rail facilities maintenance and repair functions are already being performed by contract.
*****!

C.2 GENERAL REQUIREMENTS

a. The work to be accomplished within the scope and intent of this specification includes the repair, maintenance and inspection of railroad and ground level crane rail. The Contractor shall provide all labor, supervision, tools, materials, equipment, and transportation necessary to maintain rail facilities as described herein, including performing emergency, urgent, and routine service work; preventive maintenance; implementing a facility inspection program; preparing estimates; and performing indefinite quantity work items of maintenance and repair. The scope of work also includes various management tasks to be performed by the Contractor. This section describes the scope of the services to be provided and establishes the acceptable standards for performing the work. Rail facilities included within the scope of this contract are identified in Attachment J-C1.

b. Work Excluded. Services excluded from this contract are:

(1) Out of Service Track identified in Attachment J-C1, will not be considered a part of this contract, except that the Contractor shall insure that the segment is secure from use (switch spiked shut, rail stop in place, etc.).

(2) !SPECIFY ANY OTHER COMPONENTS, SERVICES, OR FUNCTIONS WHICH COULD BE CONSIDERED TO BE WITHIN THE SCOPE OF THE CONTRACT, BUT WHICH ARE SPECIFICALLY EXCLUDED.!

!*****
NOTE TO SPECIFICATION WRITER: Unique functional terms should be added to the following list of definitions. Definitions not required should be deleted.
*****!

C.3 DEFINITIONS - TECHNICAL. As used throughout this contract, the following terms shall have the meaning set forth below: Additional definitions are in the "DEFINITIONS" clause in Section I.

a. Where "as shown", "as required", "as detailed" or words of similar import are used, it shall be understood that reference is made to the drawings accompanying this specification unless stated otherwise.

b. Where "as directed", "as required", "as permitted", "approval", "acceptance" or words of similar import are used, it shall be understood that direction, requirement, permission, approval or acceptance of the ACO is intended unless stated otherwise.

c. Additional Material Handling. Time expended for loading materials from storage to truck; unloading materials to work area; moving materials to work area, moving materials from storage to job site; removing debris; and handling of materials during the job that is not included in the craft time standard. The above definition is a summary of the definition of "Additional Material Handling" as used in development of Engineered Performance Standards.

d. Administrative Contracting Officer (ACO). The individual designated by the Contracting Officer to administer the contract. Throughout this contract, the term ACO will be used to refer to the individual designated to administer the contract or his/her designated representative. See the "DEFINITIONS" clause, Section I.

e. Contractor. The term Contractor as used herein refers to both the prime Contractor any subcontractors. The Contractor shall be responsible for insuring that his/her subcontractors comply with the provisions of this contract.

f. Contractor Representative. A foreman, superintendent, or manager assigned in accordance with the "CONTRACTOR EMPLOYEES" clause, Section H.

g. Control Inspection. This is a scheduled examination of facilities conducted thought the year to determine the physical condition.

h. Conventional Estimate. Any labor hour estimate for work tasks that cannot be estimated either directly from EPS or using EPS work content comparison procedures. Such estimates will be well documented, based on an acceptable maintenance estimating standard, and will be the total labor hours required to perform the specific task.

i. Craft Phase. The numbered chronological sequence in which a specific craft performs a job phase. For example:

<u>JOB PHASE</u>	<u>CRAFT PHASE</u>	<u>CRAFT</u>	<u>DESCRIPTION</u>
1	1	Carpenter	Fabricate and install frame for new wall
2	1	Electrician	Rough in electrical
3	2	Carpenter	Install sheet rock
4	2	Electrician	Trim out electrical
5	1	Painter	Paint new wall

j. Delay Allowances. Time expended for planning the work in the shop and at the job site; personal needs; balancing delays waiting for other craftsmen; unavoidable delays; partial day influence; waiting for tools or material that should have been at the job site. The above definition is a summary of the definition of "Delay Allowances" as used in development of Engineered Performance Standards.

k. Direct Material Costs. The actual vendor invoice charges for materials used for performance of work under this contract. Direct material costs shall include transportation charges when such charges are included on the invoice by the vendor, as well as any discounts allowed for prompt payment.

l. Engineered Performance Standards (EPS). A job estimating system developed for the Department of Defense. EPS is the average time necessary for a qualified craftsman working at a normal pace, following acceptable trade methods, receiving capable supervision, and experiencing normal delays to perform defined amounts of work a specified quality. EPS manuals are published under the following numbers by each military branch:

Navy: NAVFAC P 700 Series
Army: TB 420 Series
Air Force: AFM 85 Series

m. Environmental Protection Agency (EPA). That federal agency delegated authority to enforce the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

n. Government Representative. The person(s) whom the ACO will designate by name and/or position title to conduct liaison between the Contractor and the ACO on matters pertinent to this contract and be his/her authorized representative.

o. Job Phase. The numbered chronological sequence in which work is accomplished regardless of the craft(s) involved. (See Craft Phase above).

p. Job Preparation. All work and costs associated with receiving and considering a job assignment and instructions; planning equipment and material requirements; obtaining proper tools; laying out tools, material, and equipment; setting up ready to begin work; cleaning and storing tools and equipment; and cleanup of job site.

q. Labor Hour Unit Price. A labor hour unit price is the unit price bid by the Contractor to provide one EPS hour of work-in-place. The unit price bid includes all direct and indirect costs associated with performing an EPS hour of work. The unit price would typically include the Contractor's hourly craft wage, adjusted to allow for the bidder's workforce productivity (i.e. the Contractor's estimate of how his/her workforce will perform in relation to Engineered Performance Standards); and all costs for travel, pre-expended bin materials and supplies, ordering and stockpiling job material, profit, tools, equipment, field and home office overhead, clerical support, supervision, inspection, fees, taxes, licenses, permits, insurance, etc. In short, all costs associated with providing a specific EPS hour of effort.

r. Pest Control/Management. Pest control or prevention by a comprehensive approach that considers various suppression techniques, the habitat or the pest (including weed control), and interrelationships between the pest populations and ecosystem.

s. Pesticide. Any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, and any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant.

t. Pre-expended bin materials and supplies. The minor materials and supplies, including those that are incidental to the job, for which the total direct cost of any one material line item shown on the material estimate is \$10 or less. Examples of pre-expended bin materials and supplies include, but are not limited to, solder, lead, flux, electrical connectors, electrical tape, fuses, nails, screws, bolts, nuts, washers, spacers, masking tape, sand paper, solvent, cleaners, lubricants, grease, oil, rags, mops, glue, epoxy, spackling compound, joint tape, gases, refrigerants, refrigeration fittings, plumbers tape and compound, clips, welding rods, heat sinks, electrical outlet, switches, cover plates, plumbing fixtures and fittings, touch up paint, spikes, and any other item for which the total line item adjusted cost is \$10 or less.

u. Quality Assurance (QA). A method used by the Government to provide some measure of control over the quality of purchased goods and/or services received.

v. Quality Control (QC). A method used by the Contractor to control the quality of goods and/or services provided.

w. Regular Working Hours. The Government's regular hours are from !STARTING HOUR! to !ENDING HOUR!, Mondays through Fridays, except (a) Federal Holidays and (b) other days specifically designated by the ACO.

x. Response Time. Response time is defined as the time allowed the Contractor after initial notification of a work requirement to be physically on the premises at the work site with appropriate tools, equipment, and materials, ready to perform the work required. Response times are designated in the appropriate technical paragraphs in Section C.

y. Task Time Standards. The number of craft hours required by all of the workers of a single craft to accomplish a single task. Task time standards may be combined to estimate complicated jobs involving various tasks and many crafts. Task time standards are composed of many operations to complete a specific task.

z. Travel Time. Time expended between shop and job site; waiting for vehicle; getting in and out of vehicle; loading and carrying a tool box; vehicle travel; unloading, walking from vehicle to job site; opening and closing door; walking up and down stairs; using elevators; and access to secure or controlled areas.

aa. Work Content Comparison. Work content comparison is a method of comparing a task that is not specifically defined in EPS Task Time Standards to a very similar task that is defined in the EPS Task Time Standards. This definition is a summary of a more detailed definition which appears on page 29 of *EPS Planner and Estimator's Deskguide* (NAVFAC P-701.0).

!*****
NOTE TO SPECIFICATION WRITER: Government furnished property may include real property or personal property. The specification writer must clearly identify Government Furnished Facilities, Government Furnished Equipment (GFE), and Government Furnished Material (GFM). The following paragraphs should be modified as needed to fit the activity's specific situation and needs. If no facilities will be provided, the second or third paragraph should be used. Remember that if a CA program study is being conducted, decisions on whether or not to provide Government furnished facilities and equipment must be based on an

economic analysis. Refer to OPNAVINST 4860.7B.

*****!

C.4 GOVERNMENT-FURNISHED PROPERTY AND SERVICES

a. Government-Furnished Facilities

!SELECT EITHER PARAGRAPH (1) OR PARAGRAPH (2)!

(1) The Government shall furnish or make available to the Contractor the facilities described in Attachment J-C2. The Contractor shall assume responsibility and accountability of such facilities provided for his/her use and shall take adequate precautions to prevent fire hazards, odors and vermin. Janitorial services for Government furnished facilities shall be the responsibility of the Contractor. The Contractor shall obtain written approval from the ACO prior to making any modifications or alterations to the facilities. Any such modifications or alterations approved by the Government will be made at the expense of the Contractor. At the completion of the contract, all facilities shall be returned to the Government in the same condition as received, except for reasonable wear and tear. The Contractor shall be held responsible for the cost of any repairs caused by negligence or abuse on his/her part, or on the part of his/her employees.

(2) The Government will not provide office space and operational facilities to the Contractor. The Contractor shall secure and maintain the necessary office space and other facilities required for the performance of this contract at his/her own expense.

!*****!

NOTE TO SPECIFICATION WRITER: The specification writer must determine what equipment and material will be provided to the Contractor and select from the following paragraphs as appropriate. Equipment and material should normally not be provided to the Contractor unless economically justified under a CA program study. Extensive equipment listings should be placed in Attachment J-C3, including identification number, age, location, size or capacity, etc. Specific maintenance requirements beyond the general requirements of this paragraph should also be detailed in this Attachment. If equipment is located at other than job site or Government furnished facilities, specify location and responsibility for transportation. If no equipment or material will be provided to the Contractor, the second paragraph should be used.

*****!

b. Government-Furnished Equipment

!SELECT EITHER PARAGRAPH (1) OR PARAGRAPH (2)!

(1) The Government will provide the Contractor the use of existing and available Government owned tools and equipment in the performance of the contract.

(a) Such Government furnished tools and equipment are listed in Attachment J-C3. The Contractor shall provide for the periodic servicing, maintenance and repair of the equipment listed at no cost to the Government, and the total or partial breakdown or failure of the Government furnished equipment shall not relieve the Contractor of the requirement to fully perform the work of the contract. Upon completion or termination of the contract, all Government

owned equipment shall be returned to the Government in the same condition as received, except for normal wear and tear. Equipment which becomes worn out due to normal wear and tear shall be returned to the Government and its replacement shall be the responsibility of the Contractor at no cost to the Government. Equipment so acquired shall remain the property of the Contractor. The Contractor shall be responsible for the cost of any repairs or replacement caused by negligence or abuse by the Contractor or his/her employees.

(b) The Contractor and the Government Representative shall conduct a joint inventory before commencing work under this contract to determine the exact number and serviceability of Government furnished equipment. The Contractor shall then certify the findings of this inventory, assume accounting responsibility, and subsequently report inventory discrepancies to the Government Representative. Government furnished equipment shall not be removed from the military base unless approved by the ACO in writing.

(2) The Contractor will furnish all tools and equipment to required for the performance of this contract. The Government will not provide tools or equipment to the Contractor.

c. Government-Furnished Material

!SELECT EITHER PARAGRAPH (1), (2), OR (3)!

(1) The Government will furnish the material described in Attachment J-C4 to the Contractor on a one time basis for use only in connection with this contract. The use of Government furnished material for any other purpose is prohibited. The Contractor and the Government Representative shall conduct a joint inventory before commencing work under this contract to determine the exact number and serviceability of Government furnished materials. The Contractor shall then certify the findings of this inventory, assume accounting responsibility for all materials supplied, and shall provide documentation supporting issue/use of such material. Upon depletion of material provided to the Contractor by the Government, the Contractor shall furnish all material to perform the work of the contract, except as otherwise specified herein. Upon completion or termination of this contract a second joint inventory shall be conducted, if necessary, of all unused Government furnished materials. The Contractor shall be held liable for all materials which cannot be accounted for by issue/use documentation.

(2) The Government will not provide any materials to the Contractor.

(3) The Government will furnish the material described in Attachment J-C4 to the Contractor on a one time basis for use only in connection with this contract. The use of Government furnished material for any other purpose is prohibited. The Contractor and the Government Representative shall conduct a joint inventory before commencing work under this contract to determine the exact number and serviceability of Government furnished materials. The Contractor shall then certify the findings of this inventory, assume accounting responsibility for all materials supplied, and shall provide documentation supporting issue/use of such material.

(a) Upon depletion of material provided to the Contractor by the Government, as listed in Part A of Attachment J-C4, the Contractor shall furnish all material to perform the work of the contract, except as otherwise specified herein. Upon completion or termination of this contract a second joint

inventory shall be conducted, if necessary, of all unused Government furnished materials, as listed in Part A of Attachment J-C4. The Contractor shall be held liable for all materials missing which cannot be accounted for by issue/use documentation.

(b) Experience has shown that selected items of long lead time parts and materials must be stocked to insure repair of critical equipment in the event of failure. A list of these insurance items and minimum stocking levels are contained in Part B of Attachment J-C4. The Government shall provide the Contractor all items in at least the minimum quantities listed in Part B of Attachment J-C4. The Contractor shall maintain at least the minimum quantity of all the items specified. These items will be used by the Contractor in the maintenance and repair of the facilities/systems only as follows:

1 insurance items shall be used on the systems, facilities, or GFE with which they are associated.

2 A replacement insurance item shall be ordered within three working days after the use of any insurance item which causes the total quantity on hand to fall below the minimum specified level. The Contractor shall bear the cost of replacement of all insurance items.

3 Upon completion or termination of the contract, all insurance items shall be returned to the Government in the minimum specified quantities.

d. Availability of Utilities. The Government will furnish the following utility services at existing outlets, for use in those facilities provided by the Government and as may be required for the work to be performed under the contract: electricity, steam, natural gas, fresh water, sewage service, and refuse collection. Information concerning the location of existing outlets may be obtained from the Government Representative. The Contractor shall provide and maintain, at his/her expense, the necessary service lines from existing Government outlets to the site of work.

!SELECT EITHER PARAGRAPH (1) OR PARAGRAPH (2)!

(1) Utilities specified above will be furnished at no cost to the Contractor.

(2) The Contractor shall be required to pay for utilities consumed and shall, at his/her expense, install meters as required by the ACO to measure consumption of utilities provided by the Government. Rates for reimbursement to the Government of metered utilities will be: !LIST THE RATES OF REIMBURSEMENT PER TYPE OF SERVICE PROVIDED!

A restricted telephone line (USOC Class RS4) for on base calls will be provided by the Government at no cost to the Contractor. The Contractor shall install commercial telephone service, and all service and toll charges shall be paid for by the Contractor.

!*****
NOTE TO SPECIFICATION WRITER: In general the selection of specific brands or types of material/supplies to be consumed during the execution of work should be left to the Contractor's discretion. Material/supplies used should meet some minimum industrial standard, or it may be desirable to specify the quality of material/supplies that are used by the in-house workforce. If so, modify the

following paragraph as required and use Attachment J-C5 to identify specific material/supplies.

*****!

C.5 CONTRACTOR FURNISHED ITEMS. Except for the items listed in paragraph C.4, the Contractor shall provide all equipment, materials, and services to perform the requirements of this contract. The Contractor shall provide new or factory reconditioned parts and components when providing maintenance and repair services as described herein. All replacement units, parts, components, and materials to be used in the maintenance, repair, and alteration of facilities and equipment shall be compatible with that existing equipment on which it is to be used; shall be of equal or better quality as original equipment specifications; shall conform to the applicable specifications listed in Attachment J-C5; and used in accordance with original design and manufacturer intent. Items not listed in Attachment J-C5 shall be of acceptable industrial grade and quality. If the original manufacturer has updated the quality of parts for current production, parts supplied under this contract shall equal or exceed the updated quality. The Contractor shall retain parts replaced readily available for inspection by the Government representative upon request. When disputes arise concerning material, equipment, and components selected for work items already accomplished, the Contractor shall, at no cost to the Government, remove, replace, and/or rework material, equipment, and components so that compliance with the Government's requirements are satisfied. The resolution of formal disputes is addressed in the "DISPUTES" clause, Section I. Additional material requirements are specified in the "TRACK REPAIR" paragraph, Section C.

a. Material and Equipment for Fixed-Price Work. The Contractor shall, at no additional cost to the Government, purchase and install material, equipment, and components required for preventive maintenance work, service work, and all other fixed-price work unless specifically stated otherwise.

b. Material and Equipment for Indefinite Quantity Work

(1) Material and equipment required for the Unit Priced tasks listed in the Schedule of Indefinite Quantity Work - Unit Priced Tasks is included in the bid prices.

(2) The Government will reimburse the Contractor for material and equipment required for work based on the Schedule of Indefinite Quantity Work - EPS Hour Labor in accordance with the "ESTIMATES" paragraph, Section C.

C.6 MAINTENANCE MANAGEMENT. The Contractor is responsible for managing the work effort associated with the maintenance and other services required herein to assure fully adequate and timely completion of these services. Included in this function will be a full range of management duties including, but not limited to, work identification and reception, planning, scheduling, report preparation, establishing and maintaining records and inventories, as well as quality control. The Contractor is expected to assure an adequate staff of personnel with the necessary management expertise on board continuously to assure the prosecution of the work in accordance with sound and efficient management practices.

C.7 DATA REQUIREMENTS. Under the fixed price portion of the contract the Contractor shall be responsible for keeping accurate records and completing all required reports and submittals in a timely manner. A listing of all required reports and submittals is included in Attachment J-C6. All records, reports,

and forms shall be made available for review by the ACO and shall be turned over to the Government at close or termination of this contract, or when directed by the ACO. The Contractor shall submit, to appropriate agencies, as required by law, rule or regulation copies of all reports, records, and/or forms as necessary and as described herein. Additionally, the Contractor shall be responsible for maintaining, filing and submission requirements for those records, forms, and reports not specified herein but which are generally required or associated with and/or by industrial standards and practices necessary to maintain and repair applicable systems as specified herein. The Contractor shall maintain progress data on job orders and render reports as specified in the "WORK SCHEDULE" paragraph, Section C concerning progress, backlog, manhours, material expenditures, and energy conservation related matters. A facility history file for each facility under this contract shall be maintained by the Contractor. Each file shall contain a copy of documentation of all inspection and work accomplished by the Contractor on each facility. A copy of all work authorizations completed by the Contractor and/or submitted by the Government shall be included in the file. All documents shall be filed within 10 days of the completed transaction. In addition, the Contractor will be provided a copy of the activity's track charts, which shall be maintained by the Contractor to indicate all changes and rail replacement accomplished in the performance of the work associated with this contract.

C.8 INSPECTION SERVICES

a. Scheduled Inspection. Under the fixed-price portion of the contract the Contractor shall provide track inspectors qualified in accordance with section 213.7 of the Federal Rail Administration (FRA) Track Safety Standards, and provide with the necessary transportation and equipment to complete an annual visual inspection of the railroad and ground level crane track listed in Attachment J-C1. The Contractor's inspectors may be accompanied by representatives of the ACO. The Contractor shall submit an inspection report to the ACO within five working days following the month in which the inspections are performed.

(1) Scheduled Inspection Plan. The Contractor shall be responsible for the preparation of an annual inspection plan in a format acceptable to the ACO for inspection of all rail facilities identified in Attachment J-C1. The inspection plan shall reflect all track sections identified in Attachment J-C1, and proposed date of inspection. The Contractor shall schedule the inspections during the first !SPECIFY NUMBER OR SPECIFY A SPECIFIC TIME, SUCH AS, "DURING MAY"! months of the contract. The inspection plan shall be submitted to the ACO for approval within 10 calendar days after award of the contract.

(2) Inspection Report. !SPECIFY NUMBER OF COPIES! copies of an inspection report will be submitted to the ACO for each track segment inspected in accordance with the annual plan. Inspection reports shall include, as a minimum, track segment inspected, date of inspection, narrative description which accurately reflects the facility deficiency, location, and estimated cost for correction. Catastrophic (Serious) defects will be reported immediately. Critical (Potentially Serious) defects will be reported daily. See NAVSEA/NAVFACINST 11230.1 for definition of Catastrophic and Critical defects.

(3) Inspection Criteria. Inspections shall be conducted and defects classified using the guidelines specified in NAVFAC manual MO-103, *Maintenance of Trackage*. Defects shall be based on, but are not limited to, FRA Track Safety Standards (Appendix B of NAVFAC MO-103). The minimum acceptable class of

track for each segment of trackage is identified in Attachment J-C1. The acceptable limits for defects in railroad and crane tracks are provided in Attachment J-C7. Defect criteria for crane and railroad tracks shall be based on, but not limited to, Attachment J-C7.

(a) Inspection shall include the following as a minimum: Observe all accessible components of the trackage and record deficiencies on an approved format. Form heading will include the track section and location, switch identification and frog number, rail weight (if known), description of deficiency, severity of defects, and recommended action. Required load tests, non-destructive tests, or inspection cuts in pavements will be recorded and accomplished under separate work orders.

!*****
NOTE TO SPECIFICATION WRITER: For activities under the cognizance of NAVSEA/NAVFACINST 11230.1 should include the following paragraph.
*****!

(b) In addition to the FRA Track Safety Standards, additional inspection criteria included in NAVSEA/NAVFACINST 11230.1 shall be adhered to.

(4) Defect Reinspection. Defects that require additional inspection according to FRA Track Safety Standards shall be inspected at the recommended intervals and inspections reports submitted at no additional cost to the Government.

b. Unscheduled Inspection. Under the indefinite quantity portion of this contract, the Contractor shall provide unscheduled inspections when ordered by the ACO due to climatic conditions, accidents, or other unusual circumstances. Inspection shall be accomplished on the trackage indicated on the work order in accordance with the standards specified in paragraph C.8.a. The Contractor shall respond to requests for unscheduled inspections within !SPECIFY NUMBER! hours of notification, and must complete the required inspection and provide a complete inspection report to the ACO within !INSERT NUMBER OF HOURS OR DAYS! of initial notification.

!*****
NOTE TO SPECIFICATION WRITER. Local instructions may require additional or different requirements before track may be taken out of service for repairs. Adjust the following paragraph as necessary.
*****!

C.9 UTILITIES OUTAGE, APPROVAL, AND NOTIFICATION. For the purpose of this specification, the term "utilities" shall apply to any and all railroad and ground level crane rail facilities under the scope of this specification. Trackage must be taken out of service prior to commencement of any work by the Contractor which requires the track to be closed. No work will be started until outage signs are placed by the Contractor and, as required below, utilities outage approval is received or proper notification is given.

a. Emergency and Urgent Work. Emergency and urgent work, which requires track closure to accomplish, will not be started before outage signs are in place and the ACO is notified or; after normal working hours, the appropriate Government representative is notified.

b. Routine Work. For routine work which requires the track to be closed for:

(1) A period of less than 1/2 hour, work will not be started until outage signs are in place and the ACO is notified or; after normal working hours, the appropriate Government representative is notified.

(2) A period of over 1/2 hour but less than 2 hours, the Contractor shall notify the ACO or; after normal working hours, the appropriate Government representative at least 2 hours prior to commencement of work. Outage signs will be in place before work begins.

(3) A period of more than 2 hours to accomplish the required work, the Contractor shall request an outage as follows:

(a) Submit five copies of outage request to the ACO in accordance with the format outlined in Utility Outage Request, Attachment J-C8.

(b) Submit request five working days in advance of the desired outage date.

(c) Schedule outages to create the least interference with the operation and functions of the facilities involved.

(d) Approval/disapproval shall be given by the ACO at least one working day in advance of the desired outage date.

(e) If the outage is disapproved, the ACO will recommend an alternative date.

(f) If the Contractor cancels a scheduled and approved outage, the Contractor shall call the ACO !INSERT ANY ADDITIONAL PERSONNEL TO BE CONTACTED! and notify them of cancellation. If the cancellation occurs after normal working hours, the appropriate Government representative shall be notified.

c. No person shall make any additions or alterations to the utility system without prior approval of the ACO.

d. No person shall cause any interruption to the utility system without prior approval of the ACO unless such activation or interruption is to prevent loss of life or serious damage to property.

!*****
NOTE TO SPECIFICATION WRITER: After reviewing the number of emergency calls received during the year, a small activity may elect to delete the requirement for the Contractor to receive emergency calls 24 hours a day. If the calls can be handled by the Duty Officer or other means after normal working hours, the contract cost may be reduced by a substantial amount. The decision to delete the requirement for receiving calls after normal working hours should only be made after careful consideration of all variables associated with emergency call work.

Attachment J-C9, Historical Performance Data, should include historical data for emergency, urgent, and routine service work, including the number of calls per month. This data will be of value to the Contractor in properly and adequately

bidding for the fixed-price portion of the contract.

*****!

C.10 WORK RECEPTION. The Contractor shall maintain a telephone number which shall be attended continuously during normal work hours for receiving emergency and urgent service calls and contract administration calls. Persons receiving calls shall be fully familiar with the Contractor's organization and procedures, as well as the terms of this contract. Reception of calls shall be accomplished in a courteous and efficient manner. The ACO will provide the Contractor with a listing of personnel authorized to verbally request service work by telephone. It will be the responsibility of the ACO to maintain the listing current. Due to the nature of emergencies, the Contractor will accept emergency requests from any requestor. All work shall be performed to standards specified in this section and where specific standards are not specified, to industrial standards. The Contractor shall make provisions for receiving emergency calls after normal working hours to ensure prompt receipt and response to emergency calls 24 hours per day. The same telephone number must be usable 24 hours per day, 365 days per year. **A telephone answering machine will not satisfy the requirement for receiving emergency calls.**

C.11 FACILITY MAINTENANCE AND REPAIR. All rail facilities maintenance and repair services shall be accomplished in accordance with the following provisions:

a. Preventive Maintenance. Under the fixed-priced portion of the contract the Contractor shall provide qualified trackwalkers, materials, equipment and transportation to inspect and service all railroad and ground level crane track. Preventive Maintenance (PM) consists of two functions: Preventive Maintenance Inspection (PMI) and Preventive Maintenance Service (PMS). PMI work shall consist of a visual inspection and correction of minor deficiencies. PMS work shall be construed as maintenance that can be accomplished in a half-hour or less and that is not covered in paragraph C.11.a(3).

(1) Preventive Maintenance Schedule. Within 10 days from the contract award date, the Contractor shall provide a written one year schedule, by month, for performing preventive maintenance inspection and service for the ACO's approval. Attachment J-C1 establishes minimum PM frequencies.

(2) PM Inspection Criteria. All inspection and trackwalker services shall be based on the requirements of the FRA Track Safety Standards and the requirements of the serving railroad, unless otherwise provided herein. Other criteria relating to material, tolerances, and methods are contained in NAVFAC manual MO-103, NAVFAC manual MO-322, Vol 2, and NAVSEA/NAVFACINST 11230.1. An inspection report, the format to be approved by the ACO, shall be completed for each track segment identified in Attachment J-C1. The Contractor shall provide the ACO a copy of the inspection reports within five working days following the month in which they were completed.

(3) PM Inspection for Railroad and Ground Level Crane Track. See Attachment J-C1 for inventory and frequency.

(a) Railroad Switches, Turnouts, Derailers, Rail Oilers. Switches, derailleurs, and rail oilers shall be operated, cleaned and adjusted, if required, and completely lubricated including refilling gear boxes. All moveable parts and switch plates shall be lubricated. Replace missing or damaged switch

targets. Paint targets, if necessary. Check and adjust gage, guard face gage, and guard check gage.

1 Check and tighten all bolts.

2 Check for all loose spikes and respike as required. Tie plugs or other approved methods shall be used.

3 Replace all missing or broken bolts.

4 Check for insecure switch stand.

5 All switch components must be free of lost motion. Switch point closure should be adjusted if a switch mechanism can be thrown in either direction and locked with a 1/8-inch metal spacer between the switch point and stock rail.

6 Check and adjust rail braces, guard rails and joint bars.

(b) Ground Level Crane Switches and Frogs

1 Tongue Switch. All tongue switches shall be thoroughly cleaned. Lubricant shall be applied to all switch plates. Gap between switch tongue rails and stock rail shall be maintained to 1/8-inch clearance.

2 Ramp and Turntable Frog. All frogs shall be thoroughly cleaned, lubricated and adjusted. All flowed metal over ends are to be removed and gap clearance maintained for proper clearance.

3 Power Operated Tongue Switches. Compressed air, hydraulic, or electric powered switches shall be thoroughly cleaned, oil level checked, and refilled and lubricated. Water filter cleaned; operating valve, air cylinders and lines checked for leaks and tightened where needed. Lubricant shall be applied to all switch plates. Gap between switch tongue rails and stock rail shall be maintained to 1/8-inch clearance or less.

(c) Railroad and Ground Level Crane Trackage

1 Check and tighten all joint bar bolts, and rail stop bolts.

2 Check for loose tie spikes and respike as required. Tie plugs or other approved methods shall be used.

3 Replace all missing or broken joint bar bolts, and rail stop bolts.

4 Lubricate all joint bars.

5 Check gage and adjust gage rods as required.

b. Service Call Work. Service call work is maintenance and repair work which is limited to a total material cost of \$400 and/or 16 estimated EPS labor hours of labor per call. Work resulting from service calls shall be completed in compliance with the level and quality of maintenance standards specified and within the time limits specified for each type of call. Service call work shall be performed under the fixed-price portion of the contract. Requirements for

service work have been computed based upon historical data, as shown in Attachment J-C9. Service work shall be accomplished in accordance with the priorities and standards defined hereafter:

(1) Emergency. Consists of maintenance and repair work which is critical and requires immediate response. This work involves correction of problems or situations which constitute an immediate danger to personnel, threaten damage to property, or impair the operation of life support or other critical equipment, and shall include response to other mission critical requirements.

(2) Urgent. Work requires prompt response; this work shall consist of maintenance and repairs which are deemed mission essential; are required to prevent property damage or potential hazards; or are necessary for the proper operation of essential systems and equipment.

(3) Routine. Work is essential and timely response is required; this work shall consist of general maintenance and repairs and shall include all service work which is not classified as "emergency" or "urgent".

(4) Standards. All service work shall be of journeyman quality and shall be fully warranted against defects due to material and workmanship for a period of one year in addition to any other expressed or implied warranties included within this specification. Lack of material shall not be an acceptable cause for non-performance of service work. Response and completion standards for service work shall be as follows:

<u>PRIORITY</u>	<u>RESPONSE TIME</u>	<u>RESPONSE PERIOD</u>	<u>COMPLETION AFTER INITIAL RESPONSE</u>
Emergency	1 hour	24 hours/day, 7 days/week	Continuous effort until complete repair or neutralization of emergency
Urgent	4 hours	8:00 AM to 4:30 PM Monday - Friday, excluding holidays	Four working days, temporary problem neutralized within eight hours
Routine	N/A	8:00 AM to 4:30 PM Monday - Friday excluding holidays	Twenty working days

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 NOTE TO SPECIFICATION WRITER: The \$2000 limit specified in the following paragraph assumes that Davis-Bacon wage provisions have not been included in the contract. See the User's Guide for a more detailed discussion of the \$2000 limit.
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c. Minor Maintenance and Repair. Minor work is defined as maintenance and repair work requirements which are beyond the scope of preventive maintenance service and service call work. The cost of any single instance of minor maintenance or repair is limited to a total cost of \$2000. All minor work is included in the indefinite quantity portion of the contract. The Contractor will be paid a negotiated fixed-price for each delivery for minor work as specified in the following procedures. Labor, material, and equipment required

for the unit priced tasks listed in the Schedule of Indefinite Quantity Work- Unit Priced Tasks is included in the bid prices. Material and equipment required for work based on the Schedule of Indefinite Quantity Work - EPS Hour Labor, will be reimbursed in accordance with the "ESTIMATES" paragraph of this Section.

(1) Urgent Minor Work. The Government will classify up to !INSERT PERCENTAGE!% of the delivery orders for minor work as urgent. The Contractor shall complete all urgent minor delivery orders within !INSERT NUMBER! calendar days of receipt. Urgent minor work shall normally be performed only during normal working hours, except that after hours and/or weekend work may be authorized by the ACO if required to complete work within the time requirement specified above.

(2) Routine Minor Work. All non urgent minor work will be classified as routine minor work. Routine minor work will be further classified by the Government as one of two different "Types". Delivery orders for Type I routine minor work shall be completed within !INSERT NUMBER! calendar days of receipt and Type II delivery orders within !INSERT NUMBER! calendar days of receipt. No more than !INSERT PERCENTAGE!% of the delivery orders for routine minor work will be classified as Type I.

(3) Establishing Final Cost for Minor Maintenance and Repair Work. On receipt of a proposed delivery order from the ACO, the Contractor shall prepare an estimate following the procedures outlined in the "ESTIMATES" paragraph elsewhere in this section. The Contractor's estimate will be evaluated to determine if: (1) the scope has been clearly and accurately identified, (2) the EPS standards (including work content comparison) have been accurately applied, (3) work which is not covered by EPS has been properly estimated with supporting data presented, (4) equipment and material estimates are reasonable and properly documented, and (5) unit price work has been estimated using the unit prices that were bid. After the estimate has been reviewed and there are no mathematical, typographical, scope or estimating errors, the ACO will approve the estimate. The approved estimate then shall be a fixed-price for the work described in the delivery order.

(4) Ordering Minor Maintenance and Repair Work. The ACO will order minor maintenance and repair work by issuing to the Contractor a copy of the approved estimate and a delivery order for the work covered by the approved estimate in accordance with the "ORDERING OF WORK" clause in Section G.

(5) Changes to Scope of Work in Delivery Orders. If during the course of work the Contractor encounters unforeseen conditions which impact the work and which could not be evaluated during the initial estimating procedures, the Contractor shall not proceed without ACO authorization. The ACO will direct the Contractor to (1) estimate the change of scope for the unforeseen condition only, or (2) prepare a new estimate for the total job as revised. The ACO will, after review and approval of the estimate, (1) issue a delivery order for the change of scope only, or (2) cancel the original delivery order and issue a new delivery order for the total job as revised.

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NOTE TO SPECIFICATION WRITER: It is very possible that all minor maintenance and repair work may be accomplished through the Indefinite Quantity Unit Priced tasks and the level of effort work based on EPS hours will not be required for the maintenance and repair of rail facilities. In that case, the following

"ESTIMATES" paragraph and references to that paragraph may be deleted and other appropriate changes made to paragraph C.11.c.

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C.12 ESTIMATES. Detailed estimates for proposed minor work orders shall be prepared when requested in writing by the ACO. Completed detailed estimates shall be provided to the Government's work control center within !INSERT NUMBER! calendar days after receipt of the proposed work order for urgent minor work, and within !INSERT NUMBER! calendar days after receipt for routine minor work. After approval by the ACO, the detailed estimated will form the basis of payment for the work. The cost of preparation of estimates is included in the fixed-price portion of the contract.

a. EPS Manuals. EPS manuals will be made available for examination at !INSERT LOCATION AT THE ACTIVITY WHERE THE WORK WILL BE PERFORMED AND THE CONTRACTS OFFICE AT WHICH THE BIDS WILL BE RECEIVED! and at Naval Facilities Engineering Command Engineering Field Divisions (see Attachment J-E2 for address listings) during the bidding period of this contract. !INSERT NUMBER! copies of the EPS manuals will be provided to the successful bidder upon award.

b. Travel Zone Maps. The Travel Zone map for !INSERT ACTIVITY! is provided as Attachment J-C10 and is to be used in conjunction with historical data to evaluate travel time impact.

c. Preparation of Estimates. The Government will provide the Contractor a detailed scope of work for which the Contractor shall prepare an independent estimate of the labor, equipment, and material required to complete the work ordered under the "MINOR MAINTENANCE AND REPAIR" paragraph. The detailed scope of work will be provided by the Government on the DD Form 2167, Job Phase Calculation Sheet, and will identify the overall work scope for each craft phase and the specific task descriptions. The Contractor shall complete the total estimate by entering the EPS craft time for each task description and applying the EPS nomograph to arrive at the total EPS time for each job phase. If required, the Contractor shall identify on the DD Form 2167 additional task descriptions that are necessary to satisfactorily accomplish the overall work scope for the particular craft phases and provide appropriate EPS task references and estimated EPS hours. Any portions of delivery orders that have been bid as unit priced tasks shall be priced using the unit prices bid instead of EPS. EPS does not cover every task that may be accomplished by specific crafts. For tasks not exactly identified in EPS manuals, work content comparison shall be performed prior to a determination that EPS does not apply to a job. Estimates and all supporting information, documentation, and calculations shall be submitted to the ACO.

(1) Labor Estimates. Labor estimates shall be expressed in EPS hours. Craft time shall be taken from the EPS task time standards or the craft spread sheets either directly or by work content comparison, applicable additional task times (additional material handling, additional travel, and additional preparation) shall be added, and total craft time applied to the EPS nomograph to add standard allowances for job preparation, craft delays, and partial day influence. The standard allowance for travel time will not be added, and travel zone 0 (shop) will be used when applying total craft time to the EPS nomograph. No other allowances, mark-ups, or add-ons for work time associated with union agreements, overhead, profit, material markups, supervision, or clerical support shall be added to the labor hour estimate. The estimate shall include job phasing and craft phasing, and the task time standard(s) or spread sheet used in

the estimate shall be identified. For multiple craft jobs, a phasing summary sheet shall be prepared. DD Form 2167 (1 Nov 78) shall be completed as required.

(a) Estimating Work Not Covered by EPS. The Contractor shall clearly identify work that cannot be estimated either directly from EPS or using EPS work content comparison procedures. Such conventional labor hour estimates shall be based on the total labor hours required for the specific task(s). The Contractor shall submit all back up sheets with the estimate including a listing of all operations and supporting data for all estimates based on historical information. Estimates will be for labor hours only and shall not include any mark-ups, allowances, or add-ons for work time associated with union agreements, overhead, profit, material mark-ups, supervision, or clerical support.

(b) Total Labor Cost Estimates. The total labor cost estimate will be determined by totaling the number of EPS estimated labor hours for each craft (trade) and then multiplying by the appropriate hourly unit price from the Schedule of Indefinite Quantity - EPS Hour Labor. This procedure shall be followed for each craft required to perform the job. The total for all crafts is the total labor cost estimate.

(2) Material Estimates. Material estimates shall include a detailed bill of materials establishing the size, quality, number of units, and unit prices. Material prices shall be the lowest price available considering the availability of materials and the time constraints of the job. The direct material price shall be reduced by all discounts and rebates for core value or salvage value that accrue to the Contractor. Pre-expended bin supplies and materials shall not be included in the material estimate unless the total cost of the pre-expended bin items exceeds \$!INSERT DOLLAR AMOUNT! per delivery order. Contractor administrative and handling costs for acquiring material, and any Contractor material markups should be included in the prices bid for an EPS estimated labor hour.

(3) Construction and Weight Handling Equipment Estimates. Estimates for construction and weight handling equipment may be added for an individual job if not included in other portions of the contract or not provided by the Government. Estimates shall include a detailed price list stating size, capacities, quality, number of units, and unit prices.

(a) Rental equipment shall be based on the lowest price available considering the availability and time constraints of the job.

(b) When the equipment to be used is owned by the Contractor, the cost shall be based on the U.S. Army Corps of Engineers Construction Equipment Ownership and Operating Expense Schedule EP 1110-1-8.

(c) Cost for equipment operators, when separate operators are required, shall be estimated on a EPS unit hour basis, unless operator cost is included in equipment rental price or operator has been provided by the Government. Any overhead expense associated with equipment usage shall be included in the Contractor's bid for the applicable EPS labor hour unit price.

C.13 WORK SCHEDULE. The Contractor shall be required to prepare a work schedule in accordance with "WORK SCHEDULE" clause in Section F. The Government reserves the right to change priorities and defer work on the work plan. The Contractor developed work plan must be realistic, must be based on the work

completion requirements specified in the "FACILITY MAINTENANCE AND REPAIR" paragraph, and changes must be kept to a minimum.

a. Work Control. The Contractor is responsible for implementing all necessary work control procedures to ensure timely accomplishment of work, as well as to permit tracking of work in progress. The source of work input will primarily be the Contractor's own inspection efforts, service calls to the Contractor operated reception desk, and ACO requests for minor maintenance and repair estimates. The Contractor is responsible for adequately planning and scheduling work to assure material and labor availability to complete work requirements within the response and completion requirements, and in compliance with the quality standards established herein. Status of any item of work must be provided to the Government Representative within !INSERT NUMBER OF HOURS! of the inquiry during normal working hours, and within !INSERT NUMBER OF HOURS! after normal working hours.

b. Status Reporting. The Contractor shall be responsible for the preparation of a listing of all completed minor work. The listing shall be prepared in a format which is acceptable to the ACO. One copy of the listing shall be submitted to the ACO the first week of each month and shall include all work completed the previous month. The Government will utilize the listing to monitor the accomplishment of scheduled work by the Contractor.

C.14 TRACK REPAIR

a. General Requirements. The Contractor shall furnish all labor, supervision, materials, and equipment as required for replacement and repair of railroad and ground level crane trackage. Where the word "replace" is used, it shall mean remove existing and replace with new material, salvaged material, or relay rail as specified.

b. Materials. Unless specified otherwise in Attachment J-C4, the Contractor shall furnish all materials. Materials shall conform to American Railway Engineering Association (AREA) standards. Material standards and specifications are listed in Attachment J-H1. Attachment J-C5 identifies specific type and quality of materials to be provided. All Contractor furnished materials and equipment not otherwise specified and used in repair and replacement, shall be of commercial quality, modern in design, and shall be standard products of manufacturers regularly engaged in the production of such equipment.

(1) Delivery and Storage of Materials. Materials provided by the Contractor shall be delivered to the site, inspected for damage, unloaded, and stored with a minimum of handling. Storage shall be maintained in a neat and orderly manner. Storage accommodations shall be subject to approval. Component parts, assemblies, and accessories shall be preserved and packaged in compliance with the manufacture's recommendations.

(2) Submittals

(a) Manufacture's Recommendations. Where installation or application procedures or any part thereof are required to comply with the recommendations of the manufacturer of the material or components of an assembly, three printed copies of these recommendations shall be furnished the ACO prior to use on the project. Use of the material or component part of the assembly will not be allowed until the recommendations have been received.

Failure to provide these recommendations can be the cause for rejection of the material or component part of an assembly.

(b) Manufacture's Certification. Certified copies of all tests required in referenced publications or a manufacturer's certificate stating that the material meets or exceeds the requirements specified in referenced publications shall be submitted to and approved by the Government representative. Required testing shall be performed by an independent laboratory at no added cost to the Government.

c. Railroad Track Repairs. All track repairs not covered specifically herein shall be in accordance with AREA specifications. All work shall be performed under the direction of qualified and competent supervisory personnel, including foremen and gang leaders, experienced in rail construction. The Contractor shall provide adequate barricades, flashers, and traffic control signs when required to divert vehicular traffic or pedestrians.

(1) Alignment, Grade and Surface. No humps, sags, hollows in surface, or irregularities in alignment, either in tangent or curved track in excess of specified tolerances will be accepted. Tracks shall be repaired within the specified tolerances for uniformity of gage, cross level, surface and line of tracks.

(2) Rail. The bottom of the rail fastener assemblies and all bearing surfaces shall be clean before rail is laid. Rail lengths less than 13 feet shall not be used. Rail shall be laid with staggered joints, and bolts shall be staggered at joints, except where design prohibits, with heads placed inside and outside alternately; bolts shall be drawn tight before spiking. Expansion shims used to provide the proper opening between the rails, shall be in accordance with AREA recommendations. Where necessary, the Contractor shall drill holes for jointed parts in the field. All holes shall be spaced as indicated, shall conform accurately to the dimensions shown, shall be free from burrs, and shall be cylindrical. Edges of drilled holes shall be ground to remove all sharp edges. All cutting of rails shall be done by saw or abrasive cutting wheels. Flame cuts or chisel cuts will not be allowed. All cuts shall be straight and square.

(3) Joint Bars and Bolts

(a) Regular Joints. Joint bars shall be in good condition and be bolted to the rail by the full number of track bolt assemblies required so as to secure a tight fit. The joint bar bolts shall be applied with their heads alternately inside and outside of the rail except when indicated as otherwise. Spring washers are required on all track bolts. All track bolt threads shall be coated with metal preservative prior to applying nuts. Each track bolt shall be tightened to between 20000 and 30000 pounds of tension. Subsequent tightening should be in the range of 15000 to 25000 pounds of tension. The heads of the bolts shall be tight against the joint bar before tightening the nuts. As a protection against rust, all joint bars and the parts of all rails covered by joint bars shall be painted with an oil. Offset at surface or gage side alignment may not exceed 1/16 inch. No rail joint shall be located less than 6 feet from the end of open-deck bridges or trestles, or less than 3 feet from switch points. Only an essential minimum number of rail joints shall be located on or in trestles or bridges or in road crossings.

(b) Compromise Joints. Provide bolted compromise joints for connection of all adjoining rails or fittings of differing cross sections. Joints shall be by means of either cast or fabricated compromise joint bars or welded transition rails. Provide step chairs, as required, at joints of rails of differing height. Provide compromise joints with proper allowance for rail wear. The offset of compromise joints or of either surface or gage alignment shall not exceed 1/8 inch.

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NOTE TO SPECIFICATION WRITERL As discussed in the User's Guide, no delivery order for minor maintenance and repair work may exceed \$2000 in total cost, unless Davis-Bacon wage provisions have been included in the contract. This means that the implementation of an extensive tie replacement program will require a separate indefinite quantity construction contract. Alter the following paragraph, as appropriate.
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(4) Ties

(a) Tie Replacement Program. As part of the Work Schedule, the Contractor shall develop and implement a tie replacement program based on the results of the scheduled inspections performed. The annual replacement program shall be based on the minimum number of tie replacements to maintain each track segment identified in Attachment J-Cr at the specified FRA Class or better for that segment. In addition, the annual tie replacement program shall be planned (or based) on replacing the same number of ties each year over a long range program or !SPECIFY NUMBER! of ties annually. Tie replacement may consist of spot replacement or replacement of several adjacent ties. PM inspection may result in the requirement for additional tie replacement by approved minor job order.

(b) Ties shall be spaced uniformly as shown on track chart or plan and in no case less than 24 for 39-foot rail length on running or main line track and 20 for 39-foot rail length for low use track or siding. All ties shall be laid normal to the centerline of the track with the field ends aligned uniformly. Ties damaged due to improper handling will be rejected. Ties shall be installed with the heartwood face down. When it is impossible to determine the position of the heartwood, they will be laid with the widest surface down. The top surface of the ties shall provide full bearing for tie plates, adzing shall be restricted to that necessary to provide a sound, true bearing for the tie plates.

(c) Precast Concrete Ties. Install in accordance with AREA specifications. Space ties uniformly in original configuration.

(5) Tie Plates and Pads

(a) Tie plates. Spikes shall be placed so that the tie plate shoulder is in contact with the base of the rail or the joint bar for the entire length of the shoulder and the tie plate is centered on the tie. Place so that the rail will have full bearing on the tie plate. Cracked, broken, loose or missing tie plates shall be replaced. Tie plates skewed so that the shoulder is under the rail shall be reinstalled.

(b) Tie pads. Place pad on concrete tie so that the rails will have full bearing on the tie pad.

(6) Track spikes shall be started and driven vertically and square with the rail to allow a 1/8- to 3/16-inch space between the underside of the head of the spike and top of base of rail. No track spikes shall be driven in joint bar slots or against the ends of joint bars. The minimum number of track spikes per rail per tie, including plate holding spikes shall be: Tangent track - 2 spikes per rail per tie; Curved track with over 6° of curvature - 3 spikes per rail per tie, 2 spikes on the gage side of the rail and 1 on the field side; or as shown on the activity plan.

(7) Field Preservative Treatment. When necessary to adz, dap or drill holes in timber ties, the cut surface shall be thoroughly saturated with creosote oil or other approved preservative.

(8) Tie Plugs. When track spikes are withdrawn from timber ties, the holes shall be swabbed with creosote and plugged with a creosoted tie plug to completely and tightly fill the hole. All unused bored spike holes shall be filled with tie plugs.

(9) Rail anchors shall grip the base of the rail firmly and have full bearing against the face of the tie opposite the direction of rail creepage. Anchors shall be used where required to prevent movement of rail. Associated ties shall be fully embedded in the ballast.

(10) Switches

(a) Flat Slide Plate (Switch Points). Slide plates shall be installed to gauge on the head blocks and the switch point. The inside lead rail shall be lined to the proper gauge distance from the side track and the remainder of the slide plates and rail braces installed.

(b) Riser Plate. Riser plates shall be maintained in conformance with AREA Standards to provide a shoulder to prevent lateral movement of the main rail inward.

(c) Switch Stand. Stands shall be of the low-stand (or ground-throw stand) type. Stands shall be firmly spiked to the head block ties, and set plumb, with target square with the track. The throwing lever should be on the outside, or away from the turnout, when the switch is set for maintrack operation. Stands shall be equipped with switch targets which show the "Proceed" color when the switch is set for the main track and the "Stop" color when the switch is open. When possible, stands shall be placed on the turnout side of the track so that the connecting rod will be in tension. Throw levers shall not be operable with the lock or keeper in place. Throw range shall be 5 inches if nonadjustable and between 4-1/2 and 5-1/2 inches, in 1/8-inch (maximum) increments, for adjustable throws. Defective stands, connecting rods, switchhead rods, and connecting bolts shall be replaced. Components will be lubricated to ensure throw is free, easy, and does not bind.

(d) Rail Braces. Rigid braces or adjustable switch rail braces shall fit against the side of the rail or guard rail and shall be spiked to the tie outside the track or inside the guard rail.

(e) Heel Block. Blocks shall be secure and in serviceable condition. Bolts in each heel must be kept tight.

(f) Switch Point. Stock rail shall be securely seated in switch plates. Each switch point must fit its stock rail, with the switch stand in either of its closed positions to allow wheels to pass the switch point. Lateral and vertical movement of stock rail in the switch plates, or movement of a switch plate on a tie, must not adversely affect the fit of the switch plate to the stock rail. Chipped or worn switch points shall be repaired or replaced. Welding and grinding shall be performed on switch and frog points that are badly worn. When work is completed, points shall have the same contours and dimensions of new points or best suitable for existing conditions. All welding shall be in accordance with American Welding Society Codes. Metal flow shall be removed to ensure proper closure. Maximum space between switch point and stock rail shall not exceed 1/16 inch. Horizontal misalignment between switch closure rails shall not exceed 3/16 inch. All bolts shall be tight and cotter pins in place.

(11) Frogs. Defective frogs, shall be repaired or replaced. All frogs shall be fastened to switch ties by frog tie plates and fully spiked. All bolts shall be tight. Frogs shall be free of obstructions that might interfere with wheel passage. Use of the standard bolted frog requires installation of guardrails to protect the frog point and assist in prevention of derailment. Guardrails shall be installed opposite the frog so that the guardrail provides a minimum of a 1-3/4 inch flangeway. Guardrails shall be of the same rail section as the turnout. At least 21 inches of the straight portion of the guarding face of a tee rail with filler guardrail and 14 inches for a one-piece manganese guardrail shall be placed ahead of the frog point. The ends of the guardrail shall be placed on a tie or otherwise be protected to prevent loose or dragging objects from catching or fouling the rail. Guardrail shall be placed so that the flangeway face of the guardrail will be 4 feet 6-5/8 inches from the gage side of the frog (guard check gage). However, if curvature through the turnout exceeds 8°, the distance must be 4 feet 6-3/4 inches regardless of track gage. The gage between the guardline of the guardrail and the guardline of the frog shall not be more than 4 feet 5 inches.

(12) Continuous rail shall be installed, field welded and the rail anchors installed or adjusted to produce zero thermal rail force within the limits of plus or minus 10°F of the average rail temperature of the track region. The Contractor shall submit complete details of his plan of installation to the ACO for approval.

(13) Gaging. For straight track and curved track up to 12°, when regaging is required, a gauge of 4 feet 8-1/2 inches measured between points on the inside of the rails, 5/8 inch below the top of the rail will be used. For curves greater than 12°, increase gage by 1/8 inch for each additional 2° of curvature to a maximum gauge of 4 feet 9 inches. Gage transitions in tangent track on each end of a curve shall be at the rate of 1/4 inch in 31 feet. **Do not** widen gage through turnouts. See paragraph C.17.a(1) concerning acceptance standards for track gage.

(14) Surfacing and Aligning. Ballast shall be distributed and the track lifted by methods subject to the approval of the Government representative. The amount of each lift shall not endanger the horizontal or vertical stability of the track. Both rails of track shall be raised carefully at one time, without undue bending of the rails or strain in the joints, to the indicated grade of the track. See paragraph C.17.a concerning acceptance standards for horizontal alignment and track surface.

(15) Tamping. Each lift of ballast shall be thoroughly tamped, with a vibrating tamping machine subject to approval by the Government representative, from a point 18 inches inside each rail on both sides of the tie to end of ties. Tamping at the center of the tie will be avoided to prevent center bound ties. Ballast shall be trimmed and shaped to remove irregularities. After routine traffic has past over the area, the final surfacing and aligning shall be performed to meet the specified track tolerances.

(16) Spot surfacing and alignment. When track maintenance work is performed such as replacement of ballast, ties, rail or turnouts, the Contractor shall tamp ballast, spot surface, align and gage track within the limits of the work.

(17) Superelevation. Curves shall be superelevated as specified or indicated on station plans by raising the outside rail above the inside rail. Full superelevation shall extend from point of curve to point of tangent. Transitions on tangent track from superelevation to zero cross level shall be at the rate of 1-1/2 inches in 62 feet.

(18) Ballast. Ballast shall be maintained to fully support all ties. The top of the ballast shall be level with the top of the ties and not more than 2 inches below the top of the ties.

(a) Stripping. Remove all dirt, fines and foreign matter covering ballast and ties. After stripping the tops of all ties shall be free of dust, fines and foreign matter.

(b) Cribbing. Remove all dirt, fines and ballast in the tie cribs to the bottom of the tie. Foreign matter should be removed to a point 18 inches beyond each end of the tie. Provide new ballast to the top of ties.

(19) Painting. All railroad and crane rail stops, derails or other metal items, which require painting, will be clean of all loose paint and rust and primed with 1 coat of Zinc Chromate Primer 2 mils thick. MIL Spec. TT-P645. After primer had dried, stops will be painted with 2 coats of yellow paint 2 mils thick each coat. MIL Spec. P-2853.

(20) Derails shall be clearly visible. When in a locked position it must be free of any lost motion which would allow it to be operated without removing the lock. Defective derails should be removed and a replacement installed in the same location. If other conditions warrant new or replacement derails, such derails shall not be placed in locations where they would cause derailed equipment to obstruct other track. When the lever of a remotely controlled derail is operated and latched, it shall activate the derail.

(21) Rail Stops

(a) Bumper blocks shall be manganese steel castings of standard manufacture fastened to a steel frame bolted at right angles to the track.

(b) Wheel stops shall be steel or cast iron members shaped in a half-moon shape and fastened to the rail head or cross ties or other timbers.

(22) Gage Rods shall be installed at right angles to the rails and the jaws shall have a firm grip on the base of the rail.

d. Ground Level Crane Track Repairs

(1) Rail Replacement. Crane rail shall be placed on baseplates, aligned, and anchored on both sides at intervals not to exceed 24 inches. All joints at frogs and switches shall be full bolted using nutlocks under each nut. Joint bars shall be oiled and boltheads shall be staggered before bolting up tight. The minimum length of installed rail shall be 13 feet. Cutting, slotting, or punching rail by burning will not be allowed. Rail ends shall be square cut and smooth with chamfered edges on the rail head. Joint bar holes at rail ends shall be smooth and according to AREA standards. Rail used shall not be field bent, but preformed to the required radii in a plant prior to installation. Joints shall be welded or bolted as indicated. Welded joints are detailed in paragraph C.14.e. See paragraph C.17.b concerning acceptance standards in regards to track horizontal alignment, surface and gage.

(2) Joint Bars for Crane Rail. Install joint bars with the full number of bolts, nuts, and washers. After the track has been tested as provided for herein and before encasement concrete is poured, check and tighten all bolts. When installed, openings between rail heads shall not exceed 1/8 inch of that recommended for a given temperature. Vertical or horizontal mismatch at joints shall not exceed 1/16 inch. Joints shall conform to applicable AREA requirements.

(3) Compromise Joints. Provide bolted compromise joints for connection of all adjoining rails or fittings of differing cross sections. Joints shall be by means of either cast or fabricated compromise joint bars or welded transition rails. Provide step chairs, as required, at joints of rails of differing height. Provide compromise joints with proper allowance for rail wear. The offset of compromise joints or of either surface or gage alignment shall not exceed 1/8 inch. Rails at compromise joints of rails for double-flanged wheels shall have the center lines of the rails in alignment and shall provide a smooth surface along the top of the rails. Grind the edges of the wider of the two rail heads smooth over a minimum transition length of 18 inches. Heat the area of the weld to at least 550°F before and during grinding. Clad welding will not be permitted in provision of smooth transitions for compromise joints. (Align compromise joints of rails for single-flange wheels only along the top and gage side of the rails.)

(4) Anchor Bolts. Provide required pairs of anchor bolts for connection of rail clips and crane rails to base plate and supporting grade beam. At crane track fittings, provide separate groups of required anchor bolts for the connection of fittings to base plate and to the supporting grade beam. Base plates shall be accurately aligned and used as templates for drilling the two inch diameter holes in the concrete. Percussion rock drills will not be permitted. All holes shall be thoroughly cleaned and inspected with light to make certain all dust and debris is removed. Fill holes with epoxy adhesive and insert bolts, forcing out excess epoxy. Follow manufacturer's instructions for mixing and application of epoxy. Application temperature for epoxy is from 60°F to 90°F. Ten anchor bolts pull-out tests will be required by Contractor prior to bulk ordering. A minimum of one test, per one hundred studs, shall be performed during construction on in-place studs. Each stud shall be loaded to 8400 lbs. and held five minutes.

(5) Base Plates. Install one-inch thick steel base plates to support rail, switches, frogs, and throw mechanism housing. Shape the base plates, as necessary, under the (switches) (and) (frogs). Furnish the plates with

1-1/8 inch anchor bolt holes located and drilled in the field. Holes cut with a torch will not be acceptable. The finished plate shall be free of all bows, bends, and lips and shall be cleaned of grease and oil. After installation of rail install base plates to within plus or minus 1/8 inch of the profile grade elevation shown by adjustment of the base leveling nut and washer underneath the plates. After installation, check to ensure the proper grade and alignment of the base plates and install temporary hold-down nuts before grouting with nonshrink grout. After grout has hardened, and with rail clips, crane rail, and fittings in place, tighten anchor bolt nuts to a bolt tension not less than the proof load given in ASTM A183. Tightening shall be done with properly calibrated wrenches or the turn-of-the-nut method.

(6) Crane Track fittings

(a) Crane Switches. Install fittings and throw mechanisms atop steel base plates and align vertically by means of leveling nuts as indicated. Connect switchpoints to adjacent rails by means of (bolted) (welded) joints. Secure the nuts of bolted joints in place with a cotter pin through the bolt. Install throw mechanisms complete in housings as indicated. Mechanisms shall operate smoothly and reliably and hold the switchpoints in position securely, against motion of crane wheels.

(b) Rigid Frogs. Install crane track rigid frogs on top of steel base plates and align vertically by means of leveling nuts as indicated on the drawings. Connect to adjacent crane rails (and railroad rails) by means of (bolted) (welded) joints.

(c) Turntable Frogs. Install frog (and throw mechanism) atop steel base plates and align vertically by means of leveling nuts as indicated on the drawings. Connect fittings to adjacent rails by means of (bolted) (welded) joints. Install throw arm complete in housings as indicated on the drawings. Mechanism shall operate smoothly and reliably, and hold the turntable in position securely, against motion of crane wheels.

(7) Operational Test. Operational test of trackage will be performed prior to work on concrete flangeways, encasements, and pavement on welded rail joints and rail and fittings. The load test is to be performed after completion of track work, but before rails are covered by concrete flangeways and encasements. The load test for crane trackage will consist of !SPECIFY PORTAL CRANE AND/OR LOAD IF REQUIRED! and will be performed by Government forces. Retighten all anchor bolts under crane wheel loading. The crane shall operate without difficulty, without binding of crane wheel flanges, or without visual rail deflection. Vertical movement of the ends of crane switches and turntable frogs shall not exceed 1/8 inch during the passage of any crane. Correct or replace all defective welded rail joints, rail and excessive deflections.

(8) Welding and Grinding. All welding repair shall be in accordance with American Welding Society Codes for structural welding. Welding and grinding shall be performed on switch and frog points that are badly worn. When work is completed, points shall have same contours and dimensions of new points or best suitable for existing conditions.

e. Welding Rail. Weld rail joints, except joints with fittings. Use one of the methods listed below. The welding together of rails which have been bored for bolted joints will not be permitted. Clean rails of foreign substances prior to welding. Welded compromise joints shall be by the thermite

self-preheat method. Align and weld the rail in accordance with the recommendations and specifications of the manufacturer and supplier of the particular welding process used. Do not weld when the rail temperature is lower than that recommended for the welding method used. All labor, materials, tools and supervision shall be provided by the Contractor. The Contractor shall qualify the field welding process that he intends to use in track construction. The step-by-step method of welding procedure specification shall be approved by the Government representative.

(1) Welding Processes

(a) Thermite Self-Preheat Method. Welding process shall conform to specifications provided as Attachment J-C11.

(b) Manual Shielded-Arc Welding Method. Welding process shall conform to specifications provided in Attachment J-C11.

(c) Electric Flash-Butt Method. Welding process shall conform to applicable provisions of Chapter 4 of AREA manual.

(2) Inspection

(a) Visual Inspection. Each welded joint will be thoroughly inspected by the Contractor's inspector after the removal of the mold and grinding of excess metal. The inspector will pay particular attention to surface cracking, slag inclusion, gas pockets, and lack of fusion. The Contractor will correct or replace, at no extra expense to the Government, any weld found defective. The method of correction shall be as approved by the ACO.

(b) Ultrasonic Inspection. Each weld will be ultrasonically inspected following the visual inspection. The method of inspection and acceptance shall be in accordance with AWS D1.1, except that the maximum unbonded area may be up to seven percent of the face of each rail section. Ultrasonic inspection will be performed by an independent commercial testing laboratory retained and paid by the Contractor and approved by the ACO. The Contractor is responsible for the correction or replacement of all defective welds, at no additional cost. The method of correction shall be as approved by the ACO.

(c) Hardness. The Brinell Hardness Number (BHN) of the weld for a distance of 6 inches each side of the joint shall be not less than 250; except that the BHN in the heat affected zone (a distance not greater than one inch to each side of the joint) may be up to 20 points lower than at the top of the rail.

f. Electric Grounding of Rails. Rails in areas where explosives, ammunitions, or explosive mixtures are stored, handled, or processed, shall be bonded electrically continuous and effectively grounded. Rails shall be grounded at points 150 feet on each side of locations where they are crossed by electrical distribution lines. Grounding shall include bonding between rail sections, installation of ground electrodes, connections between ground electrodes and rails, and interconnections of spur track with building grounding systems where they are within 25 feet of each other.

(1) Bonding Between Rail Sections. Bonding shall be applied to the outer side of rail heads. For bolted bonds, holes the same size as the lugs on

the end of bond wires shall be drilled in web of rails. Lugs shall be driven into the holes to secure a firm fit. For welded bonds, heavy stranded copper cable shall be brazed to head of rail by an approved method of welding. Two bonds per head shall be used.

(2) Installation of Ground Electrodes. Ground electrodes shall consist of 8 feet long by 3/4-inch diameter copper clad steel rods or 1 inch schedule 40 zinc coated steel pipe. Maximum resistance to ground shall not exceed 25 ohms. Ground electrodes shall be driven vertically to a depth sufficient to have the top not less than 12 inches below the road bed surface at the ballast toe on one side of the track. Where the road bed is rocky preventing full length installation of the ground electrodes, not less than 15 feet of #1/0 AWG bare stranded copper wire shall be laid in a trench and permanently covered with not less than 6 inches of material. !SPECIFY ANY OTHER ALTERNATIVE GROUNDING METHODS NECESSITATED BY LOCAL CONDITIONS!

(3) Conductors between rails and ground electrodes and interconnections between grounding systems shall be of No. 1/0 AWG larger stranded copper installed not less than 12 inches below the road bed surface. Connections shall be of the bolted, thermochemical or other permanent type approved by the ACO. Bolted connections shall be of the pressure bar type having no rotating parts coming in direct contact with conductors.

(4) Insulating Rails. Insulated joints shall be installed to prevent contact between rail and joint and between adjacent rails and shall consist of a sandwich type flange, insulating fiber gasket of the dielective type, insulating washers, and insulating sleeves for flange bolts, and a fiber end post between rail ends.

g. Signs and Signals. Crossing signs and signals shall be maintained in accordance with NAVFAC manual MO-103, paragraphs 4-15, and manufacturer's specifications.

h. Road Crossings. Crossings shall be maintained compatible with the type of traffic using it in accordance with the AREA manual. Materials used in the maintenance, repair, and replacement of crossings shall be selected based on economy, serviceability, and access to the track. Regardless of materials used, flangeways must provide 2-1/2 inches for tangent and nominally curved track. On curves of more than 8°, flangeways shall be 2-3/4 inches. Running rail shall have only an essential number of joints within the width of the crossing. Main running tracks shall have 7in x 9in x 8ft-6in ties spaced 22 inches on center with 4 spikes/rail/tie or as required in the case of manufactured crossings.

(1) Crossing timbers shall be fastened to the cross ties at the ends and at least every other tie with lag screws or screw spikes.

(2) Asphalt concrete crossings shall be full depth of running rail when guard rail is not ordered separately, flangeways shall be hot formed in asphalt. Asphalt shall be placed in compliance with paragraph C.14.m.

(3) Monolithic Concrete Crossings. Concrete shall be placed in compliance with paragraph C.14.n.

(4) Manufactured crossings including prefabricated rubber planks, elastomeric modules, and others shall be installed to comply with the manufacturer's recommendations and shall meet the need for which intended.

(5) Guardrails shall be jointed relayer rail not higher than the running rail and not over 1/2 inch lower. Base shall be cut so that running rail can be fully spiked and guard rail spiked inside and bolted with filler blocks at 4ft-0in maximum o.c. The void between running and guard rail shall be packed with asphalt concrete.

(6) Drainage. Crossings shall have adequate drainage to catch and divert surface and subsurface water at depressed or downhill crossings. Temporary correction of problem locations shall be accomplished at the earliest practicable time, and permanent corrective maintenance shall be accomplished when crossing repair or replacement is scheduled.

(7) Street and highway crossings should be maintained a minimum of four feet wider through the crossing than the width of approach pavements, two feet on each side. Crossings which do not meet these criteria shall be improved when repair or replacement of the crossing becomes necessary.

(8) Maintenance and repair of road crossings shall be coordinated with the ACO prior to beginning of work. The Contractor shall ensure that adequate barricades and warning devices are on hand and necessary safety precautions are taken before and during the work period.

!*****
NOTE TO SPECIFICATION WRITER: If the activity has no bridges, delete the following paragraph.
*****!

i. Bridges/Trestles. Bridges and trestles shall be inspected at the frequency specified in Attachment J-C1 to ensure serviceable condition. Inspection shall, as a minimum, ensure bolt tightness, maintenance of gauge and alignment, free drainage, and general soundness.

(1) Guardrails used on bridges shall not be larger than the running rail. Defective guardrails shall be removed and replaced.

(2) Bridge/Trestle Ties. The length of ties is determined by the design of the bridge on which they are to be used. Replacement ties shall be of the same dimension as the ties being replaced.

!*****
NOTE TO SPECIFICATION WRITER: Delete the following paragraph at activities where ice and snow conditions have not been known to inhibit rail operations.
*****!

j. Snow Removal. Snow and ice shall be removed from track sections to permit the routine passage of rolling stock. Removal shall be accomplished at the earliest practicable time consistent with anticipated usage of the track. Use of snow fences where heavy drifting is encountered is authorized. Switches, frogs, guardrails, and flangeways at road crossings shall receive priority attention. In addition, other areas where personnel or property may be endangered shall be cleared of snow and ice as appropriate. Chemical control and use of snow melting heaters (nonelectric) is permitted. Snow and ice shall not obstruct required signs and signals. All snow removal work shall be included in the fixed-price portion of the contract.

k. Drainage System Maintenance. Drainage and other water-carrying facilities under or adjacent to the roadbed shall be free of obstructions that would impede water flow. All surfaces shall be sloped toward drainage systems and slopes maintained to minimize erosion. Obstructions causing water to remain in pools shall be removed. All work is included in the fixed-price portion of the contract.

!*****
NOTE TO SPECIFICATION WRITER: Delete the following paragraph if vegetation control is performed by other contract or in-house forces.
*****!

l. Vegetation Control. Vegetation from areas within and adjacent to trackage where not required for erosion control shall be eliminated or controlled. Vegetation shall not become a fire hazard, obstruct visibility of signs and signals, interfere with employees performing normal trackside duties, or prevent proper functioning of signals and communication lines. Vegetation control services shall be provided under the fixed-price portion of the contract.

(1) Ballast Areas shall be maintained sixteen feet wide (8 feet each side of center line), free of vegetation.

(a) Control Methods by Application of Herbicides. The Contractor shall utilize only herbicides registered with the U.S. Environmental Protection Agency. Use shall be in strict compliance with label directions for control of vegetation. Herbicides selected, application rates, and application techniques shall have the prior approval of the ACO.

(b) Minimum Acceptable Level of Control. All vegetation in the ballast area to be maintained shall be eliminated for the entire period of the contract. Re-treatment, if required, will be at no additional cost to the Government. Non-selective soil residual herbicides shall not be used under the drip line of trees or shrubs, nor within ten feet of annual flowers or gardens. A contact herbicide may be used within such areas. Special care will be taken so that vegetation in privately owned areas adjacent to treated areas is not damaged. The Contractor will be responsible for any damage caused by herbicide treatments made by Contractor personnel.

(c) Contractor's Superintendent. During the execution of all work involving the handling and/or use of herbicides, the Contractor shall give the job his personal supervision or shall have on the job a responsible and competent representative with the authority to speak and act for him. The whereabouts on the Station of the superintendent shall be made known to the Government Representative at all times when work is performed.

(d) Uncertified Personnel. Uncertified personnel who apply pesticides shall have been employed in weed control for a minimum of 30 days and have received training in:

1 Selection, application, and evaluation of appropriate control procedures.

2 Safe and effective application techniques, and the calibration and use of all equipment required.

3 Handling, storage and transfer of pest control materials as required.

4 Reading, interpreting and following herbicide label instructions.

5 Use and maintenance of all required safety equipment.

6 The consequences of preparing a herbicide to be given or sold to an individual other than an authorized employee of the Contractor, or regulatory official.

7 Procedure for handling herbicide spills including reporting same.

8 The security of vehicles and equipment.

(2) Pesticide Use Records. The Contractor shall prepare, submit, and maintain daily records of pesticide usage on NAVFAC Form 6250/3. This form shall be filled out daily as pesticide operations are performed, and all entries must be completed within 24 hours of chemical usage. Completed forms shall be made available upon request for inspection, and shall be forwarded to the ACO monthly by the !SPECIFY DATE! of each month following the month of operation. Forms which are rejected by the ACO due to improper preparation shall be resubmitted by the Contractor no additional cost to the Government. See Attachment J-C12 for additional information.

m. Asphalt Concrete Pavement

(1) Asphalt Concrete Removal. Existing asphalt concrete paving shall be removed from track by making a clean vertical cut and removing all asphalt and base materials to the top of ties. Material adhering to sides of rail shall be removed.

(2) Asphalt Concrete Placement. All asphalt concrete to be placed including preparation of subbase, base, and perimeter vertical face of adjoining pavement, will be accomplished in accordance with recommended practices of The Asphalt Institute, MS-16.

n. Concrete Pavement

(1) Removing Concrete. When removing concrete all cuts will be square or rectangular with sides parallel to or at a 90° angle to rails with faces straight and vertical. Irregular or uneven cuts and faces will not be acceptable. Where undermining occurs, concrete shall be cut back past the undermined area. Concrete removed between the rails shall be removed the full gage width. On the field side of rails, concrete shall be removed a minimum of 9 inches past the tie ends and 6 inches deep.

(2) Replacing Concrete. All concrete is to be replaced according to recommended practices of the American Concrete Institute (A.C.I.), A.C.I. 305 recommended practices for hot weather concreting. A.C.I. 306 recommended practices for cold weather concreting.

o. Miscellaneous. The above work items do not limit the responsibility of the Contractor to perform all maintenance and repair appropriate to the proper

upkeep of a safe and serviceable railway activity. This paragraph is intended to cover incidental and small repairs common to railway facilities.

C.15 EXCAVATION AND EARTHWORK

a. General Requirements. The work includes the excavation, grading, filling, and backfilling and shall be based on the following:

(1) That the surface elevations are as indicated.

(2) That no pipes or other artificial obstructions, except those indicated, will be encountered.

(3) That hard material will not be encountered.

(4) That groundwater will not be encountered.

(5) If conditions differ substantially from those stated and/or shown, the provisions of the contract shall apply, subject to the requirement of notification being given. Hard material shall be defined as solid rock, firmly cemented unstratified masses or conglomerate deposits possessing the characteristics of solid rock not ordinarily removed without systematic drilling and blasting, and any boulder, masonry, or concrete except pavement, exceeding 1/2 cubic yard in volume.

b. Excavations shall be carried to the contours and dimensions indicated or necessary. Excavations shall be kept free from water while construction therein is in progress. All excavated material which is unsatisfactory for backfill shall be waste. Excavations carried below the depths indicated without specific directions, shall be refilled to the proper grade with aggregate base and compacted thoroughly. All additional work of this nature shall be at the Contractor's expense.

c. Compaction. The subgrade of soils shall have a density of 95 percent of the maximum density in accordance with the requirements of ASTM D1557 (Method D) and ASTM D1556 to a depth of 6 inches below the subgrade surface. If the density of the existing material is less than 95 percent, it shall be compacted to a depth of 6 inches to the minimum 95 percent density.

d. Materials. Satisfactory and suitable materials shall consist of native materials, fill and backfill, which is free from debris, roots, wood scrap and other deleterious materials. Satisfactory material shall have a liquid limit not greater than 35 and a plasticity index not greater than 12.

C.16 DEMOLITION AND REMOVAL

a. Demolition and removal shall be conducted in a manner that will eliminate hazards to persons and property in the area and shall prevent the release of dust and rubbish into the air. All debris resulting from demolition or removal work shall be removed from the station daily or as directed by the Government Representative. Demolished material and debris which is in the opinion of the Government representative cannot practicably be removed from the site the same day as removed, may be temporarily stacked or stored in a designated location on the site as directed by the Government Representative. All materials resulting from demolition or removal work shall become the

property of the Contractor unless reuse is required or specified otherwise and shall be removed from the limits of the station.

b. Protection of Materials and Work. Before beginning any cutting or demolition work, the Contractor shall carefully survey the existing work and examine the drawings and specifications to determine the extent of the work. The Contractor shall take all necessary precautions to insure against damage to existing work to remain in place, and any damage to such work shall be repaired or replaced, as approved, at no additional cost to the Government.

c. Removal of Existing Trackage shall consist of removal of rail, ties, tie plates, bolts, nuts, gauge rods and all related accessories as required for the proper completion of the project. All material specified to be reused shall be carefully handled to prevent damage and if damaged shall be replaced with new material by the Contractor at his expense. All rail to be removed shall remain the property of the Government and the Contractor shall remove this rail from the job site and haul to specified location. If oxy-acetylene cutting torches are used, flames shall not contact rail that is to remain or be reused. All reuseable ties, rails, spikes, bolts, washers and nuts and all tie plates, gage rods, stops and turnout components shall be salvaged.

C.17 ACCEPTANCE STANDARDS

a. Railroad Track. Allowable tolerances for gage, surface and alignment of track, as the result of maintenance and repairs, are as follows:

(1) Gage

Curve	ALIGNMENT	DESIGN		INSTALLATION TOLARANCE	
	Radius in feet 100-foot chord Definition Curves	Gauge		Installation or Regaging	
		Feet	Inches	Minus (Inches)	Plus (Inches)
Tangent	Straight Track	4	8-1/2	0	1/4
Smaller than:	Larger than:				
8°	717	4	8-1/2	1/8	1/4
10°	574	4	8-1/2	1/8	1/4
12°	478	4	8-1/2	1/8	1/4
14°	410	4	8-5/8	1/8	1/4
16°	359	4	8-3/4	1/8	1/4
18°	320	4	8-7/8	1/8	1/4
20° and larger	288	4	9	1/8	0

(2) Horizontal Alignment. Alignment shall not deviate from uniformity more than the amounts herein prescribed:

(a) Tangent Track. Change between any adjacent 31-foot stations measured at the mid offset from a 62 foot line may not be more than 1/4 inch. The ends of the lines shall be at points on the gage side of the line rail, 5/8 inch below the top of the railhead. Either rail may be used as the line rail, however, the same rail must be used for the full length of the tangential segment of track.a

(b) Curved Track. Change between any adjacent 31-foot stations measured at the mid-ordinate from a 62-foot chord may not be more than 1/4 inch

for 12° curves and flatter and 3/8 inch for curves with more than 12° curvature. The ends of the chord must be at points on the gage side of the outer rail, 5/8 inch below the top of the railhead.

(3) Track Surface. Track surface may not deviate from uniformity more than the amount prescribed below:

- The runoff in any 31 feet of rail at the end of a raise may not be more than 1/4 inch
- The deviation from uniform profile on either rail at the midordinate of a 62 foot chord may not be more than 1/4 inch
- Deviation from designated elevations on a spiral may not be more than 1/4 inch
- Deviation in cross level in spirals in any 31 feet may not be more than 1/4 inch
- Deviation from zero cross level at any point on tangent or from designated elevation on curves between spirals may not be more than 1/4 inch
- The difference in cross level between any two points less than 62 feet apart on tangents and curves between spirals may not be more than 1/4 inch

(4) Rail End Mismatch. Vertical or horizontal mismatch of rail ends at joints shall not exceed 1/16 inch.

b. Ground Level Crane Track. Allowable tolerances for gage, surface, and alignment of track, as the result of maintenance and repairs, are as follows:

(1) Gage. Track gage between rail heads shall be within plus or minus 1/4 inch of the design gage.

(2) Horizontal Alignment. Rails shall be placed within plus or minus 1/4 inch of the designed rail centerline alignment.

(3) Vertical Alignment. Top of rails shall be placed within plus or minus 1/8 inch of the designed rail elevation.

(4) Cross Level Elevation. Elevation differences between rails shall not exceed 1/8 inch.

(5) Rail End Mismatch. Vertical or horizontal mismatch of rail ends at joints shall not exceed 1/16 inch.

END OF SECTION C

PART III - LIST OF DOCUMENTS, EXHIBITS, AND OTHER ATTACHMENTS

SECTION J: LIST OF ATTACHMENTS

!*****

NOTE TO SPECIFICATION WRITER: The numbering system used below is designed so that the number of the Attachment refers back to the Section that it supports. Attachment J-C1 supports Section C and is the first attachment referenced in that Section. Attachment J-C2 is the second document referenced in that Section.

*****!

ATTACHMENT

NUMBER

TITLE

J-1 *	Department of Labor Wage Determination
J-C1	List of Facilities to be Maintained
J-C2	Government-Furnished Facilities
J-C3	Government-Furnished Equipment
J-C4 *	Government-Furnished Material
J-C5	Contractor Furnished Material
J-C6	List of Required Reports and Submittals
J-C7	Inspection Criteria
J-C8 *	Utility Outage Request
J-C9	Historical Performance Data
J-C10 *	Travel Zone Map
J-C11	Rail Welding Methods
J-C12	Pesticide Use Records
J-E1	List of Engineered Performance Standards Manuals
J-E2	List of Naval Facilities Engineering Divisions
J-G1	Delivery Order Sample, DD Form 1155
J-G2	Invoicing Instructions
J-H1	Directives, Publications, and Specifications
J-H2 *	Station Regulations
J-H3 *	Energy Conservation
J-H4 *	Fire Protection
J-H5 *	Environmental Protection
J-H6	Safety Requirements and Reports

* To be added by activity, if required.

ATTACHMENT J-1

DEPARTMENT OF LABOR WAGE DETERMINATION

Attached is Wage Determination !INSERT NUMBER!. This determination specifies the minimum wages and fringe benefits to be paid under this contract.

ATTACHMENT J-C1

LIST OF FACILITIES TO BE MAINTAINED

!*****
 NOTE TO SPECIFICATION WRITER: List track facilities as identified on activity's track charts or plans. Track should have a systematic identification method to assist the activity and Contractor in identifying each section of track included. In addition, each turnout should be listed and numbered for identification purposes, which can also be used for identification of track sections and locating defects and work order locations.
 *****!

<u>Minimum Track Railroad Track Segment</u>	<u>Track Miles</u>	<u>FRA Track Safety Standard</u>	<u>PM *</u>
Connection to XYZ Railroad to Switch 1	2.10	Class 4	Q
Switch 1 to Switch 2	0.85	Class 2	Q
Switch 1 To End of Track	0.03	Class 2	S
Siding Switch 10 to Bldg 89	0.02	Class 1	A
Spur Switch 8 to	<u>0.01</u>	Out of Order	NONE **
TOTAL RAILROAD TRACKS	3.01		
TURNOUTS (25 each)			
Turnouts 1-5, 7, 8, 12-20		!INSERT CLASS!	Q
Turnouts 6, 9, 10, 11		!INSERT CLASS!	D
Turnouts 21-25		!INSERT CLASS!	M
DERAILERS			
!INSERT LOCATION!			Q
!INSERT LOCATION!			Q
AUTOMATIC RAIL OILERS			
!INSERT LOCATION!			Q

<u>Crane Track Section</u>	<u>Track Miles</u>	<u>PM*</u>
4-Rail Systems		
Dry Dock 1	0.28	Q
Dry Dock 1 to Dry Dock 2	0.45	Q
Wharf X	0.60	Q
2-Rail Systems		
!INSERT!	!INSERT!	!INSERT!
TOTAL CRANE TRACKS	!INSERT!	
Manual Operated Tongue Switches (8 each)		
Switches 1,5,6		Q
Switches 2,3		M
Switch 4,7,8		D

Power Operated Tongue Switches (!INSERT NUMBER! each)

Ramp Frogs (!INSERT NUMBER! each)

Turntable Frogs (!INSERT NUMBER! each)

!*****
NOTE TO SPECIFICATION WRITER: If the user provides a required minimum PM schedule a PM column should be included with each section of track and each switch. At certain activities, switches may require daily (D), weekly (W), monthly (M), quarterly (Q), semi-annual (S), or annual (A) PM. Each frequency should be defined, as illustrated. In addition, different areas of track may require different levels of maintenance. Infrequently used sidings may be maintained to FRA Class 1 standards. Normal use on-station track to FRA Class 2 standards. Off station connection to commercial railroads to FRA Class 3 standards.
*****!

* Preventive Maintenance Inspection, as discussed in paragraph C.11.a. Inspections shall be conducted at the frequencies indicated and as defined below:

Annual (A) - Services performed once during each 12-month period of the contract.

Semi-Annual (S) - Services performed twice during each 12-month period of the contract at intervals of 160 to 200 calendar days.

Quarterly (Q) - Services performed 4 times during each 12-month period of the contract at intervals of 80 to 100 calendar days.

Monthly (M) - Services performed 12 times during each 12-month period of the contract at intervals of 28 to 31 calendar days.

Daily (D) - Services performed once each day, Monday through Friday, including holidays unless otherwise noted.

** Spiked closed, out of service.

ATTACHMENT J-C2

GOVERNMENT-FURNISHED FACILITIES

!*****
NOTE TO SPECIFICATION WRITER: All facilities that will be furnished for the Contractor's use should be listed with necessary descriptions, square footages, and other applicable information. Provide simple drawings of each facility showing Contractor areas, areas retained for use by the Government, etc.
*****!

The following facilities will be provided for the Contractor's use, as specified in paragraph C.4.

<u>BUILDING</u> <u>NUMBER/LOCATION</u>	<u>DESCRIPTION</u>	
5/Naval Station	Office Space (2)	600 SF
	Lounge Area (1)	350 SF
	Rest Rooms (2)	400 SF
	Hallways, Stairs, etc.	150 SF
	Maintenance Shop (1)	<u>2000 SF</u>
	TOTAL INTERIOR =	3500 SF
	Exterior storage and laydown area, fenced	4000 SF
North of Bldg 3/ Naval Station Annex	Equipment storage yard, fenced	10000 SF

!ETC!

ATTACHMENT J-C3

GOVERNMENT-FURNISHED EQUIPMENT

!*****
NOTE TO SPECIFICATION WRITER: List all equipment that will be provided to the Contractor. Provide descriptive characteristics including manufacturer, model type, age, location, etc.
*****!

The following items will be made available for use by the Contractor, as specified in paragraph C.4.

-

<u>ITEM</u>	<u>QUANTITY</u>	<u>MODEL NO.</u>	<u>BRAND NAME</u>	<u>AGE IN YEARS</u>	<u>LOCATION</u>
10-inch Grinder	1 EA	011702	Schaver	15	Bldg 5

ATTACHMENT J-C4

GOVERNMENT-FURNISHED MATERIAL

!*****
NOTICE TO SPECIFICATION WRITER: List all material that is to be provided to the Contractor. Provide descriptive characteristics including generic name, federal specifications or commercial specifications, and quantities of issue. Indicate how it is to be provided to the Contractor, does he/she pick it up (where and when) or will the Government deliver it?
*****!

The following material will be made available for the use by the Contractor, as specified in paragraph C.4.

PART A - ONE TIME ISSUE

DESCRIPTION

APPROXIMATE QUANTITY

PART B - INSURANCE ITEMS

DESCRIPTION

APPROXIMATE QUANTITY

ATTACHMENT J-C5

CONTRACTOR FURNISHED MATERIAL

!*****
NOTE TO SPECIFICATION WRITER: This Attachment identifies the type and quality standards of materials to be provided by the Contractor, as specified in paragraph C.5. Quality standards can be specified using Federal Specifications, American National Standard Institute (ANSI) Specifications, or other industrial specifications. Add or delete items as required.
*****!

1. Ballast shall be new crushed stone 1-1/2 inch maximum size aggregate conforming to AREA Specifications for prepared stone, slag and gravel ballast. Los Angeles abrasion loss shall not exceed 40%.

2. Ties

a. Wood Cross Ties and Switch Ties. Ties shall conform to Federal Specification Number MM-T-371E. Cross ties and switch ties shall not be less than 7 inches in height by 9 inches in width. !SPECIFY SIZE OF TIES IF DIFFERENT THAN SHOWN! Cross ties shall be 8 feet 6 inches in length. Switch ties shall be the necessary length as shown in AREA Trackwork Plan, Plan No. 912. Ties shall be of red or white oak or yellow pine. Oak ties shall be incised prior to treatment. All ties shall be pressure treated by an empty cell process in accordance with specification TT-W571J, to a minimum retention of 8 lbs of coal-tar creosote per cubic foot of wood. Ties shall be branded in accordance with AWP standard M6 "Brands Used for Forest Products". Brands will be applied to the ends of each tie. Brands will include Supplier's brand, plant designation, and year of treatment. Upon delivery of each lot, the Contractor shall provide certification documents of the results of tests for penetration and retention for species performed by an American Wood Preserver Bureau (AWPB) certified inspection agency. The Contractor shall not be allowed to commence work until documentation has been reviewed. The Government reserves the right to perform inspection and core sampling. Retention will be verified in accordance with AWP C2 for ties.

b. Concrete Ties. Precast concrete ties shall be of the dimensions of concrete ties to be replaced, designed and manufactured in accordance with Chapter 10 of AREA specifications.

3. Rail

a. Railroad rail shall be new conforming to the requirements of AREA "Specification for Steel Rails-1975" or Class I, Relayer rail conforming to the requirements of Military Specification MIL-R-3911 as modified herein. New rail shall be 115 pound AREA rail or larger. Choice of rail type and weight for individual rail replacements will be at the option of the Contractor subject to the following provisions:

(1) Relay rail shall be 90 pounds or heavier up to 136 pounds, but not less than existing rail.

(2) Relay rail characteristics shall conform to requirements of MIL-R-3911, modified as follows:

Minimum weight per yard (original) 90-136 lbs

Wear:

Maximum top wear 1/8 inch
Maximum side wear 1/8 inch
Length As ordered but not less than 13 feet.

Defects permitted None
Headburn (inches)

Maximum lip 1/16 inch

b. Crane Rail. Rail shall be !WEIGHT! per yard in weight and shall be !CONTROLLED-COOLED, FULLY HEAT TREATED, 300 TO 350 BRINELL HARDNESS OR CONTROLLED-COOLED, 250 MINIMUM BRINELL HARDNESS! carbon steel in accordance with AREA requirements, referred to herein as !135-CR!. Rails shall conform to ASTM A1 for carbon steel rails. Crane rail hardness shall not exceed crane wheel Brinell hardness of !360!. Metallurgical composition of the crane rail steel shall be within the following limits:

- (1) Carbon 0.67 to 0.82 percent
- (2) Manganese 0.60 to 1.00 percent
- (3) Phosphorous 0.04 percent maximum
- (4) Silicon 0.10 to 0.23 percent

4. Track spikes shall conform to AREA specifications and FF-S-611A. Spikes shall not be less than 6 inches long by 5/8-inch square.

5. Tie Plates and Pads

a. Tie plates shall be of the dimensions and punching pattern to fit the rail. New tie plates shall conform to AREA specifications. Used tie plates in good condition may be used at the option of the Contractor.

b. Tie pads shall conform to AREA specifications for use with precast concrete ties.

6. Joint bars shall be of the size, shape, and punching pattern to fit the rail. New joint bars shall conform to AREA "Specification for quenches Carbon-Steel Joint Bars" and specification MIL-J-12368. Used joint bars in good condition may be used at the option of the Contractor except the long tie type shall not be employed where, because of the tie plate punching pattern, the spike slots must be used to spike the rail to alignment at the joints.

7. Track bolts and nuts shall conform to AREA "Specification for Heat-treated Carbon Steel Track Bolts and Carbon Steel Nuts." Spring washers shall conform to AREA. "Specifications for Spring washers. Length of bolts shall be compatible with the joint bar and rail assembly. Bolt total length and threaded length shall be sufficient to provide full hold for the nut and not less than 3/16 inch nor more than 1 inch of the threaded bolt extending exposed beyond the exterior face of the nut when installed. Also when installed, there shall be not less than 1/4 inch of the threaded section of the bolt extending beyond the interior face of the nut. Unless approved otherwise, bolts will be 1 inch diameter.

8. Compromise joints shall conform to AREA "Specification for Quenched Carbon-Steel Joints Bars." They shall be of the size, shape and punching pattern to fit the rails and smoothly join the top and gage side of the rail heads.

9. Rail anchors shall be one-piece type which can be installed without special tools or equipment.

10. Gage rods shall be 1-1/4 inch diameter with double adjustable clamps at both ends. Clamps shall fit the rail section.

11. Turnouts and turnout components shall be products of manufacturers regularly engaged in the manufacture of such products. Unless otherwise indicated, replacement turnouts or components shall match existing items as to frog number and rail section and shall consist of a split switch assembly and rigid bolted frog, stock, main and closure rails, guard rails, and all accessories and fasteners required to complete the installation. All items shall conform to the applicable AREA "Trackwork Plans and Specifications." Rail braces shall be either fixed or adjustable type of standard manufacture.

a. Crossings shall conform to the applicable requirements for turnouts. Crossings shall be bolted, 2-rail type.

b. Switch throw and stand assemblies shall consist of a low switch stand or flush ground throw, connecting rods, and all other parts and accessories necessary for a complete installation. Unless otherwise indicated, replacement items shall match existing items. Low switch stands shall have non-illuminated targets. Ground throws in paved areas shall be narrow type with small center cover plate which opens with throw lever such as Nelson Model 350-A, regardless of existing type.

12. Grade Crossing Materials

a. Crossing timbers shall be fine-grained, hardwood timber, and shall be treated to comply with Fed Spec TT-W-00571.

b. Prefabricated timber crossings shall be fine-grained, hardwood timber, and shall be treated to comply with Fed Spec TT-W-00571 and fabricated to comply with specifications in the AREA Manual.

c. Precast concrete slabs shall have a 28 day minimum compressive strength of 3300 psi. Slab reinforcement shall meet American Association of State Highway Officials (AASHO) requirements for H-20 loading (maximum axle loading is 32000 lb).

d. Manufactured crossings such as prefabricated rubber plank and elastomeric modules shall meet the material standard of the manufacturer.

13. Oil for rail and other track materials, except joints, shall conform to the following:

a. Flash point, minimum 130°F, ASTM D1310.

b. Asphalt, 100 penetration, minimum 45 percent, ASTM D1189

c. Viscosity, Saybolt Universal, 130°F, 240 to 350 seconds, ASTM D88

14. Rail stops shall be a standard product of a commercial manufacturer of railroad materials. The car stop shall stop the movement of the rail traffic as the car wheel strikes the car stop. A car stop shall be anchored to each rail of the track where indicated or specified by an approved method.

15. Rail Base Plates. Provide steel plates conforming to ASTM A36 or ASTM A283. Shape plates to conform to the configuration of rail curvature and of each special fitting. Minimum width of plates centered under rails shall be 12 inches. Minimum length of plates shall be 4 feet and maximum length 10 feet. Minimum edge distance for all holes as indicated. Use 1-1/8 inch diameter anchor bolt holes. Provide grouting holes 2 inches in diameter in plates wider than 3 feet. Center grout holes, space approximately 3 feet apart, and locate so as not to interfere with the proper function of the plate.

16. Anchor Bolts. Provide square head one-inch diameter bolts made of ASTM A183 steel. Provide each bolt with two finished hexagon nuts and one spring washer. Threads for the bolts shall conform to ANSI B18.2.1 and threads for the nuts conforming to ANSI B18.2.2. For bolts fastened to existing grade beam determine lengths in the field after the elevation of the concrete support beams has been determined and the finished profile grade from the drawings has been taken into consideration.

17. Steel Bars for Stud Supports. Dowels and concrete reinforcing shall be deformed steel bars Class B40 or R50 conforming to specification QQ-S-632. The use of hard grade bars will not be permitted.

18. Derails and reroils shall be of standard manufacture normally used for this type of work, and shall be painted a bright chrome yellow.

19. Guardrails shall be of standard manufactured designs or shall be made from ordinary rail sections, new or used. Guardrails shall be of the same size rail as the turnout and shall comply with the appropriate AREA standard track plan. On bridges guardrails shall not be larger than the running rail.

20. Nonmetallic Nonshrink Grout. Provide grout under the base plates supporting fittings and rails as indicated. Grout shall be high early strength, nonshrink, nonmetallic, with all components passing the No. 4 sieve and proportioned so as to provide a 3-day compressive strength of not less than 4000 psi as determined by ASTM C 109, an expansion-to-original length ratio of 0.018 to 0.020 as determined by ASTM C157, and a bond strength of not less than 20000 psi (for vertical sample) when tested in accordance with ASTM C234. In addition, the grout shall have the workability necessary to be installed as herein described. As an option, commercial premixed grout may be used if it meets the strength, workability, and nonshrink requirements herein specified. When the depth of grouting exceeds one inch, the addition of crushed stone, 1/4 inch to 3/8 inch maximum size, to the grout mixture will be allowed. The ratio of grout to crushed stone by weight shall be maximum 2:1 or as specified in the manufacturer's instructions. After installation, cure the nonshrink grout a minimum of three days in accordance with the curing requirements as recommended by the manufacturer.

21. Epoxy grout for securing anchor studs shall be an approved two component, 100 percent solids epoxy conforming to ASTM D1763. Aggregates for epoxy grout shall conform to ASTM C144. Manufacturer's instructions, descriptive

literature, and available test data shall be submitted if required by the ACO. Performance properties shall be as follows:

a. Adhesion. Excellent for bonding concrete to concrete or concrete to steel. Non-shrinking.

b. Minimum Strength of Epoxy. Shear 2000 psi; compression 5000 psi; tension 3000 psi.

c. Chemical Resistance. Cured resin to have excellent resistance to strong base, alkali salt solutions, petroleum, and ester base fluids and water.

d. Impact Resistance. Resistant to severe impact and shock.

22. Rail Clips. Provide single clips and holders designed for tight fit and sized to match the crane rail section.

23. Electrodes. Provide AWS low-hydrogen, high-tensile E 14018 or E 14016 electrodes. Utilize electrodes of the smallest practical diameter worked at the lowest practical current. Coating on low-hydrogen type electrodes shall be thoroughly dry when the electrode is used. Use electrodes taken from hermetically sealed packages within one hour of the time the package is opened. Any electrode not used within this one hour period and any electrode taken from nonhermetically sealed packages shall be dried for at least one hour between 700°F and 800°F before use. Electrodes so dried may be stored at temperatures between 225°F and 400°F until used, or if not stored and not used within one hour after drying is completed, shall be redried before use. Do not use electrodes which have been wet. Hard surfacing rod used on top 1/8 inch of railheads shall be alloy with the following composition:

- a. Carbon 0.4 to 0.6 percent
- b. Manganese 4.0 percent
- c. Chromium 18.0 to 21.0 percent
- d. Nickel 9.0 to 10.5 percent
- e. Molybdenum 1.2 percent
- f. Iron base

Heat rail head to minimum temperature of 550°F before welding overlay.

24. Asphaltic Concrete

a. Hot mixed, hot laid asphaltic concrete shall comply with the requirements of ASTM D1663.

b. Hot mixed, hot laid emulsified asphaltic concrete shall comply with the requirements of ASTM D2629.

c. Plant mixed, stockpiled asphalt cold mixes shall comply with the requirements of The Asphalt Institute specification PM-2.

d. At the option of the Contractor, those applicable sections of the !NAME! State Highway !TITLE! Standard Specifications for Bituminous Plant Mix, Type !TYPE NUMBER! shall govern in lieu of the specification for asphaltic concrete wearing course. The selected option shall not be changed during the course of the work.

25. Bituminous prime shall comply with ASTM D2027.
26. Bituminous tack shall comply with ASTM D2027.
27. Base course shall comply with local highway department specifications for dense-graded, high-quality material.
28. Ready-Mixed concrete shall comply with ASTM C94, Alt. No. 2. The concrete shall have a slump of not more than 3 inches. The concrete shall obtain a compressive strength of 2,500 psi at seven days.
 - a. Cement shall be Portland Cement complying with ASTM C150, Type I(A).
 - b. Aggregate shall comply with ASTM C33.
 - c. Air entraining admixture shall comply with ASTM C260.
29. Miscellaneous materials including anchor bolts, hex nuts, adjusting nuts, plate washers, and other accessories not specified otherwise shall be of sizes indicated or as required for the purpose intended.

ATTACHMENT J-C6

LIST OF REQUIRED REPORTS AND SUBMITTALS

!*****
 NOTE TO SPECIFICATION WRITER: Add or delete submittals as required. Insert appropriate specification references. The items listed below are examples only.
 *****!

<u>DESCRIPTION</u>	<u>SPECIFICATION REFERENCE</u>	<u>WHEN REQUIRED</u>
1. Pre-award Survey Data		Prior to award
2. Scheduled Inspection Plan	C.8.a	10 days after award
3. Preventive Maintenance Schedule	C.11.a	10 days after award
4. Quality Control Program		15 days after award
5. Schedule of Deductions		15 days after award
6. Certificate of Insurance		15 days after award
7. Pre-performance Conference		Prior to starting
8. Employee/vehicle passes and badges		Prior to starting
9. Employee proof of citizenship		Prior to starting
10. Licenses and permits		Prior to starting
11. Employee security clearances		Prior to starting
12. Work Orders		Within 24 hours of completion
13. Work Orders		With invoice
14. Invoice		Specified frequency
15. Written reply to a Contract Discrepancy Report		As needed
16. Accident Report		Within 24 hours
17. Damage to Government Property/Equipment		Within 24 hours
18. Application to work outside regular hours		As needed
19. Status Report of Minor Work	C.13	1st week current month

<u>DESCRIPTION</u>	<u>SPECIFICATION REFERENCE</u>	<u>WHEN REQUIRED</u>
20. Certified copies of test reports	C.14.b	As needed
21. Preventive Maintenance Inspection Report	C.11.a	After 5 working days
22. Control Inspection	C.8.a	Per Annual Plan
23. Work Schedule	C.13	1st week of each month
24. Estimates	C.12	!INSERT! calendar days after receipt of work requirements
25. Monthly Pest Control Use Report	C.14.1(2)	10 th of each month
26. Utility Outage Request	C.9	As needed

ATTACHMENT J-C7

INSPECTION CRITERIA

!*****
 NOTICE TO SPECIFICATION WRITER: Attachments 2 and 3 of NAVFACINST 11230.1B are provided in Attachment J-C7. As referenced in paragraph C.8.a(3), this Attachment provides acceptable limits for defects on FRA Class 2 railroad tracks and crane tracks for the Contractor to base his/her inspection and repair effort on.
 *****!

SUMMARY OF IN-SERVICE RAILROAD TRACK INSPECTION CRITERIA
 FRA Class 2 Track (See Note 1)

FRA PARAGRAPH	TRACK SAFETY STANDARDS	CRITICAL DEFECTS (POTENTIALLY SERIOUS)	
"A"	<u>GENERAL</u>	See Notes 1 and 2	
213.9	Maximum speed	Over 25 mph	
None	<u>OPERATIONAL TEST DEFLECTION</u>		
213.13	Flexible support (wood ties and gravel ballast)	Over 1-1/2 inches. See Note 3.	
	Rigid support (concrete beam or slab - including bridges, trestles and buildings)	Over 1/2 inch. See Note 3.	
"B"	<u>ROADBED</u>		
213.33	Drainage	Blocked	
"C"	<u>TRACK GEOMETRY</u>		
213.53	<u>Gage</u>	<u>Under</u> 4'8"	<u>Over</u> 4'9-3/4"
213.55	<u>Alignment</u> (per 62 feet)		
	Tangent, mid offset	Over 3 inches	
	Curve, middle ordinate	Over 3 inches	
	<u>Profile</u> grade	More than 3%	
213.57	<u>Curve Elevation</u>		
	Outside rail on industrial trackage	Over 3 inches. See Note 4.	

FRA PARAGRAPH	TRACK SAFETY STANDARDS	CRITICAL DEFECTS (POTENTIALLY SERIOUS)
	Reverse superelevation on industrial trackage	Over 1/2 inch
213.63	<u>Trackage Surface</u>	
	Runoff per 31 feet	Over 3 inches
	Profile at MO of 62-foot chord	Over 2-3/4 inches
	Deviation from design on spiral elevation	Over 1-1/2 inches
	Cross level variation per 31 feet on spirals	Over 1-3/4 inches
	Cross level deviation	Over 2 inches
	Cross level difference in 62 feet	Over 2 inches
"D"	<u>TRACK STRUCTURES</u>	
213.103	<u>Ballast</u>	Track moves laterally, longitudinally, or vertically. See track geometry.
213.109	<u>Crossties</u>	
	<u>Quantity</u> - number per 39 feet of trackage	Less than 18 inches
	<u>Spacing</u> - Face to face distance between two ties	Over 18 inches. See Note 5.
	<u>Skew</u> - Deviation of ties from right angles to rails	Over 8 inches or standard tie width. See Notes 3, 5, and 7.
	<u>Condition</u> - number of sound ties per 39 feet of trackage	Less than 8 inches. See Notes 6 and 7.
	<u>Under Joints</u> - required position of nondefective ties	Under supported joints or adjacent to suspended joints. See Note 6.
213.123	<u>Tie Plates</u>	Indications of more than 1/2 inch of movement. See Note 7.
213.127	<u>Rail Fastenings</u> - Spikes per rail per tie	

FRA PARAGRAPH	TRACK SAFETY STANDARDS	CRITICAL DEFECTS (POTENTIALLY SERIOUS)
	On tangents	Less than 2. See Note 5.
	On curves over 6 degrees	Less than 3. See Note 5.
213.113	<u>Defective Rails</u>	
	Transverse fissure	More than 20% of railhead cross-section weakened by defect. See Notes 2 and 8.
	Compound fissure	
	Detail fracture	
	Engine burn fracture	
	Defective weld	
	Ordinary break	
	Horizontal split head	More than 4 inches.
	Vertical split head	See Notes 2 and 8.
	Split web	More than 3 inches.
	Piped rail	See Notes 2 and 8.
	Head web separation	
	Bolt hole cracks	More than 1-1/2 inches. See Note 8.
	Broken base	Any. See Notes 2 and 8.
213.113	<u>Damaged Rail</u>	
	Shelling	Depth over 3/8 inch
	Head checks	
	Engine burn	
	Mill defect	
	Flaking-slivered	
	Corrugated-corroded	
	Flowed Rail	Roll exceeding 5/16 inch from gage face.
None	<u>Worn Rail</u>	
	Web-base thickness reduction	Over 1/8 inch
	Vertical head wear:	
	Rail section (lbs per yard)	
	up to 112	Over 1/4 inch
	115 to 131	Over 3/8 inch
	132 and larger	Over 1/2 inch

FRA PARAGRAPH	TRACK SAFETY STANDARDS	CRITICAL DEFECTS (POTENTIALLY SERIOUS)
	Horizontal side wear: Rail section (lbs per yard) up to 112 115 to 131 132 and larger	See Note 10. Over 1/2 inch Over 5/8 inch Over 3/4 inch
213.115	<u>Rail End Mismatch</u> On tread or running surface On gage side	 Over 1/4 inch Over 3/16 inch
213.121	<u>Joints</u> Joint gap Bolt holes Joint bars	 Over 1-1/4 inch. See Note 9. Torchcut or burned Broken between the middle two bolt holes
213.133	<u>Turnouts and Crossings</u> Flangeway width	 Less than 1-1/2 inch
213.135	<u>Switches</u> Point closure gap Point condition	 Over 1/4 inch. See Note 12. Unusually chipped, worn, or flowed
213.137	<u>Frogs</u> Flangeway depth Point Tread wear	 Less than 1-1/2 inch. See Note 11. More than 5/8 inch down and 6 inches back Over 3/8 inch
213.141	<u>Self-Guarded Frogs</u> Raised guardwear	 Over 3/8 inch

FRA PARAGRAPH	TRACK SAFETY STANDARDS	CRITICAL DEFECTS (POTENTIALLY SERIOUS)
213.143	<u>Frog Guard Rails</u>	
	Check gage	Less than 4'6-1/4"
	Face gage	More than 4'5-1/8"

- Note 1. Criteria shown is based on safety standards for class two trackage. If higher or lower standards of trackage are involved, corresponding FRA Track Safety Standards shall apply. Restricted speed or slow orders do not change or reduce the class of track.
- Note 2. The following defects are considered catastrophic (serious) and all traffic shall be restricted until repairs are made: (1) Any breakout in the railhead, (2) Defects accumulating three feet or more in any 10 feet, (3) Broken base exceeding six inches. Specific criteria for evaluating the consequences of defects outside the range designated as critical (potentially serious) are not available. However, when the FRA Safety Standards for Class one track are exceeded, the trackage shall be non-certified. The activity shall evaluate the severity of each such defect and shall classify the degree-of-hazard based on engineering judgment and experience.
- Note 3. Guidelines are for visual observation only. Deviations may be estimated, and measurement is not required unless it is necessary for supplemental investigation. Deviations exceeding the criteria shown shall be investigated to determine cause. Defects for flexible supported rail shall be evaluated according to trackage surface standards (FRA Para 213.63). Defects for rigidly supported rail shall be evaluated based on engineering investigation.
- Note 4. Maximum superelevation for high speed mainline or running trackage, with corresponding higher classification and better standards, leading into or passing through the activity is six inches.
- Note 5. An individual tie not fully supported, having missing or loose spikes, having excessive spacing, or other type tie defect will cause the tie to be classified as defective. See FRA paragraph 213.109 for handling of defective ties.
- Note 6. See FRA Standards for description of defective ties and for tie requirements under joints. Generally the maximum center to center distance between sound ties does not exceed 70 inches; however, the centerline of a sound tie shall be within 24 inches of a rail joint.
- Note 7. Indications on tie plates or ties of movement exceeding 1/2 inch shall be considered a defective tie. "Kicked" tie plate with shoulder under the rail should be considered defective (marginal or critical).

- Note 8. Defects smaller than those noted may be classified as marginal (not serious) provided the defect is inspected six months after discovery and annually thereafter to ensure that the defect is not progressing.
- Note 9. Joint gaps measuring over 3/4 inch when the air temperature is over 30°C (86°F) shall be remeasured when the air temperature drops below 0°C (32°F) to ensure that marginal defects do not exist. Joint gaps over 3/4 inch and less than 1-1/4 inch may be classified as marginal. Joint gaps over 3/8 inch and less than 3/4 inch are negligible.
- Note 10. Railroad rail may be transposed or interchanged if the horizontal wear on one side does not exceed 3/8 inch.
- Note 11. Criteria for Railroad/Crane trackage crossings shall be developed locally based on design, float and safety.
- Note 12. Switch points must fit stock rails properly. Lateral and vertical movement, and any gap that adversely affects the fit of the switch point to the stock rail is considered a defect.

SUMMARY OF IN-SERVICE RAILROAD TRACK INSPECTION CRITERIA

<u>TRACK SAFETY STANDARDS</u>	<u>CRITICAL DEFECTS (POTENTIALLY SERIOUS)</u>
<u>GENERAL</u>	See Note 1
OPERATIONAL TEST DEFLECTION	Over 1/4 inch. See Note 2.
<u>TRACK GEOMETRY</u>	
<u>ALIGNMENT</u>	
Tangent, mid offset per 62 feet	Over 1/2 inch
Curves	See Note 3
Profile, grade	Over 1%
<u>TRACK SURFACE</u>	
Profile at MO of 62-ft chord, cross level deviation, and cross level difference in 62 feet	Over 1 inch. See Note 3.
<u>TRACK STRUCTURES</u>	
SUPPORT STRUCTURE movement	Deformation, misalignment, or exceeding 1/2 inch. See Notes 2 and 4.
<u>RAIL FASTENINGS</u>	
Hold Down Bolts	The distance between nondefective fastening on either side of the rail is more than 48 inches
<u>DEFECTIVE RAILS</u>	
Transverse fissure Compound fissure	More than 20% of railhead cross section weakened by defect. See Note 5.
Detail fracture Engine burn fracture Ordinary break	Breakout in railhead with over ¼ inch movement. See Note 6.
Horizontal split head Vertical split head	More than 4 inches. See Note 5.
Split web Piped rail Head web separation	More than 3 inches. See Note 5.

TRACK SAFETY STANDARDS

CRITICAL DEFECTS
(POTENTIALLY SERIOUS)

Bolt hole cracks More than 1-1/2 inches. See Note 5.

Broken base More than 6 inches

DAMAGED RAIL

Shelling Depth over 3/8 inch

Head checks

Engine burn

Mill defect

Flaking-slivered

Corrugated-corroded

Flowed rail Roll exceeding 5/16 inch

WORN RAIL

Rail section (pounds per yd)

Web-base thickness reduction:

Up to 70 Over 1/8 inch

Over 70 Over 1/4 inch

Vertical head wear:

Up to 70 Over 1/4 inch

71 to 134 Over 3/8 inch

135 and larger Over 1/2 inch

Horizontal side wear:

Up to 70 Over 1/2 inch

71 to 134 Over 5/8 inch

135 and larger Over 3/4 inch

RAIL END MISMATCH

On tread or running surface Over 1/4 inch

On side of railhead Over 3/16 inch

RAIL JOINTS

Gap rail joints Over 1/2 inch. See Note 7.

Gap expansion joints Over 1 inch. See Note 7.

Gap rail to switch or frog joints Over 3/4 inch. See Note 7.

Bolt Holes Torchcut or burned

Joint bars Broken between the middle two bolt holes

SWITCHES

Point closure mismatch	Loose over 1/4 inch of movement. See Note 4.
Point condition	Unusually chipped, worn, or flawed

FROGS

Flangeway depth and width	Develop locally for safe passage. See Note 3 and 8.
Point	More than 5/8 inch down and 6 inches back
Tread wear	Over 3/8 inch

NOTE 1. Criteria is shown for ground level or elevated crane rail systems that are rigidly supported; such as rails mounted on steel or concrete beams. If other types of support systems are involved, the severity of defects shall be determined based on local conditions. Specific criteria for evaluating the consequences of defects outside the range designated as critical (potentially serious) are not available. The activity shall evaluate the severity of each such defect and shall classify the degree-of-hazard based on engineering judgment and experience.

NOTE 2. Guidelines are for visual observation only. Deviations may be estimated and measurement is not required unless it is necessary for supplemental investigation. Deflection for rail systems on flexible supports, such as wood ties and gravel ballast, should not exceed 3/4 inch.

NOTE 3. Determined locally for each specific case based on existing conditions and crane float.

NOTE 4. Building supports, pile foundations, caps, beams, etc. shall be investigated when movement, sag, deformation, or other alignment problems of component members exceeds 1/2 inch. The final classification of defects shall be based on engineering evaluations.

NOTE 5. Defects smaller than those noted may be classified as marginal (not serious) provided the defect is inspected six months after discovery and annually thereafter to ensure that the defect is not progressing. Defects accumulating three feet or more in any 10 feet are considered catastrophic (serious).

NOTE 6. Fractures or breaks at right angles to the rail may be classified as marginal provided the rigid foundation is solid; there is very little movement of the rail ends; the nearest joint, weld, or break is more

than 6 1/2 feet away; and there is a program for continued surveillance.

NOTE 7. Joint gaps over 1/4 inch and less than 1/2 inch may be classified as negligible defects provided the joint is tight with no movement. Joint gaps between 1/2 inch and the defect limit indicated shall be classified as marginal or a more serious classification if the joint is loose or if there are other defects present. Gaps measured at defect limits when the air temperature is over 30°C (86°F) shall be remeasured when the air temperature drops below 0°C (32°F).

NOTE 8. For double-flanged wheels, flangeway depths in vicinity of flangeway width or gap of crossing rail are designed to be slightly less than the depth of flange so that wheels ride on flanges through ramped frogs. Flangeway depths equal to wheels' flanges are "negligible" (not serious) defects, provided wear on the frog point is not excessive. For single-flanged wheels on a 4 track system, requirements are the same as for railroad trackage, i.e., a flangeway depth less than 1-1/2 inches is a critical defect (potentially serious). For turntable frogs, the flangeway depth shall be greater than flange depth of the wheel.

ATTACHMENT J-C8

UTILITY OUTAGE REQUEST

!*****
NOTE TO SPECIFICATION WRITER: Attach a copy of the activity's Utility Outage
Request form referenced in paragraph C.9.b. Include instructions on form
completion, routing requirements, etc.
*****!

ATTACHMENT J-C9

HISTORICAL DATA

The data in this attachment is taken from the activity's records and is provided to indicate the types and an approximate order of magnitude of the work to be accomplished under the contract. It is not, however, by itself, considered sufficiently accurate for bidding purposes.

NUMBER OF SERVICE CALLS (1986)

JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

!INSERT APPROPRIATE NUMBER OF CALLS FOR EACH MONTH!

MINOR MAINTENANCE AND REPAIR

<u>CRAFT</u>	<u>NUMBER OF JOBS</u> *
Trackage	!INSERT!
Moving/Rigger	!INSERT!
Grounds/Surface	!INSERT!

* Craft involvement only. Not total jobs.

<u>TRAVEL ZONE</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>TOTAL</u>
No. of jobs performed								
Total EPS hours/zone								
JOB SIZE (EPS HOURS)	<u>(0-16)</u>	<u>(17-40)</u>	<u>(41-80)</u>	<u>(81-120)</u>	<u>(121-160)</u>	<u>TOTAL</u>		
FY-85 (Number of Jobs)								
FY-86 (Number of Jobs)								

ATTACHMENT J-C10

TRAVEL ZONE MAP

!*****
NOTE TO SPECIFICATION WRITER: Attach a legible copy of the activity's EPS
travel zone map.
*****!

ATTACHMENT J-C11

RAIL WELDING METHODS

1. THERMITE "SELF-PREHEAT" METHOD

a. Applicable Publications. The following publication of the issue listed below, but referred to thereafter by basic designation only, forms a part of this specification to the extent indicated by the reference thereto:

American Welding Society (AWS) Publication: Code D1.1-81 Structural Welding

b. General Requirements. This specification covers instructions for the in-track or shop welding of rails by the thermite "self-preheat" method. All labor, materials, tools, and supervision shall be provided by the Contractor. The Contractor shall qualify the field welding process that he intends to use in track construction. The step-by-step method of welding procedure specifications shall be approved by the ACO.

(1) Materials. Materials shall be contained in a kit with all necessary materials and accessories to complete one welding. The kit shall consist of a preformed mold (including flat core), thermite powder, starting thermite powder, luting material (sand), metals discs (taps), extension ring (8-inch long section of 8-inch diameter Schedule 80 pipe), bolts and nuts, and asbestos cord. Molds shall be factory-made, moisture free, and of non-hygroscopic material.

(2) Workmanship. Thermite welding shall be accomplished by welders experienced in field welding rail. Work shall be accomplished in strict compliance with the written instructions of the manufacturer of the material used.

c. Procedure

(1) Rail Preparation. The ends of the rails to be welded shall be cleaned to remove all grease, oil, dirt, loose scale, and moisture. The cleaned area shall extend at least five inches back from the rail ends and shall include all of the rail surfaces. The faces of the rail ends shall be arranged at right angles by cutting or grinding and shall be further cleaned to remove all scale and rust. Ends shall be cropped where bolt holes occur. Pre-formed molds are made to fit new rails. If the space between the mold and the rail is unusually large on used or re-lay rails, this gap should be filled with a piece of asbestos cord before luting or packing.

(2) Alignment of Rails. The rails shall be aligned within the following gap tolerances: 1/2-inch minimum gap for rails up to 135 pounds per yard. In aligning the rails, if the welding is to be accomplished at the shop, both rails shall be leveled throughout their entire length. After the rails have been aligned as to both surface and guage, the rail ends at the joint shall be slightly elevated to a 1/16-inch crown.

(3) Placing of Molds. Place the two halves of the mold on the rail and hold them loosely together, either by hand, or by the use of spring clamps placed at the lower edges of the crucible section of the mold. Align the mold so that the center line of the mold coincides with the center line of the gap. Fasten the mold by placing bolts and nuts in holes provided in the mold,

beginning first with the four bolts under the base of rail and then proceeding to the two bolts above the head of the rail. Hold the flat core under the base of one rail with the shorter length longitudinal with the rail. Slide the core along under the base until it enters the slats in the mold and retains it. Center the core in place by working it back and forth under the rail base. Place the two wooden wedges between the mold and the rail, thus driving the molds up and lifting the core into contact with the rail base.

(4) Sealing of Molds (Luting). Before luting, cover the crucible or bowl so that no sand falls into the mold. Cover all bolt holes with luting sand starting with the holes nearest the end of the rail. Fill the rest of the flare with luting sand, tucking it into the innermost recess of the flare. Pack additional luting material to back up the one already in place. Gradually work up the luting material from under the base, above the base, then through the web, and finally the head; until complete sealing of the mold to the rail is accomplished. Back up all bolts and nuts and any empty bolt holes with a handful of the luting material to prevent leakage. Finally, cover C-clamps with luting material to prevent them from being hit with splatter.

(5) Final Checks of Gap and Centering. After the flares between the mold and the rail have been completely luted, check the position of the mold on the rail by sighting down the slat in the bottom of the bowl or crucible. Also make certain that the proper gap has been retained and readjust as necessary.

(6) Placing the Tap Disc. Place the metal discs in the socket at the bottom of the crucible section of the mold. Place the discs one at a time and tap them to a firm seat by means of a screw driver or hammer handle until all discs in the package are used.

(7) Placing Extension Ring and Pouring Thermite. Place the 8 inch diameter metal ring on top of the crucible so that it will rest on the ledge slightly below it. Pour the thermite powders through the extension ring into the crucible and level and tamp the powder off by hand. Pour some of the luting material into the joint between the top of the mold and the extension ring to prevent leakage.

(8) Ignition of Thermite. The thermite reaction is started by the use of a separate thermite material called starting thermite. Place approximately one heaping teaspoonful of the thermite starting powder (packed in small 1/2-pound can) over the thermite powder already in the crucible in two right-angled furrows, approximately two inches long. Ignite the starting thermite with the spark of a flint igniter. Leave the mold undisturbed for about one minute after the reaction has taken place.

(9) Removal of Mold and Finishing. Once the reaction is completed the mold shall be knocked-off. The steel on top of the weld, called riser, will be red-hot and shall be trimmed-off by the use of a hot-cut chisel and sledge. Nick the riser with a chisel at a point slightly above where it joins the rail head, before striking the riser with a sledge. Grind away excess weld metal on the tread and gage of rail. No finishing is required on the web and base of rail.

(a) If time allows it is preferred to keep the mold on the rail until the weld has cooled; at which time, the mold can be knocked-off and the riser trimmed.

(b) Under no circumstances should the use of a torch be allowed for removal of excess metal.

2. MANUAL SHIELDED - ARC WELDING METHOD. Use this process in accordance with applicable provisions of the AWS Code D1.1 and the following:

a. Rail End Preparation. Bevel the ends of the rails at approximately 35 degrees full bevel on the head, 35 degrees double bevel on the web, and 35 degrees full bevel on the upper side of the base. Retain a narrow "nose" of approximately 1/16-inch of the original rail-end face across the base and up the web, following the beveling operation, to permit proper alignment of rail ends. When beveling with a torch, first preheat each rail end to 500°F. After torch cutting, grind off all scale and oxides. Grind level faces only after preheating. Use proper grinding wheel and speed to avoid grinding "burns" or formation of "hard spots" from localized overheating.

b. Alignment of Rails. Align the beveled rail ends, allowing approximately 1/8-inch root clearance, and place a copper shim under the joint opening. Clamp the rails during the welding with up to 1/4-inch vertical camber (ends high) in 4 feet centered over the joint to compensate for any contracting distortion.

c. Preheating Joints. Preheat the joint area to approximately 500°F for a distance of 6 to 8 inches on each side of the joint using a suitable heat source, such as an oxy-acetylene or propane torch.

d. Arc Welding. Initiate welding of the joint immediately after preheating in the following sequence: base, web, and head. Weld alternately on both sides of the base and web. Do not entrap foreign materials, such as slag, in the weld. Grind, chip, or arc-air the root of the initial weld to sound metal before welding is started from the second side. Maintain a 500°F to moderately higher interpass temperature. Proceed with welding until the joint is completed and sufficient metal has been deposited to permit grinding to finish contour in the head area. Provide slight reinforcement of the web and top of base areas.

e. Postheating of Welds. Postheat the joint area to approximately 700°F immediately after the welding operation, using the same technique for preheating. After postheating, protect the weld area against rain and snow and cool as slowly as possible by covering with an insulating blanket.

f. Grinding of Welds. Remove the excess deposited weld metal from the sides and top of the rail head using a heavy-duty grinder. Heat the area of the weld to at least 550°F before and during grinding. Grind the area smooth, finishing to within plus or minus 0.020 inch of the original contour. Use proper grinding wheel, speed, and rate of metal removal to avoid grinding "burns" or formation of "hard spots" from localized overheating. Exercise care to preclude grinding cracks.

g. Temperatures. Measure the temperatures as indicated herein by temperature pencils.

!*****
NOTE TO SPECIFICATION WRITER:: The following reference material is useful information for any user of this GPWS:

Mil-Std-1699, *Nondestructive Evaluation of Butt Welds in Crane and Railroad Rails*.

Bethlehem Steel Corporation's Procedure for Electric Welding Crane Runway Rails, April 1972.

Mare Island Report on Engineering Investigation at Various Types of Welded Rail Joints, August 1980. Available from: Defense Technical Information Center, Cameron Station Alexandria, VA 22314. Report #ADA-094198.

*****!

ATTACHMENT J-C12

PESTICIDE USE RECORDS

!*****
NOTE TO SPECIFICATION WRITER: Attach a copy of NAVFAC form 6250/3 if the
Contractor will be required to provide vegetation control services.

A sample NAVFAC Form 6250/3 is attached. The Contractor shall complete this
form in accordance with the requirements of paragraph C.14.1 and NAVFACINST
6250.36.

ATTACHMENT J-E1

LIST OF ENGINEERED PERFORMANCE STANDARDS MANUALS

<u>PUBLICATION</u> <u>NUMBER</u>	<u>NAME</u>
P-700.0	EPS-Engineers Manual
P-701.0	EPS-General Handbook
P-702.0	EPS-Carpentry Handbook
P-703.0	EPS-Electrical Electronic Handbook
P-704.0	EPS-Heating, Cooling & Ventilation Handbook
P-705.0	EPS-Emergency/Service Handbook
P-706.0	Janitorial and Custodial Services Handbook
P-707.0	EPS-Machine Shop Machine Repairs Handbook
P-708.0	EPS-Masonry Handbook
P-709.0	Moving, Rigging Handbook
P-710.0	EPS-Paint Handbook
P-711.0	EPS-Pipefitting Plumbing Handbook
P-712.0	Roads, Grounds, Pest Control and Refuse Collection Handbook
P-713.0	EPS-Sheetmetal Structural Iron/Welding Handbook
P-714.0	Trackage Handbook
P-715.0	Wharfbuilding Handbook
P-716.0	Unit Price Standards (UPS) Handbook
P-717.0	Preventive/Recurring Maintenance Handbook

ATTACHMENT J-E2

LIST OF NAVAL FACILITIES ENGINEERING COMMAND ENGINEERING FIELD DIVISIONS

Commanding Officer
Southwest Division, Naval Facilities Engineering Command
1220 Pacific Highway
San Diego, CA 92132

Commander
Atlantic Division, Naval Facilities Engineering Command
1510 Gilbert Street
Norfolk, VA 23511

Commanding Officer
Southern Division, Naval Facilities Engineering Command
P.O. Box 190010
Charleston, SC 29419

Commander
Pacific Division, Naval Facilities Engineering Command
258 Makalapa Drive
Pearl Harbor, HI 96860

ATTACHMENT J-G1

DELIVERY ORDER FORM, DD FORM 1155

!*****
NOTICE TO SPECIFICATION WRITER: This Attachment is to be included for contracts which contain indefinite quantity work items. If no indefinite quantity work is associated with the specification, this attachment should be deleted. If such work is required, complete the information below, as appropriate, and attach a blank DD Form 1155.
*****!

1. A sample indefinite quantity work order form, Department of Defense form DD Form 1155 (1 Feb 75), is attached. Indefinite quantity work will be ordered in accordance with the "ORDERING OF WORK" clause, Section I.

2. The following table establishes the minimum and maximum quantities of work permissible per work order.

<u>INDEFINITE QUANTITY WORK ITEM</u>	<u>MINIMUM QUANTITY</u>	<u>MAXIMUM QUANTITY</u>
--------------------------------------	-------------------------	-------------------------

1.

ATTACHMENT J-G2

INVOICING INSTRUCTIONS

!*****

NOTICE TO SPECIFICATION WRITER: The user must develop invoicing instructions. The following are items that should be addressed.

1. Name and address of person who is to receive the monthly invoice.
2. Date invoice should be submitted.
3. Number of invoices required.
4. Back-up form showing work that is:

Performed on a regular basis and is to be paid 1/12 of contract line item 0001 per month.

Work that is performed infrequently and is paid as performed.

Reimbursement due Contractor for materials furnished by Contractor and approved by the ACO.

5. Copy of Navy Invoicing Form.
6. Contractor's monthly submittal requirements:

Work schedules

Other required submittals.

*****!

ATTACHMENT J-H1

DIRECTIVES, PUBLICATIONS, AND SPECIFICATIONS

!*****
 NOTE TO SPECIFICATION WRITER: List publications, instructions, standards, manuals, etc. referred to in the specifications. Add or delete as required. Publications and directives listed here are classified either as advisory or mandatory.
 *****!

The following directives, publications, and specifications of the issues listed below, but referred to hereafter by basic designation only, form a part of this specification to the extent indicated by the reference thereto. Those directives/references classified as advisory are identified to the Contractor to provide guidance concerning the standards of performance that the Government will use in evaluating the Contractor's overall work performance. Those publications and directives classified as mandatory must be complied with by the Contractor during the duration of this contract. Availability and procedures for obtaining required publications are described in Section L.

	<u>Mandatory</u>	<u>Advisory</u>
1. <u>Navy Regulations, Specifications, and Manuals</u>		
NAVFAC MO-322 Volume 1, Inspection of Shore Facilities	Chapters 4-6	Remainder of MO-322, Volume 1
NAVFAC MO-322 Volume 2, Inspection of Shore Facilities		All sections
NAVY MO-103, Maintenance of Trackage	X	
NAVSEA/NAVFACINST 11230.1; Inspection, Certification, and Audit of Crane and Railroad Trackage	X	
NAVFACINST 6250.3G; Applied Biology Program Services, Training, and Reporting Requirements; 26 May 87	X	
NAVFAC DM-5.6, Design Manual "Trackage", November 1981	X	
NFGS-02910, Welding Crane and Railroad Rail - Thermite Method, April 1982	X	
NFGS-02452, Railroad Track Work, September 1984	X	
NFGS-14304, Portal Crane Track Installation, January 1984	X	

	<u>Mandatory</u>	<u>Advisory</u>
2. <u>Federal Specifications</u>		
FF-S-611A; Spikes, Track Square -Shank	X	
MM-T-371E; Ties, Railroad, Wood (Cross and Switch)	X	
TT-W-00571J, Wood Preservation: Treating Practices	X	
QQ-S-632; Steel Bar, Reinforcing (for concrete)	X	
SS-C-1960/3B; Cement, Portland	X	
3. <u>Military Specification (MIL)</u>		
MIL-R-3518C; Rails, Tee, Railway	X	
MIL-R-3911B; Rails, Tee, Railway Relayer Rail	X	
MIL-B-3964A; Bolts and Nuts, Track	X	
MIL-T-11292C; Turnout, Railway	X	
MIL-D-11302D; Derail, Railway	X	
MIL-J-12368D; Joint Bar, Rail	X	
MIL-T-12270B; Tie Plates, Railway	X	
4. <u>American Concrete Institute (ACI)</u>		
ACI 305, Recommended Practice For Cold Weather Concreting	X	
ACI 306, Recommended Practice For Hot Weather Concreting	X	
5. <u>American National Standards Institute (ANSI)</u>		
B18.2.1-1972; Square and Hex Bolts and Screws, Including Askew Head Bolts, Hex Cap Screws, and Lag Screws	X	
B18.2.2-1972, Square and Hex Nuts	X	
6. <u>American Railway Engineering Association (AREA) Publication</u>		
Manual for Railway Engineering, 26 March 1975	X	
Trackwork Plans, 1973		X

	<u>Mandatory</u>	<u>Advisory</u>
7. <u>American Society for Testing and Materials (ASTM)</u>		
A36-81, Structural Steel	X	
A66-64, Steel Screw Spikes	X	
A183-80, Carbon Steel Track Bolts and Nuts	X	
A283-81; Low and Intermediate Tensile Strength Carbon Steel Plates, Shapes and Bars	X	
A615-79; Deformed and Plain Billet-Steel Bars for Concrete Reinforcement	X	
C29-78, Unit Weight Aggregate	X	
C33-80, Concrete Aggregates	X	
C94-83, Ready-Mixed Concrete	X	
C109-80, Compressive Strength of Hydraulic Cement Mortars (Using 2-inch or 50mm Cube Specimens)	X	
C131-81; Resistance to Abrasion of Small Size Coarse Aggregate By Use of the Los Angeles Machine	X	
C136-81, Sieve or Screen Analysis of Fine and Coarse Aggregates	X	
C144-81, Aggregate for Masonry Mortar	X	
C150-80, Portland Cement	X	
C157-80, Length Change of Hardened Cement Mortar and Concrete	X	
C227-71 (1976), Potential Alkali Reactivity of Cement-Aggregates Combinations (Mortar-Bar Method)	X	
C234-71 (1977), Comparing Concretes on the Basis of Bond Developed with Reinforcing Steel	X	
C260-77, Air-Entraining Admixtures for Concrete	X	
C289-71 (1976), Potential Reactivity of Aggregates (Chemical Method)	X	
C535-69 (1975), Resistance to Abrasion of Large Size Coarse Aggregate By Use of the Los Angeles Machine	X	
C595-79, Blended Hydraulic Cements	X	

	<u>Mandatory</u>	<u>Advisory</u>
D75-71 (1978), Sampling Aggregates	X	
D88-56 (73), Saybolt Viscosity	X	
D448-80, Standard Sizes of Coarse Aggregate for Highway Construction	X	
D1189-61 (73), Vacuum Distillation of Liquid and Semi-Solid Asphaltic Materials	X	
D1310-80, Flash Points of Liquids by Tag Open Cup Apparatus	X	
D1556-64 (74), Density of Soil In Place by the Sand-Cone Method	X	
D1557-78; Moisture-Density Relation in Soils, Using 10-lb Rammer and an 18-inch Drop (Method D)	X	
D1663-74; Hot-Mixed, Hot-Laid Asphaltic Paving Mixtures	X	
D1763-81, Epoxy Resins	X	
D2027-76 (81), Liquid Asphalt (Medium-Curing Type)	X	
D2629-74; Hot-Mixed, Hot-Laid Emulsified Asphalt	X	
8. <u>American Welding Society (AWS) Publication</u>		
D1.1-81, Structural Welding Code	X	
9. <u>The Asphalt Institute</u>		
PM-2, Plant-Mixed Asphalt Stockpile Maintenance Mixtures	X	
MS-16, Asphalt in Pavement Maintenance	X	
10. <u>US Department of Transportation (DOT), Federal Railroad Administration (FRA)</u>		
Track Safety Standards, Code of Federal Regulations (CFR) Title 49 Transportation, Chapter II FRA Part 213 Track Safety Standards	X	
11. <u>Department of Defense</u>		
Armed Forces Management Board Technical Information TIM #15, "Pesticide Spill Prevention and Management Manual"	X	

ATTACHMENT J-H6

SAFETY REQUIREMENTS AND REPORTS

!*****
NOTE TO SPECIFICATION WRITER: Identify safety requirements that the Contractor will have to comply with. It is suggested that the activity's Safety Officer should be involved in the identification of these requirements. See the "SAFETY REQUIREMENTS AND REPORTS" clause, Section H for information.
*****!

Department of Army Corp of Engineers EM 385-1-1 Safety and Health Requirements Manual dated April 1981, published by US Government Printing Office, Washington DC 20402, Stock No. 008-022-00106-9.

Occupational Safety and Health Administration's General Industry Standards, Part 1910, Title 29 of the Code of Federal Regulations

!*****
NOTE TO SPECIFICATION WRITER: Denote any other local, state, or Federal safety regulations.
*****!

END OF SECTION J

QUALITY ASSURANCE GUIDE

FOR

RAIL FACILITIES MAINTENANCE AND REPAIR

QUALITY ASSURANCE GUIDE
RAIL FACILITIES MAINTENANCE AND REPAIR

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QUALITY ASSURANCE GUIDE
RAIL FACILITIES MAINTENANCE AND REPAIR

I. INTRODUCTION

A. Overview. The Rail Facilities Maintenance and Repair Quality Assurance (QA) Guide is designed to help the Quality Assurance Evaluator (QAE), under the direction of the Facility Support Contract Manager (FSCM) in setting up the activity's QA program. The user is advised to refer to NAVFAC MO 327, *Facility Support Contract Quality Management Manual* for more detailed information on the development and implementation of a QA Program. This Guide suggests specific methods for monitoring rail facilities maintenance and repair services and provides sample QA Plans. These sample plans must be tailored concurrently with the tailoring of this GPWS to develop a unique QA Program that fits the needs of the activity. This QA Guide is divided into 5 parts.

1. The Introduction presents an overview and provides information on QAE training.

2. QA Plan Development provides the user with special considerations that affect the way in which rail facilities services may be monitored, and suggests specific evaluation methods for different portions of the specification.

3. The third part, QA Plans, provide sample QA Plans with numerical examples and suggested Evaluation Worksheets. The sample plans provided must be tailored by the QAE to conform with the tailored PWS.

4. The fourth part, Contractor's Overall Performance Evaluation, provides a sample monthly summary report to be used by the QAE to report Contractor's performance to the FSCM.

5. The last part, Contractor Submissions, identifies Contractor submissions and when they are due.

B. Training. Personnel tasked with monitoring Contractors' performance should be trained and be fully conversant with the specification. It is recommended that QAEs attend the NAVFAC QAE Training Course offered by each of the NAVFAC EFDs.

II. QA PLAN DEVELOPMENT

A. Functional Considerations. Rail facilities services, as do other functions, pose some unique evaluation requirements to the QAE. The following considerations are offered for user information.

1. Location of work. Locations throughout the entire activity can constitute the rail facilities working area. QA plans must provide for the identification of times and locations for surveillance to insure a properly maintained and operating system.

2. Reporting. The Contractor is notified of a deficiency by copy of the Evaluation Worksheet, a copy of which is provided with this plan. If due to location constraints, i.e. the Contractor's representative is not nearby, notification can be made by phone, but this is not generally recommended. The QAE will most likely be performing contract surveillance during most of the day and cannot stop to call the Contractor every time he finds something wrong.

Immediate Contractor notification of the discrepancies is not always feasible, and when feasible, may severely limit the QAE's available time. Certain discrepancies must be passed on to the Contractor immediately if they affect the safety or efficient operation of the rail facilities system and require immediate corrective action. These items will be re-inspected by the QAE. All other routine items will be brought to the Contractor's attention at the end of the work day.

B. Selection of Evaluation Methods

1. Discussion. Selection of evaluation methods depends on several factors including the size of the contract, QAE resources, and characteristics of the service to be evaluated. These factors are discussed in NAVFAC MO-327. Consideration of these factors as they relate to rail facilities work results in the use of the following recommended evaluation methods.

a. One Hundred Percent Inspection. It is suggested that one hundred percent inspection be the primary surveillance method for review of preventive maintenance inspection reports, monthly minor work plan, and for service calls and minor work for rail facilities maintenance and repair. This is considered appropriate because of the importance of compliance with contract requirements and the low number of occurrences of some of these items.

b. Validated Customer Complaints. Customer complaints can be used as a surveillance method recommended for use with the rail facilities since it is the customer who can be aware of problems at switches and feel of track. Properly trained, the customers can provide quick response to poor service and can serve as the remote eyes of the QAE provided they are made aware of the services to be provided and a clear means of reporting discrepancies is established. The method of obtaining and documenting customer complaints needs to be carefully planned by the FSCM and QAE. The customers must be informed of the services they are to receive. Customer Complaint Records must be maintained. Only complaints documented by the QAE are subject to invoice payment deductions.

c. Planned Sampling. Planned sampling is similar to random sampling in that some part but not all of the contract requirement is monitored. This method may be useful when population sizes are insufficient for random sampling and 100% inspection is not appropriate; requirements at one location are more important than those at other locations; and the Contractor's performance at selected locations is poor. It is suggested that planned sampling be performed for facility history files and PM performance.

d. Unscheduled Inspections. Unscheduled inspections are useful whenever the QAE feels there is a cause for impromptu evaluations. This method of inspection is similar to planned sampling except there is no pre-planned schedule. An area to be considered for unscheduled inspections is PM performance.

C. Performance Requirements

1. Maximum Allowable Defect Rates (MADR), formerly Acceptable Quality Levels (AQLs), set the point at which performance becomes unsatisfactory to the customer, and stronger action on the part of the FSCM and/or ACO is required. (Deductions are always required whenever an instance of non-compliance is observed and documented). The MADR is stated as a percentage of the work (or

sometimes as the number of defects) that, if found unacceptable over a period of time, causes the overall performance of that service to be deemed unsatisfactory. If, for example, the Contractor failed to comply with only one minor provision, overall performance would probably be acceptable (deductions are made for the non-compliance items); but if the number of violations totaled three during that month, performance may not be acceptable. The MADR reflects that point where overall service becomes unsatisfactory. MADRs are used solely as a tool to administer the contract and should not be made known to the Contractor.

2. A Performance Requirements Summary (PRS) Table (see paragraph III.E and Figure 2, User's Guide) is to be prepared by the specification writer as the GPWS is tailored. This table will be used by the QAE to determine the types of QA Plans required for contract surveillance. The tailored PWS will be the basis for individual plans.

III. QUALITY ASSURANCE PLANS

A. Introduction

1. The QA Plans are the crux of the QA program. After the development of the PRS table has been accomplished, the task of planning, conducting, and reporting the evaluations is next. QA Plans are written to accomplish the planning, conducting, and reporting of the evaluations in a step-by-step manner that will fully document the QA approach used. This gives validity to the actions taken by the FSCM. Each month the established QA Plans will be used to prepare QAE work schedules.

2. There are nine steps outlined in the NAVFAC MO-327 required to accomplish an evaluation. Notice that besides recording these nine steps, the QA Plan must show the contract requirement, the performance indicator the plan is written for, the standards of performance, and the primary method of inspection.

3. Each activity should evaluate its track inventory to determine the most appropriate sample sizes. The QA plans developed here are based on activities with 10-20 miles of track. Activities with 1-5 miles of track could probably use 100% inspection in place of planned sampling. Activities with 20-100 miles of track or more would have to adjust appropriate percentages where planned sampling is recommended.

B. Quality Assurance Plans. There are three QA plans outlined for the Rail Facilities GPWS. Use of all three plans, depending on tasks, is required for surveillance of most contracts.

<u>QA PLAN</u>	<u>TITLE</u>
A	Maintain and Submit Records Reports
B	Perform Preventive Maintenance Inspection and Service
C	Perform Minor Maintenance and Repair Work

QA PLAN A
MAINTAIN AND SUBMIT RECORDS AND REPORTS

1. Contract Requirement. Maintain and submit records and reports.

<u>Performance Indicators</u>	<u>Standards of Performance</u>
Facility History File	Paragraph C.7
Preventive Maintenance Reports	Paragraph C.11.a
Monthly Work Schedule and Status Report	Paragraph C.14

2. Primary Method of Surveillance

- a. Planned sampling of specified documents to be maintained in the facility history files.

- b. One hundred percent inspection of PM inspection reports and monthly minor work plan and status report.

3. Maximum Allowable Defect Rate (MADR). MADR will be set at !SPECIFY NUMBER! defects per month.

4. Quantity of Work. The quantity of work is all reports and records that are required for these functions as outlined in the specifications.

5. Level of Surveillance. N/A

6. Sample Size

- a. Facility History File. Initially review 25% of the files. Sample can be increased or decreased based on Contractor's performance.

- b. PM reports and Work Plan and Status Report. N/A

7. Sample Selection Procedure

- a. Facility History File. Enter the files at any location and review every fourth folder or record.

- b. PM reports and Work Plan and Status Report. N/A

8. Evaluation Procedure

- a. Facility History File. The QAE will check for copies of inspection reports (scheduled, unscheduled, PM, etc.) and minor work documentation. File should also be checked to verify that documentation was filed within !INSERT! days of work completion.

- b. PM Inspection Reports. The QAE shall verify that each PM report as submitted within !INSERT! days of inspection. Insure that reports are complete and all items are complete. Verify that each report with uncorrected deficiencies includes required detailed conditions of defects and recommended correction.

c. Monthly Scheduled Work Plan and Status Report. The QAE shall check the inspection reports submitted by the Contractor to verify that work requirements classified as "scheduled" appear on the work plan. The QAE shall check the work request log to verify that work requirements classified as "scheduled" appear on the work plan. The QAE shall check the date that the Contractor submitted the work plan. The QAE shall verify that work is updated by checking for new entries against the previous monthly plan. The QAE shall verify that completed work is removed from the work plan by checking work plan against completed work listing. The QAE shall verify priorities are properly assigned.

d. A check list will be used and it will list all of the different types of reports to be reviewed and all defects will be noted. Each record or report will be graded for completeness, accuracy, and timeliness. If any defects are observed, explanation of the probable cause will be recorded. The Contractor will be notified of the defect in writing. The date and time the Contractor is notified will be noted on the original report and any corrective actions be taken will also be noted. As in all inspections, the QAE will note the location, type of inspection and will sign a completed report.

9. Analysis of Results

a. Count the number of defects accumulated during the previous month. The contract requirement is completed satisfactorily if the number of defects is less than or equal to MADR.

b. The contract requirement is completed unsatisfactorily if the number of defects is greater than MADR.

10. Performance Evaluation. Based on the Contractor's performance, the QAE may take the following action:

a. If the number of defects exceeds the MADR, recommend the ACO submit a Contract Discrepancy Report.

b. If the number of defects does not exceed the MADR, no further action is necessary.

QA PLAN A
EVALUATION WORKSHEET
MAINTAIN AND SUBMIT RECORDS AND REPORTS

Date _____

Inspector _____

<u>RECORD</u>	TIMELINESS	ACCURACY	COMPLETENESS	<u>REMARKS</u>
	<u>P</u> <u>F</u>	<u>P</u> <u>F</u>	<u>P</u> <u>F</u>	
1. Facility History File				
Track A				
Track B				
2. PM Inspection Report				
Track A				
Track B				
3. Monthly Work Plan and Status Report				

QA PLAN B
PERFORM PM INSPECTION AND SERVICE

1. Contract Requirement. Perform preventive maintenance inspection and service as specified in paragraph C.11.
2. Primary Method of Surveillance. Planned sampling of PM execution and supported by documented customer complaints and unscheduled inspections.
3. Maximum Allowable Defect Rate (MADR). If more than 3% of the check points are defective, the service is unsatisfactory.
4. Quantity of Work. All PM for the evaluation period.
5. Level of Surveillance. N/A
6. Sample Size. Sample size is 25% of turnout locations and 10% of all track receiving service.
7. Sample Selection Procedure

a. Turnouts. To assure that samples are a good cross-section of the turnouts, a random number table should be used. If there are 60 turnouts on which PM was performed, 15 turnouts should be inspected. These turnouts should be numbered from 1-60. Select the first 15 numbers between 1 and 60 from a random number table. The numbers selected will be the turnouts to be inspected. See page QA-12 for a sample of selection from a random number table for this example.

b. Track. Since it would be impractical to develop a breakdown of the track into sufficient sections such that a random number table could be used like for turnouts, the QAE should select sections of track that are representative of all the track. One continuous section of track should not be used, rather, each section should be a minimum of 500-1000 feet long, except in the case of short sidings. The QAE should, also, assure that different sections of track are inspected on subsequent inspections.

8. Evaluation Procedure. The QAE shall verify that the inspection was performed in accordance with the Contractor's plan. Verification of performance shall be accomplished and the track will be checked for physical defects as a result of lack of PM.

a. The QAE will prepare an inspection report in advance of the on site visit to the location chosen by the sampling procedure. On the report the QAE will record the following information: date, location, type of inspection, QAE's signature, and all checkpoints which will be used to grade the Contractor's performance. If any defects are noted, a brief explanation as to the nature of the problem will be recorded in the remarks column. If rework is ordered all pertinent information will be noted such as when the Contractor reworked the defect. See the attached evaluation worksheet.

b. If any customer complaints are received due to the system failing to operate, the QAE will investigate the complaint to determine if this was a result of unsatisfactory PM. The QAE will record the appropriate information on the Customer Complaint Record.

c. In the event that a specific problem area is identified, the QAE should use unscheduled inspections as a method to determine the magnitude of the unsatisfactory performance. These inspections will be recorded on the inspection report which lists all pertinent information such as type of inspection, location, date, and checkpoints.

9. Analysis of Results

a. Count each PM item not executed according to plan as a defect in work performance.

- (1) Late in accordance with plan.
- (2) Item not checked on form.
- (3) PM defect verified in field.

b. At the end of the month the QAE will summarize all the evaluations on the inspection reports. An Observed Defect Rate (ODR) is then calculated based on the following formula:

$$\text{ODR}\% = \frac{\text{Number of defects ("F" grades)}}{\text{Total number of observed checkpoints ("P" + "F" grades)}} \times 100$$

Example:

"F" grades = 15 defects

"P" grades = 385 satisfactory checkpoints

$$\text{ODR}\% = \frac{15}{15+385} \times 100$$

$$\text{ODR}\% = 3.75\%$$

NOTE: The ODR is calculated using only those observations which used planned sampling as the method of surveillance.

10. Performance Evaluation

a. If the ODR is less than the MADR, the evaluation indicates that the service may be satisfactory. The conclusion should be compared to the number of validated customer complaints and any unscheduled inspections as a further test of its validity.

b. If the ODR is greater than or equal to the MADR, the evaluation indicates that the service may be unsatisfactory.

c. Whenever the total number of observed defects which have been documented by planned sampling inspections exceeds the maximum allowed defects for the given MADR, the service is then considered to be unsatisfactory. If this occurs, the QAE should recommend that a Contract Discrepancy Report (CDR) be issued.

d. For all observed defects, the QAE will calculate the appropriate payment deductions and at the end of the invoice period provide the Facility Support

Contract Manager (FSCM) with a report which itemizes the amount by which the Contractor's invoice should be reduced.

QA PLAN B
EVALUATION WORKSHEET
PERFORM PREVENTIVE MAINTENANCE INSPECTION AND SERVICE

Date _____

Inspector _____

Type of Inspection _____

Location _____

<u>PMI CHECKPOINT</u>	<u>P</u>	<u>F</u>	<u>REMARKS</u>
1.			
2.			
3.			
4.			

SHORT TABLE OF RANDOM NUMBERS

* Numbers are the turnouts that should be inspected. In the first evaluation, turnouts 34, 39, 24, 33, 28, 11, 34, 26, 30, 07, 30, 01, 47, 45, and 22 should be inspected.

	44	19	15	32	63	55	87	77	33	29	45	00	31
First	*34	*39	80	62	*24	*33	81	67	*28	*11	*34	79	*26
Evaluation	74	97	80	*30	65	*07	71	*30	*01	84	*47	*45	89
	*22	14	61	60	86	38	33	71	13	33	72	08	16
	40	03	96	40	03	47	24	60	09	21	21	18	00
	52	33	76	44	56	15	47	75	78	73	78	19	87
	37	59	20	40	93	17	82	24	19	90	80	87	32
	11	02	55	57	48	84	74	36	22	67	19	20	15
Second	*10	*33	79	*26	*34	*54	71	*33	89	74	68	*48	*23
Evaluation	67	*59	*28	*25	*47	89	*11	65	65	*20	*42	23	96
	98	50	75	20	09	18	54	34	68	02	54	87	23
	24	43	23	72	80	64	34	27	23	46	15	36	10
	39	91	63	18	38	27	10	78	88	84	42	32	00
	74	62	19	67	54	18	28	92	33	69	98	96	74
Third	91	*03	*35	*60	81	*16	61	97	*25	*14	78	*21	*22
Evaluation	*42	*57	66	76	72	91	*03	63	*48	*46	*44	*01	33
	06	36	63	06	15	03	72	38	01	58	25	37	66
	92	70	96	70	89	80	87	14	25	49	25	94	62
	91	08	88	53	52	13	04	82	23	00	26	36	47
	68	85	97	74	47	53	90	05	90	84	87	48	25
	59	54	13	09	13	80	42	29	63	03	24	64	12
	39	18	32	69	33	46	58	19	34	03	59	28	97
	67	43	31	09	12	60	19	57	63	78	11	80	10
	61	75	37	19	56	90	75	39	03	56	49	92	72
	78	10	91	11	00	63	19	63	74	58	69	03	51
Fourth	93	*23	71	*58	*09	78	*08	*03	*07	71	79	*32	*25
Evaluation	*37	*55	*48	82	63	89	92	*59	*14	72	*19	*17	22
	62	13	11	71	17	23	29	25	13	85	33	35	07
	29	89	97	47	03	13	20	86	22	45	59	98	64
and so on	16	94	85	82	89	07	17	30	29	89	89	80	98
	04	93	10	59	75	12	98	84	60	93	68	16	87
	95	71	43	68	97	18	85	17	13	08	00	50	77
	86	05	39	14	35	48	68	18	36	57	09	62	40
	59	30	60	10	41	31	00	69	63	77	01	89	94
	05	45	35	40	54	03	98	96	76	27	77	84	80
	71	85	17	74	66	27	85	19	55	56	51	36	48
	80	20	32	80	98	00	40	92	57	51	52	83	14
	13	50	78	02	73	39	66	82	01	28	67	51	75
	67	92	65	41	45	36	77	96	46	21	14	39	56
	72	56	73	44	26	04	62	81	15	35	79	26	99
	28	86	85	64	94	11	58	78	45	36	34	45	91
	69	57	40	80	44	94	60	82	94	93	98	01	48
	71	20	03	30	79	25	74	17	78	34	54	45	04
	89	98	55	98	22	45	12	49	82	71	57	33	28
	58	74	82	81	14	02	01	05	77	94	65	57	70
	50	54	73	81	91	07	81	26	25	45	49	61	22
	49	33	72	90	10	20	65	28	44	63	95	86	75

QA PLAN C
PERFORM MINOR MAINTENANCE AND REPAIR WORK

1. Contract Requirement. Perform minor maintenance and repair work as specified in paragraphs C.11 and C.14 through C.17.
2. Primary Method of Surveillance. One hundred percent inspection.
3. Maximum Allowable Defect Rate (MADR). MADR will be set at 10%.
4. Quantity of Work. Number of minor work job orders completed during the evaluation period.
5. Level of Surveillance. N/A
6. Sample Size. N/A
7. Sample Selection Procedure. N/A
8. Evaluation Procedure. The QAE shall prepare a separate checklist for each delivery order for minor work during each week of the monthly evaluation period. These checklists shall be prepared prior to beginning the inspection and each shall be completed at the time of the inspection and at the work site.

a. The checklist shall include the following:

- Date
- Inspector
- Type of Work
- Work Authorization
- Location

b. Remarks. The QAE shall document all defects and all other necessary information. If any defects are found, the QAE shall notify the Contractor in writing and annotate estimated rework completion date on the checklist. QAE shall inspect all rework items and annotate completion date on the same checklist.

9. Analysis of Results. An observed defect rate (ODR) will be calculated at the end of the monthly evaluation period for all delivery orders completed during same. This includes all defects found in the sampling process, even though they may have been reworked. The ODR will be calculated using the following formula:

$$\text{ODR}\% = \frac{\text{Number of defects ("F" grades)}}{\text{Total number of observed checkpoints ("P" + "F" grades)}} \times 100$$

Example:

"F" grades = 15 defects

"P" grades = 460 satisfactory checkpoints

$$\text{ODR}\% = \frac{15}{15+460} \times 100$$

$$\text{ODR}\% = 3.10\%$$

10. Performance Evaluation

a. The Contractor's performance will be considered unsatisfactory if the ODR is greater than the MADR. The QAE shall recommend issuance of a CDR when the ODR exceeds or is equal to the MADR.

b. The Contractor's performance will be satisfactory when the ODR is less than MADR.

c. The QAE shall verify all work listed in the Contractor's invoice and shall certify same if completed in accordance with the specification. QAE shall also calculate adjustments for any liquidated damages to be accessed against the Contractor's invoice and shall recommend same to the FSCM.

QA PLAN A
EVALUATION WORKSHEET
PERFORM MINOR MAINTENANCE AND REPAIR WORK

Date_____ Delivery Order_____ Location_____

Type of Work_____ Inspector_____

DEFECT CHECKPOINT

P

F

1. Documentation
2. Response Time
3. Completion Time
4. Quality of Work Performed

!ADD APPROPRIATE INSPECTABLE ITEMS OF WORK AS
STATED OR IMPLIED ON THE ISSUED DD FORM 1155!

IV. CONTRACTOR'S OVERALL PERFORMANCE EVALUATION

A. The end result of a QA Program is the overall evaluation of the Contractor's performance for rail facilities services. It is important to determine overall monthly performance to determine whether to increase, decrease, or maintain at the same level, the level of surveillance. If the overall performance has been unsatisfactory, a Contract Discrepancy Report (CDR) is needed (see NAVFAC MO-327). Each and every contract discrepancy observed and documented should result in a deduction from the Contractor's monthly invoice. At the end of each month, the QAE will complete the Monthly Evaluation Report and submit it to the FSCM. A sample report is included as Figure 1. This report is based on:

QA Plan A - Maintain and Submit Reports and Records

QA Plan B - Perform Preventive Maintenance Inspection and Service

QA Plan C - Perform Minor Maintenance and Repair Work

B. Also offered as aids for documentation are Figures 2 and 3. These forms are not of a set format and should be tailored for the activities specific needs. Figure 2 is a Contractor Discrepancy Report. Figure 3 is a form for recording complaints.

FIGURE 1

!*****
 NOTE TO SPECIFICATION WRITER: The data shown in the sample report below is provided as an example only.
 *****!

MONTHLY EVALUATION REPORT FOR RAIL FACILITIES MAINTENANCE AND REPAIR
 For the month of April

Date Submitted 10 May 1987 Submitted by Tom Brady

SERVICE	MADR	ODR	CDR REQUIRED	NUMBER OF DOCUMENTED DEFICIENCIES	VOLUME OF WORK NOT ACCEPTABLE
QA PLAN A Maintain And Submit Records And Reports	5%	3%	No	3*	3
QA PLAN B Perform Preventive Maintenance Inspection And Service	3%	2%	No	10*	10
QA PLAN C Perform Minor Maintenance and Repair Work	10%	4%	No	4*	4

* Deduction for the deficiencies must be based on actual amount of work that was not satisfactory.

FIGURE 2

CONTRACT DISCREPANCY REPORT

CONTRACT DISCREPANCY REPORT		1. CONTRACT NUMBER
GOVERNMENT ACTION		
2. TO <i>(Contractor and Manager Name)</i>	3. FROM <i>(Name of Government Representative)</i>	
4. DISCREPANCY OR PROBLEM <i>(Describe in detail. Include reference in specification. Attach continuation sheet if necessary.)</i>		
5. CONTRACTOR NOTIFIED <i>(Date, Time, Contact point)</i>		
6. SIGNATURE OF CONTRACTING OFFICER		7. DATE
CONTRACTING ACTION		
8. TO <i>(Contracting Officer)</i>	9. FROM <i>(Contractor)</i>	
10. Contractor response as to cause, corrective action and action to prevent recurrence <i>(attach continuation sheet if necessary).</i>		
11. SIGNATURE OF CONTRACTOR REPRESENTATIVE		12. DATE
GOVERNMENT CLOSE OUT		
13. GOVERNMENT EVALUATION <i>(acceptance, partial acceptance, rejection, attach continuation sheet if necessary)</i>		
14. GOVERNMENT ACTIONS <i>(payment deduction, cure notice show cause other)</i>		
15. SIGNATURE OF CONTRACTING OFFICER		16. DATE
17. SIGNATURE OF REVIEWING OFFICIAL <i>(As Applicable)</i>		18. DATE

FIGURE 3

CUSTOMER COMPLAINT RECORD

CUSTOMER COMPLAINT RECORD		1. CONTRACT NUMBER
2. FIRST INFORMED OF COMPLAINT		
DATE:	TIME:	RECEIVED BY:
3 SOURCE OF COMPLAINT		
ORGANIZATION:		
INDIVIDUAL:	PHONE:	
4. DETAILS OF COMPLAINT (Attach continuation sheet if necessary.)		
5. CONTRACT REFERENCE		
6. COMPLAINT VALIDATED		
DATE:	TIME:	BY:
7. CONTRACTOR INFORMED OF COMPLAINT		
DATE:	TIME:	BY:
8. ACTION PLANNED/TAKEN BY CONTRACTOR		
9. WORK INSPECTED/REINSPECTED		
DATE:	TIME:	BY:
10. RESULTS OF INSPECTION (satisfactory, unsatisfactory, actions)		
11. SIGNATURE OF AUTHORIZED INDIVIDUAL		12. DATE
13. SIGNATURE OF REVIEWING OFFICIAL (As Applicable)		14. DATE

V. CONTRACTOR SUBMISSIONS. The following sample information is provided for the QAE's use in determining those submissions required from the Contractor at various times in the contract. List is in order of receipt and should be used as a checklist to insure that all submissions have been received. If needed, add more items in the same chronological order. Verify references agree with tailored GPWS.

<u>RECEIVED</u>	<u>WHEN</u>	<u>WHAT</u>	<u>REFERENCE SECTION/PARAGRAPH</u>
_____	Prior to award	Pre-award Survey Data	
_____	10 days after award	Scheduled Inspection Plan	C.8.a
_____	10 days after award	Preventive Maintenance Schedule	C.11.a
_____	15 days after award	Quality Control Program	
_____	15 Days after award	Schedule of Deductions	
_____	15 days after award	Certificate of Insurance	
_____	Prior to starting	Pre-performance Conference	
_____	Prior to starting	Employee/vehicle passes and badges	
_____	Prior to starting	Employee proof of citizenship	
_____	Prior to starting starting	Licenses and permits	
_____	Prior to starting	Security clearances of Contractor's employees	
_____	Within 24 hrs after completion	Work Orders	
_____	With invoice	Work Orders	
_____	Specified frequency	Invoice	
_____	As needed	Written reply to a Contract Discrepancy Report	
_____	Within 24 hrs	Accident Report	
_____	Within 24 hrs	Damage to Government Property/Equipment	
_____	As needed	Application to work outside regular hours	

<u>RECEIVED</u>	<u>WHEN</u>	<u>WHAT</u>	<u>REFERENCE SECTION/PARAGRAPH</u>
_____	1 st week, current month	Status Report of Minor Work	C.13
_____	As needed	Certified copies of test reports	C.14.b
_____	After 5 working days	Preventive Maintenance Inspection Report	C.11.b
_____	In accordance with Annual Plan	Control Inspection	C.8.a
_____	1st week of each month	Work Schedule	C.13
_____	!INSERT! calendar days after receipt of work requirement	Estimates	C.12
_____	10 th of each month	Monthly Pest Control Use Report	C.14.1(2)
_____	As needed	Utility Outage Request	C.9

END OF QA GUIDE