

CONTRACT SPECIFICATIONS

DEPARTMENT OF TRANSPORTATION
& PUBLIC WORKS
DESIGN AND ENGINEERING DIVISION

BID DOCUMENTS

METRORAIL PUBLIC ADDRESS
SYSTEM REPLACEMENT

CONTRACT NO. CICC 7360 PLAN

RPQ No.: TP-0000008807

PROJECT NO.: IRP096

August 2023



RPQ No.: TP-0000008807

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT
PROJECT NO. IRP096
RPQ NO. TP-0000008807

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DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

REQUEST FOR PRICE QUOTATION (RPQ)

**Department of Transportation and
Public Works**

Capital Improvements Division
111 NW 1st Street, Suite 1410
Miami, FL 33128



**MIAMI-DADE COUNTY, FLORIDA
REQUEST FOR PRICE QUOTATION (RPQ)**

Contract No: MCC 7360 Plan - CICC 7360-0/08
RPQ No: TP-0000008807

INVITATION TO BID

A RPQ has been issued for the work identified below. If you are interested in submitting a bid for this project, please submit your bid via Sealed Envelopes, attention to Office of the Clerk of the Board at 111 North West 1st ST, 17th floor, Miami FL, 33128 - Clerk of the Board Office no later than 9/6/2023 at 02:00 PM. If you have any questions, contact Marco Movilla at (305) 375-3267.

This RPQ is issued under the terms and conditions of the Miscellaneous Construction Contracts (MCC) Program MCC 7360 Plan.

RPQ DETAILED BREAKDOWN

Bid Due Date:	9/6/2023	Time Due:	02:00 PM	Submitted Via:	Sealed Envelopes	SBE-Con. Level:	N/A
Estimated Value:	\$2,314,769 (excluding Contingencies and Dedicated Allowances)						
Project Name:	Metrorail Public Address System Replacement						
Project Location:	Various Metrorail Stations - See details below						
License Requirements:	Primary:	Electrical Contractor; General Engineering; General Building Contractor					
Scope of Work:	<p>(Contractor must obtain and submit all permits prior to performing any work). Work under this Contract includes but is not limited to furnishing all supervision, labor, materials, tools, permits, and equipment and performing all operations required for the replacement and improvement of the Public Address Systems on the Metrorail System.</p> <p>The Public Address System shall be integrated with an existing Station Controller Unit (SCU) in each of the Metrorail Stations.</p> <p>All components of the Public Address System shall reside on the Metrorail SCADA Network and be IP Network addressable and remotely configurable over the SCADA Network. All monitoring and reporting shall also occur over the SCADA Ethernet Network.</p> <p>The intent of the work is to obtain the following services at all main-line Metrorail stations:</p> <ul style="list-style-type: none"> •Furnish and install a Public Address System at 22 Metrorail Stations. •The Public Address System shall be comprised of the following components: <ol style="list-style-type: none"> 1.Paging Amplifiers 2.Digital Mixers 3.Surface mounted Station Speakers 4.Interface Digital Mixers with Station Control Units (SCUs) (existing) – manage station paging and Digital Display control. 5.Ambient Noise Sensors. 6.Low Level Audio cabling 7.Provision of power for all components from existing Station UPS. 8.Ethernet Network cabling between existing Ethernet Switches and equipment provided by the Contractor. <p>A detailed scope of work can be found on the Solicitation Documents, under Appendix A of the Special Provisions.</p>						
Document Pickup:	Contact:	DTPW Capital Improvements Division	Phone No:	305 375-2930	Date:	8/3/2023	
	Location:	111 NW 1st. Street, Miami Florida 33128 Suite 1410					
Pre-Bid Meeting::	YES	Mandatory:	No	Date:	8/16/2023	Time:	10:00 AM
	Location:	8310 South Dixie Highway					
Site Meeting:	YES	Mandatory:	No	Date:	8/16/2023	Time:	10:00 AM
	Location:	8310 South Dixie Highway					
Bid shall be submitted to:	Contact:	Office of the Clerk of the Board					
	Address:	111 North West 1st ST, 17th floor, Miami FL, 33128 - Clerk of the Board Office					
	Email:	clerkbcc@miamidade.gov	FAX # :				
Type of Contract:	Single Trade		Method of Award:	Lowest Responsible Bidder			
Method of Payment:	Scheduled Monthly Payments		Insurance Required:	YES			
Additional Insurance Required:	YES		If Yes - Minimum Coverage:	\$1,000,000.00			
Performance & Payment Bond Required:	YES		Bid Bond Required:	YES			

Prevailing Wage Rate Required:	Building Construction	Davis Bacon:	NO	Maintenance Wages:	YES	AIPP:	NO	Amount:	
SBE-Con. Requirements:	NO	Percentage:	0.00%	SBD Certificate of Assurance Form Required:		NO			
DBE Participation:	NO	Percentage:	0.00%	DBE Subcontractor Forms Required:		NO			
CWP Requirements:	YES	Percentage:	10.00%						
SBE-S Requirements	NO	Percentage:	0.00%						
SBE-G Requirements	NO	Percentage:	0.00%						
Liquidated Damages:	YES	\$\$ Per Day:	\$1,232.39						
Trade Set-a-side:	NO	If Yes, Trade =							
For RPQ's less than \$10,000, if no LD rate is specified, the County reserves the right to assess actual damages in lieu of LDs.									
Design Drawing Included:	NO	Shop Drawing Included:	NO	Specifications Included:	YES				
Anticipated Start Date:	1/8/2024			Calendar Days for Project Completion:	1095				
Comments:	<p>EMPLOY MIAMI-DADE PROGRAM In accordance with Section 5.02 of the Miami-Dade County Home Rule Amendment and Charter, Section 2-8.1 of the Code of Miami-Dade County, and Administrative Order No. 3-63, all contractors and subcontractors of any tier on (i) construction contracts valued in excess of one million dollars (\$1,000,000) for the construction, demolition, alteration and/or repair of public buildings, or public works; or (ii) contracts or leases valued in excess of one million dollars (\$1,000,000) for privately funded construction, demolition, alteration or repair of buildings, or improvements on County-owned land. The awarded Contractor is hereby notified that the County will consider whether the Contractor made its best reasonable efforts to promote Employ Miami-Dade on this contract, as defined in A.O. 3-63, as part of the County's evaluation and responsibility review of the Contractor for new County contract</p> <p>RESIDENTS FIRST TRAINING AND EMPLOYMENT PROGRAM In accordance with Section 2-11.17 of the Code of Miami-Dade County and Implementing Order No. 3-61, all contractors and subcontractors of any tier on (i) construction contracts valued in excess of \$1 million for the construction, demolition, alteration and/or repair of public buildings, or public works; or (ii) contracts or leases valued in excess of \$1 million for privately funded construction, demolition, alteration or repair of buildings, or improvements on County-owned land shall comply with the following: (i) prior to working on the project, all persons employed by the contractor or subcontractor on the project to perform construction have completed the OSHA 10-hour safety training course, and (ii) the contractor will make its best reasonable efforts to have 51% of all construction labor hours performed by Miami-Dade County residents.</p> <p>Pursuant to Section 2-8.10 of the Code of Miami-Dade County, this Contract is subject to a user access fee under the County's User Access Program (UAP) in the amount of two percent (2%). All construction services provided under this contract are subject to the 2% UAP. This fee applies to all Contract usage whether by County Departments or by any other governmental, quasi-governmental or not-for-profit entity. From every payment made to the Contractor under this contract (including the payment of retainage), the County will deduct the two percent (2%) UAP fee provided in the ordinance and the Contractor will accept such reduced amount as full compensation for any and all deliverables under the contract. The County shall retain the 2% UAP for use by the County to help defray the cost of its procurement program. Contractor participation in this pay request reduction portion of the UAP is mandatory.</p> <p>Provided, however, UAP shall not be applicable for total contract values, inclusive of contingency and allowance accounts, of less than five hundred thousand dollars (\$500,000.00).</p> <p>COMMUNITY WORKFORCE PROGRAM Prior to entering into a contract and according to the Miami-Dade County Code §2-1701 and amended by Ordinance 13-66, the successful bidder on a construction contract subject to a Community Workforce Program (CWP) goal, must submit to Small Business Development (SBD) through the contracting officer a workforce plan outlining how the CWP goal will be met. Additional information is available at the County's website at http://www.miamidade.gov/business/contract-requirements.asp#0 .</p> <p>Contractor must submit a Workforce Plan to the Miami-Dade County Internal Services Department, Small Business Development Division within fifteen (15) days of notification of award of the contract. The County will not enter into the contract until it receives the contractor's Workforce Plan and deems the Plan acceptable. The Workforce Plan forms may be obtained on the County's website at http://www.miamidade.gov/business/contract-requirements.asp#0 .</p> <p>RAIL ADDRESSES:</p> <p>Palmetto Station Address: 7701 NW 79 Avenue 7701 NW 79th Avenue, Miami, FL 33166</p> <p>Gap Tie #3 Address: 7344 North Royal Poinciana Boulevard, Miami FL 33166</p>								

Okeechobee Station
Address: 2005 West Okeechobee Road, Hialeah, FL 33010

Hialeah Station
Address: 125 East 21 Street, Hialeah, FL 33010

Tri-Rail Station
Address: 1125 E. 25 Street, Hialeah FL, 33147

Northside Station
Address: 3150 NW 79th Street, Miami, FL 33147

Dr. Martin Luther King, Jr. Station
Address: 6205 NW 27 Avenue, Miami, FL 33147

Brownsville Station
Address: 5200 NW 27 Avenue Miami, FL 33142

Miami International Airport
Station Address: 3800 NW 25th Street, Miami, FL 33142

ITCH/ITPS #1: 3450 NW 39TH STREET

ITPS #2 : 2551 NW 41ST STREET Miami, FL 33142

Earlington Heights Station
Station Address: 2100 NW 41st St, Miami, FL 33142

Allapattah Station
Address: 3501 NW 12 Avenue, Miami, FL 33127

Santa Clara Station
Address: 2050 NW 12 Avenue Miami, FL 33142

Civic Center Station
Station Address: 1501 NW 12 Avenue, Miami, FL 33136

Culmer Station
Station Address: 701 NW 11 Street, Miami, FL 33136

Gap Tie #2:
Address: 350 NW 11 Tr.

Historic Overtown/Lyric Theatre Station
Station Address: 100 NW 6 Street, Miami, FL 33030

Government Center Station
Station Address: 101 NW First Street, Miami, FL 33128

Brickell Station
Station Address: 801 SW First Avenue, Miami, FL 33130

Gap Tie 1
Location Address: 83 SW 19th Road Miami FL 33129

Vizcaya Station
Station Address: 3201 SW First Avenue, Miami, FL 33129

Coconut Grove Station
Station Address: 2780 SW 27 Avenue, Miami, FL 33133

Douglas Road Station
Station Address: 111 Ruiz Avenue, Coral Gables, FL 33146

University Station
Station Address: 5400 Ponce de Leon, Coral Gables, FL 33146

South Miami Station
Station Address: 5949 Sunset Drive, South Miami, FL 33143

Dadeland North Station
Station Address: 8300 South Dixie Highway, Miami, FL 33143

Dadeland South Station
Station Address: 9150 Dadeland Boulevard, Miami, FL 33156

LICENSE REQUIREMENTS:

1. At the time of Bid and pursuant to the requirements of Section 10-3 of the Code of Miami-Dade County, Florida and these Solicitation and Contract Documents, the Bidder must hold a valid, current, and active:

a. Certificate of Competency from the County's Construction Trades Qualifying Board as an Electrical Contractor or a General Engineering Contractor, or;

b. Certification, as a general contractor provided by the State of Florida Construction Industry Licensing Board, pursuant to the provisions of Section 489.115 of the Florida Statutes (F.S.), or;

c. Certification, as an electrical contractor provided by the State of Florida Electrical Contractors' Licensing Board, pursuant to the provisions of Section 489.511 of the Florida Statutes (F.S.), or;

d. Pursuant to Section 255.20, F.S. and in lieu of the above, the County may consider a bid from a Bidder that is a duly licensed Contractor in good standing that has been prequalified and considered eligible by the Florida Department of Transportation (FDOT) under Section 337.14, F.S. and Chapter 14-2, Florida Administrative Code, to perform the work described in the Contract Documents. Contractors seeking consideration under this Paragraph shall submit along with the Bid Documents for review and consideration, current copy(ies) of their FDOT Certificate(s) of Qualification, Certification of Work Underway, and Status of Contract(s) On Hand. Acceptable FDOT prequalification(s) necessary to perform the Work specified in the Contract Documents include the Electrical Work Class.

2. Proof of such Certificate(s) must be submitted at the time of initial response and maintained current throughout the contract period. The County may request proof of continued certification at any time during the contract period. Failure to provide such proof within five (5) working days from notification by the County shall result in the removal from the contract and the rejection of any current or future RPQ bid submissions.

EXPERIENCE REQUIREMENTS:

1. As per Miami Dade County Resolution R-1122-21, the Bidder must demonstrate that it has full-time personnel with the necessary experience to perform the Project's Scope of Work. This experience shall include work in successfully completed projects performed by the identified personnel whose bulk of work performed is similar in detail to the Project's Scope of Work described in these Solicitation Documents. In addition, it must have verifiable experience with high voltage and low voltage work. Demonstrate the experience requirement by:

a. Providing a detailed description of at least three (3) projects similar in detail to the Project's Scope of Work described in these Solicitation Documents and in which the Bidder's identified personnel is currently engaged or has completed within the past five years. List and describe the aforementioned projects and state whether the work was performed for the County, other government clients, or private entities. The description must identify for each project:

- 1)The identified personnel and their assigned role and responsibilities for the listed project
 - 2)The client name and address including a contact person and phone number for reference
 - 3)Description of work
 - 4)Total dollar value of the contract
 - 5)Contract duration
 - 6)Statement or notation of whether Bidder's referenced personnel is/was employed by the prime contractor or subcontractor, and
 - 7)For completed projects, provide letters of certification of final acceptance or similar project closure documentation issued by the client and available Contractor's performance evaluations;
- or

2. The County reserves the right to request additional information and/or contact listed persons pertaining to bidder's experience.

INDEMNIFICATION AND INSURANCE REQUIREMENTS

The Contractor shall furnish to Department of Transportation and Public Works, 111 NW 1 Street, Miami Florida 33128, Certificate(s) of Insurance which indicate that insurance coverage has been obtained which meets the requirements as outlined below:

A. Worker's Compensation Insurance for all employees of the Contractor as required by Florida Statute 440.

B. Commercial General Liability Insurance in an amount not less than \$1,000,000 per occurrence and \$2,000,000 in the aggregate not to exclude coverage for Products and Completed Operations. Miami-Dade County must be shown as an additional insured with respect to this coverage.

C. Automobile Liability Insurance covering all owned, non-owned and hired vehicles used in connection with the work, in an amount not less than \$1,000,000 combined single limit per occurrence for bodily injury and property damage.

D. Cyber Liability Insurance to include data breach and third-party liability, in an amount not less than \$1,000,000 per occurrence.

BID DOCUMENTS:

Bidding documents may be purchased from the Department of Transportation and Public Works , Capital Improvements Division, 111 NW 1st Street, 14th Floor, Miami, Florida 33128 for a non-refundable fee of Seventy five dollars (\$ 125.00) per each complete set of documents. Payment shall be in the form of a company check, cashier's check, or money order payable to the "Department of Transportation and Public Works ." Bid Documents can also be downloaded for free from a SharePoint which access link will be provided upon request by emailing to Daniel.Viaud@miamidade.gov.

ADDENDUMS - RFI'S:

All RFI requests should be e-mailed to Marco.Movilla@miamidade.gov while copying the Clerk of the Board (clerkbcc@miamidade.gov).

Addendums and requests for information (RFI) will be sent to contractors who pick up documents at 111 NW 1st Street. Contractors who which to download the solicitation and contract documents will be responsible to download the Addendums and RFI's. All Addendums, RFI's, and the document holders list (bidder's list) are now available to view online at the following web address:

<https://www.miamidade.gov/apps/isd/StratProc/Home/CurrentSolicitations>

All document holders must provide a dedicated e-mail address. The Department will only be sending addendums and RFI's by e-mail and posting online at the aforementioned link. The bidders list will be updated every Friday during the advertisement phase of the contract. Please be aware that acknowledgment of receipt of all addendums and RFI's remain a requirement when submitting bids.

VENDOR REGISTRATION:

Due to the new Vendor Registration procedures of the Internal Services Department, Procurement Management Division, updated definitions along with the "Affirmation of Vendor Affidavits" has been added to the Bid Submittal Package. The successful bidder must be registered under this new procedure prior to award.

PLANS / DRAWINGS

The station layouts will be provided to the awarded contractor.

PRE BID - SITE MEETING:

Non Mandatory Pre-Bid Meeting will be held on Wednesday, 10:00 A.M., August 16, 2023 at Dadeland North Station, 8310 South Dixie Highway. Non Mandatory Site Visit Meeting will be held right after.

BID SUBMITTAL DUE DATE:

Bid Submittal Time and Location: Wednesday, 2:00 P.M., September 6, 2023, at 111 NW 1 Street, 17th Floor, Clerk of the Board Office

Bid Opening immediately after Bid Submittal in the 18 Floor.

DISCLOSURE:

- Contractor shall indemnify and hold harmless the County and its officers, employees, agents and instrumentalities from any and all liability, losses or damages, including attorneys' fees and costs of defense, which the County or its officers, employees, agents or instrumentalities may incur as a result of claims, demands, suits, causes of actions or proceedings of any kind or nature arising out of, relating to or resulting from the performance of this Agreement by the Contractor or its employees, agents, servants, partners principals or subcontractors. Contractor shall pay all claims and losses in connection therewith and shall investigate and defend all claims, suits or actions of any kind or nature in the name of the County, where applicable, including appellate proceedings, and shall pay all costs, judgments, and attorney's fees which may issue thereon. Contractor expressly understands and agrees that any insurance protection required by this Agreement or otherwise provided by the Contractor shall in no way limit the responsibility to indemnify, keep and save harmless and defend the County or its officers, employees, agents and instrumentalities as herein provided.

The Contractor shall furnish to **Department of Transportation and Public Works, Capital Improvements Division , 111 NW 1st Street, Suite 1410, Miami, FL 33128**, Certificate(s) of Insurance which indicate that insurance coverage has been obtained which meets the requirements as outlined below:

- A.** Worker's Compensation Insurance for all employees of the Contractor as required by Florida Statute 440.
 - a. If applicable should include coverage required under the U.S. Longshoremen and Harbor Workers' Act (USL&H) and/or Jones Act for any activities on or about navigable water.
- B.** Commercial General Liability in an amount not less than \$1,000,000 per occurrence, and \$2,000,000 in the aggregate. Miami-Dade County must be shown as an additional insured with respect to this coverage.
- C.** Automobile Liability Insurance covering all owned, non-owned and hired vehicles used in connection with the work, in an amount not less than \$1,000,000 combined single limit per occurrence for bodily injury and property damage.

*Under no circumstances are Contractors permitted on the Aviation Department, Aircraft Operating Airside (A.O.A) at Miami International Airport without increasing automobile coverage to \$5 million. Only vehicles owned or leased by a company will be authorized. \$1 million limit applies at all other airports.

- 7360 RPQs are NOT SBE-Con 100% Set-aside solicitation, however the RPQ may be assigned a SBE-Con Trade set-aside and goal. The SBE-Con Trade-aside and goal if applicable will be will be stipulated on the RPQ and the Invitation to Bid or in the Project's Solicitation Documents.
- All Prime Contractors submitting a bid for RPQ/Project with a Small Business Measures (s) MUST submit the Small Business Development "CERTIFICATE OF ASSURANCE" form properly completed, signed and notarized with their bid document at the time of Bid Submittal. FAILURE TO SUBMIT THE REQUIRED CERTIFICATE OF ASSURANCE FORM AT THE TIME OF BID SUBMISSION SHALL RENDER THE BID NON COMPLIANT TO THE CONTRACT REQUIREMENT AND SECTION 10.33.02 OF THE CODE OF MIAMI-DADE COUNTY.
- 7360 RPQs Federally Funded may be subject to the Disadvantaged Business Enterprise (DBE) Program. The DBE goal will be stipulated on the RPQ and the Invitation to Bid or in the Project's Solicitation Documents.
- 7040 and 7360 RPQs with an estimated project value in excess of \$700,000.00 may be assigned a Small Business Enterprise Goods (SBE-G) or Small Business Services (SBE-S) program goal. The SBE-G or SBE-S goal if applicable will be will be stipulated on the RPQ and the Invitation to Bid or in the Project's Solicitation Documents.
- All RPQs with an estimated project value \$100,000 or above are subject to Responsible Wage Rates. The wage rate will be stipulated on the RPQ and the Invitation to Bid or in the Project's Solicitation Documents.
- All Projects, where price (Proposals/Bids) received are in excess of \$200,000 will require the submission of the Payment and Performance Bond as required by State of Florida Statute.

VERIFICATION OF EMPLOYMENT ELIGIBILITY (E-VERIFY):

By entering the Contract, the Awarded Bidder becomes obligated to comply with the provisions of Section 448.095, Florida Statute, titled "Verification of Employment Eligibility." This includes but is not limited to utilization of the U.S. Department of Homeland Security's E-Verify System to verify the employment eligibility of all newly hired employees by the Awarded Bidder effective, January 1, 2021, and requiring all Subcontractors to provide an affidavit attesting that the Subcontractor does not employ, contract with, or subcontract with, an unauthorized alien. Failure to comply may lead to termination of this Awarded Bidder, or if a Subcontractor knowingly violates the statute, the subcontract must be terminated immediately. Any challenge to termination under this provision must be filed in the Circuit Court no later than twenty (20) calendar days after the date of termination. If this Contract is terminated for a violation of the statute by the Awarded Bidder, the Awarded Bidder may not be awarded a public contract for a period of one year after the date of termination, and the Awarded Bidder may be liable for any additional costs incurred by the County resulting from the termination of the Contract. Public and private employers must enroll in the E-Verify System (<http://www.uscis.gov/e-verify>) and retain the I-9 Forms for inspection.

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

MINIMUM QUALIFICATIONS & REQUIREMENTS

Required Contractor's Certification:

1. At the time of Bid and pursuant to the requirements of Section 10-3 of the Code of Miami-Dade County, Florida and these Solicitation and Contract Documents, the Bidder must hold a valid, current, and active:
 - a. Certificate of Competency from the County's Construction Trades Qualifying Board as an Electrical Contractor or a General Engineering Contractor, or;
 - b. Certification, as a general contractor provided by the State of Florida Construction Industry Licensing Board, pursuant to the provisions of Section 489.115 of the Florida Statutes (F.S.), or;
 - c. Certification, as an electrical contractor provided by the State of Florida Electrical Contractors' Licensing Board, pursuant to the provisions of Section 489.511 of the Florida Statutes (F.S.), or;
 - d. Pursuant to Section 255.20, F.S. and in lieu of the above, the County may consider a bid from a Bidder that is a duly licensed Contractor in good standing that has been prequalified and considered eligible by the Florida Department of Transportation (FDOT) under Section 337.14, F.S. and Chapter 14-2, Florida Administrative Code, to perform the work described in the Contract Documents. Contractors seeking consideration under this Paragraph shall submit along with the Bid Documents for review and consideration, current copy(ies) of their FDOT Certificate(s) of Qualification, Certification of Work Underway, and Status of Contract(s) On Hand. Acceptable FDOT prequalification(s) necessary to perform the Work specified in the Contract Documents include the Electrical Work Class.
2. Proof of such Certificate(s) must be submitted at the time of initial response and maintained current throughout the contract period. The County may request proof of continued certification at any time during the contract period. Failure to provide such proof within five (5) working days from notification by the County shall result in the removal from the contract and the rejection of any current or future RPQ bid submissions.

Experience Requirement:

1. As per Miami Dade County Resolution R-1122-21, the Bidder must demonstrate that it has full-time personnel with the necessary experience to perform the Project's Scope of Work. This experience shall include work in successfully completed projects performed by the identified personnel whose bulk of work performed is similar in detail to the Project's Scope of Work described in these Solicitation Documents. In addition, it must have verifiable experience with high voltage and low voltage work. Demonstrate the experience requirement by:

Providing a detailed description of at least three (3) projects similar in detail to the Project's Scope of Work described in these Solicitation Documents and in which the Bidder is currently engaged or has completed within the past five years. List and describe the aforementioned projects and state whether the work was performed for the County, other government clients, or similar size private entities. The description should identify for each project (1) The client, (2) Description of work, (3) Total dollar value of the contract, (4) Contract duration, (5) Customer contact person and phone number for reference, (6) Statement or notation of whether Bidder is/was the prime contractor or subcontractor, and (7) The results of the project; provide letters of certification of final acceptance or similar project closure documentation and/or Contractor's evaluation/performance.

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

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METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

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FORMS FOR BIDDING

RPQ Bid Form - Attachment 5A

Bid Form

Surety Bid Bond

All Addendums (if applicable/Signed by Contractor)

Bid Submittal Check List Questionnaire Appendix "D"

Bidder's Statement of Qualifications and Business References

Scrutinized Company Affidavit

Non Collusion Affidavit

Firm's Responsibility Combined Affidavit

Responsible Contractor Affidavit (Form RTFE 1)

Contractor's Due Diligence Affidavit

Certificate of Assurance

All bids must be received by the due date and time. The County will not consider bids received after the due date and time.

Bids are to be submitted sealed with all necessary affidavits and supporting documentation attached. Bids are to be delivered to the Clerk of the Board at 111 NW 1st Street, 17th Floor, Miami, Florida, 33128. **All envelopes must be stamped at the reception desk with the date and time. Failure to submit with your bid the forms stipulated above may render the bid non-responsive.**

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

RPQ BID FORM - ATTACHMENT 5A

Department of
Transportation and Public
Works
701 NW 1st CT
Miami, FL 33136



MIAMI-DADE COUNTY, FLORIDA
REQUEST FOR PRICE QUOTATION (RPQ)
Contract No: MCC 7360 Plan - CICC 7360-0/08
RPQ No: TP-0000008807

RPQ BID FORM – ATTACHMENT 5A

RPQ Project Name: METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

Price Proposal (Cost to Perform the work **must** be stated here. State 'No Bid' if not submitting a price proposal)

\$

Bidder's Company Name: _____

Company Address: _____

City: _____ **State:** _____ **Zip:** _____

Telephone No: _____ **Fax No:** _____ **E-Mail:** _____

THE EXECUTION OF THIS FORM CONSTITUTES THE UNEQUIVOCAL OFFER OF PROPOSER TO BE BOUND BY THE TERMS OF ITS PROPOSAL. FAILURE TO SIGN THIS SOLICITATION WHERE INDICATED BELOW BY AN AUTHORIZED REPRESENTATIVE SHALL RENDER THE PROPOSAL NON-RESPONSIVE. THE COUNTY MAY, HOWEVER, IN ITS SOLE DISCRETION, ACCEPT ANY PROPOSAL THAT INCLUDES AN EXECUTED DOCUMENT WHICH UNEQUIVOCALLY BINDS THE PROPOSER TO THE TERMS OF ITS OFFER.

Name of Person Submitting Quote (Print): _____

Number of Addendums received: _____ (if none' write "None")

Signature: _____ **Date:** _____

Note: Quotes must be submitted on this form. Quote envelope must state RPQ Number, date and time due and the Bidder's Name. Use of any other form for submission of the price quotation shall result in the rejection of the price quotation. Late bids will not be opened. *Low bidder will be notified, in the Recommendation of Award, of the requirements to submit current copies of insurance certificates in accordance with the Contract Documents. By signature, the CONTRACTOR agrees to be bound by the terms set forth in the MCC 7360 Plan.*

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

BID FORM

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

BID DOCUMENTS

METRORAIL PUBLIC ADDRESS

SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

To: Miami-Dade County
Board of County Commissioners
Miami, Florida

Bid Opening Date: _____
Bid Opening Time: _____
Local Time

Gentlemen:

We _____
Bidder's Name

have received, have examined and are familiar with the Contract Documents bearing the title **METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT- RPQ NO. TP-0000008807** the forms for the Submittal of Bids and have included the cost of their provisions, in our Bid. We have examined, are familiar with, and do accept the conditions of the Work site and other conditions affecting the Work.

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Failure to acknowledge receipt of all addenda may cause the bid to be considered not responsive to the invitation, which would require rejection of the bid.

RPQ No.: TP-0000008807

**PROJECT NAME:
METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT**

IF THIS PROPOSAL IS ACCEPTED, THE UNDERSIGNED BIDDER AGREES TO COMPLETE ALL WORK IN ACCORDANCE WITH THIS CONTRACT WITHIN THE CONTRACT DURATION SPECIFIED IN THE CONTRACT DOCUMENTS. **PRICING SHALL BE INCLUSIVE OF ALL REQUIREMENTS TO COMPLETE THE SCOPE OF WORK AND IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.**

Item No.	Division of Work:	Unit	Quantity	Total Price
1	General Requirements	LS	1	\$
2	Complete furnishing, commission, installation, testing and transition to service a Public Address System that must meet all the specifications as defined in the Appendix A Summary of Work and Appendix B Technical Specifications	LS	1	\$

BASE BID TOTAL \$ _____

(Instructions: The spaces provided in the Total Price Column(s) for the Bid Line Item(s) must be filled in and no spaces left blank. The sum of the Bid Line Items must represent your Base Bid Total. Failure to submit a complete and accurate Bid Form may result in your bid found non-responsive.)

A TEN PERCENT (10%) CONTINGENCY ALLOWANCE AND OTHER DEDICATED ALLOWANCES AS REQUIRED WILL BE ADDED TO THE BASE BID TOTAL AS STIPULATED IN THE SPECIAL PROVISIONS.

LICENSE NO. _____ BIDDER'S NAME _____

BIDDER'S TELEPHONE NUMBER _____ BIDDER'S ADDRESS _____

BIDDER'S FEIN NUMBER _____ BIDDER'S SIGNATURE _____

THE BIDDER UNDERSTANDS AND AGREES THAT THE BASE BID TOTAL AND ALL APPLICABLE ALLOWANCES ARE INCLUSIVE OF ALL WORK NECESSARY TO COMPLETE THE SCOPE OF WORK AS DESCRIBED IN THE CONTRACT DOCUMENTS, AND IF THIS PROPOSAL IS ACCEPTED, THE BIDDER AGREES TO ENTER INTO AND EXECUTE THE CONTRACT WITH THE NECESSARY BOND AND ACCEPT THE ABOVE BASE BID, INCLUSIVE OF ALL ALLOWANCES, AS FULL COMPENSATION FOR THE WORK PERFORMED UNDER THIS CONTRACT.

(Instructions: The spaces provided in the Total Price Column(s) for the Bid Line Item(s) must be filled in and no spaces left blank. The sum of the Bid Line Items must represent your Base Bid Total. Failure to submit a complete and accurate Bid Form may result in your bid found non-responsive.)

A TEN PERCENT (10%) CONTINGENCY ALLOWANCE AND OTHER DEDICATED ALLOWANCES AS REQUIRED WILL BE ADDED TO THE BASE BID TOTAL AS STIPULATED IN THE SPECIAL PROVISIONS.

“Pursuant to the general terms and conditions of the solicitation document, local preference is applicable to this solicitation. However, please be advised that the reciprocity agreement with Broward County expired September 30, 2017. Accordingly, local preference will only be afforded to a firm that meets the requirements for Miami-Dade County in any solicitation with a due date after September 30, 2017.”

LOCAL PREFERENCE CERTIFICATION: For the purpose of this certification, a “local business” is a business located within the limits of Miami-Dade County that conforms with the provisions of Section 3.0 of the Special Provisions of this solicitation and contributes to the economic development of the community in a verifiable and measurable way. This may include, but not be limited to, the retention and expansion of employment opportunities and the support and increase to the County’s tax base.

Place a check mark here only if affirming bidder meets requirements for Local Preference. Failure to complete this certification at this time (by checking the box above) may render the vendor ineligible for Local Preference.

LOCALLY-HEADQUARTERED BUSINESS CERTIFICATION: For the purpose of this certification, a “locally-headquartered business” is a Local business whose “principal place of business” is in Miami-Dade County as defined in Section 3.0 of the Special Provisions of this solicitation.

Place a check mark here only if affirming bidder meets requirements for the Locally-Headquartered Preference (LHP). Failure to complete this certification at this time (by checking the box above) may render the vendor ineligible for the LHP. The address of the locally-headquartered office is _____

LOCAL CERTIFIED WARTIME VETERAN BUSINESS ENTERPRISE CERTIFICATION: A Local Certified Service-Warime Veteran Business Enterprise is a firm that is (a) a local business pursuant to Section 2-8.5 of the Code of Miami-Dade County and (b) prior to bid submission is certified by the State of Florida Department of Management Services as a service-warime veteran business enterprise pursuant to Section 295.187 of the Florida Statutes.

Place a check mark here only if affirming bidder is a Local Certified Service-Warime Veteran Business Enterprise. A copy of the certification must be submitted with this proposal.

A. CONVICTION DISCLOSURE:

Pursuant to Section 2-8.6 of the Code of Miami-Dade County, any individual, corporation, partnership, joint venture or other legal entity having an officer, director, or executive who has been convicted of a felony during the past ten (10) years shall disclose this information at the time of bid submittal.

Place a check mark here **only** if the Bidder has such conviction to disclose to comply with this requirement.

B. WAIVER OF CONFIDENTIALITY AND TRADE SECRET TREATMENT OF BID:

The Bidder acknowledges and agrees that the submittal of the Bid is governed by Florida's Government in the Sunshine Laws and Public Records Laws, as set forth in Florida Statutes Section 286.011 and Florida Statutes Chapter 119. As such, all material submitted as part of, or in support of, the Bid will be available for public inspection after opening of bids and may be considered by the County in public.

By submitting a bid pursuant to this solicitation, Bidder agrees that all such materials may be considered to be public records. The Bidder shall not submit any information in response to this solicitation which the Bidder considers to be a trade secret, proprietary or confidential. In the event that the Bid contains a claim that all or a portion of the Bid submitted contains confidential, proprietary or trade secret information, the Bidder, **by signing below**, knowingly and expressly **waives** all claims made that the Bid, or any part thereof no matter how indicated, is confidential, proprietary or a trade secret and authorizes the County to release such information to the public for any reason.

LICENSE NO. _____ BIDDER'S NAME _____

BIDDER'S FEIN NUMBER _____ BIDDER'S SIGNATURE _____

THE BIDDER UNDERSTANDS AND AGREES THAT THE BASE BID TOTAL AND ALL APPLICABLE ALLOWANCES ARE INCLUSIVE OF ALL WORK NECESSARY TO COMPLETE THE SCOPE OF WORK AS DESCRIBED IN THE CONTRACT DOCUMENTS, AND IF THIS PROPOSAL IS ACCEPTED, THE BIDDER AGREES TO ENTER INTO AND EXECUTE THE CONTRACT WITH THE NECESSARY BOND AND ACCEPT THE ABOVE BASE BID, INCLUSIVE OF ALL ALLOWANCES, AS FULL COMPENSATION FOR THE WORK PERFORMED UNDER THIS CONTRACT.

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

BID BOND

BID BOND

STATE OF _____) ss.:
COUNTY OF _____)

KNOW ALL MEN BY THESE PRESENTS, that we, _____ as Principal, and _____ as Surety, are held and firmly bound unto Miami-Dade County in the penal sum of Dollars (\$ _____) lawful money of the United States, which sum represents five percent of the Base Bid Total, and for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal has submitted the accompanying Bid, dated _____ 20__ for **RPQ/PROJECT NO. TP-0000008807** entitled, **METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT** .

NOW THEREFORE, if the Principal shall not withdraw said Bid within 180 days after the Bid opening date, shall submit complete information required, and shall within 10 days after the prescribed forms are presented to him for signature, enter into a written Contract with Miami-Dade County, in accordance with the Bid as accepted, and give a Surety Performance and Payment Bond with good and sufficient surety or sureties and provide the necessary Insurance Certificates, as may be required, for the faithful performance and proper fulfillment of such Contract and for the prompt payment of all persons furnishing labor or materials in connection therewith, or in the event of withdrawal of said Bid within the period specified, or in the event of the failure to enter into such Contract and give such Bond within the time specified, if the Principal shall pay Miami-Dade County the difference between the amounts specified in said Bid and the amount for which Miami-Dade County may procure the required work and supplies, provided the latter amount be in excess of the former, then the above obligations shall be void and of no effect; otherwise, to remain in full force and virtue.

IN WITNESS WHEREOF, the above bounden parties have caused this Bond to be executed by their appropriate officials as of the _____ day of _____, 20__.

(CORPORATE SEAL)

(printed name of corporation)

(printed state of incorporation)

By: _____
(signature of president or vice-president & capacity)

(printed name of president or vice- president & capacity)

By: _____
(signature of secretary or assistant secretary & capacity)

(printed name of secretary or assistant secretary & capacity)

(Business address of corporation)

ACKNOWLEDGEMENT:

STATE OF _____) ss.:

COUNTY OF _____)

Before me personally appeared _____, as President to me well known or has presented _____ as identification and
(Type of identification)

_____ as Secretary, to me well known, or has presented _____ as identification and known to me to be individuals described
(Type of identification)

in and who executed the foregoing instrument as _____ President and _____ Secretary of the above named _____ a Corporation, and severally acknowledged that they executed such instrument as such _____ President and _____ Secretary, respectively, of said corporation, and that the seal affixed to the foregoing instrument is the corporate seal of said corporation and that it was affixed to said instrument by due and regular corporate authority, and said instrument is the free act and deed of said corporation.

SUBSCRIBED AND SWORN TO (or affirmed) before me on _____
(Date)

by _____ . He / She is personally known to me or has presented
(Affiant)

_____ as identification.
(Type of Identification)

(Signature of Notary)

(Serial Number)

(Print or Stamp Name of Notary)

(Expiration Date)

Notary Public _____
(State)

Notary Seal:

=====

SURETY:

(CORPORATE SEAL)

(printed name of Surety)

(address of Surety)

By: _____
(Attorney-in-Fact)

By: _____
(resident Florida agent)

(printed name of Attorney-in-Fact)

(printed name of agent)

Note: Copy of Resident Agent's current license as issued by State of Florida Insurance Commissioner must be attached.

(Power of Attorney must be attached)

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

ADDENDUM ACKNOWLEDGEMENT FORM
(IF APPLICABLE/ SIGNED BY CONTRACTOR)

MIAMI-DADE COUNTY
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS (DTPW)

PROJECT: METRORAIL PUBLIC ADDRESS SYSTEM
REPLACEMENT PROJECT NO. IRP096
RPQ NO. TP-0000008807

ACKNOWLEDGEMENT OF ADDENDA

(Must be completed and submitted with required solicitation documents)

Instructions: Complete Part I or Part II, as applicable.

PART I: Listed below are the dates of issue for each Addendum received in connection with this solicitation.

Addendum #1, Dated _____,	202__
Addendum #2, Dated _____,	202__
Addendum #3, Dated _____,	202__
Addendum #4, Dated _____,	202__
Addendum #5, Dated _____,	202__
Addendum #6, Dated _____,	202__
Addendum #7, Dated _____,	202__
Addendum #8, Dated _____,	202__
Addendum #9, Dated _____,	202__
Addendum #10, Dated _____,	202__

PART II:

_____ No Addendum was received in connection with this solicitation.

Authorized Signature: _____ Date: _____

Print Name: _____ Title: _____

Firm Name: _____

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

BID SUBMITTAL CHECK LIST QUESTIONNAIRE

APPENDIX "D"

QUESTIONNAIRE

Appendix D



IN ORDER TO PROVIDE INFORMATION NECESSARY IN DETERMINING THE QUALIFICATIONS OF THE PROPOSER, PLEASE PROVIDE THE INFORMATION LISTED BELOW

#	QUESTION	ANSWER
1	Have you carefully read the Instruction To Prospective Contractors?	<input type="checkbox"/> YES <input type="checkbox"/> NO
2	Have you carefully reviewed the entire Contract Documents as identified within the Instruction To Prospective Contractors?	<input type="checkbox"/> YES <input type="checkbox"/> NO
3	If identified in the Contract Documents, have you carefully inspected the site of the work?	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A
4	Have you requested, in writing, of the contact person identified in the Advertisement, any clarifications necessary to submit a responsive proposal? Have you received a written response of clarification?	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A
5	Are you licensed and certified to perform the work for which you are submitting this proposal? License No.: Competency No.: FEIN No.: Qualifier's Name:	<input type="checkbox"/> YES <input type="checkbox"/> NO _____ _____ _____ _____
6	Are you registered with the Miami-Dade County Department of Procurement Management (DPM)?	<input type="checkbox"/> YES <input type="checkbox"/> NO
7	Have you made any changes or written any codicils to the Contract Proposal?	<input type="checkbox"/> YES <input type="checkbox"/> NO
8	How many previous Contracts with Miami-Dade County in the past five (5) years?	_____
9	Total dollar value of Contracts with Miami-Dade County in the past five (5) years?	_____
10	How many years has your Company been in business with the same Principals?	_____
11	Applicable Federal Requirement Certifications	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

BIDDER'S STATEMENT OF QUALIFICATIONS AND BUSINESS REFERENCES

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
TRANSIT ENGINEERING

BIDDER'S STATEMENT OF QUALIFICATIONS AND BUSINESS REFERENCES

This statement is an integral part of the Contractor's Bid, and must be completed as directed in the Instructions to Bidders. All references and information shall be current and traceable. If Bidder is a joint venture, a separate form must be prepared by each venturer (extra forms are available from the Engineer).

NAME OF BIDDER _____

PRINCIPAL OFFICE _____

(Street Address or P. O. Number)

(City)

(State)

(Zip Code)

(Area Code) (Telephone Number)

1. Are you registered to do business in Florida? _____ Registration No. _____ Classification _____
2. Do you hold a certificate of competency issued by Miami-Dade County, Florida? _____ Classification _____
3. Are you an individual _____, a partnership _____, a corporation _____ or a joint venture _____ (Check as applicable).

If a partnership, list names and addresses of partners; if a corporation, list names of officers and directors and State of incorporation; if a joint venture, list names and addresses of venturers and, if any venturer is a corporation, partnership or joint venture, list the same information for each such corporation, partnership and joint venturer.

4. How many years has your organization been in business as a contractor under your present business name? _____ years.

5. How many years of experience has your organization had in construction work similar to the work of this Contract?

(a) As a general contractor? _____

(b) As a subcontractor? _____

6. List all the projects which your organization has completed, during at least the last five years, and which demonstrate qualifications to perform the work of this Contract. (For joint venture work show the sponsoring individual or company.)

YEAR	CONTRACT PRICE	KIND OF CONSTRUCTION	LOCATION OF WORK	NAME, ADDRESS, AND E-MAIL OF ENGINEER OR ARCHITECT

7. Have you or your organization, or any officer or partner thereof, failed to complete a Contract? _____

If so, give details _____

8. In what other lines of business are you financially interested?

9. Name the persons with whom you have been associated in business as partners or business associates during the last five years.

10. Give information about the construction experience of the principal individuals of your present organization.

11. List work, which you have currently underway.

Contract Price	Type of Construction	Location of Work	Percent Completed	Expected Completion Date	Name & Address of Engineer or Architect

12. List engineers, architects and owners, including public bodies, for whom you have done work:

NAME	ADDRESS	BUSINESS	TELEPHONE

13. Reference is hereby made to the following financial institutions as to the financial responsibility of the Bidder:

Name of Bank: _____

Street Address: _____

City and State: _____ Telephone: _____

Officer Familiar with Bidder's Account: _____

Name of Bank: _____

Street Address: _____

City and State: _____ Telephone: _____

Officer Familiar with Bidder's Account: _____

Name of Bank: _____

Street Address: _____

City and State: _____ Telephone: _____

Officer Familiar with Bidder's Account: _____

14. Reference is hereby made to the following surety company or companies as to the financial responsibility and general reliability of Bidder:

Name of Surety Company: _____

Name of Local Agent (if different): _____

Local Street Address: _____

City and State: _____ Telephone: _____

Person Familiar with Bidder's Account: _____

Name of Surety Company: _____

Name of Local Agent (if different): _____

Local Street Address: _____

City and State: _____ Telephone: _____

Person Familiar with Bidder's Account: _____

15. Is any litigation pending against your organization? _____

If so, give details _____

16. Is any litigation presently being prosecuted by your organization or on behalf of your organization? _____

If so, give details

The undersigned certifies that he is legally authorized by the Bidder to make the statements and representations contained in this document, and represents and warrants that the foregoing information is true and accurate to the best of his knowledge, and intends that the Miami-Dade County, DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS Agency, rely thereon in awarding the Contract.

BIDDER'S NAME: _____

DATE OF SIGNING: _____

SIGNATURE: _____ By: _____

TITLE: _____

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

AFFIDAVIT

SCRUTINIZED COMPANIES

By executing the Scrutinized Companies with Activities in Sudan or Iran Petroleum Energy Sector Lists Affidavit through a duly authorized representative, the bidder certifies that the bidder is not on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, as those terms are used and defined in sections 287.135 and 215.473 of the Florida Statutes. In the event that the bidder is unable to provide such certification, the bidder shall execute the Affidavit through a duly authorized representative. In such event, the bidder shall furnish together with its bid a duly executed written explanation of the facts supporting any exception to the requirement for certification that it claims under Section 287.135 of the Florida Statutes. The bidder agrees to cooperate fully with the County in any investigation undertaken by the County to determine whether the claimed exception would be applicable. The County shall have the right to terminate any Contract resulting from this solicitation for default if the bidder is found to have submitted a false certification or to have been, or is subsequently during the term of the Contract, placed on the Scrutinized Companies for Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List.

**AFFIDAVIT
SCRUTINIZED COMPANIES WITH ACTIVITIES IN SUDAN
OR IRAN PETROLEUM ENERGY SECTOR LISTS
FLORIDA STATUTES 215.473**

Pursuant to 287.135, F.S., the { _____ } (“Entity”) must disclose, if the Entity or any of its officers, directors, or executives are doing certain types of business in or with Sudan or Iran.

Indicate below if the above named Entity, as of the date of submission:

_____ has not engaged in commerce in any form in Sudan or Iran, including, but not limited to, acquiring, developing, maintaining, owning, selling, possessing, leasing, or operating equipment, facilities, personnel, products, services, personal property, real property, or any other apparatus of business or commerce.

_____ has engaged in commerce with Sudan or Iran, including, but not limited to, acquiring, developing, maintaining, owning, selling, possessing, leasing, or operating equipment, facilities, personnel, products, services, personal property, real property, or any other apparatus of business or commerce.

(CORPORATE SEAL)

CONTRACTOR

(Legal Name of Corporation)

ATTEST:

Secretary _____
(Signature and Seal)

By: _____
Contractor – Signature

(Type Name & Title)

Name: _____

(Type Name & Title)

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

NON COLLUSION AFFIDAVIT



NON-COLLUSION AFFIDAVIT

(In accordance with [Sections 2-8.1.1](#) and [10-33.02.1](#) of the Code of Miami-Dade County)

I, the undersigned, am over 18 years of age, have personal knowledge of the facts stated in the Non-Collusion Affidavit (*this Affidavit*) and I am an owner, officer, director, principal shareholder and/or otherwise authorized to bind the Bidder/Proposer of this solicitation.

A. I have reviewed the list of respondents attached to this Affidavit. I state that the Bidder/Proposer of this competitive solicitation (check one):

is **not related** to any of the other respondents submitting a Bid/Proposal in the competitive solicitation.

is **related** to the following respondents who submitted a Bid/Proposal in the competitive solicitation, which are identified and listed below:

B. I state that the Bidder/Proposer of this competitive solicitation:

1. has prepared this Bid/Proposal independently without consultation, communication, agreement or arrangement with any other Bidder/Proposer or competitor for the purpose of restricting competition;
2. has submitted the Bid/Proposal in its own behalf, and not in the interest or on behalf of any person not therein named;
3. has not, directly or indirectly, induced or solicited any other Bidder/Proposer to put in a sham proposal, or any other person, firm, or corporation to refrain from proposing;
4. has not in any manner sought by collusion to secure an advantage over any other Bidder/Proposer.

Note: Any person or entity that fails to submit this executed Affidavit shall be ineligible for contract award. In accordance with Section 2-8.1.1 of the Code of Miami-Dade County, where two or more related parties, as defined herein, each submit a Bid for any contract, such Bids shall be presumed to be collusive. The foregoing presumption may be rebutted by the presentation of evidence as to the extent of ownership, control and management of such related parties in preparation and submittal of such Bids. **Related parties** shall mean the Bidder/Proposer; the principals, corporate officers, and managers of a Bidder/Proposer; or the spouse, domestic partner, parents, stepparents, siblings, children or stepchildren of a Bidder/Proposer or the principals, corporate officers and managers thereof which have a direct or indirect ownership interest in another Bidder/Proposer for the same contract or in which a parent company or the principals thereof of one Bidder/Proposer have a direct or indirect ownership interest in another Bidder/Proposer for the same contract. Bid/Proposal found to be collusive shall be rejected. Bidder/Proposer who has been found to have engaged in collusion may be considered non-responsible, and may be suspended or debarred, and any contract resulting from collusive bidding may be terminated for default.

Written Declaration: Pursuant to §92.525, Florida Statutes, under penalties of perjury, I declare that I have read the foregoing Affidavit and that the facts stated in it are true, accurate, and complete.

Solicitation No.: _____ Solicitation Title: _____

By: _____
Signature of Affiant

Date: _____ 20 ____

Printed Name of Affiant and Title

____/____/____-____/____/____/____/____
Federal Employer Identification Number

Printed Name of Bidder/Proposer

Address of Bidder/Proposer

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

FIRM'S RESPONSIBILITY COMBINED AFFIDAVIT

FIRM'S RESPONSIBILITY AFFIDAVIT
"COMBINED AFFIDAVIT"

STATE OF FLORIDA)
) SS:
COUNTY OF MIAMI-DADE)

The undersigned, being first duly sworn, states as follows:

GENERAL

1. I am a duly authorized representative of the Firm submitting a bid, proposal or other document to Miami-Dade County with the intention of being awarded a contract (referred to in this affidavit as the "Respondent").
2. This Affidavit is made of my personal knowledge. I understand that Miami-Dade County will rely on the representations made in this affidavit in determining my eligibility and responsibility to enter into a contract with Miami-Dade County. By executing this affidavit, the Respondent agrees to provide to Miami-Dade County such documentation or other proof as Miami-Dade County may require verifying the accuracy and completeness of any of the representatives.
3. The Respondent is duly authorized to submit this bid or proposal, and if awarded the contract, to enter into the contract and perform the services or supply the goods contemplated in the contract.

OWNERSHIP DISCLOSURE

4. That in compliance with Section 2-8.1(d)(1) of the Miami Dade County Code, if the contract or business transaction is with a corporation, the full legal name and business address shall be provided for each officer and director and each stockholder who holds directly or indirectly five percent (5%) or more of the corporation's stock. If the contract or business transaction is with a trust, the full legal name and address shall be provided for each trustee and each beneficiary. All such names and addresses are (Post Office addresses are not acceptable). The full legal names and business address of any other individual (other than subcontractors, materialmen, suppliers, laborers, or lenders) that have, or will have, any interest (legal, equitable beneficial or otherwise) in the contract or business transaction with Miami-Dade County are (Post Office addresses are not acceptable). This information shall be supplied on the attached Ownership Disclosure form (Attachment "A") and signed by the Respondent.

Combined Affidavit Initial

EMPLOYMENT DISCLOSURE

5. The following information and attachments are provided and are in compliance with all items in County Ordinance No. 90-133, amending Section 2.8-1; Subsection (d) (2):

a. Does your firm have a collective bargaining agreement with its employees?
 Yes No

b. Does your firm provide paid health care benefits for its employees?
 Yes No

c. Provide a current breakdown (number of persons) of your firm’s work force and ownership as to race, national origin and gender:

White:	_____	Males:	_____	Females:	_____
Asian:	_____	Males:	_____	Females:	_____
Black:	_____	Males:	_____	Females:	_____
American					
Indian:	_____	Males:	_____	Females:	_____
Hispanics:	_____	Males:	_____	Females:	_____
Aleut					
(Eskimo):	_____	Males:	_____	Females:	_____
_____:	_____	Males:	_____	Females:	_____

EMPLOYMENT DRUG FREE WORKPLACE

6 . The Respondent provides a drug-free workplace in full compliance with Section 2-8.1.2 of the Code of Miami-Dade County.

EMPLOYMENT FAMILY LEAVE

7. That in compliance with Ordinance No. 91-142 of the Code of Miami-Dade County, Florida, the following information is provided and is in compliance with all items in the aforementioned Ordinance:

An employee who has worked for the above firm for at least one (1) year shall be entitled to ninety (90) days of family leave during any twenty-four (24) month period, for medical reasons, for the birth or adoption of a child, or for the care of a child, spouse or other close relative who has a serious health condition without risk of termination of employment or employer retaliation.

Combined Affidavit Initial

ARREARS WITH THE COUNTY

8. That in compliance with Ordinance No. 95-178 and Section 2-8.1(c) of the Code of Miami-Dade County, the Proposer has paid all delinquent and currently due fees or taxes, including but not limited to real estate and personal property taxes, registered in the name of Proposer and which are collected in the normal course by the Miami-Dade County Tax Collector, and that County issued parking tickets for vehicles registered in the name of the above proposer, and which are collected in the normal course by the Miami-Dade Clerk of the Circuit and County Courts, have been paid.

That in compliance with Ordinance No. 99-162 and Section 2-8.1 of the Code of Miami-Dade County, the Proposer is not in arrears in any payment under contract, promissory note or other loan document with Miami-Dade County, or any of its agencies or instrumentalities, including the Public Health Trust, either directly or indirectly through a firm, corporation, partnership or joint venture in which the individual or entity has a controlling financial interest as that term is defined in Section 2-11.1(b)(8) of the Code of Miami-Dade County.

CODE OF BUSINESS ETHICS

9. I, being duly sworn, hereby state and certify that this firm has adopted a Code of Business Ethics that is fully compliant with the requirements of Section 2-8.1(i) of the Code of Miami-Dade County as amended. I further acknowledge that failure to comply with the adopted Code of Business Ethics shall render any contract with Miami-Dade County voidable, and subject this firm to debarment from County work pursuant to Section 10-38 (h)(2) of the Code of Miami-Dade County as amended. I further acknowledge that failure to submit this affidavit shall render this firm ineligible for contract award.

NO CRIMINAL RECORD

10. The Respondent has not been convicted of a felony during the past ten (10) years, nor does it, as of the date of the bid or proposal submission, have an officer, director or executive who has been convicted of a felony during the past ten (10) years as defined in Section 2-8.6 of the Code of Miami-Dade County.

PUBLIC ENTITY CRIME

11. The respondent has not been convicted of a Public Entity crime as defined in Paragraph 287.133(1)(g) of the Florida Statutes. Violation of any State or Federal law with respect to the transaction of business with any public entity or with an agency or political subdivision of any State.

Combined Affidavit Initial

DEBARMENT AND SUSPENSION DISCLOSURE

- 12 . The Respondent, and its officers, principals, stockholders, subcontractors or its affiliates are not debarred or suspended from contracting with Miami-Dade County as regulated by Section 10-38 of the Miami Dade County Code.

NON -DISCRIMINATION BASED ON DISABILITY

- 13 . The Respondent is in compliance with and agrees to continue to comply with and assure any subcontractor, or third party contractor under this project complies with all applicable laws forbidding discrimination based on disability including, but not limited to those provisions pertaining to employment, provision of programs and services, transportation, communications. Access to facility, renovations and new construction as set forth in the Americans with Disabilities Act of 1990 (ADA), the Rehabilitation Act of 1973, the Federal Transit Act and the Fair Housing Act.

FAIR SUBCONTRACTING

- 14 . Consistent with Section 2-8.8 of the Code of Miami-Dade County, the Respondent has adopted subcontracting policies and procedures which (a) notifies the broadest number of local subcontractors of the opportunity to be awarded a subcontract; (b) invites local subcontractors to submit bids in a practical, expedient way; (c) provides local subcontractors access to information necessary to prepare and formulate a subcontracting bid; (d) allows local subcontractors to meet with appropriate personnel of the Respondent to discuss the Respondent's requirements; and (e) awards subcontracts based on full and complete consideration of all submitted proposals and in accordance with the Respondent's stated objectives.

RESPONSIBLE WAGE AND BENEFITS (IF APPLICABLE)

- 15 . If applicable, the Respondent is in full compliance with Section 2-11.16 of the Code of Miami-Dade County, and should he or she be awarded the contract, understands his or her obligation to pay the project minimum wage rates set forth in that Section and the labor provisions of the contract documents.

Combined Affidavit Initial

CLEARINGHOUSE AFFIDAVIT

- 16. That in compliance with Miami-Dade County Resolution Number R-1145-99, the Respondent agrees to comply with all requirements of the Clearinghouse Resolution and Job Request form for posting job opportunities. Making it a mandatory requirement for Respondents to post notice of job opportunities resulting from the construction of improvements on County property through the County's Clearinghouse process.

I STATE NOTHING FURTHER IN THIS AFFIDAVIT.

Signature: _____
Position/Title: _____
Name of Firm: _____

The foregoing was sworn and subscribed before me this _____ day of _____, _____ by _____, who is personally known to me or who has produced _____ as identification who being duly sworn, deposes and says that the above is true to the best of his knowledge, information and belief.

My Commission expires:

NOTARY PUBLIC
STATE OF FLORIDA

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

RESPONSIBLE CONTRACTOR AFIDAVIT (FORM RTFE 1)

Residents First Training and Employment Program
Responsible Contractor/Subcontractor Affidavit Form (RFTE 1)
(Miami-Dade County Code Section 2-11.17)

In accordance with Section 2-11.17 of the Miami-Dade County Code, all contractors and subcontractors of any tier performing on a contract for (i) the construction, demolition, alteration and/or repair of public buildings or public works projects valued in excess of \$1,000,000 funded completely or partially by Miami-Dade County, or (ii) privately funded projects or leases valued in excess of \$1,000,000 for the construction, demolition, alteration or repair of buildings or improvements on County owned land, and which are subject to Section 2-11.16 of the Code of Miami-Dade County shall comply with the requirements of the Residents First Training and Employment Program.

If applicable, the undersigned Contractor / Subcontractor verifies that should they be awarded the contract, the undersigned understands their obligation to comply with the following:

- i. Prior to working on the project, all persons employed by the contractor / subcontractor to perform construction shall have completed, the OSHA 10 Hour Safety Training course established by the Occupational Safety & Health Administration of the United States Department of Labor. Such training does not need to be completed at the time of bidding but shall be completed prior to the date persons are employed on the project.
- ii. The contractor / subcontractor will make its best reasonable efforts to promote employment opportunities for local residents and seek to achieve a project goal of having fifty-one percent (51%) of all Construction Labor hours performed by Miami-Dade County residents. To verify workers' residency, firms shall require each worker to produce a valid driver's license or other form of government-issued identification.

Printed Name of Affiant **Printed Title of Affiant** **Signature of Affiant**

Name of Firm **Date**

Address of Firm **State** **Zip Code**

Project Number/Name

Notary Public Information

Notary Public – State of _____ County of _____

Subscribed and sworn to (or affirmed) before me this _____ day of, _____ 20____.

by _____ He or she is personally known to me or has produced identification

Type of identification produced _____

Signature of Notary Public **Serial Number**

Print or Stamp of Notary Public **Expiration Date** **Notary Public Seal**

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

CONTRACTOR DUE DILIGENCE AFFIDAVIT

“The attention of the Contractor is hereby directed to the requirements of Resolution R-63-14 in that the award of this contract is conditioned on the Contractor providing the County, when required, with a “CONTRACTOR DUE DILIGENCE AFFIDAVIT”.

**Miami-Dade County
Contractor Due Diligence Affidavit**

Per Miami-Dade County Board of County Commissioners (Board) Resolution No. R-63-14, County Vendors and Contractors shall disclose the following as a condition of award for any contract that exceeds one million dollars (\$1,000,000) or that otherwise must be presented to the Board for approval:

- (1) Provide a list of all lawsuits in the five (5) years prior to bid or proposal submittal that have been filed against the firm, its directors, partners, principals and/or board members based on a breach of contract by the firm; include the case name, number and disposition;
- (2) Provide a list of any instances in the five (5) years prior to bid or proposal submittal where the firm has defaulted; include a brief description of the circumstances;
- (3) Provide a list of any instances in the five (5) years prior to bid or proposal submittal where the firm has been debarred or received a formal notice of non-compliance or non-performance, such as a notice to cure or a suspension from participating or bidding for contracts, whether related to Miami-Dade County or not.

All of the above information shall be attached to the executed affidavit and submitted to the Procurement Officer overseeing this solicitation/ contract/purchase order. The Vendor/Contractor attests to providing all of the above information, if applicable, to the County.

Written Declaration: Pursuant to Florida Statutes s. 92.525, under penalties of perjury, I declare that I have read the foregoing Contractor Due Diligence Affidavit and that the facts stated in it (attached to it) are true.

Contract No. : **Federal Employer Identification Number (FEIN):**

Contract Title:

Printed Name of Affiant Printed Title of Affiant Signature of Affiant

Name of Firm Date

Address of Firm State Zip Code

Notary Public Information

Notary Public – State of _____ County of _____

Subscribed and sworn to (or affirmed) before me this _____ day of _____ by _____
_____ He or she is personally known to me _____ or has produced identification

Signature of Notary Public Serial Number

Print or Stamp of Notary Public Expiration Date Notary Public Seal

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

CERTIFICATE OF ASSURANCE (COA)

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DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

CONTRACT FORMS

Surety Performance and Payment Bond

Fair Wage Affidavit

Financial Documentation

DPM Requirement – Affirmation of Vendor Affidavits

Job Clearinghouse Form

Fair Subcontracting Practices

E-Verify Affidavit

Residents First Training and Employment Program/Community Workforce Program/Employ Miami-Dade Program Construction Workforce Plan - Form RFTE2

OSHA Safety Training Affidavit - Form RFTE 3

Residents First Training and Employment Program/Employ Miami-Dade Program Workforce Performance Report - Form RFTE 4

Certificate(s) of Insurance

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

SURETY PERFORMANCE AND PAYMENT BOND

SURETY PERFORMANCE AND PAYMENT BOND

By this Bond, we _____, as Principal, whose principal business address is _____, as Contractor under the contract dated _____, 20 ____, between Principal and Miami-Dade County for the construction of **METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT**, RPQ/Project No. **RPQ NO. TP-000008807** (herein after referred to as "Contract") the terms of which Contract are incorporated by reference in its entirety into this Bond and _____, a corporation, whose principal business address is _____ as Surety, are bound to Miami-Dade County (hereinafter referred to as "County") in the sum of _____ (U.S. dollars) \$ _____, for payment of which we bind ourselves, our heirs, personal representatives, successors, and assigns, jointly and severally.

THE CONDITION OF THIS BOND is that if Principal:

1. Performs all the work under the Contract, including but not limited to guarantees, warranties and the curing of latent defects, said Contract being made a part of this bond by reference, and in the times and in the manner prescribed in the Contract, including any and all damages for delay; and
2. Promptly makes payments to all claimants, as defined in Section [255.05\(1\)](#), Florida Statutes, supplying Principal with labor, materials, or supplies, used directly or indirectly by Principal in the prosecution of the work provided for in the contract; and
3. Pays County all losses, damages, including damages for delay, expenses, costs and attorney's fees, including appellate proceedings, that County sustains because of a default by Principal under the Contract, including but not limited to a failure to honor all guarantees and warranties or to cure latent defects in its work or materials within 5 years after completion of the work under the Contract; and
4. Performs the guarantee of all work and materials furnished under the contract for the time specified in the Contract, including all warranties and curing all latent defects within 5 years after completion of the work under the Contract;

then this bond is void; otherwise it remains in full force.

If no specific periods of warranty are stated in the Contract for any particular item or work, material or equipment, the warranty shall be deemed to be a period of one (1) year from the date of final acceptance by the County. This Bond does not limit the County's ability to pursue suits directly with the Principal seeking damages for latent defects in materials or workmanship, such actions being subject to the limitations found in Section 95.11(3)(c), Florida Statutes.

Any changes in or under the Contract Documents and compliance or noncompliance with any formalities connected with the Contract or the changes does not affect Surety's obligation under this Bond.

SURETY PERFORMANCE AND PAYMENT BOND (Cont'd)

IN WITNESS WHEREOF, the above bounden parties have caused this Bond to be executed by their appropriate officials as of the _____ day of _____ 20 ____.

CONTRACTOR

(Contractor Name)

BY:

(President) (Managing Partner or Joint Venture)

(SEAL)

COUNTERSIGNED BY RESIDENT
FLORIDA AGENT OF SURETY:

SURETY:

(Copy of Agent's current
Identification Card as issued by
State of Florida Insurance Commissioner must be attached) By:

Attorney-in-Fact

(CORPORATE SEAL)

(Power of Attorney must be attached)

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

FAIR WAGE AFFIDAVIT

FAIR WAGE AFFIDAVIT

Before me, the undersigned authority appeared _____ the
(PRINT NAME)

_____ of _____,
(PRINT TITLE) (PRINT NAME OF BIDDER OR PROPOSER)

who attests that _____ shall pay workers on
(PRINT NAME OF BIDDER OR PROPOSER)

the project minimum wage rates in accordance with Responsible Wages and Benefits, Section 2-11.16 of the Code of Miami-Dade County and the Labor Provisions of the contract documents.

State of FLORIDA

County of Miami-Dade

Sworn to (or affirmed) and subscribed before me this _____ day of _____, 202_____.

_____ Personally, known or _____ produced identification.

(Signature of Notary Public - State of Florida)

(Print, Type, or Stamp Commissioned Name of Notary Public)

Type of identification produced: _____



DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

FINANCIAL DOCUMENTATION

As a condition of award, the Contractor may be required to provide documentation that affirm its financial capacity to perform the work (i.e., Tax Returns, Financial Statements, Profit-and-Loss Statements, Cash Flow Statements, etc.).

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

DEPARTMENT OF PROCUREMENT MANAGEMENT (DPM)

AFFIRMATION OF VENDOR AFFIDAVITS

Bidders are required to affirm that all information submitted with the Vendor Registration Package is current, complete and accurate at the time of bid submission, by completing the provided Affirmation of Vendor Affidavit Form.



VENDOR AFFIDAVITS FORM

(Uniform County Affidavits)

Internal Services Department (ISD)
Strategic Procurement Division
Vendor Outreach and Support Section
111 NW 1st Street, Suite 1300, Miami, Florida 33128-1974
Telephone: 305-375-5773
www.miamidade.gov/procurement

The completion of the Vendor Affidavits Form allows vendors to comply with affidavit requirements outlined in Section 2-8.1 of the Code of Miami-Dade County. Vendors are required to have a complete Vendor Registration Package on file, including required affidavits, prior to the award of any County contract. **It is the vendor's responsibility to keep all affidavit information up to date and accurate by submitting any updates to the ISD, Strategic Procurement Division, Vendor Outreach and Support Section.**

FEDERAL EMPLOYER

IDENTIFICATION NUMBER (FEIN)

In order to establish a file for your firm, you must enter your firm's FEIN. This number becomes your "County Vendor Number". Please enter your Federal Employee Identification Number (FEIN) or if none, then enter the owner's Social Security Number (SSN).

FEIN _____

NORTH AMERICAN INDUSTRY CLASSIFICATION SYSTEM (NAICS)

The North American Industry Classification System (NAICS) is the standard used by the federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing and publishing statistical data related to the U.S. business economy.

NAICS Code _____

VENDOR AFFIDAVITS FORM

A) Name of Entity, Individual(s), Partners or Corporation

B) Doing Business As (If same as line A, leave blank)

Street Address (P.O. Box Number is not permitted)

City

State (U.S.A.)

Country

Zip Code

1. MIAMI-DADE COUNTY OWNERSHIP DISCLOSURE AFFIDAVIT

(Sec. 2-8.1 of the Miami-Dade County Code)

Firms registered to do business with Miami-Dade County, shall require the person contracting or transacting such business with the County to disclose under oath his or her full legal name, and business address. Such contract or transaction shall also require the disclosure under oath of the full legal name and business address of all individuals having any interest (legal, equitable, beneficial or otherwise) in the contract other than subcontractors, materialmen, suppliers, laborers or lenders. Post office box addresses shall not be accepted hereunder. If the contract or business transaction is with a corporation the foregoing information shall be provided for each officer and director and each stockholder holding, directly or indirectly, five (5) percent or more of the outstanding stock in the corporation. If the contract or business transaction is with a partnership, the foregoing information shall be provided for each partner. If the contract or business transaction is with a trust, the foregoing information shall be provided for the trustee and each beneficiary of the trust. The foregoing disclosure requirements shall not apply to contracts with publicly-traded corporations, or to contracts with the United States or any department or agency thereof, the State or any political subdivision or agency thereof, or any municipality of this State. Use duplicate page if needed for additional names.

If no officer, director or stockholder owns (5%) or more of stock, please write "None" below.

PRINCIPALS

FULL LEGAL NAME	TITLE	ADDRESS

FULL LEGAL NAME	TITLE	% OF OWNERSHIP	ADDRESS	CHECK BOXES BELOW													
				GENDER		RACE / ETHNICITY											
				M	F	White	Black	Hispanic	Asian/Pacific Islander	Native American/Alaskan Native	Other						

If a percentage of the firm is owned by a publicly traded corporation or by another corporation, indicate below in the space "Other Corporations".

OTHER CORPORATIONS	% OF OWNERSHIP

2. MIAMI-DADE COUNTY EMPLOYMENT DISCLOSURE AFFIDAVIT

(County Ordinance No. 90-133, amending Section 2.8-1(d)(2) of the Miami-Dade County Code)

The following information is for compliance with all items in the aforementioned Section:

1. Does your firm have a collective bargaining agreement with its employees? Yes _____ No _____
2. Does your firm provide paid health care benefits for its employees? Yes _____ No _____
3. Provide a current breakdown (number of persons) in your firm's work force indicating race, national origin and gender.

		NUMBER OF EMPLOYEES	
		<i>Males</i>	<i>Females</i>
White			
Black			
Hispanic			
Asian/Pacific Islander			
Native American/Alaskan Native			
Other			
Total Number of Employees			

Total Employees

3. MIAMI-DADE COUNTY EMPLOYMENT DRUG-FREE WORKPLACE CERTIFICATION

(Section 2-8.1.2(b) of the Miami- Dade County Code)

All persons and entities that contract with Miami-Dade County are required to certify that they will maintain a drug-free workplace and such persons and entities are required to provide notice to employees and to impose sanctions for drug violations occurring in the workplace.

In compliance with Ordinance No. 92-15 of the Code of Miami-Dade County, the above named firm is providing a drug-free workplace. A written statement to each employee shall inform the employee about:

1. Danger of drug abuse in the workplace
2. The firms' policy of maintaining a drug-free environment at all workplaces
3. Availability of drug counseling, rehabilitation and employee assistance programs
4. Penalties that may be imposed upon employees for drug abuse violations

The firm shall also require an employee to sign a statement, as a condition of employment that the employee will abide by the terms of the drug-free workplace policy and notify the employer of any criminal drug conviction occurring no later than five (5) days after receiving notice of such conviction and impose appropriate personnel action against the employee up to and including termination. Firms may also comply with the County's Drug Free Workplace Certification where a person or entity is required to have a drug-free workplace policy by another local, state or federal agency, or maintains such a policy of its own accord and such policy meets the intent of this ordinance.

4. MIAMI-DADE COUNTY DISABILITY AND NONDISCRIMINATION AFFIDAVIT

(Article 1, Section 2-8.1.5 Resolution R182-00 Amending R-385-95 of the Miami-Dade County Code)

Firms transacting business with Miami-Dade County shall provide an affidavit indicating compliance with all requirements of the Americans with Disabilities Act (A.D.A.).

I, state that this firm, is in compliance with and agrees to continue to comply with, and assure that any subcontractor, or third party contractor shall comply with all applicable requirements of the laws including, but not limited to, those provisions pertaining to employment, provision of programs and services, transportation, communications, access to facilities, renovations, and new construction.

The American with Disabilities Act of 1990 (A.D.A.), Pub. L. 101-336, 104 Stat 327, 42 U.S.C. Sections 225 and 611 including Titles I, II, III, IV and V.

The Rehabilitation Act of 1973, 29 U.S.C. Section 794

The Federal Transit Act, as amended, 49 U.S.C. Section 1612

The Fair Housing Act as amended, 42 U.S.C. Section 3601-3631

Section 2-8.1.5 of the Code of Miami-Dade County, which requires that firms that have annual gross revenues in excess of five (5) million dollars have an affirmative action plan and procurement policy. Firms that have a Board of Directors that are representative of the population make-up of the nation may be exempt.

5. MIAMI-DADE COUNTY DEBARMENT DISCLOSURE AFFIDAVIT

(Section 10.38 of the Miami-Dade County Code)

Firms wishing to do business with Miami-Dade County must certify that its contractors, subcontractors, officers, principals, stockholders, or affiliates are not debarred by the County before submitting a bid.

I, confirm that none of this firms agents, officers, principals, stockholders, subcontractors or their affiliates are debarred by Miami-Dade County.

6. MIAMI-DADE COUNTY VENDOR OBLIGATION TO COUNTY AFFIDAVIT

(Section 2-8.1 of the Miami-Dade County Code)

Firms wishing to transact business with Miami-Dade County must certify that all delinquent and currently due fees, taxes and parking tickets have been paid and no individual or entity in arrears in any payment under a contract, promissory note or other document with the County shall be allowed to receive any new business.

I, confirm that all delinquent and currently due fees or taxes including, but not limited to, real and personal property taxes, convention and tourist development taxes, utility taxes, and Local Business Tax Receipt collected in the normal course by the Miami-Dade County Tax Collector and County issued parking tickets for vehicles registered in the name of the above firm, have been paid.

7. MIAMI-DADE COUNTY CODE OF BUSINESS ETHICS AFFIDAVIT

(Article 1, Section 2-8.1(i) and 2-11(b)(1) of the Miami-Dade County Code through (6) and (9) of the County Code and County Ordinance No 00-1 amending Section 2-11.1(c) of the County Code)

Firms wishing to transact business with Miami-Dade County must certify that it has adopted a Code that complies with the requirements of Section 2-8.1 of the County Code. The Code of Business Ethics shall apply to all business that the contractor does with the County and shall, at a minimum; require the contractor to comply with all applicable governmental rules and regulations.

I confirm that this firm has adopted a Code of business ethics which complies with the requirements of Sections 2-8.1 of the County Code, and that such code of business ethics shall apply to all business that this firm does with the County and shall, at a minimum, require the contractor to comply with all applicable governmental rules and regulations.

8. MIAMI-DADE COUNTY FAMILY LEAVE AFFIDAVIT

(Article V of Chapter 11, of the Miami-Dade County Code)

Firms contracting business with Miami-Dade County, which have more than fifty (50) employees for each working day during each of twenty (20) or more work weeks in the current or preceding calendar year, are required to certify that they provide family leave to their employees.

Firms with less than the number of employees indicated above are exempt from this requirement, but must indicate by letter (signed by an authorized agent) that it does not have the minimum number of employees required by the County Code.

I confirm that if applicable, this firm complies with Article V of Chapter 11 of the County Code, which requires that firms contracting business with Miami-Dade County which have more than fifty (50) employees for each working day during each of twenty (20) or more work weeks in the current or preceding calendar year are required to certify that they provide family leave to their employees.

9. MIAMI-DADE COUNTY LIVING WAGE AFFIDAVIT

(Section 2-8.9 of the Miami-Dade County Code)

All applicable contractors entering into a contract with the County shall agree to pay the prevailing living wage required by this section of the County Code.

I confirm that if applicable, this firm complies with Section 2-8.9 of the County Code, which requires that all applicable employers entering a contract with Miami-Dade County shall pay the prevailing living wage required by the section of the County Code.

10. MIAMI-DADE COUNTY DOMESTIC LEAVE AND REPORTING AFFIDAVIT

(Article 8, Section 11A-60 - 11A-67 of the Miami-Dade County Code)

Firms wishing to transact business with Miami-Dade County must certify that it is in compliance with the Domestic Leave Ordinance.

I confirm that if applicable, this firm complies with the Domestic Leave Ordinance. This ordinance applies to employers that have, in the regular course of business, fifty (50) or more employees working in Miami-Dade County for each working day during the current or preceding calendar year.

11. **DADE COUNTY E-VERIFY AFFIDAVIT**

Obligation for State Funded Contracts:

Executive Order 11-116, which supersedes Executive Order 11-02, directs all agencies under the direction of the Governor to verify the employment eligibility of all new agency employees through the U.S. Department of Homeland Security's E-Verify system. Further, agencies are directed to include as a condition of all contracts for the provision of goods or services to the state in excess of nominal value, an express requirement that contractors utilize the U.S. Department of Homeland Security's E-Verify system to verify the employment eligibility of all new employees hired by the contractor during the contract term, and an express requirement that contractors include in such subcontracts the requirement that subcontractors performing work or providing services pursuant to the state contract utilize the E-Verify system to verify the employment eligibility of all new employees hired by the subcontractor during the contract term. In accordance with Executive Order 11-116, Miami-Dade County requires all vendors doing business with the County who are awarded state-funded contracts to verify employee eligibility using the E-verify system. It is the responsibility of the awarded vendor to insure compliance with E-verify requirements (as applicable). To enroll in E-Verify, employers should visit the E-Verify website (<http://www.uscis.gov/e-verify>) and follow the instructions. The employer must, as usual, retain the I-9 Forms for inspection.

12. **PAYPARITY AFFIDAVIT**

(Resolution R-1072-17)

All persons or entities contracting with Miami-Dade County shall provide an affidavit indicating compliance with all requirements stated below.

1. *The Equal Pay Act of 1963, as amended (29 U.S.C. 206(d));*
 2. *Section 448.07 of the Florida Statutes;*
 3. *Chapter 11A of the Code of Miami-Dade County (§ 11A-1 et. seq.);*
 4. *Chapter 22 of the Code of Miami-Dade County (§ 22-1 et seq.);*
 5. *Chapter 8A, Article XIX, of the Code of Miami-Dade County (§ 8A-400 et seq.); and*
 6. *Any other laws prohibiting wage rate discrimination based on sex.*
-

13. **MIAMI-DADE COUNTY SUSPECTED WORKERS' COMPENSATION FRAUD AFFIDAVIT**

(Resolution No. R-919-18)

All persons or entities contracting with Miami-Dade County shall provide an affidavit indicating compliance with all requirements stated below.

I, hereby affirm that this firm pledges to provide written notice and disclosures to all workers, on how to report any suspected workers' compensation fraud to the State of Florida Bureau of Workers' Compensation Fraud, and is in compliance with, agrees to continue to comply with, and assure that any subcontractor or third party contractor shall comply with all applicable requirements.

AFFIRMATION

I, being duly sworn, do attest under penalty of perjury that the entity is in compliance with all requirements outlined in these Miami-Dade County Vendor Affidavits.

I also attest that I will comply with and keep current all statements sworn to in the above affidavits and registration application. I will notify the Miami-Dade County, Vendor Services Section immediately if any of the statements attested hereto are no longer valid.

(Signature of Affiant)

(Date)

Printed Name of Affiant and Title

NOTARY PUBLIC INFORMATION

Notary Public –
State of: _____

State

County of

SUBSCRIBED AND SWORN TO (or affirmed) before me this _____ day of _____ 20 _____.

by _____ He or she is personally known to me Or has produced identification

Type of Identification Produced _____

Signature of Notary Public

(Serial Number)

Print or Stamp of Notary Public

Expiration Date

Notary Public Seal
(When applicable)

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

SBD Job Clearinghouse Affidavit

“The attention of the Contractor is hereby directed to the requirements of Job Clearinghouse Code §2-1701 and Resolution No. R-1395-05.

COUNTY'S CLEARINGHOUSE: Pursuant to Miami-Dade County Resolution R-1145-99, Contractors involved in the construction of improvements on County property must post a notice of job opportunities with the Miami-Dade County Job Clearinghouse. For information regarding the Miami-Dade County's Clearinghouse program, please contact the County's Division of Small Business Development at (305) 375-3157.



Delivering Excellence Every Day

JOB CLEARINGHOUSE AFFIDAVIT
Notice of Construction Job Opportunities

Project / Contract Number: _____

Pursuant to Miami-Dade County Resolution No. R-1395-05, there are ___ open position(s) to submit to the Job Clearinghouse for this project at this time. All open positions will be submitted to South Florida Workforce at <https://iapps.careersourcesfl.com/jchcwp/>.

(Signature of Affiant)

(Date)

(Printed Name of Affiant, Title, and Firm Name)

(Witness)

Sworn to and subscribed before me this
_____ day of _____ 20 ____

By: _____

Signature of Notary Public

- Personally Known
- Produced ID

Type of ID produced _____

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

FAIR SUBCONTRACTING PRACTICES

Consistent with Section 2-8.8 of the Code of Miami-Dade County, the Bidder has adopted subcontracting policies and procedures which (a) notifies the broadest number of local subcontractors of the opportunity to be awarded a subcontract; (b) invites local subcontractors to submit bids in a practical, expedient way; (c) provides local subcontractors access to information necessary to prepare and formulate a subcontracting bid; (d) allows local subcontractors to meet with appropriate personnel of the Respondent to discuss the Respondent's requirements; and (e) awards subcontracts based on full and complete consideration of all submitted proposals and in accordance with the Respondent's stated objectives.

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

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E-Verify Affidavit

Miami-Dade County

E-Verify Affidavit

Executive Order 11-02 requires all Florida State agencies under the direction of the Governor to use E-Verify to confirm the employment eligibility of all current and prospective employees (including subcontractors) assigned to perform work pursuant to a state agency contract. Executive Order 11-116 clarifies that the requirement for state contractors to use E-Verify applies to "all contracts for the provision of goods and services to the state in excess of nominal value."

In accordance with the State requirement, Miami-Dade County requires all vendors doing business with the County who are awarded state-funded contracts to verify employee eligibility using the E-verify system. It is the responsibility of the awarded vendor to insure compliance with E-verify requirements at all times.

To enroll in E-Verify, employers should visit the E-Verify website (<http://www.uscis.gov/e-verify>) and follow the instructions. The employer must, as usual, retain the I-9 Forms for inspection.

By affixing your signature below you hereby affirm that you have complied with E-Verify requirements.

Federal Employer Identification Number (FEIN): _____

_____	_____	_____
Printed Name of Affiant	Printed Title of Affiant	Signature of Affiant
_____		_____
Name of Firm		Date
_____	_____	_____
Address of Firm	State	Zip Code

Notary Public Information

Notary Public -- State of _____ County of _____

Subscribed and sworn to (or affirmed) before me this _____ day of, _____ 20

by _____ He or she is personally known to me or has produced identification

Type of identification produced

Signature of Notary Public

Serial Number

Print or Stamp of Notary Public

Expiration Date

Notary Public Seal

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

RESIDENTS FIRST TRAINING AND EMPLOYMENT PROGRAM/COMMUNITY
WORKFORCE PROGRAM/EMPLOY MIAMI-DADE PROGRAM CONSTRUCTION
WORKFORCE PLAN - FORM RFTE 2

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

OSHA SAFETY TRAINING AFFIDAVIT (FORM RFTE 3)

**Residents First Training and Employment Program
Occupational Safety & Health Administration (OSHA)
10 Hour Safety Training Affidavit - Form RFTE 3**

In accordance with Section 2-11.17 of the Miami-Dade County Code, all contractors and subcontractors of any tier performing on a County Construction Contract, shall satisfy the requirements of the Miami-Dade County Residents First Training and Employment Program which requires: for (i) all persons employed by the contractor to perform construction shall have completed the Occupational Safety & Health Administration (OSHA) 10 Hour safety training course established by the Occupational Safety & Health Administration of the United States Department of Labor

The undersigned verifies that every employee reported on the payroll has completed the OSHA 10 Hour or OSHA 30 Hour Safety Training Course prior to working on the project.

Project Number, Title

Printed Name of Affiant

Printed Title of Affiant

Signature of Affiant

Name of Firm

Date

Address of Firm

State

Zip Code

Notary Public Information

Notary Public – State of _____ County of _____

Subscribed and sworn to (or affirmed) before me this _____ day of, _____ 20____.

by _____ He or she is personally known to me or has produced identification

Type of identification produced _____

Signature of Notary Public

Serial Number

Print or Stamp of Notary Public

Expiration Date

Notary Public Seal

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

RESIDENTS FIRST TRAINING AND EMPLOYMENT PROGRAM/EMPLOY MIAMI-
DADE PROGRAM WORKFORCE PERFORMANCE REPORT - FORM RFTE 4

Residents First Training and Employment Program/Employ Miami-Dade Program

Workforce Performance Report - Form RFTE 4

(Miami-Dade County Code Section 2-11.17 & A.O. 3-63)

Contract No. _____ Prime Contractor: _____

In accordance with Section 2-11.17 of the Miami-Dade County Code & A.O. 3-63, this report must be submitted by the Prime Contractor within thirty (30) days of completion of a County Capital Construction Contract to Small Business Development through the Contracting Officer. The Contracting Officer shall not authorize issuance of final payment for completion of a County Capital Construction Contract until the County receives a completed Workforce Performance Report.

Please provide the following information on the workforce employed in the execution of the contract:

- _____ Total number of Construction Labor positions utilized on the project
- _____ Total number of Construction Labor work hours performed on the project
- _____ Total number Construction Labor work hours performed by Miami-Dade County residents
- _____ Total number Construction Labor positions performed by Employ Miami-Dade participants
- _____ Percentage of Construction Labor work hours performed by Miami-Dade County residents

Attach supporting documentation verifying construction labor work hours performed by Miami-Dade County residents & Employ Miami-Dade participants.

\$ _____ Total amount of funds expended during the course of the project on other related skill and safety training programs

Were any positions on this project filled with new hires? _____ Yes _____ No

If you answered “yes” to the above question, please identify the new hires by name, address and trade category, and indicate whether they were Miami-Dade County residents or an Employ Miami-Dade participant. (Please attach additional sheets if necessary.)

Employee Name	Address	Trade/Category Performed	Miami-Dade County Resident (√)	Employ Miami-Dade County Participant (√)

Were all new hires Miami-Dade County residents? _____ No _____ Yes _____

Was the 20% labor workforce threshold met from the Employ Miami-Dade Register? _____ No _____ Yes

If you answered “no” to either of the above questions, please attach supporting documentation that verifies reasonable efforts to promote employment opportunities for local residents including participation in the Employ Miami-Dade Program, which shall include applicable advertisements in local newspapers, posting of job opportunities with CareerSource South Florida’s Job Clearinghouse, referrals received from CareerSource South Florida, job applications received, candidates interviewed, and number of new hires.

I certify that the representations contained in this Construction Workforce Plan are to the best of my knowledge true and accurate.

_____ Signature of Affiant _____ Print Name, Title _____ Date

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

CERTIFICATE(S) OF INSURANCE
(TO BE PROVIDED BY CONTRACTOR)

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

SPECIAL PROVISIONS

APPENDIX A - SUMMARY OF WORK
APPENDIX B - TECHNICAL DIVISIONS
APPENDIX C - SPEAKERS LOCATIONS
APPENDIX D - SMALL BUSINESS DEVELOPMENT PROJECT WORKSHEET
APPENDIX E - RESPONSIBLE WAGES

1.0 SCOPE OF WORK:

Refer to Section 01 11 00 – Summary of Work. The Contractor is responsible to verify all quantities to perform this work. The quantities provided are an approximation only. This is a Lump Sum project. Refer to Request for Price Quotation (RPQ).

2.0 COMMUNITY WORKFORCE PROGRAM:

A ten percent (10%) Community Workforce Program (CWP) goal has been established for this project. The Contractor is required to comply with the requirements of Miami-Dade County (MDC) Code 2-1701 as amended by Ordinance 13-66 (attached), and Implementing Order No. 3-37; **COMMUNITY WORKFORCE PROGRAM**. Additional information is available at the County's website at <http://www.miamidade.gov/business/contract-requirements.asp#0>.

Contractor must submit a Workforce Plan to the Miami-Dade County Regulatory and Economic Resources Department, Small Business Development Division (formerly Department of Small Business Development or SBD) through the Department within fifteen (15) days of notification of award of the contract. The County will not enter into the contract until it receives the Contractor's Workforce Plan and deems the Plan acceptable. The Workforce Plan forms may be obtained on the County's website at <http://www.miamidade.gov/business/contract-requirements.asp#0>.

3.0 LOCAL PREFERENCE:

The attention of the Contractor is hereby directed to the requirements of the Code of Miami-Dade County, Chapter 2, Article I, Section 2-8.5; **LOCAL PREFERENCE ORDINANCE**.

The award of this solicitation is subject to Section 2-8.5 of the County Code, which except where Federal or State law mandates to the contrary, allow preference to be given to a local business. For the purposes of the applicability of this Code section, "local business" means the bidder has a valid business tax receipt issued by Miami-Dade County at least one year prior to bid submission, and a physical business address located within the limits of Miami-Dade County from which the vendor operates or performs business. A Post Office Box cannot be used to establish a physical address.

"Pursuant to the general terms and conditions of the solicitation document, local preference is applicable to this solicitation. However, please be advised that the reciprocity agreement with Broward County expired September 30, 2017. Accordingly, local preference will only be afforded to a firm that meets the requirements for Miami-Dade County in any solicitation with a due date after September 30, 2017."

Additionally, a Locally-Headquartered Business shall mean a Local Business as defined above which has a "principal place of business" in Miami-Dade County. "Principal place of business" means *the nerve center or the center of overall direction, control, and coordination of activities of the bidder*. If the bidder has only one business location, such business location shall be its principal place of business.

- A. If the Low bidder is not a Local Business, then any and all responsive and responsible Local Businesses submitting a price within ten percent of the Low bid, the Low Bidder, and any and all responsive and responsible Locally-Headquartered Businesses submitting a price within fifteen percent of the Low Bid, shall have an opportunity to submit a best and final bid equal to or lower than the Low Bid.
- B. If the Low Bidder is a Local Business which is not a Locally-Headquartered Business, then any and all responsive and responsible Locally-Headquartered Businesses submitting a price within five percent of the Low Bid, and the Low Bidder shall have an opportunity to submit a best and final bid equal to or lower than the Low Bid.

Ties in best and final bid shall be resolved in the following order of priority: Locally-Headquartered Business, Local Business, other business.

4.0 WARTIME VETERAN'S BUSINESS PREFERENCE PROGRAM:

The attention of the Contractor is hereby directed to the requirements of the Wartime Veteran's Business Preference Program: Per Section 2-8.5.1 of the Miami-Dade County Code, a Local Certified Wartime Veteran Business Enterprise that submits a bid for a contract shall receive a bid preference of five percent of the price bid. These preferences will only be used for evaluating and awarding the bids and shall not affect the contract price. However, if a Local Certified Service-Wartime Veteran Business Enterprise is the lowest bidder as a result of a Best and Final Bid (also known as a BAFO), then the price submitted as part of the Best and Final Bid shall be the contract price.

At the time of bid or proposal submission, the firm must affirm in writing its compliance with the certification requirements of Section 295.187 of the Florida Statutes and submit this affirmation and a copy of the actual certification along with the bid or proposal submission.

5.0 ALLOWANCE ACCOUNTS:

Contingency Allowance: A Contingency Allowance Account has been established for the exclusive use of the Department of Transportation and Public Works as a reserve account to cover unforeseeable and unavoidable costs associated with the Work. This Contingency Allowance account shall be calculated at ten percent (10%) of the base bid total for the Work. It is understood that any unspent portion of the contingency allowance account is to remain with the COUNTY.

An additional allowance has been established to produce required documents in accordance with local codes and regulations to produce all required permits.

6.0 INSURANCE REQUIREMENTS:

Contractor shall indemnify and hold harmless the County and its officers, employees, agents and instrumentalities from any and all liability, losses or damages, including attorneys' fees and costs of defense, which the County or its officers, employees, agents or instrumentalities may incur as a result of claims, demands, suits, causes of actions or proceedings of any kind or nature arising out of, relating to or resulting from the performance of this Agreement by the Contractor or its employees, agents, servants, partners principals or subcontractors. Contractor shall pay all claims and losses in

connection therewith and shall investigate and defend all claims, suits or actions of any kind or nature in the name of the County, where applicable, including appellate proceedings, and shall pay all costs, judgments, and attorney's fees which may issue thereon. Contractor expressly understands and agrees that any insurance protection required by this Agreement or otherwise provided by Contractor shall in no way limit the responsibility to indemnify, keep and save harmless and defend the County or its officers, employees, agents and instrumentalities as herein provided.

Contractor shall furnish to Miami-Dade County, Risk Management Division 111 NW 1st Street Suite 2340 Miami FL 33128-1987, Certificate(s) of Insurance which indicate that insurance coverage has been obtained which meets the requirements as outlined below:

- A. Worker's Compensation Insurance for all employees of the Contractor as required by Florida Statute 440.
- B. Commercial General Liability Insurance in an amount not less than \$1,000,000 per occurrence and \$2,000,000 in the aggregate not to exclude coverage for Products and Completed Operations. Miami-Dade County must be shown as an additional insured with respect to this coverage.
- C. Automobile Liability Insurance covering all owned, non-owned and hired vehicles used in connection with the work, in an amount not less than \$1,000,000 combined single limit per occurrence for bodily injury and property damage.
- D. Cyber Liability Insurance to include data breach and third-party liability, in an amount not less than \$1,000,000 per occurrence

All insurance policies required above shall be issued by companies authorized to do business under the laws of the State of Florida, with the following qualifications:

The company must be rated no less than "A-" as to management, and no less than "Class VII" as to financial strength, by Best's Insurance Guide, published by A.M. Best Company, Oldwick, New Jersey, or its equivalent, subject to the approval of the County Risk Management Division.

or

The company must hold a valid Florida Certificate of Authority as shown in the latest "List of All Insurance Companies Authorized or Approved to Do Business in Florida" issued by the State of Florida Department of Financial Services.

**NOTE: CERTIFICATE HOLDER MUST READ: MIAMI-DADE COUNTY
111 NW 1st STREET
SUITE 2340
MIAMI, FL 33128**

- F. Compliance with the foregoing requirements shall not relieve the vendor of his liability and obligation under this section or under any other section of the Contract.
- G. Contractor's qualification for inclusion in the Contract is contingent upon the receipt of the insurance documents within fifteen (15) calendar days after notification. If the insurance certificate is received within the specified time frame but not in the manner prescribed in this solicitation, the Contractor shall be verbally notified of such deficiency and shall not be placed in an active status until such time as a corrected certificate is submitted to the County. Contractors who are not or do not remain in compliance will be listed as inactive and will not remain inactive until all such defects are corrected. Any Contractor placed in an inactive status shall lose their current position in the established rotation and will be placed at the back of the current rotation upon correction of the deficiency and return to active status.
- H. The CONTRACTOR shall be responsible for assuring that the insurance certificates required in conjunction with this Section remain in force for the duration of the contractual period including any and all option years that may be granted to the CONTRACTOR in accordance with Section 2.5 of the Special Conditions. If insurance certificates are scheduled to expire during the contractual period, the CONTRACTOR shall be responsible for submitting new or renewed insurance certificates to the County at a minimum of thirty (30) calendar days in advance of such expiration. In the event that expired certificates are not replaced with new or renewed certificates which cover the contractual period, the County shall place the contractor in an inactive status until such time as the new or renewed certificates are received by the County in the manner prescribed in the solicitation. Any Contractor placed in an inactive status shall lose their current position in the established rotation and will be placed at the back of the current rotation upon correction of the deficiency and return to active status. If the contractor has an open work order or project when the insurance expires, the contractor will be issued a stop work order and be required to correct the deficiency immediately. No additional time will be allowed as a result of the stop work order and liquidated damages will be assessed. If a Payment and Performance Bond is available on the work, the Bondholder will be notified and given the opportunity to complete the work assignment.

- I. The County may, at its sole discretion require additional or supplemental insurance. Such requirements will be stated in any RPQ issued requiring insurance in addition to the requirements stated above. Cost of Insurance to be included under Pay Item 1, General Requirements.

7.0 PRE-BID MEETING:

A Pre-Bid Meeting will be held as indicated in the Request for Price Quotation (RPQ). Please refer to the RPQ for instructions and additional information.

8.0 CONTRACTOR USE OF PREMISES:

- 8.1 The Contractor's use of the premises is limited to the limits of construction. The Contractor will coordinate all work with the Project Manager and perform work in a manner which allows continuous use of adjoining facilities by DTPW. The Contractor shall maintain safe access to all project areas at all times.
- 8.2 The Contractor shall remain flexible with respect to his work schedule and if the Contractor is delayed due to the non-availability of the project site, his sole remedy for delay shall be limited to a contract time extension only, with no consideration for additional compensation for lost productivity. This remedy for delay (time extension only, no additional compensation) shall also apply to inclement weather conditions.
- 8.3 The Contractor and his subcontractors shall obtain all necessary Permits and provide copies to the Project Manager prior to commencement of work. At the completion of the project, the Contractor shall provide to the Project Manager as-built drawings, all equipment owner's manuals and related documentation provided by the Manufacturers and a copy of the permit(s) with all required inspections signed off.
- 8.4 The Contractor shall clean the area after each work day. In addition, the contractor shall clean the area, remove materials and equipment that would create a potential hazard to pedestrians and DTPW operations personnel.

9.0 EQUIPMENT:

The contractor will provide equipment of sufficient size and capacity to meet project needs.

10.0 INSPECTIONS/MATERIAL TESTING:

- A. **Inspections:** Daily inspections will be performed by the DTPW Representative. Inspections by the DTPW Representative shall not relieve the Contractor of his duties and obligations related to performance and/or quality of the Work.

The Contractor shall coordinate with the DTPW Representative the inspection of all pertinent work activities that may be deemed crucial to the completion of the Project. The pertinent work activities shall be defined by the DTPW Representative prior to installation. The Contractor will be responsible to schedule a meeting with the DTPW Representative to identify the pertinent work activities. Refer to technical specifications/notes provided in the project drawings. Installation Procedures recommended by manufacturer shall be submitted by the Contractor to the DTPW Representative. Contractor to comply with Technical Specifications/Notes provided on the Contract Drawings.

B. **Materials:** As specified in the Scope of Work and Project Schedule of Values.

11.0 MEASUREMENT AND PAYMENT:

The Schedule of Values includes all costs required for the complete construction of the specified unit of work including cost of material, delivery; installation, testing, and labor including social security, insurance, and other required fringe benefits, workmen's compensation insurance, bond premiums, cost of the Inspector General random audits, rental of equipment and machinery, taxes, incidental expenses and supervision.

The Contractor shall be compensated based on percentage of work completed if a lump sum contract or by unit price quantities as agreed upon by the DTPW Representative. The Schedule of Values will be used for payment and negotiation of additions/deletions to scope. DTPW reserves the right to modify/adjust any of the unit item quantities at the same unit rate as specified on the Schedule of Values with no additional adjustment (compensation) for the reduction of work scope.

The Contractor shall comply with Resolution No. R-138-10, which mandates that SBE firms work be identified in the Schedule of Values, if applicable. In accordance with Resolution R-138-10, the Contractor is required as a condition subsequent to award and prior to the issuance of notice to proceed, that the scope of work to be performed by any SBE utilized to satisfy any SBE goal in the contract be separately identified in such schedule of values. Payment requisitions for the scope of work of such SBE shall be accomplished by statements of completion of the work of the SBE and shall be accompanied by appropriate documentation including invoicing and checks reflecting payment of the SBE for the previous construction draw.

12.0 TIME OF WORK:

Refer to Technical Specification Section 01 11 00 Summary of Work.

13.0 PRE-CONSTRUCTION MEETING:

A Pre-Construction Meeting will be scheduled after the NTP date. The DTPW Representative may require the Contractor to submit at the time of the Pre-Construction

meeting a Project Schedule, Detailed Schedule of Values, Maintenance of Traffic (MOT) Plan, Shop Drawing Submittal Log, Emergency Contact List, and List of Subcontractors.

14.0 CONSTRUCTION COORDINATION MEETINGS:

The Contractor shall attend Construction Coordination meetings at the site, if required by the DTPW Representative. The DTPW Representative will advise the Contractor of the frequency of the meetings. The meetings shall be attended by the Contractors representative and the DTPW Representative at a time and location to be determined by the DTPW Representative.

15.0 COMMENCEMENT, PROSECUTION AND COMPLETION OF WORK:

TIME IS OF THE ESSENCE. The work to be performed under this Contract shall commence on the effective date of the Notice-to-Proceed and be completed and released to MDC upon completion of all punch list items within the time specified.

Completion of All Work: The Contractor shall complete all work included in the Contract Documents, including punch list, no later than 1,095 calendar days after NTP.

16.0 LIQUIDATED DAMAGES:

TIME IS OF THE ESSENCE and completing the work within the specified time is of the utmost importance to MDC. The following liquidated damages rate(s) have been determined based on the best information available at the time of bidding and represent a good faith effort by MDC to quantify the damages that MDC will incur if the contract duration is not achieved. Therefore, for failure to complete the work within the number of days stipulated in the Invitation to Bid, the Contractor and his/her sureties will be assessed Liquidated Damages as follows:

Final Completion

Liquidated Damages shall be assessed in the amount of \$1,232.39 , per day for each day of delay, not as a penalty, but as Liquidated Damages for each day or fraction thereof of delay until the Final Completion Date is met, which will be paid to Miami-Dade County by the Contractor.

17.0 METHOD OF AWARD:

Award shall be made to the lowest responsive and responsible bidder. DTPW reserves the right to negotiate additional or deductive services related to this project with the low bidder. DTPW reserves the right to reject all bids if deemed in the best interest of Miami-Dade County.

18.0 PERFORMANCE & PAYMENT BOND:

The Contractor shall provide a Surety Performance and Payment Bond for 100% of the contract amount. NTP shall not be issued and no work shall commence until a fully executed performance bond and required insurance are submitted and approved by Miami-Dade County's Risk Management Division. Failure to provide a Performance & Payment Bond within the time required inclusive of any time extensions granted by DTPW may be considered withdrawal of the bid and forfeiture of the Bid Bond. The Cost for Surety Performance and Payment bond to be included under Pay Item 1, General Requirements.

19.0 COLLUSION AFFIDAVIT:

In accordance with Sections 2-8.1.1 and 10-33.1 of the Miami-Dade County Code as amended by Ordinance No. 08-113, bidders/proposers on County contracts are requested to submit the Collusion Affidavit within five (5) days from notification of intent to award.

Failure to provide a Collusion Affidavit within 5 business days after the recommendation to award has been filed with the Clerk of the Board shall be cause for the contractor to forfeit their bid/proposal bond.

NTP shall not be issued and no work shall commence until a fully executed Collusion Affidavit is submitted and approved by DTPW.

20.0 SCRUTINIZED COMPANIES:

By executing this proposal through a duly authorized representative, the bidder certifies that the bidder is not on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, as those terms are used and defined in sections 287.135 and 215.473 of the Florida Statutes. In the event that the bidder is unable to provide such certification but still seeks to be considered for award of this solicitation, the bidder shall execute the proposal through a duly authorized representative and shall also initial this space: _____. In such event, the bidder shall furnish together with its proposal a duly executed written explanation of the facts supporting any exception to the requirement for certification that it claims under Section 287.135 of the Florida Statutes. The bidder agrees to cooperate fully with the County in any investigation undertaken by the County to determine whether the claimed exception would be applicable. The County shall have the right to terminate any contract resulting from this solicitation for default if the bidder is found to have submitted a false certification or to have been, or is subsequently during the term of the contract, placed on the Scrutinized Companies for Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List.

21.0 USER ACCESS PROGRAM:

Pursuant to Miami-Dade County Budget Ordinance No. 03-192, this Contract is subject to a user access fee under the County's User Access Program (UAP) in the amount of two percent (2%). All construction services provided under this contract are subject to the 2% UAP. This fee applies to all Contract usage whether by County Departments or by any other governmental, quasi-governmental or not-for-profit entity. From every payment made to the Contractor under this contract (including the payment of retainage), the County will deduct the two percent (2%) UAP fee provided in the ordinance and the Contractor will accept such reduced amount as full compensation for any and all deliverables under the contract. The County shall retain the 2% UAP for use by the County to help defray the cost of its procurement program. Contractor participation in this pay request reduction portion of the UAP is mandatory.

22.0 CONTRACTOR DUE DILIGENCE AFFIDAVIT:

The attention of the Contractor is hereby directed to the requirements of Resolution R63-14 in that the award of this contract is conditioned on the Contractor providing the County, when required, with a "CONTRACTOR DUE DILIGENCE AFFIDAVIT".

23.0 RESIDENTS FIRST TRAINING AND EMPLOYMENT PROGRAM:

In accordance with Section 2-11.17 of the Code of Miami-Dade County and Implementing Order No. 3-61 (copies attached or online at <http://www.miamidade.gov/smallbusiness/business-development-legislation.asp>), all contractors and subcontractors of any tier on (i) construction contracts valued in excess of \$1,000,000 for the construction, demolition, alteration and/or repair of public buildings or public works, or (ii) contracts or leases valued in excess of \$1,000,000 for privately funded construction, demolition, alteration or repair of buildings or improvements on County-owned land, shall comply with the following:

1. Bidders must:

- a. Submit a completed Responsible Contractor Affidavit (Form RTFE 1) along with the Bid Submittal Package. The Responsible Contractor Affidavit shall verify that (i) prior to working on the project, all persons employed by the contractor on the project to perform construction have completed the OSHA 10 hour safety training course, and (ii) the contractor will make its best reasonable efforts to have fifty-one percent (51%) of all construction labor hours performed by Miami-Dade County residents.
- b. The Contracting Officer shall provide to any contractor who fails to submit a Responsible Contractor Affidavit with its bid or proposal, a written notice that said contractor has forty-eight (48) hours from the time of notification to submit a Responsible Contractor Affidavit or its bid or proposal will be deemed nonresponsive and disqualified.

2. Prior to the issuance of a Notice to Proceed, contractors must also submit: (i) a Construction Workforce Plan (Form RFTE 2) and supporting documentation; (ii) a list of

all subcontractors to be used on the project; (iii) a Responsible Subcontractor Affidavit (Form RFTE 1) for each subcontractor; and (iv) a list of all employees currently employed by the contractor.

3. All certified payrolls submitted to the Contracting Officer shall include an OSHA Safety Training Affidavit (Form RFTE 3).

4. Within thirty (30) business days of completion of a project, the contractor must submit a Workforce Performance Report (Form RFTE 4).

5. Any lessee shall include requirements of Section 2-11.7 of the Code of Miami-Dade County and Implementing Order No. 3-61, including the right of the County to access the contractor's and subcontractors' records to verify compliance, in any contract, subcontract, or sublease. Lessee shall be responsible to the County for payment of compliance monitoring costs and any penalties found due.

24.0 EMPLOY MIAMI-DADE PROGRAM:

Except where state or federal laws or regulations mandate to the contrary, all contractors and subcontractors of any tier performing on a County Construction Contract shall satisfy the requirements of this Article.

In accordance with Section 5.02 of the Miami-Dade County Home Rule Amendment and Charter, Section 2-8.1 of the Code of Miami-Dade County, and Administrative Order No. 3-63, all contractors and subcontractors of any tier on (i) construction contracts valued in excess of one million dollars (\$1,000,000) for the construction, demolition, alteration and/or repair of public buildings, or public works; or (ii) contracts or leases valued in excess of one million dollars (\$1,000,000) for privately funded construction, demolition, alteration or repair of buildings, or improvements on County-owned land:

A. The awarded Contractor is hereby notified that the County will consider whether the Contractor made its best reasonable efforts to promote Employ Miami-Dade on this contract, as defined in A.O. 3-63, as part of the County's evaluation and responsibility review of the Contractor for new County contract awards.

1. Referral Procedures:

- I. Career Source South Florida shall compile and maintain the Employ Miami-Dade Register.
- II. The Contractor will notify Career Source South Florida of the vacancy by completing a Job Opening Form on the Employ Miami-Dade website <https://iapps.careersourcesfl.com/employmd/>. The job order must contain a detailed description of the job responsibilities and qualifications.
- III. Career Source South Florida will then provide a list of qualified candidates available to the Contractor with copy to the Compliance Officer.
- IV. Contractor will review the resumes and qualifications of the candidates, conduct interviews with those candidates who satisfy

the minimum competency requirements, and make a good faith effort to fill at least 20% of the labor workforce required per Contractor's Construction Workforce Plan from the Employ Miami-Dade Register through Career Source South Florida.

- V. Positions filled from the Employ Miami-Dade Register must be full-time, for at least 120 days, in order to be considered towards attainment of the 20% labor workforce threshold herein.

- VI. If the 20% labor workforce per Contractor's Construction Workforce Plan from Employ Miami-Dade is not met on the contract, the Contractor must provide the Compliance Officer with a detailed explanation of its efforts.

- VII. Career Source South Florida may have funds to pay a portion of the salaries for Employ Miami-Dade participants. It shall be the responsibility of the Contractor to contact Career Source South Florida directly to determine eligibility for, and make arrangements as applicable with, Career Source South Florida to pay a portion of the salaries for a specified period and/or during on the job training for the Employ Miami-Dade participants employed on the contract.

25.0 SUBCONTRACTOR / SUPPLIER LISTING:

Pursuant to Section 2-8.1 and 10.34 of the Miami-Dade County Code, for contracts valued at \$100,000 or more when subcontractor(s) and/or supplier(s) are utilized, the Prime contractor/vendor/consultant shall report to Miami-Dade County the race, gender, and ethnic origin of all such first tier subcontractor(s) and supplier(s). The paper-based Subcontractor/Supplier Listing that was previously submitted at time of bid submission is no longer being used. The Prime contractor/vendor/consultant shall be required to identify its first tier subcontractor(s)/supplier(s) and provide demographic information for both their firm and each subcontractor/supplier on the contract as soon as reasonably available and in any event prior to final payment under the contract via Miami-Dade County's online Business Management Workforce System (BMWS).

26.0 MONTHLY UTILIZATION REPORTS:

Paper-based Monthly Utilization Reports (MURs) are no longer being accepted for construction, architecture, and engineering projects with measures. Also for architecture and engineering firms, pursuant to Implementing Order 3-39, primes and subconsultants are required to report payments monthly via Miami-Dade County's online Business Management Workforce System (BMWS). "Compliance Audits" will be created in Miami-Dade County's online Business Management Workforce System (BMWS) after Miami-Dade County pays the Prime contractor/vendor/consultant (approximately one month after). Miami-Dade County Departments will check the compliance audit status for each payment application to ensure that no audits are open for more than two (2) months. For construction contracts without measures, which only require reporting of

cumulative subcontractor payments, a “Compliance Audit” shall only be verified prior to the final payment.

27.0 PUBLIC RECORDS AND CONTRACTS FOR SERVICES PERFORMED ON BEHALF OF MIAMI-DADE COUNTY (HB 1309):

HB 1309 re: governmental accountability has been signed into law by the Governor and was effective July 1. It generally applies only to state agencies, but there is one provision of HB 1309 that also applies to counties. This provision requires public agency contracts for services performed on behalf of the public agency to contain contract provisions clarifying the public record responsibilities of the contractor.

The Contractor shall comply with the Public Records Laws of the State of Florida, including but not limited to, (1) keeping and maintaining all public records that ordinarily and necessarily would be required by Miami-Dade County (County) in order to perform the service; (2) providing the public with access to public records on the same terms and conditions that the County would provide the records and at a cost that does not exceed the cost provided in Chapter 119, F.S., or as otherwise provided by law; (3) ensuring that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law; and (4) meeting all requirements for retaining public records and transferring, at no cost, to the County all public records in possession of the Contractor upon termination of the contract and destroying any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements upon such transfer. In addition, all records stored electronically must be provided to the County in a format that is compatible with the information technology systems of the County. Failure to meet any of these provisions or to comply with Florida’s Public Records Laws as applicable shall be a material breach of the agreement and shall be enforced in accordance with the terms of the agreement.

IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR’S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT (305) 375-5773; ISD-VSS@MIAMIDADE.GOV; 111 NW 1 STREET, SUITE 1300, MIAMI, FLORIDA 33128.

28.0 CONE OF SILENCE

The attention of the Contractor is hereby directed to the requirements of Miami-Dade County Administrative Order No. 3-27 – Cone of Silence.

29.0 BID PROTEST

The attention of the Contractor is hereby directed to the requirements of Miami-Dade County Implementing Order No. 3-21 – Bid Protest and Resolution R-1080-19 which updated the Bid Protest filing fees for contracts set-aside for bidding solely by certified Small Business Enterprises, and other relevant sections.

30.0 PROMPT PAYMENT

The attention of the Contractor is hereby directed to the requirements of Miami-Dade County Administrative Order No. 3-19 – Prompt Payment.

31.0 ASSIGNABILITY/ASSIGNMENT

ASSIGNABILITY - Department of Transportation and Public Works (DTPW) may assign its rights and obligations under the Contract to any successor to the rights and functions of DTW or to any governmental agency to the extent required by applicable laws or governmental regulations or to the extent that DTPW deems necessary or advisable under the circumstances.

ASSIGNMENT - The Contractor shall not assign, transfer, or otherwise dispose of this Contract, including any rights, title or interest therein, or their power to execute such Contract to any person, company or corporation without the prior written consent to DTPW. DTPW's consent for any assignment will not be unreasonably withheld.

32.0 SECTION 20.055 (5)

The contractor/consultant/vendor agrees to comply with s.20.055 (5), Florida Statutes, and to incorporate in all subcontracts the obligation to comply with s.20.055 (5), Florida Statutes.

Section 20.055 (5):

(5) It is the duty of every state officer, employee, agency, special district, board, commission, contractor, and subcontractor to cooperate with the inspector general in any investigation, audit, inspection, review, or hearing pursuant to this section. Beginning July 1, 2015, each contract, bid, proposal, and application or solicitation for a contract shall contain a statement that the corporation, partnership, or person understands and will comply with this subsection.

33.0 ESTIMATED TIME CONTINGENCY

This Contract contains a Contingency Allowance time extension not to exceed ten percent (10%) of the original Contract Duration. Pursuant to a written request by the Contractor for a time extension, that affects the critical path schedule of the Contract or any previously approved changes; written documentation that supports the justification of a time extension, review and concurrence by the COUNTY A/E, a Contract Contingency

Allowance Expenditure Authorization will be created for execution by all parties. Once executed the time extension will adjust the scheduled completion date. The cumulative total of all Contingency Allowance time extensions shall not exceed ten percent (10 %) of the original Contract Duration rounded off to the next whole number.

34.0 LCP TRACKER

Refer to the memo dated April 25, 2019 from the Director of Small Business Development Division for Implementation of LCtracker.

35.0 RESOLUTION NO. 1181-18 / DIRECTIVE NO. 182536

The Contractor is directed to the attached report regarding consideration of Contractor Safety Information as a Part of the Contractor Responsibility Review for Contract Award – Directive No. 182536 and the requirements of Resolution No. 1181-18, applicable to this Project.

Bidders may request a copy of any ordinance, resolution and/or administrative order cited in this bid solicitation, by contacting the Clerk of the Board at 305.375.5126.

36.0 DISCLOSURE OF ALLEGED DISCRIMINATION LAWSUITS

In accord with Resolution No. R-828-19 , the County reserves the right to request from any Bidder the disclosure of any lawsuits which include allegations of discrimination in the last ten years prior to date of solicitation, the disposition of such lawsuits, or statement that there are NO such lawsuits.”



SUMMARY OF WORK
METRORAIL PUBLIC ADDRESS

APPENDIX A

SUMMARY OF WORK





SUMMARY OF WORK
METRORAIL PUBLIC ADDRESS

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SUMMARY OF WORK

1 INTRODUCTION

The intent of THE DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS (DTPW) is to obtain the following services at all main-line Metrorail stations:

- Furnish and install a Public Address System at 22 Metrorail Stations.
- The Public Address System shall be comprised of the following components:
 1. Paging Amplifiers
 2. Digital Mixers
 3. Surface mounted Station Speakers
 4. Interface Digital Mixers with Station Control Units (SCUs) (existing) – manage station paging and Digital Display control.
 5. Ambient Noise Sensors.
 6. Low Level Audio cabling
 7. Provision of power for all components from existing Station UPS.
 8. Ethernet Network cabling between existing Ethernet Switches and equipment provided by the Contractor.

The system shall have the following capabilities:

- Priority paging that shall be defined in and controlled by the Digital Mixer.
- Adjustment of Paging System Sound levels based on changes in Ambient Noise levels. The changes in Paging System Sound Levels shall be proportional to changes in the Ambient Sound levels.
- Provide a Fire Alarm Panel interface – used for muting all Paging System program material when a fire alarm condition is present or active. Interface is a dry contact that is either normally opened or normally closed.
- Provide Microphone inputs from Platform Windscreen/Fire hose cabinet Microphones

The furnished Public Address system shall not utilize any of the existing station Public Address system equipment except for the Station Control Units (SCUs) from which all centralized paging audio signals shall be obtained.

The furnished Public Address system must also accept a muting signal from the station Fire Alarm Panel to ensure that all Public Address program material is muted whenever a signal is received from the station Fire Alarm Panel. The Fire Alarm panel utilizes a dry-contact signal relay that can provide either a normally open or normally closed circuit.

The furnished Public Address system shall be comprised of new digital audio processing and paging equipment, and Ambient Noise Sensing microphones. The



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Paging system shall be integrated with the existing Station Control Units to provide audible information to the Department of Transportation and Public Works' Rail System patrons. Train arrival messages and audible announcements shall meet all applicable requirements of the Americans with Disabilities Act (ADA).

The new Station Public Address system shall support inputs for the following sources:

- Station audio announcements that originate from the Station Control Units (SCU).
- A Station Communications Room dynamic microphone – used for PA system tests.
- Two low-level (maximum 1 Vpp) Analog Audio signals.
- Windscreen Dynamic Microphones.
- A muting signal from the station Fire Alarm Panel.
- Ambient Noise sensing Microphone inputs that shall be used to determine PA system output levels as a function of the ambient noise that exists at any given moment in time at each of the stations at the platform level.

Priority of Audio announcements shall be supported and meet the following criteria:

- The PA system shall be prohibited from broadcasting all audio material or station announcements whenever it receives a muting signal from the station Fire Alarm Panel. The Fire Alarm signal shall mute all Station audio messages regardless of the source or priority.
- Audio material that originates from any of the Windscreen Microphones shall cause the muting of all other Public Address audio material regardless of the source or priority.
- Audio material that originates from the Digital Mixer shall cause the muting of all other audio material with the exception of the Windscreen Microphones.
- The Station room microphone shall have a lower priority than station announcements which originate from the SCU and shall be muted whenever a SCU-originated station announcement is active.
- The two low level inputs shall have the lowest priority.

All components on the new Paging System shall reside on the existing Metrorail SCADA Network and shall be IP addressable and remotely configurable and managed over the SCADA Network. All monitoring and reporting shall also occur over the SCADA Ethernet Network. All network components shall support IEEE 802.3u and 802.3ab standards.

The terms DTPW and Owner shall be considered to refer to the Department of Transportation and Public Works.



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The terms Audio Drivers and Speakers shall be considered as equivalent in meaning.

PLEASE GO TO THE NEXT PAGE



SUMMARY OF WORK
METRORAIL PUBLIC ADDRESS

2 DELIVERABLES:

The Project objectives encompass the following:

1. Furnish, Install, test, and commission a fully functional Public Address system at all Metrorail Stations that meets or exceeds all requirements as defined in the SUMMARY OF WORK.
2. Furnish and install Paging Equipment comprised of Digital Audio processors and Multi-Channel Paging amplifiers in each of the Metrorail station Train Control Rooms.
3. Furnish and Install Digital Ambient Noise Controllers and integrate with system audio processing to ensure (functionality shall be integrated and embedded with the Digital Audio processors):
 1. A consistent level of source material above ambient station noise.
 2. Speech intelligibility is maintained under all ambient noise conditions. Ambient Noise Compensation shall automatically adjust output levels based on ambient noise levels.
4. Furnish and install Ambient Noise Sensing (ANS) microphones at all stations – the microphones shall be compatible with the supplied Digital Ambient Noise Controller or Digital Mixer. More than one ANS microphone may be required per paging zone (please refer to Section 5.13 of this document for a definition of a paging zone) to ensure that paging audio announcement levels meet the requirements of Section 8.1.3.22 of this document.
5. Ambient Noise Compensation Processing and ambient noise sensing microphones shall ensure that program material is maintained at a consistent, user selectable level above varying ambient noise conditions.
6. Furnish and install Acoustic Drivers (Speakers) at all Metrorail station platforms, intermediate, and ground/entry levels. Installation shall comply with Appendix C of the special Provisions.
7. Furnish and install equipment enclosures to house all PA-VMS equipment in the Train Control rooms.
8. Furnish and install wire and cabling for all low-level audio, station speaker audio distribution, Ethernet network, fiber optic interconnections as needed, communications, and AC power for all new PA-VMS equipment. Fiber Optic cable and jumpers shall be supplied and installed where required and shall meet the requirements defined in Section 28 of the Summary of Work.
9. Furnish and install one (1) 16 Channel Active Audio Monitor Panel in the Train Control Rooms to monitor Paging Amplifier audio outputs.



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3 STATEMENT OF INTENT OF THE DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

The Department of Transportation and Public Works' intention is to obtain a fully functional Public Address and Variable Message System as defined in the Summary of Work, which shall meet or exceed all deliverables as defined in Section 2 of the Summary of Work. The contractor shall supply all materials and perform all required work to meet the stated intention.

4 EXCEPTIONS

1. None.

5 TASKS

- Obtain all necessary permits and licenses, required for the successful completion of all deliverables listed in the Summary of Work, in accordance with all codes, standards and ordinances from all governmental agencies that have jurisdictions over the locations where work is to be performed. Permits will be paid from a dedicated allowance account at invoice cost.
- The furnished Paging System shall be implemented such that no single point of failure shall cause the cessation of normal operations of the entire PA-VMS System, or cause a partial or entire loss of functionality of the entire new PA-VMS System.
- Provide a fully functional Paging system that at a minimum, meets the objectives of Section 2 in the SUMMARY OF WORK.
- Furnish and install the necessary Paging System hardware, software, perform system configurations, and system integration to provide an integrated Paging system as defined in the SUMMARY OF WORK.
- Migrate existing Station Control Units (SCUs) from the existing equipment enclosures in the train Control and Communications rooms to the new enclosures that shall be supplied and installed to house all new equipment as defined in Section 8.1.2 of the SUMMARY OF WORK.
- Migrate additional equipment that is co-located with the SCU in the existing equipment cabinet to the newly furnished cabinet at each station.
- Furnish and install all wiring and cabling between the Station Control Unit and the Digital Sound Processor.
- Replace the microphone cable as required between the Windscreen / Fire Hose Cabinet (FHC) microphones at the station platforms, and the Digital Audio Mixer input in the Train Control rooms.



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- Supply and install hand-held microphones to replace all existing Windscreen / Fire Hose Cabinet microphones. Microphone design should be such that the possibility of feedback when in use, is minimized.
- Each Windscreen / FHC microphone at each station shall be connected to an individual input on the station Digital Audio Processor.
- Furnish and install audio cable and connectors between Paging System components.
- Each Metrorail Station shall have multiple paging zones. A paging zone is defined as follows:
 1. Zone 1: Station platform level
 2. Zone 2: Intermediate level
 3. Zone 3: Ground / Fare Collections level.

Note: Some stations have more than two levels/zones depending on the architecture of a station. Each floor including the Fare Collection entry/ground level is a separate zone.
- Each paging zone shall be divided into sub-zones. Each sub-zone shall be defined as a group and each group shall have no more than eight (8) speakers/acoustic drivers connected to a channel of a multi-channel Paging Amplifier. Each sub-zone shall have an even number of speakers in the sub-zone group. An Amplifier group consists of all the amplifiers that are installed in equipment enclosure in a Train Control and Communications Room at a Station.
- Furnish and install all required conduit and speaker wiring to support the required number, placement and connection configuration of station Acoustic Drivers. All wiring shall be installed between each Paging Amplifier and the demarcation and distribution locations for the speakers in a sub-zone without any intermediate splices. All supplied audio distribution wiring shall be designed for use in 70/100 Volt audio distribution commercial Public Address environments. Wire/cable shall be braided or stranded and shall be tinned to ensure corrosion protection (solid conductors shall not be used). The wire gauge shall be as defined in the respective sections. Wiring that is designed and rated for Class 3 circuits shall be used in all Speaker circuits. All 70/100 Volt distribution wiring shall be suitable and rated for direct environmental exposure and use in wet environments and shall have been tested for and shall be meet the requirements of UL 1426.
- Conduit and associated hardware that shall house speaker cable shall be installed between the equipment cabinet that houses the Paging Amplifiers and the speakers.



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- Furnish and install conduit and speaker wiring for Station Audio Drivers/Speakers on the platform levels at all Stations. The number and location of Low Frequency drivers required at each station shall be determined by Acoustic Modeling to meet the requirements of sound coverage as defined in Section 8.1.3 of the SUMMARY OF WORK.
- All hardware used to affix electrical conduit and speaker brackets to the existing station structure, shall be stainless steel, included all concrete and other type screws, washers, and all other mounting hardware.
- At the Government Center station, furnish and install Audio Paging speakers on the second-floor fare collections zone.
- To provide adequate sound coverage and speech intelligibility as defined in SECTION 16821-3-3 of the Technical Specifications, and at the level at the top of the second-floor escalators/stairs that lead to the station platform in the Government Center station. Install speakers on the third-floor transition level to provide adequate sound coverage and speech intelligibility as defined in SECTION 16821-3 of the Technical Divisions document.
- At the platform level, the speakers shall be horizontally mounted and shall be mirror imaged with the speaker on the opposite side of the station platforms. The high-end drivers shall be mounted towards the station tracks.
- **SPEAKER MOUNTING LOCATIONS –**
At the other non-platform levels (zones), speakers shall be symmetrically located with respect to the zone’s architectural layout and connected in a manner similar to the connectivity methodology defined in DIAGRAM #2.
- Follow the manufacturer’s recommendations for mounting supplied speaker brackets on a masonry surface.
- Speakers shall be down tilted by a number of degrees necessary to provide the maximum sound coverage as defined in Section 8.1.3.49 of the SUMMARY OF WORK.
- **WIRING BETWEEN AMPLIFIERS AND DISTRIBUTION BLOCKS –** The wiring from the Paging Amplifiers shall be run from the Paging amplifiers to centrally located demarcation distribution blocks located in each sub-zone. Wire splicing shall not be utilized. All Speaker cables shall be direct runs to approved distribution blocks. Wire size shall be 14 AWG.
- **WIRING BETWEEN DISTRIBUTION BLOCKS AND SPEAKERS IN A SUB-ZONE –** The wiring to all speakers in a sub-zone shall be run from centrally located distribution blocks in each of the sub-zones to each of the speakers in the sub-zone. Wire splicing shall not be utilized. Wiring connections between speakers



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for the purpose of supplying connectivity between the speaker and the Paging Amplifier shall not be permitted even if the speakers support this feature. Pass-through wiring and/or daisy chain wiring methods between speakers shall not be permitted. All Speaker cables shall be direct runs to approved distribution blocks. Wire size shall be 12 AWG.

- **SPEAKER WIRE TERMINATIONS** – Insulated Gold Plated locking Spade clips shall be used for all wire terminations that are to be connected to the speakers.
- Install environmental protective speaker terminal caps or covers when provided by the speaker manufacturer as part of the supplied speaker hardware. If the protective caps or covers are available as an option from the speaker manufacturer, the contractor shall supply and install the environmental protection caps or covers.
- **SPEAKER FALL PROTECTION** – Provide and install Stainless Steel Aircraft Wire which shall tether each speaker to the station surface to which the speaker mounting brackets shall be affixed. The Aircraft Wire shall be terminated on each end with the appropriate stainless steel eyelets. Eyelet-hole diameters shall be adequate to ensure that screws that shall affix the cable assembly to the speaker and the station structure shall be easily inserted through the eyelet, but which shall prevent the eyelet from riding over the screw-head. Flat and lock washers shall be used on the both ends of the tether when affixing the tether eyelets to the structural mounting surface and the speaker.
- The Aircraft wire shall meet or exceed the following minimum requirements:
 1. 7 x 7 Vinyl Coated Cable
 2. Tensile Strength: 5,700 LBS.
 3. Size: 5/16 inches.
 4. Assembled Length: 21 inches.

The cable assembly (anchor, cable, eyelets, eye screws, etc.) when affixed to structure shall support a minimum force of 500 pounds without the failure of the assembly. Appropriately sized stainless washers shall be used in conjunction with the hardware used to affix the tethering cable to the speaker and structure. Anchor shall be designed for use in hollow core post tension concrete. Red Head Multi-Set II RX drop-in anchors with a 3/8 inch diameter and 3/4 inch length are recommended. The contractor shall verify that the recommended anchor meets the required minimum 300 pound pull-out force. A submittal of the proposed anchor shall be required for review. Engineering drawing shall also be submitted for review and approval.



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- Speaker Wire Protection – All speaker wiring between electrical boxes and the Speaker terminals shall be protected by 3/8 inch flexible Liquid-tight conduit appropriate for direct weather exposure, and which shall be fitted with the appropriate end fittings on each end. Part YF-70603 manufactured by Delikon, or an approved equal shall be used. The length of the speaker wire between the electrical box and the speaker shall be such that the speaker tether shall support the full weight of the speaker when the speaker is freely hanging by the tether wire.
- Station Wire Termination enclosure – a suitably sized enclosure shall house the common distribution wiring to each speaker in a sub-zone, and the Paging distribution wiring from the Paging Amplifiers. The enclosure shall include a sub-panel. All Station Distribution Blocks shall be housed in enclosures that are NEMA Type 3R Galvannealed Steel with included rain-cap.
- All station speaker wiring terminations (excluding the wiring in the Train Control and Communications Rooms) shall be terminated on Phoenix Contacts Distribution Blocks with a voltage rating of 300 volts or greater and an ampacity rating of 20 Amps or greater. The Distribution Blocks shall be designed for use with 12 AWG stranded cable. One connector color is required for each wire polarity. Black and White colored Phoenix Contacts Distribution blocks shall be used for the respective speaker positive and negative connections. Appropriate mechanical mounting as recommended by the manufacturer is required for all the Distribution Blocks. Refer to Diagram #4 for Distribution Block Wiring Methodology. Separator partitions shall be used between distribution blocks for each wire polarity termination.
- All speaker wiring shall be terminated with insulated ferrules that shall be accepted by the Distribution Blocks. Ferrule insulation color shall match the color of the Distribution Block to which it shall be connected.
- Furnish and install Station Speaker disconnect Switches in all Train Control rooms.
- Furnish and install Digital Mixers.
- Furnish and install station Paging Amplifiers.
- Furnish and install Paging Amplifier speaker connection panels.
- Furnish and install paging Speakers/Acoustic Drivers.
- Furnish and install a Microphone in each Train Control and Communications Room for the purpose of testing the PA system.
- Perform all Project Management and Quality Assurance.
- Provide all training to include all necessary training materials.



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- Provide all the required documentation, test equipment and diagnostic software.
- Provide spares. The contractor shall propose a list of equipment that shall be designated for use in repairing any components found to be defective during normal in-service operation after all warranties have expired. A minimum of 1 piece of each manufacturer's equipment used shall be proposed. Test equipment is exempt from spares requirement.
- The total cost of the spares shall not exceed the amount indicated in the 'Allowance Account for Spare Parts List' line item on the Bid Form.
- Integrate new equipment with existing equipment as required to provide fully operational PA system.
- Clean all speakers after each one is installed to remove all dust, dirt, and other stains that result as a product of the installation process. Cleaning means and methods shall be as required by the speaker manufacturer. No Spray or Aerosol cleaners shall be used.
- All equipment that is installed in the Train Control and Communications Rooms shall be fed from an existing EATON Uninterruptable Power Supply (UPS). The branch Circuits shall be fed from the Electrical Distribution Panel that is fed from the EATON UPS units. There shall be no exceptions to this requirement. Sub-panels shall be installed where required to provide the required number of branch circuits.
- All equipment that is installed in the exterior of the Train Control and Communications Rooms that require electrical power shall be fed from the EATON UPS system. This requirement applies to all equipment that requires operational power.
- Provide required renderings and drawings for DTPW approval.
- Freight and delivery shall be included in the proposed prices.
- Provide training for personnel as defined by The Department of Transportation and Public Works on all systems that are installed. The training curriculum and scheduling shall occur prior to final acceptance. The minimum number of trainees shall be fifteen.
- Provide all as-build documentation to Project Manager prior to Final Acceptance.
- All Appendices Shall be considered as part of the Technical requirements as defined in the SUMMARY OF WORK.
- QUALITY OF WORKMANSHIP – All work shall be completed to the satisfaction of the Project Engineer (Engineer) or Project Manager. This requirement shall apply to all work that is done by the prime contractor or any sub-contractors that are



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used by the prime contractor for the provision of materials, equipment, software or any other items associate with the deliverables as defined in this Summary of Work and Technical provisions of this contract. Any anomalies that are identified by the Project Manager or Engineer shall be corrected to the satisfaction of the Project Manager or Engineer and shall not be considered as a change to the Scope of Work but shall be treated as remedial in nature. No compensation shall be sought for any such remedial work.

- In the event of any omissions, conflicts or inconsistencies in the definitions of the work to be performed as defined in the TASKS section, the instructions of the Engineer or Project Manager shall prevail.
- Electrical work. The following requirements shall be adhered to when performing all Electrical work as required by this SUMMARY OF WORK:
 1. All work shall comply with the latest adopted NFPA requirements that governs the Electrical work required in the SUMMARY OF WORK
 2. An appropriately sized over-current device shall be used for each branch circuit that is provided which is associated with work performed as defined in the SUMMARY OF WORK.
 3. Each Paging Amplifier shall be electrically fed from a dedicated branch circuit with adequate over-current protection.
 4. All other equipment may be collectively supplied from a single branch circuit with adequate over-current protection.
 5. All branch circuits shall be fed from an existing distribution panel that is fed from the EATON UPS that provides conditioned uninterruptable power to exiting equipment in the Train Control and Communications rooms at each of the Metrorail Stations.

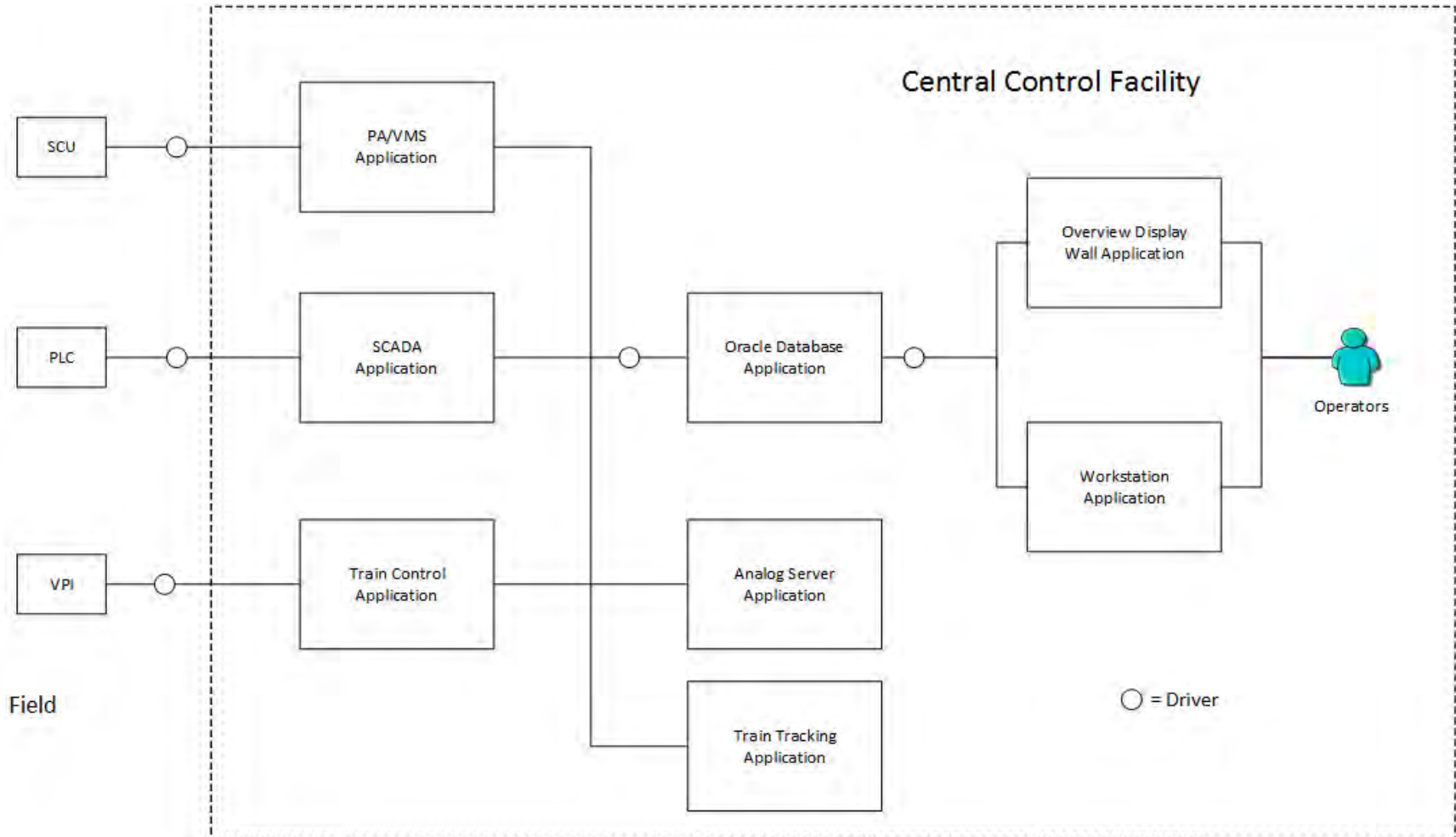
6 PRE-EXISTING CONDITIONS AND EXISTING WARRANTY

6.1 EXISTING SYSTEM

The contractor shall directly integrate the furnished PA System with an existing SCU Control System. Middleware, Software or unapproved changes shall not be used as a solution for interfacing the new Paging System with the existing SCUs. A stand-alone or independent solution that cannot be fully integrated with the existing SCUs will not be accepted. No changes or modifications to the existing Station Control Units other than approved changes shall be permitted.

Please refer to System Configuration Overview Block Diagram #1 on the following page for the architecture of the PA-VMS system and its interrelationship with existing Database and Train Tracker systems.

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Diagram#1: System Configuration Overview Block Diagram



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6.2 NEW AND EXISTING SYSTEM WARRANTIES

The contractor shall provide warranty for all newly supplied hardware, and embedded software supplied with the hardware for Paging System for a period of one (1) calendar year from the date of final acceptance of the entire Paging system. Software modifications to the existing SCU and any other existing systems shall be included in the Warranty.

SOFTWARE

The Contractor shall disclose to The Department of Transportation and Public Works, software utilized in any processor-driven component, according to the nature of the software selected:

- A. Commercially Available Software: Pass on to The Department of Transportation and Public Works the following:
 - 1. All documentation, new and unused, received with the software from supplier.
 - 2. A non-exclusive license in perpetuity to use software in all processor devices in which it is installed by Contractor.
- B. High-Level Software and Operating Systems: For any software that is the property of the Contractor, provide the following support:
 - 1. A non-exclusive license in perpetuity to utilize software in all processor devices on which it is installed by Contractor.
 - 2. An undertaking, in effect for as long as the software is in operation, to provide The Department of Transportation and Public Works with updated software if any defects or deficiencies in software become known to the Contractor from any source.
 - 3. Full and detailed documentation of software shall be provided to The Department of Transportation and Public Works prior to contract closure.
- C. Application Software and Databases: Provide the following support:
 - 1. A non-exclusive license in perpetuity to use software in all processor devices in which it is installed by Contractor.
 - 2. Full and detailed documentation, including operational descriptions, flow diagrams, and detailed program or data listings to allow The Department of Transportation and Public Works to maintain and modify the software or ensuing databases without seeking additional information from the Contractor.
- D. Custom Developed Software:
 - 1. A non-exclusive license in perpetuity to use and modify all approved custom developed software used in all processor devices in which it is installed by



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Contractor. The Contractor shall submit all custom developed un-compiled source code to The Department of Transportation and Public Works prior to contract closure.

7 DIGITAL PUBLIC ADDRESS SYSTEM AND VARIABLE MESSAGE SIGNAGE REQUIREMENTS

8.1 DIGITAL PAGING PUBLIC ADDRESS SYSTEM

8.1.1 EQUIPMENT DEFINITIONS

The equipment defined in Section 8.1.2 of the SUMMARY OF WORK, or their approved equals shall be used to implement the requirements as defined in the SUMMARY OF WORK. The equipment noted in Section 8.1.2 of the SUMMARY OF WORK constitute the core components of the Public Address system. Additional equipment and software may be required and shall be submitted for approval.

All Acoustic Drivers/Speakers shall be listed by an OSHA Nationally Recognized Testing Laboratory for Outdoor use, and shall be designed by the OEM for use with a 70/100 volt paging amplifier or in bypass for use as an 8 Ohm load. If the manufacturer of the Acoustic Drivers/Speakers does not provide a product that is listed by an OSHA recognized Testing Laboratory as appropriate for Outdoor use, but which otherwise meets the requirements as defined in this document, and are designated by the OEM as suitable for All-Weather and/or Outdoor use, then it shall be the responsibility of the contractor to obtain such listing prior to the purchase of any such Acoustic Drivers/Speakers that are to be installed under the contract. Proof of Certification shall be submitted to the Project Manager or Engineer for inspection and approval prior to procurement or purchase of the Acoustic Drivers/Speakers. All Acoustic Drivers/Speakers that are supplied shall have a marking or label provided by the Testing Laboratory affixed to the Acoustic Drivers/Speakers indication that the speaker meets the testing requirements of the Testing Laboratory. All OSHA Nationally Recognized Testing Laboratories can be found using the following URL:

<https://www.osha.gov/dts/otpca/nrtl/nrtllist.html>

A submittal of the selected OSHA approved Testing Lab shall be submitted for review and approval prior to submission of equipment that shall be certified for its intended use.

The Salient Characteristics for all suggested equipment is presented in SECTION 42 of the SUMMARY OF WORK.



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8.1.2 MATERIALS LIST

The equipment make and model required shall be the same for each Metrorail Station unless otherwise determined. The Equipment is presented in Table 1 below. Approved equals may be substituted for any or all of the equipment listed in Table #1.

	Paging Amplifiers	Network Signal Processor	Station Acoustic Drivers/Speakers	16 Channel Active Audio Monitor Panel	Communications Room Acoustic Drivers/Speakers	Ambient Noise Sensing Microphones	Communications Room Microphones	Speaker Wire/Cable
Make	Crown	BSS Harmon	Klipsch	AtlasIED	Klipsch	AKG	SHURE	Belden
Model	DCi-4-1250N	Soundweb LONDON BLU-806DA	AW-650 Black	MVXA-2016	AW-525 Black	PZM11LL WR	Model 514B U	1311A 1SL1000 Multi-Conductor
Quantity	As needed to meet Zone coverage and speech Intelligibility requirements at each station	As needed to support required number of Ambient Noise Microphones	Quantity shall be determined by Acoustic Modeling results	1	2 – Each wired to one Amplifier’s channels 1 and 2 respectively	As needed to meet the requirements of 8.1.3.22	1 – Wired for a Balanced input on the DSP	As needed
Software	Audio Architect	Sound Architect	N/A	N/A	N/A	N/A	N/A	N/A

TABLE #1

NOTE: ALL ACOUSTIC DRIVERS SHALL BE SET TO THE MAXIMUM POWER TAP SETTING PRIOR TO INSTALLATION FOR USE WITH A 100 VOLT DISTRIBUTION SYSTEM

8.1.3 PAGING SYSTEM REQUIREMENTS

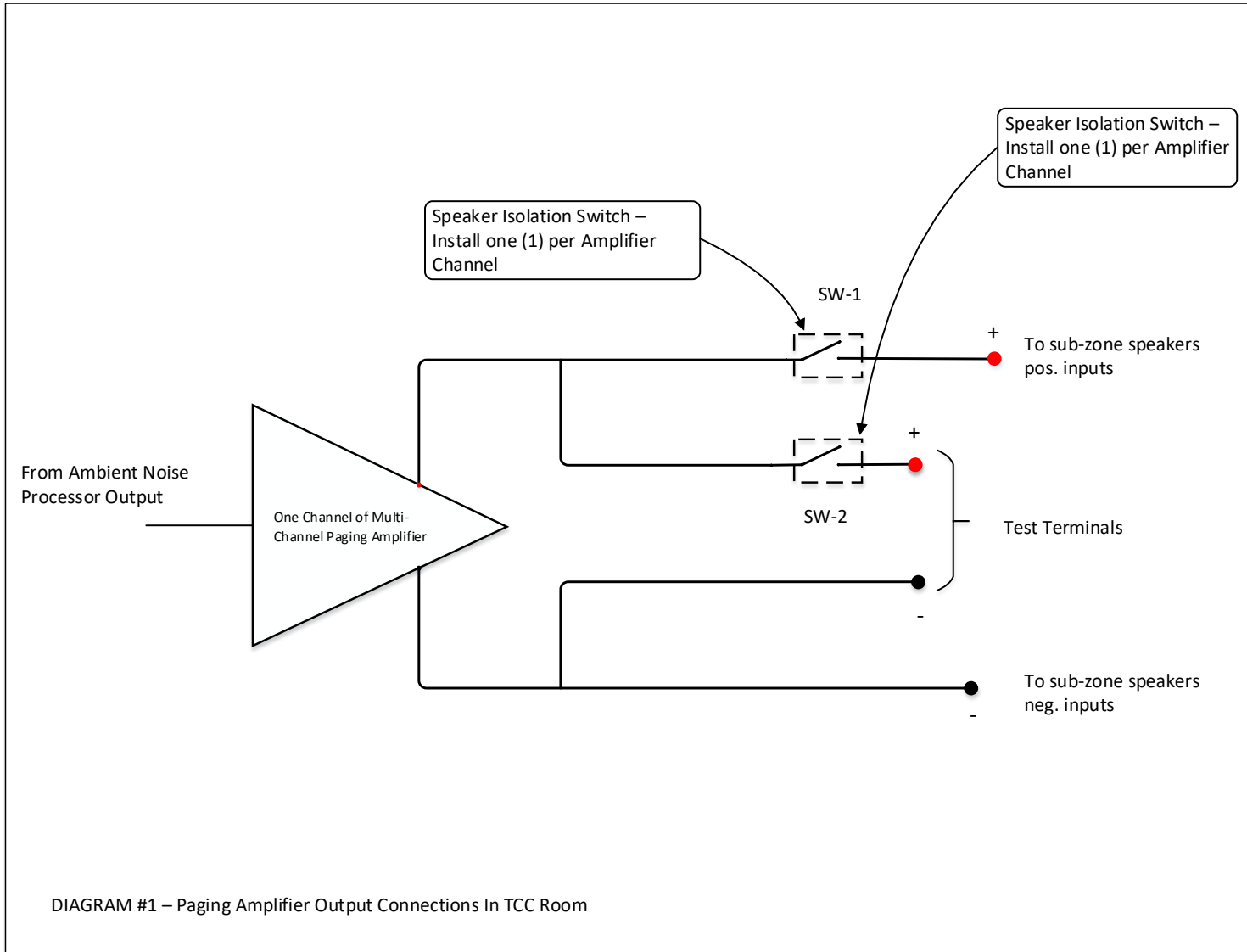
1. Paging Amplifiers shall provide 70/100 Volt line outputs.



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2. Paging Amplifier shall support BLU link.
3. Paging Amplifiers shall meet all Safety Requirements for Audio, Video, and Similar Electronic Apparatus as defined in UL Standard No. 60065-2007.
4. Station Surface-Mounted Acoustic Drivers/Speakers shall be provided.
5. New station wiring between the Paging Amplifiers and paging zone Acoustic Drivers / Speakers.
6. Each Metrorail Station level including the platform level, any intermediate levels, mezzanine, and ground levels shall have Acoustic drivers installed.
7. The same manufacturer's software shall be used to manage, configure, monitor and maintain all Power Amplifiers and Digital audio processing architecture in all Metrorail stations. This shall include all digital processing and paging system software except for the SCUs.
8. An in-room microphone shall be installed to enable the origination of test messages from the Train Control Rooms. The microphone shall be a dynamic type and be keyed for activation (push to talk). Microphone connections to the Digital Sound Processor shall be balanced.
9. Two speakers shall be installed in each Train Control Room. The speakers shall have an independent volume control to be used to verify the quality of the line audio material being broadcast from the Paging Amplifiers to the station platform, intermediate, and ground levels.
10. Refer to Diagram #1, Diagram #2, and Diagram #3 for Audio Driver/Speaker wiring and connectivity requirements.



Wiring Methodology for Speaker Connections and Phase Consistency.

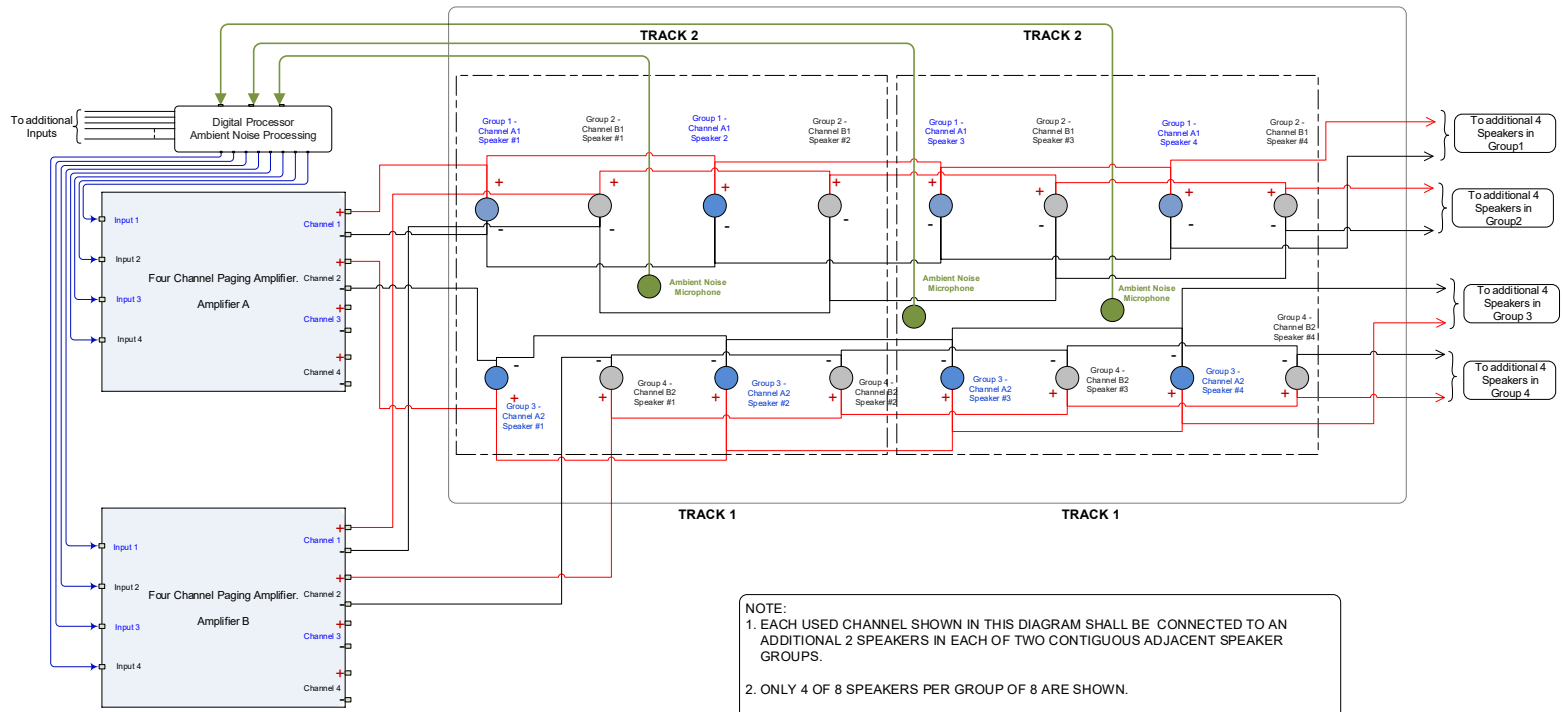
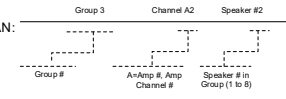


DIAGRAM #2

NOTE:
 1. EACH USED CHANNEL SHOWN IN THIS DIAGRAM SHALL BE CONNECTED TO AN ADDITIONAL 2 SPEAKERS IN EACH OF TWO CONTIGUOUS ADJACENT SPEAKER GROUPS.
 2. ONLY 4 OF 8 SPEAKERS PER GROUP OF 8 ARE SHOWN.
 3. THE UNCONNECTED CHANNELS SHOWN IN THIS DIAGRAM SHALL BE CONNECTED IN A SIMILAR MANNER TO THE CONNECTED CHANNELS IN NOTE 1 ABOVE.
 4. EACH OUTPUT FROM A DIGITAL SOUND PROCESSOR SHALL BE CONNECTED TO ONLY ONE INPUT ON A PAGING AMPLIFIER.
 5. SPEAKER NUMBERING PLAN:



Representation of Wiring methodology for Station Speaker connectivity.



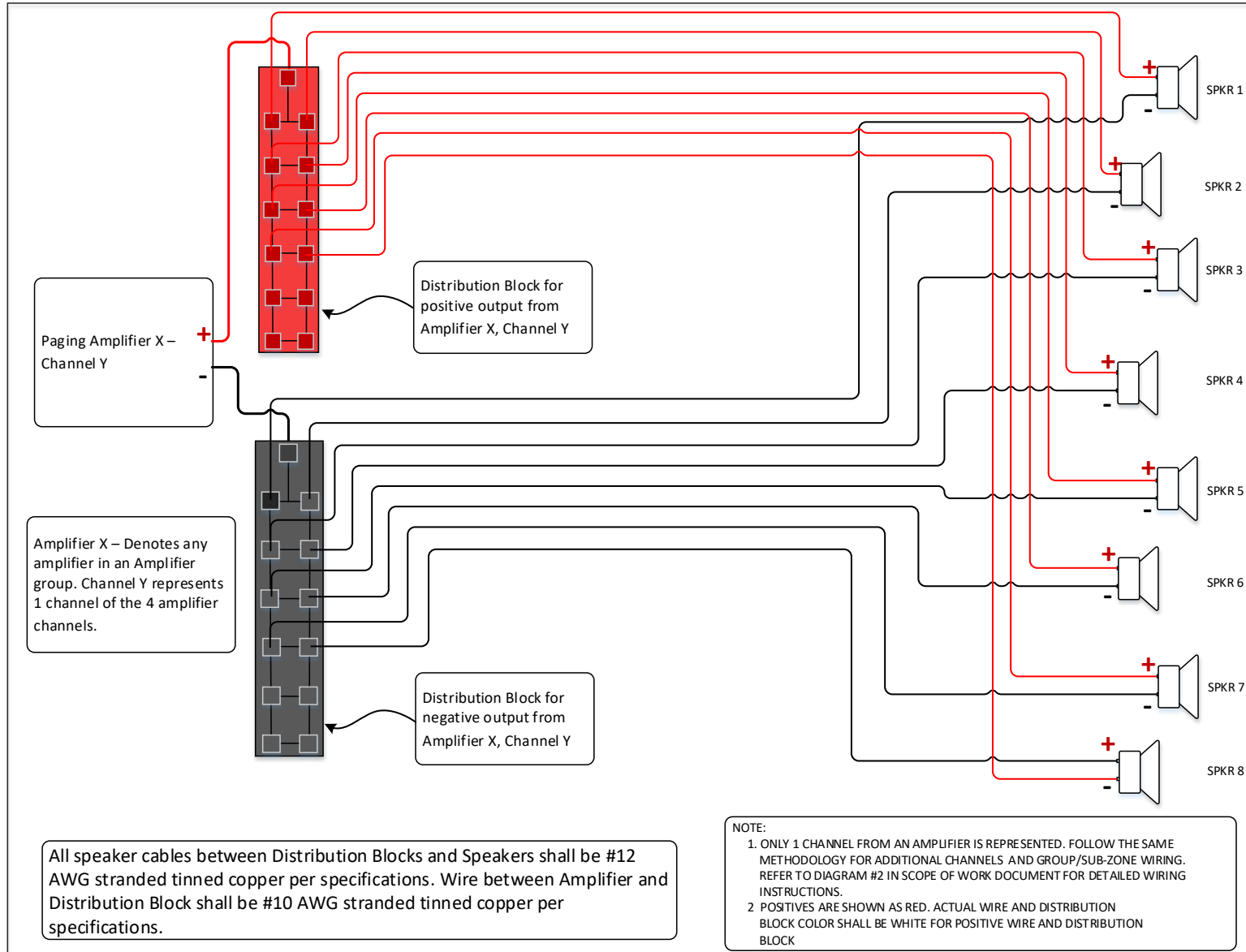
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DIAGRAM #2 – Wiring Methodology for Speaker Connections and Speaker Phase Consistency.

NOTE.

- Unused Paging Amplifier channels in Diagram #3 are to be connected to other speaker groups/sub-zones using a similar methodology to assure continued paging service in the event of a single Paging Amplifier outage.
- More than one Ambient Noise Sensing Microphone may be required to ensure that the requirements of Section 8.1.3.22 are met.





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11. Paging Amplifier shall be wired as indicated in diagram #3 for speaker testing and monitoring purposes.
12. Include paging amplifier audio test positive and negative output speaker terminals installed as indicated in diagram #3.
13. All station speakers shall be connected to ensure phasing of Acoustic Drivers are consistent throughout the station (all positive speaker terminals are connected to positive output of each Paging amplifier. Same for negative terminals of Acoustic Drivers).
14. All Acoustic Driver wiring shall be implemented such that contiguous drivers are not driven from the same Amplification source as the closest contiguous driver. Please refer to diagram #3, for a diagrammatic representation of the wiring methodology to be followed.

NOTE: For a given paging zone, the station speaker wiring connected to the Paging Amplifier output (70/100 V) channels, shall be connected as indicated:

- I. Speakers in Zone A – Channels 1 and 2 – Connect to Paging Amplifier A, Channels 1 and 2.
- II. Speakers in Zone A – Channels 3 and 4 – Connect to Paging Amplifier B, Channels 3 and 4.

The same principle shall apply to all other paging zones.

15. Comply with all NFPA fire and life safety requirements.
16. Support Fire Alarm Panel Integration as defined by NFPA 72.
17. Only Digital Signal/Audio Processing shall be used in all stages of the signal processing chain. Digital to Analog and Analog to Digital conversion shall meet the following minimum specifications:
 - 24-bit A/D converters
 - Audio sampling rate: 48kHz
18. Utilize a distributed architecture that supports standard Ethernet connectivity and Audio-over-Ethernet for inter-nodal communications and control.
19. The System shall be Network capable and use an Ethernet Network to initiate and complete all paging announcements.
20. The user shall have the ability to select any single station or group of stations when making an announcement.
21. Ambient Noise sensing that enables automatic adjustment of system output sound pressure levels in response to varying ambient station noise levels shall be employed. The sensors shall be installed on every station level/zone and individually

control the Audio output on the station level being monitored. Multiple Ambient Noise Controllers may be utilized per paging zone to ensure adequate ambient noise sensing. The Ambient Noise Sensors shall have the ability to accurately differentiate between ambient noise and the actual program material so as to vary the Paging System's sound level output as a function of ambient noise only. Sensing and attenuation changes shall occur continuously regardless of program material. Calibration of the Ambient Noise sensors shall be automatic.

22. The Public Address System when in use shall provide an un-weighted output Sound Pressure Level (SPL) that exceeds ambient noise levels by a use selectable range of 5 dB to 15 dB when measured at a distance of 10 feet from the each of the speakers.
23. Ambient noise includes the noise generated by arriving trains at a Station platform. During train arrivals, the highest levels of ambient noise occur, and it is under these conditions that the requirements of item 8.1.3.22 must be met.
24. The Ambient Noise Sensor's output SPL differential shall be user selectable within the 5 dB to 15 dB range as either a continuously variable amount or by discreet steps of 1 dB increments.
25. The minimum number Power Amplifiers to be furnished shall be determined by the requirement of a maximum of eight (8) speakers being connected to a Paging Amplifier channel. A single Power Amplifier channel shall be connected to no more than one (1) paging sub-zone.
26. Configuration of Digital processing shall be by means of a Graphical User Interface with drag-and-drop of Audio processing blocks.
27. System shall at a minimum, support the following Digital processing software blocks each of which can be configured to be added at any point in the Digital signal processing chain. Any software block or combinations of software blocks shall be bypassed or enabled on demand:
 - Selectable Parametric or Octave Equalization – minimum of seven center frequencies. Control range shall be ± 12 dB at each center frequency.
 - Audio Level Compression.
 - Noise Generators: single selectable tone, pink-noise and white-noise.
 - Audio Delay: 0 to 2 seconds in 1 millisecond increments.
 - Central Audio Processing Controller.
 - Mixers: add or combine two or more inputs with assignable priorities.
 - Filters: High Pass, Low Pass, High Frequency Shelving, Low Frequency Shelving. The shelving frequency shall be user selectable for all filters.



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- Audio level dynamic range control: Signal leveler – provide compensation for audio signals of different levels to provide a consistent output level, dynamic range compression, dynamic range expansion, level limiting, ducking, and Automatic Noise Cancellation.
28. Overall System Signal to Noise Ratio: greater than 90 dBA.
29. Overall System Audio Frequency response: 20 Hz to 20 KHz \pm 3 dB. (Speaker Frequency Response is not included as part of the overall System Audio Frequency response).
30. Input gain: Low Level: 0 to +55 dB (Balanced)
31. High Level: 0 to +20 dB
32. Low Level Audio outputs shall be balanced.
33. Audio output impedance shall be less than 1,000 ohms.
34. System Total Harmonic Distortion (THD) shall be less than 0.1 percent at specified sound pressure levels.
35. Public Address System shall meet a minimum Speech Transmission Index of 0.85 as measured using ANSI S3.5-1997 (R2007) or its subsequent revisions. Refer to SECTION 16821-3-3 for additional Speech Intelligibility Index and Speech Transmission Index measurement standards.
36. The contractor shall:
- Assess audio quality and speech transmission index for Public Address systems (STI-PA) of the existing PA systems.
 - Perform acoustic modeling to derive optimal Acoustic Driver quantity and placement necessary to provide a consistent audio level throughout the station platform, intermediate, and ground level paging zones. The results of the acoustic modeling shall be presented to DTPW for review and approval.
 - Recommend steps to extend sound coverage throughout the various station levels and improve speech intelligibility based on modeling scenarios and results.
37. Horn-only Acoustic Drivers shall not be provided and shall not be used or installed.
38. Acoustic Drivers shall have a minimum sensitivity of 93 dB when driven with 1 Watt of input power and measured on axis at 1 meter from the driver, when used on a 70/100 Volt distribution line.
39. All Acoustic Drivers shall be designed and listed for use in outdoor applications.
40. Station Acoustic Drivers shall have a frequency response of 75 Hz to 20,000 Hz \pm 5 dB or better.



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41. Acoustic Drivers shall have a minimum power handling of 80 Watts when measured using the AES2-2012 standard with a direct connection (the 70/100 Volt Transformer is bypassed) to the driver's input.
42. Acoustic Driver power input shall be selectable using power taps. The maximum power tap shall be 60 Watts (AES) or more on both 70 Volt and 100 Volt lines.
43. Maximum tap power handling capacity shall be adequate to provided required Sound Pressure levels as defined in 8.1.3.22 of the SUMMARY OF WORK.
44. Acoustic Driver Horizontal dispersion shall be 80 degrees (\pm 40 degrees of horizontal axis) over a frequency range of 1.5 kHz to 18 kHz.
45. Acoustic Driver Vertical dispersion shall be 80 degrees (\pm 40 degrees of vertical axis) over a frequency range of 1.5 kHz to 18 kHz.
46. Four (4) channel Paging Amplifiers shall be used to provide adequate sound coverage, and sound pressure levels as defined in 8.1.3.22 of the SUMMARY OF WORK, and to provide diversity of coverage in the event of the failure of any one of the outputs on the Paging Amplifier. Per channel Amplifier RMS power with all channels driven shall be 1.15 dB greater than twice the total AES power ratings for an eight-speaker group that is driven from the amplifier channel.
47. Acoustic Driver wiring methods shall support diversity of connectivity to ensure continued coverage at reduced levels in the event of a failure on any of the output portions of the multi-zone Paging Amplifier. Refer to Diagram #2 of this document.
48. Paging Amplifier shall support the following output impedance and line loads: 8 ohm, 70 Volt line, and 100 Volt line.
49. The quantity and placement speakers installed shall ensure that the maximum variance in SPL at any location served by the speakers shall not be greater than 6 dB or as defined by the Project Manager or Engineer. The variance in SPL between adjacent Low Frequency speakers shall not be more than 6 dB. All sound measurements shall use Z weighting per IEC 61672.
50. All environmental enclosures except where noted shall have minimum requirements of a NEMA 4X rated and manufactured from 12 gauge Type 316L stainless steel or approved equal, and be IP 67 rated for dust and moisture ingress protection.



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9 CONNECTION SEQUENCE METHODOLOGY

The Station Control Unit, Digital Sound Processor, Ambient Noise Controller and Paging Amplifiers shall be interconnected using the interconnection sequence indicated in diagram #5.

NOTE 1: DIAGRAM #5 REPRESENTS THE SEQUENCING OF THE AUDIO PROCESSING AND SIGNAL FLOW ONLY. THE NUMBER OF CONNECTIONS BETWEEN SYSTEM COMPONENTS WILL VARY DEPENDING ON THE ACTUAL INSTALLATION. THE SEQUENCE OF THE SIGNAL PATH WILL HOWEVER BE AS INDICATED.

NOTE 2: NETWORK CONNECTIVITY IS NOT INDICATED ON DIAGRAM #5 FOR NEWLY ADDED NETWORK ENABLED COMPONENTS BUT IS REQUIRED.

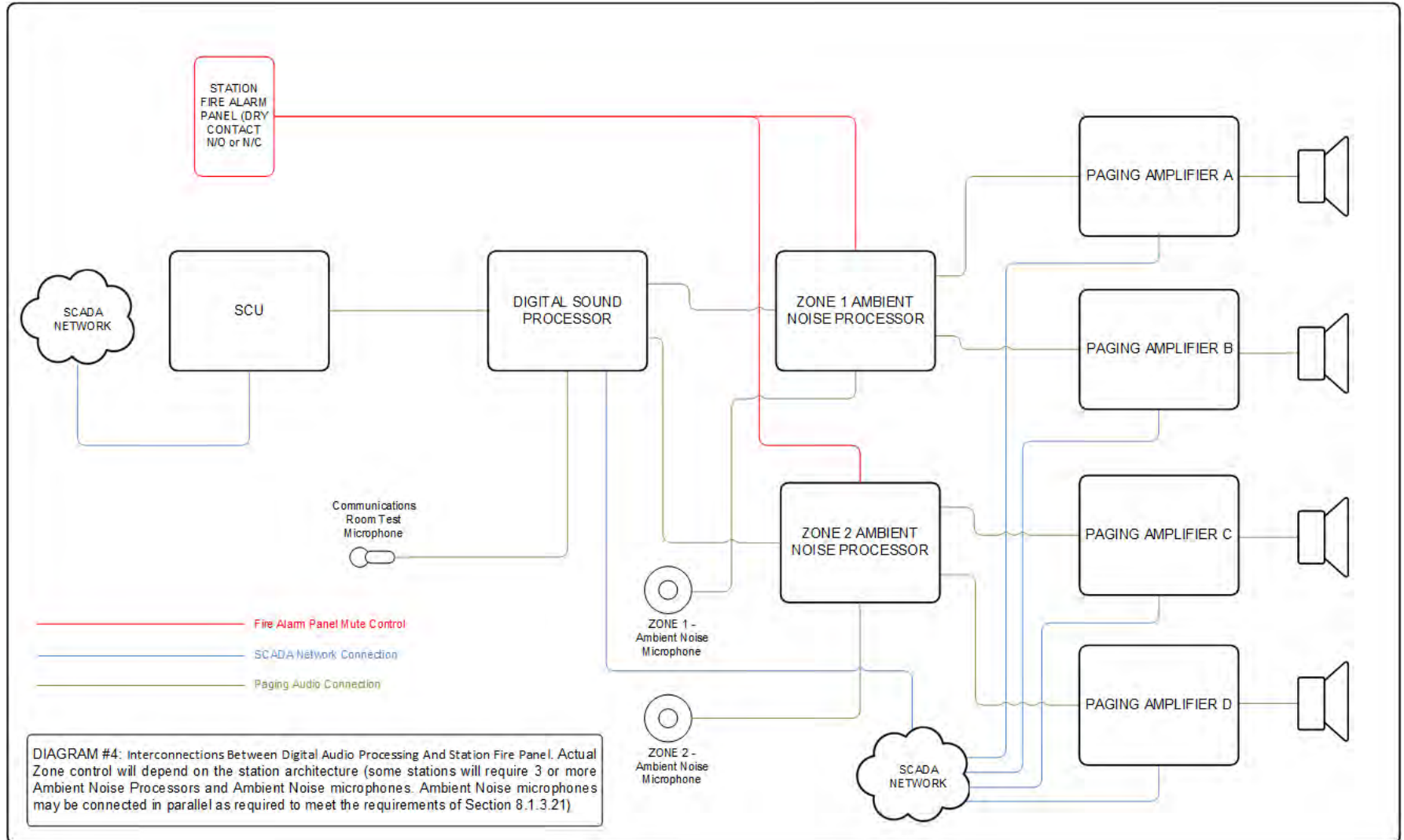


DIAGRAM #4: INTERCONNECTIONS BETWEEN AUDIO PROCESSING AND STATION FIRE PANEL



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9.1 SYSTEM INSTALLATION

1. Installation on site may begin after successful completion of the Factory Acceptance Test or after written approval by the Project Manager.
2. Contractor/installer shall provide detailed installation plan and schedule, subject to the Owner's approval, prior to installation of System.
3. All System components and appurtenances shall be installed in accordance with the manufacturer's written instructions, applicable standards and codes, and the Owner's guidelines.
4. All necessary interconnections, services, and adjustments required for a complete and operable System shall be furnished as specified and shown.
5. Installers, operators, and maintainers shall use personnel grounding harnesses where required to prevent static electricity or other electrical damage to equipment. The Contractor is responsible for any damage due to faulty or inadequate installation, operation, or maintenance practices.

10 FACTORY ACCEPTANCE TEST (FAT)

1. A Factory Acceptance Test shall be required for performance verification unless waived by the Project Manager. The FAT shall comply with all the requirements as set forth in this Section, items 2 through 14 inclusive.
2. The FAT shall verify that the PA-VMS Equipment and Software operate as required in this specification and as agreed to by the Contractor and The Department of Transportation and Public Works. The FAT establishes a technical baseline. A FAT shall be performed on the equipment and software for one site. After acceptance at this site, the Owner will not require a FAT on subsequent site where the Contractor's provides certifications, inspections, and internal test results verifying that the equipment and software for the subsequent nodes meet the same standards as this first site. If subsequent sites have quality problems or there are changes in versions or updates of factory equipment and software, partial or complete, another FAT may be required to re-establish the baseline. The Contractor may propose to perform FAT and SAT concurrently.
3. Where applicable, Paging and Signage equipment may be pre-installed, and inter-connected in approved equipment enclosures prior to shipping.
4. The Contractor shall implement the FAT methodology identified in the System Specification and approved FAT Test Procedure.
5. The FAT shall be conducted on typical equipment prior to final installation.
6. The Contractor shall propose a staged FAT if the System can be partitioned into parts that are to be tested individually. Further, the Contractor may test part of the

- system's functionality and then reconfigure to test other functions of the system if the Contractor can demonstrate prior to the test that testing single versus multiple concurrent functions does impact the performance of the System. The Contractor shall only perform staged FAT upon receipt of approval to proceed from the Owner.
7. Contractor shall provide, for the Owner's approval:
 - Detailed description of proposed factory test procedures including models and quantities of equipment to be tested
 - Block diagram of configuration
 - Plan for simulation of installed conditions
 - Forms to be used to record data during factory test, acceptance criteria
 8. The DTPW Project Manager shall attend and participate in the tests or appoint a representative to view the tests in place of the Project Manager.
 9. After receipt of the Owner's approval of Contractor's test plan, the Contractor shall notify the Owner in writing four (4) weeks in advance of the scheduled Factory Acceptance Test if testing is performed outside of MIAMI-DADE County. If testing is within the County, notification needs to occur two (2) weeks in advance.
 10. As a minimum, the Factory Acceptance Testing shall include at the following:
 - System testing including design functionality, hardware performance and alignment and freedom from hardware failures
 - Interface testing using software, hardware, simulators, or stimulators
 - Integrated operation
 - Evaluation of all logistic support Systems and parts
 - Maintainability testing including fault simulation
 - Demonstrate report generation
 - When possible, Factory Acceptance Testing of identical equipment shall be scheduled for the same test period.
 11. The Contractor shall prepare all simulations, software, and test data required to perform FAT.
 12. Acceptance Criteria: Performance of System shall equal or exceed criteria stated in the Contract Documents. If System does not perform satisfactorily, Contractor shall make corrections and modifications and schedule new tests with the



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Owner’s Project Manager. Expenses for Project Manager and Airport representatives to attend re-testing shall be borne solely by Contractor.

13. Contractor shall record all test procedures and results and submit report in accordance with Contract Document’s requirement for submittals.
14. Only after successful completion of the FAT shall the Contractor proceed with transportation to and installation of the equipment at the final locations.

11 ORDER OF DEPLOYMENT

The Installation of the new Paging system at the Stations shall occur in the following order:

1 Government Center	2 Overtown
3 University Station	4 Dadeland South
5 Dadeland North	6 South Miami
7 Brownsville	8 Northside
9 Palmetto	10 Okeechobee
11 Martin Luther King	12 Earlington Heights
13 Allapattah	14 Tri Rail
15 Coconut Grove	16 Douglas Road
17 Brickell	18 Vizcaya
19 Civic Center	20 Culmer
21 Hialeah	22 Northside

12 EQUIPMENT ROOM ENCLOSURES

All new room equipment supplied under the contract shall be installed in a new floor standing enclosure which shall be equipped with power distribution units for the new equipment. It shall be the responsibility of the Contractor to provide all Electrical, Audio and communications wiring including all Electrical Power distribution, low-voltage, Ethernet and Fiber Optic cabling as required to meet contract specifications and requirements. The enclosure shall include power distribution units, and cable management. AC power wiring and equipment power cords shall be physical separated from low level Audio and Network cabling. The power and communications cabling shall each be installed on opposite sides of the enclosure. The 70/100 Volt audio distribution wiring shall be run on the same side as the AC circuit wiring and power cables but shall be physically separated from all AC wiring and cables by a minimum of 7 inches. The enclosure specifications for the manufacturer presented in 13.1 or approved equals that meet the Salient characteristics of 13.1 shall be provided:

13.1 EQUIPMENT ENCLOSURE SALIENT CHARACTERISTICS

All enclosures shall meet the following characteristics and requirements:



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1. DIMENSIONS: 44U x 30 ins (width) x 48 ins (depth).
2. Provide enclosure top and bottom entry protection – all cable entry shall be through custom entry perforations protected with appropriate cable protection to prevent chafing.
3. Cable entry points shall be from the top of the cabinet only. No side or bottom entry perforations shall be permitted.
4. Include side panels.
5. Include all mounting hardware.
6. Include cable strain relief.
7. Include all mounting hardware and accessories for cable management.
8. Include Power distribution units that meet equipment power requirements including three (3) phase power distribution – refer to Sections 13 and 14 of the SUMMARY OF WORK.
9. Provide for adequate ventilation – perforated front and rear enclosure doors shall be provided.
10. Rear doors shall be split design.
11. Provide caster and anchoring permanent installation.
12. Use accessories included in Eaton’s S-Series enclosure quick ship product data sheet or approved equals.
13. Include one enclosure Power Distribution Unit (ePDU) for 120 VAC equipment.
14. Enclosure shall be Eaton part number DTPW443048H or approved equal. Note that part number DTPW443048H refers to a pre-configured enclosure by Eaton that is supplied through a local Graybar supplier and contains all the required configurations of the specified enclosure. An approved equal may also be supplied.

13.2 EQUIPMENT ENCLOSURE POWER DISTRIBUTION UNITS SALIENT CHARACTERISTICS

INPUT RATING	OUTPUT RATING
120/208V- WYE 3W+N+PE	120VAC; 16A PER 5-20
16A	16A MAX PER SECTION
50/60HZ	16A MAX PER PHASE

ePDU shall include a Network Management and Control module

CONFIGURATION	EMI3PB15AMG78AC
	UL Listed

The Power Distribution Unit Shall be Eaton Part Number EMI309-10 when used with Eaton Enclosure DTPW443048H. An approved equal is required with any other supplied enclosure.

14 PAGING AMPLIFIER POWER SUPPLY REQUIREMENTS

The Power Amplifiers shall each be supplied from a circuit which shall support the maximum power consumption of the Paging Amplifier. Power supply wiring and



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receptacles that support the AC Current and power requirements shall be provided for each of the Amplifiers in the equipment enclosure. One branch circuit shall be provided for each Paging Amplifier and each branch circuit shall be connected to an individual circuit breaker. Dedicated circuits, each with adequate current rating per manufacturer's requirements shall be provided.

15 OTHER EQUIPMENT

Separate ePDU receptacles are required for all other equipment in the enclosure and shall be rated at 120 VAC at 20 Amps. A minimum of 15 120 VAC outlets shall be provided to ensure that each piece of equipment is connected to a dedicated outlet. Please refer to Section 13.2 for the requirements of the Power Distribution for all 120 VAC equipment.

16 SPEECH INTELLIGIBILITY

The PA-VMS system shall adhere to the following standards for Speech Intelligibility measurements:

1. ISO 7240 Fire detection and alarm systems, Sections 16 & 19
2. NFPA 72 National Fire Alarm Code 2010, Annex D Speech Intelligibility
3. BS 5839-8 Fire detection and alarm systems for buildings. Code of practice for the design, installation and servicing of voice alarm systems
4. DIN 60849 System regulation with application regulation DIN VDE 0833-4
5. VDE 0828-1 Electro-acoustic Emergency Systems
6. IEC 60268-16 - Objective Rating of Speech Intelligibility by Speech Transmission Index.

17 INSTALLATION TEST

1. Installation Test shall be performed to validate that the correct equipment is installed and that the functional requirements as stated in the performance specification are met.
2. Installation Test shall be performed on all installed equipment for each node.
3. After completion of site installation and integration, the Contractor shall inform the Owner accordingly and Installation Test shall be scheduled.
4. The Contractor shall notify the Owner in writing one (1) week in advance of the scheduled Installation Test.
5. The Owner – at his discretion - may elect to attend and/or participate in the tests or appoint a representative to view the tests on the Owner's behalf.

6. The Contractor shall prepare all test data required to perform the Installation Test.
7. Contractor shall provide all necessary equipment, devices, portable computers, meters, calibration devices, temperature and humidity recorders, etc., as required for the testing process.
8. At any point during the Installation Test that a failure occurs, the Installation Test will be aborted. Installation Testing will resume only after corrective action has been taken to resolve the failure. A report detailing the reason for the failure and the corrective action process shall be provided the Owner for review and acceptance prior to resuming Installation Test.
9. The Contractor shall generate a test report upon successful completion of the Installation Test.

18 SITE ACCEPTANCE TESTS (SAT)

1. The SAT verifies that the System meets performance requirements.
2. The Contractor shall comply with Site Acceptance Testing and Commissioning as defined in the Contract Documents.
3. Site Acceptance Test shall be performed on all installed equipment for each Metrorail Station.
4. Contractor shall provide the following submittals for the Owner's review and approval:
 5. Outline of proposed performance verification test procedures. Plan shall address all requirements identified in the Contract Documents and functionalities described in Contractor's submittals
 6. Sample of data forms to be used during Site Acceptance Test
 7. Certification that Supplier has successfully completed operational testing of complete integrated System and is ready for demonstration of compliance with Contract requirements
8. Each sub-System shall be tested individually.
9. After successful System tests, integrated operation shall be tested.
10. After completion of integration with other Systems, and at the completion of a portion of the network that may be accepted at one time, the Contractor shall inform the Owner and Site Acceptance Test shall be planned.
11. The Contractor shall notify the Owner in writing two weeks in advance of the SAT.

12. At the discretion of the Owner, the Owner may elect to attend and participate in the tests or appoint a representative to view the tests in his place.
13. Installation and Acceptance Test Schedule: Schedule tests after pre-testing has been successfully completed and System has been in normal functional operation for at least 2 weeks.
14. Site Acceptance Testing shall include as a minimum, the following:
 - 14.1 System testing with FAT tests included as a subset of the SAT suite. The Owner shall approve this subset.
 - 14.2 Test all interfaces with other Systems. The new PA-VMS System must demonstrate successful testing with other pre-existing Integrated Systems.
 - 14.3 Full configuration audits for hardware, software, operating Systems and embedded Systems.
 - 14.4 Full functional audits for hardware, software, operating systems and embedded systems.
 - 14.5 Full configuration audits of all logistic support systems and parts, including hardware, software, operating systems, and embedded systems.
 - 14.6 Full configuration audits of all System documentation, operator handbooks, training manuals, installation plans and layouts, etc.
 - 14.7 Evaluation of all training documentation and schedules.
15. Contractor's Site Acceptance Test Team shall, at a minimum, consist of a Team Leader and a Technical Assistant representing the Contractor and Factory Equipment/Software manufacturer(s). Site Acceptance Test Team members shall include factory trained technicians, application developers, database administrators, network specialist(s) and field service engineers/technicians as shall be determined by the Project Manager. Each Team Member shall be thoroughly familiar with the project.
16. All components of the System shall be tested as part of the Site Acceptance Test. Test shall demonstrate that all components of the System function and operate correctly under all conditions.
17. Contractor shall correct deficiencies, make necessary adjustments and modifications and retest affected components.
18. Site Acceptance Test shall be complete when testing or retesting of each component and integration has produced a positive result and has been approved in writing by the s Project Manager.
19. Site Acceptance Test shall be terminated by DTPW's Project Manager when:



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Individual components, subsystems or the integrated System fail to perform as required; and/or it is determined that System is missing components or installation is not complete.

20. Upon termination, corrective work shall be performed, and performance verification test rescheduled with Project Manager. All costs associated with retesting shall be borne by Contractor at no additional cost to the Owner.
21. Document submittal shall include:
 - 21.1 Description of actual operational test performed, equipment used, and listing of personnel performing and witnessing test.
 - 21.2 Record of all test results, deficiencies, and corrective measures.
22. All deficiencies must be corrected prior to commissioning.

19 COMMISSIONING

1. Upon successful completion of the FAT and SAT phases, and in accordance with the terms of the Contract, the installed Systems shall be commissioned and placed in service and the Contractor shall monitor performance and functionality of the System. During this period the Contractor shall continue testing, monitoring, and adjusting performance operations, etc.
2. The Contractor shall Commission each station paging system.
3. In addition to the Contractor's Project Team leaders and technicians, Contractor will ensure the on-site presence of factory trained and certified technicians as needed who are thoroughly familiar with the project as may be required by the owner.
4. Contractor shall provide all necessary equipment, devices, laptop computers, meters, calibration devices, temperature & humidity recorders, etc., as required for the Commissioning Process.
5. Commissioning shall be witnessed by Project Manager and designated representatives of the Owner.
6. As described under the Site Testing Requirements, testing must demonstrate all System features and correct operation under all conditions.

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20 CONTRACTOR RESPONSIBILITIES

1. The Contractor shall coordinate all work-related liaison with the authorities whose approval is required to permit the project to proceed.
2. The Contractor must ensure that all equipment shall meet or exceed the requirements of its intended use.
3. The Contractor shall adhere to all codes and standards that are applicable to the work being performed including but not limited to all NFPA, NEC, and Florida Building Code requirements.
4. The Contractor shall install all equipment in compliance with Manufacturer requirements.
5. Where required for network connections more than 300 feet, provide adequate lengths of Fiber optic cable to be installed for each contiguous cable run. Fiber Optic cable where used shall not be spliced or materially compromised in any way between termination-locations. A minimum additional contiguous length of 10 feet of Fiber optic Cable at the ends of all fiber installations shall be included for use as a maintenance loop and shall be included in all end-to-end fiber tests. All fiber shall be OS2 rated and shall be manufactured by Corning or an approved equal manufacturer. Maintenance loops shall not be required for fiber jumpers used for intra-cabinet connections. All fiber optic cable shall meet the requirements and specifications of Section 28 of this Document.
6. The paging amplifiers shall be installed at the bottom of the enclosure. All other equipment in the enclosure shall be mounted at the top of the rack. The contractor shall submit detailed shop drawings showing the proposed equipment layout in the enclosure for the review and approval of the Department of Transportation and Public Works. Drawings shall include front and rear views and include power, audio and communications cable layout and routes. All wiring must be securely affixed to cable management hardware in the enclosure. There shall be a clearance of 1 Rack Unit (RU) above the base of the equipment enclosure. A 1U blank face plate shall be installed to cover the space at the bottom of the Amplifier Rack. A 1U heavy duty fixed shelf shall be installed immediately above the Paging Amplifier stack. The fixed shelf shall be designed to support a minimum weight of 400 pounds when installed and shall be of appropriate dimensions for the equipment enclosure that is supplied. Any space between the top of the Amplifier stack and the heavy-duty shelf shall be covered with a 1U or less blank plate.
7. Cable between the Ambient Noise Sensing microphones and the Digital Ambient Noise Controllers shall be shielded audio grade type and appropriate for direct exposure and wet environments. The shield shall be grounded at the equipment end only. The cable shall be run in a dedicated

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conduit between each microphone and equipment cabinet that houses the Digital Noise Controllers. Cabling from multiple microphones may be combined in a single conduit where appropriate.

8. All spade or other style connectors used for connection to the Acoustic Drivers/speakers and the Paging Amplifiers shall be gold plated.
9. All applicable and required Permitting approval for all applicable categories and sub-categories must be obtained prior to the start of work.
10. All final inspections MUST be completed and approved by the authority having jurisdiction, before the project is considered to be closed and completed.
11. Contractor safety training and certification shall be required prior to implementation of work on The Department of Transportation and Public Works property. Training will include The Department of Transportation and Public Works Metrorail Operating Rules and Procedures. The training and certification shall be performed by The Department of Transportation and Public Works Metrorail Training Department in conjunction with the Office of Safety and Security. County issued Contractor Identification badges may also be required. The Contractor shall display such identification while on Transit property and shall always have in their possession, all associated documentation and any identification that shall be issued by the Safety and Security and/or Training Departments.
12. Products furnished under this contract must be certified by Underwriters Laboratories Inc. (UL) as appropriate for their intended use as applicable with the exclusion of all Fiber Optic Cable.
13. **Reference - APPENDIX R - METRORAIL OPERATING RULES AND PROCEDURES** provides information of Metrorail operational safety related issues.
14. All other responsibilities not specifically listed but which are required before and during the project to ensure its completion in compliance with the project schedule and within available funding constraints.
15. The Contractor shall be responsible for supplying equipment operating Power at all locations that require Power for the normal operation of installed equipment.
16. All measurements for distances and dimensions shall be Field Verified.
17. **Equipment Power:** The Contractor shall be responsible for supplying all required AC and DC (where applicable) power at the required equipment operating voltage(s) for all newly installed equipment. All Electrical work shall comply with and adhere to the requirements as outlined in the Compendium of Design document titled: Vol. 2 Ch 4 Station Electric

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INTERIM RELEASE REV1 12-8_signed, and Florida Building Code requirements.

18. Only Rigid or IMC Metallic Conduit shall be used for all electrical and optical cable protection as required.
19. All Electrical work shall comply with all applicable NFPA NEC and local code requirements.
20. The Contractor shall satisfy all the requirements as defined by the Local Authority having Jurisdiction (LAHJ) over the work being performed with regards to NFPA NEC compliance. The LAHJ shall include all MIAMI-DADE County personnel having the authority to inspect any work being performed. LAHJ personnel shall also include The Department of Transportation and Public Works personnel whose responsibilities include ensuring compliance with NFPA NEC requirements.
21. The Contractor is responsible for all incidental costs associated incurred with the project. This shall include, but not be limited to parking, meals and any similar type costs.
22. All telecommunications fire-stopping shall comply with applicable codes and standards, including TIA/EIA 569-A-Annex A and NECA/BICSI 568-2001.
23. Provide lightning protection and surge suppression for all external communications and 70 or 100-volt public address cable or wire used for voice or data communications. Protection shall be in the equipment room where cables are terminated prior to interconnection with any audio or network equipment. Lightning protection and surge arrestors / suppressors are required for all Station Public Address wiring that transitions from the station's exterior to the Communications room.
24. All room wall penetrations shall be protected by approved firestops. Fire stopping compounds and devices shall be used whenever a fire separation has been breached by an installation. All non-fire-stop penetrations shall be neatly repaired so that no external incursions into the Train Control or other rooms shall occur.
25. All Workmanship shall be of high quality.
26. All conduit runs shall be parallel with existing conduit.
27. When penetrating of any part of a station building structure is required, the contractor shall submit drawings showing the proposed locations to the Project Manager or Engineer for the review, comment, and approval by DTPW. Only Core Drilling methods shall be utilized. Any other methods of penetration shall not be permitted.
28. The contractor shall provide a photographic log of all penetrations upon completion of the penetration.

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29. The contractor may at the contractor's discretion, install a single conduit of suitable size between the Train Control and Communications Room and the platform ceiling and distribute additional conduit at the platform roof.
30. The Compendium of Design Criteria Documentation shall be considered applicable to the Metrorail System, including all its facilities, and shall be used for to any work performed on the System or its facilities.
31. Documents and drawings provided herein are to establish standards and expectations for this project and are not intended as a substitute for the Contractor's specifications and Contractor Engineering drawings.
32. Provide usernames or user identifications and associated passwords for all contractor provided equipment that require logical user authentication for access to such equipment for the purposes of configuration changes, software modifications or updates or any activity that requires secure access to that equipment. All usernames shall have full and unrestricted administrative access to all functions, services, configuration and administrative functions of the equipment required for the provisioning, maintenance or repair of the equipment.
33. Provide prior to project completion and before any required systems training, complete sets of indexed documentation and drawings that detail the following:
 - Fiber plant routing including entry and exit locations.
 - The physical layout of all equipment racks showing rack layout, equipment position within the racks including shelving position.
 - AC power distribution single line diagram for each room.
 - Cable lists.
 - Wiring Notes.
 - Other items that will be required to provide detailed insight into overall system interconnectivity, operation, and maintenance requirements.

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21 APPENDIX N - COMPENDIUM OF DESIGN CRITERIA

Volume VII of this Compendium of Design Criteria provides operating equipment-oriented design data, which together with the general plans, directive drawings, standard drawings, and other appropriate documents serves as the basis for design of the system equipment elements of the Metropolitan Dade County Stage I Rapid Transit System.

The Contractor shall review and become familiar with these design criteria as applicable to the project. These design criteria were used to design all of the elements of the legacy system. Knowledge of these systems should be used by the Contractor to assist in designing the detailed interfaces for the project to connect and interact with the various field components systems in the legacy systems.

The Compendium of Design is to be used as an additional reference source and requirements document, and should be utilized within that context.

22 OPERATING VOLTAGE

All equipment (except where noted) shall be capable of operating with a voltage supply input within a range of 90 VAC to 240 VAC.

23 OPERATING TEMPERATURE

All equipment (except where noted) shall be capable of operating within an ambient room temperature range of 0 degrees Celsius to 50 degrees Celsius.

24 PHYSICAL PROTECTION AND SECURITY

All equipment in each station train control room shall be protected in equipment enclosures. Enclosures shall be provided that meet the specifications and requirements as defined in Section 13.

25 LOGICAL NETWORK SECURITY

All Network elements shall adhere to Information Technology Security standards as defined by ISO/IEC 27033.

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26 SYSTEM ELEMENTS ETHERNET NETWORK REQUIREMENTS

All references in any documentation that reference an Ethernet Network or a SCADA Network, and all supplied equipment that require Ethernet connectivity to meet contract requirements, shall comply with the following applicable IEEE standards and RFC protocols which shall be supported as applicable by all new Network elements:

- IEEE 802.3 10BASE-T (ISO/IEC 8802.3, Clause 14)
- IEEE 802.3u 100BASE-TX (ISO/IEC 8802-3, Clause 25)
- IEEE 802.3ab 1000BASE-T (ISO/IEC 8802-3, Clause 40)
- RFC2133 (IPv6-Basic.Sockets)
- RFC2292(IPv6-Adv. Sockets)

27 FIBER OPTIC CABLE REQUIREMENTS

All Fiber Optic cables shall meet the following criteria:

- All fiber optic cable shall be Single mode OS2
- All fiber optic cable shall be supplied by the Contractor
- Only LC terminations shall be used
- All fiber optic cable that is installed in lieu of copper for distances in excess of 300 feet shall be rated for Inside/Outside use and shall meet the following specifications:
 - Plenum rated
 - Interlocking armor type
 - Have a minimum fiber count of 12 strands
 - Loose Tube
 - Interlocking armor
Designed for Aerial, Direct Buried, Duct, General Purpose Horizontal, and Vertical Riser installation
 - Fiber Optic cable shall be Corning part number 012ESP-T4101DA3 or an approved equal that meets all the specifications of this part number.

28 RECOGNIZED NATIONAL TESTING FACILITY REQUIREMENTS

All Electronic equipment and Signage furnished under the contract shall be UL listed for their intended use.

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29 TECHNICAL REQUIREMENTS

Apart from those in APPENDIX A, also included and are to be considered with the same deference as specifications and requirements listed herein is APPENDIX B - TECHNICAL REQUIREMENTS Document which contains the following Technical Documented Sections:

- 26 01 02 Cable Distribution System
- 26 01 20 Configuration Management
- 26 01 21 System Integration
- 26 05 00 Common Work Results For Electrical
- 26 05 19 Wire And Cable
- 26 05 24 Control System- Equipment
- 26 05 25 Network
- 26 05 26 Grounding And Bonding For Electrical Systems
- 26 05 29 Hangers And Supports For Electrical Systems
- 26 05 36 Cable Trays For Electrical Systems
- 26 27 16 Indoor Cabinets, Racks, Frames And Closures
- 26 27 26 Wiring Devices

30 GROUNDING AND BONDING

Any non-current carrying metallic hardware or conductors used in any fiber optic cabling systems or cable shall be grounded in conformance with the following standards:

- TIA/EIA-607-A (Grounding and Bonding Requirements).
- NECA-BICSI-568-2001.
- NFPA 70, ARTICLE 770.100.

31 NFPA 70 REQUIREMENTS

All Fiber and associated Fiber Optic Cable equipment used for permanent installation shall adhere to the requirements as set forth in the National Electric Code 2008 Handbook: **NFPA 70: NATIONAL ELECTRIC CODE** – International Electrical Code Series, **Article 770** – Optical Fiber Cables and Raceways.

32 DOCUMENTATION - VENDOR SUBMISSIONS

All Technical, Engineering, Configuration, and Construction documentation shall be submitted to the MIAMI-DADE Project Manager on record prior to the submission

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of final invoicing. All Technical drawings, schematics, diagrams and all other submissions that present a graphical representation of all work conducted under this solicitation shall adhere to the requirements as set forth in APPENDIX K. All text-based documentation shall be submitted in editable Adobe PDF format. EXCEPTION: Any pictorial or graphical presentations in submittals may be embedded as any standard picture format file, viewable on a Windows OS computer.

33 DOCUMENTATION PROVIDED BY DTPW AS PART OF SOLICITATION

All appendices, whether referenced or not shall be considered as part of the technical requirements and specifications and shall be referenced and used. Supplied documentation may contain inaccuracies due to changes that would have occurred in the documented systems, over time. It shall be the responsibility of the Contractor to field verify all information provided by DTPW. Inaccuracies in the supplied documentation as may exist, shall not be entertained as a cause for any eventual negative impacts on the project covered by this solicitation.

34 SOFTWARE

All Software that is required to communicate with, configure, manage, repair or interface with any Electronic communications, Signage, control, audio, video, network or any other equipment installed by the Contractor, shall be supplied to the Department of Transportation and Public Works Project Manager prior to the submission of final invoicing.

35 SUITABILITY FOR INTENDED USE

All Electronic equipment proposed by the Contractor shall have a proven history of use in a Public Transportation Rail or business environment in the United States.

36 INTEROPERABILITY OF ELECTRONIC EQUIPMENT

All installed equipment shall perform in conformance with their individual specifications when installed and interconnected in a production environment.

37 INTEGRATION TESTING

1. The tests shall be conducted by The Department of Transportation and Public Works Field Transit Engineering Division.
2. All installed systems shall be tested to ensure that design specifications are met or exceeded. This test shall be end-to-end that tests the system in isolation (not interconnected with or carrying and production data from the existing Metrorail System).
3. All performance criteria shall be logged and presented to the Project Manager or Engineer for review and approval of performance characteristics.

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38 CUT OVER PLAN

1. The Contractor shall submit for approval of the Project Manager or Engineer, a detailed cut-over test plan that shall test the integrated systems in a production environment during off-traffic hours. The plan shall include performance metrics that are derived from the existing system.
2. The plan shall include methods for reversion to the existing system in the event of any anomalous or undesired system problems.

39 MANUFACTURER ISO AND TL CERTIFICATIONS

1. All Optical Fiber manufacturers shall have received ISO 9001, ISO 14001 and TL9000 certifications.
2. Electronic equipment manufacturers shall have received ISO 9001, ISO 14001, and TL9000 certifications as may be applicable.

40 SYSTEM AND EQUIPMENT DEMONSTRATION

All proposed equipment shall be demonstrated to be fully compatible with the existing systems with which they shall be integrated, installed, or implemented for normal operation. The demonstration shall show that all equipment can be directly controlled, managed and be fully compatible with the existing infrastructure. No third-party software or hardware interfaces shall be required to ensure equipment integration. The demonstration shall include the provision of the proposed equipment and the integration of that equipment into the existing system. Tests for functionality shall be conducted to ensure full compatibility. No means or methods beyond those used by existing equipment shall be necessary or be permitted to ensure full integration and functionality with the existing systems.

41 OUTSIDE PREMISE PROTECTION

Outside wire Premise Protection equipment shall be used to divert electrical surges caused by lightning, static or any other electrical energy production source from causing damage to any telecommunications equipment.

All protection equipment and protection methods shall be UL listed and comply with National Electric Code Article 800.

42 EQUIPMENT SALIENT CHARACTERISTICS

The salient characteristics for the equipment included in the SUMMARY OF WORK are presented for the Audio, Network, and Server systems. In all cases, approved equals may be substituted, after being submitted for review, and approved by the Project Manager.

42.1 PAGING AMPLIFIERS

42.1.1 ANALOG & DIGITAL INPUTS

Digital audio transport via HARMAN's proprietary BLU link, plus balanced analog inputs, DCi shall be supported. The priority input router allows specifying a

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primary input, and if audio is lost the amp automatically switches to the other input.

42.1.2 NETWORK MONITORING & CONTROL

Provides improved monitoring, control and audio manipulation with the HiQnet™ protocol that's over standard TCP/IP. Remotely see how all networked DCi amplifiers are performing and control them as needed. In addition, this allows Audio Architect software and the Powered by Crown app to work with DCi amplifiers.

42.1.3 PROGRAMMABLE GENERAL-PURPOSE INPUT/OUTPUT PORTS

GPIO ports can be configured in many different ways, such as volume controls, recall presets, or to report errors to a master computer.

- Speaker Line Monitoring
- Exclusive multi-patented DriveCore™ Technology – The patented DriveCore integrated circuit combines hundreds of discrete circuits into one chip for better performance, lower power consumption and improved reliability.
- BLU link Digital Audio Transport – Up to 256 Channels of digital audio over Category 5e- cabling.
- Configuration in HiQnet Audio Architect™
- Programmable General Purpose Input/Output Control Port
- Digital Signal Processing
- Input/Output EQ Filters,
- Crossover
- Input/Output Delay
- LevelMAX™ Limiters
- Priority Input Router
- PFC Power Supply-Universal PFC Power Supply for reduced current draw and provides industry leading efficiency.
- Monitoring and Control over TCP/IP.
- Real time Continuous Loading Monitoring.
- Power Saving Modes – Power consumption in sleep mode is less than 1W.
- Adjustable Auto Standby
- Remote Power Off – Sleep mode activated via AUX port.
- 70Vrms/100Vrms Direct Drive – Each channel individually selectable for low-Z or high-Z operation.
- Advanced Protection Circuits – Amplifier and loads are protected against shorted outputs, DC, mismatched loads, overheating, over- or under-voltage, and high frequency overload.
- Three Year, No-Fault Transferable Warranty – Your investment is fully protected.

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- Complies with GreenEdge™ by HARMAN – Environmentally friendly practices in design, manufacturing, and packaging complement energy-efficient operation.

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42.1.4 TECHNICAL SPECIFICATIONS

Frequency Response (8 Ohms, 20 Hz - 20 kHz)	+/- 0.25 dB
Power Output	Four-channel, 2400W per channel @ 4Ω, 70V/100V
BLU Link Input Signal to Noise Ratio (A-Weighted)	> 108dB
Total Harmonic Distortion (at full rated power, 20 Hz - 20 kHz)	0.35%
Voltage Gain	34 dB
Damping Factor (20 Hz to 100 Hz)	>5000
Input Impedance (nominal balanced, unbalanced)	10 k Ohms, 5 k Ohms
Maximum Input Level before Compression	+20 dBu
Load Impedance (Stereo/Dual Mode)	2 - 16 Ohms; 70Vrms and 100Vrms
Load Impedance Bridge Mono	4 - 16 Ohms; 140Vrms and 200Vrms
Cooling	Continuously variable speed forced air, front to back airflow
Required AC Mains (+/- 10%)	100V-240VAC at 50/60 Hz
IEC Power Connector	30A IEC
Dimensions	19" x 3.5" x 19" (48.3cm x 8.9cm x 48.3cm)

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42.1.5 NETWORK SWITCHES

Network Switches where required, shall fully support Shortest Path Bridging per IEEE 802.1aq. Avaya Part number EC4800E88-E6 model VSP 4850GTS-PWR+ (48 Port x10/100/1000 (PoE+) + 2 shared SFP + 2 x SFP+) or approved equal.

Optical Interface: Two (2) Avaya AA1403011-E6 1-port 10GBASE-LR Small Form Factor Pluggable Plus (SFP+) 10 Gigabit Ethernet Transceiver, connector type: LC, Single Mode, 10 km or approved equals shall be provided for each Network Switch that is supplied.

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ACOUSTIC DRIVER / SPEAKERS

FREQUENCY RESPONSE ¹	69-20kHz ± 4dB
POWER HANDLING ²	85W (19V)
MAX CONTINUOUS OUTPUT ³	111dB
SENSITIVITY (2.83V/1M) ⁴	95dB
HORIZONTAL COVERAGE	80° ± 40 1.4kHz-20kHz
VERTICAL COVERAGE	90° ± 30 1.4kHz-18kHz
DI	7 ± 2.5dB 1Hz-20kHz
Q	5
NOMINAL IMPEDANCE	8 ohms (4.1ohm min @15kHz)
CROSSOVER	1.9kHz with 12dB/Octave high-pass 12dB/Octave low-pass
TRANSDUCERS	<ul style="list-style-type: none"> • One K-1182-A 6.5" woofer with IMG Cone • One K-150-A 1" titanium diaphragm compression driver
ENCLOSURE TUNING	Vented System via front firing ports
ENCLOSURE MATERIAL	All-weather ABS plastic, paintable
INPUT CONNECTORS	4 position terminal strip
TRANSFORMER TAPS	70V: 60W, 30W, 15W, 7.5W, 3.75W 100V: 60W, 30W, 15W, 7.5W Through Position: 8 ohms
HEIGHT	9.5" (24.13cm)
WIDTH	15.2" (38.56cm)
DEPTH	10.875" (27.62cm)
WEIGHT	13 lbs. (5.9kg)

¹ 3M, half space anechoic

² AES standard, continuous pink noise 50Hz-10 KHz, 6dB peaks

³ Calculated at 1M at power handling power input

⁴ SPL at 1M, half-space anechoic with 2.83V input

The Acoustic Drivers shall be Klipsch Model CA-650T in Black or approved equal.

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42.1.6 LOW FREQUENCY ACOUSTIC DRIVER / SPEAKERS

FREQUENCY RESPONSE ¹	51-135Hz ± 4dB
POWER HANDLING ²	150W (25V)
MAX CONTINUOUS OUTPUT ³	111dB
SENSITIVITY (2.83V/1M) ⁴	92dB
HORIZONTAL COVERAGE	N/A
VERTICAL COVERAGE	N/A
DI	N/A
Q	N/A
NOMINAL IMPEDANCE	6 ohms (4 ohm min @92Hz)
CROSSOVER	12dB/Octave low-pass, 150Hz
TRANSDUCERS	One K-1185-A 8" woofer with IMG cone
ENCLOSURE TUNING	Vented System via front firing ports
ENCLOSURE MATERIAL	All-weather ABS plastic, paintable
INPUT CONNECTORS	4 position terminal strip
TRANSFORMER TAPS	70V: 60W, 30W, 15W, 7.5W, 3.75W 100V: 60W, 30W, 15W, 7.5W, 3.75W Through Position: 8 ohms
HEIGHT	11.12" (28.26cm)
WIDTH	16.375" (41.53cm)
DEPTH	12.31" (31.27cm)
WEIGHT	20 lbs. (9.07kg)

¹ 3M, half space anechoic

² AES standard, continuous pink noise 50Hz-100Hz, 6dB peaks

³ Calculated at 1M at power handling power input

⁴ SPL at 1M, half-space anechoic with 2.83V input

The Low Frequency Acoustic Drivers shall be Klipsch Model CA-800-TSW in Black, or approved equal.

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42.1.7 DIGITAL MIXER / PROCESSOR

Refer to the following two (2) pages.

<u>Overall Sonic Performance</u>	<u>Analog in, digital out</u>	<u>Digital in, analog out</u>	<u>Analog in, analog out²</u>	<u>Digital in, digital out</u>
Frequency Response, 20 Hz – 20 kHz:	+/- 0.1 dB	+/-0.25 dB	+/- 0.25 dB	NA ³
Dynamic Range, 20Hz-20kHz, unweighted:	> 115 dB	> 114 dB	> 114 dB	NA ³
THD+N, 1kHz, +20dBu analog (-1dBFS digital):	< 0.001 %	< 0.002 %	< 0.002 %	< 0.00001 %
Latency at 48 kHz (96 kHz) ¹ :	1.42 ms (0.71 ms)	0.90 ms (0.45 ms)	2.21 ms (1.11 ms)	0.10 ms (0.05 ms)

- Notes: 1) Measured 20 Hz – 20 kHz unweighted using AES17 LPF at 48 kHz sample rate.
 2) Analog in to analog out measured using internal master clock.
 3) Zero noise or signal amplitude variation introduced in digital domain.
 4) Latency of network audio link is additional to latency of digital audio processor.

<u>Audio Inputs</u>	<u>Analog Line/Mic</u>	<u>AES3 Digital</u>
Input Type:	Active balanced Euroblock	Transformer balanced female XLR
Input Impedance:	20k ohms	110 ohms
Max Input Level:	+20 dBu	7.0 Vpp

<u>Audio Outputs</u>	<u>Servo-balanced Euroblock</u>	<u>AES3 Transformer balanced male XLR</u>
Output Type:	Servo-balanced Euroblock	AES3 Transformer balanced male XLR
Output Impedance:	20 ohms	110 ohms
Max Output Level:	+20dBu	5.0 Vpp

Word Clock

Input/output Type:	75 ohm BNC
Lock Range:	48 kHz +/- 4%, 96 kHz +/- 4%
Input Impedance:	Selectable 75 ohm or high-impedance
Input Voltage Range:	1.0 Vpp – 7.0 Vpp
Output Impedance:	75 ohm
Output Level:	5.0 Vpp nominal, unterminated

Master Clock

Sources:	Audio network, Word clock, AES3, Internal crystal clock
Modes:	Prioritized auto switching or manual

Digital Audio Hardware

Samples Rates:	48 kHz, 96 kHz
DSP Processing:	32-bit floating-point Share [®] processor array
Audio Input Source Selection:	Selectable in adjacent channel pairs from analog, digital, or network inputs
Network Audio Routing:	Selectable between input/output or internal to matrix mixer
Digital Audio Output Jitter:	0.5 ns average, 1.0 ns peak

Digital Control

Ethernet Control	Standard RJ45 10/100 Ethernet with auto-configuration
RS-232 Control	Standard female Dsub9 jack (RS-232 control protocol document for Ashly NE products available on Ashly website)
4-pin active remote.	4-pin Euroblock for phantom-powered bi-directional remotes
Logic Inputs	9-pin Euroblock for (8) assignable 5V logic inputs
Logic Outputs.	Shared with logic inputs. +12V at 10mA output high, 100mA input low

Analog Control

Remote attenuators	10-pin Euroblock for (8) assignable 0-5 VDC passive remote attenuators
------------------------------	--

Compatible Ashly Remotes

DC level control.	WR-1, WR-1.5
Preset recall	WR-1.5, WR-2, WR-5, neWR-5, Ashly Remote iPad [®] app
Remote serial data control.	WR-5, RD-8C
Remote Ethernet control	Protea [™] Software, neWR-5, FR-8, FR-16, Ashly Remote iPad [®] app

Microphone Input Option

Mic Input Connectors	Euroblock (5.08mm)
Phantom Power	On/Off Switch, +48V @ 14mA per mic (balanced)
Preamp Gain (software select)	0dB, +20dB, +40dB, +60dB
Equivalent Input Noise.	-128dBu, 20Hz-20kHz, 150 Ohm source

AES3 Digital Audio Option

Type	Four or Eight channel, 110 ohm transformer balanced XLR, AES3 Outputs are pass-through only (no DSP)
Sample Rates	48kHz, 96kHz
Max Cable Length	100 meters

Network Audio Option

Available Types	Dante [™] , CobraNet [®]
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Power Requirements: 90-240 VAC, 50-60 Hz, 70W maximum
Weight: Unit weight 10.5 lbs (4.77kg), Shipping weight 12.7 lbs. (5.78 kg)
Dimensions: 19.0" L x 3.5" H x 8.5" D (48.26 cm x 8.89 cm x 21.59 cm)
Environmental: 40-120° F, (4-49° C), noncondensing

**MIAMI-DADE TRANSIT
METRORAIL PA-VMS PROJECT
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Dynamics

Brick Wall Limiter

Threshold: -20dBu to +20dBu
Ratio: infinite
Attack: 0.2ms/dB to 50 ms/dB
Release: 5ms/dB to 1000ms/dB

Compressor

Threshold: -20dBu to +20dBu
Ratio: 1.2:1 to infinite
Attack: 0.2 to 50ms
Release: 5ms/dB to 1000ms/dB
Detector: Peak/Average

Autoleveler

Target Level: -40dBu to +20dBu
Action: gentle, normal, aggressive, user defined
Maximum Gain: 0dB to +22dB
Ratio: 1.2:1 to 10:1
Threshold Below Target: -30dB to 0dB
Gain Increase/Decrease Rate: 5ms/dB to 1000ms/dB
Hold Time: 0-6 sec

Ambient Noise Compensator (outputs only)

Maximum Gain: -20dB to +20dB
Min/Base Gain: -40dB to +20dB
Gain Change Rate: 0.2s/dB to 20s/dB
Mixer Input Sensing Channel: Input 1-4 or Input 1-8
Ambient Noise Threshold: -60dBFS to 0dBFS
Program/Ambient Gain Ratio: 0.3 : 1 to 3 : 1

Ducker

Ducking Type: high/low priority, trigger,
filibuster, ducked at input,
ducked at mixer
Trigger Threshold: -80dBu to +20 dBu
Ducking Release: 5ms/dB to 1000ms/dB
Ducking Depth: 0dB to -30dB, -inf.

Gate

Modes: Normal, lock-out, Selectable
frequency key
Frequency Key Filter: Band-pass filter
Key Filter Range: 20 Hz – 20 kHz, 1/64 oct. to 4 oct.
Threshold: -80dBu to +20dBu
Range: off, 100dB to 0dB
Attack: 0.2ms/dB to 50 ms/dB
Release: 5ms/dB to 1000ms/dB

Gain

Normal Gain Control: -50dB (mute) to +12 dB in 0.5 dB
increments, polarity invert
Gain with Digital VCA: 4 assignable groups, -50dB (mute) to
+12dB, polarity invert
Remote Gain Control: 8 assignable 0–5V DC level controls
or Assignable RD-8C level control
(ne)WR-5 Remote Gain: Remote Gain -50dB (mute) to 0dB

Equalization

Feedback Suppressor (inputs only, 48kHz only)

(output FIR filter is disabled on channel using input feedback suppressor)
Filters: 12
Filter Modes: Floating, restricted, manual, locked
Filter Types: Notch, Parametric
Feedback detection freq. range: 20 Hz – 20 kHz
Bandwidth Range: 0.016 to 3.995 Oct.
Sensitivity Control: 5 levels
Floating Filter Reset: 5 seconds to 24 hours

FIR Filter (output only, 48kHz only)

(input feedback suppressor is disabled on channel using output FIR filter)
File types: *.csv, *.fir

Graphic EQ

Bands: 31
Filter Types: Constant Q, Proportional Q
Bandwidth Range: 0.499 Octave to 0.25 octave

Parametric EQ

Filter Type: 10-band, 6-band, 4-band, or 2-band
available on every input and output

Parametric Filters

Frequency Range: 20Hz to 20kHz
Level Range: +15dB to -30dB
Bandwidth Range: 0.016 Octave to 3.995 octave

6/12dB Hi/Low Shelf Filters

Frequency Range: 20Hz to 20kHz
Level Range: +15dB to -15dB

All Pass Filter

Frequency Range: 20Hz to 20kHz

Variable Q HP/LP Filters

Frequency Range: 20Hz to 20kHz
Q Range: 0.267 to 3.047

Notch Filter

Frequency Range: 20Hz to 20kHz
Bandwidth Range: 0.016 to 3.995 octave

Bandpass Filter

Frequency Range: 20Hz to 20kHz
Bandwidth Range: 0.016 to 3.995 octave

Crossover

4 Way, 3 Way, 2 Way on Outputs Only.

Low-Pass and High Pass Filters on Inputs and Outputs

Type: Bessel, Butterworth, Linkwitz-
Riley, Notched Linkwitz-Riley
Bessel: 12/18/24/48 dB/octave
Butterworth: 12/18/24/48 dB/octave
Linkwitz-Riley: 12/24/48 dB/octave
Notched Linkwitz-Riley: 4th, 8th order
Frequency: off, 20Hz-20kHz

Delay

Speaker Delay

At 48 kHz: 58.65 ms in 20 μ S increments
At 96 kHz: 29.32 ms in 10 μ S increments

Long Delay

At 48 kHz: 1365.31 ms in 20 μ S increments
At 96 kHz: 682.65 ms in 10 μ S increments
Air Temperature Compensation: Fahrenheit (-22°F to +122°F)
Celsius (-30°C to -50°C)

Tools

Signal Generator

Signal Types Pink Noise, White Noise
Sine Wave (20Hz to 12kHz)
Level Range Off, -50dBu to +20dBu

Individual Channel Level Meters

Range -80dBFS to 0dBFS

Matrix Mixer

Gain range: +12 dB to -50dB in
0.5 dB increments, then OFF
Mute: Per input, On/Off
Auto: Automix assign per input
Global Auto Mixer Response Time: 0.01s to 2.00s

Linking

All functions can be linked to 1 of 8 groups

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42.1.8 DIGITAL AMBIENT NOISE CONTROLLER

Power Source	AC mains, 50/60Hz	
Frequency Response	48kHz	
Sampling Frequency	20 — 20,000Hz, ②}1dB	
Dynamic Range	Over 108dB (IHF-A weighted)	
Distortion	Under 0.006%, 1kHz, +4dB* input/output (20 — 20,000Hz BPF)	
Input	<ul style="list-style-type: none"> - Sensor input (Ambient noise sensor microphone input): <ul style="list-style-type: none"> • +4/-48dB* changeable, 10kΩ, electronically-balanced, removable terminal block (4 pins), phantom power (+15V DC, can be turned on or off with Phantom switch) with +15V DC terminal - Input 1, 2: <ul style="list-style-type: none"> • +4/-8/-20dB* changeable, 15kΩ, electronically-balanced, removable terminal block (3 pins) 	
Output	<ul style="list-style-type: none"> • Monitor output: +4dB*, 600Ω, electronically-balanced, removable terminal block (3 pins). • Output 1, 2: +4dB*, 600Ω, electronically-balanced, removable terminal block (3 pins) 	
A/D Converter	24 bit	
D/A Converter	24 bit	
Signal processing	Automatic Level Control Function	<ul style="list-style-type: none"> • Level meter (4 LED meters), Automatic input signal level control function. • Automatic input sensitivity setting function: +4/-8/-20dB, • Noise gate level setting: -99 to -3dB
	Ambient Noise Control Function	<ul style="list-style-type: none"> • Level meter (4 LED meters). BGM/Announce level control function, • Automatic sensor input reference level measuring function, Sensor input reference level fine adjustment function, Maximum output signal level control: -15 to 0dB, • Minimum output signal level control: -18 to -3dB, Sample time setting: 10 s, 20 s, 30 s, 1 min, 5 min • Gain ratio setting (Ambient noise; Output signal level) 6: 3, 5: 3, 4: 3, 3: 3, 3: 4, 3: 5, 3:6, • Ambient noise measuring frequency setting: 20 — 20,000Hz, 3 points
	Maximum Output Signal	-12, -6, 0, +4, +6, +12, +18, +24dB (* 0dB = 0.775 V)
	Input Level Indicator	8 LEDs indicator
	Output Level Indicator	8 LEDs indicator
	Phantom power switch (sensor input), Key lock function, Ground lift switch (INPUT 1, INPUT 2), Input/Output bypass function in power off	
Operating Temperature	0°C to +40°C	
Operating Humidity	Under 90% RH (no condensation)	

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Finish	Pre-coated steel plate, black, 30% gloss
Dimensions	482 (W) × 44 (H) × 303 (D)mm
Weight	3.7kg
Accessory	Power cord (2m) × 1, Removable terminal plug (4 pins) ×1, Removable terminal plug (3 pins) × 5

- The Digital Ambient Noise Processor shall be the TOA DP-L2 VERSION 2 or approved equal.

42.1.9 TEST AND CONFIGURATION EQUIPMENT

- Supply one (1) Laptop PC that has the following Salient Characteristics:

Operating system	Windows 10 Pro 64 or later (Windows 10 Professional)
Processor family	Intel® Core™ i5 processor
Processor	Intel® Core™ i5-5300U with Intel HD Graphics 5500 (2.3 GHz, up to 2.9 GHz with Intel Turbo Boost Technology, 3 MB cache, 2 cores)
Processor technology	Intel® Core™ i5 with vPro technology
Chipset	Chipset is integrated with processor
Memory	8 GB 1600 MHz DDR3L SDRAM (1 x 8 GB)
Memory slots	2 SODIMM
Internal drive	256 GB SATA SE SSD
Graphics	Intel® HD Graphics 5500
Ports	3 USB 3.0; 1 USB 3.0 charging; 1 DisplayPort 1.2; 1 VGA; 1 headphone/microphone combo; 1 AC power; 1 RJ-45; 1 docking connector
Expansion slots	1 multi-format digital media reader
Integrated camera	720p HD webcam
Wireless	Intel® Dual Band Wireless-AC 7265 802.11a/b/g/n/ac (2x2) WiFi and Bluetooth® 4.0 Combo; Near Field Communication (NFC) module
Power supply	45 W Smart AC adapter
Battery	HP Long Life 3-cell, 50 WHr Li-ion polymer prismatic
Energy efficiency	ENERGY STAR® certified
Dimensions	14.78 x 9.98 x 0.84 in (non-touch)
Weight	Starting at 4.02 lb (non-touch)
Warranty	3-year limited warranty (optional Care Packs available, sold separately), 3-year limited warranty on HP Long Life Battery (available only with the 3-year limited platform warranty)
Security management	Security lock slot (lock must be purchased separately); TPM 1.2/2.0 (Infineon, soldered down); Integrated smart card reader (active); Fingerprint reader (optional)

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- The Laptop shall be a HP EliteBook 850 G2 Notebook PC - Product# L4A24UT#ABA or approved equal. The non-touchscreen version shall be supplied.
- Supply one (1) HP Slim Ultrabook Professional Messenger carrying bag for the HP EliteBook 850 G2 Notebook PC, or approved equal.
- Supply one (1) HP DisplayPort to HDMI 1.4 Adapter.

43 SERVICE LEVEL AGREEMENT

Telephone and Email Support: The Contractor shall provide telephone and email support for reports of Problems by the County. In addition, the Contractor may also provide the County online support.

44 TELEPHONE AND EMAIL SUPPORT

The Contractor shall provide telephone and email support for reports of Problems by the County. In addition, the Contractor may also provide the County online support.

45 DEFINITION OF SERVICE LEVEL AGREEMENT DELIVERABLES

1. The County will contact the Contractor indicating the problem description and severity level classification as provided in the Support Table in APPENDIX A, SECTION 47.
2. The Contractor shall:
 - a. Provide live technical support (Live Support) for each severity level.
 - b. Respond to the County's report of Problems and being work (Response Time).
 - c. Provide a short-term temporary work-around and/or a Permanent Fix to resolve the Problem (Resolution Time).
 - d. Provide periodic updates of the resolution status (Status Frequency Update) within the timeframes stated in the Support Table in APPENDIX A, SECTION 47.
 - e. The Contractor shall make all commercially reasonable efforts to provide a Work-around and/or a Permanent Fix in accordance with the Resolution Time state in the Support Table in APPENDIX A, SECTION 47, and in doing so shall use such internal resources as are reasonably necessary to work on the Problem until resolution. In the cases of Critical and Urgent Severity Levels, the Contractor shall make continuous efforts until a Permanent Fix is provided.

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APPENDIX A - SUMMARY OF WORK

46 TEST EQUIPMENT

- Furnish one (1) Laptop for use in configuring, monitoring and storing of configurations for installed equipment. Refer to Section 43.1.1 of the SUMMARY OF WORK.
- Furnish all manufacturer provided software where applicable that is designed for the configuration, monitoring, testing or control of the manufacturer's equipment.
- Furnish one (1) Sound Level Meter. Sound Level Meter shall comply with ANSI S1.4 and IEC 61672 type 2 standards. Sound Level Meter shall be Casella CEL-240/K1 Type-2 Digital Sound Level Meter Kit or approved equal.

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47 SUPPORT TABLE

Severity Level	Definition	Live Support	Response Time	Resolution Time	Status Frequency Update
1 (Critical)	A Problem that (i) is causing serious degradation of service, (ii) is causing a system crash or continual system failures, (iii) is causing a significant impact on the County's ability to normal conduct business, or (iv) could potentially cause significant impact on the County's ability to conduct normal business if the Problem is not quickly addressed; and no known Work-around is available. (i.e. A major component of the System is in a non-responsive state.)	24 hours a day, seven days a week	One Hour	Four Hours	One Hour
2 (Urgent)	A Problem that (i) is causing some degradation of service (ii) is causing an intermittent system failure, and there is a risk of reoccurrence, or (iii) would be defined as Critical but for the existence of a known, available Work-around. (i.e. Any component failure or loss of functionality not covered in Severity 1, such as, but not limited to: excessively slow response time; error messages; or issues affecting the use of a module or the data.)	7:00 AM to 7:00 PM (EST) Monday through Friday	Two Hours	Eight Hours	Two Hours

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 APPENDIX A - SUMMARY OF WORK

Severity Level	Definition	Live Support	Response Time	Resolution Time	Status Frequency Update
3 (Important)	A Problem that (a) would not be categorized as Critical or High severity, and (b) either (i) is affecting selected processing but has minimal impact on the County's business operations; (ii) has a Work-around available to allow continued processing; or (iii) does not result in the loss of major functionality. (i.e. Lesser issues, questions, or items that minimally impact the work flow or require a Work-around.)	7:00 AM to 7:00 PM (EST) Monday through Friday	Four hours	48 Hours	Four Hours
4 (Minor)	A Problem that (i) is a cosmetic problem that hampers usability or (ii) is a general system operational or configuration question. (i.e. Issues, questions, or items that does not impact the work flow.)	7:00 AM to 7:00 PM (EST) Monday through Friday	24 hours	One Month for an acceptable work-around until final resolution	Weekly Status Call

48 ONSITE SUPPORT

For the term of this Agreement, the Contractor shall provide onsite support services for technical problems and failures upon request by the County. The Contractor shall respond to on-site service requests, either remotely or in person according to the nature of the problem. On an annual basis (365-day period) the Contractor shall provide in-person onsite support within 24 hours for at least 100 requests, within two days for at least 200 requests, and within four days as specified by the County. The Contractor shall ensure the County has telephone and email access to a live person or active voicemail to make onsite service requests 24 hours a day, seven days a week.

49 MAINTENANCE

The Contractor shall supply to the County any improvements, upgrades, or modifications to the Software that the Contractor makes generally available. Any such improvements, upgrades, or modifications shall become part of the Software for all purposes of this Agreement. The Contractor acknowledges and agrees that the Maintenance and Technical Support Services to be provided is limited to the most current version of the Software or the immediately preceding version providing that the Contractor has supplied the County with such version(s).

50 LOGGING

The Contractor shall log all requests from the County for technical support as a Site Problem Report (“SPR”), which is assigned a case number. This case number shall be used to track the Problem or request through to resolution. The Contractor’s assigned support personnel shall determine the priority of the SPR by categorizing the Problem in accordance with the severity levels and respond with the corresponding resolution process.

51 LIQUIDATED DAMAGES:

Liquidated Damages shall be based on the following criteria:

Any service interruption that results in the establishment and use of a Bus Bridge, shall result in the following liquidated damage amounts:

Liquidated Damages - Weekdays	Liquidated Damages - Weekends
\$129.00 per hour or part thereof	\$185.00 per hour or part thereof

Weekends are defined as Friday night beginning at 7:00 PM and ending on Monday morning at 7:00 AM.



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APPENDIX A - TECHNICAL REQUIREMENTS

52 ACRONYMS

AES	Audio Engineering Society	An organization of members that includes engineers, scientists, other individuals with an interest or involvement in the professional audio industry
ANSI	American National Standards Institute	A private non-profit organization that oversees the development of voluntary consensus standards for products, services, processes, systems, and personnel in the United States
ARP	Address Resolution Protocol	A computer networking protocol for determining a network host's link layer or hardware address when only its Internet Layer (IP) or Network Layer address is known
AWG	American Wire Gauge	Used to define the diameters of round, solid, nonferrous, electrically conducting wire
BOOTP	Bootstrap Protocol	A network protocol used by a network client to obtain an IP address from a configuration server
SCADA	Data Transmission System	
EIA	Electronic Industries Alliance	A trade organization composed as an alliance of trade associations for electronics manufacturers in the United States
FOTP	Fiber Optic Test Procedure	
HMI	Human Machine Interface	Device that enables the interaction of people and computers or computer controlled equipment.
HTTP	Hypertext Transfer Protocol	Application Layer protocol for distributed, collaborative, request-response client-server computing
ICEA	Insulated Cable Engineers Association	Produce technical standards for the manufacture and use of power, data, and control cable.
ICMP	Internet Control Message Protocol	One of the core protocols of the Internet Protocol Suite. It is used by networked computers' operating systems to send error messages
IEC	International Electrotechnical Commission	An international standards organization dealing with electrical, electronic and related technologies



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IEEE	Institute of Electrical and Electronics Engineers	Leading standards-making organizations in the world. IEEE performs its standards making and maintaining functions through the IEEE Standards Association (IEEE-SA).
IGMP	Internet Group Management Protocol	A communications protocol used to manage the membership of Internet Protocol multicast groups
	Internet Protocol	The primary protocol in the Internet Layer of the Internet Protocol Suite and has the task of delivering data packets from the source host to the destination host based on their addresses.
ISO	International Organization for Standardization	An international-standard-setting body composed of representatives from various national standards organizations
LC	Developed by Lucent	A small form-factor fiber connector that uses a push-pull latching mechanism and has a 1.25mm diameter ferrule. It is a high performance connector especially designed for single mode applications.
MIB-II		
NFPA	National Fire Protection Association	An organization that creates and maintains minimum standards and requirements for fire prevention and suppression activities, training, and equipment, as well as other life-safety codes and standards.
NTP	Network Time Protocol	A protocol for synchronizing the clocks of computer systems over packet-switched, variable-latency data networks.
OSP	Outside Plant	Cable that is designed to be used outdoors where it is likely to be subjected to the elements of weather
NVR	Network Video Recorder	Records CCTV video from IP cameras
OSP	Outside Plant Cable	Cable designed for exposure to weather, Ultra Violet light and conditions associated with use in an unprotected outside environment.
OTDR	Optical Time-Domain Reflectometer	An optoelectronic instrument used to characterize an optic fiber



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APPENDIX A - TECHNICAL REQUIREMENTS

PLC	Programmable Logic Controller	A digital computer used for automation of typically industrial electromechanical processes
RoHS	Restriction of Hazardous Substances	Restriction of the use of hazardous substances in electrical and electronic equipment.
SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION	Comprised of the PLC, I/O control and Fiber Optic Cable and associated Network equipment
SCADA NETWORK		Refers to an Ethernet Network used for non-vital Train operations and Station Traction Power control, Also used in the acquisition of all Station alarms, and the control of station systems.
SNMP	Simple Network Management Protocol	A UDP-based network protocol. It is used mostly in network management systems to monitor network-attached devices for conditions that warrant administrative attention
SPCC	Stephen P. Clark Center	Building that houses County Agencies including Transit and Metrorail Central Control. ADDRESS: 111 NW First Street Miami, Florida 33128
TCC		Train Control and Communications Room – located in each Metrorail station. Houses all communications equipment.
TCP	Transmission Control Protocol	One of the core protocols of the Internet Protocol Suite that provides a reliable and ordered delivery of a stream of bytes from an application on one computer to an application on another computer.
TELNET		Provides bidirectional interactive text-oriented communications via a virtual terminal connection.
TFTP	Trivial File Transfer Protocol	A simple protocol to transfer files. It is designed to be small and easy to implement
TIA	Telecommunications Industry Association	A global trade association headquartered in the United States that represents about 600 telecommunications companies
UDP	User Datagram Protocol	Used by applications to send datagrams to other hosts on an IP network without requiring prior communications to set up special transmission channels or data paths



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APPENDIX A - TECHNICAL REQUIREMENTS

UL	Underwriters Laboratories	An independent product safety certification organization
VAC	Volts AC	60 Hz Alternating Voltage / Current
VoIP	Voice over IP	A family of transmission technologies for delivery of voice communications over IP networks or other packet-switched networks.

End of SUMMARY OF WORK Document



DEPARTMENT OF TRANSPORTATION AND PUBLIC
WORKS
Metrorail Public Address System Project
TECHNICAL DIVISIONS

APPENDIX B

Technical Divisions



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**SECTION 011000
GENERAL SUMMARY OF WORK**

011000-1 PART 1: GENERAL

011000-1-1 DESCRIPTION

The intent of this solicitation is to provide or improve the following services on the Metrorail System.

- Replace and improve Public Address Systems on the Metrorail System.

The Public Address System shall be an integrated with an existing Station Controller Unit (SCU) in each of the Metrorail Stations.

All components on the Public Address System shall reside on the Metrorail SCADA Network and be IP Network addressable and remotely configurable over the SCADA Network. All monitoring and reporting shall also occur over the SCADA Ethernet Network.

APPLICABLE CODES, STANDARDS, AND ORDINANCES

The latest edition of all standards shall apply, unless otherwise indicated by DTPW. All Work hereunder shall be performed in accordance with the following and any other applicable Codes, Standards and Ordinances not referenced or mentioned in APPENDIX A or APPENDIX B:

- A. Contractor shall adhere and conform to DTPW's Adjacent Construction Safety and Construction Safety Manual 2-07.
- B. Contractor shall adhere and conform to DTPW's Public Transportation Agency Safety Plan (PTASP). The Contractor shall submit a Site-Specific Safety and Certification Plan as required.
- C. Contractor shall conform to all applicable Federal, State, and local regulations, ordinances and any other controlling legal rules, regulations, or requirements.
- D. Contractor shall conform to the requirements of the Local Authority Having Jurisdiction for all Mechanical, Electrical and all other work associated with this project.
- E. Contractor is responsible for obtaining current versions of each referenced standard prior to commencement of work.
- F. Work shall be performed in accordance with applicable the National, Florida Building Code, DTPW construction, and safety manuals and local ordinance requirements.
- G. Electrical installation work shall comply with the standards of the National Electric Code (NEC) and the National Fire Protection Agency (NEC NFPA 70-2011).
- H. ADA (Americans with Disabilities Act)
- I. EIA/TIA (Electrical Industries Association/Telecommunications Industries Association)
- J. ANSI (American National Standards Institute)
- K. Factory Mutual (FM)



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- L. IEEE (Institute of Electrical and Electronics Engineers)
- M. NECA/FOA 301-2009, Standard for Installing and Testing Fiber Optic cables
- N. NECA 303-2005, Standard for Installing Closed-Circuit Television (CCTV)
- O. NECA 100-2006, Symbols for Electrical Construction Drawings
- P. NECA 111-2003, Standard for Installing Non-Metallic Raceways (RNC,ENT,LFNC) (ANSI)
- Q. NECA/BICSI 568-2006, Standard for Installing Commercial Building Telecommunications Cabling
- R. NECA 331-2009, Standard for Building and Service Entrance Grounding and Bonding
- S. NECA 1-2006, Standard Practices for Good Workmanship in Electrical Contracting (ANSI)
- T. NECA/NEMA 105-2007, Recommended Practice for Installing Metal Cable Tray Systems (ANSI)
- U. NECA 400-2007, Recommended Practice for Installing and Maintaining Switchboards (ANSI)
- V. NECA 407-2009, Standard for Installing and Maintaining Panelboards (ANSI)
- W. NECA 200-2010, Standard for Installing and Maintaining Temporary Power at Construction Sites (ANSI)
- X. NECA/NEMA 605-2005, Recommended Practice for Installing Underground Nonmetallic Utility Duct (ANSI)
- Y. NECA/NACMA 120-2006, Standard for Installing Armored Cable (AC) and Metal-Clad Cable (MC)
- Z. Codes and Regulations: Unless otherwise required herein, the Contractor's means and methods shall be governed by current enforceable applicable local, state, and national codes and the following guides, publications, manuals, and specifications. The more stringent requirements shall take precedence:
 - 1. American National Standards Institute (ANSI)
 - 2. National Electrical Code (NEC)
 - 3. National Fire Protection Association (NFPA)
 - 4. Occupation Safety and Health Administration (OSHA)
 - 5. Underwriters' Laboratories, Inc. (UL)
 - 6. Federal Specifications (FS)
 - 7. American Society for Testing and Materials (ASTM)
 - 8. Instrument Society of America (ISA)
 - 9. Fire Prevention and Safety Code as applicable



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10. Federal Occupational Safety and Health Administration (OSHA) standards
11. Public Works Manual as applicable
12. Local codes and ordinances

011000-1-2 SUMMARY OF WORK

011000-1-4-1 GENERAL

- A. The Contractor shall install new Public Address System equipment as defined in this document for the purposes of improving upon the existing or nonexistent systems.
- B. The Contractor shall ensure that the existing Systems stay operational until all new systems have been tested and commissioned, accepted and cutover. The Contractor shall ensure that any Work being performed by Contractor does not impair in any way the existing Metrorail Systems. The Contractor is responsible for any such impairment and shall correct the impaired Metrorail System to maintain it in a state of good working order and operational and functional readiness. Since this equipment is vital to the operation of the transit service, the Contractor shall only use tested and approved equipment means and methods. The Contractor is also reminded that space is limited throughout the Train Control rooms and other locations where equipment is to be installed, and the installation and operation of the existing and new systems must all be accommodated within this restricted space.

011000-1-4-2 DESCRIPTION OF THE WORK: ENGINEERING CRITERIA

- A. The Contractor shall integrate the Central MetroRail Public Address System with the new Public Address System that is to be added under this agreement, into a consolidated system. The criteria prescribed herein set minimum standards that must be adhered to by the Contractor; however, if higher standards can be achieved without increased life cycle cost, the Contractor shall implement the higher standards.
- B. DTPW's submittal (submittal) scope provides general information and options, as well as some specific requirements that reflect various operational or performance requirements applicable to the submittal. The affected systems and subsystems include the following:
 1. Existing Metrorail PA System
 2. Station Electrical Systems
- C. These criteria are intended to promote uniformity of a solution, and to standardize the type of equipment used and its location throughout the system. This SOW reflects a standard of quality that is consistent with the activity of the Metrorail System, and the submittal scope translates the above intent into practical statements that the Contractor shall use as a basis for meeting contract requirements, documentation, and supervision of the implementation and commissioning stages of the project.
- D. In addition to the above requirements, there are inter-related issues that must also be considered. These include the following:

Functionality – how well the overall integrated system meets the defined requirements

 1. Contractor's approach and implementation
 2. Maintainability and reliability



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3. Spare capacity
 4. Standardizations of the following:
 5. Components and equipment
 6. DTPW operating procedures and practices
- E. The Contractor shall ensure that an evaluation of project concepts and overall documentation be coordinated with and adhere to DTPW Operational Guidelines. This document is not intended to restrict the ingenuity of the Contractor during the final implementation and construction process. Contractors are encouraged to consider improved solutions that build on the framework and standards established in this document.

011000-1-4-3 IMPLEMENTATION PHASES

- A. The project shall be implemented within the period of time as defined in the RPQ.

011000-1-4-4 INTERFACE DEFINITION AND CONTROL

The proposed solution and construction of all the subsystem elements shall entail close coordination with a number of other system elements. In every case of system element interface, that interface shall be defined, controlled, and changed only by DTPW. Subsystem interfaces within each element subsystem shall be defined and controlled in the submittal process by DTPW.

011000-1-4-5 MECHANICAL

- A. Corrosion Control: Particular attention shall be paid to the presence of electrically dissimilar metals that are in contact in a conductive fluid. Where the interconnection of different metals is necessary, they shall be electrically isolated using approved dielectric materials. Material selections shall be submitted to DTPW for approval. Mechanical systems shall be protected using approved methods.
- B. Access for Inspection: All equipment that may be subject to corrosion, or that may require periodic maintenance, shall allow for reasonable access for inspection.

**011000-2 PART 2: PRODUCTS
EQUIPMENT, SPARE PARTS, AND SPECIAL TOOLS**

The Contractor shall ensure that an adequate supply of on-site spare parts for new and upgraded systems and equipment will be available to keep the new systems and equipment operational. During the warranty and maintenance period, the Contractor shall provide a working inventory of parts at the contracted inventory level. At the end of the warranty period, the Contractor shall provide DTPW with the contracted inventory of spare parts for the continued maintenance of the systems.

1. The need for spare parts shall be assessed by the Contractor and recommendations provided subject to approval of DTPW. It is preferred that spares kept on site are at a minimum. The intention is to avoid purchasing and storing materials if these can be made available as needed, with spares only being paid for when actually required.



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2. The Contractor shall provide five sets of any special tools, devices, fixtures, monitoring equipment, and other devices that are required to monitor, maintain, and adjust all systems and equipment provided herein. The Contractor shall have access to two sets of this equipment for the warranty and maintenance period. Upon completion of the warranty period, the tools shall be returned to DTPW after being calibrated and certified as being in "like new" condition.
3. Replacement Parts: The Contractor shall ensure that replacement spare parts are available for ten years after final acceptance and completion of the system installation. In order to support continued service, the Contractor shall assist DTPW in obtaining such parts during this period.
4. A warranty officer shall be identified to whom all warranty claims shall be submitted by Miami Dade Transit. The warranty officer shall be responsible for coordinating all aspects of warranty as defined in SECTION 011000-2-1, 2.
5. START OF WARRANTY – Warranty of all new Systems shall begin upon final acceptance.

011000-3 PART 3: EXECUTION OF WORK

011000-3-1 GENERAL

A. The Contractor shall provide the following as applicable: solution and analysis, preparation of documentation, all manufactured equipment, and other components, materials and supplies, construction services, fabrication, shipping/receiving, expediting, storing of materials during construction, demolition, removal and disposal services, hardware and software, installation, integration, debugging, testing, training of personnel, project management, quality assurance, and demonstration required to deliver an operable, safe, and reliable operating system in conformance with all of the requirements of this Agreement. The Contractor shall be responsible for identifying and rectifying, with the County, any conflicting requirements within the Agreement and with any referenced codes, standards, ordinances, rules, or regulations.

B. COOPERATION WITH OTHER CONTRACTORS

1. In addition to complying with the requirements of the Contract, the Contractor shall cooperate with other contractors on other ongoing projects or in conjunction with other contractors performing work under this contract. Contracts for concurrent work or scheduled during the period of this Contract may not yet identified, but will be provided by DTPW at a reasonable time during the execution of the Work.
2. Since other contracts may be prosecuted concurrently with the work performed under this contract, interface coordination is required.
3. The Contractor must coordinate with other contractors for access, deliveries of materials, and designation of assigned work areas.

C. CONTRACTOR REPRESENTATIVES

Within five days after receiving the NTP, the Contractor shall designate in writing the name, official mailing address, and telephone number of the Contractor's representative having complete authority to represent and to act for the Contractor and the subcontractors.



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D. WORK RESTRICTIONS

Contractor shall adhere to the following requirements for scheduling access, and work schedules should reflect the following general and location-specific access restrictions:

1. Contractor access to facilities is to be coordinated with DTPW's Project Manager two weeks in advance.
2. The new Public Address System and the existing Paging System shall operate in parallel until the new system has been tested and is fully accepted.
3. Weekly meetings are to be held to coordinate Contractor's work areas, schedule DTPW escorts, plan track access, and schedule power outages or any other variances of normal service activities.
4. Project work schedules require the following:
 - I. Usually a notice of two weeks is required for access to locations that impact Metrorail operations and safety aspects.
 - II. DTPW escorts are required to work while on DTPW property.
 - III. Careful and cautious coordination is required for work to be performed in and around the Metrorail System.
 - IV. The Contractor shall supply software, equipment, and the Migration Plan. New software and hardware shall be verified before installation into DTPW's production (live) systems. Such software and hardware cutovers will be restricted to non-revenue hours (1 am to 4 am).

DTPW Project Manager or a designee will determine the procedures that will be followed when retiring equipment.

E. WORK SEQUENCE: The Contractor shall sequence all implementation and systems work in phases to accommodate DTPW's operating and occupancy requirements during the implementation period. Work must also be performed in accordance with the approved Migration Plan and the Staging Plan. The construction schedule (project schedule) is to be coordinated with the Engineer.



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A. FINAL REVIEW

100 Percent Submittal: The Contractor shall provide a final submittal subsequent to review and approval of PDR by DTPW. The submittal shall provide the features, functions, and detailed technical specifications of the system at the 100 percent completion level. The final submittal documentation provided shall include the documentation specified in APPENDIX B, SECTION 013300. The final submittal shall proceed in the following sequence and include the specified steps:

1. Progress meetings
2. Issuance of associated documents
3. Completed final submittal review session with DTPW
4. DTPW internal review
5. DTPW comments to Contractor
6. Comment review and updated final submittal documents
7. Approval of final submittal documents by DTPW

011000-3-2-1 SYSTEMS SUBMITTAL DOCUMENTATION:

The Contractor shall provide systems submittal documentation to DTPW in accordance with the approved Project Schedule and Migration Plan. At a minimum, all designs shall contain the following:

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011000-3-2-2 SYSTEMS DOCUMENTATION

- A. Executive Summary: A summary of documentation material provided in all deliverables, an overview of the entire system, describing all major components (system and subsystems) of the project, and special features of the project that address performance, expansion, system security, ease of use, and maintainability.
- B. Submittal Overview: A description of the overall submittal. This shall include the advantages and disadvantages of the submittal, and the justification of why the submittal is the best implementation to meet DTPW's requirements.
- C. System Architecture: A system-level graphic representation of all hardware components and their interconnections. This shall include identification of the interfaces between all existing and proposed devices and systems.
System Processing Narratives: Detailed narrative descriptions of each major processing activity to be performed by the project. The narratives should describe how all equipment interacts in an integrated environment to satisfy the functional requirements of the project objectives. These narratives shall be clear and comprehensive explanations of how each of DTPW's functional requirements is supported by the project.
- D. Security Features: Description of all physical and logical system security features, computer-controlled and physical, designed into the project to control and monitor the system and its components. In addition, describe all equipment, features, and components that protect the equipment used in the project from physical hazards such as fire, flood, wind, electrical power surges, brownouts, blackouts and hackers and other unauthorized system intrusions or alterations.
- E. System Reliability: An analysis of system reliability based on the mean time between failures (MTBF) and mean time to repair (MTTR) for each major component and subsystem, including calculations, methods, and supporting documentation. Where the configuration requires redundant or high-availability components or equipment, the Contractor shall also provide a description of the hardware and software features incorporated to meet the requirements for high availability in the event of the failure of one or more system components.
- F. Failure Handling and Recovery: A failure/recovery matrix showing the types of failures, and describing the process of reporting these failures (including whether it is automatic or semiautomatic). This shall include descriptions of system diagnostics to detect and isolate failures.

011000-3-2-3 EQUIPMENT SOFTWARE DOCUMENTATION

The Contractor shall provide

- A. Software Architecture: System-level illustrations, such as flowcharts and block diagrams illustrating the overall structure of the project's systems. These diagrams shall include the major processing functions performed by each subsystem or major module, their interaction with each other, and their interaction with the users of those systems.



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- B. Where applicable, Database and Data Management Structure: A description of the overall organization of the files and of any database to be used in the project. This description shall include full details regarding any third-party database products, such as version, release, functional characteristics, operational requirements, and any other relevant characteristics of the products.
- C. Operator Interface: Operator and user tools and techniques employed to ensure an easy-to-use, consistent, and efficient interface between the maintenance personnel and the systems that comprise the functional system.

Inputs and Outputs: A description of all inputs and outputs. Inputs and outputs to be received or sent by the vehicle shall include descriptions of all transactions, messages, records, and signals. Contractor shall document the field structures of messages and records.

- D. System Performance Analysis: An explanation of the capability of the project to meet the performance requirements. Contractor shall fully describe, explain, and document the analysis that was used to support its statements of performance, durability, and availability. Where such documentation relies upon third-party manufacturers' claims, promises, or warranties, or relies upon the claims, promises, or warranties of a manufacturer's marketing or sales representative, the Contractor shall submit documentation of said promises, representations, and warranties. Contractor shall provide complete product information for any automated tools used in this analysis.

011000-3-2-4 HARDWARE DOCUMENTATION

- A. Hardware Specifications: A final full bill of materials and complete specifications for each hardware element. Hardware specifications must include an explanation of equipment functionality and the underlying operational characteristics.
- B. Component Drawings: Drawings that clearly and completely indicate the function of each hardware component. The drawings shall indicate termination points of devices and interconnections required for system operation; interconnections between modules and devices; spacing of components; and location, mounting, and positioning details.

011000-3-2-5 FIELD EQUIPMENT DOCUMENTATION

- A. Hardware Specifications: A full bill of materials and complete specifications for each field element. Equipment specifications must include an expansion of equipment functionality and theory of operation.
- B. Component Drawings: Drawings that clearly and completely indicate the function of each equipment element. The drawings shall indicate termination points of devices and the interconnections required for system operation; interconnections between modules and devices; spacing of components; and the location, mounting, and positioning details.
- C. Detailed Drawings: Conduit and cable drawings (end to end), schedules, equipment locations, cable plans, and wiring/ termination diagrams.



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011000-3-2-6 SYSTEM OPERATING DOCUMENTATION

The Contractor shall provide all documents, manuals, and printed materials necessary for the effective operation of the project's systems and components. The documents provided shall be in bound copies and also provided in an electronic version, as described in the specification APPENDIX B, SECTION 013300. This documentation shall include at least the following specific manuals:

A. STANDARD OPERATIONS PROCEDURES MANUAL

This manual shall be provided to include graphical depictions and explanations of the system operation for all operator functions. This manual shall be for instructional, study, and refresher use, and shall explain all features and functions of the project's systems for day-to-day operations. The manual shall also have a section on problems and exception conditions so operators can resolve common operating problems. The manual shall also contain instructions on how to perform normal maintenance. This manual shall be submitted for approval.

B. EMERGENCY PROCEDURES MANUAL

This manual shall be provided to include graphical depictions and explanations of the system operations for all emergency functions specified to be under operator control. This manual shall explain all features and functions of the project's systems for emergency operations. This manual shall be submitted for approval.

C. SYSTEMS ADMINISTRATOR'S MANUAL

This manual must include graphical depictions and a written description of all functions required for software modifications and development as may be applicable. This manual shall contain all procedures necessary for the monitoring and administration of the project's systems. At a minimum, the manual shall contain separate sections for the following topics: Start-up and shut-down procedures; instructions for the cold start of the systems equipment; backup and recovery protocols; performance analysis; scheduled maintenance; user management; audit and control functions; report production; configuration control; system diagnostics; database integrity; special requests; and a list of expendable supplies. A separate removable section of the Systems Administrator's Manual shall contain information on the proper administration and control of the security features built into the system. This section shall also address maintenance of user identifiers, password control, and security policy review. Also contained therein shall be information on appropriate review of security control measures for ensuring adherence through various types of reporting mechanisms and utilities or third-party security software. This manual shall be submitted for approval.

D. SITE-SPECIFIC MANUALS

These manuals shall be provided as necessary to document site-specific configuration parameters, detailed system configuration narratives, default parameters/actions/descriptors, and component addresses and locations. These manuals shall be submitted for approval.



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011000-3-2-7 SYSTEMS DEVELOPMENT

The Contractor shall integrate all system components into a fully functional system consistent with the requirements set forth herein and in the Technical Requirements documentation, or as may be approved pursuant to the RFP and approved FDR systems submittal, and consistent with the contract-approved system document. Contractor shall complete the programming, parameterization, and any tailoring needed to customize or otherwise modify commercial off-the-shelf (COTS) products for DTPW. Contractor shall provide detailed change control procedures for handling hardware and software upgrades to the project's systems and components after the approval of FDR. Contractor shall provide appropriate controls to ensure that the source code production load modules are synchronized in all versions and revisions at all facilities.

011000-3-2 PROJECT PHASING AND MIGRATION PLANS

011000-3-3-1 PROJECT PHASING

The Contractor shall submit a multi-step Implementation Plan with a written description and plans sheets detailing each phase of the work. To include:

1. Installation of systems equipment
2. Cutover per Migration Plan

011000-3-3-2 IMPLEMENTATION AND MIGRATION

The Contractor shall implement the system submittal for migration of the existing system into the new system. Contractor shall submit updates to the Migration Plan describing all activities and tasks associated with the installation and implementation of the system at the facilities. The Migration Plan submitted and approved concurrently with the PDR and FDR systems submittals shall phase in migration from the existing system to the new system. As part of the Migration Plan, Contractor shall provide documentation addressing equipment reliability projections, systems administration, and procedural changes that will result from the migration to the new system.

- A. Installation: The Contractor shall install hardware, infrastructure, communications equipment software, and systems provided for under this contract in accordance with local building codes, the National Fire Protection Association, the National Electrical Code, and all other applicable standards and industry practices. Contractor shall furnish all labor, tools, cable conduit, and supplies required to install all equipment and systems. Contractor shall remove and dispose of all debris. The installation of any new equipment shall not impair the existing equipment or communications networks. Any requirement for additional power requirements will be subject to approval by DTPW. Contractor shall define its times and methods of equipment delivery, subject to DTPW's review and approval.
- B. Migration of and integration with existing systems with the new project The Contractor shall implement the systems consistent with the approved Migration Plan, which shall include at least the following tasks:
 1. Install and test the new systems head-end equipment, consisting of hosts and monitoring workstations.
 2. Convert existing database, point identification, and naming conventions to the



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new systems.

3. Manage database synchronization between the existing systems and the project's new systems.
4. Define and coordinate infrastructure, network subsystems, and communications support.
5. Ensure that the communication network is functioning at 100 percent to each communication port before scheduling migration to the project's new equipment, and confirm the equipment is communicating with the existing unmodified systems, and other systems required (as provided for under FDR) before migrating the control device from the existing equipment.

Following the accepted plan bring the functions of the original existing equipment over to the new equipment in a controlled, phased approach, ensuring that a fall back to the original systems can be accomplished with no disruption to existing operations in the event of any migration difficulties.

6. Provide documentation of all problems and corrective actions that occur while implementing the integration of new systems, and create a historical database to be used in future developments or changes to the project after the initial cut-over.

011000-3-3-3 Upon commencement of installation Work in facilities, the Contractor shall make every effort to complete the Work in a minimum amount of time. In the event of slippage from the approved schedules, additional shifts as required—including work on Saturdays, Sundays, and holidays—shall be scheduled to complete the Work as scheduled for no additional cost to DTPW.

011000-3-3-4 The Migration Plan should also address periods of time/duration during the migration process when components of the existing Metrorail Public Address system may be taken out of service. Notice should be given in advance of any scheduled interruption of the existing equipment and approved by DTPW. Notice to DTPW for these interruptions shall be in accordance with the red tag requirements, as specified in the contract. Scheduled interruptions must be kept to a minimum.

011000-3-4 DISMANTLING AND EXISTING CONDITIONS - CONTRACTOR REMOVES

- A. All items to be removed shall be indicated to be removed with utmost care and without damage, and those items not designated to be reused shall be marked to be delivered to DTPW or disposed of as per their written instructions.
- B. All alterations, and removals necessary shall be indicated. This shall include removal and rerouting of all electrical items required to complete the intended installation.
- C. Any designed alterations will not disrupt any of DTPW's or County (building owner) operations.



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- D. The submittal shall indicate that where wiring devices are shown to be removed on plans, all associated wiring and conduit back to the source shall be removed. If other loads are served from the same circuit, continuity of the circuit shall be maintained.
- E. The submittal shall avoid interference with the use of passage to and from adjoining buildings or areas not included in the project.
- F. As-Built Drawings: As-built drawings shall be extensions of the Contractor's drawings and shop drawings. They shall clearly identify the "as-built" conditions applicable at the time of practical completion.

END OF SECTION 011000



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**SECTION 013300
SUBMITTALS**

PART 1: GENERAL

013300-1 DESCRIPTION

- A. This section summarizes requirements and procedures for submitting documents defined herein for review by DTPW.
- B. General requirements for submittals are detailed in this section.

013300-2 QUALITY CONTROL

- A. Prepare shop drawings and record documents to a high standard of quality, such as set forth in DOD-STD-100, ANSIY14 series, or other relevant lower-tier specification defining equal drafting quality.
- B. Reference standards: American National Standards Institute (ANSI) ANSI Y14 Series American Drafting Standards.

013300-3 SUBMITTALS (CDRL)

- A. Shop Drawings: Fabrication or layout drawings required by individual Technical Provisions - Systems sections for permanent incorporation in the Work.
- B. Working Drawings: This refers to the Contractor's plan for temporary equipment or structures such as decking, temporary bulkheads, support of excavation, support of utilities, ground water control, and forming, and for such other work as may be required for construction but does not become an integral part of the permanent work. Submit working drawings and signed and stamped associated calculations as required by contract sections for temporary work that will not become a part of permanent structures included in this contract.
- C. Samples: Samples of materials or equipment submitted to DTPW for review before incorporating in the work as required by individual contract sections.
- D. Certification: Notarized certificates or certified test results submitted that demonstrate proof of compliance with Technical Provisions - Systems for products, materials, equipment, systems, and qualifications of personnel, manufacturers, fabricators, and installers.
- E. Calculations: Where required by individual Technical Provisions - Systems sections, signed and stamped by a professional engineer.
- F. Test Procedures and Reports: Provide test procedures for review by DTPW before commencement of testing. Provide test reports, in DTPW-reviewed format, for review by DTPW.
- G. Documentation: Documents required to be submitted by the contract, including miscellaneous items such as delivery tickets, batch tickets, and bills of materials.
- H. Product Data: Manufacturer's literature, catalog cuts, and material safety data sheets.



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- I. Operations and Maintenance Manuals: Operations and maintenance manuals for equipment and systems as required by the contract.
- J. Systems Submittal Packages: Submitted to DTPW for review as required by the contract.
- K. Software: Any software utilized in any processor-driven component.

013300-4 SUBSTITUTIONS

- A. Substitutions consist of preparing, submitting, amending, and updating lists of products or methods of construction which the Contractor proposes to furnish and install instead of those indicated.
- B. Propose substitutions in accordance with provisions indicated, and include documentation on methods of construction, materials, products, and supplies that are proposed for substitution instead of items shown or methods indicated or implied in the contract documents. All substitutions must be approved by the Engineer.

013300-5 CHANGES

Changes proposed by the Contractor to items listed in DTPW-reviewed submittals will not be permitted unless those changes have been submitted to, and reviewed in writing by DTPW.

013300-6 MASTER LIST OF SUBMITTALS:

Identify submittals required and determine the date on which each submittal is required in order to conform to the contract's submittal schedule.

013300-7 SUBMITTAL FORMAT AND INSTRUCTIONS

- A. Drawings: Refer to APPENDIX X.
- B. Submittals: Show the following information when applicable:
 - 1. Names of Contractor, subcontractors, suppliers, manufacturers, and, when applicable, the seal and signature of a professional engineer
 - 2. Identification of product by description, model number, style number, serial
 - 3. number or lot number, and finish numbers
 - 4. Subject identification by contract drawing or technical provisions reference
 - 5. Relation to adjacent structures or materials
 - 6. Field dimensions, clearly identified as such
 - 7. Applicable standards, such as ASTM or federal specification numbers
 - 8. Identification of deviations from contract documents



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9. Contractor's stamp, signed and dated, certifying the following:
 - I. Review of submittals for compliance with contract requirements
 - II. Verification of field measurements
 - III. Verification of subcontractors' work for accuracy
 - IV. Compatibility of the work shown thereon with affected trades and other contracts
 - V. Action Block: Include a blank space, 5 inches wide by 2.5 inches high, in the lower right corner, just above the title block, in which DTPW may indicate action taken. Shop drawings without this space will be returned without review for compliance.
 - VI. Technical details of equipment to be installed shall be supplied at the same time that equipment general arrangements and layout drawings for the area are submitted. Include all space requirements for installation, maintenance and replacement, service connections required, environmental requirements, weights, foundation, and fixing details, etc.
 - VII. Make submittals sufficiently in advance so review may be made by DTPW at least 30 calendar days before commencement of related work.
 - VIII. Allow 30 calendar days for review of each submittal cycle by DTPW.
 - IX. Ship submittals prepaid by overnight express delivery or hand-carry them to DTPW.
 - X. Accompany submittals with a Contractor transmittal form containing the following information:
 - a. Contractor's name, address, and telephone number for home office or field office
 - b. CDRL number and title
 - c. Submittal number based on individual volume title, section number, and date
 - d. Contract title and number
 - e. Supplier's, manufacturer's, or subcontractor's name, address, and telephone number
 - f. Subject identification, including contract drawing, volume title, section, and article reference
 - g. Identification of deviations from contract documents if any
 - h. Copy of subcontractor's or supplier's transmittal to Contractor
 - XI. Provide sufficient data with subsequent submittals initiated by the Contractor for consideration of corrective procedures for review. Make subsequent submittals in the same manner as initial submittals.
 - XII. Incomplete or partial submittals may be returned to the Contractor without review.



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XIII. Illegible facsimile copies of any portion of a submittal will not be accepted.

013300-8 QUANTITIES

- A. One reproducible sepia and five prints of each shop drawing and working drawing (Reproducible sepia and prints that are of poor quality are not acceptable.)
- B. Six copies of manufacturer's standard schematic drawings
- C. Four copies of manufacturer's calculations, and four copies of manufacturer's standard data
- D. Six copies of manufacturer's printed installation, erection, application, and placing instructions
- E. Three samples of each item specified in the various Technical Provisions - Systems sections, unless otherwise specified
- F. Six copies of inspection reports, test reports, and certificates of compliance
- G. Six copies of engineer's calculations, with seal and signature of an engineer
- H. Twelve copies of submittal packages
- I. Six copies of Contractor's weekly report

013300-9 CONTRACTOR'S REVIEW

Review all submittals, and stamp and sign them as reviewed and approved before submission to DTPW. Failure to comply with this requirement will result in immediate return of the submittal without review.

013300-10 DTPW'S REVIEW

DTPW will provide timely reviews of the Contractor submittals identified in the CDRL and throughout the contract documents. The Contractor may continue with the work, pending receipt of DTPW's review comments, at its (the Contractor's) own risk.

A. Review Stamp

- 1. Review of submittals and the action taken, either NO EXCEPTIONS TAKEN or EXCEPTIONS TAKEN, may be indicated with a review stamp. DTPW's representative may affix the review stamp, mark the action block, and sign and date the stamp.
- 2. The review stamp action block marks have the following meanings:
 - I. NO EXCEPTIONS TAKEN: Every illustration and description appears to conform to the respective requirements of the contract documents; that (a) submittal development may continue, or that (b) fabrication, assembly, manufacture, installation, application, and erection of the illustrated and described product may proceed, in the case of final submittals; and that the submittal need not be resubmitted.
 - II. EXCEPTIONS TAKEN: The submittal is deficient to the degree as described by the notes on the actual submittal and/or as contained in the letter of exception and clarification attached to the returned submittal; that the Contractor shall not assume that the reviewer has completed a thorough review of the submittal; and that the submittal needs revision, and it must be



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corrected to conform to the respective requirements of the contract documents. Re-submittal requirements shall be described in the letter of exception and clarification.

B. Review by Other Agencies

Various agencies designated by DTPW may have review stamps or other acceptance methods different from those of DTPW. The Contractor shall work with the designated agencies and obtain acceptance in the clearest and most straightforward manner possible. If a submittal requires review, acceptance, or approval from an agency other than DTPW, the Contractor shall gain such concurrence prior to submission to DTPW.

C. Review of submittals by DTPW or a designated agency shall not relieve the Contractor from responsibility for errors or omissions in the submittals, or from deviations from the contract documents, unless submittals containing such deviations were submitted to DTPW with the deviations specifically called to the attention of DTPW in the letter of transmittal and reviewed by DTPW as a contract change order.

D. The Contractor shall notify DTPW in writing immediately of any review comments or suggested revisions by DTPW or other entity which the Contractor considers contrary to the requirements of the contract.

E. After review of submittals, the Contractor shall distribute prints or copies of accepted documents to the following:

1. Contractor's field office
2. DTPW representative's field office
3. Affected and concerned subcontractors, suppliers, and fabricators
4. Affected and concerned members of the Contractor's workforce

013300-11 CONTRACTOR'S RESPONSIBILITIES

A. Coordinate each submittal with requirements of the work. Place particular emphasis on ensuring that each submittal of one trade is compatible with other submittals of that trade, and with submittals of other trades.

B. Review by DTPW of submitted drawings and associated calculations does not relieve Contractor of responsibility for errors or omissions in the drawings and associated calculations, or from deviations from the contract documents, unless such deviations were specifically called to the attention of DTPW in the letter of transmittal submitted with the drawings. The Contractor is responsible for correctness, accuracy, and completeness of the drawings; for shop fits and field connections, dimensions, and quantities; and for results obtained by use of such drawings.

C. Contractor's liability to DTPW, in case of deviations in the submittals from requirements of the contract documents, is not relieved by DTPW review of submittals containing deviations, unless DTPW expressly approves deviations by issuing a change notice.

D. Do not start work for which submittals are required until submittals bearing the stamp of DTPW, and signatures indicating review, have been received.



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- E. Before making submittals, ensure products are available in quantities required by the contract.
- F. Verify field measurements, catalog numbers, and similar data.
- G. Re-submittals: Make any corrections required by DTPW and resubmit for review. The Contractor shall direct specific attention in writing on resubmitted shop drawings to revisions other than the corrections by DTPW on the previous submittal.
- H. **Contract Deliverable List**
 - 1. Prepare, and keep up to date, a contract deliverable list showing numbers and titles of each submittal, months and years in which submittals will be made, and current status of review by DTPW.
 - 2. Indicate review priority for any items required on an early basis.
 - 3. Send copies of the entire list to DTPW at monthly intervals.
 - 4. Distribute copies of revised pages of the list whenever a drawing is revised and resubmitted.

013300-12 SHOP DRAWINGS

- A. Prepare shop drawings on a sheet, maximum size of 22 inches by 36 inches, to a scale large enough to easily depict and annotate each of the various pertinent items. Provide blank space for the action stamp.
- B. Submit final, corrected, reproducible sepia of each shop drawing, and show the work as actually installed, placed, erected, and applied.

013300-13 BOOK OF PLANS

The Contractor shall submit a complete Book of Plans upon acceptance of the system.

013300-14 PRODUCT DATA

- A. Modify the manufacturer's standard schematic drawings to delete information that is not applicable to the contract. Supplement standard information with additional information applicable to this contract.
- B. Modify the manufacturer's standard catalog cuts, brochures, diagrams, schedules, performance charts, illustrations, calculations, and other descriptive data to delete information that is not applicable to the contract. Failure to comply with this requirement will result in rejection of the submittal. Indicate dimensions, clearances, performance characteristics, capacities, wiring and piping diagrams, controls, and other information as required.
- C. Modify the manufacturer's printed installation, erection, application, and placing instructions to delete information that is not applicable to the contract.
- D. Include appropriate information as required herein and by the contract.
- E. Submit certificates of compliance to DTPW for those products for which no samples



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and test results are specified; certificates should be submitted not later than 30 days before products are installed. A copy of the certificate should accompany the product for which the certificate is prepared. Include on the certificate the following:

1. A statement that the product complies with respective requirements indicated
 2. A certified copy of test results pertaining to the product
 3. Submittal date, Contractor's name and address, contract title and number, product represented and its location in the contract, producer's name, product trade name and catalog number, place of product origin, test date, testing organization's name and address, quantity of the product furnished, and related contract drawing, volume title, and section numbers
 4. A notarized signature of an officer or other authorized representative of the manufacturer or producer
- F. When materials or equipment are required to conform to the standards of organizations such as the American National Standards Institute (ANSI), the American Society for Testing and Materials (ASTM), the National Electrical Manufacturers Association (NEMA), or Underwriters Laboratories (UL), submit proof of such conformance to DTPW for review. If an organization uses a label or listing to indicate compliance with a particular standard, said label or listing will be acceptable evidence, unless otherwise specified in individual sections. In lieu of a label or listing, Contractor may submit a certificate from an independent testing organization (one that has been reviewed by DTPW, and found competent to perform acceptable tests). The certificate shall state that item has been tested in accordance with the specified organization's standard.

013300-15 SAMPLES

- A. Only where applicable, submit samples of sizes and quantities to clearly illustrate full color range and functional characteristics of products and materials, including attachment devices. Indicate country of origin.
- B. Erect field samples and mock-ups at the work site, as specified in contract sections and as may be necessitated by the Contractor submitting value engineering proposals or substitutions; locations must be acceptable to DTPW.
- C. Include appropriate information as required, and indicate the pertinent contract section. Submit product data to accompany samples.
- D. Review of a sample shall only be for the characteristics or use named in such review, and shall not be construed to change or modify any contract requirements. Materials and equipment incorporated in work shall match reviewed samples.
- E. Certain samples may be tested by DTPW as specified. Reviewed samples not destroyed in testing will be retained by DTPW. Samples not destroyed in testing and reviewed with exception taken will be returned to Contractor at Contractor's expense, if so requested at time of submission.
- F. Failure of any material to pass specified tests will be sufficient cause for refusal to consider, under contract, any further samples of same brand and make of that material. DTPW reserves the right to take exception to any material or equipment that previously has proved unsatisfactory in service.



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- G. Samples of various materials or equipment delivered on site or in place may be taken by DTPW for testing. Samples failing to meet contract requirements will automatically void previous reviews of items tested.
- H. When tests are required, only one test of each sample proposed for use will be made at DTPW's expense. Samples that do not meet contract requirements will be rejected. Retesting of additional samples will be made by DTPW at Contractor's expense.
- I. DTPW reserves the right to require submission of samples or site mock-ups of any material, whether or not such submission is specifically mentioned in the contract.

013300-16 WORKING DRAWINGS

- A. Identify working drawings by a submittal number based on volume title and section number, and provide a reference to pertinent contract drawing numbers. Use a working drawing sheet with a maximum size of 22 inches by 36 inches. B. Have working drawings prepared, stamped, and signed by an engineer of the involved discipline.
- B. Verify field measurements and coordinate with pertinent contract drawings from other contracts, where applicable.
- C. Do not begin work for which working drawings and associated calculations are required until drawings and calculations have been reviewed by DTPW; DTPW's corrections, if any, have been addressed; and submittals have been returned to the Contractor with the required review stamps and signatures.
- D. Distribute copies of working drawings and calculations after DTPW review.

013300-17 CALCULATIONS: Have calculations required by Technical Provisions - Systems sections stamped and signed by a professional engineer of the involved discipline. When calculations accompany drawings in a submittal, the body of the calculations must contain cross references to the individual drawing to which the page of the calculations pertains.

013300-18 SUBMITTAL PACKAGES: Submit designs for the work to DTPW for review. Submit in the following stages:

A. Conceptual submittal:

- 1. Identify all systems, subsystems, equipment, or other elements that will later be the subject of preliminary and final submittal submissions, and which together constitute the whole submittal for Contractor's Work.
- 2. Identify the function of each system, subsystem, equipment, or other element within the overall submittal, and specify relationships and interfaces between such elements.
- 3. If at any time in the preparation of the preliminary and final designs, the Contractor wishes to modify conceptual submittal by dividing any system or subsystem into a number of smaller systems (or by reconfiguring interfaces or for any other reason), the Contractor shall resubmit conceptual submittal for re-review.



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4. Preliminary submittal:

1. Make a separate preliminary submittal submission for each element of the overall submittal, as identified in the conceptual submittal.
2. Submit in sufficient detail to evaluate progress and technical adequacy of the selected submittal approach.
3. Submission shall represent, at a minimum, a 50 percent completion level.
4. Clarify and confirm as necessary all technical aspects of all interfaces with other elements of Contractor's overall submittal, and of any interfaces with facilities.

B. Final submittal:

1. Make a separate final submittal submission for each element of overall submittal, as identified in the conceptual submittal.
2. Submission shall represent not less than 95 percent completion.
3. Note that DTPW will not normally review a final submittal submission until at least a satisfactory preliminary submittal submission has been received for all interfacing elements, and will give only a conditional review until such time as the final submittal submission has been received for all interfacing elements.

013300-19 SOFTWARE

License and disclose to DTPW software utilized in any processor-driven component, according to the nature of the software selected:

- A. Commercially Available Software: Pass on to DTPW the following:
1. All documentation, new and unused, received with the software from supplier.
 2. A non-exclusive license in perpetuity to use software in all processor devices in which it is installed by Contractor.
- B. High-Level Software and Operating Systems: For any software that is the property of the Contractor, provide the following support:
1. A non-exclusive license in perpetuity to utilize software in all processor devices in which it is installed by Contractor.
 2. An undertaking, in effect for as long as the software is in operation, to provide DTPW with updated software if any defects or deficiencies in software become known to the Contractor from any source.
 3. Full and detailed documentation of software. Place the documentation in escrow such that it will become property of DTPW if the software owner ceases trading as a commercial company.
- C. Application Software and Databases: Provide the following support:
1. A non-exclusive license in perpetuity to use software in all processor devices in which it is installed by Contractor.
 2. Full and detailed documentation, including operational descriptions, flow diagrams, and detailed program or data listings to allow DTPW to maintain and modify the software or ensuing databases without seeking additional information from the Contractor.



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013300-20 SUBSTITUTIONS

- A. The list of materials, products, and supplies, and the list of methods of construction proposed for substitution of those indicated, will be considered only if those requests have been submitted. Review of substitute items or methods will be only for characteristics and the use named in the acceptance. This review will not be interpreted as a modification of the contract, nor will it establish precedence of products and methods for other portions of the project. Review of a substitution does not relieve the Contractor of responsibility for fulfilling requirements of the contract documents. DTPW will judge the quality and suitability of substitute items or methods, and its decisions are final. If use of substitute products or methods involves redesign of other parts of the work, the Contractor shall perform the redesign and submit it for review by DTPW, bear the cost of redesign, and include the direct cost of evaluating substitutions by DTPW.
- B. Include the following information with documentation for materials, products, and supplies:
1. Complete data substantiating the compliance of the proposed substitution with the requirements of the contract documents.
 2. Identification of materials, products, or supplies, including manufacturer's name, address, catalog name, and number.
 3. Installation characteristics, installation drawings, and manufacturer's literature, including product description, performance and test data, and reference standards (if pertinent).
 4. Name and address of projects on which the product was used under similar circumstances, and date of installation.
 5. Itemized comparison of proposed substitution with the item specified. Include in a tabular form differences in materials, size, finish, estimated life, estimated maintenance, availability of spare parts and repair services, energy consumption, performance capacity, salvageability, and manufacturer's warranties.
 6. Effect of the change on the construction schedule.
 7. Accurate cost data for the proposed substitution in comparison with the product specified.
 8. Equitable adjustment and credit which the Contractor proposes to offer DTPW.
 9. When applicable or requested by DTPW, provide off-the-shelf samples of the specified item and the proposed substitution.
- C. Certify the following when making a request for substitution:
1. The individual submitting the request has personally investigated the proposed item and determined it to be equivalent, or superior, to that indicated. Update the information as new or different data becomes known.
 2. Furnish the same warranty for substitution as for the product specified.
 3. Coordinate installation of the reviewed substitution into the work, and make those changes, subject to review by DTPW, required for the work to be complete in all



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respects.

4. Waive claims for additional costs related to substitution.
 5. Provide complete cost data, including related costs, except the costs of the DTPW redesign or review of the Contractor's submittal.
- D. Substitutions that are merely indicated or implied on shop drawings or product data submittals will not be considered unless a formal request for substitution has been submitted in conformance with this section.
- E. Include the following information in documentation for construction methods:
1. Detailed description of proposed methods.
 2. Working drawings illustrating the methods.
 3. Itemized comparison of proposed substitute methods with methods shown, and with product implied or specified. Include differences in estimated time for execution, labor, materials, and revisions to the construction process, and cost.

END OF SECTION 013300



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SECTION 016025
QUALITY ASSURANCE - SYSTEMS ASSURANCE

016025-1 PART 1: GENERAL

016025-1-1 DESCRIPTION

- A. This section consists of systems assurance requirements for the Metrorail Public Address System systems. Also defined are certain system configuration requirements relating to system availability.
- B. Availability requirements are defined in terms of system function availability and system equipment availability. Requirements for error monitoring, maintainability, expandability, and minimum life are also defined.

016025-1-2 REQUIREMENTS

The requirements specified herein shall be included in the systems assurance program plan submitted in accordance with APPENDIX B, SECTION 016025-1-2-B titled Submittals (CDRL).

A. QUALITY ASSURANCE PROGRAM

The Contractor shall submit a final Quality Assurance Plan (QAP) for review and approval by DTPW, within 30 days after the Notice to Proceed (NTP). The Contractor's QAP shall, at minimum, adhere to, and contain the 15 quality elements corresponding to the FTA QA/QC Guidelines, FTA-IT-90-5001-02.1 (as revised). DTPW may use the Contractor's QAP as a basis for planning the auditing activities and witnessing of inspections, as well as any testing or other activities for which DTPW determines monitoring is warranted.

1. The QAP submitted for review and approval must be in accordance with IEEE 730. The Contractor's software QAP shall be submitted within 30 working days of the effective date of NTP. The Contractor and all subcontractors shall provide a software QAP for all software items.
2. The Contractor's QAP shall ensure adequate quality throughout all areas of the contract. The Contractor shall impose its own DTPW-approved QAP requirements on all subcontractors and suppliers for this project.
3. The QAP shall describe, in detail, how the Contractor will comply with the required activities that include managing, designing, purchasing, fabricating, installing, inspecting, testing, handling, storing, and shipping. The QAP shall identify the methods to verify the coordination of all relevant activities, specifically including manufacturing, testing, inspection, safety, reliability, and maintainability
4. The QAP shall include all inspection/Test Plans, procedures, and forms that the Contractor will use to ensure that materials, processes, personnel, and products comply with the requirements of the contract documents. All inspection/Test Plans, procedures, and forms referenced in the QAP shall be submitted to DTPW for review and approval.



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5. DTPW may use the QAP and associated documents as a basis for planning and performing quality assurance audits as part of the quality assurance oversight requirements.
6. The Contractor's quality assurance representative (QAR) shall be a quality assurance professional with experience in quality management of capital projects, and is subject to DTPW approval.
7. The QAR shall be given sufficient authority to ensure that quality is consistently maintained. The QAR shall not be replaced by the Contractor without prior approval of DTPW.

B. SUBMITTALS (CDRL)

1. Quality Assurance Plan: The Contractor shall submit the final QAP that is in accordance with IEEE 730 for review and approval. The Contractor shall submit a proposed QAP with its proposal—revising it as required within 30 days after NTP—for review and approval by DTPW.
2. Availability Analyses: Include these analyses in preliminary and final submittal submittals.
3. The System Availability and Reliability Test Plan: Plan is due 60 calendar days prior to start of test. Include test procedures.
4. The System Availability and Reliability Test Report: Report is to be submitted within 10 days of the completion of the test.
5. Safety Plan in compliance with DTPW's Safety Certification Plan. Refer to accompanying APPENDICES for Construction and other Safety and Security related requirements.

016025-2 PART 2: PRODUCTS

Products are not required for this section.

016025-3 PART 3: EXECUTION

016025-3-1 AVAILABILITY ENGINEERING

- A.** The Contractor shall supply and implement the components and functionality of a Public Address System so that a single component failure will not cause the loss of any system function. The configuration shall also protect the system against multiple device failures where devices have high failure rates or potentially long repair times. The physical placement of the Public Address System station equipment shall minimize the possibility that any single component or device failure will affect the associated backup system or device.
- B.** The Contractor shall ensure that the Public Address System systems shall provide a minimum functional availability of 99.99999 percent. That is, the ratio of total test time minus downtime (attributable to either the unavailability of hardware or functions) to total test time shall be equal to or greater than 0.9999999. The Public Address System availability and reliability test, described above, should list the requirements, responsibilities, and definitions for a 300-hour availability test, during which



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conformance to the availability criteria described herein shall be demonstrated.

C. Function Availability

- 1 The systems as defined in this solicitation shall be considered functionally available when all functions have been tested and accepted by DTPW.
- 2 All functions shall be executing at their specified rates to all applicable locations on the line.
- 3 All "on demand" functions requested by a user, or other periodic functions that normally operate on the primary processor, shall also be available. If a redundant backup processor is normally used for any background or load-sharing tasks, then all functions that normally operate on a redundant backup processor shall be available on a primary processor.

D. Individual Device Availability:

In addition to the system availability requirements, the following device availability requirements shall apply:

1. With the exception of Item A. above, all devices, including processors, shall support a minimum hardware availability of 99.999 percent.

E. Availability Analysis: Calculations shall be submitted to substantiate the submittal of the Public Address System equipment. As a minimum, the calculations shall include the following:

1. Subsystem definitions and related assumptions.
2. Subsystem breakdown figures of availability.
3. Component failure rates (mean time between failures [MTBF] assumed in the calculations and the basis of the failure rates used).
4. The maintenance figures (mean time to repair [MTTR] used in the calculations. The outage times for repair shall be based on the premise that all spare parts in the Contractor's lists of spare parts are retained on hand at all times, and that all recommended maintenance cycles are completed.
5. There shall be no devices with unusually high failure rates or potentially long repair times (compared to the mean values).



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016025-3-2 ERROR MONITORING

The Public Address System shall continuously monitor the performance of its components. All control system devices (both primary and backup) shall be monitored at all times for both recoverable and non-recoverable errors. Both recoverable and non-recoverable error statistics shall be accumulated for all devices. The error statistics required are defined in APPENDIX B, SECTION 16782.

016025-3-3 MAINTAINABILITY

A. Once any failure has been detected in the Public Address System, its cause shall be promptly isolated and corrected. To permit the efficient diagnosis and correction of hardware problems, the Public Address System shall be designed to permit diagnostic programs to be executed while the Public Address System is either on line or off line. In the on-line mode, the running of a diagnostic shall not affect the functional operation or performance of the Public Address System.

B. The diagnostic system shall support complete maintenance of all hardware elements being maintained by the on-call technician. It shall permit the diagnosis of any hardware fault and the isolation of any hardware subassembly without requiring additional test equipment such as an oscilloscope. The system philosophy shall be to diagnose problems to the level of circuit boards and sub-assemblies that can be replaced as a unit.

C. Disconnection and repair of any failed device shall not interrupt the operation of the Public Address System unless disconnection and repair of the device's system bus interface is required.

016025-3-4 EXPANDABILITY

Over the useful life of the Public Address System, many developments may result in additional requirements for the Public Address System. The need for new LNPs, new application software, and new communication interfaces will necessitate spare capability in the Public Address System. As the Public Address System grow to their ultimate size, system performance criteria such as the response times to user requests shall not degrade beyond the specified performance parameters.

The initially unused capacities in main memory, auxiliary memory, and processor utilization—as well as the ability to increase system capabilities—are of major importance. The Contractor shall provide a configuration that has adequate capacity for both the present and the future needs of DTPW, as defined in the contract.

016025-3-5 HARDWARE SUPPLIER EXPERIENCE

The manufacturers of hardware, firmware, and software used in the Public Address System and other parts of the system shall have documented experience in the manufacture and supply of the above for 10 or more years. All central processing units (CPUs) proposed for use in the Public Address System shall have been initially released to customers by the equipment manufacturer after January 1, 2011, and all proposed system peripheral devices and LNPs shall have been initially released after January 1, 2011. All other equipment supplied shall be the manufacturer's current production. In addition, the equipment manufacturer's discontinuance of maintenance support or availability of spare parts shall not have been announced for any of the above-proposed equipment at the time of contract award.



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016025-3-6 Public Address System AVAILABILITY AND RELIABILITY TEST

Subsequent to the successful completion of the field tests for all stages of the work, a 700-hour Public Address System availability and reliability test shall be conducted to verify the entire control system's ability to meet its availability and reliability requirements. The Public Address System availability and reliability test shall not be started until all variances and anomalies have been resolved and corrected. The scheduling of this test shall be dependent on mutual agreement between the Contractor and DTPW.

A. Reliability Requirements

1. The reliability of the Public Address System shall be such that during the 700 hour test period there shall be no more than five system restarts, processor failovers, or CPU failovers.
2. During the same 700-hour test period there shall be no more than 10 device failovers or device failures of any kind for the line.
3. Restarts, failures, or failovers that result from causes that are not directly attributable to the Public Address System shall not be counted in the reliability test statistics.

B. Test Responsibilities

1. The Contractor is responsible for managing and executing the Public Address System availability and reliability tests. The tests shall consist of normal system operations, without special test equipment or procedures. All logs and records defined in the Public Address System availability and reliability test procedures shall be maintained. Operate the system according to procedures described in DTPW-reviewed contract documentation. Provide preventive and corrective maintenance of all newly installed equipment.
2. During the availability and reliability test period, DTPW reserves the right to require modifications to the Public Address System with regard to report formats, LNPs, database, and application software. Such modifications prior to passenger service will be described to the Contractor at least three weeks in advance of implementation to allow assessment of impact on the Public Address system availability and reliability test, except where such changes are necessary to maintain communications and control.

C. Test Definitions: Successful implementation of the Public Address System availability and reliability test depends on mutual agreement of the definitions and procedures, as well as their incorporation into the Test Plan. The Public Address System availability and reliability Test Plan shall incorporate the following definitions as a minimum. 1. Downtime:

1. Downtime shall be considered to occur wherever the criteria for successful operation are not satisfied. In the event of multiple failures, the total elapsed time for repair of all problems (not each individual problem) shall be counted as downtime. All the time that the Public Address System is in the process of restarting or failing over shall be counted as system downtime.
2. Hold-time: During a test of this nature, certain contingencies may occur that are



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beyond the control of either DTPW or the Contractor. These contingencies may cause the Public Address System to be down, but at the same time are not valid for the purpose of measuring Public Address System availability and reliability. Such periods of downtime may be declared "hold-time" by mutual agreement of DTPW and the Contractor. These periods shall not be considered in availability and reliability statistics as either downtime or successful operation time for acceptance purposes. Specific instances in which a holding period may be declared are as follows:

- I. Scheduled shutdown: During scheduled shutdowns, or if an equipment failure occurs while its backup device is scheduled out of service, the resulting system outage shall be hold-time, provided that service can be restored, according to Contractor-specified procedures, within 30 minutes.
- II. Power interruption and environmental excursion: Loss of power or manual shutdown in the event of loss of environmental control shall be considered hold-time. If the Public Address System is operated during a period of power or environmental conditions beyond those specified by the equipment manufacturers, any resultant downtime shall not be counted. Failure of software pertaining to system power disruption shall not be classified as hold-time.
- III. Corrected submittal defect: Hold-time may be declared by mutual agreement of DTPW and the Contractor in the event that the Contractor identifies a solution to a previously encountered problem and wishes to implement it to avoid similar future occurrences. In such a case, hold-time shall be allowed in increments of 120 hours to allow verification of the corrective action.
- IV. Logistic delays: Prior to commissioning of the Public Address System, if repairs are delayed due to previous repair requirements, hold-time may be declared by mutual agreement if the delay is beyond the control of either party and the Contractor is pursuing replacement parts in an expeditious fashion. Any parts the Contractor may require for successful completion of the availability test shall be available within 24 hours.
- V. Human error: Hold-time may be declared by mutual agreement of DTPW and the Contractor in the event of a failure caused by human error. Hold-time will not be declared if the human error is caused by incorrect or incomplete Contractor-supplied documentation or training.
- VI. Failure of other equipment: Hold-time may also be declared in the event of system failure caused by malfunction of equipment and systems interfacing with, but not a part of, the Public Address System.

D. Test satisfaction

After the elapse of 1,200 hours of cumulative test time, test records shall be examined to determine conformance with the availability and reliability criteria.

1. Retest

- I. If all test objectives have not been met, submit a proposed plan for



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corrective action for DTPW review. The plan shall include proposed changes and appropriate supporting data. The proposed plan shall clearly identify a specific method of verifying the effectiveness of changes.

- II. The specified performance and required characteristics of the equipment shall not be changed to achieve the availability and reliability requirements unless reviewed by DTPW.
- III. Once the changes have been reviewed and implemented, the Public Address System availability and reliability test shall continue until the specified reliability is achieved based on a consecutive 700-hour period, exclusive of hold-time, and the specified availability is achieved based on one of the following time periods:
 - i Total elapsed test time
 - ii Consecutive 700-hour period of test time, exclusive of hold-time
- IV. In order to establish that all failures have been satisfactorily repaired, no downtime, intermittent failures, or more than one failover shall have occurred within 120 hours of the Public Address System availability and reliability test's conclusion. The test shall be extended, if necessary, to satisfy this requirement.

2. **Device availability**

After the satisfactory conclusion of the 1,200-hour Public Address System availability and reliability test, the availability of each system device shall be measured against the device availability criteria.

- A. If one or more system devices do not meet the defined availability and reliability criteria, submit a proposed plan for corrective action to DTPW for review. The plan shall include proposed changes and appropriate supporting data. The proposed plan shall clearly identify a specific method of verifying the effectiveness of any changes.
 - B. The specified performance and required characteristics of the equipment shall not be changed to achieve the availability and reliability requirements unless reviewed by DTPW.
 - C. Once the plan is reviewed, correct any identified availability problems to the satisfaction of DTPW.
3. Make all necessary corrections to the Public Address System in order to meet the availability and reliability requirements. All test records, results, calculations, and implemented corrections shall be presented by the Contractor in an Public Address System Availability and Reliability Test Report at the conclusion of the test.

END OF SECTION 016025



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**SECTION 017843
SPARE PARTS AND MAINTENANCE MATERIALS**

019100-1 PART 1: GENERAL

017843-1-1 GENERAL

The Contractor shall confirm and update as necessary the lists of spare parts, and of special tools and test equipment, throughout the period of the contract, keeping them up to date with the latest agreed submittal requirements.

017843-1-2 SUBMITTALS (CDRL)

- A. After completion of all final submittal submittals, the Contractor shall reassess the system requirements and revise the spare parts list and the special tools and test equipment list, to reflect the full requirements of the actual system submittal. The listed spare parts and test equipment shall be consistent with the results of the availability analyses described in APPENDIX B, SECTION 16025, and shall be submitted not more than 60 days after completion of the final submittal submittal.
- B. Detailed packing lists of items delivered shall be supplied with the delivered items and submitted to DTPW within 15 days of each delivery.

017843-1-3 GENERAL

- A. All spare parts shall be identical to the equivalent installed item, and shall meet all requirements of the appropriate sections of the contract.
- B. All items shall be complete and ready for installation except for the wire or cable necessary for external connections.
- C. The Contractor shall supply a recommended list of spare parts based on failure rates and time required to order. The Price Schedule includes a line item for spare parts.

017843-1-4 GENERAL

- A. Furnish all special tools and test equipment detailed in the final DTPW-reviewed version of the special tools and test equipment list.
- B. Deliver all spare parts, special tools, and test equipment to the stores area of the shop; items should be suitably packed for warehouse storage and clearly marked with a unique identification.
- C. Complete delivery of all items no earlier than 90 days prior to the start of system testing, and no later than 30 days prior to the start of system testing. Delivery may be staggered to allow for the staged commissioning of the line.
- D. Complete delivery of all items no earlier than 90 days prior to the start of system testing, and no later than 30 days prior to the start of system testing. Delivery may be staggered to allow for the staged commissioning of the line.

END OF SECTION 17843



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**SECTION 019100
CUTOVER AND MIGRATION PLAN**

019100-1 SUMMARY

- A. The existing Metrorail Control Center room is operated 24 hours a day, 7 days a week. The control room shall remain fully functional and capable of assuming control of DTPW's Metrorail operations until the new control room has completed final acceptance.

019100-2 MIGRATION PLAN

- A. Within 30 days of Notice to Proceed (NTP), the Contractor shall submit a final high-level Migration Plan for DTPW review. The plan shall include general discussion on how the Contractor plans to construct and cut-in the new control room with existing online systems and applications with little or no impact to DTPW operations. The Migration Plan should include the following details as a minimum:
1. What training must be completed prior to formal migration of control to the new equipment
 2. Detailed fallback contingencies should issues arise with the new control room when it attempts to assume control of revenue services
 3. Staffing plan detailing skills, assignments, locations, and contact information of the Contractor's key personnel during cutover
 4. Staffing and support requirements from DTPW
- B. DTPW shall have 30 days to review and comment on the Contractor's Migration Plan.

019100-3 BUILD-OUT

- A. Demolition, alterations, and construction for the new DTPW control room shall be planned and staged to minimize impact in the existing control room operations.
- B. The Contractor shall verify all existing and proposed wiring associated with this project.
- C. Construction activities resulting in noise conditions that could hinder existing Metro operations shall be kept to a minimum, and shall be coordinated with DTPW Engineer. At no time will heavy construction be authorized during peak revenue periods.
- D. The Contractor shall identify and present to DTPW all rack space required for this project.
- E. Submission of a construction schedule does not guarantee the Contractor access to the control facilities when requested.



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019100-4 DRAWINGS

The Contractor shall verify all drawings received from DTPW.

019100-5 SUBMITTALS (CDRL)

A. Refer to APPENDIX B, SECTION 013300, Submittals, for submittal procedures.

END OF SECTION 019100



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**SECTION 16120
WIRE AND CABLE**

**16120-1 PART 1: GENERAL
16120-1-1 DESCRIPTION**

This section addresses the furnishing and installation of non-Fiber Optic wire and cable for the Metrorail Fiber Replacement Project. All requirements of section 16120 apply to this work.

16120-1-2 SUBMITTALS - Refer to APPENDIX B, SECTION 013300. SUBMITTALS, for submittal procedures.

- A. Contractor shall submit the following drawings:
- I. Shop drawings and manufacturer's literature showing details of fabrication and technical data for each type of cable to be furnished
 - II. Working drawings showing specialized requirements for installation and termination
 - III. Cable plan showing the locations and functions of all cables to be installed
 - IV. Detailed installation wiring diagram and cabling diagram: Any special precautions associated with cabling shall be clearly identified. All the cable and wiring terminations shall be shown on drawings, and all terminal markings, cable connector markings, and cable lengths shall be clearly indicated. Submit test reports for all tests.
- B. Contractor shall document manufacturer's qualifications and certifications.

**16120-2 PART 2: PRODUCTS
16120-2-1 WIRE AND CABLE**

- A. General
1. Identify cables as to manufacturer, year of manufacture, insulation type, conductor size, and voltage rating in accordance with manufacturer's standard method, and subject to review by DTPW.
 2. Use only flame-retardant and low-smoke-emission cables with insulating and jacketing materials capable of a 40-year average service life.
 3. Use cables suitable for installation at minus 15 degrees C.
 4. Use only cable with characteristics that meet or exceed the limits prescribed by the manufacturer of connected equipment.
 5. When RJ-21 connectorized cables are used, they should be constructed of 25 twisted pairs, with an overall shield.



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6. Main Distribution Frame (MDF) cross-connections:
 - I. Non-data (non-binary) signal cross-connects should have the following characteristics:
 - a CAT6 Plenum rated cable
 - b Construction: Twisted-pair construction
 - c Conductors: Tinned, 24 AWG, solid copper
 - II. Data (binary) signal cross-connects:
 - a CAT6 Plenum rated cable
 - b Construction: Twisted-pair construction, with individual shields
 - c Conductors: Tinned, 24 AWG, solid copper
- B. Minimum voltage ratings for both AC and DC:
 1. External wiring for module, equipment, signal, and instrumentation circuitry: 300 volts
 2. Power circuitry: 600 volts
- C. Conductors

Conductors should be sized to ensure operation of the equipment based on the anticipated equipment loads and operating parameters for the systems, in accordance with NFPA 70, chapter 3, article 310, and as specified herein. Use coated conductors of annealed copper wire in accordance with ASTM B 33; Class B and Class C stranded conductors conforming to ASTM B 8, Table 2; and Class G stranded conductors conforming to ASTM B 173, as follows:

 1. Equipment module, signal, and instrumentation external wiring: No. 20 AWG minimum, Class B
 2. Rack-to-rack and wiring: 20 AWG minimum, Class B
 3. All other circuits: No. 14 AWG minimum, Class B
- D. Cable Assembly
 1. Use single-conductor and multiple-conductor cables with tight-fitting, free-stripping, very flame resistant and low smoke type modified ethylene tetrafluorethylene (ETFE) material for insulation and jackets. Cables should be certified for continuous operation at 150 degrees C in dry locations.
 2. Insulation thickness
 - I Multi-Conductor Cables: Minimum average of 0.01575 inches (0.4 mm) and absolute minimum of 0.01378 inches (0.35 mm). Test at 3,000 volts AC for 5 minutes.
 - II Single-Conductor Cables: Minimum average of 0.009843 inches (0.25 mm) for No. 20 AWG. Minimum average of 0.01181 inches (0.3 mm) No. 14 AWG. Minimum average of 0.01575 inches (0.4 mm) and absolute minimum of 0.01378 inches (0.35 mm) for No. 12 AWG or larger. Each shall be tested at 3,000 volts AC for 5 minutes.



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- III Jacket thickness
 - a. For single-conductor cables, as specified for insulation
 - b. Overall thickness on multiple-conductor cables shall be per industry standards for similar use
 - c. Conductor Identification
 - i. Identify the conductors of twisted-pair cables in accordance with IPCEA S-19-81, paragraph 5.6.3.4, except where otherwise provided by referenced REA specifications.
 - ii. Except as otherwise specified, each insulated conductor in multiple conductor cables shall be identified with a specific number, or shall have a different color or tracer color combination.
 - iii. Power cable colors shall be coded as follows:
 - A01. Conductor 208/120 Volts
 - A02. A Black
 - A03. B Red
 - A04. C Blue
 - A05. Neutral White
 - A06. Ground Green

16120-2-2 MASTER CLOCK SYSTEM CABLES: NOT APPLICABLE

- 16120-2-3 WIRE DISTRIBUTION SYSTEM:** The following criteria apply to distribution system cable.
- A. Cable Construction: Twisted-pair construction, individual shield on each pair
 - B. Conductors: Tinned, 24 AWG minimum, solid copper

16120-2-4 WIRE FOR CROSS-CONNECTIONS: Cable distribution system cable used for cross-connections at MDF locations shall use shielded cross-connections on data signals to destination at MDF.

16120-2-5 WIRE DISTRIBUTION SYSTEM CABLES

- A. Construction: Twisted-pair construction, individual shield on each pair
- B. Conductors: Tinned, 24 AWG minimum, solid copper

16120-3-1 PART 3: EXECUTION

16120-3-1-1 INSTALLATION

- A. Install wire and cable in accordance with manufacturer's recommendations and applicable codes and standards.
- B. Do not exceed minimum bending radius as permitted by ICEA S-19081, and cable manufacturer.
- C. Install cables in the equipment rooms in overhead cable trays and in the Interior location within SPCC, beneath the raised computer floor.
- D. Verify that the raceway conduit system is free of obstructions by pulling a suitable wire brush, swab, and mandrel through the raceway conduit to remove extraneous matter.



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- E. Ensure that the raceway conduit system is dry before installation of cable, and use lubricant approved by the cable manufacturer to facilitate pulling cable.
- F. Determine maximum cable lengths and pulling tensions to avoid excessive pulling tensions or more bands than the manufacturer recommends.
- G. Provide at least 20 percent spare conductors (but not less than four such conductors) in all multiple-conductor cables (other than individual twisted-pair cables). Provide sufficient wire length to reach the farthest terminal point within equipment where spare wiring is not to be terminated. Spare wiring shall be readily accessible.
- H. Do not allow wires to cross one another when pulled into a conduit. Prevent kinking in conduit fittings or boxes. All cables and wires to be installed in a conduit shall be installed at the same time.
- I. Do not pull into trays or troughs. Cables shall be laid, with a minimum amount of crossover, in the trays and troughs and secured at least every 3 feet; cables shall not be pulled tightly around bends. Conduits for cables entering or leaving trays shall be rigidly attached and supported at their ends by suitable brackets and conduit straps on the sides of the trays.
- J. Wire and cable shall be permanently tagged as specified in APPENDIX B, SECTION 16120.
- K. All exposed wires and cables entering or leaving equipment housings, junction boxes, etc., shall be protected from abrasion. Openings in equipment enclosures and junction boxes shall have split ring plastic grommets.
- L. Seal all fire-rated openings.
- M. Open wiring on individual equipment racks shall be neatly arranged, bundled, and tied approximately every 3 inches with nylon straps.
- N. All wiring within cabinets and enclosures shall be neatly arranged, bundled, and tie-wrapped every 6 inches with nylon straps.
- O. All communications wiring shall be separated from power cables.
- P. The ANSI/TIA/EIA 606-A Standard for Telecommunications cabling system shall be used in all labeling methodologies. Classes of Administration 1 through 4 inclusive shall be used as applicable. All new wiring shall be labeled with a designation and labeling structure that is compliant with ANSI/TIA/EIA 606-A, and shall be submitted for approval by the Engineer. Labeling shall be on all origination and destination ends of all installed cables.

16120-3-1-2 SPLICES AND TERMINATIONS

Wires and cables shall be continuous between equipment rooms and intended termination points at the equipment. Splices will not be permitted except as specifically authorized in writing by DTPW. All terminations shall be made in accordance with the cable manufacturer's recommendations. Termination hardware shall require DTPW's review.



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16120-3-1-3 TESTING

Test all cables for continuity, shorts, opens, crossed pairs, and grounded conductors. Each cable connector and MDF terminal shall be verified and recorded by connector pin number or terminal number and the wire color that is to be connected, per DTPW reviewed drawings. All testing shall conform to APPENDIX B, SECTION 16950 except where more stringent testing is specified in this section.

END OF SECTION 16120



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**SECTION 16749
CABLE DISTRIBUTION SYSTEM**

16749-1 PART 1: GENERAL

16749-1-1 DESCRIPTION

The work specified in this section consists of submittal, furnishing, and installation of a cable distribution system as required.

16749-1-2 DEFINITION

The cable distribution system shall provide for the logical interconnection and intra-connection of system components, and facilitate the shared use of metallic cable plant.

16749-1 DESCRIPTION OF COMPONENTS

- A. Main Distribution Frame (MDF): Shall provide a common access and cross-connect point for twisted pair system interfaces. The MDF shall consist of a series of co-located, contiguous terminal blocks mounted on frames in a single area.
- B. Cables: Connecting cables from various systems.
- C. Cross-Connections: Jumpers (cross-connections) shall be installed between various blocks on the MDF and distributed terminal blocks as part of the installation procedure associated with each system.

16749-1-3 SUBMITTALS (CDRL)

Refer to APPENDIX B, SECTION 013300, Submittals for submittal procedures.

- A. Preliminary Submittal:
 - 1. Block diagrams: Showing terminal blocks, frames, manufacturer's model numbers, and location of equipment.
 - 2. Certification: Manufacturer's certification that all cable and equipment meet specified requirements.
 - 3. Product data: Manufacturer's catalog cuts, material specifications, installation instructions, and other pertinent data for all furnished products.
- B. Final Submittal:
 - 1. Elevation drawings of MDFs detailing cabling routing, bay number, terminal block number, and application.
 - 2. OEM practice publications for all apparatus supplied.
 - 3. Documentation detailing screens and operator interface to database software user application and system manager application programs.
- C. Pre-Acceptance Requirements:
 - 1. Operations and maintenance manual that includes as-built drawings and written documentation of articles 1.4 A and B, accurately depicting the cable distribution system's in-service condition.
 - 2. In-service database software, complete with all connections of the cable distribution systems and the operations manuals.
- D. Test Procedures and Reports: Submitted as required by contract.



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16749-2 PART 2: PRODUCTS

16749-2-1 MDF – TRAIN CONTROL AND EQUIPMENT ROOMS

A. Main Distribution Frame (MDF):

1. Construction: Double-sided (vertical and horizontal sides), floor mounted, equipped with end and guard rails, grounding buses and all mounting hardware.
2. Verticals: Shall be assigned as follows as required:
 1. Vertical #1: Used for outside plant cable termination on protectors.
 2. Vertical #2: Used for termination of internal house distribution and tie-cables.
 3. Vertical #3: Reserved for analog terminations of fiber optic digital channel banks only. Provide additional verticals as required per Contractor's submittal.
 4. Horizontal shelves: Shelves B through E, inclusive; used only for PABX terminations.
3. Height: 2.75 meters
4. Level "A" vertical and horizontal block positions shall not be used.

B. Connectorized Terminal Blocks: Blocks connectorized on the equipment side may be used. The cross connect side shall be wire-wrap. All blocks shall be 8 26 terminals on the cross-connect side, unless otherwise approved. All unused block locations shall be equipped with an equal number of one-side connectorized and wire-wrap on both sides. All blocks, except protector connectors, shall be mounted on swivels.

C. MDF Identification: MDF verticals shall be numbered from left to right and lettered "A" through "L" from bottom to top; the letter "I" shall not be used. MDF horizontal shelves shall be lettered "A" through "L" from bottom to top; the letter "I" shall not be used. Horizontal side columns shall be numbered from right to left to coincide with the vertical side of the frame.

16749-2-2 TERMINAL BLOCKS: All blocks shall be connectorized on the house/tie cable side and punch-down for solid and stranded wire on the drop side.

16749-2-3 DATABASE SOFTWARE (APPLIES TO BOTH OPTICAL AND NON-OPTICAL CABLES)

A. Database and supporting database applications software shall:

1. Document all cable distribution systems' metallic and non-metallic cable plant.
2. Facilitate the sorting, tracing, printing, and manipulation of records for engineering and maintenance use.

B. Database: Database shall consist of a collection of records.

Record: Document each connection to terminal block documented with one record.

1. Fields: Field information shall agree with other documentation submitted under this contract.
2. Station: This two-character alpha field shall designate the particular station where the terminal block is located.
3. Room: This three-digit numeric field shall designate the room where the terminal block is located.



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- 4 Terminal Block Bay: This two-digit numeric field shall specify the bay in which the terminal block is located. A blank entry shall indicate "not applicable."
 - 5 Terminal Block Rack: This two-digit numeric field shall specify the rack in which the terminal block is located. A blank entry shall indicate "not applicable."
 - 6 Terminal Block Number: This two-digit numeric field shall specify the vertical position of a MDF terminal block in the rack. For non-MDF terminal blocks, a number shall be assigned to identify a specific terminal block.
 - 7 Pin Number(s): This six-digit numeric field shall designate the pin numbers on the terminal block of particular connections. This field shall be used to specify a maximum of two terminal block connections, using three digits per conductor. Entries with "0" in the second field indicate a one-conductor circuit.
 - 8 Description: This 16-character alphanumeric field shall define the service and equipment functions of the connections.
 - 9 Cable Number: A unique three-digit numeric field shall be assigned to each cable within a station.
 - 10 Wire Numbers: This six-digit field shall designate the specific cable wires with the connections on the terminal block. This field shall be used to specify a maximum of two conductors using three digits per conductor.
 - 11 Entries showing a "0" in the second field shall indicate a one conductor circuit.
 - 12 Cable Binder: This two-character alpha field shall designate the cable binder. A null entry in this field means "not applicable." A null entry shall be permitted for connectorized cables.
 - 13 Cable Color Code: This eight-character alpha field shall designate the color code of the wires in the binder group. A null entry in this field shall designate "not applicable." A null entry shall be permitted for connectorized cables.
 - 14 Circuit Number: A six-digit number shall be assigned to each complete circuit within a given station. This number shall be used consistently in each record used to document the complete circuit.
- C. Applications Programs: Provide two applications programs that operate on an MS Windows -compatible machine.
1. User Application Program:
 - I. Preclude the ability to create or modify database records.
 - II. Provide the capability of displaying and printing reports. Reports shall consist of all records sorted by specific station, room, terminal block number, description, cable, wire number, and circuit number fields.
 2. System Manager Application Program:
 - I. Provide for the entry of new records or the modification of existing records.
 - II. Include a facility to provide a time-stamped backup of the database.



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D. Operations Manuals:

1. User Operations Manual: Describes the application of user software; it shall provide detailed step-by-step examples of typical software use.
2. System Manager's Manual: Describes the use and application of the system manager's software, and provides examples of the features and functionality of the software.

16749-1 PART 3: EXECUTION

16749-1-1 MDF INSTALLATION – TRAIN CONTROL EQUIPMENT ROOM

- A Install the equipment room frame in the space designated by submittal drawings. Frame and all shields shall be grounded.
- B Install connectorized and non-connectorized blocks.
- C Connect connectorized and non-connectorized cables to terminal blocks and install jumpers as individual systems are installed. Tie all shields together on MDF and ground.
- D Prepare database records for the equipment room MDFs.

END OF SECTION 16749



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SECTION 16780
CONTROL SYSTEM - EQUIPMENT

16780-1 PART 1: GENERAL

16780-1-1 DESCRIPTION

This section describes the required characteristics of the equipment to be supplied to meet the functional requirements in these Technical Provisions. Characteristics within this section shall comply with the requirements specified in APPENDIX B, SECTION 16025, System Assurance. Provide hardware that has sufficient capability and flexibility to meet the requirements of this section, as well as the present and future functional requirements specified.

16780-1-2 GENERAL EQUIPMENT REQUIREMENTS

All hardware delivered as part of the control system shall include all engineering and field changes since the time it was manufactured. All engineering and field changes shall be implemented prior to the factory functional performance test. All equipment shall be new and of the finest production quality. Do not provide major equipment requiring a substantial amount of new submittal and development. No modified (physically altered) modules or printed circuit boards shall be supplied as part of the control system, as spare parts, or as replacement parts under warranty.

16780-1-3 EQUIPMENT PERFORMANCE AND CAPACITY

All performance and capacity data (such as processor loading and main memory sizing) supplied for the control system shall be based on the following conditions:

- A. The control system configuration as described in APPENDIX B, SECTIONS 011000 and 16025.
- B. The total database size and total number of LNPs for the Public Address System as applied to the line
- C. The peak level of system activity
- D. The amount of online/historical data as required by agency, federal and local regulations.

16780-1-4 PEAK LOAD CONDITIONS

- A. The peak load conditions listed herein shall delineate the loading parameters for sizing the equipment, and are to be used in the factory and field tests. Simulation methodology to determine the effect of equipment not connected during the tests shall be submitted for DTPW's review. During the peak load test, the processor utilization may increase to a maximum of 40 percent, provided there are no pram stalls or abort results and no processor restarts or failovers occur due to the control system performance and capacity problems.
- B. During the peak load condition, a train service equal to the ultimate submittal capacity of the train control system shall be operating.



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16780-1-5 SUBMITTALS (CDRL)

- A. System functional block diagrams showing the functions of each system element and the types of connections between elements
- B. Detailed equipment specifications, descriptions, and drawings for the following items as applicable:
 - 1. Public Address System Digital Paging and Signage equipment
 - I. Detailed interconnection diagrams shall be submitted showing individual connections to all items of equipment, including interface connections to other systems or equipment.
 - II. Installation drawings shall be submitted as necessary for detailing equipment mounting, securing, and grounding, cable diagrams, and connection diagrams.

16780-2 PART 2: PRODUCTS

16780-2-1 PROCESSORS

The main groups of processors for the control system shall be the Front End Processors, Application and Database Servers and the workstation/overview diagram processors. The following articles apply to all groups of processors.

A. Processor Features

The following features shall be provided for each type of processor, as appropriate to the particular functions of each:

- 1. In addition to the security of supply provided by the UPS, power failure facilities providing the means for an orderly shutdown of the processor upon loss of input power, and automatic restoration of operation when power is restored.
- 2. Facilities to monitor and detect anomalous operation of processor and I/O instructions, and a watch-dog timer.
- 3. Detection and reporting to the processor of memory errors, I/O errors, attempts to access nonexistent main memory, and attempts to execute non-implemented or illegal commands, the processor shall then cease indicating that it is available and, whenever possible, the error shall be reported as an alarm.
- 4. A real-time clock with at least 1.0 micro-second resolution and an interval timer with at least 8.0 micro-second resolution, this clock shall be maintained in synchronization with the master clock described in APPENDIX B, SECTION 16782.
- 5. The LNPs shall be capable of having a reload initiated from any authorized management computer that is a client on the same network as the processors, whatever the state of the software in the processor.

B. Processor Loading

- 1. The control system shall have the ability to support all functions described in this Technical Provisions - Systems section, utilizing no more than 40 percent of the processing capability of the processor required for peak service conditions, and without utilizing any memory designated as spare while executing under the



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conditions listed in articles 16780-1-3 and 16780-1-4 above.

2. Demonstrate the control system's processing capability and spare capacity during factory and field acceptance tests. The performance monitoring function (APPENDIX B, SECTION 16782) shall be available to verify system performance during these tests.

C. Main Memory-Motherboard Memory

1. When the systems are delivered, main memory shall have sufficient capacity to satisfy the requirements of all system functions specified herein. Seventy-five percent of each delivered memory shall be spare capacity that is completely free, contiguous, and available for future use. Where memory is shared by two or more processors, this memory shall be required to conform to all the requirements of main memory, both separately and in combination with private memory.
2. Processor and any auxiliary memory shall be maximum that can be supported by the current hardware at the time of installation.
3. Parity-checking or error-correcting hardware shall be provided for all memory, including any cache memory provided. Memory errors shall be reported to the processor. Violations of write-protected areas shall likewise be prevented. Meaningful error codes shall be displayed where appropriate to complement diagnostic software and lead to isolation of faults at a board level.

16780-2-2 DEVICE ACCESS

Except for the CPU I/O devices that shall be dedicated to each CPU, the control system shall be constructed so that any device or any group of devices communicating with the processors can be connected to and access, or be accessed by, either of the on-line or hot-standby processors without adversely affecting any other devices' access to, or access by, the other processor. All shared devices shall have redundant access. Failure of the redundant access logic shall not disable the control system. The failure of a single processor shall not prevent the proper transfer of any shared device from the failed processor to the functioning processor, and shall not prevent proper operation of the device when connected to the functioning processor.

16780-2-3 PROCESSOR INTERCONNECTIONS

An interconnection shall be provided between the on-line and hot-standby processors to support the communication necessary for mutual monitoring of the states of the processors, performing message exchanges and performing database upgrades.

16780-2-4 REMOVABLE MEDIA UNITS

Each central processor shall be provided with removable media, each with a minimum capacity to hold two versions of the entire system, including data, plus 25 percent residual capacity. A minimum of two versions are required to be held during system upgrades. Reloading the central processors shall be achievable from the drive. Until a specific version is deleted, it shall be possible to restore that version as the active version at any time, and reboot the processor. If the processor automatically reboots because of a handling failure, it shall reboot the most recent version activated.



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16780-2-5 LOCAL AREA NETWORK

- A. Fiber shall be provided for the SCADA network as required for all connectivity between the new equipment installed in the Train Control rooms.

16780-3 PART 3: EXECUTION

16780-3-1 ENVIRONMENTAL REQUIREMENTS

- A. The equipment shall function normally under the environmental requirements contained in DTPW's environmental submittal criteria unless otherwise modified by DTPW.

B. Temperature/Humidity/Heat Load

1. Under normal conditions, a controlled environment will exist in Train Control rooms and equipment rooms for computing, communication, and man/machine interface equipment.
2. Provide details of the individual and total heat load of the equipment at each location, and the maximum operating temperature for all equipment, no later than with the preliminary submittal submittal.

C. Acoustic Noise Level

The acoustic noise generated by the systems equipment shall not exceed 65 dB.

16780-3-2 GENERAL NOTES

All control equipment shall conform with the following requirements:

- A. **Assembly Identification:** Each assembly in the installed systems, to the level of printed circuit cards and EPROMs, shall be clearly marked with the manufacturer's part number, serial number, and the revision level of the assembly. Changes to assemblies shall be indicated by an unambiguous change to the marked revision level. All slots within printed circuit card cages shall be clearly labeled.

B. Interconnections

1. All cabling between component units of the systems shall be supplied and shown on system drawings. Plug-type connectors with captive fasteners shall be used for all interconnections. The connectors shall be polarized to prevent improper assembly. Terminations shall be entirely within the enclosures.
2. Wiring of components within enclosures shall be neatly arranged and fastened securely to the enclosure with flame-retardant fasteners. Metal clamps shall have insulating inserts between the clamps and the wiring. Wiring between all stationary and moveable components, such as wiring across door hinges or to components mounted on extension slides, shall allow for full movement of the component without binding or chafing of the wire.

16780-3-3 CONTRACTOR'S FUTURE HARDWARE CHANGES

DTPW shall be informed of all future alterations or improvements to the hardware and the associated software supplied. DTPW shall be placed on the suppliers' mailing lists to receive announcements of the discovery, documentation, and solution of hardware and software problems, and other improvements that could be made to hardware that is provided with the systems. This service shall be initiated at the time of system



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acceptance and shall continue for as long as the equipment is being supported by the Contractor.

END OF SECTION 16780



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SECTION 16782
Public Address System SOFTWARE

16782-1 PART 1: GENERAL

16782-1-1 DESCRIPTION: This section describes the required characteristics of the Public Address System, Network (Wired and Wireless) and database(s), and software utilities. It is neither intended nor possible to list all software or all characteristics of the software required in the system submittal. The Contractor is responsible, however, for including all the necessary software to satisfy the system functional requirements described in the applicable sections of this volume. Upon final acceptance by DTPW, all software licenses shall revert to DTPW's ownership.

16782-1-2 PROVISION OF SOFTWARE: Commercial software incorporated and forming an integral part of the furnished software shall only be provided as "executable code."

16782-1-3 CUSTOM DEVELOPED SOFTWARE

All Software that is written or created by the Contractor, shall become the property of and relinquished to DTPW at the closure of the contract. The Software shall be written using approved programming languages as defined in APPENDIX B, SECTION 16782-1-6. All custom developed Source Code, Software Libraries and all Custom Developed applications shall become the property of DTPW upon Contract Closure.

Any third Part Software required for use to ensure functionality of any Custom Developed Software shall also be included with the Custom Developed Applications and Software. Such third Part Software shall be delivered in it's native form (Binary, script, etc.) to DTPW at the Contract Closure.

16782-1-4 CPU MANUFACTURER'S SOFTWARE CHANGES: Any alterations or improvements made by the CPU manufacturer(s), before the warranty period ends, to software initially supplied with the Public Address System that are directly applicable to the Public Address System, shall be made available by the Contractor free of charge to DTPW. DTPW shall be placed on the suppliers' regular mailing lists (if such exist) to receive announcements of the discovery, documentation, and solution of software problems, new software releases, and other improvements that could be made to the software furnished with the control system. The Contractor shall also ensure that the service includes announcements pertaining to CPU manufacturer-produced software and announcements pertaining to software produced by third-party suppliers for the life of the Public Address System.

16782-1-5 SUBMITTAL CHARACTERISTICS

A. Provide standard software wherever possible. DTPW shall consider changes in the Software requirements and characteristics if it can be shown that the proposed approach will meet the functional needs of the Public Address System in a reliable and cost-effective manner. New software, or software modified to satisfy this contract, will be considered specially designed for this project. DTPW shall review the submittal of such special software without relieving the Contractor of the responsibility to meet the functional requirements of this contract.



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- B. Produce all software and software documentation in accordance with DTPW-reviewed software submittal and software documentation standards. Should any custom developed Software be required, such development shall use a “structured programming” submittal approach—that is, a top-down approach where the system is defined at a functional level and subsequently each function is broken down into lower level tasks-this being recursively defined throughout the submittal process. Make use of CASE tools and formal submittal methodologies wherever this is possible. Upon request from DTPW, demonstrate that for any software being developed, the software submittal and documentation standards are being complied with. Inform DTPW when software integration tests are being conducted so that DTPW can witness these tests.
- C. All software shall be capable of accommodating the specified ultimate capacity of the Public Address System and VoIP Telephony system. Reassemblies or recompilations of the Public Address System or VoIP Telephony system in whole or in part, shall not be necessary to accommodate the growth anticipated in the database tables. Programs shall obtain the size and configuration of the Public Address System from easily modified parameters contained in the database.
- D. All software shall be designed with sufficient modularity to minimize the time and complexity involved in making a change to any program. The modularity shall include the separation of hardware interface modules from other software modules. Logic and data shall be separated into distinct modules.
- E. All Public Address System and application software shall be included on the development system.
- F. Operating system software shall be supplied in a form suitable for incorporation into Public Address System software in system generations.
- G. The software shall be completely maintainable by members of the operations staff following training using the software facilities provided. No Contractor support shall be essential to modify logic or data within the parameters defined for the ultimate Public Address System, or the maximum capabilities of the software.
- H. All software contracted under this contract shall be installed, operating, and completely documented, in final form, including all standard software changes and field changes, prior to acceptance of the Public Address System by DTPW.
- I. If standard commercial software is to be used, then the latest version of that software shall be used.

16782-1-6 PROGRAMMING LANGUAGES

- A. Any application(s) that is (are) developed by the vendor shall be reviewed by DTPW. All custom developed applications shall use programming high level, structured languages in the C family including but not necessarily limited to C, C++, C#, or Visual C (++). Assembly language may be approved for limited use where resource utilization or response times are critical (such as the data acquisition routines), or where a close interaction with the system hardware is required (such as peripheral drivers). No other unapproved programming language shall be considered.
- B. All facilities (such as assemblers, compilers, linkers, or debuggers) provided for each language shall be capable of operating on at least the largest Public Address System program written in each language. Programs shall be able to easily transfer data



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among program segments and other programs written in the same or different languages. Both read and write access to all data residing in main and auxiliary memory shall be possible, but data shall be protected from corruption by an unauthorized program.

- C. Assembly language facilities shall be supplied to permit modifications and additions to those systems programs initially written in assembly language, and to write new programs.

16782-1-7 SUBMITTALS (CDRL)

In accordance with volume I, Technical Provisions - Systems, APPENDIX B, SECTION 013300, Submittals.

- A. Software Submittal Standard: Consistent for all programming languages. Submit to DTPW for review, not later than 180 calendar days after notice to proceed (NTP).
- B. Software Documentation Standard: Consistent for all programming languages. Submit to DTPW for review not later than 180 calendar days after NTP.
- C. Details of any formal submittal methodologies intended to be used: Submit to DTPW for review not later than 180 calendar days after NTP.
- D. Application Software Listings: Submit detailed listings of all application software written specifically for this project or adapted for the project.
- E. Control System Software Description: Submit descriptions of the proposed software to be utilized in the Public Address System, comprising all operating systems, application software, development software, and utilities, including those for the simulator and for the development system. Submit to DTPW for review not later than 365 calendar days after NTP.
- F. CPU Loading Estimates: Submit with each submittal review.
- G. Explanation of Modifications to Commercial Software: Submit the reason for the change and the detailed listing of the change for all modifications to commercial software made specifically for this project, whether carried out by the original supplier or the Contractor. Submit to DTPW 90 days prior to commencement of Public Address System testing.
- H. Software Documentation: Two copies of the full documentation for every software package and module. Submit to DTPW 90 days prior to the start of system testing.
- I. Two copies of the full documentation for every software package and module. Submit to DTPW 30 days after completion and acceptance of system testing.

16821-1-1 PART 2: PRODUCTS

16782-2-1 SYSTEM DATABASE

- A. All Public Address System data shall reside on a single database. If the Contractor cannot provide a single database system for this purpose, suitable methods of avoiding the separate databases becoming out-of-coincidence shall be proposed and demonstrated.
- B. The Public Address System database shall include all data required by all data acquisition and man/machine interface functions, the application functions, and all



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other software. The database shall be expandable through well-documented generating and editing procedures so that data or new and existing functions can be readily added to the Public Address System by technical staff in the future. Those portions of the database developed specifically for this project shall be subject to review by DTPW.

- C. All portions of the system database initially delivered with the Public Address System shall be sized for the ultimate system expansion described in the contract. Reallocation of any data within the limits established for the ultimate Public Address System shall not require a system regeneration. Implement all the initial control, calculated status, and analog points and database requirements.

16782-2-2 SYSTEM SOFTWARE

Operating system software used in systems supplied by the CPU manufacturers shall not be modified without written authorization from DTPW. The capabilities of the software shall include at least the requirements presented in this contract.

- A. Programs shall be provided that accomplish the following:
1. Are event-driven and respond to demands for service resulting from an event in the Public Address System or other user request
 2. Assign resources according to user priority levels
 3. Are able to address the fully expanded main and auxiliary memories
 4. Are able to allocate any part of main memory to either programs or data
 5. Control transfers between main and auxiliary memory of all blocks of logic and data
 6. Support on-line software testing and diagnostic activities under controlled conditions
 7. Support the following:
 - I. Time and calendar maintenance: The operating system shall recognize leap years and make orderly adjustments for the time changeovers between standard and daylight savings time on system reports and other time-oriented functions. The system shall allow for 23-hour and 25-hour days. Time changes shall occur as follows. On the appointed day for changeover from Standard Time to Daylight Saving Time, 0200 will become 0300. On the appointed day for changeover from Daylight Saving Time to Standard Time, 0200 will become 0100. Data that are being integrated shall be flagged if a time correction occurred during the integration period. The Public Address System shall operate on 24-hour time to eliminate the use of AM or PM designations on logs, reports, and displays. The Public Address System shall have the ability to synchronize its clock with either a master clock system or by use of the NTP protocol with configurable time servers.
 - II. Operating system service requests: Each programming language provided with the Public Address System shall include commands that can request all the operating system services, and that are consistent with other statements in the language.
 - III. Operating system program efficiency: Allocation schemes shall make efficient



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use of main memory, as well as minimizing transfers between main and auxiliary memory. Since the real-time operating system will operate more frequently than other programs, it shall be designed so that its operation minimizes the use of processor resources.

B. Input/output programs

Software shall be provided to process all I/O requests between any program and all devices included in the Public Address System.

1. Input/output processing: Device-oriented I/O programs shall be provided to control the sending and receiving of data between main memory and the I/O devices. I/O processing shall prepare information for output and process input data. These I/O programs shall be designed to facilitate adding devices in the future, and shall provide the facility for dynamic device assignments, modifications, and deletions.
2. I/O service requests: There shall be suitable commands and statements provided in each of the programming languages for making I/O requests to any I/O device. The capability shall be included to return to the requesting program when the I/O request is buffered, the I/O is complete, or an error or device malfunction has been encountered.
3. I/O software efficiency: The I/O software shall be designed to take advantage of the rated speed, error checking, and other features of all I/O devices. The I/O software shall contain sufficient buffers and re-entrant routines so that I/O devices are driven as close to rated speed as possible at all times (within the constraints of the hardware and software priority structures).
4. I/O service retries: I/O service software shall support a definable number of retries in the event of the failure of an I/O service request.

16782-2-3 PROCESSOR CONFIGURATION SOFTWARE

Provide software to control and monitor the state of each processor in the control system.

A. Processor and CPU Communications: Software shall be provided to control and monitor communications between the primary and backup processors and any auxiliary processors, and between each processor CPU. The software shall be structured to permit periodic and on-demand transfers of data over each link. It shall allow DTPW to add other processor data intercommunication functions in the future.

B. Processor Restart and Initialization

1. Software shall be provided to restart or initialize the execution of the control system functions. Restart shall be initiated manually from the software technician's desk, the maintenance partition, and the central processor control terminal, and automatically under certain predefined conditions. Initialization shall only be initiated manually from those locations stated above. Restarts shall be completed in less than 60 seconds from initiation, this being defined as full capability of running all functions the system is designed to perform. The restart and initialization functions that shall be provided are defined as follows:

I. Restart

- a. A restart is the resumption of control system functions following a reload of all logic and data in main memory from auxiliary memory. The restart software shall support reloading the memory-resident database from either

the primary or backup snapshot database on auxiliary memory.

- b. A restart of the central processor shall automatically initiate resumption of all functions and a full scan of all LNPs and RTUs. This full scan shall retrieve the current status of all the data, not just items that have changed since the last scan. Following a restart, the alarm and event summary displays shall display all the alarms and events that are present in the system. Any alarms and events that were not annunciated before the last database snapshot, or recording prior to the restart, shall be annunciated following the restart. Following a restart, the user shall not be required to reenter data that was entered and recorded on disk prior to the restart.
- c. A restart of an LNP or RTU shall automatically initiate resumption of all functions and a full scan of all equipment states. This full scan shall retrieve the current status of all the data, not just those items that have been changed since the last scan.

II. Initialization

Differs from restart in that the database shall be obtained from an initialized copy of the database stored on a protected area of auxiliary memory, rather than from a periodic snapshot or an event-driven record. Initialization shall not require manual entries such as operating limits, time, date, and the description of the currently available configuration, but shall allow the entry of such data if non-default values are required. Use of this database shall not cause any commands to be issued to field devices. Device status differing from this database on initialization shall be considered "OUT OF CORRESPONDENCE" until undated by scanning of the RTUs.

- 2. A copy of selected portions of main memory shall be automatically written to a save area on auxiliary memory prior to initialization of main memory by the restart or initialization software. A partial or full record of the save area shall be available, along with sufficient information for a software technician to analyze the state of the system at the time of failure and to determine the direct cause of failure. All restarts and initializations shall be recorded by system alarm messages. Provisions shall be included to add data to the save areas from future application programs written by the Public Address System technical staff. Both system restart and initialization shall be supported in the backup processor as well as the primary processor. Restart or initialization of the backup processor shall not change its backup state.
- 3. A failover shall be the preferred course of action in the event of a system failure. Failovers shall be transparent to the user. An on-line system restart shall only be necessary where a failover is not possible.
- 4. Whenever an on-line system restart is initiated, the system shall notify the users that a restart is in progress by means of a distinct audible annunciation and by clearing all the HMI screens and then displaying a message to this effect on all HMI displays. The audible annunciation shall occur upon initiation of the restart (or failover). Both the display clearing and the restart notification message shall be issued as early in the restart process as possible. The HMI display clearing shall



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occur no later than 10 seconds after the restart is initiated. The restart notification message shall occur no later than 10 seconds after the restart is initiated.



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C. Processor Failover

1. The Contractor shall provide software that will enable both automatic and manually initiated processor failovers. Processor failover shall either transfer the execution of the Public Address System functions from the primary processor to the backup processor—which shall become the new primary processor—or shall use another method of fault tolerance that shall be proposed by the Contractor and reviewed by DTPW. Manual processor failovers shall be possible from the software technician's console and the maintenance partition, from the local control consoles for the central processors, and from the equipment cubicle housing changeover equipment. Indications of which system is on line and the availability of the backup processor shall be provided in these equipment cubicles. In addition, this information shall be available upon the execution of diagnostic software. The response to the failure of a processor shall depend on the nature of the detected failure.
2. The failover logic shall suspend the operation of both the primary and backup processors in an orderly manner, and then restore the operation of the backup processor as the new primary processor. Processor failover logic shall determine the computer system status as a prelude to switching peripheral devices with suitable delays, restarting the system software and the application software, and saving computer system parameters and information useful for analysis of the failure.
3. Neither processor shall be favored as the primary processor, but one processor shall always be assigned as the primary processor. Subsequent to the repair of a failure that resulted in a failover, it shall not be necessary to return to the previous configuration to restore full functional capability. All processor failures and failovers shall be recorded via alarm messages. The time interval for processor failover shall not exceed 2 seconds. The processor failover time interval shall be measured beginning with the detection of a command to failover or a fatal hardware or software error in the primary processor, and ending with the former backup processor commencing its data acquisition and man/machine interface functions as the primary processor.

- D. Device Failover:** Programs shall be provided that direct an orderly transition to a new mode of operation in the event of device failure. The new mode may consist of using an identical backup unit, using a backup device that is different from the normal device, or modifying the execution of programs such that the failed device can be bypassed without loss of data, without noticeable effect on the system and without the loss of system functions. In addition to automatic device failover facilities, there shall be manual device failover capability through HMI displays. The Public Address System software shall output a message indicating the result of both automatic and manually initiated device failover. Reinstatement of failed devices shall be by manual command only. All device failures shall be recorded via alarm messages. All device failovers shall be completed in less than 2 seconds from initiation. This time interval shall be measured beginning with the detection of the device failure and ending when all the functions previously performed by the failed device have been restored.



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- E. Scheduled Failover: Provision shall be made for scheduled failovers to occur on a regular basis to equalize operating times for redundant processors and hard drives. Software shall provide this as a continually adjustable timed function, adjustable to occur at any time of day, from every 24 hours up to every 7 days. Once set, the time period shall remain in effect until changed by software maintenance action.

16782-2-4 SYSTEM PERFORMANCE MONITORING SOFTWARE

Software shall be provided to continuously monitor hardware and software performance in real time, with a minimum of interference with the normal functions of the Public Address System. The time periods over which statistics are gathered shall be adjustable by the software technician, and the accumulated statistics shall be reset at the start of each time period. All statistics shall be available for logging and display on demand during each time period, and after each time period.

- A. Processor Resources Usage Monitoring: The Public Address System shall calculate values for resource usage monitoring in each of the on-line CPUs (CPU idle time during main/auxiliary memory transfers, total number of transfers to/from auxiliary memory, and total transfer time). The statistics gathered by this function shall be sufficient to determine that the Public Address System is meeting the processing capacity requirements described in this contract. For virtual memory systems, the statistics shall also include the page fault rate, average number of pages in use in main memory, and average number of pages in use in the modified page file. The collection of application program statistics shall not interfere with the gathering of processor CPU resource statistics.
- B. Recoverable Error Monitoring: Software shall be provided to update, identify, display, and log error counters for all transient hardware and software errors that are recoverable without Public Address System failover or restart. Recoverable errors are those that clear within a defined number of retries. The number of error retries shall initially be set by the Contractor. Non-recoverable errors are those that do not clear after a defined number of retries.
- C. Error Rate Monitoring: Error rate monitoring software shall be provided or any device that permits error checking and that requires a high communications rate with a processor. The error rate monitoring function shall determine the rate of errors of a device over a specified unit of time. The error rate shall be calculated based on the number of data transfers that had errors compared with the number of data transfers that were initiated. The time period shall be adjustable. For each device included under error rate monitoring, it shall be possible to specify an error rate limit which, when reached, shall cause an alarm to be generated. The system shall be able to print all error rate statistics on demand. Each error rate statistic shall be printed with the appropriate description. Each error rate statistic shall be individually reset. As a minimum, all LNP, RTU, and central processor communications channels, and all processor-to-processor data links, shall have their error rates monitored and reported.



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16782-2-5 DIAGNOSTIC, TEST AND DEBUG SOFTWARE

Diagnostics and debuggers shall be provided to allow suitable licensed members of the operations staff to monitor the states of the processes, test selected processes, and carry out on-line or off-line interactive debugging of processes under controlled conditions on any of the processors forming the Public Address System. Debugging commands for full and selective tracing, altering of words of the main and auxiliary memory, dumping the contents of memory to a printer, and inserting debugging snapshots at strategic points in the programs are required.

16782-3 PART 3: EXECUTION

16782-3-1 TIMING TEST

To evaluate the capacity of the Public Address System and prove that it meets the loading criteria as specified in APPENDIX B, SECTION 16780, Control System Equipment, the Contractor shall demonstrate the system performance utilization by performing a timing test for the peak load conditions during factory and field testing. Updated estimates (detailed to the subprogram level) of CPU loading shall be provided bimonthly with the Contractor's progress report. The periodic reports shall identify all measurements, assumptions, and calculations used for the timing analysis update.

END OF SECTION 16782



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SECTION 16821

Public Address System

16821-1 PART 1 GENERAL

16821-1-1 SUMMARY

- A.** Section includes amplifier and control equipment, input equipment, and reproducer equipment.
- B.** Related Sections:
1. APPENDIX B, SECTION 16810 - Cable and wire.
 2. APPENDIX B, SECTION 16811 - Communications Cabinets, Racks and Enclosures.

16821-1-2 SYSTEM DESCRIPTION

- A.** Audible component of passenger communications system is designed to provide audible messages to Metrorail station customers. The public address system for voice shall be modified to have the capability of providing passenger information using zoned and joint (all-call) paging. The low-level audio signals shall use a Digital Paging protocol for communications between Central Control and the Metrorail stations.
- B.** Input Components:
1. Real-time audio announcements from station Fire Management and Emergency Panels.
 2. Real-time audio messages and announcements from remote Central Control operator. (Refer to APPENDIX B, SECTION 16820).
 3. Real-time messages from local station (onsite) Operator via microphone system.
 4. Real-time announcements from Fire Panel and other Station emergency equipment as defined.
 5. Pre-recorded and/or automated messages from remote Central Control source.
 6. Pre-recorded, automated warning messages activated by local track signals.

16821-1-3 REFERENCES

- A.** Building Industry Consulting Service International:
1. TDMM-2003 - Telecommunications Distribution Methods Manual, 10th Edition.
 2. TCIM-2001 - Telecommunications Cabling Installation Manual, 3rd Edition.
- B.** Federal Architectural and Transportation Barriers Compliance Board:
36CFR1191 - Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities.
- C.** Federal Communications Commission:
47CFR68 - Connection of Terminal Equipment to the Telephone Network.



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- D. Institute of Electrical and Electronics Engineers:
 - 1. ANSI/IEEE C2 - National Electrical Safety Code.
 - 2. ANSI/IEEE C62.41 - Guide for Surge Voltages in Low-Voltage AC Power Circuits.
 - 3. ANSI/IEEE C62.45 - Guide on Surge Testing for Equipment Connected to Low-Voltage AC Power Circuits.
- E. International Electrical Testing Association:
NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.
- F. International Electro-technical Commission:
 - 1. IEC 268-5 - Sound System Equipment - Part 5: Loudspeakers.
 - 2. IEC 529 - Degrees of Protection Provided By Enclosures.
- G. Speech Intelligibility measurement standards:
 - ISO 7240 Fire detection and alarm systems, section 16 & 19
 - NFPA 72 National Fire Alarm Code 2010, Annex D Speech Intelligibility
 - BS 5839-8 Fire detection and alarm systems for buildings. Code of practice for the submittal, installation, and servicing of voice alarm systems
 - DIN 60849 System regulation with application regulation DIN VDE 0833-4
 - VDE 0828-1 Electro-acoustic Emergency Systems
 - IEC 60268-16 - Objective Rating of Speech Intelligibility by Speech Transmission Index.
- H. Telecommunications Industry Association/Electronic Industries Alliance:
 - 1. ANSI/EIA 310-D - Cabinets, Racks, Panels and Associated Equipment.
 - 2. TIA/EIA 568 - Commercial Building Telecommunications Cabling Standard.
 - 3. TIA/EIA 607 - Commercial Building Grounding and Bonding Requirements for Telecommunications.
- I. Underwriter's Laboratories:
 - 1. UL 94 - Flammability of Plastic Materials for Parts in Devices and Appliances.
 - 2. UL 1449 - Transient Voltage Surge Suppression.
 - 3. UL 1480 Speakers for Fire Alarm, Emergency, and Commercial and Professional Use
- J. United States Department of Defense:
MIL-STD-810 - Environmental Engineering Considerations and Laboratory Tests.

16821-1-4 SUBMITTALS

- A. Submit in accordance with General Provisions.
- B. Product Data: Submit catalog data showing electrical characteristics and connection requirements for each component.



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- C. Software simulation results of the proposed system shall be submitted to the Engineer for approval. The Sound Pressure Level produced by the simulation shall provide even sound distribution such that the maximum deviation shall be no more than 3 db at any station level.
- D. Test Reports: Indicate procedures and results for specified field testing and inspection.
- E. Manufacturer's Certificate: Certify products meet or exceed specified requirements.
- F. Manufacturer's Field Reports: Indicate activities on site, adverse findings, and recommendations.

16821-1-5 CLOSEOUT SUBMITTALS

- A. Submit in accordance with General Provisions for Construction.
- B. Operation and Maintenance Data: Submit instructions for adjusting, operating, and extending system, and repair procedures and spare parts documentation.

16821-1-6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum ten years documented experience, and with service facilities within 100 miles of project.
- B. Supplier: Authorized distributor of specified manufacturer.
- C. Installer: Authorized installer of specified manufacturer with minimum ten years documented experience.

16821-1-7 MAINTENANCE SERVICE

Furnish service and maintenance of public address equipment for one year from Date of Substantial Completion.

16821-2 PART 2 PRODUCTS

16821-2-1 Digital Paging

- A. The Digital Paging system shall allow paging announcements from Central Control to all Metrorail stations, and shall support individual or group paging. Either system shall use the Ethernet Network for connectivity between Central Control and the Metrorail stations. The Paging system shall be managed with the appropriate application software, either locally or remotely with manufacturer's application.
- B. The system shall also support the following requirements:
 - 1. Ethernet connectivity and full IP compatibility with Network equipment specified in this contract.
 - 2. Utilize DHCP protocol for automatic IP address assignment.
 - 3. Support Static IP Address Assignment.



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4. All network parameters should be easily assignable including Default Gateway, Subnet Mask, and other network configurable parameters to allow easy integration into LAN network.
5. Individual Station or Multiple Station paging.
6. Efficiently communicate system wide emergency alerts or general announcements.
7. Utilize the H.323 or SIP protocols to provide complete interoperability with other VoIP telephony solutions.



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16821-3 PART 3 EXECUTION
16821-3-1 EXISTING WORK

- a. Replace existing Public Address equipment with a Digital Public Address / Paging system. The existing system is defined as the existing power amplifiers, mixers, audio control equipment as applicable, speakers / horns and associated wiring. The existing pre-recorded and microphone / low level source inputs and pre-mixer or mixer at Central Control also comprises the existing system.
- b. Integrate public address system equipment with VoIP interface at stations and Central Control.

16821-3-2 INSTALLATION

- A. Install equipment in accordance with safety requirements of ANSI C2 and DT regulations; and ADAAG (36CFR1191) requirements.
- B. Integrate public address system with related systems, such as pre-recorded announcements from, Emergency Notification Systems, Telephone System and appropriate Signaling Systems as required.
- C. Install equipment racks in accordance with ANSI/EIA 310.
- D. Ground and bond public address system equipment in accordance with Section 16060 and TIA/EIA 607.

16821-3-3 TESTING

- A. All testing shall conform to APPENDIX B, SECTION 16950 Testing.
- B. Verify that units and controls are properly installed, connected, and labeled and that interconnecting wires and terminals are identified.
- C. Perform operational system tests to verify that system complies with specified requirements. Test equipment for proper operation in all functional modes of system operation:
 - 1. Broadcast message representative of a normal voice page over public address system.
 - 2. Ensure that announcements do not conflict with each other, and that proper prioritization of the inputs has been implemented using message-stacking device. Message prioritization will be established by DTPW and programmed prior to final acceptance and testing.
 - 3. Perform Intelligibility Test.
 - a. Speech Transmission Index Rating: 0.65 STI or better.
 - b. Common Intelligibility Scale Rating: 0.81 CIS or better
 - 4. Document test results and submit to Engineer for approval.



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16821-3-4 DEMONSTRATION AND TRAINING

Instruct DTPW staff on how to adjust, operate, and maintain public address system equipment:

1. Review procedures and schedules for troubleshooting, servicing, and maintaining equipment.
2. Demonstrate methods of determining optimum alignment and adjustment of components and settings for system controls.
3. Review data in maintenance manuals.

END OF SECTION 16821



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**SECTION 16950
TESTING**

**16950-1 PART 1: GENERAL
16950-1-1 DESCRIPTION**

This section includes requirements for tests and inspections to be performed at points of assembly and on the job site, and is intended to provide minimum requirements for tests. Organize and implement an Integrated Systems Test Plan as an integral part of the total project Test Plan described in APPENDIX B, SECTION 16950. The test must verify the adequacy of the system to meet all technical and performance requirements in an orderly and logical sequence.

16950-1-2 DEFINITION

The Metrorail Public Address System is defined as the system comprised of existing control, command and indications systems, interfaces, and equipment, including all hardware and software that comprise the existing Public Address System, and its integration with the new hardware and associated software and sub-systems, configuration and programming that will be installed by the Contractor, to form an integrated Public Address System. The new subsystems shall include but not be limited to the following components:

- A. Programmable Logic Controllers
- B. Ethernet Network equipment and Software that will comprise the Wide Area Network that shall be used as the transport mechanism for all communications
- C. Fiber Optic Cable that shall be used as the infrastructure for communications between distributed controller nodes
- D. Interfaces with existing ATO equipment in the Metrorail stations
- E. Interfaces with existing communications equipment and computers at Central Control

16950-1-3 GENERAL

- A. Tests and inspections shall be for the purpose of verifying submittal and nameplate ratings; ensuring proper performance, safety, reliability, and maintainability; and demonstrating compliance with these Technical Provisions Systems requirements.
- B. Tests and inspections shall be conducted in accordance with the manufacturer's standards unless otherwise specified.
- C. DTPW shall be granted free access to inspect any item of equipment selected by DTPW at any time, at any of the Contractor's or suppliers manufacturing and assembly plants. The Contractor shall grant access for inspection within 48 hours of the request being received.
- D. DTPW will witness such and any tests as selected by DTPW, and shall be granted free access to any facilities where installation or tests are in progress and to all inspection and test records.
- E. The installation and testing of equipment by the Contractor shall allow for close monitoring of the Contractor's staff by DTPW.
- F. Ample time shall be allowed within all testing programs for alterations to equipment, systems, and designs to be carried out, together with all necessary retesting prior to



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final commissioning.

- G. If required, trains and train operators required for site dynamic testing shall be provided by DTPW.
- H. Conduct all tests in accordance with DTPW-reviewed test procedure. Furnish all labor, materials, and equipment necessary to perform tests, record data, and prepare reports. Tests shall demonstrate compliance with the requirements of these Technical Provisions - Systems. Any changes required to bring any system into compliance shall be carried out by the Contractor at no additional cost to DTPW, including the costs for repeat testing. After completion of each test, remove all test equipment and temporary facilities, and restore the equipment to full operational status.
- I. Organize and conduct each test. Record all test results required, quoting actual measured values where necessary. Test result data sheets shall be signed by an authorized and qualified member of the Contractor's staff, and shall be complete in every respect.
- J. If, during the course of any test, it is found necessary to revise, expand, or reduce the scope or detail of the test procedure, these revisions shall be recorded and the test data sheets modified accordingly. Any such changes in the test procedures shall be reviewed and approved by DTPW within 24 hours of completion of the test.

16950-1-4 TEST CATEGORIES

The work required by this section is divided into six main categories:

- A. Prototype and type testing (at factory) as applicable
- B. Factory testing (at factory) as applicable
- C. Post-installation testing and inspection (on site)
- D. Acceptance testing (on site)
- E. System integration testing (on site)
- F. System demonstration testing (on site)

16950-1-5 EMI

Contractor shall include in the submittal review materials, the tests to be conducted to demonstrate compliance with the specified requirements for electromagnetic compatibility and environmental conditions.

16950-1-6 SUBMITTALS

- A. Unless otherwise specified, all submissions shall be in accordance with the requirements of APPENDIX B, SECTION 16950 - Systems General.
- B. Submit a Test Plan covering all required factory and site tests for review within 45 days of NTP. This plan shall demonstrate that all of the testing requirements contained in this and other sections of the Technical Provisions - Systems have been considered, including the full testing of all materials, and that adequate provisions have been made for testing in the overall program; and to achieve an early mutual understanding between the Contractor and DTPW on the range, depth, and other



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aspects of tests to be conducted. Integrate the Test Plan with that for the signaling and communications systems as necessary, and coordinate testing of all systems throughout all stages of testing. The Test Plan shall demonstrate that the Contractor has supplied complete, safe, and operable Public Address System and ancillary systems.

- C. After initial review, the Test Plan shall be amended as required to reflect changes in system submittal or the identification of additional testing requirements.
- D. Submit installation inspection records no later than 15 days after completion of the initial inspections, and resubmit no later than 15 days after correction of the last discrepancy item.
- E. Submit test procedures as described in volume I, APPENDIX B, SECTION 16950, of the Technical Provisions - Systems document for review and DTPW approval for each test identified in the Test Plan, no later than 30 days prior to implementation. No test will be performed without an approved test procedure.
- F. Submit test reports containing the results of all tests conducted at any factory or field location, even when results are recorded on a test data plate affixed to the component or unit. The tests are to be submitted no later than 15 days after the performance of the test.
- G. Type test certificates shall be submitted, where applicable, to demonstrate that equipment or components meet the performance requirements of these Technical Provisions - Systems specifications.

16950-2 PART 2: PRODUCTS

Products are not required for this section.

16950-3 PART 3: EXECUTION

16950-3-1 PROTOTYPE AND TYPE APPROVAL TESTING

- 1 Thoroughly test pre-production units and system and sample units and materials for type approval. Individual units and complete assemblies shall be tested and approved before any series production of that unit is commenced. Undertake such comprehensive and conjunctive testing to prove to the satisfaction of DTPW that all units forming a complete system meet the performance requirements and are fully compatible, not only in respect of other equipment specified herein but also in respect of associated equipment with which the programmable logic control and communications systems interface. Corrections shown to be necessary as a result of these pre- production tests shall be incorporated in all production units.
- 2 The above tests need not be carried out if previously accepted test data, and records of proven service history in a similar environment, for that equipment type are submitted for and receive the specific review of DTPW.

16950-3-2 FACTORY TESTING

16120-2-1 Factory Subsystem Test: The factory subsystem test shall include the inspection, hardware test, and software test of any clearly identifiable system or subsystem prior to its use as a component in the Metrorail Public Address System as a whole. The tests shall prove that the system or subsystem meets its particular physical, functional, and performance specification. These tests shall take place when the specified control system hardware—including all peripherals, and I/O subsystems have been installed and completely tested in the Contractor's facility, or a complete



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communications system has been assembled.

16120-2-2 System Functional Performance Tests

1. The system functional performance tests shall be fully integrated tests of each system as a whole, conducted at the Contractor's facility. In addition to diagnostic software required by this Technical Provisions - Systems document, provide all testing hardware, software, and special test and calibration equipment required to demonstrate the acceptable operation of all hardware units and subsystems. During factory testing, the Contractor may only substitute or interchange modules, equipment, or cables if a failed component is diagnosed.
2. All applicable engineering changes shall be incorporated into each system before starting the system functional performance tests. If any engineering changes have been omitted that are deemed necessary by DTPW, the Contractor shall perform the necessary modifications at no additional cost to DTPW.
3. Factory tests shall not proceed without the prior review and delivery of the specified hardware and software documentation, including drawings, program descriptions, flow charts, and actual main and auxiliary memory maps where appropriate. In addition, upon their review by DTPW, operator's manuals and software manuals shall be used during the tests as guides to system operation, and as a check of the accuracy and completeness of the manuals.
4. All tests shall include the reasonable exercises which the integrated hardware and software can be expected to perform. The testing shall include at least the following:
 - I. Physical inspection
 - II. Correct standards of workmanship and quality
 - III. Correct identification labels, cabling, tagging, housing, and mounting, etc.
 - IV. Adequate accessibility
 - V. Compliance with the Technical Provisions - Systems and reviewed drawings (including compliance with fire safety and materials requirements)
 - VI. Verification of model numbers, quantities of items, etc.
 - VII. Demonstration that all hardware functions properly by a thorough exercising of devices, both individually and collectively
 - VIII. Demonstration of proper functioning of all software, including software integration tests between other software and hardware, and test cases with normal and exception data
 - IX. Data and voice channel integrity shall be verified under the simulation of communication failure and failover.
 - X. Simulation of system alarm and status change conditions through each input device. Alarm and status changes for each subsystem shall be tested.
 - XI. Demonstration of all man/machine interface functions
 - XII. Demonstration that spare capacity requirements have been met
 - XIII. Demonstration of the use of on-line diagnostics and test programs
 - XIV. Full Operational Recovery from AC power failures
 - XV. Random tests to verify the accuracy of hardware and software documentation



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- XVI. Demonstration that all identified safety-related concerns and potential hazards have been satisfactorily resolved or corrected
- XVII. Demonstration of the compliance with the EMC requirements of this Technical Provisions - Systems document

16120-2-3 Integrated System Tests

- A. These integrated tests shall be conducted after the system functional performance tests have been successfully completed on each system and reviewed by DTPW. These tests shall ensure that each system is free of problems caused by interactions between software and hardware while the system is operating as an integrated whole. They shall ensure that all functions can be performed concurrently while all non-redundant equipment operates for a continuous 100-hour period.
- B. If more than two restarts or failovers (of a processor, CPU, or device) have occurred in the 100-hour period, or if any hardware device, redundant or otherwise, has been inoperable for more than a total of 10 hours during the test, the test shall be extended by 24-hour increments until these requirements are satisfied .
- C. The integrated system test shall fully exercise all system hardware and software.

16120-2-1 In view of the expected environmental conditions and to ensure the efficient operation of equipment supplied under this Technical Provisions - Systems requirement, all equipment shall be subject to environmental testing. A proportion of all equipment shall also be subject to severe environmental testing under continuous and cyclic extremes of, for example, power supply and signal levels. Where units are required to have high reliability characteristics they shall be subject to a soak or burn-in period with a subsequent retest.

16950-3-3 POST INSTALLATION TESTING AND INSPECTION

- A. Installation inspection and testing shall be performed to determine that the equipment for each system has not been damaged or the performance in any way impaired in any manner subsequent to shipment from the Contractor's factory; has been installed and connected correctly; and that all equipment is in conformance with the Technical Provisions - Systems requirements and DTPW-reviewed submittal, as a system.
- B. Inspect the quality and adequacy of installation of each item of equipment immediately following completion of installation. The inspection shall verify that the equipment has been installed in accordance with the Contractor's procedures and with the requirements of this Technical Provisions - Systems document.
- C. Prepare inspection records to demonstrate that each item of equipment has been inspected and attach to it a detailed list of any discrepancies found. As the discrepancies are rectified, the discrepancy sheets shall be amended to record the corrections.
- D. Installation inspections shall be carried out by a member of the Contractor's Quality Control Organization.
- E. Perform all tests required to ensure the proper and safe operation of all control and communications equipment and to prove the adequacy and acceptability of the total installation. Testing to be performed shall duplicate the general functional areas covered by the factory integrated tests but need not repeat the operation of every single function. Testing shall be sufficient to provide confidence that the Acceptance Tests will proceed without major difficulties:



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1. Test all wire and fiber optic cable after installation to the cabinet termination points to ensure continuity, insulation resistance from conductor to conductor, and resistance from each conductor to ground. The minimum insulation resistance to earth for circuits operating below 600 volts shall be 50 megohms, Actual ohm readings shall be recorded on test result forms. The equipment shall be suitably protected from damage during these tests.
2. All grounding shall be tested to verify proper and adequate connections. The resistance from equipment to ground buses shall be less than one ohm measured between the equipment case or name and the ground bus.
3. All wiring shall be tested after installation to ensure proper connection according to the circuit plans.
4. The tests to be performed shall cause each system and subsystem to be sequenced through key functional areas, and shall include simulated conditions where necessary to prove that the installation is in compliance with all requirements.
5. Prior to the start of each series of testing, two copies of the test documentation shall be placed in each appropriate equipment room. These prints shall be retained in the equipment rooms and marked up to show any modifications made during testing at the time the modifications are carried out. At the completion of the test sequence, one set of test prints shall be left in the equipment room and the other shall be returned to the Contractor's facility to update the originals. The originals shall be revised and two new sets of test prints placed in each equipment room within 72 hours of completion of the test sequence in readiness for the next sequence of tests, and the second copy of the previous test prints shall be submitted for DTPW's record.

16950-3-2 ACCEPTANCE TESTING

- A. Before the commencement of the post installation testing of the new systems, the installation of each system shall be completed and it shall be functioning according to the requirements of the Technical Provisions - Systems documents. The interfaces to other systems shall be verified. The operation of the communications systems shall have been verified, and the interface requirements established between the various systems. Provide a list of all hardware or components replaced or changed after the completion of the factory tests.
- B. The tests shall repeat the system functional performance tests that were performed at the factory. Any additional tests or deletion of tests shall be reviewed by DTPW.

16950-3-3 SYSTEM INTEGRATION TESTING: In accordance with Technical Provisions - Systems, APPENDIX B, SECTION 16950.

- A. Develop interface test procedures for interfaces with the following systems:
 - i. Interfaces with the existing ATO system
 - ii. Interfaces with Metrorail communications systems at Central Control
- B. Interface tests shall thoroughly demonstrate the correct operation of each functional operation that passes across the interface, and the capacity of the interface to handle



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the maximum amount of simultaneous data.

- C. Tests related to the Metrorail Public Address System:
1. All databases and reports shall be tested for accuracy and completeness. The correspondence between a data entry name and its field input function name shall be verified to be functionally the same.
 2. Areas of system operation that were simulated or only partially tested in the factory shall be tested at this time. The validity of factory test results determined by calculation or extrapolation shall be reexamined, retested, and corrected as required.
 3. Verify the accuracy of all inputs from the field equipment and all outputs to the field equipment.

16950-3-4 SYSTEM DEMONSTRATION TESTING: System integration shall be conducted in accordance with the technical provisions, APPENDIX B, SECTION 16950.

- A. System demonstration tests shall be conducted after all other testing has been completed and the systems are ready to place into service. Systems assurance demonstrations, as defined in APPENDIX B, SECTION 16025, shall be conducted during revenue service and other hours dictated by DTPW.
- B. Intentional disruption of the train service shall be included in the test procedures to demonstrate operational stability and the safety of the systems under adverse conditions.
- C. Utilize the control system to test for the determination of the actual headway achieved at each station, for all relevant routes, and for reversing movements, including those through sidings, to and from yards, and otherwise. During this test, check for the proper timing of automatic route setting, the tracking of trains, and event logging.
- D. Perform availability and reliability demonstration tests as described in APPENDIX B, SECTION 16025.

END OF SECTION 16950



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**SECTION 17401
CONFIGURATION MANAGEMENT**

17401-1 DESCRIPTION

This section specifies requirements for the Contractor's configuration management program, which includes planning, identification, definition, implementation, control, and accountability for the proposed systems.

17401-2 CONFIGURATION MANAGEMENT PROGRAM

- A. Maintain and make available to DTPW accurate and current configuration records throughout the period of performance of the contract, and for a three-year period after final contract payment.
- B. Do not procure nor produce any hardware or software until such items have been approved by DTPW.
- C. All items, beginning with the lowest level of repair or replacement, that are identified by the same part number shall have the same physical and functional characteristics, be equivalent in performance and durability, and be interchangeable without alteration to themselves or associated items, other than normal field adjustments. An item shall not be considered interchangeable if it requires modification for fit or performance. Old and new configuration items that require segregation shall be identified either by a new drawing number or with a dash number added to the original drawing.
- D. Hardware Identification: Mark all hardware components to the lowest level of repair and replacement, with part number identification. The hardware identification marking shall coincide with officially released engineering data. Nameplates on major equipment items shall provide space for DTPW numbers to be added by the Contractor at the direction of DTPW. Serialization is required on each item of equipment delivered unless otherwise directed by DTPW. Assign an individual serial number in a numerical sequence established for the type or model series equipment being supplied. Do not use duplicate serial numbers within a type or model series.
- E. Change Control: These specifications identify the procurement baseline for this proposed system. Changes to the procurement baseline—including any new work item or equipment desired by DTPW during DTPW input process, after the contract award—shall be controlled by the processing of Engineering Change Proposals (ECPs) in accordance with the procedures described herein. All ECPs shall be reviewed by the Contractor's organization responsible for configuration control for total impact evaluation prior to recommendation and submittal to DTPW for review and approval.



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F. Classification of Changes

1. A proposed engineering change to any part, assembly, or equipment item for the supplier's product shall be designated as a Class I change when one or more of the following is affected:
 - I. Form, fit, and functional interchangeability
 - II. Reliability and maintainability
 - III. Weight or balance (where it is a factor)
 - IV. DTPW furnished equipment
 - V. Safety
 - VI. Electromagnetic interference characteristics
 - VII. Delivered product (retrofit)
 - VIII. Delivered training, operation, or maintenance manuals (where additional contract funds are required to revise manuals)
 - IX. Sources of repairable items (source control drawings)
 - X. Schedules or deliverables
 - XI. Initial provisioning
 - XII. Performance of equipment
 - XIII. Training
2. A proposed change to system software shall be designated as a Class I change when one or more of the following factors are affected:
 1. Function, performance (including reliability), maintainability, correctness, efficiency, flexibility, testability, usability, and outside tolerance
 2. Interface characteristics
 3. Cost
 4. Schedules
 5. DTPW furnished equipment
 6. Safety
 7. Skill levels, training, or engineering submittal
3. Any engineering change not affecting form, fit, function, or interchangeability, nor falling within the preceding definition of a Class I change, shall be designated as a Class II change. Some examples of Class II changes are corrections and clarifications of documents and drawings, substituting alternative materials or hardware, and those changes that do not affect the preceding listed Class I factors.

- G. Accountability: Maintain records such that the configuration of any item being delivered shall be definable in terms of its component part numbers. Account for

differences between the as-built configuration and engineering released documentation. Record status of change approvals and incorporation at each point in product development, test, production, or operational usage. Maintain a serialization and configuration record. Maintain the status of interface specifications, control documents, and plans. Maintain status of software once a baseline has been defined.

H. Engineering Change Proposal (ECP)

1. Process each Class I change as an ECP and submit to DTPW for approval prior to initiating any implementation action. Any action or cost necessary to correct problems in the product or documentation arising from Contractor's misclassification shall be borne by the Contractor. Contractor shall also classify and control changes originating from subcontractors. Submit six copies of the ECP to DTPW, accompanied by technical documentation and the cost information necessary to fully evaluate the change.
2. Report all Class I changes that affect safety immediately. Identify the change by ECP number if reported verbally, and confirm the change in writing to DTPW within 24 hours. Class II ECPs shall be submitted to DTPW for information.

I. Submittal Reviews and Audits

1. Submittal reviews and audits shall be conducted jointly by DTPW and the Contractor. In all cases, approval by DTPW shall not constitute relief from contractual obligations. Submit all documentation, plans, and submittal data for the reviews and audits at least 10 working days prior to the date of the review. The individual subsystems' software submittal, programs, and hardware will not necessarily progress at the same rate. The likelihood of multiple PDRs and FDRs must be considered in planning for reviews and audit. Software reviews as applicable and audit shall be in accordance with ANSI/IEEE Standard 730 (latest revision).
2. Preliminary Submittal Review (PDR): Evaluate the submittal progress and technical adequacy of the selected submittal and hardware approach, and determine their compatibility with the performance requirements and interfaces of the contract and the schedule to complete all tasks. The review shall be held on a mutually agreeable date consistent with the Contractor's submittal schedule at DTPW's facility.
3. Final Submittal Review (FDR): Conduct the review(s) when detail submittal of an item is essentially complete and the production drawings are ready for release. Determine that detail submittal of the system element under review will satisfy the submittal requirements established in the contract specifications, and establish the exact interface relationships between the item and other items of equipment and facilities. The reviews shall be held on mutually agreeable dates consistent with the Contractor's submittal schedule at DTPW's facility unless another location is approved by.
4. First Article Inspection (FAI)
 - I. Evaluate the assembled, in-place system by formal examination against the production drawings, specifications, and factory testing. Verify the system meets all requirements, and that documentation is internally consistent. This



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will occur at the Contractor's facility prior to installation at DTPW facilities.

- II. Prior to FAI, provide DTPW with factory test procedures and a list of all drawings to the lowest levels of repair and replacement, identified by revision or issue. The list shall be as complete as necessary to identify the baseline. Upon satisfactory completion of the audit, the data package shall be corrected within two weeks to incorporate any changes found during the audit.
- III. Schedule FAIs for all subsystems as applicable prior to first shipment from the subsystem supplier's plant.

17401-3 SUBMITTALS

Unless otherwise specified, all submittals shall be in accordance with APPENDIX B, SECTION 013300, and article 2.3 herein:

- A. Configuration Management Plan (CDRL)
- B. Complete set of final (as-built) drawings, as specified in other sections specifying the various equipment, with all changes incorporated thereon (CDRL)
- C. FAI audit results (CDRL)
- D. Submittal review and audit documentation (CDRL)
- E. Contract data requirements list (CDRL)
- F. Shipping Plan (CDRL)
- G. Staging Plan (CDRL)

17401-4 CONFIGURATION MANAGEMENT PLAN (CDRL)

Prepare and submit to DTPW a Configuration Management Plan that covers hardware and software. Contractor's standard plan may be submitted for approval if it meets the stated criteria.

17401-5 DRAWINGS AND SUBMITTAL EVALUATION DATA

- A. Subsystem Plans: Plans including all subsystems are required in order to track drawings and submittal evaluation data for the entire system within the contract limits.
 1. Subsystem plans: All subsystems plans shall include all subsystem components details. All equipment shall be shown using standard DTPW symbols and nomenclatures.
 2. System cable plans: Showing all cable routings (local, power, express, and fiber) between communications locations, including subsystems covered under this contract. All cables shall be identified with numbers of conductors and size and nomenclature of the equipment to which the cable is connected.
- B. The above plans shall be used to replace the current plans due to changes under this contract. Existing plans (if any) shall be available upon request from DTPW for Contractor's reference. Submit five half-size prints and two half-size reproducible of each plan at least 15 working days prior to the scheduled start of the review.
- C. To support the submittal reviews for the project, provide five half-size prints and two half-size reproducible drawings of sufficient quality to make legible prints of those engineering drawings and documents that provide all essential data necessary to



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permit a meaningful evaluation and feasibility study of the proposed submittal. All engineering drawings and documents required to support submittal reviews shall be delivered to DTPW at least 15 working days prior to the scheduled start of the review. All drawings shall be dimensioned in English units.

- D. In addition to the other drawing requirements of these specifications, five full-size prints and two full-size reproducible drawings of sufficient quality to make legible prints of the following shall be submitted:
1. Installation drawings for all equipment provided under this contract.
 2. Single line, control schematic, functional block diagrams, and wiring diagrams.
 3. System block drawings for all equipment components showing the following:
 - I. Overall dimensions, orientation, points of normal support, and method of mounting and removal
 - II. Location of access doors and covers showing the relation to equipment inside the enclosure
 - III. Required draw out space and space for opening of access doors
- E. Manufacturing Drawings
1. Throughout the submittal and manufacturing process, submit a continually updated list of manufacturing interconnect and assembly drawings and engineering change orders. Detail drawings shall be submitted at DTPW's request. Five full-size prints and two full-size reproducible versions of sufficient quality to make legible prints of manufacturing drawings shall be submitted to DTPW within 15 calendar days of their release or revision.
 2. Prior to completion of the contract, Contractor shall submit to DTPW a complete set of the final (as-built) manufacturing drawings with all changes incorporated thereon. Two reproducible versions and eight copies of the above drawings shall be submitted.
- F. Drawing Quality and Updating: Drawings shall be of a quality where every line, number, letter, and symbol is clearly legible. Reproducible drawings shall be capable of reproducing drawings to this level of quality. Contractor shall update each drawing, incorporating all outstanding approved changes, at least once every 30 days. In no event shall more than five approved changes be accumulated against a drawing without incorporation, irrespective of its scheduled update. Changes to drawings shall be incorporated sequentially. Copies of all updated drawings that were submitted to DTPW in earlier revision shall be resubmitted in the original quantity and format.
- G. Calculations: Furnish calculations and other required data on standard 8.5 by 11-inch sheets, printed on one side only. Each sheet shall bear the following:
Contract name and number; title and number of pages; and data and revision status.
- H. Drawing Approvals: If approved by DTPW, a reproducible copy of each drawing will be identified as having received such approval by being so stamped and dated. Drawings stamped "not approved" or "approved subject to . . . ," and with required



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corrections shown, will be returned to Contractor for correction and re-submittal. Re-submittals shall be handled in the same manner as first submittals.

- I. Electronic Drawing Files: Prior to completion of the contract, the Contractor shall submit electronic files for all the subsystem plans, installation drawings, manufacturing/shop drawings, and as-built drawings. All drawings shall conform to DTPW's drawings and CADD standards.

17401-6 SHIPPING PLAN

Prepare and submit a Shipping Plan at least 90 days prior to the first shipment of equipment. The Shipping Plan shall include details on how Contractor plans to ship equipment from the factories to the site for installation.

17401-7 STAGING PLAN

Prepare and submit a Staging Plan at least 90 days prior to the first shipment of equipment. The Staging Plan shall include details on how Contractor plans to ship equipment from the factories to the site for installation.

17401-8 PROGRAM PLANS

Implement and maintain the plans during all phases of the contract.

17401-9 CONTRACT DATA REQUIREMENTS LIST

Implement and maintain the list to plan, schedule and track status of all submittals required by the Contract.

17401-10 REVIEW AND AUDITS

Conduct reviews and audits in accordance with specified requirements and procedures.

END OF SECTION 17401



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SECTION 17801
SYSTEM INTEGRATION

17801-1 PART 1: GENERAL

DESCRIPTION: This section describes system integration services and work requirements necessary to successfully integrate all systems, subsystems, and devices contained within the scope of this contract into a fully unified, operational, tested, and certified system. A description of the various interfaces between all subsystems is also provided herein. They include but not

17801-1-1 SUBSYSTEM INTERFACES

- A. The Contractor shall provide integration services for the all subsystems defined in this solicitation.
- B. The Contractor shall provide integration services for other subsystems not mentioned in the contract documents, but required to interface to, or to be integrated with, the subsystems supplied under this contract to achieve successful system integration.

17801-1-2 SYSTEM INTEGRATION

The Contractor shall designate a person or group of people as the system integrator(s). This individual or group shall be the responsible party for ensuring successful system integration.

- A. The system integrator shall attend and participate in all meetings, along with the Engineer.
- B. Reserved
- C. Locations and Facilities: The Contractor shall provide system integration work, services, and support for all locations, rooms, and facilities. Other locations and facilities not listed herein, but required to interface to or to be integrated with the system supplied under this contract to achieve a successful integration.
- D. Required System Integration Services: The Contractor shall provide the following services:
 - E. Inter-subsystem interface control
 - F. Staging, Migration Planning, cut-over planning, and support
 - G. Project management/coordination of subcontractors
 - H. Coordination of training
 - I. Test planning and execution
 - J. Test auditing
 - K. System and subsystem commissioning
 - L. Discrepancy resolution
 - M. Executive-level presentations



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- N. Internal arbitration
- O. All other services not mentioned here, but necessary to achieve a successful integration.

17801-1-3 INTER-SUBSYSTEM INTERFACE CONTROL

- A. The Contractor shall identify and manage all physical and logical interfacing among all the subsystems and subsystem devices provided under this contract to ensure that all communications, processes, and interactions among devices, subsystems, and that the system project provides optimum performance.
- B. Any existing device, subsystem, or system that interfaces with any of the equipment provided under this contract shall be identified prior to performing any integration work.
- C. Interfacing with old, fragile, or obsolete equipment shall require written approval from DTPW.
- D. All device, subsystem, and system interfaces shall adhere to the approved interface requirements. Changes and deviations from the interface requirements shall require the interface matrix to be submitted for review and approval at least 15 days prior to implementation.



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17801-1-4 STAGING, MIGRATION PLANNING, CUTOVERS, AND SUPPORT

- A. The Contractor shall provide staging and migration process for all devices, subsystems, and systems in a coordinated and phased manner so as to ensure a smooth transition from the existing devices, subsystems, and system to the new devices, subsystems, and system.
- B. The migration process shall be executed in accordance with the conformed and approved Migration Plan.
- C. The Migration Plan shall ensure continuity of revenue service for the Metro system. Under no circumstances shall the work of this project impede ability of DTPW to operate its regular revenue service. Work restrictions and availability of DTPW resources shall be considered in the Migration Plan.
- D. The Contractor shall provide system integration services for all cutover stages throughout the life of this contract.
- E. Planning for all cutovers shall be responsibility of the system integrator.
- F. F. The Contractor (system integrator) shall be present at all cutovers, and shall provide support during the migrating period.
- G. At any time, simultaneous work on the stations shall be limited to a maximum of two stations (including corresponding ancillary facilities). This is intended to constrain the use of DTPW personnel at any given time.
- H. The cutover and Migration Plan shall be presented and finalized during the submittal phase. However, cutover plans for individual subsystems/stations shall be available at least 30 days prior to the actual cutover.
- I. The Contractor shall provide on-site technical support for the peak operational hours during migration and cutover for all systems. On-call support shall be provided on off-peak hours, 7 days a week, while all systems are being migrated. Such a support period shall at a minimum extend from the two weeks prior to the deployment of the CSCS hardware until the final acceptance test is completed, plus two weeks of on-call service post-acceptance.
- J. Migration restrictions:
 - 1. No downtime to revenue operations shall be allowed.
 - 2. Temporary facilities and configurations shall be removed after they are no longer needed.
 - 3. Restricted downtime will be allowed for safety or critical equipment.
 - 4. Construction and installation of the new subsystems shall be done in parallel to avoid interfacing to old, fragile equipment. The submitted Migration Plan shall comply with the requirements and restrictions listed herein and elsewhere in the contract specifications, and with any requirements produced by DTPW during the submittal phase.
- K. Cutover requirements:
 - 1. Before a cutover can occur, the subsystem, station, or device shall be fully tested and approved in accordance with its system acceptance Test Plan.



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2. Subsystems/stations containing more than an individual subsystem (as defined in this section) shall require that every individual component subsystem be fully tested and approved before testing the (larger) composed subsystem/station.
3. Cutover plans shall be provided at least 30 days in advance of the corresponding cutover.
4. All plans submitted shall conform to the requirements listed herein, elsewhere in the specifications and those requirements generated by DTPW during the submittal phase.

17801-1-5 COORDINATION OF TRAINING

- A. The Contractor shall propose appropriate times for offering the training courses, as required.
- B. DTPW will review and approve (as appropriate) the final Training Plan and schedule. After DTPW approval, any changes to the schedule shall be negotiated with DTPW.
- C. Requirements for training
 1. Training shall be provided at different hours of the day (as appropriate) so that all DTPW shifts will be able to participate.
 2. For every system configuration change, temporary or permanent, the Contractor shall provide training prior to implementation. For temporary changes the Contractor may use informal on-site training.
 3. Training courses and material shall cover the operational concept, maintenance, troubleshooting, and operations of all subsystems provided under this contract.
 4. All training examples, exercises, and examples shall be based on the actual DTPW Metrorail system. Generic examples and exercises shall not be allowed.

17801-1-6 TESTING PLANNING AND EXECUTION

- A. The Contractor is responsible for all Test Planning and procedures. See APPENDIX B, SECTION 16950 for detailed Test Planning and execution requirements.
- B. The Contractor designated system integrator shall plan and execute planning for the following tests:
 1. First Article Inspection Tests (FAITs) as may be required.
 2. Subsystem FATs
 3. Integrated FAT.
 4. Subsystem availability tests
 5. System acceptance test
 6. Integrated System Availability Test
 7. Final acceptance test



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17801-1-9 TEST AUDITING

- A. The Contractor shall provide a test auditor for all tests conducted by the system integrator to certify that all tests performed on all the devices, subsystems, and system are accurate, and that testing complied with the procedures.
- B. DTPW will provide a representative to witness all tests. However, the witness signature shall not relieve the Contractor (test auditor) of its responsibilities and liability.

D. SYSTEM AND SUBSYSTEM COMMISSIONING

- 1. The Contractor shall plan and coordinate all subsystem and the system commissioning.
- 2. Commissioning of any subsystem and the system shall be coordinated with DTPW, and shall adhere to the respective Test Plan presented by the Contractor and approved by DTPW.
- 3. Requirements for Commissioning
 - I. No discrepancies in classification Priority 1 (as referenced in section, DISCREPANCY RESOLUTION, below) shall be left open.
 - II. Availability test completed and approved.
- 4. All work under this contract requires all new subsystems to be constructed in parallel to the existing system components. Commissioning of devices or subsystems to work under the existing system shall only be implemented per DTPW request. For such occasions the Contractor shall provide all training and manuals, perform a complete set of tests (including subsystem availability test as applicable), and resolve all discrepancies prior to commissioning.
- 5. All commissioned devices or subsystems become property and responsibility of DTPW upon commissioning. Warranty shall still be applicable.
- 6. The Contractor shall provide cutover services for commissioned devices or subsystem. Cutover plans shall be submitted prior to cutover, as normally specified.
- 7. System availability test: A test to confirm the overall system availability shall be performed after all cutovers have been performed.

E. DISCREPANCY RESOLUTION

The Contractor's system integrator shall keep track and pursue resolution of all discrepancies, including software bugs, in a timely manner, as required below:

- 1. Discrepancies/bugs shall be classified in three categories and assigned a priority for resolution. The priority shall be assigned by DTPW-designated test engineer to all discrepancies after testing any subsystem, station, device, or system. The list below relates the discrepancy categories to the appropriate resolution priority and time for resolution:
 - I. Critical, Priority 1 - One natural month after initial testing will be allowed for resolution: These discrepancies may cause instability, improper operation, or may provide insufficient or confusing information that could cause an accident or damage to a device, subsystem, or system.



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- II. Major, Priority 2 - Two natural months will be allowed for resolution: These discrepancies do not cause instability or incorrect operation; however, they may provide erroneous non-critical information or annoyance.
- III. Minor, Priority 3 - Three natural months allowed for resolution: These discrepancies are of a cosmetic nature, and do not interfere with operations.
- 2. Time for discrepancy resolution shall start counting from the date the discrepancy was noted in the discrepancy log.
- 3. Closing of discrepancies on the discrepancy log, regardless of whether the bug was generated internally by the Contractor or by DTPW, shall be witnessed by DTPW.
- 4. Discrepancy log reports shall be periodically submitted at least once monthly. However the Contractor shall submit discrepancy logs within two business days upon request at any time during construction.
- 5. Testing for problem resolution shall be conducted monthly, after the initial FAT for the first subsystem for which discrepancies are generated.
- 6. During construction, hardware/interface incompatibilities among devices, subsystems, and systems shall be tracked and resolved by the system integrator.
- 7. Unless otherwise specified, no device, subsystem, software build, or system can enter live operation with unresolved Priority 1 discrepancies.
- 8. Reserved.

F. EXECUTIVE PRESENTATIONS

- A. The system integrator shall provide, at a minimum, quarterly presentations to DTPW to report on integration issues and progress.
- B. These presentations shall be detailed and technical enough as to provide a good understanding of the issues being discussed to a technically informed person (not an expert in the subject matter).

17801-1-9 INTERNAL ARBITRATION

The system integrator shall resolve any and all technical disputes among subcontractors.

17801-1-10 DEFINITIONS

The list of definitions hereunder shall only apply within the context of this section. The purpose of this list is to define the work, systems, services, and goals requested from the Contractor under this section, as viewed from the point of view of the overall integrated system.

- A. Device: Shall refer to the individual components of a subsystem. Physically a device may be composed of smaller components or modules.
- B. Subsystem: Shall refer to a particular conglomerate of devices operating to achieve a particular functional goal provided or interfaced with under this contract. Some examples of subsystems are as follows:
 - 1. Central Control System (Sub) System: Specified elsewhere in these specifications.
 - 2. Fire Management (Sub) System: Specified elsewhere in this contract.



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- C. System: Shall refer to the integrated conglomeration of subsystems and devices provided or interfaced with under this contract, working in harmony and cooperating to achieve successful operation as specified by the contract documents. The system shall include every component, process, and hierarchy between the discrete field instrumentation devices throughout Metro and the Central Control MMI interface.
- D. Successful Integration: Shall refer to achieving the overall system integrated functionality required by the contract documents and by any negotiations between the Contractor and DTPW.
- E. System Integration: Shall refer to the work of harmonizing and fine-tuning (by coordinating, testing, etc.) the physical and logical interfaces among devices and subsystems, as specified in the contract documentation, to achieve a fully operational unified system as required by the contract documents.
- F. Physical Interface: Shall refer to those interfaces where a direct interaction or connection is present.
- G. Logical Interface: Shall refer to the communications of two or more devices on the highest communication layer (e.g., application layer for the OSI model). In other words, it refers to the data exchange interface among data terminating equipment (as opposed to data communications equipment).
- H. Commissioning: Bringing a device or subsystem into operations using the existing subsystems or the system. This definition excludes bridging the new Central Control System with the existing subsystems/systems.

17801-1-11 QUALITY ASSURANCE

- A. Testing of devices and subsystems, and calibration of testing equipment, shall be performed per the requirements in this section, applicable codes and standards, and industry best practices (as specified elsewhere).
- B. Installation of new equipment shall be done as required herein, following the manufacturer's instructions and recommendations, industry best practices, and applicable codes and standards as specified elsewhere.

17801-1-12 SUBMITTALS

- A. All submittals listed under Part 2 of this section shall be done in accordance with APPENDIX B, SECTION 013300 and the requirements listed hereunder.
- B. DTPW reserves the right to review and approve/disapprove all submittals required under this section.

17801-1-13 GUIDANCE TO CONTRACTOR

Except where noted, equipment meeting the requirements of this specification may be considered for use. The specific models of equipment and accessories to be submitted under this specification must be approved by the Engineer, based on their degree of compliance with these requirements and their suitability for the needs of DTPW.



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17801-2 PART 2: PRODUCTS

17801-1 SUBMITTALS: CONTRACT DATA REQUIREMENTS LISTS (CDRLs)

A. The Contractor, at a minimum, shall submit each one of the documents listed below. These shall be submitted on the time frame specified for each submittal.

B. Submittal Phase Submittals

1. Migration Plan: This document shall describe in detail the strategies involved in migrating from the old subsystems and system to the new. It shall meet the contract requirements for both hardware and software, after analyzing the system survey findings and the information provided at DTPW input phase.

The Contractor, at a minimum, shall identify and describe the following items and processes necessary in the conversion process:

- I. Technologies to be implemented
 - II. Phases for all work
 - III. Risks involved in every alternative proposed
 - IV. Tasks required to achieve successful migration and integration
 - V. Training for every phase, every group of users, and for every subsystem to be deployed
 - VI. Human resources involved in the Migration and Cutover plan
 - VII. Equipment needed to accomplish migration
 - VIII. Processes that will help attain a successful migration
 - IX. Real estate involved for storing, installing, testing, and operating while migrating
 - X. Temporary facilities and temporary fixes performed to both new and existing equipment during the migration process
 - XI. Temporary configuration implemented during the migration process
 - a. The preliminary Migration Plan shall be submitted at least 15 days prior to the final submittal review (FDR) and presentation.
 - b. The conformed Migration Plan shall be submitted for review at least 20 days after the FDR presentation.
2. Test Plan: It shall contain all tests based on the requirements specified elsewhere in the contract documents. The Test Plan shall be submitted 15 days after NTP.
3. Master Training Plan
- I. The master Training Plan shall be based on the requirements described on the individual sections, DTPW input, and those approved during the submittal phase.
 - II. The Training Plan shall be submitted one week (five business days) after the Migration Plan has been reviewed and approved by DTPW.



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- C. Development and Factory Acceptance Phase Submittals
1. Master Interface Control Document (ICD): This CDRL shall clearly identify in both text and chart (matrix) format all the interfaces among devices, subsystems, and system, both old and new.
 - I. It shall clearly identify all logical interfaces for all devices and between subsystems.
 - II. All physical interfaces shall be identified and described.
 - III. All layers interfaces shall be defined and compared in relation with the OSI 7 layer model.
 - IV. Frames, packets, overhead, message format, expected inputs, expected outputs, and any relevant protocol information shall be included in the description of all interfaces.
 - V. All possible (data) messages needed for all interfaces shall also be provided in the ICD. The interface matrix shall be submitted for DTPW review no more than 35 days after the submittal phase is completed.
 2. Discrepancy Log and Reports for FAT
 - A. The log and reports are to be submitted monthly after the first FAT test with discrepancies.
 - B. Discrepancy Resolution Report: These reports shall contain the name of the person who identified the discrepancy, the date when the bug was noticed, a description of the problem in plain (nontechnical) English, the name of the person who identified the cause of the problem, a plain English explanation of the rationale for the problem, and the name and the signature of the person stating that the discrepancy has been fixed.
 - C. The discrepancy log shall be submitted no later than five days after a test is conducted. The log shall contain all the signatures of the tester, the auditor, and DTPW-designated test engineer.
 - D. Deployment Phase Submittals
 1. Integrated System Availability Test Plan: It shall contain the test procedure to exercise the fully integrated system for a period of 60 natural days.
 - I. The Test Plan shall identify all subsystems to be tested, with testing procedures and testing forms for each subsystem. It shall also provide a schedule for testing, identify the testers, and provide any other information relevant to the test.
 - II. The detailed Test Plan shall be submitted at least 30 days prior to the actual testing.
 2. Commissioning Plan: The Commissioning Plan (if applicable) shall be submitted at least 30 days prior to commissioning. The Commissioning Plan shall provide the following information:
 - I. A list of all tests to be performed on the device or subsystem to be commissioned (operating with the existing system)
 - II. Detailed installation steps and diagrams



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3. Discrepancy Log and Reports
 - I. The log and reports are to be submitted monthly after FAT.
 - II. Discrepancy Resolution Report: These reports shall contain the name of the person who identified the discrepancy, the date when the bug was noticed, a description of the problem in plain (nontechnical) English, the name of the person who identified the cause of the problem, a plain English explanation of the rationale for the problem, and the name and the signature of the person stating that the discrepancy has been fixed.
4. System overview diagrams and system conceptual diagrams
 - I. These shall be provided at least 45 days prior any subsystem test.
 - II. Final submission shall be done after the system availability test has been completed.

17801-2 PART 3: EXECUTION

17801-2-1 GENERAL

All system integration work shall be performed in accordance with the individual subsystem's section requirements and those requirements provided by DTPW during DTPW input and the submittal phase.

17801-2-2 SYSTEM INTEGRATION

- A. The integration process for the station subsystems shall flow from the bottom up. That is, simpler and single systems shall be fully tested and integrated prior to integrating a higher, larger, or more complex system.
- B. The Contractor shall install the new system independently and in parallel with the existing system.

17801-2-3 INTEGRATED SYSTEM AVAILABILITY TEST

- A. The purpose of the test is to determine system stability and to identify any discrepancy that may arise from conflicts that could be created by having a fully integrated system. The duration of the test shall not be less than 60 consecutive natural days.
- B. The test shall address all functional areas and shall execute more than one function at a time to identify any conflicts.
- C. During this test, unlikely but possible scenarios shall be produced.
- D. A Central System catastrophic system failure shall require restarting the test. If the cause for the failure cannot be identified, the Contractor may choose to restart testing right away. On the other hand, if the cause for failure is recreated, a critical discrepancy shall be generated, and no further testing shall be performed until fixed.

END OF SECTION 17801



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**SECTION 207019
INDOOR CABINETS, RACKS, FRAMES, AND ENCLOSURES**

207019-1 PART 1 - GENERAL

207019-1-1 WORK INCLUDED

Provide all labor, materials, tools, and equipment required for the complete installation of work called for in the Contract Documents.

207019-1-2 SCOPE OF WORK

- A. This document describes the products and execution requirements relating to furnishing and installing Telecommunications Cabling. Communication Equipment Room Fittings of cabinets, racks, frames, and enclosures which are covered under this document.
- B. This section includes minimum requirements for the following:
 - 1. Cabinets
 - 2. Racks and Rack Cable Management
 - 3. Frames
 - 4. Enclosures
- C. All cables and related terminations, support and grounding hardware shall be furnished, installed, wired, tested, labeled, and documented by the Contractor as detailed in this document.

207019-1-3 SECTION INCLUDES

- A. Equipment cabinets
- B. Cable entrance cabinets
- C. Cabinet identification

207019-1-4 REFERENCES (The most recent revisions shall be used in this project)

- A. American National Standards Institute (ANSI):1. ANSI/EIA-310
- B. American Railway Engineering and Maintenance-of-Way Association (AREMA) 1. Signal Manual, Part 1.5.10
- C. TIA/EIA structured cabling system TIA/EIA-568-B Commercial Building Telecommunications Cabling Standard
 - 1. TIA/EIA-569-A Commercial Building Standard for Telecom Pathways and Spaces
 - 2. TIA/EIA-606 Administration Standard for the Telecommunications Infrastructure of Commercial Buildings
 - 3. TIA/EIA-607 Commercial Building Grounding/Bonding Requirements
 - 4. EIA-310-D Rack systems
 - 5. NFPA-70 National Electric Code (NEC)-2008
 - 6. ISO/IEC 11801 Generic Cabling for Customer Premises



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207019-1-5 SUBMITTALS

- A. General: Refer to APPENDIX B, SECTION 013300 - Submittal Procedures for submittal requirements and procedures.
- B. Submit the following:
 - 1. Product data for equipment cabinets.
 - 2. Shop drawings.
 - 3. Cabinet mounting details.
 - 4. Cabinet paint types and colors.

207019-2 PRODUCTS

207019-2-1 MANUFACTURING REQUIREMENTS

- A. Equipment Cabinets. Equipment in communication rooms and train control rooms shall be housed in free standing cabinets conforming to the following requirements:
 - 1. General. Cabinet frame shall be constructed of 14-gauge cold rolled steel. Cabinet construction shall be as shown in the Contract Drawings.
 - 2. Cabinet structures shall have uniform dimensions. Equipment cabinets shall not exceed 48 inches in width and 24 inches in depth. A cabinet complex shall not exceed 72 inches in width.
 - 3. Enclosures: Cabinet enclosures shall be furnished complete. The front and rear of the cabinets shall be enclosed with captive full-length doors opening at least 120 degrees, closed with hand-operated key-locked catches, and with louvered openings, if required. Doors shall be removable without unscrewing.
 - I. Cabinets shall be designed for side-by-side mounting with provisions for running interconnection wiring within a complex in closed wireway between cabinets.
 - II. All non-used front spaces of cabinets shall be covered with blank panels.
 - III. Self-ventilation of cabinet enclosures shall be used. If fans or filters are required shop drawings shall be submitted for approval before procurement.
 - 4. Cabinet Hardware: Cabinets and appurtenances shall be designed and constructed to comply with ANSI/EIA-310. The frame element shall be designed to accept universally adjustable panel-mounting hardware. The panel-mounting angles shall be constructed of 12-gauge cold rolled steel with standard EIA hole spacing and structured to comply with ANSI/EIA-310.
 - 5. Cable Entry: Cable entry shall be through the top of the cabinet. Cable entry shall have provisions for protecting the cable. All cables shall be routed so as to protect them from damage during and after installation.
 - 6. Terminal Block Mounting Board: Mounting boards for terminal blocks and other items as required shall be made from flame retardant non-metallic, non-wood, insulating sheet material approved by DTPW.
 - 7. Supports: Chassis supports, or guides shall be provided as required for auxiliary support of heavy equipment.



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8. Height: Overall cabinet height shall be uniform and shall not exceed 7 feet-2 inches, including mounting sill.
- B. Cable Entrance Cabinets. Cable entrance cabinets shall be equipped with front full-length removable doors with key-locked catches opening at least 120 degrees. The rear of the cabinet shall be accessible by a bolted removable panel or full-length removable door. The structure shall not exceed 60 inches in width or 24 inches in depth. Cable entrance cabinets shall meet the requirements specified for equipment cabinets, with the exception of cabinet dimensions and door construction. Cable entrance cabinets shall be installed as indicated on the Contract Drawings.
- C. Painting: Cabinets shall be painted in accordance with the following requirements:
 1. Communications equipment cabinets and racks shall be painted Dark Blue/Black with color number 5B/1N as selected from the Munsel Color Chart. Exterior rack surfaces shall have a textured finish.
 2. Quality: Painting shall conform to the requirements specified in AREMA Signal Manual, Part 1.5.10, or equivalent. Paint types and colors shall be submitted for approval.
- D. Cabinet Identification: Each equipment cabinet/enclosure shall be provided with I.D. Nameplates. Free standing cabinets/enclosures shall be provided with two nameplates, one for the front and one for the rear. Wall mounted cabinets/enclosures shall be provided with one nameplate on the front. Nameplates shall be of 1/16 inch thick lamicoide, with beveled edges, black background and white letters. Mounting hardware shall be stainless steel.
 1. Nameplate sizes:
 - I. Nameplates 1-9/16 inches high by 18 or 12 inches wide shall have lettering in block letters 1/2 inch high.
 - II. Nameplates 3/4 inch high by 12 inches wide shall have lettering in block letters 3/16 inch high
 2. Nameplate text shall consist of two lines, unless otherwise approved by DTPW. The first line shall denote the cabinet/enclosure number, and the second line shall denote the name of the cabinet/enclosure.
 3. Cabinet numbering format shall be submitted to DTPW for approval.
 4. Communications cabinet name and number shall correspond with the designations indicated on the Contract Drawings.

207019-3 EXECUTION

207019-3-1 INSTALLATION

- A. Cabinet Mounting: Cabinets shall be mounted in accordance the following requirements. Each sill structure shall be leveled to a maximum deviation not exceeding 1/8 inch over its total length and width.
 1. The equipment cabinets shall be mounted rigidly such that a 100-pound horizontal force applied to either side 6 feet from the floor shall cause less than 1/8-inch deflection of any part of the equipment cabinet. Cabinets shall be mounted plumb and level using captive shims as required.
 2. In addition to the cabinet deflection, a 1/16-inch deflection shall be allowed by the



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mounting channels after being rigidly mounted to the floor. Equipment cabinets shall be attached together but isolated one from the other and from the floor with insulating material. The equipment cabinet mounting details shall be submitted for approval.

3. Cabinet fronts in adjacent rows shall face each other.
- B. Cabinet Grounding: Cabinet-grounding requirements including sill insulation and isolation between cabinets shall be as shown on the Contract Drawings.
- C. Racks: The Cable Management System shall be used to provide a neat and efficient means for routing and protecting fiber and copper cables and patch cords on telecommunication racks and enclosures. The system shall be a complete cable management system comprised of vertical cable managers, horizontal cable manager, and cable management accessories used throughout the cabling system. The system shall protect network investment by maintaining system performance, controlling cable bend radius, and providing cable strain relief.
- D. Each rack shall be UL listed for a load-carrying capacity of 1000 lbs. (454 kg.).
- E. Provide patch management ring runs in each rack. Provide (1) 2U high horizontal patch management between each panel of each rack.
- F. Provide side-mounted vertical cable management with covers on both sides of each rack. The cable management shall be with cover plates and bracket kits as needed to attach to adjacent racks.
- G. Provide strain relief and cable management at the rear of each rack to ensure uniform routing of all feeder and distribution cables.
- H. Each rack to have a minimum of eight power sockets mounted on a strip at the rear of the rack. The power outlets on the connector strip shall be NEMA 5-20R compatible. The plug shall be NEMA 5-20P compatible.

END OF SECTION 207019



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**SECTION 260500
COMMON WORK RESULTS FOR ELECTRICAL**

260500-1 SUMMARY

This section applies to electrical equipment coordination, sleeves, and sleeve seals for raceways and cables, and common electrical installation requirements.

260500-2 MATERIALS

- A. Sleeves for raceways and cables:
 - 1. Steel pipe sleeves
 - 2. Cast-iron pipe sleeves
 - 3. Sleeves for rectangular openings
- B. Sleeve seals: Modular sealing devices with sealing elements, plastic carbon-steel stainless-steel pressure plates, and carbon stainless-steel connecting bolts and nuts

END OF SECTION 206500



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SECTION 260526
GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

260526 -1 SUMMARY

A. Methods and materials for grounding electrical systems and equipment

260526 -2 QUALITY ASSURANCE

A. Quality standard for grounding materials and equipment: UL 467

260526 -3 PRODUCTS

A. Insulated conductors: Copper wire and cable

B. Bare copper conductors:

1. Solid conductors
2. Stranded conductors
3. Tinned conductors
4. Stranded bonding conductors
5. Copper tape braided bonding jumpers
6. Tinned-copper braided bonding jumpers

C. Connectors: Bolted and exothermic-welded type

D. Grounding electrodes: Ground rods: Copper-clad, steel, sectional type

260526 -4 GROUNDING APPLICATIONS

A. Conductors: Solid for No. 8 AWG and smaller; stranded for No. 6 AWG and larger

B. Underground grounding conductors: Bare copper conductor, No. 2/0 AWG minimum

C. Isolated grounding conductors

D. Grounding bus

E. Conductor terminations and connections: Bolted and welded

F. Insulated equipment grounding conductors with circuit conductors for the following:

1. Feeders and branch circuits
2. Lighting circuits
3. Receptacle circuits
4. Single-phase motor and appliance branch circuits
5. Three-phase motor and appliance branch circuits
6. Flexible raceway runs
7. Armored and metal-clad cable runs
8. Busway supply circuits
9. Computer- and rack-mounted electronic equipment circuits
10. Air-duct equipment circuits
11. Water heater, heat-tracing, and antifrost heating cables



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- 12. Isolated grounding receptacle circuits
- 13. Isolated equipment enclosure circuits
- G. Signal and communication equipment
- H. Service and central equipment locations and wiring closets
- I. Terminal cabinets

260526 -5 FIELD QUALITY CONTROL

- A. Ground resistance testing: By Contractor (engaged testing agency)

END OF SECTION 260526



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**SECTION 260529
HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS**

260526 -1 PERFORMANCE REQUIREMENTS

Rated strength: Minimum structural safety factor of five times the applied force

260526 -2 PRODUCTS

- A. Support, anchorage, and attachment components
 - 1. Steel slotted support systems with metallic coatings
 - 2. Nonmetallic slotted support systems
 - 3. Raceway and cable supports
 - 4. Steel conduit and cable hangers, clamps, and associated accessories
 - 5. Support for non-armored conductors and cables in vertical conduit risers
 - 6. Structural steel for fabricated supports and restraints
 - 7. Mounting, anchoring, and attachment components:
 - I. Powder-actuated fasteners
 - II. Mechanical-expansion anchors
 - III. Concrete inserts
 - IV. Clamps for attachment to steel structural elements
 - V. All steel, springhead toggle bolts
 - VI. Threaded hanger rods
- B. Fabricated metal equipment support assemblies: Welded or bolted steel shapes
- C. Concrete bases: 3,000-psi (20.7-MPa), 28-day compressive-strength concrete

END OF SECTION 260526



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**SECTION 260536
CABLE TRAYS FOR ELECTRICAL SYSTEMS**

260526 -1 QUALITY ASSURANCE

Quality standard: NEMA VE 1

260526 -2 MATERIALS

1. Cable trays, fittings, and accessories: Aluminum hardware
2. Cable tray accessories
 1. Cable tray supports and connectors
3. Warning signs

260526 -3 SOURCE QUALITY CONTROL

Tested according to NEMA FG 1 and NEMA VE 1

END OF SECTION 260526



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**SECTION 262726
WIRING DEVICES**

262726 -1 PRODUCTS

- A. Receptacles: Duplex, 125 V, 20 A
 - 1. Straight blade
 - 2. GFCI: Non-feed through
- B. Pendant cord-connector devices with external cable grip
- C. Cord and plug sets
- D. Snap switches: 120/277 V, 20 A
 - 1. Key-operated switches
- E. Occupancy sensors
 - 1. Wall-switch sensors: Adaptive-technology type with adjustable time delay
 - 2. Long-range wall-switch sensors: Dual-technology type with adjustable time delay
 - 3. Wide-range wall-switch sensors: Passive-infrared type with adjustable time delay
- F. Communications outlets
 - 1. Telephone outlet: Single RJ-45
 - 2. Combination TV and telephone outlet: Single RJ-45 and coaxial cable connectors
- G. Wall plates
 - 1. Material for finished spaces: Thermoplastic
 - 2. Material for unfinished spaces: Thermoplastic
 - 3. Material for damp and wet locations: Thermoplastic
- H. Floor service fittings: Modular, dual service, with power receptacle and voice and data communication outlet
 - 1. Type: Flush
 - 2. Service plate: Round, brass
 - 3. Voice and data communication outlet: Blank cover with bushed cable opening or two modular, keyed, RJ-45
- I. Poke-through assemblies: Below-floor junction box with multi-channeled, through-floor raceway/firestop and detachable floor service outlet assembly
 - 1. Service outlet assembly: Flush type
 - 2. Size: 4 inches
- J. Multi-outlet assemblies: Metal raceways



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K. Finishes

1. Connected to normal power system: As selected by DTPW
2. Connected to emergency power system: Red
3. TVSS devices: Blue
4. Isolated-ground receptacles: Orange

END OF SECTION 262726



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APPENDIX C

SPEAKER INSTALL LOCATIONS

APPENDIX C

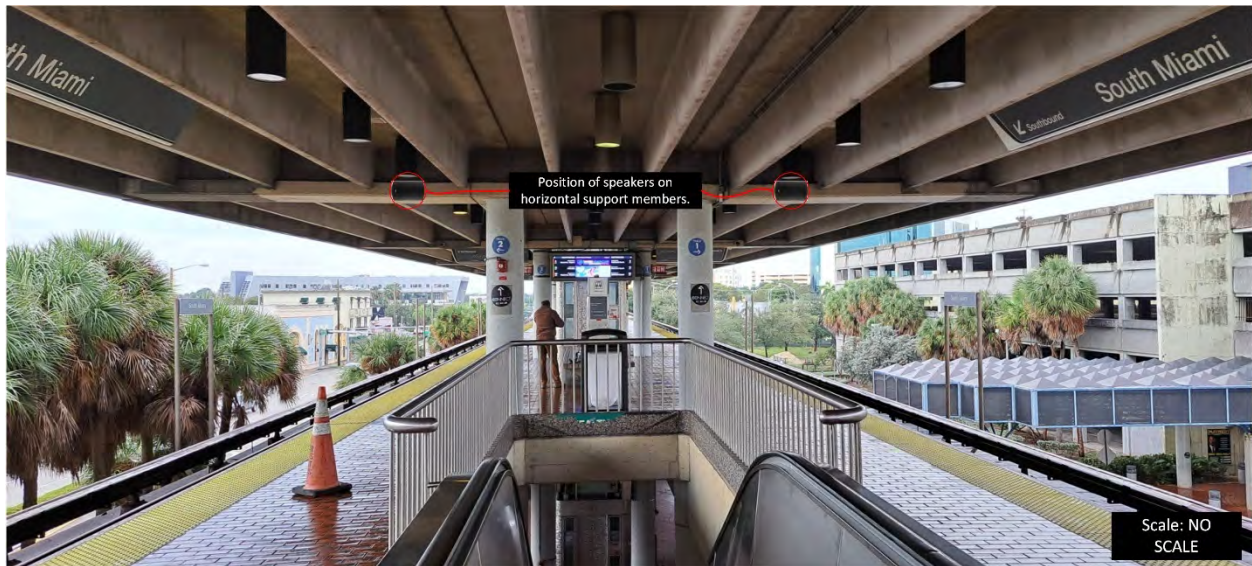


FIGURE 1.

The station center platform shown in Figure 1 is representative of most of the station configurations in the Metrorail System.



FIGURE 2.

The station depicted in Figure 2 is the Palmetto Metrorail Station. The architecture is unique and is the only station in the system that is located at grade and not elevated.



FIGURE 3.
The station represents some of the station configuration in the northern portion of the Metrorail system. The station platforms are separated by the rail and track. There are two platforms per station.

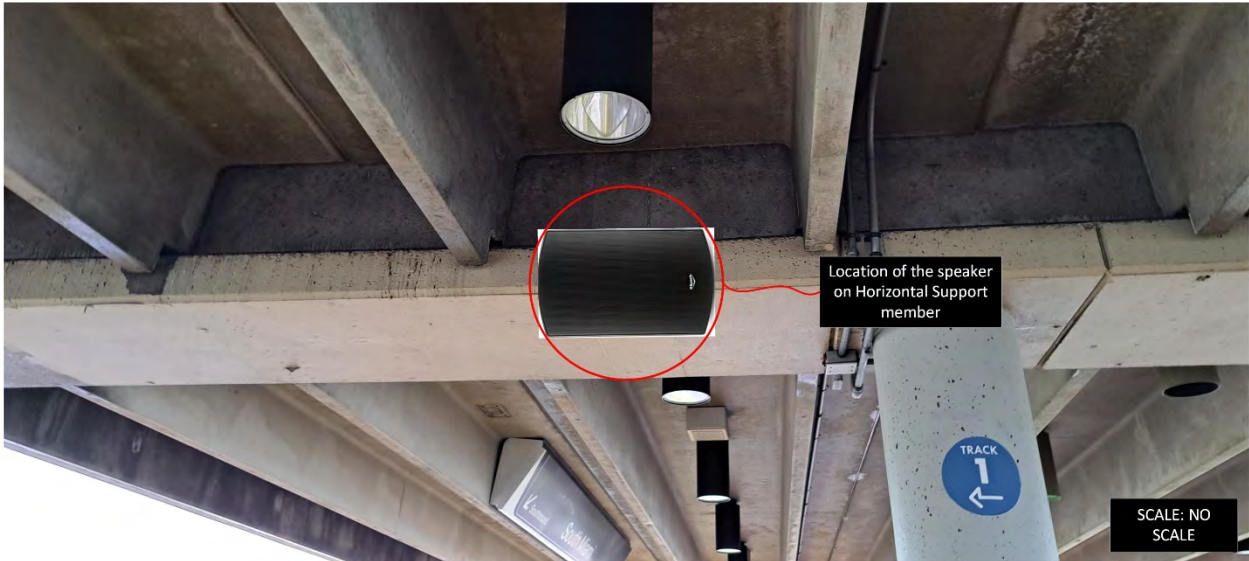


FIGURE 4.
Figure 4 represents a typical support member that can be used to support the station speakers.

NOTE: IN ALL STATIONS, THE ACTUAL POSITIONS OF THE SPEAKERS SHALL BE DETERMINED BY THE ACOUSTICAL SIMULATIONS THAT SHALL BE PERFORMED PER THE TECHNICAL SPECIFICATIONS. IN ALL CASES, THE SPEAKERS MUST NOT ENCR OACH ON THE DYNAMIC ENVELOPE OF THE METRORAIL TRAINS. THE SPEAKER INSTALLATIONS SHALL GENERALLY BE AS SHOWN IN LINE WITH THE ROW OF EXISTING LIGHTING FIXTURES IN EACH OF THE STATIONS.

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

SPECIAL PROVISIONS

APPENDIX D

SMALL BUSINESS DEVELOPMENT DIVISION PROJECT WORKSHEET(S)



Small Business Development Division

Project Worksheet

Project/Contract Title: Metrorail Public Address System Replacement
Received Date: 10/27/2022
Resubmittal Date: 7/21/2023
Funding Source: PTP
Project/Contract No: TP-000008807
Department: Transportation and Public Works
Estimated Cost of Project/Bid: \$2,546,245.41
Description of Project/Bid: The scope of the work for this project includes but is not limited to: Replace and improve Public Address Systems on the Metrorail System. The Public Address System shall be an integrated with an existing Station Controller Unit (SCU) in each of the Metrorail Stations.

Contract Measures Recommendation			
<u>Measure</u>	<u>Program</u>	<u>Goal Percent</u>	
No Measure	SBE - Con		
No Measure	SBE - G&S		
Workforce Goal	CWP	10.00%	
Reasons for Recommendation			
<p>This is a resubmittal. The revised cost estimate plus contingency is \$2,546,245.41; all other information remains the same.</p> <p>SMALL BUSINESS ENTERPRISE- CONSTRUCTION (SBE-Con) SBD reviewed this project pursuant to Implementing Order 3-22 for SBE-Con measure. Project information analyzed included the project's scope of services, estimated project cost, minimum requirements/qualifications and funding source. Additional factors included surveys conducted with certified firms to determine availability and assignment of the noted measure. These indicate a SBE-Con No Measure is appropriate for this contract due to the insufficient availability of certified firms capable of meet the project's requirements. An attempt was made to assign this project a Set-Aside measure, however, only one (1) firm responded to the Verification of Availability to Bid process as being able to fulfill the project's requirements No subcontracting opportunities were identified for this project Miami Dade County Building Construction Wages apply to this contract.</p> <p>SMALL BUSINESS ENTERPRISE- GOODS & SERVICES (SBE-G&S) SBD reviewed this project pursuant to Implementing Order 3-41 & Ordinance 16-109 for SBE-G&S measure. Project information analyzed included the project's scope of services, estimated project cost, minimum requirements/qualifications and funding source. These indicate that a SBE-G&S No Measure is appropriate to this contract due to the lack of certified firms in the required commodities.</p> <p>NAICS 238210 Electrical Contractors and Other Wiring Installation Contractors</p>			

Living Wages:

YES NO

Highway:

YES NO

Heavy Construction:

YES NO

Responsible Wages:

YES NO

Building:

YES NO



SBD Director

7-31-23

Date

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

SPECIAL PROVISIONS

APPENDIX E

RESPONSIBLE WAGES & BENEFITS

(Ordinance No. 90-143, as amended)

BUILDING

The following Minimum Wage Rates and Responsible Wages and Benefits are those established for the listed trades working at the Work site by the U. S. Secretary of Labor and/or by the Board of County Commissioners under Ordinance No. 90-143, as amended. The rates have been established in accordance with the stipulations contained in the Davis-Bacon Act and/or by Miami-Dade County Ordinance No. 90-143, as amended, and have been established as being the rates for the corresponding classes of workers employed for projects of a similar character in the locality where the Work is to be performed. The Contractor shall pay wages and fringe benefits at rates not less than the higher of the Minimum Wage Rates (Davis-Bacon Act) or Responsible Wages and Benefits (Ordinance No. 90-143, as amended) as stipulated for each listed trade. A mistake in the indicated wages and fringe benefits will not entitle the Contractor to cancel the Contract, to increase the Contract price or to recover additional payment.

The Contractor is ultimately responsible for the verification and use of the latest wages publication.

MIAMI-DADE COUNTY, FLORIDA

RESPONSIBLE WAGES AND BENEFITS SECTION 2-11.16 OF THE CODE OF MIAMI-DADE COUNTY

SUPPLEMENTAL GENERAL CONDITIONS

WAGES AND BENEFITS SCHEDULE

Construction Type: **BUILDING**

Building Construction generally is the construction of sheltered enclosures with walk-in access for the purpose of housing persons, machinery, equipment, or supplies. It includes all construction of such structures, the installation of utilities and the installation of equipment, both above and below grade.

Note: Where multiple construction is "incidental" in function, the construction is considered a part of the building project for wage determination purposes.

NOTICE TO EMPLOYEES

FAIR WAGE AFFIDAVIT

LCPTRACKER – CONTRACTOR QUICK START GUIDE

2023

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SUPPLEMENTAL GENERAL CONDITIONS TO BIDDERS

Bidders are advised that the provisions of § 2-11.16 *et seq.*, Code of Miami-Dade County (the "Code"), pertaining to Responsible Wages on County Construction Contracts, will apply to any contract awarded pursuant to this bid. By submitting a bid under these provisions, a bidder agrees to comply with these provisions of the Code and to acknowledge awareness of the penalties for non-compliance. A copy of the Code may be obtained from the department issuing the specifications for this bid or online at <http://www.municode.com/resources/gateway.asp?pid=10620&sid=9>.

This Supplemental General Conditions is organized with the following sections:

1. Minimum Wages and Posting of Information
2. Liability for Unpaid Wages, Liquidated Damages and Withholding
3. Payrolls Records, Reporting and Inspection of Records
4. Subcontracts
5. Complaints, Hearings and Contracts Termination and Debarment
6. Apprentices and Trainees
7. Other State and Federal Wage Laws

1. MINIMUM WAGES AND POSTING OF INFORMATION

A. Minimum Wages

All employees working on the project must be paid the combined dollar value (hourly rate and benefits) listed in the Wages and Benefits Schedule for work being performed. Payment to workers shall be made in the form of check, money order or direct deposit. Cash payments are not allowed. The rates paid shall be no less than those contained in the Wages and Benefits Schedule regardless of any contractual relationship that may exist between the contractor and the workers hired to perform under the contract. For any classification of workers, the hourly rate paid must equal the sum of the base rate and the fringe benefit rates listed for that classification in the Wages and Benefits Schedule. Paying below the base rate is not acceptable, even if the value of the fringe benefits exceeds the value of the required contribution. Paying the base wage rate or above and making payments to legitimate fringe benefits providers on behalf of workers is acceptable.

Wages and benefits listed in the Wages and Benefits Schedule will be reviewed and increased, if appropriate, once a year, on January 1st. The rates for wages and benefits to be paid for work performed under this contract and during each subsequent calendar year will be the rate in effect on January 1st of the year in which the work is performed.

B. Fringe Benefits

The contractor, or any subcontractor under the contractor, may pay the base rate to the employee plus pay contributions to employee benefit plans; or, pay the base rate plus the benefit rate in the Wages and Benefits Schedule in the form of check, money order or direct deposit, but not cash. If the value of the fringe benefits is less than the hourly amount required in the wage schedule the difference must be paid to the employee as an increase to their base pay.

Payments made to health insurance companies for hospitalization and medical costs, to dental insurance companies for dental costs, retirement plans, and life insurance companies for life insurance are fringe benefits.

Payments made irrevocably to a trustee or third party pursuant to a bona fide fringe benefit fund, plan or program for health, life, death, and dismemberment, dental, vision insurance and retirement/pension can be credited towards meeting the required wages. These payments must be made not less often than quarterly. Annual payments to a fringe benefit fund, plan or program will not be accepted.

C. More than One Classification

Workers must be paid the appropriate base rate and fringe benefits on the Wages and Benefits Schedule for the classification of work actually being performed without regard to skill. Workers performing work in more than one classification may be paid at the rate listed for each classification for the time they worked; however, the employer's payrolls must accurately show the time spent in each classification in which work is performed. This does not apply to workers performing tasks that are incidental to the trade they are working in, such as handling materials they will be installing or cleaning up the worksite after they complete their work.

D. Classification Not Listed in the Wage Schedule

If you do not find a wage classification in the Wages and Benefits Schedule that describes the work actually being done, you must contact Small Business Development. Questions concerning the comparability of worker classifications or the applicability of Davis Bacon classifications will be determined by the County.

E. Complaints by Workers

Any complaints of underpayment by the workers should be filed with:

**Internal Services Department
Small Business Development Division
111 NW 1ST Street, 19TH Floor Miami, FL 33128
Telephone: (305) 375-3111 FAX: (305) 375-3160
Email: SBDMAIL@MIAMIDADE.GOV**

Neither the contractor nor any subcontractor on the project may terminate an employee

performing work on the contract because of such employee's filing a complaint regarding underpayment of required wage rates.

F. Posting of Wages

The contractor and all subcontractors must permanently post the Wages and Benefits Schedule, together with a notice of the fines that may be assessed to the contractor or subcontractor, for failure to pay the required wage rates, at the site where the contract work is being performed in a prominent and accessible place where it can be easily seen by the workers. Failure to post the Wages and Benefits Schedule is a violation.

2. LIABILITY FOR UNPAID WAGES; PENALTIES; WITHHOLDING

A. Compliance by Bidders

In the event of underpayment of the required wage rates, the contractor shall be liable to the underpaid employee for such underpayment. In addition, the contractor shall pay a penalty in accordance with the requirements of the Code and section 2B below. Contractors must pay all back wages and penalties on previous contracts before being awarded or participating on a new contract.

B. Penalties

In addition to any under payment due to employees, contractors may be fined a penalty in an amount equal to twenty percent (20%) of the first underpayment; forty percent (40%) of the amount of the second underpayment; for the third and successive underpayments, a penalty in an amount equal to sixty percent (60%) of the underpayment. A fourth underpayment violation within a three (3) year period shall subject the contractor to debarment to be initiated by SBD in accordance with the debarment procedures of the County. A fourth underpayment violation shall also constitute a default of the subject contract and shall be cause for suspension or termination. If the required payments are not made within the specified period of time, the non-complying contractor and principal owners thereof shall be prohibited from bidding on or otherwise participating in County contracts for a period not to exceed three (3) years.

C. Withholding Contractor Payments

The County may stop payment of monies to the contractor necessary to pay any wages that are required, and any penalties owed by the contractor or subcontractor. The withheld monies shall be given to the employee in accordance with the provisions of Section 5, "Complaints and Hearings; Contract Termination and Debarment".

3. PAYROLL; BASIC RECORDS; REPORTING

A. Payroll Records

The contractor and all subcontractors must keep accurate written records, signed under oath as true and correct, showing payment of the required wages. These records must include the name, social security number of each worker, his or her address, correct classification, per hour rates of wages paid (including rates of contributions or costs anticipated for legitimate fringe benefits), and daily and weekly number of hours worked on this project. Contractors employing apprentices or trainees under approved programs shall keep records of the registration or apprenticeship programs, the certification of trainee programs, the registration of the apprentices and trainees, and wage rates as required by the applicable programs, in accordance with the provisions of Section 6 “Apprentices and Trainees”.

B. LCPtracker

Each contractor and every low-tier subcontractor is required to submit all certified payrolls and labor compliance documentation electronically by the 10th of every month for the previous month using LCPtracker, a web-based Certified Payroll Management System (www.lcptracker.net). The system is managed by Small Business Development (“SBD”), a division of the Internal Services Department. The use of the system is **mandatory**, pursuant to Miami-Dade County Ordinance No. 18-33.

Each contractor and subcontractor on applicable contracts will be provided a username and password to access LCPtracker system. Use of the system will involve data entry of weekly payroll information including: employee name, social security number, trade classification, total hours and fractions of hours for every type of trade classification work performed on the project, and wage and benefits paid. LCPtracker’s software can also interface with most payroll and accounting software programs that are capable of generating a CSV (comma delimited file). If your program does not have this capability, LCPtracker may be able to build an interface to communicate with your accounting software.

Hands-on training sessions for the LCPtracker system is available. To RSVP, please visit <https://mdcsbd.gob2g.com/events.asp> and select the training session you would like to attend.

If you are not able to attend a training class in person, there are other free training options available for contractors:

Option 1: Web-Based Training Sessions. Online and live training sessions facilitated by members of LCPtracker’s Customer Support Team are offered several times per month. All you need to participate is a computer with internet access, an email address, and access to a phone.

- Go to the LCPtracker Website: www.lcptracker.net
- Enter your username/password
- Select “Watch Now” on the Projects tab and register for the Online training sessions

Option 2: Computer-Based Training Courses. Pre-recorded videos can be viewed at any time by logging into the LCPtracker website (www.lcptracker.net) and following these simple steps:

- Enter your username/password
- Select the “Training Materials” link located at the top of the page
- Select Contractor Training Videos

C. Inspection of Records

The contractor or subcontractor must make these records available for inspection and copying by an authorized representative of the County and shall allow such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the reports or make the records on which they are based available, the County may, after written notice to the contractor, cause the stoppage of payments. Also, failure to submit the reports upon request or make the records available may be reason for debarment. The prime contractor is responsible for the submission of the information required and for the maintenance of records and provisions of access to same by all subcontractors.

4. SUBCONTRACTS

The contractor must insert into any subcontracts the clauses set forth in paragraphs 1 through 6 of this Supplemental General Conditions and a clause reminding their subcontractors to include these paragraphs in any lower tier subcontract. The prime contractor will be responsible for compliance by all subcontractors and their lower tier subcontractors with the clauses set forth in paragraphs 1 through 6 of this Supplemental General Conditions. In the event of non-payment or underpayment of the required wages, the prime contractor shall be liable to the underpaid employees of the subcontractor for each underpayment.

5. COMPLAINTS AND HEARINGS; CONTRACT TERMINATION AND DEBARMENT

A. Complaints

Upon receipt of a written complaint or identification of a violation pertaining to an employee wage underpayment of the required overall hourly rates, the County will investigate the complaint and notify the contractor or subcontractor employing said workers of the complaint/violation. The notice shall include a brief description of the said complaint/violation, the dollar amount that the contractor or subcontractor is liable for in back wages and fines, the required corrective action(s) to be taken and the due date for payment of back wages and fines or to request a compliance meeting. Failure to comply or request a compliance meeting within the due date specified shall constitute a waiver of the contractor's or subcontractor's right to a compliance meeting, and that such waiver shall constitute an admission of the complaint/violation. The County may withhold from the contractor so much accrued payments as may be considered necessary by the Contracting Officer to pay employees of the contractor or subcontractor under

them for the performance of the contract work, the difference between the combined overall hourly wage rate and benefits required to be paid by the contractor/subcontractor to the employee on the work and the amounts received by such employee where violations have been found.

Any employee of a contractor or subcontractor who performed work on a contract subject to this section, may instead of adhering to the County administrative procedure, but not in addition to such procedure, bring an action by filing suit against the contractor or subcontractor in any court of competent jurisdiction to enforce these provisions and may be awarded back pay, benefits, attorney's fees, costs. The applicable statute of limitations of such a claim will be two (2) years as provided in Section 95.11(4)(c), Florida Statutes, in an action for payment of wages. The court may also impose sanctions on the employer, including those persons or entities aiding or abetting the employer, to include wage restitution to the affected employee and damages payable to the covered employee in the sum of up to five hundred dollars (\$500.00) for each week each employer is found to have violated these provisions.

B. Hearings

A contractor or subcontractor has the right to an administrative hearing to appeal a determination of non-compliance within (30) days of the notice. To request a hearing the contractor or subcontractor must file a written request along with a \$250.00 non-refundable filing fee with the County Mayor or his or her designee. Upon timely receipt of a request for an administrative hearing request, the County Mayor shall appoint a hearing officer and fix a time for an administrative hearing thereon. A notice of hearing (together with a copy of SBD's determination of non-compliance) shall be served upon the contractor (or subcontractor). Upon completion of the hearing, the hearing officer shall submit proposed written findings and recommendations to the County Mayor within a reasonable time. The County Mayor or designee will review the findings and recommendations of the Hearing Officer and decide to accept or reject the recommendations of the Administrative Hearing Officer either with or without modifications.

C. Penalties

If the County Mayor or designee determines that the contractor or subcontractor substantially or repeatedly failed to comply, the non-complying contractor or subcontractor and the principal owners thereof shall be prohibited from bidding or otherwise participating in County contracts for the construction, alteration and/or repair, including painting or decorating, of public buildings or public works for a period of three years. The County Mayor or designee may order the withheld amount equal to any underpayment remitted to the employee. In addition, the County Mayor or designee may order payment of a penalty to the County. If the required payment is not made

within a reasonable period, the County Mayor or designee may order debarment as described above.

A breach of the clauses contained in this Supplemental General Conditions shall be deemed a breach of this contract and may be grounds for termination of the contract, and for debarment.

6. APPRENTICES AND TRAINEES

A. Apprentices

Apprentices will be permitted to work at less than the rate listed in the Wages and Benefits Schedule for the work they perform when they are employed pursuant to and individually registered in a legitimate apprenticeship program registered with the U. S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a state apprenticeship agency recognized by the Bureau, or if a person is employed in his or her first 90 days probationary employment who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a state apprenticeship agency (where appropriate) to be eligible for probationary employment as an apprentice. All apprentices participating on a project must be approved in LCPtracker by SBD. LCPtracker will not allow a contractor to enter an apprentice on its certified payrolls until SBD has received and approved the Apprenticeship Certification, which is only valid for 90 days after issuance. To obtain SBD's approval, the Program Sponsor must submit the Apprenticeship Certification to:

**Internal Services Department
Small Business Development Division
111 NW 1ST Street, 19TH Floor Miami, FL 33128
Telephone: (305) 375-3111 FAX: (305) 375-3160
Email: SBDMAIL@MIAMIDADE.GOV**

Any worker listed as an apprentice on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, must be paid not less than the wage on the Wages and Benefits Schedule for the classification of work actually performed.

B. Apprentice Ratio

The number of apprentices shall not be greater than the ratio listed in the Wages and Benefits Schedule. If the number of apprentices working on the project, is greater than the ratio permitted, the apprentices must be paid the wage rate on the Wages and Benefits Schedule for the work performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in the percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be

observed. Every apprentice must be paid at least the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable schedule.

C. Apprentice Fringe Benefits

Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable apprentice classification; fringe benefits shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a state apprenticeship agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is provided.

D. Trainees

The rules for trainees are similar to those of apprentices. Except as provided in 29 C.F.R. § 5.16, trainees cannot work for less than the predetermined rate listed in the Wages and Benefits Schedule unless they are registered in a program certified by the U. S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site must not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Trainees must be paid fringe benefits in accordance with the Trainee Program. If the Trainee Program does not specify fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the administrator of the wage and hour division determines that the rate is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination, which provides for less than the full fringe benefits for apprentices.

E. Summary of Apprentices and Trainees

Any worker who is not registered in a training plan approved by the Employment and Training Administration must be paid not less than the wage rate on the Wages and Benefits Schedule for the work actually performed without regard to skill. In addition, if the number of apprentices and trainees are in excess of the ratio permitted under the registered program, then the wages that must be paid are those listed on the Wages and Benefits Schedule for the work actually performed by the apprentices or trainees. If the Employment and Training Administration cancels approval of an apprenticeship or training program, the contractor will no longer be permitted to pay the trainee or apprenticeship rate.

7. OTHER STATE AND FEDERAL WAGE LAWS

All Miami-Dade County contracts require contractors to comply with all applicable state and federal wage laws including payment of overtime. To obtain information regarding these laws, please visit the U.S. Department of Labor Wage and Hours Division at www.dol.gov/whd.

MIAMI-DADE COUNTY
§2-11.16 CODE OF MIAMI-DADE COUNTY
RESPONSIBLE WAGES AND BENEFITS SCHEDULE
2023

"BUILDING CONSTRUCTION"

TRADE/WORK LEVEL CLASSIFICATION	PER HOUR WAGE RATE	PER HOUR HEALTH BENEFIT (1)	PER HOUR PENSION BENEFIT	COMBINED DOLLAR VALUE
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BRICKLAYERS

Bricklayer	\$ 26.30	\$ 5.40	\$ 3.15	\$ 34.85
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(1) Per hour health benefit includes hospitalization, medical, life, vision and dental insurance.

NOTE: Apprentices will be permitted to work at these rates when they are employed pursuant to and individually registered in a legitimate apprenticeship program registered with the U. S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a state apprenticeship agency recognized by the Bureau. In Florida this agency is the Florida Department of Education, Division of Career and Adult Education, Apprenticeship Section - <http://www.fldoe.org/workforce/apprenticeship>. Please see page 6 of the Supplemental General Conditions for more information.

Apprentices:

1st 6 month period	\$ 17.10	\$ 5.40	\$ 3.15	\$ 25.65
2nd 6 month period	\$ 18.41	\$ 5.40	\$ 3.15	\$ 26.96
3rd 6 month period	\$ 19.73	\$ 5.40	\$ 3.15	\$ 28.28
4th 6 month period	\$ 21.04	\$ 5.40	\$ 3.15	\$ 29.59
5th 6 month period	\$ 22.36	\$ 5.40	\$ 3.15	\$ 30.91
6th 6 month period	\$ 23.67	\$ 5.40	\$ 3.15	\$ 32.22

Apprentice Ratio: There shall be one (1) apprentice for every three (3) journeymen.

Scope of work under this trade includes but is not limited to: all forms of masonry construction, including all brick, stone, concrete block, marble, cement, plaster, mosaic, tile, terrazzo, terra cotta, glass block, refractory materials, and pointing-cleaning-caulking. The complete installation of all forms of masonry panels including the on-site fabrication, all integral elements of masonry construction and all forms of substitute masonry materials or building systems thereto utilized.

MIAMI-DADE COUNTY
§2-11.16 CODE OF MIAMI-DADE COUNTY
RESPONSIBLE WAGES AND BENEFITS SCHEDULE
2023

"BUILDING CONSTRUCTION"

TRADE/WORK LEVEL CLASSIFICATION	PER HOUR WAGE RATE	PER HOUR HEALTH BENEFIT (1)	PER HOUR PENSION BENEFIT	COMBINED DOLLAR VALUE
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CARPENTERS

Carpenter	\$ 25.65	\$ 5.50	\$ 6.65	\$ 37.80
Foreman (5 or more workers one must be a Forman)	\$ 27.78	\$ 5.50	\$ 6.65	\$ 39.93
Foreman (12 or more workers)	\$ 31.54	\$ 5.50	\$ 6.65	\$ 43.69
General Foreman (2 or more foremen)	\$ 33.84	\$ 5.50	\$ 6.65	\$ 45.99

Apprentices:

NOTE: Apprentices will be permitted to work at these rates when they are employed pursuant to and individually registered in a legitimate apprenticeship program registered with the U. S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a state apprenticeship agency recognized by the Bureau. In Florida this agency is the Florida Department of Education, Division of Career and Adult Education, Apprenticeship Section - <http://www.fldoe.org/workforce/apprenticeship>. Please see page 6 of the Supplemental General Conditions for more information.

1st 6 month period	\$ 15.90	\$ 5.50	\$ 6.65	\$ 28.05
2nd 6 month period	\$ 17.19	\$ 5.50	\$ 6.65	\$ 29.34
3rd 6 month period	\$ 18.47	\$ 5.50	\$ 6.65	\$ 30.62
4th 6 month period	\$ 19.75	\$ 5.50	\$ 6.65	\$ 31.90
5th 6 month period	\$ 21.03	\$ 5.50	\$ 6.65	\$ 33.18
6th 6 month period	\$ 22.32	\$ 5.50	\$ 6.65	\$ 34.47
7th 6 month period	\$ 23.60	\$ 5.50	\$ 6.65	\$ 35.75
8th 6 month period	\$ 24.88	\$ 5.50	\$ 6.65	\$ 37.03

(1) Per hour health benefit includes hospitalization, medical, life, vision and dental insurance.

Acoustic Ceilings

The unloading, distribution and installation of all materials and component parts of all types of acoustic ceilings and plenums, regardless of their material composition or method of manner of their installation, attachment or connection, including, but not limited to the following items: all hangers, carrying channels, cross furring, stiffeners, braces, all bars regardless of materials or methods of attachment, all integrated gypsum wall board ceiling heat panels, fill, all main tees, cross tees, splines, splays, wall and ceiling angles or moldings, all backing board and all finish ceiling materials regardless of method of installation excepting acoustic plaster.

Doors

The unloading, distribution and installation of all prefinished wooden doors, hollow metal doors, overhead or mechanical doors, whether steel, aluminum or plastic and all supporting systems. Install all hollow metal jambs and hardware on doors whether they be interior or exterior.

Floor Covering

Carpeting including all measuring, lay-outs, remaking, cutting, fitting, sewing, binding, sizing, laying, stretching, repairing and installation, either by hand or power machine. The installation of resilient flooring to include the laying of all cork, linoleum, asphalt, mastic, plastic, rubber tile, whether nailed or laid in with Lino paste, glue, mastic or substitute materials. All wood flooring, whether nailed or laid in mastic. All necessary preparatory work including the scraping, filling of holes, nailing, lay of paper or other underlayments. The sanding or refinishing of all wood floors either by hand or power machine.

MIAMI-DADE COUNTY
§2-11.16 CODE OF MIAMI-DADE COUNTY
RESPONSIBLE WAGES AND BENEFITS SCHEDULE
2023

"BUILDING CONSTRUCTION"

TRADE/WORK LEVEL CLASSIFICATION	PER HOUR WAGE RATE	PER HOUR HEALTH BENEFIT (1)	PER HOUR PENSION BENEFIT	COMBINED DOLLAR VALUE
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CARPENTERS, Continued

Forms

The fabrication and re-fabrication of all forms and dismantling of forms when they are to be reused. This includes removable corrugated metal forming systems and all other patented forming systems. When power rigging is used in the setting or dismantling of forms, and the necessary false work, all handling, rigging and signaling. The setting, leveling and aligning of all templates for anchor bolts for structural members, machinery, and the placing, leveling, bracing, burning and welding for all bolts. The installation of embedded materials where attached to forms and/or embedded materials for machinery. Framing in connection with the setting of bulkhead; fabrication of screeds and stakes for floors and form for articles. The handling of lumber, fabricated forms and form hardware installed by carpenters. The building and moving of all scaffolding for runways and staging. The cutting or framing of openings for piles, conduit, ducts, when they pass through floors, partitions or forms. All rigging, setting, aligning and hand signaling when setting up pre-cast units.

Furniture

The loading, unloading, handling, dismantling, distribution, erection, stockpiling, refurbishing, and installation of all modular and systems office furniture and all components parts, new and refurbished.

Lathing

The prefabricating, erecting, construction, furring, making and erecting of brackets, clips and hangers, wood, wire and metal lath to which plaster-type materials are applied; corner beads, arches erected for the purpose of holding plaster or cement.

The rigging, erecting, staying and fastening in any manner of all pre-cast aggregate panels of all types. All carrying bars, purlins and furring, regardless of size; light iron and metal furring of all descriptions for the receipt of metal lath, rock lath and all light iron when studs are to receive metal lath or rock lath for the application of plaster; and all other light iron furring erected to receive lath and plaster. The nailing, typing and fastening of all wire and metallic lath such as wire cloth, wire mesh, expanded metal lath, hy rib and flat expanded metal lath and wire of all descriptions as well as the placing of all hangers to support suspended ceilings or any of the above types of light iron and metal furring which receive lath and plaster; the placing of all types of floor lath, such as hyrib lath, paperback steeltex floor lath, Penn metal rib, etc. The tying, nailing, clipping or fastening, mechanical or otherwise, of all types of lath regardless of size, such as wood lath, plasterboard, button board, flaxilinum board, bishopric, celetex, gypsum lath, foam and Styrofoam, rock lath or any and all other types of material erected to receive or hold plaster. The erection of all metal plastering accessories such as metal corner beads and other plastering accessories which are covered and/or serve as a ground of screed for plaster.

Material Procedures

The unloading, handling and erection and power rigging in connection with laminated wood arches, trusses and decks. All power rigging and signaling of Carpenters' materials. The operation and maintenance of small air compressors generators, electric or gasoline power motors for the operation of woodworking machinery. The unloading, handling and distribution of materials erected and installed. by carpenters. All prefabricated, manufactured and finished materials regardless of packing, shall be unloaded distributed and installed by the Carpenters. This shall include, but not be limited to all forms, templates, bolt, cabinets and all materials normally installed by Carpenters. Underpinning, lagging, bracing, propping and shoring, raising and moving of all building structures of parts thereof by the use of jack, power rigging or other methods shall be the work. This includes the unloading and setting of modular units and all work related thereto. The assembly and erection of pole and pre-engineered buildings.

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CARPENTERS, Continued

Railing

The installation of all construction of temporary guardrails, barricades and /or safety devices. The unloading, handling, distribution, installation and backing necessary for all aluminum, vinyl, plastic or wood handrails and guardrails.

Scaffolding

The installation of all construction of temporary guardrails, barricades and /or safety devices. The unloading, handling, distribution, installation and backing necessary for all aluminum, vinyl, plastic or wood handrails and guardrails.

Sink Tops and Cabinets

The unloading, distribution and installation of all sink tops, cabinets, hoods base and wall units.

Weather and Spray Protection

The fabrication, erection and removal of frames, enclosures of buildings or scaffoldings, the draping of tarps, visqueen or similar coverings when secured by wire, nailing, bolting or clamps. The handling and setting up of all temporary enclosures.

Windows, Walls and Partitions

The installation, erection and/or application of all material component parts of wall and partitions regardless of all materials composition or method or manner of their installation, attachment of connection, including but not limited to the following items: All floor and ceiling runners, studs, stiffeners, cross bracings, Te-Blocking, resilient channels, furring channels, doors and windows including frames, casing, molding, base, accessory trim items, gypsum drywall materials, the making and installing of all backing for fixtures and welding of studs or other fasteners to receive materials being applied; laminated gypsum systems backing board, finish board, fireproofing of beams and columns, fireproofing of chase, sound and thermal installation materials, fixture attachments including all layout work, preparation of all openings for lighting, air vents or other purposes, all toilet partitions and insulated translucent wall and ceiling systems, and all other necessary or related work.

The erection of exterior metal studs and the installation windows metal or wood and those attached to metal studs.

The installation of rockwool, cork, fiberglass, tectum, Styrofoam and other insulation material used form sound of weatherproofing, the renewal for caulking and replacing of staff bead, brick mould and all Oakum, caulking, substitutes and all other caulking in connection there with, and the installation of chalkboards, cork and tack boards.

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DRYWALL FINISHERS

Drywall Finisher - Hand Tools	\$ 21.54	\$ 6.72	\$ 5.83	\$ 34.09
Drywall Finisher - Bazooka Box	\$ 22.54	\$ 6.72	\$ 5.83	\$ 35.09

\$1.00 Charge person working up to 5 employees

\$1.50 Charge person working 6 or more employees

\$1.00 General Foreman above highest paid Charge person

Apprentices:

NOTE: Apprentices will be permitted to work at these rates when they are employed pursuant to and individually registered in a legitimate apprenticeship program registered with the U. S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a state apprenticeship agency recognized by the Bureau. In Florida this agency is the Florida Department of Education, Division of Career and Adult Education, Apprenticeship Section - <http://www.fldoe.org/workforce/apprenticeship>. Please see pages 7-8 of the Supplemental General Conditions for more information.

1st 6 months	\$ 14.00	\$ 6.72	\$ 1.67	\$ 22.39
2nd 6 months	\$ 15.08	\$ 6.72	\$ 1.67	\$ 23.47
3rd 6 months	\$ 16.16	\$ 6.72	\$ 1.67	\$ 24.55
4th 6 months	\$ 17.23	\$ 6.72	\$ 1.67	\$ 25.62
5th 6 months	\$ 18.31	\$ 6.72	\$ 1.67	\$ 26.70
6th 6 months	\$ 19.39	\$ 6.72	\$ 1.67	\$ 27.78
7th and 8th 6 months	\$ 20.46	\$ 6.72	\$ 1.67	\$ 28.85

APPRENTICE RATIO: One (1) Apprentice to every one (1) Drywall Finisher

(1) Per hour health benefit includes hospitalization, medical, life, vision and dental insurance.

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ELECTRICAL WORKERS

Electrician - Wiremen	\$ 38.71	\$ 6.00	\$ 5.81	\$ 50.52
Electrician - Cable Splicer	\$ 39.21	\$ 6.00	\$ 5.88	\$ 51.09
Welder	\$ 39.21	\$ 6.00	\$ 5.88	\$ 51.09
Foremen - Required on any job where 3-9 electricians are employed, one shall be designated foreman. One (1) additional electrician shall be designated foreman if there are 10-14 electricians, and one (1) additional for 15-21 electricians	\$ 42.58	\$ 6.00	\$ 6.39	\$ 54.97
General Foremen (22 or more Electricians)	\$ 46.45	\$ 6.00	\$ 6.97	\$ 59.42

Per Hour Premiums:

\$1.00 per hour to the per hour wage rate for electricians working in hazardous locations, above or below ground in high places such as silos, hangers, beacon lights, or other similar structures where a free fall of 30 feet or more is possible.

Apprentices:

NOTE: Apprentices will be permitted to work at these rates when they are employed pursuant to and individually registered in a legitimate apprenticeship program registered with the U. S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a state apprenticeship agency recognized by the Bureau. In Florida this agency is the Florida Department of Education, Division of Career and Adult Education, Apprenticeship Section - <http://www.fldoe.org/workforce/apprenticeship>. Please see pages 7-8 of the Supplemental General Conditions for more information.

1st Year	\$ 19.26	\$ 4.57	\$ 0.58	\$ 24.41
2nd Year	\$ 20.36	\$ 4.57	\$ 3.05	\$ 27.98
3rd Year	\$ 22.54	\$ 4.57	\$ 3.38	\$ 30.49
4th Year	\$ 24.72	\$ 4.57	\$ 3.71	\$ 33.00
5th Year	\$ 29.03	\$ 4.57	\$ 4.35	\$ 37.95

APPRENTICE RATIO: Two (2) Apprentices to (1-3) Wiremen, four (4) Apprentices to (4 to 6) Wiremen, six (6) Apprentices to (7 to 9) Wiremen

(1) Per hour health benefit includes hospitalization, medical, life, vision and dental insurance.

Scope of work under this trade includes but is not be limited to: installation, inspection, operation, maintenance, service, repair, testing or retrofit of all energized and de-energized electrical power and communications conductors, electrical materials, electrical devices and electrical power distribution equipment, or a part of there which generates, transmits, transforms or utilize electrical energy in any form AC or DC voltages for heat, light or power used in the construction, alteration, temporary power, maintenance, service and repair of public and private premises including building, floating buildings, structures, bridges, street, highway and tunnel work including all signaling, shafts, dams or levees, river and harbor work, airports, mobile homes, recreational vehicles, yards, lots, parking lots, carnivals, tradeshows, events and industrial substations, The installations of electrical conductors and electrical distribution equipment that connect to the supply of electricity, installations used by an electric utility that are not an integral part of a generating plant, substation or control center and all electrical raceways of whatever form for electrical and communications conductors and fiber optics.

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ELECTRICAL WORKERS, Continued

As related to an electrical system in its entirety, the chasing, channeling, opening and closing of places above and below ground, placement, installation or temporary installation, erection, inspection, operation, welding, maintenance, service, repair, testing or connection of any electrical conductors, electrical lighting fixtures, appliances, instrumentation apparatus, raceway systems, conduit systems, pipe systems, underground systems, cable tray systems, grounding, bonding systems, lightening protection systems, power-generating green technology systems or other systems of renewable energy including but not limited to photovoltaic, solar, wind turbine, hydro-generation, geothermal or tidal systems, electric vehicle technology, electrical power conductors and communications conductors for energy management systems, electrical power conductors and communications conductors for building automation systems, railroad, signalman, maintainer and railroad communication, nuclear, or the erection, alteration, repair, modification, splicing, termination of electric transmission lines on private property, structured cabling systems for transmission of voice, data, video, notification, warning systems, smoke and fire alarm systems, other life safe safety and security systems and appurtenances.

The installation of electrical lighting, heating and power equipment, fiber optics, and the installation and connecting of all electronic equipment, including computing machines and devices, monitoring of radiation hazards where such monitoring work is not preempted or performed by an electrical utility, the installation of all temporary power and light wiring, high-voltage cable splicing and terminations, breaker testing and the commission and decommission of electrical control systems. Clean, service, repair, replace, operate and adjust high and low voltage switchgear; transformers, conductors, connectors, breakers, fuses and buses. Operations, maintenance and repair of high voltage electrical power connections, circuit protection devices and associated switchgear. Pre-fabricated parts and materials shall be unloaded, distributed and installed by employees covered under this trade and working for the electrical contractor. There are no restrictions on an employers utilization of pre-fabricated or pre-assembled parts, fixtures or other materials when obtained from a third party supplier, except as set forth above.

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ELECTRICAL WORKERS (ELECTRIC SIGN)

Electrician - Wireman	\$ 38.71	\$ 6.00	\$ 5.81	\$ 50.52
Foreman - Required on any job where ten (10) Electricians are employed, one shall be designated foreman.	\$ 42.58	\$ 6.00	\$ 6.39	\$ 54.97

Per Hour Premiums:

\$2.00 per hour to the per hour wage rate for Electrician working in high places, seventy-five feet (75') above the ground floor except safety-guarded swing stage, walkways, or 2 man remote baskets.

Apprentices:

NOTE: Apprentices will be permitted to work at these rates when they are employed pursuant to and individually registered in a legitimate apprenticeship program registered with the U. S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a state apprenticeship agency recognized by the Bureau. In Florida this agency is the Florida Department of Education, Division of Career and Adult Education, Apprenticeship Section - <http://www.fldoe.org/workforce/apprenticeship>. Please see pages 7-8 of the Supplemental General Conditions for more information.

1st year	\$ 19.26	\$ 4.57	\$ 0.58	\$ 24.41
2nd year	\$ 20.36	\$ 4.57	\$ 3.05	\$ 27.98
3rd year	\$ 22.54	\$ 4.57	\$ 3.38	\$ 30.49
4th year	\$ 24.72	\$ 4.57	\$ 3.71	\$ 33.00
5th year	\$ 29.03	\$ 4.57	\$ 4.35	\$ 37.95

APPRENTICE RATIO: Two (2) Apprentices to (1-3) Wiremen, four (4) Apprentices to (4 to 6) Wiremen, six (6) Apprentices to (7 to 9) Wiremen

(1) Per hour health benefit includes hospitalization, medical, life, vision and dental insurance.

Scope of work under this trade includes but is not be limited to: the installation, alteration, dismantling or removing of all illuminated signs, non illuminated signs or displays, whether luminous tube, light emitting diodes, receptacle, plastic, reflector type, plaques and panels. The installation of all interior neo tubing and light emitting diodes for lighting or decorating all secondary conduit work, flashers, timers or other auxiliary equipment, also the steel structures for the support of signs or displays. In the event of billboards or displays not served from an existing building or group of buildings and which in itself is an individual entity, having its own service and meter, all such service conduit meter and secondary conduit. Also covered is the service, maintenance and patrolling of all electrical equipment on signs, displays, and tube lighting after they have been erected and in operation.

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ELEVATOR CONSTRUCTORS

Mechanics	\$ 51.26	\$ 16.08	\$ 20.56	\$ 87.90
Mechanic In Charge	\$ 57.67	\$ 16.08	\$ 20.56	\$ 94.31

Apprentices:

NOTE: Apprentices will be permitted to work at these rates when they are employed pursuant to and individually registered in a legitimate apprenticeship program registered with the U. S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a state apprenticeship agency recognized by the Bureau. In Florida this agency is the Florida Department of Education, Division of Career and Adult Education, Apprenticeship Section - <http://www.fldoe.org/workforce/apprenticeship>. Please see page 6 of the Supplemental General Conditions for more information.

Probationary Apprentice/Helper (0 - 6 mo.)	\$ 25.63	\$ -	\$ -	\$ 25.63
Probationary Apprentice/Helper (7 mo. - 1 yr.)	\$ 28.19	\$ 16.08	\$ 20.56	\$ 64.83
1st year	\$ 28.19	\$ 16.08	\$ 20.56	\$ 64.83
2nd year	\$ 33.32	\$ 16.08	\$ 20.56	\$ 69.96
3rd year & Helpers	\$ 35.88	\$ 16.08	\$ 20.56	\$ 72.52
4th year & Asst. Mechanics	\$ 41.01	\$ 16.08	\$ 20.56	\$ 77.65

APPRENTICE RATIO: One (1) Apprentice to one (1) Mechanic

- (1) Per hour health benefit includes hospitalization, medical, life, vision and dental insurance.
- (2) Probationary Apprentice/Helper receive health and pension after 1st 6 months.

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INSULATORS & ASBESTOS WORKERS

Insulators & Asbestos Workers	\$ 35.03	\$ 15.62	-	\$ 50.65
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(1) Per hour health benefit includes hospitalization, medical and life insurance.

Scope of work under this trade includes but is not be limited to: the preparation, fabrication, application, alteration, erection, assembling molding, spraying, pouring, mixing, hanging, adjusting, repairing, dismantling, reconditioning, maintenance, finishing and/or weatherproofing of cold or hot thermal, insulation with such materials as may be specified when these materials are to be installed for thermal, fireproofing and acoustical purposes in voids, or to create voids, or on either piping, fittings, valves, boilers, ducts, flues, tanks, vats equipment, or on any cold or hot surfaces for the purpose of thermal control. Exclude is the manufacture or pipe covering and/or fittings in one piece halves or the facing of flexible blanket duct insulation.

Preparation and application of all exterior material, excluding factory applied for the purpose of weatherproofing or protection, etc. This is also to include all labor connected with the handling and distribution of thermal insulation materials on the job premises and all other such work for the purpose of thermal control. All exterior material, excluding factory applied for the purpose of weatherproofing or protection, etc., shall be prepared and applied by the Asbestos Workers. This is also to include all labor connected with the handling and distribution of thermal insulation materials on the job premises.

It shall also includes firestopping or fireproofing technicians, & apprentices engaged in the manufacture, fabrication, assembling, molding, handling, erection, spraying, pouring, mixing, hanging, preparation, application, adjusting, alteration, repairing, dismantling, reconditioning, testing, and maintenance of the following, when applied by machine or other application methods of all firestopping materials including, but not limited to: intumescent firestop sealant, intumescent firestop blocks, elastomeric firestop sealant, self-leveling firestop sealant, trowel able firestop compound, firestop collars, composite sheets, putty pads, fire containment pillows, wrap strips, putty sticks, firestop mortar, firestop mastic, refractory ceramic fiber blanket for kitchen exhaust and fire rated duct systems, or other materials used in connection with labor, and to include other fire protection materials such as boots and cable coatings which are connected with the handling or distribution of the above insulating materials, or the repair and maintenance of all equipment, on job premises.

The types of work shall include but not be limited to: top of wall, curtain wall, fire rated wall penetrations, grease ducts, stairwell pressurization systems, beam, column, and deck fireproofing, application of materials or devices within or around penetrations and openings in all rated wall or floor assemblies in order to prevent the passage of fire, smoke, or other gases. The application include all components involved in creating the rated barrier at perimeter slab edges and cavities, the head of gypsum board or concrete walls, joints between rated wall or floor components, and sealing of penetrating items and blank openings.

The unloading and distribution on the job site of all insulation material and related material and equipment, the assembling, dismantling of scaffolding and clean up when necessary.

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IRONWORKERS

Ironworkers	\$ 27.00	\$ 6.00	\$ 6.07	\$ 39.07
Foreman *	\$ 29.70	\$ 6.00	\$ 6.07	\$ 41.77
General Foreman *	\$ 32.40	\$ 6.00	\$ 6.07	\$ 44.47

* A foreman is required when two (2) or more Ironworkers are employed by one employer, one shall be a foreman. When the crew exceeds 12 or more, another foreman is required. A general foreman is required if three (3) or more Ironworker Foremen are employed on a job.

Per Hour Premiums:

Diving Pay add \$40.00 rental plus \$5.00 to the Ironworker's wage rate.

Apprentices:

NOTE: Apprentices will be permitted to work at these rates when they are employed pursuant to and individually registered in a legitimate apprenticeship program registered with the U. S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a state apprenticeship agency recognized by the Bureau. In Florida this agency is the Florida Department of Education, Division of Career and Adult Education, Apprenticeship Section - <http://www.fldoe.org/workforce/apprenticeship>. Please see pages 7-8 of the Supplemental General Conditions for more information.

1st 6 months - 800 Hours	\$ 16.20	\$ 6.00	\$ -	\$ 22.20
2nd 6 months - 800 Hours	\$ 17.55	\$ 6.00	\$ -	\$ 23.55
3rd 6 months - 800 Hours	\$ 18.90	\$ 6.00	\$ -	\$ 24.90
4th 6 months - 800 Hours	\$ 20.25	\$ 6.00	\$ -	\$ 26.25
5th 6 months - 800 Hours	\$ 21.60	\$ 6.00	\$ -	\$ 27.60
6th 6 months - 800 Hours	\$ 22.95	\$ 6.00	\$ -	\$ 28.95
7th 6 months - 800 Hours	\$ 24.30	\$ 6.00	\$ -	\$ 30.30

APPRENTICE RATIO: One (1) Apprentice to four (4) Ironworkers. Ornamental work one (1) Apprentice to two (2)

(1) Per hour health benefit includes hospitalization, medical, life, vision and dental insurance.

Scope of work under this trade includes but is not be limited to: erection and installation of all bridges, structural, ornamental, reinforcing, and reinforcing ironwork; which includes but is not limited to the following: reinforcing steel (rebar), post tensioning (cables), structural steel and iron, miscellaneous steel and iron, stairs – joist – decking, curtains and window walls, storefronts – windows, metal doors (manual and electric), glass doors (manual and electric), glass slider doors, screens – fences, tilt walls – precast – stone, space frames – skylights, pre-engineered metal buildings, cladding covers (all types), column covers (all types), towers – cranes – hoists, standing seam metal roofs, handrails – rails (all types), rigging – welding, conveyors – erectors and maintenance, glazing – caulking – sealants and louvers -fixed.

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This classification cannot be used for unskilled employees performing work in other trades OR for employees in other trades that handle their own materials and/or must clean up after their work is performed. Employees must be paid in accordance with the type of work being performed without regard to skill.

LABORERS

Laborer	\$ 19.00	\$ 4.25	\$ 3.41	\$ 26.66
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Per Hour Premiums:

Laborer Foreman (For every 4 laborers) - **\$2.00** per hour on top of the highest paid laborers

General Foreman (16 or more laborers) - **\$3.00** per hour on top of the highest paid laborers

\$2.00 - Mason and Plaster Tenders, Concrete Placement Patch Men, and Finisher Tenders, Scaffold Builders, Strippers and Wreckers (Demolition), Electric and Air-Hammers, Concrete Grinders, Saws, Coring Machines, Nozzle and Hopper & Mixers, Cutting Torch, Hydro-Blasting (Pressure Washing), Chain Saw.

\$3.50 - Sidewalks and Curb and Gutter Form Builders and Setters, Plaster and Concrete Finish and Repair, Loader, Lulls, Forklifts, Bobcats, Water Sewer and Storm Drain Pipe Layers, Asbestos Removal, Hazardous Waste, and Lead Removal, Remediation and Handling.

Contracts for the inspection of sewer lines for leakage and damage through the use of Closed Circuit T.V. Inspections and the simultaneous sealing of leaks or other damage in the lines as the machine inspects the sewer line is covered under the Responsible Wages and Benefits. Contracts for inspection only are not covered. Workers performing on a Closed Circuit T.V. crew should be classified and paid as laborer. The CCTV Operator should receive the \$3.00 per hour supplement for Water Sewer & Storm Drain Pipe layers. The rate for the Vector Trucks Operator is listed under the Operating Engineers

Apprentices:

NOTE: Apprentices will be permitted to work at these rates when they are employed pursuant to and individually registered in a legitimate apprenticeship program registered with the U. S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a state apprenticeship agency recognized by the Bureau. In Florida this agency is the Florida Department of Education, Division of Career and Adult Education, Apprenticeship Section - <http://www.fldoe.org/workforce/apprenticeship>. Please see pages 7-8 of the Supplemental General Conditions for more information.

1st 6 month period	\$ 15.20	\$ 4.25	\$ 3.41	\$ 22.86
2nd 6 month period	\$ 16.15	\$ 4.25	\$ 3.41	\$ 23.81
3rd 6 month period	\$ 17.10	\$ 4.25	\$ 3.41	\$ 24.76
4th 6 month period	\$ 18.05	\$ 4.25	\$ 3.41	\$ 25.71

APPRENTICE RATIO: After employing one (1) Laborer, the next laborer employed may be an apprentice, after employing four (4) Laborers, an apprentice shall be employed as the next laborer employed. After the first apprentice is employed, the ratio of Apprentices to Laborers shall not exceed one (1) Apprentice for three (3) Laborers

(1) Per hour health benefit includes hospitalization, medical, life, vision and dental insurance.

Scope of work under this trade includes tending masons, plasterers, carpenters and other building and construction crafts. Tending shall consist of preparation of materials and the handling and conveying of materials. Unloading, handling and distributing of all materials, fixtures, furnishings and appliances from point of delivery to point of installation. Cleaning and clearing of all debris. Ageing and curing of concrete, mortar and other materials.

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LABORERS, Continued

Scaffolds: The erection, planking and removal of all scaffolds for lathers, plasterers, bricklayers and other construction trades. Building planking or installation and removal of all staging, swing and hanging scaffolds, including maintenance thereof up to a height of three (3) bucks.

Excavations and Foundations, Site Preparation and Clearance, Transportation and Transmissions Lines: Excavation for building and all other construction, digging of trenches, piers, foundations and holes, digging, lagging, sheeting, cribbing, bracing and propping of foundations, holes, caissons, cofferdams, dams, dikes, and irrigation trenches, canals and all handling filling and placing of sand bags connected therewith. All drilling, blasting and scaling on the site or along the right of way, as well as all access roads, reservoirs, including areas adjacent or pertinent to the construction site, installation of temporary lines. Preparation and compacting of roadbeds for highway construction and the preparation of trenches, footings, etc. for cross country transmission or underground lines or cables. On site preparation and right-of-way clearance, for construction of any structures or the installation of traffic and transportation facilities such as highways, pipelines, electrical transmission lines, dam sites and reservoir areas, access roads, etc. Erection, dismantling and/pre-installation of all fences.

Concrete, Bituminous Concrete and Aggregates: Mixing, handling, conveying, pouring, vibrating, gunniting and otherwise placing concrete or aggregates, whether done by hand or other process. Wrecking, stripping, dismantling and handling concrete forms and falsework. Placing of concrete or aggregates whether poured, pumped, gunnited, or placed by any other process. All vibrating, grinding, spreading, flowing, puddling, leveling and strike off of concrete aggregates by floating rodding or screeding, by hand or mechanical means prior to finishing. The filling and patching of voids, crevices etc. to correct defects in concrete.

Underpinning, Lagging, Bracing, Propping and Shoring; Drilling and Blasting; Signal Men; General Excavation and Grading and Landscaping of all sites for all purposes; and Wrecking.

Construction Cleaners, Janitors, Fire Watchers, Hole Watchers, Material Handlers, Escorts and Equipment Monitors, Decontamination Workers, Flaggers and Landscapers, Mowers, Guardrail and Fencer Erectors, Rod Carriers, and Pressure Washing

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TRADE/WORK LEVEL CLASSIFICATION	PER HOUR WAGE RATE	PER HOUR HEALTH BENEFIT (1)	PER HOUR PENSION BENEFIT	COMBINED DOLLAR VALUE
<u>MILLWRIGHTS, MACHINERY ERECTORS & DIVERS</u>				
Millwrights, Machinery Erectors	\$ 32.75	\$ 5.50	\$ 12.58	\$ 50.83
Foreman - (2 to 10 Millwrights)	\$ 35.04	\$ 5.50	\$ 12.58	\$ 53.12
General Foreman - (2 or more Foremen and can serve as a Crew Foreman)	\$ 36.03	\$ 5.50	\$ 12.58	\$ 54.11
Diver - wet dry days (2)	\$ 38.79	\$ 5.50	\$ 12.58	\$ 56.87

Per Hour Premiums:

On wet days, a Diver shall be paid the Diver rate and penetration pay of **\$2.00** per foot per day in excess of twenty (20) feet after entering an enclosed structure that has no direct path to the surface.

Apprentices:

NOTE: Apprentices will be permitted to work at these rates when they are employed pursuant to and individually registered in a legitimate apprenticeship program registered with the U. S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a state apprenticeship agency recognized by the Bureau. In Florida this agency is the Florida Department of Education, Division of Career and Adult Education, Apprenticeship Section - <http://www.fldoe.org/workforce/apprenticeship>. Please see pages 7-8 of the Supplemental General Conditions for more information.

1st Year	\$ 21.29	\$ 5.50	\$ 12.58	\$ 39.37
2nd Year	\$ 24.56	\$ 5.50	\$ 12.58	\$ 42.64
3rd Year	\$ 27.84	\$ 5.50	\$ 12.58	\$ 45.92
4th Year	\$ 31.11	\$ 5.50	\$ 12.58	\$ 49.19

(1) Per hour health benefit includes hospitalization, medical, life, vision and dental insurance.

(2) Diver classification applies to any Millwright that performs work beneath the water surface.

Scope of work under this trade includes but is not be limited to: installation, assembly, and, when necessary, dismantling machinery in factories, power plants, and construction sites.

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<u>OPERATING ENGINEERS</u>				
A-Frame Truck	\$ 25.00	\$ 7.55	\$ 5.00	\$ 37.55
Air Compressor	\$ 25.00	\$ 7.55	\$ 5.00	\$ 37.55
Compressor, Above 250 CFM	\$ 26.29	\$ 7.05	\$ 4.50	\$ 37.84
Backhoe-Loader Combination	\$ 28.93	\$ 7.05	\$ 4.50	\$ 40.48
Batching Plant	\$ 25.00	\$ 7.55	\$ 5.00	\$ 37.55
Bobcat/Skid Steer	\$ 22.50	\$ 4.25	\$ 3.41	\$ 30.16
Boom Hauling Truck	\$ 25.00	\$ 7.55	\$ 5.00	\$ 37.55
Boom Truck	\$ 28.93	\$ 7.05	\$ 4.50	\$ 40.48
Boring Machine	\$ 25.00	\$ 7.55	\$ 5.00	\$ 37.55
Bulldozer	\$ 28.75	\$ 7.55	\$ 5.00	\$ 41.30
Concrete Mixer	\$ 30.47	\$ 7.55	\$ 5.00	\$ 43.02
Concrete Placing Booms	\$ 30.33	\$ 7.05	\$ 4.50	\$ 41.88
Concrete Pump, Trailer Mounted	\$ 25.00	\$ 7.55	\$ 5.00	\$ 37.55
Concrete Pump, Truck Mounted	\$ 30.33	\$ 7.05	\$ 4.50	\$ 41.88
Crane 100 Ton - 199, Medium Top Drive				
Drill Rig. All Friction Cranes performing duty cycle work (clam shelling pile driving, drag line work.	\$ 36.50	\$ 7.55	\$ 5.00	\$ 49.05
Crane 200 Ton+, Large Top Drive Drill Rigs	\$ 37.50	\$ 7.55	\$ 5.00	\$ 50.05
Crane 99 Ton and Below	\$ 28.75	\$ 7.55	\$ 5.00	\$ 41.30
Drill Rig	\$ 28.75	\$ 7.55	\$ 5.00	\$ 41.30
Directional Boring and Drilling Machine	\$ 30.47	\$ 7.55	\$ 5.00	\$ 43.02
Distributor	\$ 25.00	\$ 7.55	\$ 5.00	\$ 37.55
Dozer	\$ 28.93	\$ 7.05	\$ 4.50	\$ 40.48
Drill Rig, Truck Mounted, Large	\$ 32.34	\$ 7.05	\$ 4.50	\$ 43.89
Drill Rig, Truck Mounted, Small	\$ 28.93	\$ 7.05	\$ 4.50	\$ 40.48
Driver, Miscellaneous Trucks	\$ 26.29	\$ 7.05	\$ 4.50	\$ 37.84
Excavator	\$ 28.93	\$ 7.05	\$ 4.50	\$ 40.48
Finish Machine - Paving	\$ 25.00	\$ 7.55	\$ 4.50	\$ 37.05
Forklift/Lull	\$ 22.50	\$ 4.25	\$ 3.41	\$ 30.16
Front-End Loader	\$ 22.50	\$ 4.25	\$ 3.41	\$ 30.16
Fuel Truck	\$ 25.00	\$ 7.55	\$ 4.50	\$ 37.05
Gradall	\$ 28.93	\$ 7.05	\$ 4.50	\$ 40.48
Grader	\$ 30.33	\$ 7.05	\$ 4.50	\$ 41.88
Grader, Finisher	\$ 32.34	\$ 7.05	\$ 4.50	\$ 43.89
Grease Truck	\$ 25.00	\$ 7.55	\$ 5.00	\$ 37.55
Hoist (Electric, Hydraulic, Air) Personnel,				
Material, Tugger	\$ 27.35	\$ 7.05	\$ 4.50	\$ 38.90
Hoists, 2 & 3 Drum Only	\$ 34.29	\$ 7.05	\$ 4.50	\$ 45.84
Hydraulic Backhoe	\$ 28.75	\$ 7.55	\$ 5.00	\$ 41.30
Inside Elevators, Temporary Only	\$ 25.00	\$ 7.55	\$ 5.00	\$ 37.55
Locomotive Operator	\$ 25.00	\$ 7.55	\$ 5.00	\$ 37.55
Lowboy Truck	\$ 25.00	\$ 7.55	\$ 4.50	\$ 37.05

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<u>OPERATING ENGINEERS, Continued</u>				
Mechanic I	\$ 28.93	\$ 7.05	\$ 4.50	\$ 40.48
Mechanic II	\$ 28.75	\$ 7.55	\$ 5.00	\$ 41.30
Mechanic's Helper	\$ 24.06	\$ 7.05	\$ 4.50	\$ 35.61
Milling Machine	\$ 15.00	\$ -	\$ -	\$ 15.00
Motor Grader	\$ 30.47	\$ 7.55	\$ 5.00	\$ 43.02
Motor Mixing Pump (All types)	\$ 25.00	\$ 7.55	\$ 5.00	\$ 37.55
Off-Road Trucks	\$ 26.29	\$ 7.05	\$ 4.50	\$ 37.84
Oiler, Driver Oiler, Crawler Crane	\$ 24.06	\$ 7.05	\$ 4.50	\$ 35.61
Oiler/Driver/Flagman	\$ 25.76	\$ 7.05	\$ 4.50	\$ 37.31
Pan	\$ 25.00	\$ 7.55	\$ 5.00	\$ 37.55
Pavement Breaker	\$ 25.00	\$ 7.55	\$ 5.00	\$ 37.55
Pumps/ Dewatering Systems 4 in. and over	\$ 26.29	\$ 7.05	\$ 4.50	\$ 37.84
Roller	\$ 25.00	\$ 7.55	\$ 5.00	\$ 37.55
Scraper	\$ 26.29	\$ 7.05	\$ 4.50	\$ 37.84
Spreading/Finishing Machine	\$ 25.00	\$ 7.55	\$ 5.00	\$ 37.55
Straddle Buggy/Travel Lift	\$ 28.93	\$ 7.05	\$ 4.50	\$ 40.48
Tack Truck	\$ 25.00	\$ 7.55	\$ 5.00	\$ 37.55
Trackhoe	\$ 28.93	\$ 7.05	\$ 4.50	\$ 40.48
Tractors	\$ 25.00	\$ 7.55	\$ 5.00	\$ 37.55
Trenching and Ditching Machine	\$ 25.00	\$ 7.55	\$ 5.00	\$ 37.55
Utility Operator, Less than 6 Pieces of				
Miscellaneous Equipment	\$ 26.29	\$ 7.05	\$ 4.50	\$ 37.84
Vactor Truck	\$ 23.87	\$ -	\$ -	\$ 23.87
Vacuum Pump	\$ 25.00	\$ 7.55	\$ 5.00	\$ 37.55
Water Truck Driver	\$ 25.00	\$ 7.55	\$ 5.00	\$ 37.55
Welder	\$ 28.93	\$ 7.05	\$ 4.50	\$ 40.48
Welding Machines, three (3) or more	\$ 26.29	\$ 7.05	\$ 4.50	\$ 37.84
Winch Truck	\$ 25.00	\$ 7.55	\$ 5.00	\$ 37.55
Yard Crane	\$ 28.75	\$ 7.55	\$ 5.00	\$ 41.30

Apprentices:

NOTE: Apprentices will be permitted to work at these rates when they are employed pursuant to and individually registered in a legitimate apprenticeship program registered with the U. S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a state apprenticeship agency recognized by the Bureau. In Florida this agency is the Florida Department of Education, Division of Career and Adult Education, Apprenticeship Section - <http://www.fldoe.org/workforce/apprenticeship>. Please see pages 7-8 of the Supplemental General Conditions for more information.

1st 6 months	\$ 20.51	\$ 7.55	\$ 5.00	\$ 33.06
2nd 6 months	\$ 21.06	\$ 7.55	\$ 5.00	\$ 33.61
3rd 6 months	\$ 21.61	\$ 7.55	\$ 5.00	\$ 34.16
4th 6 months	\$ 22.15	\$ 7.55	\$ 5.00	\$ 34.70
5th 6 months	\$ 22.70	\$ 7.55	\$ 5.00	\$ 35.25
6th 6 months	\$ 23.25	\$ 7.55	\$ 5.00	\$ 35.80
7th 6 months	\$ 23.79	\$ 7.55	\$ 5.00	\$ 36.34
8th 6 months	\$ 24.34	\$ 7.55	\$ 5.00	\$ 36.89

(1) Per hour health benefit includes hospitalization, medical, life, vision and dental insurance.

APPRENTICE RATIO: Three (3) Apprentices to one (1) Operator. Apprentices must be under the supervision of an Operator

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PAINTERS/WALL COVERING INSTALLATIONS

Painter - Commercial	\$ 17.53	\$ 6.72	\$ 5.83	\$ 30.08
Painter - Industrial	\$ 21.76	\$ 6.72	\$ 5.83	\$ 34.31
Painter (Highway/Parking Lot Striper)	\$ 15.00	\$ -	\$ -	\$ 15.00
Operator (Spray Nozzleman)	\$ 15.00	\$ -	\$ -	\$ 15.00
Operator (Striping Machine)	\$ 15.07	\$ -	\$ -	\$ 15.07

Per Hour Premiums:

\$1.00 Charge person working up to 5 employees

\$1.50 Charge person working 6 or more employees

\$1.00 General Foreman above highest paid charge person

\$1.00 Swing-Stage

\$2.00 Thermal-Spay/Metalizing

\$.50 Apprentices - steel, swing/stage, tanks, lead/asbestos abatement, power facilities, catalyzed epoxies, urethanes, HIPAC coatings

Industrial Rates are used on Water Treatment Plants, Pump Stations, Elevated / Ground Storage Tanks and Communication Towers.

Apprentices:

NOTE: Apprentices will be permitted to work at these rates when they are employed pursuant to and individually registered in a legitimate apprenticeship program registered with the U. S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a state apprenticeship agency recognized by the Bureau. In Florida this agency is the Florida Department of Education, Division of Career and Adult Education, Apprenticeship Section - <http://www.fldoe.org/workforce/apprenticeship>. Please see pages 7-8 of the Supplemental General Conditions for more information.

1st 6 months	\$ 11.39	\$ 6.72	\$ 1.67	\$ 19.78
2nd 6 months	\$ 12.27	\$ 6.72	\$ 1.67	\$ 20.66
3rd 6 months	\$ 13.15	\$ 6.72	\$ 1.67	\$ 21.54
4th 6 months	\$ 14.02	\$ 6.72	\$ 1.67	\$ 22.41
5th 6 months	\$ 14.90	\$ 6.72	\$ 1.67	\$ 23.29
6th 6 months	\$ 15.78	\$ 6.72	\$ 1.67	\$ 24.17
7th and 8th 6 months	\$ 16.65	\$ 6.72	\$ 1.67	\$ 25.04

APPRENTICE RATIO: One (1) Apprentice to every one (1) Painter/Wall Covering Installer

(1) Per hour health benefit includes hospitalization, medical, life, vision and dental insurance.

Scope of work under this trade includes but is not limited to: preparation, application and removal of all types of coatings and coating systems in relation to all painting, decorating, protective coatings, coating and staining of concrete floors and toppings, waterproofing, masonry restoration, fireproofing, fire retarding, metal polishing, refinishing, sealing, lining, fiber glassing, E-Glass fiberglass, carbon fiber, encapsulating, insulating, metalizing, flame spray, the application of Exterior Insulating Finishing Systems;

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PAINTERS/WALL COVERING INSTALLATIONS, Continued

Each and all such applications, and similar or substitute applications, on all surfaces, interior and exterior, to include, but not to be limited to: residences; buildings; structures; industrial, power, chemical and manufacturing plants; bridges; tanks; vats; pipes; stacks; light and high tension poles; parking, traffic and air strip lines; trucks; automobile and railroad cars; ships; aircraft; and all machinery and equipment;

Any and all material used in preparation, application or removal of any paint, coatings or applications, including, but not limited to: the handling and use of thinners, dryers, sealers, binders, pigments, primers, extenders, air and vapor barriers, emulsions, waxes, stains, mastics, plastics, enamels, acrylics, epoxies, epoxy injection and T-Lock welding, alkalis, sheet rubber, foams, seamless and tile-like coatings, etc.;

All preparation for and removal of any and all materials for finishes, such as deep cleaning, patching, all levels of finishing, taping/finishing skim coating, pointing, caulking, high pressure water, chemical and abrasive blasting, environmental blasting, wet/dry vacuum work, chemical stripping, scraping, air tooling, bleaching, steam cleaning, asbestos and lead abatement/removal; mold remediation and vapor barrier systems;

The inspection of all coatings and/or coating systems during their applications.

WALL COVERING INSTALLATIONS

All material applied to walls or ceilings with adhesive, staples, tacks, by stretching or adhered by any other method, including all papers, vinyl, flexible woods, fabrics, borders, metals upholstered wall systems, the fabric covered panels made of plastic/wood or pre-finished products of micro fiberglass, etc., acrovin and various plastic wall coverings such as wainscot, caps, corner moldings and accessories;

Any and all preparation of walls and ceilings such as scraping or any methodology for removal of existing materials, including patching, leveling, skim coating and priming.

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PILEDRIVERS, BRIDGE CARPENTERS & DIVERS

Piledrivers and Bridge Carpenters	\$ 25.45	\$ 4.60	\$ 7.05	\$ 37.10
Foreman	\$ 28.95	\$ 4.60	\$ 7.05	\$ 40.60
(All piledriving crews shall consist of at least one paid foreman)				
Divers (Wet days up to 59' or Dry days)	\$ 29.90	\$ 4.60	\$ 7.05	\$ 41.55
Diver Tenders	\$ 29.90	\$ 4.60	\$ 7.05	\$ 41.55
Diver Foreman	\$ 33.40	\$ 4.60	\$ 7.05	\$ 45.05

Diver Wet Days - The diver and tender must receive the diver rate with a premium pay of \$1.00 per hour/ per foot per day for (60'-100'). Over 100' will be negotiated between the diver and the employer.

Foreman Wet Days - The foreman must receive the foremen rate with a premium pay of \$2.00 per hour/ per foot per day for (50'-100'). Over 100' will be negotiated between the diver and the employer.

For Effluent Diving (working in hazardous waters such as waste water treatment plant/tanks, sewer pipes or storm water out fall pipes) the diver and tender must receive 1.5 times the diver and tender base rate and on wet days the diver and tender must also receive a premium pay of \$1.00 per foot per day for (60' - 100') and over 100' will be negotiated between the diver and the employer.

Penetration: \$1.00 per foot per day in excess of 20' after entering an enclosed structure that has no direct path to the surface.

Per Hour Premiums:

\$0.50 Certified Welders

Apprentices:

NOTE: Apprentices will be permitted to work at these rates when they are employed pursuant to and individually registered in a legitimate apprenticeship program registered with the U. S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a state apprenticeship agency recognized by the Bureau. In Florida this agency is the Florida Department of Education, Division of Career and Adult Education, Apprenticeship Section - <http://www.fldoe.org/workforce/apprenticeship>. Please see page 6 of the Supplemental General Conditions for more information.

1st year	\$ 17.05	\$ 4.60	\$ 7.05	\$ 28.70
2nd year	\$ 19.09	\$ 4.60	\$ 7.05	\$ 30.74
3rd year	\$ 20.87	\$ 4.60	\$ 7.05	\$ 32.52
4th year	\$ 22.91	\$ 4.60	\$ 7.05	\$ 34.56

APPRENTICE RATIO: Two (2) Apprentices to three (3) Piledrivers/Bridge Carpenter

(1) Per hour health benefit includes hospitalization, medical, life, vision and dental insurance.

Scope of work under this trade includes but is not be limited to: all work historically related to piledrivers, welders, drillers, burners, riggers, divers, bridge, deck and wharf builders, signaling, and highway construction. Such work includes, but is not limited to, the following kinds, classes, or descriptions of work: fabricating, erecting, dismantling, loading, unloading, moving, spotting, and handling of all piledriving equipment on the jobsite;

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PILEDRIVERS, BRIDGE CARPENTERS & DIVERS, Continued

Jobsite moving and spotting of barges used in connection with piledriving work; anchoring, bolting, boom-tending, bracing, building, burning, capping, caulking, cutting, chipping of all types of piles, dismantling, drilling, erecting, fabricating, fitting, handling, lagging, loading, moving, plumbing, rafting, securing, signaling, spotting, welding, wrapping, and tying back, unloading and removing, all materials of any kind, make, shape or composition, whether prestressed or post stressed concrete, pipe, corrugated shell where power rigging is used, sand piles, sheet piles, auger cast type piling, wood, plastic, fiberglass, steel or any metal or synthetic which is used or installed in, or for, the building, construction, alteration, maintenance, or repair of wharfs, bridges, docks, piers, bulkheads, trestles, offshore drilling platforms of oil, gas, or any other purpose, coal docks, cofferdams, tunnels, seawalls, seawall caps, boardwalks, deck, and temporary flotation devices;

Pilings used in retaining walls, reservoirs, ditches, canals, spillways, cuts, or in any place where retaining walls are used, made of any kind of material, whether temporary or permanent; weights for piers, caissons, and test piles; Test piles and other test materials, including the securing of such materials except for independent testing equipment done by an independent testing laboratory;

Foundation work, including all piling, whether cast-in-place, poured-in-place, driven, jetted, augured, pre-augured or placed, and all caisson, drilled shaft and vibro-flotation foundations;

The splicing, heading, placing of stringers for frame work, fabrication and placing of wailing, spring and fender lines of any material described above;

The driving, vibrating, jetting, sinking, or screwing of all materials described above, whether by steam, pneumatic, hydraulic, electric, diesel, gravity, or vibratory hammer power; All other work in connection with drilling of any holes, shafts or caissons, for foundation work, spotting, aligning, monitoring, plumbing, and leveling of all drilling equipment whether the drilling is vertical, diagonal, on land or water, and is performed by equipment mounted on trucks, cranes, platforms or barges, or any other kind of mounted or self-contained water or land unit; and the handling, loading, unloading, changing, setting up, repairing, welding, or maintenance of the drilling equipment on the job site.

The fabrication and placing of all decking and guards on all docks, wharfs, and piers on the jobsite. All labor (except the work of the Operating Engineers and Oilers) employed in the actual operation of Piledriving equipment used from whatever purpose, including the operation of deck winches. The operation of vibratory hammer controls, hammer throttle valves and panels not permanently fixed to a crane within reach of the Operator work.

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PILEDRIVERS, BRIDGE CARPENTERS & DIVERS, Continued

Diving: shall be defined as any work performed beneath the water surface, which require individual external life support systems for safe and efficient performance. All underwater construction and reconstruction and the salvage of, and removing of, underwater structures; underwater inspection and repair of hulls, docks, bridges and dams, underwater pipelines, sewages and water systems, underwater suction and discharge lines such as those used at chemical plants, pull mills, and desalinization plants; inspecting, surveying , removing, rescuing, and recovering of all objects below water surfaces; all underwater work necessary on offshore oil platforms permanent or temporary, including all offshore floating drill rights and offshore jack up platforms; all underwater work on pipelines and hookups including oil, gas, water sewage systems; the laying of under water power and telephone cables; offshore marine mining and dredging operations using divers in any phase of tier work; all petroleum, fisheries, oceanographic, research and experimental work, nuclear reactors where the use of divers is necessary; all underwater demolition and blasting work requiring divers.

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PIPEFITTERS, AIR CONDITIONING & REFRIGERATION

R-1 ALL PIPING NOT FOR AIR CONDITIONING WORK; AND, COMMERCIAL UNLIMITED, ALL PIPING SYSTEMS OVER 100
 Pipefitter, Air Conditioning & Refrigeration \$ 40.78 \$ 7.85 \$ 6.30 **\$ 54.93**

R-2 COMMERCIAL LIMITED, PIPING LIMITED, ALL AC SYSTEMS REFRIGERATION, PIPING UP TO 100 TONS
 Pipefitter, Air Conditioning & Refrigeration \$ 32.62 \$ 7.85 \$ 5.95 **\$ 46.42**

R-3 COMMERCIAL AC, REFRIGERATION, ICE MACHINES, SELF CONTAINED AND SPLIT SYSTEMS UP TO 50 TONS
 Pipefitter, Air Conditioning & Refrigeration \$ 26.51 \$ 7.60 \$ 5.35 **\$ 39.46**

R-4 UNLIMITED RESIDENTIAL AND LIGHT COMMERCIAL UP TO 10 TONS
 Pipefitter, Air Conditioning & Refrigeration \$ 22.43 \$ 7.60 \$ 1.00 **\$ 31.03**

Foreman - Required for four (4) or more workers; also required on all jobs 150 tons or over. A foreman may supervise up to nine (9) Pipefitter, Air Conditioning & Refrigeration Workers. \$ 46.90 \$ 7.85 \$ 6.30 **\$ 61.05**

General Foreman - Required when three (3) foremen are required. A general foreman may supervise up to five (5) foreman. \$ 50.98 \$ 7.85 \$ 6.30 **\$ 65.13**

Apprentices:

NOTE: Apprentices will be permitted to work at these rates when they are employed pursuant to and individually registered in a legitimate apprenticeship program registered with the U. S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a state apprenticeship agency recognized by the Bureau. In Florida this agency is the Florida Department of Education, Division of Career and Adult Education, Apprenticeship Section - <http://www.fldoe.org/workforce/apprenticeship>. Please see pages 7-8 of the Supplemental General Conditions for more information.

1st year	\$ 18.35	\$ -	\$ 0.35	\$ 18.70
2nd year	\$ 20.39	\$ 6.15	\$ 0.35	\$ 26.89
3rd year	\$ 24.47	\$ 6.15	\$ 0.35	\$ 30.97
4th year	\$ 26.51	\$ 6.15	\$ 3.74	\$ 36.40
5th year	\$ 28.55	\$ 6.15	\$ 3.90	\$ 38.60

APPRENTICE RATIO: One (1) Apprentice to one (1) Pipefitter, Air Conditioning & Refrigeration Worker

(1) Per hour health benefit includes hospitalization, medical, life, vision and dental insurance.

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TRADE/WORK LEVEL CLASSIFICATION	PER HOUR WAGE RATE	PER HOUR HEALTH BENEFIT (1)	PER HOUR PENSION BENEFIT	COMBINED DOLLAR VALUE
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PIPEFITTERS, AIR CONDITIONING & REFRIGERATION, Continued

Scope of work under this trade includes but is not be limited to: All piping, setting and hanging of all units and fixtures for air conditioning, cooling, heating, roof cooling, refrigeration, ice making, humidifying, dehumidifying, dehydrating, by any method, and the charging and testing, servicing of all work after completion.

The installation and service of all circulating water lines when used for the distribution of heat and heat transfer equipment on ornamental pools, commercial and residential pools and spas, display fountains and aquariums.

All piping, handling and setting of equipment in connection with central distributing filtration treatment stations, boosting stations, water treatment, waste and sewage disposal plants, central chlorination and chemical treatment work and all underground supply lines to cooling wells, suction basins, filter basins, settling tanks, aeration basins or tanks and lift stations. (This applies to public work when installed or serviced and would apply to private work after its completion and or under pubic operation.)

The handling, assembling and erecting of all economizers, super heaters, regardless of mode or method of making joints, hangers and erection of same, when used in connection with the pipefitting industry.

All internal and external piping on boilers, heaters, tanks and evaporators, water legs, water backs and water grates, boiler compound equipment, etc., when in connection with the pipefitting industry.

The setting and erecting of all boiler feeders, water heaters, filters, water softeners, purifiers, condensate equipment, pumps, condensers, coolers and all piping for same when used in connection with the pipefitting industry.

The setting and erecting of all underfeed stokers, fuel burners and piping, including gas, oil, power fuel, hot and cold air piping and all accessories and parts of burners and stokers, etc., when used in connection with the pipefitting industry.

Make-up water supply from main to equipment installed by Pipefitters.

All meters for measuring a volume of any substance, when used in connection with the pipefitting industry.

The setting and hanging of all units or fixtures for ice making when unit must be assembled before operation. (Shipping bolts, grids and other parts are to be removed or put in place.)

All solar systems, piping and collectors of every description when used in connection with the pipefitting industry.

The installation and service of hydraulic or pneumatic door openers when in connection with industrial, manufacturing and commercial applications. Airports included.

All gas piping from the main to the meter. All distribution lines.

The assembling, erecting, handling and setting of tanks used in connection with the pipefitting industry.

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PIPEFITTERS, AIR CONDITIONING & REFRIGERATION, Continued

The setting, erecting and piping for all smoke consuming and smoke washing and regulating devices, when used in connection with the pipefitting industry.

The setting, erecting and piping of instruments, measuring devices, thermostatic controls, gauge boards and other controls used in connection with power, heating, refrigeration, air conditioning, manufacturing, mining and industrial work.

The setting and erection of all oil heaters, oil coolers, storage and distribution tanks, transfer pumps and mixing devices and piping thereto, when used in connection with the pipefitting industry.

Installations of drain lines from equipment installed by pipefitters where drain lines drop to a safe waste, floor drain, roof, or any open fixture and where drain lines are not directly connected to a sanitary system.

Recovery condensate systems in their entirety.

The setting, erecting and piping of all cooling units, pumps, reclaiming systems and appurtenances in connection with transformer and piping to switches of every description.

The installation and service of vacuum cleaning equipment and piping when used in connection with manufacturing plants, maintenance facilities, airport terminals, post offices, etc.

The installation and service of vacuum systems when used in connection with manufacturing plants, maintenance facilities, airport terminals, post offices, etc.

The installation and service of oxygen systems when used in connection with manufacturing, commercial & industrial application.

All sheet lead lining for tanks or vats for all purpose, when in the category of industrial work.

All piping for railing work and racks of every description, whether screwed or welded when assigned by the Contractor.

All power plant piping of every description, as it applies to the pipefitting industry.

The unloading, handling and setting of all sterilizers, laundry and cleaning equipment will be done by composite crew. Steam and oil lines will be done by this trade classification.

Laying out, cutting, bending and fabricating of all pipe work of every description by whatever mode or method, when used in connection with the pipefitting industry.

All acetylene and arc welding, brazing, lead burning, soldered and wiped joints, caulked joints, expanded joints, rolled joints or any other mode or method of making joints used in connection with the pipefitting industry including pipe fusing.

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PIPEFITTERS, AIR CONDITIONING & REFRIGERATION, Continued

The laying out and cutting of all holes, chases and channels, the setting and erection of bolts, inserts, stands, brackets, supports, sleeves, thimbles, hangers, conduit and boxes, used in connection with the pipefitting industry. Hangers, supports, brackets requiring off site fabrication may be purchased from miscellaneous metal or structural steel fabricators.

The handling and using of all tools and equipment that may be necessary for the erection and installation of all work and materials used in connection with the pipefitting industry.

The operation, maintenance, repairing, servicing, test and balance, and dismantling of all work installed by this trade classification.

All soot blowers and soot collecting piping systems, when used in, connection with the pipefitting industry.

All piping for artificial gases, natural gases, holders and equipment for same, chemicals, minerals and by products and refining of same, when used in connection with the pipefitting industry.

All ash collecting and conveyor piping systems, including all air washing and dust collecting piping and equipment, accessories and appurtenances and regulating devices, etc., when used in connection with the pipefitting industry.

All pneumatic transit tube work and all piping for carrying systems by vacuum.

All process piping and equipment for refining, manufacturing, and industrial purposes.

The installation and service of all piping systems and equipment with grease pressure lubricating and hydraulic lifts in connection with industrial manufacturing, commercial and maintenance facilities applications (excluding schools). Service station installations optional pertaining to grease pressure and hydraulic lift installations until assigned.

The installation of all related piping, fuel storage tanks and exhaust piping for emergency generators, manufacturing plants, airports, post offices and industrial applications.

The installation and service of all air piping and related equipment in connection with manufacturing plants, industrial, airports, post offices, etc.

The installation and service of all fuel oil, gasoline and cleaning solvent piping and related equipment in connection with manufacturing plants, industrial, airports, post offices. Maintenance facilities and service stations optional until assigned.

The installation and service of all oxygen and acetylene piping systems and related equipment in connection with manufacturing plants or remote distribution systems and industrial applications. Maintenance facilities and service stations optional until assigned.

The setting, erecting and piping of all cooling towers and evaporative condensers.

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PIPEFITTERS, AIR CONDITIONING & REFRIGERATION, Continued

All work related to the removal and replacement of CFC Refrigerants as mandated by the federal, state and local laws.

All work done in the pipefitter industry to comply with any environmental rules or regulations as set forth by federal, state, or local governments.

Equipment used on building and construction work in conjunction with the work of the trade, as a time and labor saving device, shall be operated by qualified Employees under this trade classification.

The operation of pumps, air compressors and welding machines when used in conjunction with work covered by the pipefitters, shall be done by this trade classification.

The testing and balancing of all piping systems or component parts thereof and solar systems, shall be done by this trade classification.

Temporary mechanical equipment and air conditioning systems shall be installed and serviced by this trade classification.

The unloading and handling from curbside delivery, all equipment (including cooling towers) materials, the erection, installation of all tubing and piping, the setting and hanging of all units and fixtures which are included and necessary to make and complete an air conditioning, refrigeration, heating, piping installation, and solar installation, including the charging, testing, air and water balancing, servicing and maintenance of same and warranty of same.

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PLUMBERS

Plumbers	\$ 30.78	\$ 6.90	\$ 5.34	\$ 43.02
Foremen (10 or more employees)	\$ 35.42	\$ 6.90	\$ 5.34	\$ 47.66
General Foremen (16 or more employees)	\$ 40.05	\$ 6.90	\$ 5.34	\$ 52.29

Apprentices:

NOTE: Apprentices will be permitted to work at these rates when they are employed pursuant to and individually registered in a legitimate apprenticeship program registered with the U. S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a state apprenticeship agency recognized by the Bureau. In Florida this agency is the Florida Department of Education, Division of Career and Adult Education, Apprenticeship Section - <http://www.fldoe.org/workforce/apprenticeship>. Please see pages 7-8 of the Supplemental General Conditions for more information.

1st year	\$ 16.62	\$ 3.44	\$ 0.40	\$ 20.46
2nd year	\$ 17.54	\$ 4.99	\$ 1.85	\$ 24.38
3rd year	\$ 18.78	\$ 5.09	\$ 2.03	\$ 25.90
4th year	\$ 20.01	\$ 5.15	\$ 2.03	\$ 27.19
5th year	\$ 23.09	\$ 5.06	\$ 2.03	\$ 30.18

(1) Per hour health benefit includes hospitalization, medical, life, vision and dental insurance.

Scope of work under this trade includes but is not be limited to: the installation of appliances, piping and plumbing fixtures to be done by plumber and plumbers apprentices. All job site unloading from tailgate and after, all of the handling and rigging of materials, fixtures, appliances having waste, water or gas connections, tools and equipment, for use in the work covered shall be done by plumbers and plumber apprentices. Also included, where required, cement under tubs and all cementing of pipe supports and columns for piping systems. All filling and testing fixtures and pipes as required, including the layout and hook-up of water hoses for tests. Additionally where required: covering of fixtures for protection, grouting of all fixtures and cementing of all plumbing pipe chases and sleeves.

Plumber shall mean any person employed by a firm or corporation lawfully licensed to contract for and install work covered by the Plumbing Code of Miami-Dade County. The scope of work shall be, but not limited to as follows: All piping, setting and hanging of all units and fixtures for plumbing systems, water, waste, floor drains, drain gates, supply, leader, soil pipe, grease traps, sewage and vent lines. All cold, hot and circulating water lines, piping for house pumps, cellar drains, ejectors, house tanks, pressure tanks, swimming pools, ornamental pools, display fountains, drinking fountains, aquariums, plumbing fixtures and appliances, and the handling and setting of the above mentioned equipment. All piping in connection with central distributing filtration treatment stations, boosting stations, water and sewage disposal plants, central chlorination and chemical treatment work, and all underground supply lines to cooling wells, suction basin, filter basins, settling basins, and aeration basins or tanks and lift stations on private property.

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PLUMBERS, Continued

All potable water mains for whatever source, including branches and fire hydrants, etc. All potable water services from mains to buildings, including water meters and water meter foundations. All piping for potable water filters, water softeners, water meters and the setting of the same. All meters for measuring a volume of any substance, when used in connection with the plumbing industry. The laying out and cutting of holes, chases and channels, the setting and erection of bolts, inserts, stands, brackets, supports and boxes used in connection with the plumbing industry. The handling and using of all tools and equipment that may be necessary for the erection and installation of all work and material used in connection with plumbing. Laying out, cutting, bending and fabricating of all pipe work of every description, by whatever mode or method, when used in connection with the plumbing industry.

Prepare and grade trenches either manually or with machines in connection with the plumbing. The setting and hanging of all units or fixtures for ice making when units are complete and ready for operation. All Solar systems, piping and collectors of every description when used. All gas piping on the building side of meter, all piping of air systems including the assembling, erecting, handling and setting of all equipment used in the systems. The assembling, erecting, handling and setting of tanks, piping of instruments, measuring devices, thermostatic controls, gauges boards and other controls, oil heaters, oil coolers, storage and distribution tanks, transfer pumps and mixing devices and piping thereto. Installation of drain lines from equipment installed by pipefitters where directly connected to a sanitary system and condensate drain as part of system.

Down spouts and drainage area soil pipes, catch basins, manholes, drains, gravel basins, storm water sewers, septic tanks, cesspools, water storage tanks, air conditioning and heating drain directly connected to storm drains and condensation systems. The installation and service of vacuum cleaning equipment and piping, vacuum systems and the installation and service of oxygen systems. All acetylene and arc welding, brazing, lead burning, soldering and wiped joints, caulked, expanded and rolled joints, or any other mode or method of making joints in connection with the plumbing industry.

Inspections of sewer lines for leak and damages through the use of video camera inspections and the repairing of any leaks or replacing pipes.

Smoke testing on sanitary piping systems and the repairing of damaged pipes; domestic water piping, reclaim water and irrigation water distribution; water pipe locating and leak detection and repairs of all water services, water distribution, irrigation and reclaim water piping.

All reclaim water systems and water harvesting systems installed and maintained by the plumbers including underground tank, above ground tanks, pumps and filters and filtering systems.

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ROOFERS

Roofers	\$ 25.59	\$ 6.47	\$ 2.50	\$ 34.56
Foreman	\$ 27.59	\$ 6.47	\$ 2.50	\$ 36.56
Helper 1st year	\$ 12.80	\$ 6.47	\$ 2.50	\$ 21.77
Helper 2nd year	\$ 15.35	\$ 6.47	\$ 2.50	\$ 24.32
Helper 3rd year	\$ 17.91	\$ 6.47	\$ 2.50	\$ 26.88

(1) Per hour health benefit includes hospitalization, medical, life, vision and dental insurance.

The application and installation of the following types of work: All forms of elastomeric, elasto-plastic and thermo-plastic roofing systems, both sheet and liquid applied, whether single-ply or multi-ply. These shall include but not be limited to Polyvinyl chloride systems (PVC), Butyl Rubber, ethylene propylene diene monomer (EDPM), Polyisobutylene (PIB), Chlorinated polyethylene (CPE), Chlorosulfonated polyethylene (CSPE), Neoprene, Nitrile Alloy (NBP), Ethylene Interpolymers (EIP), Thermoplastic Polyolefins (TPO), Ethylene Tetra Fluoro Ethylene (ETFE).

All base flashings, curb flashings and counter flashings of elastomeric, elasto-plastic or thermos-plastic composition as outlined in (1) used to roof or waterproof intersections of horizontal surfaces.

All components of elastomeric, elasto-plastic and thermos-plastic roofing systems used to seal the roof, including but not limited to nailers, blocking, ballast of all types of walkways, reinforcements, preformed panels, protection boards, plaza pavers, expansion joints, pitch pans, scupper flashing, drain flashings, compression seal, termination bars, caulking, and sealants.

All insulations applied with the above systems, whether laid dry, mechanically fastened or attached with adhesives.

All forms of composite insulations having nailable surfaces or any other means of attachments (e.g. plywood, pressboard, chipboard, drywall, or other laminates) bonded to the insulation wherever such composite insulations are used as an integral thermal insulating component of the roofing system.

All types of aggregates, blocks, bricks, stones, pavers, soils, overburdens, vegetation or units of photovoltaic cell construction used to ballast or protect these elastomeric, elasto-plastic and thermo-plastic systems.

All solar or photovoltaic cell-type integrated roof membranes used to transform solar energy to electrical energy.

All types of aggregates, blocks, bricks, stones, pavers, soils, overburdens, vegetation or units of photovoltaic cell construction used to ballast or protect inverted roof membrane assembly (IRMA) roofs or roofs of similar construction where the insulation is laid over the roof membrane.

All sealing and caulking of seams and joints on these elastomeric, elasto-plastic and thermos-plastic systems to ensure that these systems are watertight.

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ROOFERS, Continued

All cleaning, preparing, priming and sealing of surfaces to be roofed, whether done by roller, mop, swab three-knot brush, squeegees, spray systems or any other means of application.

All handling, hoisting, lifting and storing of all roofing materials.

All tear off and/or removal of any type of roofing including ballast and all overburdens, all spading, sweeping, vacuuming and/or cleanup of any and all areas of any type where an elastomeric, elasto-plastic or thermos-plastic or similar product as listed above to be re-laid or any cleanup of any materials on any construction site and operation of equipment that are used these roofing systems under the roofing trade.

All components of water recapturing systems that is an integral part of these types of roofing systems that protect against water and moisture mitigation or intrusion.

All components of rooftop and sub-surface water recapture or rainwater harvest systems that are an integral part of these type roof systems where the primary purpose is to control and manage water run-off.

All water and flood testing of all roofing systems.

All substitutions, improvements, changes, modifications and/or alternatives to roofer jurisdiction or materials listed above.

All other materials, equipment and/or applications necessary or appropriate to complete, perform or apply the processes and/or materials under this trade.

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SHEET METAL WORKERS

Commercial

Sheet Metal Workers	\$ 27.90	\$ 8.11	\$ 5.77	\$ 41.78
Foreman (4 - 10 workers)	\$ 30.69	\$ 8.11	\$ 5.77	\$ 44.57
General Foreman (2 or more Foreman)	\$ 32.09	\$ 8.11	\$ 5.77	\$ 45.97

Industrial

Sheet Metal Workers	\$ 37.09	\$ 8.11	\$ 6.06	\$ 51.26
Foremen (4 -10 workers)	\$ 42.65	\$ 8.11	\$ 6.06	\$ 56.82
General Foremen (2 or more Foremen)	\$ 44.51	\$ 8.11	\$ 6.06	\$ 58.68

Industrial Rate are used for Garbage Disposal Plants and Water & Sewer Treatment Plants.

Apprentices:

NOTE: Apprentices will be permitted to work at these rates when they are employed pursuant to and individually registered in a legitimate apprenticeship program registered with the U. S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a state apprenticeship agency recognized by the Bureau. In Florida this agency is the Florida Department of Education, Division of Career and Adult Education, Apprenticeship Section - <http://www.fldoe.org/workforce/apprenticeship>. Please see pages 7-8 of the Supplemental General Conditions for more information.

Commercial Apprentice

1st 6 months	\$ 15.35	\$ 8.11	\$ 3.18	\$ 26.64
2nd 6 months	\$ 15.35	\$ 8.11	\$ 3.18	\$ 26.64
3rd 6 months	\$ 16.74	\$ 8.11	\$ 3.46	\$ 28.31
4th 6 months	\$ 18.14	\$ 8.11	\$ 3.76	\$ 30.01
5th 6 months	\$ 19.53	\$ 8.11	\$ 4.04	\$ 31.68
6th 6 months	\$ 20.93	\$ 8.11	\$ 4.33	\$ 33.37
7th 6 months	\$ 22.32	\$ 8.11	\$ 4.62	\$ 35.05
8th 6 months	\$ 23.72	\$ 8.11	\$ 4.91	\$ 36.74

Industrial Apprentice

1st 6 months	\$ 20.40	\$ 8.11	\$ 3.34	\$ 31.85
2nd 6 months	\$ 20.40	\$ 8.11	\$ 3.34	\$ 31.85
3rd 6 months	\$ 22.25	\$ 8.11	\$ 3.64	\$ 34.00
4th 6 months	\$ 24.11	\$ 8.11	\$ 3.94	\$ 36.16
5th 6 months	\$ 25.96	\$ 8.11	\$ 4.24	\$ 38.31
6th 6 months	\$ 27.82	\$ 8.11	\$ 4.55	\$ 40.48
7th 6 months	\$ 29.67	\$ 8.11	\$ 4.85	\$ 42.63
8th 6 months	\$ 31.53	\$ 8.11	\$ 5.16	\$ 44.80

APPRENTICE RATIO: Three (3) Apprentices to three (3) Sheet metal Workers

(1) Per hour health benefit includes hospitalization, medical, life vision and dental insurance.

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SHEET METAL WORKERS, continued

Scope of work under this trade includes but is not be limited to: (a) manufacture, fabrication, assembling, handling, erection, installations, dismantling, conditioning, adjustment, alteration, repairing and serving of all ferrous or nonferrous metal work and all other materials used in lieu thereof and of all HVAC systems, air veyor systems, exhaust systems and air-handling systems regardless of materials used including the setting of all equipment and all reinforcements in connection therewith; (b) all lagging over insulation and all duct lining; (c) testing and balancing of all air-handling equipment and duct work; (d) the preparation of all shop and field sketches whether manually drawn or computer assisted used in fabrication and erection, including those taken from original architectural and engineering drawings or sketches; and, (e) installation of proprietary and non proprietary metal roofing.

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SPRINKLER FITTERS

Low Commercial: Construction up to 12 stories and all warehouses up to 800,000 square feet.

Sprinkler Fitters	\$ 30.03	\$ 11.10	\$ 10.20	\$ 51.33
Foreman (4 or less workers)	\$ 31.78	\$ 11.10	\$ 10.20	\$ 53.08
Foreman (5 or more workers)	\$ 32.28	\$ 11.10	\$ 10.20	\$ 53.58
General Foreman (15 or more workers)	\$ 34.28	\$ 11.10	\$ 10.20	\$ 55.58

Commercial: Construction 13 stories or more.

Sprinkler Fitters	\$ 31.28	\$ 11.10	\$ 10.20	\$ 52.58
Foreman (4 or less workers)	\$ 33.03	\$ 11.10	\$ 10.20	\$ 54.33
Foreman (5 or more workers)	\$ 33.53	\$ 11.10	\$ 10.20	\$ 54.83
General Foreman (15 or more workers)	\$ 35.53	\$ 11.10	\$ 10.20	\$ 56.83

Apprentices:

NOTE: Apprentices will be permitted to work at these rates when they are employed pursuant to and individually registered in a legitimate apprenticeship program registered with the U. S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a state apprenticeship agency recognized by the Bureau. In Florida this agency is the Florida Department of Education, Division of Career and Adult Education, Apprenticeship Section - <http://www.fldoe.org/workforce/apprenticeship>. Please see pages 7-8 of the Supplemental General Conditions for more information.

For Apprentices indentured after June 30, 2011 but prior to July 1, 2017

1st year	\$ 15.64	\$ 10.20	\$ 1.50	\$ 27.34
2nd year	\$ 16.85	\$ 10.20	\$ 1.65	\$ 28.70
3rd year	\$ 18.77	\$ 10.20	\$ 1.95	\$ 30.92
4th year	\$ 22.52	\$ 10.20	\$ 9.45	\$ 42.17
5th year	\$ 25.53	\$ 10.20	\$ 9.75	\$ 45.48

For Apprentices indentured after June 30, 2017

1st year	\$ 15.64	\$ 10.20	\$ 1.50	\$ 27.34
2nd year	\$ 17.20	\$ 10.20	\$ 1.50	\$ 28.90
3rd year	\$ 18.77	\$ 10.20	\$ 1.50	\$ 30.47
4th year	\$ 22.52	\$ 10.20	\$ 8.70	\$ 41.42
5th year	\$ 25.53	\$ 10.20	\$ 8.70	\$ 44.43

APPRENTICE RATIO: One (1) Apprentice for every two (2) Sprinkler Fitters

(1) Per hour health benefit includes hospitalization, medical, life, vision and dental insurance.

Scope of work under this trade includes but is not be limited to: the installation of all fire protection and fire control systems including the unloading, handling by hand, power equipment and installation of all piping and tubing appurtenances and equipment pertaining thereto, including both overhead and underground water mains, fire hydrants and hydrant mains, hose and hose connections with sprinkler and alarm systems, also all tanks and pumps connected thereto, but excluding steam fire protection systems. Also, included shall be detection systems, mulsifyre, fog and fog foam, also dry chemical systems.

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WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

For any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract, please contact Small Business Development for a wage determination.

Questions concerning the comparability of worker classifications or the applicability of Davis-Bacon classification shall be determined by the County.

Please Contact:

**Internal Services Department
 Small Business Development Division
 The Stephen P. Clark Center
 111 N.W. 1st Street - 19th Floor
 Miami, Florida 33128-1906
 Phone Number: (305) 375-3111
 Fax Number: (305) 375-3160**

NOTICE



County Code §2-11.16

NOTICE TO ALL EMPLOYEES WORKING ON COUNTY CONSTRUCTION PROJECTS

RESPONSIBLE WAGES AND BENEFITS

MINIMUM WAGE

You must be paid not less than the required base hourly rate and benefits listed in the Wages and Benefits Schedule for every hour worked. You may not be paid below the base rate even if the value of the fringe benefits provided to you exceeds the value of the health and pension required in the schedule. Additionally, you must be paid not less than the combined dollar value (Base Rate + Health + Pension Benefit) listed in the wage and benefits schedule posted with this notice for the type of work you are performing if benefits are not provided.

OVERTIME

You must be paid time and one-half of your rate of pay for all hours worked in excess of 40 hours in a week.

APPRENTICES & TRAINEES

Apprentices/trainees rates apply only to apprentices and trainees properly registered under an approved Federal or State apprenticeship or training program.

SANCTIONS

Sanctions for a first-time offender are 20% of the amount of underpayment payable to the County. The sanctions increase to 40% for the second underpayment and 60% for the third underpayment. Contractors found to have underpaid a fourth time may be subject to suspension or termination in accordance with the contract terms and debarment in accordance with the debarment procedures of the County.

COMPLAINTS Written complaints of underpayment should be filed with:

Internal Services Department
Small Business Development Division
111 NW 1ST Street, 19TH Floor Miami, FL 33128
Telephone: (305) 375-3111 FAX: (305) 375-3160
Email: SBDMAIL@MIAMIDADE.GOV

FAIR WAGE AFFIDAVIT

Before me, the undersigned authority appeared _____ the
(PRINT NAME)

_____ of _____,
(PRINT TITLE) (PRINT NAME OF BIDDER OR PROPOSER)

who attests that _____ shall pay workers on
(PRINT NAME OF BIDDER OR PROPOSER)

the project minimum wage rates in accordance with Responsible Wages and Benefits, Section 2-11.16 of the Code of Miami-Dade County and the Labor Provisions of the contract documents.

**State of FLORIDA
County of Miami-Dade**

Sworn to (or affirmed) and subscribed before me this _____ day of _____, 20_____.

_____ Personally, known or _____ produced identification.

(Signature of Notary Public - State of Florida)

(Print, Type, or Stamp Commissioned Name of Notary Public)

Type of identification produced: _____



Contractor Quick Start Guide

Version: 2

Date: 8/3/2022



117 E. Chapman Ave. Orange, CA 92866

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Contractor Quick Start Guide

At LCPtracker (Labor Compliance Program Tracker), we are aware that using a Prevailing Wage Software may be a new undertaking for many Contractors. We have designed this guide to explain what LCPtracker is used for and how to start using the software.

The LCPtracker service is a paperless, online system of entering Certified Payroll Reports (CPRs). Payroll data may be entered directly into the system or uploaded from major construction accounting systems or payroll programs. This service eliminates the need for Contractors to submit paper documents and forms while providing an online database that stores all CPRs.

All contract-specific wage rates, fringe rates and worker crafts/classifications are online within the system, and Contractors may then select craft/classifications from a drop-down menu. Potential errors in wage rates or work classification entries can be flagged to Contractors preemptively, allowing them to submit data with corrections implemented. (This is contingent on how the Administrator set up their Project validations). Once you have submitted your CPR, an electronic version will be available, and you will have access to all Contractor reports within LCPtracker.

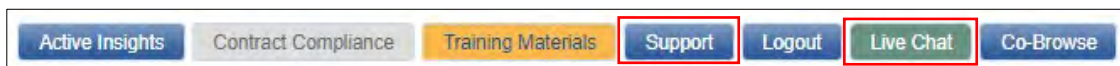
It is important to understand that the LCPtracker validation rules operate to assist you in your compliance process only insofar as the correct classifications are chosen by the user, and the correct data is entered by the user.

Contacting LCPtracker Support

There is no cost to Contractors for this service or for online training. We have a dedicated Support staff available Monday through Friday from 5:00am until 5:30pm PST.

Contractors may access the various options for training after receiving a User ID and password, which will be sent by a “no reply” email address from LCPtracker (i.e., NOREPLY@LCPtracker.com). This email, with login instructions, will be sent to Contractors once they’re assigned to an account in LCPtracker by your Agency or Prime Contractor. Every Contractor account is created by the Agency or their Prime Contractor. Complete and full support is offered directly to Contractors by LCPtracker for any technical questions on the use of the software.

Contact LCPtracker Support:



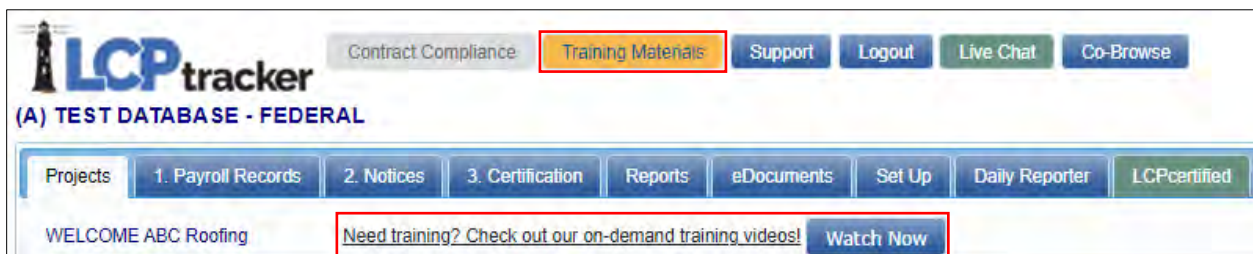
- 714-669-0052 option 4; or
- Support@LCPtracker.com; or
- Live Chat

If you send the Support Team an email or prefer to leave a voice message, LCPtracker asks that you include the information listed below (because of the high number of users stored within LCPtracker, we cannot look up your account with only your company name or project you are working on).

- Your Company Name
- Your User ID
- Your Name and Phone Number
- What the Issue is – please be as specific as possible so we can re-create the issue

LCPtracker Training Options

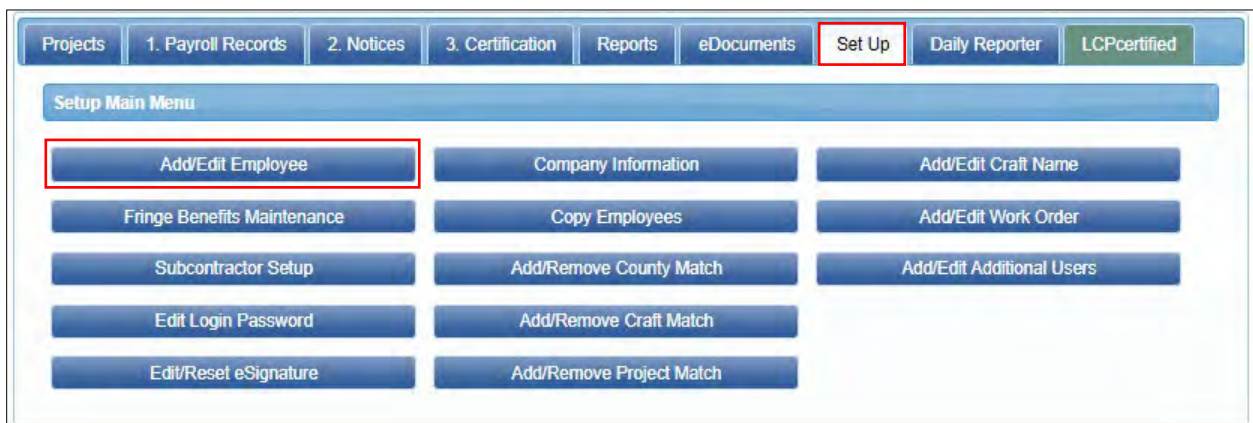
Contractors can access the various options for training after receiving a User ID and password. An email with login instructions will be sent to Contractors once they are assigned to an account in LCPtracker. Every Contractor account is created by the Agency or their Prime Contractor.



Add/Edit Employee

This section is used to enter Contractor employee's personal information.

To add an employee into system or edit someone already in system, click 'Set Up' and then 'Add/Edit Employee'.



Add/Edit Employee Information

Enter the appropriate employee information in the data fields. Tab key or mouse click to move between fields. Any **RED** asterisk field(*) is required by the Agency, and the system will not save unless the information is entered in the required fields.

Default Hourly Paid Fringes (As paid to Fund on behalf of employee)

This section is known as a 'time saver'. It is optional to fill in the hourly fringe rates in this section. This will allow for ease of use when entering payroll records manually, as you will be able to click the 'Calculate Fringes' button on the Payroll Entry screen, and the system will perform the mathematical calculation of the hourly fringes multiplied by the hours worked.

*If there are any predetermined increases, or your Union updates once a year, you will need to come back to this section and update your fringes accordingly.

**If you have multiple projects with different fringe rates, built in increases, or everyone has the same fringes and you only want to enter those dollar values once, skip this section and use the 'Fringe Benefit Maintenance' table to enter your hourly fringe rates into system.

Note: Any fringe amount entered in this section will supersede the fringe amount entered in that time saver section of the employee setup.

▼ Default Hourly Paid Fringes (As paid to Fund on behalf of employee)				
Vac / Hol / Dues	Health & Welfare	Pension	All Other	Training
*			**	*

*** DO NOT USE - Not allowed by Responsible Wages & Benefits** **** Use to enter vision, dental, life, and Accidental Death & Dismemberment insurance Only**

Default Other Deductions Notes

Any deduction that is permissible according to the USDOL or your Agency (such as IRS garnishments, child support, a company loan, etc.) would fall under the 'other' deduction section. Any amount listed in 'other' will then dictate that 'other deduction notes' are required.

1. Payroll Records Tab

There are five methods of payroll entry available to all Contractors:

1. Copy Payroll feature in LCPtracker
2. Upload from a payroll system export file
3. Upload from the Excel spreadsheet
4. Direct Payroll Subscription / Interface (DPI)
5. Manual entry

1. Copy Payroll

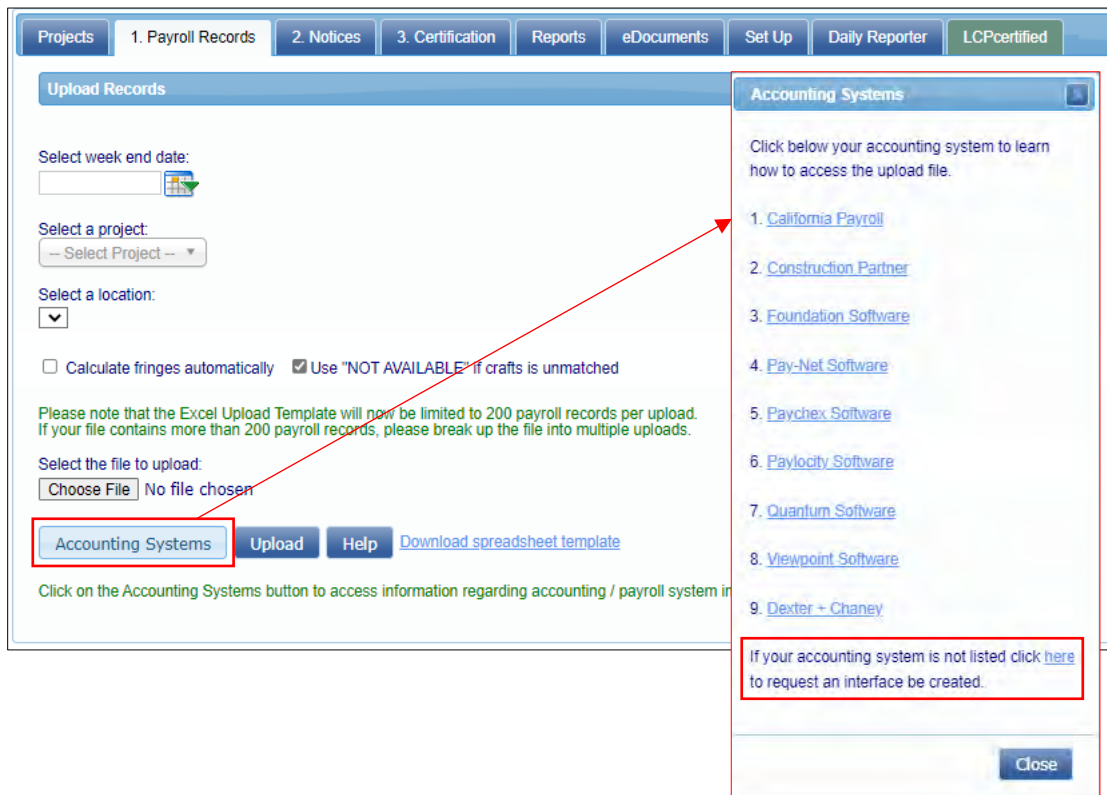
This option is only available if a week of payroll has been previously completed. In the Payroll Records tab, click the 'Copy Previous Payroll' button, select the project, then select the CPR to be copied.



2. Upload from a Payroll System Export File

In the Payroll Records tab, click the 'Upload Records' button, then click the 'Accounting Systems' button, you will see a partial list of the payroll companies that we have partnered with to create a payroll interface, or export file.

To see a complete list of payroll interfaces available, please visit www.lcptracker.com, and click the 'Resources' tab, then select 'Partners'. If you do not find your payroll company and would like to see if there is an opportunity to partner, please fill out the informational form listed under the "Upload Records" section and someone from LCPtracker will contact you.



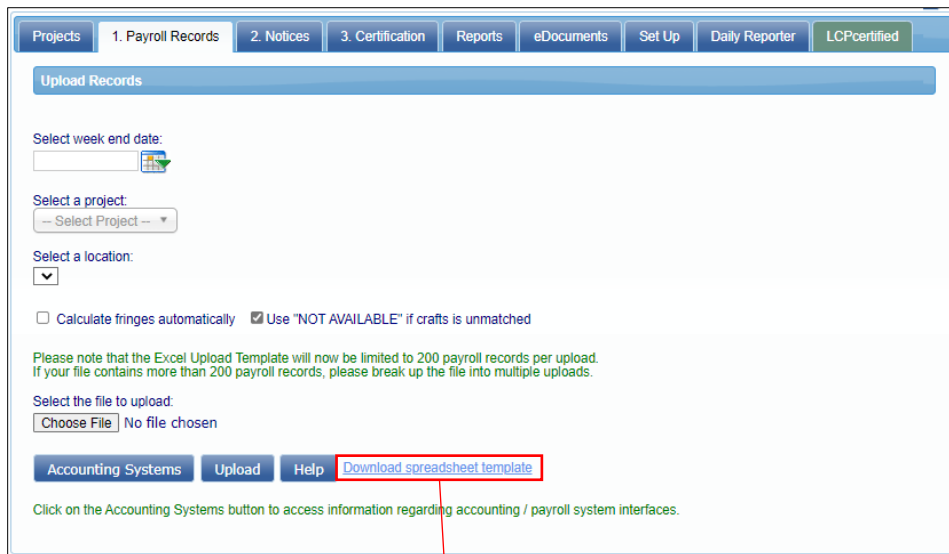
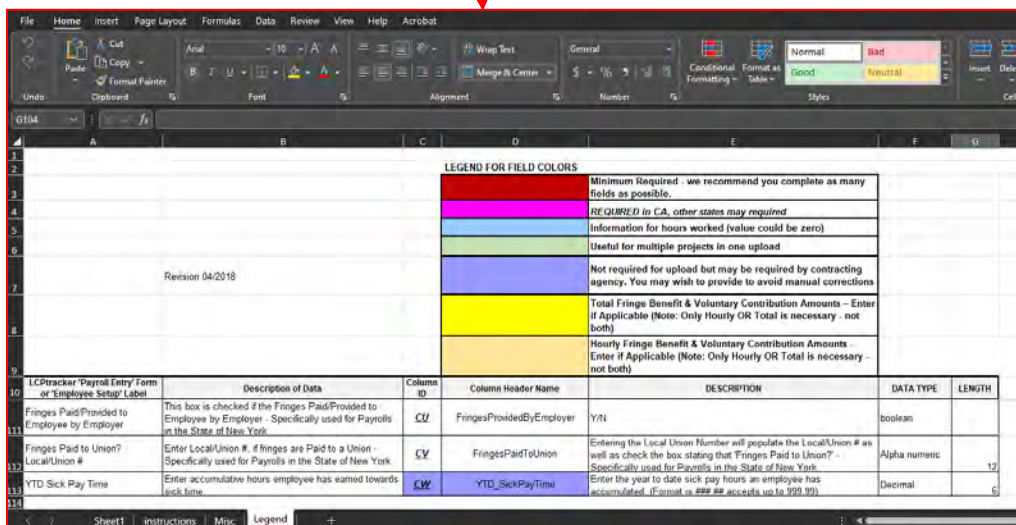
Click on the name of your payroll company, and a list of directions on how to obtain your export file will be available, or you will see a request that you contact your payroll company directly for instructions on how to obtain that export file.

Once you have the export file, you can use it to upload your CPR using the “Upload Records” button.

3. Upload from the Excel Spreadsheet

There is an Excel spreadsheet template available for you to download in the same ‘Upload Records’ section mentioned above. There is a legend as well as instructions available on the Excel template.

Information can be manually entered into this Excel spreadsheet, or you can confer with your IT department to see if they can utilize this spreadsheet to create a report out of your existing payroll system.

LCPtracker 'Payroll Entry Form or 'Employee Setup' Label	Description of Data	Column ID	Column Header Name	DESCRIPTION	DATA TYPE	LENGTH
Fringes Paid/Provided to Employee by Employer	This box is checked if the Fringes Paid/Provided to Employee by Employer - Specifically used for Payrolls in the State of New York.	CU	FringesProvidedByEmployer	Y/N	boolean	
Fringes Paid to Union? Local/Union #	Enter Local/Union #, if fringes are Paid to a Union - Specifically used for Payrolls in the State of New York	CV	FringesPaidToUnion	Entering the Local Union Number will populate the Local/Union # as well as check the box stating that 'Fringes Paid to Union?' - Specifically used for Payrolls in the State of New York.	Alpha numeric	12
YTD Sick Pay Time	Enter accumulative hours employee has earned towards sick time.	EW	YTD_SickPayTime	Enter the year to date sick pay hours - an employee has accumulated. (Format is ###.# accepts up to 999.99)	Decimal	6

Entering Fringe Benefits on LCPTracker

Projects | 1. Payroll Records | 2. Notices | 3. Certification | Reports | eDocuments | Set Up | Daily Reporter | LCPcertified

Notices

Week End Date: 6/21/2019 Contractor: CMC PRIME CONTRACTOR
 Project: CMC RWB TEST CONTRACT-HIGHWAY Sub To:
 Employee: ANDERSON, ALECIA Contract ID: test

Is Foreman Is Owner/Operator

Gross Employee Pay This Project (Usually No Fringes) 1600.000
 Wages Paid in Lieu of Fringes (Total Cash Fringes) 0.000

These fields are Hourly rate fields (Usually No Fringes)

Base Hourly	Overtime Hourly	Doubletime Hourly	Rate in Lieu of Fringes (Cash Fringes)
40.000	0.000	0.000	0.000

Classifications

Jurisdiction	Location	Craft	Classification	Construction Type	
Miami-Dade County Responsible Wages	Miami-Dade County	ELECTRICAL WORKER	Electrician - Wireman	Building	Edit

Hours Worked Each Day for This Project Only

	Saturday 6/15/2019	Sunday 6/16/2019	Monday 6/17/2019	Tuesday 6/18/2019	Wednesday 6/19/2019	Thursday 6/20/2019	Friday 6/21/2019	Total Hours
Regular Time	0.00	0.00	8.00	8.00	8.00	8.00	8.00	40.00
Overtime at 1.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Double-Time	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	8.00	8.00	8.00	8.00	8.00	40.00
Total Hours All Projects Worked	40.00							

Fringes / Contributions paid to others (not employee) for This Project Only (Rate Times the # of Hours Worked)

Vac / Hol / Dues	Health & Welf.	Pension	All Other	Training
0.000	0.000	0.000	0.000	0.000

Voluntary Contributions for all Projects

Pension	Medical
0.000	0.000

Vac/Hol/Dues Included in Gross Emp. Pay/Base Hourly Rate
 Some or All Fringes Paid to Employee
 Voluntary Contributions Included in Gross Emp. Pay
 Calculate Fringes

Wages Paid in Lieu of Fringes (Total cash fringes) = hourly rate of fringe x hours worked on county

This is an hourly rate of funds paid instead of Fringes Benefits. Funds paid directly to the employee and not paid into an approved plan.

- Paid into approved Plan.**
- Health Insurance
 - Dental Insurance
 - Vision Insurance
 - Life Insurance
 - Accident Death & Dismemberment

- Paid into approved Plan**
- Pension Plan
 - 401K

Payroll record entry form (2 of 2)

Week End Date: 6/3/2018 Contractor: Darren's Demo
 Project: M59 Realignment Sub To:
 Employee: DUCK, DONALD Contract ID: 5

Is Foreman Is Owner/Operator

Gross Employee Pay This Project (Usually No Fringes)	Wages Paid in Lieu of Fringes (Total Cash Fringes)	These fields are Hourly rate fields (Usually No Fringes)			Rate in Lieu of Fringes (Cash Fringes)
		Base Hourly	Overtime Hourly	Doubletime Hourly	
0.000	0.000	50.000	0.000	0.000	0.000

Gross Employee Pay This Project – The amount of basic wages paid for this project only. This is typically the hourly rate of pay multiplied by the hours worked (it could be more complex with overtime figured in).

Wages Paid-in-Lieu of Fringes – The amount paid to the employee instead of fringe benefits paid to a plan, fund or program. This amount is sometimes included in the Gross Employee Pay this Project depending on the accounting system and the agency reporting requirements. (Whether you are a Union Shop or Open Shop typically determines whether you pay these required fringes to an approved plan, fund or program, or pay them directly to the employee in cash.) This amount would be the rate-in-lieu of Fringes multiplied by the number of hours worked.

Rate-in-lieu of fringes – The hourly rate paid-in-lieu of fringes. If you pay your employees directly for the required fringe benefit instead of paying into an approved plan, fund or program, please list the hourly rate paid here.

Base Hourly – The hourly rate of pay not including fringes. Some accounting systems include taxable fringes and fringes paid-in-lieu in this amount, do not include those in this field.

Overtime Hourly – The hourly rate of pay multiplied by a factor of 1.5. Do not include fringe benefits in this equation, unless specifically called for by your Awarding Body.

Doubletime Hourly – The hourly rate of pay multiplied by a factor of 2. Do not include fringe benefits in this equation, unless specifically called for by your Awarding Body.

Lump Sum Payments

Rates

4. Direct Payroll Subscription/Interface (DPI)

This option allows you to choose to have LCPtracker map your existing payroll so that you may use it (as a PDF or .CSV file) as an upload file. Once you have it, you can use it to upload your CPR from that 'Upload Records' button.



5. Manual Entry

For Manual Entry, in the 'Enter Records' tab, you will enter a record each week for every employee that performs work covered by prevailing wages on their project.



If your employee works in more than one classification (i.e., they've worked 20 hours as a Carpenter and 20 hours as a Power Equipment Operator) enter two separate pay records to show that they are being paid according to the work performed.

Amounts Paid (top section of the Payroll Record Entry Form)

Enter the appropriate amounts in the appropriate sections. Keep in mind this is just a transfer of historical data from your already existing payroll records.

1. Gross Employee Pay This Project – The amount of basic wages paid for this project only. This is typically the hourly rate of pay multiplied by the hours worked (it could be more complex with overtime figured in).
2. Wages Paid-in-Lieu of Fringes – The amount paid to the employee instead of fringe benefits paid to a plan, fund or program. This amount is sometimes included in the Gross Employee Pay this Project depending on the accounting system and the agency reporting requirements. (Whether you are a Union Shop or Open Shop typically

determines whether you pay these required fringes to an approved plan, fund or program, or pay them directly to the employee in cash.) This amount would be the rate-in-lieu of Fringes multiplied by the number of hours worked.

3. Rate-in-lieu of fringes – The hourly rate paid-in-lieu of fringes. If you pay your employees directly for the required fringe benefit instead of paying into an approved plan, fund, or program, please list the hourly rate paid here.
4. Base Hourly – The hourly rate of pay not including fringes. Some accounting systems include taxable fringes and fringes paid-in-lieu in this amount, do not include those in this field.
5. Overtime Hourly – The hourly rate of pay multiplied by a factor of 1.5. Do not include fringe benefits in this equation, unless specifically called for by your Agency.
6. Doubletime Hourly – The hourly rate of pay multiplied by a factor of 2. Do not include fringe benefits in this equation, unless specifically called for by your Agency.

Payroll record entry form (2 of 2)

Week End Date: 6/3/2018 Contractor: Darren's Demo
 Project: M59 Realignment Sub To:
 Employee: DUCK, DONALD Contract ID: 5

Is Foreman Is Owner/Operator

<p>1</p> <p>Gross Employee Pay This Project (Usually No Fringes)</p> <p>0.000</p>	<p>2</p> <p>Wages Paid in Lieu of Fringes (Total Cash Fringes)</p> <p>0.000</p>	<p>These fields are Hourly rate fields (Usually No Fringes)</p>			<p>3</p> <p>Rate in Lieu of Fringes (Cash Fringes)</p> <p>0.000</p>
		<p>4</p> <p>Base Hourly</p> <p>50.000</p>	<p>5</p> <p>Overtime Hourly</p> <p>0.000</p>	<p>6</p> <p>Doubletime Hourly</p> <p>0.000</p>	

Classifications

This section lists the craft and classification that your employee worked on your project and will be paid for. If you mistakenly choose the wrong classification on the original entry page, you may change it here by clicking on the Edit button. (Remember that if your employee worked in more than one classification within this work week, you would need to enter a separate payroll record for that classification).

Classifications					
Jurisdiction	Location	Craft	Classification	Construction Type	
Federal Wages	Huron County, MI	Carpenter	Carpenter - Pending USDOL 02/01/2017	Highway	Edit

Hours Worked Each Day for This Project Only

Enter the hours worked each day.



The first row is for regular time worked(1), the second row is for overtime worked(2) and the third row for is for double time worked(3).

ONLY enter hours worked on this prevailing wage job for this week. The system will total each type of hours worked, the days worked and the week under the totals hours column(4).

Hours Worked Each Day for This Project Only								
	Monday 5/28/2018	Tuesday 5/29/2018	Wednesday 5/30/2018	Thursday 5/31/2018	Friday 6/1/2018	Saturday 6/2/2018	Sunday 6/3/2018	Total Hours
1 Regular Time	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2 Overtime at 1.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3 Double-Time	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: If turned on by the Administrator, you may see an additional field 'Total Hours All Projects Worked' listed in the hours section. If so, this field will require a manual entry for your employee's full hours worked that week.

Hours Worked Each Day for This Project Only								
	Monday 4/8/2019	Tuesday 4/9/2019	Wednesday 4/10/2019	Thursday 4/11/2019	Friday 4/12/2019	Saturday 4/13/2019	Sunday 4/14/2019	Total Hours
Regular Time	2.00	2.00	2.00	2.00	2.00	0.00	0.00	10.00
Overtime at 1.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Double-Time	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	2.00	2.00	2.00	2.00	2.00	0.00	0.00	10.00
Total Hours All Projects Worked	40.00							

Fringes/Contributions Paid to Other (Not Employee) for This Project Only

You may utilize this section in two different ways:

1. Auto calculate
2. Manual entry

Fringes / Contributions paid to others (not employee) for This Project Only (Rate Times the # of Hours Worked)					
* Vac / Hol / Dues	Health & Welf.	2 Pension	** All Other	* Training	
0.000	0.000	0.000	0.000	0.000	
More...		More...			
Voluntary Contributions for all Projects			<input type="checkbox"/> Vac/Hol/Dues Included in Gross Emp. Pay <input type="checkbox"/> Some or All Fringes Paid to Employee <input type="checkbox"/> Voluntary Contributions Included in Gross Emp. Pay		
Pension	Medical	<input type="button" value="Calculate Fringes"/>			
0	0	1			

*** DO NOT USE - Not allowed by Responsible Wages & Benefits** **** Use to enter vision, dental, life, and Accidental Death & Dismemberment insurance Only**

Auto Calculate: The first is by simply clicking the ‘Calculate Fringes’ button so that the system automatically calculates the fringe benefit rates paid.

Manual Entry: This only works if you filled out the hourly fringe benefit rates in the Add/Edit Employee screen (or the Fringe Benefit Maintenance section, also available in the Set Up tab). This function multiplies the hours worked times the fringe benefit rate to get the values.

The second way is to manually enter the total amounts paid per section (Vac/Hol/Dues, Health & Welfare, Pension, etc.) from your payroll register or paystubs. Mark the appropriate check boxes as required. If they are checked in the Add/Edit Employee setup, then that value carries over.

Paycheck – Deductions, Payments, and Notes

Values entered in this section apply to all hours worked on all projects during the week.

▼ Paycheck - Deductions, Payments and Notes (For All Projects Worked This Week)

Single Paycheck Multiple Paychecks

Deductions 1

Fed Tax	Social Security	Medicare	State Tax	Local Taxes/SDI	Other 2	Vac/Dues	Savings	Total Deductions
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Payments (If included in paycheck)

Trav/Subs 3	Gross Pay All Projects 4	Paycheck Amount 5	Check Number * 6	Payment Date 7
0.000	0.000	0.000		<input type="text"/>

Notes 8

Other Deduction Notes 9

1. Deductions - the ‘Total Deductions’ box will add as you enter values in the taxes, other deductions, Vac/Dues and Savings fields.
2. Other Deduction - this field is for permissible deductions that do not fall into the other available fields. If you put an amount in the ‘Other’ deductions field, an ‘Other Deduction Note’ will become required.
3. Trav/Subs - this field is for travel or subsistence paid to your employee. This amount does figure into the mathematical calculation that the system to ensure that Gross and Net pays are correct.
4. Gross Pay All Projects – the gross amount on the paycheck for the week including all projects worked.
5. Paycheck Amount – this is also referred to as Net pay. This is the actual amount of pay the employee received.
6. Check Number – you have the option of putting different information in this field. If you hand out actual checks to your employees, please enter the check number in this field. If

you utilize direct deposit and no check numbers exists, enter 'DD'.

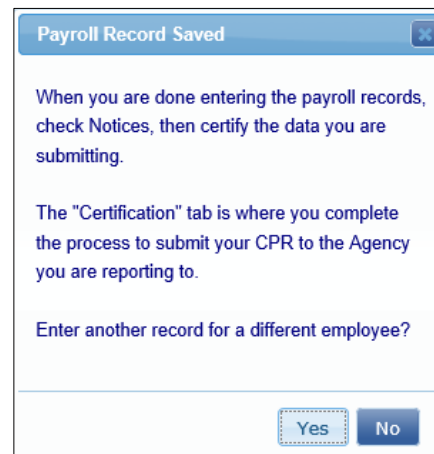
7. Payment Date – this is the actual date of the paycheck. Not all Agencies require this field.
8. Notes – this is a section that allows you to communicate anything out of the ordinary that you would like your Agency to know.
9. Other Deduction Notes – if you entered a permissible deduction in the above-mentioned field, then you will be required to leave a note describing that deduction. Please remember to be transparent in your notes entered. We recommend that you list what the actual deduction is, and not write “other deduction” or “N/A”.

Saving the Payroll Record

When you have completed all the above-mentioned fields, Click Save.

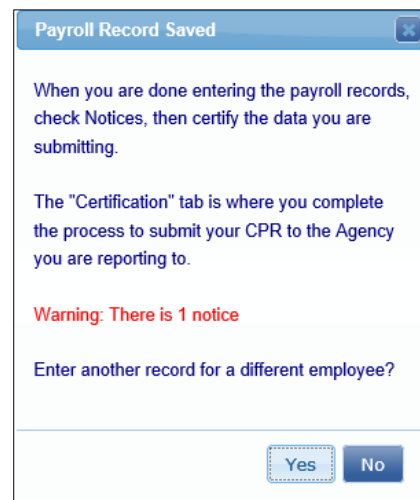
SAVE WITH NO NOTICES

With a successful save you will get this message:



SAVE WITH NOTICES

If you do not get this message, look for the **RED** message on the screen. You may have to scroll through the payroll record to see what you have missed that may be a required field.

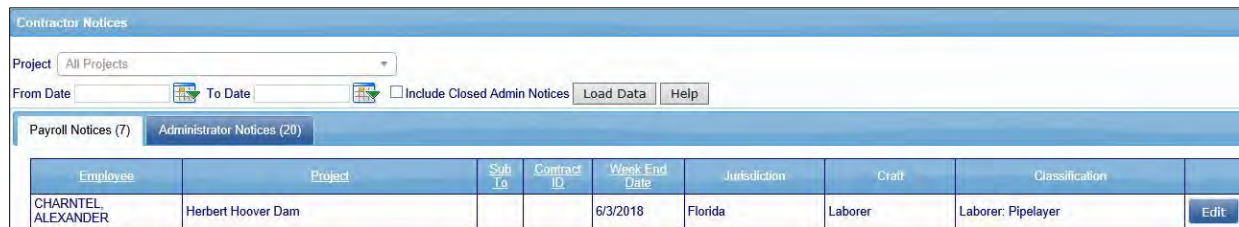


2. Notices Tab

Once you have entered all payroll records for the week, go to the '2. Notices' tab to check and see if you have any payroll Notices.

After your records have been saved: there could be issues ranging from forgetting to add an employee ID or phone number to forgetting to enter the Gross Employee Pay This Project field at the top of the Payroll Record Entry screen, this will display in the Notices tab.

If an employee is displayed on the notices screen (see below), the notice will need to be cleared.



The screenshot shows the 'Contractor Notices' interface. At the top, there is a 'Project' dropdown menu set to 'All Projects'. Below it are 'From Date' and 'To Date' fields with calendar icons, an 'Include Closed Admin Notices' checkbox, and 'Load Data' and 'Help' buttons. A tab bar shows 'Payroll Notices (7)' and 'Administrator Notices (20)'. Below the tabs is a table with the following data:

Employee	Project	Sub Lo	Contract ID	Week End Date	Jurisdiction	Craft	Classification	
CHARNTEL ALEXANDER	Herbert Hoover Dam			6/3/2018	Florida	Laborer	Laborer: Pipelayer	Edit

To clear the notice, click on the Edit button to the right of the employee's name. This will take you back into the Payroll Record Entry screen. Scroll down the bottom and you will see detailed notes on exactly what your notice is.

If you do not understand the notice, there are options on how to get help. You can click on the Video Assistance 'Play Now' button and you will see a video that explains what the notice is and how to address it, or you can contact our [Support](#) department and they will assist you.

All Notices must be cleared to certify the payroll.

3. Certification Tab

It's time to certify your payroll! You will do this for each week beginning when you first start work on your project until the last week on the project.

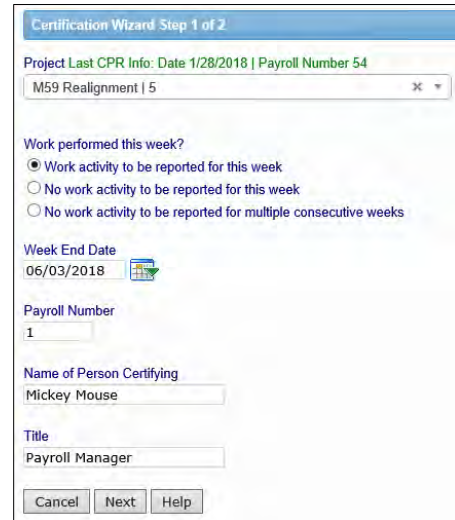
There are three options available to you when you certify your payroll:

1. Certify a payroll for a week during which work was performed
2. Certify a payroll for a week during which no work was performed (non-work week payroll)
3. Certify a payroll for multiple consecutive weeks during which no work was performed

Certification Wizard - Step 1 of 2

To certify your payroll:

- Choose your project
- Choose the type of payroll you are certifying
- Choose your week ending date (if you choose multiple consecutive weeks, you will enter the start date and the last date)
- Enter your name as the person certifying your payroll
- Enter your title
- Click next



The screenshot shows a web form titled "Certification Wizard - Step 1 of 2". At the top, it displays "Project Last CPR Info: Date 1/28/2018 | Payroll Number 54". Below this is a dropdown menu showing "M59 Realignment | 5". The form asks "Work performed this week?" with three radio button options: "Work activity to be reported for this week" (selected), "No work activity to be reported for this week", and "No work activity to be reported for multiple consecutive weeks". There is a "Week End Date" field with the value "06/03/2018" and a calendar icon. Below that is a "Payroll Number" field with the value "1". The "Name of Person Certifying" field contains "Mickey Mouse". The "Title" field contains "Payroll Manager". At the bottom, there are three buttons: "Cancel", "Next", and "Help".

Certification Wizard - Step 2 of 2

The Statement of Compliance (SOC) portion of your certified payroll report will display.

You now need to denote how you pay your fringe benefits (if you do both, you may choose both):

- 4a – paid into an approved plan, fund, or program
- 4b – paid in cash to the employee
- 4c – section to note any exceptions you might have, per craft/classification.

If you have any final remarks that you'd like to leave for your Agency, there is a section available to you to do so. Note: this field is mandatory if you are *recertifying* a CPR.

You may also click on a checkbox to note if your CPR is a final.

Enter your eSignature and click Save. This completes your CPR, and it will pop up in another window so long as you have your pop-up blocker turned off. (If you forget your e-Signature, go back to the Set Up tab, edit your eSignature, and then go back to the Certification Tab and follow the above procedures again.)

eSignature Password:

You have now completed certifying your payroll.

Your CPRs are electronically sent to your Administrator, and unless otherwise specified, there is no need to send or print out a hardcopy unless you would like to do so for your own records.

Remember that your CPR's will always be stored in your account to access at any time, so you may decide not to print out hardcopies.

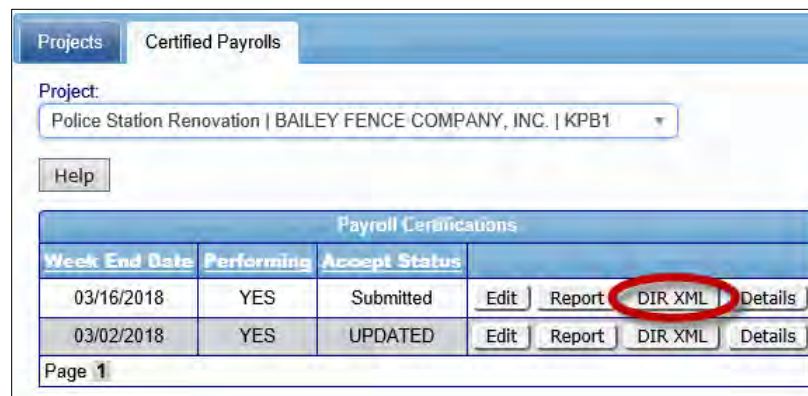
State Specific Uploads

California DIR XML Upload

If you perform work on a California Public Works project, you also need to upload your payroll to the Department of Industrial Relations (DIR) eCPR system. Once you've certified your payroll, you can download the DIR XML file to upload.

Instructions to find and upload this file:

- Click on the Projects tab
- Click on the Certified Payrolls tab
- Locate the week ending payroll file you need
- Click on the DIR XML button (make sure your pop-up blockers are off)
- Save this file to your desktop
- Upload into the DIR eCPR system



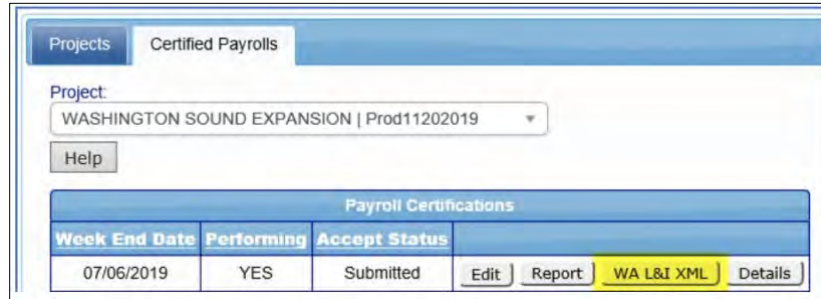
Washington L&I XML Upload

Beginning in January 2020, weekly certified payroll reports are required to be filed online with Washington State Department of Labor and Industries, or WA L&I, at least once a month for all public works projects. Once you've certified your payroll, you can download the WA L&I XML file to upload.

Instructions to find and upload this file:

- Click on the Projects tab
- Click on the Certified Payrolls tab
- Locate the week ending payroll file you need
- Click on the WA L&I XML button (make sure your pop-up blockers are off)
- Save this file to your desktop

- Upload into the WA State PWIA portal

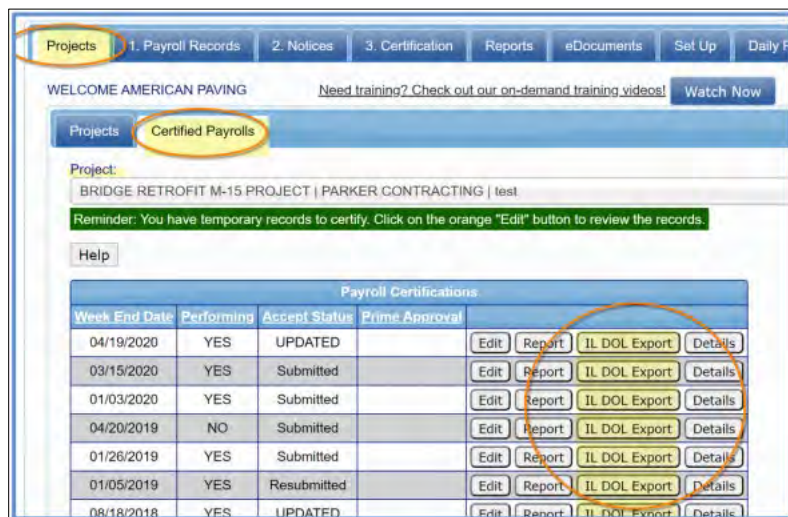


Illinois DOL Export Upload

Beginning in September 2020, weekly certified payroll reports are required to be filed online with the Illinois Department of Labor, or IDOL, by the 15th of each month for all state-funded public works projects. Once you've certified your payroll, you can download the IL DOL XML file to upload.

Instructions to find and upload this file:

- Click on the Projects tab
- Click on the Certified Payrolls tab
- Locate the week ending payroll file you need
- Click on the IL DOL Export button (make sure your pop-up blockers are off)
- Save this file to your desktop
- Make any manual additions/adjustments to the CSV file
- Upload into the IDOL portal



Should you find that you have any further questions, please consult either the Contractor User Manual or call our [Support](#) department.

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

LCP Tracker

Memorandum



Date: April 25, 2019

To: Department Directors

From: Gary T. Hartfield, Director
Small Business Development (SBD) Division

Subject: Implementation of LCPtracker

A handwritten signature in blue ink, appearing to read "G. Hartfield", written over the "From:" field of the memorandum.

On April 10, 2018, the Board of County Commissioners adopted Ordinance No. 18-33, which amended several Miami-Dade County Code sections to mandate use of the County's web-based system, the Business Management Workforce System (BMWS), to comply with Small Business Enterprise (SBE), Wage, and Workforce program requirements. The implementation of BMWS will soon be complete with the "go live" of **LCPtracker** on May 1, 2019.

LCPtracker is a new web-based system for firms to submit certified payroll and workforce program documentation, replacing our current paper-based reporting requirements at no cost to the firms. As part of the implementation of LCPtracker, Small Business Development (SBD), a division of the Internal Services Department, reviewed all active Miami-Dade County contracts in BMWS subject to Responsible Wages and Benefits, Living Wages and federally-funded contracts at Miami Dade County International Airport with Davis Bacon Wages. Based on the contract status, over three hundred existing contracts have been selected to go into LCPtracker. Attached is the latest report listing the projects by department. In addition to these identified projects, all County contracts subject to the above-mentioned wage requirements and awarded on or after April 1, 2019 will be synced to LCPtracker for the electronic submission of certified payrolls and workforce documentation.

Beginning with the May 2019 reporting period, all prime contractors/vendors and their subcontractors at every tier level participating on a contract that was added to LCPtracker must submit certified payrolls via the system by the 10th day of the month for work performed in the previous month. Therefore, all certified payrolls for work performed in the month of May 2019 must be submitted electronically by **June 10, 2019**. At which point, the department should no longer collect or accept paper certified payrolls for these projects.

SBD will provide department staff with access to LCPtracker to view certified payrolls by project, firm, and reporting period. Prior to approving a firm's pay application/invoice, departments must log into LCPtracker to verify certified payrolls have been submitted for all firms on the project, regardless of tier, for the period of the pay application.

Attached are the steps to generate the LCPtracker report titled "Certified Payroll Report (CPR) Status Report" for a project and period of a pay application/invoice under review. This report will list all received, rejected, pending and delinquent certified payrolls for a project for the period requested. For any delinquent certified payrolls listed on the report, the departments should:

- 1) Provide written notice to the prime contractor/vendor (and SBD, if the prime contractor/vendor is a certified SBE or any of the subcontractors are certified) that the review and approval of its pay application/invoice is on hold until all firms that worked during the period of the pay application/invoice have submitted their certified payrolls via LCPtracker.

- 2) Provide the prime contractor/vendor with a copy of the CPR Status Report, or provide the report to the firm(s) listed under the delinquent section of the report, the week ending date for the missing payroll(s), and a deadline to submit the missing certified payroll(s) via LCPtracker.

LCPtracker user accounts for department staff on existing applicable contracts will be automatically created. For any additional staff requiring access, the department's SBD Liaison should provide their name and email address to Alecia Anderson, SBD Section Manager, at Alecia.Anderson@miamidade.gov or Shawn Gannon, Special Projects Administrator, at Shawn.Gannon@miamidade.gov.

As always, SBD will continue to work closely with departments to ensure compliance with the legislated changes and offer monthly hands-on training opportunities for department staff and firms. Should you have any questions, please do not hesitate to contact Alice Hidalgo-Gato, SBD Section Chief, at (305) 375-3153.

Attachments

- c. Office of the Mayor Senior Staff
Tara C. Smith, ISD Director
SBD Liaisons
Procurement Liaisons

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

SAFETY DIRECTIVE 182536 / RESOLUTION No. 1181-18

Memorandum



Date: February 26, 2019

Agenda Item No. 2(B)2
March 19, 2019

To: Honorable Chairwoman Audrey M. Edmonson
and Members, Board of County Commissioners

From: Carlos A. Gimenez
Mayor

A handwritten signature in blue ink, appearing to read "Carlos A. Gimenez", written over a white background.

Subject: Report Regarding Consideration of Contractor Safety Information as a Part of the
Contractor Responsibility Review for Contract Award – Directive No. 182536

This report is in response to Resolution No. R-1181-18, approved at the November 8, 2018 meeting of the Board of County Commissioners (Board), directing the County Mayor or the County Mayor's designee to provide a status report describing the processes, procedures and actions taken to consider safety records of prospective contractors and first-tier subcontractors for public construction projects.

The County reviews contractor responsibility prior to award for all construction contracts. Pursuant to Resolution No. R-187-12, and in accordance with procurement guidelines, staff currently performs due diligence reviews as a part of the process to determine a contractor's responsibility. This review includes checking the contractor's corporate status, lists for convicted, debarred and suspended vendors, excluded parties, and internal County reports for small business compliance, evaluations and delinquent contractors.

County staff will require contractors and proposed first-tier subcontractors to submit the following items for the previous three years from the United States Department of Labor Occupational and Safety Health Administration (OSHA):

1. The OSHA Form 300 containing a list of the company's work-related injury and illness data; and
2. OSHA inspection data.

A copy of this memorandum and Resolution No. R-1181-18 will be forwarded to each of the department directors who manage capital programs across the County. Confirmation that safety due diligence was performed and any instance when a safety record affects the contractor responsibility will be included in any memorandum to the Board recommending an award or ratification of award of a construction project.

Pursuant to Ordinance No. 14-65, this memorandum will be placed on the next available Board Meeting agenda. Should you require additional information, please contact Tara C. Smith, Director, Internal Services Department, at 305-375-1135.

- c: Abigail Price-Williams, County Attorney
Geri Bonzon-Keenan, First Assistant County Attorney
Office of the Mayor Senior Staff
Tara C. Smith, Director, Internal Services Department
Department Directors
Linda L. Cave, Acting Director, Clerk of the Board
Eugene Love, Agenda Coordinator
Yinka Majekodunmi, Commission Auditor

MEMORANDUM

Agenda Item No. 11(A)(1)

TO: Honorable Chairman Esteban L. Bovo, Jr.
and Members, Board of County Commissioners

DATE: November 8, 2018

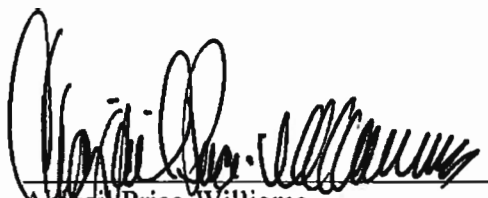
FROM: Abigail Price-Williams
County Attorney

SUBJECT: Resolution directing the County Mayor to: (1) consider safety records of prospective contractors and first-tier subcontractors for public construction projects; (2) confirm the safety records of recommended contractors and first-tier subcontractors were considered and report any instance where the safety record may adversely affect a finding of contractor responsibility in award memorandum to the Board; and (3) provide a report to the Board within 60 days

Resolution No. R-1181-18

This item was amended at the 10-17-18 Government Operations Committee to add language in Section 1 specifying that the OSHA related safety information required to be considered in the resolution shall be initially provided by the prospective contractors and first-tier subcontractors bidding on County construction projects.

The accompanying resolution was prepared and placed on the agenda at the request of Prime Sponsor Commissioner Daniella Levine Cava.


Abigail Price-Williams
County Attorney

APW/lmp




MEMORANDUM

(Revised)

TO: Honorable Chairman Esteban L. Bovo, Jr.
and Members, Board of County Commissioners

DATE: November 8, 2018

FROM: 
Abigail Price-Williams
County Attorney

SUBJECT: Agenda Item No. 11(A)(1)

Please note any items checked.

- “3-Day Rule” for committees applicable if raised**
- 6 weeks required between first reading and public hearing**
- 4 weeks notification to municipal officials required prior to public hearing**
- Decreases revenues or increases expenditures without balancing budget**
- Budget required**
- Statement of fiscal impact required**
- Statement of social equity required**
- Ordinance creating a new board requires detailed County Mayor’s report for public hearing**
- No committee review**
- Applicable legislation requires more than a majority vote (i.e., 2/3’s ____, 3/5’s ____, unanimous ____) to approve**
- Current information regarding funding source, index code and available balance, and available capacity (if debt is contemplated) required**

Approved _____ Mayor
Veto _____
Override _____

Agenda Item No. 11(A)(1)
11-8-18

RESOLUTION NO. R-1181-18

RESOLUTION DIRECTING THE COUNTY MAYOR OR COUNTY MAYOR'S DESIGNEE TO: (1) CONSIDER SAFETY RECORDS OF PROSPECTIVE CONTRACTORS AND FIRST-TIER SUBCONTRACTORS FOR PUBLIC CONSTRUCTION PROJECTS; (2) CONFIRM THE SAFETY RECORDS OF RECOMMENDED CONTRACTORS AND FIRST-TIER SUBCONTRACTORS WERE CONSIDERED AND REPORT ANY INSTANCE WHERE THE SAFETY RECORD MAY ADVERSELY AFFECT A FINDING OF CONTRACTOR RESPONSIBILITY IN AWARD MEMORANDUM TO THE BOARD; AND (3) PROVIDE A REPORT TO THE BOARD WITHIN 60 DAYS

WHEREAS, we live in a large, heavily-populated and diverse metropolitan area with constantly expanding public infrastructure needs and demands; and

WHEREAS, Miami-Dade County's infrastructure, including its public buildings, roads and bridges, mass transit facilities, airports and seaport, fuel supply facilities, medical and nursing care facilities, recreational facilities, sporting facilities and water and wastewater facilities, constantly require significant new construction and on-going improvements and upgrades; and

WHEREAS, consequently, to meet these infrastructure demands, Miami-Dade County (the "County") enters into significant construction contracts for public buildings, structures and other public works; and

WHEREAS, a substantial number of the County's public construction projects are large complex projects requiring a large of number of workers to complete the project; and

WHEREAS, many of these County projects occur in densely populated areas where members of the public may be directly exposed to the dangers of a construction site; and

WHEREAS, the tragic loss of life caused by the collapse of the Florida International University pedestrian bridge reminds this community that the safety of members of the public and workers relating to public construction projects is of paramount importance; and

WHEREAS, this Board wants to ensure that a contractor's safety record be fully considered in the selection and contracting of construction companies for public infrastructure projects,

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF MIAMI-DADE COUNTY, FLORIDA, that this Board:

Section 1. Directs the County Mayor or County Mayor's designee to consider the safety records of prospective contractors and their first-tier subcontractors as part of the due diligence investigation performed to determine contractor responsibility for the construction or improvement of a public building, structure or other public construction project that will be presented to this Board for contract award or ratification of an award. Such investigation shall include reviewing available relevant information from the United States Department of Labor Occupational Safety and Health Administration (OSHA) such as OSHA logs of work-related injuries and illnesses (Form 300) and OSHA inspection data >>which shall be initially provided by the prospective contractors and first-tier subcontractors<<¹. The OSHA information shall be reviewed for at least the previous three (3) years to the extent that such information is available for that period. In addition, County staff may use other sources to investigate the safety records

¹ Committee amendments are indicated as follows: Words stricken through and/or [[double bracketed]] are deleted, words underscored and/or >>double arrowed<< are added.

of prospective contractors and their first-tier subcontractors for public construction projects in determining contractor responsibility.

Section 2. Directs the County Mayor or County Mayor’s designee to include in his or her memorandum to this Board recommending an award or ratification of an award of a County public construction project confirmation that the safety record was considered by the County as part of the due diligence required pursuant to Resolution R-187-12, including reporting to this Board any instance where the safety record may adversely affect a finding of contractor responsibility.

Section 3. Directs the County Mayor or County Mayor’s designee to submit a report to this Board within 60 days of the effective date of this resolution describing the processes, procedures and actions taken to comply with Sections 1 and 2 of this resolution and place the completed report on an agenda of the Board pursuant to Ordinance No. 14-65.

The Prime Sponsor of the foregoing resolution is Commissioner Daniella Levine Cava. It was offered by Commissioner **Dennis C. Moss**, who moved its adoption. The motion was seconded by Commissioner **Sally A. Heyman** and upon being put to a vote, the vote was as follows:

	Esteban L. Bovo, Jr., Chairman	aye	
	Audrey M. Edmonson, Vice Chairwoman	aye	
Daniella Levine Cava	aye	Jose "Pepe" Diaz	aye
Sally A. Heyman	aye	Eileen Higgins	aye
Barbara J. Jordan	aye	Joe A. Martinez	aye
Jean Monestime	aye	Dennis C. Moss	aye
Rebeca Sosa	aye	Sen. Javier D. Souto	aye
Xavier L. Suarez	aye		

The Chairperson thereupon declared this resolution duly passed and adopted this 8th day of November, 2018. This resolution shall become effective upon the earlier of (1) 10 days after the date of its adoption unless vetoed by the County Mayor, and if vetoed, shall become effective only upon an override by this Board, or (2) approval by the County Mayor of this resolution and the filing of this approval with the Clerk of the Board.



MIAMI-DADE COUNTY, FLORIDA
BY ITS BOARD OF
COUNTY COMMISSIONERS

HARVEY RUVIN, CLERK

Linda L. Cave

By: _____
Deputy Clerk

Approved by County Attorney as
to form and legal sufficiency.

A handwritten signature in black ink, appearing to be "EWG", written over a horizontal line.

Eduardo W. Gonzalez

A handwritten mark or signature at the bottom center of the page, possibly a stylized "4" or a similar symbol.

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

STANDARD CONSTRUCTION
GENERAL CONTRACT CONDITIONS

STANDARD CONSTRUCTION
GENERAL CONTRACT CONDITIONS
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13. ATTACHMENTS

1. DEFINITIONS

(June 12, 2012)

Addendum/Addenda: A modification or clarification of the Contract Documents distributed to prospective Bidders prior to the opening of Bids.

Advertisement for Bids: The public notice inviting the submission of Bids for the Work.

Allowance Account (General): Account in which a stated maximum dollar amount is included in the Contract for the purpose of funding, at the sole discretion of the Owner, unforeseen and/or changed conditions or extra work arising during the prosecution of the Work or any other changes issued by the Owner. The scope and limitations regarding use of the Allowance Account are contained in the Contract Documents. Performance of work, if any, under this Allowance Account shall be authorized by written Work Order issued by the Owner.

Allowance Account(s) (Dedicated): Account(s) in which stated maximum dollar amount(s) are included in the Contract for the purpose of funding specific items of work at the sole discretion of the Owner. The scope and limitations regarding use of the Dedicated Allowance Account(s) are contained in the Contract Documents.

Architect/Engineer: Owner or its authorized representatives identified in the Notice-to-Proceed letter, including but not limited to the Resident Architect/Engineer, the Construction Manager, the Owner's representatives and the Architect/Engineer of Record. In the event an Architect/Engineer is not employed on the project, the term "Owner" may be substituted for Architect/Engineer.

Art in Public Places: Miami-Dade County program established through Ordinance #94-12 and codified in Miami-Dade County Code Section 2-11.15 providing 1.5% of each County project's capital cost to fund a public art component within the Project. Coordination and installation of the Artist's work is included as part of the scope of the Contractor's services to the extent that it is defined in the Bid Documents.

Artist: Person(s) chosen through the Art in Public Places program to design and fabricate or specify an integrated work of art for the Project. The term Artist as may be referred to in the Contract Documents means the Artist and/or their authorized representative.

As-Built Documents: Documents signed and sealed by an appropriately licensed professional and submitted by the Contractor during and/or upon completion of the Contract reflecting actual installed/built conditions and all changes made in the Contract Documents during the construction process and showing the exact dimensions, geometry, location, identification and such other information as required by the Contract Documents and/or Architect/Engineer for all elements of the work completed under the contract. (Also referred to as As-Built Drawings or As-Built). Final payment is conditional upon the receipt of As-Built Documents.

BCC: Board of County Commissioners, the governing board of Miami-Dade County.

Beneficial Occupancy: The point at which the Owner or Architect/Engineer determines that the Work or any portion thereof can be occupied from a regulatory and work function

standpoint prior to Substantial Completion of the Work. Beneficial Occupancy will not relieve the Contractor of any of its obligations relative to Substantial Completion or of its responsibility to fully complete the Work in accordance with the Contract Documents.

Bid: The written offer of a Bidder to perform the Work.

Bid Documents: The Advertisement for Bids, Instructions to Bidders, Bid Form, Bid Security, Construction Contract, all contractual forms, General Conditions, Special Provisions, Technical Specifications and Contract Drawings, together with all Addenda and any other applicable standards, regulations, laws and permits as described within these other documents which may be incorporated by reference.

Bid Item: A specific item of work represented by a line item in the Bid Form.

Bid Form: The form on which Bids are submitted.

Bid Security: The cashier's check, certified check or bid bond, accompanying the Bid and submitted by the prospective bidder, as a guarantee that the prospective bidder will enter into a contract with the Owner for the performance of the Work and furnish acceptable bonds and insurance if the Contract is awarded to him.

Bidder: An individual, firm, partnership, corporation or combination thereof, submitting a Bid for the Work.

Certificate of Substantial Completion: Certificate issued to the Contractor by the Owner certifying that Substantial Completion has been achieved.

Certificate of Completion: Certificate issued by the local building official providing proof that a structure or system is complete and, for certain types of permits, is released for use and may be connected to a utility system. This certificate does not grant authority to occupy a building, such as a shell building, prior to the issuance of a Certificate of Occupancy by the local building official.

Certificate of Final Acceptance: Certificate issued to the Contractor by the Owner certifying that Final Acceptance has been achieved in accordance with the definition reflected herein (see Final Acceptance definition).

Certificate of Occupancy: Certificate issued by the local building official after the building official inspects the building or structure and finds no violations of the provisions of applicable codes or other laws that are enforced by the local building department.

Change Notice: A document issued by the Architect/Engineer or Owner to the Contractor specifying a proposed change to the Contract Documents and requesting a price proposal from the Contractor, if applicable, within a specified time period.

Change Order: A written agreement executed by the Owner, the Contractor and the Contractor's Surety, covering modifications to the Contract Documents.

Construction Staging Area: Property which may be available for use by the Contractor during the construction period for the purpose of storing products and construction equipment and for the purpose of staging the Work. The construction staging area(s), if applicable, are defined in the Contract Documents.

Construction Contract: The agreement executed by the Contractor and the Owner covering the performance of the Work including the furnishing of labor, superintendence, materials, tools and equipment as indicated in the Contract Documents. The term "Contract" shall have the same meaning.

Consultant: See Architect/Engineer.

Contract Documents: Bid Documents, Change Orders, Payment and Performance Bonds, Work Orders, Approved Schedules, all Contractual Forms, Approved Shop Drawings and Approved Working Drawings.

Contract Drawings: The plans, profiles, cross-sections, elevations, schedules, and details which show locations, character, dimensions and details of the Work. Contract Drawings are confidential under the Florida Public Records Act and the Contractor is responsible for maintaining confidentiality during and after the progress of the Work.

Contractor: The individual, firm, partnership, or corporation, or combination thereof, private, municipal, or public, including joint ventures, duly licensed under Florida Statutes, which, as an independent Contractor, has entered into a Contract with Miami-Dade County, who is referred to throughout the Contract Documents by singular in number and masculine in gender.

Contract Time: The number of days allowed for completion of the Work commencing with the effective date of Notice to Proceed. The Contract Time will be stipulated in the Contract Documents unless extended by a Change Order or by a Work Order.

County: See Owner.

County Manager: The County Manager of Miami-Dade County, Florida.

County Mayor: The Mayor of Miami-Dade County, Florida.

Critical Path: Longest sequence of activities in a project's schedule which defines the project completion date and which must be completed on time in order for the project to be completed on schedule.

Days: Unless otherwise designated, days mean calendar days.

Department Director: The Director of the Miami-Dade County Department implementing the work.

Department Director's Representative: The person or persons designated by the Department Director to act on his behalf in the administration of the contract within the limits of their respective authorization.

Direct Costs: Direct Costs recoverable by the Contractor as a result of changes in the Work shall be limited to the actual additional costs of labor and materials installed as part of the Work and for the reasonable additional cost of rental of any Special Equipment or Machinery. Labor shall be limited to site labor costs, including Employer's Payroll Burden. Specifically excluded from labor are the costs of general foremen and site office personnel. Materials are limited to permanent materials required by the Contract Documents and materials approved by the Architect/Engineer as necessary to install the permanent materials in an efficient and workmanlike manner. For special equipment or machinery not listed in said document, the Contractor shall be paid a rental rate corresponding to the average

prevailing rental rate for such equipment or machinery in Miami-Dade County, Florida, subject to approval by the Architect/Engineer. No additional payment shall be made to the Contractor for fuel, lubricants, fair wear and tear, transportation, insurance or depreciation. Any equipment or machinery not designated by the Architect/Engineer as special equipment and machinery shall be considered Overhead.

Extra Work: Work not provided for in the Contract Documents as awarded or as previously modified by Change Order or Work Order but found to be essential to the satisfactory completion of the Contract within its intended scope.

Field Representative/Construction Manager: An authorized representative of the Owner that may provide administrative and construction inspection services during the pre-construction, construction, and closeout phases of the Contract and through which the orders of the Owner shall be given. The Field Representative has no authority to modify or waive any provision of the Contract Documents.

Final Acceptance: The formal written acceptance by the Owner of the completed work.

Final Completion: Point in time when the Owner determines that all Work has been completed in accordance with the Contract Documents and all deficiencies listed within the Certificate of Substantial Completion and Punch List have been corrected to the satisfaction of the Owner or Architect/Engineer including but not limited to all required final inspections, close-out documents, delivery of all spares and extra materials and activation of warranties as required. A Certificate of Final Acceptance shall be issued to the Contractor by the Owner upon Final Completion.

Force Account: A method of payment measured by actual cost of the labor, materials and equipment plus a mark-up for Indirect Costs, as distinct from other payment methods such as lump sum or unit price, for Extra Work ordered by Change Order and/or Work Order.

Fragment: A fragment or selected portion of the Schedule network and/or network of proposed changed work activities.

Furnishing: Manufacturing, fabricating and delivering to the site of the Work materials, plant, power, tools, patterns, supplies, appliances, vehicles and conveyances necessary or required for the completion of Work.

General Conditions: This section of the Contract Documents which specifies, in general, the contractual conditions.

Green Building Practices: Environmentally- and socially-conscious practices that emphasize processes and methods of design and construction that reduce exposure to noxious materials, conserve non-renewable energy and scarce materials, minimize life-cycle ecological impact of energy and materials, employ renewable energy or materials that are sustainably harvested, protect and restore local air, water, soils, flora and fauna, and support pedestrians, bicycles, mass transit and other alternatives to fossil-fueled vehicles.

Indirect Costs: Overhead.

Installation, Install or Installing: Completely assembling, erecting and connecting material, parts, components, supplies and related equipment specified or required for the completion of the Work including the successful passing of all tests so that they are fully functional.

LEED (Leadership in Energy and Environmental Design): An ecology-oriented building certification program run under the auspices of the U.S. Green Building Council (USGBC) which concentrates its efforts on improving performance across five key areas of environmental and human health: energy efficiency, indoor environmental quality, materials selection, sustainable site development, and water savings.

Limit of Work: Boundary within which the Work is to be performed.

Liquidated Damages: The amount that the Contractor accepts, as stipulated in the Contract Documents, that will be deducted from the Contract Sum for each Day of delay due to a Non-excusable Delay.

Liquidated Indirect Costs Rate: The amount, stipulated in the Contract Documents, that will be added to the Contract Sum for each Day of delay due to a Compensable Delay. The Contractor accepts this sum as full compensation for the Contractor's and all its Subcontractors' Indirect Costs, for each Day of Compensable Delays. This amount is agreed to include any costs other than Direct Costs incurred by the Contractor and all its Subcontractors of any tier in the performance of this Contract.

Lump Sum Bid Item: A bid item in which quantity is not separately measured for payment in units but rather is based on the amount bid by the Contractor as indicated in the Bid Form and made a part of the Contract. Partial payments of Lump Sum Bid Items will be conditionally made, based upon an approved schedule of values, and will be subject to reconciliation in the event that the work of a Lump Sum Bid Item is not fully completed in accordance with the requirements of the Contract Documents.

Miami-Dade County (MDC): A political subdivision of the State of Florida, the Owner.

Milestone: A completion date as defined in the Contract Documents.

Notice to Proceed: Written notice from the Owner to the Contractor specifying the date on which the Contractor is to proceed with the Work and on which the Contract Time commences to run.

Notice of Termination: Written notice from the Architect/Engineer or the Owner to the Contractor to permanently stop work under the Contract on the date and to the extent specified in the notice. The Notice of Termination includes Notices of Termination for Convenience, Default and National Emergencies as set forth in the Contract Documents. Upon receipt of such notice, the Contractor shall comply with the termination provisions of this Contract.

Overhead (Indirect Costs): Overhead, also defined as "Indirect Costs", includes any and all costs other than Direct Costs. The term "Overhead" as indicated in this definition shall apply to both Contractors and Subcontractors of any tier. Overhead includes, but is not limited to, all profit and costs associated with: Project bond premiums, Project insurance premiums, costs of supervision, coordination, superintendents, general foremen, consultants, schedulers, cost controllers, accountants, office administrative personnel, time keepers, clerks, secretaries, watch persons, small tools, equipment or machinery, utilities, rent, telephones, facsimile machines, computers, word processors, printers, plotters, computer software, all expendable items, job site and general office expenses, extended jobsite general conditions, interest on monies retained by the Owner, escalated costs of materials and labor, impact cost on unchanged work, inefficiency, decreased productivity, home office expenses or any cost

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incurred that may be allocated from the headquarters of the Contractor or any of its Subcontractors, loss of any anticipated profits, loss of bonding capacity or capability losses, loss of business opportunities, loss of productivity on this or any other Project, loss of interest income on funds not paid, costs to prepare a bid, cost to prepare a quote for a Change in the Work, costs to prepare, negotiate or prosecute claims, costs of legal and accounting work, costs spent to achieve compliance with applicable laws and ordinances, loss of Projects not bid upon, loss of productivity or inefficiencies in the Work from any cause.

Owner: Miami-Dade County, whose governing body is the BCC acting in its proprietary capacity. Where applicable, the Owner acts through its Architect/Engineer or Field Representative. When these Contract Documents require the action of individual persons, the documents contain specific references to these persons. In particular, the documents shall refer to the BCC when approval of the BCC is specifically required and to the Architect/Engineer when the Architect/Engineer's approval is specifically required.

Payment and Performance Bonds: Bonds executed by the Contractor and its Surety assuring that the Contractor will, in good faith, perform and guarantee the work in full conformity with the terms of the Contract Documents and will promptly pay all persons supplying the Contractor with labor, materials, or supplies, used directly or indirectly by the Contractor in the prosecution of the Work. These bonds shall be two separate bonds, one bonding payment and one bonding performance. Each bond shall be for no less than 100% of the total maximum contract amount.

Project: See definition for Work.

Punch List: A list issued by the Owner to the Contractor of work elements requiring remedial action or completion by the Contractor before Final Completion is issued to the Contractor.

Right-of-Way: A term denoting land and property, and interests therein, owned or acquired by the Owner.

Schedules: All schedules delivered under the Contract including time schedules and schedule of values.

Schedule of Values: A detailed cost breakdown of each lump sum bid item in the bid form, submitted by the Contractor at the beginning of the Work and to be used as a basis to determine monthly progress payments and quantity adjustments within the constraints specified in the Contract Documents.

Shop Drawings: Documents furnished by the Contractor for approval by the Architect/Engineer to illustrate specific portions of the Work. Shop Drawings include drawings, diagrams, illustrations, calculations, schedules, tables, charts, brochures and other data describing design, fabrication and installation of specific portions of the Work.

Site, Project Site, Work Site, Construction Site, Job Site: The location(s) at which the work under this Contract is to be accomplished, as shown in the Contract Documents.

Special Provisions: Section of the Contract which includes specific contractual requirements not covered in the General Conditions that are specific to the Project.

Subcontractor: Any person or entity, other than the employees of the Contractor, supplying the Contractor with labor, materials, supplies and/or equipment used directly or indirectly by the Contractor in the prosecution of the Work.

Substantial Completion: Substantial Completion of a Project is the date on which the Owner certifies that the construction is sufficiently completed, in accordance with the Contract Documents, as modified by any Change Orders, so that the Owner can occupy the Project for the use for which it was intended. A certificate shall be issued to the Contractor by the Owner upon achievement of Substantial Completion.

Surety: The bonding company or companies furnishing the bonds required of a Bidder and of the Contractor.

Technical Specifications: The general term comprising all the written directions, provisions and requirements contained herein, entitled "Technical Specifications," those portions of standard specifications to which reference is specifically made in the Technical Specifications, and any Addenda, Work Orders and Change Orders that may be issued for the Contract, all describing the work required to be performed, including detailed technical requirements as to labor, materials, supplies and equipment and standards to which such work is to be performed as well as any reports specifically issued with the Bid Documents and specifically identified in the Instructions to Bidders which may include geotechnical or other technical reports.

Temporary Construction Easement Line: A boundary which describes additional areas which may be made temporarily available for construction operations.

Time Contingency: The maximum time specifically identified in the Contract Documents by which the Owner may extend the contract time to accomplish the work without a change order. Limitations on the use of the time contingency are set forth in the Contract Documents.

Unit Prices: Unit prices shall include all labor, materials, tools, and equipment; all other direct and indirect costs necessary to complete the item of Work and to coordinate the unit price Work with adjacent work; and shall include all overhead and profit. Contractor shall accept compensation computed in accordance with the unit prices as full compensation for furnishing such Work.

Work: The construction and services required by the Contract Documents, which includes all labor, materials, equipment, and services to be provided by the Contractor to fulfill the Contractor's duties and obligations imposed by the Contract Documents or, if not specifically imposed by the Contract Documents, which can be reasonably assumed as necessary to fulfill the intent of the Contract Documents to provide a complete, fully functional and satisfactory project.

Work Order: A written order, authorized by the Architect/Engineer or Owner, directing the Contractor to perform work under a specific Allowance Account or directing the Contractor to perform a change in the Work that does not have a monetary impact, including but not limited to, extending the Contract Time or subject to the payment of Liquidated Indirect Costs if entitlement is established as required by these Contract Documents. No Work Order may increase the Contract Sum.

END OF ARTICLE

2. INTERPRETATION

(June 12, 2012)

- A. The intent of the Contract is to include all necessary items for the proper completion of the Work by the Contractor so the Owner may have a fully functioning facility and fully receive the benefits intended under the Contract. The Contractor shall perform, without additional compensation, such incidental work as necessary to complete the Work and fulfill the design intent, in accordance with the requirements set forth in the Contract Documents, so that it will meet the requirements for which the Project was intended, in a satisfactory and workmanlike manner.
- B. The Contract Documents and all referenced standards cited are essential parts of the Contract requirements. A requirement occurring in one is as binding as though occurring in all. The documents comprising the Contract Documents are complementary and indicate the construction and completion of the Work. Anything mentioned in the Contract Documents and not shown on the Contract Drawings or shown on the Contract Drawings and not mentioned in the Contract Documents, shall be of like effect as if shown or mentioned in both. The more stringent shall apply in the case of a conflict.
- C. Site Inspections and Verification of Governing Dimensions: In executing the contract, the Contractor represents that he has, prior to bid, visited the site, become familiar with the conditions under which the work is to be performed and correlated his personal observations with the requirements of the Contract Documents or that he has chosen not to do so, in the event that a mandatory site visit is not specified in the Contract Documents. The Contractor accepts the responsibility for all errors in construction which could have been avoided by such examination and the opportunity to seek timely clarifications during the bidding process. The Contractor, before commencing work, shall verify all governing dimensions at the site, and shall examine all adjoining work on which his work is in any way dependent for its conformance with the intent of the Contract Documents and no disclaimer of responsibility for defective or non-conforming adjoining work will be considered unless notice of same has been filed by the Contractor, and agreed to in writing by the Owner through the Architect/Engineer before the Contractor begins any part of the Work. No disclaimer for defective or non-conforming adjoining work that was clearly foreseeable to the Contractor during a site visit (mandatory or non-mandatory) will be considered by the Owner.
- D. Errors, Inconsistencies and Omissions: The Contractor shall carefully study and compare all drawings, Contract Documents and other instructions; shall verify all figures on the Contract Drawings before laying out the Work; shall notify the Owner or Architect/Engineer of all errors, inconsistencies, or omissions which he may discover; and obtain specific instructions in writing during the bidding process and prior to submitting his Bid. The Contractor shall not take advantage of any apparent error or omission which may be found in the Contract Drawings or Contract Documents, and the Architect/Engineer shall be entitled to make such corrections

therein and interpretations thereof as he may deem necessary for the fulfillment of their intent. The Contractor shall be responsible for all errors in construction which could have been avoided by such examination and notification, and shall correct, at his own expense, all work improperly priced, scheduled or constructed through failure to notify the Owner or Architect/Engineer and to request specific instructions.

- E. Where "as indicated", "as detailed", or words of similar import are used, it shall be understood that the reference is made to the Contract Documents unless stated otherwise.
- F. References to Articles or Sections include sub-articles or subsections under the Article referenced.
- G. Referenced Standards: Material and workmanship specified by the number, symbol, or title of a referenced standard shall comply with the latest edition or revision thereof and amendments and supplements thereto in effect on the date of the Invitation to Bid except where otherwise expressly indicated. In case of a conflict between the Contract Documents and the referenced standard, the Contract Documents shall govern.
- H. Order of Precedence of Contract Documents: Unless otherwise provided for in the Special Provisions or required by law, the order of precedence of the Contract Documents will be as follows:
 - 1) Change Orders to the Contract
 - 2) Notice to Proceed
 - 3) Construction Contract
 - 4) Addenda
 - 5) Special Provisions
 - 6) General Conditions
 - 7) Technical Specifications
 - 8) Contract Drawings
 - 9) Referenced Codes and Standards
 - 10) Guarantees
 - 11) Instructions to Bidders
 - 12) Invitation to Bid
 - 13) Other documents
- I. In case of differences between small and large scale drawings, the drawings showing greater detail shall govern. Schedules on drawings shall take precedence over conflicting notations on drawings. In the event of discrepancy between any scaled dimensions on drawings and the figures written thereon, the figures shall govern over the scaled dimensions unless otherwise indicated.
- J. Explanations: Should it appear that the Work to be done or any of the matters relative thereto are not sufficiently detailed or explained in the Contract Documents, the Contractor shall apply to the Owner or Architect/Engineer in a timely manner to allow sufficient time for such further written explanations as may be necessary and shall

conform to the explanation provided as part of the Contract. The Owner or Architect/Engineer's decision shall be final.

- K. Effect of Headings: The headings and titles to provisions in the Contract Documents are descriptive only and shall be deemed not to modify or affect the rights and duties of parties to this Contract.
- L. No acceptance, order, measurement, payment, or certificate of or by the Architect/Engineer and/or the Owner or its employees or agents shall either estop the Owner from asserting any rights or operate as a waiver of any provision hereof or of any power or right herein reserved to the Owner or of any rights to damages herein provided.
- M. Wherever the terms, "as directed", "ordered", "permitted", "designated", "as approved", "approved equal", "or equal", "acceptable" and other words of similar meaning which authorize an exercise of judgment are used in the Contract Documents, such judgment shall be vested only in the Architect/Engineer and/or the Owner and shall be final.
- N. The Contractor shall make available at the job site one copy of each referenced standard and/or Contract Documents for the Contractor's and the Field Representative's use during the time that work covered by the standards and/or Contract Documents is underway.
- O. The Contract Documents provide for a complete work and may have been prepared in divisions of various crafts, trades and other categories of work. The Contractor is responsible for the performance of all work under the Contract regardless of any such divisions and shall ensure that all of the work is performed and completed. The organization of the Contract Documents into divisions, sections and articles and the arrangement of the drawings do not restrict or limit the Contractor into dividing the Work among subcontractors or in establishing the extent of the Work to be performed by any trade.
- P. No deviation from the approved Contract Documents shall be permitted without the prior written approval of the Owner, which approved deviation shall be documented either by Change order or Work Order.
- Q. All Requests for Information by the Contractor per this section shall be in accordance with the Contract Documents.

END OF ARTICLE

3. ARCHITECT/ENGINEER/FIELD REPRESENTATIVE

(June 12, 2012)

- A. The Architect/Engineer shall respond to questions which may arise as to the quality and acceptability of materials furnished, work performed, and as to the manner of performance and rate of progress of the work in accordance with the time frames prescribed in the Contract Documents. The Architect/Engineer shall decide all questions which may arise as to the interpretation of the Contract Documents relating to the Work, and the fulfillment of the Contract on the part of the Contractor, and those decisions shall be binding on the Contractor
- B. The Architect/Engineer is not authorized to revoke, alter, or waive any requirement of the Contract.
- C. The Architect/Engineer, Owner or Field Representative shall have free access to the Work and materials at all times to facilitate the performance of his duties.
- D. Subject to concurrence by the Owner, the Architect/Engineer shall have the right to observe and reject any material or work performed which does not meet the requirements of the Contract Documents. When the Architect/Engineer discovers any work in progress or completed that does not meet the requirements of the Contract Documents, the Architect/Engineer shall reject that portion of the Work affected and shall confirm such rejection in writing, as soon as practical, detailing the reasons for the rejection. Work rejected by the Architect/Engineer will not be paid for. Any such observation and/or rejection shall not be construed as undertaking supervisory control of the Work or of means and methods employed by the Contractor or his Subcontractors and shall not relieve the Contractor of any of his responsibilities or obligations under the Contract. The Contractor shall not request or attempt to require the Architect/Engineer to undertake such supervisory control or to administer, supervise, inspect, assist, or act in any manner so as to relieve the Contractor from such responsibilities or obligations.
- E. The fact that the Architect/Engineer has not made early discovery of materials furnished or work performed which does not meet the requirements of the Contract Documents, shall not bar the Architect/Engineer from subsequently rejecting said materials or work.
- F. If either the Architect/Engineer or the Field Representative requests it, the Contractor, at any time before acceptance of the work, shall remove or uncover such portions of the finished work as may be directed. After examination, the Contractor shall restore said portions of the work to the standard required by the Contract Documents. Should the work thus exposed or examined prove acceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be paid for as Extra Work. Should the work so exposed or examined prove unacceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be at no additional cost to the Owner.

- G. Any work done or materials used which are not in compliance with the Contract Documents may be ordered removed and replaced at the Contractor's expense.
- H. The Owner and other agencies having jurisdiction over the work hereunder shall be afforded free access to the site to perform such inspections and tests as may be required to determine conformance of the Work with the Contract Documents.
- I. Neither the Architect/Engineer nor the Field Representative shall be responsible for any safety obligations imposed on the Contractor by applicable industry standards, licensing requirements, laws or regulatory requirements.

END OF ARTICLE

4. OWNER

(June 12, 2012)

- A. Unless otherwise specified or excluded elsewhere in the Contract Documents, the records of borings, test excavations and other subsurface investigations, if any, are offered as information only and solely for the convenience of the Contractor. The Owner does not warrant or guarantee either that said records are complete or that the said records will disclose the actual subsurface conditions. The interpretation of the records and the conclusions drawn therefrom as to the actual existing subsurface conditions are the sole responsibility of the Contractor.
- B. Any estimates of quantities of work or materials, based on said borings, test excavations and other subsurface investigations are not warranted by the Owner to indicate the true quantities or distribution of quantities unless the Contractor is expressly directed to rely on such information to prepare and submit his Bid.
- C. If the Contractor is notified by the Owner to correct defective or nonconforming work, and the Contractor fails to promptly proceed with corrective action in a reasonable time, the Owner may, upon written notice, accomplish the redesign, repair, rework or replacement of nonconforming work by the most expeditious means available and backcharge the Contractor for the cost incurred. The cost of backcharge work shall include all reasonable costs associated with the corrective action.
- D. The Owner shall separately invoice or deduct from payments, otherwise due to the Contractor, the costs as provided herein. The Owner's right to backcharge is in addition to any or all other rights and remedies provided in this Contract, or by law. The performance of backcharge work, on behalf of the Owner, shall not relieve the Contractor of any of its responsibilities under this Contract including but not limited to express or implied warranties, specified standards for quality, contractual liabilities and indemnifications, and the Contract Time.
- E. The Field Representative and/or Architect/Engineer will administer the Contract and the orders of the Owner are to be given through the Field Representative and/or Architect/Engineer. The Field Representative and/or Architect/Engineer shall determine the amount and quality of the several kinds of work performed and materials furnished which are to be paid for under the Contract.
- F. The Field Representative will observe the Contractor's work for compliance with the Contract Documents. Such observation shall extend to all or any part of the work done and to the preparation, fabrication, or manufacture of the material to be used.
- G. Upon discovery, the Field Representative shall call the Contractor's attention to faulty workmanship or defective materials and shall reject work and materials not conforming to the requirements of the Contract Documents.
- H. When any work in progress or completed does not meet the requirements of the Contract Documents, the Field Representative shall have the authority to order the Contractor to shut down that portion of the work affected until the affected work is corrected to the satisfaction of the Field Representative. The Field Representative shall confirm this order in writing as soon as practicable, detailing the reasons for the

shutdown. Work performed in violation of the Field Representative's order to shutdown will not be accepted or paid for.

- I. The Field Representative is not authorized to revoke, alter, or waive any requirements of the Contract. The Field Representative will negotiate and act on behalf of the Owner to the authorized limits of his authority as specified in the Contract Documents.
- J. Whenever the Contractor intends to build, assemble or perform any portions of the Work away from the site, the Contractor shall promptly notify the Field Representative of such intentions, including where and when such work is to be performed, before such work starts. The Contractor shall also make arrangements for access thereto by the Field Representative and/or the Architect/Engineer so that the aforementioned portions of the Work may be inspected as needed.
- K. The fact that the Field Representative has not made early discovery of materials furnished or work performed which does not meet the requirements of the Contract Documents, shall not bar the Field Representative from subsequently rejecting said materials or work and does not relieve the Contractor of his responsibility to meet the requirements of the Contract Documents.
- L. The Field Representative shall not act as a foreman or perform other duties for the Contractor, nor interfere with the management of the work by the Contractor.
- M. The administration, observation of the work, and actions by the Field Representative, as herein provided, shall not be construed as undertaking supervisory control of the construction work or of means and methods employed by the Contractor or his Subcontractors and shall not relieve the Contractor from any of his responsibilities or obligations under the Contract; the Contractor shall not request or attempt to require the Field Representative to undertake such supervisory control or to administer, to supervise, to inspect, to assist, or to act in any manner so as to relieve the Contractor from such responsibilities or obligations.
- N. The Field Representative shall decide all questions relating to the rights of different prime Contractors on the Project or site.
- O. All materials and each part or detail of the work shall be subject to observation by the Field Representative and/or the Architect/Engineer. The Architect/Engineer and the Field Representative shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the Contractor as is required.
- P. Miami-Dade County enters into this Contract solely in its proprietary capacity. Nothing in this Contract is intended to bind or otherwise restrict the discretion of Miami-Dade County acting in its regulatory capacity, including but not limited to the regulatory acts of the Departments of Regulatory and Economic Resources (RER), Transportation and Public Works (DTPW), Fire-Rescue (MDFRD) and Water & Sewer (WASD) or their successors.

END OF ARTICLE

5. CONTRACTOR

(June 12, 2012)

- A. If the Contractor hereunder is comprised of more than one legal entity, each such entity shall be jointly and severally liable hereunder.
- B. The Contractor shall hold valid current certificate(s) of competency for the type of work to be performed, in accordance with the qualifications requirements as set forth in Chapter 489 of the Florida Statutes and Chapter 10 of the Code of Miami- Dade County.
- C. The Contractor shall maintain within Miami-Dade County, Florida, a duly authorized agent to accept service of legal process on its behalf, and shall keep the Owner advised of such agent's name and address, during the duration of the Contract, and for three years after final payment or as long as Contractor has warranty obligations under these Contract Documents, whichever period terminates later. The Contractor shall complete the form titled "Contractor Agent to Accept Service" included in the Contract Documents and submit it to the Architect/Engineer prior to NTP.
- D. The Contractor shall be responsible for the complete performance for all of the work under the Contract, and for the methods, means, and equipment used in performing the Contract and for all materials, tools, apparatus and property of every description used in connection therewith.
- E. Upon approval of the Contractor's schedule by the Owner, the Contractor will submit written confirmation from all his Subcontractors agreeing to work within the timeframes specified in the Contractor's approved schedule.
- F. Contractor's Superintendent: The Contractor shall provide a superintendent at the site at all times who is competent in the type of work being performed to act as the Contractor's agent, and shall give that superintendent the full authority to receive instruction from the Field Representative or Architect/Engineer and to execute the order or directions of the Field Representative or Architect/Engineer, including the prompt supply of all materials, tools, equipment, labor, and incidentals that may be required. The Contractor shall furnish such superintendence regardless of the amount of work that is subcontracted, and the superintendent shall read, speak, write and understand English. The Contractor shall also maintain at least one other employee on the work site during Project working hours who speaks and understands English. This superintendent shall be responsible for keeping written daily logs of the work on the project.
- G. The competency of the superintendent shall be demonstrated through licensure or certification in contracting, engineering, trade or experience as applicable to the work being performed. Proof of licensure, certification or qualification of the superintendent must be provided to the Owner at the pre-construction conference and is subject to the approval of the Architect/Engineer or Field Representative after Contractor receipt of said requirements.

- H. In the event that the Field Representative or Architect/Engineer determines, through the course of the actual work progress, that the superintendent lacks the knowledge or expertise necessary to execute the work in an efficient and competent manner, in keeping with all current codes and best practices, the Field Representative or Architect/Engineer shall notify the Contractor in writing and the superintendent shall be replaced by the Contractor with a person acceptable to the Field Representative or Architect/Engineer within five (5) working days.
- I. The Contractor's failure to replace the superintendent in the time allotted shall be cause for the Owner to suspend work with such delays chargeable to the Contractor as Liquidated Damages as specified elsewhere in this contract.
- J. The Contractor shall maintain a daily accounting of his daily manpower, by trade and position, and provide this information to the Field Representative on a weekly basis.

END OF ARTICLE

6. SUBCONTRACTORS

(June 12, 2012)

- A. The Contractor will be permitted to subcontract portions of the Work to competent Subcontractors. Such Subcontractors shall hold valid current certificate(s) of competency for the type of work to be performed, in accordance with the qualifications requirements as set forth in the Florida Statutes and the Code of Miami- Dade County.
- B. Nothing contained herein shall create any contractual relationship between the Owner and any level of Subcontractor, materialman or supplier.
- C. All work performed for the Contractor by a Subcontractor shall be pursuant to an appropriate agreement between the Contractor and the Subcontractor which shall contain provisions that:
 - 1) Preserve and protect the rights of the Owner and any of its authorized representatives under the Contract, including but not limited to, the Architect/Engineer and Field Representative, with respect to the Work to be performed under the subcontract so that the subcontracting thereof will not prejudice such rights;
 - 2) Require that such Work be performed in accordance with the requirements of the Contract Documents including the Contractor's approved schedule;
 - 3) Require submission to the Contractor of applications for payment under each subcontract to which the Contractor is a part, in reasonable time to enable the Contractor to apply for payment in accordance with any and all payment provisions of the Contract Documents;
 - 4) Require that all claims for additional costs, extensions of time, damages for delays or otherwise with respect to subcontracted portions of the Work shall be submitted to the Contractor (via any Subcontractor or Sub-subcontractor or Supplier where appropriate) in sufficient time so that the Contractor may comply in the manner provided in the Contract Documents for like claims by the Contractor upon the Owner;
 - 5) Require specific consent to all relevant provisions of the Contract Documents; and
 - 6) Incorporate all flow-down clauses specifically called for in the Contract, as directed.
- D. Contractor Participation: The Contractor shall perform not less than 25 percent of the Work, not inclusive of materials purchased, with his own organization. If the Contractor is a joint venture, the requirement shall be satisfied by any one, or a combination of any of the joint venture partners. Where a percentage of a Bid Item is subcontracted, the dollar value of that percentage subcontracted will be based on the estimated cost of such Bid Item, determined from information submitted by the Contractor, subject to approval by the Owner. The materials produced by other than the Contractor's forces shall be considered as being subcontracted. If, during the

progress of the Work, the Contractor requests a reduction in such participation percentage, and the Owner determines that, due to the special nature of the conditions of the Work at the time, it would be to the Owner's advantage, the percentage of the Work required to be performed by the Contractor may be reduced, provided written approval of such reduction is obtained by the Contractor from the Owner. The Contractor shall not proceed with any such reductions until his request is approved in writing by the Owner or his authorized designee. Under no circumstances shall less than ten percent (10%) of the Work be performed with the Contractor's own forces.

E. Work Performed by Equipment-Rental Agreement:

- 1) The amount of work performed under equipment rental agreements shall not be considered Subcontractor work. However, for work to be performed by equipment-rental agreement, the Contractor shall notify the Architect/Engineer in writing of such intention before using the rented equipment, and shall indicate whether the equipment is being rented on an operated or non-operated basis. The Contractor's written notice shall contain a listing and description of the equipment and a description of the particular work to be performed with such equipment. As an exception to the above requirements for a written notice to the Architect/Engineer, such notice will not be required for equipment to be rented (without operators) from an equipment dealer or from a firm whose principal business is the renting or leasing of equipment.
- 2) The operators of rented equipment, whether rented on an operated or a non-operated basis, will be subject to wage rate requirements applicable to the Project. If equipment is being rented without operators, the Contractor shall be required to carry the operators on his own payroll. When equipment is rented on an operated basis, the Contractor, when required by the Contract or requested by the Architect/Engineer, shall submit payrolls from the lessor with the names of the operators shown thereon.

F. No work is to be performed at the Work site until the Contractor is in compliance with the Insurance Specifications, has furnished satisfactory evidence of required insurance to the Owner and obtained all required permits.

G. Approval of Subcontractor:

- 1) Prior to entering into any subcontract for Work to be performed on the Project, the Contractor shall secure the approval of the Owner regarding the prospective subcontractor's qualifications, employment data and compliance with CSBE program requirements. The forms used to provide the required information shall be the same as those included in the Forms for Bidding. The Owner will review the submittal from each Subcontractor, and will furnish written notification to the Contractor concerning approval of the award of the subcontract. If the Owner objects to the proposed award or fails to respond to the Contractor within five (5) business days of the complete submittal of the required information, the Contractor may furnish written notice of another subcontractor for consideration. The Owner may, at its discretion, waive or reduce subcontractor information submittal requirements as it deems appropriate.

- 2) In accordance with Ordinance 97-104, codified in Miami-Dade County Code Sections 2-8.1 and 10-33.01, the Contractor shall not, without written consent of the Owner, either replace any subcontractor or permit any such subcontract to be assigned or transferred, or allow that portion of the Work to be performed by anyone other than the approved subcontractor, except he may perform the work himself with qualified personnel upon written notice to the Owner in accordance with applicable law.

END OF ARTICLE

7. PROSECUTION OF THE WORK

(June 12, 2012)

A. Workmanship and Unauthorized Work

- 1) Work under this Contract shall be performed in a skillful and workmanlike manner. Unless otherwise indicated in the Contract Documents, the Contractor shall be solely responsible for means and methods and for the coordination of all trades through completion of the Work and without damage to the existing or newly installed components and surfaces. The Architect/Engineer or Field Representative may, in writing, require the Contractor to remove from the work any employee the Architect/Engineer or Field Representative determines incompetent, careless or otherwise objectionable. Such request shall be at no cost to the Owner.
- 2) Unauthorized Work: Work performed beyond the lines and grades shown on the Contract Drawings and approved Shop Drawings or established by the Owner, and Extra Work done without a Work Order or Change Order, will be unauthorized work and the Contractor will receive no compensation therefor. If required by the Owner, unauthorized work shall be remedied, removed or replaced by the Contractor at the Contractor's expense. Upon failure of the Contractor to remedy, remove or replace unauthorized work, the Owner may at its discretion, remedy, remove or replace the unauthorized work and the Contractor shall bear the responsibility for any and all costs and for delays resulting from such work.
- 3) The entire work and each part thereof, unless otherwise specified in the Contract Documents, shall be placed at the location, elevation, grade and gradient specified, and in proper alignment and adjustment. The Contractor shall provide all frames, forms, falsework, shoring, guides, anchors and temporary structures required to ensure these results.
- 4) No deviation from the approved Contract Documents shall be permitted without the prior written approval of the Architect/Engineer and/or Owner, by Work Order or Change Order, which approved deviation(s) shall be documented to the extent required by the Contract Documents.
- 5) The Contractor shall, at all times, employ sufficient labor and equipment for prosecuting the work to full completion in the manner and time required by the Contract Documents. All workers shall have sufficient skill and experience to properly perform the work assigned to them. Workers engaged in special work or skilled work shall have sufficient experience in such work and in the operation of the equipment required to perform the work satisfactorily.
- 6) All proposed equipment shall be of sufficient size and in such mechanical condition as to meet requirements of the work, producing a satisfactory quality of work. Equipment used on any portion of the work shall be such that no damage to previously completed work, adjacent property, or existing facilities will result from its use.

- 7) When the Contract Documents specify the use of certain methods and equipment, such methods and equipment shall be used unless others are authorized in writing by the Architect/Engineer by Work Order or Change Order. If the Contractor desires to use a method or type of equipment other than specified in the Contract, he may request permission from the Architect/Engineer to do so. The request shall be in writing and shall include a full description of the methods and equipment proposed and of the reasons for desiring to make the change. If approval is given, it will be on the condition that the Contractor will be fully responsible for producing work in conformity with Contract requirements. If, after trial use of the substituted methods or equipment, the Architect/Engineer determines that the work produced does not meet Contract requirements, the Contractor shall discontinue the use of the substitute method or equipment and shall complete the remaining work with the specified methods and equipment. The Contractor shall remove any deficient work and replace it with work of specified quality, or take such other corrective action as the Architect/Engineer may direct, at no additional cost to the Owner. No change will be made to the Contract price or the Contract Time as a result of authorizing a change in methods or equipment under this article.
- 8) The Contractor shall give constant attention to the work to facilitate the progress thereof, and he shall cooperate with the Architect/Engineer and its Field Representatives and with other Contractors in every way possible.
- 9) The Contractor warrants to the Owner that all materials and equipment furnished under this Contract will be new unless otherwise specified, and that the work will be of good quality, free from faults and defects in materials and workmanship for a period of one year from the date of Substantial Completion, unless otherwise required under this Contract. Work not conforming to these standards may be considered defective. If required by the Architect/Engineer, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

B. Material

- 1) Unless otherwise indicated in the Contract Documents, equipment, material and products incorporated in the Work covered by this Contract shall be new and of the grade specified for the purpose intended. Unless otherwise specifically indicated, reference to equipment, material, product, or patented process by trade name, make, or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition. The Contractor may, at his option and, subject to the approval of the Architect/Engineer, use any equipment, material, article, or process which is equivalent to that named, subject to the requirements of these Contract Documents or propose a substitute equipment, material, article or process as indicated below. The Contractor shall at all times comply with established Green Building or LEED standards, if applicable, and as established in the Contract Documents. Proposed alternative equipment, material, products, or patented processes shall be considered equivalent if the Architect/Engineer

determines that the proposed alternative is functionally equal to and/or sufficiently similar to that specified in the Contract Documents.

- 2) The Architect/Engineer shall be the sole judge of the quality, suitability and cost of the proposed alternative equipment, material, article or process. A proposed alternative shall be considered equivalent and/or functionally equal to that specified in the Contract Documents if, in the exercise of reasonable judgment, the Architect/Engineer determines that the proposed alternative is at least equal in materials of construction, quality, durability, appearance, strength and design characteristics, will reliably perform at least equally well the function and achieve the results imposed by the design concept and has a proven record of performance and availability.
- 3) If the Architect/Engineer determines that a proposed alternative does not qualify as equivalent or functionally equal, the alternative may be proposed for consideration as a substitute subject to the Contractor submitting sufficient information as provided below to allow the Architect/Engineer to determine that the proposed alternative is essentially equivalent to or better than the specified item and is an acceptable substitute for that said specified item.
- 4) The burden of proving the quality, suitability and cost of an alternative shall be borne by the Contractor. All information required by the Architect/Engineer in judging an alternative shall be supplied by the Contractor at the Contractor's expense. The Architect/Engineer's costs in evaluating a proposed alternative, irrespective of its acceptance, will be reimbursed by the Contractor to the Owner. In the case of approved alternatives, the Contractor shall also reimburse the Owner for the Architect/Engineer's costs to revise the Contract Documents.
- 5) The Contractor certifies that, if approved and incorporated into the Work, there will be no increase in cost to the Owner or in Contract Time and the proposed alternative shall conform substantially to the detailed requirements of the item specified in the Contract Documents.
 - a. Where use of an alternative material involves redesign of or changes to other parts of the Work, the cost and the time required to affect such redesign or change will be considered in evaluating the suitability of the alternative material. All costs pertaining to redesign and changes in other parts of the Work, including remedial work to completed work, shall be at the Contractor's expense.
 - b. No action relating to the approval of alternative materials will be taken until the request for approval of the alternative materials is made in writing by the Contractor accompanied by complete data as to the quality, suitability and cost of the materials proposed. Such request shall be made at least 60 days before the early start date of the activity. Any delays in receiving approval shall be the responsibility of the Contractor.
 - c. The Architect/Engineer will examine and review the proposed alternative with the Owner and return it, within twenty-one (21) calendar days from the date of its receipt at the Architect/Engineer's

office, to the Contractor noted with the final decision. If the final decision approves either an equal or a substitution, the approval must also contain the Owner's written approval. When requested by the Architect/Engineer, the Contractor shall resubmit such Shop Drawings, descriptive data and samples as may be required.

- d. Where classification, rating, or other certification by a body such as, but not limited to, Underwriters' Laboratories Inc. (UL), National Electrical Manufacturer's Association (NEMA), or American Railway Engineering Association (AREA) is a part of the specification for any material, proposals for use of alternative materials shall be accompanied by reports from the listed body, or equivalent independent testing laboratory, indicating compliance with Contract Documents requirements. Testing required proving equality of the material proposed shall be at the Contractors expense.
 - e. Approval of an alternative material will be only for the characteristics and use named in such approval, and shall not change or modify any Contract requirement, or establish approval for the material to be used on any other Project for the Owner.
- 6) Source of Supply and Quality of Materials: The Contractor shall furnish all materials and products required to complete the Work except those designated to be furnished by the Owner.
- a. Notwithstanding prior inspection and approval by the Architect/Engineer, only materials conforming to the requirements of the Contract Documents shall be incorporated in the Work.
 - b. The materials shall be manufactured, handled and incorporated so as to ensure completed work in accordance with the Contract Documents.
- 7) Defective Materials: Contractor-furnished materials not conforming to the requirements of the Contract Documents will be rejected, whether in place or not. Rejected material shall be removed immediately from the Work site. No rejected material, the defects of which have been subsequently corrected, shall be used in the Work. The Owner may cause the removal and replacement of rejected material and the cost thereof will be deducted from any monies due or to become due to the Contractor.
- 8) Handling of Materials: Materials shall be transported, handled and stored by the Contractor in a manner which will ensure the preservation of their quality, appearance and fitness for the Work. Materials shall be stored in a manner to facilitate inspection.
- 9) The Owner will have no responsibility to the Contractor concerning local material sources.
- a. The Contractor shall make all necessary arrangements with the owners of material sources. The Contractor shall pay all costs in connection with making such arrangements, exploring, developing

and using material sources, whether or not indicated, except such costs as the Owner expressly agrees in writing to assume.

10) Disposal of Material Outside the Work Site: Unless otherwise specified in the Contract Documents, the Contractor shall make his own arrangements for properly disposing of waste and excess materials outside the Work Site and he shall pay all costs therefore. Contractor shall comply with all local, state and federal requirements when disposing of waste and excess materials.

a. Prior to disposing of material outside the Work Site, the Contractor shall obtain written permission from the owner on whose property the disposal is to be made. The Contractor shall file with the Architect/Engineer said permit, or a certified copy thereof, together with a written release from the property owner absolving the Owner from any and all responsibility in connection with the disposal of material on said property.

11) Property Rights in Materials: The Contractor shall have no property right in materials after they have been attached or affixed to the Work or the soil, or after payment has been made by the Owner to the Contractor for materials delivered to the site of the Work, or stored subject to or under the control of the Owner, as provided in these Contract Documents. However, the Contractor shall be responsible for the security of the material on-site until Final Acceptance by the Owner.

C. Methods of Sampling and Testing

1) Sampling and testing of all materials shall be as set forth in the Contract Documents. Except for quality control testing and any other testing that may be the direct responsibility of the Contractor as set forth in the Contract Documents, the testing of samples and materials will be made at the expense of the Owner by the project testing laboratory. The Contractor shall furnish the required samples without charge. Any and all fees for non-conforming materials or work shall be solely borne by the Contractor. The Contractor shall give sufficient notification to the Field Representative of the placing of orders for or receipt of materials to permit testing.

2) The Field Representative may inspect, at its source, any specified material or assembly to be used in the Work. Manufacturing plants may be inspected from time to time for the purpose of determining compliance with specified manufacturing methods or materials to be used in the Work and to obtain samples required for its acceptance of the material or assembly

Should the Field Representative conduct plant inspections, the following shall exist:

a. The Field Representative shall have the cooperation and assistance of the Contractor and the producer with whom he has contracted for materials.

- b. The Field Representative shall have full entry at all reasonable times to such parts of the plant that concern the manufacture or production of materials being furnished.
 - c. If required by the Field Representative, the Contractor shall arrange for adequate office or working space that may be reasonably needed for conducting plant inspections. Office or working space should be conveniently located with respect to the plant.
- 3) It is understood and agreed that the Owner shall have the right to retest any material which has been tested and approved at the source of supply after it has been delivered to the site. The Field Representative shall have the right to reject only material which, when retested, does not meet the requirements of the Contract Documents. In such an event, the cost of re-testing shall be borne by the Contractor if it results in a rejected material.
- 4) All inspections and testing of materials, assemblies and equipment will be performed in Miami-Dade County. If the Contractor's material or manufacturing sources are such that inspections or tests cannot be made in Miami-Dade County, all traveling and lodging expenses in connections with such inspections and testing shall be borne by the Contractor.

D. Meetings

- 1) A pre-construction conference will be held prior to the issuance of the Notice to Proceed to discuss the work to be performed under this contract. The Contractor and its major Subcontractors shall be required to attend this meeting. The Contractor will be advised of the time, date and location of the meeting.
- 2) The Contractor shall attend weekly construction coordination meetings at a time and place to be designated by the Architect/Engineer. These meetings are intended to determine job progress, identify job problems, assist in solving and preventing job problems, and promote coordination with all entities involved in the Contract and with other Owner Contractors. The Contractor shall cause Subcontractors and suppliers to attend as he deems advisable, or as requested by the Architect/Engineer. Unless otherwise provided for in these Contract Documents, the Contractor shall be responsible for generating and distributing meeting minutes for all such meetings.

E. Permits and Compliance with Laws

- 1) Unless otherwise provided for in these Contract Documents, the Contractor shall be responsible for obtaining necessary licenses and permits and for complying with applicable Federal, State, County and Municipal laws and latest codes and regulations in connection with the prosecution of the Work. (For payment of permit(s), see Special Provisions). No time extensions will be allowed for delays in obtaining the required permits unless revisions directly caused by the Owner or its agents are required to the Contract Drawings due to changes in codes, regulations and applicable contract standards during the contract term. See Special Provisions for additional permit requirements.

- 2) The Owner will not pay or reimburse the Contractor for any penalties relating to his permits or fees as a result of the Contractor's failure to timely obtain all his permits, inspections, approvals, etc.
- 3) The Contractor shall observe and comply with all applicable Federal, State, County and other laws, codes, ordinances, rules and regulations of the Federal, State and County governments, all authorities having jurisdiction, and any and all programs developed in compliance therewith, in any manner affecting the conduct of the Work.
- 4) Dewatering of excavations shall be performed in accordance with the applicable provisions of the Department of Environmental Resources Management (DERM), Florida Department of Environmental Protection (DEP), U.S. Environmental Protection Agency (USEPA) and the South Florida Water Management District (SFWMD) Dewatering Permits and/or any and all authorities having jurisdiction and any other requirements specified in the Contract Documents. The means and methods of dewatering shall be determined by the Contractor who shall bear the full cost of same as part of the contract price.
- 5) All construction activities shall be subject to the pollution prevention requirements established under the National Pollutant Discharge Elimination System (NPDES) program under the Clean Water Act regulating storm water discharge from construction sites.
- 6) Upon completion of all of the work contemplated under the Contract Documents, the Contractor shall obtain and deliver to the Field Representative such Certificate(s) of Occupancy or Certificate(s) of Completion as required by the Florida Building Code and/or authority having jurisdiction.
- 7) The Contractor shall be subject to and comply with all the provisions of Miami-Dade County Code Section 2-8.4.1, which provides that, whenever any individual or corporation or other entity attempts to meet its contractual obligations with the County through fraud, misrepresentation or material misstatement, the County shall, whenever practicable, terminate the Contract. The Contractor is further directed to Section 10-38 of the Miami-Dade County Code which provides for the debarment of County contractors.

F. Coordination and Access

- 1) Other Contracts: The Owner may undertake or award other contracts for additional work, and the Contractor shall fully cooperate and coordinate with other Contractors and the Owner and carefully fit his own work to such additional work. The Contractor shall not perform any act which will interfere with the performance of work by any other contractor or by the Owner. The Contractor shall be responsible for obtaining all necessary scheduling details from other Contractors and these requests must be provided, in writing, to the Owner. The Architect/Engineer shall have the authority to resolve conflicts related to coordination between Contractors.
- 2) In the event of interference between the work of the Contractor and other contractors working concurrently at the Site, the Field Representative will

instruct the Contractor as to which work has priority in performance and such instructions shall be binding upon the Contractor.

- 3) Utility companies, railroads, and municipal agencies having facilities within the limits of the Work shall have access to their facilities at all times for inspection and repair.

G. Rights in Land and Improvements

The Contractor shall make no arrangements with any person to permit occupancy or use of any land, structure or building within the Work Site for any purpose whatsoever, either with or without compensation, in conflict with any agreement between the Owner and any property owner, former property owner or tenant of such land, structure or building. The Contractor shall not occupy Owner-owned property outside the Work Site without obtaining prior written approval from the Owner.

H. Interference With Existing Utilities

- 1) Attention of the Contractor is specifically directed to the need for careful control of all aspects of his work to prevent damage to cables, ducts, water mains, sewers, fire mains, telephone cables, fuel lines, radar cables, and any other existing overhead or underground utilities and structures.
- 2) Before commencing work in any given area, the Contractor shall contact utility companies to identify any potential conflicts. Further, the Contractor shall also carefully review the Plans, survey and search the site for utility locations, and determine possible utility conflicts. All known above and underground utilities, including, but not limited to, electrical, telephone, communications, lighting cables, fuel lines, sewer, drainage and water pipes, and other existing structures are shown on the Plans for reference purposes only, but no guarantee is expressed or implied that the information is accurate. It shall be the sole responsibility of the Contractor to ascertain and/or verify the location of any and all such utilities or structures using magnetic and electronic detectors and by hand excavation or other appropriate measures before performing any work that could result in damage to such existing utilities or structures. The Contractor shall make a thorough search of the particular location for underground utilities or structures whether or not shown on the drawings, before excavation work is commenced in any particular location. To this end the Contractor shall provide and maintain throughout the term of the Contract, electronic and magnetic detecting devices capable of locating underground utilities or structures. The Contractor shall, after locating primary and critical existing utilities, mark their location with indelible material or other means satisfactory to the Field Representative and maintain above ground physical identification during the work.
- 3) In the event of damage to, or accidental disruption of utilities or other facilities as a result of the Contractor's operations, the Contractor shall take immediate steps to repair or replace all damage and to restore all services. Further, the Contractor shall engage any additional outside services which may be necessary to prosecute repairs on a continuous "around the clock" basis until

services are restored. The Contractor shall also provide and operate any supplemental temporary services to maintain uninterrupted use of the facilities. All costs involved in making repairs and restoring disrupted service resulting from the Contractor's work shall be borne by the Contractor and the Contractor shall be fully responsible for any and all claims resulting from the damage.

I. Protection of Existing Facilities, Vegetation, Structures, Utilities and Improvements

- 1) The Contractor shall preserve and protect existing vegetation such as trees, shrubs, and grass on or adjacent to the work site which are not indicated to be removed and which do not unreasonably interfere with the construction Work and he shall replace in kind the vegetation, shrubs and grass damaged by him at his own expense.
- 2) The Contractor shall protect from damage all utilities, foundations, walls or other parts of adjacent, abutting or overhead buildings, railroads, bridges, structures, surface and subsurface structures at or near the site of the Work and shall repair or restore any damage to such facilities, except utilities, resulting from failure to comply with the requirements of this Contract or the failure to exercise reasonable care in the performance of the Work. If, after receipt of notification from the Architect/Engineer, the Contractor fails to or refuses to repair any such damage promptly, the Owner may have the necessary Work performed and charge the cost thereof to the Contractor.
- 3) At points where the Contractor's operations are adjacent to utility facilities, damage to which might result in expense, loss, disruption of service or other undue inconvenience to the public or to the owners, Work shall not be commenced until all arrangements necessary for the protection thereof have been made by the Contractor. The Contractor shall be solely and directly responsible to the owners and operators of such utilities for any damage, injury, expense, loss, inconvenience, or delay, caused by the Contractor's operations.
 - a. Where public utilities or their appurtenances interfere with permanent construction, unless otherwise specified, work involved in permanently relocating or otherwise altering such public utilities and their appurtenances will not be a part of this Contract but will be done by utility owners at no cost to the Contractor. If the Contractor wishes to have utilities temporarily relocated, he shall make necessary arrangements with utility owners and reimburse them at his own expense for cost of the Work. The Contractor shall keep the Architect/Engineer advised of temporary relocation arrangements.
 - b. The Contractor shall not repair or attempt to repair utility damage but shall immediately contact the utility owner. The Contractor shall obtain the name, address and telephone number of each utility company that the work will affect and the person in such utility company to contact. He shall submit to the Architect/Engineer said names, addresses and telephone numbers.

- 4) The Contractor shall comply with the latest version of the Florida Building Code or the Code under which the Contract Documents were approved, whichever is applicable at the time the Work is performed.
- 5) In order to safeguard the owners and tenants of abutting property and at the same time prevent unjust or fraudulent claims against the Contractor the Government, State, the Owner and the Architect/Engineer in respect thereto, the Contractor shall cause a detailed examination of abutting property to be made before construction is begun. The owner or tenant of each parcel or structure or his or their duly authorized representative will be invited to be present during the examination by a notice in writing delivered by the Contractor to a person in charge of the premises or structure, or by the mailing of the notice to the owner at the premises. The Architect/Engineer will attend while the Contractor makes the detailed examination. A complete record including photographs of the existing conditions of each parcel or structure shall be made in triplicate, signed by the Contractor, Owner and the Architect/Engineer and one copy will be delivered to the Owner, one to the Architect/Engineer and one will be retained by the Contractor. At such time as the Architect/Engineer may direct, or upon the filing of the verified statement by the owner, tenant, lessee, operator or occupant of the building structure, and in any event, upon the completion of any work that in the opinion on the Architect/Engineer might affect the abutting property, the Contractor will make another detailed examination of such abutting property. A complete record of the then existing conditions of said property will be made in triplicate, signed by the Contractor and one copy will be delivered to the Owner, one to the Architect/Engineer and one will be retained by the Contractor. In any action, which may be brought by any owner, tenant, lessee, operator or occupant of abutting property to recover under the provisions of this article or any paragraph hereof, the record of the existing conditions of each parcel will be prima facie evidence of the conditions thereof at the time of the making of the examination.
- 6) The Contractor shall maintain access to fire hydrants and fire alarm boxes throughout the prosecution of the Work. Hydrants, alarm boxes and standpipe connections shall be kept clear and visible at all times unless approved otherwise. If visibility cannot be maintained, the Contractor shall provide clearly visible signs showing the location of the fire hydrant, fire alarm box or standpipe connection. The Contractor shall promptly notify the authority having jurisdiction of any impairment to any fire systems.

J. Damage to the Work and Responsibility for Materials

- 1) The Contractor shall be responsible for materials delivered and work performed until completion and Final Acceptance of the entire construction thereof, except those materials and work which may have been accepted under the applicable sections of this article and shall take all necessary steps to protect the Work, from all causes, at his expense.
- 2) The Contractor shall bear the risk of injury, loss or damage to any and all parts of the Work for whatever cause, whether arising from the execution or from the

non-execution of the Work, except as provided for in this article. The Contractor shall rebuild, repair or restore work and materials which have been damaged or destroyed from any cause before Completion and Acceptance of the Work and shall bear the expense thereof. The Contractor shall provide security including, but not limited to, security guards, temporary drainage systems and erection of temporary structures and temporary fencing as necessary to protect the Work and materials from damage.

- 3) The Contractor shall be responsible for materials not delivered to the site for which any progress payment has been made to the same extent as if the materials were so delivered.
- 4) The Contractor's responsibility for material shall be the same for Owner-furnished material, upon receipt of said material from the Owner, under this Contract as for Contractor-furnished material.
- 5) Relief from Maintenance and Responsibility: The Contractor may request, in writing, from the Owner, that the Owner relieve the Contractor of the duty of maintaining and protecting certain portions of the Work, as described in this paragraph, which have been completed in all respects in accordance with the requirements of the Contract. Such action by the Owner will relieve the Contractor of responsibility for injury or damage to said completed portions of the Work resulting from use by the Owner or the public for any cause, but not from injury or damage resulting from the Contractor's own operations or negligence. Portions of the Work for which the Contractor may be relieved of the duty of maintenance and protection, as provided in this paragraph, include the following:
 - a. Early possession by the Owner of any portion of the Work, in accordance with the Contract Documents.
 - b. This Paragraph 5 does not relieve the Contractor of responsibility for repairing or replacing defective work or materials in accordance with the Contract requirements.

K. Emergencies

- 1) In an emergency affecting the safety of life, the Work, or adjacent property, the Contractor shall notify the Field Representative and the Architect/Engineer as early as possible that an emergency exists. In the meantime, without special instruction from the Architect/Engineer as to the manner of dealing with the emergency, the Contractor shall act at his own discretion to prevent such threatened loss or injury. As emergency work proceeds, the Field Representative and the Architect/Engineer may issue instructions, which the Contractor shall follow. The compensation to which the Contractor is entitled on account of emergency work, if any, shall be limited to emergencies not caused by actions or inactions of the Contractor determined in accordance with the Contract Documents, where applicable.
- 2) For purposes of this article, an emergency is defined as an act or event that has already occurred, not caused by actions or inactions of the Contractor, which, if no immediate action is taken may affect the safety of life, the work, or adjacent property. This article does not apply to steps taken by the Contractor to protect

the Work, adjacent structures, utilities, existing vegetation, etc. under other sections of the Contract Documents. Furthermore, this article does not apply to preparations the Contractor may make prior to storms or hurricanes or other acts of God.

L. Accident Prevention

- 1) Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
 - a. All persons on the Site or who may be affected by the Work;
 - b. All the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and other property at the Site or adjacent thereto, including trees, shrubs lawns, walks, pavements, roadways, structures, utilities, and underground facilities not designated for removal, relocation, or replacement in the course of construction.
- 2) Contractor shall comply with all applicable laws and regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss and shall erect and maintain all necessary safeguards for such safety and protection.
- 3) Upon notification from the Owner or its representative(s), the Contractor shall promptly correct any deficiencies affecting the safety and well being of the construction workers and the public that have been identified by the notice.
- 4) Should a situation of imminent danger be identified, work in the affected area must be suspended immediately until the condition has been corrected. Imminent danger is defined as the exposure or vulnerability to harm or risk that is impending or about to occur as defined by the Field Representative or the Architect/Engineer. The Contractor will not be entitled to future claims alleging impacts caused by the Owner stoppage of the Work due to safety reasons.

M. Warranty of Work

- 1) Except where longer periods of warranty are indicated for certain items, the Contractor warrants the Work under the Contract to be free from faulty materials and workmanship for a period of not less than one (1) year from the date of Substantial Completion. This one-year period shall be covered by the Surety Performance Bond as specified in this Contract, except that in the case of defects or failure in a part of the work which the Owner takes possession of prior to Substantial Completion, such a period shall commence on the date the Owner takes possession. Upon receiving notification from the Owner or any public body, to whom the ownership of the Work has been transferred or who has agreed to maintain the Work, the Contractor shall immediately remedy, repair, or replace, without cost to the Owner or other notifying party and to the entire satisfaction of the notifying party, defects, damages, or imperfections

due to faulty materials or workmanship appearing in said Work within said period of not less than one year. Remedial work shall carry the same warranty as the original work starting with the date of acceptance of the replacement or repair. Payment to the Contractor will not relieve him of any obligation under the Contract.

- 2) The Contractor, at no additional expense to the Owner, shall also remedy damage to equipment, the site, or the buildings or the contents thereof, which is the result of any failure or defect in the Work, and restore any Work damaged in fulfilling the requirements of the Contract. Should the Contractor fail to remedy any such failure or defect within ten (10) days after receipt of notice thereof, the Owner will have the right to replace, repair, or otherwise remedy such failure or defect and deduct all costs from the Contractor's pay request or Performance Bond if final payment has been made.
- 3) The Contractor will correct all latent defects discovered within ten (10) years after Substantial Completion provided that the Owner shall notify the Contractor of each latent defect within the time specified by law. The Contractor, without prejudice to the terms of the Contract, shall be liable to the Owner for all damages sustained by the Owner resulting from latent defects, fraud, or such gross mistakes as may amount to fraud, discovered after the stated guarantee and warranty periods have expired. If the Contractor fails to act within ten (10) days, the Owner reserves the right to have the work performed by others at the expense of the Contractor, and the Contractor agrees to pay the Owner the reasonable cost associated with procurement, implementation and management thereof upon demand. The Owner shall also be entitled to reasonable attorney's fees, necessarily incurred upon the Contractor's refusal to pay the above costs.
- 4) Subcontractors', manufacturers' and suppliers' warranties and guaranties, expressed or implied, with respect to any part of the Work and any material used therein shall be deemed obtained and shall be enforced by the Contractor for the benefit of the Owner provided that, if directed by the Owner, the Contractor requires such subcontractors, manufacturers and suppliers to execute such warranties and guaranties, in writing, directly to the Owner.
- 5) The rights and remedies of the Owner provided in this article are in addition to and do not limit any rights and remedies afforded by the Contract or by law.
- 6) Nothing in the above intends or implies that this warranty shall apply to work that has been abused or neglected by the Owner, its agents or other public body, utility or railroad to which ownership has been transferred.

END OF ARTICLE

8. CONTRACT TIME

(June 12, 2012)

A. Notice to Proceed

- 1) The Owner may issue authorization to obtain permits to the Contractor after the Contractor has executed the Contract and has delivered the specified bonds and certificates of insurance in forms acceptable to the Owner, for the limited purpose of obtaining all necessary permits to complete the work. If the Contractor is unable to obtain all necessary permits within 30 days, through no fault of the Contractor, the Owner has the option, but not the obligation, to terminate the Contract, without fault to the Contractor or the Owner, effective immediately upon written notice by the Owner or give the Contractor additional time to obtain the permits. Upon the Contractor providing satisfactory evidence of obtaining the permits, the Owner will issue Notice to Proceed. Except as specifically authorized in writing by the Owner, the Contractor is not authorized to perform work (other than obtaining permits) under the Contract until the effective date of the Notice to Proceed, upon which the Contractor shall commence work and shall diligently prosecute the Work to completion within the time limits specified. The Contract time commences on the date shown on the Notice to Proceed.
- 2) Any Work Performed by the Contractor (other than obtaining permits) prior to Notice-To-Proceed shall be at the Contractor's own risk and shall not be considered as the basis for any claim.

B. Schedules

- 1) The Contractor shall provide, maintain, and periodically update schedules in strict accordance with the Contract Documents. The Special Provisions shall contain specific requirements for the form, content and date of submission of the baseline schedule and all schedule updates.
- 2) The Contractor shall prosecute the Work in accordance with the approved baseline Schedule or most recently approved revision to the baseline schedule. In the event that progress along the critical path is delayed, the Contractor shall revise his planning to include additional forces, equipment, shifts or hours as necessary to meet the time or times of completion specified in this Contract at no additional cost to the Owner. In addition, the Contractor shall revise his schedule to reflect these recovery actions and submit it to the Owner for review and approval it being understood that such approval will be as to the format and composition of the schedule and not the Contractor's means and methods. Additional costs resulting therefrom will be borne by the Contractor. Delayed progress is defined as:
 - a. A delay in the start or finish of any activity on the critical path (critical path is defined as the path with the least amount of float) of the approved baseline schedule or most recently approved revision to the baseline; or

- b. A delay in the start or finish of any non-critical activity which consumes more than the available float shown on the approved baseline schedule or most recently approved revision to the baseline, thereby making the activity critical and late; or
 - c. A projected completion date shown on a schedule update which is later than the contractual completion date; or
 - d. Any combination of the above.
- 3) Failure of the Contractor to comply with the requirements under this provision will be grounds for determination that the Contractor is not prosecuting the Work with such diligence as will ensure completion within the Contract Time. Upon such determination, the Owner may terminate the Contractor's right to proceed with the Work, or any separate part thereof, in accordance with the Contract Documents. If in the Contractor's estimation, the cause(s) of delay are beyond the Contractor's control, the Contractor shall adhere to the sections of the Contract Documents related to extensions of time, claims and others as appropriate.
- 4) The Contractor shall be responsible for scheduling and coordinating the work of all crafts and trades, subcontractors and suppliers, required to perform the Work and to complete the Work within the prescribed time. Any inefficiency or loss of productivity in the labor, materials, or special equipment of the Contractor or its subcontractors of any tier, from any cause, shall be the responsibility of the Contractor. No reimbursement of these or any other costs can be requested by or granted to the Contractor or any of its subcontractors of any tier for inefficiency or loss of productivity in labor, materials, or special equipment, except as specified in the paragraph in this article dealing with Liquidated Indirect Costs, for delays in the performance and completion of the Work directly caused by the Owner or its authorized representatives. Other than the exception described above, additional costs may only be paid to the Contractor as a result of additional Work added to the Contract scope of work.

C. Extensions of Time and Classification of Types of Delays

- 1) Once a delay has been identified and it has been established through a scheduling analysis that a delay affects the Project's end date or contractually mandated milestone date, the delay must be classified to determine responsibility and to compute damages, if any. Before the Contractor can submit a request for time extension, claim or any request for additional compensation involving or related to time, the Contractor must classify the delay(s) in accordance with the following classifications. These delay classifications shall be used by the Owner and the Contractor in resolving any time-related disputes. Delays fall into three basic categories: non-excusable, excusable, and compensable.
- a. Non-excusable delays are those delays to the critical path which were foreseeable at the time of contract award or delays caused by the Contractor due to the Contractor's fault or negligence or his/her own

inefficiencies or problems, due to his/her inability to coordinate subcontractors and/or other flaws in his/her planning. In these types of delays the Contractor is not entitled to extra time or compensation and the Owner may be allowed to assess Liquidated Damages or actual damages, depending on the contract provisions.

- b. Excusable delays are those delays to the critical path beyond the Contractor's control and without the active interference of the Owner, such as extreme weather (force majeure), strikes and delays caused by third parties (i.e. not the Contractor or the Owner). Contractors are granted a time extension but no additional compensation for the extended time of performance for excusable delays.
- c. Compensable delays are delays to the critical path caused by active interference or participation of the Owner or Owner's consultant. Examples of compensable delays are failure of the Owner to provide right-of-way, introducing late design changes, late review of shop drawings by the Owner or his Architect/Engineer and failure of the Owner to coordinate the work of various prime Contractors. In the case of a compensable delay, the compensation for the extended period of performance may cover, in addition to the direct cost due as a result of the changes, Liquidated Indirect Costs as specified in the Contract Documents.
- d. Concurrent delays involve two or more delays to the critical path occurring at the same time, either of which, had it occurred alone, would have affected the end date of the Project. In that event, the Contractor's sole remedy is a time extension and relief of Liquidated Damages with no compensation for extended cost for the concurrency delay period.
- e. The compensability of concurrent delays depends on the types of delays involved. The following shall determine the effects of concurrent delays on time extensions and compensable costs:
 - i. EXCUSABLE DELAY CONCURRENT WITH A NON-EXCUSABLE DELAY. For excusable delays concurrent with non-excusable delays, the Contractor is entitled to a time extension only. For example, it rains the day footings are to be excavated (excusable delay) but the excavation equipment was down for repairs (non-excusable delays).
 - ii. NON-EXCUSABLE DELAY CONCURRENT WITH A COMPENSABLE DELAY. For non-excusable delays concurrent with compensable delays, the Contractor is entitled to a time extension only. For example, if the Owner introduces a design change for a beam but the Contractor has failed to submit the shop drawings for said beam in a timely manner. This would be an example of a non-excusable delay (late shop drawings) concurrent with a compensable delay (Owner introducing design change).

iii. EXCUSABLE DELAY CONCURRENT WITH A COMPENSABLE DELAY. For excusable delays concurrent with compensable delays, the Contractor is entitled to a time extension only. For example, the Owner does not provide the necessary right-of-way to begin construction (compensable delay) but the Contractor's forces are on strike (excusable delay).

2) Time Extensions: The Contractor may be granted an extension of time and will not be assessed Liquidated Damages for any portion of the delay in completion of the Work, arising from acts of God, acts of the public enemy, fires, floods, epidemics, quarantine restrictions, freight embargoes, strikes, labor disputes, or weather more severe than the norm, provided that the aforesaid causes were not foreseeable and did not result from the fault or negligence of the Contractor, and provided further that the Contractor has taken reasonable precautions to prevent further delays owing to such causes, and has given to the Architect/Engineer immediate verbal notification, with written confirmation within 48 hours, of the cause or causes of delay. Within thirty (30) days after the end of the delay, the Contractor shall furnish the Architect/Engineer with detailed information concerning the circumstances of the delay, the number of days actually delayed, the appropriate Contract Document references, and the measures taken to prevent or minimize the delay. All requests for extension of time shall be submitted in accordance with the Contract Documents. Failure to submit such information will be sufficient cause for denying the delay claims. The Owner will ascertain the facts and the extent of the delay and its findings thereon will be final and conclusive subject to the dispute provisions in the Contract Documents. The extensions of time granted for these reasons shall be considered excusable and shall not be the basis for any additional compensation.

- a. Weather more severe than the norm shall apply only as it affects particular portions of the Work and operations of the Contractor, as determined by the Architect/Engineer. Weather more severe than the norm is defined as any situation exceeding the mean data as recorded by The National Climatic Data Center, Asheville, North Carolina and published by the National Oceanic and Atmospheric Administration (This data is taken from the table of normals, means, and extremes in the latest version of the "Local Climatological Data, Annual Summary with Comparative Data, Miami, Florida"). For the calculation of delays due to rain, precipitation of 0.01 inches or more a day shall be considered to be a rain day if the rain actually prevented the Contractor from performing work. The effects of weather less severe than the norm may be taken into account in granting time extensions at the Owner's sole discretion.
- b. An extension of time will not be granted for a delay to the critical path caused by a shortage of materials, except Owner-furnished materials, unless the Contractor furnishes to the Architect/Engineer documentary proof that he has diligently made every effort to obtain

such materials from every known source within reasonable reach of the Work. The Contractor shall also submit proof, in the form of a CPM network analysis data, that the inability to obtain such materials when originally planned, did in fact cause a delay in final completion of the Work which could not be compensated for by revising the sequence of his operations. Only the physical shortage of material will be considered under these provisions as a cause for extension of time. No consideration will be given to any claim that material could not be obtained at a reasonable, practical, or economical cost, unless it is shown to the satisfaction of the Architect/Engineer that such material could have been obtained only at exorbitant prices, entirely inconsistent with current rates taking into account the quantities involved and the usual practices in obtaining such quantities.

- 3) Delays Caused by Consultant and/or the Owner: If the Contractor's performance of the Work along the critical path is delayed by any condition or action directly caused by the Owner, and which was not foreseeable by the Contractor at the time the Contract was entered into, the Contractor shall, provide notification in accordance with the Contract Documents, of any such delay and of the anticipated results thereof. The Contractor shall cooperate with the Owner and use its best efforts to minimize the impact on the schedule of any such delay. In instances where a Contract change extends the Contract beyond the completion date, the Contractor may claim Liquidated Indirect Costs as specified in the paragraph in this article dealing with Liquidated Indirect Costs. These delays shall be considered compensable, except for the period in which these delays may be concurrent with Contractor-caused delays. If a delay on the part of the Owner is concurrent, that is, if it occurs at the same time as a Contractor-caused delay, the Owner-caused delay shall be considered an excusable delay for the portion of the Owner-caused delay which is concurrent with the Contractor-caused delay.
- 4) Delays Beyond Contractor's Control Not Caused by Consultant and/ or the Owner: If Contractor's performance of the Work along the critical path is delayed by any conditions beyond the control and without the fault or negligence of Contractor and not caused by the Owner, and which was not foreseeable by Contractor at the time this Contract was entered into, Contractor shall, provide immediate verbal notification with written notification in accordance with the Contract Documents, of any such delay and of the anticipated results thereof. Within two (2) calendars days of the termination of any such delay, Contractor shall file a written notice with the Architect/Engineer specifying the actual duration of the delay. If the Owner determines that the delay was beyond the control and without the fault or negligence of the Contractor and not foreseeable by the Contractor at the time this Contract was entered into, the Owner will determine the duration of the delay and may extend the time of performance of this Contract provided, however, that Contractor shall cooperate with the Owner and use its best efforts to minimize the impact on the schedule of any such delay. These delays shall

be considered excusable and the Contractor shall not be entitled to, and hereby expressly waives recovery of, any damages suffered by reason of the delays contemplated by this paragraph and extension of time shall constitute Contractor's sole remedy for such delays.

- 5) In addition to the delays in the Work specified in this section, delays in the Work directly caused by an act or omission by an owner of an adjoining property will not be considered an Owner-controlled delay. An owner of an adjoining property is a person, firm, corporation, partnership, or other organization who either owns or occupies, or both, structures or parcels or both, immediately adjacent to the Work Site. Extension of time for those delays will be considered excusable and shall be treated as specified in this article, provided that:
 - a. The Contractor has, in accordance with this article, given to the Architect/Engineer immediate verbal justification, with written confirmation within forty-eight (48) hours of the delay; and
 - b. The Contractor establishes, to the satisfaction of the Architect/Engineer, that:
 - i. The delay was caused directly by an act or omission by the owner of the adjoining property; and
 - ii. The Contractor has taken reasonable precautions and has made substantial effort to minimize the delay.
- 6) A Change Order will be furnished to the Contractor within a reasonable period of time, after approval by the BCC, of a request for extension of time, specifying the number of days allowed, if any, and the new dates for completion of the Work or specified portions of the Work. All requests for time extension shall be in accordance with the Contract Documents. With the exception of time extensions covered under the time contingency allowance in the contract, only the BCC shall grant final written approval of all Change Orders, including additional money or extensions of time. All change orders shall be in full accord with the Contract Documents.
- 7) For the proper format to be used in submitting requests or claims for time extensions, refer to applicable sections of the Contract Documents.
- 8) Extensions of time shall be in accordance with Section 9-3 of the Code of Miami-Dade County, as applicable.

D. Substantial Completion and Final Acceptance

- 1) The following items must be satisfied before Substantial Completion, as defined in the Contract Documents, will be approved:
 - a. All Work must be completed to the satisfaction of the appropriate permitting agencies having jurisdiction over the Work. The Contractor must furnish the Owner with a "Certificate of Occupancy" or a "Certificate of Completion", as applicable, from the permitting agency unless circumstances arise outside the contract scope that

prohibits such certificates from being issued (i.e. utility connections).

- b. All operational systems which may include but not be limited to: electrical systems, security systems, irrigation systems and fire systems, must be completed in accordance with the Contract Documents, tested and approved.
 - c. All plumbing, heating, ventilation, and air conditioning systems must be completed, tested and approved. Whenever the scope of work includes a facility or building, an HVAC test and balance report must be submitted and approved as a condition precedent to Substantial Completion.
 - d. The punch list may not be so extensive or of a nature that the Contractor's completion will significantly interfere with the Owner's beneficial use of the facility.
- 2) When the Contractor believes that all the Work or designated portion thereof required by the contract is substantially completed, the Contractor shall submit to the Field Representative and the Architect/Engineer a request for Substantial Completion inspection. The Contractor, the Field Representative, the Architect/Engineer, sub-consultants, and the Owner shall meet at the Project site for the purpose of making a combined inspection of the Work. During this inspection, any item of work remaining to be done or Work to be corrected shall be noted on a Punch List. If the Field Representative and/or the Architect/Engineer and the Owner indicate on this inspection report that the Work is substantially complete, a Certificate of Substantial Completion will be issued to the Contractor. The Certificate of Substantial Completion shall establish the date of Substantial Completion and shall have attached the Punch List reflecting any items to be completed or corrected, but which do not prevent beneficial use and occupancy, and shall state the date by which the Punch List is to be completed. The completion time for the Punch List shall not be greater than sixty (60) days from the date of issuance of the Certificate of Substantial Completion.
- 3) If any of the conditions listed in this article are not met and the Work has not been completed, or the Contractor determines that the final Punch List cannot be completed within sixty (60) days, a Certificate of Substantial Completion shall not be issued. The Contractor shall continue work, reducing the number of items on the Punch List that were not met. Additional inspections shall be scheduled as necessary until Substantial Completion is declared. However, costs incurred by the Owner for any inspections beyond a second inspection will be charged back to the Contractor.
- 4) In the event the Contractor fails to achieve Substantial Completion within the period specified in the Contract for completion, the Contractor shall be liable for Liquidated Damages and the Owner has, as its option, the right to, after ten (10) calendar days notice to the Contractor, have the work performed by others and backcharge the Contractor for all Direct and Indirect Costs related to performing this work. In the event that the Owner chooses to have the work

completed by others, there shall not be any further non-excusable delays charged to the Contractor beyond the ten (10) days following notice to the Contractor. However, the Contractor shall not be relieved of any non-excusable delays incurred through the date of termination. The Punch List and the Contract shall remain open until all the Work is complete and accepted. The current retainage will be used to offset any Liquidated Damages and any backcharges, after which, any surplus retainage will be released to the Contractor. If the retainage is insufficient to cover the Liquidated Damages and any backcharge, the Owner will bill the Contractor for the balance and the Contractor shall promptly remit to the Owner an amount equal to the billing.

- 5) Final Completion: When the Owner or Architect/Engineer considers all Work indicated on the Punch List to be complete, the Contractor shall submit written certification that:
 - a. Work has been inspected for the compliance with the Contract Documents.
 - b. Work has been completed in accordance with the Contract Documents, and that deficiencies listed within the Certificate of Substantial Completion and its attachments have been corrected.
 - c. Work is completed and ready for final inspection.
- 6) Should the Owner and/or Architect/Engineer inspection find that Work is incomplete, he will promptly notify the Contractor in writing listing all observed deficiencies. The Contractor shall be responsible for all Direct and Indirect Costs to the County resulting from the Contractor's failure to complete the Punch List items within the time allowed for completion.
- 7) The Contractor shall remedy deficiencies and send a second certification. Another inspection will be made that shall constitute the final inspection. Provided that work has been satisfactorily completed, the Architect/Engineer will notify the Contractor in writing of Final Acceptance as of the date of this final inspection.
- 8) Prior to Final Acceptance, the Contractor shall deliver to the Field Representative complete As-Builts, all approved Shop Drawings, maintenance manuals, pamphlets, charts, parts lists and specified spare parts, operating instructions and other necessary documents required for all installed materials, equipment, or machinery, all applicable warranties and guarantees, and the appropriate Certificate of Occupancy.
- 9) Upon notification of Final Acceptance to the Contractor, the Architect/Engineer will request and consider closeout submittals from the Contractor including but not limited to the final Contractor's Affidavit and Release of All Claims.
- 10) The Contractor, without prejudice to the terms of the Contract, shall be liable to the Owner for latent defects, fraud, or such gross mistakes as may amount to fraud, or as regards the Owner's rights under any warranty or guaranty.
- 11) Re-Inspection Fees: Should the status of completion of the Work require re-inspection of the Work by the Owner and the Architect/Engineer due to failure

of the Work to comply with the Contractor's representations regarding the completion of the Work, the Owner will deduct from the final payment to the Contractor, fees and costs associated with re-inspection services in addition to scheduled Liquidated Damages.

E. Use and Possession

The Owner shall have the right to beneficially occupy, take possession of or use any completed or partially completed portions of the Work. Such possession or use will not be deemed an acceptance of work not completed in accordance with the Contract. While the Owner is in such possession, the Contractor, notwithstanding the provisions of the Contract Documents, will be relieved of the responsibility for loss or damage to the Work other than that resulting from the Contractor's fault or negligence or breach of warranty. If such prior possession or use by the Owner delays the progress of the Work or causes additional expense to the Contractor, a Contract change in the Contract price or the time of completion will be made and the Contract will be modified in writing accordingly.

F. Liquidated Damages and Liquidated Indirect Costs

- 1) The parties to the Contract agree that time, in the completion of the Work, is of the essence. The Owner and the Contractor recognize and agree that the precise amount of actual damages for delay in the performance and completion of the Work is impossible to determine as of the date of execution of the Contract and that proof of the precise amount will be difficult. Therefore, the Contractor shall be assessed Liquidated Damages on a daily basis for each Day that individual milestones, both interim and cumulative as specified in the Contract Documents, are not timely achieved or that Contract Time is exceeded due to a non-excusable delay. These Liquidated Damages shall be assessed, not as a penalty, but as compensation to the Owner for expenses which are difficult to quantify with any certainty and which were incurred by the Owner due to the delay. The amount of Liquidated Damages assessed shall be an amount, as stipulated in the Contract Documents, per day for each calendar day that individual milestones as specified in the Contract are not timely achieved or that the Project is delayed due to a non-excusable delay.
- 2) The Owner and the Contractor recognize and agree that the precise amount of the Contractor's Indirect Costs for delay in the performance and completion of the Work is impossible to determine as of the date of execution of the Contract, and that proof of the precise amount will be difficult. Therefore, Liquidated Indirect Costs recoverable by the Contractor shall be assessed on a daily basis for each Day the Contract Time is delayed due to compensable delay. These Liquidated Indirect Costs shall be paid to the Contractor in full satisfaction of all costs and damages caused by compensable excusable delays, except for Direct Costs. There shall be no Liquidated Indirect Costs payable for time directly related to Extra Work for which a Change Order has been issued.
- 3) The amount of Liquidated Indirect Costs recoverable shall be an amount, as stipulated in the Contract Documents per day for each day the Contract is delayed due to compensable excusable delay. For lump sum contracts, the daily amount of Liquidated Indirect Costs will be calculated by dividing the total

amount in the Contractor's approved Schedule of Values for General Requirements by the Contract duration (in days) after deducting any general conditions costs directly paid by the Owner during the execution of the Project. The amount of the Liquidated Indirect Costs calculated in accordance with this formula shall be stated in the Notice-to-Proceed. For unit price contracts, the daily amount of Liquidated Indirect Costs will be calculated as defined in the formula below:

- 4) In the event the Contractor fails to perform any other covenant or condition (other than time-related) of this Contract relating to the Work, the Contractor shall become liable to the Owner for any actual damages which the Owner may sustain as a result of such failure on the part of the Contractor. The Owner reserves the right to retain these amounts from monies due the Contractor.
- 5) Nothing in this article shall be construed as limiting the right of the Owner to terminate the Contract and/or to require the Surety to complete said Project and/or to claim damages for the failure of the Contractor to abide by each and every one of the terms of this Contract as set forth and provided for in the Contract Documents.

END OF ARTICLE

9. PROGRESS PAYMENTS

(June 12, 2012)

A. Payments

- 1) The Contractor shall receive and accept compensation provided for in the Contract as full payment for furnishing all materials, for performing all work under the Contract in a complete and acceptable manner, and for all risk, loss, damage, or expense of whatever character arising out of the nature of the work or the prosecution thereof.
- 2) The Owner will make progress payments monthly as the work proceeds. Unless the Special Provisions provide for the payment to be determined by using a cost-loaded CPM, the Contractor shall, within 15 days after Notice-to-Proceed, furnish a Schedule of Values for review and approval by the Owner consisting of a detailed cost breakdown of each lump sum bid item in the bid form in such detail as the Architect/Engineer shall request, showing the amount included therein for each principal category of the work, to provide the basis for determining the amount of progress payments. Unit price bid items shall be paid for in accordance with the Bid Form. The Schedule of Values shall clearly indicate the amount to be paid by the Contractor to each individual Subcontractor.
 - a. The unit prices shall be in proper balance and shall be subject to approval by the Owner. In the preparation of estimates, the Owner, at its sole discretion, may authorize material delivered on the site and preparatory work done to be taken into consideration. Material delivered to the Contractor at locations other than the Work Site may also be taken into consideration under this article when the Contractor furnishes satisfactory evidence that it will be utilized on the work covered by this Contract.
- 3) In making such progress payments, a maximum of five-percent (5%) or a minimum of two and a half-percent (2.5%), as may be amended in the Contract Documents, of the estimated amount shall be retained from each progress payment made to the Contractor until Fifty-Percent (50%) Completion of the work has been established. Fifty-Percent (50%) completion is defined as the point in time when at least 50% of the Work under contract has been physically and satisfactorily completed in accordance with the intent of the Contract Documents as determined by the Architect/Engineer. At this point, the retainage amount withheld from each subsequent progress payment shall be reduced by 50% or not to exceed two and a half-percent (2.5%), and the accumulated excess amount of retainage will be released to the Contractor, unless such amount is the subject of a good faith dispute, the subject of a claim brought pursuant to Florida Statute 255.05, or otherwise the subject of a claim or demand by the Owner or Contractor. If, at the discretion of the Owner, any time after Fifty-Percent (50%) Completion of the work has been established, the Owner finds

that satisfactory progress is being made, it may authorize any of the remaining progress payments to be made in full. Also, whenever the Work is Substantially Complete, the Owner, if it considers the amount retained to be in excess of the amount adequate for its protection, may release to the Contractor all or a portion of such excess amount.

- 4) Material and work covered by progress payments shall become the sole property of the Owner. This provision shall not be construed as relieving the Contractor from the sole responsibility for material and work upon which payments have been made, the restoration of damaged work or as waiving the right of the Owner to require the fulfillment of the terms of the Contract.
- 5) Progress payments will be made in accordance with the Miami-Dade County Code, Florida Statute, s. 218.70 Florida Prompt Payment Act, and Florida Statute, s. 218.735.
 - a. The Contractor's attention is directed to Florida Statute, s. 218.735, revising provisions regarding timely payment, revising deadlines for the payment of contractors, subcontractors, sub-subcontractors, material-men and suppliers. The contractor shall remit payment due to subcontractors within ten (10) days after the contractors' receipt of payment. The subcontractor shall remit payment due to sub-subcontractors and suppliers within seven (7) days after the subcontractors' receipt of payment. Dispute resolution is provided within the Statute.
- 6) No progress payments will knowingly be made for work not in accordance with this Contract.
- 7) Applications for progress payments shall be in the format as prescribed by the Owner. These applications shall be supported by evidence, which is required by this article. Each application for payment shall clearly indicate the amount to be paid to the Contractor as well as the amount to be paid to each of the Contractor's Subcontractors and suppliers. The Contractor shall certify that the work for which payment is requested has been done and that the materials listed are stored where indicated. Those items on the progress payment application that, in accordance with the applicable sections of the Contract Documents, compensate for Force Account Work, for materials not yet incorporated in the work, or for work under change orders negotiated on a cost-reimbursable basis will, under procedures of the Owner, be subject to the Owner's audit review of the Contractor's records supporting the payment application. Audits will be performed so as not to interfere with timely processing of applications for payment. If audit indicates the Contractor has been overpaid under a previous payment application, that overpayment will be credited against current progress payment applications. For a period of five years from Final Acceptance of the Contract, the Contractor shall maintain and make available for audit inspection and copying by the Owner, State and the Government and their authorized representatives, all records subject to audit review.

8) The Owner, at its discretion, may authorize payment for materials not yet incorporated into the Work, whether or not delivered to the Work Site. The value of materials on hand but not incorporated into the Work will be determined by the Field Representative, based on actual invoice costs to the Contractor, and such value will be included in a monthly application for payment only if the materials have been properly stored on the Site, provided that such materials meet the requirements of the Contract Documents, and are delivered to acceptable locations on Site or in bonded warehouses that are acceptable to the Owner. Such delivered costs of stored or stockpiled materials may be included in the next application for payment after the following conditions are met:

- a. The material has been stored and stockpiled in a manner acceptable to the Field Representative at or on the Work site or in a secure storage facility within Miami-Dade County or other location as approved by the Architect/Engineer. If such materials are stored outside Miami-Dade County, the Contractor shall accept responsibility for and pay all personal and property taxes that may be levied against the Owner by any state or subdivision thereof on account of such storage of such material. The Owner will permit the Contractor, at his own expense, to contest the validity of any such tax levied against the Owner and in the event of any judgment or decree of a court against the Owner, the Contractor agrees to pay same.
- b. The Contractor has furnished the Field Representative with acceptable evidence of the quantity and quality of such stored or stockpiled materials.
- c. The Contractor has furnished the Field Representative with satisfactory evidence that the materials and transportation costs have been paid including but not limited to certified bills of sale for such materials and insurance certificates or other instruments, in writing, and in a form as required by the Owner. The Architect/Engineer may allow only such portion of the amount represented by these bills as, in his opinion, is consistent with the reasonable cost of such materials.
- d. The Contractor has furnished the Owner legal title (free of debts, claims, liens, mortgages, taxes or encumbrances of any kind) to the material so stored and stockpiled and subject only to the Owner's payment for the materials as reflected in the application for payment. All such materials so accepted shall become the property of the Owner. The Contractor at his own expense shall mark such material as the property of the Owner and shall take such other steps, if any, the Owner may require or regard as necessary to vest title in the Owner to such material.
- e. The Contractor has furnished the Owner evidence that the material so stored or stockpiled is insured against loss by damage to or

disappearance of such materials at any time prior to use in the work. The cost of the material included in an application for payment which may subsequently become lost, damaged or unsatisfactory shall be deducted from succeeding applications for payment irrespective of the cause and whether or not due to the negligence, carelessness or fault of the Owner.

- f. It is understood and agreed that the transfer of title and the Owner's payment for such stored or stockpiled materials shall in no way relieve the Contractor of its responsibility for furnishing and placing such materials in accordance with the requirements of the Contract Documents and does not waive Owner's right to reject defective material when it is delivered to the Site until such material is delivered to the Site and satisfactorily incorporated into the work.
 - g. In no case will the amount in an application for payment for material on hand exceed the Contract price for such material, the Contract price for the Contract item in which the material is intended to be used or the value for such material established in the approved Schedule of Values. Payment for material furnished and delivered as indicated above will be based on 100 percent of the cost to the Contractor and retention will be withheld as specified in the Contract Documents. In any event, partial payments for materials on hand will not exceed seventy percent (70%) of the item's Bid Price, including taxes and shipping, or the agreed amount within the Schedule of Values.
 - h. No partial payment will be made for stored or stockpiled living or perishable plant materials.
 - i. The Contractor shall bear all costs associated with the partial payment of stored or stockpiled materials in accordance with the provisions of this Article.
 - j. Materials may be subject to being purchased by the Owner directly under the County's "Direct Material Purchase Program" and installed by the Contractor, as applicable, in accordance with the Special Provisions.
- 9) Payment of the Contract lump sum price for General Requirements, if applicable, will be made in the following manner:
- a. The General Requirements Lump Sum amount, including cost for bonds and insurance, shall be paid in proportion to the total percent of completion. The Owner will consider requests for payment for bonds and insurance under the General Requirements after receipt of certified invoices from the Contractor showing that the Contractor has paid them.

- b. The Owner reserves its right to withhold payment for General Requirements, in whole or in part, at the Owner's sole discretion, in accordance with Paragraph 11 below.
- 10) If any claim is filed against the project for labor, materials, supplies or equipment which the Owner has determined to have been incorporated on the site and the Contractor has not paid for, the Owner will have the right to retain from payments otherwise due the Contractor, in addition to other amounts properly withheld under this article or under other provisions of the Contract, an amount equal to such amounts claimed.
- 11) In addition to the provisions of this article and other relevant sections of the Contract Documents, payment may also be withheld proportionately for the following reasons:
- a. Reasonable doubt that the Work can be completed for the unpaid balance of the Contract Sum,
 - b. Reasonable indication that the Work will not be completed within the Contract Time,
 - c. Damage to another Contractor,
 - d. Unsatisfactory prosecution of the Work by the Contractor,
 - e. Failure of the Contractor, or his Subcontractors, to pay wage rates, when applicable as required by the Contract.
 - f. In the event the Surety on the Performance and Payment Bond provided by the Contractor becomes insolvent, or is placed in the hands of a receiver, or has its right to do business in the State of Florida suspended or revoked as provided by law. In this case, payment will continue when the Contractor provides a good and sufficient Bond(s) as required by the Contract Documents, in lieu of the Bond(s) so executed by such Surety.
 - g. If any work or material is discovered which, in the opinion of either the Architect/Engineer or the Field Representative, is defective, or should a reasonable doubt arise on the part of the either the Architect/Engineer or the Field Representative as to the integrity of any part of the work completed previous to the final acceptance and payment. In this case, there will be deducted from the first application for payment subsequent to the discovery of such work, an amount equal in value to the defective or questioned work, and this work will not be included in any subsequent applications for payment until the defects have been remedied or the causes for doubt removed.
- 12) The Contractor shall submit with each monthly invoice the certified payroll forms for all employees on the job in accordance with applicable Responsible Wages and Benefits (Ordinance No. 90-143 and codified in Miami-Dade County Code Section 2-11.16). Failure to provide this information will cause

the Field Representative and/or Architect/Engineer to return the invoice to the Contractor until such time as the Contractor properly submits the information.

- 13) Failure to comply with the insurance requirements listed in the Contract Documents may result in the Owner's withholding or delaying payment to the Contractor.

B. Taxes

- 1) Except as may be otherwise provided for in the Contract Documents, the price or prices bid for the Work shall include full compensation for all federal, state, local and foreign taxes, fees and duties that the Contractor is or may be required to pay and the Contractor shall be responsible for the payment thereof during the prosecution of the work.
- 2) The Contractor's attention is directed to the fact that materials and supplies necessary for the completion of this Contract are subject to the Florida Sales and Use Tax, in accordance with Section 212.08, Florida Statutes, as amended. The Contractor shall not collect taxes upon making delivery to the Owner.
- 3) The Owner, at its sole discretion, upon request of the Contractor and where appropriate, may furnish to the Contractor appropriate evidence to establish exemption from any taxes, fees or duties which may be applicable to the agreement and from which the Owner is exempt.

C. Payments to Subcontractors and Suppliers

- 1) The Contractor shall pay all Subcontractors for and on account of work performed by such Subcontractors in accordance with the terms of their respective subcontracts and in accordance with Ordinance Nos. 94-40, and 02-29, Miami-Dade County Code Section 10-33.02 and Florida Statute s. 218.735.
- 2) Before the Contractor can receive any payment, except the first payment, for monies due him as a result of a percentage of the work completed, he must provide the Architect/Engineer with duly executed release of claim from all subcontractors and suppliers who have performed any work or supplied any material on the project as of the date, stating that said subcontractors or suppliers have been paid their proportionate share of all previous payments. In the event such affidavits cannot be furnished, the Contractor may, at the Owner's sole discretion after the Contractor demonstrates justifiable reasons, submit an executed Consent of Surety to Requisition using the form provided in the Contract Documents identifying the subcontractors and the amounts for which the Statement of Satisfaction cannot be furnished.
- 3) The Contractor's failure to provide a Consent of Surety to Requisition Payment will result in the amount in dispute being withheld until (1) the Statement of Satisfaction is furnished, or (2) Consent of Surety to Requisition Payment is furnished. The Subcontractor(s) shall submit with each monthly invoice the Certified Payroll forms for all employees on the job in accordance with applicable Provisions. Failure to provide this information will cause the Architect/Engineer to return the invoice to the Contractor until such time as the Contractor properly submits the information.

D. Contract Prices – Bid Form

- 1) Payment for the various Bid Items listed in the Bid Form shall constitute full compensation for furnishing plant, labor, equipment, appliances and materials and for performing operations required to complete the Work in conformity with the Contract Documents. All costs for work shown or indicated by the Contract Documents, although not specifically provided for by a Bid Item in the Bid Form, shall be included in the most appropriate Bid Item price for the items listed. Except for the relief provided by the applicable section of the Contract Documents governing Differing Site Conditions, the Contractor will not be entitled to additional compensation for providing an activity or material necessary for the completion of the Work in accordance with the Contract even though the activity or material is not included in a specific Bid Item or indicated in the Contract Documents.

E. Final Payment

- 1) After the Work has been accepted by the Owner, subject to the provisions of the Contract Documents, a final payment will be made as follows:
 - a. Prior to Final Acceptance of the Work, the Contractor shall prepare and submit a proposed final application for payment to the Architect/Engineer showing the proposed total amount due the Contractor, segregated as to Bid Item quantities, force account work, and other bases for payments; deductions made or to be made for prior payment; amounts to be retained; any claims the Contractor intends to file at that time or a statement that no claims will be filed; and any unsettled claims, stating amounts. Prior applications and payments shall be subject to correction in the proposed final application for payment. Claims filed with the final application for payment must be otherwise timely under these General Conditions.
 - b. The Owner will review the Contractor's proposed final application for payment and necessary changes or corrections will be forwarded to the Contractor. Within 10 days thereafter, the Contractor shall submit a final application for payment incorporating changes or corrections made by the Architect/Engineer together with additional claims resulting therefrom. Upon approval by the Owner, the corrected proposed final application for payment will become the approved final application for payment.
 - c. If the Contractor files no claims with the final application for payment and no claims remain unsettled within 30 days after final inspection of the Work by the Architect/Engineer and the Owner, and agreements are reached on all questions regarding the final application for payment, the Owner, in exchange for an executed release of all claims and properly executed close-out documents specified in Paragraph 3 below, will pay the entire sum found due on the approved final application for payment.
 - d. Upon final determination of any and all claims, the Owner, in exchange for properly executed close-out documents specified in

Paragraph 3 below, will pay the entire sum found due on the approved final application for payment, including the amount, if any, allowed on claims.

- e. The release from the Contractor will be from any claims arising from the Work under the Contract. If the Contractor's claim to amounts payable under the Contract has been authorized by the Owner for assignment pursuant to the relevant sections of the Contract Documents, a release may be required from the assignee.
 - f. Final payment will be made within 30 days after approval of the final notice and resolution of Contractor's claims, or 30 days after Final Acceptance of the Work by the Owner, whichever is later. If a final application for payment has not been approved within 30 days after final inspection of the Work, the Owner shall make payment of sums not in dispute without prejudice to the rights of either the Owner or the Contractor in connection with any disputed items.
 - g. Prior to payment of a claim settlement, the claim may be audited by the Owner and may be subject to approval by the funding agencies.
 - h. Final payment made in accordance with this article will be conclusive and binding against both parties to the Contract on all questions relating to the amount of work done and the compensation paid therefore.
- 2) With the final application for payment, the Contractor shall return and submit final releases of claim from himself, from each Subcontractor of record and from other Subcontractors or material suppliers who may have notified the Owner that they were furnishing labor or materials for this project. These releases from Subcontractors and suppliers shall be final, originals, notarized and executed on the form provided by the Owner and included in the Contract Documents, all in accordance with all applicable Florida Statutes. In addition, the Contractor shall execute and return to the Owner all the enclosed close-out documents. In the event that all of the above releases cannot be furnished, the Contractor may, at the Owner's sole discretion after the Contractor demonstrates justifiable reasons, submit a Consent of Surety to Final Payment in a form acceptable to the Owner, recognizing lack of such releases of claim. Furthermore, the Contractor and the Surety shall agree in writing, in a form acceptable to the Owner, to indemnify, defend and hold harmless the Owner from any claims of Subcontractors and suppliers who refuse to execute final releases.
- 3) The making of final payment shall constitute a waiver of all claims by the Owner except those arising from:
- a. Faulty or defective Work appearing after Final Completion;
 - b. Failure of the Work to comply with the requirements of the Contract Documents, discovered after Final Completion;

- c. The performance of audits to seek reimbursement of any overpayments discovered as a result of an audit as provided in the Contract Documents;
 - d. The enforcement of those provisions of the Contract Documents which specifically provide that they survive the completion of the Work;
 - e. The enforcement of the terms of the Payment and Performance Bonds against the Surety;
 - f. Terms of all warranties/guarantees required by the Contract Documents.
- 4) The acceptance of final payment shall constitute a waiver of all claims by the Contractor.

END OF ARTICLE

10. CHANGES

(June 12, 2012)

A. Changes

- 1) The Owner reserves the right to, at any time, without notice to the sureties and without invalidating the Contract, by written notice or order designated as a Change Notice or Change Order, make any change in the Work within the general scope of the Contract including but not limited to changes:
 - a. In the Contract Documents;
 - b. In the method or manner of performance of the Work;
 - c. In Owner-furnished facilities, equipment, materials, services, or site or;
 - d. Directing acceleration in performance of the Work.
- 2) In the event the Owner exercises its right to change, delete or add work under the Contract, such work will be ordered and paid for as provided for in the Contract Documents.
- 3) Changes in the work may be initiated by the issuance of a Change Notice by the Architect/Engineer. The Contractor shall submit a proposal to the Architect/Engineer and the Owner for their review, in accordance with the Contract Documents, within a reasonable time after receipt of a Change Notice. The Contractor shall maintain this proposal, for acceptance by the Owner, for a minimum of 90 calendar days after submittal. The cost or credit to the Owner for any change in the work shall be determined in accordance with the provisions of the Contract Documents. The Contractor shall not be compensated for effort expended in preparing and submitting price quotes.
- 4) In the event the Contractor fails to provide the full cost and time estimate for the change work or refuses to execute a full accord Change Order, the Owner will, at its sole discretion, (1) determine the total cost and time impacts of the change and compensate the Contractor and/or extend the Contract Time, if applicable, through a unilateral Change Order signed only by the Owner; or (2) direct the Contractor to proceed with the Work under the Force Account provisions of this article. Failure of the Contractor to submit his total and final estimated cost and time impact within the time period specified on the Change Notice form shall constitute a waiver by the Contractor to claim additional costs or time beyond that which has been determined by the Owner. Any disputes arising out of an Owner determination shall be resolved in accordance with the disputes provisions in the Contract Documents. Pending the Owner's final decision, the Contractor shall proceed diligently with the performance of the Work under the Contract.
- 5) Changes in the work covered by Unit Prices, as stated in the Contract Documents shall be all inclusive. These prices will include all Direct and Indirect Costs and means and methods of execution. To be compensable, units

must be measured daily by the Contractor and approved in writing by the Owner or his authorized representative.

- 6) The following mark-ups on Extra Work shall apply to all changes in the Work performed under this article:
 - a. For Extra Work performed by the Contractor's own forces, the Contractor agrees that his proposed cost to perform said Extra Work will in no event include a rate for overhead in excess of fifteen percent (15%).
 - b. For Extra Work performed by a Subcontractor's forces, the Contractor agrees that his proposed cost to perform said Extra Work will in no event include Overhead in excess of fifteen percent (15%). The Contractor may then add five percent (5%) times the Subcontractor's or sub-tier Subcontractor's actual Direct Cost as direct compensation for the Contractor's Overhead and all other costs associated with the Subcontractors Work at all tiers.
- 7) Increases to the Contract Amount shall be authorized by a Change Order executed by the Contractor, the Contractor's Surety and the Owner and approved by the BCC. Decreases to the Contract amount shall be by Change Order or Work Order as determined by the Owner and shall also be subject to BCC approval when the decrease results from a reduction in the scope of the work.
- 8) A cost of bonds for Change Orders that impact the Contract price shall be established by the Contractor's actual reimbursement costs, as approved by the Owner, based on the original Contract Amount and the original amount reimbursed to the Contractor for bonds at the commencement of the Work. This cost of bonds shall be added to all credit amounts allowed by the Owner. For Change Orders paid under the Allowance Account, no additional bond cost will be allowed unless the Allowance Account is not included in the original Contract Amount. In this case, additional bond costs for these Change Orders will be considered.
- 9) Any claim for payment of Extra Work that is not covered by a Change Order or Work Order will be rejected by the Owner.

B. Allowance Accounts

- 1) Certain portions of work which may be required to be performed by the Contractor under this Contract are either unforeseeable or have not yet been designed, and the value of such work, if any, is included in the Contract as a specific line item(s) entitled "Allowance Account(s)".
 - a. The Allowance Account (General) can be used to reimburse the Contractor for (1) furnishing all labor, materials, equipment and services necessary for modifications or Extra Work required to complete the Project because of unforeseeable conditions and; (2) for performing construction changes required to resolve: oversight in design, Owner oversight, unforeseen conditions, revised regulations, technological and product development, operational changes,

schedule requirements, program interface, emergencies and delays; and for making final adjustment to estimated quantities shown on the Schedule of Values or amounts bid in the Bid Form to conform to actual quantities installed.

- b. Other Allowance Account(s) (Dedicated) may be used as specified in the Contract Documents to fund specific items of work at the sole discretion of the Owner. These dedicated allowance accounts shall be used only for the purposes approved pursuant to a written Work Order issued by the Owner or his authorized representative.
- 2) At such time as work is to be performed under the Allowance Account(s), if any, the work shall be incorporated into the Schedule and the Schedule of Values, and shall in all respects be integrated into the construction as a part of the Contract as awarded.
 - 3) The Work Order for the required work will be issued by the Owner or Architect/Engineer upon receipt from the Contractor of a satisfactory proposal for performance of the work, and the acceptance thereof by the Architect/Engineer and the Owner. If the Contractor and the Owner are unable to agree upon an amount of compensation or; if the nature of the work is such that a Unit Price or Lump Sum price is not economically practical or if the change work is deemed essential to the Project and actual conditions require work to be swiftly conducted to avoid or minimize delays, the Work Order may be issued to perform the work on a Force Account basis. In the event that an equitable adjustment for the said change work cannot be arrived at, either by mutual agreement or under the dispute provisions of the Contract Documents, the compensation hereunder will be the total compensation for this work.
 - 4) No Work Orders shall be issued against an Allowance Account if such Work Orders in the aggregate exceed the authorized amount of that Allowance Account, provided however that such excess may be authorized by appropriate Change Order.
 - 5) The unexpended amounts under the allowance accounts shall remain with the Owner and the Contractor shall have no claim to the same.

C. Deletion or Addition of Work

- 1) In the event the Owner exercises its right to delete any portion(s) of the work contemplated herein, such deletion will be ordered and the Contract Total Amount and Time may be adjusted as provided for in these Contract Documents by Change Order or by Work Order, as appropriate. The Contractor shall be reimbursed for any actual reasonable expenses incurred prior to the notice of deletion of work as a result of preparing to perform the work deleted. In the event of a dispute between Owner and Contractor as to the adjustment to the amount of time, the dispute shall be handled in accordance with these General Conditions.
- 2) Deleted Work - Lump Sum Bid Item(s): The Contractor shall credit the Owner for the reasonable value of the deleted work determined from the approved Schedule of Values, subject to approval by the Architect/Engineer. If the reasonable value of the deleted work cannot be readily ascertained from the

Schedule of Values submitted in accordance with these General Conditions, or if requested by the Architect/Engineer, the Contractor shall supply all data required by the Architect/Engineer, including the actual agreements executed by the Contractor with the Subcontractors and suppliers affected by the deleted work, to substantiate the amount of the credit to be given the Owner. The Contractor shall also submit for the Owner's approval a revised schedule of values reflecting the work remaining under the Contract following the deletion.

- 3) No payment(s) shall be made to the Contractor by the Owner for loss of anticipated profit(s) from any deleted work.
- 4) In the event the Owner exercises its right to add to any portion of the work contemplated herein, such addition will be ordered and the Contract Total Amount and Contract Time will be adjusted as provided for in these Contract Documents, by Change Order or by Work Order as appropriate. In the event of a dispute between Owner and Contractor as to the adjustment to the Amount or the Time, the dispute shall be handled in accordance with the Contract Documents.

D. Increased or Decreased Quantities (Unit Prices)

- 1) This section applies to Owner-initiated additions or deletions from the Work and to the unit prices contained within this contract and controls payments or credits for variations between estimated and actual quantities required to complete the Work, even though the additions or deletions may be distinct or separate structures or activities and regardless of the fact that the addition or deletion is a result of field adjustments, site conditions, a design change or any other cause. Increases or decreases will be determined by comparing the actual quantity required to the Architect/Engineer's estimated quantity in the Bid Form.
- 2) If the actual quantity of Bid Item varies from the Architect/Engineer's quantity estimate by 25% or less, payment for the Bid Item will be made at the Contract unit price. If the actual quantity varies from the Bid quantity by more than 25%, the compensation payable to the Contractor will be the subject of review by the Contractor and the Architect/Engineer and a Contract adjustment will be made by means of a Change Order in accordance with the Contract Documents to credit the Owner with any reduction in unit prices or to compensate the Contractor for any increase in unit price resulting from variations between estimated and actual quantities. The unit price to be re-negotiated shall be only for that quantity above 125% or below 75% of the original bid quantities.
- 3) The Contractor shall submit to the Architect/Engineer all data required to substantiate the amount of compensation requested therefore. In no event shall the Contractor be entitled to compensation greater than the aggregate amount of all the Unit Prices times the original bid quantities of Work reflected in the Bid Form.
- 4) No compensation will be made in any case for loss of anticipatory profits, loss of bonding capacity or consequential damages.

E. Extra Work

- 1) Except as otherwise expressly provided above, all additional work ordered, work changed or work deleted shall be authorized by Work Order(s) or Change Order(s). All changed or added work so authorized shall be performed by the Contractor at the time and in the manner specified.

The Change Order shall include, as a minimum:

- a. Scope of work to be added, deleted or modified;
- b. Cost of work to be added, deleted or modified;
- c. The Contract time extension or reduction in contract time in the case of deleted work required to perform the work to be added, deleted or modified;
- d. Full release of claims associated with the Contract through the date of the change order, or a reservation of claims identified as to each claim reserved, the scope of the work, the maximum cost of the work, and the maximum number of days of Contract time requested, shall be specified.

The Work Order shall include, at a minimum:

- a. Scope of work to be added, deleted or modified;
- b. Cost of work to be added, deleted or modified;
- c. The Contract time extension required to perform the work to be added, deleted or modified;
- d. Full release of claims associated with the work order work, or a reservation of claims identified as to each claim reserved, the scope of the work, the maximum cost of the work, and the maximum number of days of Contract time requested, shall be specified.

- 2) If Work is ordered, changed, or deleted which is not covered by Unit Prices, then, the Owner and the Contractor shall negotiate an equitable adjustment to the Contract Price for the Direct Costs for the performance of such work in accordance with this article. Indirect Costs for Work ordered, changed or deleted may be reimbursed for Excusable and Compensable Delay as defined in these Contract Documents.

- a. In order to reimburse the Contractor for additional Direct Costs, either by Work Order, Change Order or any other means, the Contractor must have additional work added to the Contract Scope of Work. The additional cost of idle or inefficient labor, from any cause, or the additional cost of labor made idle or inefficient from any cause will not be considered a reimbursable additional Direct Cost. Special equipment or machinery, which is made idle or inefficient by the Work ordered, changed or deleted, may be reimbursable if approved by the Architect/Engineer as an unavoidable cost to the Contractor, caused by the Owner.

- b. Costs of special equipment or machinery, not already mobilized on the site, approved by the Architect/Engineer, shall be calculated using the current issue of the Associated Equipment Distributors (AED) Manual plus any required mobilization. The selection of which of the AED rates (daily, weekly, monthly) to be used to calculate these costs shall be as follows:
 - i. Between one (1) day and seven (7) days, use the daily rate.
 - ii. Between seven (7) days and thirty (30) days, use the weekly rate.
 - iii. Greater than thirty (30) days, use the monthly rate.
- c. For less than one (1) day hourly rates, use the daily rate divided by eight (8).
- d. For overtime hourly rates use the daily rate divided by eight (8), the weekly rate divided by forty (40), or the monthly rate divided by one hundred and seventy-six (176) as appropriate.
- e. Costs for Special Equipment and Machinery already mobilized on the site, shall not exceed the monthly rate stated in the AED Manual, divided by one hundred and seventy-six (176), per hour that the Special Equipment and Machinery is in use on the work plus any required re-mobilization.
- f. The cost calculation shall not combine rates within the range of a time extension. It shall use decimals of the time extension rate that the extension falls under. For example, the cost calculation for a piece of Special Equipment with an approved delay of forty five (45) days shall be one and one-half (1.5) months times the monthly rate, not one (1) month at the monthly rate, plus two (2) weeks at the weekly rate, plus one (1) day at the daily rate.
- g. Rental for special equipment and machinery, not already mobilized to the site, shall be an amount equal to the appropriate daily, weekly, or monthly rental rate for such equipment, in accordance with the current issue of Associated Equipment Distributors' (AED) "Compilation of Nationally Averaged Rental Rates and Model Specifications for Construction Equipment" (notwithstanding the caveats contained therein that such rental rates are not for use by government agencies) for each and every rental period (in weeks, days, or months as applicable) that the special equipment or machinery is in use on the work plus any required mobilization. Payment for special equipment and machinery already mobilized to the site shall not exceed the monthly rate stated in the AED standards divided by one hundred and seventy six (176) to establish a per hour rate that the special equipment and machinery is in use on the Work, plus any required re-mobilization.
- h. For indirect costs, the Contractor shall be allowed a percentage mark-up as set forth in Paragraph G. 2 below.

F. Differing Site Conditions

- 1) The Contractor shall immediately, and before such conditions are disturbed, notify the Architect/Engineer in writing of: (1) subsurface or latent physical conditions at the site differing materially from those indicated in the Contract Documents, or (2) unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract.
- 2) The Architect/Engineer will promptly investigate the conditions, and if such conditions materially differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performance of any part of the work under the Contract, a Contract change may be made and the Contract modified in writing in accordance with the Contract Documents.
- 3) No claim of the Contractor under this article will be allowed unless the Contractor has given the notice required in the Contract Documents.
- 4) No claim by the Contractor for a Contract change hereunder will be allowed if asserted after final payment under this Contract.
- 5) If the Owner is not given written notice prior to the conditions being disturbed, the Contractor will be deemed to have waived his right to assert a claim for additional time and compensation arising out of such changed conditions.

G. Force Account

- 1) If the Owner and the Contractor cannot reach agreement on an equitable adjustment to the Contract Price for any work as prescribed above, then the Extra Work will be performed on a Force Account basis as directed by the Architect/Engineer and paid for as specified below.
- 2) The following percentages will be allowed as mark-ups over Direct Costs for all negotiated adjustments to the Contract Amount or for work performed on either a negotiated lump sum basis or a Force Account basis:
 - a. Extra Work Performed directly by Contractor's Own Forces: The Contractor may add up to a maximum fifteen percent (15%) mark-up on the actual Direct Cost of the Extra Work, subject to review and approval by the Architect/Engineer, as direct compensation for Overhead. A 10% mark-up will be added to all negotiated credit amounts for deleted work not performed to cover Overhead.
 - b. Extra Work Performed by a Subcontractor or any Sub-tier Subcontractor: The Subcontractor may add up to a maximum fifteen percent (15%) mark-up on the actual Direct Cost of the Extra Work as direct compensation for Overhead. The Contractor may add a five percent (5%) mark-up on the Subcontractor's actual Direct Cost as Contractor's Overhead. A 10% additional credit will be added to all Subcontractor negotiated credit amounts for deleted work not performed to cover quality control, supervision, coordination, overhead, small tools and incidentals.

3) In the event Extra Work is performed on a Force Account basis, then the Contractor and the Subcontractor(s), as appropriate, shall maintain itemized daily records of costs, quantities, labor and the use of authorized Special Equipment or Machinery. Copies of such records, maintained as follows, shall be furnished to the Architect/Engineer daily for approval, subject to audit.

- a. Comparison of Record: The Contractor, including its Subcontractor(s) of any tier performing the work, and the Architect/Engineer shall compare records of the cost of force account work at the end of each day. Agreement shall be indicated by signature of the Contractor, the Subcontractor performing the work, and the Architect/Engineer or their duly authorized representatives.
- b. Statement: No payment will be made for work performed on a force account basis until the Contractor has furnished the Architect/Engineer with duplicate itemized statements of the cost of such force account work detailed as follows:
 - i. Name, classification, date, daily hours, total hours, rate and extension for each laborer, tradesman, and foreman.
 - ii. Designation, dates, daily hours, total hours, rental rate, and extension of each unit of special machinery and equipment.
 - iii. Quantities of materials, prices, and extensions.
 - iv. Transportation of materials.

The statements shall be accompanied and supported by a receipted invoice of all materials used and transportation charges. However, if materials used on the force account work are not specifically purchased for such work but are taken from the Contractor's stock, then in lieu of the invoices the Contractor shall furnish an affidavit certifying that such materials were taken from its stock, that the quantity claimed was actually used, and that the price and transportation claimed represent the actual cost to the Contractor.

- c. Authorization of Special Equipment and Machinery: No compensation for special equipment or machinery shall be made without written authorization from the Architect/Engineer. The Architect/Engineer shall review and evaluate any special equipment or machinery proposed by the Contractor for use on a force account basis. As part of its evaluation, the Architect/Engineer shall determine whether any of the special equipment or machinery being proposed by the Contractor will be concurrently used on the Project, including approved changes, or on other force account work on the Project. If the Architect/Engineer determines that such a concurrent use of special equipment or machinery is being proposed by the Contractor, prior to the authorization of such special equipment or machinery, the Architect/Engineer and thereto Contractor shall establish a straight-line prorated billing mechanism based on the

actual percentage of time that the equipment or machinery is required to be used on the force account work(s).

Special equipment or machinery which is approved for use by the Architect/Engineer shall be reviewed and accounted for on a daily basis as provided in the Comparison of Record and Statement paragraphs of this section of the Contract.

- d. Inefficiency in the Prosecution of the Work: If in the Owner's or Architect/Engineer's opinion, the Contractor or any of its Subcontractors, in performing Force Account Work, is not making efficient use of labor, materials or equipment or is proceeding in a manner which makes Force Account Work unnecessarily more expensive to the Owner, the Owner or Architect/Engineer may, in whole or part, direct the Contractor in the deployment of labor, material and equipment. By way of illustration, inefficiency may arise in the following ways, including but not limited to: (1) the timing of the Work, (2) the use of unnecessary labor or equipment, (3) the use of a higher percentage of journeymen than in non-force account Work, (4) the failure to procure materials at lowest price, or (5) using materials of quality higher than necessary.

H. Contractor Proposals - General

- 1) The Contractor may at any time submit to the Architect/Engineer for his review proposed modifications to the Contract Documents, including but not limited to, changes in the Contract Time and/or Contract Amount, supported by a cost/price proposal. Upon acceptance of the proposed modifications by the Owner, a Work Order or Change Order will be issued. Denial of a proposed modification will neither provide the Contractor with any basis for claim for damages nor release the Contractor from contractual responsibilities. A Contract change in the form of a Contract price reduction will be made if the change results in a reduction of the cost of performance and the Contractor will not be entitled to share in said savings unless the proposal is made in accordance with Paragraph I of this article. Except as provided in Paragraph I below, the Contractor will not be compensated for any direct, incidental or collateral benefits or savings the Owner receives as a result of the proposal.

I. Value Engineering Change Proposals: The Contractor may submit to the Architect/Engineer one or more cost reduction proposals for changing the Contract requirements. The proposals shall be based upon a sound study made by the Contractor indicating that the proposal:

- a. Will result in a net reduction in the total Contract amount;
- b. Will not impair any essential function or characteristic of the Work such as safety, service life, reliability, economy of operation, ease of maintenance and necessary standardized features;
- c. Will not require an unacceptable extension of the Contract completion time; and

- d. Will require a change in the Contract Documents and such change is not already under consideration by the Owner.
 - i. The Owner may accept in whole or in part any proposal submitted pursuant to the previous paragraph on Value Engineering Change Proposals by issuing a Change Order which will identify the proposal on which it is based. The Change Order will provide for a Contract change in the Contract price and will revise any other affected provisions of the Contract Documents. The equitable adjustment in the Contract price will be established by determining the net savings resulting from the accepted change. The net savings resulting from the change will be shared between the Contractor and the Owner on the basis of 50 percent for the Contractor and 50 percent for the Owner and will be limited to one Value Engineering Change Proposal per Change Order. Net savings will be determined by deducting from the proposal's estimated gross savings (1) the Contractor's costs of developing and implementing the proposal (including any amount attributable to a subcontractor) and (2) the estimated amount of increased costs to the Owner resulting from the change, such as evaluation, implementation, inspection, related items, and Owner -furnished material. Estimated gross savings will include Contractor's labor, material, equipment, overhead, profit and bond. The Contract price will be reduced by the sum of the Owner's costs and share of the net savings. For the purposes of this article, the applicable provisions of the Contract Documents shall be used to determine the equitable adjustment to the Contract price.
 - ii. The Owner will not be liable for delay in acting upon, or for failure to act upon, any proposal submitted pursuant to of this article. The decision of the Owner as to the acceptance or rejection of any such proposal under the Contract will be final. The submission of a proposal by the Contractor will not in itself affect the rights or obligations of either party under the Contract.
 - iii. The Contractor shall have the right to withdraw part or all of any proposal he may make under Paragraph 2 of this article at any time prior to acceptance by the Owner. Such withdrawal shall be made in writing to the Architect/Engineer. Each such proposal shall remain valid for a period of 60 days from the date submitted. If the Contractor wishes to withdraw the proposal prior to the expiration of the 60 day period he will be liable for the cost incurred by the Owner in reviewing the proposal.

- iv. The Contractor shall specifically identify any proposals under Paragraph 2 of this article with the heading "Value Engineering Change Proposal", or the proposal will be considered as made under Paragraph 1 of this article.
- 2) The Contractor, in connection with each proposal for a Contract Change Notice under this article, shall furnish the following information:
 - a. A description of the difference between the existing Contract requirement and the proposed change, and the comparative advantages and disadvantages of each, justification when a function or characteristic of an item is being altered, and the effect of the change on the performance of the end item;
 - b. An analysis and itemization of the requirements of the Contract which must be changed if the Value Engineering Change Proposal is accepted and a recommendation as to how to make each such change (e.g., a suggested specification revision);
 - c. A separate detailed cost estimate for both the existing Contract requirement and the proposed change to provide an estimate of the reduction in costs, if any, that will result from acceptance of the Value Engineering Change Proposal taking into account the costs of development and implementation by the Contractor;
 - d. A prediction of any effects the proposed change would have on collateral costs to the Owner such as government-furnished property costs, costs of related items, and costs of maintenance and operation;
 - e. A statement of the time by which a Contract modification accepting the Value Engineering Change Proposal must be issued so as to obtain the maximum cost reduction, noting any effect on the Contract completion time or delivery schedule; and
 - f. Identification of any previous submission of the Value Engineering Change Proposal to the Owner, including the dates submitted, the numbers of the contracts involved, and the previous actions by the Owner.
- 3) The Contractor waives any and all claims relating to any delay that may arise out of a Value Engineering Change Proposal.

END OF ARTICLE

11. CLAIMS AND DISPUTES

(June 12, 2012)

A. Notice of Claims

- 1) The Contractor will not be entitled to additional time or compensation otherwise payable for any act or failure to act by the Owner, the happening of any event or occurrence, or any other cause, unless he shall have given the Architect/Engineer a written notice of claim therefore as specified in this article.
- 2) The Contractor shall provide immediate verbal notification with written confirmation within forty-eight (48) hours of any potential claims and of the anticipated time and/or cost impacts resulting thereof. The written notice of claim shall set forth the reasons for which the Contractor believes additional compensation and/or time will or may be due, the nature of the costs involved and the approximate amount of the potential claim.
- 3) It is the intention of this article, that differences between the parties arising under and by virtue of the Contract shall be brought to the attention of the Architect/Engineer at the earliest possible time in order that such matters may be settled, if possible, or other appropriate action promptly taken.
- 4) The notice requirements of this article are in addition to those required in other articles of these Contract Documents.
- 5) The Contractor shall segregate all costs associated with each individual claim including but not limited to labor, equipment, material, subcontractor and supplier costs, and all other costs related to the claim. In the event that the Contractor has multiple claims, the Contractor will segregate each claim individually including the respective costs associated with each claim. Failure to segregate claims and their respective costs will be grounds for the Owner's rejection of the claim. No "total cost claims" shall be allowed under this Contract.
- 6) The Contractor must maintain a cost accounting system as a condition for making a claim against the Owner. The cost accounting system must segregate the costs of the work under the Contract (non-claims-related) from claims-related and other Contractor costs through the use of a job cost ledger and be otherwise in compliance with general accounting principles.
- 7) If the Owner decides to pay all or part of a claim for which notice was not timely made, the Owner does not waive the right to enforce the notice requirements in connection with any other claim.
- 8) Inasmuch as the notice of claim requirements of this article are intended to enable the Architect/Engineer to investigate while facts are fresh and to take action to minimize or avoid a claim which might be filed thereafter, the Contractor's failure to make the required notice on time is likely to disadvantage the Owner. Therefore, a claim that does not comply with the

notice requirements above shall not be considered unless the Contractor submits with his claim proof showing that the Owner has not been prejudiced by the Contractor's failure to so comply and, in the event the Owner has been prejudiced by the Contractor's failure to submit a timely notice of claim, the Owner will reduce any equitable adjustment claimed by the Contractor to reflect the damage.

B. Claim Submittals

- 1) Claims or requests for equitable adjustments filed by the Contractor shall be filed in full accordance with this article no later than 30 calendar days after the act giving rise to the claim and in sufficient detail to enable the Owner to ascertain the basis and amount of said claims. In the case of continuing or ongoing claim events, the Contractor shall be allowed to periodically amend his claim to more accurately reflect the impact of said claim, until the end of the claim event. No claims for additional compensation, time extension or for any other relief under the Contract shall be recognized, processed, or treated in any manner unless the same is presented in accordance with this Article. Failure to present and process any claim in accordance with this Article shall be conclusively deemed a waiver, abandonment or relinquishment of any such claim, it being expressly understood and agreed that the timely presentation of claims, in sufficient detail to allow proper investigation and prompt resolution thereof, is essential to the administration of this Contract.
- 2) The Owner will review and evaluate the Contractor's claims. It will be the responsibility of the Contractor to furnish, when requested by the Architect/Engineer, such further information and details as may be required to determine the facts or contentions involved in his claims. The cost of claims preparation or Change Order negotiations shall not be reimbursable under this Contract.
- 3) Any work performed by the Contractor prior to Notice-to-Proceed (NTP) shall not be the basis for a claim from the Contractor of any kind.
- 4) Each claim must be certified by the Contractor as required by the Miami-Dade Code, False Claims Act (see Code Section 21-255, et seq.), and accompanied by all materials required by Miami-Dade County Code Section 21-257. A "certified claim" shall be made under oath by a person duly authorized by the claimant, and shall contain a statement that:
 - a. The claim is made in good faith;
 - b. The claim's supporting data is accurate and complete to the best of the person's knowledge and belief;
 - c. The amount of the claim accurately reflects the amount that the claimant believes is due from the Owner; and
 - d. The certifying person is duly authorized by the claimant to certify the claim.

- 5) In order to substantiate time-related claims (delays, disruptions, impacts, etc.), the Contractor shall, if applicable and as determined by the Owner, submit, in triplicate, the following information:
- a. Copy of Contractor's notice of claim in accordance with this article. Failure to submit the notice is sufficient grounds to deny the claim.
 - b. The approved, as-planned Schedule in accordance with the applicable section of the Contract Documents and computer storage media, if applicable.
 - c. The as-built Schedule reflecting changes to the approved schedule up to the time of the impact in question and computer storage media if applicable.
 - d. The basis for the duration of the start and finish dates of each impact activity and the reason for choosing the successor and predecessor events affected in the schedule shall be explained. Also, the basis for the duration of any lead/lags inserted into the schedule and the duration in related activity duration shall be explained.
 - e. A marked-up as-built Schedule indicating the causes responsible for changes between the as-planned and as-built schedule and establishing the required cause and effect relationships.
 - f. After indicating specific time related changes on the as-built schedule, the documentation must be segregated into separate packages with each package documenting a specific duration change identified previously. This documentation package shall include Change Orders, Change Notices, Work Orders, written directions, meeting minutes, etc., related to the change in duration.
 - g. Any loss of efficiency, acceleration, disruption and loss of productivity claims shall be compensated as part of the Liquidated Indirect Costs paid for compensable, excusable delays and mark-up on Direct Cost of changes as allowed by the Contract. Total cost and modified total cost claims will not be accepted and the Contractor agrees to waive the right to seek recovery by these methods. The claimed delay shall not result from a cause specified in the Contract Documents as a non-excusable delay.
 - h. The Contractor assumes all risk for the following items, none of which shall be the subject of any claim and none of which shall be compensated for except as they may have been included in the compensation described under Liquidated Indirect Costs: (1) home office expenses or any Direct Costs incurred allocated from the headquarters of the Contractor; (2) loss of anticipated profits on this or any other project, (3) loss of bonding capacity or capability; (4) losses due to other projects not bid upon; (5) loss of business opportunities; (6) loss of productivity on this or any other project; (7) loss of interest income on funds not paid; (8) costs to prepare,

negotiate or prosecute claims and (9) costs spent to achieve compliance with applicable laws and ordinances (excepting only sales taxes paid shall be reimbursable expense subject to the provisions of the Contract Documents).

- i. All non-time-related claim items for additional compensation for Direct Costs shall be properly documented and supported with copies of invoices, time sheets, rental agreements, crew sheets and the like.
 - j. Cost information shall be submitted in sufficient detail to allow for review. The basis for the budgeted or actual costs shall include man-hours by trade, labor rates, material and equipment costs etc. These costs shall be broken down by pay item and Construction Specification Institute (CSI) Division.
 - k. The documentation for budgeted cost shall, as a minimum, include:
 - i. Copies of all the Contractor's bid documents, bid quotes, faxed quotes, etc.
 - ii. Copies of all executed subcontracts.
 - iii. Other related budget documents as requested by the Architect/Engineer.
 - l. The documentation for actual cost shall, as a minimum, include:
 - i. Time Sheets.
 - ii. Materials invoices
 - iii. Equipment invoices
 - iv. Subcontractors' payments
 - v. Other related documents as required by the Architect/Engineer.
 - m. The Contractor shall make all his books, employees, work sites and records available to the Owner or its representatives for inspection and audit.
 - n. No payment shall be made to the Contractor by the Owner for loss of anticipated profit(s) from any deleted work.
- 6) As indicated above, the Architect/Engineer and the Field Representative shall be allowed full and complete access to all personnel, documents, work sites or other information reasonably necessary to investigate any claim. Within sixty (60) days after a claim has been received, the claim shall either be rejected with an explanation as to why it was rejected or acknowledged. Once the claim is acknowledged, the parties shall attempt to negotiate a satisfactory settlement of the claim, which settlement shall be included in a subsequent Work Order or Change Order. If the parties fail to reach an agreement on a recognized claim, the Owner shall pay to the Contractor the amount of money it deems

reasonable, less any appropriate retention, to compensate the Contractor for the recognized claim.

- 7) Failure of the Contractor to make a specific reservation of rights regarding any such disputed amounts in the body of the Change Order which contains the payment shall be construed as a waiver, abandonment, or relinquishment of all claims for additional monies resulting from the claims embodied in said Change Order. However, once the Contractor has properly reserved rights to any claim, no further reservations of rights shall be required and the Contractor shall not be required to repeat the reservation in any subsequent change order. Prior reservation of rights may however be modified, by express reference, in subsequent change orders. Notwithstanding the aforementioned, at the time of final payment under the Contract, the Contractor shall specify all claims which have been denied and all claims for which rights have been reserved in accordance with this section. Failure to so specify any particular claim shall be constructed as a waiver, abandonment, or relinquishment of such claim.

C. Disputes

- 1) The following provisions shall govern disputes under this Contract unless the Special Provisions to this Contract contain the requirement for the use of an alternate dispute resolution method. For example, for large projects of great complexity, a Dispute Review Board (DRB) may be employed by the Owner to settle disputes in lieu of the Department Director or OOM designee as specified below. In this case, the DRB alternative shall be specified by the individual department in the Special Provisions and, if utilized, shall supersede this dispute provision.
 - a. In the event the Contractor and Owner are unable to resolve their differences concerning any determination made by the Architect/Engineer or Owner on any dispute or claim arising under or relating to the Contract (referred to in this Section as a "Dispute"), either the Contractor or Owner may initiate a dispute in accordance with the procedure set forth in this article. Exhaustion of these procedures shall be a precondition to any lawsuit permitted hereunder.
 - b. For contracts with a value of \$5 million or less, all Disputes under this Contract shall be decided by the Department Director or his designee. For contracts valued at more than \$5 million, Disputes shall be decided by a designee appointed by the Office of the Mayor (OOM). Decisions rendered by the Department Director or OOM designee shall not be binding but shall be admissible in a court of competent jurisdiction.
 - c. As soon as practicable, the Department Director or OOM designee shall adopt a schedule for the Contractor and Owner to file written submissions stating their respective positions and the bases therefore. The written submissions shall include copies of all documents and sworn statements in affidavit form from all witnesses relied on by each party in support of its position. Within 20 working days of the date on which such written submissions are filed, the Department Director or OOM designee shall

afford each party an opportunity to present a maximum of one hour of argument. The Department Director or OOM designee may decide the Dispute on the basis of the affidavits and other written submissions if, in his opinion, there is no issue of material fact and the party is entitled to a favorable resolution pursuant to the terms of this Contract. As part of such decision, the Department Director or OOM designee shall determine the timeliness and sufficiency of each notice of claim and claim at issue as provided in this article. The Department Director or OOM designee shall have the authority to rule on questions of law, including disputes over contract interpretation, and to resolve claims, or portions of claims, via summary judgment where there are no disputed issues of material fact. Furthermore, the Department Director or OOM designee is authorized by both parties to strike elements of claims seeking relief or damages not available under the contract (such as, but not limited to, claims for lost profits, off-site overhead, loss of efficiency or productivity claims or claim's preparation costs) by summary disposition.

- d. In the event that the Department Director or OOM designee determines that the affidavits or other written submissions present issues of material fact, he shall allow the presentation of evidence in the form of lay or expert testimony directed solely to the issues which he may specifically identify to require factual resolution. The testimonial portion of the process shall not exceed one day in duration per side, including opening statements and closing arguments, if allowed by the Department Director or OOM designee at his reasonable discretion.
- e. No formal discovery shall be allowed in connection with any proceeding under this article. Notwithstanding the foregoing, both parties agree that all of the audit, document inspection, information and documentation requirements set forth elsewhere in this contract shall remain in force and effect throughout the proceeding. The Department Director or OOM designee shall not schedule the hearing until both parties have made all their respective records available for inspection and reproduction and the parties have been afforded reasonable time to analyze the records. The continued failure of a party to comply with the document inspection, examination, or submission requirements set forth in this contract shall constitute a waiver of that party's claims and/or defenses, as applicable. Hearsay evidence shall be admissible but shall not form the sole basis for any finding of fact. Failure of any party to participate on a timely basis, to cooperate in the proceedings, or to furnish evidence in support or defense of a claim shall be a criteria in determining the sufficiency and validity of a claim.
- f. The Department Director or OOM designee shall issue a written decision within 15 working days after conclusion of any testimonial proceeding and, if no testimonial proceeding is conducted, within 45 days of the filing of the last written submission. This written decision shall set forth the reasons for the disposition of the claim and a breakdown of any specific issues or

subcontractor claims. As indicated previously, the decision of the Department Director or OOM designee is not binding on the parties, but will be admissible in a court of competent jurisdiction.

- g. If either party wishes to protest the decision of the Department Director or OOM designee, such party may commence an action in a court of competent jurisdiction, within the periods prescribed by law, it being understood that the review of the court shall be limited to the question of whether or not the Department Director or OOM designee's determination was arbitrary and capricious, unsupported by any competent evidence, or so grossly erroneous to evidence bad faith.
- h. Pending final decision of a dispute hereunder, the Contractor shall proceed diligently with the performance of the Contract and in accordance with the Architect/Engineer's interpretation. Any presentation or request by the Contractor under this article will be subject to the same requirements for Submittal of Claims in this article.

D. Terminations

1) Termination for Convenience

- a. The Owner may at its option and discretion terminate the Contract, in whole or, from time to time in part, at any time without any default on the part of the Contractor by issuing a written Notice of Termination to the Contractor and its Surety, specifying the extent to which performance of work under the Contract is terminated and the date upon which such termination becomes effective, at least ten (10) days prior to the effective date of such termination.
- b. In the event of Termination for Convenience, the Owner shall pay the Contractor for all labor performed, all materials and equipment furnished by the Contractor and its Subcontractors, materialmen and suppliers and manufacturers of equipment less all partial payments made on account prior to the date of cancellation as determined by the Field Representative and approved by the Architect/Engineer. The Contractor will be paid for:
 - i. The value of all work completed under the Contract, based upon the approved Schedule of Values and/or Unit Prices,
 - ii. The value of all materials and equipment delivered to but not incorporated into the work and properly stored on the site,
 - iii. The value of all bonafide irrevocable orders for materials and equipment not delivered to the construction site as of the date of cancellation. Such materials and equipment must be delivered to the Owner to a site or location designated by the Department prior to release of payment for such materials and equipment.

- iv. The values calculated under i., ii. and iii. above shall be as determined by the Field Representative and approved by the Architect/Engineer.
- c. In the event of termination under this article, the Contractor shall not be entitled to any anticipated profits for any work not performed due to such termination.
- d. In the event of termination under this article, the Owner does not waive or void any credits otherwise due the Owner at the time of termination, including Liquidated Damages, and back charges for defective or deficient work.
- e. Upon termination as indicated above, the Field Representative shall prepare a certificate for Final Payment to the Contractor.

2) Termination for Default of Contractor

- a. The Contract may be terminated in whole or, from time to time in part, by the Owner for failure of the Contractor to comply with any requirements of the Contract Documents including but not limited to:
 - i. Failure to perform the work or failure to provide sufficient workers, equipment or materials to assure completion of work in accordance with the terms of the Contract, and the approved Schedule, or
 - ii. Failure to provide the Schedule for the Project by the date due, or
 - iii. Failure to provide adequate shop drawings by the dates indicated in the approved Schedule for the Project, or
 - iv. Failure to replace the superintendent in the time allotted, if required, or
 - v. Performing the work unsuitably or neglecting or refusing to remove materials or to perform anew such work as may be rejected as unacceptable and unsuitable, after written directions from the Field Representative, or
 - vi. Violating the terms of the Contract or performing work in bad faith, or
 - vii. Discontinuing the prosecution of the work, or
 - viii. Failure to resume work which has been discontinued within a reasonable time after notice to do so, or
 - ix. Abandonment of the Contract, or
 - x. Becomes insolvent or is declared bankrupt, or commits any act of bankruptcy or insolvency, or failure to maintain a qualifier, or

- xii. Making an assignment for the benefit of creditors, or
 - xiii. For any other cause whatsoever, fails to carry out the work in an acceptable manner or to comply with any other Contract requirement.
- xi. Allowing any final judgment to stand against him unsatisfied for a period of 10 days, or
- b. Before the Contract is terminated, the Contractor and its Surety will be notified in writing by the Architect/Engineer or the Field Representative of the conditions which make termination of the Contract imminent. The Contract will be terminated by the Owner ten (10) days after said notice has been given to the Contractor and its Surety unless a satisfactory effort acceptable to the Owner has been made by the Contractor or its Surety to correct the conditions. If the Contractor fails to satisfactorily correct the conditions giving rise to the termination, the Owner may declare the Contract breached and send a written Notice of Termination to the Contractor and its Surety.
- c. The Owner reserves the right, in lieu of termination as set forth in this article, to withhold any payments of money which may be due or become due to the Contractor until the said default(s) have been remedied. In the event of Termination for Default, the Owner also reserves the right, in cases where the damages calculated by the Owner are expected to exceed the amount the Owner anticipated recovering from the Surety, to withhold amounts for work already performed.
- d. In the event the Owner exercises its right to terminate the Contract for default of the Contractor as set forth herein, the Owner shall have the option of finishing the work, through any means available to the Owner, or having the Surety complete the Contract in accordance with its terms and conditions. In case that the Owner decides to have the Surety take over the remaining performance of the Work, the time or delay between Notice of Default and start of work by the Surety is a non-excusable delay. If the Surety fails to act promptly, but no longer than thirty (30) calendar days after the Owner notifies the Surety of the Owner's decision to have the Surety complete the work, or after such takeover fails to prosecute the Work in an expeditious manner, the Owner may exercise any of its other options including completing the Work by whatever means and method it deems advisable. No claims for loss of anticipated profits or for any other reason in connection with the termination of the Contract shall be considered.
- e. Payments for the various Bid Items listed in the Bid Form will constitute full compensation for all expenses incurred in consequence of discontinuance of all or any portion of the Work except as provided in this section of the Contract Documents. In no event will compensation be made for anticipatory profits or consequential

damages as a result of a discontinuance of all or any portion of the Work.

- f. The Contractor shall immediately upon receipt communicate any Notice of Termination for Default issued by the Owner to the affected Subcontractors and suppliers at any tier.
- g. If, after Notice of Termination of the Contractor's right to proceed under the provisions of this article, it is determined for any reason that the Contractor was not in default under the provisions of this article, or that the Contractor was entitled to an extension of time under the Contract Documents, the rights and obligations of the parties shall be the same as if the Notice of Termination had been issued pursuant to the section of this article dealing with Termination for Convenience.

3) Termination for National Emergencies

- a. The Owner shall terminate the Contract or portion thereof by written notice when the Contractor is prevented from proceeding with the construction Contract as a direct result of an Executive Order of the President of the United States with respect to the prosecution of war or in the interest of national defense.
- b. When the Contract, or any portion thereof, is terminated before completion of all items of work in the Contract, payment will be made for the actual number of units or items of work completed at the Contract price or as mutually agreed for items of work partially completed or not started. No claims or loss of anticipated profits or for any other reason in connection with the termination of the Contract shall be considered.

4) Implementation of Termination

- a. If the Owner cancels or terminates the Contract or any portion thereof, the Contractor shall stop all work on the date and to the extent specified in the Notice of Termination and shall:
 - i. Cancel all orders and Subcontracts, to the extent that they relate to the performance of the work terminated and which may be terminated without costs;
 - ii. Cancel and settle other orders and Subcontracts, except as may be necessary for completion of such portion of the Work not terminated, where the cost of settlement will be less than costs which would be incurred were such orders and subcontracts to be completed, subject to prior approval of the Field Representative;
 - iii. Settle outstanding liabilities and claims arising out of such termination of orders and subcontracts, with the approval or ratification of the Owner, to the extent it may require, which

approval or ratification shall be final for the purposes of this Article;

- iv. Transfer title and deliver to the Owner, in the manner, at the time, and to the extent, if any, directed by it, in accordance with directions of the Field Representative, all fabricated or un-fabricated parts, all materials, supplies, work in progress, completed work, facilities, equipment, machinery or tools acquired by the Contractor in connection with the performance of the work and for which the Contractor has been or is to be paid;
- v. Assign to the Owner in the manner, at the times and to the extent directed by it, all of the right, title, and interest of the Contractor under the orders and subcontracts so terminated, in which case the Owner will have the right, at its discretion, to settle or pay any or all claims arising out of the termination of such orders and subcontracts;
- vi. Deliver to the Field Representative As-Built Documents, complete as of the date of cancellation or termination, plans, Shop Drawings, sketches, permits, certificates, warranties, guarantees, specifications, three (3) complete sets of maintenance manuals, pamphlets, charts, parts lists, spare parts (if any), operating instructions required for all installed or finished equipment or machinery, and all other data accumulated by the Contractor for use in the performance of the work.
- vii. Perform all work as may be necessary to preserve the work then in progress and to protect materials, plant and equipment on the site or in transit thereto. The Contractor shall also take such action as may be necessary, or as the Architect/Engineer may direct, for the protection and preservation of the property related to this Contract which is in the possession of the Contractor and in which the Owner has or may acquire an interest.
- viii. Complete performance of each part of the work not terminated by the Notice of Termination;
- ix. Use his best efforts to sell, in the manner, at the time, to the extent, and at the price or prices directed or authorized by the Owner, property of the types referred to above; provided, however, that the Contractor (a) shall not be required to extend credit to any purchaser, and (b) may acquire any such property under the conditions prescribed by and at a price or prices approved by the Owner; provided, further, that the proceeds of any such transfer or disposition will be applied in reduction of any payments to be made by the Owner to the

Contractor under this Contract or will otherwise be credited to the price or cost of the work covered by this Contract or paid in such other manner as the Owner may direct;

- x. Termination of the Contract or a portion thereof shall neither relieve the Contractor of its responsibilities for the completed work nor shall it relieve its Surety of its obligation for and concerning any just claim arising out of the work performed.
- xi. In arriving at the amount due the Contractor under this article, there will be deducted, (1) any claim which the Owner may have against the Contractor in connection with this Contract and (2) the agreed price for, or the proceeds of sale of materials, supplies or other items acquired by the Contractor or sold, pursuant to the provisions of this article, and not otherwise recovered by or credited to the Owner.

5) Suspension of Work

- a. The Owner reserves the right to temporarily suspend execution of the whole or any part of the Work without compensation to the Contractor.
- b. In case the Contractor is actually and necessarily delayed by any act or omission on the part of the Owner, as determined by the Owner in writing, the time for completion of the Work shall be extended by the amount of the time of such delay as determined by the Owner, and an allowance may be made for actual direct costs, if any, which may have been borne by the Contractor. Such requests for additional time and/or compensation must be made in accordance with the applicable sections of the Contract Documents.
- c. Only the actual delay necessarily resulting from the causes specified in this Article, shall be grounds for extension of time. In case the Contractor is delayed at any time or for any period by two or more of the causes specified in this Article, the Contractor shall not be entitled to a separate extension for each one of the causes but only one period of extension will be granted for the delay.
- d. In case the Contractor is actually and necessarily delayed in the performance of the Work from one or more of the causes specified in this Article, the extension of time to be granted to the Contractor shall be only for such portion of the Work so delayed. The Contractor shall not be entitled by reason of such delay to an extension of time for the completion of the remainder of the Work. If the Contractor shall be so delayed as to a portion of the Work he shall nevertheless proceed continuously and diligently with the prosecution of the remainder of the Work. No demand by the Contractor that the Owner determine and certify any matter of extension of time for the completion of the Work or any part thereof will be of any effect whatsoever unless the demand

be made in writing at least 30 days before the completion date of the Work or any part thereof for which Liquidated Damages are established when meeting those dates is claimed to have been delayed by a suspension under this Article. Owner's determination as to any matter of extension of time for completion of the Work or any part thereof shall be binding and conclusive upon the Contractor.

- e. Permitting the Contractor to finish the Work or any part thereof after the time fixed for completion or after the date to which the time for completion may have been extended or the making of payments to the Contractor after any such periods shall not operate as a waiver on the part of the Owner of any rights under this contract.
- f. The Contractor shall insert in each subcontract a provision that the Subcontractor shall comply immediately with a written order of the Owner to the Contractor to suspend the Work, and that they shall further insert the same provision in each subcontract of any tier.

END OF ARTICLE

12. MISCELLANEOUS PROVISIONS

(June 12, 2012)

A. Third Party Beneficiary

No contractual relationship will be recognized under the Contract other than the contractual relationship between the Owner and the Contractor. There shall be no third party beneficiary to this Contract.

B. Venue

Any litigation which may arise out of this Contract shall be commenced either in the Eleventh Judicial Circuit Court in and for Miami-Dade County, Florida, or in the United States District Court, Southern District of Florida.

C. Governing Laws

- 1) The Contractor shall, during the term of this Contract and in the prosecution of the work, be governed by the statutes, regulatory orders, ordinances and procedures of the United States of America, the State of Florida and Miami-Dade County including but not limited to the Florida Building Code and the provisions of the Code of Miami-Dade County governing Community Small Business Enterprises (CSBEs) as applicable.
- 2) Specifically, the Contractor and his Subcontractors shall comply with Miami-Dade County Resolution Nos. R-1386-09 and R-138-10 governing the treatment of CSBE firms.
- 3) In addition the Contractor agrees to abide by all federal, state, and County procedures, as may be amended from time to time, regarding how documents to which the Contractor has access are handled, copied, and distributed, particularly documents that contain sensitive security information.

D. Successors and Assigns

The Owner and the Contractor each bind themselves, their partners, successors, assigns and legal representatives to the other party hereto and to the partners, successors, assigns and legal representatives of such other party in respect to all covenants, agreements and obligations contained in the Contract Documents. The Contractor shall not assign the Contract or sublet it as a whole without the written consent of the Owner, nor shall the Contractor assign any moneys due or to become due the Contractor hereunder, without the previous written notice to the Owner. Consent will not be given to any proposed assignment which would relieve the Contractor or his Surety of their responsibilities under the Contract.

E. Written Notice

- 1) Written notice to the Contractor shall be deemed to have been duly served if delivered in person to the individual or member of the firm or to any officer of the corporation for whom it was intended or if delivered at or sent by registered or certified mail to the last business address known to those who give the notice.

- 2) Written notice to the Owner shall be deemed to have been duly served if delivered in person, delivered at or sent by registered or certified mail to the individual identified in the Special Provisions.

F. Indemnification

- 1) In consideration of this Agreement, and to the maximum extent permitted by Chapter 725, Florida Statutes, as may be amended, the Contractor agrees to indemnify, protect, defend, and hold harmless the Government, State, County, their elected officials, officers, employees, consultants, and agents from claims, liabilities, damages, losses, and costs including, but not limited to reasonable attorney's fees at both the trial and appellate levels to the extent caused by the negligence, recklessness, or intentionally wrongful conduct of the Contractor and other persons employed or utilized by the Contractor in the performance of the Work.
- 2) The indemnification obligation under this clause shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the Contractor and/or any Subcontractor under worker's compensation acts, disability benefit acts, or other employee benefit acts.
- 3) In the event that any claims are brought or actions are filed against the Owner with respect to the indemnity contained herein, the Contractor agrees to defend against any such claims or actions regardless of whether such claims or actions are rightfully or wrongfully brought or filed. The Contractor agrees that the Owner may select the attorneys to appear and defend such claims or actions on behalf of the Owner. The Contractor further agrees to pay at the Contractor's expense the attorneys' fees and costs incurred by those attorneys selected by the Owner to appear and defend such claims or actions on behalf of the Owner. The Owner, at its sole option, shall have the sole authority for the direction of the defense, and shall be the sole judge of the acceptability of any compromise or settlement of any claims or actions against the Owner.
- 4) To the extent this indemnification clause or any other indemnification clause in this Agreement does not comply with Chapter 725, Florida Statutes, as may be amended, this provision and all aspects of the Contract Documents shall hereby be interpreted as the parties' intention for the indemnification clauses and Contract Documents to comply with Chapter 725, Florida Statutes, as may be amended.
- 5) This Section shall survive expiration or termination of this Agreement.

G. Audit Rights

- 1) Access to Records
 - a. The Contractor shall, during the term of this Contract and for a period of five years thereafter, allow the Owner and its duly authorized representatives to inspect all payroll records, invoices for materials, books of account, job cost ledgers, Project correspondence and Project-related files and all relevant records pertinent to the Contract.

- b. The Owner retains the right to audit accounts and access all files, correspondence and documents in reference to all work performed under this Contract. The Owner shall be provided full access upon request to all documents, including those in possession of Subcontractors or suppliers during the work and for a period of five years after the completion of the Work. In case of any litigation regarding this Project, such rights shall extend until final settlement of such litigation. Failure to allow the Owner access shall be deemed a waiver of Contractor's claims.
- c. The Contractor shall maintain a banking account within Miami-Dade County for all payments to laborers, Subcontractors and vendors furnishing labor and materials under this Contract. All records shall be maintained in Miami-Dade County for the term of this Contract.

2) Inspector General

- a. According to Section 2-1076 of the Code of Miami-Dade County, Miami-Dade County has established the Office of the Inspector General (IG) which may, on a random basis, perform audits, inspections, and reviews of all, on any County/Trust contracts, throughout the duration of said contracts. This random audit is separate and distinct from any other audit by the County. To pay for the functions of the Office of the Inspector General, any and all payments to be made to the Contractor under this contract will be assessed one quarter (1/4) of one (1) percent of the total amount of the payment, to be deducted from each progress payment as the same becomes due unless this Contract is federally or state funded where federal or state law or regulations preclude such a charge or where such a charge is otherwise precluded by Special Condition. The Contractor shall, in stating its agreed prices, be mindful of this assessment which will not be separately identified, calculated or adjusted in the proposal or Bid Form.
- b. The Miami-Dade Office of the Inspector General is authorized to investigate County affairs and empowered to review past, present and proposed County and Public Health Trust programs, accounts, records, contracts and transactions. In addition, the Inspector General has the power to subpoena witnesses, administer oaths, require the production of witnesses and monitor existing Projects and programs. Monitoring of an existing Project or program may include a report concerning whether the Project is on time, within budget and in conformance with the Contract Documents and applicable law. The Inspector General shall have the power to audit, investigate, monitor, oversee, inspect and review operations, activities, performance and procurement process including but not limited to Project design, bid specifications, (bid/proposal) submittals, activities of the (Contractor/ Vendor/ Consultant), its officers, agents and employees, lobbyists, County and Public Health Trust staff and

elected officials to ensure compliance with the Contract Documents and to detect fraud and corruption.

- c. Upon ten (10) days written notice to the Contractor, the Contractor shall make all requested records and documents available to the Inspector General for inspection and copying. The Inspector General is empowered to retain the services of independent private sector inspectors general to audit, investigate, monitor, oversee, inspect and review operations, activities, performance and procurement process including but not limited to Project design, bid specifications, (bid/proposal) submittals, activities of the (Contractor/ Vendor/ Consultant), its officers, agents and employees, lobbyists, County staff and elected officials to ensure compliance with the Contract Documents and to detect fraud and corruption.
- d. The Inspector General shall have the right to inspect and copy all documents and records in the (Contractor/Vendor/Consultant's) possession, custody or control which in the Inspector General's sole judgment, pertain to performance of the contract, including, but not limited to original estimate files, change order estimate files, worksheets, proposals and agreements from and with successful subcontractors and suppliers, all Project-related correspondence, memoranda, instructions, financial documents, construction documents, (bid/proposal) and contract documents, back-change documents, all documents and records which involve cash, trade or volume discounts, insurance proceeds, rebates, or dividends received, payroll and personnel records and supporting documentation for the aforesaid documents and records.
- e. The Contractor shall make available at its office at all reasonable times the records, materials, and other evidence regarding the acquisition (bid preparation) and performance of this contract, for examination, audit, or reproduction, until three (3) years after final payment under this contract or for any longer period required by statute or by other clauses of this contract. In addition:
 - i. If this contract is completely or partially terminated, the Contractor shall make available records relating to the work terminated until three (3) years after any resulting final termination settlement; and
 - ii. The Contractor shall make available records relating to appeals or to litigation or the settlement of claims arising under or relating to this contract until such appeals, litigation, or claims are finally resolved.
- f. The provisions in this section shall apply to the (Contractor/Vendor/Consultant), its officers, agents, employees, subcontractors and suppliers. The (Contractor/Vendor/Consultant) shall incorporate the provisions in this section in all subcontracts and

all other agreements executed by the (Contractor/Vendor/Consultant) in connection with the performance of this contract.

- g. Nothing in this section shall impair any independent right to the Owner to conduct audits or investigative activities. The provisions of this section are neither intended nor shall they be construed to impose any liability on the Owner by the (Contractor/Vendor/Consultant) or third parties.

H. Severability

- 1) In the event any article, section, sub-article, paragraph, sentence, clause or phrase contained in the Contract Documents shall be determined, declared or adjudged invalid, illegal, unconstitutional or otherwise unenforceable, such determination, declaration or adjudication shall in no manner affect the other articles, sections, sub-articles, paragraphs, sentences, clauses or phrases of the Contract Documents, which shall remain in full force and effect as if the article, section, sub-article, paragraph, sentence, clause or phrase declared, determined or adjudged invalid, illegal, unconstitutional or otherwise unenforceable was not originally contained in the Contract Documents.

I. Payment and Performance Bonds

- 1) The Contractor shall, as a condition of contract, provide to the County two separate bonds, one bonding payment and one bonding performance. Each bond shall be for no less than 100% of the total maximum contract amount. The payment bond and performance bond shall be in the forms requested under Sections 713.23 and 255.05, respectively, of the Florida Statutes. These bonds shall be in substantial compliance with the requirements of the forms attached hereto as _____.

- a. The bonds shall be written through surety insurers authorized to do business in the State of Florida as Surety, with the following qualifications as to management and financial strength according to the latest edition of Best's Insurance Guide, published by A.M. Best Company, Oldwick, New Jersey:

<u>Bond (Total Contract) Amount</u>	<u>Best's Rating</u>
\$500,001 to \$1,500,000.....	B V
\$1,500,001 to \$2,500,000.....	A VI
\$2,500,001 to \$5,000,000.....	A VII
\$5,000,000 to \$10,000,000.....	A VIII
Over \$10,000,000.....	A IX

- 2) On Contract amounts of \$500,000 or less, the Bond provisions of Section 287.0935, Florida Statutes shall be in effect and surety companies not otherwise qualifying with this paragraph may optionally qualify by:

- a. Providing evidence that the surety has twice the minimum surplus and capital required by the Florida Insurance Code at the time the Invitation to Bid is issued.
- b. Certifying that the surety is otherwise in compliance with the Florida Insurance Code, and
- c. Providing a copy of the currently valid Certificate of Authority issued by the United States Department of Treasury under 31 U.S.C. 9304-9308.

Surety insurers shall be listed in the latest Circular 570 of the U.S. Department of the Treasury entitled "Surety Companies Acceptable on Federal Bonds", published annually. The Bond amounts shall not exceed the underwriting limitations as shown in this circular.

- 3) For Contracts in excess of \$500,000 the provisions of the Contract Documents will be adhered to, plus the surety insurer must have been listed on the U.S. Treasury list for at least three consecutive years, or currently hold a valid Certificate of Authority of at least 1.5 million dollars and listed on the Treasury list.
- 4) Payment and Performance Bonds guaranteed through U.S. Government Small Business Administration or Contractors Training and Development Inc. will also be acceptable.
- 5) The attorney-in-fact or other officer who signs Payment and Performance Bonds for a surety company must file with such Bonds a certified copy of his/her power of attorney authorizing him/her to do so.
- 6) The cost of the Bonds shall be included in the Bid.
- 7) The required Bonds shall be written by or through and shall be countersigned by, a licensed Florida agent of the surety insurer, pursuant to Section 624.425 of the Florida Statutes.
- 8) The Bonds shall be delivered to the Contracting Officer in accordance with the instructions within the Notice of Award.
- 9) In the event the Surety on the Payment and Performance Bonds given by the Contractor becomes insolvent, or is placed in the hands of a receiver, or has its right to do business in its State of domicile or the State of Florida suspended or revoked as provided by law, the Owner shall withhold all payments under the provisions of these Contract Documents until the Contractor has given good and sufficient Bonds in lieu of Bonds executed by such Surety.
- 10) Cancellation of any Bonds, or non-payment by the Contractor of any premium for any Bonds required by this Contract, shall constitute a breach of this Contract. In addition to any other legal remedies, the Owner at its sole option may terminate this Contract or pay such premiums, and deduct the costs thereof from any amounts that are or may be due to the Contractor.

J. Insurance

The Contractor shall maintain the insurance set forth in the Special Provisions throughout the performance of this Contract until the Work has been completed by the Contractor and accepted by the Owner.

K. Conflict of Interest

- 1) The Contractor or his employees shall not enter into any Contract involving services or property with a person or business prohibited from transacting such business with Miami-Dade County pursuant to Section 2-11.1 of the Code of Miami-Dade County, Florida, known as the Miami-Dade County Conflict of Interest and Code of Ethics Ordinance.
- 2) In the event the Contractor, or any of its officers, partners, principals or employees are convicted of a crime arising out of, or in connection with, the work to be done or payment to be made under this Contract, this Contract, in whole or any part thereof may, at the discretion of the Owner, be terminated without prejudice to any other rights and remedies of the Owner under the law.
- 3) In accordance with the Code of Miami-Dade County, no officer or employee of Miami-Dade County during his tenure or for two years thereafter shall have any interest, direct or indirect, in this Contract or the proceeds thereof.

L. Rights in Shop Drawings

- 1) Shop Drawings submitted to the Architect/Engineer by the Contractor, pursuant to the Work, may be duplicated by the Owner and the Owner may use and disclose, in any manner and for any purpose Shop Drawings delivered under this Contract.
- 2) This paragraph shall be included in all subcontracts hereunder at all tiers.

M. Patent and Copyright

- 1) If the Contractor is required or desires to use any design, device, material, or process covered by letters of patent or copyright, he shall provide for such use by suitable legal agreement with the patentee or owner. The Contractor and the surety shall indemnify and save harmless the Owner, the Field Representative, and the Architect/Engineer from any and all claims for infringement by reason of the use of any such patented design, device, material or process, or any trademark or copyright, and shall indemnify the Owner for any costs, expenses, and damages which it may be obliged to pay by reason of an infringement, at any time during the prosecution or after the completion of the work.
- 2) The Contractor shall warrant that the materials, equipment or devices used on or incorporated in the Work shall be delivered free of any rightful claim of any third party for infringement of any United States patent or copyright. The Contractor shall defend, or may settle, at his expense, any suit or proceeding against the Owner or the Architect/Engineer so far as based on a claimed patent or copyright infringement which would result in a breach of this warranty, and the Contractor shall pay all damages and costs awarded therein against the Owner or the Architect/Engineer due to such breach. The Contractor shall

report to the Architect/Engineer, promptly and in reasonable written detail, each notice or claim of patent or copyright infringement based on the performance of this Contract of which the Contractor has knowledge. In the event of any claim or suit against the Owner on account of any alleged patent or copyright infringement arising out of the performance of this Contract or out of the use of any supplies furnished or work or services performed hereunder, the Contractor shall furnish to the Owner when requested, all evidence and information in possession of the Contractor pertaining to such suit or claim. Such evidence and information shall be furnished at the expense of the Contractor.

- 3) The Contractor shall bear all costs arising from the use of patented materials, equipment, devices or processes used on or incorporated in the Work. In such case materials, equipment, devices or processes are held to constitute an infringement and their use enjoined, the Contractor, at his expense shall:
 - a. Secure for the Owner the right to continue using said materials, equipment, devices or processes by suspension of the injunction or by procuring a license or licenses; or
 - b. Replace such materials, equipment, devices or processes with non-infringing materials, equipment, devices or processes; or
 - c. Modify them so that they become non-infringing or remove the enjoined materials, equipment, devices or processes and refund the sum paid therefore without prejudice to any other rights of the Owner.
- 4) The preceding paragraph shall not apply to any materials, equipment or devices, specified by the Owner or the Architect/Engineer or manufactured to the design of the Owner or the Architect/Engineer or in accordance with the details contained in the Contract Documents; and as to any such materials, equipment or devices the Contractor assumes no liability whatsoever for patent or copyright infringement and the Owner will hold the Contractor harmless against any infringement claims arising therefrom.
- 5) Patent rights to patentable invention, item or ideas of every kind or nature arising out of the Work, as well as information, designs, specifications, know-how, data and findings shall be made available to the Government for public use, unless the Owner shall, in specific cases where it is legally permissible, determine that it is in the public interest that it not be so made available.
- 6) The sense of this article shall be included in all subcontracts. The foregoing states the entire liability of the Contractor for patent or copy infringement by use of said materials, equipment or devices.

N. Historical, Scientific and Archaeological Discoveries

All articles of historical, scientific or archaeological interest uncovered by the Contractor during progress of the Work shall be preserved and reported immediately to the Architect/Engineer. Further operations of the Contractor with respect to the find, including disposition of the articles, will be decided by the Owner.

O. Use of Owner's Name in Contractor Advertising or Public Relations

The Owner reserves the right to review and approve Owner-related copy prior to publication. The Contractor shall not allow Owner-related copy to be published in Contractor's advertisement or public relations programs until submitting the Owner-related copy and receiving prior approval from the Owner. The Contractor shall agree that published information on the Owner or the Owner's program shall be factual and in no way imply that the Owner endorses the Contractor's firm, service or product. The Contractor shall insert the substance of this provision, including this sentence, in each subcontract and supply Contract or purchase order.

END OF ARTICLE

13. ATTACHMENTS

(June 12, 2012)

END OF ARTICLE

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

STANDARD GENERAL CONTRACT CONDITIONS

ATTACHMENT “ A “

Certificate of Acceptance for Substantial Completion

Certificate of Final Acceptance

CERTIFICATE OF ACCEPTANCE FOR SUBSTANTIAL COMPLETION

RPQ No.: _____

Date : _____

Description : _____

Address : _____

Contractor : _____

Consultant : _____

Surety : _____

*The work performed under the subject Contract has been reviewed, and subject to the Contract requirements of **Article 29, Substantial Completion, Final Inspection and Acceptance**, all remaining work has been found to be Substantially Completed as of _____.*

*A **Punch List** of items to be completed or corrected, is appended hereto.*

*In the event that the Work, including the Punch List items, is not corrected by the Contract Completion date, the Contract stipulations regarding **Liquidated Damages** will be imposed until such time as the work is certified by the County's Resident Engineer or its Consultant and the Director, MDT to be complete in all respects and a **Certificate of Final Acceptance** is issued.*

(COMPANY SEAL)

Signed : _____

Contractor

Recommended : _____

Resident Engineer/Project Manager

Recommended : _____

Chief, Construction

Certificate of Final Acceptance

RPQ No.:

Description:

Address:

Contractor:

Consultant:

Surety:

The **UNDERSIGNED** hereby certify that, to the best of our knowledge and belief, based on observations of the punch list work required under the terms of the Agreement, we have found that the Work items identified in the **PUNCH LIST**, dated _____ (**"PUNCH LIST"**) were completed as of _____. We therefore recommend that the **FINAL ACCEPTANCE DATE** be established as: _____

Notwithstanding the above, this Certificate shall not be construed as a finding regarding whether work performed on this Contract was done in accordance with all applicable Contract requirements, and the County expressly reserves all of its rights and claims under the Contract, or otherwise, to seek recovery or indemnity for any defects in materials, equipment, or workmanship, or for non-conformance with any Contract requirements.

Recommended : _____

Resident Engineer/Project Manager

Recommended : _____

Chief, Construction

:

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

STANDARD GENERAL CONTRACT CONDITIONS

ATTACHMENT “ B “

Contractor Release

Agreement on Final Quantities and Amounts

Final Affidavit

Labor Standards Provisions Final Certificate

Memorandum of Understanding

Certificate of Sub-Contractor Status

Final Release of Lien

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

CONTRACTOR RELEASE

RPO No.:

KNOW ALL MEN BY THESE PRESENTS : Pursuant to the terms of the Contract and in consideration of the sum of _____ paid by the *Miami-Dade County* under the Contract, the undersigned Contractor does, and by the receipt of said sum shall, for itself, its successors and assigns, remise, release and forever discharge MDC, its officers , agents and employees, of and from all liabilities, obligations, and claims whatsoever, in law and in equity, under or arising out of said Contract.

IN WITNESS WHEREOF, this release has been executed this _____ day of _____, 20____

(*COMPANY SEAL*)

Contractor

Signature

WITNESS :

Print Name : _____
Print Title : _____

NOTE : In the case of a corporation, witnesses are not required , but the *CERTIFICATE* below must be completed.

CERTIFICATE

I, _____, certify that I am the *Secretary* of the corporation named as Contractor in the foregoing release; that _____ who signed said release on behalf of the Contractor, was then _____ of said Corporation; that said release was duly signed for and on behalf of said corporation under the authority of its governing body, and within the scope of its corporate powers.

(*CORPORATE SEAL*)

Signature

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

AGREEMENT

ON

FINAL QUANTITIES AND AMOUNTS

RPO No.:

The Contractor and Resident Engineer agree that the **QUANTITIES** as shown on the **FINAL PAY REQUEST No.** are **EQUITABLY** paid for by application of the agreed **LUMP SUM PRICES**.

It is finally agreed that the right in the Contract clause to request negotiation of a different amount is **WAIVED** by the Contractor and the Authorized Representative of the Contracting Officer.

(Company Seal)

Contractor

Signature

Print Name

Print Title

Date

Resident Engineer

Date

Print Name

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

FINAL AFFIDAVIT

RPQ No.:

The undersigned Contractor, _____, certifies and warrants to ***Department of Transportation and Public Works*** that _____ has paid in full and completely discharged any and all claims, demands, obligations and liabilities of _____ in connection with or arising out of ***RPQ No.*** _____, including without limitation, all claims for labor performed and materials, supplies, equipment and other items furnished or used in connection with performance of said Contract.

(COMPANY SEAL)

Contractor : _____

Signature : _____

Print Name : _____

Print Title : _____

Date : _____

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

LABOR STANDARDS PROVISIONS

FINAL CERTIFICATE

RPO No.:

The undersigned Contractor, _____, hereby certifies that all laborers, mechanics, apprentices and trainees employed by him or by any Subcontractor performing work under the Contract on the project have been paid **wages at rates no less than those required by the Contract provisions**, and that the work performed by each laborer, mechanic, apprentice or trainee conformed to the classifications set forth in the Contract or training program provisions applicable to the wage rate paid.

EXCEPTION (S) :

Contractor : _____

(COMPANY SEAL)

Signature : _____

Print Name : _____

Print Title : _____

Date : _____

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

MEMORANDUM OF UNDERSTANDING

RPQ No.:

WHEREAS, _____, (hereafter referred to as the " Contractor ") and the *Miami-Dade Transit*, the parties hereto, have mutually agreed to the **total Contract amount** in the sum of _____ and a final payment of _____ for a **COMPLETE CLOSE-OUT** of *RPQ No.*

It is understood and expressly agreed that :

- (1) This Memorandum of Understanding is subject to the recommendations of the Assistant Director and the Director of Miami-Dade Transit.
- (2) In consideration of the payment by MDT of a **total Contract amount** of _____, (inclusive of all finalized Change Orders), the Contractor hereby withdraws with prejudice all Claims, Disputes, and Appeals of the Contractor or any of its Subcontractors or Suppliers under the subject Contract. MDT likewise, withdraws with prejudice, all Claims and/or Backcharges it has against the Contractor.
- (3) The retention withheld in *Pay Request No.* _____ is _____ and will be paid in full. Therefore, the Contractor acknowledges the final payment of _____ in *Pay Request No.* _____ as the outstanding balance due to date on the Contract.
- (4) MDT reserves the right to complete an audit upon the request of the Assistant Director, Engineering Services when warranted.
- (5) All terms and conditions of the Contract otherwise remain unchanged including the Contractor's liabilities for warranties, latent defects and the like.
- (6) The execution of this Memorandum and payment in accordance with these terms, and the finalized Contract Change Orders, shall constitute a full accord and satisfaction of all Claims and all rights of the parties against each other, except for claims of the Owner for latent defects discussed after the date of this Memorandum or for warranty items.

Memorandum of Understanding

Page 2

(COMPANY SEAL)

Contractor : _____

Signature : _____

Print Name : _____

Print Title : _____

Date : _____

RECOMMENDED

By : _____

Resident Engineer/Project Manager

By : _____

Chief, Construction Division

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

CERTIFICATE OF SUB-CONTRACTOR STATUS

This is to certify that the following is a complete list of sub-contractors who worked on

RPO No.:

Name	Description of work	Original Contract Amount	Paid to date	Amount Owed

(COMPANY SEAL)

Contractor

Signature

Print Name & Title

Date

ALL SUBCONTRACTORS WORKING ON THIS PROJECT MUST COMPLETE THIS FORM.

FINAL RELEASE OF LIEN

KNOW ALL PERSONS BY THESE PRESENTS:

That the undersigned, for and in consideration of the payment of the sum of _____ and _____ /100 dollars (\$ _____) paid by the _____ receipt of which is hereby acknowledged, hereby releases and quit claims to the said _____ it successors and assigns, and _____ the owner, all liens, lien rights, claims or demands of any kind whatsoever, which the undersigned now has or might have against the building or premises legally _____ described _____ as _____ on account of labor performed and/or material furnished for the construction of any improvements thereon. That all labor and materials used by the undersigned in the erection of said improvements have been fully paid for.

IN WITNESS THEREOF, I have hereunto set my hand seal this _____ day of _____, 20____.

WITNESSES:

_____ (SEAL)

By _____

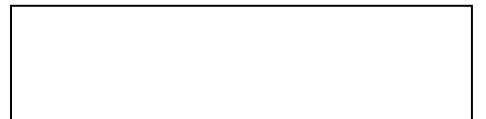
State of _____)
) ss

County of _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 20____ by _____ on behalf of _____ [] who is personally known to me or [] who has produced _____ as identification and who [] did [] did not take an oath.

Notary Signature: _____

Notary Seal:



Type or Print Name: _____

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

STANDARD GENERAL CONTRACT CONDITIONS

ATTACHMENT "C"

Sub-Contractor's/Supplier's Release of Claim

Consent of Surety Company to Requisition Payment

MIAMI-DADE COUNTY
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
SUBCONTRACTOR'S / SUPPLIER'S RELEASE OF CLAIM

NOTE: The General Contractor shall attach this statement, completed by each Subcontractor whose work appears on the prior requisition for payment or has work in place since the last requisition for payment.

Project No.: _____ Date: _____

Project Title: _____

Subcontractor:

Requisition No.: _____ From: _____ To: _____

Before me, the undersigned authority, authorized to administer oaths and take acknowledgments appeared: _____ who, after being first duly sworn, upon oath, deposes and says that pursuant to the provisions of his contract for said project, all money due him under prior requisitions for payment have been paid to him by _____, the General Contractor.

(COMPANY SEAL)

Legal Name of Subcontractor

Title

Signature

State of _____)

) ss

County of _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 20__ by _____ on behalf of _____.

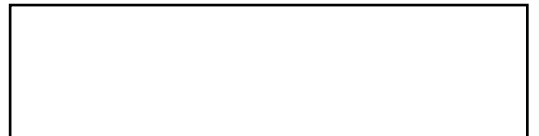
[] who is personally known to me or [] who has produced _____ as identification and who [] did [] did not take an oath.

Notary Signature: _____

Type or Print Name: _____

Notary Seal:

PROJECT RPQ No.: TP-0000008807



CONSENT OF SURETY COMPANY TO REQUISITION PAYMENT



PROJECT No. _____

PROJECT TITLE: _____

PROJECT LOCATION: _____

TO: _____ Re: PAY REQUEST No. _____ DATE: _____

IN THE AMOUNT OF: _____

CONTRACTOR: _____ RPQ No. _____

THE UNDERSIGNED SURETY COMPANY _____,
(INSERT NAME OF SURETY COMPANY)

_____, ON BOND OF
(ADDRESS)

THE CONTRACTOR LISTED ABOVE, HEREBY APPROVES THIS PAYMENT TO THE CONTRACTOR AND AGREES THAT THE PAYMENT TO THE CONTRACTOR SHALL NOT RELIEVE THE SURETY COMPANY OF ANY OF ITS OBLIGATIONS TO MIAMI-DADE COUNTY, INCLUDING THE SECURITY FROM ANY AND ALL LIENS, CLAIMS OR DEMANDS WHATSOEVER THAT MAY NOW EXIST OR BE MADE IN THE FUTURE BY ANY SUB-CONTRACTOR OR MATERIAL SUPPLIERS AGAINST THIS PROJECT AND CONTRACT.

THIS CONSENT OF SURETY RECOGNIZES THAT CLAIMS HAVE BEEN MADE BY THE FOLLOWING SUB-CONTRACTORS AND MATERIAL SUPPLIERS AGAINST THE CONTRACT IN THE AMOUNTS LISTED BELOW:

_____	\$ _____
_____	\$ _____
_____	\$ _____
_____	\$ _____
_____	\$ _____
_____	\$ _____
_____	\$ _____
_____	\$ _____

SURETY RECOGNIZES THAT RELEASES OF LIEN OR RELEASES AND ASSIGNMENT OF CLAIM HAVE NOT BEEN REQUESTED OR RECEIVED FROM ALL THE SUB-CONTRACTORS AND MATERIAL SUPPLIERS FOR THIS FACILITY.

IN WITNESS THEREOF,
THE SURETY COMPANY HAS HEREUNTO SET ITS HAND THIS _____ DAY OF _____, 20____.

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

STANDARD GENERAL CONTRACT CONDITIONS

ATTACHMENT "D"

"Contractor Agent to Accept Service"



DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

CONTRACTOR AGENT TO ACCEPT SERVICE

RPQ No.: _____

DATE: _____

CONTRACT TITLE: _____

CONTRACTOR: _____

NOTICE TO PROCEED (NTP) DATE: _____

CONTRACTOR ADDRESS: _____

CONTRACTOR TELEPHONE No.: _____

AGENT'S NAME: _____

AGENT'S TITLE: _____

AGENT'S ADDRESS: _____

AGENT'S TELEPHONE No. _____

Contractor Corporate Representative

Submitted By: _____

SIGNATURE

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

STANDARD GENERAL CONTRACT CONDITIONS

ATTACHMENT "E"

Force Account Daily Report:
Labor, Material & Equipment

FORCE ACCOUNT DAILY REPORT:

DATE: _____



CONTRACTOR: _____

CONTRACT No. _____ REPORT No. _____

CONTRACT CHANGE NOTICE / MDT LETTER: _____ PAGE No. _____ of _____

IMPORTANT-THIS FORM MUST BE SIGNED AND SUBMITTED NOT LATER THAN THE DAY FOLLOWING DATE WORK WAS PERFORMED.

The following work was performed this date requiring the use of the Labor Force, Materials, Equipment, Special Forces and Services listed hereon:

Description of work performed:

LABOR					EQUIPMENT					
NAME	CRAFT	HRRAT	HOURS	TOTALS	MAKE	MODEL	DESCRIPTION	HOURS	RATE	EXT.

CERTIFIED CORRECT BY: _____	DATE _____
MATERIAL INVOICE ON UNIT PRICES TO BE PROVIDED.	

QUAN.	UNIT	DESCRIPTION	MATERIALS	RECAP
				LABOR
				MATERIALS
				EQUIPMENT

CERTIFIED CORRECT BY: _____	DATE _____	TOTAL THIS SHEET _____
<div style="border: 1px solid black; display: inline-block; padding: 2px;">FOR ENGINEER'S USE</div> APPROVED AS TO SUBSTANCE		EXTENSION OF LABOR, MATERIAL & EQUIPMENT VERIFIED BY:
BY: _____	DATE _____	INSPECTOR _____ DATE _____
RESIDENT ENGINEER		

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

MIAMI-DADE TRANSIT CONSTRUCTION SAFETY MANUAL

(INCLUDES SECURITY ID REQUIREMENTS)

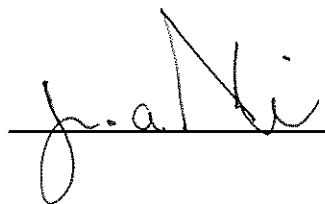


Miami-Dade Transit Construction Safety Manual

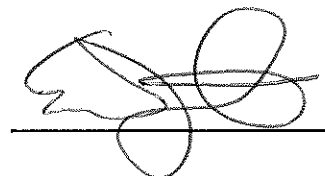


**MIAMI-DADE TRANSIT
MIAMI, FLORIDA
CONSTRUCTION SAFETY MANUAL
Revision No. 6**

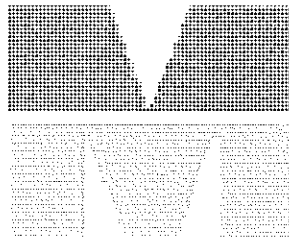
May 2012


_____ 6/4/2012
Date

**Approved By:
James A. Sumoski
Construction Manager 3
MDT Construction**


_____ 6/7/12
Date

**Approved By:
Eric Muntan
Chief, MDT
Office of Safety and Security**



MIAMI-DADE

TRANSIT

111 Northwest 1st Street, Suite 910, Miami, Florida 33128-1999

Policy Statement

It is the policy of the Miami-Dade Transit (MDT) and Miami-Dade County (MDC) to maintain a safe working environment for all employees and the public. The Construction Safety Program has been designed in accordance with the William-Steiger Occupational Safety and Health Act of 1970. The success of the safety program requires the full support of every employee and contractor working on the MDT system.

Regardless of the urgency or monetary cost of a job; all safety precautions must be observed. Prevention of personal injury or damage to property and equipment must always remain paramount in the minds of every employee and contractor.

PREFACE

THE CONSTRUCTION SAFETY MANUAL (CSM) is one of the Miami-Dade County (MDC) Contract Documents. Contractors are required to assure that all employees, subcontractors, and their suppliers / vendors, while on the work site and in the conduct of MDC contractors, comply with the provisions of the CSM and the minimum standards set forth under the William-Steiger Occupational Safety and Health Act of 1970 and as amended, the Construction and General Industry Standards (29CFR1926/1910), and all other applicable Federal, State and Local laws. The Contractors are expected to be familiar with the contents applicable to their operations. The provisions set forth in this CSM will be strictly enforced. Non-compliance with the CSM will be treated the same as non-compliance with any contract provision. Willful or repeated noncompliance shall result in the suspension of part or all work.

Safety at the work site shall be the sole responsibility of the Contractor. The CSM shall be used as a guide in developing the Contractor's Accident Prevention Program. The Contractor shall assume full responsibility for compliance with all applicable Federal, State and Local safety related regulations and for complying with this Construction Safety Manual during the performance of all activities.

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A. DEFINITIONS

The following definitions apply for the purpose of this Construction Safety Manual.

ACCIDENT – An unforeseen event or occurrence which causes death, injury or damage to property.

ACCIDENT PREVENTION PROGRAM (APP) - A program designed to provide for the protection to life and health of employees and other persons; and for the prevention of damage to property, materials, supplies and equipment. The Contractor's APP shall be developed by the Contractor using the Contractor's Safety Manual as a guide. Once approved by MDC, the Contractor's APP shall be used by the Contractor and his subcontractors to insure the safe prosecution of the work.

ALARM CONDITION - Any abnormal condition that requires the attention or intervention of responsible personnel or an individual monitoring the transit system operations.

ANOMALY - Deviation from nominal performance, which does not cause a significant, effect on system performance but does warrant investigation and/ or repair.

AUDIT - Formal or official examination and verification.

AUTOMATIC - A term applied to a system, subsystem, or device which has the inherent capability to function without direct manual participation.

CENTRAL CONTROL - That place where train control or train supervision is accomplished for the entire Metrorail and Metromover system, the train command center.

CENTRAL DISPATCH - That place where bus, rail or mover supervision or dispatcher is accomplished for the entire transit system.

COMPETENT PERSON – A person who is capable of identifying existing or predicting hazards in the surroundings, or working conditions which are unsanitary, hazardous or dangerous to employees and who has authorization to take prompt corrective measures to eliminate them.

CONSTRUCTION SAFETY - The optimum degree of safety within the constraints of construction effectiveness, time and cost through specific application of safety management throughout all phases of the construction.

CONSTRUCTION SAFETY MANUAL (CSM) - This manual, issued as a contract document by the Miami-Dade Transit (MDT), to be used as a guide by the Contractors in developing the Accident Prevention Program.

CONTRACTOR'S AUTHORIZED SAFETY REPRESENTATIVE - The person designated as authorized safety representative who will be responsible for work site safety and for reporting all insurance claims. On contracts of over \$5 million in award amount this person shall have full-time safety responsibility, unless deemed by the Office of Safety and Security that due to the nature of the work, part-time oversight is adequate. On contracts of under \$5 million award amount, the person may have part time safety responsibility, unless deemed by the Office of Safety and Security that the nature of the work necessitates full-time safety oversight. Whether part-time or full-time, this person shall NOT report to the Contractor's superintendent.

CONTRACT DRAWINGS - The plans, profiles, typical cross-sections, general cross-section, elevations, schedules and details which show locations, character and dimensions of the work.

CONTRACTING OFFICER - The Director, Miami-Dade Transit.

CONTRACTOR - The individual, firm, partnership, corporation, or combination thereof, private, municipal, or public, including joint ventures which, as an independent contractor, has entered into a contract with MDC, who is referred to throughout the Contract Documents by singular in number and masculine in gender.

DEGRADATION - Falling from an initial level to a lower level in quality or performance.

EMERGENCY - A situation which is life threatening or which can cause serious damage on or in the immediate vicinity of any transit facility, structure, bus or train.

EMPLOYEE - A person employed by the Contractor or Subcontractor.

ENGINEER - MDC or its authorized representatives, including but not limited to the Resident Engineer; the Contracting Officer's Representatives and the Engineer of Record.

EQUIPMENT FAILURE - The state in which equipment no longer meets the minimum acceptable specified performance and cannot be restored through operator adjustment or control.

FTA - Federal Transit Administration, formerly UMTA.

FAILURE - An inability to perform an intended function.

HAZARD - Any real or potential condition that can cause injury or death; or damage to or loss of equipment or property.

HAZARD MANAGEMENT (LOSS CONTROL) - An element of the system safety management function that evaluates the safety effects of potential hazards considering acceptance, control, or elimination of such hazards with respect to expenditure or

resources. (The feasibility of hazard elimination must be considered in light of financial, legal, and human considerations).

HAZARD SEVERITY - A qualitative measure of the worst potential consequences that could be caused by a specific hazard.

Category I - Catastrophic. May cause death, serious injury/illness or major system loss.

Category II - Critical. May cause injury/illness, or major system damage.

Category III - Marginal. May cause minor injury/illness, or minor system damage.

Category IV - Negligible. Will not result in injury/illness, or system damage.

HAZARD INDEX - A quantitative measure, combining the numerical probability of occurrence with a hazard severity.

HAZARD RESOLUTION - The analysis and subsequent actions taken to reduce, to the lowest level practical, the risk associated with an identified hazard.

HAZARD PROBABILITY - The probability that a hazard will occur during the planned life of the system. Hazard probability may be expressed in quantitative or qualitative terms. An example of a hazard probability ranking system is:

- A Frequent
- B Probable
- C Occasional
- D Remote
- E Improbable

IMMINENT DANGER - Refers to any condition or practice where there is reasonable certainty that a danger exists that can be expected to cause death or serious physical harm and/or serious property damage immediately or before the danger can be eliminated through normal enforcement procedures.

INCIDENT - An unforeseen event or occurrence which does not necessarily result in injury or property damage.

MAINTENANCE - All actions necessary for retaining an item in or restoring it to an operable condition.

MALFUNCTION - Any anomaly or failure wherein the system, subsystem, or component fails to function as intended.

MDC - Miami-Dade County - the Board of County Commissioners of Dade County, Florida, a political subdivision of the State of Florida, and MDT, and office under the

County Manager of Miami-Dade County, Created March 1, 1974, by Administrative Order No. 3-8, under the authority of Sections 4.01 and 4.02 of the Miami-Dade County Charter – and any authority, board, body, commission, official or officials to which or to whom the powers now belonging to MDT in respect to the location, construction, equipment, maintenance and operation of transit facilities shall, by virtue of any act or acts, hereinafter pass or appertain.

MDT - Miami-Dade Transit, Miami-Dade County, located at 111 NW 1st Street, Suite 910, Miami, Florida 33128.

MISHAP - An unplanned event or series of events that result in death, injury, occupational illness, or damage to or loss of equipment or property. (See also ACCIDENT).

OFFICE OF SAFETY AND SECURITY (OSS) - Miami-Dade Transit, Miami-Dade County, located at 111 NW 1st Street, 4th Floor, Miami, Florida 33128.

OPERATOR - That person having direct and immediate control of the movement of a vehicle or machinery.

OPERATING TIME - The time period between turn-on and turn-off of a system, subsystem, component or part during which time operation is as specified. Total operating time is the summation of all operating time periods.

OSHA - The Occupational Safety and Health Administration. An agency of the U.S. Government which sets standards to provide for the safety of employees in the workplace. The area office is located in Ft. Lauderdale, Florida, phone (305) 424-0242.

PERSONAL PROTECTIVE EQUIPMENT (PPE) - Equipment designed and worn to provide protection against hazard to some part of an employee's body. Example of PPE are safety glasses, respirators, hard hats, gloves etc. All PPE used at MDT work sites must comply with applicable OSHA standards.

POWER RAIL - A rail mounted on insulators alongside the running surfaces, which provides Metromover traction power for train propulsion.

PROCEDURES - Established methods to perform a series of tasks.

RELIABILITY - The probability that the system or subsystem will perform satisfactorily for a given period of time when used under stated conditions.

REPAIR - The maintenance activity, which restores a failed item to operable state.

RISK - An expression of possible loss over a specific period of time or number of operational cycles. It may be indicated in terms of hazard severity and probability.

RISK MANAGEMENT - The Risk Management Division, Miami-Dade County, General Services Administration, located at 111 NW 1st Street, Suite 2340, Miami, Florida 33128; phone 305-375-4280.

RULE - A law or order authoritatively governing conduct or action.

SAFE - Secure from danger or loss.

SAFETY - A reasonable degree of freedom from those conditions that can cause injury or death to personnel; damage to or loss of equipment or property; and freedom from danger.

SAFETY CHECKLIST - A list for examining the safety aspect of equipment, procedures and personnel.

SAFETY DEVICES - Protective devices, which do not alter the fundamental nature of a hazard but which, do control the extent of the hazard in some manner.

SAFETY CRITICAL - A designation placed on a system, subsystem, element component device, or function denoting that satisfactory operation of such is mandatory to assurance of patron, personnel, equipment, or facility safety. Such a designation dictates incorporation of special safety design features.

SAFETY MANAGEMENT - An element of management that establishes safety programs requirements and ensures the planning, implementation and accomplishment of task and activities to achieve work place safety.

SAFETY PROGRAM - The combined task and activities of safety management and safety engineering that enhance operational effectiveness by satisfying the safety requirements in a timely, cost-effective manner throughout all phases of the work.

SAFETY SUBCONTRACTOR - A subcontractor who satisfies the Florida Department of Labor and Employment Security Industrial Safety and Health Program, Chapter 38F-44, and is duly approved by MDC.

SECURITY PROGRAM PLAN (SPP) - A program designed to provide guidelines to implement security procedures and describe the contractors' commitments and specific actions proposed to provide a secure project site. The Contractor's SPP shall be developed by the Contractor using the Contractor's Safety Manual as a guide. Once approved by MDC, the Contractor's SPP shall be used by the Contractor and his subcontractors to insure the safe prosecution of the work.

SERVICE CONTRACTS/CONTRACTOR - Those operations that are providing any services, or repair, replacement or maintenance functions that are indigenous to the construction process on the work site.

STATE - The State of Florida.

SUBCONTRACTOR - Any person, firm or corporation, other than the employees of the Contractor, who contracts with the Contractor to furnish labor and/or materials under this Contract. The contractor shall be responsible for ensuring that their subcontractors comply with this manual.

SUPPLIER/VENDOR - Those entities whose sole responsibility to the project is the delivery of goods or materials, exclusive of direct labor.

SYSTEM – A composite of people, procedures and equipment operating in a specific environment to accomplish a specific mission or task.

THIRD RAIL - A rail mounted on insulators alongside the running rail which provides Metrorail traction power for train propulsion.

TRANSIT SYSTEM – A transportation system comprised of fleets of motor buses and electrically propelled transit vehicles and all of their operational/support personnel and systems (e.g. maintenance facilities, tracks, structures, etc.) utilized for the mass movement of passengers within a metropolitan area.

UNUSUAL OCCURRENCE – An unforeseen event or incident which does not necessarily result in injury or property damage.

UNSAFE CONDITIONS – Any condition which if not corrected will endanger human life or property.

WARNING DEVICES – Sensors that monitor or detect conditions and provide visible and/or audible alerting signals as desired for selected events.

WORK SITE - The area enclosed by the limit of work indicated in the Contract Documents and boundaries of local streets and public easements in which the Contractor is to perform the work under the Contract. It shall also include areas obtained by the Contractor for use in connection with the Contractor, when contiguous to the limit of work.

B. CONTRACTOR'S ACCIDENT PREVENTION PROGRAM (APP) & SECURITY PROGRAM (SPP) PLANS

1) OBJECTIVES OF THE ACCIDENT PREVENTION PROGRAM

- to achieve an injury-free experience for the Project.
- to achieve maximum property conservation.
- to reduce direct and indirect costs.

Accomplishing the above objectives will provide for:

- a) A greater efficiency as a result of a safer working environment.
- b) A reduction of the construction work interruptions which develop when unsafe environments are created and when accidents occur.

2) METHODS OF ATTAINING OBJECTIVES:

Effectiveness of the Accident Prevention Program depends on the comprehensive participation and cooperation extended by all participants in support of the basic requirements listed below.

The Contractor's Authorized Safety Representative shall be informed immediately of any recognized hazards or potential hazards, related to health & safety, which may impact on the effectiveness of the Project's Accident Prevention Program that cannot be handled promptly as set forth herein, and report such to the Engineer.

The major accident prevention requirements are:

- a) Initiation and maintenance of programs, plans, training, etc. as necessary to comply with the requirements of this manual, and applicable Federal, State and Local standards.
- b) Allocating manpower, as required, for professional safety personnel assistance.
- c) Planning and coordinating all work to avoid personnel injury, property damage and loss of productive time.
- d) Establishing and maintaining a system for prompt detection, reporting, and correction or control of unsafe practices and unsafe conditions.
- e) Assuring the availability, and enforcing the use of appropriate personal protective equipment.

- f) Establishing and maintaining an effective and comprehensive system of tools and equipment inspection and maintenance including records required by applicable regulations or internal directives. The tool and equipment inspection and maintenance program shall include all employee-owned items brought onto the work site.
- g) Establishing and supporting an educational and job skill-training program designed to foster and maintain accident prevention knowledge and cooperation at all levels of employment by:
 - 1. providing for new employee's orientations.
 - 2. conducting targeted subject safety meetings.
 - 3. posting adequate safety and health requirements for all operations.
 - 4. maintaining a list of adequately trained and licensed employees authorized to operate specific equipment.
 - 5. maintaining a list of the trained and certified crane operators.
 - 6. maintain a list of employees who have been certified in accordance with Florida Department of Transportation to perform flagging operations and placement of traffic signs or devices (cones, barricades, warning signs, etc.).
 - 7. maintain a list of "Competent Person" employees who satisfy OSHA standard requirements to perform specific functions under the OSHA standards. A partial list of standards that require a competent person is included in appendix G of this CSM.
 - 8. investigating all accidents to determine causes (s) and taking prompt, reasonable and prudent necessary action to eliminate or control responsible factors.
- h) Providing visitor control and hazard protection.
- i) Providing work site security.
- j) Establishment and maintenance of a first aid and/or medical facility.
- k) Controlling the safe placement of materials or equipment received, or used, consistent with the traffic control pattern established and progression of construction on the work site.

- l) Providing maintenance of traffic control plans and procedures consistent with the work to be performed in accordance with the Contract Documents.
- m) Providing work site fire prevention/protection in coordination with local authorities and applicable standards.
- n) Establishment and maintenance of an effective program in accordance with Federal, State and Local regulations for the storage, use, and disposal of hazardous substances.
- o) Conducting accident/incident investigations.

3) MDC AND THE ENGINEER:

- a) The Engineer will:
 - 1. Receive from the Contractor an Accident Prevention Program and Security Program Plan no later than 25 days after approval of Award Recommendation by the Board of County Commissioners and no less that 15 days before the projected date for notice to proceed of the Contract. The Contractor shall assume full responsibility for compliance with all applicable Federal, State and Local safety related regulations and for complying with this Construction Safety Manual during the performance of all work performed prior to the approval of the Contractor's Accident Prevention Program and Security Program Plan. (See definition of Accident Prevention and Security Program).
 - 2. verify that Contractor plans and executes the work in compliance with the stated objectives of the Accident Prevention Program, Security Program Plan and applicable regulations.
 - 3. authorize work site inspections by MDC representatives to monitor Contractor compliance with this manual.
 - 4. require prompt remedial action to correct substandard or illegal safety and/or health conditions reported or observed by MDC representatives.
 - 5. verify that the Contractor has adequate fire prevention/ protection equipment; contained in ready-operating status at all times.

6. verify that the Contractor has temporary lighting and power systems during the construction phase set up and utilized in such a manner as to reduce hazards to a minimum.
7. ascertain that trained first aid personnel are available and certified for their work.
8. verify that good housekeeping procedures are maintained at all times by the Contractor and subcontractors.
9. establish procedures for the reporting of all fire incidents or damages as stated herein.
10. instruct the Contractor to establish an identification program for all employees at the work site.
11. verify that the Contractor reports all accidents immediately, as required by this manual and State and Federal regulations.
12. instruct the Contractor that employee access to unauthorized or restricted areas on Metromover or Metrorail property requires that the Contractor provide prior notification to, and receive authorization from Central Control.
13. establish procedures for timely reporting/notification to OSS for accidents and injuries.

4) CONTRACTOR: The Contractor Shall:

- a) Submit in writing to the Engineer an Accident Prevention Program and Security Program Plan for approval no later than 25 days after approval of Award Recommendation by the Board of County Commissioners and no less than 15 days before the projected date for notice to proceed of the contract. Provide the name, qualifications, and a "24 hour" phone number of the Contractor's Authorized Safety Representative who shall devote his time to the work site as defined by the definitions section of this Construction Safety Manual. No work on the work site shall begin until MDC approves the Contractor's authorized safety representative. The Contractor shall assume full responsibility for compliance with all applicable Federal, State and local safety related regulations and for complying with this Construction Safety Manual during the performance of all work performed prior to the approval of the Contractor's Accident Prevention Program. (See definition of Accident Prevention and Security Program). For furnish and install equipment contracts (non-construction), the stated approval period will commence ten (10) days prior to the beginning of work on the work site.

- b) Substantiate in writing to the Engineer that the Contractor's Authorized Safety Representative possesses at least two years of construction safety experience, is a managerial supervisory capacity, related to the work contemplated under this Contract.
- c) Maintain responsibility for project safety on the work site for his own or subcontractor's employees at any time, under any circumstances.
- d) After approval of the Contractor's Authorized Safety Representative, the Contractor, his Authorized Safety Representative and the Engineer will be required to attend a meeting with the MDT staff. At that time, a formal presentation and discussion of the Accident Prevention Program will be conducted.
- e) Follow all of the requirements and procedures of the Accident Prevention Program.
- f) Promptly provide the Engineer with a detailed written submission of the safety and/or health hazards not consistent to his work at the work site and a detailed program to control all such hazards. Such program must be consistent with the Accident Prevention Program and conform in all respects to all legal and safety requirements, including those of OSHA and Federal, State, and Local regulations. All such programs must be approved by the Engineer prior to the commencement of this work.
- g) Require each new employee, before he starts work, to be oriented by his supervisor on the safety and health rules, procedures, and requirements established for the work task (s) to be performed and procedures to be adhered to. Tool-box safety meetings are not an acceptable substitute for new employee orientation. The name of the employee and orientation date shall be on record at the work site.
- h) Provide an overall traffic control plan for pedestrians, vehicular traffic and construction operations; and establish a general visitor control program.
- i) Set up and implement a program to protect persons and property in the event of emergencies.
- j) Complete supervisory investigation reports of all injuries.
- k) Require supervisory employees and subcontractors to attend monthly supervisor's safety meetings.
- l) Schedule weekly "tool-box" safety sessions to be held by the job foremen for all employees. A record including date, employee attendance, and subject covered shall be kept of these meetings for the duration of the Construction

Project. The Engineer shall be advised of the time and location of the scheduled meetings. (See Appendix B for suggested format). The meeting should be used to review safety and health rules and procedures, applicable Federal, State or Local standards, and to discuss any problems related to safety at the work site. This would include information as to storage, use and disposal of hazardous materials at the work site.

- m) Schedule and preside at safety meetings to be held monthly at which appropriate supervisory staff of the Contractor and subcontractors will be required to attend. The Engineer shall be advised of the time and location of the scheduled meetings.
- n) Take immediate action to correct unsafe practices and unsafe conditions.
- o) Report to the Engineer and observed conditions or violations of job safety regardless of weather they are within the observer's power or responsibility to correct.
- p) Assure that supervisory employees at all levels have a good working knowledge of applicable safety and health standards as they pertain to their areas of supervisory control and encourage all supervisory personnel and employees to improve their accident prevention awareness.
- q) Provide the establishment of first aid facilities for treatment of employees.
- r) Obtain a personal copy of the OSHA Construction Industry Standards 29CFR1926 and OSHA General Industry Standards 29CFR1910 to be available for the Contractor's reference as required by this manual. (The OSHA standards may be obtained free, or at a minimal cost, by contacting the OSHA area office, phone (305) 424-0242, in Ft. Lauderdale).
- s) Ensure that prior to accessing restricted areas on Metrorail or Metromover property; he has provided proper notifications to and received proper authorization from Central Control through the Engineer.
- t) Ensure that during all times that employees are at the work site, an acceptable and reliable means of communication with local emergency response personnel is available.
- u) In addition to complying with this manual, comply with all applicable safety & health governmental standards including the OSHA Construction Industry Standards 29CFR1926/1910, the Florida Right to Know Law, the Federal Hazard Communication Act, Florida Worker's Compensation Laws, etc. Maintain the necessary documentation, program, and/or training required by such standards.

- v) Ensure all of his subcontractors, and subcontractor's employees, comply with the requirements of this Manual and applicable Federal, State and Local regulations.
- w) Comply with the current edition of the Florida Building codes unless specifically exempt, in writing by the Engineer.

5) EMERGENCIES

For the purposes of the Accident Prevention Program, emergencies are classified as follows:

- a) A fire, or major hazardous material leak or spill, requiring the response of the local fire or environmental protection department.
- b) Unplanned collapse of equipment used in the course of construction.
- c) Unplanned collapse of a substantial part of any structure at the work site.
- d) Any serious accident involving an employee.
- e) Any serious accident involving a member of the public.
- f) Any other occurrence which would require immediate protection of life or property.

6) HOW TO REPORT AN ACCIDENT TO THE MDT ENGINEER:

- a) The Contractor and all other participants in the Program shall instruct their employees and all other concerned personnel in how to report an accident which must include, at a minimum, the following procedures:
 1. Report the matter immediately to the supervisor who shall arrange for first aid or other required emergency medical treatment.
 2. In the event of serious injury or a death, in the absence of emergency first aid facilities on the work site, the supervisor of the injured employee is to arrange for necessary treatment. There shall be full compliance with all requirements of the Contractor's insurance carrier(s) with regard to accident reporting.
 3. The emergency phone number is: **911**

4. In case of a death, or if five or more employees are seriously injured in the same accident, the Contractor's Authorized Safety Representative shall, not later than 24 hours after the occurrence report the same to:
 - a. Office of the Area OSHA Director (305) 424-0242.
 - b. State of Florida, Bureau of Industrial Safety and Health (305) 377-5373.
5. The employer of any injured employee shall be required to complete the Notice of Injury Form, as required by State of Florida Worker's Compensation Division. (See appendix A).
6. The employer of any injured employee shall be required to record all work related injuries on Form 301 (or equivalent), Form 300 and complete/post the summary (Form 300A) at the beginning of the calendar year as required by OSHA 29CFR1904. (See appendix A).
7. The supervisor of the injured employee shall be responsible to immediately report the injury to the Engineer, to fill out the Supervisor's Report of Accident (Appendix A), and make it and the notice of Injury report available to the Engineer.
8. All participants in this Accident Prevention Program shall cooperate fully in the investigation of any accident and/or occurrence.
 - b) The contractors and other participants in the Accident Prevention Program shall instruct employees and all other concerned personnel of the following procedures if there is loss or damage to property of others, including damage to equipment or tools being used at the work site.
 1. Promptly report the loss or damage to the office of the Contractor's Authorized Safety Representative.
 2. In the event of a substantial loss or damage to the property of others, the Contractor is to immediately notify the Contractor's Authorized Safety Representative and the Engineer.
 3. There shall be full compliance with all requirements of the Contractor's insurance carrier (s) with regard to property loss and damages.

MDT SECURITY REQUIREMENTS

All Contractors are required to submit for review and approval a Security Program Plan (SPP), as defined in this Manual. This SPP shall provide guidelines to implement security procedures and describe the contractors' commitments and specific actions proposed to provide a secure project site. The Security Program Plan shall include, at a minimum:

- ✓ Procedures for inspecting perimeter security;
- ✓ Procedures for restricting who may visit the project site;
- ✓ Procedure for performing background checks;
- ✓ Procedure for overseeing security with respect to deliveries and other short-term visitors;
- ✓ Procedure for identification badges;
- ✓ Procedure for conducting periodic security meetings;
- ✓ Procedures for monitoring world-wide security threats and national security warnings and alerts;
- ✓ Emergency security procedures;
- ✓ Procedures for preparing, issuing and reporting security incidents.

MDT Contractor Identification Badges

All MDT contractors are to present identification along with documentation showing reason for visit. Following are the identification badge requirements for contractors.

1. Contractor's must be in possession of a photo identification card issued by MDT noting them as contractor's OR must be provided a VISITOR's BADGE upon the surrender of an approved government-issued photo identification.
2. All contractors under permanent, full-time assignment to MDT are required to display their MDT photo contractor identification. The identification is issued by the MDT Office of Safety and Security. A supervisory employee must be present with the contract employee for them to be issued identification.
3. All MDT employees who are involved in any way with contractor employees are to ensure that these security requirements are provided to those employees. MDT employees are to also assist contractors in meeting those requirements.
4. Contractor's requiring access to critical areas **MUST BE ACCOMPANIED BY AN MDT EMPLOYEE WITH AUTHORIZED ACCESS TO THAT AREA AT ALL TIMES. AT NO TIME MAY A CONTRACTOR BE LEFT UNSUPERVISED IN ANY CRITICAL OR SENSITIVE AREA.** These areas include, but are not limited to: bus and mover central control, bus dispatch, William Lehman Yard Tower,

traction power substations, switchgear rooms, train control rooms, electrical rooms, telephone rooms, computer server rooms, video monitoring areas, and communications rooms.

Visitor's to MDT Facilities

1. All visitors will be logged in before entering the premises.
2. Employees shall not allow any unauthorized persons to enter any MDT facility, including yard gates, buildings and other secure entrances. As necessary, MDT employees may direct visitor's to the security desk or, as necessary, request intervention by security personnel.
3. The employee entering the area is to ensure that each secured door is closed behind them and that no one else enters.
4. Any visitor who comes to our facilities for food delivery or any other personal type delivery will be met at the facility entrance by the employee who ordered the delivery. The delivery person shall not be allowed into the facility under any circumstances.
5. In instances where remote entry buttons are used at secure facilities, the entry button is not be used unless there is direct observation of the person entering. Direct observation includes visual observation and observation of closed circuit television monitors only.

All appropriate MDT field staff will be familiar with each contractor's approved Security Program and will comply with specific requirements of the plan when carrying out their assigned tasks. The contractors have the primary responsibility for developing and implementing the program; however, the Engineer will monitor the contractors' compliance with each contractor's security program.

C. GENERAL SAFETY AND HEALTH PROVISIONS

- 1) The Contractor shall ensure employees do not work under conditions, which are unsanitary, hazardous, or dangerous to their health or safety.
- 2) The Contractor shall initiate and maintain such programs as may be necessary to comply with this manual, and all applicable government regulations.
- 3) Such programs shall provide for the frequent and regular inspections of the job sites, materials, and equipment to be made by competent persons designated by the Contractors; and shall include a program for the

performance of work, to promote its orderly and expeditious progress and ensure its safe completion within the prescribed time.

- 4) The use of any machinery, tool, material or equipment not in good working order, or which has had a safety feature removed or tampered with, is prohibited. Such machine, tool, material or equipment shall either be identified as unsafe by tagging or locking the controls to render them inoperable or shall be physically removed from the work site.
- 5) The Contractors shall permit only those employees qualified by training or experience to operate equipment and machinery. Applicable laws requiring employee to have a current license or certification (i.e., Class A Commercial Drivers License, etc.) to operate equipment are to be complied with.
- 6) The Contractor shall be solely responsible for the performance of the work in a manner, which will not create safety hazards, objectionable noise or other nuisance to the public.
- 7) Employees of the Contractor or subcontractors who are found to be intoxicated or appear to be under the influence of alcohol or drugs (other than as prescribed by a doctor) while on the work site shall be removed from the work site by the Contractor for the duration of the Contract. Employees who are found to be in possession of alcohol or drugs (other than as prescribed by a doctor) at the work site shall be removed from the work site by the Contractor for the duration of the Contract. An employee who is under a doctor's care and taking prescription drugs should inform his supervisor of same to determine if restrictions should be imposed.
- 8) Prior to the start of, and during the course of, any work, above or below ground level, the Contractor shall make a thorough survey of the entire work site to determine the type and locations of all utilities or other lines on the work site. The Contractors must verify this information by notifying the Underground Utilities Notification Center at 1-800-432-4770, other utilities not members of the Underground Utilities Notification Center, and notify the Engineer.
- 9) The Contractor shall instruct employees as to any precautions and procedures to be followed while working in the proximity of any utility or power line.
- 10) The Contractor shall develop and have readily available at the work site an emergency plan with the locations of any utility or line shut-offs or disconnects so that if any emergency arises, immediate action may be taken.
- 11) The Contractor will be required to identify and provide a notification procedure for all contingencies where cutting off a utility could adversely

affect any operation or render inoperative any protective apparatus in the surrounding area.

- 12) All structural repairs, alterations or reconstruction of any equipment used on the work site shall be certified in accordance with all applicable laws and regulations.
- 13) Portable toilets shall be chemical type or equal and shall be located convenient to work crews and maintained in proper sanitary conditions at all times.
- 14) Construction operations will normally be confined to those hours between dawn and dusk. Any work done other than during daylight hours must be approved by the Engineer. In requesting approval during other than daylight hours, the Contractor must present a written statement outlining the special precautions to be taken to control the extraordinary hazards presented by night work. This program shall include, but not limited to such items as supplementary lighting of work areas, illuminated barricades, proper supervision, availability of medical facilities, and security precautions.
- 15) Emergency lighting facilities, (i.e. battery operated or equivalent) shall be required in all construction areas where normal light failures would cause employees to be subjected to hazardous conditions. Such systems shall be maintained monthly.
- 16) Employees required to enter into confined or enclosed spaces shall be instructed as to the nature of the hazards involved, the precautions to take, and the use of protective and emergency equipment. The Contractor shall comply with all regulations applicable for working in dangerous or potentially dangerous areas.
- 17) The use of torpedo or salamander type heaters are prohibited.
- 18) No open burning of any kind shall be permitted without permits from appropriate local authorities and the Engineer.
- 19) Flammable storage cabinets shall be labeled in conspicuous lettering "Flammable – Keep Fire Away" and "No Smoking".

D. MEDICAL SERVICES AND FIRST AID

- 1) At least one person who has valid certificates in first-aid training from either the U.S. Bureau of Mines, the American Red Cross, or equivalent training that can be verified by documentary evidence, shall be available at the work site to render first-aid. Further, a minimum ratio of one such qualified person to 50 employees shall be maintained throughout the course of the

construction. A suitable emblem shall be affixed to the qualified person's hard hat, or other suitable means of identification shall be used.

- 2) First-aid supplies, approved by a physician licensed to practice in the State of Florida, shall be accessible for immediate use. One 16-unit first-aid kit (or equivalent) shall be provided for each 50 persons or fraction thereof.
- 3) First-aid kit (s) shall be provided in a weatherproof container with individual sealed packages for each type item. The kits shall be checked by the Contractor before being sent out on each job and at least weekly on each job to ensure that the expanded items are replaced.
- 4) A telephone shall be made available at the site before construction begins. Telephone numbers and locations of emergency facilities including emergency hospitals, physicians, ambulance service, police and fire department, as well as the complete street address of the work site, shall be posted in conspicuous locations at the work site, and at all telephone locations. The communication system for contacting necessary ambulance service or other emergency response personnel shall be operable at all times personnel are on the work site.
- 5) The location and number of approved stretchers provided for each contract shall be submitted to MDC for approval immediately after work commences on site. They will be maintained, properly protected and easily accessible at all times.
- 6) The Contractors, his supervisors and foreman, shall assure that any of his employees who suffers a job-related injury shall receive first aid and medical attention consistent with and as required by law.
- 7) The Contractor's first aid facility shall maintain a daily log of all injuries, both first aid and doctor cases. The log shall contain information to reflect the date, name of employee, employer, craft, supervisor, type of injury, how accident happened, time, disposition of patient and name of attendant.
- 8) The Contractor shall ensure that all OSHA and State of Florida record-keeping and reporting requirements are met.

E. DRINKING WATER

- 1) An adequate supply of potable water shall be provided in all places of employment.
- 2) Portable water containers shall be capable of being tightly closed and be equipped with a tap.

- 3) A common drinking cup is prohibited. Disposable cups shall be furnished.
- 4) Unused disposable cups shall be kept in a sanitary container, and a receptacle shall be provided for used cups.
- 5) All containers utilized for potable water shall be labeled as "Potable/Drinking Water Only".

F. PERSONAL PROTECTIVE AND LIFE SAVING EQUIPMENT

1) GENERAL

- a) The Contractor is responsible for requiring and enforcing the wearing of appropriate personal protective equipment in all operations where there is an exposure to hazardous conditions.
- b) The Contractors is to comply with all OSHA regulations (29CFR1926 Subpart E) regarding personal protection devices and life saving equipment.
- c) All persons on the Work Site shall utilize the proper foot protection which meets ANSI Z41 (toe), Z41.2 (metatarsal) and Z41.4 (electrical) standards.
- d) All persons on the Work Site shall utilize hand and body protection which meets ANSI/ISEA 105 and ASTM F23 standards.

2) HEAD PROTECTION

- a) All persons on the Work Site shall be protected by NON-METALLIC protective helmets, which meet ANSI Z89.2 standards. Helmets for the protection of employees against impact and penetration of falling and flying objects shall meet the specifications contained in ANSI Z89.1 Safety Requirements for Industrial Head Protection. Bump caps are not acceptable.
- b) All Work Sites shall have posted approved signs alerting all persons that hard hats are required on the site. The use of hard hats at the Work Site will be strictly enforced.

3) RESPIRATORY PROTECTION

- a) Whenever feasible administrative and/or engineering controls fail or are inadequate to prevent harmful exposures to employees; the Contractor shall

provide and require the use of appropriate respiratory protective devices in accordance with OSHA, 29 CFR 1910.134.

- b) Respiratory protective devices must be approved by the U.S. Bureau of Mines or acceptable to the U.S. Department of Labor for the specific contaminant to which the employee is exposed.
- c) Employers must have a written respiratory protection program as defined in 29 CFR 1910.134.
- d) Employees required to use respiratory protective equipment must be trained in the use and limitations of such equipment, fit tested annually and medically approved to wear respiratory protection as required by 29 CFR 1910.134.
- e) Respiratory protective equipment shall be inspected regularly and maintained in good condition. Defective or worn parts shall be replaced.

4) HEARING PROTECTION

- a) Feasible engineering or administrative controls shall be utilized to protect employees against sound levels in excess of those shown in the table below.
- b) When engineering or administrative controls fail to reduce sound levels within the limits of the Table below, protective hearing devices in accordance with OSHA (29CFR1926.101) shall be provided and used.
- c) Exposure to impulsive or impact noise should not exceed 140-db peak sound pressure level.
- d) In all cases, where the sound levels exceed the values shown in the Table below, a continuing, effective hearing conservation program shall be administered.
- e) PERMISSIBLE NOISE EXPOSURE TABLE (Source: OSHA, 29CFR1926.52)

<u>Duration per day, hours</u>	<u>Sound level dBA slow response</u>
8	90
6	92
4	95
3	97
2	100
1 -1/2	102

<u>Duration per day, hours</u>	<u>Sound level dBA slow response</u>
1	105
1 / 2	110
1 / 4 or less	115

- f) Plain cotton is not an acceptable protective device. Hearing protection shall be used only when it meets OSHA requirements and is suitable to correct the exposure.

5. EYE AND FACE PROTECTION

- a) Eye and face protection shall be provided and worn when machines or operations present potential eye or face injury.
- b) Eye and face protective equipment shall meet the requirements of ANSI Z87.1 – 2003, "Occupational and Educational Eye and Face Protection".
- c) Employees involved in welding operations shall be furnished with a welding helmet with minimum grade 10 shade filter lens for shielded arc welding or cutting. Welding goggles with a minimum grade 4 shade filter lens may be worn only for oxyacetylene gas welding or burning.
- d) Employees exposed to laser beams must be furnished suitable laser safety goggles, which will protect for the specific wavelength of the laser and be of optical density (0.0) adequate for the energy involved.

6. SAFETY NETS

- a) Safety nets shall be provided when workplace are over roads, guideways, or more than 25 feet above other surfaces where the use of ladders, scaffold catch platforms, temporary floors, safety lines, or safety belts is impractical. Safety net systems shall conform to OSHA 29 CFR 1926 502.
- b) Where nets are required, operations shall not be undertaken until the net is in place and has been tested & inspected by the Resident Engineer.

7. SAFETY BELTS, LIFELINES AND OTHER PERSONAL FALL ARREST SYSTEMS

- a) Approved personal fall arrest systems (in accordance with OSHA; 29 CFR 1926.104 and 29 CFR 1926.502) shall be worn by those employees whose

work exposes them to falling from the perimeter of a structure or through shaftways and openings. Protection must also be provided for employees who are exposed to the hazard of falling into/onto dangerous equipment,

- b) Employers must provide a training program for employees who might be exposed to fall hazards. The training shall include how to recognize such hazards and how the employees can minimize their exposure to such hazards. The training shall, at a minimum, comply with 29 CFR 1926.503. Re-training or refresher training must also be provided when necessary. Records of such training must be available for inspection by MDT.

8. WORKING OVER OR NEAR WATER

- a) Employees shall be provided with a U.S Coast Guard approved life jacket or buoyant work vest.
- b) Prior to and after each use, the buoyant work vest or life jacket shall be inspected for defects which would alter their strength or buoyancy. Defective units shall not be used and be removed from the job site.
- c) Ring buoys with at least 90 feet of line shall be provided and available for emergency rescue operations. Distance between ring buoys shall not exceed 200 feet.
- d) At least one lifesaving skiff shall be immediately available at locations where employees are working over or adjacent to water.

G. SIGNS, SIGNALS, BARRICADES AND TRAFFIC CONTROL

- 1) All traffic signs or devices used for protection of construction workmen or the public shall conform to the State of Florida Department of Transportation's "Roadway and Traffic Design Standards" and applicable permit(s) conditions. All work areas on or around highways, roads and streets shall follow approved maintenance of traffic plans.
- 2) Barricades, cones and/or similar protective devices shall be used whenever men or equipment are exposed to traffic or similar hazards.
- 3) When traffic lanes are closed due to work activity, advance warning signals and high level warning devices shall be used as described in the State of Florida Department of Transportation's "Roadway and Traffic Design Standards" and applicable permit(s) conditions. All work areas on or around highways, roads and streets shall follow approved maintenance of traffic plans.

- 4) Flagmen and signalmen will be properly trained, certified, wear high-visibility clothing (as required by F-DOT FTDS600) and use appropriate procedures following the current F-DOT manual. Where flaggers are used, a flagger symbol or legend sign must also be used.
- 5) All employees within 15 feet of the edge of the travelway and/or where employees are exposed to roadway traffic shall be required to wear a high visibility vest/garment, per F-DOT manual.
- 6) Whenever and wherever possible and necessary, line voltage (12 volt) protected lights shall be used to mark fences and barricades and other such encroachments onto public streets or sidewalks. Warning lights shall be in accordance with F-DOT RTDS 600.
- 7) Where covered sidewalks are required they shall be provided with permanent lights to provide sufficient illumination for safe use by the public day or night. All bulbs shall be cage-protected.
- 8) Public walkways shall be kept clean and free of hazards at all times. When an existing pedestrian way or bicycle way is located within a traffic control work zone, accommodations must be maintained and include provisions for the disabled. Only approved temporary traffic control devices may be used to delineate a temporary traffic control zone for pedestrian and bicycle ways. Advanced notification of sidewalk closures and detours shall be provided by appropriate signs.
- 9) Where the Contractor is required to provide public walkway, they shall have abrasive, non-slip surface.
- 10) Where access to bus stop is disturbed or obstructed by the Contractors operations, safe access will be maintained or the bus stop relocated as directed by the Engineer. Coordination for maintaining or relocating bus stops with the appropriate agencies is the sole responsibility of the Contractors.
- 11) When steel plates or similar covers are used on public ways to cover excavations they shall be substantially secured to prevent movement imposed by traffic. Covers shall have non-slip surface, conforming to OSHA Specifications.
- 12) When such covers are located where there is pedestrian exposure, they shall be tapered at all sides with cut-back cold mix or similar material to eliminate tripping hazards. Covers shall have non-slip surface.
- 13) Free access shall be maintained to every fire extinguisher, fire hydrant, fire alarm box, fire escape and standpipe connection, street and traffic light control box. When required, hydrants shall be extended by suitable tube or piping to an

accessible point as approved by the Engineer. No obstructions shall be allowed at any time within 15 feet of a fire hydrant. Where materials are placed in the vicinity of a fire hydrant or a fire alarm box or fire extinguisher, and to such a height as to prevent the same from being readily seen, the position of such hydrant or fire alarm box or fire extinguisher shall be indicated by suitable signals, both day and night.

- 14) The Contractor shall erect and maintain fences and barricades to enclose the Contractor's work area, and provide watchmen where required to prevent unauthorized access.
- 15) No work shall be allowed above or below an active traffic lane. Contractor shall establish a work zone including appropriate lane closures following F-DOT RTDS 600 series.

H. MATERIAL HANDLING – (STORAGE, USE AND DISPOSAL)

- 1) All materials stored in tiers shall be secured to prevent sliding, falling or collapse.
- 2) Reinforcing steel shall not be used as a lifting ("Pick") point on any load nor as a guy line anchor.
- 3) Hooks, except special sliding choker hooks shall be securely moused when in use, or shall be provided with a functioning safety latch.
- 4) Scrap material of any kind, type or nature shall be placed daily into appropriate containers specifically supplied for this purpose. Containers shall be removed from the Work Site when full.
- 5) Loose material on open decks or other exposed locations shall be removed or secured at the end of each day to eliminate dislodgment by wind or other causes.
- 6) Compatibility of stored materials and storage methods will comply with all applicable OSHA, Fire Department and environmental agency standards.
- 7) Employees required to handle, use or dispose of hazardous materials shall be instructed regarding the safe handling, proper procedures, potential hazards, personal hygiene, and personal protective equipment required.
- 8) Disposal of materials shall be in accordance with all applicable Federal, State and Local regulations. All applicable recordkeeping and reporting requirements will be met by the Contractors.

I. TOOLS – HAND AND POWER

1) General

- a) Keep the work area clear of clutter
- b) Keep the work area well lighted
- c) Maintain and keep tools sharpened, oiled and stored in a safe place
- d) Supervisors instruct employees on using equipment and safe work practices before using equipment
- e) Inspect tools, cords and accessories prior to use
- f) Repair or replace problem equipment immediately
- g) Use 3-prong electrical plugs, double insulated tools and safety switches
- h) Machine guards must be in place and not removed
- i) Do not wear loose clothing or jewelry when operating equipment
- j) Install and repair equipment only if you are qualified to do so
- k) Use the right tool for the job (i.e. do not use a pipe wrench as a hammer)
- l) Carry a sharp tool pointed downward or place it in a tool belt/box
- m) Protect sharp blades with a shield/sheath
- n) Store tools in draws or chests with cutting edge down
- o) Proper personal protective equipment shall be worn
- p) All power hand tools shall be equipped with a “dead man” control where the power is shut down when the operator releases the tool
- q) Never leave a running tool unattended
- r) Tools of a non-sparking material and/or intrinsically safe tools must be used if fire or explosion hazards exist
- s) All fuel operated tools shall be stopped and allowed to cool prior to being refueled, serviced, or maintained and proper ventilating used when used in enclosed spaces
- t) Power grinding machines shall have proper grounding. Work rests must be kept at a distance not to exceed 1/8” from the wheel surface
- u) Avoid repetitive motion, hold tools in a neutral position

2) “Lock on” buttons on all hand held power drills are prohibited.

3) Powder Actuated Tools

- a) High velocity tools are prohibited. Only low velocity piston drive tools are permitted.
- b) Only employees who have been trained in the operation of the particular tool in use shall be allowed to operate a power actuated tool. ANSI STANDARD A10.3-1970.
- c) Firing of the tools shall be dependent upon at least two separate and distinct operations of the operator, with the final firing movement being separate from the operation of bringing the tool into firing position. The tool shall be so

designed so as not to be operable other than when being held against a work surface with a force of at least five pounds greater than the total tool weight. Caution must be exercised to ascertain that the proper color coded charge, for the materials involved, is utilized.

- d) In case of misfire, the operator shall hold the tool in the operating position for at least 30 seconds. He shall then try to operate the tool a second time. He shall wait again 30 seconds, holding the tool in the operating position. Then he shall proceed to remove the explosive load in strict accordance with the manufacturer's instructions. Misfired cartridges shall be placed carefully in a metal container filled with water and returned to the supervisor for disposal.
- 4) Grinding wheels shall not be operated at speeds in excess of the manufacturer's RPM rating as labeled on the wheel.
 - 5) Face and eye protection or safety goggles shall be worn by all employees using grinding wheels, jackhammering, slag chipping, powder actuated tools or similar operations.
 - 6) Radial Saws
 - a) The upper hood shall completely enclose the upper portion of the blade down to a point that will include the end of the saw arbor. The slides of the lower exposed portion of the blade shall be guarded to the full diameter of the blade by a device that will automatically adjust itself to the thickness of the stock.
 - b) Radial saw for ripping shall be provided with non-kickback finger or dogs approved by the manufacturer.
 - c) The saw and table shall be designed to prevent the blade from traveling beyond front of table.
 - d) Installation shall be in such a manner so that the front end of the unit be slightly higher than the rear, so as to cause the cutting head to return gently to the starting position when released by the operator.
 - 7) Table saws shall be equipped with a functioning hood, guard, anti-kickback device and splitter.
 - 8) Only power saws specifically designed by the manufacturer for cutting concrete block, or similar materials, shall be used for this purpose.
 - 9) Cutting shall be done with water spray and the operator shall wear a face shield.

- 10) All hose couplings or any pneumatic or hydraulic equipment or tools shall be equipped with appropriate safety clips or retainers and shall be properly installed and maintained.
- 11) All appropriate machine and tool guarding devices shall be provided, shall be operational, and shall be use when the equipment is in operation.

J. WELDING AND CUTTING

- 1) Contractors shall instruct employees in the safe and proper use of cutting and welding equipment prior to using that equipment.
- 2) Oxygen and fuel gas pressure regulators, including their related gauges, shall be in proper working order while in use. Each regulator shall be provided with an anti-flashback device for protection against excessive oxygen back pressure in the fuel gas supply.
- 3) A minimum of one 10-pound all-purpose (ABC) dry chemical fire extinguisher shall be kept within 10 feet of any cutting or welding operation. The extinguisher shall be kept in a conspicuous place, free of any obstructions.
- 4) Proper personal protective equipment shall be worn while welding and cutting.
- 5) Welding screens shall be used in areas where prefabrication work is to be performed.
- 6) Oxygen and fuel gas regulators and hoses shall be maintained and in proper working order while in use.
- 7) All oxygen cylinders and fittings shall be kept free of grease and oil.
- 8) Do not weld without the approved goggles, hood and jacket/apron.
- 9) Always use approved gloves when welding.
- 10) Do not weld or burn in an area where fellow employees are working, without protective barriers, non-combustible flameproof screens/shields (blankets, covers, curtains etc.).
- 11) Do not weld where flammable or combustible material, such as waste, rags, paper, etc. can be ignited by the sparks or molten metal.
- 12) Do not weld in any location where open flame is not permitted.
- 13) Do not weld on a wooden bench or other structure that can burn.

- 14) Do not use leaky regulators, hose or other defective gas welding tools.
- 15) Do not use leaky gas cylinders.
- 16) Do not operate gas welding or cutting torches at pressure in excess of prescribed maximum.
- 17) Do not change or adjust pressure on regulators with torch valve closed.
- 18) Do not leave valves of gas cylinders open when not in use.
- 19) Do not leave valve key on gas cylinders when not in use.
- 20) Always remove all scale, rust, grease, protective surface coatings, oil and other foreign matter from metals before welding.
- 21) Always keep welding bench clear of dirt.
- 22) Always locate electric welding machine where it is protected from dirt, dust and harmful fumes.
- 23) Always see that the material being electrically welded is well grounded, and the ground connection from machine is tight.
- 24) Avoid fires on personal clothing from sparks or hot metal.
- 25) Always use protective clothing (welders legging, aprons, sleeves, jacket, etc.) when welding or burning.
- 26) Oxygen must not be used near flammable or combustible materials, such as grease, oil, etc., or any substance likely to cause fire.
- 27) Do not weld or cut in confined spaces without adequate ventilation.
- 28) Protect welding hose from being burned, trampled on or run over. Do not leave hose where it may be tripped over.
- 29) Valves on acetylene and oxygen tanks must be tightly closed when work is completed.
- 30) Carrying a lighted torch while climbing is forbidden.
- 31) Put rod stubs in a container. Stubs thrown on the floor become a slipping hazard.
- 32) Do not direct the flow of oxygen, from the torch, at clothing to remove dust, etc. This is a fire hazard.

- 33) Always have good ventilation when welding and gas cutting.
- 34) In the open air, when welding, cutting or heating metals having toxic substance(s), such as zinc, lead, cadmium, or chromebearing metals, approved respirator shall be used
- 35) When required have a certified fireguard while burning or welding. Fireguard must have a functional fire extinguisher present.
- 36) Use caution when removing eye protection. Hot slag may pop during cooling.
- 37) Remove manifold and replace protective caps on cylinders before storing welding unit (overnight, etc.).
- 38) Manifold hoses must be equipped with flash arrestors.

K. COMPRESSED GAS CYLINDERS

- 1) Valve protection caps shall be in place when compressed gas cylinders are transported, moved, or stored.
- 2) Cylinder valves shall be closed when work is finished and when cylinders are empty or are moved.
- 3) Compressed gas cylinders shall be secured in an upright position at all times, except when cylinders are actually being hoisted or carried.
- 4) Cylinders shall be kept at a safe distance or shielded from welding or cutting operations. Cylinders shall not be placed where they can contact an electrical circuit.
- 5) You are forbidden to lift or transport gas cylinders with hoisting equipment. Rough handling of loaded or empty gas cylinders is dangerous. Install protective caps onto cylinders before moving same. Transport cylinders on handcarts equipped with chains and secure the cylinder during movement. Do not accept cylinders, which do not have a protective cap.
- 6) Grease or oil on acetylene cylinders or oxygen cylinders is forbidden. It is extremely dangerous.
- 7) Avoid freezing acetylene cylinders.
- 8) Always remove leaky gas cylinders to open air, place them clear of flammable material or anything that might ignite them.

- 9) Always secure cylinders in an upright position. When a cylinder is empty, it must be marked "empty" and stored separately from full cylinders.
- 10) Protect cylinders from excessive heat. Do not store near steam pipes, furnaces, etc.
- 11) Oxygen cylinders should not be stored with acetylene or other highly combustible materials, including welding units. A minimum of 20 feet must be maintained from combustible and flammable gases.
- 12) All cylinders must be transported and stored with the protective cap securely in place. Never store cylinders with regulators/manifolds attached.
- 13) All cylinders must be clearly labeled as to content.

L. ELECTRICAL

- 1) Extension cords and temporary lighting electrical cords shall conform to the current edition of the National Electrical Code table 400.11. "Hard Usage" or "Extra Hard Usage", and shall be protected against all types of abrasion and damage.
- 2) All male plugs and female receptacle connections shall have cords physically interlocked to prevent accidental or unintentional separation and provide complete and positive continuity and grounding.
- 3) All power cords connected to panels of breaker boxes shall be connected using plugs. No direct wiring is permitted.
- 4) Temporary (extension) cords used to supply tools shall be limited to a maximum length of 200 feet, except that additional length may be used if supplemental positive equipment grounding is maintained within 200 feet of the tool or power use.
- 5) All portable power generators shall be grounded.
- 6) Ground-Fault Circuit Protection:
 - a) Ground-Fault Circuit interrupters will be installed on all 120 volts, single-phase, 15 and 20 ampere receptacles, on the Work Site.
 - b) An assured equipment grounding conductor program may be substituted for ground-fault circuit protectors, only after the following has been provided.

- c) Submit a written program, developed by a licensed electrician, including specific procedures adopted by the Contractor to the Engineer and MDC Risk Management.
- 7) All Work Site conditions will comply with requirements in OSHA 1926 Subpart K.
- 8) Before starting work on electrical equipment and lines, inspections and tests must be made to determine if they are alive or dead.
- 9) Use only tools or devices provided and see that they are in good condition.
- 10) Never touch two parts at different potentials or a single exposed live part at a dangerous potential to ground unless employee is insulated from other conducting surfaces, including ground.
- 11) Standing with hands behind back, with back toward generator or switchboard, is prohibited.
- 12) Employees working near live equipment and lines must protect themselves from tripping, slipping or falling, or from touching equipment or lines with body, tools or material.
- 13) Work on or about electrical circuit, apparatus or equipment only if qualified and with a thorough knowledge of its operating voltage and service, and then only when authorized by the immediate supervisor.
- 14) Do not use appliance, device, tool, flashlight, material or equipment that is not designed and approved for the maintenance and operation of the circuit on which it is to be used.
- 15) Insulation, weather proofing or covering on electrical wire, apparatus or equipment must not be depended upon for protection against shock.
- 16) Do not use bolt, rivet, cotter key or other object as a jumper in place of fuse.
- 17) Do not place clothing, lunch, tools, clothes hanger, or other unauthorized items in or about the power or control cabinet, switch box, battery box or on top of electrical apparatus.
- 18) Place "DO NOT OPERATE" warning tag on switch, set to de-energize line, apparatus or equipment. "Lock Out" procedures are preferred where feasible. At all times, when working on equipment that has the potential to cause harm or create a hazard, "Lockout/Tagout projection Televisions" procedure shall be followed. Lockout/Tagout procedure requires each employee to place a lock (if possible) or a safety tag on the energy source of any equipment that has the

potential to cause harm if the equipment is activated while it is being worked on. Refer to OSHA Standard 1910.147, "Control of Hazardous Energy".

- 19) Consider every circuit to be alive.
- 20) Use extreme care when using "snakes" in preparation of installing wire or cable. The coiled "snake" may fly loose and strike a person or electrified equipment.
- 21) Do not allow wet clothing, raincoats, etc., to come in contact with electrified equipment.
- 22) Do not lubricate electrical apparatus with power on.
- 23) Do not use water to put out electrical fires.
- 24) Do not change any wire or connections with power on.
- 25) Do not shift brushes in electrical motors with power on.
- 26) Do not leave the secondary of a current transformer open-circuited, or open up the secondary with power on.
- 27) Never wear ring(s) or jewelry on fingers on person when working near or handling electrical equipment.
- 28) Inspect all temporary cords and plug equipment for damage prior to use. Cords with damaged insulation, covers, plugs or missing grounding pins are not to be used.
- 29) Do not pass temporary cords through door openings or other areas where they are likely to be cut.
- 30) When temporary cords are used, care must be taken to ensure a trip hazard is not created.
- 31) Portable extension lights shall be visually inspected by employees using them. Lamp guards must be in place on all extension lamps.
- 32) Electrical plugs of portable extension cords, or cords attached to any electrical apparatus, shall be disconnected by grasping the plug and not by pulling the cord.

LADDERS AND SCAFFOLDS

- 1) Ladders:
 - a) The use of ladders with broken or missing rungs or steps, broken or split side rails, or with other faulty or defective construction is prohibited. When ladders with such defects are discovered, they shall immediately be withdrawn from service.
 - b) Portable ladders shall be placed on a substantial base at a 4-1 pitch, have cleat access at top and bottom, extend a minimum of 36 inches above the landing, and be secured against movement while in use.
 - c) Portable metal ladders shall not be used for electrical work or where they may contact electrical conductors.
 - d) Job-made ladders shall be constructed for this intended use. Cleats shall be inset into side rails $\frac{1}{2}$ inch, or filler blocks used. Cleats shall be uniformly spaced, 12 inches, top-to-top.
 - e) Wooden ladders must not be painted. Split or rotted conditions would not be easily seen and constitute a hazard.
 - f) The foot of a ladder shall be placed $\frac{1}{4}$ of its length away from vertical plane of its support and must be secured to prevent all possibility of slipping.
 - g) Before climbing ladders, see that your shoes are free and clean of slippery substances. Watch out for broken rungs.
 - h) Face the ladder while climbing either up or down.
 - i) Never place a ladder in front of an unlocked door.
 - j) Employees must not reach out from a ladder more than an arm's length.
 - k) Ladders must be inspected by employees using them daily. Defective ladders are to be marked and kept separate from serviceable equipment and must be repaired before using.
 - l) Do not "walk" a ladder while on it.
 - m) Do not jump from or slide down any portion of any kind of ladder.

- n) When getting off a ladder, make certain of secure footing and avoid stepping on loose stones, debris or into a depression before releasing handhold on the ladder.
 - o) A stepladder must be fully opened and spread properly before being used. Never stand on the top step of a stepladder.
 - p) When carrying tools or other objects up a ladder presents a hazard, they should be raised with a rope and bucket.
 - q) Two or more persons should raise, extend, shorten or move extension ladders. Never use the top section of an extension ladder as a single ladder, since it has no safety feet.
 - r) Always rope off the area directly beneath ladders.
 - s) Never leave extended ladders unattended. Remove ladders when there is a temporary stoppage of work.
- 2) Scaffolds:
- a) Platforms shall be tightly planked for the FULL width of the scaffold except for any necessary entrance opening. Platforms shall be secured in place, with proper guardrail and toe boards.
 - b) Workmen shall not be allowed to climb or stand in cross bracing, or scaffold bucks.
 - c) Adjustment screws on scaffold legs shall not be extended beyond the manufacturer's recommendations, or two-thirds of the threaded length, whichever is shorter.
 - d) Casters shall be properly designed for strength and dimensions to support four times the maximum intended load. All casters shall be provided with a positive locking device to hold the scaffold in position. Casters shall be provided with a positive means of attachment to the scaffold legs.
 - e) Scaffold support bearing shall not be comprised of concrete block or similar materials and footed securely on a solid, stable base.
 - f) Materials shall not be stored on scaffolds in excess of the supplies needed for the immediate operation.
 - g) The edges of scaffolds shall be protected with railings and toe boards.

- h) When using rollers for moveable scaffolds, lock or secure wheels.
- i) Do not use bent or twisted members on scaffolds.
- k) Always remove a scaffold as soon as there is no more need for it. A scaffold is a constant hazard.
- l) Always rope off the area directly beneath scaffolds.
- m) Use extreme caution and use approved fall protection equipment on elevated surfaces lacking side rail and/or approved guard.

FLOORS, WALL, OPENINGS AND STAIRWAYS

- 1) One-half inch mild plow steel cables or equivalent, or ¼ inch alloy steel chains may be used on bridge or guideway decks, open floor edges, and similar applications, in lieu of standard wooden top midrails. Such cables or chains shall be firmly anchored and kept taut. All connections or cables shall be looped and clamped. Standard toeboards shall be used in such instances.
- 2) Floor openings shall be guarded by a standard railing and toeboards or cover. In general, the railing shall be provided on all exposed sides, except at entrances to stairways. Temporary floor openings shall have standard railings.
- 3) Every open-sided floor or platform, six feet or more above adjacent floor or ground level, shall be guarded by a standard railing, or the equivalent, on all open sides except where there is entrance to a ramp, stairway, or fixed ladder.
- 4) Runways four feet or higher shall have standard railings on all open sides except runways more than 18 inches wide used exclusively for special purposes may have the railing on one side omitted where operating conditions necessitate.

RAILING

- 1) A standard railing shall consist of top rail, intermediate rail and posts, and have a vertical height of approximately 42 inches from upper surface of top rail to the floor, platform, etc.
- 2) The top rail of a railing shall be smooth-surfaced, with a strength to withstand at least 200 pounds. The intermediate rail shall be approximately halfway between the top rail and floor.

- 3) A stair railing shall be of construction similar to a standard railing, but the vertical height shall be not more than 34 inches nor less than 30 inches from upper surface of top rail of tread, in line with face of riser at forward edge of tread.
- 4) A standard toeboard shall be at least four inches in height, and may be of any substantial material either solid or open, with openings not to exceed one inch in greatest dimension.

CRANES, DERRICKS, HOISTS, ELEVATORS, PILE DRIVERS, & CONVEYORS

- 1) Prior to commencement of any work using any hoisting equipment on the Work Site, the Contractor will provide the Engineer with a valid certification of compliance for shore-based, or water borne equipment meeting all the provisions of OSHA 29CFR 1919.
- 2) Record Keeping Requirements:
 - a) Supervision of all testing, examinations, inspections, heat treatments and record keeping procedures shall be carried out by such persons as are so designated in OSHA 29CFR 1919.
 - b) Certificates issued by an accredited person (agency) shall be signed and all register entries made only by persons authorized by such accredited person (agency).
 - c) Certification shall not be issued until all conditions cited for correction on the semi-annual certification report form have been corrected in a manner satisfactory to the certifying agency.
 - d) In the event deficiencies remain uncorrected, no certification shall be issued.
 - e) An accredited person (agency) shall maintain records of all work performed including reports of work or tests performed by others (nondestructive testing, heat treating, etc.), in relation to each certification. Such records shall be available for examination upon request by MDC Risk Management, the Engineer or their authorized representatives.
 - f) A copy of each certificate relating to semi-annual examination and/or unit proof load test shall be available with each crane or derrick.
- 3) A checklist will be prepared and submitted to the Engineer by the Contractor for any lift where the load exceeds 80% of the load chart capacity for the crane or derrick, or, where the lift involves the use of two or more cranes. (See Appendix C).

- a) No lifts meeting the above criteria will be made without prior submission of a Critical Lift Checklist.
 - b) Where erection drawings are prepared for submittal to the Engineer, Appendix C, will not be required if all the information contained therein is shown on the drawing submitted.
 - c) Prior to making the lift, the conditions shown on the drawing submitted will be verified by the Contractor's representative at the Work site. Any deviations from the erection drawing submitted will be reviewed and verified as safe by the Contractor's representative.
- 4) Operation of boom equipment, or other equipment such as forklifts, backhoes, and the handling of any load in the proximity of electrical transmission lines is forbidden within a minimum of 10 feet. Further, if such equipment is positioned so that it is possible by rotation or any other movement, whether anticipated or not, to possibly contact high voltage, de-energizing of the lines, restraints, "hold-backs", or other positive physical means will be required. (Note: "High Voltage" is defined as voltage in excess of 400 volts).
 - 5) All cranes shall be equipped with spirit level, or equivalent, to indicate the level of the crane fore and aft, and across the width. As nearly as possible, the crane shall be operated in level position.
 - 6) After normal working hours and during other extended periods of non-usage, crane booms shall be lowered to a horizontal position to minimize the chance of movement due to wind. If this cannot be accomplished, load lines shall be securely fastened to a substantial anchoring point.
 - 7) Except for floor-controlled overhead track cranes, a bell or other effective audible warning signal shall be provided for each crane equipped with power traveling mechanism, which shall be automatically engage and immediately audible when the crane begins to travel.
 - 8) All pinch points drive mechanisms, and other hazardous moving parts shall be effectively guarded. (See Appendix C for suggested checklist).
 - 9) Conveyor Systems
 - a) Conveyor systems shall be equipped with an automatic audible warning signal sounded immediately **BEFORE** starting up the conveyor.
 - b) Whenever a conveyor is equipped with a catwalk, a safety cable shall be installed on the conveyor to stop it instantly in an emergency, so as it cannot be started until the actuating switch has been reset to the "On" position. The

cable shall not be less than 12 inches nor more than 18 inches above the conveyor belt and shall extend the entire length of the conveyor.

- 10) Catwalks shall be kept clean and free of tripping hazards.
- 11) Any anticipated use of helicopters for lifting operations shall require advance notice and approval by the Engineer and MDC Risk Management.
- 12) No person will be allowed to ride on a suspended load or hook for any reason.
- 13) No person shall be allowed to stand or pass under the elevated portion of any equipment whether loaded or empty.
- 14) Pile driving loftsmen shall use safety belts when working at elevations outside loft platforms. When the leads are to be rotated or moved, the loftsmen shall descent from the leads.
- 15) Exhaust pipes, steam lines, and other hot surfaces, located where employees could contact them, shall be effectively guarded or insulated.
- 16) Do not operate cranes or hoisting machines unless qualified to do so.
- 17) Do not stand under load being moved by crane.
- 18) Always test crane brakes and limit switches before operating on your tour of duty.
- 19) Always be sure that path of crane travel is clear of people or alerted by signal alarm in advance of moving load and while crane is in motion.
- 20) Always be sure that hooks, chains or cables are secure and properly placed before raising load.
- 21) Always be sure that loose parts are removed from load before raising it.
- 22) Only the operator is permitted to be in the operators cab while crane is in operation, except when authorized maintenance is being performed or a new operator is being trained.
- 23) Hoisting hooks, chains or cables are to be visually inspected daily for flaws, cracks, etc., by employees using them and defects reported to their immediate supervisor. A monthly inspection with a certification record which includes the inspection date and signature of individual inspector must also be done.
- 24) Do not lift load with twists or kinks in the chain, rope or sling.

- 25) Operators of cranes that are moving loads in close proximity of exposed current carrying devices, are required to maintain a safe operating distance at least 10 feet from such devices to avoid contact with hoisting cables, blocks, hooks, etc.
- 26) Know the load rating of equipment when starting to raise an unusual or heavier than normal load (Load should not exceed limits of crane). Test brakes when load is a few inches from floor or ground.
- 27) When hoisting unusual material or machinery, attach a chain or cable well above the center of gravity to prevent the load from tilting or falling over when lift is made
- 28) When hoisting long shaped objects, a red tag line or other method of control is required to prevent load from turning end on end.
- 29) No employee shall ride or hang onto tongs, slings, hooks or load of hoisting equipment.
- 30) Before removing sling or chain from load, observe arrangement of load to be sure it has settled securely.
- 31) Keep from positioning yourself between the load being handled and a fixed object, (wall, stanchion or car) to avoid being pinned.
- 32) Leaving any hoisting equipment with a suspended load unattended, is forbidden.
- 33) Before hoisting a load, one (1) person must be designated to give signals, and all persons involved in the hoisting operation shall be notified who has been designated.
- 34) Before pulling a hoisting rope, wire, cable, chain or other such tackle, secure a firm footing, assume a braced position, and move clear in the event of adverse action.
- 35) Use both hands, when climbing into or leaving the crane cab. Lift tools and materials to the cab with a hand line.
- 36) If repairs to crane cause it to be laid up for a long period of time, lock the main switch in the open position to prevent use.
- 37) Make sure the controllers are in the "Off" position before opening or closing the main switch.
- 38) If power should go off, move the controllers to the "Off" position at once. Wait until power is restored before operating controllers again.

- 39) Never depend upon a limit switch to stop hoisting motor. Use your controls. Do not attempt to use two controls at the same time when approaching limits.
- 40) Whenever leaving the crane, place all controllers in the "Off" position, open the main switch and set the brakes.
- 41) When hoist operator's view is obstructed in the direction of movement, assign an employee to precede the hoist and warn others of its approach.
- 42) Do not shorten, repair or splice hoisting chain with wire, nails, bolts or other objects.
- 43) Use standard hoisting hand signals.
- 44) Do not make side pulls with a hoist, which will misalign the rope. It may cause the load to swing sideways or damage the rope itself.
- 45) Do not operate crane (move load) while the load is being raised or lowered.
- 46) Approved fire extinguishers are required in overhead cabs.
- 47) Any construction activity, including crane movement, occurring within 30' of the drip line of a Metromover or Metrorail guideway will also be subject to compliance with Miami-Dade Transit Adjacent Construction Manual requirements and OSS approval.

Q. WIRE ROPES, CHAINS, AND ROPES

- 1) Wire ropes, chains, ropes, and other rigging equipment shall be inspected prior to use and as necessary to assure their safety. Defective gear shall be tagged and removed from service.
- 2) Job or shop hooks and links, or makeshift fasteners, formed from bolts, rods, etc., or other such attachments, shall not be used.
- 5) The proper type of chain is to be used for the particular application (overhead lifting, transport, cargo securement, etc)
- 6) Any attachment, such as hooks or links, are to have a rated "working load limit" at least equal to the chain/rope with which it is used.
- 3) When U-bolts are use for eye splices, the U-bolt shall be applied so that the "U" section is in contact with the dead end of the rope.

- 4) When U-bolt wire rope clips are used to form eyes, the following table shall be used to determine the number and spacing of clips.

NUMBER AND SPACING OF U-BOLT WIRE ROPE CLIPS

Improved plow steel, rope diameter inches	Number of clips		Minimum Spacing (inches)
	Drop forged	Other material	
1/2.....	3	4	3
5/8	3	4	3-3/4
3/4.....	4	5	4-1/2
7/8.....	4	5	5-1/4
1.....	5	6	6
1-1/8.....	6	6	6-3/4
1-1/4.....	6	7	7-1/2
1-3/8.....	7	7	8-1/4
1-1/2.....	7	8	9

- 7) Slings are to be tagged for simple inclusion of sling type, working load limit, reach, serial number, chain size and grade.
- 8) State and federal regulations regarding size and number of chain systems required for securing loads on trucks are to be adhered too.

R. MOTOR VEHICLES AND MECHANIZED EQUIPMENT

- 1) All equipment that is left unattended adjacent to a roadway in normal use shall have appropriate lighted barricades placed around the location of the equipment
- 2) Loaders, backhoes, bulldozer and other similar equipment shall have their blades or buckets fully lowered and engines shut-off when left unattended.
- 3) All vehicles and equipment shall be checked at the beginning of each shift to ensure that the equipment is in proper operating condition and that accessories that affect safe operations are free from defects.
- 4) Heavy equipment, machinery, or parts thereof, shall be blocked to prevent falling or shifting before employees are permitted to work under or between them.
- 5) All equipment and vehicles with cabs shall have safety glass or equivalent windshields that are free of cracks and defects. Broken or cracked glass shall be replaced.

- 6) No person shall be allowed to ride in or on any equipment or vehicle except in seats, which are provided by the manufacturer.
- 7) Only trained, qualified and/or licensed persons are to operate equipment/vehicles.
- 8) All vehicles are required to have visual and audio back-up alarms.

S. EXCAVATION, TRENCHING AND SHORING

- 1) The Contractor shall call the Engineer who will call the Underground Utilities Notification Center at 1-800-432-4770 prior to any excavation regarding utilities. All initial excavation, which is done to expose all subsurface utilities, shall be done by hand to prevent damage. When exposed, they shall be protected at all times by suitable bridging, boxing, hangers or other supports during the prosecution of the work.
 - a) To provide access in emergencies, and for routine inspections of valves on water, gas or other mains, and to electrical power, communications, signal alarm and other service boxes, junction boxes and manhole that are decked over; trap door of a suitable size with suitable identifying steel plates securely attached thereto, shall be provided at all times in the decking.
 - b) The Contractors shall have a copy of the water main and gas drawings, clearly marked, to show the valves that control flow in the area and at the construction site. At least two valves in all directions outside the net lines shall be shown. The Contractor's superintendent shall mark and keep clear the location of valves for ready identification, should trouble develop.
- 2) Walkways shall be kept clean and free of all hazards at all times.
- 3) Internal combustion engines used in confined areas, such as in excavations or utility vaults where natural ventilation is limited, shall have exhaust fumes dispelled with forced ventilation or equivalent means.
- 4) All excavations and similar work areas where an exposure to the public or work personnel exists shall be promptly and completely fenced or barricaded, as shown in the Contact Drawings, except in those areas temporarily required to be open for the conduct of the work, then these openings shall be guarded to prevent access.
- 5) Adjustment screws on cross braces or trench jacks shall not be extended beyond the manufacturer's recommendations or 2/3 of the threaded length, whichever is more restrictive.

- 6) No one shall be permitted to climb or work from cross bracing.
- 7) Supervision – Excavation work shall at all times be under the immediate supervision of someone with authority to modify the shoring system or work methods, as necessary, to provide greater safety. He shall frequently examine the material under excavation and improve the shoring or methods beyond the minimum requirements, as necessary, to insure protection of workmen from moving material.
- 8) Removal of Shoring – No part of the shoring system of any excavation shall be removed until proper steps have been taken to avoid hazard to workmen from moving material. If a newly installed masonry or concrete wall is to be depended upon for this protection, it must have attained adequate strength to sustain resulting pressures.
- 9) Access and Egress – Convenient and safe means shall be provided for workmen to enter and leave the excavated area. This shall consist of a standard stairway, ladder, or ramp securely fastened in place at suitably guarded or protected locations where men are working and shall not require movement farther than 25 feet to reach such egress.
- 10) Blasting will not be permitted on the Work Site without prior approval of the Engineer and MDC Risk Management.
- 11) If any excavation (s) are required or requested to be left open by a utility company (s), municipality (s), or governmental agency, the excavations (s) will remain the sole responsibility of the Contractor for proper barricading and protection.

T. LASERS

- 1) Only qualified and trained employees shall be assigned to install, adjust, and operate laser equipment.
- 2) Employees shall wear proper eye protection where there is potential exposure to laser light greater than 0.005 watts (5 milliwatts).
- 3) Beams shutters or caps shall be utilized, or the laser turned off, when laser transmission is not actually required. When the laser is left unattended for a substantial period of time, such as during lunch hour, over-night, or at change of shifts, the laser shall be turned off and shall be secured in a manner, which will preclude indiscriminate or unauthorized activation.
- 4) Employees shall not be exposed to light intensities above: direct staring – 1 microwatt per square centimeter; incidental observing – 1 milliwatt per square

centimeter: diffused reflected light – 2 1/2 watts per square centimeter.
Employees shall not be exposed to microwave power densities in excess of 10 milliwatts per square centimeter.

- 5) The Engineer shall be notified of the location, time and qualifications of person or persons operating the laser.

U. **ROLLOVER PROTECTIVE STRUCTURES, OVERHEAD PROTECTION AND REVERSE WARNING ALARMS**

- 1) On **ALL** rubber-tired or crawler scrapers, bulldozers, front-end loaders, backhoes, motor graders, industrial tractors and forklift trucks, Rollover Protective Structures (ROPS) and Falling Object Protective Structures (FOPS) are required. (Note: See OSHA for structural performance standards).
- 2) On equipment where ROPS are required (above), seat belts shall be installed and worn by operators.
- 3) In lieu of a signalman, all bi-directional earthmoving, haulage or compacting equipment, and all trucks with a body capacity of 1-1/2 yards or more used to haul dirt, rock, concrete or other material shall be equipped with an automatically operated reverse signal alarm (such as buzzer, horn or bell) which is audible from a distance of 100 feet from the rear of the vehicle in operation. It shall be the duty of the contractor to inform his suppliers of these requirements.

V. **CONCRETE**

- 1) All equipment and materials used in concrete construction and masonry work shall meet the applicable requirements for design, construction, inspection, testing, maintenance and operations as provided in OSHA.
- 2) Employees working more than six feet above adjacent working surfaces, placing and tying reinforcing steels in walls, piers, columns, etc., shall be provided with a personal fall arrest system (29CFR 1926.502), or equivalent device.
- 3) Employees shall not be permitted to work above vertically protruding reinforcing steel unless it has been protected to eliminate the hazard of implement.
- 4) Guying – Reinforcing steel for walls, piers, column and similar vertical structures shall be guyed and supported to prevent collapse.
- 5) Wire mesh rolls – Wire mesh rolls shall be secured at each end to prevent dangerous recoiling action.

- 6) Pumpcrete systems – Pumpcrete or similar systems using discharge pipes shall be provided with pipe supports designed for 100 percent overload. Compressed air hose in such systems shall be provided with positive fail-safe joint connectors to prevent separation of sections when pressurized. Safety chains shall be provided on all line two inches in diameter or larger.
- 7) Concrete buckets equipped with hydraulic or pneumatically operated gates shall have positive safety latches or similar safety devices installed to prevent aggregate and loose material from accumulating on the top and sides of the bucket.
- 8) Riding of concrete buckets for any purpose shall be prohibited, and vibrator crews shall be kept out from under concrete buckets suspended from cranes or cableways.
- 9) When discharging on a slope, the wheels of ready-mix trucks shall be locked and the brakes set to prevent movement. The use of chocks is also required.
- 10) Nozzlemen applying a cement, sand, and water mixture through a pneumatic hose shall be required to wear protective head and face equipment.
- 11) When temporary storage of reinforcing rods, materials, or equipment on top of formwork becomes necessary, these areas shall be strengthened to meet the intended loads.
- 12) The sills for shoring shall be sound, rigid, and capable of carrying the maximum intended load.
- 13) All shoring equipment shall be inspected prior to erection to determine that it is as specified in the shoring layout. Any equipment found to be damaged should not be used for shoring.
- 14) Erected shoring equipment shall be inspected immediately prior to, during, and immediately after the placement of concrete. Any shoring equipment that is found to be damaged or weakened shall be immediately reinforced or reshored.
- 15) Reshoring shall be provided when necessary to safety support slabs and beams after stripping or where such members are subjected to superimposed loads due to construction work done.
- 16) Metal tubular frames used for shoring shall not be loaded beyond the safe working load recommended by the manufacturer.
- 17) All locking devices on frames and braces shall be in good working order; coupling pins shall align the frame or panel legs; pivoted cross braces shall have

their center pivot in place; and all components shall be in a condition similar to that of original manufacture.

- 18) When checking the erected shoring frames with the shoring layout, the spacing between towers and cross brace spacing shall not exceed that shown on the layout, and all locking devices shall be in the closed position.
- 19) Devices for attaching the external lateral stability bracing shall be securely fastened to the legs of the shoring frames.
- 20) Formwork and shoring shall be designed, erected, supported, braced, and maintained so that it will safely support all vertical and lateral loads that may be imposed upon it during placement of concrete.
- 21) Working drawing showing the jack layout, formwork, shoring, working decks, and scaffolding, shall be available at the Work Site for review by the Engineer.
- 22) Stripped forms and shoring shall be removed and stockpiled promptly after stripping. In all areas which persons are required to work or pass, protruding nails, wire ties, and other form accessories not necessary to subsequent work shall be pulled, cut, or other means taken to eliminate the hazard.
- 23) Imposition of any construction loads on the partially completed structure shall not be permitted unless such loading has been considered in the design and approved by the Engineer.
- 24) Jacks and vertical supports shall be positioned in such a manner that the vertical loads are distributed equally and do not exceed the capacity of the jacks.
- 25) When checking the erected shoring towers with the shoring layout, the spacing between posts shall not exceed that shown on the layout, and all interlocking of tubular members and tightness of couples shall be checked.
- 26) All baseplates, shore heads, extension devices, or adjustment screws shall be in firm contact with the footing sill and the form material and shall be snug against the posts.
- 27) For stability, single post shores shall be horizontally braced in both the longitudinal and transverse directions, and diagonal bracing shall also be installed. Such bracing shall be installed as the shores are being erected.
- 28) All baseplates or shore heads of single post shores shall be in firm contact with the footing sill and the form materials.
- 29) Whenever single post shores are used in more than one tier, the layout shall be approved by the Engineer.

- 30) When formwork is at an angle, or sloping, or when the surface shored is sloping, the shoring shall be designed for such loading.
- 31) Adjustment of single post shores to raise formwork shall not be made after concrete is in place.
- 32) Fabricated single post shores shall not be used if heavily rusted, bent, dented, rewelded, or having broken weldments or other defects.
- 33) Timber shall not be used if it is split, cut, has sections removed, is rotted, or is otherwise structurally damaged.
- 34) Nails used to secure bracing or adjustable timber single post shores shall be driven home and the point of the nail bent over if possible. Double head nails will be permitted.

W. DEMOLITION

- 1) All sidewalks and walkways open to the public shall have abrasive non-skid surface and shall be kept clean and free of tripping hazards at all times.
- 2) "NO PARKING" zones with appropriate signs and barricades shall be displayed adjacent to buildings being demolished.
- 3) Water or other means of dust control shall be used where dust presents a health or environmental hazard, property damage potential, or nuisance.
- 4) See this Manual's section for Rollover and Falling Object Protection Structures, which also applies to demolition equipment.
- 5) Provide adequate protection to prevent damage to pipes, conduits, wires, cables, or structures above or below ground, which are not designated for removal.
- 6) Overhead protection shall be erected over sidewalks and shall extend at least ten feet beyond the building lines along direction of the sidewalks. Overhead planking shall be a minimum of three-inch full dimension lumber placed on adequately designed, metal or timber frames.
- 7) Substantial catch platforms shall be erected around all sides of the building prior to any demolition. Design must be approved by the Engineer.
- 8) Solid barriers of $\frac{3}{4}$ inch exterior fire rated B/D Plywood at least eight feet high shall be erected around the structure at ground or sidewalk level to protect the public. The barriers shall be framed with, at a minimum, 2"x3" fire rated studs 16" on center.

- 9) Full time flagman shall be provided to assist truck egress and ingress.
- 10) All mechanical, electrical, air conditioning, ducting, skylights, windows, and any other equipment, material or objects on roofs or walls of adjoining or adjacent structures to buildings under demolition shall be adequately protected from falling material and activity of wrecking crews and equipment.
- 11) No mechanical equipment (i.e. headache ball, impact equipment other than hand held) shall be used within six feet of any adjoining structure.
- 12) Employees engage in the demolition or removal of any pipes, structures or machinery covered or insulated with asbestos shall conform with all federal, state and local codes, rules, regulations and requirements including but not limited to:
 - a) 29CFR 1926.1101
 - b) 40CFR 61, Subpart M
 - c) Florida Statue 469.001-469.099
 - d) Miami-Dade Department of Environmental Resource Management
- 13) Employees engage in the demolition, removal or disturbance of any listed hazardous substance shall conform with all applicable federal, state and local codes, rules, regulations and requirements.

X. ADVERSE WEATHER CONDITIONS

- 1) Disassemble all scaffolds, loose formwork, radio antennas and secure properly.
- 2) All items that cannot be secured shall be stored inside secured storage areas or buildings.
- 3) All crane booms shall be lowered to ground level and secured to prevent movement.
- 4) All office trailers shall be tied down in compliance with MDC Tie Down Ordinance No. 77-1 upon original installation. All tie down straps, ground anchors, piers, etc., shall be checked for condition and operation.
- 5) All exposed glass on the Work Site shall be protected by a solid, rigid covering.
- 6) All free standing walls shall be shored from both sides.

- 7) Before employees are dismissed from the Work Site, the Contractors shall make a thorough inspection to verify all necessary precautions have been taken, and report to the engineer for any further instructions.
- 8) All precautions for construction sites during hurricane conditions, as required by the Florida Building Codes (Appendix D) shall be met.
- 9) All contractors shall develop a project specific hurricane plan. This plan will include a detailed description of all hurricane preparation activities for each MDT phase of hurricane readiness including:
 - a) Phase A – Pre-Season Preparedness
 - b) Phase B – Hurricane Advisory (48 hours prior to landfall)
 - c) Phase C – Hurricane Watch (24-48 hours prior to landfall)
 - d) Phase D – Hurricane Warning (24 hours prior to landfall)
 - e) Phase E – Landfall
 - f) Phase F – Recovery/Post Hurricane
- 10) Progression through the MDT phases of hurricane readiness will be declared by the MDT Hurricane Disaster Preparedness Coordinator (Coordinator). The Coordinator may accelerate preparedness levels based on prevailing conditions and expectations. The time of day the storm is expected to arrive, along with the Miami-Dade Emergency Operations Center levels of activation, are some of the factors that are considered. The MDT readiness phase will be communicated through the Resident Engineer or other MDT contract representative.

Y. HOUSEKEEPING

- 1) All refuse piles shall be removed from the Work Site immediately.
- 2) Stored and stacked materials shall be kept orderly, properly stacked, choked, and secured.
- 3) Any protruding nails, etc., shall be bent, removed or clinched immediately.
- 4) Oil, grease, and water spills shall be cleaned up immediately.
- 5) Loose materials, tools, or equipment shall be kept off stairs, out of walkways, ramps, platforms at all times when not in use.

- 6) Depressions and pot-holes in vehicle or walkway surfaces on the Work Site shall be properly filled and graded immediately.
- 7) Walkways, vehicle travel ways, ramps, railings, and stairways, shall be kept free from debris, properly installed and maintained.
- 8) Smoking or the use of open flames within 25 feet of flammable storage areas or fueling areas shall not be permitted.
- 9) Flammable storage areas shall be properly posted "**NO SMOKING**", provided with adequate fire extinguishers and free of combustible materials.
- 10) All sanitary facilities used on the Work Site shall be maintained on a daily basis.
- 11) All structures shall have a minimum of a 5-foot perimeter clearance that is to be free from any combustible debris or materials.

Z. HAZARDOUS SUBSTANCES

- 1) The Contractor shall develop, implement and maintain a written Hazard Communication/Right-to-Know Program and comply with all applicable requirements of OSHA Hazard Communication Standard 29CFR1910.1200.
- 2) The Contractor shall ensure that each container of hazardous substances in the workplace is labeled, tagged, or marked with the following information:
 - a) identify of the hazardous substance (s) contained therein
 - b) appropriate hazard warnings
- 3) The Contractor's written hazard communication program shall describe how the criteria for labeling; Material Safety Data Sheets (MSDS); employee information and training will be met and also include:
 - a) A list of the hazardous chemicals known to be present and their locations at the Work Site.
 - b) The methods the employer will use to inform employees of the hazards of non-routine tasks & the hazards associated with hazardous substances contained in unlabeled pipes in their work areas.
- 4) The Contractor shall maintain copies of the required Material Safety Data Sheet (MSDS) for each hazardous substance in the workplace, and shall ensure that they are readily accessible during each work shift to employees. (The Contractor may obtain the MSDS for a product by requesting it from the product's manufacturer, distributor, or importer.

- 5) Where employees must travel between workplaces during a workshift, i.e., their work is carried out at more than one geographical location, the MSDS may be kept at a central location at the primary workplace facility. In this situation, the employer shall ensure that employees can immediately obtain the required information in an emergency.
- 6) MSDS shall also be made readily available to fire & emergency response personnel, the Engineer and MDC Rick Management.
- 7) Contractors shall provide their employees with the following:
 - a) Information and training on hazardous chemicals in their work area at the time of their initial assignment, and whenever a new hazard is introduced into their work area.
 - b) Any operations in their work area where hazardous chemicals are present.
 - c) The location and availability of the written hazard communication program, including the required list (s) of hazardous chemicals and material safety data sheets.
 - d) Information as to the employees' rights under the Florida Right-to-Know Law:
 1. The right to know of the listed toxic substances present in the workplace.
 2. The right to obtain a copy of the Material Safety Data Sheet for each listed toxic substance present.
 3. The right to refuse to work, under specified circumstances, with a listed substance, if not provided a copy of the Material Safety Data Sheet for that substance within 5 of the requesting employee's working days after submitting a written request to the employee's employer.
 4. The right to instruction, within 30 days of employment, and at least annually thereafter, on the adverse health effects of each listed toxic substance with which they work in the workplace, how to use each substance safely, and what to do in case of any emergency.
 5. The right to obtain further information on the properties and hazards of listed toxic substances from the Toxic Substance Information Center (1-800-367-4378).
 6. The right to protection against discharge, discipline, or discrimination for having exercised any of these rights.
- 8) The Contractor shall post the State of Florida Right-to-Know Poster at the Work Site. The poster and information/assistance in complying with the Right-to-Know Law is available from the Toxic Substance Information Center (1-800-367-4378). As soon as any environmental item is discovered, the Contractor shall immediately inform the Resident Engineer and the MDT Senior Professional Engineer (Environmental).

APPENDICES

- Appendix A - State of Florida, First Report of Injury or Illness; Supervisor's Report; OSHA 300 & 300A
- Appendix B - Tool Box Safety Meeting Document, Suggested Format
- Appendix C - Safety Inspection Checklist For Crane Inspection & Critical Lifts
- Appendix D - Special Hurricane Precautions
- Appendix E - OSHA General Industry and Construction Standards Requiring a Competent Person

APPENDIX A

INSTRUCTION - FIRST REPORT OF INJURY OR ILLNESS
LES FORM DWC – 1

EMPLOYER -You are required by law to report all industrial accidents to the Division of Workers' Compensation within seven days of your first knowledge of the accident. A civil penalty of up to \$500 is provided for failure. Fully complete this form, using the employee's description of the accident, signs it, have the employees sign it and mail the original to the Division. Copies marked for the employee and your carrier (insurance company) must be sent to them.

If, for any reason, the employee cannot or will not sign the notice, **do not delay your report.**

EMPLOYEE -You are required by law to report your accident to the Worker's Compensation Division. Enter your description of the accident on this form, have your employer complete the form, then both of you should sign. If your employer refuses to sign or complete the report you should complete it. Send the original to the division, a copy to your employer.

For assistance, or for answers to questions on Workers' Compensation, call the toll free number shown on the form.

DISTRIBUTION: Part 1 - Division Copy
 Part 2 - Carrier Copy
 Part 3 - Employer Copy
 Part 4 - Employer Copy

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FIRST REPORT OF INJURY OR ILLNESS
FLORIDA DEPARTMENT OF FINANCIAL SERVICES
DIVISION OF WORKERS' COMPENSATION

For assistance call 1-800-242-1741
 or 813-921-1000 (TDD) or 813-921-1000 (Voice)
 Report all deaths within 24 hours 1-800-319-5933 or (813) 921-1965

REGISTERED BY CLAIMS-HANDLING ENTITY	SENT TO DIVISION CASE	DIVISION RECEIVED DATE

PLEASE PRINT OR TYPE		EMPLOYEE INFORMATION	
NAME (First, Middle, Last)		Social Security Number	Class of Accident (Mark: Circle Year) Time of Accident <input type="checkbox"/> AM <input type="checkbox"/> PM
HOME ADDRESS Street/Box # City State Zip		EMPLOYEE'S DESCRIPTION OF ACCIDENT (Under Cause of Injury)	
TELEPHONE Area Code Number		INDUSTRY/CLASSIFICATION OCCURRED	
OCCUPATION		PART OF BODY AFFECTED	
DATE OF BIRTH		SEX <input type="checkbox"/> M <input type="checkbox"/> F	
COMPANY NAME		EMPLOYER INFORMATION	
D.B.A. Street City State Zip		FEDERAL ID NUMBER (FEN)	DATE FIRST REPORTED (Month/Day/Year)
TELEPHONE Area Code Number		NATURE OF BUSINESS	POLICY NUMBER
EMPLOYER'S LOCATION ADDRESS (if different) Street City State Zip LOCATION # (if applicable)		DATE EMPLOYED	PAID FOR DATE OF INJURY <input type="checkbox"/> YES <input type="checkbox"/> NO
PLACE OF ACCIDENT (Street, City, State, Zip) Street City State Zip COUNTRY OF ACCIDENT		LAST DATE EMPLOYEE WORKED	WILL YOU CONTINUE TO PAY WAGES INSTEAD OF WORKERS COMP? <input type="checkbox"/> YES
		RETURNED TO WORK <input type="checkbox"/> YES <input type="checkbox"/> NO IF YES, GIVE DATE	LAST DAY WAGED WILL BE PAID INSTEAD OF WORKERS COMP <input type="checkbox"/> YES <input type="checkbox"/> NO
		DATE OF DEATH (if applicable)	RATE OF PAY <input type="checkbox"/> PER <input type="checkbox"/> HR <input type="checkbox"/> WK \$ _____ FOR <input type="checkbox"/> DAY <input type="checkbox"/> MO
		AGREE WITH DESCRIPTION OF ACCIDENT? <input type="checkbox"/> YES <input type="checkbox"/> NO	Number of hours per day _____ Number of hours per week _____ Number of days per year _____
			NAME, ADDRESS AND TELEPHONE OF PHYSICIAN OR HOSPITAL
			AUTHORIZED BY EMPLOYER <input type="checkbox"/> YES <input type="checkbox"/> NO

CLAIMS/HANDLING ENTITY INFORMATION			
<input type="checkbox"/> 1(a) Denied Case - DWC-12, Notice of Denial Attached		<input type="checkbox"/> 2. Medical Only which became Lost Time Case (Complete of required information in #3)	
<input type="checkbox"/> 1(b) Inability Only Denied Case - DWC-12, Notice of Denial Attached		Employee's 8 th Day of Disability _____/_____/_____	
<input type="checkbox"/> 3. Lost Time Case - 1st day of disability _____/_____/_____		Entity's Knowledge of 8 th Day of Disability _____/_____/_____	
Date First Payment Made _____/_____/_____		Full Salary in lieu of comp? <input type="checkbox"/> YES Full Salary End Date _____/_____/_____	
AWAY _____		Comp Rate _____	
<input type="checkbox"/> T.T. <input type="checkbox"/> T.T. - 80% <input type="checkbox"/> T.P. <input type="checkbox"/> I.B. <input type="checkbox"/> P.T. <input type="checkbox"/> DEATH <input type="checkbox"/> SETTLEMENT ONLY			
Penalty Amount Paid in 1 st Payment \$ _____		Interest Amount Paid in 1 st Payment \$ _____	
REMARKS:		INSURER NAME	
INSURER CODE #	EMPLOYEE'S CLASS CODE	EMPLOYER'S RACE CODE	CLAIMS-HANDLING ENTITY NAME, ADDRESS & TELEPHONE
SERVICE CONTRACT CODE #	CLAIMS-HANDLING ENTITY P.L.E.#		

Form DWC-1 (SWC-1) (6/2009)



Year 20 _____

U.S. Department of Labor
Occupational Safety and Health Administration
OSHA Form 300A (Rev. 01/2004)

Summary of Work-Related Injuries and Illnesses

As an employer, contractor, or other person who controls the work site, you must complete this Summary of Work-Related Injuries and Illnesses for each establishment, business, or other organization that you control during the year. You must also complete this Summary of Work-Related Injuries and Illnesses for each establishment, business, or other organization that you control during the year if you are a contractor, subcontractor, or other person who controls the work site. This form is to be used to collect information on work-related injuries and illnesses that result in lost work time or job transfer or restriction. It is not to be used to report injuries and illnesses that do not result in lost work time or job transfer or restriction.

Employers, contractors, and other persons who control the work site must review the OSHA Form 300A to determine if they have any recordable injuries or illnesses. See the OSHA Form 300A for instructions on how to complete this form. For more information, see the OSHA Form 300A for instructions on how to complete this form.

Number of Cases

Total number of deaths	Total number of cases with days away from work, transfer or restriction	Total number of other recordable cases
(a)	(b)	(c)

Number of Days

Total number of days away from work	Total number of days of job transfer or restriction
(d)	(e)

Injury and Illness Types

Total number of:	(f) Fractures	(g) Hearing loss	(h) All other illnesses
(1)	(2)	(3)	(4)

Post this Summary of Work-Related Injuries and Illnesses on the premises of the establishment for the year covered by the form.

OSHA will not publish or disseminate information that identifies the establishment and the location of the establishment. Information that identifies the establishment and the location of the establishment will be published only if the establishment is a contractor, subcontractor, or other person who controls the work site. For more information, see the OSHA Form 300A for instructions on how to complete this form.

Establishment Information

Name of establishment _____
 Street _____
 City _____ State _____ ZIP _____
 Industry description (e.g., Manufacturer of metal auto radiators) _____
 Standard Industrial Classification (SIC) or Census (e.g., 3711) _____
 OIR _____
 North American Industrial Classification (NAICS) or Census (e.g., 333112) _____

Employment Information (If you do not have this information, enter the number of jobs (or full-time equivalents) _____)

Annual average number of employees _____
 Full-time workers by employee category _____

Sign Here

Knowingly falsifying this document may result in a fine.

I certify that I have examined this document and I possess the best of my knowledge for entries are true, accurate, and complete.

Signature _____ Title _____
 Date _____



U.S. Department of Labor
Occupational Safety and Health Administration

Form 301 (Rev. 03-10)

Attention: This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible with the information being used for occupational safety and health purposes.

OSHA's Form 301
Injury and Illness Incident Report

This Injury and Illness Incident Report (OSHA Form 301) is to be completed for all recordable work-related injury or illness that occurred. Together with the Log of Work-Related Injuries and Illnesses and the accompanying Summary, these forms help the employer and OSHA develop a picture of the extent and severity of work-related incidents.

Within 7 calendar days after you receive information that a recordable work-related injury or illness has occurred, you must fill out this form or an equivalent. Some state workers' compensation, insurance, or other reports may be acceptable substitutes. To be considered an equivalent form, any substitute must contain all the information asked for on this form.

According to Public Law 91-596 and 29 CFR 1904, OSHA's record-keeping rule, you must keep this form on file for 5 years following the year to which it pertains.

If you need additional copies of this form, you may photocopy and use as many as you need.

Company: _____
Title: _____
Phone: _____ Fax: _____

After posting this form to the OSHA website, you may wish to consider posting this form to your company's website as well. OSHA Form 301 is available for download at www.osha-slc.gov. OSHA Form 301 is available for download at www.osha-slc.gov. OSHA Form 301 is available for download at www.osha-slc.gov. OSHA Form 301 is available for download at www.osha-slc.gov.

Information about the case

- 10) Date incident first reported: _____ (Please refer to the number from the Log of Injuries and Illnesses.)
- 11) Date of injury or illness: _____ ADJ: _____
- 12) Time employee began work: _____ ADJ: _____
- 13) Time of event: _____ Checked item caused by equipment
- 14) What was the employee doing just before the incident occurred? Describe the activity, as well as the tools, equipment, or material the employee was using. Be specific. Example: "installing a ladder while carrying building materials"; "spraying chemical from hand sprayer"; "daily completion lay-out."
- 15) What happened? Tell us about the injury or event. Example: "My boss told me to get on the roof. When I got on the roof, I slipped and fell. I was wearing a hard hat, but it fell off and hit me in the head." Example: "My boss told me to get on the roof. When I got on the roof, I slipped and fell. I was wearing a hard hat, but it fell off and hit me in the head." Example: "My boss told me to get on the roof. When I got on the roof, I slipped and fell. I was wearing a hard hat, but it fell off and hit me in the head." Example: "My boss told me to get on the roof. When I got on the roof, I slipped and fell. I was wearing a hard hat, but it fell off and hit me in the head."
- 16) What was the injury or illness? Tell us the part of the body that was affected and how it was affected. Be more specific than "hurt," "pain," or "sore." Example: "Anatomical"; "distal hand burn, hand"; "leg and waist sprain."
- 17) What subject or subjects directly caused the employee's injury or illness? Example: "Fall from height"; "unsafe work." If the question does not apply to the incident, do not check.
- 18) If the employee died, what did death occur due to? Example: "Fall from height"; "unsafe work."

Information about the employee

- 1) Full name: _____
- 2) Sex: _____
- 3) Job title: _____
- 4) Date of birth: _____ ADJ: _____
- 5) Male Female
6. Name of physician or other health care professional: _____
7. How serious does your pain from the condition, when you are given medicine, feel?
Painful: _____
8. How serious does your pain from the condition, when you are given medicine, feel?
Painful: _____
9. How serious does your pain from the condition, when you are given medicine, feel?
Painful: _____

Information about the physician or other health care professional

- 10) Name of physician or other health care professional: _____
- 11) Address: _____
- 12) City: _____ State: _____ ZIP: _____
- 13) Has the physician found an occupational cause?
 Yes No
- 14) Has the physician found an occupational cause?
 Yes No

APPENDIX B
TOOL BOX SAFETY MEETING

FOREMAN/SUPERVISOR – PRINT NAME

Date and Shift

FOREMAN/SUPERVISOR – SIGNATURE

Section

TOPICS COVERED AT MEETING:

Name(s) of Personnel Present for Meeting _____

Name (print)	Signature	Job Title

MDC AUDIT: _____
(name) (signature) (date)

Original must be filed for length of construction project.

APPENDIX C: SAFETY INSPECTION CHECKLIST
 Page 1 of 3

TITLE: JOB SITE ERECTION – Crane Inspection

AREA INSPECTED: _____

INSPECTED BY: _____ **DATE:** _____

INSPECTOR SIGNATURE: _____

PCI SAFETY MANUAL REFERENCE SECTIONS: _____

* Check items to be inspected in your area – disregard others not applicable

*	OK	ITEM INSPECTED	NOT OK	COMMENTS
		<u>The Crane Crew:</u> Is the operator and crew properly trained and medically fit to perform their job?		
		Operating is a full time job – does the operator pay strict attention to his duties?		
		Do crane personnel wear hard hats when away from the crane?		
		Is the operator aware of the regulations involving working close to high voltage lines and electrical equipment?		
		High Voltage, even from a distance source, can be induced in metal parts of the crane. Is the operator aware of these situations?		
		Does the operator know the weight of each piece before he picks it?		
		Does the crane crew know the manufacturer's proper recommendations for making short moves on the job site?		
		Does the crew get help when lifting heavy items?		
		Does the crew periodically check for level?		
		Do they check outriggers for stability?		
		Do they check the boom angle indicator and other electronic load equipment for accuracy?		
		Does the operator allow anyone to ride the load or the hooks?		
		<u>The Ground Crew (hooking up product)</u> Does the ground crew have, maintain and use proper safety equipment?		
		Are they familiar with the product erection sequence?		

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APPENDIX C: SAFETY INSPECTION CHECKLIST
 Page 2 of 3

TITLE: JOB SITE ERECTION – Crane Inspection (continued)

AREA INSPECTED: _____

INSPECTED BY: _____ **DATE:** _____

INSPECTOR SIGNATURE: _____

PCI SAFETY MANUAL REFERENCE SECTIONS: _____

* Check items to be inspected in your area – disregard others not applicable

*	OK	ITEM INSPECTED	NOT OK	COMMENTS
		(Continue) Are they familiar with the crane signals and general operation of the crane?		
		Do they know how to properly hook pieces and provide aerial stability?		
		Do they know how to properly use tag lines?		
		Are tag lines in good condition, strong enough?		
		Long Enough?		
		Two-way communication between the operator and erection foreman are becoming more common to provide safety on the job. Does the crew know how to operator and maintain the system? Are spare parts available for quick repair?		
		Is the crane swing radius roped off to prohibit the crane (during swing) from causing damage or hurting someone? Is entire swing checked? Including counterweights?		
		<u>The Machine:</u> Is the crane operated within all capacities?		
		Is the machine inspected daily?		
		Are the required crane inspections recorded?		
		Are all controls properly identified?		
		Are warning devices operative?		
		Is an operator's manual available to the crew for easy reference?		
		Are load charts, operating signals and other important information posted and/or readily available?		

APPENDIX C: SAFETY INSPECTION CHECKLIST

Page 3 of 3

TITLE: JOB SITE ERECTION – Crane Inspection (continued)

AREA INSPECTED: _____

INSPECTED BY: _____ DATE: _____

INSPECTOR SIGNATURE: _____

PCI SAFETY MANUAL REFERENCE SECTIONS: _____

* Check items to be inspected in your area – disregard others not applicable

*	OK	ITEM INSPECTED	NOT OK	COMMENTS
		(continued)		
		Are brakes within operating limits?		
		Are clutch and brakes surfaces dry?		
		Are all protective panels and guards in place?		
		Are electrical systems in good condition?		
		Are all of the sheaves properly aligned so as to reduce rope wear during work?		
		Is cable in good condition?		
		Are hooks in good condition?		
		Have hooks been inspected by magnetic particle inspection?		
		Are there safety latches on hooks?		
		Are fuel tanks in good condition and without leaks?		
		Are fire extinguishers available and routinely inspected?		
		<u>Slings</u>		
		Are slings in good conditions? Is safety factor of 5 maintained?		
		Are slings stored properly?		
		Are sling inspected reports maintained?		
		Are "U" bolt wire rope clips correctly placed?		
		Are all other lifting devices in good condition?		

CHECK LIST FOR CRITICAL LIFTS

NOTE: THIS FORM IS TO BE COMPLETED WHEN THE LOAD EXCEEDS 80% OF THE LOAD CHART FOR THE CRANE OR DERRICK OR WHERE THE PICK INVOLVES THE USE OF TWO OR MORE CRANES.

DATE: _____

(1) SUPERVISOR RESPONSIBLE FOR LIFT: _____

(2) DESCRIPTION OF ITEM TO BE LIFTED AND ESTIMATED WEIGHT:

(3) EQUIPMENT AND LIFT RELATIONSHIP:

(A) OPERATING RADIUS..... _____

(B) BOOM LENGTH..... _____

(C) ALLOWABLE LOAD (FROM LOAD CHART)..... _____

(D) RATIO OF LIFT TO ALLOWABLE LOAD..... _____

(E) CLEARANCE TO SURROUNDING FACILITIES..... _____

(F) SLING ANGLE..... _____

(4) CONDITION OF HOISTING EQUIPMENT AND RIGGING:

(A) HAS ALL EQUIPMENT BEEN REINSPECTED FOR THIS LIFT? YES NO

(5) STABILITY OF GROUND AREA:

(A) CHECK SOIL BEARING ALLOWABLE LOAD (COMMENTS):

(B) WILL MATS BE NEEDED? YES NO

CHECK LIST FOR CRITICAL LIFTS (cont.)

(B) ANY UNDERGROUND INSTALLATIONS NEEDING SPECIAL ATTENTION?
 YES NO

(C) WILL IT BE NECESSARY FOR THE CRANE TO WALK WITH THE LOAD?
 YES NO

IF THE ANSWER IS "YES", ANSWER QUESTIONS E, F, & G.

(E) IS AREA SURFACE LEVEL AND STABLE WHERE THE CRANE WILL BE WALKING
 YES NO

(F) HAVE FACILITIES BEEN PROVIDED TO KEEP THE LOAD RADIUS FROM CHANGING?
 YES NO

(G) HAVE ALL OVERHEAD FACILITIES BEEN CHECKED FOR CLEARANCE IN THE AREA WHERE THE CRANE WILL BE MOVING?

(6) DOES THE OPERATOR HAVE THE NECESSARY EXPERIENCE ON THE CRANE AND ON THIS TYPE OF LIFT?
 YES NO

(7) IF LIFT INVOLVES USE OF TWO CRANES ANSWER THE FOLLOWING:

A) HAVE OPERATORS WORKED TOGETHER BEFORE? YES NO

B) WHO WILL COORDINATE INSTRUCTIONS TO OPERATORS? _____

BY: _____
CONTRACTOR'S SUPERINTENDENT

APPENDIX D

SPECIAL HURRICANE PRECAUTIONS

During such periods of time as are designated by the United States Weather Bureau as being a hurricane warning or alert, all construction materials or equipment shall be secured against displacement by wind forces; provided that where a full complement of personnel is employed or otherwise in attendance, or engaged for such protection purposes, normal construction procedures or uses of materials or equipment may continue allowing such reasonable time as may be necessary to secure such materials or equipment before winds of hurricane force are anticipated. Construction materials and equipment shall be secured by guying and shoring, by tying down loose materials equipment and construction sheds.

APPENDIX E

OSHA General Industry and Construction Standards Requiring a Competent Person

The following OSHA standards require a competent person to perform specific functions under the standard. Standards are arranged numerically within the categories of General Industry and Construction. This list of standards requiring a competent person is to be used as a reference tool and does not supercede OSHA requirements.

General Industry (1910)

- 1910.66, Powered platforms for building maintenance.
- 1910.66 App C, Powered Platforms, Manlifts, and Vehicle-Mounted Work Platforms, Personal Fall Arrest System (Section I - Mandatory; Sections II and III - Non-Mandatory).
- 1910.109, Explosives and blasting agents.
- 1910.139, Respiratory protection for M. tuberculosis.
- 1910.183, Helicopters.
- 1910.184, Slings.
- 1910.268, Telecommunications.

Construction (1926)

- 1926.20, General safety and health provisions.
- 1926.53, Ionizing radiation.
- 1926.62, Lead.
- 1926.101, Hearing Protection.
- 1926.251, Rigging equipment for material handling.
- 1926.354, Welding, cutting, and heating in way of preservative coatings.
- 1926.404, Wiring design and protection.
- 1926.451, Scaffolds.
- 1926.454, Scaffolds, Training requirements.
- 1926.500, Fall Protections, Scope, application, and definitions applicable to this subpart.
- 1926.502, Fall protection systems criteria and practices.
- 1926 Subpart M App C, Personal Fall Arrest Systems - Non-Mandatory Guidelines for Complying with 1926.502(d).
- 1926 Subpart M App E, Sample Fall Protection Plan - Non-Mandatory Guidelines for Complying with 1926.502(k).
- 1926.503, Fall Protection, Training Requirements.
- 1926.550, Cranes and derricks.
- 1926.552, Material hoists, personnel hoists, and elevators.
- 1926 Subpart P App A, Excavations, Soil Classification.
- 1926 Subpart P App B, Excavations, Sloping and Benching.
- 1926.651, Specific Excavation Requirements.
- 1926.652, Excavations, Requirements for protective systems.
-

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- 1926.705, Concrete and Masonry Construction, Requirements for lift-slab operations.
- 1926.752, Steel Erection, Bolting, riveting, fitting-up, and plumbing-up.
- 1926.800, Underground Construction.
- 1926.803, Underground Construction, Caissons, Cofferdams, and Compressed Air, Compressed air.
- 1926.850, Demolition, Preparatory operations.
- 1926.859, Mechanical demolition.
- 1926.900, Blasting and the Use of Explosives.
- 1926.1053, Ladders.
- 1926.1060, Stairways and Ladders, Training requirements.
- 1926.1101, Asbestos.
- 1926.1101 App F, Work practices and engineering controls for Class I Asbestos Operations - non-mandatory.
- 1926.1127, Cadmium.

Memorandum



Date: June 25, 2015
To: Distribution
From: Eric J. Muntan, Chief
Office of Safety and Security
Subject: Background Checks for Contractors ID Procedures

Background Checks for Contractors: ID Procedures

Miami-Dade Transit (MDT) is implementing the following policies and procedures to govern both the issuance of new contractor and subcontractor ID cards, as well as renewal of currently existing contractor and subcontractor ID cards.

Procedures

All contractors and subcontractors are required to have a current ID card displayed while on MDT property at all times. In order to obtain a new or renewed Contract ID card, the following paperwork must be submitted in person:

- A completed, **original** contractor ID application, completed **in blue ink**, and signed by both the contractor/subcontractor and an MDT authorized representative.
- A completed, **original fingerprint card**.
- A completed, **original local background check** form with a proper raised seal from the issuing law enforcement agency.

All documents must be original, and can have no alterations or markings. Similarly, all documents must be produced in person. No emails, PDF files, or facsimiles will be accepted.

Copies

All copies of original documents will be maintained by an MDT inventory control specialist.

Ineligibility for issuance or renewal of contractor/subcontractor ID cards

Personnel may not be issued a new or renewed contractor or subcontractor ID if he/she currently or in the past has:

- Any felony, sexual, or domestic violence conviction
- Been discharged from the military under any conditions other than honorable
- Any history of irresponsible behavior including but not limited to an unreasonable driving record, or a problem employment record as determined by the county contract administrator or designee

- Any criminal activity listed in 49 US Code of Federal Regulations (CFR) section 1542.209, *Disqualifying Criminal Offenses* and 19 CFR 122.183, *Denial of Access*.

Display of ID card

All contractor and subcontractor personnel **must** at all times conspicuously display their contractor/subcontractor ID card. Prior to entry, and at all times while on MDT property, contract and subcontract personnel are subject to ID checks by any authorized MDT agent. Any personnel not in possession of their ID card will be denied access to MDT property, or if already on property will be immediately escorted off MDT property until such time as he/she can display proper ID.

All contract and subcontract personnel are subject to random ID checks while on MDT property, at any time for any purpose, by any authorized MDT agent.

Limit of Duration of Contractor/Subcontractor ID card

New or renewed contractor/subcontractor ID cards shall be valid for a time not to exceed one year. All issued contractor/subcontractor cards must be renewed prior to the completion of the one year period to maintain all contractor/subcontractor privileges included therein. Any contractor or subcontractor who fails to comply with the one year renewal requirement is strictly forbidden from entering any MDT property as a contractor/subcontractor until such time as the ID card is renewed and returned to valid status.



Contractor/Subcontractor New or Renewal ID Checklist

Each of the following tasks **must** be completed prior to issuance of any new or renewed contractor or subcontractor ID cards. Successful completion of the below requirements will help prevent any unnecessary delays or obstacles in obtaining your new or renewed contractor or subcontractor ID card.

Did you remember to:	Completed?
Complete your contractor ID application in blue ink?	<input type="checkbox"/>
Have your contractor ID application signed by an authorized MDT representative?	<input type="checkbox"/>
Complete a fingerprint identification card?	<input type="checkbox"/>
Complete an NCIC background check with proper seal?	<input type="checkbox"/>
Bring only original documents, not photocopies, and refrain from sending any email, PDF, or faxed documents?	<input type="checkbox"/>
Keep all original documents free of any unnecessary markings or alterations?	<input type="checkbox"/>
Verify that you have no convictions for any listed criminal acts that prohibit issuance or renewal of an ID card?	<input type="checkbox"/>
Read all requirements for obtaining, maintaining, and displaying your contractor/subcontractor ID card?	<input type="checkbox"/>

Upon successful completion of all of the above listed items, you are permitted to turn in the necessary original documents to request issuance of either a new or renewed contractor/subcontractor ID card.



MDT CONTRACTOR IDENTIFICATION CARD APPLICATION

Company Name: _____ Date: _____
Company address: _____
City: _____ State: _____ Zip: _____ 24 hrs Contact #: _____
Email Address: _____ Fax #: _____

Employee's Name: _____ Phone #: _____
Employee Address: _____
City: _____ State: _____ Zip: _____ SS #: _____

Certification: I hereby certify that all information made on this form is true to the best of my knowledge. Furthermore, I agree to abide by all County and MDT policies and procedure while on MDT property. I further agree that any identification cards and/or credentials issued to me are MDT property and shall be surrendered to MDT upon completion of any assignment/project at the property for which the identification was issued. I am aware if the ID is lost or stolen, the replacement fee will be \$10.00 the first time and \$20.00 every time there after. I further agree and understand that the MDT card is not to be used for free transportation on MDT Metrobus or Metrorail system.

Employee's Signature: _____ Print Name: _____

MDT accompanying Supervisor Statement: I hereby certify that all information made on this form is true to the best of my knowledge and that the applicant is a bona fide employee or sub-contractor of said Contractor.

MDT signature: _____ Print Name: _____
Title: _____ Phone #: _____

Contractor's Representative Statement: I hereby certify that all the information made on this form is true to the best of my knowledge and the applicant is a bona fide employee or sub-contractor of our company. I further agree that any identification cards/credentials issued to this person are MDT property and shall be surrendered to MDT upon completion of any assignment/project at the property for which the identification was issued.

Signature: _____ Print Name: _____
Title: _____ Phone #: _____

SECTION TO BE COMPLETED BY EMPLOYEE RELATIONS ONLY

Date: _____ Prox. Card #: _____ Station Card #: _____
Cyber Key #: _____ 311 Card #: _____
Expiration Date not to exceed 12 months after date of issue: _____

Identification given: License #: _____ Alien Card #: _____
Passport #: _____ Other: _____

ID in [] not returned [] Date: _____ Cyber key in [] not returned [] Date: _____
Station Card in [] not returned [] Date: _____ 311 Card in [] not returned [] Date: _____

APPLICANT

* See Privacy Act Notice on Back

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PLACE OF BIRTH **POB**

DATE

SIGNATURE OF OFFICIAL TAKING FINGERPRINTS

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EMPLOYER AND ADDRESS

FBI NO. **FBI**

CLASS _____

REASON FINGERPRINTED

ARMED FORCES NO. **MNU**

REF. _____

SOCIAL SECURITY NO. **SOC**

MISCELLANEOUS NO. **MNU**

1. R. THUMB

2. R. INDEX

3. R. MIDDLE

4. R. RING

5. R. LITTLE

6. L. THUMB

7. L. INDEX

8. L. MIDDLE

9. L. RING

10. L. LITTLE

LEFT FOUR FINGERS TAKEN SIMULTANEOUSLY

L. THUMB

R. THUMB

RIGHT FOUR FINGERS TAKEN SIMULTANEOUSLY

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

ADJACENT CONSTRUCTION MANUAL



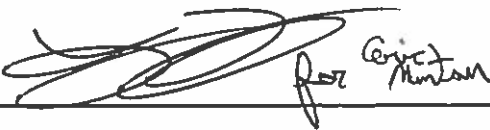
**DEPARTMENT OF
TRANSPORTATION AND
PUBLIC WORKS
ADJACENT CONSTRUCTION MANUAL**

July 2017

**DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
ADJACENT CONSTRUCTION MANUAL**

**DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
OFFICE OF SAFETY AND SECURITY
MIAMI, FLORIDA**

July 2017



A handwritten signature in black ink, appearing to read "Eric Muntan", is written over a horizontal line.

**Approved By:
Eric Muntan
Chief, DTPW
Office of Safety and Security**

8-4-17
Date

**DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
ADJACENT CONSTRUCTION MANUAL**

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DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS ADJACENT CONSTRUCTION MANUAL

1.0 Introduction

This manual was prepared in the interest and for the guidance of those who may want to construct a non-Department of Transportation and Public Works (DTPW) physical structure (incl. any excavation, demolition or use of DTPW real property) on, adjacent to, or over, an existing DTPW facility and/or property. The purpose of this Manual is to provide uniform minimum standards and criteria for the construction, development and maintenance of all properties that have or may enter the **Safety Zone** (defined in Appendix A and C) that has been established for all DTPW property and extending on either side of the Metrorail and/or Metromover systems. This includes any equipment, regardless of distance from the guideway, which static or operational failure could directly or indirectly affect DTPW operations or structures.

These standards are intended to provide the basic guidance for the construction, development and maintenance of property adjacent to the operating guideway systems so as to:

1. Protect the safety of the general public and DTPW Employees.
2. Protect the guideway system and the DTPW property from physical damage.
3. Preserve the level of service and operational schedules so as to cause the least disruption for the ridership and use of the DTPW system.

This manual outlines the design guidelines and criteria to follow for the design and submittal of construction plans and specifications to DTPW for review prior to construction of the project. It is the general policy of DTPW to review designs for construction projects adjacent to or on DTPW property on a case-by-case basis to ensure that DTPW facilities are not damaged by the proposed construction, and that DTPW operations are not impacted during or after the adjacent construction.

DTPW maintains half-size "as-built" drawings in its Engineering, Planning & Development (EP&D) Library. Half-size copies of any of the drawings on file are available at printing costs. The full-size drawings on file are available at printing costs. The full-size drawings are normally in archival storage. Full size drawings may be obtained by special request. The Manager, DTPW Document Control, may be contacted (telephone: (786) 469-5268) for an appointment to review the drawings and to order prepaid copies as required.

The criteria provided herein are general in nature and for the sole purpose of providing a selective overview of the design requirements. Specific designs performed in the past by DTPW's consultants may not necessarily be in total conformance with this manual. It is considered to be the Developer's responsibility to obtain the original design computations, where available, from DTPW to completely understand the original design intent in order to accurately assess the impact of their proposed construction on the DTPW structures and facilities. A map of the DTPW Metrorail and Metromover system is provided in Section 2.0 (below) for use in locating "as-built" drawings.

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2.0 System Maps (Rail & Mover)

2.1 Metrorail System



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2.2 Metromover System



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3.0 General Procedures for Adjacent and Transit Right-of-Way Construction Activity

Developers or agencies contemplating any construction activity adjacent to or on Department of Transportation and Public Works (DTPW) facility, structure or property, including any excavation, maintenance, restoration, demolition or use of DTPW real property, should provide, for review, three (3) copies of their drawings and three (3) copies of their calculations, showing the relationship between their project and the DTPW facilities.

Sufficient drawings and details should be submitted to facilitate DTPW's review of the effects that the proposed project may or may not have on the DTPW facilities. A DTPW review requires internal circulation of the construction drawings to concerned departments. Drawings normally required for review are:

- Site Plan
- Drainage Area Maps and Drainage Calculations
- Architectural drawings (basement plans through top floor)
- Sections showing foundations and DTPW Structures
- Structural drawings (provide relative sections showing DTPW)
- Column load tables
- Pertinent drawings detailing an impact on DTPW facilities
- A copy of the geotechnical report

If uncertainty exists on the possible impacts a project may have on the DTPW facilities, and before making a formal application for a review of a construction project adjacent to the DTPW System, the developer or his agent may contact the **Chief, Right-of-Way and Utilities Division** should be contacted at **(786) 469-5244**.

Sheeting and shoring drawings should be accompanied by calculations. The drawings and calculations should contain comments, details, notes, and instructions describing the proposed sequence of construction.

When the design of foundations and site work of the project has progressed to the point considered complete and ready for review, the drawings and calculations, as applicable, should be sent to:

**Chief
Right-of-Way and Utilities
Department of Transportation and Public Works
701 N.W. 1st Court, Suite 1500
Miami, FL 33136**

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A period of 15 working days should be allowed for review of the drawings and calculations. Fifteen (15) days should be allowed for each successive review as required. Additional review time may be required for complex projects.

Reimbursement is required for the cost of providing support services for adjacent construction and joint development projects where access is required into the operating Metrorail/Metromover system; or the system is impacted. As part of the review procedure, and before any work may proceed, the developer will be required to sign a letter accepting this obligation.

The applicant must receive written approval for the design of a given project by the DTPW Chief, Right-of-Way & Utilities or DTPW Fire/Life Safety Technical Committee Chairperson (as applicable), prior to the start of construction.

Project Documents shall be reviewed and accepted by the appropriate DTPW Divisions for possible impact on DTPW facilities and operations, including all elements associated with the construction of the project and any temporary protection system needed to preserve the system safety.

Each "Part" of the project's design shall be reviewed and approved by the DTPW Design and Engineering Division (DED). A few of the more common "Parts" of a project are considered to be sheeting and shoring, overhead protection, dust protection, dewatering, temporary use of public space for construction activities.

The DTPW review process is outlined in Figure 1 below

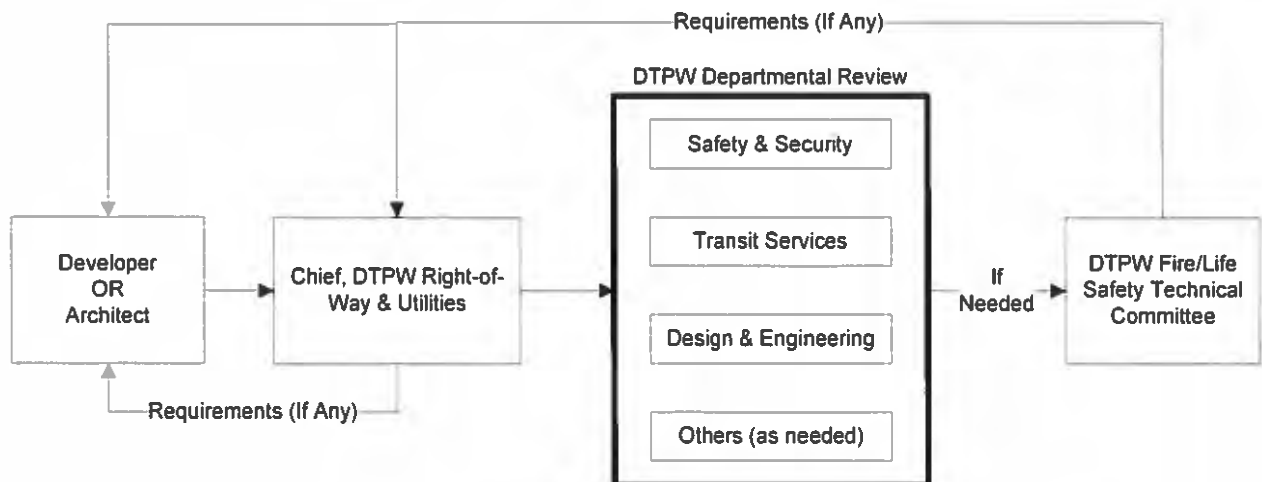


Figure 1

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ADJACENT CONSTRUCTION MANUAL

3.1 Fire/Life Safety

DTPW Office of Safety and Security is charged with the responsibility to chair the DTPW Fire/Life Safety Technical Committee which was formed in 1978 to guide Department of Transportation and Public Works (DTPW), rapid transit operations, in developing and following emergency procedures and operational procedures to ensure all fire/life safety related equipment is in proper order and all associated personnel are appropriately trained; to prescribe testing and inspection procedures for fire/life safety equipment in accordance with appropriate codes; to assist the DTPW in developing and implementing a comprehensive joint training program for fire/rescue personnel and DTPW employees; and, to interpret and apply fire/life safety codes, criteria and standards to the design of the fixed guideway systems.

The DTPW Fire/Life Safety Technical Committee acts on behalf of the DTPW Director in accordance with the above to interpret and apply fire/life-safety requirements incorporated in the Florida Building code; National Fire Protection Association Codes and Standards; State Statutes and Fire Marshal's Office; South Florida Fire Protection Code; DTPW Criteria and Standards; other applicable codes, standards and criteria; and, as required, to develop, and verify implementation of, design standards for the DTPW to protect life and property. The Committee works closely with Transit Engineering for design of fire/life safety features and test and maintenance of alarm systems. For test and maintenance of fire suppression systems, the Committee works with facilities maintenance organizations.

As required by the current System Safety Program Plan, the Fire/Life Safety Technical Committee addresses fire/life safety concerns, as described above, for all phases of DTPW Metrorail, Metromover, Metrobus and Special Transportation Services Operations. The Committee also serves as liaison with all Miami-Dade County jurisdictions for development and coordination of emergency response procedures and annual emergency response drills.

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4.0 DTPW Review Policy

All design work will be reviewed based upon the assumption that the design will meet the applicable code adopted in the jurisdiction as well as the DTPW Design Criteria and DTPW Standard Specifications. The DTPW design concepts, as set forth herein, generally represent the design approach used by DTPW in the design of its facilities. The effect of adjacent construction upon DTPW structures should be examined based upon the same approach.

Permits, where required by the local jurisdiction, shall be the responsibility of the developer.

Monitoring of the temporary support of excavation structures for adjacent construction shall be required in all cases for excavations within the influence line of DTPW structures (Appendix B). The extent of the monitoring will vary from case to case. Structural design computations maybe required for the adjacent construction. When requested by DTPW, the calculations submitted for review shall include the following:

- A concise statement of the problem and the purpose of the calculation.
- Input data, applicable criteria, clearly stated assumptions and justifying rationale.
- References to articles, manuals and source material should be furnished with the calculations.
- References to pertinent codes and standards.
- Sufficient sketches or drawing references for the work to be easily understood by an independent reviewer. Diagrams indicating data (such as loads and dimensions) shall be included along with adequate sketches of all details not considered standard by DTPW.
- The source or derivation of all equations shall be shown where they are introduced into the calculations.
- Numerical calculations shall clearly show all English units.
- Identify results and conclusions.
- Calculations shall be neat, orderly, and legible.

Drawings should be drawn, to scale, showing the location and relationship of the proposed adjacent construction to existing DTPW structures at various stages of new construction along the entire adjacent alignment. The stresses and deflections induced in the existing DTPW structures should be provided.

The short-term and long-term effects of the new loading due to the adjacent construction on the DTPW structures should be provided. The soil parameters and other pertinent geo-technical criteria contained herein should be used to analyze the existing DTPW structures.

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DTPW structures shall be analyzed for differential pressure loadings caused by dewatering the adjacent construction site.

A system of earth retaining structures is required for new excavations adjacent to DTPW structures. Design calculations and drawings stamped and prepared by a Registered Professional Engineer experienced in this type of work, and registered in the state where the work will be performed, are required.

All DTPW underground concrete structures are designed using the ACI Alternate Design Method (working stress design) to curtail excessive deflections and cracking. DTPW underground structures shall be fully reevaluated, for the effects caused by the adjacent construction, using working stress techniques.

4.1 REVIEW SUBMITTALS - DRAWING CRITERIA

General

All designs for the protection, support (sheeting and shoring) and underpinning of existing DTPW structures shall be reviewed by DTPW's Design and Engineering Division (DED). The investigation of the feasibility of various underpinning and dewatering schemes for structures constructed adjacent to DTPW facilities shall be investigated by the developer. The developer's engineer should make recommendations concerning the best underpinning design for a particular structure.

The developer's contract drawings and specifications shall require his construction contractor to maintain, protect and be responsible for the safety, stability and integrity of all adjacent DTPW structures which may be affected by his work.

Drawing Details

The following information shall be included in the drawings submitted for review of an adjacent construction project:

- Dimensioned clearances, both horizontal and vertical, between the adjacent developer's construction and DTPW structures, track, roadways, parking areas and utilities.
- Details of the proposed modifications to DTPW's roadways, parking areas, and busways. Include sections and details showing the relationship of existing facilities and proposed facilities.
- Cross sections with the existing and proposed contours and limits of grading work shown in relation to the property lines and the impact or lack thereof on DTPW facilities. Where grading changes are required in DTPW property, provide the dimensions and square footage of the area required for construction easements.
- Hydrologic and hydraulic calculations showing the impacts on the DTPW drainage system are required if storm drainage from the proposed development is to be discharged into the existing DTPW drainage system. Appropriate sedimentation

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and erosion control measures should be included upstream of the discharge point onto DTPW property.

- Where modifications to DTPW utilities are required by adjacent construction, submit for review cross sections, plan and profiles, specifications and design calculations concerning the utility modifications. Details for maintaining electrical and water service to DTPW Stations should be shown when required.
- Where construction will impact a DTPW station entrance and the public, include in the submittal plans for temporary pedestrian and vehicular traffic circulation for the area around the station entrance. Where construction will be adjacent to or above a Metrorail/Metromover station entrance, protection will be required over the escalators in accordance with Section "Overhead Protection" of this Manual. Provide the construction plans, the shop drawings or the working drawings showing the phasing of adjacent construction as well as the construction details for overhead protection, pedestrian barricades, and sidewalk protection. Requests for relocation of bus stops and bus shelters shall be clearly shown on the plans. Barricades and signing necessary to direct the public through the construction zone will be required. Lighting will be required as part of all overhead protection structures.
- Provide construction protection details to preclude impacts on DTPW landscaping, street furniture, pylons, bus shelters and light fixtures.

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5.0 DTPW Operational Requirements

DTPW shall have the right to stop any work or construction activities that effects the safety of the DTPW patrons and or facilities or normal DTPW operations. DTPW will exercise reasonable advance notice, except for any matters related to immediate system concerns which will require no advance notice.

Construction work which may have any impact on the Metrorail/Metromover Systems may be scheduled during the Non-Peak Operating Hours or Non-Passenger Hours. Non- Peak Operating Hours are defined as weekdays prior to 6:30 A.M. or after 7:00 P.M. and between 10 A.M. and 3 P.M.; and all day Saturday and Sunday. Non-Passenger hours are defined as Monday through Sunday 12:30 A.M. to 4:30 A.M. Passenger hours may change without notice.

Construction work that may impact weekend or special operational conditions will be limited. Schedule requirements will be addressed on a project by project basis where the individual scheduling need of the project can be evaluated with respect to the operations of the DTPW system.

5.1 General Conditions for Construction Adjacent to the Metrorail or Metromover Guideway/Facilities

- A. Clear access is required on a 24 hour basis for ingress and egress for transit patrons, fire and rescue personnel, and maintenance personnel.
- B. A contact person will be named by the Contractor to act as liaison with the DTPW Office of Safety and Security for all matters related to safety of the DTPW System. A contact person shall also be named (may be the same person) to act as liaison with the DTPW Metrorail/Metromover Operations Division for all matters related to operation of the Transit System.
- C. DTPW shall have the right to review all plans and any construction with reasonable advance notice, except for any matters related to immediate system safety concerns which will require no advance notice.
- D. No construction elevators or cranes will be erected on the Metrorail/Metromover guideway side of the building/structure being constructed or demolished.
- E. The Metrorail/Metromover guideway shall not be used to support and/or brace construction scaffolding or equipment.
- F. For any activity within the **Safety Zone**, the following requirements may apply pending DTPW review.
- G. At least forty-eight hours notice describing the nature of the work shall be provided to the DTPW prior to commencement of work.
- H. The contractor will provide special protection, such as netting, barricades, walks, screens, scaffolds, etc., acceptable to DTPW, to help ensure the safety

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- of DTPW property, patrons and employees. No work shall be permitted unless such protection is provided as determined necessary by DTPW.
- I. Best efforts will be used to schedule all construction work which may have any impact on the Metrorail/Metromover System during the Non-Peak Operating Hours or Non-Passenger Hours. Non-Peak Operating Hours are defined as weekdays prior to 6:30 A.M.; after 7:00 P.M. and between 10 A.M. and 3 P.M.; and all Saturdays and Sundays. Non-Passenger Hours are defined as Monday through Sunday 12:30 A.M. to 5:00 A.M. or such other hours as may be designated by the County as Non-Passenger hours. Passenger hours will change as required by DTPW.
 - J. No crane lifts, other crane operations or any other operation shall be performed within the **Safety Zone** (Appendix A and C) without prior approval (in writing) from DTPW. This paragraph shall apply where any part of the load or crane (incl. counter weight), construction equipment or operation that is above the surface of the guideway running pad/rail.
 - K. For any construction activity within the **Safety Zone** (Appendix A and C) or that may encroach into the Safety Zone, DTPW may deem, as necessary, at the contractor's expense, a DTPW employee or DTPW authorized contractor or consultant (Monitor), to coordinate the contractor's activities with Central Control. This employee will be responsible for monitoring construction activities and communicating with DTPW Central Control. DTPW will determine, in the reasonable exercise of its discretion, the number of hours the above-mentioned employee is needed. The construction contractor will reimburse DTPW for costs arising from the provision of the above-mentioned employee which will be charged at the current rate.
 - L. DTPW may, at its discretion, modify any of the above conditions or impose additional conditions, to help ensure the safety of the public, and its patrons, employees or property.

5.2 DTPW Monitor and Contractor Coordination

A. Start-up

There will be continued meetings between representatives from DTPW, and Contractor/Developer's project manager, DTPW crane Monitors, the Contractor's crane operators and the form-work Contractor prior to the commencement of the phase work by the tower cranes and any other equipment or operation, adjacent to the DTPW Metromover/Metrorail Guideway System. In addition, DTPW Monitors and the contractor equipment/crane operators will continue to meet daily, at the beginning of the work day, of the project to establish a working relationship of the daily routines in and around the DTPW safety zone.

No construction work requiring a DTPW Monitor will commence until the Contractor provides the DTPW Monitor a functional Contractor radio, and sign off for same as per contractor procedures. Upon arrival at the project site, the DTPW Monitor will

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immediately contact the DTPW Central Control Facility, to advise of his/her presence at the project site.

If, at any time during the construction project, a new crane operator is brought on-site to operate any crane, he/she must be apprised of all of the rules and regulations outlined in this Plan by the Contractor's/Developer's Project Manager.

B. Special Provisions – Pre-Task Plan

At the discretion of DTPW, based on construction project proximity to DTPW system and scope of work, DTPW may assign a DTPW manager to log in arrival of DTPW Monitor(s), at the construction site. The assigned DTPW manager will contact the Contractor Senior Superintendent to request and receive a Contractor radio and meet with the Contractor Senior Superintendent and Contractor trade partner /Superintendent or Foreman to go over planned work. The Contractor Senior Superintendent, Contractor Trade Superintendent/Foreman, the DTPW Monitor and the assigned DTPW manager will complete and sign the Contractor Pre-Task Plan (PTP) Form, as specified in the DTPW Adjacent Construction Manual. Until this revised PTP form is accurately and completely filled out, scheduled work warranting a DTPW Monitor shall not proceed. After the PTP form is completed, if PTP is deemed by DTPW, the assigned DTPW manager and the DTPW Monitor shall walk to the selected area to commence monitoring duties, performing a radio check with the operator or crew on the other end of the Contractor radio. If the radio check is successful, the DTPW Monitor will use the DTPW radio to communicate to the Rail Central Control Facility to advise that the Contractor will commence with construction work.

C. Commencement of Work

Once receiving authorization from the appropriate Rail Traffic Controller, the DTPW Monitor will use the Contractor radio to communicate to the work crew that it is now permissible to begin work. The Contractor representative and the DTPW Monitor will sign the provided Central Control log form (as specified in the DTPW Adjacent Construction Manual), with the corresponding approval code, to confirm hearing the verbal approval from the Rail Central Control Facility over the DTPW radio before commencing with work. This log records the code, date, time, location, equipment being used, person giving code and DTPW Monitor receiving code.

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6.0 Construction Activity Considerations

The Contractor shall comply with the following requirements:

- The Contractor shall assume full responsibility for the compliance with all applicable Federal, State and local regulations and for complying with this Manual for construction adjacent to the right-of-way during the performance of all work.
- Provide an overall maintenance of traffic (MOT) control plan for pedestrians, vehicular traffic and construction operations. Establish a general visitor control program if required.
- Maintain responsibility for project safety on the work site for the company employees as well as its' subcontractor employees.
- Require each of the Contractor's personnel that may need access on the guideway, to attend the DTPW Orientation and Guideway Safety Class. The Contractor shall reimburse costs of these classes to the DTPW.

6.1 DTPW Personnel/Public/Property Safety & Security

6.1.1 Mechanical Criteria

Existing services to DTPW facilities, including chilled water and condenser water piping, potable and fire water, fire standpipes and storm and sanitary sewers, are not be interrupted nor disturbed without written approval of DTPW.

Clear access for the fire department to the DTPW fire standpipe system and guideways shall be maintained at all times. Construction signs shall be provided to identify the location of DTPW fire standpipes. Call **DTPW Office of Safety and Security (305-375-4240)** 48 hours in advance of any approved interruption to fire standpipe water service.

Modifications to existing DTPW mechanical systems and equipment, required by new connections into the DTPW System, will only be permitted with prior review and approval by DTPW.

The adjacent construction developer will be required to submit the design calculations, drawings, specifications, catalog cuts and any other information necessary to fully describe the proposed modification.

At the option of DTPW, the adjacent construction developer will be requested to perform the field tests necessary to verify the adequacy of the modified system and the equipment performance. Where a modification is approved, the developer shall be held responsible to maintain original operating capacity of the equipment and the system impacted by the modification.

6.1.2 Corrosion & Stray Current Protection

The developer should be aware that, since Metrorail/Metromover transit cars are powered by direct current (DC) electricity, direct current can enter the earth through

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unintentional leakage from the DTPW negative ground return system. The leakage or stray current may flow to the discharge from underground metallic elements (i.e. steel reinforcing, pipelines, grounding systems, etc.) which are in contact with any electrolyte, including earth, in the vicinity of the DTPW System. Because stray current may be corrosive to metal at locations where it flows into an electrolyte, the developer is cautioned to investigate the site for stray current and to provide the means for stray current mitigation when warranted.

Further information concerning stray current mitigation can be obtained by contacting The National Association of Corrosion Engineers (NACE), P.O. BOX 218340, Houston, Texas 77812, telephone (713) 492-0535.

6.1.3 Electrical System Interference

No interference to existing DTPW duct banks for the following electrical services shall be allowed:

- 13.8 K.V. service from Florida Power & Light
- 480 V. Florida Power & Light or from DTPW substations
- 480 V service to lighting in Parking Lots, Kiss and Ride areas, and 120 V service to Bus Shelters.

If any of the listed duct banks are affected by the adjacent construction, all information shall be submitted to the DTPW and utility company for review and approval.

No interference to existing DTPW duct banks for the following services shall be allowed:

- Telephone cables from Bell South
- DTPW train control and communications cables

Redesign of Facilities

The design for relocation or modification to existing DTPW parking lots, or Kiss & Ride areas and bus shelters shall be done in accordance with DTPW Design Criteria, Directive Drawings and Standard Specifications. To minimize interruption of DTPW operations, a phasing plan shall be developed and submitted for approval.

Proposed relocation of light fixtures, if any, shall be submitted for DTPW approval.

Existing ground-grids and ground conductors from ground-grids to DTPW facilities shall not be disturbed. No digging or cutting into existing DTPW facilities (ductbanks, wall, floor or ceiling) shall be permitted.

Access to personnel and equipment hatches for underground facilities shall not be blocked. In case any structure is built over an equipment access hatch, adequate passageway for entry of a heavy truck and clearance for the use of a crane to lower equipment from the truck into the hatch shall be provided.

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In case any structure is built adjacent to DTPW at-grade facilities (traction power substations, tiebreaker stations, train control or communications rooms), passageways for heavy trucks and adequate clearance for the use of cranes to move equipment from trucks into and out of the equipment hatches shall be provided.

Emergency access gates for at-grade or aerial sections of DTPW rail shall not be blocked. Adequate passage from the gates to public streets shall be provided.

6.1.4 Modifications/Direct Connections to a DTPW Station

Connections to Metrorail/Metromover Facilities shall be designed, built and paid for by the person requesting the connection in accordance with DTPW Design Criteria or through a Direct Connection Agreement. Below are the items that shall be considered in the design of the connections.

The connection shall have a bronze flexible gate installed between the two passageways. The gate or grate shall be keyed on both sides with separate locks. To open the gate both locks will have to be open. Where the connection has 24-hour manned security on the non-DTPW side of the connection, glass doors may be used in lieu of a gate. If doors are used, each door shall be locked from both sides.

When required, a Closed-Circuit Television (CCTV) will be installed at the developer's expense and connected to the DTPW Kiosk. Power for the cameras shall be run from the CCTV to the station power room. The existing conduit runs and spare breaker locations can be found in the DTPW "As Built" drawings. It is the developer's responsibility to have this research performed by a competent professional. Intrusion alarms shall be installed on the gate or door and control wires installed between the gate or door and the communications room by the developer's contractor. Final connection will be made by DTPW to the DTPW security system.

Finishes on the interior of the DTPW side of the connection shall be to DTPW standards and specifications.

Lights in the new passageway shall be run to the developer's power room and included in the development's emergency power panel.

In the event that a Direct Connection is to be maintained by DTPW then the design will be in accordance with DTPW Design Criteria and construction would be required to meet DTPW's standard construction specifications. Normally the Direct Connection passageway is designed to be compatible with the building of which they are constructed as a part.

Before removing the knock-out panel the contractor shall have an approved dust protection system in place and fully functional. Typically, a dust protection system shall consist of a stationary partition that isolates the knock-out panel from the station. The dust partition shall be constructed using only fire rated materials. All joints shall be sealed with tape. Construction of the partition shall be during non-passenger hours.

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Adjacent construction with a connecting passageway(s) to DTPW facilities will require special features to isolate one facility from the other for fire-safety, and may include automatic fire doors and dampers, sprinkler systems, smoke removal and ventilation systems and detection and alarm systems as required by the local fire code.

6.1.5 Signs, Signals, Barricades and Traffic Control General Requirements

1. All traffic signs or devices used for protection of construction workmen or the public shall conform to the State of Florida Manual on Traffic Control and Safe Practices on Street and Highway Construction.
2. Barricades, cones and/or similar protective devices shall be used whenever men or equipment are exposed to traffic or similar hazards.
3. When traffic lanes are closed due to work activity, advance warning signals and high level warning devices shall be used as described in the State of Florida Manual on Traffic Control and Safe Practices on Street and Highway Construction.
4. Flagmen and signalmen will be properly trained and use appropriate procedures, using the current FDOT manual.
5. All employees working adjacent to traffic shall be required to wear reflective vest, per FDOT manual.
6. Whenever and wherever possible and necessary, line voltage (12 volt) protected lights shall be used to mark fences and barricades and other such encroachments onto public streets or sidewalks.
7. Where covered sidewalks are required they shall be provided with permanent lights to provide sufficient illumination for safe use by the public day or night. All bulbs shall be cage-protected.
8. Public walkways shall be kept clean and free of hazards at all times.
9. Where the Contractors are required to provide public walkway, they shall have abrasive non-slip surface.
10. Where access to bus stop is disturbed or obstructed by the Contractors operations, safe access will be maintained or the bus stop relocated as directed by DTPW. Coordination for maintaining or relocating bus stops with the appropriate agencies is the sole responsibility of the Contractors.
11. When steel plates or similar covers are used on public ways to cover excavations they shall be substantially secured to prevent movement imposed by traffic. Covers shall have non-slip surface, conforming to OSHA Specifications.

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12. When such covers are located where there is pedestrian exposure, they shall be tapered at all sides with cut back cold mix or similar material to eliminate tripping hazards. Covers shall have non-slip surface.
13. Free access shall be maintained to every fire extinguisher, fire hydrant, fire alarm box, fire escape and standpipe connection, street and traffic light control box. When required, hydrants shall be extended by suitable tube or piping to an accessible point as approved by DTPW. No obstructions shall be allowed at any time within 15 feet of a fire hydrant. Where materials are placed in the vicinity of a fire hydrant or a fire alarm box or fire extinguisher, and to such a height as to prevent the same from being readily seen, the position of such hydrant or fire alarm box or fire extinguisher shall be indicated by suitable signals, both day and night.
14. The Contractor shall erect and maintain fences and barricades to enclose the Contractor's work area, and provide watchmen where required to prevent unauthorized access.

6.1.6 Material Handling (Storage, Use and Disposal) General Requirements

1. All materials stored in tiers shall be secured to prevent sliding, falling or collapse.
2. Reinforcing steel shall not be used as a lifting ("Pick") point on any load or as a guy line anchor.
3. Hooks, except special sliding choker hooks shall be securely moused when in use, or shall be provided with a functioning safety latch.
4. Scrap material of any kind, type or nature shall be placed daily into appropriate containers specifically supplied for this purpose. Containers shall be removed from the work site when full.
5. Loose material on open decks or other exposed locations shall be removed or secured at the end of each day to eliminate dislodgment by wind or other causes.
6. Compatibility of stored materials and storage methods will comply with all applicable OSHA, Fire Department and environmental agency standards.
7. Employees required to handle, use or dispose of hazardous materials shall be instructed regarding the safe handling, proper procedures, potential hazards, personal hygiene, and personal protective equipment required.
8. No explosive or flammable materials shall be stored under the guideways.
9. Disposal of materials shall be in accordance with all applicable Federal, State and Local regulations. All applicable recordkeeping and reporting requirements shall be met by the Contractors.

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6.1.7 Adverse Weather Conditions General Requirements

1. Disassemble all scaffolds, loose formwork, radio antennas and secure properly.
2. All items that cannot be secure shall be stored inside secured storage areas or buildings.
3. All crane booms shall be lowered to ground level and secured to prevent movement.
4. All office trailers shall be tied down in compliance with MDC Tie-Down Ordinance No. 77-1 upon original installation. All tie down straps, ground anchors, piers, etc., shall be checked for condition and operation.
5. All exposed glass on the Work Site shall be protected by a solid, rigid covering.
6. All free standing walls shall be stored from both sides.
7. Before employees are dismissed from the Work Site, the Contractors shall make a through inspection to verify all necessary precautions have been taken.
8. All precautions for construction sites during hurricane conditions, as required by the Florida Building Code shall be met.

6.1.8 Housekeeping General Requirements

1. All refuse piles shall be removed from the Work Site immediately.
2. Stored and stacked materials shall be kept orderly, properly stacked, choked, and secured.
3. Any protruding nails, etc., shall be bent, removed or clinched immediately.
4. Oil, grease, and water spills shall be cleaned up immediately.
5. Loose materials, tools, or equipment shall be kept off stairs, out of walkways, ramps, platforms at all times when not in use.
6. Depressions and pot-holes in vehicle or walkway surfaces on the Work Site shall be properly filled and graded immediately.
7. Walkways, vehicle travel ways, ramps, railings, and stairways, shall be kept free from debris, properly installed and maintained.
8. Smoking or the use of open flames within 25 feet of flammable storage areas or fueling areas shall not be permitted.

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9. Flammable storage areas shall be properly posted **"NO SMOKING"**, provided with adequate fire extinguishers and free of combustible materials.
10. All sanitary facilities used on the Work Site shall be maintained on a daily basis.
11. All structures shall have a minimum of a 5-foot perimeter clearance that is to be free from any combustible debris or materials.

6.1.9 Overhead Protection

Overhead protection from falling objects shall be provided over DTPW facilities whenever there is a possibility, due to the nature of a construction operation, that objects could fall in or around DTPW guideway, at-grade sections, DTPW facilities, DTPW station entrances and areas designated for public access to DTPW facilities. Erection of the overhead protection for these areas shall be done in strict accordance with the requirements of this Manual and applicable standards cited herein.

The design live load for all overhead protection shall be in compliance with the minimum required by the current Florida Building Code and/or other(s) enforceable code. Overhead protection design shall include provision for impact loading when located adjacent to demolition projects or construction / maintenance projects where it is foreseeable that construction debris could fall on or near DTPW Facilities. Overhead protection for impact loading must be designed for a minimum of 300 pounds per square foot and to resist the force of impact of the largest foreseeable member or building element as taken from the elevation of that element. All overhead protection shall be designed by a licensed professional engineer. The design wind load on the temporary structures shall be in accordance with the calculated loads for components and claddings per the latest edition of the ASCE 7 Code.

Overhead protection over sidewalks and pedestrian areas shall be constructed of fire resistant materials. The vertical clearance between walking surface and the lowest projection of the overhead protection shall be 6'- 8". Construction materials and equipment shall not be stored on the completed walkway and pedestrian areas of the overhead protection roofs. A clear path from any DTPW emergency exit to the public street shall be maintained at all times.

The contractor will provide special protection, such as netting, barricades, walks, screens, scaffolds, etc., acceptable to DTPW, to help ensure the safety of DTPW property, patrons and employees. No work shall be permitted unless such protection is provided as determined necessary by DTPW. Erection of protective structures shall not be done during normal passenger hours unless by written authorization through DTPW.

Lighting of overhead protection at sidewalks and pedestrian areas is required and shall be provided under the overhead protective to maintain a minimum level of ten (10) foot candles at the walking surface. The temporary lighting will be maintained by the contractor.

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With written DTPW authorization, the Overhead or Fall Protection structure may be constructed over the right of way and the guideway, if designed for the use for which it is intended, as well as in accordance with the above minimum design load requirements. The shield shall be constructed or installed during non-passenger hours. Once installed, limited work may proceed above the overhead protection during non-passenger hours.

6.1.10 Cranes and Swing Stage Scaffolding

General Requirements

The erection or staging of cranes, construction elevators and man lifts, swing stage or scaffolding, debris chutes or gantries shall not be performed within the 30 feet of the guideway drip line during passenger hours, without an authorized DTPW "Monitor" under radio communication with Central Control, on site.

Crane lifts located within 30 feet of the DTPW guideway drip line are permitted during non-peak passenger operating hours only when coordinated by an authorized DTPW crane Monitor or DTPW authorized employee under radio communication with Central Control on site. Under no conditions will loads be permitted to be swung over or within 5 feet of the guideway.

Crane lifts and exterior building operation conducted from swing stage that are located within the DTPW Right of Way or within 30 feet of the guideway drip line are permitted only during non-peak operating hours and only when coordinated by an authorized DTPW Monitor under radio contact with Central Control.

No construction elevators or cranes will be erected on the Metrorail / Metromover guideway side of the building /structure.

The contractor must ensure that all cranes are operated only by trained, experienced and competent operators who hold either an Operating Engineers, Local Union, Verification of Competence and Experience or equivalent licensure.

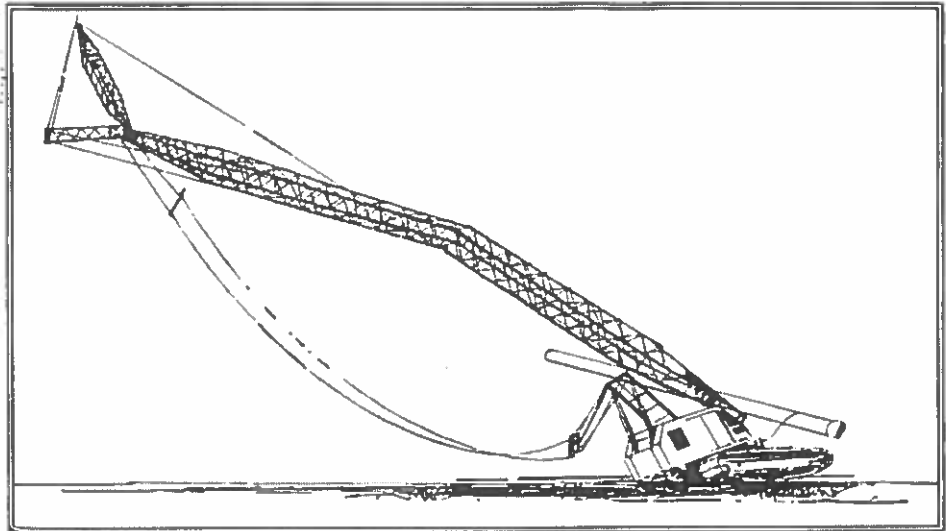
The contractor must also ensure that the men who direct, rig and handle loads are adequately trained, able to establish load weights, judge distance, heights and clearance and capable of selecting tackle and lifting gear suitable for the loads lifted.

All crane/scaffolding operations within the DTPW Right of Way and 30 feet of the guideway drip line are subject to inspection by the DTPW Design and Engineering Division, Metromover Maintenance Division and DTPW Office of Safety and Security. Cranes operated within DTPW Right of Way and Safety zones shall have complete maintenance, repair and inspection logs present on the machine and available for review. DTPW reserves the right to refuse the operation of any machine that the structural condition or stability of the machine is questioned regarding the task attempted by the contractor.

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MOBILE CRANES

Over 50% of all
Crane Accidents
are “caused”
when the
machine is
improperly set
up.



The size, boom length and capacity of all cranes operated on projects within the DTPW Right of Way and Protective Safety Zones must be clearly shown on a site plan as part of an DTPW Access Permit application. The swing radius of the machine must be shown on the site plan with respect to the location of DTPW facilities.

Adequate care must be demonstrated by the contractor to DTPW representatives when setting up cranes and booms. Cranes shall be erected in strict conformance with the manufacturer's specifications and standard of good construction practice. Outriggers and support shall be adequately cribbed and blocked so as to properly brace the crane frame.

Adequate swing clearance shall be provided at the counterweight of the crane cab. At no time shall the counterweight swing clearance be less than 5 feet from the DTPW guideway drip line, without an authorized DTPW crane Monitor or employee under radio communication with Central Control on site. Overturning boom stops are required on all cranes when the boom angle exceeds 50 degrees from horizontal.

Mechanical swing limit switches and stops may be required to limit crane swing over and adjacent to the DTPW guideway and DTPW facilities. At no time will loads be allowed to be swung over the DTPW guideway, DTPW Stations or DTPW facilities.

Sheet pile and driven pile crane operations should be erected so that the crane and boom are situated perpendicular to the DTPW guideway. Staging and erection of piling should be adequately restrained or stayed such that the piling cannot topple into DTPW facilities during setup operations.

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Tower Cranes

Tower cranes may be employed on projects that are adjacent to the DTPW facilities and guideway systems and that are tall enough, have sufficient jib length to reach a distance of 30 feet from the guideway drip line or that loads could be swung over DTPW facilities, are regulated by this manual. In general all tower cranes with base of tower located at a distance from the DTPW guideway drip line less than the height of the tower crane are subject to the restrictions in operation of this chapter.

Tower cranes are subject to wind movement and must be able to weather-vane during periods of high wind. Weather-vaning tower cranes, when cranes are not in use, are allowed to swing over DTPW guideway or facilities during passenger hours.

Tower cranes are subject to fatigue cracking and failure at the tower and jib connections. A certified structural inspection log of the Crane tower, jib, cables and haulage assemblies must be provided to DTPW on all tower cranes located in areas that they could affect DTPW facilities.

6.1.11 Excavations, Foundations and Sheet Piling

Until provisions for permanent support have been made, all excavations shall be properly guarded and protected so as to prevent the same from becoming dangerous to life and property and shall be sheet piled, braced and/or shored, where necessary, to prevent the adjoining earth from caving in; such protection to be provided by the person causing the excavation to be made. No excavation, for any purpose, shall extend within five (5) feet of the angle of repose of any soil bearing footing or foundation unless such footing or foundation is first properly underpinned or protected against settlement.

The design of all soils excavations, stabilization, modifications, underpinning or laterally protected with sheet piling shall be designed by a licensed professional engineer known to the Building Official to be qualified to evaluate the bearing capacity of soils. This design shall include a Geotechnical Soils investigation such that the registered Professional Engineer shall submit to the Building Official a letter attesting that the site has been observed and the foundation conditions are similar to those upon which the designed is based. The letter shall be signed and bear the impress seal of the engineer or architect, as applicable. Geotechnical soils sampling shall be conducted at sufficient frequency to ensure that the soils conditions on the project site are representative of the design conditions.

Angle of Repose

The angle of repose of all support soils within the DTPW Right of Way and safety zones shall be considered as 1:1 ratio. No excavation, for any purpose, shall extend within five (5) feet of the angle of repose of any DTPW soil bearing footing or foundation unless the design capacity of that footing is evaluated by the design Engineer of Record and his recommendations are approved by DTPW with respect to the design engineers modifications. Refer to Appendix B for clarification.

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Pilings

Sheet pilings, driven pilings, auger cast pilings or other operations that create significant soils vibration shall be closely monitored with seismic accelerometers to verify the energy transmitted into the DTPW structures is less than 0.22 inches per second. Additional detailed survey analysis may be required to verify that no settlement has occurred in the course of the work.

Excavators

Excavation equipment operated within the DTPW Right of Way and Safety Zones must take extra care to avoid causing damage to DTPW facilities. Track excavators have similar swing geometry problems as mobile cranes and are capable of causing significant damage if improperly operated. Similarly, improper operation of wheel loaders, excavators, dump trucks and vibratory rollers can cause impact and vibration damage to structures.

The contractor must ensure that all heavy excavation equipment is operated only by trained, experienced and competent operators who hold either an Operating Engineers, Local Union, Verification of Competence and Experience or equivalent licensure.

Excavations may be conducted within the DTPW Right of Way and Safety Zones only during non-passenger hours. Excavation operations within the DTPW Right of Way and Safety Zones require a trained DTPW Monitor, in radio communication with DTPW Central Control, during all excavation operations.

Protection of underground site utilities is the responsibility of the contractor. All utilities must be located by an approved utilities locator service prior to the start of any excavation or piling activities.

DTPW may, at its discretion, modify any of the above conditions or impose additional conditions, to help ensure the safety of the public, and its patrons, employees or property.

6.1.12 Demolition

No Demolition of structures adjacent to DTPW facilities by blasting shall be permitted. During piece-by-piece demolition, it is essential that the DTPW escalators, and/or other DTPW equipment be protected from dust generated by the demolition. The DTPW equipment must be covered with polyethylene sheets during demolition to prevent dust from entering the equipment. Guideway protection diagrams and location plans shall be submitted by the contractor when appropriate or requested by DTPW. Such plans shall clearly show the alignment of the DTPW right-of-way together with the setback dimensions of the portions of the building to be demolished.

Application

This section is intended to apply to all activity on the exterior of buildings located within the Safety Zone including maintenance, inspections, probing, demolition operations and shall comply with the American National Standard (ANSI) A 10.6 standard for demolition

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operations. In cases of practical difficulty and unnecessary hardship, or where other extenuating circumstances exist, DTPW may grant exceptions to the requirements stated herein, or may permit alternative methods, but only when it is clearly evident that equivalent protection is thereby secured.

Demolition Plan

The contractor must submit a detailed demolition plan to DTPW Engineering for review as part of the permit application package. This Demolition plan must include the scope of proposed demolition, location plan and building elevation of the proposed demolition work detailing the setback distance to DTPW facilities. Additionally the anticipated contractor means and methods, anticipated protective methods, equipment list including sizing of all demolition equipment should be supplied in the demolition submittal plan. The plan shall describe the type of construction (concrete, steel frame, masonry, etc.) and the overall construction configuration.

Guideway protection diagrams and location plans shall be submitted by the contractor when appropriate and requested by DTPW. Such plans shall clearly show the alignment of the DTPW right-of-way together with the setback dimensions of the portions of the building to be demolished.

Protection

During demolition, it is essential that the DTPW facilities be protected from dust generated by the demolition. The DTPW stations, escalators, train control and traction power rooms/buildings must be covered with polyethylene lined sheets during demolition to prevent dust from entering the DTPW switch gear and equipment.

Structural Condition and Analysis Survey

Prior to starting any demolition operation within the safety zone, an engineering survey of the structure shall be made to determine the condition at all locations of the exterior walls adjacent to the DTPW system. The purpose of the survey is to determine the condition of the framing, floors, and walls so that actions can be taken, if needed to prevent premature collapse of any portion of the structure. Such survey shall be made on the outside utilizing swing stages with full rail protection. The survey shall consist of documenting all locations displaying loose, cracked, and/or deteriorated stucco, tile, or other building facade materials in which such condition could result in falling debris.

An exterior crack survey may be required as part of the engineering survey of building to be demolished. A crack survey should be prepared locating all significant cracks including a location sketch, description, width, estimated recent activity, and the existence of previous repairs. Cracks of any significance shall be physically marked so that future observation may be made with telescopic equipment at the ground level. A stucco condition survey locating all significant irregularities in the stucco facade including bulges, micro/map cracking, hollow and de-bonded areas, discoloration due to water absorbance effervesce scaling, or other abnormalities should be included in the crack / engineering survey.

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Guideway Protection Diagrams and Location Plans shall be submitted by the contractor when appropriate and requested by DTPW. Such plans shall clearly show the alignment of the DTPW right-of-way together with the setback dimensions of the portions of the building to be demolished.

Similarly a window / wall opening survey of the condition of window vents, plywood covers, sill stability, and other characteristics from which conclusions can be made as to the security of such openings. Where a hazard exists from fragmentation of glass or instability of the window frame/vent, all glazed openings shall be removed or protected.

Scheduling

Exterior building element demolition activities located within the safety zone are permitted only during non-passenger operating hours and only when coordinated by an authorized DTPW "Monitor" under radio communication with Central Control on site.

Protective Measures

Remove all loose materials by hand which are in imminent danger of falling. The removal of such loose materials must also include a temporary repair or stabilization at any location where the removal results in an opening or area, which can allow water to penetrate resulting in further or future deterioration.

Pedestrian Site Security and Safeguards

Prior to the engineering survey of the building exterior and other invasive activities, it is necessary to fully protect the public and in particular, DTPW facilities. Every sidewalk, train guideway, station platform, stairs, escalator, or public thoroughfare adjacent to or near enough to be affected by the operations on the building shall be closed, relocated or protected as specified in overhead protection above.

Demolition Observer

Provide a full time observer who is classified as a qualified person and who is capable of recognizing changes in the building facade and appearance. The purpose of this person is to provide warnings to the DTPW operators in the event of a sudden change in the building's outward appearance or stability so that service on a rail section may be discontinued. The observer shall remain at the site at all times DTPW is in operation and providing service to the public

Periodic Demolition Reports

A certification shall be provided by a licensed engineer after each periodic inspection stating that the building components are secure and that it is safe to operate the DTPW system in that location.

Demolition Means and Methods

No wall sections shall be permitted to stand alone without lateral bracing. Additionally, all walls shall be left in a stable condition at the end of each shift. Masonry walls or other sections of masonry shall not be permitted to fall upon the floors of the building unless qualified persons have determined the impact of such masses will not exceed the safe carrying capacities of the floors.

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Chutes

Materials shall be dropped only through chutes to any point lying outside the exterior walls of the building and chutes at any angle exceeding 45 degrees from the horizontal shall be entirely enclosed. Also, chutes shall be designed and constructed to eliminate hazards of impact of materials or debris

Particle Velocity and Seismograph Reports

When required, the contractor shall measure and furnish reports of particle velocity caused by impacts in accordance with provisions in Appendix E of this document.

Additional Requirements

DTPW may, at its discretion, modify any of the above conditions or impose additional conditions, to help ensure the safety of the public, and its patrons, employees or property.

6.1.13 Exterior Building Maintenance

Pressure Washing

Painting

Window Washing

Sandblasting

Stucco Damage Repair

Other Maintenance Operations

Structural/ Non-Structural Inspections

General

In general, some routine maintenance activities associated with the exterior building envelope of buildings may not require a building permit. However, to adequately ensure the safety of the DTPW system, provisions are made in this manual detailing specific requirements and limitations of allowed building maintenance activities within the DTPW Safety Zone. A DTPW Access Permit is required on all exterior building maintenance activities for buildings located within the Safety Zone.

Access to exterior building components located within the Safety Zone including window cleaning operations and roofing operations is prohibited during DTPW passenger hours without a DTPW Monitor. The simple DTPW policy is that "there shall not be any exterior building maintenance activity at or above the elevation of the DTPW guideway during normal passenger operations without a DTPW Monitor".

Maintenance

This section is intended to apply to all activity on the exterior of buildings located within the Safety Zone including maintenance, inspections, probing, stucco repair, painting and waterproofing operations. In cases of practical difficulty and unnecessary hardship, or where other extenuating circumstances exist, DTPW may grant exceptions to the requirements stated herein, or may permit alternative methods, but only when it is clearly evident that equivalent protection is thereby secured.

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Small Particle Protection

Routine exterior building cleaning is required to some extent on most structures. Much of this work is commonly accomplished by access to the building exterior via either swing stage or boson chair. Access on building exteriors located within the safety zones is prohibited during passenger hours without a DTPW Monitor.

Pressure cleaning and sandblasting activities produce over spray, dirt and particle fallout below the work area. DTPW guideway, stations and facilities must be adequately protected from the fallout of the dirt, particles, sand, loose paint, etc. prior to the start of any exterior building cleaning activity. Such protection may be in the form of polyurethane lines, canvas tarps or other catchment devices. Design of required protection must be approved by DTPW.

Stucco probing and repair, painting and waterproofing activities produce falling debris. DTPW guideway and DTPW Facilities must be adequately protected with overhead protection as described in this manual as part of the DTPW Work Order for stucco repair and painting activities.

DTPW may, at its discretion, modify any of the above conditions or impose additional conditions, to help ensure the safety of the public, and its patrons, employees or property.

DTPW Operations and Scheduling

DTPW shall have the right to stop any work or construction activity that affects the safety of DTPW patrons and or facilities or normal DTPW operations. DTPW will exercise reasonable advance notice, except for any matters related to immediate system safety concerns which will require no advance notice.

Construction work which may have any impact on the Metrorail/Metromover System may be scheduled during the Non-Peak Operating Hours or Non-Passenger Hours. Non- Peak Operating Hours are defined as weekdays prior to 6:30 A.M. or after 7:00 P.M. and between 10 A.M. and 3 P.M.; and all day Saturday and Sunday. Non-Passenger hours are defined as Monday through Sunday 12:30 A.M. to 4:30 A.M. or such other hours as may be designated by the County as Non-Passenger Hours. Passenger hours may change without notice as needed by DTPW.

Weekends / Holidays & Special Events

Construction work that may impact weekend or special operational conditions will be limited. Schedule requirements will be addressed on a project to project basis where the individual scheduling needs of the project can be evaluated with respect to the operations of the DTPW systems.

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APPENDIX A: GLOSSARY

The following terms shall, for the purpose of this Manual, have the meanings respectively ascribed to them:

- ACCIDENT -** An unforeseen event or occurrence that causes death, injury or damage to property. Any abnormal condition that requires the attention or intervention of responsible personnel or an individual monitoring the transit system operation.
- ALARM CONDITION -** Deviation from nominal performance, which does not cause a significant, effect on system performance but does warrant investigation and/or repair. Sanctioned or accepted by the building official and Department of Transportation and Public Works.
- AUTOMATIC -** A term applied to a system, subsystem, or device, which has the inherent capability to function without direct manual participation.
- CATCH PLATFORM -** A temporary structure erected around or attached to, and abutting a building for the purpose of safeguarding the employees, and the public, by catching and retaining falling objects or debris.
- CENTRAL CONTROL -** That place where train control or train supervision is accomplished for the entire Metro-rail and Metro-mover system; the train command center.
- CONSTRUCTION SAFETY -** The optimum degree of safety within the constraints of construction effectiveness, time and cost through specific application of safety management throughout all phases of the construction.
- CONSTRUCTION SAFETY MANUAL -** Issued as a contract document by Department of Transportation and Public Works (DTPW), to be used as a guide by the Contractor in developing his Accident Prevention Program.
- DTPW ACCESS PERMIT -** Issued written authorization from DTPW for work in the DTPW Right of Way and DTPW Safety Zones. Construction Work Orders are specific with regard to the scope, extent, additional requirements or limitations, and allowable

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schedule of approved work to be completed in the DTPW Right of Way and Safety Zones.

CONTRACT DRAWINGS -	The plans, profiles, typical cross-sections, general cross-sections, elevations, schedules and details which show locations, character and dimensions of the work.
CONTRACTOR'S AUTHORIZED SAFETY REPRESENTATIVE -	The person designated as authorized safety representative who will be responsible for work site safety and for reporting all insurance claims.
CONTRACTOR-	The individual, firm, partnership, corporation, or combination thereof, private, municipal, or public, including joint ventures, which, as an independent contractor, has entered into a contract with MDC, who is referred to throughout the Contract Documents by singular in number and masculine in gender.
CHUTE-	A trough or tube used to guide and transport sliding objects, materials, or debris from a higher to a lower level.
DEGRADATION -	Falling from an initial level to a lower level in quality or performance.
DEMOLITION -	Dismantling, razing, destroying, or wrecking any fixed building or structure or any part thereof.
EMERGENCY -	A situation which is life threatening or which can cause serious damage on or in the immediate vicinity of any transit facility, structure, bus or train.
EMPLOYEE -	A person employed by the Contractor or Subcontractor.
EQUIPMENT FAILURE -	The state in which equipment no longer meets the minimum acceptable specified performance and cannot be restored through operator adjustment or control.
FTA -	Federal Transit Administration, formerly UMTA.
FAILURE -	An inability to perform an intended function within specified tolerances.

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HAZARD - Any real or potential condition that can cause injury or death; or damage to or loss of equipment or property.

HAZARD MANAGEMENT (LOSS CONTROL) - An element of the system safety management function that evaluates the safety effects of potential hazards considering acceptance, control, or elimination of such hazards with respect to expenditure or resources. (The feasibility of hazard elimination must be considered in light of financial, legal, and human considerations).

HAZARD SEVERITY – A qualitative measure or the worst potential consequences that could be caused by a specific hazard.

Category I Catastrophic May cause death, serious injury/illness or major system loss.

Category II Critical May cause injury/illness, or major system damage.

Category III Marginal May cause minor injury/illness, or minor system damage.

Category IV Negligible Will not result in injury/illness, or system damage.

HAZARD RESOLUTION - The analysis and subsequent actions taken to reduce, to the lowest level practical, the risk associated with an identified hazard.

IMMINENT DANGER - Refers to any condition or practice where there is reasonable certainty that a danger exists that can be expected to cause death or serious physical harm and/or serious property damage immediately or before the danger can be eliminated through normal enforcement procedures

INCIDENT - An unforeseen event or occurrence that does not necessarily result in injury or property damage.

MAINTENANCE - All actions necessary for retaining an item in or restoring it to an operable condition.

MALFUNCTION - Any anomaly or failure wherein the system, subsystem, or component fails to function as intended.

MAY - A permissive condition. Where the work "may" is used, it is considered to denote permissive usage

MIAMI DADE COUNTY - The Board of County Commissioners of Dade County, (MDC) Florida, political subdivision of the State of Florida, and the DTPW, an office under the County manager of Miami Dade County, Created March 1, 1974, by Administrative

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Order No. 3-8, under the authority of Sections 4.01 and 4.02 of the Miami Dade County Charter - and any authority, board, body, commission, official or officials to which or to whom the powers now belonging to DTPW in respect to the location, construction, equipment, maintenance and operation of transit facilities shall, by virtue of any act or acts, hereinafter pass or appertain.

DTPW - Department of Transportation and Public Works, Miami-Dade County, located at 701 N.W. 1st Court, Suite 1700, Miami, Florida 33136

DTPW RIGHT OF WAY- As defined by the legal description of the properties that the DTPW facilities occupy or are situated above and supportive easements. For the purpose of this manual the Right of Way shall be defined as those properties located within the drip lines of the DTPW rails, stations and facilities and include those properties used for access and egress to the DTPW facilities by the general public and normal DTPW operations.

MISHAP - An unplanned event or series of events that result in death, injury, occupational illness, or damage to or loss of equipment or property. (See also ACCIDENT).

MONITOR - An authorized DTPW employee, DTPW contractor or DTPW consultant monitoring the movement of construction equipment or materials that may infringe upon the 30' "Safety Zone" (that area of the Department of Transportation and Public Works Guideway (Metrorail and/or Metromover) that lies within 30' of the outermost edge of the superstructure) which has the potential to interfere with Department of Transportation and Public Works operations and/or maintenance. This person(s) shall ensure the safety of Department of Transportation and Public Works patrons, employees, property and the public. DTPW contractors and DTPW consultants shall be trained per DTPW Rail Services Metromover and Metrorail training packages before they perform duties as Monitors.

OPERATOR - That person having direct and immediate control of the movement of a vehicle or machinery.

OPERATING TIME - The time period between turn-on and turn-off of a system, subsystem, component or part during which time operation is as specified. Total operating time is the summation of all operating time periods

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OSHA - The Occupational Safety and Health Administration. An agency of the U.S. Government which sets standards to provide for the safety of employees in the workplace. The local area office is located in Ft. Lauderdale, Florida, phone (305) 527-7292

PERSONAL PROTECTIVE EQUIPMENT (PPE) - Equipment designed and worn to provide protection against hazard to some part of an employee's body. Examples of PPE are safety glasses, respirators, hart hats, gloves etc. All PPE used at DTPW work sites must comply with applicable OSHA standards

POWER RAIL - Three separate rails center mounted on insulators on the guidebeam which provides traction power for vehicle propulsion. (Metromover)

PROCEDURES - Established methods to perform a series of tasks.

QUALIFIED PERSONS - Those who by possession of a recognized degree, certificate, or professional standing, or by extensive knowledge, training, and experience in the demolition industry have successfully demonstrated their ability to solve or resolve problems relating to the subject matter of demolition.

QUALIFYING BUILDINGS - Buildings located within 30 feet of DTPW Right of Way corridor, and greater than 35 feet, in height, that have a building footprint located adjacent to a Safety Zone where the elevation of the building encroaches into the Vertical Safety Zone extensions as defined in Safety Zone above and at the rate of 1 foot horizontal offset per 4 feet of building height above DTPW facility. See the definition of Safety Zone above and attached drawing CZ-1 (Appendix C).

QUALIFYING STRUCTURES - Cranes whose boom swing infringes within the 30 feet Safety Zone or DTPW Right-of-Way corridor. Signs located within the safety zone. Temporary scaffolding or construction towers within the Safety Zone or DTPW Right of Way corridor with heights greater than 30 feet.

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- QUALIFYING WORK-** Any construction, demolition, equipment operations or building maintenance activity performed on or in a building or structure which may be hazardous to persons or property within the DTPW Right of Way or protective safety zones.
- RELIABILITY -** The probability that the system or sub-system will perform satisfactorily for a given period of time when used under stated conditions.
- REPAIR -** The maintenance activity which restores a failed item to operable state.
- RISK -** An expression of possible loss over a specific period of time or number of operational cycles. It may be indicated in terms of hazard severity and probability.
- RISK MANAGEMENT -** The Risk Management Division, Miami Dade County, General Services Administration, located at 111 N.W. 1st Street, Suite 2340, Miami, Florida 33128; phone 375-4280.
- RULE -** A law or order authoritatively governing conduct or action.
- SAFE -** Secure from danger of loss.
- SAFETY -** A reasonable degree of freedom from those conditions that can cause injury or death to personnel; damage to or loss of equipment or property; and freedom from danger.
- SAFETY CHECKLIST -** A list for examining the safety aspects of equipment, procedures and personnel.
- SAFETY CRITICAL -** A designation placed on a system, sub-system, element, component, device, or function denoting that satisfactory operation of such is mandatory to assurance of patron, personnel, equipment, or facility safety. Such a designation dictates incorporation of special safety design features.
- SAFETY DEVICES -** Protective devices which do not alter the fundamental nature of a hazard but which do control the extent of the hazard in some manner.
- SAFETY MANAGEMENT -** An element of management that establishes safety program requirements and ensures the planning, implementation and accomplishment of task and activities to achieve work place safety.

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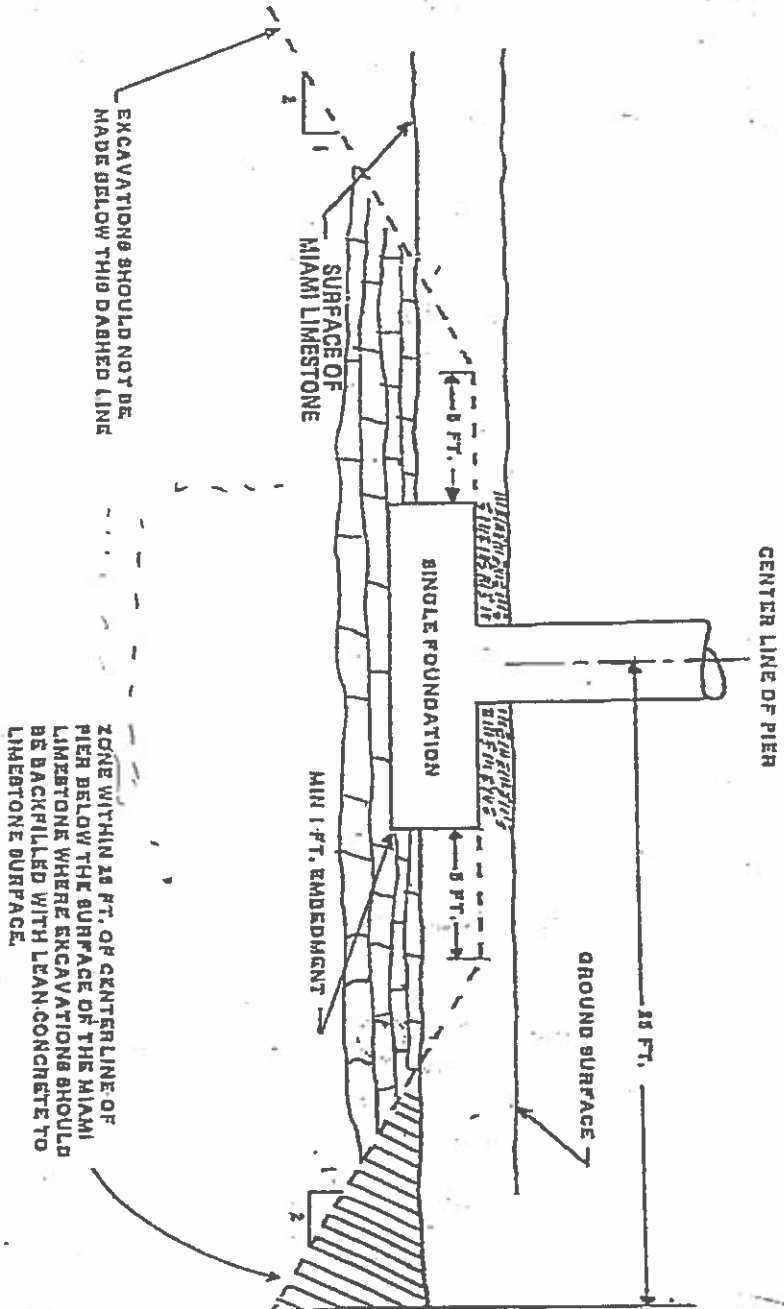
- SAFETY PROGRAM -** The combined task and activities of safety management and safety engineering that enhance operational effectiveness by satisfying the safety requirements in a timely, cost-effective manner throughout all phases of the work.
- SAFETY SUBCONTRACTOR -** A subcontractor who satisfies the Florida Department of Labor and Employment Security Industrial Safety and Health Programs, Chapter 38F-44, and is duly approved by MDC
- SAFETY ZONE -** Safety Zones are defined as a protective safety buffer zone adjacent to the DTPW Right of Way. Safety Zones include all lands public or private within 30 feet (horizontally) of the DTPW Right of Way measured from the drip line of the facility/guideway. No work is allowed at the exterior of any building located within the protective safety zone without an approved DTPW Access Permit.
- SERVICE CONTRACTS/
CONTRACTOR -** Those operations that are providing any services, or repair, replacement or maintenance functions that are indigenous to the construction process on the Work Site.
- SHALL -** A mandatory condition. Where certain requirement are described with the "shall" stipulation, it is mandatory that these requirements be met.
- SHOULD -** An advisory condition. Where the " should" is used, it is considered to be advisable usage, recommended but not mandatory.
- STATE -** The State of Florida.
- SUBCONTRACTOR -** Any person, firm or corporation, other than the employees of the Contractor, who contracts with the Contractor to furnish labor and/or materials under this Contract.
- SUPPLIER/VENDOR -** Those entities whose. sole responsibility to the project is the delivery of goods or materials, exclusive of direct labor.
- SYSTEM -** A composite of people, procedures and equipment operating in a specific environment to accomplish a specific mission or task
- THIRD RAIL -** A rail mounted on insulators adjacent to running rails which provides traction power for train propulsion. (Metrorail).

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- TRANSIT SYSTEM -** A transportation system comprised of fleets of motor buses and electrically propelled transit vehicles and all of their operational / support personnel and systems (e.g. maintenance facilities, tracks, structures, etc.) utilized for the mass movement of passengers within a metropolitan area.
- UNUSUAL OCCURRENCE -** An unforeseen event or incident which does not necessarily result in injury or property damage.
- UNSAFE CONDITION -** Any condition which if not corrected, will endanger human life or property.
- WARNING DEVICES -** Sensors that monitor or detect conditions and provide visible and/or audible alerting signals as desired for selected events.
- WORK SITE -** The area enclosed by the limit of Work indicated in the Project Drawings and boundaries of local streets and public easements in which the Contractor is to perform the work under the Contract. It shall also include areas obtained by the Contractor for use in connection with the Contract, when contiguous to the Limit of Work.

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APPENDIX B: CRITERIA FOR EXCAVATION ADJACENT TO SINGLE FOUNDATIONS



METROPOLITAN DADE COUNTY
 TRANSIT IMPROVEMENT PROGRAM
 LINE SECTION 4



LAW ENGINEERING
 TESTING COMPANY

CRITERIA FOR EXCAVATION ADJACENT
 TO SINGLE FOUNDATIONS

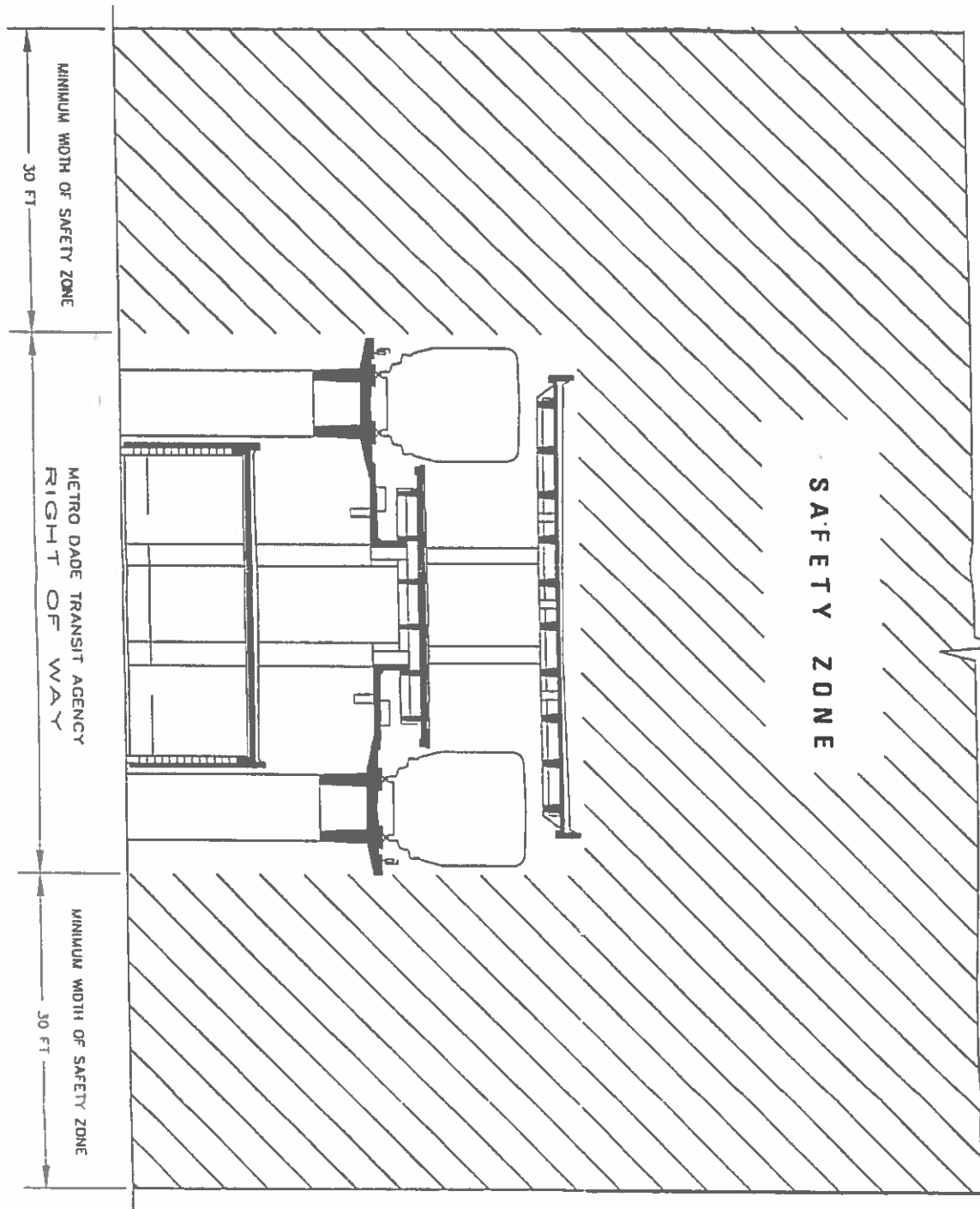
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FIGURE B 14

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APPENDIX C: SAFETY ZONE CRITERIA



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APPENDIX D: SAMPLE CRANE SAFETY INSPECTION CHECKLIST

CRANE SAFETY INSPECTION CHECKLIST				
Location:				
Area Inspected:				
Inspected By:			Date:	
* Check items to be inspected in your area - Disregard others as not applicable				
*	OK	ITEM INSPECTED	NOT OK	COMMENTS
THE CRANE CREW				
		Is the operator and crew properly trained?		
		Operating is a full time job—does the operator pay strict attention to his duties?		
		Do crane personnel wear hard hats when away from the crane?		
		Is the operator aware of the regulations involving working close to high voltage lines and electrical equipment?		
		High voltage, even from a distant source, can be introduced in metal parts of the crane. Is the operator aware of these situations?		
		Does the operator know the weight of each piece before he picks it?		
		Does the crane crew know the manufacturer's proper recommendations for making short moves on the job site?		
		Does the crew get help when lifting heavy objects?		
		Does the crew periodically check for level?		
		Do they check the outriggers for stability?		
		Do they check the boom angle indicator and other electronic load equipment for accuracy?		
		Does the operator allow anyone to ride the load or to the hooks?		
THE GROUND CREW (HOOKING UP THE LOAD)				
		Does the ground crew have, maintain and use proper safety equipment?		
		Are they familiar with the product erection sequence?		
		Are they familiar with the crane signals and general operation of the crane?		
		Do they know how to properly hook pieces and provide aerial stability?		
		Do they know how to properly use tag lines?		
		Are the tag lines in good condition, strong enough and long enough?		

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**APPENDIX D: SAMPLE CRANE SAFETY INSPECTION CHECKLIST
(CONT)**

✓	OK	ITEM INSPECTED	NOT OK	COMMENTS
		Is two way communication between the operator and the erection foreman being used? Does the crew know how to use and maintain the equipment? Are spare parts available for quick repair?		
		Is the crane swing radius roped off to prohibit the crane (during swing) from causing damage or hurting someone? Is entire swing checked including the counterweights?		
THE MACHINE				
		Is the crane operated within all capacities?		
		Is the machine inspected daily?		
		Are the required crane inspections recorded?		
		Are all controls properly identified?		
		Are warning devices operative?		
		Is the manufacturer's rating plate visible?		
		Is the operator's manual available to the crew for easy reference?		
		Are load charts, operating signals and other important information posted and/or readily available?		
		Are brakes within operating limits?		
		Are clutch and brake surfaces dry?		
		Are all protective panels and guards in place?		
		Are electrical systems in good condition?		
		Are all of the sheaves properly aligned so as to reduce rope wear during work?		
		Is cable in good conditions?		
		Are hooks in good condition?		
		Have hooks been inspected by magnetic particle inspection?		
		Are there safety latches on the hooks?		
		Are fuel tanks in good condition and without leaks?		
		Are fire extinguishers available and routinely inspected?		
SLINGS				
		Are slings in good condition/ Is safety factor of 5 maintained?		
		Are slings stored properly?		
		Are sling inspection reports maintained?		
		Are "U" bolt wire rope clips correctly placed?		
		Are all other lifting devices in good condition?		

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APPENDIX D: CHECKLIST FOR CRITICAL LIFTS

CHECKLIST FOR CRITICAL LIFTS

This form is to be completed when the load exceeds 80% of the load chart for the crane or derrick or where the pick involves two or more cranes.

LIFT DATE: _____

1) Supervisor responsible for the lift: _____

2) Description of item to be lifted and estimated weight: _____

3) Equipment and Lift Relationship:

a. Operating Radius _____

b. Boom Length _____

c. Allowable Load (From Load Chart) _____

d. Ratio of Lift to Allowable Load _____

e. Clearance to Surrounding Facilities _____

f. Sling Angle _____

4) Condition of Hoisting Equipment and Rigging

a. Has all equipment been reinspected for this lift: ____ Yes ____ No

5) Stability of Ground Area:

a. Check Soil/Ground Bearing Allowable Load (List Conditions) _____

b. Will mats be needed? ____ Yes ____ No

c. Any underground installations needing special attention? ____ Yes ____ No

d. Will it be necessary for the crane to walk with the load? ____ Yes ____ No

e. Is the surface level and stable where the crane will be walking?

____ Yes ____ No

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APPENDIX D: CHECKLIST FOR CRITICAL LIFTS (CONT)

f. Have facilities been provided to keep the load radius from changing?

____ Yes ____ No

g. Have all overhead facilities been checked for clearance in the area where the crane will be moving/operating? _____ Yes ____ No

6) Does the operator have the necessary experience on the crane and this type of lift?

____ Yes ____ No

7) If the lift involves the use of two cranes answer the following:

a. Have operators worked together before? _____ Yes ____ No

b. Who will coordinate instructions to operators? _____

By: _____

Contractor's Superintendent

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APPENDIX E: RECOMMENDED VIBRATION LIMITS

Seismological research by the U.S. Bureau of Mines, foreign investigative groups, and individual seismologists has established criteria relating the occurrence of structural damage to certain frequencies and levels of ground motion.

USBM Report of Investigations 8507¹ states that residential structures are most prone to damage as a result of vibration energy within the frequency range of 4-12 hertz. Within this range, a 0.5-inch per second maximum particle velocity is recommended to preclude 'threshold' damage to the plaster-on-wood-lath interior portions of older structures.

Threshold damage is defined by the USBM as the loosening of paint, small plaster cracks at joints between construction elements or the lengthening of old plaster cracks. A maximum of 0.75 inch per second is recommended for the protection of modern drywall interior construction. The damage threshold is normally considerably higher for load bearing or other structural portions of a house.

Above 12 hertz, the allowable vibration increases as the frequency increases, up to 40 hertz, above 40 hertz, a constant 2.0 inches per second level is recommended to protect the interior walls and ceilings of structures, regardless of construction material. A graphic representation of the USBM recommended criteria is shown in the velocity versus frequency curve on the following page, and the vibration analysis of the recordings are plotted on graphic representations at the end of this report.

It should be noted², however, that it is almost impossible in actual practice to visually determine if the recorded peak vibration on a typical seismogram is actually within the Bureau's 4-12 hertz range. This is because ground vibration is usually a complex mixture of many frequencies that cannot be accurately separated by visual analysis of a seismogram.

Proper implementation of the Bureau's limit can only be accomplished by a computerized technique that analyzes the seismographic data in terms of both peak particle velocity and frequency. Therefore, in order to best determine the potential effects of ground vibrations recorded in this study, a computerized response versus frequency technique known as RSVP was used in the preparation of this report.

RSVP TECHNIQUE

The Response Spectrum Velocity Profile (RSVP) technique used in this study was developed by Dr. Kenneth Medearis. It is a powerful vibration analysis tool which not only conforms to USSM recommendations, but also provides insight into the responses of various types of residences to a given vibration episode.

² Siskind, David *et al*, Structural Response and Damage Produced by Ground Vibration From Blasting. U.S. Bureau of Mines, RI, 1980.

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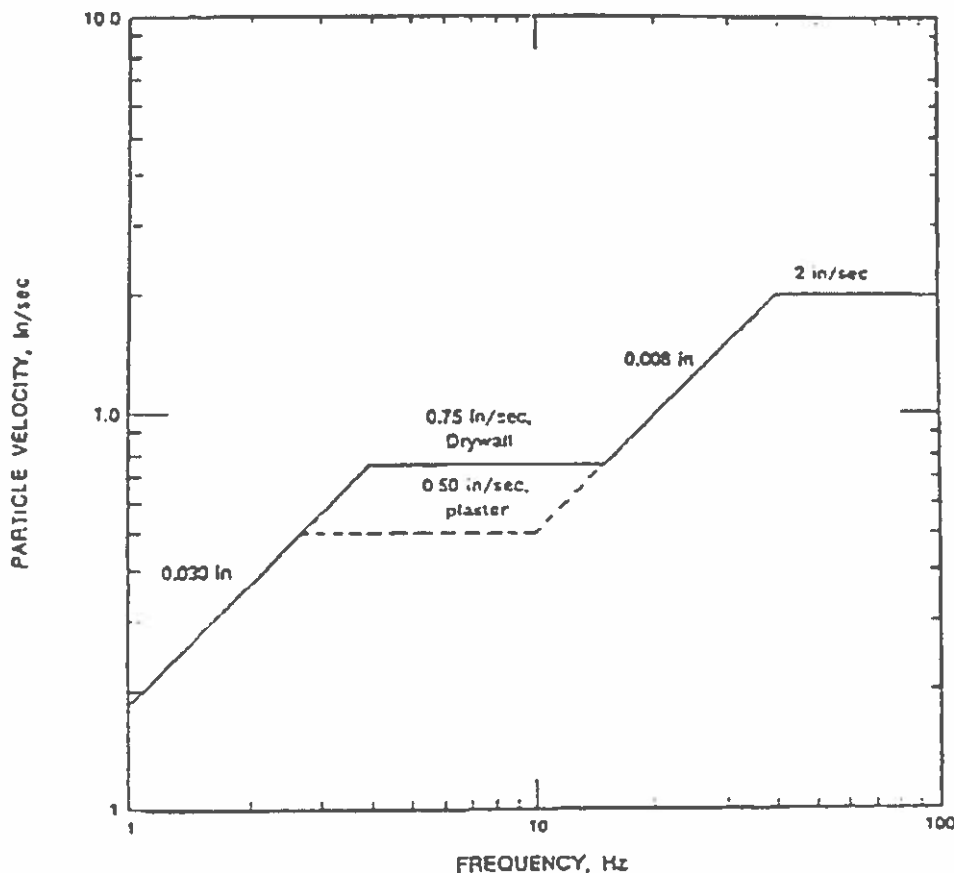
APPENDIX E: RECOMMENDED VIBRATION LIMITS (cont)

All buildings are characterized by a single natural fundamental frequency. This means that, as with a pendulum or a tuning fork, there is one dominant frequency at which a particular building will vibrate when excited. The fundamental natural frequency of a building depends primarily upon its height. Tall buildings are more flexible and vibrate at low frequencies. Low-rise structures, being stiffer, vibrate at higher frequencies.

When the frequency of a ground vibration wave matches the structure's natural frequency, the ground motion will be amplified within the structure. According to the USSM, the natural frequency of typical residential structures ranges between 4 and 12 hertz. Thus, it is within this range that the vibration limits recommended by the USBM are most stringent.

By applying the computerized RSVP Technique to the data obtained in this survey, both the ground particle velocity and response characteristics of residential structures are considered over a wide range of frequencies. The results are then related to the USSM velocity versus frequency curve discussed previously, and are plotted on the analysis sheets at the end of this report.

When particle velocities exceed the limits of the USBM Curve, non-damage probability calculations are performed, based on the research of Medearis. These probabilities are given under the graphs on the analysis sheet for 1, 1-1/2, and 2story houses. When no figures are given, probability of non-damage is essentially 100 percent.



DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

BID DOCUMENTS

METRORAIL PUBLIC ADDRESS SYSTEM REPLACEMENT

PROJECT NO. IRP096

RPQ NO. TP-0000008807

QUALITY ASSURANCE PLAN

PROJECT QUALITY ASSURANCE PLAN

PROJECT TITLE

PROJECT/CONTRACT NUMBER

COMPANY NAME

REVISION DATE

PROJECT QUALITY ASSURANCE PLAN

SIGNATURE SHEET

This Quality Assurance Plan dated (*input revision date identified on page 1*):
_____ was prepared or revised in accordance with the project/contract requirements.

Prepared by (Quality Representative Signature): _____ Date: _____

Approved by (Project Manager Signature): _____ Date: _____

PROJECT QUALITY ASSURANCE PLAN

REVISION LOG

Any changes to this document will be re-submitted for review and approval by Miami-Dade County (MDC).

REVISION DATE	AFFECTED PAGES	REASON FOR CHANGE
<i>SAME DATE AS IDENTIFIED ON PAGE 1:</i>	<i>ALL PAGES</i>	<i>INITIAL ISSUE</i>

PROJECT QUALITY ASSURANCE PLAN

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FTA QUALITY ELEMENTS

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2. DOCUMENTED QUALITY MANAGEMENT SYSTEM
3. DESIGN CONTROL
4. DOCUMENT CONTROL
5. PURCHASING
6. PRODUCT IDENTIFICATION AND TRACEABILITY
7. PROCESS CONTROL
8. INSPECTION AND TESTING
9. INSPECTION, MEASURING, AND TEST EQUIPMENT
10. INSPECTION AND TEST STATUS
11. NONCONFORMANCE
12. CORRECTIVE ACTION
13. QUALITY RECORDS
14. QUALITY AUDITS
15. TRAINING

APPENDICES

PROJECT QUALITY ASSURANCE PLAN

1. MANAGEMENT RESPONSIBILITY

The successful implementation of this Quality Assurance Plan (QAP) for this project rests on the level of commitment by top management that ensures that the quality elements are understood, implemented and maintained throughout all phases of the project.

Contractor input:

STATEMENT OF COMMITMENT to QUALITY:

(Input quality statement)

_____ (Approved by highest level of management) DATE: _____

In this section, identify management's commitment to quality, and ensure that the commitment is understood, implemented, and maintained. Personnel assigned to this project shall be identified in an organizational chart format. Those personnel responsible for assuring quality must be independent of those having direct responsibility for the work being performed:

ORGANIZATIONAL CHART

(Insert the company's organizational chart)

PROJECT QUALITY ASSURANCE PLAN

Roles & Responsibilities: Include in this section assigned personnel duties and responsibilities within this project that are identified in the organizational chart.

Contractor input:

In this section, document the roles and responsibilities of key personnel (by functional position only) assigned to the project:

Example Positions:

Project Manager:

Quality Assurance Representative:

Inspection Personnel:

PROJECT QUALITY ASSURANCE PLAN

2. Documented Quality Management System (QMS)

The Quality Assurance Plan (QAP) applies to all quality activities performed under the contract. In order to ensure continued adherence to the standard practices, procedures and policies established for the project, periodic reviews, revisions, and redistribution of this QAP shall be performed.

Documentation records testifying to the satisfactory execution of the required activities for the project (i.e. construction, inspections, & testing) are readily available and delivered to authorized personnel as directed. An integral part of this project is the list of instructions, procedures, drawings, specifications, inspection test reports, and quality assurance reports to be prepared, submitted, or made available for review or approval, in accordance with contract requirements.

Contractor input:

In this section, document the method of ensuring that all key documents are developed, reviewed and updated. Also, any plan or procedure should include a statement of purpose, scope, and should contain any references to applicable codes, standards, or specifications to ensure compliance to contract requirements.

PROJECT QUALITY ASSURANCE PLAN

3. Design Control: (if applicable)

Note: If the design process does not apply, you may put “N/A” in this section.

The Contractor shall establish and maintain QA/QC procedures to control and verify the design in order to ensure that the design criteria, technical and relevant regulatory requirements are in compliance with Contract Documents and FTA guidelines for this project. Design control includes ensuring that the design requirements are understood, planned, verified, executed and that changes are reviewed and approved throughout the design process and project completion as applicable. The Final Design establishes criteria for the inspection and testing on items that affect safety, reliability, service life, and ADA requirements.

Contractor input:

In this section, document the design process, including quality control reviews for assuring design integrity is established throughout all phases of development, and what methods will be used to control the design within the key elements identified below:

Note: Key elements of the design process include, but not limited to:

- *Design Planning:*
- *Design Input:*
- *Design Output:*
- *Design Verification:*
- *Design Validation:*
- *Design Changes:*

PROJECT QUALITY ASSURANCE PLAN

4. Document Control

Procedures shall be established and maintained for the control of project documents and data. Quality procedures shall describe methods for review and approval of project documents by authorized personnel, distribution and storage of documents, correction and deletion of documents, and control of changes to these documents. These controls are required to be implemented in order to provide project participants and organizations with access to the latest version of each document.

Contractor input:

In this section, identify which documents will be controlled and the process to ensure that they are maintained and current throughout the project:

Example of Documents:

- *Contractors Project Quality Assurance Plan (QAP)*
- *Contractors Inspection Procedures.*
- *Contract Documents.*
- *Drawings*

PROJECT QUALITY ASSURANCE PLAN

5. Purchasing (If applicable)

Note: If the purchasing process does not apply, you may put “N/A” in this section

Procedures shall be established and maintained to ensure that purchased services or products conform to specified technical requirements. Purchasing requirements apply to all Contractors and Suppliers.

Receiving Inspection

The receiving inspection of all materials will be performed by the Contractor’s QA/QC staff at their facility in accordance with approved Contractor’s QAP. The Contractor’s QAP shall provide methods to control and ensure that all materials received are properly inspected. Any nonconforming materials shall be identified.

Approved Supplier List

The Contractor shall develop and maintain an approved Supplier list available for review and approval.

Contractor input:

In this section, document the purchasing process and how all products are received, inspected and maintained.

Important Note: The Contractor must comply to all Buy America requirements if the Project is Federally Funded. This section shall also identify the verification and control of purchased materials to ensure that these requirements are met.

PROJECT QUALITY ASSURANCE PLAN

6. Product Identification and Traceability (If applicable)

Note: If the product identification and traceability process does not apply, you may put “N/A” in this section.

The purpose of product identification and traceability is to ensure the control of materials, parts, components, equipment, and products, and the identification and traceability of these materials to prevent the use of incorrect or defective items. They also ensure that only correct and acceptable items are used or installed. These requirements apply to all materials, parts, components, equipment, and products, including partially fabricated or assembled components, produced for incorporation into the project.

Identification

All materials, supplies, and components that are intended for use in this Project shall be identified from the time of initial fabrication, or receipt, up to and including installation or end use. Items shall be identified by positive markings and/or certifications. They shall be segregated and/or stored with identification data to ensure control and proper identification as applicable.

Item identification methods include use of physical markings. If physical markings are either impractical or insufficient, other appropriate means of identification such as physical separation, container labels, barcodes or tags shall be employed.

Traceability

Item identification methods ensure that traceability is established and maintained in a manner that allows an item to be traced to applicable drawings, specifications, or other documents during all stages of production, delivery, and installation or end use.

Contractor input:

In this section, document how materials, components, equipment, and products will be identified:

Important Note: The Contractor must comply to all Buy America requirements if the Project is Federally Funded. This section shall also identify the verification and control of purchased materials to ensure that these requirements are met.

PROJECT QUALITY ASSURANCE PLAN

7. Process Control

The Contractor shall identify and plan the installation and/or construction processes that directly affect quality and ensure these processes are performed under controlled conditions. Controlled conditions shall include the following:

- Qualifications requirements for personnel.
- Implementing documents defining the manner of design and/or construction process.
- Use of suitable products for design and/or construction equipment, and a suitable working environment.
- Compliance with reference standards/codes, quality plans, and/or documented procedures.
- Monitoring and control of suitable process parameters and product characteristics.

A major issue in process control is to ensure that work is performed in the proper sequence.

Contractor input:

In this section, document how the process will be controlled:

PROJECT QUALITY ASSURANCE PLAN

8. Inspection and Testing

Activities affecting quality shall be inspected and documented by experienced personnel who are independent of those performing the work. Inspections and tests shall be performed in accordance with approved documents to determine that contract activities meet the established requirements of the specifications.

Contractor input:

In this section, identify the types of inspections/testing to be performed and the procedures/forms to be used to perform the inspections and/or testing:

PROJECT QUALITY ASSURANCE PLAN

9 Inspection, Measuring, and Test Equipment

All equipment used in the inspection or testing process shall be identified, calibrated, and maintained under controlled conditions. Provisions shall be established for scheduled re-calibration. Such equipment shall meet the National Institute of Standards and Technology (NIST) standards of accuracy for the measurements and tests required.

Contractor input:

In this section, document which inspection and test equipment will be identified, calibrated and maintained to ensure accuracy of the inspections and testing as required. Also, identify the calibration intervals or frequency for each equipment that is subject to calibration:

PROJECT QUALITY ASSURANCE PLAN

10 Inspection and Test Status

A means should be provided for identifying the inspection and test status of the work during the installation process. The purpose of this is to ensure that only work that has passed the required inspections and tests is accepted.

The test and inspection status should be identified by means of markings, stamps, tags, labels, routing cards, inspection records, test software, physical location, or other suitable means.

Contractor input:

In this section, document the method to be used to identify the inspection and testing status on the work to be performed:

PROJECT QUALITY ASSURANCE PLAN

11 Nonconformance

Where practicable, nonconforming items should be segregated. When segregation is not possible, nonconforming items should be clearly identified as such. Those activities affected by the nonconforming work should be notified. Nonconforming work should be identified, documented, and evaluated to determine appropriate disposition.

Contractor input:

In this section, document the method to be used to identify, document, evaluate and address nonconforming products. It is highly recommended that a “log of nonconformances” is kept and that it includes the corrective actions to address the nonconformances:

PROJECT QUALITY ASSURANCE PLAN

12 Corrective Action

The corrective action plans should include the investigation of the root cause of any nonconforming work and the preventive action needed to prevent recurrence.

Contractor input:

In this section, document the method to be used to implement a corrective action plan to address all nonconformances. It's highly recommended that a log be kept to track all nonconformances and the proposed corrective action plans as necessary:

PROJECT QUALITY ASSURANCE PLAN

13 Quality Records

Procedures should be established and maintained for all quality records. These procedures should identify which records should be kept, responsibility for production and collection, and responsibility for indexing, filing, storage, maintenance, and disposition of all quality records.

Contractor input:

In this section, identify which quality records will be controlled and the process to ensure that they are maintained, stored and dispositions appropriately:

Example of Quality Records:

- *Inspection Reports*
- *Test Data*
- *Calibration Records*
- *Nonconformance Reports*
- *Corrective Action Reports*
- *Audit Reports*
- *Training Records*
- *Product Certification*

PROJECT QUALITY ASSURANCE PLAN

14 Quality Audits (if applicable)

Note: If quality audits does not apply, you may put “N/A” in this section

Quality audits are not the same as financial audits. A quality audit program should be established to ensure that the elements of the contractor’s quality program are functioning as intended.

Quality audits should be performed by the Contractor’s qualified quality personnel, and should be independent, scheduled, and performed to standards and/or checklists. A final report that identifies the audit results should be generated, distributed, and a log developed to track both the findings and corrective action plans.

Contractor input:

In this section, document the audit program that should include an audit schedule, the activities to be audited and how the contractor will address the audit findings:

PROJECT QUALITY ASSURANCE PLAN

15 TRAINING

The contractor should establish and maintain procedures for identifying the training needs and provide for the training of all personnel performing the activities affecting quality.

Records of the training and evaluations should be maintained. A training matrix can be used as an effective tool for determining which personnel require what type of training.

Contractor input:

In this section, document the training program, personnel qualification and any certification needed as necessary:

PROJECT QUALITY ASSURANCE PLAN

APPENDICES

Contractor input:

In this section, the Contractor may include any references, procedures, process flow charts, forms and acronyms/definitions that apply to this project: