DESIGN BUILD SERVICES

CONCOURSE C/D HYDRANT FUELING ISOLATION VALVE PITS ADDITIONS, HYDRANT FUELING PITS PLACEMENT AND PAVEMENT REHABILITATION

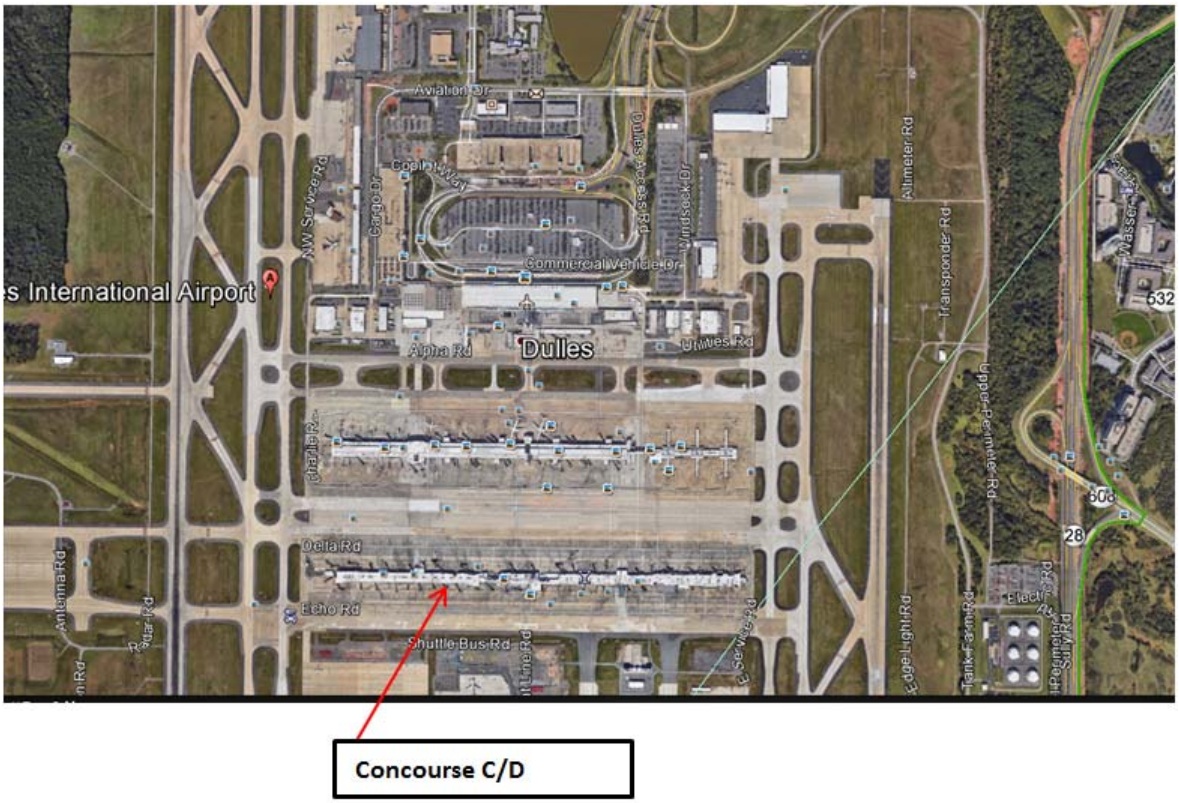
WASHINGTON DULLES INTERNATIONAL AIRPORT

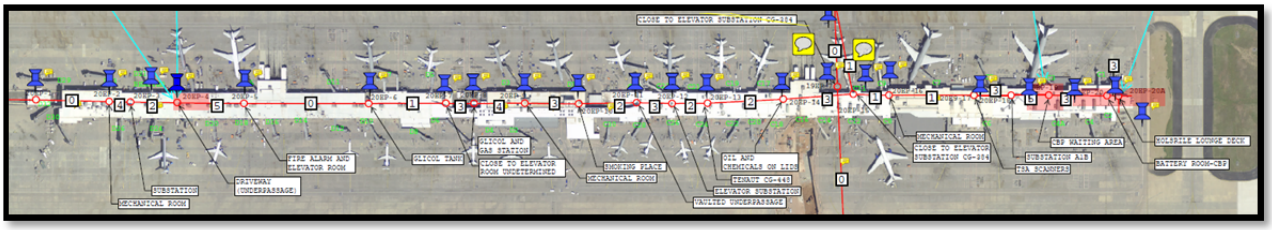
STATEMENT OF WORK

April 04, 2018

1. Overview

Concourse C/D was built in 1985, two years before the Airports Authority was created. The original structure was the first midfield concourse at Dulles to service aircraft via jet bridge gates. It was conceived as a temporary facility. Since then, airport growth led to construction of permanent midfield Concourses A and B while C/D began to show its age. The purpose of the rehabilitation project was to extend the useful life of the C and D Concourses until a permanent replacement could be built nearby. Concourse C/D is 550,000 square feet and has 47 airline gates. This Statement of Work (SOW) outlines work performance requirements for various sections of the main fuel piping network and the pavement encircling Concourse C/D at Washington Dulles International Airport. The main fuel piping work consists of two distinct tasks: 1) Hydrant Fueling Isolation Valve Pits Additions and 2) Hydrant Fuel Pits Placement.





Concourse C/D Layout

2. TASK 1: Hydrant Fueling Isolation Valve Pits (IVP) Additions

The scope of this project is to provide five (5) new isolation valve pits with double block and bleed (DBB) isolation valves and to remove six (6) existing butterfly valve pits in sections of the existing 12-inch underground aviation fuel distribution piping around Concourses C and D. The existing jet fuel piping system consists of externally coated carbon steel pipes and components designed to distribute jet fuel from the Hydrant Tank Farm to aircraft gates. The fuel system around the concourses includes isolation valves within pits that consist of either butterfly type valves or DBB type valves. The intent of the isolation valves is to segment portions of the fuel system for maintenance, leak testing, or construction activities while still maintaining fuel supply to other aircraft gates. The additional valves will provide positive isolation as well as providing additional flexibility for fuel segment isolation. The removal of the butterfly valves from the system will reduce the frequency of maintenance and repairs of these aging valves and also reduce the risk of potential leaks from the same.

2.1 General

Provide new DBB isolation valves and demolition of existing butterfly isolation valves as indicated on the concept sketches (Appendix 2) and per the performance specifications (Appendix 3). The new isolation valve locations are considered approximate. The Design Build Contactor shall verify the exact location of each isolation valve based on field conditions, utilities, joint layouts, aircraft operations, service roads, aircraft layout, accessibility, etc. and based on input from the Airports Authority, Airlines, and Fuel System Operator. Each isolation valve system shall be based on a new DBB type isolation valve concept utilizing a new valve pit that minimizes disruption to aircraft fuel supplies, and airport pavements and gate outages. Each isolation valve pit system shall be comprised of the following, at a minimum:

a) Isolation valve
b) High point vents and low point drains (as appropriate)
c) Safety ladder/handrail and removal stepdown platform
d) Cathodic protection (where noted)
e) Isolation valve pit with reinforced concrete
f) Pipe penetration Seal
g) Tie-ins to existing seals
h) Modifications to the existing pipeline leak detection system
i) Pavement cutting and appropriate repairs/replacement
j) Temporary and permanent modification of airfield pavement markings

The proposed plan consist of addition of five (5) new isolation valve pits with DBB isolation valves, and removal of six (6) existing valve pits with butterfly valves:

New IVP's W/DBB to be added	New IVP's W/DBB & Demolition of Existing IVP's W/Butterfly Valves	Demolition of Existing IVP's W/Butterfly Valves
IVP-D8	IVP-C7, IVP-C8, IVP-C11, IVP-D7	IVP-E1, IVP-C14A

The Contactor shall ensure that the following coordination and testing are performed for the Task 1:

a) The Design Build Contactor shall perform pipe testing such as holiday testing X-ray/magnetic particles testing of the weld.
b) The Design Build Contactor shall perform shall perform hydrostatic testing for the weld.
c) The Design Build Contactor shall coordinate with the fuel operator (ASIG) to reprogram the HANSA Leak detection system prior to final turnover of the system.
d) The Design Build Contactor shall provide flushing and fuel testing (field and lab) requirements for all fuel lines prior to being turned back to the fuel operator (ASIG) and placed in service.

See Appendix 2 - Hydrant Fueling Isolation Valve Pits Additions Drawings
See Appendix 3 - Hydrant Fueling Isolation Valve Pits Performance Specifications

3. TASK 2: Hydrant Fuel Pits Additions

United Airlines (UAL) has requested that the Metropolitan Washington Airports Authority complete the design and construction of new hydrant fuel locations at several of the gates along the C/D concourse. UAL has completed a pavement remarking program that adjusted the lead-in lines of these gates to account for changes in the UAL fleet mix and utilization and variety of aircraft (See Appendix 4). The proposed new fueling pit locations shall result in the fuel pits being located in the most ideal locations for these adjustments. The scope of this project is to provide new Hydrant Fueling Pits at twelve (12) locations around Concourse C/D as per Appendix 3. The twelve (12) locations of the proposed hydrant fuel pits associated with the IAD Concourse C/D gate numbers are as follows:

Gate No.	# of Fuel Pit to be added
C7	1
C8	1
C11	2
C12	1
D10	1

Gate No.	# of Fuel Pit to be added
D15	1
D21	1
D24	1
D26	1
D29	1
D32	1

The Contactor shall ensure that the following coordination and testing are performed for the Task 2:

a) The Design Build Contactor shall perform pipe testing such as holiday testing X-ray/magnetic particles testing of the weld.
b) The Design Build Contactor shall perform shall perform hydrostatic testing for the weld.
c) The Design Build Contactor shall coordinate with the fuel operator (ASIG) to reprogram the HANSA Leak detection system prior to final turnover of the system.
d) The Design Build Contactor shall provide flushing and fuel testing (field and lab) requirements for all fuel lines prior to being turned back to the fuel operator (ASIG) and placed in service.

See Appendix 4 - Hydrant Fuel Pits Additions Drawings

4. TASK 3: Pavement Rehabilitation

The purpose of this project is to rehabilitate and replace distressed pavement in the airfield pavement system of the Concourse C/D north and south apron and associated mobile lounge dock areas at Washington Dulles International Airport.

The work consists of the rehabilitation of the existing asphalt pavements and deteriorated cracked concrete pavement slabs of the Concourse C/D north and south apron and associated mobile lounge dock areas.

Provide new pavement and repairs as indicated on the Preliminary Drawings included in Appendix 5. The exact repair locations, types, and quantities shown are considered approximate and provided to establish estimated repair types and quantities. The Design Build Contactor shall verify the exact location, size, and quantity for Final Design based on severity of the distress and pavement value. Multiple repair methods will be required depending on the type and severity of existing distresses. Anticipated pavement repairs include:

a) Isolated full slab and partial slab replacement
b) Full depth patches
c) Partial depth patches
d) Crack routing and sealing and joint sealing

e) HMA mill and overlay

Standard Authority pavement repair details are indicated on the Preliminary Drawings included in Appendix 5. The Design Build Contactor shall develop additional details as necessary to complete Final Design.

The anticipated Concourse C/D Gates affected by the work is as follow:

North East Concourse C/D	North West Concourse C/D	South West Concourse C/D	South East Concourse C/D
C1, C3, C5, C7, C9, C11, C17, C19, C23, C27	D1, D3, D5, D7, D11, D23, D29	D32, D30, D26, D24, D20, D18, D16, D14, D12, D10, D8, D6, D4,D2	C28X,C29R,C28,C26, C22,C20, C14,C12,C8,C6,C4,C2

See Appendix 5 – Pavement Rehabilitation Preliminary Drawings

4.1 Project Requirements

Perform the following items:

A. Provide aircraft pavement and roadway pavement repairs that result in a safe and serviceable surface. The Design Build Contactor shall recommend to the Authority the precise limits of pavement repairs. New grades for pavement repairs shall match existing. Provide measures to ensure that no water ponds on the pavement upon completion of repairs.

B. Provide new pavement sections and repairs with materials to the thicknesses indicated on the Preliminary Drawings. Determine suitability of subgrade for placement of new materials. Provide subgrade undercut and replacement materials, where required.

C. Provide design and details of all pavement penetrations (light fixtures, handholes, fuel pits, etc.) as required.

D. Provide permanent and temporary pavement markings in accordance with the FAA Advisory Circular No. 150/5340-1L. Provide temporary markings as needed for construction safety and phasing requirements. Re-establish all markings disturbed by construction.

E. Complete construction activities so as to cause the least possible interference and impact to normal airport operations. Minimize the impact of construction activity on operations and adjacent facilities. The Design Build Contactor shall prepare Construction Safety and Phasing Plans including all design and details for construction phasing and maintenance of traffic. The Design Build Contactor shall hold stakeholder meetings with the Authority and Airlines to review the scope of work, phasing concepts, project sequencing, and maintenance of traffic.

   Aircraft gates, service roads, and mobile lounge roads and docks shall remain in service to the extent that it is practical. Work may require off-peak hours (typically 11 pm to 6 am).

F. Provide barriers between active pavement and construction work areas. Barriers must be lighted and in accordance with FAA guidelines. Any debris on the Airfield Operations Area (AOA) resulting from the construction process must be removed immediately.

G. This will be an AOA construction project with work inside the airfield security perimeter. Provide delineation of limits of work including locations of staging areas, haul routes, and material storage areas. Restore access roads and staging areas used back to their original condition. Adhere to all current Airport Orders and Instructions (O & Is), Airport Bulletins, and Airport Advisories.

H. Prepare and submit Storm water Pollution Prevention Plan (SPPP) for approval, including erosion and sediment control plans, notes, specifications and details meeting the minimum requirements stipulated by the Virginia Register of Regulations Section 9VAC25-840, Erosion and Sediment Control.

I. The Design Build Contactor shall verify the exact location, size, and type of required repairs. Quantities provided below are approximate and shall be confirmed in the field by the Design Build Contactor.

DESCRIPTION	QUANTITY	UNIT
HMA MILL AND OVERLAY, 3" DEPTH	1,650	SY
UNSUITABLE SUBGRADE UNDERCUT AND BACKFILL, 6-INCH DEPTH, INCLUDING STABILIZATION FABRIC AND GEOGRID	1,000	SY
Portland Cement Concrete (PCC) LINEAR CRACK REPAIR WITH Hot Mix Asphalt (HMA)	3,100	SF
20" PCC PAVEMENT, FULL SLAB	8,000	SY
14" PCC PAVEMENT, FULL SLAB	5,000	SY
20” PARTIAL SLAB FULL DEPTH PATCH	8,750	SF
14” PARTIAL SLAB FULL DEPTH PATCH	2,000	SF
PARTIAL DEPTH SPALL REPAIR W/ RAPID-CURING FLEXIBLE PATCH MATERIAL	1,350	SF

See Appendix 5 – Pavement Rehabilitation Drawings

5. Review and Research

The Airports Authority will make available its files of documents related to existing conditions. The Design-Build Contractor shall be responsible for the return of all documents upon completion of this project. The Design Build Contractor will be provided access to record documents, however such information must be verified by the Design Build Contractor for accuracy and completeness. The Design Build Contractor shall coordinate all field work and access to the site with the Airports Authority. The Airports Authority will review all work prepared by the Design Build Contractor for compliance with the Design Manual, requirements stated herein and other requirements which may by identified during the development of the project and will advise the Design Build Contractor of its findings. Review by the Airports Authority does not relieve the Design Build Contractor of responsibility for the technical accuracy of its work and for

conformance to contractual requirements. Any work that does not meet contractual requirements shall be corrected by the Design Build Contractor without cost to the Airports Authority.

The Design Build Contactor shall review all available data (reports, original drawings, etc.) pertaining to existing conditions of the site and coordinate with on-going construction projects that may have an impact on the proposed improvements.

A topographic and utility survey and geotechnical investigation have not been performed for this project. Existing site information such as planimetric CADD files will be provided by the Airports Authority upon written request by the Design Build Contactor. The Authority does not guarantee the accuracy of any document.

The Design Build Contactor shall perform all site investigations necessary to become familiar with the existing conditions, to verify location and contents of existing isolation valve pits, hydrant fuel pit apron panels and to evaluate new proposed locations. The site shall be surveyed to verify location of all existing utilities and obtain all additional survey data required to provide a quality final design.

All site investigation field work shall be coordinated jointly with the Design Build Contactor, IAD Operations, FAA, Authority Utilities, and the COTR. The Design Build Contactor shall submit site investigation work plans for approval by the Authority. The Design Build Contactor may be required to perform site investigation work during off-peak hours (typically 11 pm to 6 am).

6. Geotechnical Investigation

As required.

7. Design

The Design Build Contactor shall prepare the design of this project in accordance with applicable portions of 2012 VA USBC, the latest issues of FAA Advisory Circulars, Airports Authority Design Manual (latest edition), Airports Authority Orders & Instructions including O&I IAD 6-2-2 (Fuel System Work Coordination), ATA 103, NFPA 30, NFPA 407, NFPA 415 and other applicable codes.

8. Meetings

The Design Build Contractor shall prepare agendas and conduct meetings with the Airports Authority and others as required completing the work. Minutes will be prepared and distributed by the Design Build Contractor within five days of the meeting. Interviews with Authority offices will be held for the purpose of establishing requirements, reviewing progress and resolving issues affecting the completion of the project. These meetings will be held at the offices of the Airports Authority.

The meetings include but are not limited to the following, will be held at Dulles International Airport and will require attendance and participation by the Design Build Contractor and any applicable sub-consultants as identified by the Design Build Contractor:

- Kick-off meeting with the Airports Authority and Design Build Contractor
- Meetings with Authority offices and stakeholders including Dulles Maintenance and Engineering, Airport Operations, Airlines, Building Codes and others to determine requirements
- A design review meeting will be held approximately 15 days following receipt of the 50% and 90% design submittals
- 50% Design Documents review meeting
- 90% Design Documents review meeting
- 100% Design Documents review meeting
- Additional meetings as required by the COTR
- Construction progress meetings

In addition to regular working meetings with the Authority offices and user groups, the Design Build Contractor shall anticipate providing a complete presentation for requirements and documents that will be used in procuring work to meet Authority needs and requirements.

The Design Build Contractor will be responsible for the preparation of all design documents, schedules, reports, calculations and construction in accordance with the requirements of the current edition of the Metropolitan Washington Airports Authority's Design Manual, its appendixes, and all applicable Codes and the 2012 Virginia Construction Code. If a new edition of the Design Manual is issued during the design of the project, the A/E will be responsible for incorporating the requirements of the new manual up to the 50% design submission.

9. Drawings

The Design Build Contractor shall prepare all construction drawings as necessary to thoroughly define all project requirements. Drawings shall be prepared on CADD to the uniform standard policies and procedures for design and drafting work as established in the latest version of the Authority CADD Design Manual. Standard Authority title blocks and cover sheets shall be used. Drawing size shall be 22"X 34". Drawings which are not fully legible when reduced to half size will not be accepted.

10. Specifications

The Design Build Contactor shall prepare construction specifications that include project requirements. Generally, FAA Advisory Circular No. 150/5370-10G, Standards for Specifying Construction of Airports, will be used as a guide for preparing the specifications for the projects. Format for the specifications shall conform to FAA Advisory Circular No. 150/5370-10G and the most recent version of the Authority Design Manual. The Design Build Contractor shall verify the correctness and applicability of any portion of the standards utilized in the project specifications.

Inspections and testing by the Design Build Contractor shall be fully detailed as part of The Contractor Quality Control responsibility. The Design Build Contactor shall provide detailed section-specific requirements for testing and inspection for each item of work during all phases of construction. These testing and inspection requirements shall be clearly identified in each section

of the technical specifications, preferably by the establishment of a Part 4 of each section and entitled "CONTRACTOR QUALITY CONTROL REQUIREMENTS".

The Design Build Contractor shall prepare construction specifications that include project requirements.

- Design Build services required during design build include but are not limited to the following:
- Attend kick-off meeting
- Review existing facility documentation
- Review meetings with Authority offices
- Management Presentations

The Authority will assume full and complete ownership of all deliverables produced under this contract, including drawings, reports and all final documents.

12. Design Submittals

All documents, including design reports, drawings, specifications, construction schedules, construction schedules, and calculations shall be prepared in accordance with the guidelines and standards set forth in the latest version of the Authority Design Manual. Final documents, including Drawings and each title page of the Specifications shall be certified with the seal and signature by a Registered Professional Engineer in the Commonwealth of Virginia.

13. Schedule of Deliverables

The following summary of deliverables required for each design submittal:

Deliverables (# of copies)	**50%**	**90%**	**100%**	**Final[1]**
Drawings – Full Size[2]				3
Drawings – Half Size[3]	16	16	16	4
Specifications	16	16	16	4
Design Report	16	16	16	4
Construction Schedules	10	10	10	4
Response to Design Review Comments		16	16	4
Calculations	4	4	4	4
Building Code Compliance and A/E Certification Letters[4]				1
CD of **all** deliverables[5]	2	2	2	2
CD of CADD files[6]	2	2	2	2

Notes:

1. *All drawings are to be fully legible when reduced to half size.*
2. *Design Build Contactor required to submit: (3) sets of sign/sealed full size drawings; sign/sealed letters or forms related to Code Compliance for Construction Permit, in compliance with Building Codes Manual.*
3. *Final documents shall be signed and sealed. The seal must meet the requirements of 18VACI0-20-760 Use of seal.*
4. *Submit sign/sealed letters or forms related to Design Standards and Building Codes; Spare Parts; Long Lead Items; Proprietary/Sole-Source Items; Special Inspections; Temporary Bracing; Accessibility Compliance and Form; IECC and Form; and Use of Electronic Seal Signature and Date*
5. *Submit CD of all submittal deliverables in native and PDF format.*

14. Construction and Sequencing and Schedule

The Design Build Contactor shall develop construction schedules in accordance with the requirements of the Authority Design Manual as applicable. The construction schedule shall identify project phasing, milestones, major construction activities, and durations. The schedule is to be updated at each stage of design and monthly during construction. The schedule shall include a list of all items with long lead times which may affect the scheduling of construction.

15. Construction Safety and Phasing Plan (CSPP)

The Design Build Contactor shall develop a Construction Safety and Phasing Plan in accordance with the requirements of FAA Advisory Circular 150/5370-2F. Construction Safety and Phasing Plans shall be developed concurrently with the project design.

16. Submittals Deliverable

All work shall be completed in accordance with the approved A/E Quality Control Plan. The Design Build Contactor shall provide an original letter and associated Documentation signed by the A/E Quality Control Manager with each submittal certifying the documents as submitted have been prepared in accordance with the approved plan.

17. Control Plan

The Design Build Contactor shall submit a Quality Assurance and Work Plan within seven calendar days of the issuance of the Notice to Proceed for this task. The work plan shall include:

- Start and completion dates of the deliverables
- Start and completion dates of field investigations and testing schedule
- Critical dates of coordination with engineering sub-consultants
- Submittal dates and review period durations, allowing for both Authority and Airline reviews
- Meeting schedule including progress meetings

18. Environmental

- The design and construction shall comply with the Virginia Erosion and Sediment Control Regulation under 9VAC25-840. The Contractor shall comply with the latest revision of the Virginia Erosion and Sediment Control Handbook.

- The Design Build Contractor shall evaluate the project for compliance with the Virginia Department of Environmental Quality Storm water Management regulations for both quantity and quality under 9VAC25-870.
- Petroleum contaminated soil and water will be encountered during construction. All excess soil is assumed to be contaminated. The Design Build Contractor shall not haul any soil off Airport property until the Contractor has characterized the soil for offsite recycling/treatment. The Contractor shall coordinate the required sampling parameters, and sampling frequency with their selected treatment/recycling facility.
- All excess soil is assumed to be contaminated, but non-hazardous. The Design Build Contractor is responsible for the stockpiling, hauling, and recycling/treating of all excess material. The excess soil shall be disposed of at a recycling/treatment facility capable of accepting and treating petroleum contaminated soil. The recycling facility shall be approved by the Authority before the start of any land disturbing activities. Disposing of the soil at a landfill or reclamation site is prohibited.
- A hydrant flushing plan is required and should include a pollution prevention plan.
- The Design Build Contractor is permitted to discharge uncontaminated groundwater to the storm water system. However, when petroleum-contaminated water is encountered, the Contractor shall either supply or maintain a portable dewatering treatment system capable of removing petroleum hydrocarbons and sediment prior to discharge into the Authority's storm water system, or provide alternate methods for temporarily storing and transporting the water for offsite disposal at an approved recycling facility. If the Contractor decides to utilize a portable treatment system, the Contractor shall design, provide, test, operate, monitor, and maintain a dewatering system of sufficient scope, size, and capacity to control ground-water flow into, and removal from, excavations and impacted utility manholes, and permit work to proceed on dry, stable subgrades.
- Aircraft deicing fluids will be encountered in the water (including utility manholes) and in the soils. Concentrations of aircraft deicing fluids in water and soils will range from non-detect to saturation. Aircraft deicing fluids are propylene based Type I and Type IV fluids. These fluids emit an unpleasant odor when the breakdown (biodegradation) is occurring. Contractors shall be prepared to follow OSHA requirements while working in aircraft deicing impacted areas. Coordinate with the COTR for obtaining MSDS sheets for the aircraft deicing fluids.
- Petroleum contaminated soils and water will be encountered during the construction of this project. Petroleum impacted soils range from saturated to 1.0 ppm. Petroleum impacted water ranges from free product to "none detect." The Contractor shall maintain the necessary health and safety requirements for all personnel in accordance with OSHA regulations to work in these conditions.

19. Unifier

The Metropolitan Washington Airports Authority has implemented Oracle Primavera Unifier (*Unifier*) as the Project Management/ Electronic Document Management System for Design Department Projects/Task Orders. *Unifier* will be used to ensure proper handling of incoming/outgoing documentation and sequential logging of incoming/outgoing correspondence to Design Consultants. Also, *Unifier* will be used for document review, project reporting, and ultimately, as the project archive. The process will be from start (NTP) to the completion of the Task Order contract.

It is mandatory that any design coordination and the transmittal of 'in progress' drawings and specifications be controlled, recorded, and monitored utilizing *Unifier* software.

The Project Team will have the facility to issue and receive documentation electronically. However, it must be noted that copies of certain documentation shall be issued, and signed, in hardcopy original form as described in the Scope of Work and Authority Design Manual.

The contractor is to allow within the Proposal technicians and document controllers to adequately manage electronic and hardcopy document management for the duration of the Task Order.

20. Requirements and Procedures for Services/Deliverables

Refer to Appendix 1 for detailed requirements and procedures for services/deliverables in addition to those listed here. The Metropolitan Washington Airports Authority has implemented Oracle Primavera Unifier (Unifier) as its Electronic Document Management System (EDMS) to ensure proper handling of incoming/outgoing documentation and sequential logging of incoming/outgoing correspondence with design consultants and contractors. This process will be required from Notice to Proceed (NTP) to the completion of the contract. It is mandatory that the transmittal of design correspondence, drawings, specifications, and other design documents be controlled, recorded, and monitored utilizing Unifier software.

It is envisaged that Unifier Project Server will act as an electronic library for all design information generated by the Design Build Contactor and its subcontractors. Protocols for information archival will be considered if appropriate during the course of the project.

The Design Build Contactor shall possess the capability to issue and receive the following documentation electronically. However, it must be noted that copies of certain documentation shall be issued, and signed, in hardcopy original form as described in the Scope of Work or by Project Contacts. The protocol for the issue of hardcopy documentation will be agreed between the Airports Authority and the Design Build Contactor following NTP. The types of documentation to be issued via Unifier system include:

- Contracts
- CAD Blocks
- Calculations
- Certificates
- Change Orders
- Contracts
- Daily Reports
- Notice to Proceed
- Operation & Maintenance Manual
- Permits
- Photographs, Images & Videos
- Plans
- Policies
- Presentations

- Design Development Reports
- Drawings
- Financial Reports
- Inspection Reports
- Invoices
- Letters
- Manuals
- Material Receivable Reports (MRV's)
- Material/Equipment Test Reports
- Non-Conformance Reports
- Field Observation Reports
- Procedures
- Proposals
- Schedules (Programs)
- Site Inspection Reports
- Shop Drawings
- Specifications
- Task Orders
- Tender Documents
- Test Reports
- Test Reports / Test Certificates
- Weekly Report

Refer to Appendix 1 for detailed requirements and procedures for services/deliverables.

21. Anticipated Project Schedule

Activities requiring submittals shall be accomplished in accordance with schedules indicated below or as modified by the Authority. Please note that MWAA review time is 15 days for each submission.

Items	Calendar Days After NTP
1. Issue Notice to Proceed	NTP
2. 50% Design Submission	NTP + 90
3. 90% Design Submission	NTP + 150
4. 100% Design Submission	NTP + 190
5. Final Construction Documents	NTP + 210
6. Construction Completion	NTP + 570

Supplemental Information

a. The Project Name to appear on all contract documents is:

Concourse C/D Isolation Valve Pits Additions, Hydrant Fuel Pit Placement and Pavement Rehabilitation
Washington Dulles International Airport

b. The Project Drawing Number:IA1803

c. Signature block information:
Accepted by: Nick Najafi, Design Project Manager
Mark Puttlock, Design Project Manager
Submitted by: Moe M. Wadda, Manager, Design Department
Approved by: Roger Natsuhara, Vice President for Engineering

APPENDIX 1

SCOPE OF WORK FOR
GEOGRAPHIC INFORMATION SYSTEM DELIVERABLES

AIRPORTS AUTHORITY GIS DELIVERABLE

DESCRIPTION

As a part of this task, the Design Build Contactor will create Geographic Information System (GIS) deliverables based on the final record set drawings that will follow Airports Authority GIS submittal format to include Design Manual compliance and applicable feature classes defined in AIRPORTS AUTHORITY GIS data standard. “Applicable” shall be defined as: Basing on the latest base GIS data file that Airports Authority provides to the contractor, if the geometry or attributes of a feature are created, deleted, or changed against the base GIS data file because of this project, or if a feature(s) is (are) missing from the base GIS data file but exists in CADD drawings of this project, then that feature(s) should be included in the deliverables including change documentation. Please see the attached Airports Authority GIS data standard.

Except for the topography, only the geographic extents of the CAD deliverable shall be provided.

COORDINATE SYSTEMS AND DATUM REQUIREMENTS

GIS deliverables should use Virginia State Plane North coordinate system and projection. Additional requirements for GIS submittals include:

- Coordinate units – Geographic coordinates will be recorded in survey feet for both horizontal and vertical coordinate measurements
- Horizontal datum and ellipsoid – Geographic coordinates are based on the North American Datum of 1983 (NAD83) State Planes Virginia North Zone
- Vertical datum – All vertical measurements in the GIS should be recorded based on NAVD 88
- All deliverables must have project files associated with them

GIS Task Item 1 Conversion of CAD data to GIS format

The CAD deliverables will be converted into a GIS format following the AIRPORTS AUTHORITY GIS Standards and Metadata document. CAD layers will be extracted by layer, QA/QC’d for topology errors, and placed in the appropriate GIS feature classes.

GIS Task Item 2 Data Attributing of GIS files

GIS Datasets will be attributed based on the AIRPORTS AUTHORITY GIS Standards. Attributes will also consist of any information that is typically placed as an annotation layer on CAD deliverables (i.e. feature class, name, and spot elevation). These attributes will be added at the end of the attributes in AIRPORTS AUTHORITY GIS standard if the AIRPORTS AUTHORITY GIS standard does not have corresponding attribute to accommodate the annotation values. Z Values for 3-Dimensional capability will be recorded. In addition, hot links to details in plan sets should be established to provide additional information about items in the GIS. Data that is not in the existing AIRPORTS AUTHORITY GIS schema should be included in a miscellaneous dataset if it is required for maintaining and managing the project area. All attribution will be QA/QC’d for mistakes.

GIS Task Item 3 Creation of 3-Dimensional GIS Surface Model (When Lidar or Topography is created/used for project)

A 3-Dimensional Surface Model of the project area will be created using spot elevations and lines of topography.

GIS Task Item 4 Creation of Feature Class Metadata Documentation

A metadata file will be created for each unique feature class within each data set. These metadata files will be based on the Airports Authority's standard. Feature object level metadata should also be populated by following AIRPORTS AUTHORITY GIS data standard.

GIS Task Item 5 Preparation of Deliverables

A set of CDs containing all digital GIS data in an ArcGIS 10- compatible file geodatabase that were developed for this project and related metadata will be delivered to the Airports Authority. Include ArcGIS map documents and MrSID and TIFF in the projection files.

AIRPORTS AUTHORITY Aerial Data Submittal requirements:

A. MrSID
   1) MrSID Mosaic 1:20, 1:40 and 1:80 compression
   2) MrSID of grid tiles

B. Original TIFF data in flat color and high contrast

C. Map document

D. Metadata

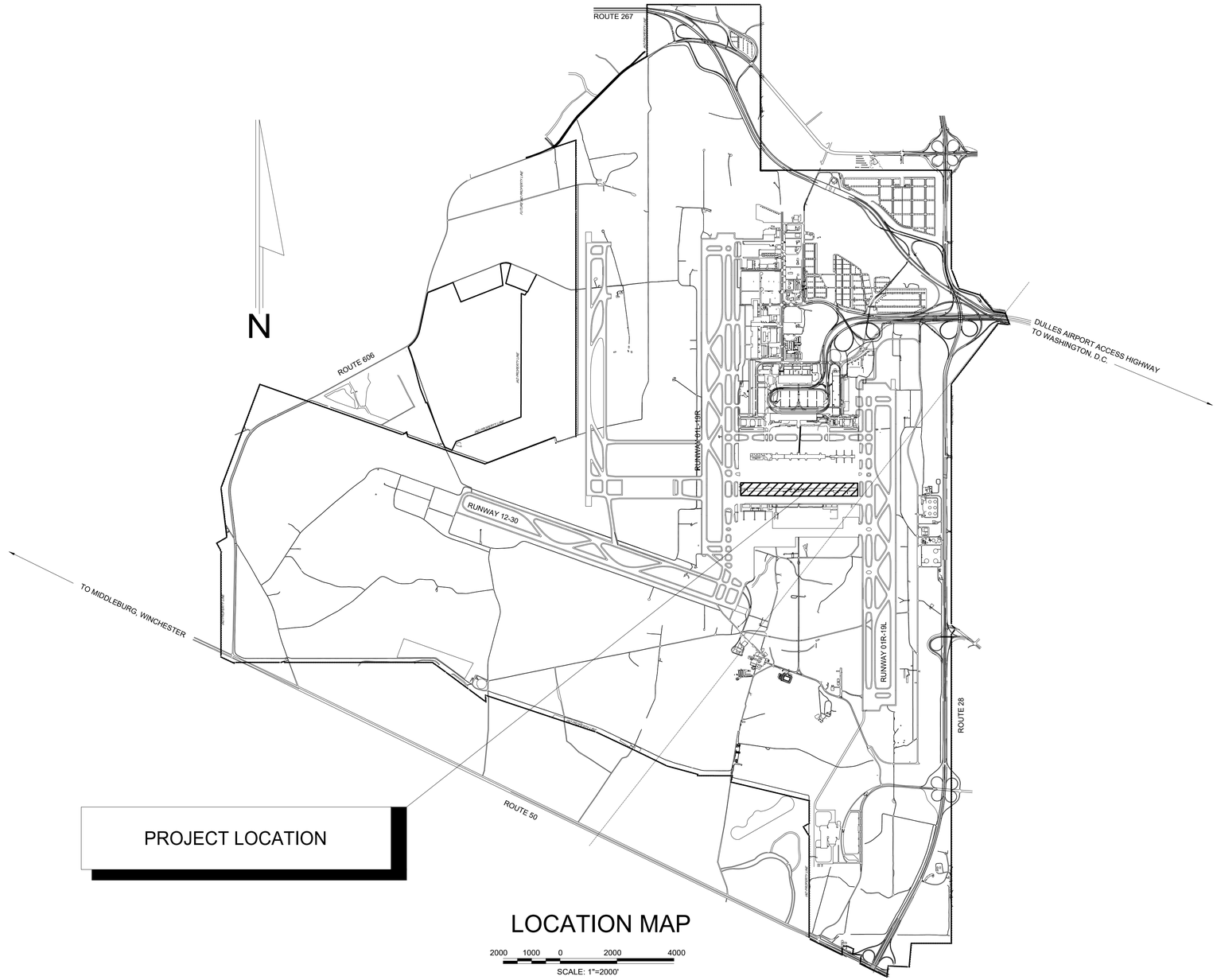
E. Data QA/QC reports and associated documents

F. Final Data Dictionary – Data dictionary should be delivered in MS Excel format and include contents that are defined in AIRPORTS AUTHORITY GIS data dictionary template and new data not defined in the AIRPORTS AUTHORITY GIS data dictionary

A technical memo that summarizes the data quality, data creation process, and QA/QC process should be submitted.

APPENDIX 2

HYDRANT FUELING ISOLATION VALVE PITS ADDITIONS DRAWINGS



LOCATION MAP

2000 1000 0 2000 4000

SCALE: 1"=2000'

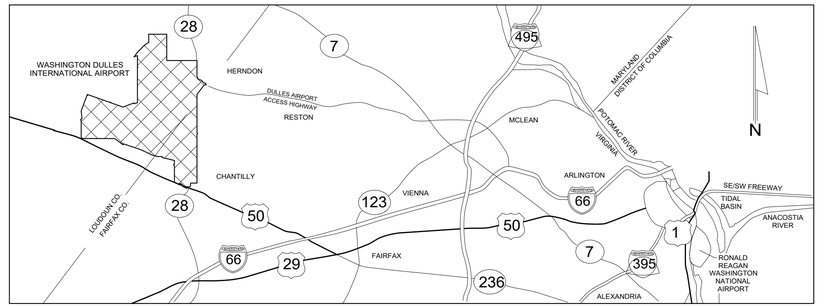
WASHINGTON DULLES INTERNATIONAL AIRPORT

HYDRANT FUELING ISOLATION VALVES
DESIGN BUILD RFP
CONCOURSE C/D MAIN SEGMENTS

FINAL SUBMITTAL
February 14, 2018

DRAWING INDEX	
Sheet Title	Sheet Number
COVER SHEET	1
OVERALL SITE LAYOUT	2
DETAILS - 1	3
DETAILS - 2	4
DETAILS - 3	5

VICINITY MAP



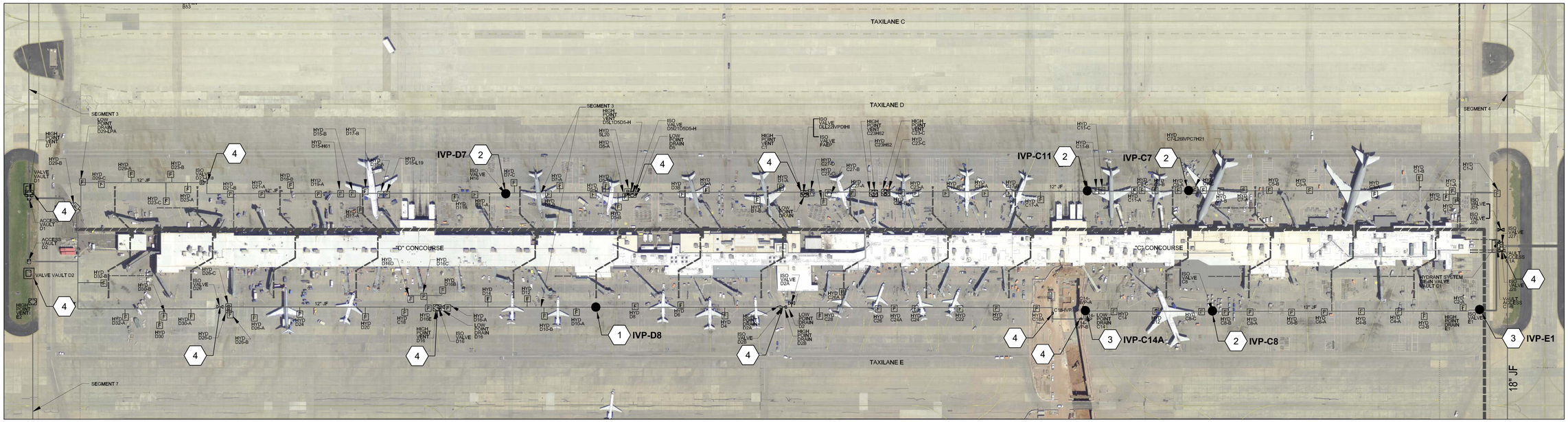
NO.	REVISION	DATE

BURNS McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MO. 64114
Tel: 816-333-9400
BMcD PROJECT No. 91705

METROPOLITAN WASHINGTON AIRPORTS AUTHORITY

PROJECT IDENTIFIER	
SHEET NAME	COVER SHEET
VOLUME NUMBER	1 of 1
SHEET NUMBER	1 of 5

Filename:...\1 COVER SHEET.dwg



NORTH

OVERALL SITE LAYOUT
(NOT TO SCALE)

LEGEND AND ABBREVIATIONS

1	PROPOSED IVP W/DBB VALVE (QTY 1 - SEE DETAIL 1)
2	PROPOSED IVP W/DBB VALVE AND DEMOLITION OF EXISTING IVP W/BUTTERFLY VALVE (QTY 4 - SEE DETAIL 2)
3	PROPOSED DEMOLITION OF EXISTING IVP W/BUTTERFLY VALVE WITH NO REPLACEMENT (QTY 2 - SEE DETAIL 3)
4	EXISTING IVP WITH DBB VALVE (QTY 11)
DBB	DOUBLE BLOCK AND BLEED
HYD	FUEL HYDRANT
IVP	ISOLATION VALVE PIT
JF	JET FUEL

NO.	REVISION	DATE

BURNS McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MO. 64114
Tel: 816-333-9400
BMcD PROJECT No. 103128

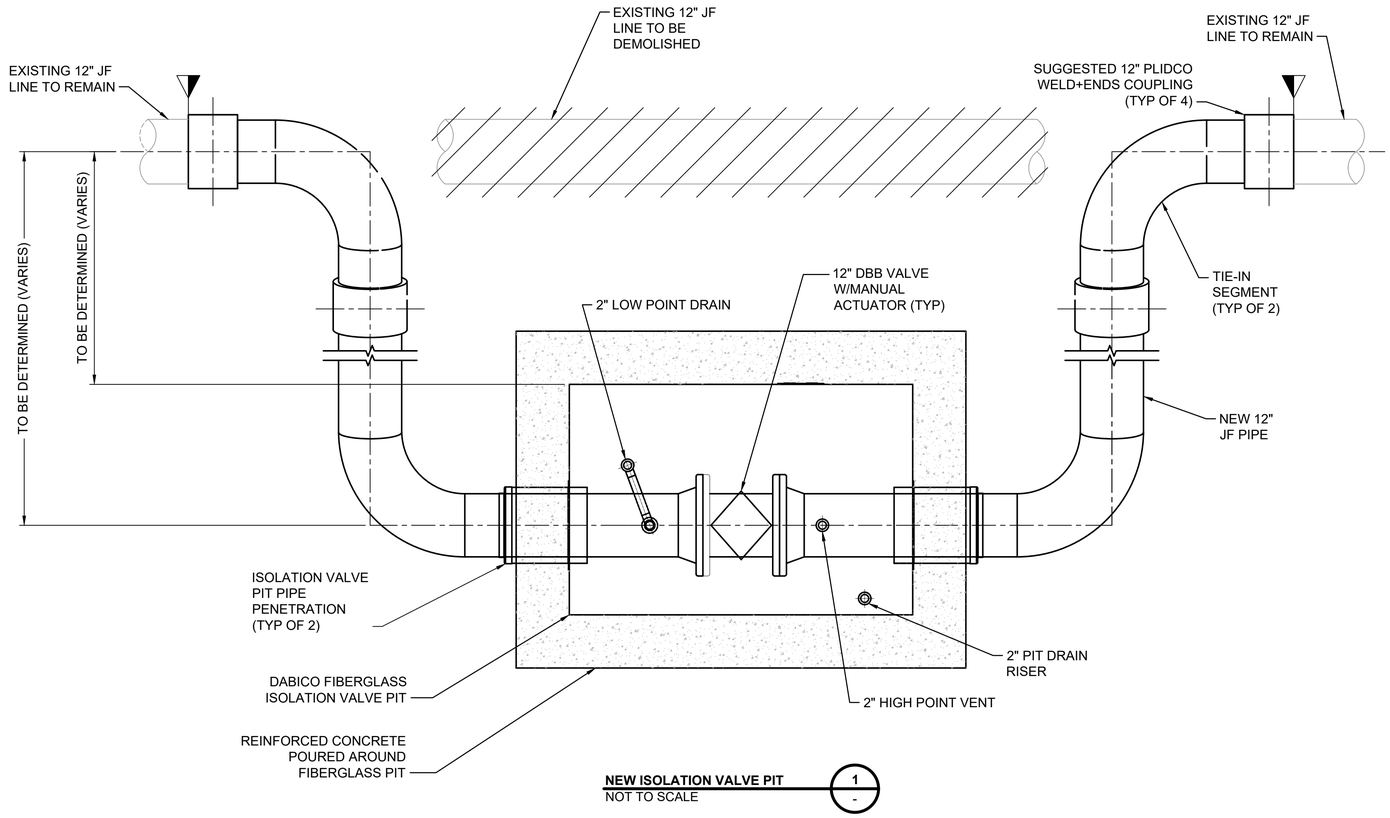
DATE	2/14/2018
SCALE	N/A
DESIGNED	ZCR
CHECKED	KMB

METROPOLITAN WASHINGTON AIRPORTS AUTHORITY

HYDRANT FUELING ISOLATION VALVES DESIGN-BUILD RFP
CONCOURSE C/D MAIN SEGMENTS
WASHINGTON DULLES INTERNATIONAL AIRPORT
WASHINGTON, D.C.

OVERALL SITE LAYOUT

PROJECT IDENTIFIER	
SHEET NAME	
VOLUME NUMBER	1 of 1
SHEET NUMBER	2 of 5



NEW ISOLATION VALVE PIT 1
NOT TO SCALE -

NOTES:

1. ISOLATION VALVE PIT SHALL BE EQUIPPED WITH EITHER (2) LOW POINT DRAINS OR (2) HIGH POINT VENTS OR A COMBINATION THEREOF BASED ON PIPING ELEVATION WITHIN THE FUEL HYDRANT SYSTEM.

2. PROPOSED ISOLATION VALVE PIT IS SHOWN OFFSET FROM EXISTING PIPELINE. ALTERNATE DESIGN CONCEPTS MAY BE CONSIDERED BY AIRPORTS AUTHORITY (E.G. VALVE PIT IN LINE WITH PIPING).

NO.	REVISION	DATE

BURNS McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MO. 64114
Tel: 816-333-9400
BMcD PROJECT No. 103128

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SCALE N/A
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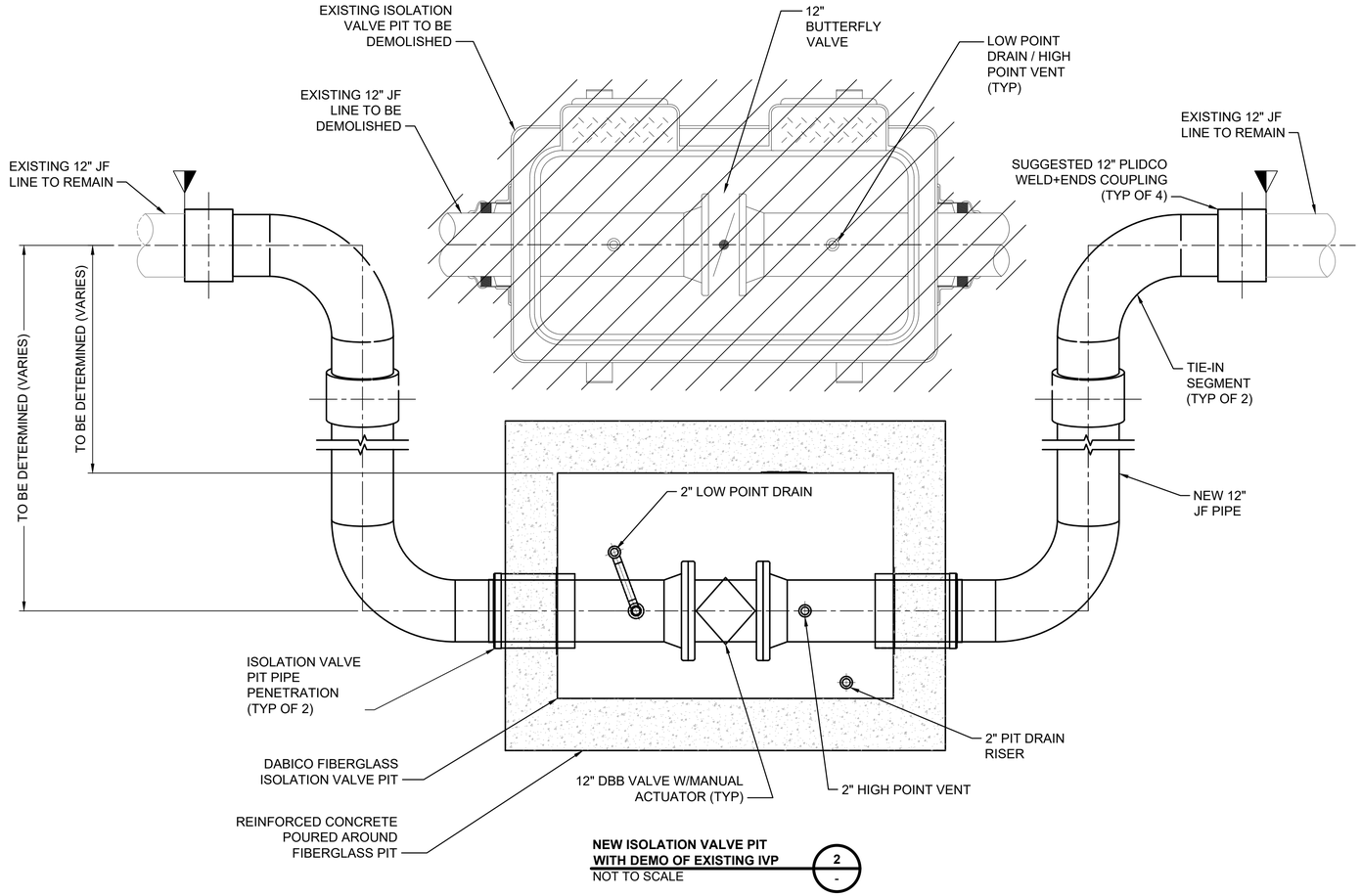
METROPOLITAN WASHINGTON AIRPORTS AUTHORITY

HYDRANT FUELING ISOLATION VALVES DESIGN-BUILD RFP
CONCOURSE C/D MAIN SEGMENTS
WASHINGTON DULLES INTERNATIONAL AIRPORT
WASHINGTON, D.C.

DETAILS - 1

PROJECT IDENTIFIER
SHEET NAME
VOLUME NUMBER 1 of 1
SHEET NUMBER 3 of 5



NEW ISOLATION VALVE PIT WITH DEMO OF EXISTING IVP (2)

NOT TO SCALE

NOTES:

1. ISOLATION VALVE PIT SHALL BE EQUIPPED WITH EITHER (2) LOW POINT DRAINS OR (2) HIGH POINT VENTS OR A COMBINATION THEREOF BASED ON PIPING ELEVATION WITHIN THE FUEL HYDRANT SYSTEM.
2. EXISTING IVP SHALL BE COMPLETELY REMOVED OR ABANDONED IN PLACE. IF ABANDONED IN PLACE, SAW CUT FIBERGLASS PIT 3 FEET BELOW GRADE AND REMOVE TOP PORTION. PUNCH HOLES IN BOTTOM OF PIT FOR DRAINAGE.
3. REMOVE AND REPLACE CONCRETE PAVEMENT TO NEAREST EXISTING JOINT. EXISTING 25FT X 25FT SQUARE PANELS MAY BE SAW CUT INTO 12.5FT X 25FT HALVES TO REDUCE EXTENT OF PAVEMENT REPLACEMENT.
4. PROVIDE CATHODIC PROTECTION TEST STATIONS AND INSULATING FLANGES AT GATES C11 & D7. TEST STATIONS SHALL BE EMBEDDED IN PAVEMENT AND ACCESSIBLE WITHOUT OPENING PIT COVER. COORDINATE TIE-IN OF EXISTING CATHODIC PROTECTION SYSTEM (INCLUDING PLANNED IMPROVEMENTS) WITH AIRPORTS AUTHORITY, FUEL SYSTEM OPERATOR, AND OPERATOR'S CORROSION ENGINEER.
5. PROPOSED ISOLATION VALVE PIT IS SHOWN OFFSET FROM EXISTING PIPELINE. ALTERNATE DESIGN CONCEPTS MAY BE CONSIDERED BY AIRPORTS AUTHORITY (E.G. VALVE PIT IN LINE WITH PIPING).

NO.	REVISION	DATE

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KANSAS CITY, MO. 64114
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DATE 2/14/2018
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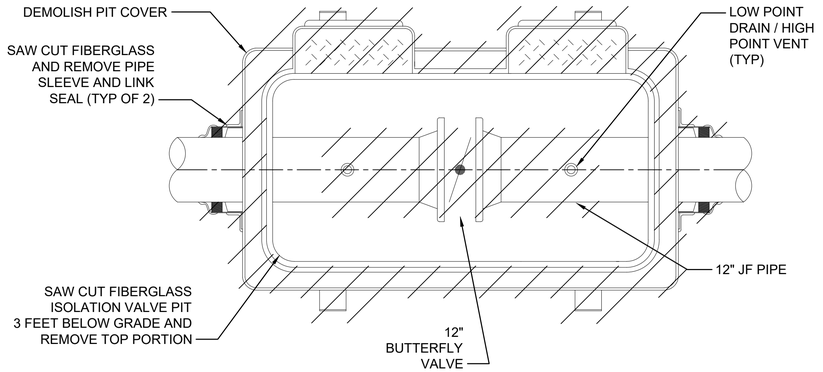
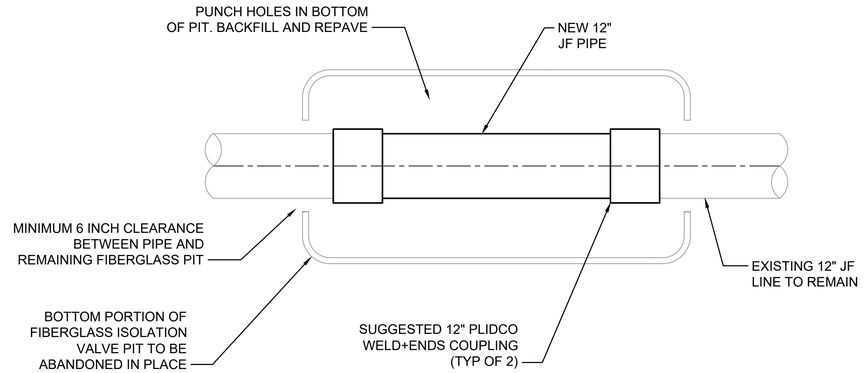
CONCOURSE C/D MAIN SEGMENTS
WASHINGTON DULLES INTERNATIONAL AIRPORT
WASHINGTON, D.C.

DETAILS - 2

PROJECT IDENTIFIER
SHEET NAME
VOLUME NUMBER 1 of 1
SHEET NUMBER 4 of 5



DEMO



FINAL CONDITION

ISOLATION VALVE PIT DEMO WITH NO REPLACEMENT (3 / -)
NOT TO SCALE

NOTES:

1. REMOVE AND REPLACE CONCRETE PAVEMENT TO NEAREST EXISTING JOINT (APPROXIMATELY 12.5FT X 12.5FT SQUARE AREA).
2. DEMOLISH EXISTING CATHODIC PROTECTION TEST STATIONS.

NO.	REVISION	DATE

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METROPOLITAN WASHINGTON AIRPORTS AUTHORITY

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CONCOURSE C/D MAIN SEGMENTS
WASHINGTON DULLES INTERNATIONAL AIRPORT
WASHINGTON, D.C.

DETAILS - 3

PROJECT IDENTIFIER
SHEET NAME
VOLUME NUMBER 1 of 1
SHEET NUMBER 5 of 5

APPENDIX 3

ISOLATION VALVE PITS ADDITIONS PERFORMANCE SPECIFICATIONS

GENERAL REQUIREMENTS AND TECHNICAL PERFORMANCE SPECIFICATIONS

FOR

HYDRANT FUELING ISOLATION VALVES DESIGN-BUILD RFP CONCOURSE C/D MAIN SEGMENTS

PROJECT TBD

WASHINGTON DULLES INTERNATIONAL AIRPORT

METROPOLITAN WASHINGTON AIRPORTS AUTHORITY

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Final Submittal
February 14, 2018

In Association with:

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METROPOLITAN WASHINGTON AIRPORTS AUTHORITY

GENERAL REQUIREMENTS AND TECHNICAL PERFORMANCE SPECIFICATIONS

TABLE OF CONTENTS

* * * * *

SECTION 007300 — SUPPLEMENTARY CONDITIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings, Contract Provisions, Special Provisions, and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. The articles and paragraphs of this Section represent supplements or additions to the Contract Provisions or the Special Provisions. The requirements of this section are the sole responsibility of the Contractor. No additional payment will be made to the Contractor to fulfill these requirements.

1.3 WORK UNDER OTHER CONTRACTS

During the period of this Project, the Authority anticipates that other construction contracts may be underway at or near the site of work of this Contract. A list of adjacent construction activities will be provided by the Authority at the pre-proposal meeting.

PART 2 - PRODUCTS (not used)

PART 3 - EXECUTION

3.1 PERMITTING

A. Comply with all requirements set forth in the Authority's “Building Codes Manual”. This manual describes Building Codes organization, Building Code inspection process, Certificate of Occupancy requirements, and information regarding elevators, escalators, and moving walks. The Authority will file for and provide the construction permit.

3.2 MAINTENANCE OF VEHICULAR TRAFFIC

A. Maintain adequate vehicular traffic flow and safety along the service roads and other roadways on Airport property. In addition, this requirement applies to crossroads, approaches, and entrances affected by or made necessary by the Work. Coordinate activities throughout the project in a manner that allows emergency access, without delays to emergency response vehicles, to all areas of the Project that are occupied by employees.

B. Comply with requirements indicated in the Traffic Maintenance Plan provided in the contract documents. Obtain COTR's written approval prior to implementing any deviations from the provided plan.

C. Maintain the construction operations affecting vehicular or aircraft traffic movement from the beginning of construction operations until final acceptance of the project. The maintenance shall constitute continuous and effective work prosecuted day by day with adequate equipment and forces to the end of project to ensure that roadways and structures are maintained in satisfactory

condition at all times, including barricades and warning signs as necessary for performance of the work.

D. Keep the portions of the project being used by aircraft, mobile lounges and vehicular traffic, whether it is through or local traffic, in such condition that traffic will be adequately accommodated. Remove snow and control all ice within the project boundaries. Bear all cost of maintenance work during construction and before the project receives a Certificate of Occupancy for constructing and maintaining approaches, crossings, intersections and other features as may be necessary.

E. Keep the portions of the road and aircraft pavement surfaces being used by the public free from irregularities, obstructions, mud, dirt, snow, ice, and any characteristic that might present a hazard or annoyance to traffic in such condition that traffic will be adequately accommodated. Maintain a vacuum/sweeper and flusher truck at the site at all times to clean roadway and aircraft surfaces affected by construction traffic at the request of Airport Operations or the COTR. `

3.3 AIRFIELD AND TERMINAL BUILDING OPERATIONAL REQUIREMENTS

A. The Work, or a portion thereof, may be performed in proximity to the Air Operations Area (AOA), including, active runways, taxiways, and aprons. Normal airport operations will continue adjacent to the Work during all phases of the Project. These activities include, but are not limited to:

1. Aircraft movement on runways, taxiways, aprons; aircraft landing and takeoff operations.
2. Aircraft parking, refueling and other aircraft servicing.
3. Baggage handling.
4. Routine aircraft maintenance.
5. Apron maintenance, snow removal and ice control.
6. Mobile lounge and Plane mate operations.

B. The Work, or a portion thereof, will be performed nearby the public Terminal or Concourse buildings. Normal airport operations and public activities will continue adjacent to the Work during all phases of the Project. These include:

1. Maintenance, custodial and support activities.

C. Phase construction activities as necessary to accommodate all airport operations without disruption. Adhere to all current Airport Orders and Instructions (O & Is), Airport Bulletins, and Airport Advisories. The Authority will provide relevant Orders and Instructions to Offerors in the Solicitation Package. Bulletins and Advisories will be provided to the offeror by the Authority as they are issued.

3.4 TENANT OPERATIONAL REQUIREMENTS

The Work of this Project will be performed in close proximity to tenant-occupied areas. Coordinate and conduct work activities in such fashion that public circulation, tenant operations, and access to the tenant spaces will not be impaired in any manner except as detailed on Contractor's Work Plans. COTR will review and approve in writing all Work Plans.

3.5 ENVIRONMENTAL PROTECTION

A. Comply with all Federal, state and local laws and regulations controlling pollution of the environment. Take necessary precautions to prevent pollution of streams, rivers, lakes, ponds, and reservoirs with fuels, oils, bitumens, chemicals, or other harmful materials and to prevent pollution of the atmosphere from particulate and gaseous matter.

B. Notify COTR immediately in the event that abnormalities, discolorations, odors, oil, or other signs of potential contamination by hazardous materials are encountered during excavation or other construction activities. Follow with written notice within 24 hours, indicating date, time, and location of potential contaminants encountered. The COTR will provide further direction to Contractor regarding disposition of materials encountered.

C. Aircraft deicing fluids will be encountered in the water (including utility manholes) and in the soils. Concentrations of aircraft deicing fluids in water and soils will range from non-detect to saturation. Aircraft deicing fluids are propylene based Type I and Type IV fluids. The fluids emit an unpleasant odor when the breakdown (biodegradation) is occurring. Follow OSHA requirements while working in aircraft deicing impacted areas. Coordinate with the COTR for obtaining Material Safety Data Sheet (MSDS) for aircraft deicing fluids.

D. Petroleum contaminated soils and water may be encountered during the construction of this project. Petroleum impacted soils range from saturated to 1.0 ppm. Petroleum impacted water ranges from free product to “non - detect.” Maintain the necessary health and safety requirements for all personnel in accordance with OSHA regulations.

E. Do not use petroleum-contaminated soils as backfill around new piping or utilities. Transport petroleum contaminated soils to the Contractor’s staging area. Place the contaminated soils on two layers of reinforced 6 mil plastic sheeting, install and maintain sediment and erosion controls, and adequately cover the stockpile to prevent water infiltration.

3.6 ARCHAEOLOGICAL AND HISTORICAL FINDINGS

Notify COTR immediately if subsurface structural features, concentrations of artifacts, rubble, bone/shell, or burnt material are uncovered or otherwise discovered. Prompt reporting will avoid potentially severe problems resulting from the destruction of significant resources and may limit the impact on construction operations and schedules.

3.7 DAMAGES AND PRE-EXISTING CONDITIONS

A. Be responsible for all damages caused by Contractor’s construction activities. Provide all labor, materials, etc. to return any damaged areas, systems or equipment to their original condition at no additional cost to the Authority.

B. Perform a survey of pre-existing conditions in the vicinity of Contractor’s construction activities, utilizing photographs and other means as necessary to document existing damage or conditions. Submit two copies of this survey to the Contracting Officer within 21 calendar days after Notice-to-Proceed. This survey will assist in resolving any damage claims against the Contractor during and after construction.

C. Preserve all roadways, pedestrian and directional signage. Deliver all signs removed and not required for reinstallation to the Authority as directed by the COTR.

D. Replace or repair lost or damaged signs at no cost to the Authority.

3.8 SECURITY DURING CONSTRUCTION

A. Maintain the integrity of the Airport Security fence. Maintain the integrity of doors and walls between public areas and Air Operations Area (AOA) at all times. Comply with Title 49 Code of Federal Regulations, Parts 1500, 1540, 1542 and 1544.

B. Possession of and display of a proper and current Airport Identification Badge, issued by Airport Operations is required for all Contractor personnel passing into the AOA. Refer to "Airport Orders and Instructions" attached as part of the Contract for specific requirements. Security requirements have increased significantly at Washington Dulles International Airport and Ronald Reagan Washington National Airport. Contractor can expect up to two hours waiting time to clear construction vehicles into the AOA. Offerors shall become intimately familiar with all TSA and Authority security requirements. No increase in contract price will be provided to the Contractor should the contractor not be aware of any security procedure in place at time of submitting their offer that leads to increased time and inconvenience to accomplish the work.

C. Pay all fines levied by the Transportation Security Administration for penalties resulting from security infractions perpetrated by or caused by Contractor’s personnel or work forces of Contractor’s subcontractors or suppliers.

D. Establish and maintain the security of Contractor’s staging areas, equipment and materials.

E. Provide escort for delivery vehicles transporting materials and supplies to or from the Contractor's staging or work areas into the AOA, in accordance with requirements stated in "Airport Orders and Instructions" attached as part of the Contract.

F. Do not park within 300 feet of a terminal building unless specifically authorized by Airport Operations.

G. No firearms or weapons of any type are allowed on the airport.

H. No cartridge style nail guns, nor any tools that use a cartridge or any explosive charge, are allowed without prior written notification of COTR. Obtain written approval from the COTR before bringing such tools on the project.

I. Conform to all Orders and Instructions pertaining to vehicle inspection.

3.9 MATERIAL HAULING

A. Restrict deliveries and removal of bulk materials, supplies, waste soils and equipment to and from the Project site to the Authority-designated roads and haul routes indicated on the Drawings.

B. Access and egress to and from the Airport for hauling operations shall be through the entrances indicated.

C. The designated haul routes for hauling operations will require vehicles crossing existing taxi lanes or taxiways. Under no conditions shall the Contractor plan use of taxiways and taxi lanes for hauling equipment other than crossings. Haul routes for this project are as indicated.

D. Schedule, phase, and sequence work operations to minimize the number and duration of taxiway crossings. Submit a detailed Work Plan for Contractor's entire operations to the COTR for approval prior to commencing work. Obtain written approval from the COTR of the Work Plan. Identify clearly on Work Plan each operation requiring coordination with Airport Operations.

E. Notify the COTR at least 72 hours in advance of his requirement for scheduled aircraft gate closures. Obtain the written approval of Airport Operations prior to closing an aircraft gate or crossing a taxiway, taxi lane or roadway.

F. Bear all costs associated with establishing, maintaining, signing, lighting and marking haul routes and taxiway crossings. These costs are considered incidental to the pay items of this Contract.

G. Use load covers on all dump trucks. Load dump trucks so that no spillage occurs during transit on the State, municipal, or Airport roadways, taxiways, and aprons. Clean wheels of trucks leaving the Project construction site of all soil and rocks. Provide a truck washing rack on the Project site to minimize the tracking of soil onto paved surfaces.

H. Be responsible for the cost of the immediate cleaning of earth tracking and spills on paved surfaces resulting from the Contractor's operations. Because of the potential for extreme damage to aircraft engines due to the ingestion of foreign objects, maintain on the project mechanical sweeper/vacuum (wet/dry) equipment with nylon brushes complete with operators. Maintain a water truck on site at all times in order to effectively control dust rising from construction activities.

I. Provide sweeper/vacuum equipment with a usable hopper capacity of 6 cubic yards and with a regenerative air capacity of 15,000 CFM. Provide equipment with gutter brooms of poly brush material so as not to damage airfield pavement markings; a dust control system that includes an external spray system with front mounted spray bar, nozzles located at each gutter broom; and an internal spray system with nozzles in the internal air stream. Maintain the equipment in good working order throughout the project and replace the brooms and or spray systems, as necessary, to ensure proper sweeping and vacuuming of paved surfaces.

3.10 PORTABLE LIGHTING

Portable lighting: If used for Contractor operations, aim and shield portable lighting at all times to eliminate glare that could impair runway, taxiway, apron, ground operations, and Airport Traffic Control Tower operations. Equip portable lighting with reflectors and glare shields to prevent spillover of light into operational areas.

3.11 RADIO COMMUNICATIONS (Not Used)

3.12 HEIGHT LIMITATION

A. For all demolition and construction within the Airport, limit the height of Contractor's equipment to a maximum of 40'.

B. Prior to beginning any work coordinate with the COTR the height of all cranes, boom trucks, scaffolds or similar vehicles of construction. Properly mark all construction equipment with safety flags and warning lights in accordance with current FAA and Airport Operations requirements. Submit FAA Form 7460, provided by COTR, for all variations on approved crane heights.

3.13 NOISE CONTROL

A. In and around terminal facilities and buildings whose normal occupancy is from 7 a.m. to 7 p.m., perform work that causes noise that is disruptive to the airport's tenants or the traveling public between the hours of 11:00 pm and 5:00 am. Measure noise for this situation using an "A" scale at a point 4'-0" above ground at the closest point to airport tenants or the traveling public.

3.14 EXAMINATION OF PLANS, SPECIFICATIONS AND SITE OF WORK

The offeror is expected to examine carefully the site of the proposed work, the proposal, plans, specifications, solicitation provisions, contract provisions, special provisions and contract forms before submitting a proposal. The submission of a proposal will be considered conclusive evidence that the offeror has made such examination and is satisfied as to the conditions to be encountered in performing the work as to the requirements of the Contract.

3.15 AIRPORT SECURITY/VEHICLE INSPECTION PROCEDURE

A. The number of vehicular access points into secure areas at IAD has been reduced to an operational minimum. Those gates that remain open are divided into two categories:

1. Vehicular gates for approved vehicles and individuals who hold appropriate and valid airport access media and do not require escorts.
2. Vehicular gates for those vehicles that have invalid or no airport access authorization and/or the vehicle operator and passenger(s) do not have valid access authorization media and require escorts.

B. The access points for vehicle operator and passenger(s) who have appropriate and valid airport access media are Gates 127 and 141. Vehicles that require escorts of any type are prohibited at those gates.

C. All vehicles and personnel that will require an escort shall enter the AOA via Gate 313. Gate 313 is designated as large equipment contractor/construction access point. These access gates are as indicated.

D. Other access gates through which the contractor may gain access to a specific project site are as indicated and must be approved by Airport Operations and the Transportation Security Agency.

E. The following procedures will be utilized for all escorted vehicles and AOA approved vehicles with non-badged passengers seeking entry to the AOA:

1. All vehicles are searched.
2. Coordinate all vehicle deliveries with the COTR in advance. Provide the vehicle license plate number and expected delivery time for all vehicle deliveries. Contractor may compile the expected daily delivery schedule on one sheet for submission to the COTR.
3. The vehicle operator shall have in his or her possession a commercial manifest, which identifies the contents of the vehicle and/or trailer.
4. An escort from the company for whom the shipment is intended shall respond to the vehicle access gate and remain with the vehicle until the vehicle exits the secured area.
5. A vehicle search will be conducted and once cleared; vehicles will be permitted escorted access to their delivery point.

6. Contractors should expect minor delays up at Gate A as a result of these security provisions.
7. Priority consideration may be offered to concrete trucks with resulting delays estimated to be 20 minutes. To receive priority consideration, schedule concrete deliveries with Airport Operations and COTR at time of batching.

F. Prior approval from the Manager of Airport Operations or his/her designated representative is required for any exceptions to the above procedures**.**

3.16 WORK ADJACENT TO METRO (Not Used)

PART 4- MEASUREMENT (Not Used)

PART 5 – PAYMENT

All costs incurred by the Contractor to acceptably implement the requirements of this Section shall be performed at no additional cost to the Airports Authority and are part of this Contract.

END OF SECTION 007300

SECTION 007319 - HEALTH AND SAFETY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings, Contract Provisions, Special Provisions, Supplementary Conditions, and other Division 01 Specification Sections, apply to this Section.

B. Requirements included in this Section are the minimum acceptable and are in addition to the Airports Authority's Construction Safety Manual, as well as all Local, State, and Federal requirements. Where conflicts or discrepancies exist between requirements, the more stringent requirement shall govern.

C. Related Work Described Elsewhere:

1. Section V, "Solicitation Provisions."
2. Section VII, "Contract Provisions."
3. Section X, "Construction Safety Manual."

1.2 SUMMARY

A. Provide safe and healthful working conditions on each operation at all times. Conduct the various operations connected with the Work so that they will not be injurious to safety or health. Comply with all provisions, regulations and recommendations issued pursuant to the Occupational Safety and Health Act of 1970, and the Construction Safety Act of 1969, as amended, and with laws, rules and regulations of other authorities having jurisdiction, with regard to all matters relating to the safety and health of workers and the general public. Comply with all provisions, regulations and recommendations issued pursuant to Virginia Department of Labor and Industry Occupational Safety & Health (VOSH) Unique Safety Standards for Construction. Compliance with government requirements is mandated by law and considered only a minimum level of safety performance. Perform all work in accordance with best safe work practices recognized by the construction industry.

B. Noncompliance with Airports Authority Construction Safety Policies, FAA Requirements, OSHA 1926 Safety Regulations, VOSH Safety & Health Safety Regulations can result in an issuance of Notice of Non Compliance (NCN).

C. Stop work whenever a work procedure or a condition at a work site is deemed unsafe by the Contracting Officer's Technical Representative (COTR), the Program Safety Manager (PSM), the Contractor's Safety Engineer, or by the Program Management Support Services (PMSS).

D. Prior to the start of construction activities in the Airport Operations Area (AOA), the Contractor's Safety Engineer, Program Management Support Service (PMSS) Consultant shall tour airside with the Program Safety Manager.

E. Implement and conduct safety meetings, as indicated in the Airports Authority's Construction Safety Manual, with all subcontractors on the job site and all subcontractors anticipated to be on the job site from the previous safety meeting to the next safety meeting. The purpose of the safety meeting shall be safety coordination, review of safety procedures, and promoting safety awareness.

F. All work shall be pre-planned prior to starting any construction activity. Pre–task planning shall be required by all work crews and reviewed by management personnel. Work crews will review the Pre-Task Plan (PTP) with management personnel so they are aware of the hazards of the work their performing. Work crews and management will plan how to abate the hazards identified in their plan. Management and work crews will sign the PTP form acknowledging that they have read and understand the hazards of the work being performed and have planned how to mitigate the safety hazards that they have identified. (Refer to Pre-Task Planning Policy in the Airports Authority "Construction Safety Manual").

G. Fire Safety: Conform to the following requirements:

1. Ensure adequate access to all construction areas for emergency response.

2. Complete application and obtain a permit from the Office of the Airports Authority Fire Marshal to store, handle, or use any hazardous material, including but not limited to fuels for equipment.

3. Perform all utility outages in accordance with the requirements of Division 01 Section "Summary."

4. Be responsible for developing a site specific Hearing Conservation and Respiratory Protection Programs for all employees who may be exposed to health hazard. The Program Safety Manager must approve these programs prior to beginning work that may expose employees to health hazards associated with construction activities. All employees exposed to airborne contaminates and/or noise must, at a minimum, have an audiogram and pulmonary function test.

1.3 SAFETY AND HEALTH MANAGEMENT

A. Proposed Safety and Health Personnel

1. The Contractor shall provide a full-time on-site Contractor's Safety Engineer for the duration of this Contract, who shall be responsible for all safety and health requirements as included herein and as required by the Airports Authority's Construction Safety Manual. The Contractor's Safety Engineer, shall have a current Red Cross First Aid Certificate and CPR Certification.

2. The Contractor shall submit the résumés of all proposed safety and health professionals who shall serve in the role of Contractor's Safety Engineer (CSE), and all other Contractor's Site Supervision to the COTR and MWAA Program Safety Manager (PSM)

for approval. The resumes shall include but not limited to such items as: work experience, education, safety and health training completed, memberships in professional associations, professional certifications, professional registrations, and professional references confirming the qualifications shall also be required. Documentation confirming the qualifications and personal references or contacts for verification shall also be required. The COTR or PSM may reject the persons proposed for failure to have adequate qualifications, past performance or other reasonable and lawful causes.

3. Approval of the COTR is required, if at any time the Contractor seeks to remove or discharge the Contractor's Safety Engineer.

B. Contractor's Safety Engineer

1. The Contractor's Safety Engineer(s) (CSE) shall be full-time on-site safety professional with a minimum 5 years' experience on underground construction, hired by the Contractor to manage only the safety efforts of construction. The Contractor's Safety Engineers must be familiar with the type of work to be performed under this contract. The CSE shall perform the duties and responsibilities as stated in the Authority's "Construction Safety Manual."

2. The Contractor's Safety Engineer(s) shall have, at a minimum, a certificate of completion, within the last two years, from either a 10-hour or 30-hour OSHA Training Course in the following areas; Hazardous Materials, Respiratory Protection and Permit-Required Confined Space Entry. Training shall be conducted by an instructor accredited to perform such instruction by the Occupational Safety and Health Administration.

3. The CSEs shall not be the project manager, engineer, superintendent or anyone else working on the project and shall have no other duties except those related to safety, unless otherwise approved by the COTR.

C. Contractor's Site Supervision (Superintendents and Foremen)

1. Superintendents and Foremen shall have a minimum of 5 years experience in the supervision in construction operations similar to the type of construction anticipated on this contract within the last 7 years.

2. In addition to the above, the Superintendents and Foremen employed by the Contractor on the Project shall have, at a minimum,

a. A certificate of completion from a 10-Hour OSHA Hazard Recognition Training Course for the Notice-to-Proceed. An instructor accredited by the Occupational Safety and Health Administration to perform such instruction shall have conducted the course for which the certificate is offered.

D. Reference Codes, Standards and other Documents

1. OSHA - US Department of Labor, Occupational Safety and Health Administration, Construction Standards and Interpretations, 29 CFR Parts 1910 and 1926.
2. US Department of Labor, Occupational Safety and Health Act of 1970, as amended.

3. US Department of Labor, Construction Safety Act of 1969, as amended.
4. Virginia OSHA Rules and Regulations (Virginia Occupational Safety & Health Unique Standards.
5. All other Federal, State and Local requirements and regulations in effect at the time of construction.

1.4 SUBMITTALS

A. Submit Safety and Health Program to COTR within 15 calendar days of Notice to Proceed and prior to the start of any construction activities. COTR and PSM must approve the Contractor's Safety and Health Program prior to the start of any work.

B. Submit Fire Risk Assessment to COTR prior to any construction.

C. Submit qualifications of Contractor's Site Supervision to COTR within 15 calendar days of employment at the project.

D. Submit Airports Authority provided Inspection reports by Contractor's Safety Manager to COTR weekly.

E. Submit to COTR Weekly the following:

1. Meeting Minutes and attendance sheets of Safety Training
2. Weekly Safety Meetings and related communications by Contractors and Subcontractors.

F. Submit disciplinary action notices to COTR weekly.

G. Submit notices from public authorities to COTR as soon as possible but no later than 24 hours of receipt by Contractor.

H. Submit Safety Data Sheets (SDS) for all substances to COTR for PSM review as received by Contractor along with written Hazard Communication Program.

I. Submit copy of Contractor's chemical inventory list to COTR and the Airports Authority Fire Marshal as developed and updated.

J. All equipment shall be inspected for possible safety problems and any safety problems found shall be corrected prior to piece of equipment being brought on to the project. All equipment shall be safety inspected monthly if not more often as directed by the COTR. Submit copies of these inspection reports to COTR within one week of the inspection.

K. Submit copies of the latest annual inspections as required by OSHA 1926.550 (Subpart N) to the COTR immediately upon any crane being brought on to the job site and within one week of any annual inspections that occur while that crane is on the project.

L. Submit a safety mitigation plan for any subcontractors who have an Experience Modifier Rate (EMR) of over 1.0. The contractor shall provide documentation of the current year and last three years of safety related issues and address those issues in the safety mitigation plan.

1.5 SAFETY PROGRAM ADMINISTRATION

A. Roles and Responsibilities: The Contractor shall be directly responsible for establishing and implementing a project-specific Contractor Safety and Health Program for the protection of its workers, the workers of its Subcontractors, the COTR, Architect/Engineer, the Metropolitan Washington Airports Authority (the Airports Authority) and the general public. The Contractor shall ensure that the necessary resources for an effective program, as set forth in the contract documents and specifications, are provided at all times during the course of the Work. The Contractor shall require that its Subcontractors comply with all requirements of the Work and of the Contractor Safety and Health Program. The Contractor shall include documentation of safety and health program implementation and accident experience as criteria for evaluating performance of its individual project managers and site supervisors.

1. The Contractor's Project Manager shall:

   a. Ensure the implementation and administration of the Contractor's Safety and Health Program.

   b. Support the Contractor's Safety Engineer (CSE) with the resources and authority to enable him/her to effectively administer and manage his/her designated portion(s) of the project safety effort.

   c. Ensure that the Contractor's Safety Engineer is assigned only work bearing directly on the safety and health of workers and members of the general public not activities which prevent the CSE from performing his/her primary function: safety inspections, training and enforcement. Although it may be appropriate for the Contractor's Safety Engineer to participate in functions such as site security, insurance-related issues such as medical case management, general procurement, and similar functions, they shall not be considered safety related activities for purposes of these Specifications and they shall not be part of the CSE's primary responsibilities.

   d. Attend scheduled safety and health meetings conducted by the Contractor pursuant to administration of the project safety effort.

   e. Cooperate with the COTR and PSM in enforcement of the Safety and Health Program responsibilities as set forth in these Specifications.

2. The Contractor's Safety Engineer shall:

   a. Administer and manage the Contractor's Safety and Health Program.

   b. Cooperate with the COTR, PSM and Insurance Safety Consultant in their administration, management and oversight of the Contractor's Project Safety and Health Program.

   c. Attend scheduled safety and health meetings conducted by the Program Safety Manager.

d. Prior to the start of work, conduct a physical survey of the job site(s) and make a survey of the work to be performed by reviewing the drawings and conducting discussions as applicable with the necessary parties toward identification of and planning for hazard controls. These activities shall be documented and submitted as a Project Safety and Health Survey to the COTR and PSM for review.

e. At the initiation of the work and throughout the course of the project, conduct and implement Job Hazard Analyses (JHAs) for operations deemed hazardous. The JHAs will identify potential hazards and actions required to control them. The JHAs will be submitted to the COTR and PSM for review. The CSE shall review PTP forms in the field with work crews and management personnel.

f. Be physically at the Project job site on a full-time basis for 8 hours per working day with minimal exceptions.

g. Conduct physical inspections of the job site, equipment, materials and operations to detect and promptly eliminate unsafe acts and unsafe conditions. The frequency of the inspections shall be determined on the basis of site activities. Hazardous activities will require continuous inspection. In no case shall the above-described inspections be conducted less than once per shift.

h. Document in a uniform, established format the findings of each inspection, including the nature of hazards identified, the corrective actions taken, and the person(s) exposed or potentially exposed to the hazard(s). Abatement photographs will be required for observed safety violations.

i. Schedule and conduct safety orientations, meetings and hazard recognition training for all workers and visitors on the project.

j. Develop and implement a program to readily identify individuals (i.e. Hard Hat Decals) who have completed the required safety and hazard training.

k. Administer the disciplinary action policies and procedures set forth in the Contractor’s Project Safety and Health Program.

l. Post and maintain the required safety information at appropriate locations on the project, including, but not limited to emergency action information (phone numbers, means of egress, etc), hazard warnings, hazard communication information, and injury and illness data.

m. Conduct investigations of all accident events and near misses and document the findings of such investigations within 24 hours in accordance with applicable rules and regulations and the Contractor’s Project Safety and Health Program. Abatement photographs shall be required by the contractor for observed safety violations.

n. Maintain written materials, such as codes, standards, references, hazard communication information, medical and exposure monitoring records and other safety and health program-related documents in an orderly manner at the project,

readily available for use by the Contractor's personnel and review by the COTR and PSM.

o. Perform all safety and health-related tasks necessary to achieve the highest degree of safety that the nature of the work permits.

p. Implement and manage a hot work permit program, making sure that it complies with the Airports Authority's Fire Department rules and regulations.

q. Attend weekly walkthroughs with the COTR and PSM.

r. Attend project progress meetings as necessary or as required by the COTR.

3. The Contractor's Site Supervisors (Superintendents and Foremen) shall:

a. Be directly responsible for ensuring the work is performed in a safe and healthful manner. They shall be knowledgeable of the hazards attendant to the work, aware of the necessary hazard controls and authorized to effect prompt action to control or eliminate them.

b. Assist the Contractor's project management and safety staff in the inspection of job sites, equipment and materials, attending and participating in the Contractor's safety meetings and training efforts, and enforcing safe work rules set forth in the Contractor's Project Safety and Health Program.

c. Ensure that each job has the necessary safety appliances and personal protective equipment.

d. Monitor and report to the Contractor's Safety Engineer the safety performance of Subcontractors on the project to determine their level of compliance with the Contractor's Project Safety and Health Program.

e. Participate and cooperate fully with the COTR, PSM, Insurance Safety Consultant, PMSS Consultant and Contractor's Safety Manager in the investigation of accidents and remediation of hazards.

f. Report all accidents immediately and near misses as promptly as conditions permit, with written follow up reports within 24 hours after the occurrence, to the COTR, PSM, Insurance Safety Consultant, PMSS Consultant and Contractor's Safety Engineer.

4. Contractor's employees shall be required by the Contractor to:

a. Fully support the Contractor's Project Safety and Health Program by assisting the COTR, PSM, Insurance Consultant, PMSS Consultant and Contractor's Safety Engineer in the inspection of the job site, equipment and materials to detect hazards and reporting unsafe acts and unsafe conditions immediately.

b. Attend and actively participate in all orientation, safety and health training safety meetings and other functions for communication of safety and health prescribed by the Contractor's Project Safety and Health Program.

c. Comply with the work rules set forth in the Contractor's Project Safety and Health Program or as further established as a part of ongoing safety training and/or job hazard analysis.

d. Report to the Contractor's Site Supervision any and all apparent unsafe acts or unsafe conditions.

e. Report any and all accidents, injuries, symptoms of illness and near miss events involving the worker to the Contractor's Site Supervision immediately or as promptly as conditions permit.

f. Make recommendations for safety and health protection(s) that the worker has, from his or her own experience, observed to be successful on other projects.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 CONTRACTOR'S SAFETY AND HEALTH PROGRAM - GENERAL REQUIREMENTS

A. This Section serves to outline the key elements for the Contractor's Safety and Health Program. This Section also includes a number of additional project specific requirements for the Contractor's Safety and Health Program. In addition, reference is made to the minimum requirements set forth in the "Construction Safety Manual."

B. The Contractor's Safety and Health Program shall include as a framework for safety and health programming the following minimum basic elements:

1. A statement of the Contractor's commitment to providing a safe and healthful project.
2. A statement of the Contractor's responsibility for implementing its Safety and Health Program.
3. Detailed procedures for:

   a. Training of site supervision.
   b. Safety and Health Project Orientation for workers.
   c. Ongoing Safety and Health training for workers.
   d. Providing safety and health information to the general public.

4. Specific assignments of safety and health-related roles and responsibilities.
5. Safety and health inspections on the project.
6. Procedures for accident-related record keeping, investigation and surveillance.
7. A disciplinary action procedure.

8. Schedule of safety related meetings and training.
9. A set of general work rules addressing hazards common to all types of construction and a site-specific set of work rules addressing the hazards of the work at hand.
10. A list of required permits for specific construction operations.
11. An emergency action plan addressing all types of emergencies with which the Contractor may reasonably and predictably be confronted.
12. A procedure for identifying how and under what circumstances job hazard analyses shall be conducted.
13. Reporting formats for required reports and submissions.
14. Detailed site-specific procedures for conducting safe working conditions associated with:

    a. Drilling.
    b. NATM, TBM and/or other types of tunneling.
    c. Compressed air and gases.
    d. Concrete work.
    e. Confined spaces/permit-required confined spaces.
    f. Crane operations and maintenance.
    g. Rigging operations, equipment inspection and testing.
    h. Electrical hazards.
    i. Excavation and excavation support.
    j. Fall protection.
    k. Fire protection and prevention.
    l. First aid, CPR and blood borne pathogens.
    m. Hand and power tools.
    n. Hazard communication.
    o. Housekeeping.
    p. Scaffolding, ladders, and walking and working surfaces.
    q. Lockout/Control of Energy Sources.
    r. Materials handling and storage.
    s. Mechanized equipment.
    t. Construction health hazard monitoring.
    u. Personal protective equipment and clothing.
    v. Respiratory protection.
    w. Sanitation.
    x. Welding and cutting.

15. Detailed site-specific procedures shall, as a minimum, comply with the guidelines identified in the Section X “Construction Safety Manual.” All detailed site-specific procedures shall include requirements for mandatory eye and head protection and adherence to the 6-foot fall protection requirements. Site-specific procedures shall require all chainsaws used on-site to be equipped with kickback guards/breaks and require all other power tools to be equipped with all protective features as provided by the manufacturer.

16. Hazardous material handling.

17. A silica exposure plan to limit exposure of workers to silica dust. The plan shall include the applicable preventive measures recommended and contained in NIOSH ALERT: 1996 Publication 96-112 “Preventing Silicosis and Deaths in Construction Workers”.

18. All equipment, not just the underground tunneling equipment, shall be inspected on a regular basis (monthly if not more often as approved by the COTR) with copies of the inspection report being submitted to the COTR. The purpose of these inspections is to identify and document possible safety problems and repair these problems before someone is injured.

C. For all airside projects, a Safety Plan shall be attached to the Safety Program. The Safety Plan should include, to the extent applicable, provisions for the following:

1. Scope of work to be performed, including proposed duration of work.
2. Possible safety problems.
3. Work control measures.
4. Limitations on equipment height.
5. Location of airport operational areas.
6. Location of and access to stockpiled construction materials and equipment.
7. Inspection requirements.
8. Trenches and excavations, and cover requirements.
9. Threshold marking and lighting.
10. Closed runway marking.
11. Vehicle operation and pedestrian access in airport movement areas.
12. Construction site access and haul roads, includes maintenance of and keeping open ARFF access routes.
13. Limitations on construction.
14. Foreign object debris (FOD) control provisions.
15. Hazardous materials (HAZMAT) management.
16. Wildlife abatement.
17. NOTAM issuance.
18. Vehicle identification.
19. Vehicle parking.
20. Use of temporary visual aids.
21. Obstacle-free zones (OFZ).
22. Approach clearance to runways.
23. Runway and taxiway safety areas.
24. Procedures and equipment, such as barricades (identify type) for closing portions of the movement area.
25. Required compliance of Contractor personnel.
26. Procedures for notification of aircraft rescue fire fighting (ARFF) if deactivating water lines or fire hydrants, or if emergency access routes are rerouted or blocked.
27. Emergency notification for fire, medical, and police response.
28. The Safety Plans will be coordinated with the COTR and shall address all COTR concerns and review comments.

3.2 SPECIFIC CONTRACTOR'S PROJECT SAFETY AND HEALTH PROGRAM REQUIREMENTS

A. The Contractor's Project Safety and Health Program shall incorporate all basic elements of the construction project safety and health program set forth in Article 3.01 above, Section X "Construction Safety Manual", and the following project-specific program elements:

1. A written, project-specific Safety and Health Plan (Plan), incorporating job hazard analysis for construction operations, encountering contaminated soil and water, detailed emergency action procedures and fire risk assessment shall be developed by the Contractor, for review by the COTR and PSM to point out deficiencies before the start of any construction. The Plan shall specifically address rescue operations, conditions affecting rescue operations, smoke venting procedures, back-up power supply and pumping systems, means of ingress and egress, communications, hot work permitting procedures, and training, orientation and refresher training for workers, emergency responders and visitors.

2. A written fire risk assessment portion of the Plan shall detail potential fire hazards, means of dealing with those hazards, fire prevention, fire suppression and emergency evacuation measures that will be employed by the Contractor during the course of the Project.

3. The Plan shall be updated as substantive changes in the underground work environment occur. The Airports Authority's and local fire departments shall be provided with a copy of the most current Plan and advised of changes in the Plan as they are implemented. The fire departments will be requested to review and comment on the Plan and any changes that occur to the Plan.

4. The Contractor is required to send all project supervisory personnel to an Authority provided Orientation prior to the start of any work.

5. The Contractor's Safety Engineer shall train all workers and the COTR and his staff members in the details of the Plan.

6. In accordance with local and state regulations a permit system shall be used for all hot work performed on the project. The Contractor's Safety and Health Plan shall detail the permit system's procedures. The permit system shall be implemented and supervised by the Contractor's Safety Engineer. The permits shall be made available for inspection by the Airports Authority, the COTR and the local fire department(s). Open flames and fire shall be prohibited in all construction operations, except as permitted for welding, cutting and other hot work operations pursuant to the Contractor's Hot work Permit System. Smoking shall be allowed only in areas free of fire and explosion hazards. Readily visible signs prohibiting smoking and open flames shall be posted in areas having fire or explosion hazards.

7. The Contractor in all cases shall request responses by the fire department(s) to Project-related emergencies involving members of the general public. The Contractor shall fully coordinate and cooperate with the Airports Authority Fire and Rescue in its response to such emergencies.

8. The Contractor shall fully coordinate and cooperate with the Airports Authority's Risk Management and Authority Fire and Rescue in its response to such emergencies.

9. The Contractor is required to obtain all permits required for the Contractor's use of chemicals, and is responsible to meet all Federal, State and Local requirements. The Contractor shall develop a written chemical safety plan to address all chemicals used during construction. This safety plan shall include detailed procedures to prevent chemical accidents to the maximum extent possible during chemical transport, transfer, storage, use and disposal. The chemical safety plan shall include emergency response procedures, which identify all potential chemical emergencies and the recommended emergency response action to be taken for each incident. These procedures shall consider all potential chemical emergencies including chemical spills, incompatible reactions, fires and human exposures. Procedures shall describe methods to contain and isolate the accident, including the required protective clothing, equipment, first aid and response methods. Conduct, using Contractor's staff emergency response training and drills to the extent necessary to control the specific chemicals used by the Contractor. The Contractor's emergency response procedures shall be coordinated with support action from the Airports Authority's and local fire departments and hazardous material response teams, to provide for a comprehensive emergency response plan. This coordinated response shall be adequate to manage all chemical emergencies and provide for the health, safety and evacuation of all site personnel as well the community. The Airports Authority's and local fire departments shall be provided with a copy of the most current plan and be requested to review and comment on the plan. At all times when chemicals are on site, the Contractor shall maintain a trained emergency response staff, equipment, protective clothing and supplies as needed to implement the chemical safety plan.

10. The Contractor shall have at least one (1) employee on site at all times who is trained and qualified to administer first aid and cardiopulmonary resuscitation (CPR) for every 25 employees on site.

11. The Contractor shall comply with all requirements identified in OSHA regulation § 1926.50 relating to medical services and first aid.

12. The Contractor shall provide the on-site safety staff an appropriate office on the job site(s) to maintain safety records, up-to-date copies of all pertinent safety rules, regulations and governing legislation, material safety data sheets, and the site safety and health plan including information concerning foreseeable emergency conditions, location of emergency and telephone contacts for supportive action and for all required notifications.

13. No visitors will be allowed on site without permission of the COTR.

3.3 ACCIDENT REPORTING, INVESTIGATION AND SURVEILLANCE

A. Accident Reporting

1. Accidents are defined for purposes of this Specification as: "Any unplanned event which results, or could have resulted, in an injury or illness to workers or the general public, property loss or damage to the environment." The Contractor shall, as promptly as conditions permit, notify the COTR, Airports Authority Program Safety Manager, the Airports Authority's Risk Management Department and the designated local Public Safety official of the nature and circumstances of the emergency. Provide such notice immediately and a written report no later than 24 hours after the event. Report all accident events in accordance with the following:

    a. The COTR's Safety Manager will establish and disseminate to the Contractor all required accident reporting formats.

    b. Ensure that all accidents involving scope of work on the project, including Subcontractors are reported in the established format to the COTR's Safety Manager within twenty-four (24) hours of the event.

    c. Submit Airports Authority provided monthly safety report and submit to COTR's Safety Manager no later than the tenth calendar day of the following month.

B. Accident Investigation

1. Investigate all accident events, as defined above and that occur on those portions of the Project under the Contractor's control, in accordance with the contract documents and specifications.

    a. Conduct a detailed investigation of any and all accidents. Addressing who, what, when where, and why questions. Personal information shall not be sent in any report or via email. Personal information (e.g. social security numbers, home address etc...) shall be blackened out on all reports.

    b. Provide the COTR, Airports Authority Program Safety Manager and the Airports Authority's Risk Management Department with a detailed investigative report for any and all accidents.

    c. Fully cooperate with the Airports Authority's Risk Management Department, COTR, Airports Authority Program Safety Manager, Public Safety Department, Insurance Consultant and/or public authority having jurisdiction in the investigation of accidents.

    d. Report accident investigations in a complete manner on the accident reporting format(s) designated by the Airports Authority Program Safety Manager.

    e. Abatement photographs shall be required for corrective actions for observed safety violations and submitted to the COTR.

C. Accident Surveillance

1. The Airports Authority's Insurance Safety Consultant and Airports Authority Program Safety Manager seek to collect accident information for purposes of identifying patterns, trends, performance and establishing appropriate policies and procedures related to protection of safety and health. To that end prepare and submit reports of accidents as detailed above.

PART 4 - MEASUREMENT (Not used)

PART 5 - PAYMENT

All costs incurred by the Contractor to acceptably implement the requirements of this Section shall be performed at no additional cost to the Airports Authority and are part of this Contract.

END OF SECTION 007319

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings, Contract Provisions, Special Provisions, Supplementary Conditions, and other Division 01 Specification Sections apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Work covered by the Contract Documents.
2. Type of the Contract.
3. Work phases.
4. Work under other contracts.
5. Use of premises.
6. The Airports Authority's occupancy requirements.
7. Work restrictions.
8. Specification formats and conventions.

B. Related Sections include the following:

Division 01 Section "Temporary Facilities and Controls" for limitations and procedures governing temporary use of the Airports Authority's facilities.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Identification: Project consists of the design and installation of eight (8) new isolation valve pits on the existing hydrant fueling main segments at Concourse C and Concourse D.

1. Project Location: Washington Dulles International Airport.

B. Project Location: Washington Dulles International Airport.

C. Architect/Engineer Identification: TBD

D. The Work consists of the design and installation of eight (8) isolation valve pits, piping, demolition, tie-in to existing fuel piping and other appurtenances, pavement cutting and appropriate repairs/replacement including temporary and permanent modification of airfield pavement markings on the existing hydrant fueling main segments at Concourse C and D.

1.4 TYPE OF CONTRACT

Project will be constructed under a design-build contract.

1.5 WORK PHASES

A. Conduct the Work in phases based on a single gate closure throughout the duration of the project.

B. Work phasing indicated above is not intended to restrict Contractor to this specific phasing. Contractor may submit its own phasing schedule at no additional cost to COTR for review and written approval.

C. Schedule the execution of the Work according to the phasing sequence indicated and to avoid interference with normal functions of the Airport. Contractor shall assume 1 gate can be closed at a time as basis for scheduling/phasing the work. Contractor shall submit a detailed gate closure schedule and phasing plan a minimum of 3 weeks prior to closing gates. A similar schedule shall be printed for work in tenant areas.

D. Before commencing Work of each phase, submit a schedule to COTR showing the sequence, the commencement and completion dates, and the move-out and move-in dates of personnel for the various phases of the Work.

E. On completion, each phase of the Work shall be fully operational.

F. Scheduled Events. Schedule the work to conform to the following events and dates.

1. Winter construction shutdown for exterior work on apron including concrete placement and sealant work (11/17/2018 - 3/3/2019).

1.6 WORK UNDER OTHER CONTRACTS

A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract. Coordinate the Work of this Contract with work performed under separate contracts.

1.7 PRODUCTS ORDERED IN ADVANCE (Not Used)

1.8 AUTHORITY-FURNISHED PRODUCTS (Not Used)

1.9 USE OF PREMISES

A. Use of Site: Limit use of premises to work in areas indicated. Do not disturb portions of site beyond areas in which the Work is indicated.

1. Limits: Confine constructions operations to the areas illustrated on the drawings.
2. Authority Occupancy: Allow for Authority occupancy of site and day-to-day use by tenants, air carriers, and the public.
3. Contractor shall have full use of premises for construction operations within the Contract Limit Lines indicated during construction period, during the hours indicated, and as directed by COTR. Contractor's use of premises is limited only by the Airports Authority's right to perform work or to retain other contractors on portions of Project.

B. Utilize areas designated for Contractor staging, storage, and parking, as indicated. For additional requirements, see Section "Supplementary Conditions."

1.10 OCCUPANCY REQUIREMENTS (Not Used)

1.11 CONTRACTOR HOURS OF OPERATION

A. Contractor Working Hours: Work may be performed during normal daytime hours. When required for fuel system shutdown, tie-in work, etc., work shall be performed at night between the hours of 11:00pm and 6:00am and return work area to service by 6:00am. Work is subject to restrictions of the Airport operational requirements. Notify the COTR 24-hours in advance of any change to the work schedule.

1.12 SPECIFICATION FORMATS AND CONVENTIONS

A. Specification Format: With the exception of Federal Aviation Administration (FAA) standard specifications and Virginia Department of Transportation standard specifications the Specifications are organized into Divisions and Sections using the 33-Division format using the CSI/CSC's "MasterFormat 2004" numbering system.

1. Section Identification: The Specifications use Section titles to help with cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete as all available Sections and Section numbers are not used and the CSI numbering system is not sequentially complete. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of sections in the Contract Documents.

B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Interpret words and meanings as appropriate. Infer words implied, but not stated, as the sense requires. Interpret singular words as plural, and plural words as singular where applicable as the context of the Contract Documents indicates.
2. Imperative mood and streamlined language are used in these Specifications. This imperative language is directed to the Contractor, unless specifically noted otherwise. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.

    a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

1.13 MARKING UTILITY SERVICES

A. The information in the Contract Documents concerning the type and location of underground utilities is neither guaranteed nor inclusive. The Contractor is responsible for determining the type and location of underground utilities, regardless of whether such utilities are indicated or not, so as to avoid damage thereto.

B. Employ a Subsurface Utility Engineering company to locate and mark the horizontal and vertical location of all utility lines in accordance with, *ASCE C-I 38-02, Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data, Quality level-B.* Utilities that might be impacted by construction activities, including but not limited to the following:

1. Electric power lines.
2. Natural gas lines.
3. Sanitary Sewers.
4. Storm Sewers.
5. FAA communications, power, signal, and security lines.
6. Airfield series lighting lines
7. Water supply piping.
8. Fuel Lines.
9. Telephone lines.
10. Data lines.
11. Underground Storage Tanks.
12. High Temperature Hot Water (HTHW) and chilled water lines.
13. Dedicated Fire System (DFS) Lines

C. Contact the Airport Communications System (ACS) Help Desk at (703) 417-8300 a minimum of 72 hours prior to starting activities that include but are not limited to location and marking of horizontal locations of telephone and telecommunications lines belonging to the Airports Authority as part of the Airport Communication System. Contact the Airport Communications System (ACS) Help Desk a minimum of 72 hours prior to beginning operations, that include but are not limited to excavating, boring, pile-driving, digging or planting. Note the ACS does not locate utilities. Location is the responsibility of the Contractor's underground utilities location subcontractor. The Airport Communications System (ACS) is merely notified as indicated previously.

D. Coordinate with the COTR, for access to and utilization of, Airport GIS information, MWAA Excavation & Trenching Check List, and notification procedures for the Contractor's locating company.

E. Report any unmarked utilities encountered during construction to the COTR immediately.

F. Repair any damage to utility lines due to construction operations at no expense to the Airports Authority.

G. Submit to the COTR the name of the independent Subsurface Utility Engineering (SUE) Company to be used. Individuals assigned by the SUE provider to carry out the work should be well-trained, experienced, and capable. Those in responsible charge of the work and responsible for certifying deliverables should be engineers, geologists, and land surveyors employed by the SUE provider in accordance with state professional registration requirements.

1.14 UTILITY OUTAGES

A. Prior to any utility outage/interruption, prepare a schedule of such outage. Include in outage schedule duration, identification of the service affected, temporary utility service to be provided, identification of available service alternative, and the action to be taken in any emergency. Apply for all outages of utility systems in writing. Fully coordinate outage requests with COTR. Obtain approval in writing from the Airports Authority. Schedule all outages at least three (3) weeks in advance with a 96-hour notification provided by the Contractor confirming date, time, and duration. Outages will normally be scheduled to occur between the hours of 11:00 pm and 5:30 am, Tuesday through Thursday.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

PART 4 – MEASUREMENT (Not used)

PART 5 – PAYMENT

All costs incurred by the Contractor to acceptably implement the requirements of this Section shall be performed at no additional cost to the Airports Authority and are part of this Contract.

END OF SECTION 011000

SECTION 012300 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings, Contract Provisions, Special Provisions, Supplementary Conditions, and other Division 01 Specification Sections apply to this Section.

1.2 SUMMARY

This Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

Alternate: An amount proposed by offerors and stated on the Proposal Form for certain work defined in the Proposal Requirements that may be added to or deducted from the Base Proposal amount if the Airports Authority decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents. The cost or credit for each alternate is the net addition to or deduction from the Contract Price to incorporate alternate into the Work. No other adjustments are made to the Contract Price.

1.4 PROCEDURES

A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Notification: Immediately following award of the Contract, The Airports Authority will notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.

C. Execute accepted alternates under the same conditions as other work of the Contract.

D. Schedule: A Schedule of Alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

PART 4 – MEASUREMENT (Not used)

PART 5 – PAYMENT

All costs incurred by the Contractor to acceptably implement the requirements of this Section shall be performed at no additional cost to the Airports Authority and are part of this Contract.

END OF SECTION 012300

SECTION 012900 – APPLICATION FOR PAYMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings, Contract Provisions, Special Provisions, Supplementary Conditions, and other Division 01 Specification Sections apply to this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

B. Coordinate the Schedule of Values and Applications for Payment with Contract Schedule, List of Subcontracts, and Submittal Log.

C. Related Sections include the following:
1. Division 01 Section "Construction Progress Documentation" for administrative requirements governing preparation and submittal of Contractor's Construction Schedule and Submittals Schedule.
2. Division 01 Section “Project Closeout” for submittal of items required before final payment.
3. Division 01 Section “Project Record Documents” for procedural requirements governing the submission of Project Record Documents.
4. Division 01 Section “Operation and Maintenance Data” for submittal of items required before final payment.

1.3 DEFINITIONS

Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Price to various portions of the Work and once accepted, to be used as the basis for reviewing Contractor's Applications for Payment.

PART 2 - PRODUCTS (Not used)

PART 3 - EXECUTION

3.1 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.

1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:

    a. Application for Payment forms with Continuation Sheets.
    b. Submittals Schedule.
    c. Contract Schedule.
    d. List of products.
    e. List of principal suppliers and fabricators.

2. Submit the Schedule of Values to Contracting Officer at earliest possible date, but no later than 21 calendar days after the date of the Notice to Proceed.

B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the Schedule of Values:

    a. Project name and location.
    b. Name of COTR.
    c. Name of Architect/Engineer.
    d. The Airports Authority's Project number.
    e. Contractor's name and address.
    f. Date of submittal.

2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:

    a. Related Specification Section or Division.
    b. Description of the Work.
    c. Name of subcontractor.
    d. Name of manufacturer or fabricator.
    e. Name of supplier.
    f. Contract Modifications (numbers) that affect value.
    g. Dollar value.

        1) Percentage of the Contract Price to nearest one-hundredth percent, adjusted to total 100 percent.

3. Provide a breakdown of the Contract Price in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate. Include separate line items under required principal subcontracts for the following items. The value assigned to the total of these line items shall be 5 percent of the Contract Price:

    a. Testing and commissioning activities.
    b. Operation and Maintenance manuals.
    c. Punch list activities.
    d. Project Record Documents.
    e. Bonds and warranties.

f. Demonstration and training.

4. Round amounts to nearest whole dollar. Total shall equal the Contract Price.
5. Contractor shall include all test and inspection activities in its Schedule and establish a Schedule of Values for all required QC documentation, all tests and inspection activities, reports, and procedures required in the Contract on a Section-by-Section basis. Additionally, Contractor shall include a pay line item specifically for Quality activities and QC Organizational personnel required by the General Conditions.
6. Provide a separate line item in the Schedule of Values for each part of the Work where Application for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
7. Differentiate between potential items stored on-site and items stored off-site. Include evidence of insurance or bonded warehousing if required.
8. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
9. Each item in the Schedule of Values and Application for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
10. Temporary facilities and other major cost items that are not direct cost of actual work-in-place must be shown as separate line items in the Schedule of Values.
11. Schedule Updating: Update and resubmit the Schedule of Values with the next Applications for Payment when Contract Modifications result in a change in the Contract Price.

3.2 APPLICATION FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified by Contracting Officer and paid for by the Airports Authority.

B. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

C. Payment Application Times: Application for Payment shall coincide with schedule monthly update, or as otherwise indicated in the Agreement between the Airports Authority and Contractor. The period covered by each Application for Payment starts on the day following the end of the preceding period and shall not exceed one calendar month, unless otherwise approved by COTR.

D. Payment Application Forms: Use forms provided by the Contracting Officer, but supplied by COTR, for Application for Payment.

E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. The Airports Authority will return incomplete applications without action.

1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
2. Include amounts of Contract Modifications issued before last day of construction period covered by application.

F. Transmittal: Submit one original and four copies of Application for Payment to the address indicated in the Section VII - Contract Provision, paragraph 04.B, each one signed and notarized. Include waivers of lien and similar attachments if required.

1. Transmit Applications for Payment with a transmittal form listing attachments and recording appropriate information about application in a manner acceptable to Contracting Officer.

G. Waivers of Mechanic's Lien: With Final Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers.

1. The Airports Authority reserves the right to designate which entities involved in the Work must submit waivers.
2. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to the Airports Authority.

H. Initial Application for Payment: Administrative actions and submittals that shall precede or coincide with submittal of first Application for Payment include the following:

1. List of subcontractors.
2. Schedule of Values.
3. Contractor's Construction Schedule (preliminary if not final).
4. Submittals Schedule (preliminary if not final).
5. List of Contractor's staff assignments.
6. List of Contractor's principal consultants.
7. Copies of building permits.
8. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
9. Initial progress report.
10. Report of pre-construction conference.
11. Performance and payment bonds.
12. Initial settlement survey and damage report if required.
13. Submittal and approval of Contractor Safety Plan.
14. Subcontractor Payment Form: (Form J, "Contract Conditions," Section IX, "LDBE").

I. Monthly Application for Payment: Administrative actions and submittals that shall accompany the submittal of Contractor's monthly Application for Payment include the following:

1. Subcontractor Payment Form.
2. Monthly Progress Report, prepared according to requirements specified in Division 01 Section "Construction Progress Documentation."
3. Evidence of payment for material on-site if reimbursement for such material is being requested.
4. Update of Contract Record Documents.
5. Monthly Quality Control Summary Report, prepared according to requirements specified in Division 01, Section 014000, Paragraph 1.7.B.13.

J. Application for Payment at Substantial Completion: After issuance of the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Price.
2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Authority occupancy of designated portions of the Work, if applicable.
3. Advise COTR of change-over in security provisions.

K. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.
2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Price.
4. Evidence that claims have been settled.
5. Final meter readings for utilities, and similar data as of date of Substantial Completion or when the Airports Authority took possession of and assumed responsibility for corresponding elements of the Work.
6. Final, liquidated damages settlement statement.
7. Return of all Airport identification badges and keys.

PART 4 - MEASUREMENT (Not Used)

PART 5 - PAYMENT

All costs incurred by the Contractor to acceptably implement the requirements of this Section shall be performed at no additional cost to the Airports Authority and are part of this Contract.

END OF SECTION 012900

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings, Contract Provisions, Special Provisions, Supplementary Conditions, and other Division 01 Specification Sections apply to this Section.

1.2 SUMMARY

A. This Section includes administrative requirements that the Contractor must provide for coordinating construction operations for the Contract including, but not limited to, the following:

1. General project coordination procedures.
2. Coordination drawings.
3. Administrative and supervisory personnel.
4. Project meetings:

    a. Pre-award conference.
    b. Pre-construction conference.
    c. Progress meetings.

B. All costs incurred by the Contractor to acceptably implement, as determined by the COTR, the requirements of this Section shall be borne by the Contractor, performed at no additional cost to the Airports Authority, and are considered a part of this Contract.

C. Related Sections include the following:

1. Division 01 Section: "Execution" for the coordination of general installation and field-engineering services, including establishment of benchmarks and control points.
2. Division 01 Section "Project Closeout" for coordinating Contract closeout.

PART 2 - PRODUCTS (Not used)

PART 3 - EXECUTION

3.1 COORDINATION

A. Coordination: Coordinate construction operations included in various Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
3. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, mechanical, electrical, and otherwise. Contractor is cautioned that, where specific dimensions are not indicated or where Drawings are schematic in nature, as with most Electrical and Mechanical Drawings, Contractor shall have sole responsibility to coordinate the work to meet this requirement. Prepare and submit Coordination Drawings to COTR for review and approval as provided in "Coordination Drawings" Paragraph in "Submittals" Article of this Section.
4. Make adequate provisions to accommodate items scheduled for later installation.

B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

C. Prepare similar memoranda for COTR and separate contractors if coordination of their Work is required.

D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work and completion within the specified Contract duration. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's Construction Schedule.
2. Preparation of the Schedule of Values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Start-up, check-out, and final acceptance of systems.
7. Project closeout activities.
8. Protection of existing and new work.

3.2 SUBMITTALS

A. Coordination Drawings: Before start of the Work, prepare Coordination Drawings for areas with limited space availability that necessitate maximum utilization of space for efficient installation of different components, and areas requiring coordination for installation of products and materials fabricated by separate entities.

1. Indicate relationship of components shown on separate Shop Drawings.
2. Indicate all dimensions provided on Contract Drawings and make specific note of dimensions that appear to be in conflict with submitted equipment, minimum clearance requirements, amounts of equipment and material to be installed, or other requirements. Provide alternate sketches for resolution of such conflicts to COTR for review. Minor dimension changes and difficult installations shall not be considered changes to the Contract.

3. Comply with requirements contained in Division 01 Section "Submittals."
4. Prepare coordination drawings of involved trades in a scale of not less than 1/4 inch = 1 foot or larger for integration of different construction elements. Show sequences and relationships of separate components to avoid conflicts in use of space. Any Work installed prior to review of coordination drawings will be at the Contractor's risk and subsequent relocation require to avoid interference shall be made at no additional cost to the Airports Authority.

B. Key Personnel Names: At the pre-construction meeting, submit a list of Contractor's key personnel assignments. Key personnel shall include but not necessarily be limited to Project Manager, Project Superintendent, Safety Engineer, Quality Control Manager, and other personnel in attendance at Project site along with alternates. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone. Keep the list current at all times.

3.3 REQUESTS FOR INFORMATION (RFIs)

A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, prepare and submit an RFI in the form specified.
1. RFIs shall originate with Contractor's Superintendent or other designated representative acceptable to the COTR. RFIs submitted by entities other than Contractor's accepted representative will be returned with no response.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
3. Hard copy RFIs must be scanned for electronic transmission using the Authority provided Oracle Primavera Unifier project management system.

B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:
1. Contract Name
2. Contract Number
3. Date.
4. Name of Contractor.
5. Name of COTR.
6. RFI number, numbered sequentially.
7. Specification Section number and title and related paragraphs, as appropriate.
8. Drawing number and detail references, as appropriate.
9. Field dimensions and conditions, as appropriate.
10. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
11. Contractor's signature.
12. Attachments: Include drawings, descriptions, measurements, color photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.
13. Supplementary drawings prepared by Contractor shall include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments.

C. Hard-Copy RFIs: Identify each page of attachments with the RFI number and sequential page number.

D. Software-Generated RFIs: Software-generated form with substantially the same content as indicated above.
   1. Attachments shall be electronic files in Adobe Acrobat PDF format.
   2. RFI must be signed and scanned for electronic transmission.
   3. Electronic copy RFIs will be transmitted using the Authority provided Oracle Primavera Unifier project management system.

E. COTR's Action: COTR will review each RFI, determine action required, and return it. Allow seven calendar days for COTR's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day.
   1. The following RFIs will be returned without action:
      a. Requests for approval of submittals.
      b. Requests for approval of substitutions.
      c. Requests for coordination information already indicated in the Contract Documents.
      d. Requests for adjustments in the Contract Time or the Contract Sum.
      e. Requests for interpretation of Architect's actions on submittals.
      f. Incomplete RFIs or RFIs with numerous errors.
   2. COTR's action may include a request for additional information, in which case COTR's time for response will start again.
   3. COTR's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal.
      a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify COTR in writing within 10 days of receipt of the RFI response.

F. On receipt of COTR's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify COTR within seven days if Contractor disagrees with response.

G. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly prior to progress meeting for inclusion in progress meeting minutes. Include the following:
   1. Project name.
   2. Name and address of Contractor.
   3. Name of COTR.
   4. RFI number including RFIs that were dropped and not submitted.
   5. RFI description.
   6. Date the RFI was submitted.
   7. Date COTR's response was received.
   8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
   9. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

H. RFI Transmittal: The Contractor must use the Authority provided web-based Oracle Primavera Unifier project management system (Unifier) to transmit each RFI to the COTR.

Response of the COTR's RFI review and action will be transmitted to the Contractor through Unifier. The Authority will provide the Contractor a Unifier license(s) and training.

3.4 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

General: In addition to the Project Superintendent, provide other administrative and supervisory personnel as required for proper performance of the Work.

3.5 PROJECT MEETINGS

A. Pre-award Conference:

1. General: At the request of the Contracting Officer, a pre-award conference with Contractor may be held before actual award of the Contract. The meeting will review Contractor's understanding of the Contract Documents, cost and pricing data, contractual requirements, and Contractor's capabilities, financial standing, and past experience prior to award.

    a. Minutes: CO will record and distribute meeting minutes to all attendees and all relevant parties.

2. Attendees: Contracting Officer, COTR, Authority Design Project Manager, Architect/Engineer, Contractor and its key personnel nominated for assignment to the Contract, and major subcontractors if so requested by the Contracting Officer. Concerned parties shall each be represented by persons thoroughly familiar with and authorized to conclude matters relating to the work described in the Contract Documents. The Contracting Officer will chair the pre-award meeting.
3. Agenda: Significant discussion items that could affect award include, but are not limited to, the following:

    a. Provision and acceptability of payment and performance bonds.
    b. LDBE/MBE/WBE/DBE participation.
    c. Qualifications of key individuals.
    d. Quality-control experience.
    e. Percentage of work performed by own forces.
    f. Contractor's experience with similar work, including previous Authority contracts.
    g. Scheduling capabilities of Contractor.
    h. Financial standing of Contractor.
    i. Mobilization plan.
    j. Understanding of work described in the Contract Documents and the physical constraints associated with work at the Airport.
    k. Equipment and manpower availability.
    l. Cost and pricing data.

4. Representations and commitments made by Contractor or its subcontractors shall be construed as binding to the Contract.

B. Pre-construction Conference:

1. General: COTR will schedule pre-construction conference and organizational meeting with Contractor after the Contracting Officer issues a notice of intent to award, or actually awards the Contract. The meeting will review the parties' responsibilities and personnel assignments.

    a. Minutes: COTR will record and distribute meeting minutes to all attendees and relevant parties.

2. Attendees: Contracting Officer, COTR, Architect/Engineer, and their sub-consultants; Contractor and its superintendent; major subcontractors; manufacturers; suppliers; and other concerned parties. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Discuss items of significance that could affect progress, including the following:

    a. Airport security.
    b. LBDE/MBE/WBE/DBE participation and certifications.
    c. Authority-controlled wrap-up insurance program.
    d. Airport Operations coordination.
    e. Preliminary construction schedule.
    f. Phasing.
    g. Critical work sequencing.
    h. Designation of key personnel.
    i. Procedures for processing field decisions and Contract Modifications.
    j. Procedures for processing Applications for Payment.
    k. Distribution of the Contract Documents.
    l. Authority Construction guidelines.
    m. Submittal procedures.
    n. Preparation of Record Documents.
    o. Use of the premises.
    p. Responsibility for temporary facilities and controls.
    q. Parking availability.
    r. Office, work, and storage areas.
    s. Equipment deliveries and priorities.
    t. Safety procedures.
    u. Quality-control requirements.
    v. First aid.
    w. Progress cleaning.
    x. Working hours.
    y. Authority Building Code requirements/permits.

4. Refer to Contract Provision "Pre-construction Requirements" for required submittals due at the pre-construction conference.

C. Project Closeout Conference: COTR will schedule and conduct a Project Closeout Conference no later than 30 days prior to the scheduled date of Substantial Completion.

1. Conduct the conference to review requirements and responsibilities related to Project closeout.

2. Attendees: Contracting Officer, COTR, Authority Design Project Manager, Architect/Engineer, Contractor and its key personnel; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:

    a. Preparation of record documents.
    b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
    c. Submittal of written warranties.
    d. Requirements for preparing sustainable design documentation.
    e. Requirements for preparing operations and maintenance data.
    f. Requirements for demonstration and training.
    g. Preparation of Contractor's punch list.
    h. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
    i. Submittal procedures.
    j. Coordination of separate contracts.
    k. Owner's partial occupancy requirements.
    l. Installation of Owner's furniture, fixtures, and equipment.
    m. Responsibility for removing temporary facilities and controls.

4. Minutes: Entity conducting meeting will record and distribute meeting minutes.

D. Weekly Progress Meetings:

1. General: COTR will conduct progress meetings weekly at regularly scheduled times convenient for all parties involved. Progress meetings are in addition to specific meetings held for other purposes, such as coordination and special pre-installation meetings. Additionally, discussions will address administrative and technical issues of concern, determining resolutions, and development of deadlines for resolution within allowable time frames.
2. Minutes: COTR will record and distribute meeting minutes.

3. Attendees: As may be required by COTR, in addition to representatives of the Airports Authority and Contractor, each subcontractor, supplier, Contractor’s Project Scheduler, and other entities concerned with current progress or involved in planning, coordination, or performance of future activities. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
4. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

    a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

b. Review present and future needs of each entity present, including the following:

1) Safety and Security.
2) Interface requirements.
3) Time.
4) Sequence of operations.
5) Status of submittals.
6) Deliveries.
7) Off-site fabrication.
8) Storage Areas
9) Access.
10) Site utilization.
11) Requests for information.
12) Submittals.
13) Noncompliance notices.
14) Temporary facilities and controls.
15) Work hours.
16) Resource allocation.
17) Hazards and risks.
18) Progress cleaning.
19) Quality and work standards.
20) Contract Modifications.
21) Documentation of information for payment requests.
22) Preparation of Record Documents.

5. Submit at the weekly progress meeting, a two-week look-ahead schedule. This schedule shall include a three-week period, one week showing actual progress from the previous week and two weeks showing planned work for the two weeks after the meeting date. Include in the schedule all activities in sufficient detail as approved by COTR. A two-week look-ahead schedule form will be distributed at the pre-construction conference. Submit a list of subcontractors identifying dates of when subcontractors will be on-site or off-site. A form for this information will be provided by COTR.
6. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

E. Schedule Update Meetings:

1. Conduct schedule update meetings before submittal of Contractor's Application for Payment. Determine where each activity is, in relation to Contractor's Schedule. Ensure the incorporation of all changes made to the sequence of work and all change notices issued by the Contracting Officer. Submit the narrative and information specified in Division 01 Section "Construction Progress Documentation" if applicable.
2. Attendees: COTR, Contractor's Project manager or superintendent, the Contractor’s Project Scheduler, and the Airports Authority's representative.
3. Submit the updated schedule, as bilaterally agreed on, along with the Application for Payment.
4. Present delay claims for discussion and, when possible, resolution.

PART 4 - MEASUREMENT (Not Used)

PART 5 - PAYMENT

All costs incurred by the Contractor to acceptably implement the requirements of this Section shall be performed at no additional cost to the Airports Authority and are part of this Contract.

END OF SECTION 013100

SECTION 013200 - CONSTRUCTION PROGRESS CONTROL AND DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings, Contract Provisions, Special Provisions, Supplementary Conditions, and other Division 01 Specification Sections apply to this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for various CPM schedules and reports required for proper performance of the Work.

B. The required Baseline Progress Schedules submissions include the following:
   1. Contract Baseline Progress Schedule, in Bar Chart format, and related narrative and cash flow projection curves.
   2. Submittals Schedule.
   3. Schedule of Tests and Inspections.
   4. Record, Final As-Built Schedule.

C. Reports required include the following:

   1. Daily Construction Reports.
   2. Material Location Reports.
   3. Field Correction Reports.
   4. Special Reports.
   5. Monthly Progress Reports.
   6. Contractor Quality Control Reports.

D. Related Sections include the following:

   1. Division 01 Section "Application for Payment" for Schedule of Values.
   2. Division 01 Section "Project Management and Coordination" for Project meeting minutes.
   3. Division 01 Section "Quality Requirements" for test and inspection reports.
   4. Division 01 Section "Product Requirements" for Product List.

E. Schedule and Reports Transmittals: The Contractor must use the Authority provided web-based Oracle Primavera Unifier project management system (Unifier) to transmit schedule(s) and required reports to the COTR. Response and/or acknowledgement by the COTR will be transmitted to the Contractor through Unifier. The Authority will provide the Contractor a Unifier license(s) and training.

1.3 DEFINITIONS

A. Activity: The fundamental unit of work in a Project plan and schedule. Each activity has defined geographical boundaries and a detailed estimate of resources required to construct the task. Each activity is assigned a unique description, activity number, activity codes, and dollar value.

B. Activity Duration**:** The number of work days required to complete an activity according to the project calendar. This normally excludes non-working days such as holidays, weekends and adverse weather days.

C. Milestones: Events in time that have been identified as being important intermediate reference points during the accomplishment of the work. Milestone dates include dates imposed by the Owner for finishing certain task as well as set by the contractor for completing certain segment of the work.

D. Network (Job Logic): The structure of the schedule. The network is the representation that defines the construction logic in terms of all the activities with their logical dependencies.

E. Contract Baseline Progress Schedule: A Bar Chart schedule covering the entire project work during the Contract Duration from the Notice to Proceed through Final Acceptance of the Work.

F. Contract Duration/Time: The total time, in calendar days identified in Section III, "Schedule," representing the duration necessary for completion of all physical and administrative requirements under this Contract and any authorized extension thereof.

G. Critical Path: The critical path is the longest connected chain of interdependent activities in a network that determines completion of the Project.

H. Excusable Delay: An unforeseeable delay, beyond the control of Contractor, experienced due to no fault or negligence by Contractor, its subcontractors, or suppliers.

I. Predecessor Activity: An activity that precedes another activity in the network.

J. Preliminary Progress Schedule: A schedule depicting, at detailed level, the Contractor’s proposed sequence and start/finish dates for all activities scheduled for the first ninety (90) calendar days of work.

K. Schedule Narrative: The Schedule Narrative shall describe the contractor’s detailed work plan for the first ninety (90) calendar days of work and shall be prepared in accordance with Section-013200, Subparagraph 3.3 C.

L. Schedule of Record (SOR): The Baseline Progress Schedule and the Progress Schedule Updates will be considered as the Project SOR once reviewed and approved by the COTR.

M. Successor Activity: An activity that follows another activity in the network.

N. Total Float: The amount of time an activity can be delayed from its earliest start date without delaying the end of Project.

1. Total Float time is not for the exclusive use or benefit of either the Authority or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.

1.4 PLANNING

A. The total Contract Duration and intermediate milestones if applicable, as indicated in Section III, "Schedule," are the Contract requirements.

B. Contractor shall prepare a practical work plan to complete the Work within the Contract Duration, and complete those portions of work relating to each intermediate milestone date and other Contract requirements. Contractor shall generate a computerized Bar Chart Schedule format for the Work.

C. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates, regardless of COTR approval of the Schedule.

D. Failure of Contractor to comply with requirements of this Section may be considered cause for withholding progress payments or termination for default.

1.5 SUBMITTALS

A. General: Contractor shall provide all schedule submittals on computer disk media as well as tabular printouts, and 11 by 17-inch time-scaled logic diagrams. Schedules shall be submitted in the Primavera proprietary exchange format “XER” to ensure compatibility with the Airports Authority scheduling software system. The latest version of Primavera –P6 Professional Project Management scheduling software shall be used to develop and update Progress Schedules. The number of copies of each submittal shall be as described in this Section or as may be requested by COTR.

B. Contract Baseline Progress Schedule: The Contract Baseline Progress Schedule and its related narrative as described in this Section shall be submitted along with the projected cash-flow curve as early as practicable after the Notice to Proceed, but in no event later than 30 calendar days after the Notice to Proceed. Within 15 calendar days, COTR will respond with approval or direction to change and Contractor shall resubmit within seven (7) calendar days, if required.

C. Weekly Progress Report: Submit duplicate copies to COTR on the day following the week of actual progress.

D. Monthly Progress Report: All components of the Monthly Progress Report described in this Section shall be submitted as attachments to Contractor's monthly Application for Payment.

E. Record As-Built Progress Schedule: A Record Contract Schedule accurately reflecting actual progress of Work shall be submitted, as part of this Contract's Record Documents. All activities shall have actual dates that are true and accurate.

F. Qualification Data: For Project Scheduler.

1.6 QUALITY ASSURANCE

A. Project Scheduler Qualifications: Minimum of three years experience and not less than three (3) projects of similar size and scope, with capability to produce Schedule reports and diagrams within 24 hours of COTR's request. Project Scheduler shall be classified as one of Contractor's key personnel.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PROJECT SCHEDULER

A. Engage a project scheduler, either as Contractor's employee or as Contractor's consultant, to provide planning, evaluation, and reporting the Project progress using scheduling methodology, and to prepare all required schedules.

1. Project Scheduler shall be an active participant at all meetings related to Project progress, alleged delays, and time impact.

2. The Project Scheduler shall be available on-site as requested by COTR.

3. Time-Impact Analysis (TIA) and special reports shall be provided, when required, at no additional cost to the Airports Authority.

3.2 PRELIMINARY PROGRESS SCHEDULE (Not Used)

3.3 CONTRACT BASELINE PROGRESS SCHEDULE

A. OVERVIEW: The Baseline Progress Schedule shall represent the Contractor’s initial detailed plan to accomplish the entire scope of Work in accordance with the Contract. The Baseline Progress Schedule shall be prepared based on the Critical Path Method (CPM) and shall depict in a time scaled bar-chart plot, the sequence in which the Contractor proposes to perform the Work, the project critical path, and the dates on which the Contractor plans starting and completing the individual schedule activities required to complete the project. It shall also depict the current status of the Project and the Contractor’s current plan to complete the remaining work as of the Baseline Progress Schedule submittal date.

The Baseline Progress Schedule shall reflect a practicable work plan and logical progress of the Work as indicated in the Contract Documents or as approved by COTR. When preparing the Baseline progress Schedule, the contractor shall address, as applicable, the following:

1. The order, sequence, and interdependence of all significant work items including mobilization, demobilization, testing and commissioning, construction, procurement, fabrication, and delivery of critical or special materials and equipment; utility interruption coordination; submittals and approvals of critical Samples, Shop Drawings, procedures, or other reasonable requirements that may be requested by COTR.

2. All known or specified constraints, or restrictions such as: holidays, seasonal normal weather days, traffic or previously identified local event that may impact work, utility, environmental permits or other limitations to the Work that will impact the schedule.

3. Works by the Airports Authority, or utility agencies, and other third parties that may affect or be affected by Contractor's activities.

4. Adequate referencing of all work items to identify subcontractors or other performing parties.

B. Scheduling Requirements: The Baseline Progress Schedule shall conform to the following scheduling requirements:

1. Software Compatibility Requirement; The Contractor shall submit progress schedules in the Primavera proprietary exchange format “XER” to ensure compatibility with the Airports Authority scheduling software system. The Airports Authority scheduling software system the latest version of Primavera P6 Project Management software as determined by the COTR. Compatible shall mean that the Contractor-provided electronic file versions of the schedule can be imported in to the Airports Authority scheduling software system with no modifications or adjustments.

2. Work Breakdown Structure (WBS): The Baseline Progress Schedule shall be organized using a multi-level hierarchical Work Breakdown Structure (WBS). The Contractor shall define the Project WBS to allow for a hierarchical organization and breakdown of the Work based on the Contractor’s approach and in accordance with the phasing/sequence of construction and traffic control plans as specified in the Contract or as approved by COTR.

3. Activity Coding : The Contractor shall define and assign as appropriate, activity codes to allow for filtering grouping and sorting of activities by Responsibility, Phase, Stage, Feature of Work, Area, Location, Work Type, Crew, Contract Modification activity codes to facilitate review and use of the progress schedule. The Contractor shall define activity codes using the project-specific activity code option. Use of global activity codes shall not be allowed and shall be grounds for rejecting the progress schedule submission. Project Calendars: The Contractor shall establish project calendars consistent with the Contract requirements depicting the Contractor’s workdays, non-workdays, holidays, anticipated adverse weather days, project closure times, shifts per days, hours per shift and all other time related restrictions stipulated in the Contract. Each schedule activity shall be assigned to appropriate project calendar and ensure the Work is planned and coordinated for completion within the Contract duration. Project specific ID number shall be assigned to each project calendar and the detail being explained in the narrative report.

4. Level of Detail: The Contractor shall develop the Baseline Progress Schedule to an acceptable level of detail that allows for the formation of a reasonable critical path. The

progress schedule shall show as applicable, Contract milestones, and other key milestones for significant project events. The Project Work shall be sub-divided as practical to such a level that the activity duration for on-site work excluding, activities whose durations are specified elsewhere in the contract, are 14 work days or less. Longer durations may be allowed, as approved by COTR, for activities that typically span long period of time such as: fabrication and delivery of materials, administrative, MOT, or other level of effort activities, etc.

5. Schedule Constraints: All contract milestone activities shall be constrained, as applicable, with a "Start On or After" (Early Start) date of "Finish On or Before" (Late Finish) date equal to the "Start No Earlier Than" or "Must Finish By" date specified in the Contract, except as specified below. The Contractors use of schedule constraints with the exception of the specific requirements defined below is not allowed, unless approved by COTR. The use of schedule constraints such as "Start On" or "Finish On" for the purpose of manipulating float or the use of schedule constraints that violate network logic such as "Mandatory Start" or "Mandatory Finish" shall not be allowed. When schedule constraint is used other than the schedule constraints specified herein, the Contractor shall provide explanation for the use of such constraint in the progress schedule narrative.

6. Data date: The data date is defined as the current status date of the Progress Schedule, which defines the start date for the scheduled remaining Work. All progress Schedule submissions shall be calculated using an appropriate data date to indicate the status of the Project at the time the progress schedule is submitted. For Baseline or subsequent revised Progress Schedule submission, the data date shall be no more than five (5) business days prior to the submittal date. For monthly Progress Schedule Update submission the data date shall be the contractor's monthly payment application date.

7. Critical Path and Critical Path Activities: The Project critical path shall be on the "longest path". The Progress Schedule shall be prepared to include the data for the total Contract Work and the critical path activities shall be identified, including critical paths for interim completion dates. Scheduled start or completion dates imposed on the schedule by Contractor shall be consistent with Contract milestone dates. The Progress Schedule shall accurately show all as-built activities completed from the issuance of the Notice to Proceed up to the data date of the submitted schedule.

8. Progress Schedule Update: The Progress Schedule Update shall reflect the actual status of the Work and the current plan to complete the remaining work as of the current data date. It shall show the actual start/finish dates for each completed activity and the actual start date, remaining duration, and progress (percent compete) of each on-going activity. The Progress Schedule Update shall allow for an accurate determination of progress of completed and on-going work based on total actual cost (earnings) to date, as well as an accurate projection of the anticipated monthly earnings for the remaining work based on remaining cost.

C. Progress Schedule Narratives: A Baseline Progress Schedule Narrative shall be submitted with the Baseline Progress Schedule submission and a Progress Schedule Update Narratives shall be submitted with the Progress Schedule Updates.

The Baseline Progress Schedule Narrative shall include the following written information:

1. The Contractor's overall plan describing the proposed sequence of construction, the methodology, scheduling assumptions, and general procedures for completing each major feature of the Work.
2. A list of major resources (number and type of crews and equipment) required to complete the Project as scheduled. The Contractor shall also provide a written resource plan for the major operations to demonstrate the contractor's ability and commitment to provide resources at the level required to complete the Work within the time frames shown in the Progress schedule.
3. Anticipated daily production rates for each major operation.
4. A listing of major milestone dates, including as applicable, Contract interim milestones, major traffic switch, start/finish milestones for each phase or stage of work.
5. A log identifying the schedule constraints used in the Progress Schedule and reason for using each constraint.
6. A description of the calendar(s) used in the Progress schedule to indicate the calendar ID, number of work days per week, number of shifts per day, and number of hours per day as well as the anticipated number of non-working days per month for each calendar with considerations, as applicable, for holidays, normal adverse weather conditions, as well as for seasonal or other known or specified constraints and restrictions.

D. Required Submittals: Within thirty (30) calendar days after the Notice to Proceed (NTP) or as approved by COTR the Contractor shall submit an electronic copy of each of the following components of the Contract Baseline Progress Schedule:

1. A time-scaled plot of the schedule network in Bar Chart format showing logic ties for all activities including submittals and procurement activities.
2. Computer-generated CPM Schedule Reports that contain the following data for each work item: activity identification number, activity description,, activity duration, early start and early finish calendar dates, late start and late finish calendar dates, and total float in calendar days. The reports shall also show the logic ties of successor and predecessor work items. The reports shall be sorted as follows, or other sorts as required by COTR:

    a. By activity identification.
    b. By total float x early start.
    c. By early start x early finish x total float.

3.4 MONTHLY PROGRESS REPORTING

A. General: Approval of Contractor's monthly Application for Payment shall be contingent, among other factors, on the submittal of a satisfactory monthly Progress Schedule Update.

B. Monthly Schedule Update Meetings: Monthly schedule updates shall be the product of joint review meetings between Contractor, COTR, and major active subcontractors. The joint review shall focus on actual progress for the preceding month, planned progress for the upcoming month supported by a Contractor-prepared Four-Week Look-Ahead Schedule, impact to schedule if any due to change notices issued, adverse weather, and any effected changes to the Construction CPM Schedule. The agreed on progress and changes, if any, shall be incorporated into the schedule update to be submitted. The update shall always represent the actual history of accomplishment of all activities, and will form the basis for Contractor's Application for

Payment. Contractor's delay claims shall be presented for discussion and, when possible, resolution.

C. Required Submittals: On a monthly basis, Contractor shall submit, for COTR review and acceptance, the Contractor's Progress Schedule Update within five (5) business days after the monthly progress meeting or as accepted by COTR. The Progress Schedule Update shall consist of the following:

1. Progress Schedule Update: The Contractor's Progress Schedule Update shall depict the current status of the Work and the Contractor's current plan to complete the remaining work as of the data date. The Progress Schedule Update shall be Prepared in accordance with Sub-paragraph 3.3-B-8.

2. Progress Schedule Update Narrative:, the content of which shall include as a minimum a description of overall progress for the preceding month, a critical path analysis, a discussion of problem(s) encountered and proposed solution(s) thereof, delays experienced and proposed recovery measures, a monthly reconciliation of weather impact, the status and impact of contract modifications, documentation of any logic changes, and any other changes made to the schedule since the previous monthly update. The monthly progress narrative also contains schedule reports listing completed activities, activities in progress, and remaining activities. For each activity, the Contractor shall provide those details identified in Subparagraph 3.3-C above.

3. Progress Earning Schedule Update: The Progress Earning Schedule Update shall depict the current status of the Project by percent complete based on the actual total earnings to date relative to the total planned value. The Progress Earning Schedule Update shall show the actual monthly and cumulative earnings to date as reflected on the Contractor's pay application, any variance in percent complete relative to the Baseline Schedule, and the projected earnings for the remaining payment periods.

4. Documentation of delivered material in the form of paid invoices or other evidence that Contractor has clear title for the material delivered.

D. If critical activities of the schedule are delayed and such delay is not excusable as defined in this Section, the remaining sequence of activities and/or duration thereof shall be adjusted by Contractor through such measures as additional manpower, additional shifts, or the implementation of concurrent operations until the schedule produced indicates Work will be completed on schedule. Except as provided elsewhere in the Contract, all costs incurred by Contractor to recover from inexcusable delays shall be borne by Contractor.

E. The monthly schedule update shall form the basis for Contractor's Application for Payment. The progress payment for an activity shall be based on its agreed on percentage of completion. On unit-priced contracts, the approval of Contractor's monthly requisition is contingent on the submittal of a satisfactory monthly schedule update; however, the basis of payment will be the actual measurement of COTR-accepted, in-place units of work.

3.5 DELAYS AND REQUESTS FOR EXTENSION OF TIME

A. The determination for an extension of the Contract Time will be made by the Contracting Officer according to the Contract Provision "Default."

B. Contractor acknowledges and agrees that delays in activities, irrespective of the party causing the delay, which according to the Time Impact Analysis (TIA) do not affect any critical activity or milestone dates on the CPM network at the time of the delay, shall not become the basis for an extension of the Contract Time. The only basis for any extension of time will be the demonstrated impact of an excusable delay on the critical path.

1. In demonstrating such impact, Contractor shall provide adequate detail as required by the Contract, and Contractor shall prove that:

   a. An event occurred.

   b. Contractor was not responsible for the event in that the event was beyond the control of Contractor, and was without fault or negligence of Contractor, subcontractor, or supplier, and the event was unforeseeable.

   c. The event was the type for which an excuse is granted according to the "Default" provision of this Contract.

   d. Activities on the critical path of the Work were delayed.

   e. The event in fact caused the delay of the Work.

   f. The requested additional time is an appropriate and reasonable extension of the Contract Time, given the actual delay encountered.

2. The COTR will review the Contractor submitted TIA and make recommendation to the CO for approval or rejection. Upon approval, a copy of the TIA signed by the CO will be returned to the Contractor and incorporated in to the next Progress Schedule Update. The TIA related to Airports Authority directed change shall be incorporated into and attached to the corresponding change Order.

C. Time Extensions for Unusually Severe Weather:

1. If unusually severe weather conditions are the basis for a request for an extension of the Contract Time, such request shall be documented by data substantiating that weather conditions were abnormal for the period of time and could not have been reasonably anticipated, and that weather conditions had an adverse effect on the critical activities of the scheduled construction.
2. The schedule of anticipated adverse weather below will constitute the base line for monthly (or a prorated portion thereof) weather/time evaluation by the Contracting Officer. On issuance of the Notice to Proceed and continuing throughout the Contract on a monthly basis, actual adverse weather days will be recorded by Contractor on a calendar day basis (include weekends and holidays) and compared to the monthly-anticipated adverse weather days set forth below.

a. For purposes of this clause, the term "actual adverse weather days" shall include days that can be demonstrated to have been impacted by adverse weather.
b. Monthly Anticipated Adverse Weather Calendar Days:

1) January - 7.
2) February - 5.
3) March - 6.
4) April - 6.
5) May - 8.
6) June - 6.
7) July - 6.
8) August - 7.
9) September - 5.
10) October - 5.
11) November - 5.
12) December - 6.

c. The number of actual adverse weather days shall be calculated chronologically from the first to the last day in each month. Contractor shall not be entitled to any claim for time extension based on adverse weather unless the number of actual adverse weather days exceeds the number of anticipated adverse weather days, and unless such adverse weather days prevent work for 50 percent or more of Contractor's workday. In preparing the Contract Schedule, Contractor shall reflect the above anticipated adverse weather days on all weather-dependent activities. Weather-caused delays shall not result in any additional compensation to Contractor.

3. On days where adverse weather is encountered, Contractor shall list all critical activities under progress and shall indicate the impact adverse weather had, if any, on the progress of such activities. This information shall be presented at the end of the adverse weather day to COTR or its authorized representative for its review and approval.

4. If Contractor is found eligible for an extension of the Contract Time, the Contracting Officer will issue a modification extending the time for Contract completion. The extension of time will be made on a calendar day basis.

D. Required Submittals:

1. Provide Time-Impact-Analysis (TIA) Report that illustrates impact during update period in which event occurred, that event has been mitigated to greatest possible extent, and that event still impacts overall completion of Project.
2. Include submittal of impacted CPM schedule, in electronic format (“XER’ file), and photocopies of all relevant documents that support the claim.
3. Submit all required items within the following time periods:

a. 5 calendar days of notice of event occurrence.
b. 10 calendar days of Contractor's knowledge of impact.
c. 14 calendar days of written request by COTR.

4. Expiration of time periods without submittal shall constitute forfeiture of rights for these specific impacts.

E. Revision to the Baseline Progress Schedule

1. If the Airports Authority believes that the Progress Baseline Schedule needs a specific revision either in logic, activity duration, manpower or cost, the Airports Authority will request in writing the Contractor makes such revision. The Contractor shall make such revisions within thirty (30) days of receiving the Airports Authority request. At no time shall the Contractor continue to reflect item of non-concurrence from the Airports Authority in the Progress Baseline Schedule Updates.

2. In the event of Airports Authority directed change or an alleged delay event affecting the guaranteed substantial completion date, the Baseline Progress Schedule shall be revised and submitted to the Airports Authority for approval.

F. Failure to Submit Progress Schedule:

The COTR will take necessary actions in accordance with the following for failure on the part of the Contractor to submit the required Progress Schedule:

1. If the Contractor fails to submit an acceptable Baseline Progress Schedule within thirty (30) calendar days after NTP date or as approved by COTR, the COTR may hold approval of the next monthly progress payment application following the due date of the Baseline Progress Schedule until such time as the Contractor has satisfied the submittal requirements.

2. If the Baseline Progress Schedule submission is deemed unacceptable by COTR, and the Contractor fails to submit an acceptable Baseline Progress Schedule within fourteen (14) calendar days after COTR's request, the COTR may hold approval of the next monthly progress payment application following the due date of Progress Schedule until such time as the Contractor has satisfied the submittal requirements.

3. If the Contractor fails to submit an acceptable Progress Schedule Update or if a Revised Progress Schedule is required as specified herein and the Contractor fails to provide such Progress Schedule, the COTR may hold approval of the Contractor's next monthly progress payment application following the due date of the Progress Schedule until such time as the Contractor has satisfied the submittal requirements.

4. If the Contractor fails to submit an acceptable Final As- Built Progress Schedule as specified, the COTR will hold approval for payment of the Contractor's final progress payment application until such time as the Contractor has satisfied the submittal requirements.

5. Delays resulting from the Contractor's failure to provide the Progress Schedule in accordance with the requirements set forth herein will not be considered just cause for extension of the Contract time limit or for additional compensation.

G. Review and Acceptance of Contractor's Progress Schedule

1. COTR will review all Progress Schedule submission within fifteen (15) calendar days of receipt of the Contractor's complete submittal, unless subsequent review meetings are necessary, as determined by COTR. The COTR review for acceptance will not commence until all required items and schedule information as defined herein are provided. Acceptance by COTR will be based ONLY on completeness and conformance with the requirements of the Contract.

2. If the Contractor's Progress Schedule submission is deemed to be acceptable, COTR will respond with a written notice of acceptance, which may include comments or minor concerns on the submission and/or a request for clarification or justification. When COTR's response include any comments, concerns, or request for clarification or justification, the Contractor shall respond accordingly within seven (7) calendar days of receipt of COTR's response. The Contractor's response may include a re-submission of the Progress Schedule to address the COTR's comments or concerns or provide clarification or justification accordingly.

3. If the Contractor's Progress Schedule submission is deemed to be unacceptable, COTR will issue a written notification of non-conformance, which may include a request for resubmission and comments describing the deficiencies prompting COTR's decision. At COTR's discretion, the Contractor may be required to attend a schedule review meeting to discuss the issues prompting COTR's decision or to facilitate review and acceptance of the progress Schedule submission.

   When the Progress Schedule submission is deemed by COTR to be unacceptable, the Contractor shall revise and re-submit the Progress Schedule accordingly, within seven (7) calendar days of receipt of COTR's response.

4. Review and acceptance of the Contractor's Progress Schedule by COTR will not constitute a waiver of any of the Contract requirements and will in no way assign responsibilities of the work plan, scheduling assumptions, and validity of the schedule to the Airports Authority. Failure of the Contractor to include in the Progress Schedule any element of work required by the Contract for timely completion of the Project will not excuse the Contractor from completing the Work within the Contract specified interim milestone(s) or the Contract time limit, as applicable.

H. Monitoring the Work and Assessing Progress

1. **Monitoring the Work**: The COTR will monitor the Work regularly to identify deviation from the Contractor's scheduled performance relative to the approved Baseline Progress Schedule or Schedule of Record (SOR). The Contractor shall notify COTR at least two (2) working days in advance of any changes in the Contractor's planed operation or critical stage work requiring COTR's oversite or inspection. The Contractor shall attend a monthly progress schedule meeting with COTR on a day agreed to by the Contractor and COTR. The Contractor shall furnish a detailed 30-day look-ahead schedule at the progress meeting and shall be prepared to discuss the current status of the Work and planned operations for the following thirty (30) calendar days. The 30-day look-ahead schedule shall be based on the Contractor's current monthly progress Schedule Update.

2. **Progress Evaluation**: Progress will be evaluated by the COTR at the time of the monthly progress estimate relative to the approved Baseline Progress Schedule or Schedule of Record (SOR). The Contractor's actual progress will be considered unsatisfactory if any of the following conditions occurs;

   a. The total actual earnings to date percentage for work completed, based on the Contractor's progress payment application, falls behind the SOR planned cumulative earnings percentage by more than ten (10) percentage points. Payments for stored material, materials on hand, adjustments (asphalt, fuel, etc.) shall not be included in the actual progress earnings.
   b. The calculated completion date of a Contract interim milestone is later than the specified completion date by more than fourteen (14) calendar days in the Progress Schedule Update.
   c. The calculated completion date is later than the Contract fixed completion date by more than thirty (30) calendar days in the Progress Schedule Update.

3. Progress Deficiency and Schedule Slippage: When the Contractor's actual progress is trending toward unsatisfactory status, the COTR will request a meeting with the Contractor to discuss any action taken or required by the Contractor to reverse this trend and to correct the progress deficiency or schedule slippage.

   a. When the Contractor's actual progress is deemed unsatisfactory as defined by one of the conditions listed under Progress Evaluation of this provision, the COTR will notify the CO so that the CO will issue a written notice of unsatisfactory performance to advise the contractor that ten (10) percent retainage of the monthly progress payment is being withheld and will continue withheld for each month the Contractor's actual progress is determined to be unsatisfactory.

   b. When the Contractor fails to respond with recovery plan as described herein to restore satisfactory progress and if progress remains unsatisfactory at the time of preparation of the next monthly progress payment application following the CO's notice, the CO will issue a notice to indicate that he may recommend the Contractor be temporarily disqualified from bidding on Contracts with the Airports Authority. However, prior to recommendation for removal from the list of pre-qualified bidders, the CO will allow the Contractor thirty (30) calendar days from the date of the unsatisfactory performance notice to respond.

   c. The Contractor's recovery effort shall be provided in sufficient detail to allow the COTR to fully evaluate the Contractor's plan for recovery. The Contractor shall submit a recovery plan in the form of a Progress Schedule and written statement to describe the proposed actions and timeframe to correct the progress deficiency or schedule slippage. Any schedule adjustments resulting from a recovery plan will be reviewed in accordance with Sub-paragraph 3.8-G, but the modified progress Schedule Update shall not replace the Current SOR. When the COTR determines that the progress is again satisfactory the ten (10) percent retainage previously withheld may be released to the Contractor.

I. Measurement and Payment

The required Progress Schedule submissions shall be indicated in Schedule of Values and paid in accordance with the following:

1. Progress payment for Baseline Progress Schedule pay item will be made as follows:
   a. A payment of one hundred (100) percent of the cost as indicated in the schedule of values will be made upon acceptance of the Baseline Progress Schedule submission.
   b. Progress Schedule Updates are considered incidental to the work and will not be paid.

2. Payment Items: Payments for all associated costs to attend schedule meetings prepare, update, revise and/or furnish the progress schedule, prepare and submit TIA shall be indicated as follows within the schedule of values:

Pay Item	**Pay Unit**
XXXXX……...Baseline Progress Schedule …..……..Lump Sum	

3.6 RECORD, FINAL AS-BUILT PROGRESS SCHEDULE

A. After all Contract work items are complete, and as a condition of final payment, Contractor shall submit three copies of a Record, As-Built Schedule showing actual start and finish dates for all work activities and milestones, based on the accepted monthly updates. These schedule submittals shall be in tabular and in time-scaled Bar Chart plot formats.

END OF SECTION 013200

SECTION 013233 - PHOTOGRAPHIC AND VIDEO RECORDING DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings, Contract Provisions, Special Provisions, Supplementary Conditions, and other Division 01 Specification Sections apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for the following:

1. Preconstruction photographs.
2. Photographic recordings of key construction activities.
3. Daily and monthly construction photographs.
4. Video recording of Demonstration and Training
5. Final Completion construction photographs.

B. Related Sections include the following:

1. Division 01 Section 01 "Submittals" for submitting construction photographs.
2. Division 01 Section 01 “Quality Requirements” for photographic of daily site activities and key construction activities.
3. Division 01 Section 01 "Project Closeout" for submitting photographic documentation as Project Record Documents at Project closeout.
4. Division 01 Section 01 “Demonstration and Training” for submitting videotapes of demonstration of equipment and training of Authority’s personnel.

1.3 SUBMITTALS

A. Quality Control Plan: Include the processes, procedures and requirements for photographic documentation in the Quality Control Plan.

B. File Naming Convention: Submit the proposed file naming convention for photographs and video recordings.

C. File Delivery and Storage Format: Submit the proposed file delivery and storage format and method for photographs and video recordings. The photographic and video recording storage format is to be capable of sorting or searching based on: date of the photograph or recording; the location of the work; and the work activity.

D. Digital Photographs:

1. Submit all digital photographic image files within five (5) business days of taking photographs via Unifier, or other delivery and storage format as approved by the COTR.

2. Monthly Submittal: Each month, submit two copies of a DVD containing all photographic documentation for the month and a copy of the updated tracking log for photographs.
3. Required photographic documentation: The minimum requirements for photographic documentation is:
   a. Pre-construction conditions for each work area
   b. Key construction activities
   c. Daily progress of the work with focus on critical activities
   d. Conditions at the time of final completion or portion thereof.

E. Video Recordings:

1. Submit all video recording documentation within five (5) business days of taking video recordings via two (2) copies of a DVD, or other delivery and storage format as approved by the COTR.
2. Required video recording documentation: The minimum requirements for video recording documentation is:
   a. Demonstration and training provided for the Airports Authority operations and maintenance personnel.

F. Consolidated File of Photographic and Video Recordings at Final Completion: The Contractor shall catalog and provide a complete set of all photographs and video recordings upon final completion.

1.4 USAGE RIGHTS

A. Transfer copyright usage rights from the photographers and video recorders to the Airports Authority for unlimited reproduction of photographic and video recording documentation.

PART 2 - PRODUCTS

2.1 PHOTOGRAPHIC AND VIDEO RECORDING DOCUMENTATION

A. Digital Images:

1. Digital Camera: Minimum sensor resolution of eight (8) megapixels.
2. Format: Provide color images in JPG format with minimum 3200 by 2400 pixels, in unaltered original files, with same aspect ratio as the sensor, uncropped.
3. Date and Time Stamp: Each photographic is to be date and time stamped to show when the photograph was created.
4. File Name: Each photograph file is to be named with reference to:
   a. Date the photograph was created
   b. Location
   c. Work area and activity
   d. Name of the photographer
   e. Name of the Contractor and contract number.
5. Tracking log: Develop and maintain a tracking log for all photographs.

B. Video Recordings:

1. Provide high-resolution, color, digital video recordings in DVD format, or other delivery and storage format as approved by the COTR.
2. Narrative: Provide verbal, narrative description to accompany the video recording.
3. Organization and Identification: On each DVD, provide a label printed directly on the DVD with the following information:
   a. Date video recording was recorded.
   b. Location
   c. Work activity
   d. Duration of the recording in minutes and seconds
   e. Name of the video recorder
   f. Name of the Contractor and contract number

PART 3 - EXECUTION

3.1 GENERAL REQUIREMENTS

A. The Quality Control Manager shall be responsible for the provision of the required photographic and video recording documentation. The processes, procedures and requirements for photographic and video recording documentation shall be detailed in the Quality Control Plan. The requirements, status and work planning for provision of the required photographic and video recording documentation shall be provided to the Airports Authority during the regularly scheduled Quality Control briefings. Key construction activities that require photographic are to be identified and reviewed at the Quality Control briefings with the Airports Authority.

B. Key Construction Activities: Key construction activities to be documented using photographs include, but are not limited to activities such as: concrete placement; electrical wiring and equipment; maintenance of traffic; and other activities of relative major significance.

3.2 PHOTOGRAPHIC DOCMUMENTATION

A. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.

B. Preconstruction Photographs: Before starting mobilization, demolition or construction, take color photographs of each work area and surrounding properties from a variety of vantage points.
1. Provide a minimum of twenty (20) photographs to show existing conditions at each work area before starting the work.
2. Provide a minimum of twenty (20) photographs of existing buildings and facilities adjacent to the work area to accurately record the physical conditions before starting work.

C. Photographs of Key Construction Activities: Provide a minimum of twenty (20) photographs for each key construction activity showing all aspects of the work.

D. Daily Site Photographs: Provide a minimum of ten (10) site photographs daily to illustrate the status and progress of work activities with focus on critical activities.

E. Monthly Construction Photographs: Provide a minimum of twenty (20) site photographs to illustrate the overall status and progress of the work.

F. Final Completion Construction Photographs:
   1. Provide a minimum of twenty (20) photographs upon Final Completion or portion thereof to show final conditions.
   2. Provide a minimum of twenty (20) photographs of existing buildings and facilities adjacent to the work area to accurately record the physical conditions upon completion of the work.

3.3 VIDEO RECORDINGS - GENERAL

A. Recording: Use a tripod-mounted and or a handheld video recorder to document demonstration and training. Display continuous running time, and date and time stamp each recording. At the start of each video recording, record the date, time, the location, the work activity, the person performing the video recording, the name of the Contractor, the contract number, and the weather conditions to include the temperature reading at the jobsite.

3.4 VIDEO RECORDINGS

A. Video Recording for Demonstration and Training: Provide video recording of the demonstration and training of the Airports Authority's operations and maintenance personnel as required by Specification Section 017900.

PART 4 - MEASUREMENT (Not used)

PART 5 - PAYMENT

All costs incurred by the Contractor to acceptably implement the requirements of this Section shall be performed at no additional cost to the Airports Authority and are part of this Contract.

END OF SECTION 013233

SECTION 013300 - SUBMITTALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings, Contract Provisions, Special Provisions, Supplementary Conditions, and other Division 01 Specification Sections apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.

B. Related Sections include the following:
1. Division 01 Section “Application for Payment”
2. Division 01 Section “Construction Progress Documentation”
3. Division 01 Section “Photographic Documentation”
4. Division 01 Section “Quality Requirements”
5. Division 01 Section "Project Closeout" for submitting warranties.
6. Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
7. Divisions 02 through 33 Sections and Federal Aviation Administration (FAA) Sections for specific requirements for submittals in those Sections.

1.3 DEFINITIONS

A. Action Submittals: Written and graphic information that requires the COTR's responsive action.

B. Informational Submittals: Written information that does not require the COTR's approval. Submittals may be rejected for not complying with requirements.

C. Oracle Primavera Unifier: Oracle Primavera Unifier is a Web-based software service that the Airports Authority requires the Contractor and the Architect-Engineer use on this contract. Oracle Primavera Unifier is to be used for Submittals, to include the transmittal, distribution, log, and management of the submittals process.

1.4 SUBMITTAL PROCEDURES

A. General: The COTR will arrange for delivery of an electronic copy of the Contract requirements CADD drawing files to the Contractor at the Pre-Construction Conference for use in preparing submittals.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities as follows:

1. Coordinate each submittal with coordination drawings, purchasing, fabrication, testing, delivery, other submittals, and related activities.
2. Coordinate and package submittals together for related parts of the work so processing will not be delayed where submittals must be reviewed concurrently.
3. The Airports Authority reserves the right to withhold action on any submittal that requires coordination with other submittals until related submittals are received. Withholding action in this manner shall not warrant a claim by the Contractor for additional time or cost.

C. Submittals Schedule: Comply with requirements in Division 01 Section "Construction Progress Documentation" for the submittals and time requirements for scheduled performance of related construction activities.

D. Contractor Responsibilities: The Contractor is responsible for the scheduling and submission of all submittals to the COTR as follows:

1. Utilize the Program Management Software system designated by the COTR.
2. A submittal response from the COTR should not result in a change to the Contract; however, if the Contractor believes a submittal response warrants an increase or decrease in the Contractor's cost of, or the time required for, the performance of any part of the work under the Contract, the Contractor shall notify the Contracting Officer in writing, with a copy to the COTR, within seven (7) calendar days stating (1) the date, circumstances, and source of the order and (2) that the Contractor regards the order as a change order. Direction from the Contracting Officer is required before proceeding with any work that involves a change to the Contract scope, price, time, terms or conditions.

E. Processing Time: The Contractor is to allow adequate time for submittal review, including time for re-submittals, as listed below. Time for review shall commence on the date submitted in the Oracle Primavera Unifier system by the Contractor. Late transmittal of submittals shall not warrant a claim by the Contractor for additional time or cost.

1. Initial Review: Allow 15 calendar days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. The COTR will advise the Contractor when a submittal must be delayed for coordination. Allow an additional 45 calendar days for submittals related to fire-detection systems and fire-protection systems.
2. Re-submittal Review: Allow 15 calendar days for review of each re-submittal.
3. Sequential Review: Where sequential review of submittals by the COTR, or other parties is indicated, allow 21 calendar days for the initial review of each submittal.
4. Processing of incomplete or unacceptable submissions by the COTR shall not reduce the number of calendar days specified above for the COTR's review. Resubmissions shall be treated the same as initial submissions relative to review time.

F. Identification: Place a permanent label or title block on each submittal for identification.

1. Indicate the name of the firm or entity that prepared each submittal on the label or the title block.

2. Provide a space approximately 6 by 8 inches on the label or beside the title block to record the Contractor's review and approval markings and action taken by the COTR and the Architect-Engineer.
3. Include the following information on the label for processing and recording action taken:

    a. Contract Name and Number.
    b. Submittal number or other unique identifier, including revision identifier.
    c. Submittal number shall use Specification Section number followed by a dash and then a sequential number (e.g., 061000-001 or 070150.19-001). Re-submittals shall include an alphabetic suffix after another dash (e.g., 061000-001-A or 070150.19-001-A).
    d. Number and title of appropriate Specification Section.
    e. Date.
    f. Transmittal number.
    g. Building Permit number
    h. Name and address of the Contractor.
    i. Name and address of subcontractor, if applicable.
    j. Name and address of supplier, if applicable.
    k. Name of manufacturer, if applicable.
    l. Name and address of Architect/Engineer.
    m. Drawing number and detail references, as appropriate.
    n. Location(s) where product is to be installed, as appropriate.
    o. Contractor statement that the submittal does not involve an increase or decrease in the Contractor’s cost of, or the time required for, the performance of any part of the work under the Contract.

G. Resubmissions: The re-submittal procedure shall follow the same procedures and same number as the initial submittal with the following exceptions:

1. The transmittal shall contain the same information as the first transmittal and the submission number shall indicate second, third, etc., submission. The drawing number/description shall be identical to the initial submission and the date shall be the revised date for that submission.
2. No new material shall be included on the same transmittal for a resubmission.
3. COTR rejection shall not warrant a claim by the Contractor for additional time or cost.

H. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the contract requirements on submittals. Where significant deviations from the contract requirements exist, follow the guidelines set forth in Division 01 Section "Product Requirements" for substitutions.

I. Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from the Contractor to the COTR using the Oracle Primavera Unifier Web services. The Contractor must use the Airports Authority provided web-based Oracle Primavera Unifier project management system (Unifier) to transmit each submittal to the COTR. Response of the COTR’s submittal review and action will be transmitted to the Contractor through Unifier. The COTR will return submittals, without review**,** when received from sources other than the Contractor.

J. Transmittal Form: Use transmittal forms and follow other submittal procedures according to information contained in the Program Manual and Management Plans.

K. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, and authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

L. Bear all costs incurred for such reproduction and distribution. Prints of all reviewed Shop Drawings may be made from transparencies that carry the appropriate review stamps.

M. Use for Construction: Use only final submittals with mark indicating “approved” by COTR in connection with construction.

1.5 SUBMITTAL LOG

A. Prepare a log that contains a complete listing of all submittals required by Contract. Submit the log at the preconstruction meeting along with the Contractor's 90-day preliminary construction schedule specified in Division 01 Section "Construction Progress Documentation." Organize the submittal log by Specification Section number. Assign each submittal a sequential number for identification and tracking purposes.

B. Coordinate the submittal log with Division 01 Section "Construction Progress Documentation." The submittal log shall be submitted for the COTR's review and information. Include the following information:
1. Contract Name and Number
2. Contractor Name
3. Submittal unique identifier
4. Title of submittal/description.
5. Scheduled date of the initial submission for each submittal.
6. Required Date for Approval for each Submittal.
7. Submittal Status
8. Review / Response Code
9. Drawing number reference, if applicable.
10. Subcontractor/vendor reference.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

A. General: Prepare and submit Action Submittals required by individual Specification Sections
1. Certification by the Quality Control Manager: The Quality Control Manager is to certify each action submittal verifying that the submittal complies with the contract requirements.
2. Number of Copies: Submit using the Program Management software, unless otherwise directed by the COTR.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:
   a. Manufacturer's written recommendations.
   b. Manufacturer's product specifications.
   c. Manufacturer's installation instructions.
   d. Standard color charts.
   e. Manufacturer's catalog cuts.
   f. Wiring diagrams showing factory-installed wiring.
   g. Printed performance curves.
   h. Operational range diagrams.
   i. Mill reports.
   j. Standard product operating and maintenance manuals.
   k. Compliance with recognized trade association standards.
   l. Compliance with recognized testing agency standards.
   m. Application of testing agency labels and seals.
   n. Notation of coordination requirements.
4. Submit Product Data before or concurrent with Samples.
5. Number of Copies: Submit all Product Data submittals electronically using the Oracle Primavera Unifier system. In addition, provide three copies for submittals related to fire-detection systems and fire-protection systems.
6. Do not submit Product Data until compliance with requirements of the Contract requirements has been confirmed.

C. Shop Drawings: Prepare contract-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract requirements or standard printed data.

1. Preparation: Include the following information, as applicable:

   a. Dimensions.
   b. Identification of products.
   c. Fabrication and installation drawings.
   d. Roughing-in and setting diagrams.
   e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring. Differentiate between manufacturer-installed and field-installed wiring.
   f. Shop-work manufacturing instructions.
   g. Templates and patterns.
   h. Schedules.
   i. Design calculations.
   j. Compliance with specified standards.
   k. Notation of coordination requirements.
   l. Notation of dimensions established by field measurement.
   m. Relationship to adjoining construction clearly indicated.
   n. Seal and signature of professional engineer if specified.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 40 inches.

3. Number of Copies: Submit all Shop Drawing submittals electronically using the Program Management Software system. In addition, submit one reproducible transparency and two black-line prints for each Shop Drawing submittal. The COTR will return the marked up reproducible transparency for the Contractor's distribution.
4. Both the reproducible transparency and the prints shall bear the Contractor's approval stamp on each sheet.

D. Coordination Drawings:

1. Coordination Drawings are Shop Drawings prepared by the Contractor that detail the relationship and integration of different construction elements that require careful coordination during fabrication or installation. Preparation of Coordination Drawings is specified in Division 01 Section "Project Management and Coordination."
2. Submit Coordination Drawings for integration of different construction elements. Show sequences and relationships of separate components to avoid conflicts in use of space.

E. Samples: Submit samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed. All sample submittals must be electronically documented with a photograph accompanying the electronic submittal.

1. Deliver all Samples to the COTR. Samples that contain multiple, related components such as accessories are to be submitted in one package.
2. Identification: Attach a label on the unexposed side of Samples that includes the following:

    a. Contract Name and Number
    b. Sample Submittal Unique Identifier
    c. Generic description of Sample / Product name and name of manufacturer.
    d. Date and Transmittal Number
    e. Name and Address of the Contractor
    f. Name and Address of Subcontractor or Supplier, as applicable
    g. Drawing number and detail references, as applicable
    h. Location(s) where product is to be installed, as applicable

3. Disposition: Maintain sets of approved samples at the project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

    a. Samples that may be incorporated into the work are indicated in individual Specification Sections. Such samples must be in an undamaged condition at time of use.
    b. Samples not incorporated into the work, or otherwise designated as the Airports Authority's property, are the property of the Contractor.

4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
5. Number of Samples: Submit three full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. The COTR will return submittal with options selected.

6. Samples for Verification: Submit full-size units or samples of size indicated, prepared from same material to be used for the work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
7. Number of Samples: Submit three sets of samples. The COTR will retain two sample sets; and the remainder will be returned to the Contractor.

    a. Submit a single sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
    b. If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a sample, submit at least three sets of paired units that show approximate limits of variations.

F. Products Schedule: For all Products, as detailed in individual Specification Sections, prepare a written summary identifying the specified products required for the work, their intended location, and the estimated quantity required. Submit the product schedule via the Oracle Primavera Unifier system. Include the following information in tabular form:

1. Contract Name and Number
2. Contractor Name
3. Specification Section Reference and cross-reference to the submittal log
4. Specified Product
5. Location(s) for installation or use
6. Estimated Quantity Required

G. Submittals Schedule: Comply with requirements in Division 01 Section "Construction Progress Documentation."

H. Application for Payment: Comply with requirements in Division 01 Section "Application for Payment."

I. Schedule of Values: Comply with requirements in Division 01 Section "Application for Payment."

J. Contractor Warranty Letter: Comply with requirements in Contract Provision "Warranty of Construction." Provide the dates of warranty coverage and provide point of contact information for warranty service.

K. Special Warranty Letters: Provide dates of warranty coverage and provide point of contact information for warranty service for special warranties required in Division 02 through 33 Sections.

2.2 INFORMATIONAL SUBMITTALS

A. General: Prepare and submit Informational Submittals required by other Specification Sections.

1. Certification by the Quality Control Manager: The Quality Control Manager is to certify each informational submittal verifying that the submittal complies with the contract requirements.
2. Number of Copies: Submit using the Oracle Primavera Unifier software, unless otherwise indicated.
3. Test and Inspection Reports: Comply with requirements in Division 01 Section "Quality Requirements."

B. Contractor's Construction Schedule: Comply with requirements in Division 01 Section "Construction Progress Documentation."

C. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.

D. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of Architects and Owners, and other information specified.

E. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements.

F. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

G. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific project.

H. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.

I. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements.

J. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.

K. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements.

L. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

M. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements.

N. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

O. Research/Evaluation Reports: Prepare written evidence from a model code organization acceptable to the Airports Authority that product complies with USBC. Include the following information:

1. Name of evaluation organization.
2. Date of evaluation.
3. Time period when report is in effect.
4. Product and manufacturers' names.
5. Description of product.
6. Test procedures and results.
7. Limitations of use.

P. Operations and Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements in Division 01 Section "Operation and Maintenance Data." Additional copies submitted for Operations and Maintenance manuals will be marked with action taken and will be returned.

Q. Design Data: Prepare written and graphic information, including, but are not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

R. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:

1. Preparation of substrates.
2. Required substrate tolerances.
3. Sequence of installation or erection.

4. Required installation tolerances.
5. Required adjustments.
6. Recommendations for cleaning and protection.

S. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:

1. Name, address, and telephone number of factory-authorized service representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at the project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement on whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

T. Bonds: Prepare written information indicating current status of bonding coverage. Include name of entity covered by insurance or bond, limits of the coverage, amounts of deductibles, if any and term of coverage.

U. Manufacturers' warranties.

V. Construction Photographs and Video-recordings: Comply with requirements in Division 01 Section "Photographic Documentation."

W. Material Safety Data Sheets: Submit information directly to COTR.

2.3 DELEGATED DESIGN

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of the Contractor by the Contract requirements, provide products and systems complying with specific performance and design criteria indicated. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to COTR.

B. Delegated-Design Schedule: For all Delegated-Design requirements, as detailed in individual Specification Sections, prepare a written summary identifying the specified delegated-design required for the work. Submit the delegate-design schedule via the Oracle Primavera Unifier system. Include the following information in tabular form:

1. Contract Name and Number
2. Contractor Name
3. Specification Section Reference and cross-reference to the submittal log
4. Specified Delegated-Design requirement

C. Delegated-Design Submittal: Submit all delegated-design documentation, including calculations, data, reports and drawings signed and sealed by the responsible design

professional licensed in Virginia. Submit delegate-design submittals electronically via the Oracle Primavera Unifier system, and provide three (3) hard copies. Indicate that products and systems comply with performance and design criteria in the Contract requirements. Include a list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Review each submittal and check for compliance with the Contract requirements. Note corrections and field dimensions. The Contractor is to mark each submittal with an approval stamp before submitting to the COTR.

B. In checking Shop Drawings and Product Data, verify all dimensions and field conditions and check and coordinate Shop Drawings and Product Data of any Section or trade with the requirements of other sections or trades as related thereto, as required for proper and complete installation of the work.

C. Approval: Stamp each submittal with a uniform, approval stamp. Include contract name and number, location, submittal number, section title and number, name of reviewer, date of the Contractor's approval, and a statement certifying that the submittal has been reviewed, checked, and approved for compliance with the Contract requirements, which shall include dimensions, clearances, compatibility, and coordination with Shop Drawings and Product Data submitted for other work. The Quality Control Manager is to verify that each submittal complies with the contract requirements.

D. If the Contractor has not checked the submittals carefully, even though stamped as checked and approved, submittals shall be returned to the Contractor for proper checking before further processing or review by the COTR regardless of any urgency claimed by the Contractor. In such a situation, the Contractor will be responsible for any resulting delays. Furthermore, the Contracting Officer may hold the Contractor responsible for increased Airports Authority costs resulting from the Contractor's failure to comply with the requirements set forth herein.

3.2 COTR'S ACTION

A. General: The COTR will not review submittals that do not bear the Contractor's approval stamp and will return them without action.

B. COTR Responsibilities: The review of Shop Drawings and other submittals by the COTR will be for general conformance with the Contract only, and the review shall not be interpreted as a checking of detailed dimensions, quantities, or approval of deviations from the Contract requirements. The COTR review shall not relieve the Contractor of its responsibility for accuracy of Shop Drawings nor for the furnishing and installation of materials or equipment according to the Contract requirements.

C. Approval of Shop Drawings or other submittals is not to be interpreted as approval of a substitute material. Approval of substitutions will be accomplished according to requirements set forth in Division 01 Section "Product Requirements."

D. Action Submittals: The COTR will review each submittal, make marks to indicate corrections or modifications required, and return the submittal to the Contractor. The COTR will annotate each submittal with the action taken, as listed below. Do not permit submittals marked "Revise and Resubmit" or "Rejected" to be used at the Jobsite, or elsewhere where work is in progress.

1. “Approved”: Means fabrication/installation may be undertaken. Approval does not authorize changes to the Contract time or price.
2. “Approved as Noted”: Same as "Approved," providing Contractor complies with corrections noted on submittal. Resubmission required only if Contractor is unable to comply with noted corrections.
3. “Revise and Resubmit”: Fabrication and/or installation may not be undertaken. Make appropriate revisions and resubmit, limiting corrections to items marked.
4. “Rejected”: Submittal does not comply with requirements. Fabrication and/or installation may not be undertaken. Prepare a new submittal according to requirements and submit without delay.

E. Informational Submittals: The COTR will annotate informational submittals with “No Action Taken”, or “Rejected” if deviations from contract requirements are noted.

F. Partial submittals are not acceptable, will be considered non-responsive, and will be returned without review.

G. Submittals not required by the Contract Documents will not be reviewed.

PART 4 - MEASUREMENT (Not used)

PART 5 - PAYMENT

All costs incurred by the Contractor to acceptably implement the requirements of this Section shall be performed at no additional cost to the Airports Authority and are part of this Contract.

END OF SECTION 013300

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and Contract Provisions, Special Provisions, Supplementary Conditions, and other Division 01 Specification Sections apply to this Section.

B. Related Sections:

1. Division 00 Section “Supplementary Conditions”.
2. Division 01 Section “Project Management and Coordination”.
3. Division 01 Section “Construction Progress Documentation” for developing a schedule of required tests and inspections.
4. Division 01 Section “Submittals” for process required to submit the Contractor’s Quality Control Plan.
5. Division 01 Section “Execution”.
6. Division 01 Section “Cutting and Patching” for repair and restoration of construction disturbed by testing and inspecting activities.
7. Division 01 Section “Project Closeout”.
8. Division 01 Section “Operation and Maintenance Data”.
9. Division 01 Section “Project Record Documentation”.
10. Division 01 Section “Demonstration and Training”.
11. Divisions 02 through 34 Technical Specification Sections and Federal Aviation Administration (FAA) Specifications.

1.2 SUMMARY

A. This Section includes the following:

1. Administrative and procedural requirements for Contractor to provide and maintain an effective Quality-Control Program that complies with this Section and with requirements of the "Contract Provisions," Section VII, "Inspection of Construction and Final Inspection and Acceptance."
2. Establish a QC Program that consists of the following:

    a. QC Organization.
    b. QC Plan Meeting.
    c. QC Plan.
    d. Coordination and Meeting of Mutual Understanding.
    e. QC meetings.
    f. Phases of Control.
    g. Submittal preparation, review, and approval.
    h. Operation & Maintenance data and Warranty receipt verification prior to product delivery.

i. Material verification at delivery and material location reports as outlined in a formal Material Receiving Inspection Program.
j. Inspection Program utilizing an Inspection Log and Sign-off Sheets.
k. Testing and Inspections, completion inspections, QC certifications, accreditations, documentation, training, and requirements necessary to provide materials, equipment, workmanship, fabrication, construction, and operations that comply with the requirements of this Contract.

3. Contractor is not responsible for Special Inspections according to requirements of the current Virginia Uniform Statewide Building Code (VUSBC). The Airports Authority's agent shall provide these Special Inspection services. However, the Contractor is responsible for establishing a Special Inspection schedule. This schedule shall be discussed at COTR's weekly Progress Meetings and Contractor's QC Meetings. The Contractor shall be responsible for all coordination and notification of requests for Code and Special Inspections with The Airports Authority.

   a. Special inspections are required for, but are not necessarily limited to, the following:

      (1) As identified by the Engineer of Record.

4. Specific quality-control requirements for individual construction activities are specified in the Sections that require those activities. Requirements in those Sections may also cover production of standard products.
5. Schedule of Values: Contractor shall include all test and inspection activities in its Schedule and establish a Schedule of Values for all required QC documentation, all tests and inspection activities, reports, and procedures required in the Contract on a Section-by-Section basis. Additionally, Contractor shall include a pay line item specifically for Quality activities and QC Organizational personnel required by the General Conditions. Quality activities shall be reported per Division 01 Section "Applications for Payment."
6. Specified tests, inspections, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with the Contract Document requirements.
7. The provisions of this Section shall not limit requirements for Contractor to provide quality-control services required by the Airports Authority or other agencies having jurisdiction.
8. The QC Plan does not repeat or summarize contract requirements. It describes the methods, processes, and procedures by which the Contractor will ensure Quality construction and compliance with the contract documents. Omissions in the QC Plan or the contractor's Quality Control Program does not relieve the contractor of the responsibilities to provide work in accordance with the contract documents, applicable codes, regulations, and governing authorities. Approval of the QC Plan by the Airports Authority does not guarantee Quality Control or Quality Production by the Contractor. These QC processes, procedures and programs are controlled and managed by the Contractor.

1.3 REFERENCES

A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

1. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

   a. ASTM C 1077: Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation latest edition.
   b. ASTM D 3666: Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials latest edition.
   c. ASTM D 3740: Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction latest edition.
   d. ASTM E 329: Agencies engaged in the Testing and/or Inspection of Materials Used in Construction latest edition.
   e. ASTM E 543: Agencies performing Nondestructive Testing latest edition.

2. METROPOLITAN WASHINGTON AIRPORTS AUTHORITY

   Construction Safety Manual, most current edition.

1.4 DEFINITIONS

A. Quality: Conformance to the requirements established by the contract specifications and drawings.

B. Control: To guide and have influence over.

C. Contractor Quality Control (CQC): The construction contractor's system to establish, manage, control, and document their own, their supplier's, and their subcontractor's activities to ensure Quality compliance with the contract requirements and the QC Plan.

D. Contracting Officers Technical Representative (COTR). Primary on-site representative of the Contracting Officer for technical matters. Duties and responsibilities of the COTR will be transmitted to the contractor via letter from the Contracting Officer.

E. Definable Feature of Work or Element of Work: A definable feature of work (DFOW) or Element of Work is a task that is separate and distinct from other tasks and has control requirements and work crews unique to that task.

F. QC Management System: The management and implementation of processes, procedures, and requirements that establish quality as identified in the QC Plan and mandated in the contract specifications. The Three Phases of Control are the core of the contractor's Construction Quality Management System.

G. Mockups: If required by the contract, shall be full-size, physical example assemblies that are constructed on site to illustrate finishes, materials, assemblies, etc. Mockups are used to verify selections made under Sample submittals, to demonstrate aesthetic effects or details and, where indicated, qualities of materials, execution, to review construction, coordination, testing, inspection, or operation; they are not Samples. Mockups establish the Initial Standard of Control by which the work shall be judged and accepted for that Definable Feature or Element of Work. Mockups supersede samples in the approval and acceptance of the Work. Construct

mockups away from the work site or in a location designated by the COTR. Do not use mockups as part of the work unless specifically approved by the COTR.

H. Experienced: When used with an entity, “experienced” means having successfully completed a minimum of ten (10) projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction. Specific experience requirements enumerated in these specifications supersede this requirement.

1.5 CONFLICTING REQUIREMENTS

General: If compliance with two (2) or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to the COTR for a decision before proceeding. This paragraph refers to industry and government standards. In cases of a difference between drawings and the specifications, the specifications shall govern.

1.6 SUBMITTALS

A. Submit the following in accordance with Division 01 Section, "Submittals."

1. Action Submittals.

a. Quality Control (QC) Plan.

B. NOTE: Coordinate the submittal requirement dates with the submittal dates in Division 01 Section “Construction Progress Documentation”.

C. Submit a QC plan within twenty (20) calendar days after receipt of Notice to Proceed. The QC Plan shall include a preliminary submittal registry of all required submittals in the contract which shall be submitted in the first ninety (90) calendar days of construction. Once final submittal registry, accounting for all submittals, is approved by the COTR, insert registry into the QC Plan.Submit at this time résumés of key personnel to be assigned to this contract and the limits of their authority. Show how this project management structure fits into the Contractor’s corporate management structure.

D. Any approval by the COTR of the QC Plan shall be treated as “accepted, dependent upon successful implementation of a Quality Program as outlined in the QC Plan and Contract Specifications.” Omissions in the QC Plan do not relieve the contractor of the responsibilities to comply with the contract requirements. Immediately stop work if the QC Plan becomes disapproved or Quality as defined in the contractor’s Quality Program cannot be produced. The exception is the work authorized in the paragraph entitled "Preliminary Work Authorized Prior to Approval," shall stop.

1.7 INFORMATION FOR THE CONTRACTING OFFICER

A. Provide sample copies, for approval, of all report forms, as identified below, to the COTR during the Pre-Construction Conference. The report forms shall consist of the Quality Control

Daily Report, Superintendent Daily Report, Material Receiving Inspection Report, Preparatory Phase Report, Initial Phase Report, Inspection Log and Sign-off Sheet, Deficiency Log, Testing Log and Monthly Quality Control Summary Report. Other reports referenced below, once approved, may be in formats customarily used by the Contractor, and shall contain the information required by the contract specifications for Testing Laboratories and Inspection Reports, Material Location Reports, Specialist Reports, etc.

B. Deliver the following listed items to the COTR via the Airports Authority Document Control and Program Management Software system at the times specified below:

1. Quality Control Daily Report: one (1) original electronic copy, delivered the next calendar day after work is performed.
2. Superintendent's Daily Report: one (1) original electronic copy, delivered the next calendar day after work is performed. Do not attach to the Quality Control Daily Report.
3. Material Receiving Inspection Report: one (1) original electronic copy, delivered the next calendar day after work is performed. Do not attach to the Quality Control Daily Report.
4. Preparatory Phase Report: one (1) original electronic copy, delivered the next calendar day after work is performed. Do not attach to the Quality Control Daily Report.
5. Initial Phase Report: one (1) original electronic copy, delivered by the next calendar day after work is performed. Do not attach to the Quality Control Daily Report.
6. Field or Laboratory Test and Inspection Reports: one (1) original electronic copy, delivered within two (2) workdays after the inspection and/or test is performed. A certified technician performing all field tests and inspections shall sign all inspection and test reports. A certified testing laboratory manager performing all laboratory tests shall sign all test results. All reports will be reviewed, signed, and certified by a Professional Engineer, registered in the Commonwealth of Virginia, certifying compliance with the contract specifications. Do not attach to the Quality Control Daily Report.
7. Inspection Log and Signoff Sheets for all Definable Features or Elements of Work: one (1) original electronic copy, delivered within one (1) workday of the inspection or Signed-off activity. Do not attach to the Quality Control Daily Report.
8. Special Inspection Control Log: (If Special Inspections are required), one (1) original electronic and hard copy, delivered within two (2) workdays of the end of the month.
9. Testing Log: upon COTR's request, deliver one (1) original electronic copy of a current up-to-date test log, documenting all performed tests, results, etc. Do not attach to the Quality Control Daily Report.
10. Deficiency Log: one (1) original electronic copy, delivered to the COTR at the Progress Meeting. Do not attach to the Quality Control Daily Report.
11. QC Meeting Minutes: one (1) original electronic copy, delivered within two (2) workdays after the meeting. Do not attach to the Quality Control Daily Report.
12. QC Certifications, Qualifications, and Accreditations: as required by contract specifications.
13. Monthly Quality Control Summary Report: one (1) original electronic or hard copy, delivered within two (2) workdays of the end of the month. Do not attach to a Quality Control Daily Report. This Executive Brief shall contain these items:
    a. Status of the Schedule (Monthly Progress Report) impact to schedule due to change notices, modifications, problems encountered, weather, and any other changes or items affecting the schedule since the previous month.
    b. Status of Submittals.
    c. Status of Testing and Inspections activities performed that particular month.
    d. Status of Special Inspections (if required) performed that particular month.

e. Status of Preparatory meetings and Initial meetings performed that particular month.
f. Status of Deficiencies/Rework items and corrective actions.
g. Status of Non-compliances issued by COTR and corrective actions.
h. Status of Record Drawings.
i. Status or Identification of items affecting Quality.
j. Status of Training, Operation, Maintenance, and Warranty items.
k. Status of Safety and related events.
l. Other items as directed by the COTR.

14. QC Specialist Reports: one (1) original electronic or hard copy, delivered the next calendar day after work is performed. Do not attach to the Quality Control Daily Report.

1.8 QC PROGRAM REQUIREMENTS

A. The Contractor must establish and maintain an approved QC Program as described in this Section. The QC Program shall consist of, but is not limited to, the following:

1. QC Organization.
2. QC Plan.
3. QC Plan Meeting.
4. Coordination and Meeting of Mutual Understanding.
5. QC meetings.
6. Phases of Control.
7. Submittal preparation, review, and approval.
8. Operations and Maintenance data.
9. Warranty receipt verification prior to product delivery.
10. Material verification at delivery and material location reports as outlined in a formal Material Receiving Inspection Program.
11. Inspection Program utilizing an Inspection Log and Sign-off Sheets.
12. Testing, inspections, completion inspections, QC certifications, accreditations, documentation, training, and requirements necessary to provide materials, equipment, workmanship, fabrication, construction, and operations that comply with the requirements of this Contract.
13. The QC Program shall cover on-site and off-site work and shall be keyed to the work sequence.
14. No work, testing, or inspections may be performed unless the QCM or a pre-approved alternate is on the work site.
15. At all times during performance of this contract and until the work is completed and accepted, the contractor shall directly superintend the work by an approved competent superintendent who is satisfactory to the Contracting Officer and has the authority to act for the Contractor.
16. The QCM shall report to an officer of the firm and shall not be subordinate to the Project Manager, Superintendent or any other member of the QC Organization.
17. The Quality Control Manager is the primary individual responsible for the management and implementation of processes, procedures, and requirements that establish quality in construction as identified in the QC Plan and mandated in the contract specifications. The QCM shall identify, track, and notify The Airports Authority and Management of all weaknesses and deficiencies in this QC Management System. The Project Manager shall

be responsible for the overall quality in the contract. The Project Superintendent shall be held responsible for the quality of all work produced by the Contractor, manages the correction of all noted deficiencies, and ensures Quality is established and preserved in the construction process through the Three Phases of Control.

B. Preliminary Work Authorized Prior to Approval: The only work that is authorized to proceed prior to the approval of the QC Plan is mobilization of storage and office trailers, temporary utilities, and surveying.

C. Approval: Approval of the QC Plan is required prior to the start of any work or construction. Prior to approval, the COTR may require changes in the QC Plan, processes, procedures, and operations as necessary to ensure the specified quality of work is constructed as outlined in the contract. The COTR reserves the right to interview any member of the QC organization at any time during the contract period to verify contract compliance. All QC organizational personnel shall be subject to acceptance by the COTR. The Contracting Officer may require the removal of any individual for non-compliance with quality requirements specified in the contract.

D. Notification of Changes: Notify the COTR, in writing, of any proposed changes to the QC Plan, including changes in the QC organizational personnel, a minimum of seven (7) calendar days prior to a proposed change. Proposed changes shall be subject to acceptance by the Contracting Officer.

1.9 QC ORGANIZATION

A. The contractor's QC Organization is responsible for establishing a committed unified team in a positive cooperative environment where all personnel and employees communicate, create, maintain, and verify the desired level of quality in all aspects of construction as established in the QC Plan and Contract Specifications.

B. Staffing Levels: Provide sufficient qualified quality-control personnel to monitor each work activity at all times. Scheduling and coordinating of all inspections and testing shall match the type and pace of work activity.

1. In cases where multiple trades, disciplines, or subcontractors are on site at same time, each activity shall be tested and inspected by personnel skilled and qualified in that portion of the work.
2. In cases where multiple shifts are employed, the quality-control staff shall be increased to meet all personnel and quality requirements of this section and the contract specifications for each shift when work is performed.
3. In all cases, the QC Organizational staff shall not conduct escorting duties.

C. The following positions are key personnel as defined by the Airports Authority in this and other Division 01 Specification Sections. The QC Organizational personnel shall be interviewed by Quality Department and the COTR. The COTR will approve all QC Organizational personnel.

1. Project Manager

a. Duties: Responsible for overall Quality in Construction, project management control, planning, scheduling, cost, project administration, submittal management, and compliance with local and national codes.

b. Qualifications: Fifteen (15) years of construction supervisory experience, with five (5) years of project management experience on projects of similar size, type, and complexity to this Project in which the individual had overall project responsibility.

2. Project Superintendent

a. Duties: Serves as the Contractor's on-site production manager to plan, organize, coordinate, supervise, and observe all on-site construction activities. The Superintendent ensures compliance with the contract specifications while maintaining total control and responsibility for the Quality of work produced. The Superintendent monitors and supervises all field personnel to assure compliance with the Contract Specifications. The Superintendent corrects all noted deficiencies and ensures Quality is established and preserved in the construction process through the Three Phases of Control.

b. Qualifications: Fifteen (15) years of construction supervisory experience, with five (5) years' experience as Superintendent in a supervisory role coordinating various trades at multiple work areas.

3. Quality Control Manager (QCM)

a. Duties: Provide a QCM at the work site to implement and manage the QC Program. In addition to implementing and managing the QC Program, the QCM may perform the duties of project superintendent. The QCM shall not be designated as the safety competent person as defined by Construction Safety manual. The QCM shall attend the QC Plan Meeting, shall prepare the QC Plan for COTR approval, shall conduct the Meeting of Mutual Understanding, conduct the QC meetings, perform and manage the Phases of Control, except for those phases of control designated to be performed by QC Assistant and/or QC specialists, perform submittal review and approval, ensure verification of materials, ensure all testing and inspections are coordinated and performed by trained, authorized and certified personnel and testing laboratories. The QCM shall provide and submit QC certifications, accreditations, reports, and documentation as required in the contract specifications. The QCM shall not prepare Submittals. The QCM is responsible for assuring contractor compliance with Quality Standards as established in the contract specifications.

b. Duties: Provide a QCM at the work site to implement and manage the QC Program. The only duties and responsibilities of the QCM are to manage and implement the QC Program on this contract. The QCM shall not be designated as the safety competent person as defined by Construction Safety manual. The QCM shall attend the QC Plan Meeting, shall prepare the QC Plan for COTR approval, shall conduct the Meeting of Mutual Understanding, conduct the QC meetings, perform and manage the Phases of Control, except for those phases of control designated to be performed by QC Assistant and/or QC specialists, perform submittal review and

approval, ensure verification of materials, ensure all testing and inspections are coordinated and performed by trained, authorized and certified personnel and testing laboratories. The QCM shall provide and submit QC certifications, accreditations, reports, and documentation as required in the contract specifications. The QCM shall not prepare Submittals. The QCM is responsible for assuring contractor compliance with Quality Standards as established in the contract specifications.

c. Qualifications: An individual with a minimum of five (5) years of construction experience as a Project Manager, Superintendent, QCM, Inspector, or Construction Manager on similar size and type construction contracts which included the major trades that are part of this Contract. The individual shall be familiar with the requirements of the Construction Safety Manual, and have experience in the areas of hazard identification and safety compliance.

d. Qualifications: A graduate of a four (4) year ABET accredited college program in one of the following disciplines: Engineering, Architecture, Construction Management, Engineering Technology, Building Construction, Building Science, with a minimum of ten (10) years' experience as a superintendent, QCM, project manager, or construction manager on similar size and type construction contracts which included the major trades that are part of this Contract. The individual shall be familiar with the requirements of the Airports Authority Construction Safety Manual, and have experience in the areas of hazard identification and safety compliance.

4. Alternate QCM Duties and Qualifications

a. Duties: Designate an alternate for the QCM at the work site to serve in the event of the designated QCM's absence. The period of absence may not exceed two weeks at one time, and not more than thirty (30) workdays during a calendar year.

b. Qualifications: The qualification requirements for the Alternate QCM shall be the same as for the QCM.

5. Submittal Reviewer(s) Duties and Qualifications:

a. Duties: Submittal Reviewer(s) shall be qualified in the discipline(s) being reviewed. Reviewers shall review and certify that each and all submittals meet the requirements of the Contract prior to review and approval by the QCM.

b. Qualifications: Each submittal shall be reviewed and certified by a registered Professional Engineer in the Commonwealth of Virginia with ten (10) years construction experience.

6. Professional Land Surveyor:

a. Duties: Layout work using acceptable surveying practices. As requested by the COTR, submit surveying log, records, and certificates, signed and sealed by the Professional Land Surveyor certifying all survey work and records are complete and accurate and in full compliance with the contract specifications. All locations and elevations of improvements shall comply with the contract specifications. Record survey data as required in the contract specifications. Maintain a log of all survey,

layout, datum, and control work. Record deviations from required lines and levels. Survey all work to 3rd Order Accuracy. Include beginning and ending dates and times of surveys, weather conditions, name, and duty of each survey party member, and types of instruments and tapes used etc. and other information as directed by the COTR.

b. Qualifications: A registered professional land surveyor with ten (10) years' experience, who is legally qualified to practice in the Commonwealth of Virginia and who is experienced in providing surveying services of the kind indicated in the contract specifications.

D. Construction Quality Management Training:

In addition to the above experience and education requirements, the Project Manager, Superintendent, QCM, QC Assistant, and Alternate QCM shall have completed the course entitled "Construction Quality Management for Contractors." If these individuals do not have a current certification, they shall obtain the CQM course certification within 60 - calendar days of award. This short course is periodically offered in alternate months by: (1) the Maryland Chapter, Associated General Contractors (AGC), 410-321-7870; agcmd@aol.com and by (2) the Virginia Chapter, Associated Builders and Contractors (ABC), 703-968-6205, joanna@abdva.org; mervin@abc.org. The training uses Army Corps of Engineers course content. The course is facilitated by instructors from Army Corps of Engineers, North Atlantic Division, Baltimore District, and by instructors from the Naval Facilities Engineering Command, Engineering Field Activity Chesapeake.

1.10 QUALITY CONTROL (QC) PLAN REQUIREMENTS

At the direction of the COTR, after notice of award and prior to submission of the QC plan, meet with the COTR and QA Manager to discuss the QC plan requirements of this Contract. The purpose of this meeting is to communicate expectations and facilitate understanding of the QC plan requirements prior to plan development and submission.

1.11 QUALITY CONTROL (QC) PLAN

A. The QC Manager shall prepare and provide, for approval by the COTR, a QC plan submitted in a 3-ring binder with pages numbered sequentially that covers both on-site and off-site work and includes but may not necessarily be limited to the following:

B. A table of contents listing the major sections identified with tabs in the following order:

1. QC ORGANIZATION
2. PERSONNEL MATRIX
3. NAMES AND QUALIFICATIONS
4. DUTIES, RESPONSIBILITY AND AUTHORITY OF QC PERSONNEL
5. APPOINTMENT LETTERS
6. OUTSIDE ORGANIZATIONS QC STAFF (subcontractors and consultants) INCLUDING INSPECTION AND TESTING AGENCIES

7. CERTIFICATIONS, QUALIFICATIONS, AND ACCREDITATIONS
8. TESTING AND INSPECTION PLAN, AND TESTING LOG
9. SUBMITTAL PROCEDURES, 90 DAY INITIAL SUBMITTAL REGISTER, AND FINAL SUBMITTAL REGISTER WHEN APPROVED BY COTR
10. LIST OF ALL DEFINABLE FEATURES OR ELEMENTS OF WORK
11. PROCEDURES FOR PERFORMING THE PHASES OF CONTROL
12. INSPECTION REQUIREMENTS, DUTIES, AND RESPONSIBILITIES OF SPECIAL INSPECTIONS, SPECIALISTS, SPECIALTY PERSONNEL, AND MANUFACTURERS REPRESENTATIVES
13. DOCUMENTATION REQUIREMENTS AND PROCEDURES
14. ESTABLISH A PROGRAM TO IDENTIFY, RECORD, TRACK, COMPLETE AND ELIMINATE DEFICIENCIES AND REWORK ITEMS
15. PROCEDURES FOR COMPLETION INSPECTION
16. FORMS
17. ATTACHMENTS

C. A chart showing the QC organizational structure.

D. A personnel matrix showing for each Section of the specifications who, by name, shall review and approve submittals, who, by name, shall perform and document the Phases of Control, and who, by name, shall perform and document the testing and inspections.

E. Names and qualifications, in résumé format, for each person in the QC organization. Include the CQM course certifications for the Project Manager, Superintendent, QCM, QC Assistant, and Alternate QCM as required by the paragraphs entitled "Construction Quality Management Training" and "Alternate QCM Duties and Qualifications".

F. Identify duties, responsibilities, and authority of each person in the QC organization.

G. Letters signed by an officer of the firm appointing the QCM and Alternate QCM, stating that they are responsible for implementing and managing the Contractor's QC Program and is the primary individual responsible for the management and implementation of processes, procedures, and requirements that establish quality in construction identified in the QC Plan as mandated in the contract specifications. The QCM shall notify the Airports Authority and Management of all failures and deficiencies in these QC management systems. Include in this letter the responsibility of the QCM and Alternate QCM to implement and manage the three phases of quality control and their authority to stop work that is not in compliance with the contract. The QCM shall issue letters of direction to all other QC staff and specialists under their control outlining their duties, authorities, and responsibilities, as outlined in the QC Organization section of the contract specifications. Copies of the letters shall be included in the QC plan.

H. A listing of all sub-contractors employed by the General Contractor, a description of each subcontractor's provided services, each subcontractor's QC representative's name, and contact phone numbers.

I. Testing laboratory information required by the paragraphs entitled "Accreditation Requirements" or "Construction Materials Testing Laboratory Requirements", as applicable. Include all certification and accreditation requirements required in the contract for each laboratory and testing technician.

J. Submit in this section all certifications, qualifications, and accreditations as required for each Section, Definable Feature or Element of Work in the Specifications.

K. A Testing and Inspection Plan, and Testing Log that includes all tests and inspections required in the contract, referenced by the specification paragraph number requiring the test and inspection, the frequency, the desired results, and the person, by name, responsible for each test and inspection, and shall be identified as a scheduled (CPM) activity.

L. Procedures for preparing, reviewing, approving, and managing submittals. Provide the name(s) of the person(s) in the QC organization authorized to prepare, review and certify submittals prior to approval. The QCM shall not prepare submittals. Provide the initial submittal register as specified in Section entitled "Submittals." Once final submittal registry, accounting for all submittals, is approved by the COTR, insert registry into the QC Plan.

M. List of Definable Features or Elements of Work. The list shall be cross-referenced to the contractor's Construction Schedule and all specification sections. For projects requiring a Progress Chart, the list of definable features or elements of work shall include but not be limited to all items of work on the schedule. For projects requiring a Network Analysis Schedule, the list of definable features or elements of work shall include but not be limited to all critical path activities. Include a chart of common deficiencies for all definable features or elements of work. Detail the control procedures that shall be employed to eliminate these common deficiencies. All elements of work and definable features of work in this contract shall be incorporated in the Three Phases of Control.

N. Procedures for Performing the Three Phases of Control. The primary purpose of the Three-Phases of Control is to require the contractor to plan and schedule each work activity to ensure quality is established, constructed, and maintained for each Definable Feature or Element of Work as required in the contract specifications. The contractor shall develop a plan for incorporating each of the Definable Features or Elements of Work into a Quality Production effort. The Three Phases of Control are the core of the contractor’s Construction Quality Management System as outlined in the contractor’s QC Plan and contract specifications. The plan shall detail who shall be responsible for scheduling the phases, conducting the phases, as well as documenting the phases of work. The use of project specific checklists forms may be helpful. However, the QC Plan and the contract specifications requirements establish the quality, not just the checklists. The Preparatory and Initial Phases and meetings shall be conducted with a view towards establishing, achieving, and maintaining quality construction by planning ahead and identifying potential problems early for each Definable Feature or Element of work.

O. Establish an Inspection Program utilizing an Inspection Log and Signoff Sheets: The Contractor’s superintendent shall establish, coordinate, and maintain with all trades and personnel, for each Definable Feature or Element of Work, a system of inspections and signoff sheets to certify that all work under the superintendent’s control has been coordinated, constructed, and installed according to the plans and specifications. All work shall be documented as being inspected and signed-off by the contractor before starting and performing construction on the next Definable Feature or Element of Work. These inspections and sign-off sheets shall be incorporated into the Phases of Control.

P. Identify all inspection requirements, duties, and responsibilities of Specialists, Specialty Personnel, and Manufacturer’s Representatives. As outlined by the Engineer of Record,

include a separate list of Special Inspections according to the requirements of the current Virginia Uniform Statewide Building Code (VUSBC).

Q. Documentation procedures and requirements, including proposed report formats, necessary to provide materials, equipment, workmanship, fabrication, construction and operations that comply with the requirements of this Contract.

R. Procedures to identify, record, track, complete, and eliminate deficiencies and rework items.

S. Procedures for Identifying and Documenting the Completion Inspection process. Include in these procedures the responsible party for punch out inspection, pre-final inspection, and final acceptance inspection.

T. Submit, for approval, a complete set of report forms to be utilized on this project.

U. All applicable subcontractors and suppliers Quality Control Plans complete with Contactor's CQC planned involvement.

1.12 MEETING OF MUTUAL UNDERSTANDING

After submission and approval of the QC Plan, and prior to the start of any physical construction, meet with the COTR and subcontractors to present the Contractor's QC Program required by this Contract. The purpose of the meeting is to develop a mutual understanding of the contractor's Quality Control Program, to include the contractor's QC details, processes, and procedures to assure and control quality, including the requirements of documentation, administration for on-site and off-site work, and the coordination of the Contractor's management, production, and QC personnel. At the meeting, the Project Manager and QC Manager shall be required to explain in detail how the QC Program works. Discuss the Phases of Control and how it will be implemented for each definable feature or element of work. As a minimum, the Contractor's personnel required to attend shall include an officer of the firm, the Project Manager, Project Superintendent, QCM, Alternate QCM, QC Assistant, QC Specialist(s) and Subcontractor Representatives for each Definable Feature or Element of Work. Include all Testing and Inspection Agencies required for the contract. Each subcontractor assigned to the contract shall have QC duties and responsibilities and shall have a principal of the firm at the meeting. Minutes of the meeting shall be prepared by the QCM and signed by the Project Manager. The Contractor shall provide a copy of the signed minutes to all attendees.

1.13 QC MEETINGS

After the start of construction, the QCM shall conduct QC meetings weekly at the work site with the Project Manager, Superintendent, QC Assistant, QC Specialist(s),. Subcontractor's Foremen and Safety Representative. The QCM shall prepare the minutes of the meeting and provide a copy to the COTR within two (2) workdays after the meeting. The COTR may attend these meetings. The QCM shall notify the COTR at least two (2) workdays in advance of each meeting. To prepare, review, and address quality issues as outlined below and as addressed in the COTR's Progress Meeting, the QCM shall conduct these meetings in advance of the COTR's weekly progress meeting. As a minimum, the following shall be discussed and addressed at each QC meeting:

1. Review the minutes of the previous meeting.

2. Review the schedule and the status of work:

   a. Work, testing, or inspections accomplished since last meeting
   b. Special Inspections scheduled in the next two (2) weeks
   c. Inspection and Signoff schedules in the next two (2) weeks for each Definable Feature of Work
   d. Rework items and deficiencies identified since last meeting
   e. Rework items and deficiencies corrected since last meeting

3. Review the status of submittals, O & M data and Warranty Manuals:

   a. Submittals, O & M data and Warranties reviewed and approved since last meeting
   b. Submittals, O & M data and Warranties required in the near future

4. Review the work to be accomplished in the next two (2) week(s) or three (3) weeks:

   a. Establish completion dates for rework items and deficiencies.
   b. Update the schedule showing planned and actual dates of the preparatory, initial, and follow-up phases, including testing and any other inspections required by this contract.
   c. Discuss construction methods and the approach that shall be used to provide quality construction by planning ahead and identifying potential problems for each definable feature or element of work.
   d. Discuss status of off-site and on-site work for inspections and testing.
   e. Documentation required for each construction activity and definable feature or element of work.
   f. Discuss upcoming Job Hazard Analyses (JHAs).

5. Resolve QC and production problems and assist in resolving Request for Information issues.

6. Address items that may require revising the QC plan:

   a. Changes in QC organization personnel.
   b. Changes in processes, procedures, checklists, qualifications, accreditations, certifications, testing, inspections, etc.…

7. Review health and safety plan.

1.14 PHASES OF CONTROL

A. The Phases of Control shall adequately cover both on-site and off-site work and shall include the following for each definable feature or element of work. Managed by the contractor, with COTR approval, The Phases of Control are the core of the Construction Quality Management System.

B. Preparatory Phase: Notify the COTR at least two (2) workdays in advance of each preparatory phase. This phase shall include a meeting conducted by the QC Manager and attended by the superintendent, QC Assistant, QC Specialist(s), all subcontractor's foremen responsible for the definable feature or element of work, the contractor's Independent 3rd Party Testing, and inspection Agencies, and the Contractor's Safety Representative. Preparatory meetings will not be conducted without having these individuals present at the meeting, having approved submittals, and approved JHAs. If all personnel are not present, or if submittals and JHAs are not approved, cancel Preparatory Phase meeting. Document the results of the preparatory phase actions in the daily Quality Control Daily Report and in the Preparatory Phase Checklist. As a minimum the following should be covered prior to beginning work on each definable feature or element of work:

1. Review each paragraph of the applicable specification sections.
2. Review the project drawings.
3. Verify that appropriate shop drawings, O & M data, Warranties, and submittals for materials and equipment have been submitted and approved. Verify receipt of approved factory test results, when required. If submittals are not approved, cancel Preparatory Phase meeting.
4. Establish control to be utilized to assure work complies with the contract plans and specifications.
5. Review the testing and inspection plan and ensure that provisions have been made to provide the required QC testing and inspections.
6. Examine the work area to ensure that the required preliminary work has been completed.
7. Examine the required materials, equipment, and sample work to ensure that they are on hand and conform to the approved shop drawings and submitted data.
8. Discuss construction methods, construction tolerances, workmanship standards, and the approach that shall be used to provide quality construction by planning ahead and identifying potential problems for each definable feature or element of work.
9. Discuss control measures to ensure quality through a system of sign-off sheets and inspections. All work shall be inspected and signed-off by the contractor before starting construction on the next Definable Feature or Element of Work. These inspections shall be incorporated into the Phases of Control.
10. Review the safety plan and appropriate job hazard analysis (JHA) to ensure that applicable safety requirements are met, and that required Material Safety Data Sheets (MSDS) are submitted. If the JHA is not approved, cancel Preparatory Phase meeting.

C. Follow-Up Phase: Perform the following for on-going daily work, or more frequently as necessary until the completion of each definable feature or element of work and document in the daily Quality Control Daily Report:

1. Ensure the work is in compliance with Contract requirements.
2. Maintain the Standard of Control for Quality of workmanship established at the Preparatory and Initial Phases.
3. Ensure that testing and inspections are performed by an approved Independent 3rd Party Testing Agency.
4. Ensure that rework items and deficiencies are being identified, tracked, and corrected.

5. All work will be inspected and signed-off by the contractor before starting construction on the next Definable Feature or Element of Work.
6. Eliminate repetitive Deficiencies and Rework.
7. Perform safety inspections.

D. Code-Required Inspections:

1. Comply with the current edition, approved by the Commonwealth of Virginia of the VUSBC, "Special Inspections" or other agencies having jurisdiction.
2. Contractor is not responsible for Special Inspections according to requirements of the current Virginia Uniform Statewide Building Code (VUSBC). Special Inspections are to be performed by the Airports Authority's agent.
3. Contractor will maintain and submit monthly a Code and Special Inspection Control Log, chronologically recording each Code and Special Inspection notification to the COTR, testing and/or inspections performed under the VUSBC, or other agencies having jurisdiction on-site, including the nature of the tests or inspections, the date performed, the results, approval or causes for rejection, corrective action taken, and dates of subsequent tests, inspections and final acceptance.
4. Notice to COTR: Notify COTR, in writing, at least two (2) workdays in advance of all code-required inspections. COTR should be apprised in advance of every preparatory and initial inspection. All preparatory, initial, and follow-up inspections shall be made a matter of record in Contractor's quality-control documentation.

E. Additional Preparatory Phases

Additional Preparatory Phase meetings shall be repeated for all definable features or elements of work where the Initial Standard of Control has changed or is not maintained; examples where Preparatory or Initial Meetings may need to be repeated are:

a. Changes in the QC Organization, supervision, or changes to personnel performing the work.
b. When the quality standards established at the Preparatory and Initial Meetings have changed or are no longer acceptable.
c. Changes of materials.
d. Changes in equipment.
e. Changes in the Season.
f. Changes in Weather.
g. Changes to the Environment.
h. If work is resumed after a substantial period of inactivity.
i. When the standard of Quality is not recognized or understood by those producing the work as established in the specifications and the Three Phases of Control meetings.
j. As required by the COTR in writing.

F. Notification of Phases of Control for Off-Site Work

On determination by COTR that an item shall require surveillance by the Airports Authority at the point of production, manufacture, or shipment, Contractor shall be notified, in writing, of such determination. Contractor shall furnish to COTR three copies of all purchase orders or subcontracts, for all tiers of subcontractors or suppliers for each item. In addition, copies of documented quality-control operations, tests, and inspections

shall be made available to the Airports Authority's representative at the point of production, manufacture, or shipment. The QCM shall notify the COTR at least three (3) weeks prior to the start of the preparatory and initial phases.

G. Notification of Off-Site Inspections and Tests:
1. If Factory Witness Tests and Inspections are required for this project, follow procedures outlined in the technical specifications for scheduling, testing, and inspection requirements.
2. Identify these tests and inspections in the contractor’s QC Plan.

1.15 SUBMITTAL REVIEW AND APPROVAL

A. Procedures for preparation, review, approval, and submission of submittals are described in Division 01 Section “Submittals”.

B. The QC Manager shall not prepare submittals, but shall review and approve submittals.

1.16 TESTING

A. Comply with all testing and inspection requirements as outlined in the technical specification sections of this contract, to include compliance with all applicable provisions and requirements of Division 1.

B. Independent Testing and Inspection Laboratory: When codes or requirements of the contract require tests or inspections by civil, mechanical, electrical, VUSBC, or other entities, a corporately and financially independent testing or inspection organization shall be contracted by the Contractor to perform these contractually required tests and inspections. These testing and inspection agencies shall function as an unbiased testing and inspection authority; professionally independent of the contractor, subcontractors, manufacturers, suppliers, and installers of equipment; or systems evaluated by the testing and inspection organizations for this contract. The various types of independent accrediting agencies and requirements are listed below:

C. Accreditation Requirements: Construction materials testing and inspection laboratories performing work on Authority construction contracts shall be accredited by one of the laboratory accreditation authorities. The laboratory's scope of accreditation shall include the ASTM standards listed in the paragraph titled "Construction Materials Testing Laboratory Requirements" as appropriate to the testing field. The policy applies to the specific laboratory performing the actual testing or inspection and the testing technicians performing the tests and inspections, not just the "Corporate Office".

D. Electrical testing of components, equipment, and systems: The testing firm shall be regularly engaged in the testing of electrical equipment, devices, installations, and systems. The testing firm shall have at least five (5) years’ experience in the testing of electrical equipment of the type, rating, and voltage used on this Project. The testing laboratories shall be a current full-member company of the International Electrical Testing Association (http://www.netaworld.org/). This independent testing firm shall perform testing and inspections as required under the terms of this Contract.

E. Structural and Pipe Welding: An independent testing and inspection firm shall perform all structural and pipe welding examinations as required by this Contract. The inspectors employed by the firm shall hold current certification as an AWS Certified Welding Inspector (CWI) for visual weld examinations and ASNT-TC-1A Certification for nondestructive examination of welds. ASNT-TC-1A certifications shall be by an ASNT-TC-1A ACCP Level III.

F. Construction Materials Testing Laboratory Requirements: Provide an independent construction material testing laboratory accredited by an acceptable laboratory accreditation authority to perform sampling, inspections, and tests required by this Contract. Testing laboratories that have obtained accreditation by an acceptable laboratory accreditation authority listed in the paragraph entitled "Laboratory Accreditation Authorities" shall submit with the Quality Control Plan, a copy of the Certificate of Accreditation and Scope of Accreditation. The scope of the laboratory's accreditation shall include the test or inspection methods and certifications required by the Contract. On and Off-site testing and inspection facilities shall submit a certified statement by the Supervising Professional Engineer, licensed in the Commonwealth of Virginia, as meeting the specification requirements and the following minimum ASTM standards listed below as appropriate to field and laboratory testing and inspection. Include all Testing Technician qualifications per accredited Laboratory and specification requirements.

1. Laboratories engaged in testing of construction materials shall meet the requirements of ASTM E 329.
2. Laboratories engaged in testing of concrete and concrete aggregates shall meet the requirements of ASTM C 1077.
3. Laboratories engaged in testing of bituminous paving materials shall meet the requirements of ASTM D 3666.
4. Laboratories engaged in testing of soil and rock, as used in engineering design and construction, shall meet the requirements of ASTM D 3740.
5. Laboratories engaged in nondestructive testing (NDT) shall meet the requirements of ASTM E 543.
6. Laboratories engaged in Hazardous Materials Testing shall meet the requirements of OSHA and EPA.

G. Laboratory Accreditation Authorities: Laboratory Accreditation Authorities are the National Voluntary Laboratory Accreditation Program (NVLAP) administered by the National Institute of Standards and Technology, the American Association of State Highway and Transportation Officials (AASHTO) program, ICBO Evaluation Service, Inc. (ICBO ES), and the American Association for Laboratory Accreditation (A2LA) program and the Washington Area Council of Engineering Laboratories (WACEL). Furnish to the COTR, a copy of the current Certificate of Accreditation and Scope of Accreditation. The scope of the laboratory's accreditation shall include the test and inspection methods required by the Contract.

H. Capability Check: The COTR retains the right to examine the laboratory equipment in the proposed laboratory, the laboratory’s managers and testing technicians’ qualifications, procedures, techniques, and other items for compliance with the standards set forth in this Contract.

I. Capability Recheck: If non-conformities are discovered during the capability check or any succeeding recheck, Contractor shall be assessed a charge of $750.00 to reimburse the Airports Authority for each recheck of the laboratory or the checking of a subsequently selected laboratory. These charges shall be deducted from the total amount due Contractor.

J. Test and Inspection Report Results: Cite applicable Contract requirements, tests, inspections, or analytical procedures used. Provide actual results and include a statement that the item tested, inspected, or analyzed conforms or fails to conform to specified requirements. IF THE ITEM FAILS TO CONFORM, NOTIFY COTR IMMEDIATELY. Conspicuously stamp the cover sheet for each report in large red letters "CONFORMS" or "DOES NOT CONFORM" to the specification requirements, whichever is applicable. A certified testing laboratory manager performing all laboratory tests shall sign all test results. A certified technician performing all field tests and inspections shall sign all inspection reports. All test and inspection reports shall be reviewed, certified, and signed by a professional engineer, licensed in the Commonwealth of Virginia, as complying with the contract specifications, before submission to COTR. Submit within two (2) workdays after the tests or inspections are performed.

K. Control Tests: Outlines those tests and inspections conducted by the Contractor that assist in maintaining the standard of quality for all operations and procedures, for each Definable Feature or Element of Work, as identified in the Quality Control Plan and the Specifications. As described above, the Contractor shall procure the services of an independent commercial laboratory to perform the required control tests and inspections. The contractor shall identify these minimum Control Test and Inspection requirements:

1. Procedures, requirements, analytical procedures used, and criteria for all Testing and Inspections.
2. Methods of construction.
3. Number of control tests, inspections, and frequency of tests and inspections to be made for each Definable Feature or Element of Work.
4. Provide actual results and include a statement that the item tested, inspected, or analyzed conforms or fails to conform to specified requirements.
5. Identify testing or inspection agency performing testing and inspections.
6. Ensure proper certification and sign-off of all tests and inspections conducted and reviewed by Contractor Independent testing and inspecting Technicians, Managers, and Professional Engineers.
7. The QC Manager will ensure only accredited laboratories and certified technicians are performing testing and inspections as outlined in the contract specifications.
8. Notify COTR a minimum of two (2) workdays in advance of contractor performing any testing and inspections.

L. Acceptance or Validation Testing by the Airports Authority: Contractor shall furnish to COTR the quantities of materials to be used for Acceptance or Validation testing as required in the Specifications. Acceptance or Validation testing shall be performed by the Airports Authority at an independent laboratory at no cost to Contractor. No direct payment shall be made to Contractor for the furnishing of materials used for Acceptance or Validation testing. The Authorities Acceptance and Validation program does not relieve the contractor of its responsibility to fully comply with all regulations, standards, codes, and quality requirements of the contract specifications.

M. Staffing: All laboratory, inspection, and testing technician personnel shall work in an accredited laboratory under the supervision of a Professional Engineer licensed in the Commonwealth of Virginia.

1.17 QC CERTIFICATIONS

A. Quality Control Daily Report Certification

Each Quality Control Daily Report shall contain the following statement:

"On behalf of (*Name of Contractor*), I certify that this report and the Inspector's Daily Reports are complete and correct, and that all materials and equipment used, as well as work performed during this reporting period are in compliance with Drawings, Specifications, and Contract provisions, except as noted in this report or attached reports."

B. Application for Payment Certification:

Refer to Division 01 Section "Application for Payment" for address to which the Applications shall be sent.

C. Completion Certification:

Upon completion of work under this Contract, the QCM shall furnish a certification letter to the Contracting Officer attesting that " that all work required of the contract has been completed, inspected, tested and is in full compliance with the Contract Documents."

1.18 COMPLETION INSPECTIONS

A. Punch-Out Inspection: Near the completion of all work or any increment thereof established by a completion time stated in the Contract Clause entitled "Commencement, Prosecution, and Completion of Work," or stated elsewhere in the specifications, the QCM shall conduct an inspection of the work and develop a "punch-list" of items which do not conform to the approved drawings and specifications. Include in the punch-list any remaining items on the "Deficiency Log" which were not corrected prior to the Punch-Out Inspection. The punch-list shall include the estimated date by which the deficiencies will be corrected. A copy of the punch-list shall be provided to the COTR. The QCM and staff shall make follow-on inspections to ascertain that all deficiencies have been corrected before requesting a Pre-Final Inspection. Once all deficiencies are corrected the Contractor shall notify the COTR that the facility or item is ready for the Airports Authority's "Pre-Final Inspection."

B. Pre-Final Inspection: the Airports Authority or Authority's Representative will perform this inspection to verify that the facility is complete and ready to be inspected. An Authority "Pre-Final Punch-List" may be developed as a result of this inspection. Any items noted on the "Pre-Final" inspection shall be corrected in timely manner and shall be accomplished before the contract completion date for the work or any particular increment thereof if the project is divided into increments by separate completion dates. The QCM

shall ensure that all items on the Punch-list are corrected prior to notifying the Airports Authority of a request for a "Final" Acceptance Inspection.

C. Final Acceptance Inspection: The COTR, The Authorities Representatives, the QCM, the superintendent, and other personnel as deemed necessary by the COTR shall be in attendance for this inspection. The Contracting Officer based on corrections to the punch-lists on the “Pre-Final” inspection will formally schedule the Final Acceptance Inspection. The contractor shall give Written Notice to the COTR and CO, at least fourteen (14) calendar days prior to the Final Acceptance Inspection, stating that all contract work is completed and all items previously identified on the Punch-Out and Pre-Final Inspections have been corrected and are accepted by the Airports Authority’s Representatives and COTR. The contractor will also furnish a Certification Letter, from the QC Manager to the COTR and CO, stating and attesting “that all work required of the contract has been completed, inspected, tested and is in full compliance with the Contract Documents.” Failure of the Contractor to give this Written Notice and Certification Letter to the COTR and CO shall be reason and grounds for the Contracting Officer to bill the Contractor for the Airports Authority's additional inspection costs in accordance with the clause in the Contract Provisions entitled "Inspection of Construction." When the Contracting Officer takes possession of partially completed work, it shall be in accordance with clause in the Contract Provisions entitled "Use and Possession Prior to Completion".

1.19 DOCUMENTATION

A. Contractor shall maintain current quality control records, on approved forms, of all control activities, production, tests, and inspections performed. These records shall include factual evidence that required tests and/or inspections have been performed, including type and number of tests and/or inspections involved; results of tests and/or inspections; nature of defects, causes for rejection, etc.; proposed remedial action; and corrective actions taken. These records shall cover both conforming and defective or deficient features (non-conforming work) and shall include a statement that all supplies and materials incorporated into the work are in full compliance with terms of the Contract as documented in the Contractor’s materials receiving inspection program. Only Legible copies of these records shall be furnished, submitted, and delivered to COTR. The records shall cover all work placed subsequent to the previously furnished records and shall be verified by Contractor's QCM. Contractor shall document all tests and inspections as specified in the technical provisions of the Specifications. All specified records shall be readily available for review by COTR throughout the life of the Contract.

B. Maintain current and complete records of on-site and off-site QC Program operations and activities. Establish and maintain the following in a series of 3 ring binders. Binders shall be divided and tabbed as shown below. These binders shall be readily available to the Airports Authority's Quality Assurance Team upon request.

1. All completed Preparatory and Initial Phase Reports, arranged by specification Section, Definable Feature, or Element of Work.
2. All milestone and required inspections, arranged by Activity/Event Number.
3. Special Inspection Control Log, arranged by Definable Feature or Element of Work and Trade.

4. A current up-to-date copy of the approved Testing and Inspection Plan, and supporting documentation that accounts for all testing and inspection requirements as listed in the specifications and the Monthly Summary Report of Tests and Inspections that documents all field tests, inspections, reports, and supporting documentation, arranged by date for each Definable Feature or Element of Work as identified in each specification section.
5. A current up-to-date copy of the Superintendent's inspection logs and sign-off sheets for each Definable Feature or Element of Work.
6. Copies of all contract RFIs, arranged in numerical order.
7. Copies of all contract modifications, arranged in numerical order. Also include documentation that modified work was accomplished.
8. A current up-to-date comprehensive copy of the Deficiency Log and Noncompliance Log.

C. Report Forms - A copy of all approved forms shall be included with the Quality Control Plan. The forms shall be designed to assist in the control of the quality. The following minimum requirements are listed for specific reports:

1. Quality Control Daily Report: Reports are required for each day that work is performed and for every seven consecutive calendar days of no work and on the last day of a no-work period. Account for each calendar day throughout the life of the Contract. The reporting of work shall be identified by terminology consistent with the construction schedule. Quality Control Daily Reports are to be prepared, signed and dated by an approved QCM and shall contain the following information:
   a. Identify Date of report, report number, Contract Number, and Contract Title.
   b. Identify Schedule Activity No., Submittal # and list equipment/material received each day that is incorporated into the job.
   c. Indicate if Preparatory Phase work was performed today (Yes/No checkboxes).
   d. If Preparatory Phase work was performed today (including on-site and off-site work), identify its Schedule Activity Number and Definable Feature or Element of Work. The Index number is a cross reference to the Preparatory Phase Checklist. An example of the Index number is: 0025-P01, where "0025" is the Quality Control Daily Report Number, "P" indicates Preparatory Phase, and "01" is the Preparatory Phase Checklist number(s) for this date. Each entry in this Section shall be accompanied with a corresponding Preparatory Phase Checklist.
   e. Indicate if Initial Phase work was performed today (Yes/No checkboxes).
   f. If Initial Phase work was performed today (including on-site and off-site work), identify its Schedule Activity Number and Definable Feature or Element of Work. The Index Number is a cross reference to the Initial Phase Checklist. An example of the Index Number is: 0025-I01, where "0025" is the Quality Control Daily Report Number, "I" indicates Initial Phase, and "01" is the Initial Phase Checklist number(s) for this date. Each entry in this Section shall be accompanied with a corresponding Initial Phase Checklist.
   g. Results of the Follow-up Phase inspections held today (including on-site and off-site work), including Schedule Activity Number, location of definable feature or element of work, Specification Sections, etc. Indicate in the report for this definable feature or element of work that the work complies with the Contract as approved in the Initial Phase, work complies with safety

requirements, and that required testing and inspections have been performed. Include a list of who performed the tests and inspections.

h. List the rework items and deficiencies identified, but not corrected by close of business, along with its associated Schedule Activity Number.

i. List the rework items and deficiencies corrected from the deficiency log along with the corrective action taken and its associated Schedule Activity Number.

j. Include a "remarks" section in this report that shall contain pertinent information including but not limited to:

(1) Directions received.
(2) Quality control problem areas.
(3) Deviations from the QC plan.
(4) Construction deficiencies encountered.
(5) QC meetings held that day.
(6) Acknowledgement that record drawings, specifications, O & M data, and Warranty Manuals, have been updated and/or submitted.
(7) Corrective direction given by the QC Organization and corrective action taken by the Contractor.
(8) For each remark given, identify the Schedule Activity Number that is associated with the remark.

k. Quality Control Daily Report certification, signature, and date.

2. Superintendent Daily Report: This report shall be prepared anytime work or production is conducted or performed on or off site throughout the life of the contract. This Contractor's Production Report is the primary document utilized by the Superintendent for documentation of all construction activities performed by the Contractor and/or their subcontractors. Sign-off sheets and Inspection logs will supplement and support this Daily Report. The reporting of work shall be identified by terminology consistent with the construction schedule and standard construction practices. Do not attach this report to the Quality Control Daily Report. The Superintendent Daily Reports are prepared, signed, and dated by an approved Superintendent and shall contain the following information:

a. Identify Date of report, report number, Contract Number, Contract Title, and Location.

b. Identify Contractor's name and Superintendent's Name.

c. Identify whether work was performed A.M and/or P.M. Include Weather with Max Temperatures (F°) and Min. Temperatures (F°), precipitation, winds, humidity and dew point. Document any weather feature that may affect construction.

d. Enter Work Performed Today by Schedule Activity Number, Work Location and Description of Work Activity, Employer, Number of workers, the Trade of the workers and the hours of work conducted per each trade.

e. List Total of Work Hours on job site. Cumulative Total of Work Hours from Previous Report and Total of Work Hours from Start of Construction

f. Identify Job Safety: If Safety Meetings were Held. Was there any lost time Accidents? Was Crane/Man-lift/Trenching/Scaffold/HV Electric/High Work/or Hazmat Work accomplished? Was Hazardous Material or Waste

Released into the Environment? List Safety Actions taken today. Safety Inspections Conducted. Have Safety Requirements been met?

g. Identify by submittal number all Equipment and/or Material received that day to be incorporated into the contract. Ensure all Equipment, Materials, and required quantities received have been inspected and approved in comparison to approved submittals. Give Description of Equipment and Material received; utilizing the Material Verification at delivery checklist and Material Location Reports as outlined in the contractors formal Material Receiving Inspection Program. The Superintendent shall ensure all materials, products; quantities and equipment incorporated in this contract are approved and are accepted before installation.

h. Identify Construction or Plant Equipment on the work site each day. Identify who owns the equipment? Describe the Type, Make, quantity, and Model of the Equipment and the hours utilized for each piece of equipment.

i. Remarks: Document construction activities, establishment, and maintenance of quality processes and procedures, observations, correction to deficiencies, and coordination of trades to ensure Quality Production. Document superintendent's utilization of sign-off sheets, inspection sheets, checklists, submittals, etc.… to instill and establish Quality. Identify production shortfalls and construction deficiencies and ways to correct these Deficiencies and short-falls on the Superintendent Daily Report. Document all deficiencies and corrections to Deficiencies on the Contractor's Deficiency Log maintained by the QC manager.

3. Preparatory Phase Report: File this report for each Definable Feature or Element of Work that is in the Preparatory Phase. The report shall be identified by terminology consistent with the construction schedule. Do not attach this report to the Quality Control Daily Report of the same date.

a. Specification Section, date of report, and Contract number shall be filled out. Duplicate this information in the header of the second page of the report.

b. Definable Feature or Element of Work, Schedule Activity Number and Index Number entry, and format shall match entry in the Preparatory Phase section of the Quality Control Daily Report. Duplicate this information in the header of the second page of the report.

c. Personnel Present: Indicate the number of hours of advance notice that was given to the COTR and indicate (Yes/No checkboxes) whether or not the COTR was notified. Indicate the Names of Preparatory Phase Meeting attendees, their position and their company affiliation. The meeting is conducted by the QCM and attended by the superintendent, all subcontractors' foremen responsible for the definable feature or element of work, the contractor's Independent 3rd Party Testing and Inspection Agencies, and the General Contractor's Safety Representative. If all personnel are not present, cancel Preparatory Phase meeting.

d. Submittals: Indicate if submittals have been approved (Yes/No checkboxes), if no indicate what has not been submitted. If submittals are not approved, cancel Preparatory Phase meeting. Are materials on hand (Yes/No checkboxes) and if not, what items are missing. Check delivered material/equipment against approved submittals and comment as required.

e. Material Storage: Indicate if materials/equipment is stored properly (Yes/No checkboxes) and if not, what action is/was taken.
f. Specifications: Review and comment on Specification Paragraphs that describe the material/equipment, procedure for accomplishing the work and clarify any differences.
g. Preliminary Work & Permits: Ensure preliminary work is in accordance with the contract documents and necessary permits are on file, if not, describe the action taken.
h. Testing and Inspections: Identify who will perform tests and/or inspections, the frequency, and where tests and/or inspections are to occur. Review the testing and inspection plan, report abnormalities, and if the test and inspection facilities have been approved.
i. Discuss Control Procedures that shall be employed to consistently obtain the required specified quality; for example Sign-off sheets and Inspection logs.
j. Safety: Indicate if the job hazard analysis (JHA) has been approved (Yes/No checkboxes) and comment on the review of the applicable portions of the Construction Safety Manual. If the JHA is not approved, cancel Preparatory Phase meeting.
k. Meeting Comments: Note comments and remarks during the Preparatory Phase Meeting that was not addressed in previous sections of this checklist.
l. Other Items or Remarks: Note any other remarks or items that were a result of the Preparatory Phase.
m. QCM shall sign and date the report.

D. Testing Log: As tests are performed, the QCM shall record, as a tracking device, all tests on the "Testing Log", the dates that tests were performed, the dates the test results were forwarded to the COTR, remarks and acknowledgement that an accredited or Contracting Officer approved testing laboratory was used, the dates that all failing or nonconforming tests were corrected, accepted, or approved. Forward a copy of the updated “Test Log" upon request of the COTR. Log shall be used as a management tool by the QCM to account and track all tests requirements of the QC Plan and contract specifications. Do not attach to the Quality Control Daily Report.

E. Deficiency Log: The QCM shall maintain a comprehensive list of all work that does not comply with the contract, identifying what items need to be reworked, the date the item was originally discovered, the date the item shall be corrected by, and the date the item was corrected. All failed or nonconforming work, tests, and inspections will be documented in this Log. There is no requirement to report on the Deficiency Log a rework or deficient item that is corrected the same day it was discovered. Provide a copy of the comprehensive deficiency log weekly to the COTR at the weekly progress meeting and at the end of the month for the Deficiency Report. The Contractor shall be responsible for including on this log all items needing rework including those identified by the COTR and their staff. Do not attach to the Quality Control Daily Report.

F. Code and Special Inspection Control Log: The Contractor will maintain and submit monthly a Code and Special Inspection Control Log, chronologically recording each Code and Special Inspection notification to the COTR, tests and/or inspections performed under the VUSBC, or other agencies having jurisdiction on-site, including the nature of the test or

inspection, the date performed, the results, approval or causes for rejection, corrective action taken, and dates of subsequent tests, inspections, and final acceptance.

G. Test and Inspection Reports: Contractor shall be responsible for establishing a system that shall record, on approved forms, all tests, and inspection results. Information on test and/or inspection designation, location, date of test and/or inspection, specification requirements, results and retest results, causes for rejection and recommended remedial actions shall be documented. A copy of the test and inspection results shall be sent directly from the Agency performing the testing services to the COTR. The COTR will be notified "IMMEDIATELY" of any failing tests and/or inspections. A certified technician performing all field tests and inspections shall sign all inspection reports. A certified testing laboratory manager performing all laboratory tests shall sign all test results. All test and/or inspection reports shall be reviewed, certified, and signed by a professional engineer, licensed in the Commonwealth of Virginia, as complying with the contract specifications. Do not attach to the Quality Control Daily Report. Submit within two (2) workdays after the test and/or inspection is performed. Test and Inspection Reports shall be submitted twice per month for each Definable Feature or Element of Work:

1. Submitted two (2) days after the test and/or inspection is performed.
2. Submitted within two (2) days from the end of the month as part of the Monthly Summary Report of Tests and Inspections.

H. Monthly Summary Report of Tests:

1. The QCM shall submit at the end of each month, as part of the Monthly Quality Control Summary Report, a current and up-to-date Monthly Summary Report of Tests and Inspections, per each Definable Feature or Element of Work, that includes and accounts for all testing and inspections performed to date for that specific Definable Feature or Element of Work in that month. Submit with each Monthly Summary Report of Tests and Inspections, all testing reports, and documentation pertaining to that month's testing and inspections.
2. The Monthly Summary Report of Tests and Inspections will summarize, in detail, all information required of a Test and/or Inspection Report and contract specifications.
3. A Professional Engineer, licensed in the Commonwealth of Virginia, shall review, certify, and sign all Monthly Summary Report of Tests and Inspections as complying with the contract specifications.

I. Inspection Log and Signoff Sheets: The Contractor's superintendent shall establish, coordinate, and maintain with all trades and personnel, for each Definable Feature or Element of Work, a system of inspections and signoff sheets to certify that all work under the superintendent's control has been coordinated, constructed, and installed according to the plans and specifications. All work will be documented as being inspected and signed-off by the contractor before starting and performing construction on the next Definable Feature or Element of Work. These inspections and sign-off sheets shall be incorporated into the Phases of Control.

J. Monthly Deficiency Report: Contractor shall submit a monthly comprehensive deficiency report to COTR identifying all nonconforming work, substandard tests and inspections identified during the contract period including the nature of the test or inspection, location

and nature of defects, causes for rejection, and remedial actions taken or proposed for any open items on prior deficiency reports including the date scheduled for resolution of the item. Do not attach to the Quality Control Daily Report.

K. Record Drawings: The QCM is required to ensure the record drawings, required by Division 01 Section "Project Record Documents," are kept current on a daily basis and marked to show deviations which have been made from the construction drawings. Ensure each deviation has been identified with the appropriate modifying documentation (e.g. CN No., Modification No., Request for Information No., etc.). The QCM shall initial each deviation and each revision. Upon completion of work, the QCM shall furnish a certificate attesting to the accuracy of the record drawings prior to submission to the COTR.

L. Operation, Maintenance, and Warranty Manuals: The QCM shall ensure that the Operation and Maintenance data required by Division 01 Section “Operation and Maintenance Data” and the Warranties specified in Division 01 Section “Project Closeout” are inserted on a daily basis in the appropriate sections of the approved formatted manuals after they have been approved by the COTR.

M. Materials Receiving Inspection Report: Contractor shall establish a formal materials receiving inspection program to verify material compliance to approved Shop Drawings, approved submittals, and the contract plans and specifications. This report shall be cumulative, showing materials previously reported plus items recently delivered. Include with this report a statement of progress on and delivery dates for all materials or items of equipment being fabricated or stored away from the building site. Do not attach to the Quality Control Daily Report.

N. Reports from the QC Specialist(s): Reports are required for each day that work is performed in their area of responsibility. QC specialist reports shall include the same documentation requirements as the Quality Control Daily Report for their area of responsibility. QC specialist reports are to be prepared, signed and dated by the QC specialists and shall not be attached to the Quality Control Daily Report prepared for the same day.

1.20 NOTIFICATION ON NON-COMPLIANCE

A. The COTR will notify the contractor of any detected non-compliance with the foregoing requirements. The Contractor shall take immediate corrective action after the receipt of such notice. *Such notice, when delivered to the Contractor via the Airports Authority provided Oracle Primavera Unifier project management system shall be deemed sufficient for the purpose of notification.* If the Contractor fails or refuses to comply promptly the Contracting Officer may:

1. Issue an order stopping all or part of the work until satisfactory corrective action has been taken. The Contractor shall make no part of the time lost, due to such stop orders, the subject of a claim for extension of time for excess costs or damages.
2. Repair, replace, or otherwise remedy the defective work at the Contractor’s expense. Cost incurred by the Airports Authority to correct defective work shall be deducted from the total amount due the Contractor.

3. Withhold an amount from the payment due the Contractor as may be deemed necessary at the discretion of the Contracting Officer.
4. Terminate the Contractor's right to proceed for Default after providing required notice.

B. In cases where implementation of the Quality Control Program does not comply with the Contractor's Quality Control Plan, the contract provisions, or the Contractor fails to properly operate and maintain an effective Quality Control Program, the Contracting Officer may:

1. Order the Contractor to replace ineffective or unqualified Quality Control Personnel or subcontractors.
2. Issue an order stopping all or part of the work until acceptable personnel are on site and a new Quality Control Plan is approved by the COTR. The Contractor shall make no part of the time lost due to such stop orders the subject of claim for extension of time for excess costs or damages.
3. Take a credit from the contract for Quality Control Activities not performed.
4. Terminate the Contractors right to proceed for Default after providing required notice.

C. The Contractor shall maintain a detailed record of every non-compliance and corrective action taken.

D. *Non-Compliance Notification: The COTR will use the Airports Authority provided web-based Oracle Primavera Unifier project management system (Unifier) to notify the Contractor on Non-Compliance work or material. Acknowledgement and corrective action by the Contractor shall be transmitted to the COTR through Unifier. The Airports Authority will provide the Contractor a Unifier license(s) and training.*

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

PART 4 - MEASUREMENT (Not Used)

PART 5 - PAYMENT

All costs incurred by the Contractor to acceptably implement the requirements of this Section shall be performed at no additional cost to the Airports Authority and are part of this Contract.

Review for acceptability monthly and withhold 5% for non-compliance. Add an additional 5% each subsequent month for further non-compliance.

END OF SECTION 014000

SECTION 014200 - REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings, Contract Provisions, Special Provisions, Supplementary Conditions, and other Division 01 Specification Sections apply to this Section.

1.2 SUMMARY

A. This Section defines many of the terms used elsewhere in the Construction Documents and lists complete names and telephone numbers for many of the associations and agencies identified elsewhere in the Construction Documents by their acronym.

B. Abbreviations, where not defined in the Contract Documents, will be interpreted by the Contracting Officer to mean the normal construction industry terminology.

C. Plural words will be interpreted as singular and singular words will be interpreted as plural where applicable for context of the Contract Documents.

1.3 DEFINITIONS

A. General: Basic Contract definitions are included in Sections I and II of the Airports Authority Solicitation Offer and Award. Certain terms used in the Contract Documents are defined generally in this Article. Definitions and explanations contained in this Section are not necessarily either complete or exclusive, but are general for the Work to the extent that they may not be stated more explicitly in another element of the Contract Documents.

B. Approve: The term "approved," where used in regard to COTR's action on Contractor's submittals, applications, and requests, is limited to COTR's duties and responsibilities as delegated by the Contracting Officer in the Contract and Special Provisions.

C. Architect/Engineer: For the purpose of this Project, the "Design Professional of Record." To distinguish from the Contracting Officer and Contracting Officer's Technical Representative (COTR).

D. Authority: Metropolitan Washington Airports Authority

E. Award: The acceptance, by the Airports Authority, of the successful offeror's proposal.

F. Award Date: The date on which the Airports Authority gives notice of acceptance to the successful offeror.

G. AOA (or A.O.A.): Air Operations Area. The area of the Airport used or intended to be used for landing, taking off, surface maneuvering, loading, unloading, or servicing aircraft. This security

area requires security badging. Workers in this area are required to obtain and display an AOA photo I.D. credential. Drivers in this area are required to obtain an Airport Vehicle Operator's Permit for the Air Operations Area.

H. Beneficial Use: Use by the Airports Authority prior to 100 percent completion and final acceptance.

I. Contract Documents: Documents containing requirements of the Work. These include all Contract provisions and attachments made thereto or referenced therein.

J. Contract Provisions: The administrative and procedural requirements starting at Award Date and ending at Final Acceptance, as provided for in Section VII, "Contract Provisions."

K. Contract Time or Duration (Time Limit): The number of calendar days established in Section III, "Schedule," indicating the time allowed for the completion of all physical and administrative work contemplated in the Contract, including any authorized extensions thereto.

L. Contracting Officer's Technical Representative (COTR): The Contracting Officer's designated representative, as defined in Section VII, "Contract Provisions."

M. Contractor: Individual, partnership, corporation or joint venture under Contract to the Airports Authority for performance of prescribed Work.

N. Drawings: Erection/installation/construction plans, or any other supplementary plans or similar graphic data, illustrating work to be performed that are provided to Contractor as part of the Contract Documents.

O. Directed: A command or instruction by the Airports Authority. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

P. Final Acceptance: Refer to Division 01 Section "Project Closeout."

Q. "Indicated": Requirements expressed by graphic representations or in written form on drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

R. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

S. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

T. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

U. "Provide": Furnish and install, complete and ready for the intended use.

V. "Installer": Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to trades people of the corresponding generic name.

W. "Experienced": When used with an entity, "experienced" means having successfully completed a minimum of ten previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

X. "Project Site": Space available for performing construction activities. The extent of Project site is indicated.

Y. Punch list Work: Minor corrective actions required to achieve "Final Acceptance." Occurs after "Substantial Completion" of the Work in strict compliance with quality-control requirements.

Z. Roadway: General term denoting a public way for purposes of vehicular travel, including the entire area within the right-of-way.

AA. Special Provisions: For the purpose of this Contract, the directions and requirements provided for in Section VI of the Contract Documents.

BB. Shop Drawings: Refer to Division 01 Section "Submittals."

CC. Specifications: General term comprising all directions, provisions and requirements contained herein, together with any other contractual requirements such as may be added or adopted as the Contract Provisions, Special Provisions, or Supplementary Conditions, all of which are necessary for the proper performance of the Contract.

DD. Substantial Completion: Refer to Division 01 Section "Project Closeout."

EE. Factory-Authorized Service Representative: An authorized representative of a manufacturer who is trained and approved by the manufacturer to inspect and approve the installation of manufacturer’s products and that are similar in material, design, and extent to those indicated for this Project and who is authorized by the manufacturer to confirm the issuance of appropriate warranties.

1.4 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents, unless otherwise indicated.

C. Conflicting Requirements: Refer to Division 01 Section "Quality Requirements" for additional information regarding conflicting requirements.

D. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to COTR for a decision before proceeding.

E. Copies of Standards: Each entity engaged in construction on Project shall be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source and make them available on request.

F. Abbreviations and Acronyms for Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

ADAAG	Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities Available from Access Board www.access-board.gov	(800) 872-2253 (202) 272-0080
CFR	Code of Federal Regulations Available from Government Printing Office www.access.gpo.gov/nara/cfr	(888) 293-6498 (202) 512-1530
CRD	Handbook for Concrete and Cement Available from Army Corps of Engineers Waterways Experiment Station www.wes.army.mil	(601) 634-2355
DOD	Department of Defense Military Specifications and Standards Available from Department of Defense Single Stock Point www.dodssp.daps.mil	(215) 697-6257
DSCC	Defense Supply Center Columbus (See FS)	
FED-STD	Federal Standard (See FS)	
FS	Federal Specification Available from Department of Defense Single Stock Point.	(215) 697-6257

	www.dodssp.daps.mil	
	Available from General Services Administration www.fss.gsa.gov	(202) 501-1021
	Available from National Institute of Building Sciences www.nibs.org	(202) 289-7800
FTMS	Federal Test Method Standard (See FS)	
ICC-ES	ICC Evaluation Service, Inc. www.icc-es.org	(800) 423-6587
MIL	See MILSPEC	
MS MIL	See MILSPEC	
MILSPEC	Military Specification and Standards Available from Department of Defense Single Stock Point www.dodssp.daps.mil	(215) 697-6257
MUTCD	Manual on Uniform Traffic Control Devices Department of Transportation Federal Highway Administration (See FHA. Located in Paragraph Federal Government Agencies").	
UFAS	Uniform Federal Accessibility Standards Available from Access Board www.access-board.gov	(800) 872-2253 (202) 272-0080

1.5 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

AA	Aluminum Association, Inc. (The) www.aluminum.org	(202) 862-5100
AAADM	American Association of Automatic Door Manufacturers www.aaadm.com	(216) 241-7333
AABC	Associated Air Balance Council www.aabchq.com	(202) 737-0202
AAMA	American Architectural Manufacturers Association	(847) 303-5664

	www.aamanet.org	
AASHTO	American Association of State Highway and Transportation Officials http://www.transportation.org	(202) 624-5800
AATCC	American Association of Textile Chemists and Colorists (The) www.aatcc.org	(919) 549-8141
ABMA	American Bearing Manufacturers Association www.abma-dc.org	(202) 367-1155
ACI	ACI International (American Concrete Institute) www.aci-int.org	(248) 848-3700
ACPA	American Concrete Pipe Association http://www.concrete-pipe.org	(972) 506-7216
AEIC	Association of Edison Illuminating Companies, Inc. (The) www.aeic.org	(205) 257-2530
AF&PA	American Forest & Paper Association www.afandpa.org	(800) 878-8878 (202) 463-2700
AGA	American Gas Association www.aga.org	(202) 824-7000
AGC	Associated General Contractors of America (The) www.agc.org	(703) 548-3118
AHA	American Hardboard Association (Now part of CPA)	
AHAM	Association of Home Appliance Manufacturers www.aham.org	(202) 872-5955
AI	Asphalt Institute http://www.asphaltinstitute.org	(859) 288-4960
AIA	American Institute of Architects (The) www.aia.org	(800) 242-3837 (202) 626-7300
AISC	American Institute of Steel Construction www.aisc.org	(800) 644-2400 (312) 670-2400
AISI	American Iron and Steel Institute www.steel.org	(202) 452-7100
AITC	American Institute of Timber Construction http://www.aitc-glulam.org	(303) 792-9559

ALCA	Associated Landscape Contractors of America www.alca.org	(800) 395-2522 (703) 736-9666
ALSC	American Lumber Standard Committee, Incorporated www.alsc.org	(301) 972-1700
AMCA	Air Movement and Control Association International, Inc. www.amca.org	(847) 394-0150
ANSI	American National Standards Institute www.ansi.org	(202) 293-8020
AOSA	Association of Official Seed Analysts Http://www.aosaseed.com	(505) 522-1437
APA	APA - The Engineered Wood Association http://www.apawood.org	(253) 565-6600
APA	Architectural Precast Association http://www.archprecast.org	(239) 454-6989
API	American Petroleum Institute www.api.org	(202) 682-8000
ARI	Air-Conditioning & Refrigeration Institute www.ari.org	(703) 524-8800
ARMA	Asphalt Roofing Manufacturers Association http://www.asphaltroofing.org	(202) 207-0917
ASCE	American Society of Civil Engineers www.asce.org	(800) 548-2723 (703) 295-6300
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers www.ashrae.org	(800) 527-4723 (404) 636-8400
ASME	ASME International (The American Society of Mechanical Engineers International) www.asme.org	(800) 843-2763 (212) 591-7722
ASSE	American Society of Sanitary Engineering http://www.asphaltroofing.org	(440) 835-3040
ASTM	ASTM International (American Society for Testing and Materials International) www.astm.org	(610) 832-9585
AWCI	AWCI International (Association of the Wall and Ceiling Industries International)	(703) 534-8300

	www.awci.org	
AWCMA	American Window Covering Manufacturers Association (See WCSC)	
AWI	Architectural Woodwork Institute www.awinet.org	(800) 449-8811 (703) 733-0600
AWPA	American Wood-Preservers' Association www.awpa.com	(334) 874-9800
AWS	American Welding Society www.aws.org	(800) 443-9353 (305) 443-9353
AWWA	American Water Works Association www.awwa.org	(800) 926-7337 (303) 794-7711
BHMA	Builders Hardware Manufacturers Association http://www.buildershardware.com	(212) 297-2122
BIA	Brick Industry Association (The) www.bia.org	(703) 620-0010
BICSI	Building Industry Consulting Service International, Inc. www.bicsi.org	(800) 242-7405 (813) 979-1991
BIFMA	BIFMA International (Business and Institutional Furniture Manufacturer's Association International) www.bifma.com	(616) 285-3963
BISSC	Baking Industry Sanitation Standards Committee www.bissc.com	(773) 761-4100
CCC	Carpet Cushion Council http://www.asphaltroofing.org	(203) 637-1312
CCFSS	Center for Cold-Formed Steel Structures http://www.asphaltroofing.org	(573) 341-4471
CDA	Copper Development Association Inc. www.copper.org	(800) 232-3282 (212) 251-7200
CFFA	Chemical Fabrics & Film Association, Inc. http://www.asphaltroofing.org	(216) 241-7333
CGA	Compressed Gas Association www.cganet.com	(703) 788-2700
CGSB	Canadian General Standards Board http://www.asphaltroofing.org	(800) 665-2472 (819) 956-0425

CIMA	Cellulose Insulation Manufacturers Association http://www.asphaltroofing.org	(888) 881-2462 (937) 222-2462
CISCA	Ceilings & Interior Systems Construction Association www.cisca.org	(630) 584-1919
CISPI	Cast Iron Soil Pipe Institute www.cispi.org	(423) 892-0137
CLFMI	Chain Link Fence Manufacturers Institute http://www.asphaltroofing.org	(301) 596-2583
CPA	Composite Panel Association www.pbmdf.com	(301) 670-0604
CPPA	Corrugated Polyethylene Pipe Association http://www.cppa-info.org	(800) 510-2772 (202) 462-9607
CRI	Carpet & Rug Institute (The) http://www.carpet-rug.com	(800) 882-8846 (706) 278-3176
CRSI	Concrete Reinforcing Steel Institute www.crsi.org	(847) 517-1200
CSA	CSA International (Formerly: IAS - International Approval Services) http://www.csa-international.org	(800) 463-6727 (416) 747-4000
CSI	Construction Specifications Institute (The) www.csinet.org	(800) 689-2900 (703) 684-0300
CSSB	Cedar Shake & Shingle Bureau http://www.cedarbureau.org	(604) 820-7700
CTI	Cooling Technology Institute (Formerly: Cooling Tower Institute) www.cti.org	(281) 583-4087
DHI	Door and Hardware Institute www.dhi.org	(703) 222-2010
EIA	Electronic Industries Alliance www.eia.org	(703) 907-7500
EIMA	EIFS Industry Members Association http://www.eima.com/	(800) 294-3462 (770) 968-7945
EJCDC	Engineers Joint Contract Documents Committee	(800) 548-2723

	www.asce.org	(703) 295-6300
EJMA	Expansion Joint Manufacturers Association, Inc. www.ejma.org	(914) 332-0040
ESD	ESD Association www.esda.org	(315) 339-6937
FCI	Fluid Controls Institute http://www.asphaltroofing.org	(216) 241-7333
FGI	Fabricated Geomembrane Institute www.fabricatedgeomembrane.com	(217) 333-3929
FMG	FM Global (Formerly: FM - Factory Mutual System) www.fmglobal.com	(401) 275-3000
FRSA	Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc. www.floridaroof.com	(407) 671-3772
FSA	Fluid Sealing Association www.fluidsealing.com	(610) 971-4850
FSC	Forest Stewardship Council www.fscoax.org	52 951 5146905
GA	Gypsum Association www.gypsum.org	(202) 289-5440
GANA	Glass Association of North America www.glasswebsite.com	(785) 271-0208
GS	Green Seal www.greenseal.org	(202) 872-6400
GSI	Geosynthetic Institute www.geosynthetic-institute.org	(610) 522-8440
HI	Hydraulic Institute www.pumps.org	(888) 786-7744 (973) 267-9700
HI	Hydronics Institute www.gamanet.org	(908) 464-8200
HMMA	Hollow Metal Manufacturers Association (See NAAMM)	

HPVA	Hardwood Plywood & Veneer Association www.hpva.org	(703) 435-2900
HPW	H. P. White Laboratory, Inc. www.hpwhite.com	(410) 838-6550
IAS	International Approval Services (See CSA)	
ICEA	Insulated Cable Engineers Association, Inc. www.icea.net	(770) 830-0369
ICRI	International Concrete Repair Institute, Inc. www.icri.org	(847) 827-0830
IEC	International Electrotechnical Commission www.iec.ch	41 22 919 02 11
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The) www.ieee.org	(212) 419-7900
IESNA	Illuminating Engineering Society of North America www.iesna.org	(212) 248-5000
IGCC	Insulating Glass Certification Council www.igcc.org	(315) 646-2234
IGMA	Insulating Glass Manufacturers Alliance (The) www.igmaonline.org	(613) 233-1510
ILI	Indiana Limestone Institute of America, Inc. www.iliai.com	(812) 275-4426
ISO	International Organization for Standardization www.iso.ch	41 22 749 01 11
ISSFA	International Solid Surface Fabricators Association www.issfa.net	(702) 567-8150
ITS	Intertek www.intertek.com	(800) 345-3851 (607) 753-6711
ITU	International Telecommunication Union www.itu.int/home	41 22 730 51 11
KCMA	Kitchen Cabinet Manufacturers Association www.kcma.org	(703) 264-1690
LMA	Laminating Materials Association	(201) 664-2700

	www.lma.org	
LPI	Lightning Protection Institute www.lightning.org	(800) 488-6864 (847) 577-7200
MBMA	Metal Building Manufacturers Association www.mbma.com	(216) 241-7333
MFMA	Maple Flooring Manufacturers Association www.maplefloor.org	(847) 480-9138
MFMA	Metal Framing Manufacturers Association www.metalframingmfg.org	(312) 644-6610
MH	Material Handling Industry of America (See MHIA)	
MHIA	Material Handling Industry of America www.mhia.org	(800) 345-1815 (704) 676-1190
MIA	Marble Institute of America www.marble-institute.com	(440) 250-9222
MPI	Master Painters Institute www.paintinfo.com	(888) 674-8937
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc. www.mss-hq.com	(703) 281-6613
NAAMM	National Association of Architectural Metal Manufacturers www.naamm.org	(312) 332-0405
NACE	NACE International (National Association of Corrosion Engineers International) www.nace.org	(281) 228-6200
NADCA	National Air Duct Cleaners Association www.nadca.com	(202) 737-2926
NAIMA	North American Insulation Manufacturers Association (The) www.naima.org	(703) 684-0084
NBGQA	National Building Granite Quarries Association, Inc. www.nbgqa.com	(800) 557-2848
NCMA	National Concrete Masonry Association www.ncma.org	(703) 713-1900
NCPI	National Clay Pipe Institute	(262) 248-9094

	www.ncpi.org	
NCTA	National Cable & Telecommunications Association www.ncta.com	(202) 775-3550
NEBB	National Environmental Balancing Bureau www.nebb.org	(301) 977-3698
NECA	National Electrical Contractors Association http://www.necanet.org/	(301) 657-3110
NeLMA	Northeastern Lumber Manufacturers' Association www.nelma.org	(207) 829-6901
NEMA	National Electrical Manufacturers Association www.nema.org	(703) 841-3200
NETA	InterNational Electrical Testing Association www.netaworld.org	(303) 697-8441
NFPA	NFPA www.nfpa.org	(800) 344-3555 (617) 770-3000
NFRC	National Fenestration Rating Council www.nfrc.org	(301) 589-1776
NGA	National Glass Association www.glass.org	(703) 442-4890
NHLA	National Hardwood Lumber Association www.natlhardwood.org	(800) 933-0318 (901) 377-1818
NLGA	National Lumber Grades Authority www.nlga.org	(604) 524-2393
NOFMA	National Oak Flooring Manufacturers Association www.nofma.org	(901) 526-5016
NRCA	National Roofing Contractors Association www.nrca.net	(800) 323-9545 (847) 299-9070
NRMCA	National Ready Mixed Concrete Association www.nrmca.org	(888) 846-7622 (301) 587-1400
NSF	NSF International (National Sanitation Foundation International) www.nsf.org	(800) 673-6275 (734) 769-8010
NSSGA	National Stone, Sand & Gravel Association	(800) 342-1415

	www.nssga.org	(703) 525-8788
NTMA	National Terrazzo & Mosaic Association, Inc. www.ntma.com	(800) 323-9736 (540) 751-0930
NTRMA	National Tile Roofing Manufacturers Association (See RTI)	
NWWDA	National Wood Window and Door Association (See WDMA)	
OPL	Omega Point Laboratories, Inc. www.opl.com	(800) 966-5253 (210) 635-8100
PCI	Precast/Prestressed Concrete Institute www.pci.org	(312) 786-0300
PDCA	Painting & Decorating Contractors of America www.pdca.com	(800) 332-7322 (314) 514-7322
PDI	Plumbing & Drainage Institute www.pdionline.org	(800) 589-8956 (978) 557-0720
PTI	Post-Tensioning Institute www.post-tensioning.org	(602) 870-7540
RCSC	Research Council on Structural Connections www.boltcouncil.org	(800) 644-2400 (312) 670-2400
RFCI	Resilient Floor Covering Institute www.rfci.com	(301) 340-8580
RIS	Redwood Inspection Service calredwood.org	(888) 225-7339 (415) 382-0662
RTI	Roof Tile Institute (Formerly: NTRMA - National Tile Roofing Manufacturers Association) www.ntrma.org	(312) 670-4177
SAE	SAE International www.sae.org	(724) 776-4841
SDI	Steel Deck Institute www.sdi.org	(847) 462-1930
SDI	Steel Door Institute www.steeldoor.org	(440) 899-0010
SEFA	Scientific Equipment and Furniture Association www.sefalabs.com	(516) 294-5424

SGCC	Safety Glazing Certification Council www.sgcc.org	(315) 646-2234
SIA	Security Industry Association www.sefalabs.com	(703) 683-2075
SIGMA	Sealed Insulating Glass Manufacturers Association (See IGMA)	
SJI	Steel Joist Institute www.steeljoist.org	(843) 626-1995
SMA	Screen Manufacturers Association www.smacentral.org	(561) 533-0991
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association www.smacentral.org	(703) 803-2980
SPFA	Spray Polyurethane Foam Alliance (Formerly: SPI/SPFD - The Society of the Plastics Industry, Inc.; Spray Polyurethane Foam Division) www.sprayfoam.org	(800) 523-6154
SPIB	Southern Pine Inspection Bureau (The) www.spib.org	(850) 434-2611
SPI/SPFD	Society of the Plastics Industry, Inc. (The) Spray Polyurethane Foam Division (See SPFA)	
SPRI	SPRI (Single Ply Roofing Institute) www.spri.org	(781) 647-7026
SSINA	Specialty Steel Industry of North America www.ssina.com	(800) 982-0355 (202) 342-8630
SSPC	SSPC: The Society for Protective Coatings www.sspc.org	(877) 281-7772 (412) 281-2331
STI	Steel Tank Institute www.steeltank.com	(847) 438-8265
SWI	Steel Window Institute www.steelwindows.com	(216) 241-7333
SWRI	Sealant, Waterproofing, & Restoration Institute	(816) 472-7974

	www.swrionline.org	
TCA	Tile Council of America, Inc. www.tileusa.com	(864) 646-8453
TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance www.tiaonline.org	(703) 907-7700
TMS	The Masonry Society www.masonrysociety.org	(303) 939-9700
TPI	Truss Plate Institute, Inc. www.tpinst.org	(608) 833-5900
TPI	Turfgrass Producers International www.turfgrasssod.org	(800) 405-8873 (847) 705-9898
UL	Underwriters Laboratories Inc. www.ul.com	(800) 285-4476 (847) 272-8800
UNI	Uni-Bell PVC Pipe Association www.uni-bell.org	(972) 243-3902
USGBC	U.S. Green Building Council www.usgbc.org	(202) 828-7422
WASTEC	Waste Equipment Technology Association www.wastec.org	(800) 424-2869 (202) 244-4700
WCLIB	West Coast Lumber Inspection Bureau www.wclib.org	(800) 283-1486 (503) 639-0651
WCMA	Window Covering Manufacturers Association (See WCSC)	
WCSC	Window Covering Safety Council (Formerly: WCMA - Window Covering Manufacturers Association) www.windowcoverings.org	(800) 506-4636 (212) 661-4261
WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association) www.wdma.com	(800) 223-2301 (847) 299-5200
WMMPA	Wood Moulding & Millwork Producers Association www.wmmpa.com	(800) 550-7889 (530) 661-9591

B. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

IAPMO	International Association of Plumbing and Mechanical Officials www.iapmo.org	(909) 472-4100
ICBO	International Conference of Building Officials (See ICC)	
ICBO ES	ICBO Evaluation Service, Inc. (See ICC-ES)	
ICC	International Code Council (Formerly: CABO - Council of American Building Officials) www.iccsafe.org	(703) 931-4533
ICC-ES	ICC Evaluation Service, Inc. www.icc-es.org	(800) 423-6587 (562) 699-0543

C. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

CE	Army Corps of Engineers www.usace.army.mil	
CPSC	Consumer Product Safety Commission www.cpsc.gov	(800) 638-2772 (301) 504-0990
DOC	Department of Commerce www.doc.gov	(202) 482-2000
EPA	Environmental Protection Agency www.epa.gov	(202) 260-2090
FAA	Federal Aviation Administration www.faa.gov	(202) 366-4000
FCC	Federal Communications Commission www.fcc.gov	(202) 225-5322
FDA	Food and Drug Administration www.fda.gov	(888) 463-6332

FHA	Federal Highway Administration www.fhwa.dot.gov	(410) 962-0093
GSA	General Services Administration www.gsa.gov	(202) 708-5082
HUD	Department of Housing and Urban Development www.hud.gov	(202) 708-1112
LBL	Lawrence Berkeley Laboratory National Laboratory www.lbl.gov	(510) 486-4000
NIST	National Institute of Standards and Technology www.nist.gov	(301) 975-6478
OSHA	Occupational Safety & Health Administration www.osha.gov	(800) 321-6742 (202) 693-1999
PBS	Public Building Service (See GSA)	
PHS	Office of Public Health and Science phs.os.dhhs.gov	(202) 690 7694
TRB	Transportation Research Board www.nas.edu/trb	(202) 334-2934
TSA	Transportation Security Administration www.tsa.gov/public/index.jsp	1(866)-289-9673
USDA	Department of Agriculture www.usda.gov	(202) 720-2791
USPS	United States Postal Service www.usps.com	(202) 268-2000

D. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

DCR	Virginia Department of Conservation and Recreation http://www.dcr.state.va.us	(804) 786-1712
VDH	Virginia Department of Health Culpepper District www.vdh.state.va.us	(540) 829-7340

USBC	The Virginia Statewide Building Code (USBC) The Commonwealth of Virginia – Uniform Statewide Building Code	(804) 371- 7160
VDHCD	Virginia Department of Housing and Community Development Division of Building and Fire Regulation 501 North 2nd Street Richmond, VA 23219-1321	
VDOT	Virginia Department of Transportation www.virginiadot.org	(703) 383-8368
VDEQ	Virginia Department of Environmental Quality www.deq.state.va.us	1-800-592-5482

1.6 GOVERNING REGULATIONS/AUTHORITIES

A. Contact authorities having jurisdiction directly for information and decisions having a bearing on the work. Names and addresses are subject to change; they are believed to be but are not assured to be accurate and up to date as of the date of the Contract Documents.

B. Codes: The contractor shall adhere to all applicable portions of code standards and specifications in the construction of the work. Unless otherwise noted (reference Division 01 Section "Quality Requirements"), the Airports Authority will review the Contractor's submittals and construction of the work for code compliance. The Airports Authority's acceptance of completed construction does not relieve the Contractor from strict compliance with all applicable regulations and codes.

1. Definition: The Metropolitan Washington Airports Authority has a "building department" recognized by the Commonwealth of Virginia. This department is charged with enforcing the Virginia Uniform Statewide Building Code (VUSBC). Where the words "code official", "department having jurisdiction" or "agency having jurisdiction" is referenced in any code, including the VUSBC or its adopted model codes (ICC), those terms shall mean the Airports Authority Building Official and/or his designated representative.
2. Standards that influence the construction of the project include, but are not limited to, all applicable federal and Commonwealth laws, all applicable codes, rules, regulations and standards applicable to this project.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

PART 4 - MEASUREMENT (Not Used)

PART 5 - PAYMENT

All costs incurred by the Contractor to acceptably implement the requirements of this Section shall be performed at no additional cost to the Airports Authority and are part of this Contract.

END OF SECTION 014200

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings and Contract Provisions, Special Provisions, Supplementary Conditions, and other Division 01 Specification Sections apply to this Section.

1.2 SUMMARY

A. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, security, and protection facilities for Contractor staging area.

B. Temporary utilities include, but are not limited to, the following:

1. Sewers and drainage.
2. Water service and distribution.
3. Sanitary facilities, including toilets, wash facilities, and drinking-water facilities.
4. Heating and cooling facilities.
5. Ventilation.
6. Electric power service.
7. Telephone and other communication services.

C. Support facilities include, but are not limited to, the following:

1. Temporary roads and paving.
2. Dewatering facilities and drains.
3. Project identification and temporary signs.
4. Waste disposal facilities.
5. Field offices.
6. Storage and fabrication sheds.
7. Construction aids and miscellaneous services and facilities.

D. Security and protection facilities include, but are not limited to, the following:

1. Environmental protection.
2. Storm water control.
3. Barricades, warning signs, and lights.

E. Related Sections include the following:

1. Division 01 Section "Submittals" for procedures for submitting copies of implementation and termination schedule and utility reports.

1.3 DEFINITIONS

A. Permanent Enclosure: As determined by COTR, permanent or temporary roofing is complete, insulated, and weather tight; exterior walls are insulated and weather tight; and all openings are closed with permanent construction or substantial temporary closures.

1.4 USE CHARGES

A. General: Temporary utilities are available from the Airports Authority at no charge unless otherwise noted. Provide necessary labor and materials to connect to the Airports Authority's utilities at points designated by COTR and extend utilities to trailers, offices, sheds, etc.

1. Provide COTR approved meters for water, natural gas, electricity, and each other utility used for Project. Supply utilities to Subcontractors' temporary facilities through Contractor's meters. The requirement to provide meters for utilities does not imply that the Contractor will be charged for these utilities, except under provisions outlined in this and other Sections.
2. Report consumption of each utility to COTR each month. Contractor is expected to consume reasonable amounts of each utility. Should Contractor, in COTR's opinion, use excessive amounts of any utility or waste a utility, Contractor may be required to pay for temporary utilities.

B. Allow other entities to use temporary services and facilities without cost, including, but are not limited to, the following:
1. Occupants of Project.
2. COTR.
3. Testing agencies.

1.5 SUBMITTALS

A. Shop Drawings: Submit drawing, compliant with all applicable codes, to COTR, for the Airports Authority's review and approval, site plans indicating all temporary facilities, support and security; utility connections and traffic flows. Provide detailed drawings of utility connections and special facilities.

B. Temporary Utility Reports: Submit reports of tests, inspections, meter readings, and similar procedures performed on temporary utilities at both staging area and the Project site. Make all structures weather proof when heated and air-conditioned. Should Contractor, in COTR's opinion fail to keep the heated and cooled structures sealed and weather proof, Contractor may be required to pay for temporary utilities.

C. Implementation and Termination Schedule: Within 15 calendar days of date established for submittal of Contractor's first Construction Schedule, submit a schedule indicating implementation and termination of each temporary utility.

1.6 QUALITY ASSURANCE

A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction, that include but are not limited to, the following:

1. Building Code requirements.
2. Health and safety regulations.
3. Police and Fire Department regulations.
4. Environmental protection regulations.
5. ADA Compliance: All temporary facilities shall be ADA compliant.

B. Standards: Comply with ANSI A10.6, NECA's "Temporary Electrical Facilities," and NFPA 241.

1. Trade Jurisdictions: Assigned responsibilities for installation and operation of temporary utilities are not intended to interfere with trade regulations and union jurisdictions.
2. Electrical Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electrical service. Install service to comply with NFPA 70.

C. Tests and Inspections: Arrange for the Airports Authority's Building Codes/Environmental Department to test and inspect each temporary utility before use. Coordinate with the Airports Authority's Building Codes/Environmental Department for requirements for certifications, permits, and inspections. Obtain permits from the Airports Authority's Building Codes/Environmental Department for temporary construction and temporary utilities.

D. Fire-retardant and Flame Spread Requirements: Unless otherwise noted, fire – retardant treat all wood and wood composition products utilized in the Project and preservative treat all wood utilized on the exterior of any building. Preservative treat all wood utilized on other items indicated or specified with preservative treatment. Provide lumber and plywood with an Underwriters' Laboratory (UL) stamp certifying a value of 25 or less flame spread and a value of 200 or less smoke development. Fire retardant lumber shall not be ripped or milled.

1.7 PROJECT CONDITIONS

A. Conditions of Use: The following conditions apply to use of temporary services, permanent services, and facilities by all parties engaged in the Work:

1. Keep temporary services and facilities clean and neat.
2. Relocate temporary services and facilities as required by progress of the Work.
3. Take necessary fire-prevention measures.
4. Do not overload facilities.
5. Do not allow hazardous, dangerous, or unsanitary conditions, or public nuisances to develop or persist on-site.

1.8 CONTRACTOR PERSONNEL PARKING

A. The Contractor's personnel will be allowed to park their personal vehicles in staging areas or in areas designated by COTR. Such designated parking areas are not necessarily fenced or

otherwise protected and temporary fencing for such parking areas is a requirement of this Contract.

B. Display a Vehicle special, non-transferable parking permit available from the Airports Authority on all vehicles parked in such area. Each employee will be required to obtain and pay for their own parking permit and shall be responsible for fines for not displaying permit or for parking in other than designated contractor parking areas. The COTR will provide application forms and explain method of obtaining parking permits at the Pre-Construction Conference.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by COTR. Provide materials suitable for use intended.

B. Tarpaulins: Fire-resistive labeled with flame-spread index of 15 or less.

C. Water: Potable.

D. Temporary Fuel Tanks: For requirements for temporary fuel tanks see Division 31 Section "Storm Water Pollution Protection Plan." Comply with applicable safety and environmental regulations for temporary surface fuel tanks. Location and installation of tanks will be subject to review and approval of COTR and the Airports Authority's Fire Marshal.

2.2 EQUIPMENT

A. Field Offices: Mobile units with lockable entrances, operable windows, and serviceable finishes; heated and air conditioned; on foundations adequate for normal loading, and provided with proper tie-downs.

B. Self-Contained Toilet Units: Single-occupant units of chemical, aerated re-circulation or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.

C. Drinking-Water Fixtures: Containerized, tap-dispenser, bottled-water drinking-water units, including paper cup supply. Where power is accessible, provide electric water coolers to maintain dispensed water temperature at 45 to 55 deg F.

D. Heating Equipment: Unless COTR authorizes use of permanent heating system, provide temporary heating units with individual space thermostatic control.

1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
2. Heating Units: Listed and labeled, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use for type of fuel being consumed.

E. Electrical Outlets: Properly configured, NEMA-polarized outlets that will prevent insertion of 110v or 120v plugs into higher-voltage outlets, and equipped with ground-fault circuit interrupters with reset button.

F. Power Distribution System Circuits: Where permitted, overhead, and visible wiring circuits, not exceeding 125-V ac, 20-A rating, and lighting circuits may be nonmetallic-sheathed cable.

G. Electrical Power Cords: Provide grounded extension cords; use hard-service as defined by NFPA 70, Article 400, where exposed to abrasion and traffic. If single lengths of extension cords will not reach areas where construction activities are in progress provide waterproof connectors to connect separate lengths of electrical extension cords.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Prior to installation of temporary facilities and utilities, submit to the COTR a site layout providing locations and details of the facilities and utilities.

B. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.

C. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 CONTRACTOR STAGING AREA - GENERAL

A. Contractor will be allowed to store and stage his materials in a staging area located on Airport property as indicated or as designated by the COTR for such purposes. Space is limited to area indicated. COTR and Contractor will make a joint site visit to document condition of staging area prior to occupancy. Take photos for the record.

B. Erect and maintain an 8-foot high chain link fence topped with 3-strands of barbed wire around perimeter of staging area when the fence serves as an AOA barrier as required by the FAA/TSA. A 6-foot high fence as described above, including barbed wire will be acceptable for all other applications. Protect all stored equipment from the weather. The Airports Authority accepts no responsibility for items stored in this area.

C. Upon completion of Construction, remove all temporary staging area facilities and return the areas to their original condition.

D. Park construction equipment in the storage site or storage area identified by the COTR when equipment is not engaged in construction activity. Equipment must be stored a minimum 20 feet off AOA fence and in a manner that does not interfere with Airport security systems or airfield operations.

E. Do not stockpile construction materials, spoils, debris or refuse in any area other than that specifically approved for such purpose by the COTR and as shown on plans.

F. Constrain stockpiled material in a manner to prevent its movement by wind, jet blast or propeller wash.

3.3 TEMPORARY UTILITY INSTALLATION

A. General: Provide temporary service for each utility required. Comply with requirements of the Airports Authority's Building Codes Manual, the Airports Authority's Construction Safety Manual, and the requirements of all Sections of these specifications.

1. Arrange with COTR for time when service can be interrupted, if necessary, to make connections for temporary services. For additional information on utility outages see Division 01 Section, "Summary."
2. Provide adequate capacity at each stage of construction. Before temporary utility is available, provide trucked-in services.
3. Perform work associated with utilities owned by the Airports Authority as approved by the Airports Authority.
4. See additional information in Contract Provisions entitled "Availability and Use of Utility Service."

B. Sewers and Drainage: If sewers are available, provide temporary connections to remove effluent that can be discharged lawfully. If sewers are not available or cannot be used, provide drainage ditches, dry wells, stabilization ponds, and similar facilities. If neither sewers nor drainage facilities can be lawfully used for discharge of effluent, provide containers to remove and dispose of effluent off-site in a lawful manner.

C. When using Authority sewers:

1. Filter out excessive soil, construction debris, chemicals, oils, and similar contaminants that might clog sewers or pollute waterways before discharge.
2. Connect temporary sewers to the Airports Authority's system as directed by COTR.
3. Maintain temporary sewers and drainage facilities in a clean, sanitary condition. After heavy use, restore normal conditions promptly.
4. Provide temporary filter beds, settlement tanks, separators, and similar devices to purify effluent to levels acceptable to authorities having jurisdiction.

D. Water Service: Provide temporary water service and distribution piping in sizes and pressures adequate for construction until permanent water service is in use. Sterilize temporary water piping and provide results of bacteria and other Code required tests prior to use Provide Badger Recordall, Turbo II Utility type water meter to meter all water usage for 2-inch water feed lines and above. Provide Badger Recordall bronze disc water meter for to meter all water usage for water feed lines under 2-inches. COTR will approve water meters, in writing prior to installation of water meters. Do not install water meters until written approval has been received from COTR. Provide Watts Model 909, Type RPZ backflow preventers. Do not install backflow preventers until written approval of backflow preventers has been received from the COTR. Comply with all Code required inspections.

E. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.

1. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.
2. Toilets: Install self-contained toilet units, located as approved by COTR. Shield toilets to ensure privacy. Provide separate facilities for male and female personnel. Use of the Airports Authority's existing toilet facilities will not be permitted.
3. Wash Facilities: Install wash facilities supplied with potable water at convenient locations for personnel who handle materials that require wash up. Dispose of drainage properly. Supply cleaning compounds appropriate for each type of material handled.

    a. Provide safety showers, eyewash fountains, and similar facilities for convenience, safety, and sanitation of personnel.

4. Drinking-Water Facilities: Provide bottled-water, drinking-water units.

    a. Where power is accessible, provide electric water coolers to maintain dispensed water temperature at 45 to 55 deg F.

5. Locate toilets and drinking-water fixtures so personnel need not walk more than or 200 feet horizontally to facilities.

F. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment from that specified that would not have a harmful effect on completed installations or elements being installed.

1. Maintain a minimum temperature of 50 deg F in permanently enclosed portions of building for normal construction activities, and 65 deg F for finishing activities and areas where finished Work has been installed.

G. Ventilation and Humidity Control: Provide temporary ventilation and humidity control required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment from that specified that would not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption. Provide and operate either exhaust or supply fans/blowers, or both, sufficient to ventilate work areas adequately.

H. Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload-protected disconnecting means, automatic ground-fault interrupters, and main distribution switchgear. Provide kilowatt-hour meters with demand capability.

1. Install electric power service underground, unless overhead service is authorized by COTR.

2. Connect temporary service to the Airports Authority's existing power source, as directed by COTR.

3. Install power distribution wiring overhead and rise vertically where least exposed to damage

I. Electrical Distribution: Provide GFCI receptacle outlets adequate for connection of power tools and equipment, compliant with the current Authority Construction Safety Manual.

1. Provide waterproof connectors to connect separate lengths of electrical power cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.
2. Provide warning signs at power outlets other than 110 to 120 V.
3. Provide metal conduit, tubing, or metallic cable for wiring exposed to possible damage. Provide rigid steel conduits for wiring exposed on grades, floors, decks, or other traffic areas.
4. Provide metal conduit enclosures or boxes for wiring devices.
5. Provide 4-gang outlets, spaced so 100-foot extension cord can reach each area for power hand tools and task lighting. Provide a separate 125-V ac, 20-A circuit for each outlet. Provide GFCI protection.

J. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations and traffic conditions.

1. Provide and operate temporary lighting that fulfills security and protection requirements without operating entire system.
2. Provide exterior-yard site lighting that will provide adequate illumination for construction operations, traffic conditions, and signage visibility when the Work is being performed. Provide exterior yard and site lighting aligned as directed by the COTR. Provide lighting so as not to interfere with ground, air traffic and air traffic control.
3. Install lighting for Project identification signs.

K. Telephone Service: Provide temporary telephone service for key personnel engaged in construction activities, throughout the construction period. Install telephones on separate lines for each temporary office and first aid station. Where an office has more that two occupants, install a telephone for each additional occupant or pair of occupants. Provide telephones with exchanges within the Metropolitan Washington service area. The Airports Authority owns and operates an airport-wide Airport Communication System (ACS). This system accommodates all normal telecommunications service requirements, i.e., local, long distance, fax, data, etc. The Contractor may obtain information about and choose to utilize this service by contacting the ACS Help Desk at (703) 417-8300.

1. At each telephone, post a list of emergency telephone numbers approved by COTR.
2. Provide a portable cellular telephone for superintendent's use in making and receiving telephone calls when away from field office.
3. At the present time the Airports Authority uses cell phones to communicate. The Airports Authority uses Nextel service.

3.4 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

1. Locate field offices, storage sheds, sanitary facilities, and other temporary construction and support facilities for easy access.
2. Provide incombustible construction for offices, shops, and sheds located within construction area or within 30 feet of building lines. Comply with NFPA 241 and USBC.

B. Project Identification and Temporary Signs: Prepare Project identification and other signs in sizes indicated. Install signs where indicated or where directed by COTR to inform public and persons seeking entrance to Project. Provide two Project signs.

1. Engage an experienced sign painter to apply graphics for Project identification signs. Comply with details indicated.
2. Prepare temporary signs to provide directional information to construction personnel and visitors.
3. Construct signs of exterior-type, Grade B-B, high-density concrete form overlay plywood in sizes and thickness indicated. Support on nominal 4-inch-by-4-inch-by-10-foot-long posts or framing of preservative-treated wood or steel.
4. Paint sign panel and applied graphics with exterior-grade alkyd gloss enamel over exterior primer.
5. The following signs will be allowed on the Project:
   a. Identifying captions over offices.
   b. Other signs as required by the Contract Documents.

6. Take necessary steps to prevent installation of unauthorized signs and, should any appear, remove them immediately. Repair and repaint damage caused thereby at no additional cost to the Airports Authority.
7. No more that two Project Identification Signs will be permitted. Project identification signs are the only signs on which the Contractors name and logo will be permitted.

C. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste. Comply with Division 01 Section "Execution" for progress cleaning requirements.

1. If required by COTR, provide separate containers, clearly labeled, for each type of waste material to be deposited.
2. Develop a waste management plan for Work performed on Project. Indicate types of waste materials Project will produce and estimate quantities of each type. Provide detailed information for on-site waste storage and separation of recyclable materials. Provide information on destination of each type of waste material and means to be used to dispose of all waste materials.

D. Janitorial Services: Provide janitorial services on a daily basis for temporary offices, first-aid stations, toilets, wash facilities, lunchrooms, and similar areas.

E. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment involved, including temporary utility services. Sheds may be open

shelters or, if permitted by COTR, fully enclosed spaces within building or elsewhere on-site subject to approval of COTR.

1. Construct framing, sheathing, and siding using fire-retardant-treated lumber and plywood.
2. Paint exposed lumber and plywood with exterior-grade acrylic-latex emulsion over exterior primer.
3. Submit the design of storage structures of more than 150 sq. ft. to COTR for review and approval by the Airports Authority's Building Codes/Environmental Department.

3.5 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects. Avoid using tools and equipment that produce harmful noise. Restrict use of noisemaking tools and equipment to hours of 11:00 p.m. to 5:00 a.m., unless directed otherwise by the COTR, which will minimize complaints from persons or firms near Project site.

B. Storm water Control: Provide earthen embankments and similar barriers in and around excavations and sub grade construction, sufficient to prevent flooding by runoff of storm water from heavy rains.

C. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from construction damage. Protect tree root systems from damage, flooding, and erosion. See Contract Provisions for additional requirements.

D. Staging Area Enclosure Fence: Before construction operations begin, provide portable chain-link site enclosure fence. Minimum 2-inch, 9-gage, galvanized steel, chain-link fabric fencing; minimum 8 feet high with galvanized steel pipe posts; minimum 2-3/8-inch-OD line posts and 2-7/8-inch-OD corner and pull posts, with 1-5/8-inch-OD top and bottom rails. Provide concrete bases for supporting posts. Contractor is responsible for providing support to protect against wind damage and meeting safety requirements.

1. Entrance into the site: Only through the lockable entrance gates.
2. Set fence posts in compacted mixture of gravel and earth.
3. Provide gates in sizes and at locations necessary to accommodate delivery vehicles and other construction operations.
4. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Provide COTR with three set of keys.
5. Ensure gate installation/operation does not conflict with area grade.

E. Security Enclosure and Lockup: Install substantial temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.

F. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and public of possible hazard. Where appropriate and needed, provide

lighting, including flashing red or amber lights. See the Airports Authority's Construction Safety Manual for additional requirements.

G. Temporary Fire Protection: Until fire-protection needs are supplied by permanent facilities, install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241 and VUSBC.

1. Provide fire extinguishers, installed on walls on mounting brackets, visible and accessible from space being served, with sign mounted above.

   a. Field Offices: Class A, stored-pressure, water-type extinguishers.
   b. Other Locations: Class ABC, dry-chemical extinguishers or a combination of extinguishers of NFPA-recommended classes for exposures.
   c. Locate fire extinguishers per NFPA 10 and where convenient and effective for their intended purpose; provide not less than one extinguisher on each floor at or near each usable stairwell.

2. Store combustible materials in containers in fire-safe locations.
3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire-protection facilities, stairways, and other access routes for firefighting. Prohibit smoking in hazardous fire-exposure areas.
4. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition.
5. Develop and supervise an overall fire-prevention and first-aid fire-protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.

H. Storage: Where materials and equipment are stored, and are of value or attractive for theft, provide secure lockup. Enforce discipline in connection with installation and release of material to minimize opportunity for theft and vandalism.

3.6 UTILITY PROVISIONS AT SOUTH STAGING AREA

A. EXISTING CONDITIONS

The Airports Authority will provide at each lot in the South Staging area the following:

a. Two 2” conduits from the utility sheds, to the limits of the lot, one electrical and one telecommunications. The conduits will be capped below grade and signified by a 4” x 4” x 4’ wood stake at the limits of the lot.
b. Each lot will be allocated 100 A, 480 v 3 phase, 3 wire power.
c. The power is available at the utility shed. Provide necessary conductors as indicated in the “TELECOMMUNICATIONS” and “ELECTRICAL POWER” paragraphs below.
d. Domestic water service will be available at the limit of the lot, identified with a blue painted stake.

B. GENERAL REQUIREMENTS

1. Contractor is responsible for subdividing telecommunications, electrical and water within their assigned lot in a coordinated fashion upon mobilization. Provide a site plan for COTR review and approval. Maintain site plan up-to-date throughout the Project. Indicate on site plan trailer locations, proposed conduit runs, proposed telecom and electrical backboards, proposed water distribution and any other pertinent information. Locate and indicate existing utilities on site plan.
2. Install fence around Contractors allotted area and remove fence upon completion of Contractor's Work. Refer to other paragraphs of this section for fencing requirements.
3. Contractor employee parking will be limited to within the allotted staging area. Provide transportation for Contractor's employees between the work site and the staging area.
4. Water tank fill station is located on the south side of the entrance road to the Staging Area. Do not use the fire hydrants along the main staging area road for obtaining water.
5. Restore lot to its original condition upon contract conclusion.

C. TELECOMMUNICATIONS

1. The Airport Communications System (ACS) vendor will provide a pedestal or telecom backboard at the limits of the Contractor's lot. The pedestal or telecom backboard is supplied via a communications cable installed by the ACS from the nearest utility shed to the limits of the Contractor's lot. As the electrical and telecommunications are adjacent, excavation at the lot limits for both utilities should be completed at the same time. Determining the routing of all conduits from the telecom pedestal at the lot limits to each subcontractor trailer to avoid future cut cables. Originate all feeds within a lot at the pedestal location. Contractor's attention is called to the fact that all telecommunications work between the utility sheds and the lot limits is the responsibility of the ACS. Should the Contractor perform any telecommunications work between the utility sheds and the lot limits, the ACS will remove work and the ACS will charge the Contractor for any cost associated with this removal of the work.

2. Provide all conduit installations either above or below ground in accordance with the Virginia Uniform Statewide Building Code and the applicable Division 26 Sections of the specification.

3. Communications cable:

    a. Cable must be 24 gauge with solid, annealed, bare copper conductors
    b. Conductors shall have polyolefin insulation, color coded to telephone industry standards
    c. Cable must have a black polyethylene outer jacket
    d. Cable must have an aluminum or copper shield.
    e. Cable must be Gel filled
    f. Install in schedule 40 PVC conduits a minimum of 2" in diameter.
    g. Advise the COTR of the total number of required telecom cable pairs, including his subcontractor's requirements, prior to any communications cable work within the lot.

4. Special telecom provisions— T1 service is available in the South Contractors lot at Contractor's expense. T1 or DSL service will be available in the Northwest Contractors

Lot at the contractor's expense. Telecom services can be ordered through the Airport Communications System vender. Please call Louise Epps at 703/417-8605 to order these services.

D. ELECTRICAL POWER

1. Conduit is provided from one of four sheds, to a location just inside each contractor lot. Extend the conduit, as required, to serve all facilities on Contractor's site and provide cable back to shed. If power requirements greater than 100 ampere, at 480v, three phase, three – wire are required; requests for additional power will be considered on a case-by-case basis.

2. Transformers:

   a. Suitable for outdoor use
   b. Pad mounted with fused safety switches on the primary and secondary sides of the transformer.

3. The Contractor is required to advise the COTR of the estimated electrical consumption including that of his subcontractors prior to provision of cable.

E. PLUMBING

Provide a Watts Model 909, Type RPZ backflow prevention device at each trailer. Remove plumbing work in place upon contract completion. There are no sanitary sewer provisions, use above ground tanks specifically designed for sewage holding. The Contractor at his option may use chemical or electrical toilets. Clean, pump and haul sanitary waste. Maintain a clean and odor free lot.

F. MAINTENANCE REQUIREMENTS STAGING AREA

1. Unauthorized soil and concrete stockpiles are prohibited.
2. Cover all containers and drums of any size that are stored on site and their required secondary containment to prevent rainwater from coming in contact with the containers. Earthen berms are not permitted. Clearly label all drums and containers used to hold trash and debris "Trash". Empty drums and containers when full. Remove all unused empty drums and containers from the site.
3. Include Contractor's lot in the South Staging Area in the SPPP.

4. Store all fuel, petroleum based products and products potentially detrimental to the environment in aboveground tanks.
5. Aboveground storage tanks:

   a. Double walled and approved for the use intended.
   b. Submit manufacturer's literature to COTR for approval in writing for each such storage tank intended for use by Contractor.

6. Store all trash, construction debris, and other debris in metal containers specifically designed for such use. Do not keep trash containers on the site for more than 90 calendar days.

7. Storage of used tires and batteries is prohibited.
8. Storage of waste oil is prohibited.
9. Only routine light equipment maintenance shall be permitted. Should Contractor require more than routine maintenance to be performed on site, submit a work execution plan to COTR, for written approval, describing the type of maintenance and the procedures that will be implemented to protect the environment.

3.7 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.

B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
2. Prevent water-filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.

C. Operate Project-identification-sign lighting daily any time from dusk until dawn when personnel are on the site. Should no personnel be on the site after 12:00 midnight the project – identification lighting may be turned off at 12:00 midnight.

D. Temporary Facility Changeover: Unless Contractor is able to utilize permanent fire protection, do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

E. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Properly recondition and restore those portions of the site occupied by temporary facilities and controls to condition acceptable to COTR, at least equal to condition at time of start of Work, unless otherwise authorized in writing by COTR.
2. Materials and facilities that constitute temporary facilities are the property of Contractor. Owner reserves right to take possession of Project identification signs.
3. Remove temporary paving not intended for or acceptable for integration into permanent paving. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace roadway paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.

4. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements in Division 01 Section "Project Closeout."

PART 4 - MEASUREMENT (Not used)

PART 5 - PAYMENT

All costs incurred by the Contractor to acceptably implement the requirements of this Section shall be performed at no additional cost to the Airports Authority and are part of this Contract.

END OF SECTION 015000

SECTION 015710 - MAINTENANCE AND PROTECTION OF AIR TRAFFIC DURING CONSTRUCTION

PART 1 - GENERAL

1.1 SUMMARY

A. The Contractor shall be required to carry out his operations in a manner that will cause a minimum of interference with air traffic as indicated in the phasing plans, and shall be required to cooperate with the FAA, the Authority, the airlines, and Contractors involved in work on other projects. All work shall be completed in accordance with FAA Eastern Region Order Number EA-5210-1C and FAA Advisory Circular 150/5370-2G.

B. The Contractor shall be required to supply barricades and shall place, maintain, move, and store barricades, as indicated in the plans.

PART 2 - PRODUCTS

2.1 CONTROL AND WARNING DEVICES

A. Contractor shall furnish and maintain barricades along the edges of the construction area to warn the air and ground traffic to stay clear of the construction work. These lights shall be placed as detailed in the plans or as designated by the COTR. The Contractor shall maintain red warning flags around all equipment, stockpiles or other areas as directed by the COTR.

B. Omni-directional warning lights on beam barricades shall be steady-burn, omni-directional, 6 or 12 Volt, with Red Lens: Lights shall be: United Safety Authority Model 630AP; TAPCO Item #2771-11; or as acceptable to the Authority.

C. The Contractor shall ensure barricade lights are monitored for proper functioning and serviced as needed to maintain visibility.

2.2 BARRICADES

A. Beam Barricades. Beam barricades shall be of the type detailed in the drawings. Beams shall be painted with alternating orange and white striping. Two battery operated, steady-burn omnidirectional red warning lights (see paragraph 2.1.B) shall be mounted on the end of each beam barricade as detailed in the drawings. Beam barricades shall be furnished and maintained by the Contractor, and at the completion of the Contract shall become property of the Contractor and shall be removed from the site.

PART 3 - EXECUTION

3.1 CONTROL REQUIREMENTS: The Contractor's responsibility for work areas and marking equipment is as follows:

A. Nothing shall be placed upon taxilanes or aprons without approval of the COTR.

B. No vehicle shall enter a paved surface except at predetermined locations.

C. Beam barricades shall be provided and erected by the Contractor as shown on the plans or as directed by the COTR.

D. No private vehicles shall be allowed on the taxilanes at any time unless approved by the COTR.

E. Through the duration of the job any practice or situation that the COTR determines to be unsafe or a hindrance to regular Airport traffic shall be immediately rectified.

F. The Contractor shall be held responsible for the controlling of his employees, subcontractors and their employees with regard to traffic movement.

G. The Contractor shall rebuild, repair, restore and make good at his own expense all injuries or damages to any portion of the work occasioned by his use of these facilities before completion and acceptance of his work.

H. The Contractor shall submit to the COTR in writing a plan for controlling construction equipment and vehicular movements in the air operations area. This plan shall be submitted before notice to proceed is given. The Plan shall include material haul roads.

I. The Contractor shall provide a responsible Traffic Manager whose duty it shall be to direct all traffic on or near active taxilanes, haul roads and highways. Paved surfaces shall be kept clear at all times and specifically must be kept free from all small stones which might damage aircraft.

J. Construction equipment shall not exceed a height of 40 feet above the existing ground level unless prior written approval has been obtained from the COTR.

K. The Contractor shall furnish a 24-hour emergency contact for maintenance of the barricades and barricade lighting.

L. The Control Tower shall at all times have control of operations on or near active taxilanes. Before entering upon or crossing any taxilane, the Contractor shall receive proper clearance from the Control Tower. Arrivals and departures of airplanes are under the control of the Control Tower. Emergencies and operating conditions may necessitate sudden changes, both in Airport operations and in the operations of the Contractor. Aircraft operations shall always have priority over any and all of the Contractor's operations. Should taxilanes be required for the use of aircraft and should the Control Tower or the COTR deem the Contractor to be too close to Airport areas used by aircraft for safety, the Control Tower or the COTR may, at their discretion, order the Contractor to suspend his operations, remove his personnel, plant, equipment and materials to a safe distance and stand by until the runways and taxilanes are no longer required for use by aircraft.

M. Where any work is to be done adjacent to any operational taxiway or aircraft gate, the Contractor shall notify the COTR one week in advance so that provisions can be made to perform the work. Such work shall then be prosecuted in the most expeditious manner practicable so that the aircraft gate can be reopened to air traffic at the earliest possible date.

N. The Contractor shall contact the COTR each day before he begins work to coordinate the status and nature of work to be done that day. The Contractor shall also report to the COTR at the end of each day to schedule the work he plans to do on the following day.

O. The Contractor shall remove all equipment and all materials that would constitute a hazard to air traffic to the designated storage area whenever work is not in progress.

P. Violations of these regulations shall be considered a violation of the Contract itself and shall be sufficient cause for halting the work without extending the time limit of the job.

3.2 BARRICADES

A. The Contractor shall be responsible for placing beam barricades to delineate excavations, trenches, pavement tie-ins, areas of pavement marking, joint repair or joint sealing, etc.

B. Upon completion of the project, beam barricades shall be removed from the site.

PART 4 - MEASUREMENT (Not used)

PART 5 - PAYMENT

All costs incurred by the Contractor to acceptably implement the requirements of this Section shall be performed at no additional cost to the Airports Authority and are part of this Contract.

END OF SECTION 015710

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings, Contract Provisions, Special Provisions, Supplementary Conditions, and other Division 01 Specification Sections apply to this Section.

1.2 SUMMARY

A. This Section includes the following administrative and procedural requirements: selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.

B. This Section includes substitutions made for "or as approved by the Airports Authority" items.

C. Related Sections include the following:

1. Division 01 Section "Allowances" for products selected under an allowance.
2. Division 01 Section "Alternates" for products selected under an alternate.
3. Division 01 Section "References" for applicable industry standards for products specified.
4. Divisions 02 through 33 Sections for specific requirements for warranties on products and installations specified to be warranted.

1.3 DEFINITIONS

A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation, shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

PART 2 - PRODUCTS

2.1 PRODUCT OPTIONS

A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. The Airports Authority reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," COTR will make selection.
5. Where products are accompanied by the term "match sample," sample to be matched is COTR's.
6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
7. "Or as approved by the Airports Authority": Note that products submitted under an "or as approved by the Airports Authority" provision are considered to be substitutions. Substitutions shall follow the requirements of Paragraph VII-42 of Contract Provisions and provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.

B. Product Selection Procedures:

1. Product: Where Specifications name a single product and manufacturer, provide the named product that complies with requirements.
2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements.
3. Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
4. Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
5. Available Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with provisions in Part - 2 "Comparable Products" Article for consideration of an unnamed product.
6. Available Manufacturers: Where Specifications include a list of manufacturers, provide a product by one of the manufacturers listed, or an unnamed manufacturer, that complies

with requirements. Comply with provisions in Part - 2 "Comparable Products" Article for consideration of an unnamed product.

7. Product Options: Where Specifications indicate that sizes, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide the specified product or system. Comply with provisions in Part 2 "Product Substitutions" Article for consideration of an unnamed product or system.
8. Basis-of-Design Product: Where Specifications name a product and include a list of manufacturers, provide the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product by the other named manufacturers.
9. Visual Matching Specification: Where Specifications require matching an established Sample, select a product that complies with requirements and matches COTR's sample. COTR's decision will be final on whether a proposed product matches.

    a. If no product available within specified category matches and complies with other specified requirements, comply with provisions in Part 2 "Product Substitutions" Article for proposal of product.

10. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, and textures" or a similar phrase, select a product that complies with other specified requirements.

    a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, COTR will select color, pattern, density, or texture from manufacturer's product line that does not include premium items.
    b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, COTR will select color, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 PRODUCT SUBSTITUTIONS

A. Timing: COTR will consider requests for substitution if received within 60 calendar days after issuance of the Notice to Proceed. Requests received after that time may be considered or rejected at the sole discretion of the Contracting Officer.

B. Conditions: COTR will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, COTR will return requests without action, except to record noncompliance with these requirements:

1. Requested substitution does not require extensive revisions to the Contract Documents.
2. Requested substitution is consistent with the Contract Documents and will produce indicated results.
3. Substitution request is fully documented and properly submitted.
4. Requested substitution will not adversely affect Contractor's Construction Schedule.

5. Requested substitution has received necessary approvals of authorities having jurisdiction.
6. Requested substitution is compatible with other portions of the Work.
7. Requested substitution has been coordinated with other portions of the Work.
8. Requested substitution provides specified warranty.
9. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

C. Contractor's submittal and COTR's review or approval of Shop Drawings, Product Data, or Samples that relate to a substitute does not by itself constitute a final approval of the requested substitution, nor does it relieve Contractor from fulfilling existing Contract requirements.

D. If a substitution offers a substantial advantage to the Airports Authority, in terms of cost, time, energy conservation, or other considerations of merit, after deducting offsetting responsibilities the Airports Authority may be required to bear, the substitution shall be submitted as a Value Engineering Change Proposal.

2.3 COMPARABLE PRODUCTS

A. Conditions: COTR will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, COTR will return requests without action, except to record noncompliance with these requirements:

1. Evidence that the proposed product does not require extensive revisions to the Contract Documents, it is consistent with the Contract Documents, it will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

PART 3 - EXECUTION

3.1 SUBMITTALS

A. Product List: Submit a list, in tabular form acceptable to COTR, showing specified products. Include generic names of products required. Include manufacturer's name and proprietary product names for each product.

1. Coordinate product list with Contractor's Construction Schedule and Submittals Schedule.
2. Form: Tabulate information for each product under the following column headings:

a. Specification Section number and title.
b. Generic name used in the Contract Documents.
c. Proprietary name, model number, and similar designations.
d. Manufacturer's name and address.
e. Supplier's name and address.
f. Installer's name and address.
g. Projected delivery date or time span of delivery period.
h. Identification of items that require early submittal approval for scheduled delivery date.
i. Item Tag Number or similar ID if identified in the drawings
j. Location (room number from the drawings)
k. Serial Number (once available)

3. Initial Submittal: Within 90 calendar days after the Notice to Proceed, submit initial product list. Include a written explanation for omissions of data and for variations from the Contract requirements.
4. COTR's Action: COTR will respond in writing to Contractor within 15 calendar days of receipt of initial product list. COTR's response will include a list of unacceptable product selections and a brief explanation of reasons for this action. COTR's response, or lack of response, does not constitute a waiver of requirement that products comply with the Contract Documents.
5. Updated submittal: Submit updated product list every 90 days following initial submittal. The updated list shall be submitted in approved electronic spread sheet format with additional fields as required by COTR.
6. Completed List: Submit an electronic copy of the completed product list 90 calendar days before requesting inspection for substantial completion. Include a written explanation for omissions of data and for variations from the Contract requirements.

B. Substitution Requests: Submit an electronic copy of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Section number and title and Drawing numbers and titles.

1. Substitution Request Form: Submit requests in the form and according to procedures required for Contract Modification proposals supplied to Contractor at the pre-construction meeting or as directed by COTR and at no additional cost to the contract. Do not submit requests for substitutions as "Requests for Information" (RFIs).
2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified material or product cannot be provided.
b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by the Airports Authority and separate contractors that will be necessary to accommodate proposed substitution.
c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.

e. Samples, where applicable or requested.
f. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
h. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
i. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
j. Cost information, including a proposal of change, if any, in the Contract Price.
k. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
l. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
m. Failure by Contractor to include the above requirements in the submittal may cause rejection of the submittal in its entirety.

3. COTR's Action: If necessary, COTR will request additional information or documentation for evaluation within 15 calendar days of receipt of a request for substitution. COTR will notify Contractor of acceptance or rejection of proposed substitution within 15 calendar days of receipt of request, or two weeks of receipt of additional information or documentation, whichever is later.

a. Form of Acceptance: Change notice.
b. Use product specified if COTR couldn’t make a decision on use of a proposed substitution within time allocated.

C. Comparable Product Requests: Submit an electronic copy of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. COTR’s Action: If necessary, COTR will request additional information or documentation for evaluation within 7 working days of receipt of a comparable product request. COTR will notify Contractor of approval or rejection of proposed comparable product request within 15 calendar days of receipt of request, or 7 calendar days of receipt of additional information or documentation, whichever is later.

a. Form of Approval: As specified in Division 01 Section "Submittals."
b. Use product specified if COTR couldn’t make a decision on use of a comparable product request within time allocated.

D. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittals." Show compliance with requirements.

3.2 QUALITY ASSURANCE

Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

3.3 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weather tight enclosure above ground, with ventilation adequate to prevent condensation.
4. Comply with product manufacturers written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
5. Store foam plastic away from exposure to sunlight, except to extent necessary for period of installation and concealment.
6. Store cementitious products and materials on elevated platforms.
7. Protect stored products from damage.
8. Replace products and materials damaged by the elements due to improper storage at no additional cost to the Airports Authority. This damage can be, but not limited to, oxidization, mold, mildew, warping, and rust.

3.4 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Authority.
2. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Authority.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using appropriate form properly executed.
3. Refer to Divisions 02 through 33 Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Division 01 Section "Project Closeout."

PART 4 - MEASUREMENT (Not used)

PART 5 - PAYMENT

All costs incurred by the Contractor to acceptably implement the requirements of this Section shall be performed at no additional cost to the Airports Authority and are part of this Contract.

END OF SECTION 016000

SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings, Contract Provisions, Special Provisions, Supplementary Conditions, and other Division 01 Specification Sections apply to this Section.

1.2 SUMMARY

A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:

1. Construction layout.
2. Field engineering and surveying.
3. General installation of products.
4. Progress cleaning.
5. Starting and adjusting.
6. Protection of installed construction.
7. Correction of the Work.

B. Related Sections include the following:

1. Division 01 Section "Project Management and Coordination" for procedures for coordinating field engineering with other construction activities.

1.3 SUBMITTALS

A. Qualification Data: Submit qualification data for land surveyors; well drillers; cathodic protection installers, technicians, and testers; NACE specialist; and Corrosion Engineer.

B. Certificates: Submit certificate signed and sealed by Corrosion Engineer certifying that Cathodic Protection System comply with requirements.

C. Project Record Documents: Submit a record of Work performed (materials tests, inspections, acceptance tests, etc.) and record survey data as required under provisions in Division 01 Sections "Submittals" and "Project Closeout."

1.4 QUALITY ASSURANCE

A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in the Commonwealth of Virginia and who is experienced in providing land-surveying services of the kind indicated.

B. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in the Commonwealth of Virginia experienced in the area for which he is utilized.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work, including all site utility systems.

B. Before construction, verify the location and points of connection of utility services.

C. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning site work, investigate and verify the existence and location of underground utilities and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical and communication services.
2. For additional requirements for locating and marking existing utilities, see Division 01 Section "Summary."

D. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:

    a. Description of the Work.
    b. List of detrimental conditions, including substrates.
    c. List of unacceptable installation tolerances.
    d. Recommended corrections.

2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
3. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
4. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
5. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to COTR that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information (RFI) to COTR. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify COTR promptly.

B. General: Engage a Registered Surveyor to layout the Work using accepted surveying practices.

1. Establish Benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
3. Inform installers of lines and levels to which they must comply.
4. Check the location, level and plumb, of every Definable Feature and Element of Work as the work progresses.
5. Notify COTR when deviations from required lines and levels exceed allowable tolerances.
6. Conduct closed site surveys with an error of closure equal to or greater accuracy than 1 part in 10,000; 3rd Order Class 1 accuracy, (e.g. 1:10,000) and (10")$\sqrt{n}$, where "n" equals the number of angles in the closed traverse.
7. Perform field survey work with sufficient precision to ensure the required accuracy of the specifications is achieved. The computed coordinate position of each horizontal control point used in compiling the plan shall be correct within the limits of 3rd Order Class 1 accuracy (that is, the horizontal error of closure shall not exceed 10 seconds times the square root of the number of instrument motions in the traverse, all before adjustment. The vertical error of closure of the control level circuit for the control Benchmarks shall not exceed plus or minus 12 millimeters times the square root of the length of the circuit in kilometers, before adjustment.). Both the horizontal and vertical measurements shall be expressed to the nearest millimeter.

C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.

D. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by COTR.

3.4 FIELD ENGINEERING

A. Identification: Existing Horizontal Control points and Benchmarks are as identified on the Contract Documents.

B. Reference Points: Locate existing permanent Benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent Benchmarks and control points during construction operations.

1. Do not change or relocate existing Benchmarks or control points without prior written approval of COTR. Report lost or destroyed permanent Benchmarks or control points promptly. Report the need to relocate permanent Benchmarks or control points to COTR before proceeding.
2. Replace lost or destroyed permanent Benchmarks and control points promptly with the approval of COTR. Base replacements on the original survey control points.

C. Benchmarks: Establish and maintain a minimum of two permanent Benchmarks on Project site, referenced to data established by survey control points. Comply with the Airports Authority for type and size of Benchmark.

1. Record Benchmark locations, with horizontal and vertical data, on Project Record Documents.
2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

D. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, including utilities, prepare a certified survey showing coordinates, dimensions, locations, angles, and elevations of construction and site work. Coordinates shall be VA State Plane North Zone (NAD 83) and elevations shall be (NAVD 88).

3.5 INSTALLATION

A. Inspection of Conditions: Require Installer of each major component to inspect both the substrate and conditions under which Work is to be performed. Proceed only after unsatisfactory conditions have been corrected in a manner acceptable to COTR. Coordinate this requirement with Division 01 Section "Quality Requirements."

B. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
4. Maintain minimum headroom clearance of 8 feet in spaces without a suspended ceiling.
5. Roughing-in of utilities in areas with vaulted or domed roofs shall follow contour of roof lines.

C. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

D. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

E. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

F. Tools and Equipment: Do not use tools or equipment that produces harmful noise levels. For additional requirements see Section "Supplementary Conditions."

G. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by COTR.
2. Allow for building movement, including thermal expansion and contraction.

H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints as directed by COTR. Fit exposed connections together to form hairline joints.

I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 AUTHORITY-INSTALLED PRODUCTS (Not Used)

3.7 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Remove combustible debris from the site daily.
3. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F.

4. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Cutting and Patching: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

1. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.

H. Waste Disposal: Burying or burning waste materials on-airport property will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

I. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

J. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

K. Limiting Exposures: Supervise construction operations to ensure that no part of the construction completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

L. Grass Mowing: Mow grass areas contained in Project site, or made inaccessible to the Airports Authority's mowing contractors.

3.8 STARTING AND ADJUSTING

A. Follow equipment manufacturer's startup procedures, unless otherwise directed by COTR.

B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

C. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.

D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

E. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 01 Section "Quality Requirements."

3.9 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure that installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.10 CORRECTION OF THE WORK

A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 01 Section "Cutting and Patching."

B. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

C. Restore permanent facilities used during construction to their specified condition.

D. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

E. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

F. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

PART 4 - MEASUREMENT (Not used)

PART 5 - PAYMENT

All costs incurred by the Contractor to acceptably implement the requirements of this Section shall be performed at no additional cost to the Airports Authority and are part of this Contract.

END OF SECTION 017300

SECTION 017329 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings, Contract Provisions, Special Provisions~~,~~ Supplementary Conditions, and other Division 01 Specification Sections apply to this Section.

1.2 SUMMARY

A. This Section includes procedural requirements for cutting and patching.

B. Related Sections include the following:

1. Division 02 Section "Selective Structure Demolition" for demolition of selected portions of the building for alterations.
2. Division 26 Section "Hangers and Supports for Electrical Systems" for patching fire-rated construction.
3. Divisions 02 through 33 Sections and Federal Aviation Administration (FAA) sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

1.3 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of other Work.

B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

1.4 SUBMITTALS

Cutting and Patching Proposal: Submit a proposal, requesting approval from COTR to proceed, describing procedures at least 10 days before the time cutting and patching will be performed. Include the following information:

A. Extent: Describe cutting and patching, show how they will be performed, and indicate why they cannot be avoided.
B. Changes to Existing Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.
C. Products: List products to be used and firms or entities that will perform the Work.
D. Dates: Indicate when cutting and patching will be performed.

E. Utility Services and Mechanical/Electrical Systems: List utilities that cutting and patching procedures will disturb or affect. List utilities that will be relocated and those that will be temporarily out of service. Indicate how long service will be disrupted. Before cutting/core drilling the slab, structural members, concrete walls, etc. X-ray the slab, beam, wall, etc. to determine whether any embedded items such as conduit and reinforcing steel would be cut or disturbed and provide X-rays to COTR. If the cutting/core drilling will cut any conduits, notify the COTR to re-locate the opening or take other action as required. If reinforcing steel is encountered, notify the COTR to either re-locate the opening or evaluate the effect of cutting the reinforcement. Perform this evaluation by a registered professional engineer licensed in the Commonwealth of Virginia. Refer to Division 01 Section "Summary" for utility outage requirements.

F. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure. When cutting and patching involves welding or open flame cutting, obtain the approval of the Airports Authority's Fire Marshal for such work prior to its start. Before cutting or drilling a structural element, X-ray the element to determine whether any embedded items such as conduit and reinforcing steel would be cut or disturbed and provide X-rays to COTR. If the cutting/drilling will cut any rebar or conduits, notify the COTR to re-locate the opening or take other action as required. If reinforcing steel is encountered, notify the COTR to either re-locate the opening or evaluate the effect of cutting the reinforcement. Perform this evaluation by a registered professional engineer licensed in the Commonwealth of Virginia.

G. COTR's Approval: Obtain COTR's approval in writing of cutting and patching proposal before cutting and patching. Approval does not waive COTR's right to later require removal and replacement of unsatisfactory work.

1.5 QUALITY ASSURANCE

A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.

B. Operational Elements: Do not cut and patch the following operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Obtain COTR's written approval of the cutting and patching of the following operating elements or safety related items:

1. Primary operational systems and equipment.
2. Air or smoke barriers.
3. Fire-suppression systems.
4. Control systems.
5. Communication systems.
6. Conveying systems.
7. Electrical wiring systems.
8. Operating systems of special construction in Division 13 Sections.
9. Security systems including CCTV and duress alarms.

C. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity that results in reducing their capacity to perform as intended, or that result in increased maintenance or decreased operational life or safety. Miscellaneous elements include the following:

1. Water, moisture, or vapor barriers.
2. Membranes and flashings.
3. Exterior curtain-wall construction.
4. Equipment supports.
5. Piping, ductwork, vessels, and equipment.
6. Noise- and vibration-control elements and systems.
7. Insulating systems.

D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in COTR's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
1. Processed concrete finishes.
2. Stonework and stone masonry.
3. Ornamental metal.
4. Matched-veneer woodwork.
5. Preformed metal panels.
6. Roofing.
7. Fire stopping.
8. Window wall system.
9. Stucco and ornamental plaster.
10. Terrazzo.
11. Finished wood flooring.
12. Fluid-applied flooring.
13. Aggregate wall coating.
14. Wall covering.
15. HVAC enclosures, cabinets, or covers.

E. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

1.6 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections of these Specifications.

B. Existing Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.

C. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of existing materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.

1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Temporary Support: Provide temporary support of Work to be cut.

B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

D. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned; bypass such services/systems before cutting to prevent interruption to occupied areas.

3.3 PERFORMANCE

A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

B. Cut existing construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

C. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Existing Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concrete or Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Excavating and Backfilling: Should excavating and backfilling be required by cutting and patching operations comply with requirements in applicable Division 31 Sections.
5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting. Remove conductors back to source of supply.
6. Proceed with patching after construction operations requiring cutting are complete.

D. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

    a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.

2. Ceilings: Patch, repair, or re-hang existing ceilings as necessary to provide an even-plane surface of uniform appearance.
3. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weather tight condition.

PART 4 - MEASUREMENT (Not used)

PART 5 - PAYMENT

All costs incurred by the Contractor to acceptably implement the requirements of this Section shall be performed at no additional cost to the Airports Authority and are part of this Contract.

END OF SECTION 017329

SECTION 017700 - PROJECT CLOSEOUT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings, Contract Provisions, Special Provisions, Supplementary Conditions, and other Division 01 Specification Sections apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for Project closeout, including, but not limited to, the following:

1. Inspection procedures.
2. Warranties.
3. Final cleaning.

B. Related Sections include the following:

1. Division 01 Section “Quality Requirements” for final requirements of the Warranty Manual.
2. Division 01 Section "Photographic Documentation" for submitting Final Acceptance construction photographs and negatives.
3. Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, Record Product Data, and other Record Documents.
4. Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
5. Divisions 02 through 33 Sections and Federal Aviation Administration (FAA) Sections for specific closeout and special cleaning requirements for products of those Sections.

1.3 SUBSTANTIAL COMPLETION

A. Definition*:* "Substantial Completion" is the stage in progress of Work when COTR recommends to the Contracting Officer that all the Work, or a designated portion thereof, is sufficiently complete and functional according to the Contract Documents such that the Airports Authority can occupy and/or utilize the Work for its intended beneficial use. Subsequent to Substantial Completion the only remaining physical Work shall be completion of punch list items prior to Final Acceptance.

B. Preliminary Procedures: Before requesting Authority inspection for determining date of Substantial Completion, complete the following; list items below that are incomplete in request:

1. Prepare a list of items to be completed and corrected (punch list), the contract value of items on the punch list, explanation why the Work is incomplete, and a schedule for completing punch list work according to Section III of the Contract.

2. Complete any previously delinquent technical submittals and/or Shop Drawings for approval and project as-builts records.
3. Advise COTR of any pending insurance changeover requirements, including status of OCIP-related claims.
4. Submit Warranties and Owners Manuals as required by Contract Documents, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
5. Submit Contractor Warranty Letter, for review and approval, a minimum of 60 days before requesting inspection for determining date of Substantial Completion. After date of Substantial Completion has been determined revise the Contractor's Warranty Letter(s) to include that date as start of Warranty period for each portion of the Work upon which Substantial Completion is achieved.
6. Obtain and submit Release of Liens permitting the Airports Authority unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar Releases.
7. Prepare and submit Project Record Documents (As-Builts) except Record Contract CPM Schedule; also prepare and submit Operation and Maintenance manuals, Final Completion construction photographs in digital format, damage or settlement surveys, and similar final record information.
8. Prepare and submit written evidence that specified testing and code inspections have been performed, accepted and certified.
9. Deliver tools, spare parts, extra materials, and similar items to location designated by COTR. Label with manufacturer's name and model number with manifest of deliverable.
10. Complete startup testing and commissioning of systems to demonstrate completion of Work.
11. Submit test/adjust/balance records as part of Quality documentation.
12. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements; provide restoration to original conditions as directed by COTR.
13. Provide demonstration and training to the Airports Authority's personnel in operation, adjustment, and maintenance of products, equipment, and systems, as required by Division 01 Section "Demonstration and Training." Submit demonstration and training videos.
14. Complete final cleaning requirements, including touchup painting as directed by COTR.
15. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects as directed by COTR.

C. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, COTR will either proceed with inspection or notify Contractor of unfulfilled requirements. COTR will prepare the Certificate of Substantial Completion on behalf of the Contracting Officer after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by COTR, that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Punch list work must be completed within the duration specified in Section III, "Schedule." Failure to complete punch list work within the contract duration specified may result in Liquidated Damages; and may result in the Contracting Officer ordering the work to be completed by others at the cost to Contractor.

1.4 FINAL COMPLETION AND ACCEPTANCE

A. Definition: "Final Completion" is the stage in the Contract when the Contracting Officer determines that all Work has been 100 percent completed according to the terms and conditions of the Contract Documents, including physical completion of Work, administrative requirements for closeout, and financial requirements for closeout. The date of Final Acceptance is the date of execution by the Contracting Officer of a Certificate of Final Acceptance.

B. Preliminary Procedures: Before requesting Final Inspection for determining date of Final Completion, complete the following:

1. Submit a Final Application for Payment according to Division 01 Section "Application for Payment."
2. Submit certified copy of Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by COTR. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit a Contractor/COTR joint statement evidencing that all Record Documents, Operation and Maintenance Manuals, warranties, and similar required submittals have been approved.
4. Complete demobilization and removal of temporary facilities from the site including construction equipment and facilities, mockups, and other similar elements. Restore areas to previously existing condition, if applicable.
5. Execute final Contract Modification and submit final Subcontractor Payment Form.
6. Return all AOA badging and all Authority IDs.
7. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
8. Submit Record Contract CPM Schedule.
9. Submit warranty book.

C. Inspection: Submit a written request for Final Inspection for acceptance. On receipt of request, COTR will either proceed with inspection or notify Contractor of unfulfilled requirements. COTR will prepare a final Certificate for Payment after inspection or will notify Contractor of Work that must be completed or corrected before certificate will be issued.

1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Prepare submittal of Punch List. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, areas disturbed by Contractor outside the limits of construction.

1. Organize list of areas in sequential order, by phase.
2. Include the following information at the top of each page:

    a. Contract name and number.
    b. Date.
    c. Name of COTR.
    d. Name of Architect/Engineer.
    e. Name of Contractor.

f. Page number.

1.6 WARRANTIES

A. Submittal Time: Submit one draft copy of proposed Warranty Manual Specified below within 90 days of Notice to Proceed.

1. Provide Manufacturer's Standard Warranties, made out to the Airports Authority, and statement of willingness to provide any applicable Special Warranties required by the Contract Documents 14 calendar days prior to shipping of materials and equipment. Products and Equipment shall not be considered delivered (for payment purposes) until the approved warranties have been received.
2. All warranties commence on date of acceptance of Substantial Completion for designated portions of the Work.

B. Warranty Manual: Organize warranty documents into an orderly sequence based on the table of contents of the Contract Specifications. Warranty documents include Contractor and major subcontractors warranty letters, special warranty documents, and manufacturer's warranties.

1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents. Binders shall not be filled beyond 75 percent of their rated capacity. Binders shall also have boomerang plastic sheet lifters, metal backbone, concealed rivet construction, and three-trigger position locking mechanism (lock, unlock, open) on top and bottom. Binder color shall be black unless another color is selected by COTR.

a. Provide maximum 3-inch binder thickness.
b. Identify each binder on front and spine, with printed title "PROJECT WARRANTIES," Contract number and name, and subject matter of contents. If identification cannot be attached to the front include it as the first page in the manual. Indicate volume number for multiple-volume sets. The use of business labels is prohibited.

2. Dividers: Provide three-hole, heavyweight, plastic tabbed dividers, (, or as approved by the Airports Authority) for each separate section. Provide laser printed description for each tabbed section on the front and back of tabs. Tabs shall indicate the appropriate Specification Section. Provide a description of the warranty or heading for sub tabs using the same laser printed format on the dividers. Provide an index of the contents in each section on the first page behind each section divider. The index shall be generated using a word processor and printed on a laser printer. Include a matching master table of contents for each volume using the same indexing system. Install a colored sheet between each different warranty within a tabbed section.

3. Provide a digital version of the warranty manual on CD-ROM. This version shall consist of a scanned Adobe® PDF file of each warranty document in the manual.

C. Provide additional copies of each warranty that shall be included in Operation and Maintenance Manuals upon request of COTR.

PART 2 - PRODUCTS

2.1 MATERIALS

Cleaning Agents: For final cleaning, use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with Authority requirements, local laws and ordinances and Federal and local environmental and antipollution regulations. General cleaning during construction is included in Division 01 Section "Execution."

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions. Aircraft Apron shall be cleaned to a broom clean condition.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:

    a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
    b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
    c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
    d. Remove tools, construction equipment, machinery, and surplus material from Project site.
    e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
    f. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
    g. Sweep concrete floors broom clean in unoccupied spaces.
    h. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
    i. Remove labels that are not permanent.
    j. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.

1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.

k. Wipe surfaces of mechanical and electrical equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.

l. Replace parts subject to unusual operating conditions.

C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Airports Authority's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

D. Where extra materials of value remaining after completion of associated Work have become the Airports Authority's property, arrange for disposition of these materials as directed by COTR.

PART 4 - MEASUREMENT (Not used)

PART 5 - PAYMENT

All costs incurred by the Contractor to acceptably implement the requirements of this Section shall be performed at no additional cost to the Airports Authority and are part of this Contract.

END OF SECTION 017700

SECTION 017823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings, Contract Provisions, Special Provisions, Supplementary Conditions, and other Division 01 Specification Sections apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:

1. Operation and Maintenance Documentation Directory and formatting.
2. Manuals, General and formatting
3. Emergency Information Manuals and formatting.
4. Operation Information Manuals and formatting for systems, subsystems, and equipment.
5. Maintenance Information Manuals and formatting for the care and maintenance of products, materials, finishes, systems, and equipment.

B. Related Sections include the following:

1. Division 01 Section “Application for Payment” for values assigned to Operation and Maintenance Manuals
2. Division 01 Section “Quality Requirements” for ensuring the development and continuing update of the Operation and Maintenance Documentation Directory and Operation and Maintenance Manual.
3. Division 01 Section “Submittals” for submitting copies of submittals for operation and maintenance manuals.
4. Division 01 Section “Project Closeout” for submitting operation and maintenance manuals.
5. Division 01 Section “Project Record Documents” for preparing Record Drawings for operation and maintenance manuals.
6. Divisions 02 through 33 Sections for specific operation and maintenance manual requirements for products in those Sections.

C. For purposes of payment, “Operation and Maintenance (O & M)” and “Material and Finishes” Manuals are to be valued at 5% of Contract.

D. Payment for materials and equipment will be withheld if complete O & M Manual is not received from Contractor at time of material or equipment delivery; namely, instruction sheets, operation manuals, installation instructions, and other documents received from the manufacturer at the time of delivery.

1.3 DEFINITIONS

A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.

B. Subsystem: A portion of a system with characteristics similar to a system.

C. Equipment: An instrument or appliance designed for a specific operation.

D. Product: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

E. Location: A defined area such as roof, room, hallway, ceiling, pavement, wall, or floor that has special maintenance requirements that are documented in the Operation and Maintenance Data.

1.4 SUBMITTALS

A. Operation and Maintenance Manual Format: Submit to COTR, via Airports Authority Program Management Software system, within 90 calendar days of Notice to Proceed an electronic copy of the proposed Operation and Maintenance Manual Format. Format shall include a Table of Contents as specified in Part 2 of this Section. COTR will return comments regarding the Operation and Maintenance Manual Format and planned contents of the completed manual within 30 calendar days of receipt. Throughout the construction period of the project, Operation and Maintenance data shall be continually inserted in the appropriate sections/parts of the Manual as it is approved.

B. Operation and Maintenance Manuals Initial Submittal: Submit one (1) draft paper copy and an electronic draft copy of each Manual in the approved format, transmitted using the Airports Authority Program Management Software system, including four (4) copies on CD-ROM containing all information from the manuals in electronic format, at least 90 calendar days before requesting inspection for Substantial Completion. COTR will return a copy of draft within 30 calendar days of receipt, and mark whether general scope and content of Manuals are acceptable.

C. Operation and Maintenance Manuals Pre-final Submittals: Submit one (1) revised paper copy and an electronic copy of each manual in final form, transmitted using the Airports Authority Program Management Software system,, including four (4) copies on CD-ROM containing all the information from the manuals in electronic format, at least 45 calendar days before substantial completion or training, whichever occurs first. COTR will return a copy with comments within 15 calendar days after receipt.

D. Operation and Maintenance Manuals Final Submittal: Correct or modify each manual to comply with COTR’s comments. Submit six (6) printed copies of the Document Directory and six (6) printed copies of each corrected manual at least 15 calendar days before substantial completion or training, whichever occurs first. Also:

1. Provide six (6) copies of all Operation and Maintenance Data in electronic format on CD-ROM consistent with the organization and format in the "Manuals, General" section. All electronic files shall be in Adobe PDF format and limited to 10 megabytes in size per file.
2. All information must be legible in the digital versions. Instead of scanned images, Original files are required.

1.5 COORDINATION

A. Where operation and maintenance documentation includes information on installations by more than one factory-authorized service representative, the General Contractor shall assemble and coordinate information furnished by representatives and prepare manuals.

PART 2 - PRODUCTS

2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY (Not Used)

2.2 MANUALS, GENERAL

A. Organization: Unless otherwise indicated, organize information by Division and then into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following in the order listed:

1. Title page.
2. Table of contents.
3. Manual contents.

B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information on the title page:

1. Specific subject matter included in manual such as Division number and title, Specification Section number and title, equipment, systems and subsystems.
2. Name and number of the Contract.
3. Date of submittal.
4. Name, address, telephone number, and contact person of Contractor, Subcontractor, and supplier.
5. Name and address of Architect/Engineer.
6. Cross-reference to related systems in other portions of the Operation and Maintenance Manuals.

C. Table of Contents: Include a Table of Contents, printed by a laser printer, for each volume, arranged according to the specification sections. List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in the Contract Documents.

1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.

D. Manual Contents: Organize into sets of manageable size. Arrange contents by Division then by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

1. Binders: Heavy-duty, 3-ring metal hinged loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents. Binders shall not be filled beyond 75 percent of their rated capacity. Binders shall also have boomerang plastic sheet lifters, concealed rivet construction, and three-trigger position Dublock mechanism (lock, unlock, open) on top and bottom of binders. Binder color shall be black unless another color is selected by COTR.

    a. Provide maximum 3 inch binder thickness. Smaller binders are acceptable as long as 75 percent rated binder capacity is not exceeded.
    b. If two or more binders are necessary to accommodate data for a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
    c. Identify each binder on front (If Identification cannot be placed on the front provide as the first page) and spine of binder, with printed title "OPERATION AND MAINTENANCE MANUAL," Contract number and name, and specific subject matter of contents, such as "Division 23 Heating Ventilating and Air Conditioning". Indicate volume number for multiple-volume sets. The use of business labels is prohibited.

2. Dividers: Provide three-hole, heavyweight, and plastic tabbed dividers for each separate section. Provide laser printed description for each tab section (front and back of tabs), to indicate the appropriate Specification Section. Provide a description of the product or heading for sub tabs using the same laser printed format on the dividers.

3. Provide a typed index describing each product, equipment, and subject addressed in each section on the first page behind each section divider. Include a matching master table of contents for each volume using the same indexing system. Install a colored sheet between major topics and each different device within a tabbed section.

4. Protective Plastic Sleeves: Provide protective transparent plastic sheet protectors to enclose the Title Page, all Table of Content pages, and photographs.

    a. For CD-ROMs, provide transparent plastic three-ring sleeves designed to accommodate CD-ROMs.

5. Text: Prepared on 8-1/2-by-11-inch, 20-lb/sq. ft. white bond paper. Copies of faxed materials may be rejected. Two-sided text shall be provided on 24-lb/sq. ft. white bond paper to eliminate "bleed through" of text with a minimum brightness of 96.

6. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.

    a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.

b. If drawings are too large to be used as foldouts, fold and place drawings in transparent envelopes and bind envelopes with text. Insert typewritten pages indicating drawing titles, descriptions of contents, in the transparent envelopes along with drawings. Drawings shall cross-reference the appropriate manual volume and Specification Section. Drawing holding envelopes are not acceptable.
c. Provide operation and maintenance material on CD-ROM.

E. Transfer Cases: Manuals shall be submitted in durable, multiple thickness fiberboard transfer boxes (legal-size boxes, 15 inches wide by 24 inches long by 10 inches high) with plastic tote handles string and button closures, reinforced poly edge, and a large labeling area that accurately describes the contents.

1. Approved Product: Bankers Box, "Liberty Plus," Fast Fold, Item No. 12112 or other product as approved by the Airports Authority.

2.3 EMERGENCY INFORMATION

A. Content: Organize information by Division into a separate section for each of the following:

1. Type of emergency.
2. Emergency instructions.
3. Emergency procedures.

B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:

1. Power failure.
2. System, subsystem, or equipment failure.

C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of the Airports Authority's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

D. Emergency Procedures: Include the following, as applicable:

1. Instructions on stopping.
2. Shutdown instructions for each type of emergency.
3. Operating instructions for conditions outside normal operating limits.
4. Required sequences for electric or electronic systems.
5. Special operating instructions and procedures.

E. Provide a draft of the proposed Emergency Information Manual. Submit draft at least 90 calendar days before requesting inspection for Substantial Completion to COTR for approval in writing.

2.4 OPERATION INFORMATION

A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information. Organize manuals into separate and distinct volumes by Division.

1. System, subsystem, and equipment descriptions.
2. Safety instruction and related issues.
3. Performance and design criteria if Contractor is delegated design responsibility.
4. Operating standards.
5. Operating procedures.
6. Operating logs.
7. Wiring diagrams, including color-coding and terminal designations. Include all factory preset or field-set dip switch and jumper settings for all electronic equipment.
8. Control diagrams.
9. Piped system diagrams.
10. Precautions against improper use.
11. License requirements including inspection and renewal dates.
12. Safety Data Sheets.

B. Operating Procedures: Include the following, as applicable:

1. Startup procedures.
2. Equipment or system break-in procedures.
3. Routine and normal operating instructions.
4. Regulation and control procedures.
5. Instructions on stopping.
6. Normal shutdown instructions.
7. Seasonal and weekend operating instructions.
8. Required sequences for electric or electronic systems.
9. Special operating instructions and procedures.
10. Procedures or operations that may void warranty.
11. Copies of equipment warranties.

C. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

D. Piped Systems: Diagram piping as installed and color-coding shall be used where required for identification.

E. Provide a draft of the proposed Operation Information Manual. Submit draft at least 90 calendar days before requesting inspection for Substantial Completion to COTR for approval in writing.

2.5 PRODUCT MAINTENANCE INFORMATION

A. This Section shall contain information for all products with the exception of Systems and Equipment, which shall be provided as indicated elsewhere in this Section.

B. Content: Organize information into a separate section for each product, material, and finish. Provide one section for architectural products, including applied materials and finishes, and a second for products designed for moisture protection and products exposed to the weather. Include source information, product information, maintenance procedures, repair materials and sources, schedule of products, location of products and warranties and bonds, as described below.

C. Source Information: List each product included in manual identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

D. Product Information: Include the following, as applicable:

1. Product name and model number.
2. Manufacturer's name.
3. Color, pattern, and texture.
4. Material and chemical composition.
5. Reordering information for specially manufactured products.
6. Fire/flame-spread test certificates.
7. Material Safety Data Sheets.

E. Maintenance Procedures: Include manufacturer's written recommendations and the following:

1. Inspection procedures.
2. Types of cleaning agents to be used and methods of cleaning.
3. List of cleaning agents and methods of cleaning detrimental to product.
4. Schedule for routine cleaning and maintenance.
5. Repair instructions.

F. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

G. Schedule of Products and Locations: Provide complete information, including reference drawings, in the materials and finishes manual on all products specified in Divisions 02 through 33.

H. Warranties and Bonds: Provide copies of all applicable warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.
2. Clearly indicate commencement and expiration dates.

I. Provide a draft of the proposed Product Maintenance Information Manual. Submit draft at least 90 calendar days before requesting inspection for Substantial Completion to COTR for approval in writing.

2.6 SYSTEMS AND EQUIPMENT MAINTENANCE INFORMATION

A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, preventative maintenance program, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below. Organize information into separate and distinct volumes by Division, and further divided into separate volumes by system (for example, HVAC systems and plumbing systems).

B. Source Information: List each system, subsystem, and piece of equipment included in manual identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Descriptions: Include the following:

1. Product name, model number, and location.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.
7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.
10. Charts of valve tag numbers, with the room number location and function of each valve.
11. Circuit directories of panelboards for electric and electronic systems, including the following:

    a. Electric service.
    b. Controls.
    c. Telecommunications.
    d. Computer network.
    e. Security.

D. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:

1. Safety information.
2. Standard printed maintenance instructions and bulletins.
3. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
4. Identification and nomenclature of parts and components.
5. List of items recommended to be stocked as spare parts.

E. Preventative Maintenance Plan: Provide an annual preventative maintenance plan indicating when maintenance tasks should be performed, such that work is spread evenly as possible throughout the year. Preventative Maintenance should not be misconstrued as reconditioning, or major repairs or replacement of components, but designed to reveal through certain

procedures and inspection the need for such actions in time to prevent malfunctions during operation.

F. Preventative Maintenance and Maintenance and Repair Procedures: Include the following information and items that detail essential preventative maintenance and maintenance and repair procedures:

1. Preventative Maintenance:

a. Provide instructions and location diagrams for the following:

1) Checking general condition of System and Components.
2) Inspecting for accumulation of dust, dirt or any foreign matter, and clean as needed.
3) Cleaning or replacing all filters and screens and adjust packing for pumps, valves, etc.
4) Examining indicating lamps, gauges, thermometers, etc., and replace as required.
5) Checking electrical primary, secondary, terminal blocks and contacts, for loose connections.
6) Checking Operation of strainers, valves, instruments and control switches, including their contacts.
7) Checking instrument transformers for proper condition and replace burned out fuses.
8) Removing dust from all electrical insulators and insulation and inspecting bus bars and connections for proper condition, loose connection, and overheating or overloads.
9) Examining safety interlocks, automatic shutters, dampers, valves, etc, and their operating mechanisms for proper operation.
10) Checking space heaters, thermostats, and all controls for proper operation
11) Lubricating mechanisms, contacts, and other moving component parts.
12) Specific procedures applicable to specialized equipment and systems.

2. Maintenance and Repairs:

a. Include information and detailed diagnostic testing and inspection instructions, and procedures that detail essential system and equipment maintenance procedures including but not limited to:

1) Examination of shaft seal for excessive leakage.
2) Monitoring of systems for excessive bearing noise.
3) Checking equipment motor housing for excessive heat buildup.
4) Measuring and recording suction and discharge pressures.
5) Verifying lubrication requirements.
6) Realignment of shaft coupling.
7) Checking motor amperes drawn at full load.
8) Checking motor shaft run-out
9) Performing thermographic scanning of motor starters, motors, pumps, and all mechanical and electrical equipment that requires a connection.

10) Proper cleaning and corrosion control of drip pan and drainage lines.
11) Inspection of internal equipment components for unusual wear of failure.
12) Procedures for maintenance including precautions against improper maintenance.

b. Include the following information and items that detail essential system and equipment repair procedures:

1) Complete troubleshooting guide.
2) Complete repair instructions including equipment and component removal, disassembly, repair, and replacement; and reassembly instructions.
3) Aligning, adjusting, and checking instructions including noise, vibration, and efficiency adjustments.
4) Demonstration and training video, if such video, CD-ROM or DVD is provided by the manufacturer.

G. Maintenance Service Schedules

1. Provide recommended frequencies, inspections, service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and maintenance and service with standard time allotment.

a. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
b. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.

H. Spare Parts List, Recommended Inventory Requirements, and Source Information: Include lists of replacement and repair parts, with parts identified, and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

I. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

J. Schedule of Products and Locations: Provide complete information, including reference drawings if necessary, in the Equipment and Systems manual on all products specified in Divisions 02 through 33.

K. Warranties and Bonds: Include copies of all applicable warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.
2. Clearly indicate commencement and expiration dates.

L. Provide a draft of the proposed Product Maintenance Information Manual. Submit draft at least 90 calendar days before requesting inspection for Substantial Completion to COTR for approval in writing.

2.7 WARRANTY MANUAL

A. Organize warranty documents into an orderly sequence based on the table of contents of the Contract Specifications. Warranty documents include Contractor and Major Subcontractors warranty letters, special warranty documents, and manufacturer's warranties.

B. Binders: Heavy-duty, 3-ring metal hinged loose-leaf binders in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents. Binders shall not be filled beyond 75 percent of their rated capacity. Binders shall also have boomerang plastic sheet lifters, metal backbone, concealed rivet construction, and three-trigger position DublLock mechanism (lock, unlock, open) on top and bottom. Binder color shall be black unless another color is selected by COTR.

C. Identify each binder on front (If identification can not be attached to the front include it as the first page in the manual) and spine, with printed title "PROJECT WARRANTIES," Contract number and name. The use of business labels is prohibited.

D. Dividers: Provide three-hole, heavyweight, and tabbed dividers for each separate section. Provide laser printed description front and back of tabs, to indicate the appropriate Specification Section. Provide a typed index of the contents in each section on the first page behind each section divider. Include a matching master table of contents for the manual using the same indexing system. Install a colored sheet between each different warranty within a tabbed section.

E. Provide additional copies of each warranty to include in operation and maintenance manuals.

F. Provide a draft of the proposed Warranty Manual. Submit draft at least 90 calendar days before requesting inspection for Substantial Completion to COTR for approval in writing.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

A. Compile all required information, as it is approved, into volumes grouped first by specification Division and then by Section in accordance with the information requirements outlined in Part 2 of this specification section and the approved Operation and Maintenance Manual Format.

B. For the first Directory Submittal, prepare a separate manual that provides an organized reference to the complete manual set. Subsequent submittals of the Directory shall integrate this information by Division.

C. Emergency Information: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by the Airports Authority’s operating personnel for types of emergencies indicated. Include the emergency information in the volume of the manual set to which it applies.

D. Product Maintenance Information: For Divisions that specify products (refer to definitions) assemble a complete set of maintenance data indicating manufacturer’s product information, part numbers, description, and care and maintenance instructions for each product, material, and

finish incorporated into the Work. Provide sufficient information, and when applicable color samples, for all products to enable repair or replacement of matching products or finishes.

E. Operation and Maintenance Information: For Divisions that specify systems, sub-systems, and equipment (refer to definitions) assemble a complete set of operation and maintenance and repair data providing complete information for each system, subsystem, and piece of equipment. Include complete operation, preventative maintenance, maintenance and repair instructions, and parts listing with sources indicated; recommended parts inventory listing, and similar information. Include all diagnostic and repair information available to manufacturer's and Installer's maintenance personnel.

1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by the Airports Authority's operating personnel.

F. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet with black arrows to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

1. Provide supplementary text if manufacturers' standard printed data is not provided by the manufacturer. Provide supplementary text where the information is necessary for proper operation and maintenance of equipment or systems.

G. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams and their relation to the structure or facility. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation. Prepare floor plans that show the location of equipment in the building.

1. Do not use original Project Record Documents as part of Operation and Maintenance Manuals.
2. Comply with requirements of newly prepared Record Drawings in Division 01 Section "Project Record Documents."

H. Comply with Division 01 Section "Project Closeout" for a schedule for submitting operation and maintenance documentation.

PART 4 - MEASUREMENT (Not used)

PART 5 - PAYMENT

All costs incurred by the Contractor to acceptably implement the requirements of this Section shall be performed at no additional cost to the Airports Authority and are part of this Contract.

END OF SECTION 017823

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings, Contract Provisions, Special Provisions, Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:

1. Record Drawings.
2. Record Specifications
3. Record Product Data.
4. Record Schedule.
5. Miscellaneous Record Submittals.
6. Computer Aided Design and Drafting (CADD) requirements for Record Drawings.

B. Related Sections include the following:

1. Division 01 Section “Construction Progress Documentation" for construction schedules as basis for Record Schedule.
2. Division 01 Section “Quality Requirements” for ensuring the record drawings and specifications are kept current on a daily basis and marked to show deviations which have been made from the original Contract documents
3. Division 01 Section "Project Closeout " for general closeout procedures
4. Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
5. Divisions 02 through 33 Sections and Federal Aviation Administration (FAA) Sections for specific requirements for Project Record Documents of products in those Sections.

1.3 SUBMITTALS

A. CADD Record Drawings. Comply with the following:

1. Submit copies of CADD Record Drawings as follows:

a. Initial Submittal: Submit one set of complete, full-sized, CADD Record Drawings. Additional sets of drawings are not to be copied and submitted until after substantial completion to insure all changes are shown on the drawings. The COTR will facilitate review of drawings and indicate whether the CADD Record Drawings are acceptable. The COTR will return review comments indicating any

corrections that need to be made to the drawings. The corrected CADD Record Drawings may then be reproduced, and organized into sets, printed, bound, and submitted as final submittal.

b. Final Submittal: After construction is complete and changes are recorded, submit six complete, full-sized, printed sets of CADD Record Drawings. Include each sheet, whether or not changes and additional information were recorded. Submit two copies of the CADD Record drawings in the approved electronic format. In addition, submit the original set of marked-up record drawings onto which the mark-ups were made.

B. Record Specifications: Submit electronic copy of Project Specifications, including addenda and contract modifications.

C. Record Product Data: Submit an electronic copy of each Product Data submittal at the direction of the COTR.

1. Where Record Product Data is required as part of operation and maintenance manuals, submit marked-up Product Data as an insert in the manual instead of submittal as Record Product Data.

D. Record Samples: Submit Record Samples as specified.

E. Record Schedule: Submit an electronic copy of Record Schedule.

F. Miscellaneous Record Submittals: Submit miscellaneous Record Submittals as specified.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: During construction, maintain one complete, full sized, set of blue- or black-line prints of the Drawings, applicable shop drawings, and coordination drawings for record purposes. These drawings shall be updated periodically, by the contractor, in CADD to replace the hand mark-ups. The mark-ups shall be preserved for the record. A complete set of Conformed Drawings in CADD will be provided to the Contractor for his use in maintaining the CADD Record Drawings. The CADD files will be provided in Bentley Microstation v8**.**

1. Maintenance of Drawings: Maintain the drawings in a clean, dry, legible condition. Keep drawings available during normal working hours for inspection by the COTR.
2. Preparation: Routinely mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the mark-ups on the record set.

a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later especially underground structures.
b. Record information in an understandable drawing technique. Ensure mark-ups are legible and reproducible.

c. Record data as soon as possible after obtaining it. Record and check markups before enclosing concealed installations.

3. Content: Types of items requiring marking include, but are not limited to, the following:

a. Dimensional changes to Drawings.
b. Revisions to details shown on Drawings.
c. Depths of foundations below first floor.
d. Locations and depths of underground utilities.
e. Revisions to routing of piping and conduits.
f. Revisions to electrical circuitry.
g. Actual equipment locations.
h. Duct size and routing.
i. Locations of concealed internal utilities.
j. Changes made by Change Notice and RFI.
k. Changes made following COTR's written orders.
l. Details not on the original Drawings.
m. Field records for variable and concealed conditions.
n. Record information on the Work that is shown only schematically.

4. Mark the Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, insert them into drawing set and assign an appropriate sheet number (one that follows the number sequence of the contract drawings). Show cross-references to the new sheets on the Drawings. Update drawing index as needed to reflect new sheets.
5. Mark record drawings with red pen that will reproduce clearly. Use different colors to distinguish between changes for different categories of the Work at the same location.
6. Mark important additional information that was either shown schematically or not indicated on the original Drawings.
7. Note applicable Construction Change Notices, Requests for Information, Technical Support Requests, and similar identification numbers, where applicable. Copies of change documentation shall be inserted into the set for clarification but are not a substitute for mark-ups. If identification numbers for documentation are marked on the drawing when no change resulted, indicate "No Change".

B. Newly Prepared Project Record Drawing Sheets: The contractor may add new sheets with supporting sketches and change documentation instead of marking original sheets when neither the original Drawings nor Shop Drawings are suitable to show actual installation or if the new sheets can show the changes more clearly or additional space is required for markup information.

1. Assign a number to each new sheet and cross-reference on the appropriate related sheets.
2. Consult with COTR for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to other construction.
3. Integrate newly prepared sheets into Record Drawing sets and update drawing index to reflect new sheets.

C. Format:

1. Identify and date each Record Drawing. Include the designation “PROJECT RECORD DRAWING” in a prominent location on each sheet.
2. Cover Sheet shall have the designation “PROJECT RECORD DRAWINGS”, Date, Name of Contractor, and signature.
3. Record CADD Drawings:

    a. CADD files provided by COTR and utilized for recording of record mark-ups shall maintain the format of the files provided. Place electronic mark-ups in a newly created layer on each drawing.
    b. CADD files created by Contractor: Organize CADD information into separate electronic files that correspond to each sheet of the Record Drawing set. Name each file with the sheet identification. Include identification in each CADD file.

4. Include the following identification on newly prepared Project Record Drawing Sheets:

    a. Project name.
    b. Date.
    c. Designation "PROJECT RECORD DRAWING."
    d. Name of Architect/Engineer (if applicable).
    e. Name of Contractor.
    f. Initials of person incorporating the change.
    g. Drawing identification number. (Ixx/Dxx)

5. Organization of Newly Prepared Project Record Drawing Prints: Organize newly prepared Record Drawings into manageable sets. Include any contract required coordination drawings and applicable shop drawings. Bind each set with durable paper cover sheets. Include identification on cover sheets.

D. ADDITIONAL REQUIREMENTS FOR RECORD DRAWINGS

1. When there are multiple copies of the same sheet with different mark-ups on each copy, the General Contractor is responsible for consolidating all mark-ups onto a single copy of each individual sheet.
2. The information from all RFI's, Change Notices, Design Clarifications, field adjustments, or any other changes, must be noted on the appropriate drawing. These mark-ups must include enough information to clearly show the actual constructed conditions resulting from the change. The information may be drawn onto the drawing, copied onto the drawing or copied onto a new full size sheet. Every change in construction must have RFI’s, Change Orders or similar supplementary documents; therefore they must be copied in original size and attached to the back of the preceding drawing or at the end of the drawing set, as an appendix, as a full size sheet, same in size as the drawing set. Multiple RFI’s, CN’s and other supplemental documents may be copied in each single sheet.
3. All changes made on the drawings shall reference the appropriate RFI, Change Notices, Design Clarification, or details from the contractor prepared shop drawings. If the mark-up is due to a field adjustment, it shall be indicated as such.
4. Additional Sheets such as shop drawings and sheets showing copies of applicable change documentation must be inserted into the set as necessary. Such sheets shall have a title block.

5. Notes and sketches printed by hand are acceptable but shall be neat, legible, and reproducible. Hand lettering shall be 3/8" high minimum.
6. All shop drawings showing information not on the construction drawings (with the exception of concrete embedded steel reinforcement bending drawings and steel reaction and fabrication drawings) shall be marked up and included in the record drawing set. They shall be the same size (changes in scale noted) as all other drawings, include a title block, and clearly indicate that they are record shop drawings. When the shop drawings more accurately show locations and conditions, they may be marked in lieu of referenced on the original drawings. This does not relieve the contractor from the shop drawing inclusion requirements in the Operation and Maintenance Manuals that are a separate item
7. Include contract required coordination drawings in the record drawing set.

2.2 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications. Print marked specifications, addenda, and contract modifications on paper any color but white and ensure that black font is clearly legible on the color chosen. Use the same paper color throughout the project. Use black font for these changes.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the brand name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of the manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
5. Note related Change Orders, Record Drawings, and Product Data where applicable.

2.3 RECORD PRODUCT DATA

A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, Record Drawings, and Product Data where applicable.
4. Upon completion of mark-up, submit a complete set of record Product Data to COTR for the Airports Authority's records.
5. Where Record Product Data is required as part of maintenance manuals, submit marked-up product data as an insert in the manual.

2.4 RECORD SAMPLE SUBMITTAL

A. Prior to date of Substantial Completion, the Contractor shall meet the Airports Authority's personnel at the site to determine which of the samples maintained during the construction period shall be transmitted to the Airports Authority for record purposes. Comply with the COTR's instructions for packaging, identification marking, and delivery to the Airports Authority's sample storage space. Dispose of other samples in manner specified for disposal of surplus and waste materials.

2.5 RECORD SCHEDULE

A. Record Schedule Submittal: Immediately prior to date of inspection for Final Acceptance, submit a copy of the As-built Contract CPM Schedule (if applicable) to the COTR.

B. Mark the Contractor’s Construction Schedule to show actual start and finish dates for all work activities and milestones, based on the accepted monthly updates. This Record Schedule shall be in same format as Contractor’s Construction Schedule. This Record Schedule shall be in tabular and in time-scaled PDM plot formats.

2.6 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference. Submit to COTR.

1. Categories of requirements resulting in miscellaneous records include, but are not limited to the following:

    a. Field records on excavations and foundations.
    b. Field records on underground construction and similar Work.
    c. Survey showing locations and elevations of underground lines.
    d. Invert elevations of drainage piping.
    e. Surveys establishing building lines and levels.
    f. Authorized measurements utilizing unit prices or allowances.
    g. Records of plant treatment.
    h. Ambient and substrate condition tests.
    i. Certifications received in lieu of labels on bulk products.
    j. Batch mixing and bulk delivery records.
    k. Testing and qualification of tradesmen.
    l. Documented qualification of installation firms.
    m. Load and performance testing.
    n. Inspections and certifications by governing authorities.
    o. Leakage and water-penetration tests.
    p. Fire resistance and flame spread test results.
    q. Final inspection and correction procedures.
    r. Summary letter from Special Inspector indicating structural work was completed in accordance with applicable standards.
    s. Report of potable water testing.
    t. Backflow prevention certificates.

u. Final inspections of all trades.
v. Certificates for piping for fire protection systems and FPS supervisory systems.
w. Approvals of Health Department or FDA as applicable.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur.

B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Repair or reproduce torn or dirty sheets. Provide access to Project Record Documents for COTR's reference during normal working hours.

PART 4 - MEASUREMENT (Not used)

PART 5 - PAYMENT

All costs incurred by the Contractor to acceptably implement the requirements of this Section shall be performed at no additional cost to the Airports Authority and are part of this Contract.

END OF SECTION 017839

SECTION 017900 - DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings, Contract Provisions, Special Provisions, Supplementary–Conditions, and other Division 01 Specification Sections apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for instructing the Airports Authority's personnel, including the following:

1. Demonstration of operation of systems, subsystems, and equipment.
2. Training in operation and maintenance of systems, subsystems, and equipment.

B. Related Sections include the following:

1. Division 01 Section “Application for Payment for cost values assigned to Demonstration and Training requirements.
2. Division 01 Section "Project Management and Coordination" for requirements for pre-instruction conferences.
3. Division 01 Section “Operation and Maintenance Data for preparing and submitting demonstration and training agenda and course of study.

1.3 SUBMITTALS

A. Instruction Program: Submit, 90 calendar days prior to request for substantial completion inspection, two copies of outline of instructional program for demonstration and training, including a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.

1. Provide two separate sessions per module. One session per module shall be conducted after normal working hours.
2. At completion of training, submit six (6) complete set(s) of training manual(s) for the Airports Authority's use.
3. Provide one additional session per module 6 months after initial training and system has been in operation.

B. Attendance Record: For each training module, submit list of participants and length of instruction time.

C. Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.

D. Demonstration and Training Video: Submit two copies at end of each training module on media that will play in a standard DVD player.

1.4 QUALITY ASSURANCE

A. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Division 01 Section "Quality Requirements," experienced in operation and maintenance procedures and training.

C. Videographer Qualifications: A videographer who is a trained professional with a minimum of five years' experience in video recording training sessions.

D. Pre-instruction Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to demonstration and training including, but not limited to, the following:

1. Inspect and discuss locations and other facilities required for instruction.
2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
3. Review required content of instruction.
4. Review weather, forecasted weather conditions, and procedures to follow if conditions are unfavorable for instruction that must occur outside.

1.5 COORDINATION

A. Coordinate instruction schedule with the Airports Authority's operations. Adjust schedule as required to minimize disrupting the Airports Authority's operations. Coordinate with COTR.

B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.

C. Coordinate content of training agenda with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by COTR.

D. Ensure that approved Operations and Maintenance Manuals are available prior to conducting any training.

PART 2 - PRODUCTS

2.1 INSTRUCTION PROGRAM

A. Program Structure: Develop an instruction program that includes individual training agenda for each system, sub system, and equipment. Develop an instruction program for equipment that is not part of a system or a subsystem, as required by individual Specification Sections.

B. Training Agenda: Develop a learning objective and teaching outline for each agenda. Submit to COTR 45 calendar days prior to request for substantial completion inspection. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following:

1. Basis of System Design, Operational Requirements, and Criteria: Include the following:

    a. System, subsystem, and equipment descriptions.
    b. Performance and design criteria if Contractor is delegated design responsibility.
    c. Operating standards.
    d. Regulatory requirements.
    e. Equipment function.
    f. Operating characteristics.
    g. Limiting conditions.
    h. Performance curves.

2. Documentation: Review the following items in detail:

    a. Emergency manuals.
    b. Operations manuals.
    c. Maintenance manuals.
    d. Project Record Documents.
    e. Identification systems.
    f. Hazards/Material Safety Data Sheets.
    g. Warranties and bonds.
    h. Maintenance service agreements and similar continuing commitments.

3. Emergencies: Include the following, as applicable:

    a. Instructions on meaning of warnings, trouble indications, and error messages.
    b. Instructions on stopping.
    c. Shutdown instructions for each type of emergency.
    d. Operating instructions for conditions outside of normal operating limits.
    e. Sequences for electric or electronic systems.
    f. Special operating instructions and procedures.

4. Operations: Include the following, as applicable:

    a. Startup procedures.
    b. Equipment or system break-in procedures.
    c. Routine and normal operating instructions.
    d. Regulation and control procedures.
    e. Control sequences.
    f. Safety procedures.
    g. Instructions on stopping.
    h. Normal shutdown instructions.
    i. Operating procedures for emergencies.
    j. Operating procedures for system, subsystem, or equipment failure.
    k. Seasonal and weekend operating instructions.
    l. Required sequences for electric or electronic systems.

m. Special operating instructions and procedures.

5. Adjustments: Include the following:

a. Alignments.
b. Checking adjustments.
c. Noise and vibration adjustments.
d. Economy and efficiency adjustments.

6. Troubleshooting: Include the following:

a. Diagnostic instructions.
b. Test and inspection procedures.

7. Maintenance: Include the following:

a. Inspection procedures.
b. Types of cleaning agents to be used and methods of cleaning.
c. List of cleaning agents and methods of cleaning detrimental to product.
d. Procedures for routine cleaning
e. Procedures for preventive maintenance.
f. Procedures for routine maintenance.
g. Instruction on use of special tools.

8. Repairs: Include the following:

a. Diagnosis instructions.
b. Repair instructions.
c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
d. Instructions for identifying parts and components.
e. Review of spare parts needed for operation and maintenance.

PART 3 - EXECUTION

3.1 PREPARATION

A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training agenda into a combined training manual.

B. Provide conditioned space with tables and chairs for conducting the classroom portion of all training.

C. Provide instructional equipment at instruction location.

3.2 INSTRUCTION

A. Engage qualified instructors to instruct the Airports Authority's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.

1. Furnish an instructor, approved by COTR, to describe basis of each system designed for this project, operational requirements, criteria, and regulatory requirements.
2. COTR will furnish Contractor with names of training participants.

B. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.

1. Schedule training with COTR with at least 30 calendar days' advance notice.
2. Submit a daily training agenda (module) to COTR for review and approval for each system/equipment no later than 15 calendar days prior to the scheduled system equipment startup. After granting the agenda approval, COTR shall provide a listing of dates, times, and places of the training programs for Contractor coordination.

C. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of a demonstration performance-based test.

D. Demonstration and Training Video: Record instruction of the Airports Authority's personnel in the operation and maintenance of equipment and systems. Edit video to remove non-instructional conversation. Videographer shall select vantage points to best show equipment, systems, and procedures demonstrated. Provide movie file of each unique training session in its entirety. Record video at a recording quality Equal to or better than a standard DVD.

1. Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.
2. At beginning of each training module, record each chart containing learning objective and lesson outline.

E. Cleanup: Collect used and leftover educational materials and give to the Airports Authority. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

PART 4 - MEASUREMENT (Not used)

PART 5 - PAYMENT

All costs incurred by the Contractor to acceptably implement the requirements of this Section shall be performed at no additional cost to the Airports Authority and are part of this Contract.

END OF SECTION 017900

MECHANICAL PERFORMANCE SPECIFICATION

PART 1 - GENERAL

1.01 SCOPE:

A. This Performance Specification describes the mechanical requirements for the design, materials, fabrication, installation, inspection, testing, painting and shipping of isolation valve pits for the Jet-A fuel hydrant system at Washington Dulles International Airport. The system shall include all components related to the isolation valve pit including, but not limited to (equipment listed below is required for each pit, with a total of 8 isolation valve pits required):

1. Fiberglass isolation valve pit (IVP) assembly, including isolation valve and vents/drains.
2. Reinforced concrete encasement of fiberglass IVP, designed by a structural engineer licensed in the State of Virginia (see civil performance specification).
3. All pipe, fittings, gaskets, bolts, and nuts required for a fully functional installation.
4. Tie-ins to existing piping where required.
5. Demolition/abandonment of existing piping, including isolation valve pits where new pits are installed in the same general location.
6. Cathodic protection test station located in pavement adjacent to pit cover, including wires and bonding to pipe inside pit (see civil performance specification).

B. The Design-Builder is responsible for developing all applicable design calculations, specifications, and drawings sufficient to describe the details of construction for the Owner's review.

1.02 REFERENCES:

A. Applicable Standards:

1. American Society of Mechanical Engineers (ASME)
2. American Society for Testing and Materials (ASTM)
3. American National Standards Institute (ANSI)
4. American Petroleum Institute (API)
5. National Fire Protection Agency (NFPA)
6. Factory Mutual Engineering Division (FM)
7. American Bearing Manufacturers’ Association (ABMA)
8. National Electrical Manufacturers’ Association (NEMA)
9. Local Governing Code

10. MWAA Design Manual (latest edition)
11. MWAA Orders & Instructions (IAD)
12. MWAA Division 1 Specifications

1.03 SUBMITTALS:

A. Submittals shall be as specified in Statement of Work.

1.04 QUALITY ASSURANCE:

A. Quality Assurance and Quality Control shall be as specified in Statement of Work.

1.05 DELIVERY, STORAGE, AND HANDLING:

A. Design-Builder shall be responsible for all aspects of shipping, delivery, storage, and handling. Equipment and materials shall be delivered to the job site (Dulles, VA) suitably packaged and protected for trucking and for storing outside, exposed to the weather.

PART 2 - DESIGN REQUIREMENTS

2.01 ISOLATION VALVE PIT SYSTEM REQUIREMENTS:

A. Overall System Requirements: Provide eight (8) isolation valve pits designed for the following conditions:
   1. Designed per applicable codes, including but not limited to:
      a. ASME B31.3
      b. NFPA 30
      c. NFPA 407
   2. Product Information:
      a. Jet-A Fuel
      b. Specific Gravity: 0.81
   3. Fuel Hydrant System Information:
      a. Maximum Operating Pressure: 275 PSIG
      b. Temperature Range: -20ºF to 100ºF

2.02 ISOLATION VALVE PIT ASSEMBLY:

A. Manufacturers: Cavotec Dabico. No substitutions or approved equal.

B. General Requirements: One-piece molded fiberglass pit assembly complete with aircraft rated aluminum lid, step down platform, internal ladder, valves, pipe supports, piping and accessories as indicated and/or specified.

C. Performance Characteristics:

1. Designed to permit positive isolation of sections of the buried fuel piping system.
2. Designed for hydrostatic loading due to high water table.
3. Designed to permit safe personnel access to bottom of pit using integral ladder.
4. Designed with two (2) low point drains or two (2) high point vents or a combination thereof based on location in piping system elevation profile. Vents/drains shall be 2-inch nominal size with dry-break coupling adapters. Dry-break adapters shall be Dixon Mann-Tek with dust cap; coordinate model with Operator.
5. Designed with pit sump riser (2-inch) with hose adapter.
6. Pipe penetrations shall include double link seals, casing insulators, and end seals.
7. Pipe supports shall be electrically isolated from piping using dielectric pads.
8. Entire cover assembly and pit as installed shall be capable of accommodating wheel loads of any aircraft in commercial service.
9. Cover shall be cast-aluminum hinged door assembly, one-hand lift weight, 90-degree minimum door opening, and water-resistant design. Minimum clear access opening shall be 6 feet by 3 feet.
10. The following equipment shall be accessible from the step down platform: isolation valve handwheel, vent/drain ball valves and hose connections, sump riser hose connection, and bleed valve for isolation valve (extend tubing from DBB valve to facilitate monthly testing).
11. New pits shall be located a minimum of 3 feet from edge of pavement panel.
12. A 1.5 inch pavement crown shall be installed around pit cover, with 6-inches of flat surface surrounding the cover.

2.03 FUEL CARRIER PIPE:

A. Materials:

1. All pipe and fittings shall be of domestic origin.
2. Pipe shall be ASTM A53 Grade B, ASTM A106 Grade B, or API 5L Grade B, seamless or electric resistance welded. Pipe 2 inches and smaller shall be seamless Schedule 80, pipe 2-1/2 inches through 10 inches shall be Schedule 40, and 12 inches or larger shall be 3/8- inch (0.375-inch) wall thickness.
3. Butt welding type fittings shall be carbon steel, ASTM A234 Grade WPB, ANSI B16.9 for sizes 2-1/2 inches and larger. Wall thicknesses shall match pipe.

4. Socket welding type fittings shall be 3,000-pound forged steel, ASTM A105, conforming to ASME B16.9 and B16.11, for sizes 2 inches and smaller.
5. Fabricated branch connections for piping exposed in pits 2 inches and smaller shall be sockolets or vessolets.
6. Flanges shall be standard weldneck type 150-pound forged steel, ASTM A105, and conforming to ASME B16.5, with standard 1/16-inch raised face.
7. Flange gaskets shall be spiral-wound, "Flexitallic Type CG", using 304 stainless-steel windings with flexible graphite "fire rated" filler, or approved equal, conforming to ASME B16.20 and resistant to the effects of aviation hydro-carbon fuels.
8. Machine bolts shall be heavy hexagonal alloy carbon steel conforming to ASTM A193 Grade B7.
9. Nuts shall be heavy hexagon alloy carbon steel conforming to ASTM A194, Grade 2H.

B. Coatings:
1. Systems:
a. Interior of Pipe 2 ½ inches and larger: Factory applied high solids, high build, amine-cured epoxy (10 mils).
b. Exterior of Buried Pipe: Fusion-bonded epoxy (20 mils).
c. Exterior of Pipe Exposed in Pits: High solids polyamine or polyamide epoxy coating (10 mils).
d. Exterior of Pipe Repairs and Interface with Existing Pipe: Field applied high-solids, fast-drying, surface tolerant epoxy coating (20 mils).
2. Installation: All systems shall be applied in accordance with manufacturer’s instructions, including surface preparation requirements.
3. Testing: Check for voids with suitable electric holiday detector operating at proper voltage. All defects shall be patched using exterior repair coating system above.

2.04 PIPE COUPLINGS BETWEEN OLD AND NEW PIPING

A. Manufacturers: PLIDCO model “Weld+Ends”. No substitutions or approved equal.
B. General Requirements: Couplings shall have single row of clamping screws and thrust screws at each end. Packing shall be Viton.
C. Peformance Characteristics: Couplings shall be suitable for use with jet aircraft fuel and an unanchored working pressure not less than 275 psi.

2.05 BALL VALVES:

A. Valve body shall be of carbon steel with 316 stainless-steel ball and stem.

B. Valve shall be rated for 275-psig working pressure.

C. Valve shall be of two-piece split body construction, with flanged end connections. Valve shall comply with API SPEC 6D.

D. Seals and/or seats shall be reinforced TFE.

E. Provide with a vinyl-coated, locking handle suitable for padlocking.

F. Valve shall be certified "fire safe" per API STD 607.

2.06 DOUBLE-BLOCK-AND-BLEED VALVES:

A. Manufacturers:

1. Cameron (General Twin Seal).
2. Western Valve (Dan-Ex).

B. Valve body shall be steel with reduced port configuration and chrome-plated bore. Valve plug shall be chrome or nickel plated. Valve port openings shall be approximately 70% free area of associated pipe size.

C. The valve assembly shall include a manual bleed valve and a thermal relief valve discharging upstream of valve throat. Tubing on valve trim shall be 316 stainless steel. Bleed valve and tubing shall be extended above IVP step down platform to facilitate monthly testing by Operator.

D. Slip seals and valve O-rings shall be Viton.

E. Valve shall be fire tested and qualified to API SPEC 6FA. Valve shall be rated for 275-psig working pressure.

F. Gear operators shall be provided for valves 6 inches and larger.

PART 3 - EXECUTION

3.01 INSTALLATION OF ISOLATION VALVE PIT ASSEMBLY:

A. Set and align all Equipment supplied under this Section in accordance with manufacturer's recommendations.

B. Install concrete in lifts of no more than 18 inches to prevent damage to fiberglass pit due to hydrostatic pressure.

3.02 INSTALLATION AND TESTING OF FUEL CARRIER PIPING:

A. Installation:

1. All operations in the construction area that involve open flames or the possibility of arcing or sparking shall be conducted in a "Gas Free" condition. Prior to making connections to existing fuel system:
    a. Empty pipes containing fuel and purge of all vapors.
    b. Isolate and adequately ventilate open piping sections so that no part of the pipe containing fuel or vapors is exposed.
    c. Make certain that there are no open pools or reservoirs of fuel exposed in the vicinity of the Work.
    d. Perform all other safety precautions necessary to ensure that these operations are conducted in a safe manner in accordance with all applicable codes.
2. All fabrication and installation shall conform to ASME B31.3.
3. Butt welding end preparation shall be machine-beveled and conform to ASME B16.25.
4. Welding shall be accomplished by the use of the shielded metallic arc process and shall be in strict accordance with ASME B31.3. All welds shall have full penetration and fusion.

B. Testing:
1. Radiographing
    a. All radiographing and subsequent reports shall be in accordance with the requirements of ASME B31.3. All joints shall be left exposed until radiographing and other testing is completed.
    b. 100% radiography is required for welds on underground carrier pipe.
    c. Minimum 10% radiography is required on welded joints exposed in pits.
    d. Defective welds shall be repaired in accordance with ASME B31.3
2. Pressure Testing
    a. Apply a liquid pressure test with a grade of aviation kerosene fuel approved by the Fuel System Operator to the entire length of fuel pipe installed under this Contract. Pipe shall be pressurized to 275psig for 4 hours in accordance with ASME B31.3.
    b. For connections to the existing fuel system, where isolation for the liquid pressure test is not feasible, radiographing of the welds and careful observation of the system piping put under operating pressure with fuel before joints are covered will satisfy the requirement for this testing.

3.03 INSTALLATION AND TESTING OF PIPE COUPLING (PLIDCO):

A. Installation: After coupling is put in service, clamping and thrust screws shall be cut off and seal-welded and ends fillet welded to pipe with pipeline full of fuel and in operation in strict accordance with manufacturer's instructions.

B. Testing:

1. 100% magnetic particle or dye penetrant testing in accordance with ASME B31.3 is required for circumferential and seal welds on PLIDCO couplings.
2. Pneumatic testing of the PLIDCO interstital space is required. Soap all welds and observe for signs of leakage.

3.04 PERFORMANCE TESTING:

A. Design-Builder shall subject the entire fueling system to such operating tests as required by the Fuel System Operator, to demonstrate satisfactory functioning.

3.05 LEAK DETECTION SYSTEM:

A. The existing hydrant fueling system is pressure tested daily per State regulations to monitor for leaks by a Hansa Consult N.A. Tightness Control System. This Project changes the fuel containment volume of the overall hydrant system. Work for this contract must be closely coordinated with the Owner and Operator so as to minimize impacts on the daily testing operations. Design-Builder shall provide the Owner and Operator a report indicating the actual “as-constructed” volume change in gallons to the hydrant system.

3.06 QUALITY ASSURANCE:

A. Design-Builder shall provide QA/QC procedures as specified in the Statement of Work.

3.07 WARRANTY:

A. Design-Builder shall guarantee the equipment to operate and perform, as specified, and to be free from defects due to material and workmanship, for a minimum period of twelve (12) months from the date of acceptance. Any adjustments or repairs required during this period shall be at no cost to the Owner.

END OF SECTION

CIVIL PERFORMANCE SPECIFICATION

PART 1- GENERAL

1.01 EXISTING CONDITIONS

A. A topographic and utility survey has not been performed for this project. The Design-Builder shall perform all site investigations necessary to verify the location of all existing utilities and obtain all additional survey data required to provide a quality design. Surveys shall be in survey feet for both horizontal and vertical measurements. Horizontal datum and coordinates are based on the North American Datum of 1983 (NAD83) State Planes Virginia North Zone. Vertical datum shall be based on NAVD 88.

1.02 DRAWINGS

A. The Designer of Record shall prepare all construction drawings as necessary to thoroughly define all project requirements. Drawings shall be prepared on CADD to the uniform standard policies and procedures for design and drafting work as established in the latest version of the Authority CADD Design Manual. Standard Authority title blocks and cover sheets shall be used. Drawing size shall be 22”X34”. Drawings which are not fully legible when reduced to half size will not be accepted.

1.03 SPECIFICATIONS

A. The Designer of Record shall prepare construction specifications that include project requirements. Generally, FAA Advisory Circular No. 150/5370-10G, Standards for Specifying Construction of Airports, will be used as a guide for preparing the specifications for the project. Format the specification shall conform FAA Advisory Circular No. 150/5370-10G and the most recent version of the Authority Design Manual.

PART 2- REFERENCES

A. The following publications are referenced throughout the RFP. This list shall not be used as or considered to be a complete list of design references. The current version of the listed references, in effect at the time of solicitation shall be used unless noted otherwise.

Virginia Building Code, 2012 Edition

ASCE 7, Minimum Design Loads for Buildings and Other Structures, 2005.

ACI 350, Code Requirements for Environmental Engineering Concrete Structures, 2006.

FAA ADVISORY CIRCULAR

150/5371-10G	Standards for Specifying Construction of Airports
150/5320-17A	Airfield Pavement Surface Evaluation and Rating Manuals
150/5340-1L	Standards for Airport Markings
150/5370-2F	Operational Safety on Airports During Construction

PART 3- CRITERIA

3.01 GENERAL SITE DESIGN REQUIREMENTS

A. Design shall be in conformance with the Metropolitan Washington Airports Authority Design Manual, Latest Edition and all applicable Federal Aviation Administration Advisory Circulars.

3.02 EARTHWORK

A. New grades for pavement repairs shall match existing. Provide measures to ensure that no water ponds on the pavement upon completion of repairs. Finish grade contours shall be developed at 0.5 foot intervals. Spot elevations shall be provided such that all site features can be constructed. Spot elevations on the drawings shall be sufficient so that interpolation between contours is not required for structures, grading or paved areas.

B. The Design-Builder's team shall include a licensed geotechnical engineer to provide any additional subsurface investigations or laboratory analyses required to characterize the site or develop the final design.

C. Soil compaction shall be achieved by equipment approved by the consulting Geotechnical Engineer. Soil materials shall be moistened or aerated as necessary to provide the moisture content that shall readily facilitate obtaining the compaction specified with the compaction equipment used. Each layer of structural fill and sub grades shall be compacted to the following minimum percent of the modified Proctor maximum density as specified in P-152. The licensed geotechnical engineer or his authorized representative shall inspect, evaluate and approve all

subgrades (pavements, floor slab, or foundation) prior to placement of overlying construction materials.

D. Ensure that the licensed project design geotechnical engineer oversees and directs proof rolling operations (for subgrade suitability); fill placement and compaction operations, including associated soil properties, compaction, and field density testing; and footing inspections on a full time basis. An independent geotechnical testing firm shall inspect, test, and document earthwork construction.

E. Stockpiles are not permitted in the work area. All excavated material shall be removed from the work area and shall be stockpiled in the Design-Builder's staging area for classification and determination of possible contamination. Design-Builder may re-utilize material after classification.

F. Prior to initiating any fill placement and/or compaction operations, representative samples of the soils which are to be used as structural fill or sub grade, both suitable on-site soils and borrow material (borrow on the installation) shall be obtained and tested to determine their classification and compaction characteristics. The samples shall be carefully selected to represent the full range of soil types to be used. The moisture content, maximum dry density, optimum moisture content, grain size and plasticity characteristics shall be determined. These tests are required to determine if the fill and sub grade soils are acceptable and for compaction quality control of the sub grades and structural fill.

G. A representative number of in-place field density tests shall be performed in the sub grade of compacted on-site soils and in the structural fill and backfill to confirm that the required degree of compaction has been obtained. In-place density tests shall be performed in accordance with FAA Item P-152.

H. Any area that does not meet the required compaction criteria shall be reworked and retested. If the moisture content of the soil is within the recommended range, additional compaction may be all that is necessary to increase the density. If the moisture content is not within the recommended range, then, the moisture content shall be adjusted to within the range, and the area re-compacted.

3.03 PAVEMENTS

A. A Professional Engineer (PE) licensed in the State of Virginia , shall design all airfield rigid pavement in accordance with FAA Advisory Circular 150/5320-17A. Pavement thicknesses

shall not be less than existing. Design-Builder shall design and detail all pavement penetrations.

3.04 PAVEMENT MARKING

A. All airfield pavement markings shall be designed in compliance with FAA Advisory Circular 150/5340-1L. Provide temporary markings as needed for construction safety and phasing requirements. Re-establish all markings disturbed by construction.

3.05 SAFETY AND TRAFFIC CONTROL

A. Construction will be completed adjacent to an active airfield. Design-Builder shall complete construction activities as to cause the least possible interference and impact to normal airport operations. Design-Builder shall prepare a Construction Safety and Phasing Plan including all design and details for construction phasing and maintenance of traffic. Construction Safety and Phasing Plan shall be in accordance with FAA AC 150/5370-2F. The Design-Builder shall operate all vehicles in accordance with and conformance to all procedures included in Washington Dulles Airport Orders and Instructions and Metropolitan Washington Airports Authority Construction Safety Manual Edition in effect at time of contract award.

B. Design-Builder personnel shall not enter manholes, tunnels, tanks, or confined spaces until such entry complies with the requirements of OSHA 1926.21 (6)(I) and 29 CFR 1910.146. All excavations, trenches, open manholes or vaults, etc., shall be properly shored, braced, barricaded or guarded.

3.06 UTILITY IDENTIFICATION MARKINGS

A. Every linear foot of underground metallic piping shall be identified with plastic marking tape specifying the type of pipe buried under it. Every linear foot of underground non-metallic piping shall be identified with detectable magnetic plastic tape manufactured specifically for warning and identification of underground utilities. The magnetic plastic tape shall be detectable by electronic detection instruments and shall indicate the type of pipe buried under it. The tape shall be buried 12 inches below the surface above the pipe.

Tape Color:

Red: Electric

Orange: Telephone, Telegraph, Television, Police, and Fire Communications

Blue: Water Systems

Green: Sewer Systems

Yellow: Gas, Dangerous Materials

3.07 CATHODIC PROTECTION

A. Design-Builder shall coordinate tie-in of existing cathodic protection system (including planned improvents) with Airports Authority, Fuel System Operator, and Operator's corrosion engineer, and provide test results showing continuity. The cathodic protection system shall be designed by a licensed professional engineer with a minimum of 3 years' experience in the design and installation of cathodic protection systems and meet NACE certification.

B. The Design-Builder shall provide new cathodic protection test stations and insulating flanges at proposed IVP-C11 and IVP-D7. Test stations shall be embedded in pavement and accessible without opening pit cover.

C. Existing cathodic protection test stations at IVP-E1 (located at Gate C2) and IVP-C14A shall be demolished. No replacement is required.

3.08 REINFORCED CONCRETE ENCASEMENT OF FIBERGLASS IVP

A. A Professional Engineer (PE) licensed in the State of Virginia, shall design all reinforced concrete encasement of fiberglass IVPs in accordance with the Virginia Construction Code, ASCE 7, ACI 350, and FAA Advisory Circular 150/5320-17A. Reinforced concrete encasement shall resist loads including but not limited to bouyant, seismic, hydrostatic, lateral, soil compaction during construction, and any commercial aircraft in service.

3.09 EROSION CONTROL AND SPCC

A. The Design-Builder shall prepare and submit a Stormwater Pollution Prevention Plan (SPPP) for approval, including erosion and sediment control plans, notes, specifications, and details meeting the minimum requirements stipulated by the Virginia Register of Regulations Section 9VAC25-840, Erosion Control.

3.10 DEMOLITION

D. The Design-Builder shall remove existing features as necessary to facilitate the construction of the fueling system. Comply with Federal, State and local statutes, ordinances, agreements and as described in this RFP.

E. Pavement shall be removed by sawcutting into smaller sections and lifting out directly onto transport trucks. Pavement shall not be broken up using impact methods.

C. If fuel contaminated soils are found during the demolition or cut/fill operations, cease work immediately and notify either the Contracting Officer representative or the Contracting Officer for resolution that can include removal of contaminated soil, filling and capping area with clean, uncontaminated soil.

3.11 HAUL ROUTES AND STAGING AREA

A. Construction traffic, any temporary office, parking, fencing or laydown areas shall not impact access or operations of any of the buildings and should be generally located within the area depicted as “Limits of Construction” shown on the plans when possible. The laydown area shall not impact access or operations of any buildings, roadways, etc. that may be located near the provided laydown area.

B. Maintain the construction site and haul route. Repair/replace damage to existing pavements, markings, and/or utilities within the construction limit, adjacent to the construction site, and along the Design-Builder’s haul route resulting from the Design-Builder’s construction activities at no additional cost to the Government. Prior to construction activities, the Design-Builder and Contracting Officer Representative shall perform an existing condition survey. At the completion of the Task Order, the Design-Builder and Contracting Officer representative shall perform a final condition survey to determine repair/replacement requirements.

3.12 ADDITIONAL SITE REQUIREMENTS

A. Storage Area: Trailers, equipment, or materials shall not be open to public view with the exceptions of those items which are in support of ongoing work on any given day. Do not stockpile materials outside the fence in preparation for the next day's work. Park mobile equipment, such as tractors, wheeled lifting equipment, cranes, trucks, and like equipment, within the fenced area at the end of each work day. Locate construction trailer(s) within limits of construction. Locate the laydown yard/storage area within the

limits of the construction area unless previously approved by the Contracting Officer and the Installation.

1. Temporary Utilities: All temporary utilities (water, sewer, electrical, telecommunications, etc) will be at the Design-Builder's expense.

B. Coordinate with private utilities provider for any temporary electrical services: Provider will provide estimate for connection costs.

C. Appearance of Trailers, Storage Spaces, and Other Facilities within the Laydown Yard: Storage equipment and facilities used for administrative or material storage purposes shall present a clean and neat exterior appearance and shall be in a state of good repair. Trailers, which, in the opinion of the Contracting Officer, require exterior painting or maintenance, will not be allowed on the Installation.

D. Maintenance of Storage Area: Keep fencing in a state of good repair and proper alignment. Should the Design-Builder elect to traverse, with construction equipment or other vehicles, grassed or unpaved areas, which are not established roadways, cover such areas with a layer of gravel as necessary to prevent rutting and the tracking of mud onto paved or established roadways. Gravel gradation shall be at the Design-Builder's discretion. Mow grass located within the boundaries of the construction site for the duration of the project. Trim grass and vegetation along fences, buildings, under trailers, and in areas not accessible to mowers and edge neatly.

E. Security Provisions: Provide adequate outside security lighting at all temporary facilities. The Design-Builder shall be responsible for the security of its own equipment. Notify the appropriate law enforcement agency requesting periodic security checks of the temporary project field office

F. Cleanup: Remove construction debris, waste materials, packaging material and the like from the work site daily. Clean up any dirt or mud which is tracked onto paved or surfaced roadways. Store materials resulting from demolition activities which are salvageable within the fenced area described above or at a supplemental storage area. Neatly stack stored materials, not in trailers, whether new or salvaged.

G. Restoration of Storage Area: Restore areas used by the Design-Builder for storage of equipment or material, or other use, to the original or better condition. Remove gravel used to traverse grassed areas and restore the area to original condition, including top soil tree and vegetative replanting and seeding, as necessary.

H. Building and Crane Height Restrictions: Verify construction activities do not interfere with Evans Army Airfield aircraft glide slopes and FAA height restrictions. Submit FAA Form 7460-1 for all cranes to be used on building to the FAA. Submit this form to the FAA a minimum of 60 days before the cranes arrive on site and the vertical construction of the buildings start. FAA Form 7460-1 is available from the Contracting Officer's Representative (COR). Submit final FAA form 7460 at completion of construction.

3.13 CONSTRUCTION QUALITY CONTROL TESTING

A. Inspections and testing by the Design-Builder shall be fully detailed as part of the Quality Control responsibility. The Design-Builder shall provide detailed section-specific requirements for testing and inspection of each item of work during all phases of construction. These testing and inspection requirements shall be clearly identified in each section of the technical specifications, preferably the establishment of Part 4 of each section entitled Quality Control Requirements.

END OF SECTION

APPENDIX 4

HYDRANT FUEL PITS PLACEMENT

Fuel Pit Placements

IAD – Concourse C/D

February 1, 2018

A STAR ALLIANCE MEMBER

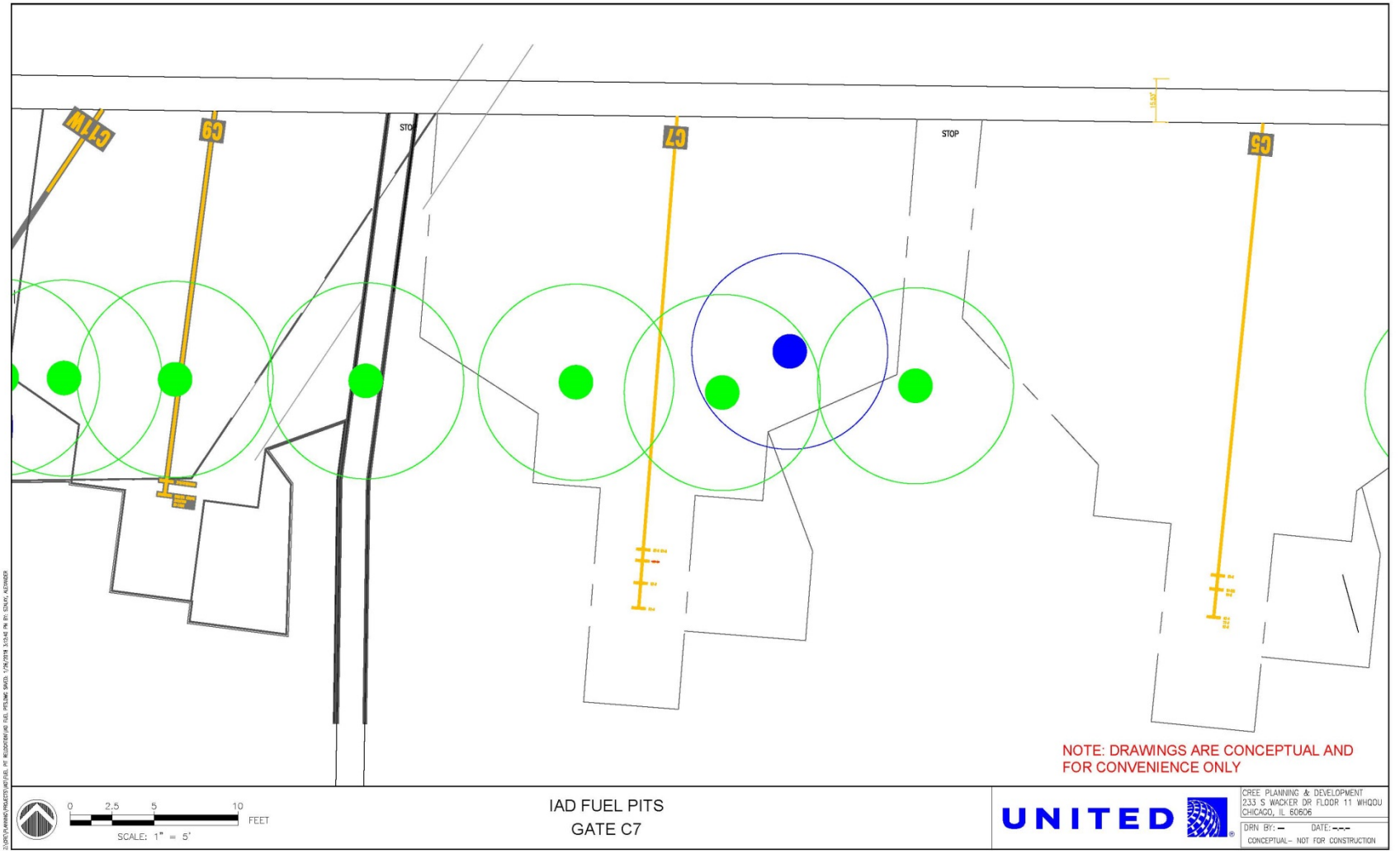
UNITED

The information and drawings provided herein represent design intent and concepts only, and are provided only for convenience. United makes no representation or warranty as to, and assumes no responsibility whatsoever with respect to, the sufficiency, completeness or accuracy of such information or drawings and makes no guarantee, either expressed or implied, that the conditions indicated in such information or drawings are representative of those existing at the site or existing throughout the performance of any work, and there is no guarantee against unanticipated or undisclosed conditions.

Gate C7

Requested Fuel Pit Location

Existing Fuel Pit Location

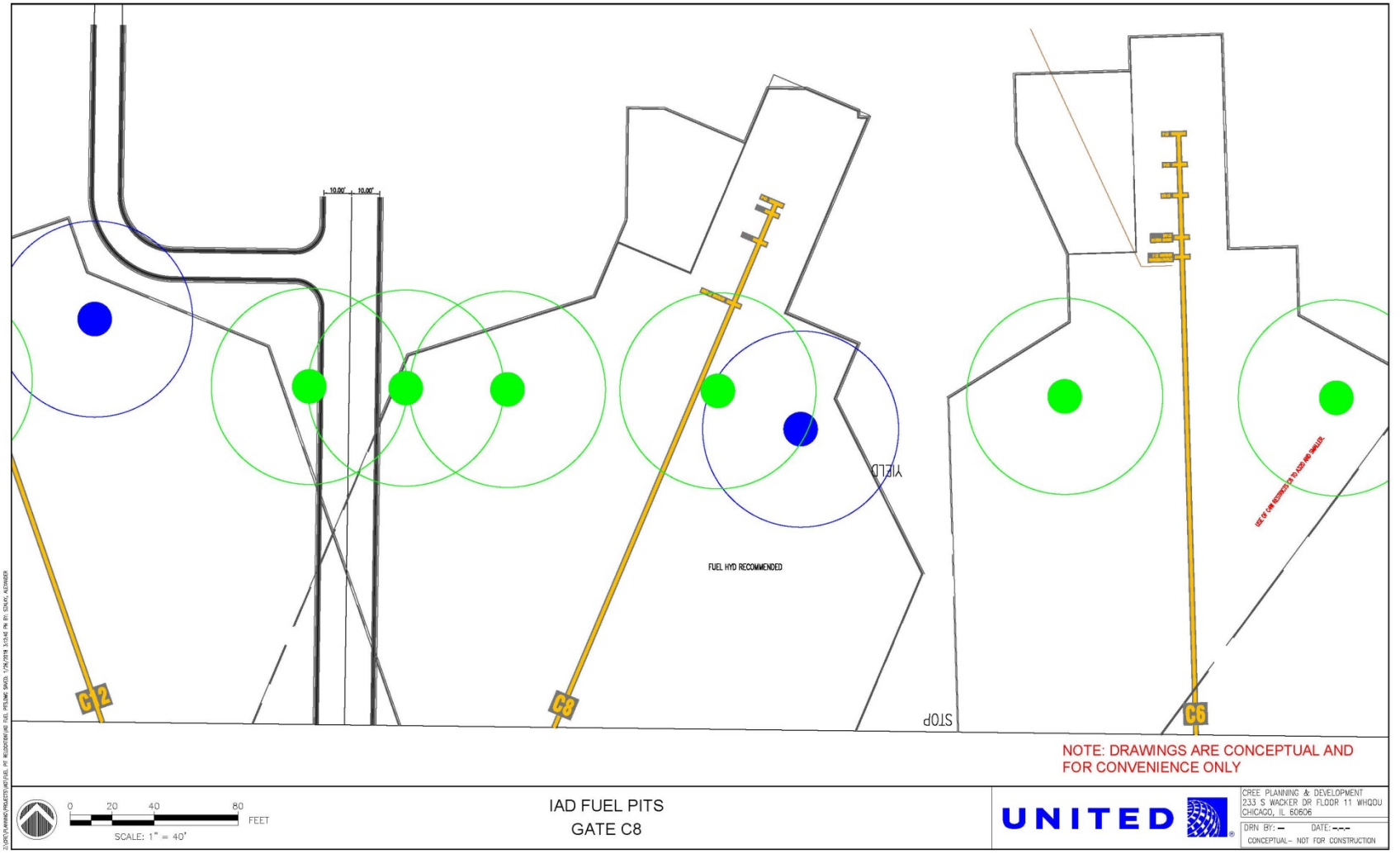


Recommended Fuel Pit Placements

UNITED

Gate C8

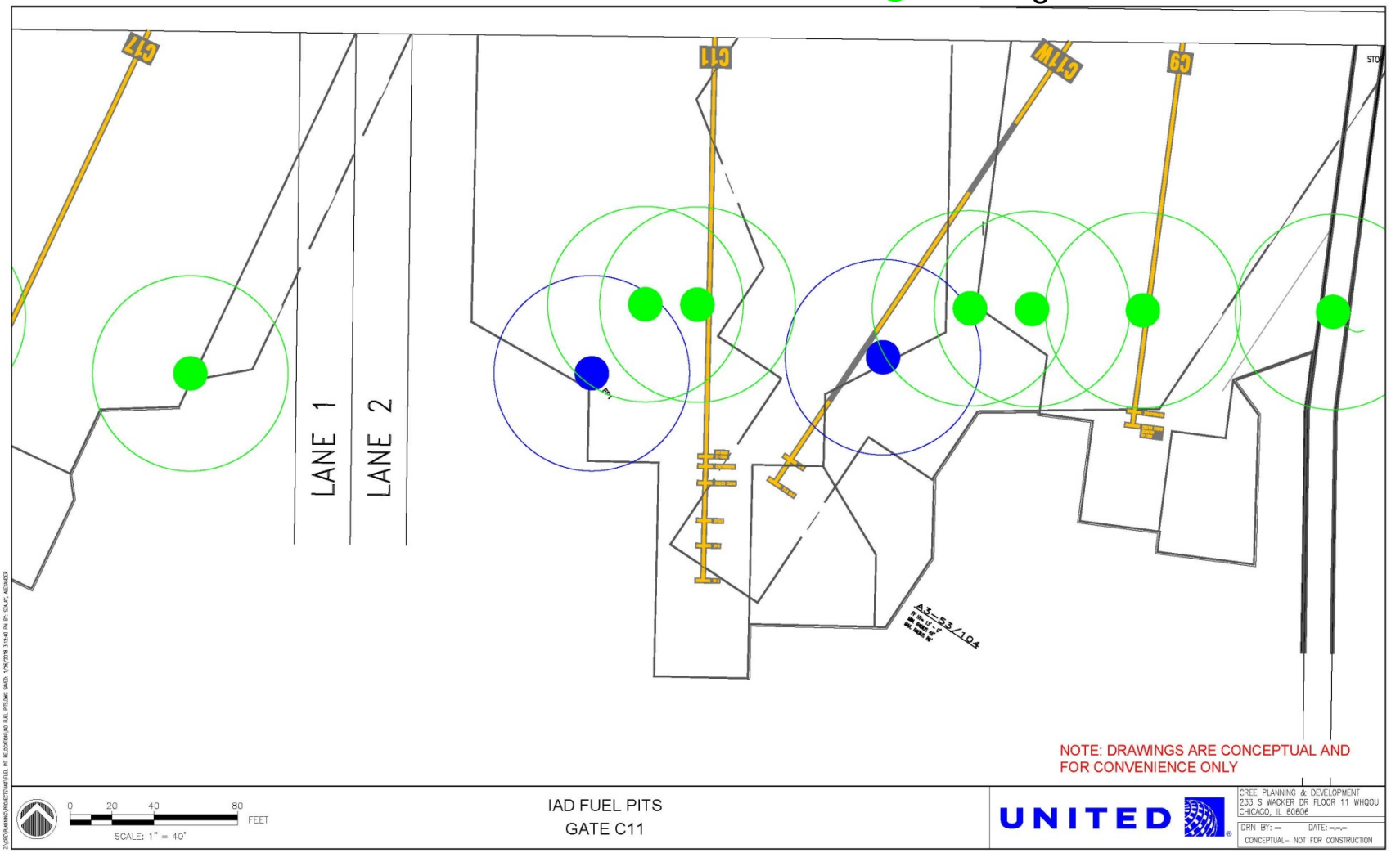
- Requested Fuel Pit Location
- Existing Fuel Pit Location



Recommended Fuel Pit Placements

UNITED

Gate C11

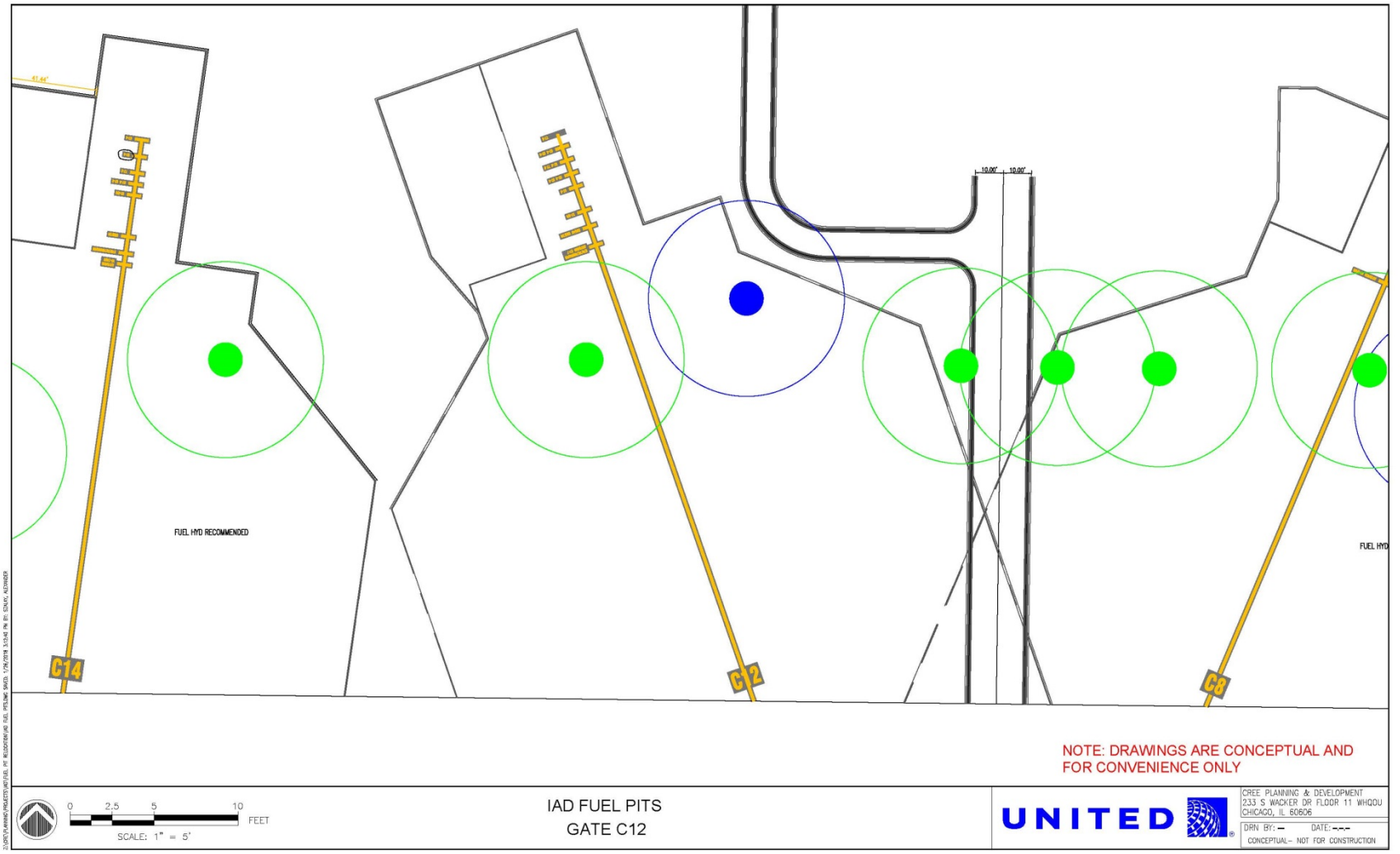


UNITED

Gate C12

Requested Fuel Pit Location

Existing Fuel Pit Location



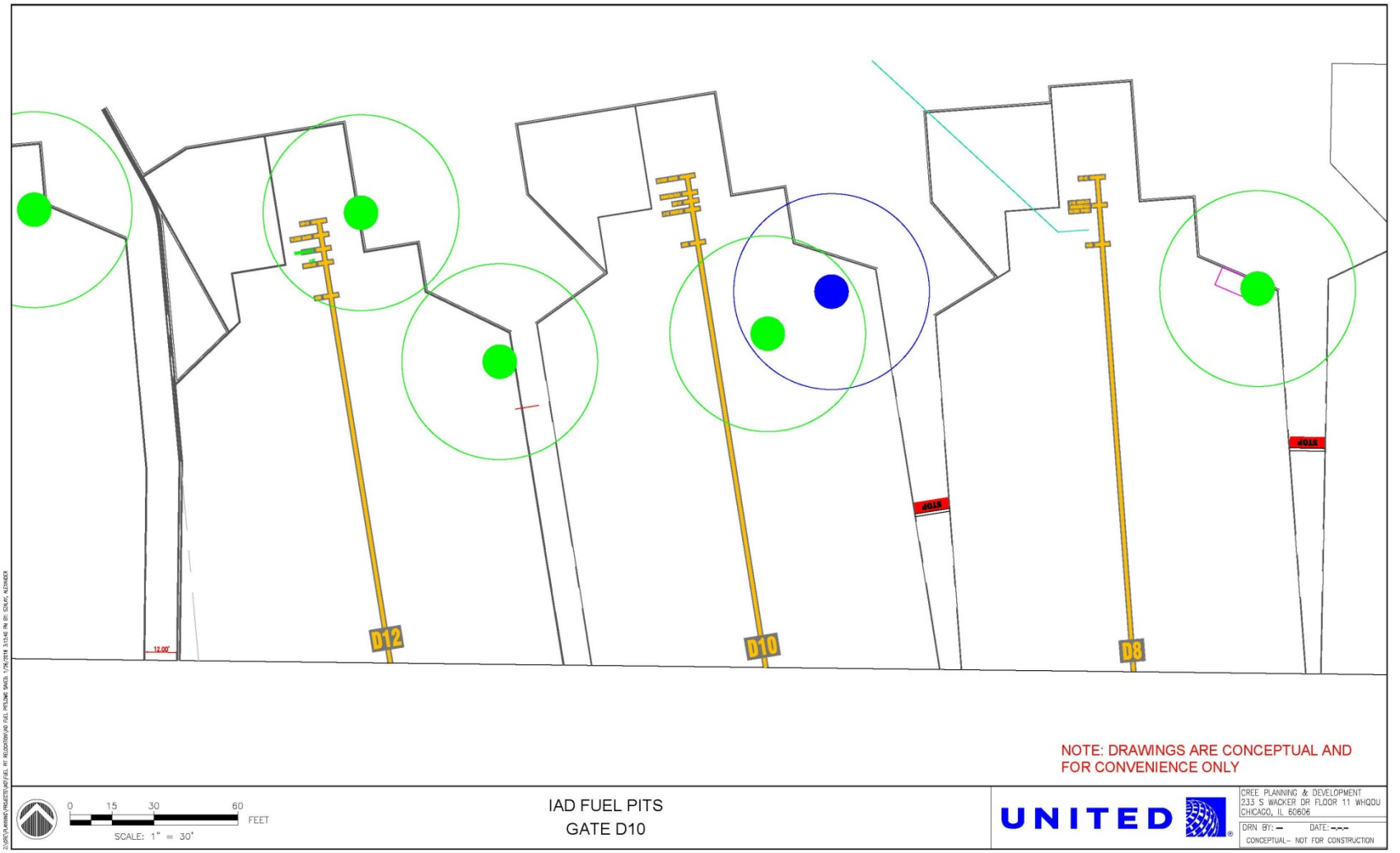
Recommended Fuel Pit Placements

UNITED

Gate D10

Requested Fuel Pit Location

Existing Fuel Pit Location



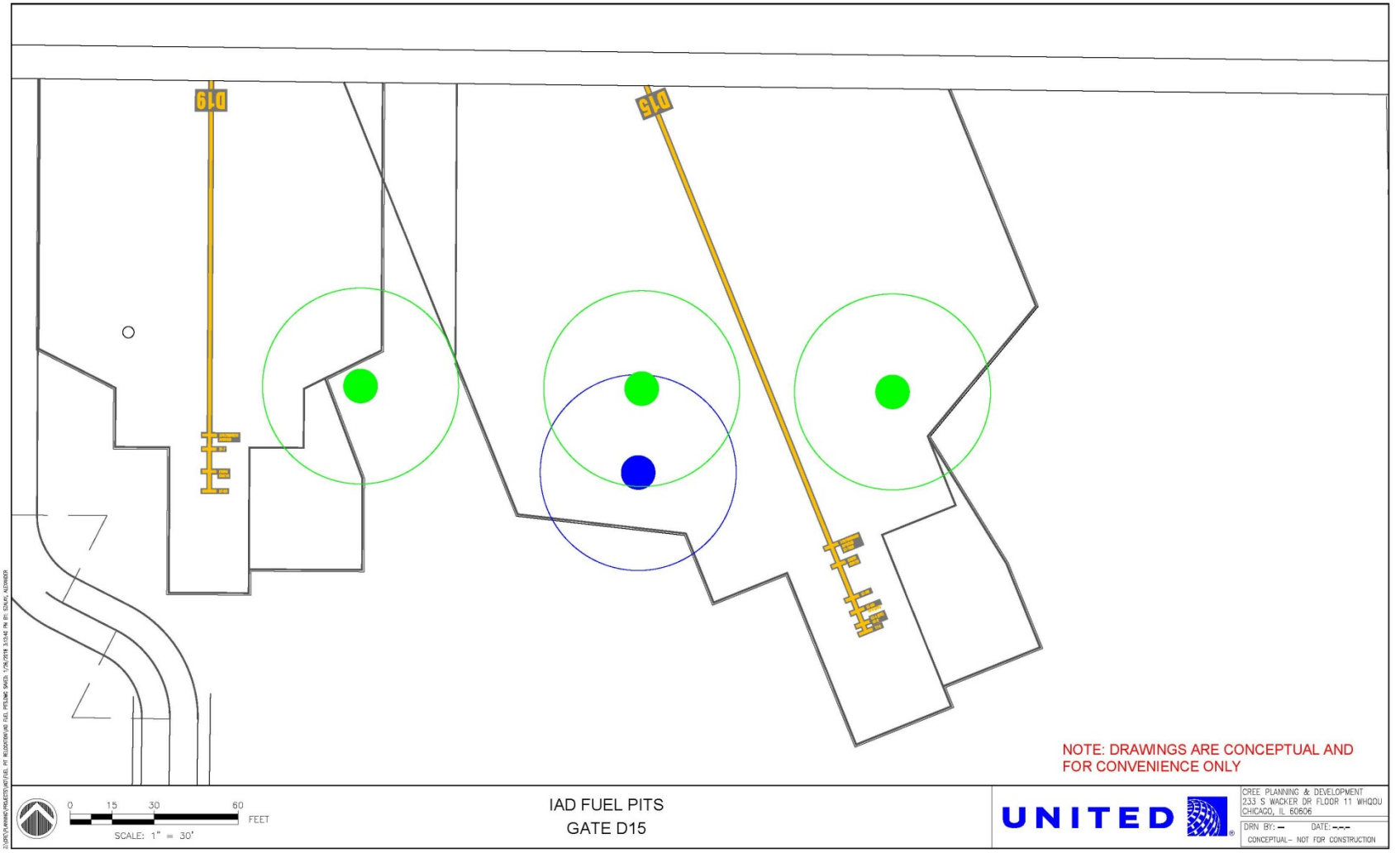
Recommended Fuel Pit Placements

UNITED

Gate D15

Requested Fuel Pit Location

Existing Fuel Pit Location



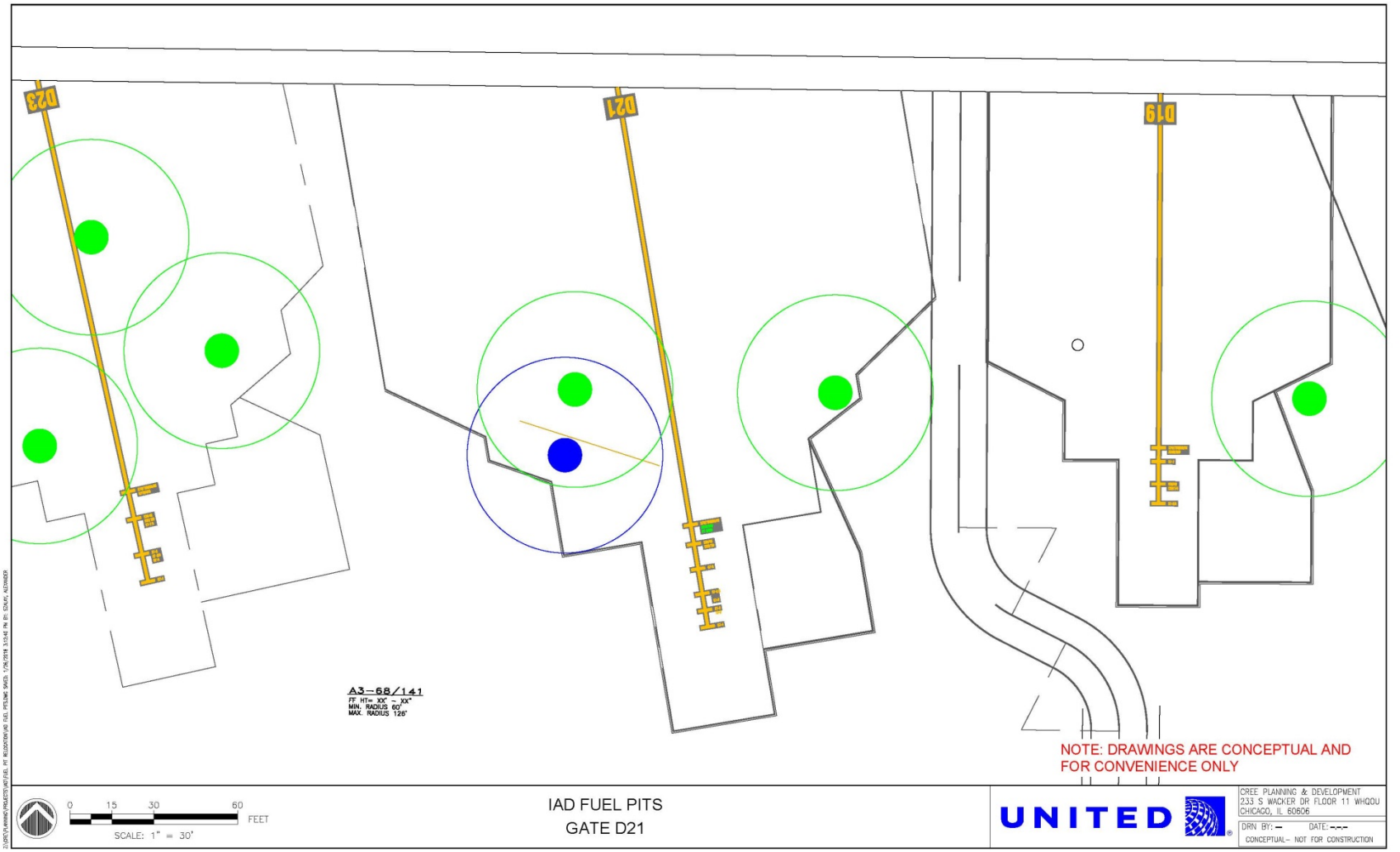
Recommended Fuel Pit Placements

UNITED

Gate D21

Requested Fuel Pit Location

Existing Fuel Pit Location



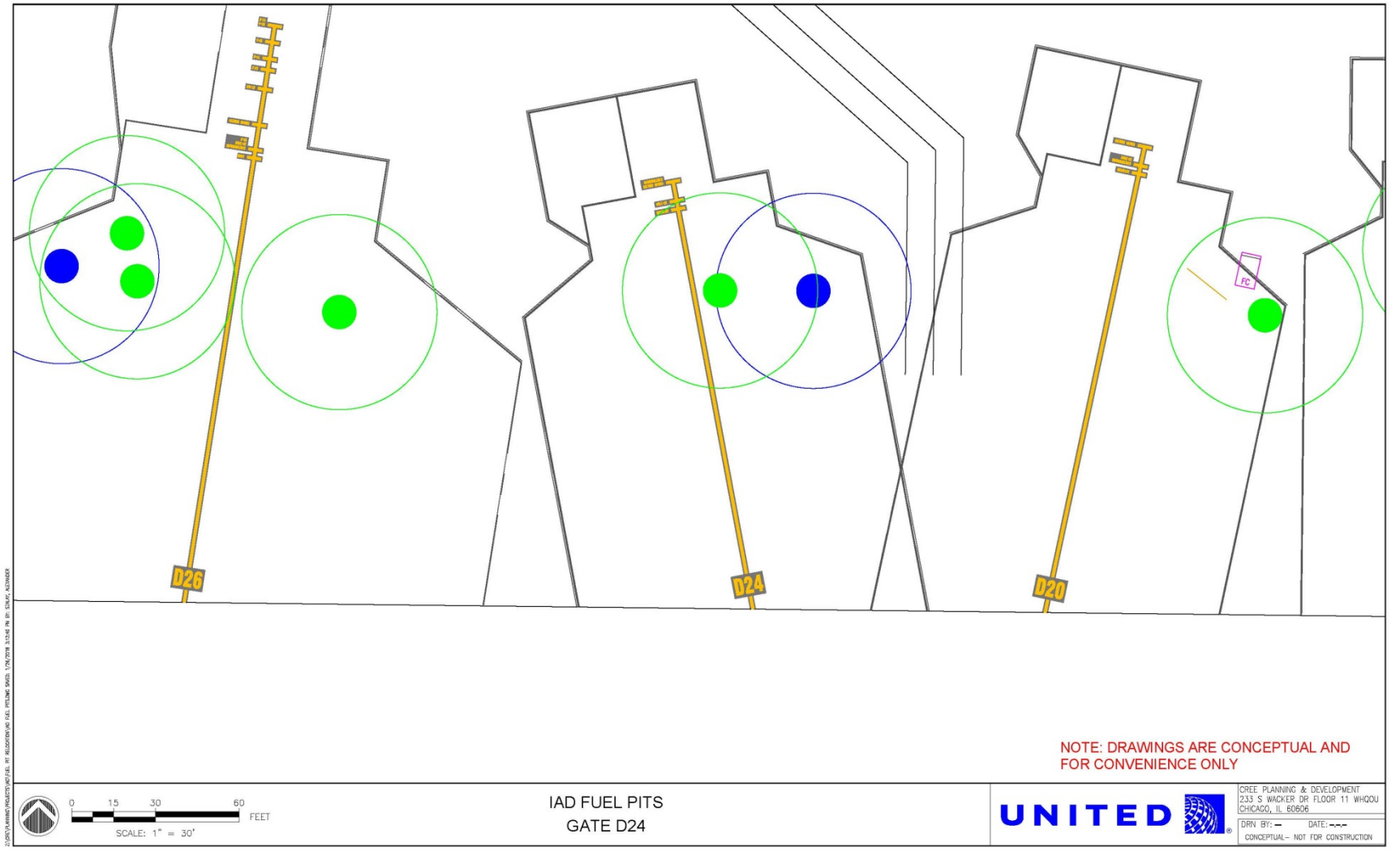
Recommended Fuel Pit Placements

UNITED

Gate D24

Requested Fuel Pit Location

Existing Fuel Pit Location

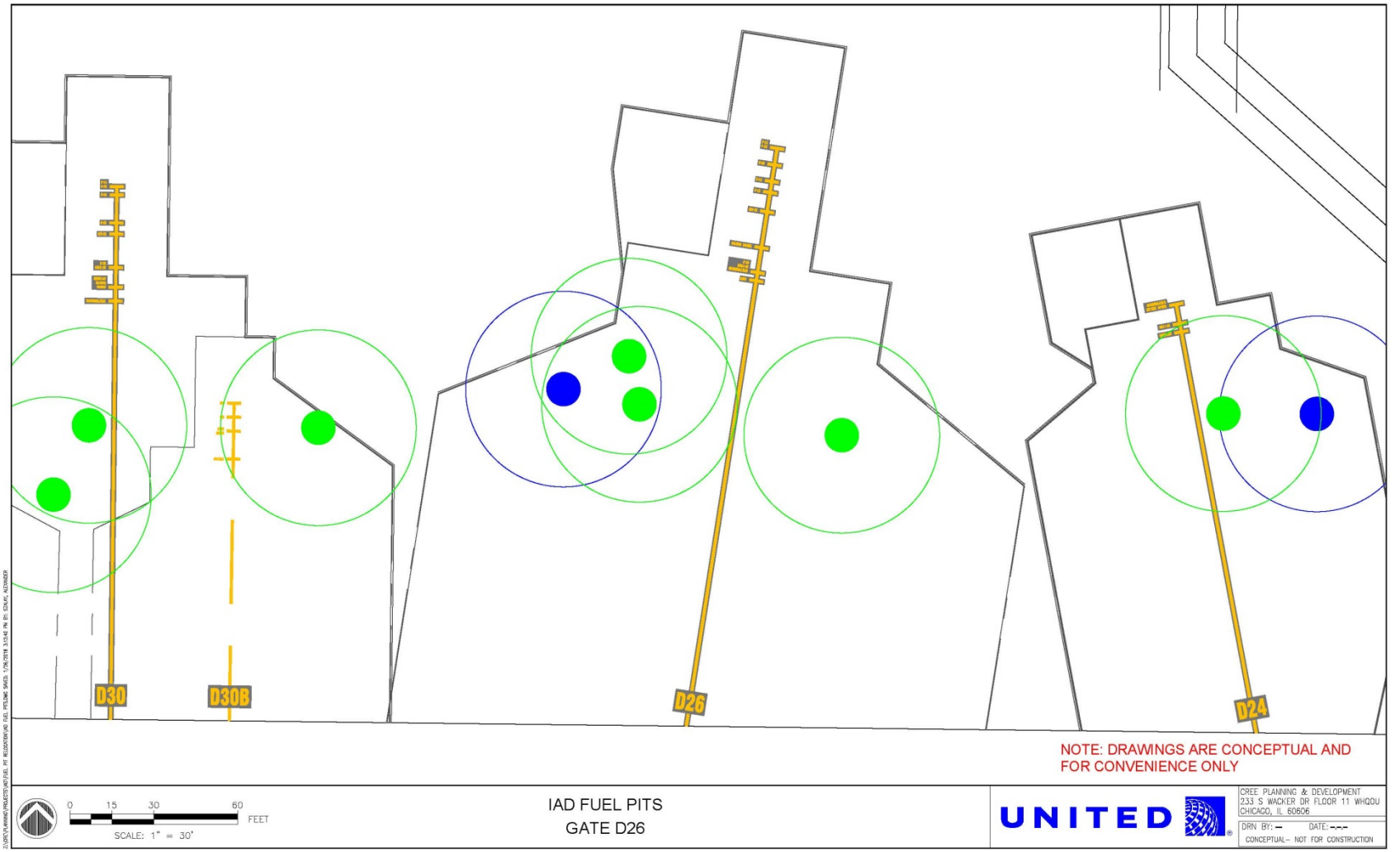


UNITED

Gate D26

Requested Fuel Pit Location

Existing Fuel Pit Location



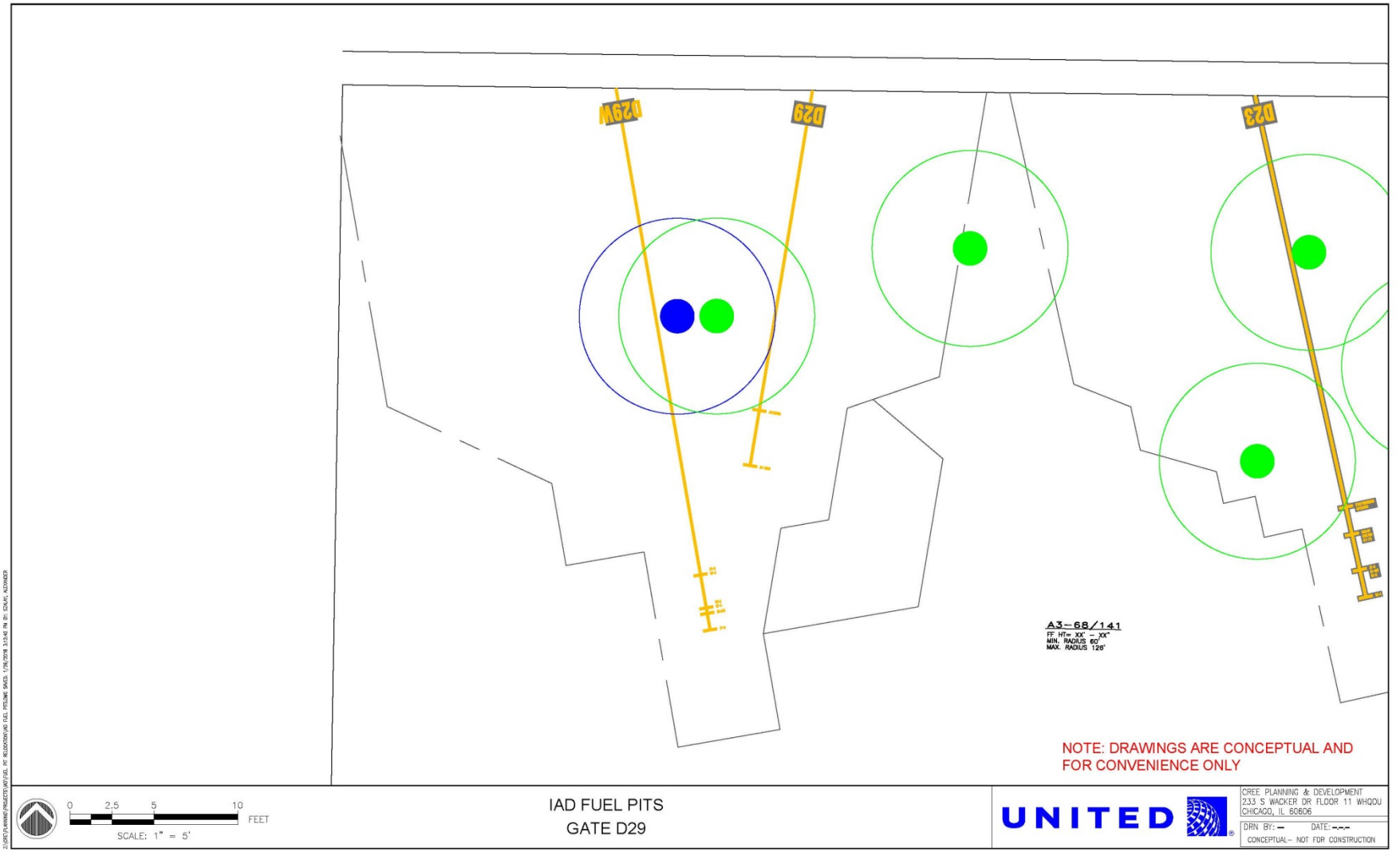
Recommended Fuel Pit Placements

UNITED

Gate D29

Requested Fuel Pit Location

Existing Fuel Pit Location

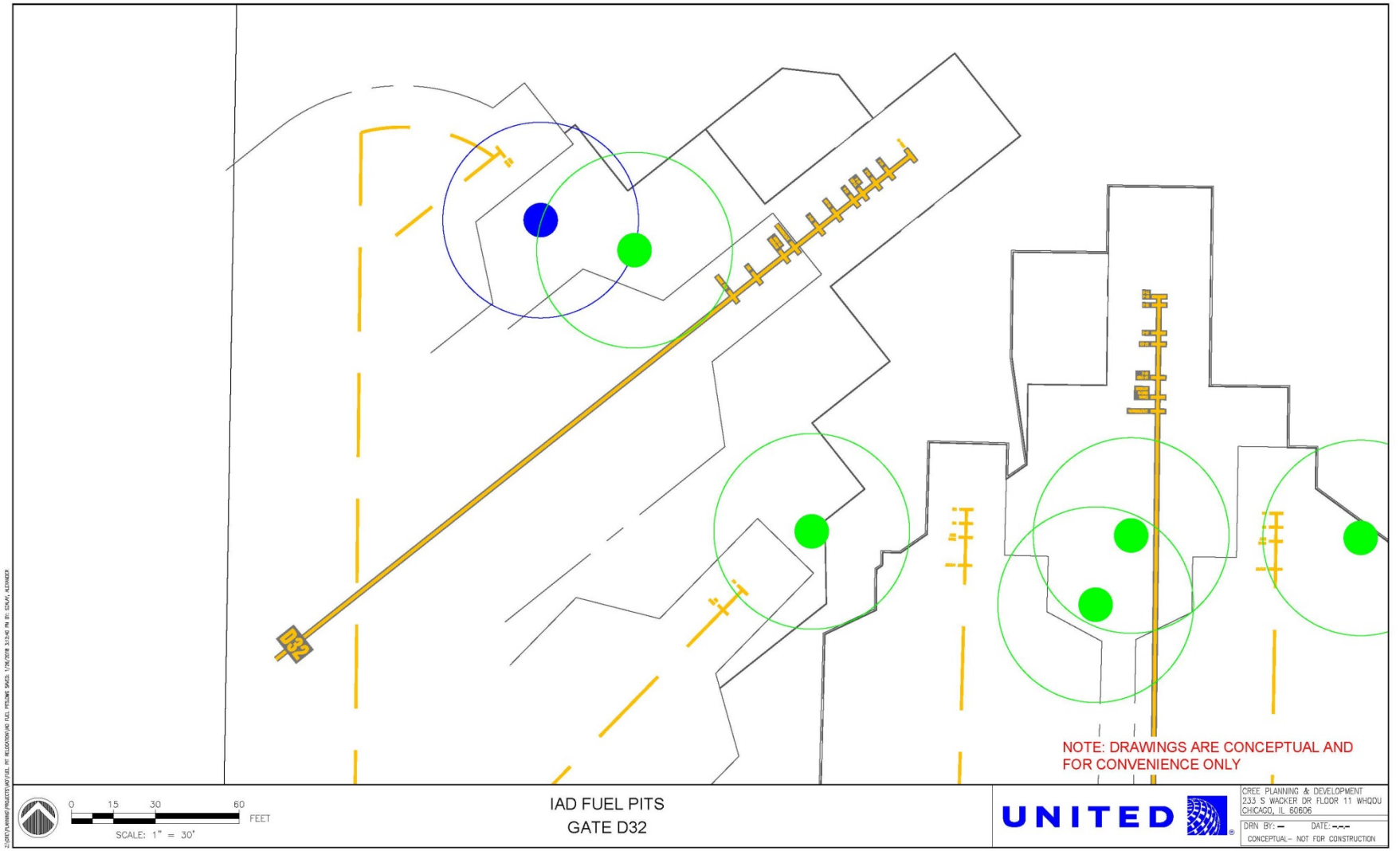


UNITED

Gate D32

Requested Fuel Pit Location

Existing Fuel Pit Location



UNITED

End of presentation

APPENDIX 5

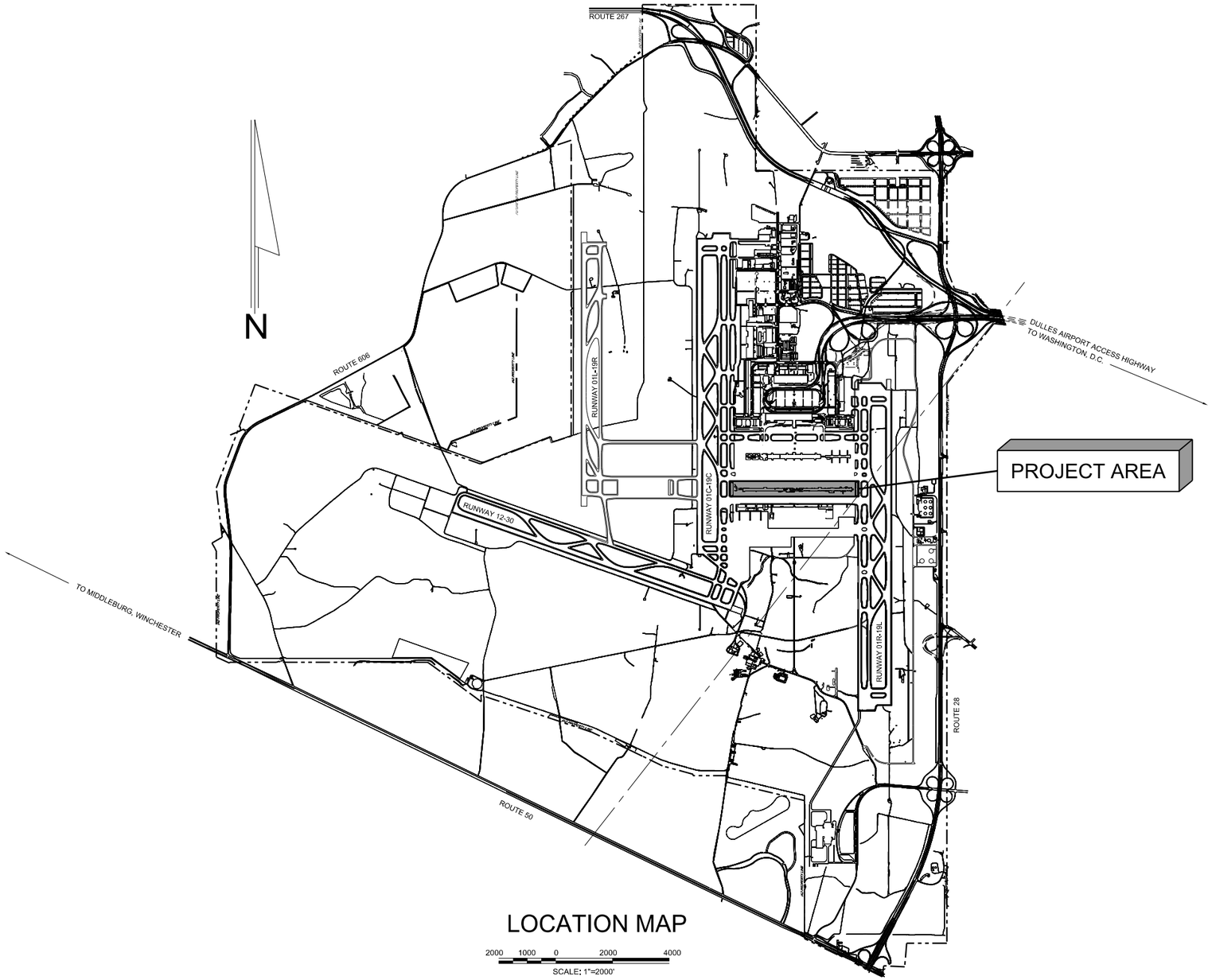
PAVEMENT REHABILITATION DRAWINGS

WASHINGTON DULLES INTERNATIONAL AIRPORT

CONCOURSE C / D APRON REHABILITATION

MAY 26, 2017

VOLUME 1 OF 1

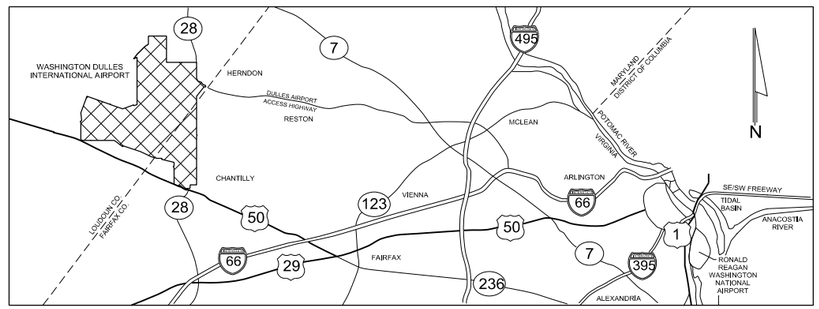


LOCATION MAP

2000 1000 0 2000 4000

SCALE: 1"=2000'

VICINITY MAP



NO.	REVISION	DATE

METROPOLITAN WASHINGTON AIRPORTS AUTHORITY

PROJECT IDENTIFIER	IA1702
SHEET NAME	GN00.0001
VOLUME NUMBER	1 of 1
SHEET NUMBER	1 of 26

IA1702GN00.0001.dgn

NOT FOR CONSTRUCTION

INDEX TO SHEETS

SEQUENCE	SHEET NAME	DESCRIPTION
1	GN00.0001	COVER SHEET
2	GN01.0001	INDEX TO SHEETS
3	GN03.0001	GENERAL LOCATION PLAN
4	CV03.0101	PAVEMENT REPAIRS LAYOUT 1
5	CV03.0102	PAVEMENT REPAIRS LAYOUT 2
6	CV03.0103	PAVEMENT REPAIRS LAYOUT 3
7	CV03.0104	PAVEMENT REPAIRS LAYOUT 4
8	CV03.0105	PAVEMENT REPAIRS LAYOUT 5
9	CV03.0106	PAVEMENT REPAIRS LAYOUT 6
10	CV03.0107	PAVEMENT REPAIRS LAYOUT 7
11	CV03.0108	PAVEMENT REPAIRS LAYOUT 8
12	CV03.0109	PAVEMENT REPAIRS LAYOUT 9
13	CV03.0110	PAVEMENT REPAIRS LAYOUT 10
14	CV03.0111	PAVEMENT REPAIRS LAYOUT 11
15	CV03.0112	PAVEMENT REPAIRS LAYOUT 12
16	CV03.0113	PAVEMENT REPAIRS LAYOUT 13
17	CV03.0114	PAVEMENT REPAIRS LAYOUT 14
18	CV04.0001	TYPICAL EXISTING PAVEMENT SECTIONS 1
19	CV04.0002	TYPICAL EXISTING PAVEMENT SECTIONS 2
20	CV05.0001	PARTIAL DEPTH SPALL REPAIR DETAILS
21	CV05.0002	BITUMINOUS LINEAR CRACK REPAIR DETAILS
22	CV05.0003	FULL DEPTH SLAB REPLACEMENT DETAILS
23	CV05.0004	FULL DEPTH PATCH DETAILS
24	CV05.0005	JOINT SEALANT DETAILS
25	CV05.0101	JOINTING DETAILS 1
26	CV05.0102	JOINTING DETAILS 2

NO.	REVISION	DATE

DATE 05 / 26 / 17

SCALE AS SHOWN

METROPOLITAN WASHINGTON AIRPORTS AUTHORITY

OFFICE OF ENGINEERING
DESIGN DEPARTMENT

CONCOURSE C / D APRON REHABILITATION

WASHINGTON DULLES INTERNATIONAL AIRPORT
WASHINGTON, D.C.

INDEX TO SHEETS

PROJECT IDENTIFIER: IA1702

SHEET NAME: GN01.0001

VOLUME NUMBER: 1 of 1

SHEET NUMBER: 2 of 26

5/26/2017

NOT FOR CONSTRUCTION

LEGEND

FULL DEPTH PAVEMENT REPLACEMENT

C-# GATE NUMBER

SHEET LAYOUT NUMBER

NORTH

CONCOURSE B

CONCOURSE A

T/L C

T/L D

T/L E

T/L E1

T/L E2

T/L E3

T/W Y

T/W Z

T/W J

T/W K

1 2 3 4 5 6 7

D-29 D-23 D-21 D-19 D-15 D-11 D-7 D-5 D-3 D-1 C-27 C-23 C-19 C-17 C-11 C-9 C-7 C-5 C-3 C-1

CONCOURSE D

CONCOURSE C

C-28 C-26 C-24 C-22 C-18

C-28R C-26R C-24R C-22R C-20R C-20 C-18R

D-32 D-30 D-26 D-20 D-18 D-16 D-14 D-12 D-10 D-8 D-6 D-4 D-2 C-28X C-14 C-12 C-8 C-6 C-4 C-2

8 9 10 11 12 13 14

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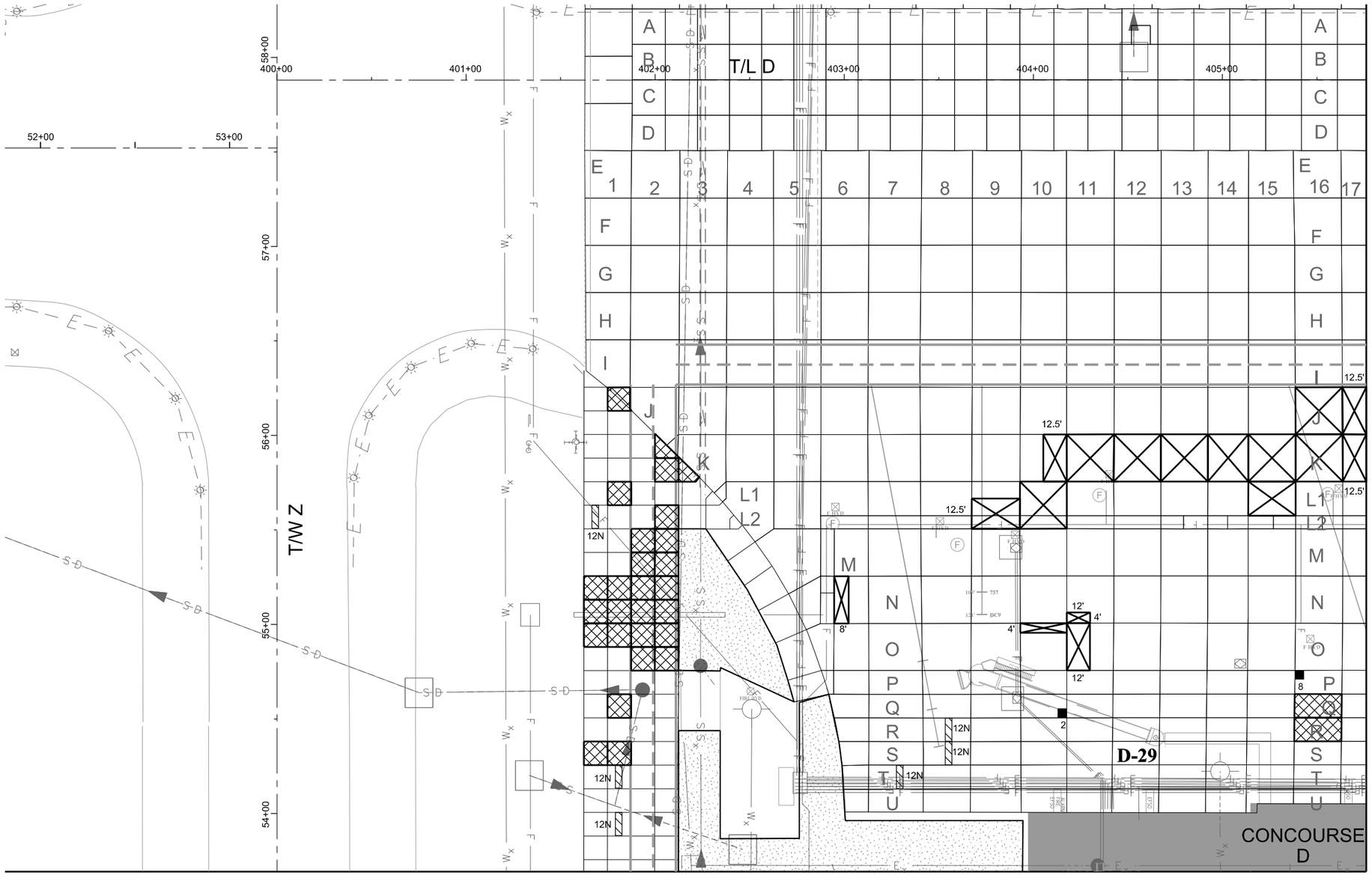
GENERAL LOCATION PLAN

PROJECT IDENTIFIER	IA1702
SHEET NAME	GN03.0001
VOLUME NUMBER	1 of 1
SHEET NUMBER	3 of 26

5/26/2017

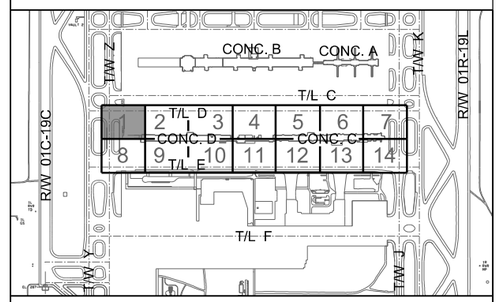
NOT FOR CONSTRUCTION



NORTH
0 30 60
SCALE IN FEET

LEGEND

- 12N — BITUMINOUS LINEAR CRACK REPAIR AND WIDTH OF REPAIR IN INCHES
- 2 ■ — PARTIAL DEPTH SPALL REPAIR AND NUMBER OF SQUARE FEET
- FULL DEPTH PAVEMENT REMOVAL AND REPLACEMENT (20" PCC)
- FULL DEPTH PAVEMENT REMOVAL AND REPLACEMENT (14" PCC)
- HMA MILL AND OVERLAY, 3" DEPTH
- FUEL ACCESS LID
- C_X^U — COMMUNICATIONS LINE
- F — UNDERGROUND AVIATION FUEL LINE
- ABANDONED UNDERGROUND AVIATION FUEL LINE
- G_X — GAS LINE
- E_X — ELECTRICAL LINE
- SS_X — SANITARY SEWER LINE
- SD_X — STORM SEWER LINE
- W_X — WATER LINE
- VEHICLE SERVICE ROAD
- NON-MOVEMENT AREA MARKING
- X-## — CONCOURSE C/D GATE/PARKING LOCATION
- (F) — FUEL STRUCTURE
- (M) — MANHOLE
- (FIRE) — FIRE STRUCTURE
- (JB) — JUNCTION CAN



KEY PLAN NORTH

NO.	REVISION	DATE

DATE 05 / 26 / 17
SCALE AS SHOWN

METROPOLITAN WASHINGTON AIRPORTS AUTHORITY
OFFICE OF ENGINEERING
DESIGN DEPARTMENT

CONCOURSE C / D APRON REHABILITATION
WASHINGTON DULLES INTERNATIONAL AIRPORT
WASHINGTON, D.C.

PAVEMENT REPAIRS LAYOUT 1

PROJECT IDENTIFIER: IA1702
SHEET NAME: CV03.0101
VOLUME NUMBER: 1 of 1
SHEET NUMBER: 4 of 26
5/26/2017

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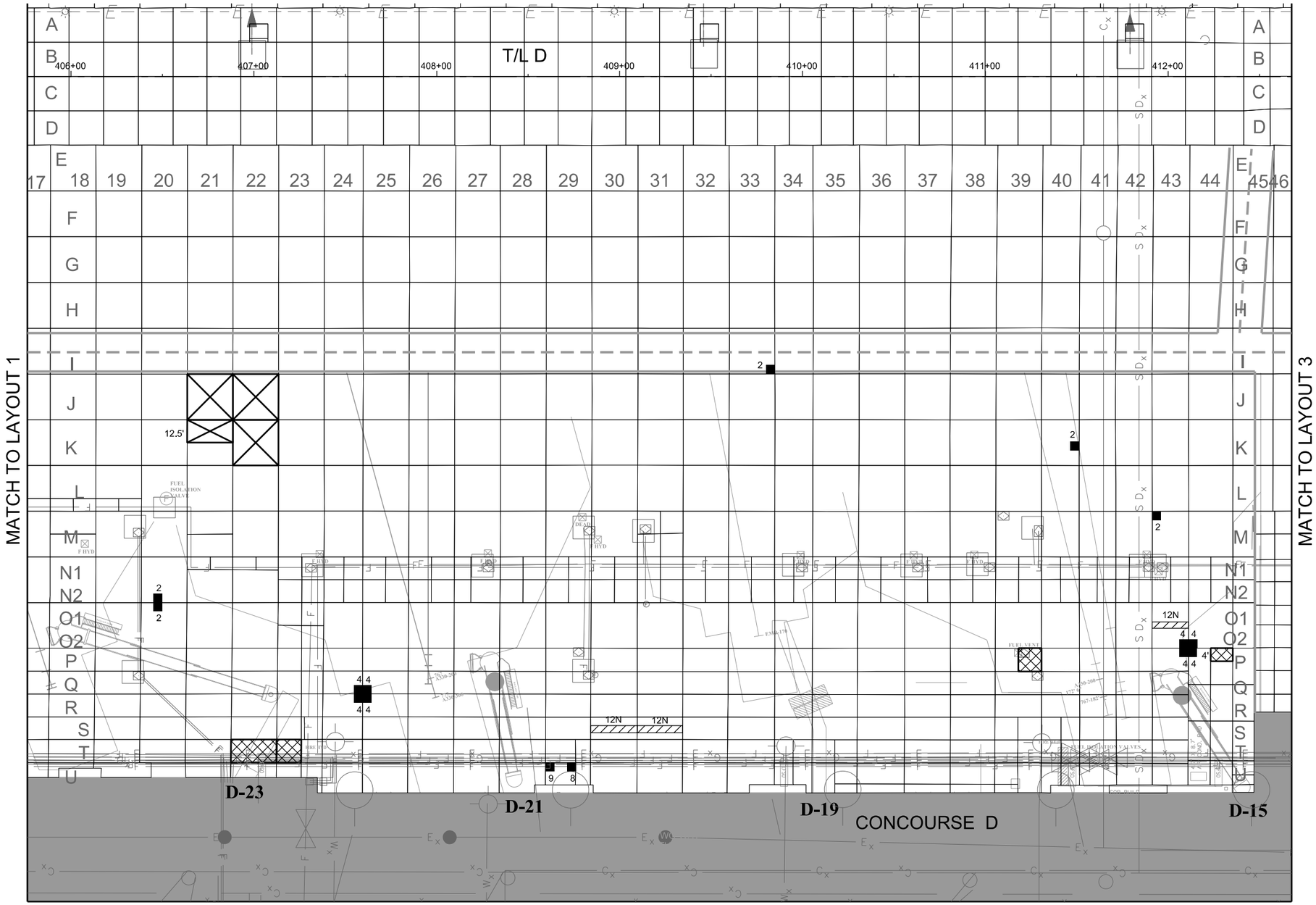
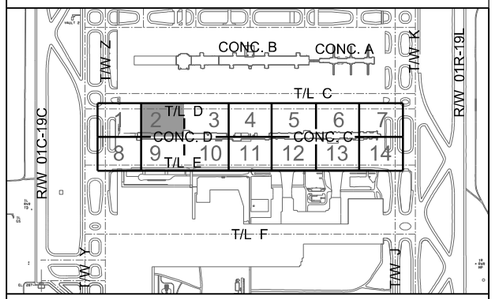


MATCH TO LAYOUT 9

NORTH
0 30 60
SCALE IN FEET

LEGEND

- 12N — BITUMINOUS LINEAR CRACK REPAIR AND WIDTH OF REPAIR IN INCHES
- 2 ■ — PARTIAL DEPTH SPALL REPAIR AND NUMBER OF SQUARE FEET
- FULL DEPTH PAVEMENT REMOVAL AND REPLACEMENT (20" PCC)
- FULL DEPTH PAVEMENT REMOVAL AND REPLACEMENT (14" PCC)
- HMA MILL AND OVERLAY, 3" DEPTH
- FUEL ACCESS LID
- C^{U}_{X} — COMMUNICATIONS LINE
- F — UNDERGROUND AVIATION FUEL LINE
- ABANDONED UNDERGROUND AVIATION FUEL LINE
- G_X — GAS LINE
- E_X — ELECTRICAL LINE
- SS_X — SANITARY SEWER LINE
- SD_X — STORM SEWER LINE
- W_X — WATER LINE
- VEHICLE SERVICE ROAD
- NON-MOVEMENT AREA MARKING
- X-## — CONCOURSE C/D GATE/PARKING LOCATION
- (F) FUEL STRUCTURE
- (M) MANHOLE
- (FIRE) FIRE STRUCTURE
- (JB) JUNCTION CAN



KEY PLAN NORTH

NO.	REVISION	DATE

DATE 05 / 26 / 17
SCALE AS SHOWN

METROPOLITAN WASHINGTON AIRPORTS AUTHORITY
OFFICE OF ENGINEERING
DESIGN DEPARTMENT

CONCOURSE C / D APRON REHABILITATION
WASHINGTON DULLES INTERNATIONAL AIRPORT
WASHINGTON, D.C.

PAVEMENT REPAIRS LAYOUT 2

PROJECT IDENTIFIER: IA1702
SHEET NAME: CV03.0102
VOLUME NUMBER: 1 of 1
SHEET NUMBER: 5 of 26

5/26/2017

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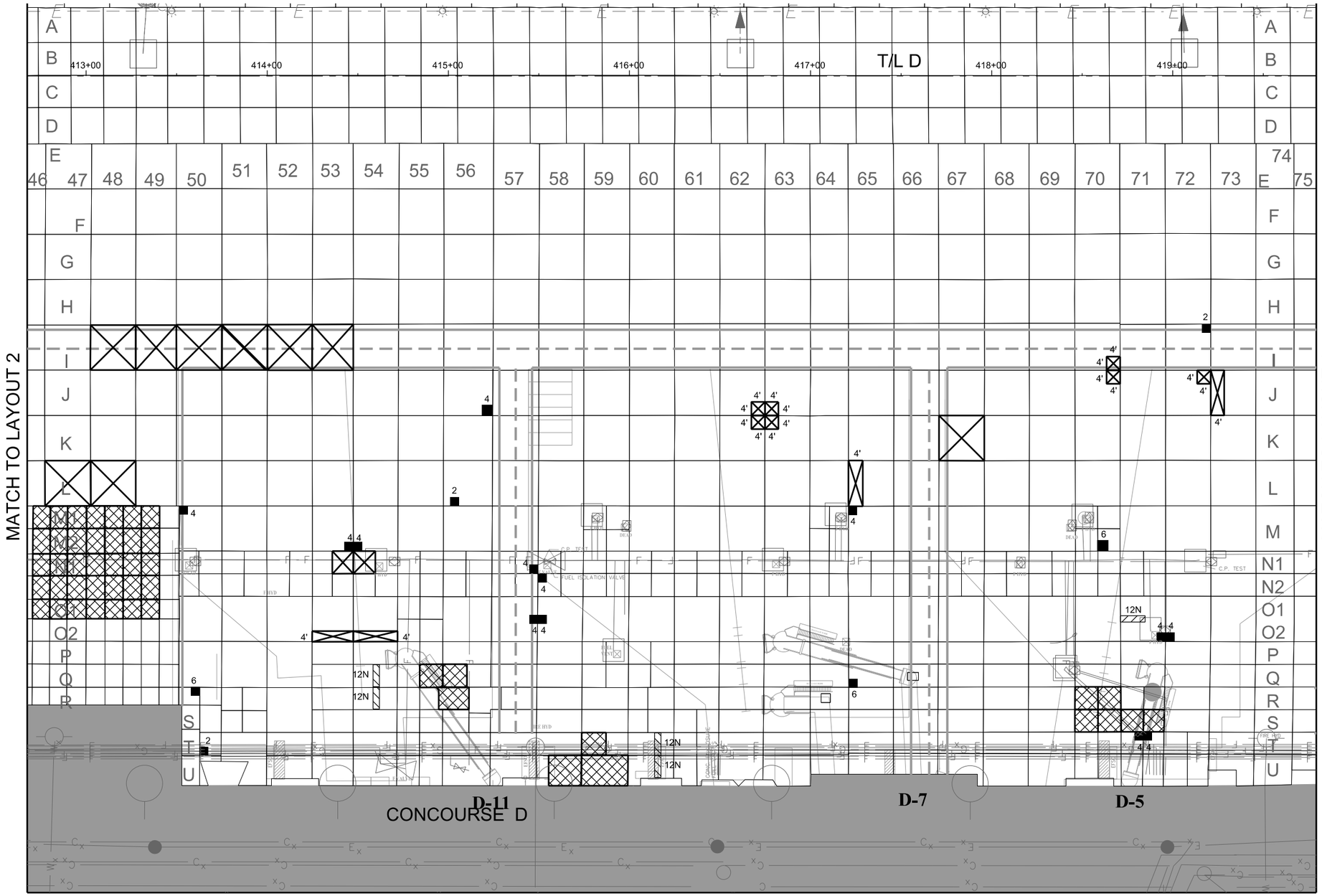
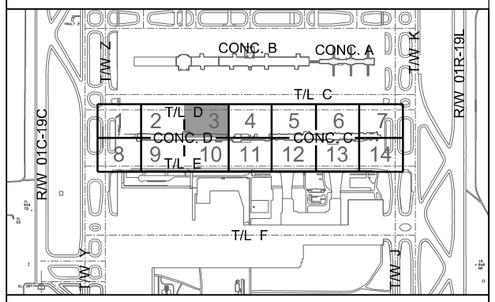


NORTH
0 30 60
SCALE IN FEET

LEGEND

- 12N — BITUMINOUS LINEAR CRACK REPAIR AND WIDTH OF REPAIR IN INCHES
- 2 ■ — PARTIAL DEPTH SPALL REPAIR AND NUMBER OF SQUARE FEET
- FULL DEPTH PAVEMENT REMOVAL AND REPLACEMENT (20" PCC)
- FULL DEPTH PAVEMENT REMOVAL AND REPLACEMENT (14" PCC)
- HMA MILL AND OVERLAY, 3" DEPTH
- FUEL ACCESS LID
- C_X^U — COMMUNICATIONS LINE
- F — UNDERGROUND AVIATION FUEL LINE
- ABANDONED UNDERGROUND AVIATION FUEL LINE
- G_X — GAS LINE
- E_X — ELECTRICAL LINE
- SS_X — SANITARY SEWER LINE
- SD_X — STORM SEWER LINE
- W_X — WATER LINE
- VEHICLE SERVICE ROAD
- NON-MOVEMENT AREA MARKING
- X-## — CONCOURSE C/D GATE/PARKING LOCATION
- (F) FUEL STRUCTURE
- (M) MANHOLE
- (FIRE) FIRE STRUCTURE
- (JB) JUNCTION CAN



KEY PLAN NORTH

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METROPOLITAN WASHINGTON AIRPORTS AUTHORITY
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PAVEMENT REPAIRS LAYOUT 3

PROJECT IDENTIFIER: IA1702
SHEET NAME: CV03.0103
VOLUME NUMBER: 1 of 1
SHEET NUMBER: 6 of 26
5/26/2017

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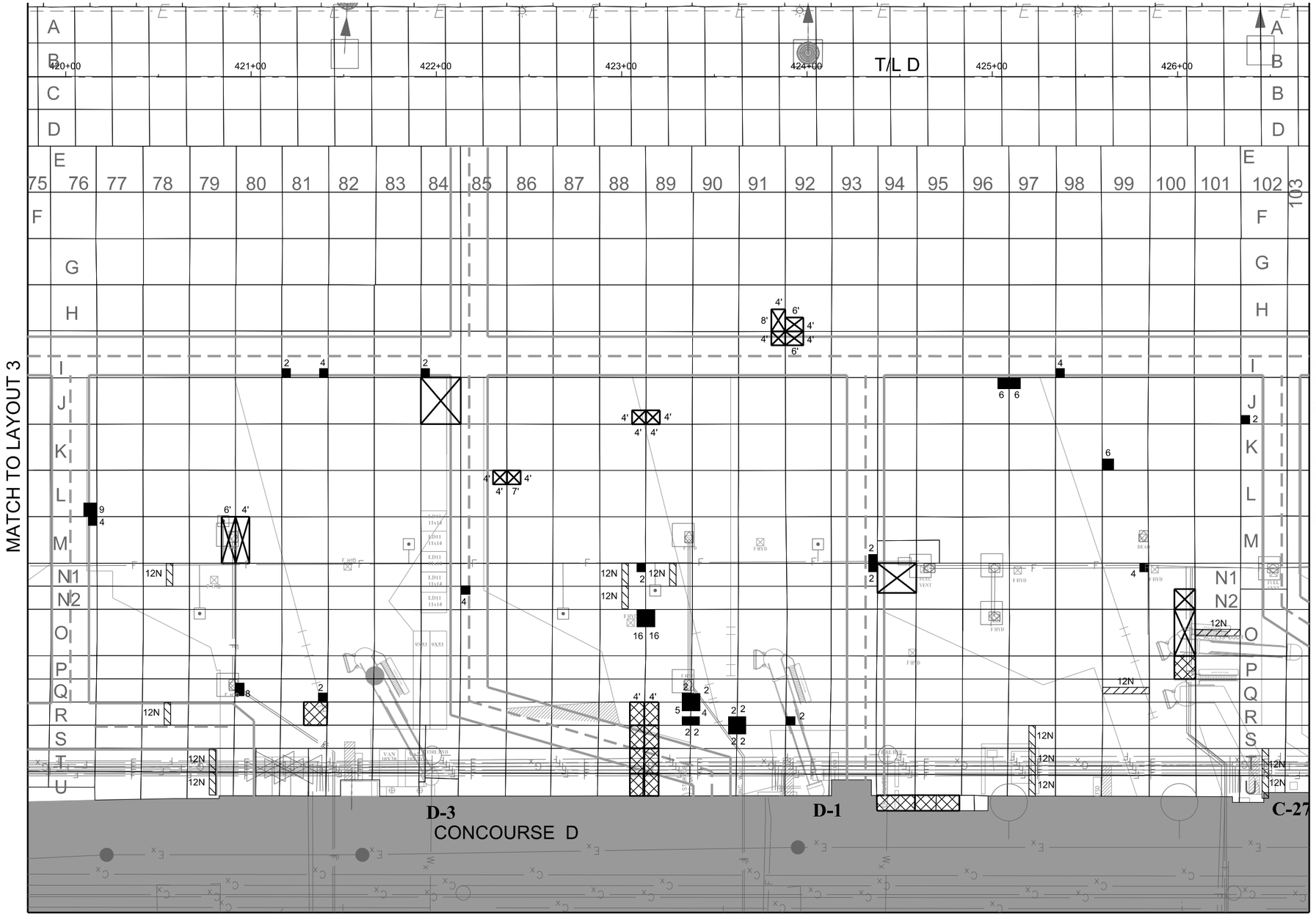

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DESIGN DEPARTMENT

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WASHINGTON, D.C.

PAVEMENT REPAIRS LAYOUT 4

PROJECT IDENTIFIER: IA1702
SHEET NAME: CV03.0104
VOLUME NUMBER: 1 of 1
SHEET NUMBER: 7 of 26

5/26/2017

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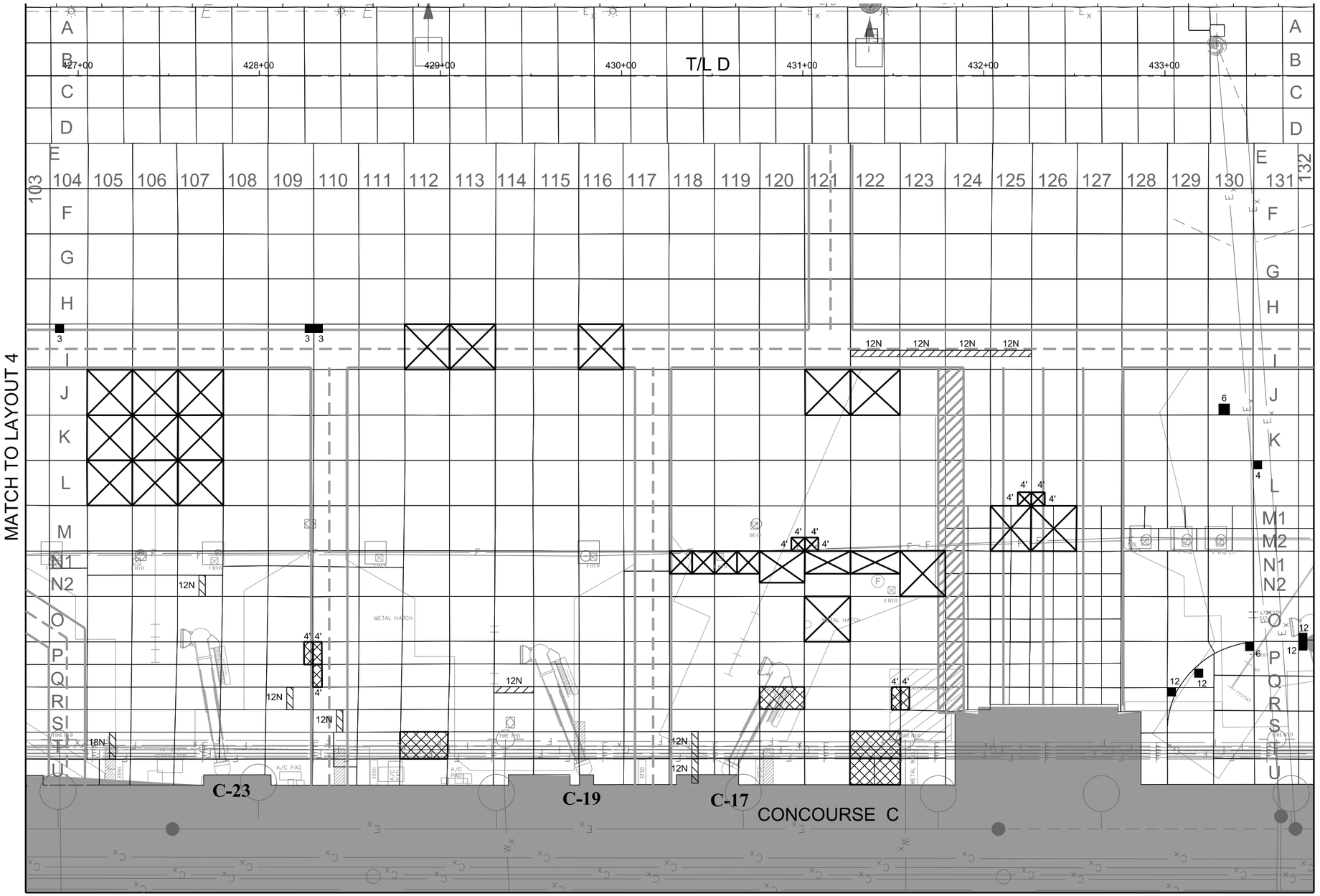

NORTH
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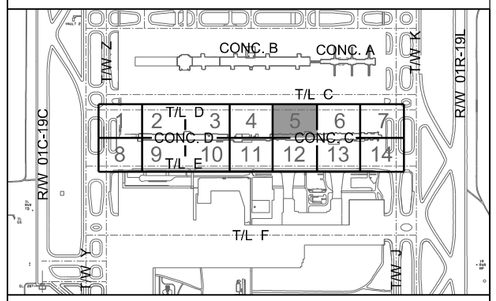
SCALE IN FEET

LEGEND

- 12N — BITUMINOUS LINEAR CRACK REPAIR AND WIDTH OF REPAIR IN INCHES
- 2 — PARTIAL DEPTH SPALL REPAIR AND NUMBER OF SQUARE FEET
- FULL DEPTH PAVEMENT REMOVAL AND REPLACEMENT (20" PCC)
- FULL DEPTH PAVEMENT REMOVAL AND REPLACEMENT (14" PCC)
- HMA MILL AND OVERLAY, 3" DEPTH
- FUEL ACCESS LID
- C^{U}_{X} — COMMUNICATIONS LINE
- F — UNDERGROUND AVIATION FUEL LINE
- ABANDONED UNDERGROUND AVIATION FUEL LINE
- G_X — GAS LINE
- E_X — ELECTRICAL LINE
- SS_X — SANITARY SEWER LINE
- SD_X — STORM SEWER LINE
- W_X — WATER LINE
- VEHICLE SERVICE ROAD
- NON-MOVEMENT AREA MARKING
- X-## — CONCOURSE C/D GATE/PARKING LOCATION
- (F) FUEL STRUCTURE
- (M) MANHOLE
- (FIRE) FIRE STRUCTURE
- (JB) JUNCTION CAN



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NO.	REVISION	DATE

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PAVEMENT REPAIRS LAYOUT 5

PROJECT IDENTIFIER IA1702
SHEET NAME CV03.0105
VOLUME NUMBER 1 of 1
SHEET NUMBER 8 of 26

5/26/2017

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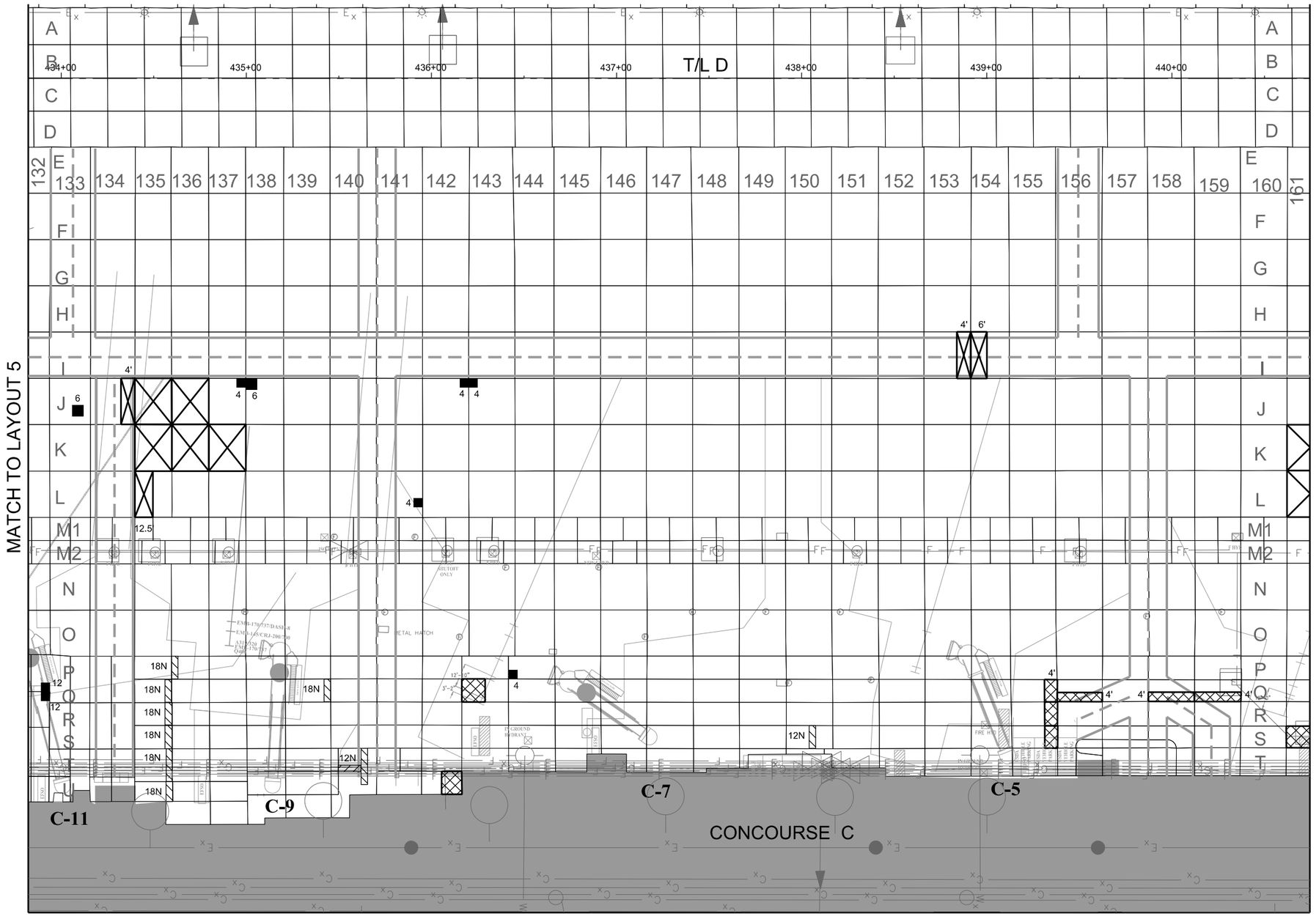

NORTH
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SCALE IN FEET

LEGEND

- 12N — BITUMINOUS LINEAR CRACK REPAIR AND WIDTH OF REPAIR IN INCHES
- 2 — PARTIAL DEPTH SPALL REPAIR AND NUMBER OF SQUARE FEET
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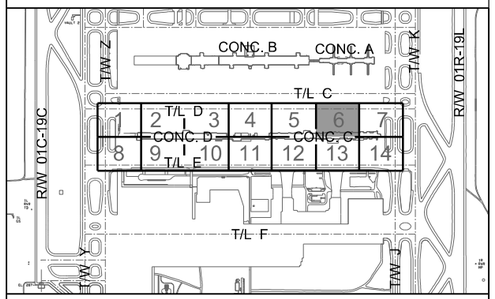

KEY PLAN — NORTH

NO.	REVISION	DATE

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DESIGN DEPARTMENT

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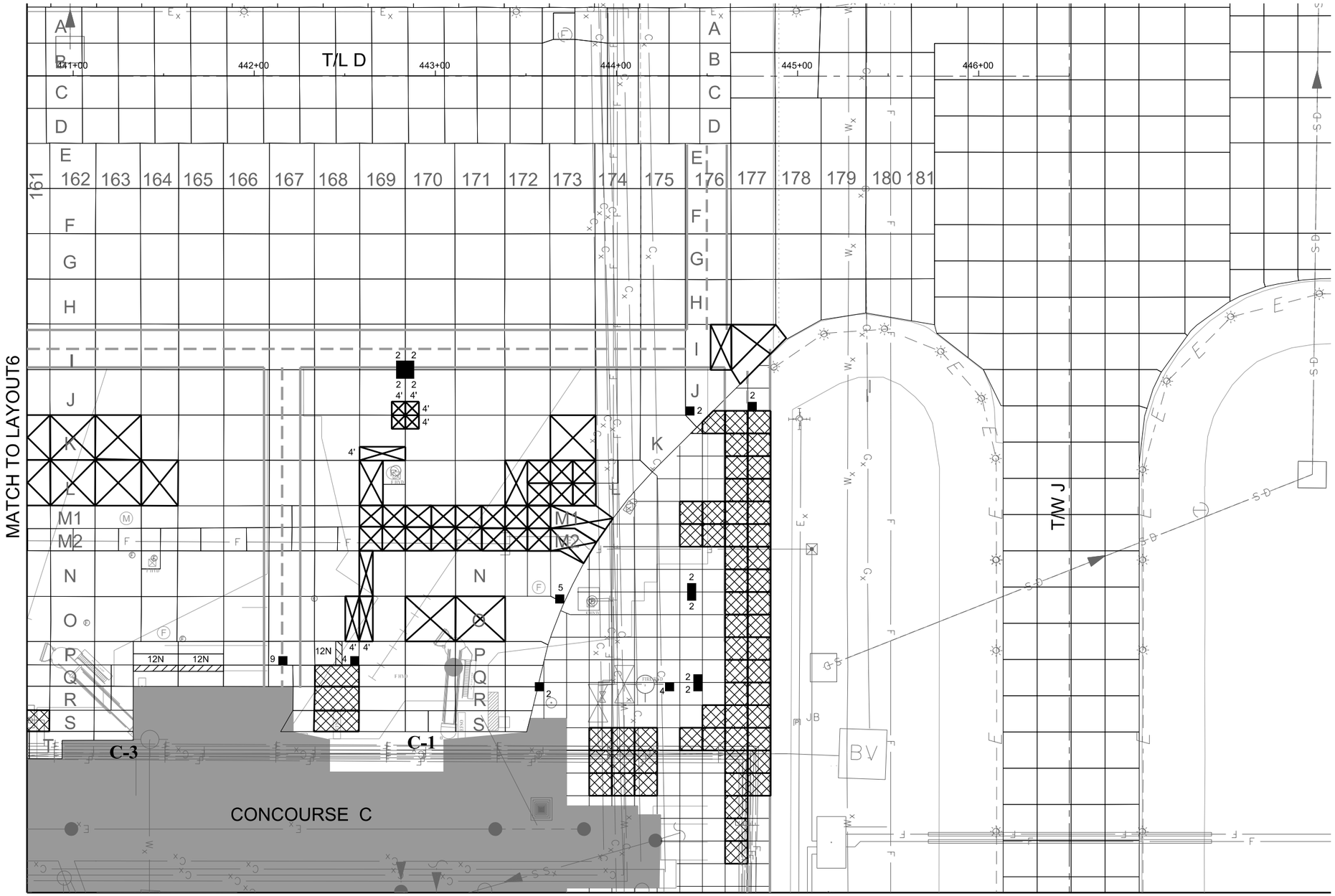
WASHINGTON, D.C.

PAVEMENT REPAIRS LAYOUT 6

PROJECT IDENTIFIER: IA1702
SHEET NAME: CV03.0106
VOLUME NUMBER: 1 of 1
SHEET NUMBER: 9 of 26

5/26/2017

NOT FOR CONSTRUCTION



LEGEND

- 12N — BITUMINOUS LINEAR CRACK REPAIR AND WIDTH OF REPAIR IN INCHES
- 2 ■ — PARTIAL DEPTH SPALL REPAIR AND NUMBER OF SQUARE FEET
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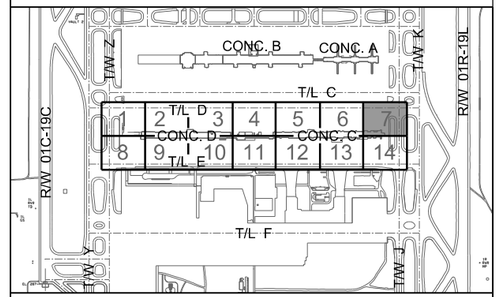

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WASHINGTON, D.C.

PAVEMENT REPAIRS LAYOUT 7

PROJECT IDENTIFIER: IA1702
SHEET NAME: CV03.0107
VOLUME NUMBER: 1 of 1
SHEET NUMBER: 10 of 26

5/26/2017

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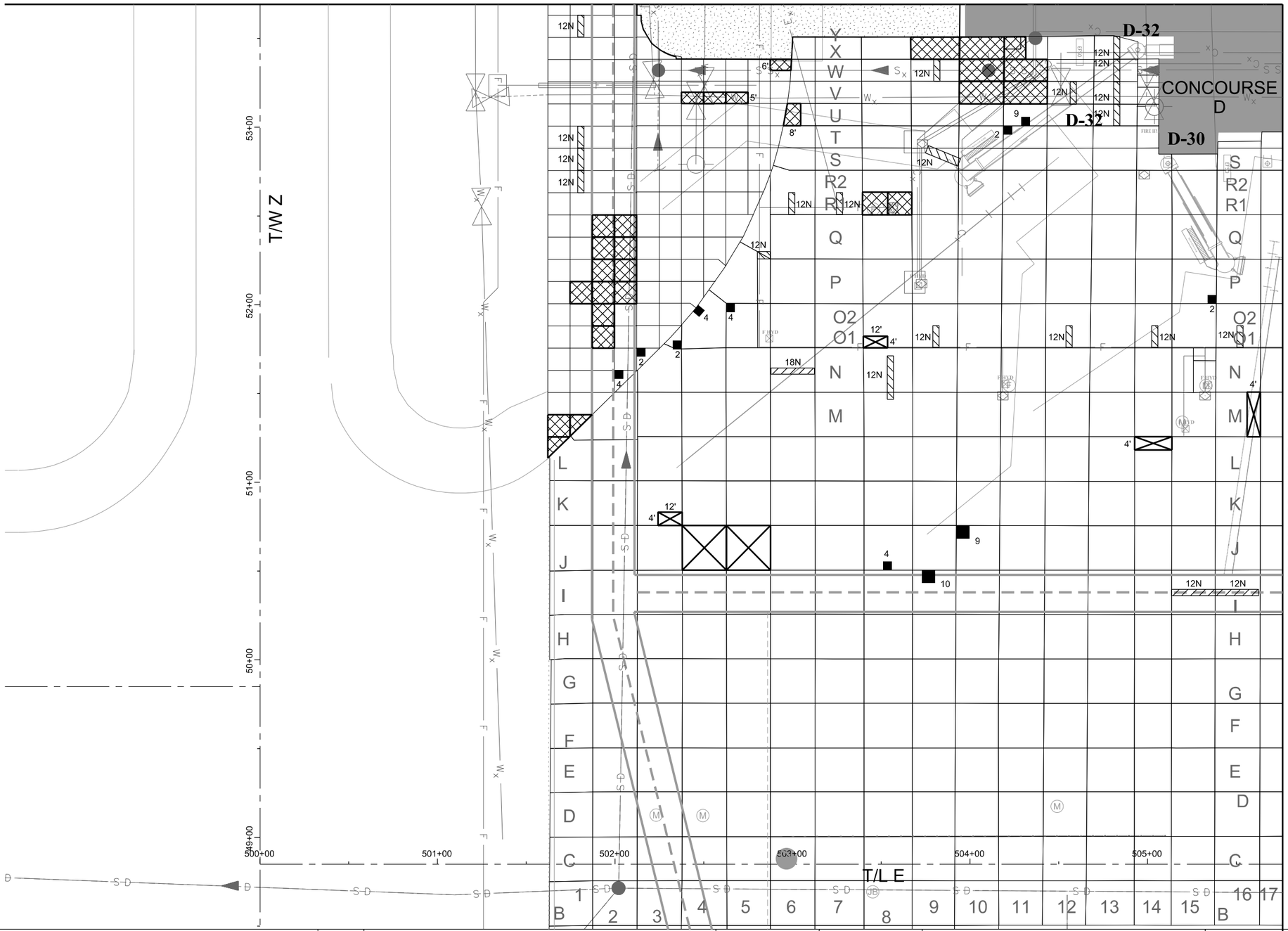
MATCH TO LAYOUT 1



NORTH
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SCALE IN FEET

LEGEND

- 12N — BITUMINOUS LINEAR CRACK REPAIR AND WIDTH OF REPAIR IN INCHES
- 2 ■ — PARTIAL DEPTH SPALL REPAIR AND NUMBER OF SQUARE FEET
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- FULL DEPTH PAVEMENT REMOVAL AND REPLACEMENT (14" PCC)
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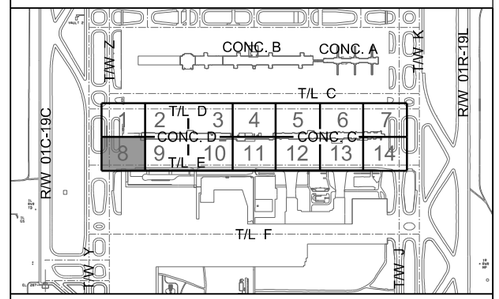

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PAVEMENT REPAIRS LAYOUT 8

PROJECT IDENTIFIER: IA1702
SHEET NAME: CV03.0108
VOLUME NUMBER: 1 of 1
SHEET NUMBER: 11 of 26

5/26/2017

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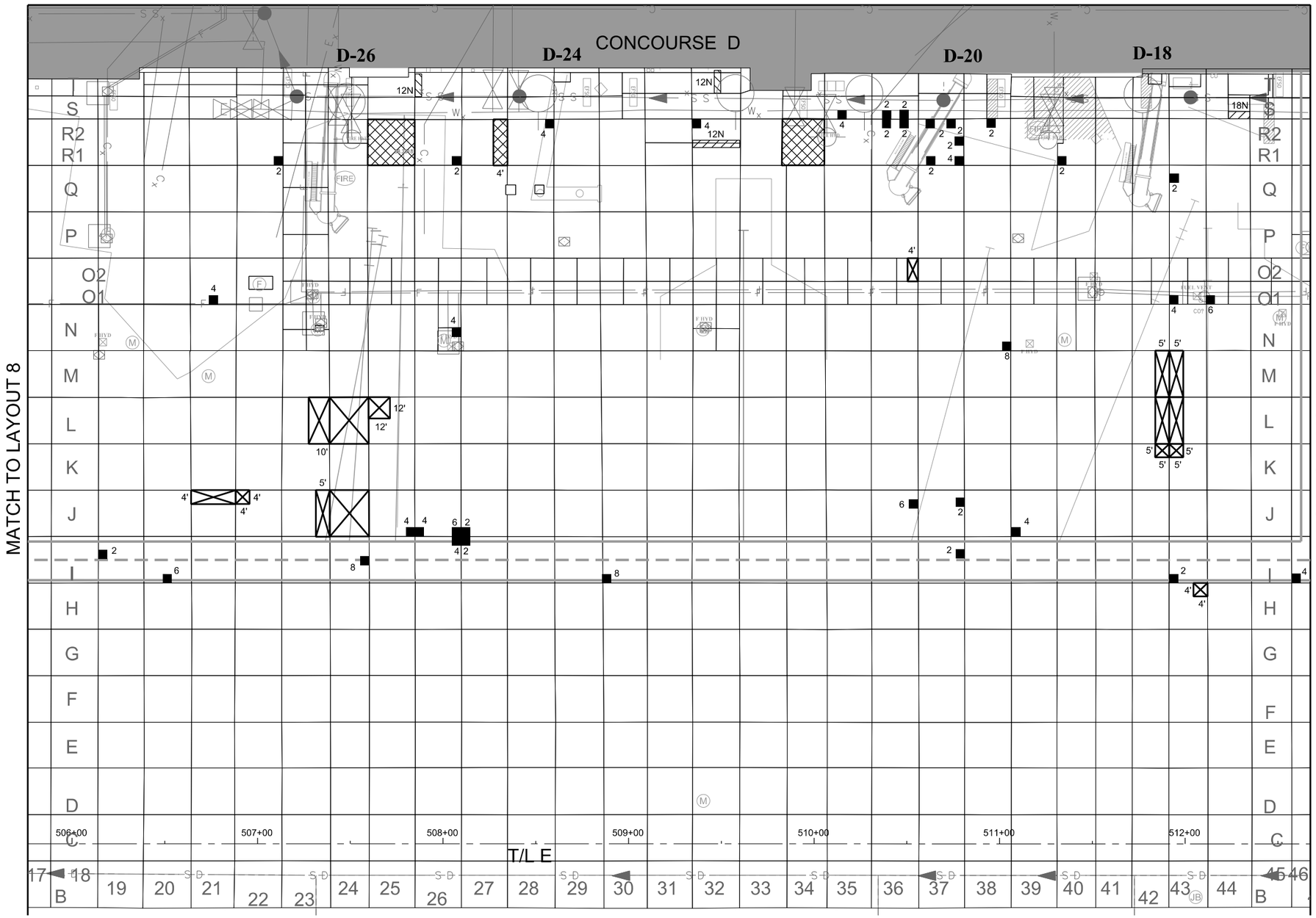
MATCH TO LAYOUT 2



NORTH
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SCALE IN FEET

LEGEND

- 12N — BITUMINOUS LINEAR CRACK REPAIR AND WIDTH OF REPAIR IN INCHES
- 2 ■ — PARTIAL DEPTH SPALL REPAIR AND NUMBER OF SQUARE FEET
- FULL DEPTH PAVEMENT REMOVAL AND REPLACEMENT (20" PCC)
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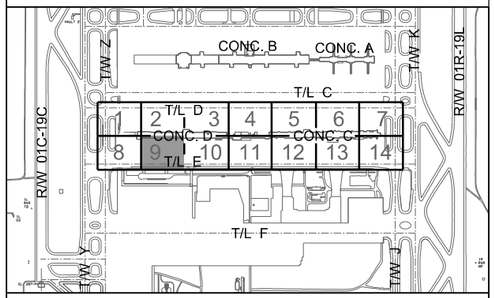

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PAVEMENT REPAIRS LAYOUT 9

PROJECT IDENTIFIER: IA1702
SHEET NAME: CV03.0109
VOLUME NUMBER: 1 of 1
SHEET NUMBER: 12 of 26

5/26/2017

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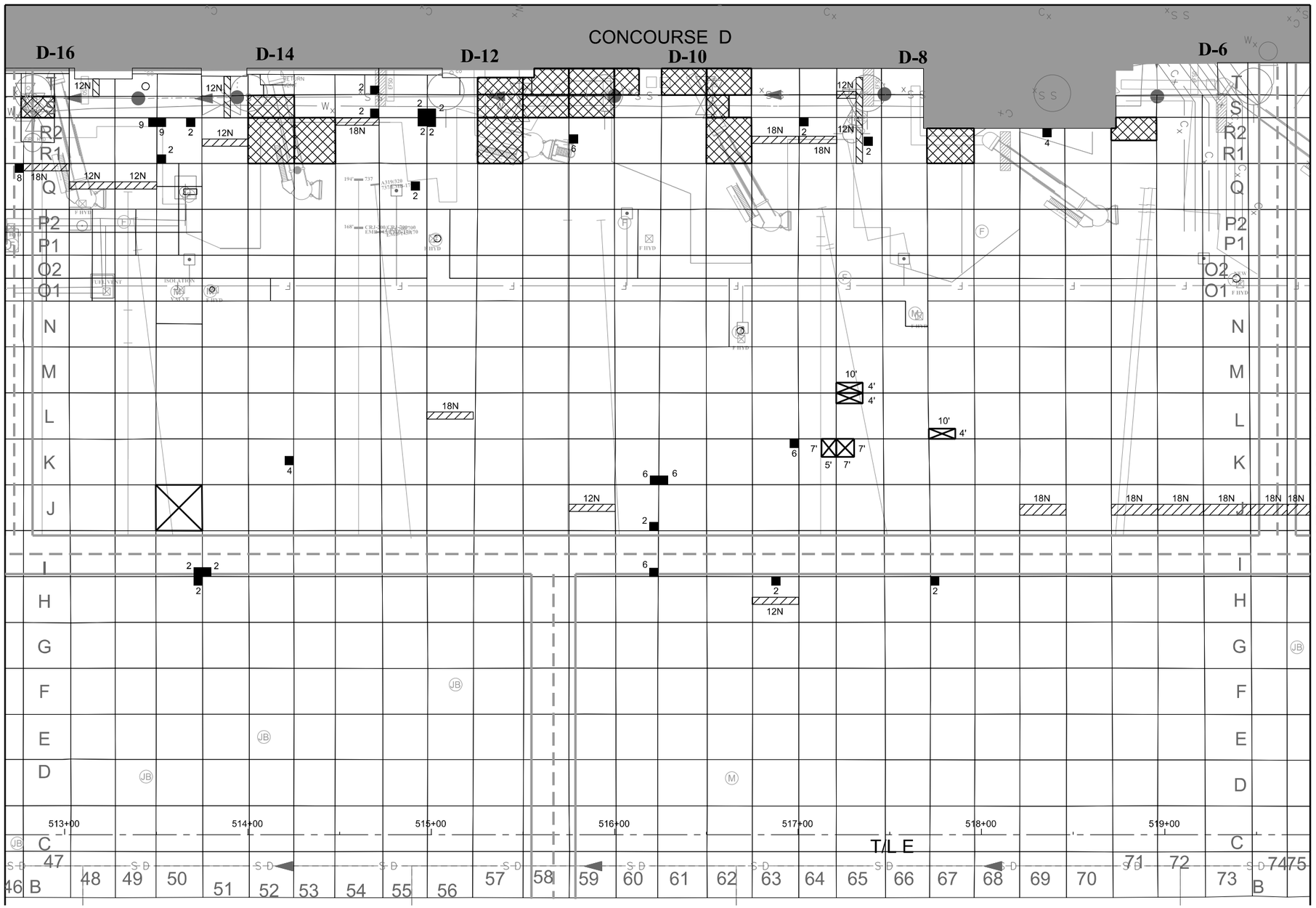
MATCH TO LAYOUT 3

MATCH TO LAYOUT 9

MATCH TO LAYOUT 11



NORTH
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SCALE IN FEET

LEGEND

- 12N — BITUMINOUS LINEAR CRACK REPAIR AND WIDTH OF REPAIR IN INCHES
- 2 ■ — PARTIAL DEPTH SPALL REPAIR AND NUMBER OF SQUARE FEET
- FULL DEPTH PAVEMENT REMOVAL AND REPLACEMENT (20" PCC)
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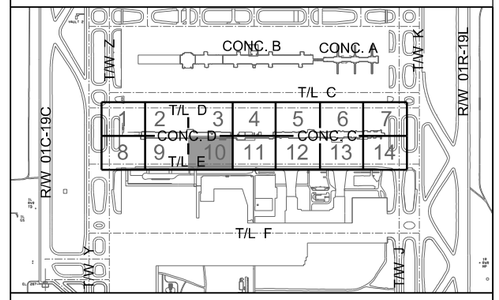

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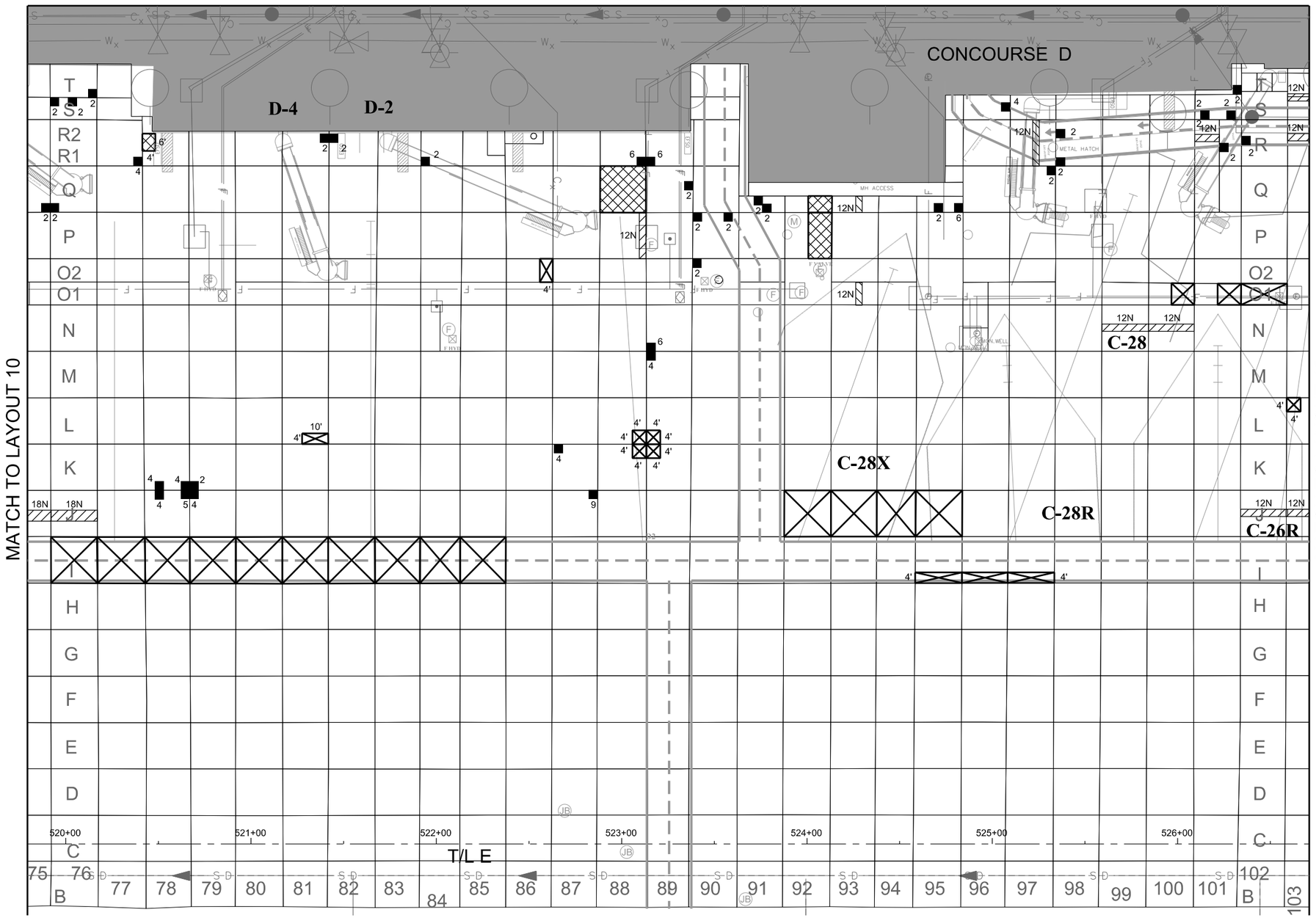
PAVEMENT REPAIRS LAYOUT 10

PROJECT IDENTIFIER: IA1702
SHEET NAME: CV03.0110
VOLUME NUMBER: 1 of 1
SHEET NUMBER: 13 of 26

5/26/2017

NOT FOR CONSTRUCTION

MATCH TO LAYOUT 4



NORTH
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SCALE IN FEET

LEGEND

- BITUMINOUS LINEAR CRACK REPAIR AND WIDTH OF REPAIR IN INCHES
- PARTIAL DEPTH SPALL REPAIR AND NUMBER OF SQUARE FEET
- FULL DEPTH PAVEMENT REMOVAL AND REPLACEMENT (20" PCC)
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- COMMUNICATIONS LINE
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- GAS LINE
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- VEHICLE SERVICE ROAD
- NON-MOVEMENT AREA MARKING
- X-## CONCOURSE C/D GATE/PARKING LOCATION
- (F) FUEL STRUCTURE
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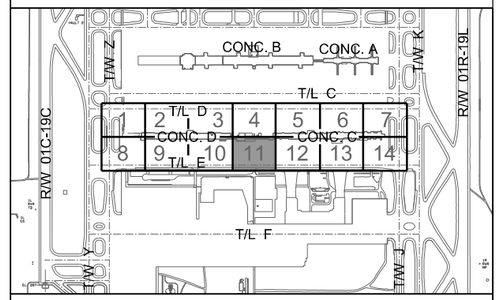

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WASHINGTON, D.C.

PAVEMENT REPAIRS LAYOUT 11

PROJECT IDENTIFIER: IA1702
SHEET NAME: CV03.0111
VOLUME NUMBER: 1 of 1
SHEET NUMBER: 14 of 26

5/26/2017

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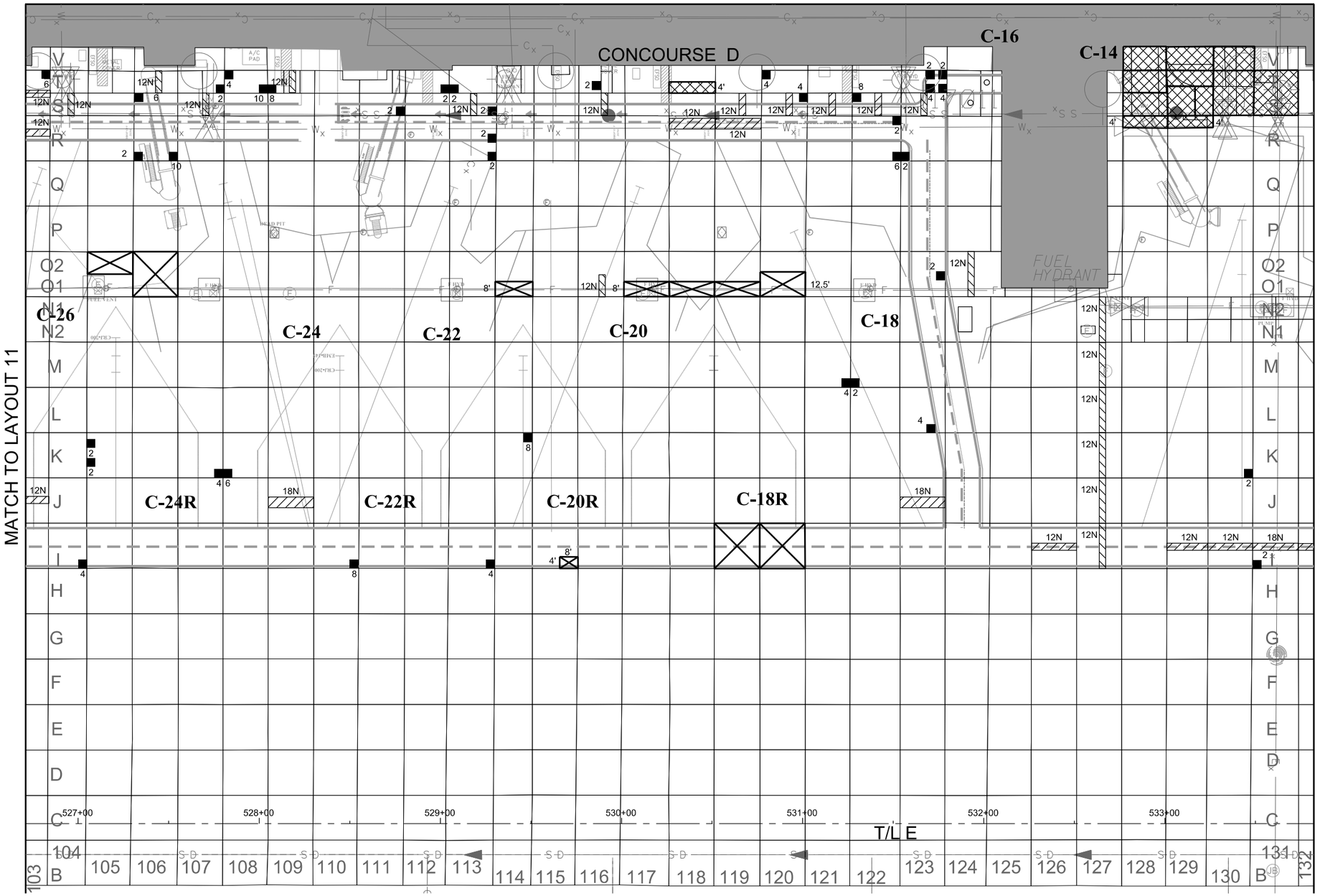
MATCH TO LAYOUT 5



NORTH
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SCALE IN FEET

LEGEND

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- 2 ■ — PARTIAL DEPTH SPALL REPAIR AND NUMBER OF SQUARE FEET
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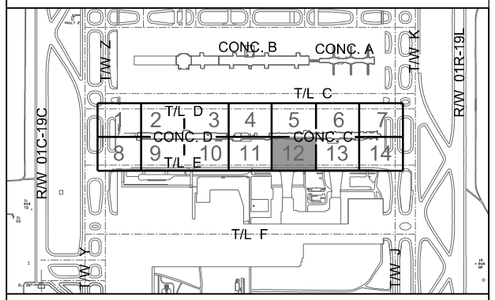

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DESIGN DEPARTMENT

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WASHINGTON, D.C.

PAVEMENT REPAIRS LAYOUT 12

PROJECT IDENTIFIER: IA1702
SHEET NAME: CV03.0112
VOLUME NUMBER: 1 of 1
SHEET NUMBER: 15 of 26
5/26/2017

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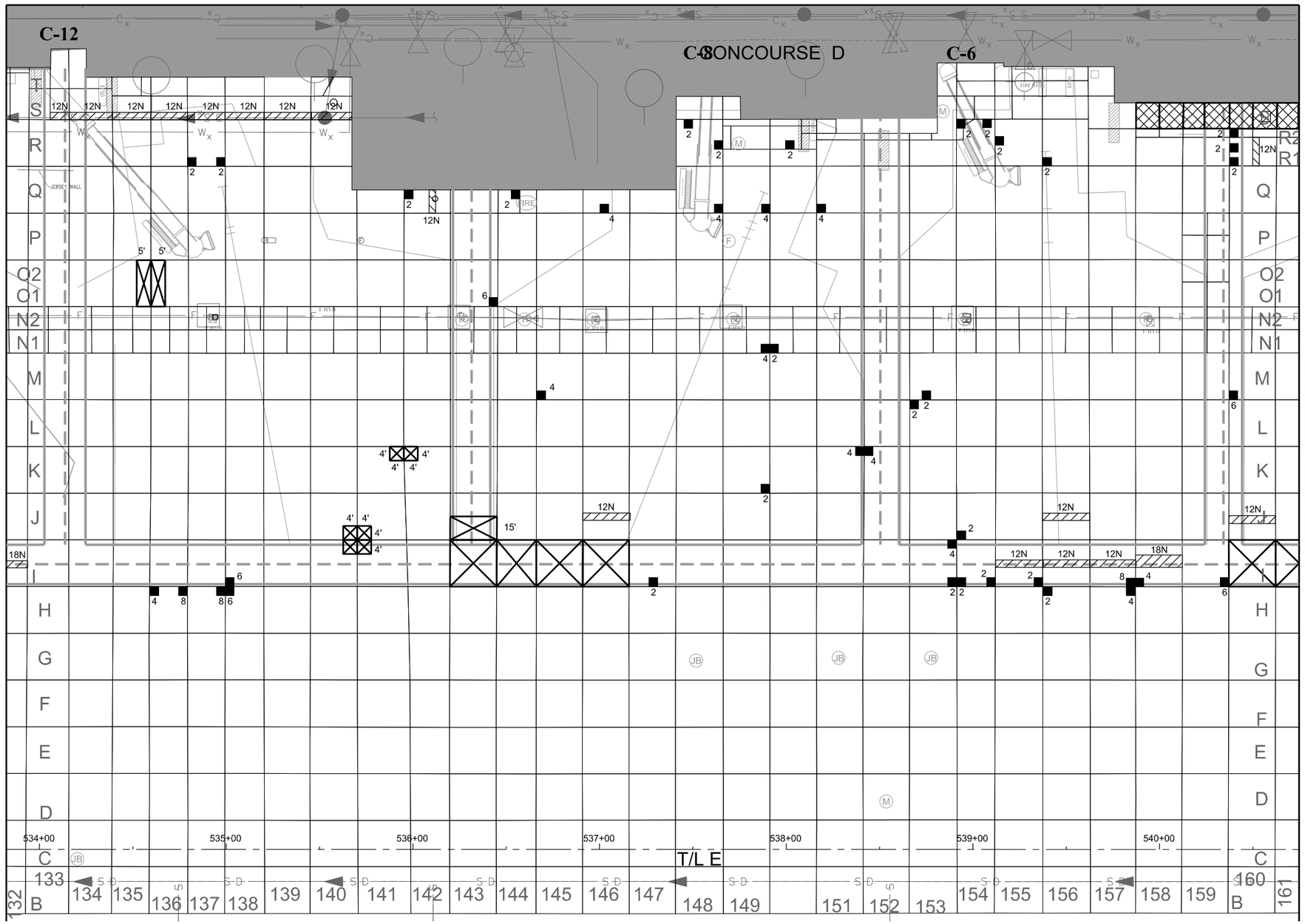
MATCH TO LAYOUT 6

MATCH TO LAYOUT 12

MATCH TO LAYOUT 14



NORTH
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SCALE IN FEET

LEGEND

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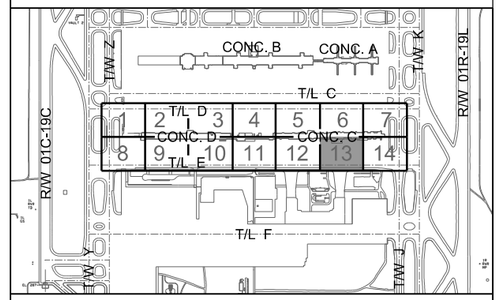

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PAVEMENT REPAIRS LAYOUT 13

PROJECT IDENTIFIER: IA1702
SHEET NAME: CV03.0113
VOLUME NUMBER: 1 of 1
SHEET NUMBER: 16 of 26

5/26/2017

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MATCH TO LAYOUT 7

MATCH TO LAYOUT 13

CONCOURSE C

C-4

C-2

T/W J

T/L E

541+00 542+00 543+00 544+00 545+00 546+00

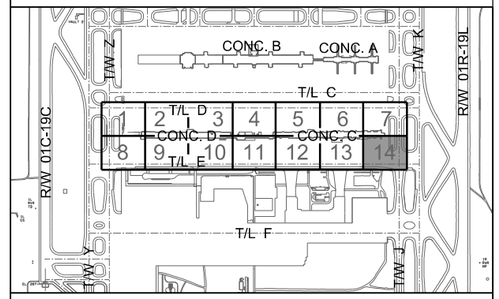
161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177

A B C D E F G H I J K L M N1 N2 O1 O2 P Q R1 R2 S T U

NORTH
0 30 60
SCALE IN FEET

LEGEND

- 12N — BITUMINOUS LINEAR CRACK REPAIR AND WIDTH OF REPAIR IN INCHES
- 2 — PARTIAL DEPTH SPALL REPAIR AND NUMBER OF SQUARE FEET
- FULL DEPTH PAVEMENT REMOVAL AND REPLACEMENT (20" PCC)
- FULL DEPTH PAVEMENT REMOVAL AND REPLACEMENT (14" PCC)
- HMA MILL AND OVERLAY, 3" DEPTH
- FUEL ACCESS LID
- C_x^u — COMMUNICATIONS LINE
- F — UNDERGROUND AVIATION FUEL LINE
- ABANDONED UNDERGROUND AVIATION FUEL LINE
- G_x — GAS LINE
- E_x — ELECTRICAL LINE
- SS_x — SANITARY SEWER LINE
- SD_x — STORM SEWER LINE
- W_x — WATER LINE
- VEHICLE SERVICE ROAD
- NON-MOVEMENT AREA MARKING
- X-## — CONCOURSE C/D GATE/PARKING LOCATION
- (F) — FUEL STRUCTURE
- (M) — MANHOLE
- (FIRE) — FIRE STRUCTURE
- (JB) — JUNCTION CAN



KEY PLAN NORTH

NO.	REVISION	DATE

DATE 05 / 26 / 17
SCALE AS SHOWN

METROPOLITAN WASHINGTON AIRPORTS AUTHORITY
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DESIGN DEPARTMENT

CONCOURSE C / D APRON REHABILITATION

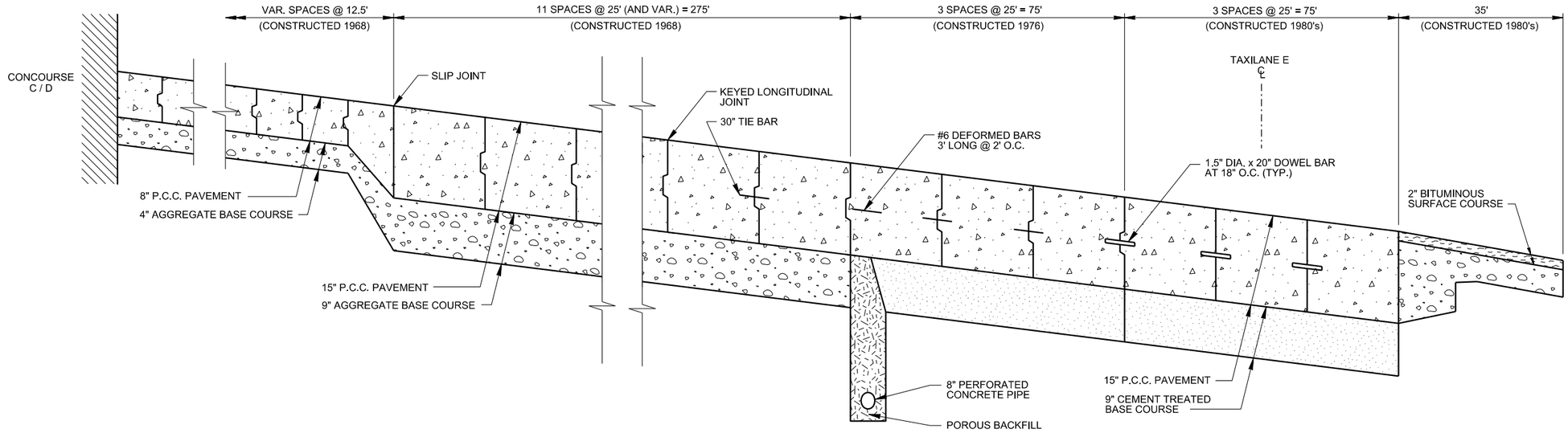
WASHINGTON DULLES INTERNATIONAL AIRPORT
WASHINGTON, D.C.

PAVEMENT REPAIRS LAYOUT 14

PROJECT IDENTIFIER: IA1702
SHEET NAME: CV03.0114
VOLUME NUMBER: 1 of 1
SHEET NUMBER: 17 of 26

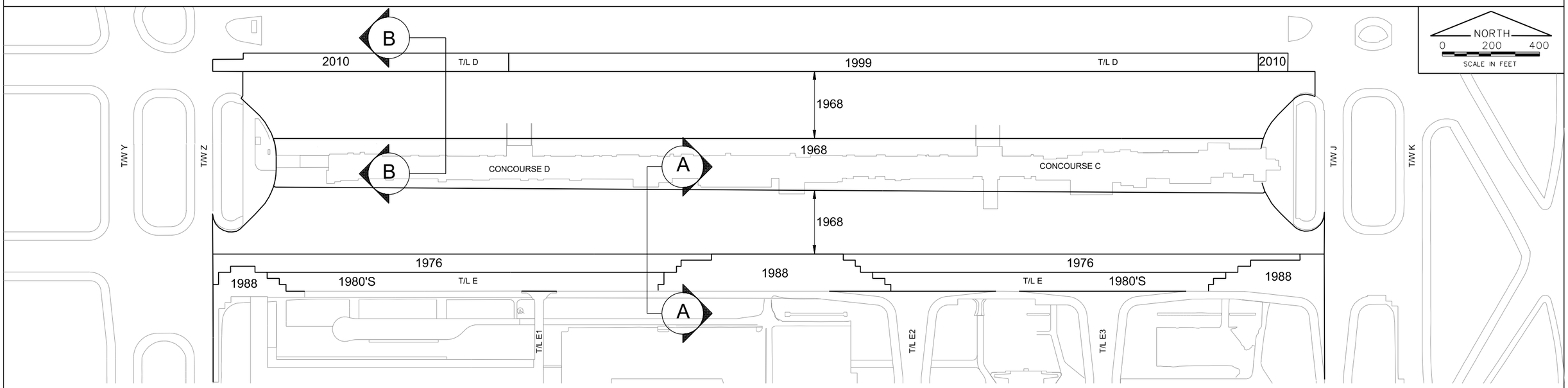
5/26/2017

NOT FOR CONSTRUCTION



A SOUTH CONCOURSE C/D APRON AND TAXILANE E EXISTING SECTION

N.T.S.



PAVEMENT CONSTRUCTION HISTORY

NO.	REVISION	DATE

DATE 05 / 26 / 17
SCALE AS SHOWN

METROPOLITAN WASHINGTON AIRPORTS AUTHORITY
OFFICE OF ENGINEERING
DESIGN DEPARTMENT

CONCOURSE C / D APRON REHABILITATION
WASHINGTON DULLES INTERNATIONAL AIRPORT
WASHINGTON, D.C.

TYPICAL EXISTING PAVEMENT SECTIONS 1

PROJECT IDENTIFIER: IA1702
SHEET NAME: CV04.0001
VOLUME NUMBER: 1 of 1
SHEET NUMBER: 18 of 26

5/26/2017

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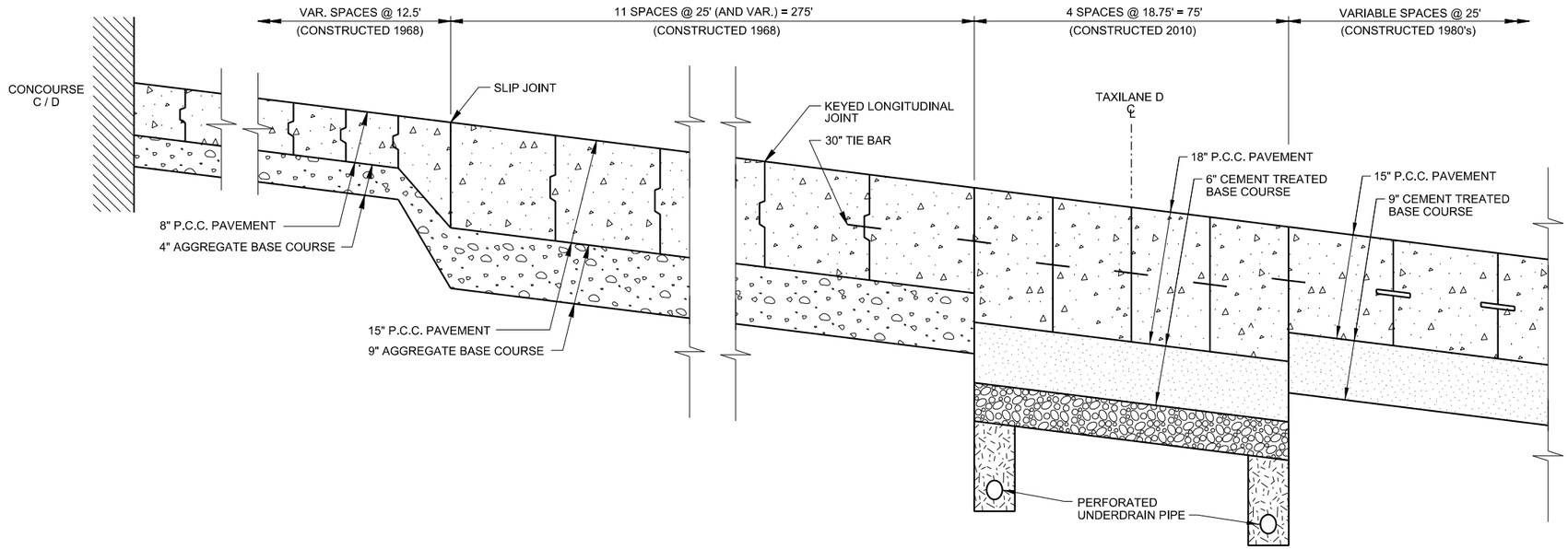

B NORTH CONCOURSE C/D APRON AND TAXILANE D EXISTING SECTION

N.T.S.

NO.	REVISION	DATE

DATE 05 / 26 / 17

SCALE AS SHOWN

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OFFICE OF ENGINEERING
DESIGN DEPARTMENT

CONCOURSE C / D APRON REHABILITATION

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WASHINGTON, D.C.

TYPICAL EXISTING PAVEMENT SECTIONS 2

PROJECT IDENTIFIER: IA1702

SHEET NAME: CV04.0002

VOLUME NUMBER: 1 of 1

SHEET NUMBER: 19 of 26

5/26/2017

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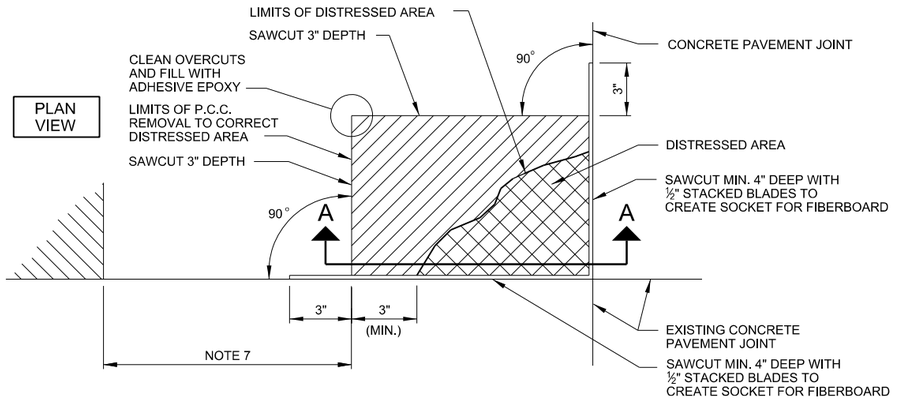

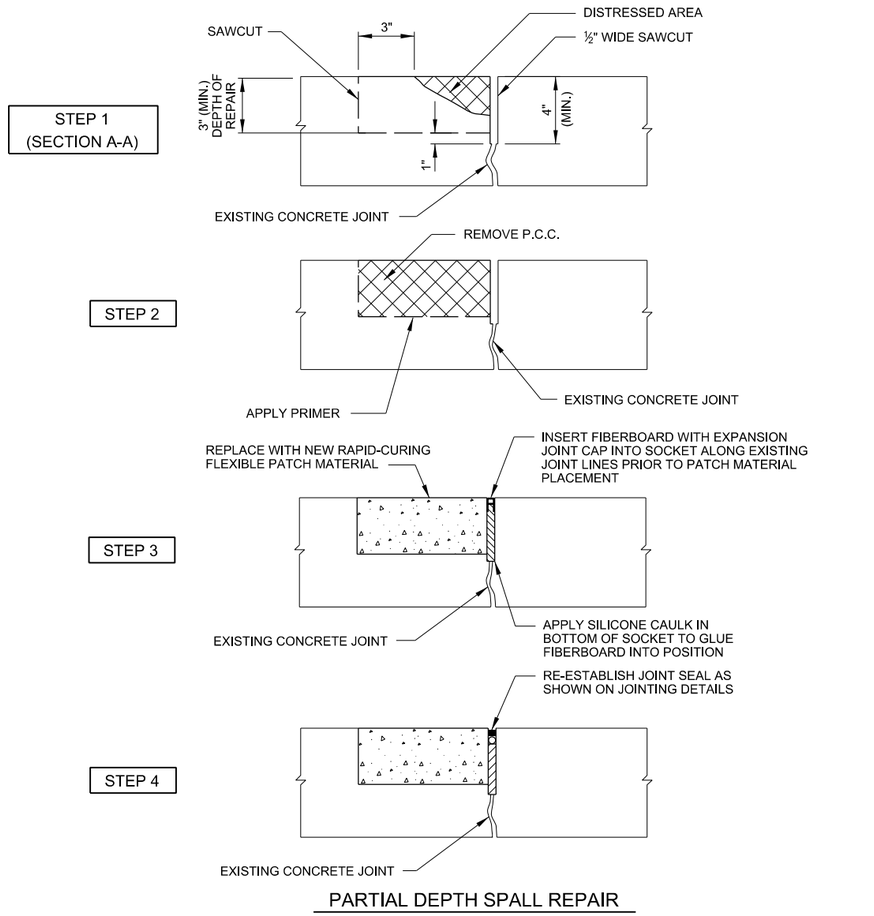

PARTIAL DEPTH SPALL REPAIR

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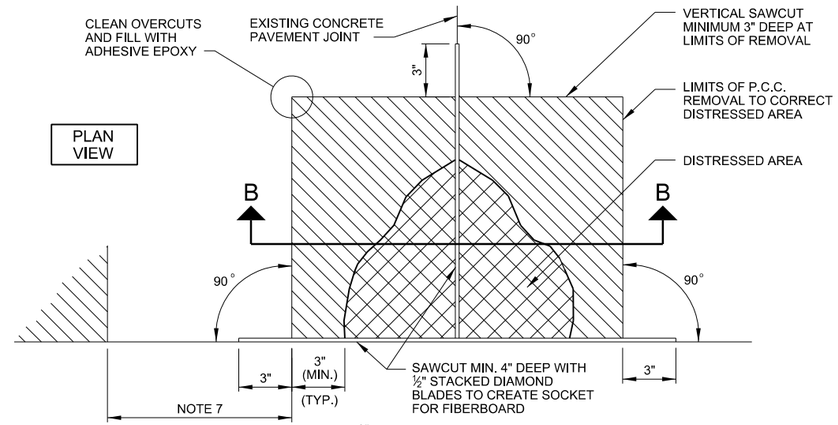

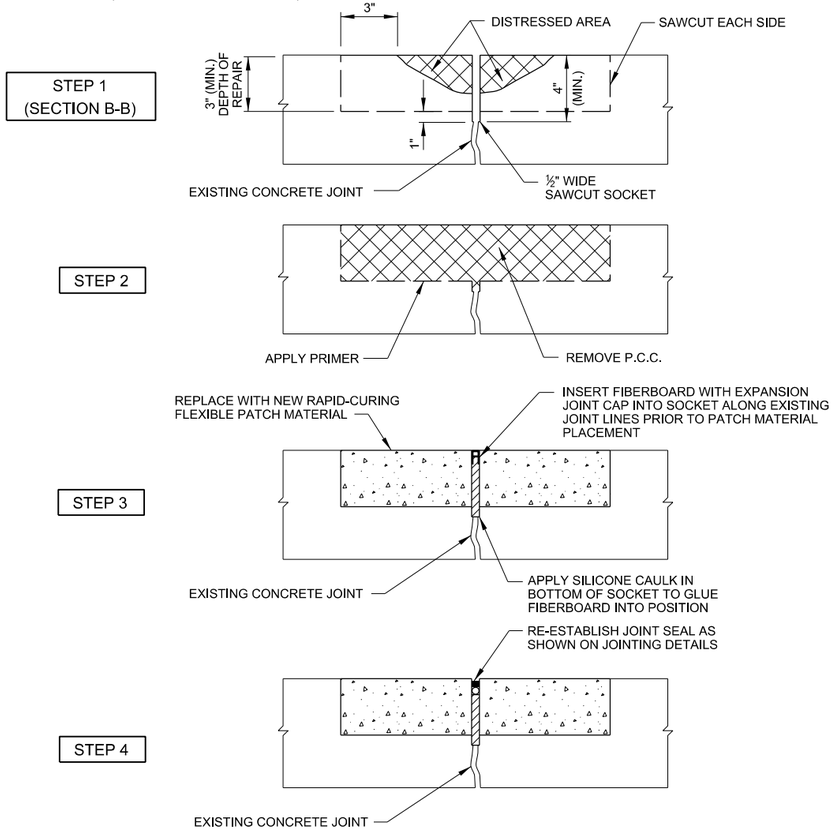

PARTIAL DEPTH SPALL REPAIR SPANNING ACROSS JOINTS

N.T.S.

PARTIAL DEPTH SPALL REPAIR NOTES

1.) MAKE VERTICAL SAW CUT A MINIMUM OF 3" DEEP APPROXIMATELY 3" FROM THE EDGE OF THE DISTRESSED AREA. SAWCUTS MUST BE SQUARE WITH ADJACENT JOINTS, FORMING A RECTANGULAR PATCH AREA.

2.) REMOVE ALL CONCRETE AND LOOSE MATERIAL AS NECESSARY TO EXPOSE SOUND CONCRETE (3" MINIMUM DEPTH OF REPAIR) WITHIN THE AREA TO BE REPAIRED.

3.) APPLY PRIMER AS RECOMMENDED BY PATCH MATERIAL MANUFACTURER.

4.) FILL AREA WITH RAPID-CURING FLEXIBLE PATCH MATERIAL AND ALLOW PATCH TO CURE.

5.) REMOVE EXPANSION JOINT CAP AND SEAL JOINT.

6.) SAW CUT OVERCUTS SHALL BE THOROUGHLY CLEANED AND COMPLETELY FILLED WITH EPOXY.

7.) MINIMUM DISTANCE BETWEEN ADJACENT EDGE SPALL PATCHES IS 2 FEET. IF LESS SPACE IS REQUIRED, PATCHES SHOULD BE COMBINED AND CONTINUOUS. IF DISTANCE BETWEEN SPALL REPAIR AND SLAB CORNER IS LESS THAN 18 INCHES, EXTEND PATCH TO SLAB CORNER.

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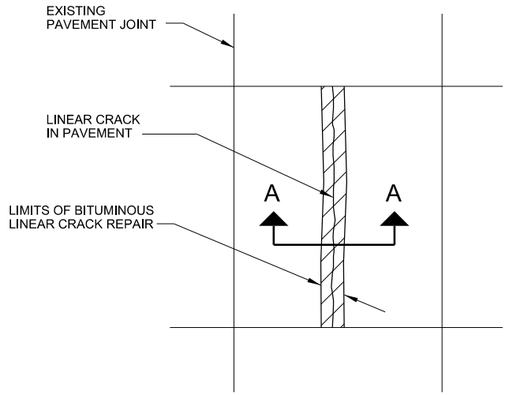
WASHINGTON DULLES INTERNATIONAL AIRPORT
WASHINGTON, D.C.

PARTIAL DEPTH SPALL REPAIR DETAILS

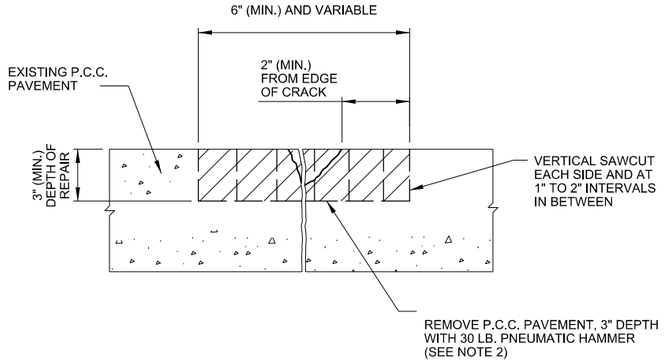
PROJECT IDENTIFIER IA1702
SHEET NAME CV05.0001
VOLUME NUMBER 1 of 1
SHEET NUMBER 20 of 26

5/26/2017

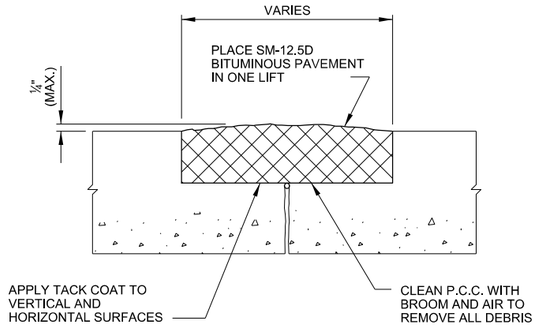
NOT FOR CONSTRUCTION



PLAN



STEP 1
SECTION A-A



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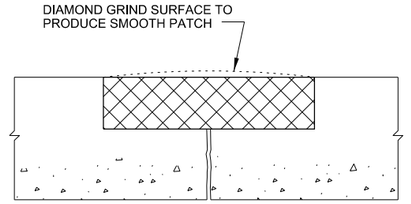

STEP 3

STEP 3 NOTE

1.) DIAMOND GRINDING MAY BE COMPLETED AFTER ALL BITUMINOUS PAVEMENT IS INSTALLED, PROVIDED THAT ¼" MAXIMUM BUMP TOLERANCE IS ACHIEVED.

P.C.C. LINEAR CRACK REPAIR WITH HMA DETAIL

N.T.S.

CRACK REPAIR NOTES

1.) SAW CUT OVERCUTS SHALL BE THOROUGHLY CLEANED AND COMPLETELY FILLED WITH EPOXY.

2.) IN SOME LOCATIONS, LINEAR CRACKS HAVE BEEN PREVIOUSLY REPAIRED WITH HMA IN A SIMILAR MANNER. WHERE ENCOUNTERED, CONTRACTOR SHALL COMPLETELY REMOVE OLD HMA AND RE-SAW EDGES OF PATCH TO REMOVE ANY DETERIORATED P.C.C.

NO.	REVISION	DATE

DATE 05 / 26 / 17
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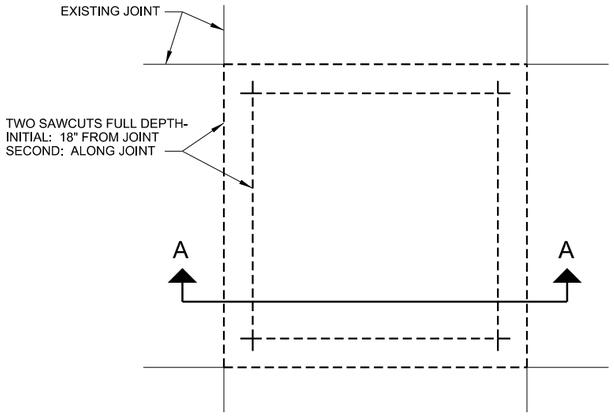
WASHINGTON DULLES INTERNATIONAL AIRPORT
WASHINGTON, D.C.

BITUMINOUS LINEAR CRACK REPAIR DETAILS

PROJECT IDENTIFIER: IA1702
SHEET NAME: CV05.0002
VOLUME NUMBER: 1 of 1
SHEET NUMBER: 21 of 26

5/26/2017

NOT FOR CONSTRUCTION



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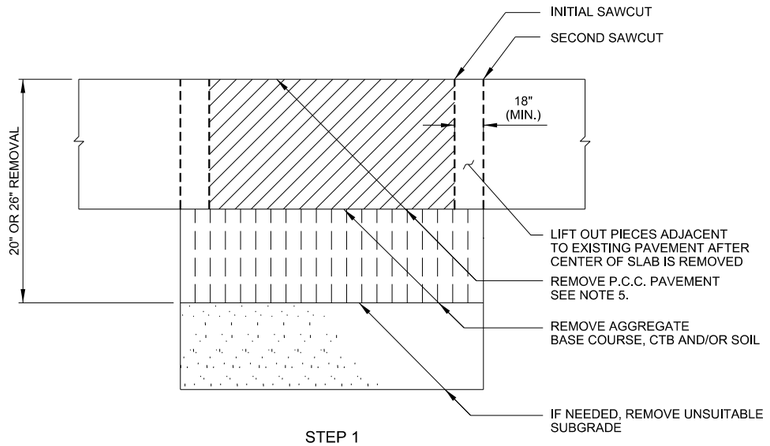


STEP 1
SECTION A-A

FULL DEPTH SLAB REPLACEMENT NOTES

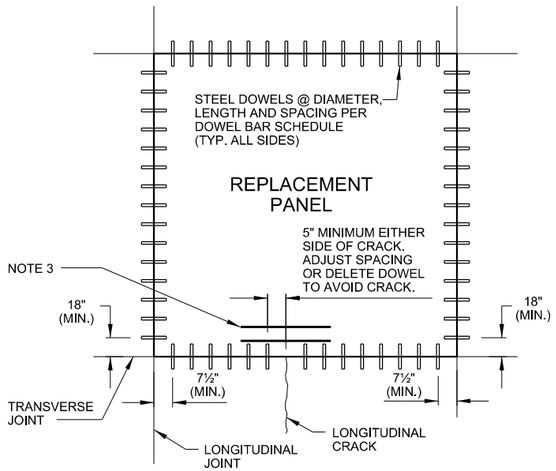
1.) AT LOCATIONS WHERE TWO ADJACENT PANELS ARE REPLACED CONCURRENTLY, A DOWEL BAR BASKET ASSEMBLY SHALL BE PLACED AT THE CONTRACTION JOINT BETWEEN THE PANELS.

2.) SAW CUT OVERCUTS SHALL BE THOROUGHLY CLEANED AND COMPLETELY FILLED WITH EPOXY.

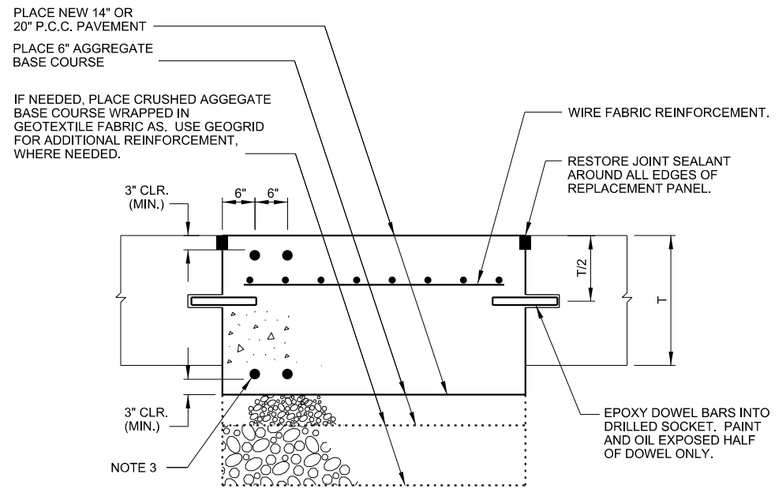
3.) WHERE A LONGITUDINAL CRACK EXISTS IN AN ADJACENT PANEL, PLACE 2 LAYERS OF TWO #6 REBAR, 3' LONG CENTERED ON THE CRACK.

4.) WHERE MULTIPLE ADJACENT PANELS ARE REPLACED, CONTRACTOR SHALL ONLY MAKE NEW POURS IN RECTANGULAR SHAPES. NO "L" SHAPED POURS SHALL BE PERMITTED.

5.) WHERE REMOVAL OCCURS WITHIN 25-FT OF EXISTING UNDERGROUND FUEL LINES, SLABS SHALL BE SAWED AND LIFTED OUT. IN THESE AREAS, BREAKING PCC WITH GUILLOTINE OR HOE RAM SHALL BE PROHIBITED.



1 DOWEL BAR LAYOUT DETAIL
N.T.S.



STEP 2

PANEL REPLACEMENT DETAIL
N.T.S.

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WASHINGTON, D.C.

FULL DEPTH SLAB REPLACEMENT DETAILS

PROJECT IDENTIFIER: IA1702
SHEET NAME: CV05.0003
VOLUME NUMBER: 1 of 1
SHEET NUMBER: 22 of 26

5/26/2017

NOT FOR CONSTRUCTION

FULL-DEPTH PATCH NOTES

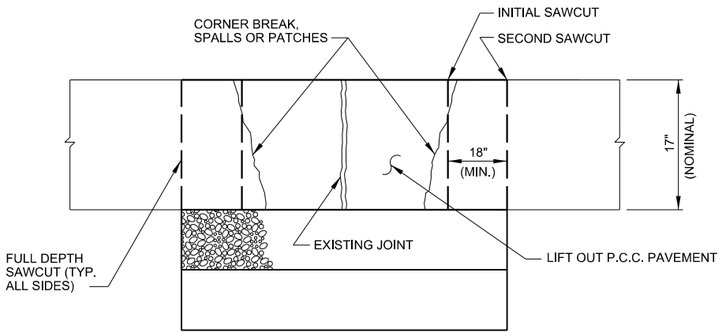
1.) IF PATCH DOES NOT SPAN ACROSS A JOINT THEN INSTALL DOWELS INTO EXISTING PAVEMENTON THE TRANSVERSE JOINT.

2.) SAWCUT OVERCUTS SHALL BE THOROUGHLY CLEANED AND COMPLETELY FILLED WITH EPOXY.

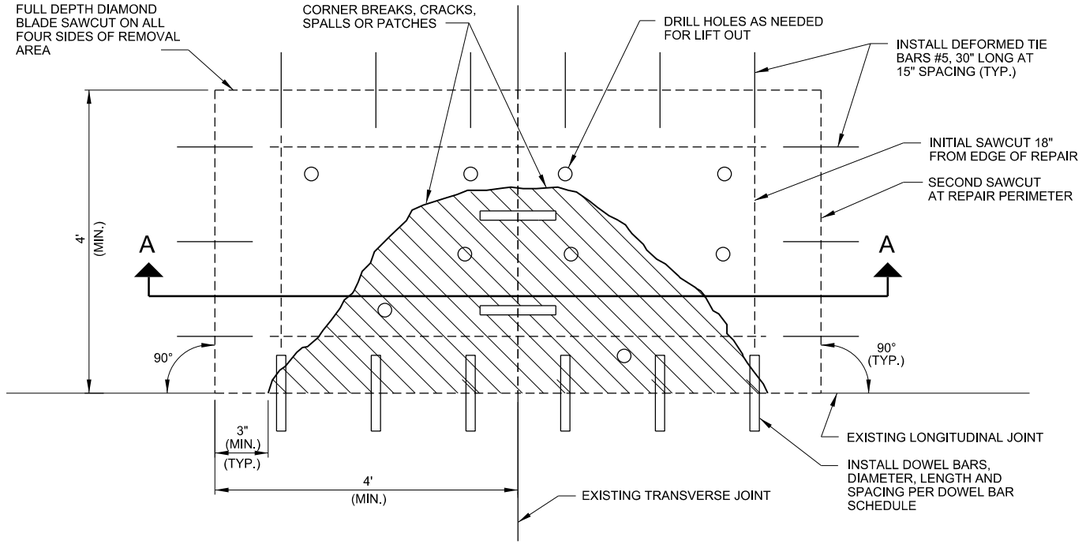
3.) WHERE A LONGITUDINAL CRACK EXISTS IN AN ADJACENT PANEL, PLACE 2 LAYERS OF TWO #6 REBAR, 3' LONG CENTERED ON THE CRACK.

4.) WHERE MULTIPLE ADJACENT PANELS ARE REPLACED, CONTRACTOR SHALL ONLY MAKE NEW POURS IN RECTANGULAR SHAPES. NO "L" SHAPED POURS SHALL BE PERMITTED.

5.) WHERE REMOVAL OCCURS WITHIN 25-FT OF EXISTING UNDERGROUND FUEL LINES, SLABS SHALL BE SAWED AND LIFTED OUT. IN THESE AREAS, BREAKING PCC WITH GUILLOTINE OR HOE RAM SHALL BE PROHIBITED.



STEP 1
SECTION A-A



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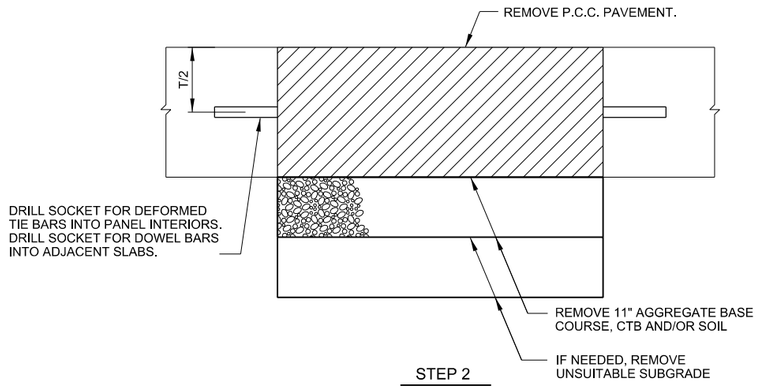

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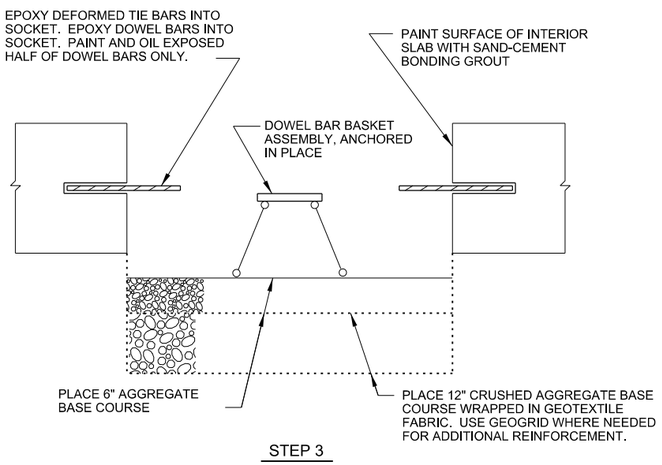

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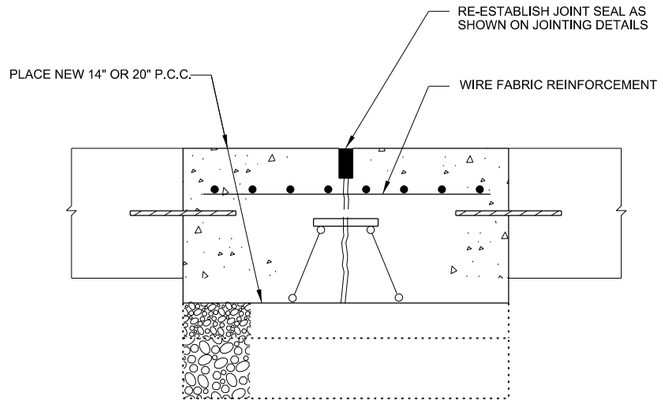

STEP 4

FULL-DEPTH PATCH DETAILS

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FULL DEPTH PATCH DETAILS

PROJECT IDENTIFIER: IA1702
SHEET NAME: CV05.0004
VOLUME NUMBER: 1 of 1
SHEET NUMBER: 23 of 26

5/26/2017

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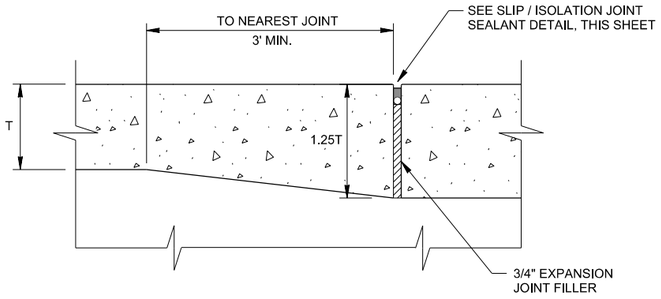

THICKENED EDGE EXPANSION / SLIP JOINT DETAIL

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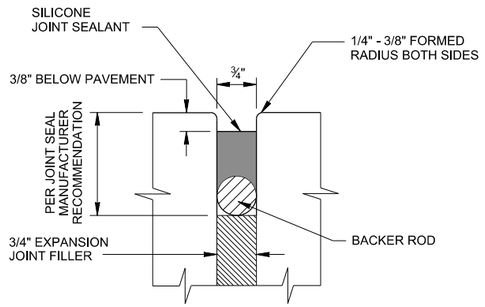
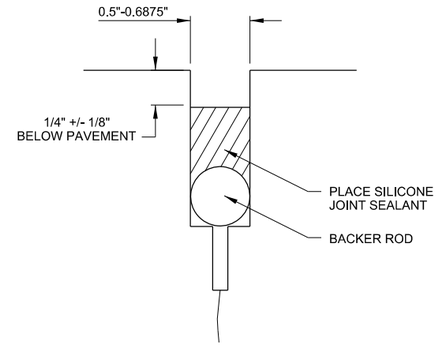


SLIP / ISOLATION JOINT SEALANT DETAIL

N.T.S.



JOINT SEALANT REPLACEMENT

N.T.S.

JOINT SEALANT REPLACEMENT NOTES

1.) THE CONTRACTOR SHALL CHECK THE EXISTING WIDTH OF JOINT SEAL RESERVOIRS IN ALL AREAS WHERE JOINT SEALS ARE TO BE REMOVED AND REPLACED.

2.) CLEAN ALL RESERVOIRS WITH WIRE BRUSH AND AIR BLAST PRIOR TO NEW SEALANT INSTALLATION.

3.) INSTALL SEALANT SUCH THAT HEIGHT:WIDTH RATIO IS 1:1.

4.) REPLACE JOINT SEALANT AT ALL LOCATIONS DISTURBED BY SLAB REPLACEMENT OR PATCHING

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JOINT SEALANT DETAILS

PROJECT IDENTIFIER: IA1702
SHEET NAME: CV05.0005
VOLUME NUMBER: 1 of 1
SHEET NUMBER: 24 of 26

5/26/2017

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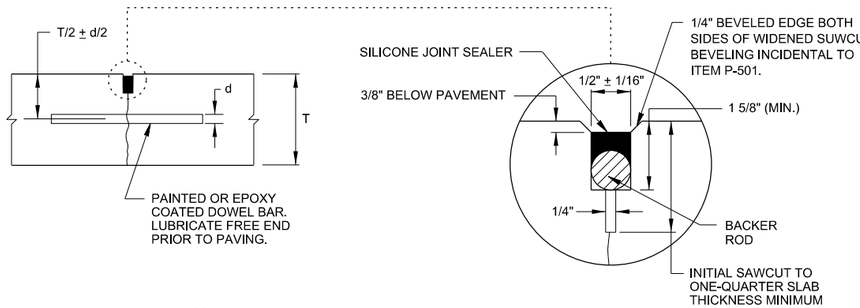


C TYPE C DOWELED JOINT

CV05.0003 N.T.S.

CV05.0004

NOTES

1.) THIS JOINT SHALL BE USED ON TRANSVERSE OR LONGITUDINAL JOINTS BETWEEN ADJACENT PANELS ON CONTINUOUS POURS.

DOWEL BAR SCHEDULE			
T	DIAMETER	LENGTH	SPACING
7.5" - 12"	1.0"	18"	12"
12.5" - 16"	1.25"	20"	15"
16.5" - 20"	1.5"	20"	15"
> 20"	2"	24"	15"

TIE BAR SCHEDULE			
T	SIZE	LENGTH	SPACING
20"	#5	30"	15"

JOINT NOTES

1.) ALL EXPOSED JOINT EDGES SHALL BE EDGED WITH AN APPROVED TOOL HAVING A RADIUS OF 1/4" TO 3/8".

2.) THE INITIAL SAWCUT FOR ALL LONGITUDINAL AND TRANSVERSE CONTRACTION JOINTS SHALL BE SAWED AS SOON AS POSSIBLE.

3.) ALL DOWEL BARS SHALL BE SECURELY HELD IN PLACE BY MEANS OF A DOWEL BAR ASSEMBLY WHICH WILL INSURE THAT THEY WILL REMAIN PARALLEL TO THE PAVEMENT LANES.

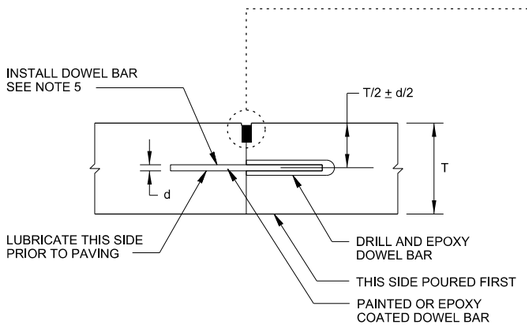
4.) ALL REINFORCING BARS AND MESH SHALL BE SECURELY HELD IN PLACE BY SUPPORT PINS OR OTHER APPROVED METHODS TO PREVENT SHIFTING DURING & AFTER CONCRETE PLACEMENT.

5.) DOWEL BARS SHALL BE INSTALLED IN BUTT JOINTS BY ONE OF THE FOLLOWING METHODS:

A. DRILL HARDENED P.C.C. AND EPOXY BARS IN PLACE.

B. SET IN FORMS OR DOWEL BASKETS PRIOR TO P.C.C. PAVING.

CONTRACTION JOINTS



E TYPE E DOWELED (BUTT)

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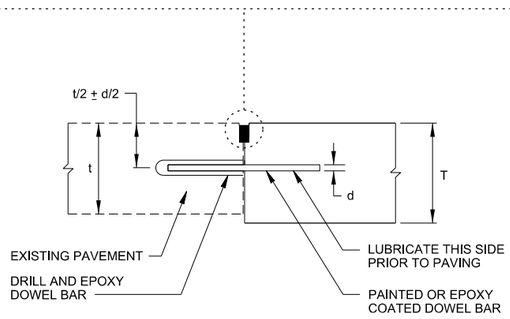
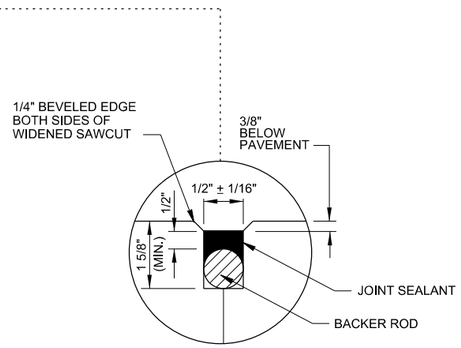
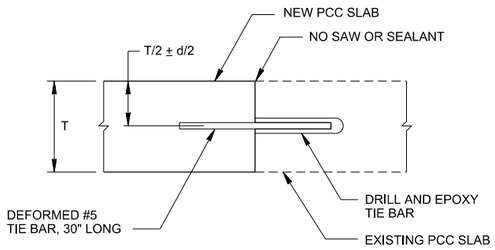


S SPECIAL DOWELED CONSTRUCTION JOINT

N.T.S.





T TIED CONSTRUCTION JOINT

N.T.S.

NOTES

1.) THIS JOINT SHALL BE USED ON JOINTS BETWEEN ADJACENT PANELS WITH SEPARATE POURS.

CONSTRUCTION JOINTS

NO.	REVISION	DATE

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WASHINGTON DULLES INTERNATIONAL AIRPORT
WASHINGTON, D.C.

JOINTING DETAILS 1

PROJECT IDENTIFIER IA1702

SHEET NAME CV05.0101

VOLUME NUMBER 1 of 1

SHEET NUMBER 25 of 26

5/26/2017

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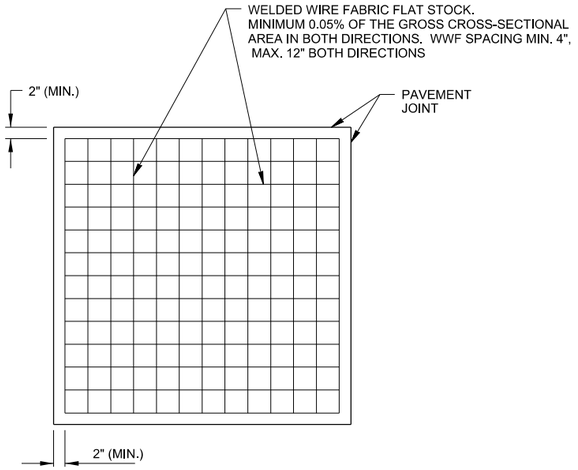
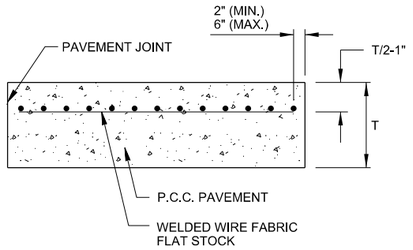


PLAN



ELEVATION

R TYPICAL WIRE FABRIC REINFORCEMENT

N.T.S.

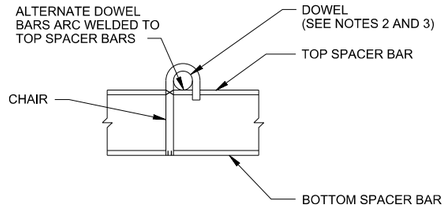
WIRE FABRIC NOTES

1.) ALL FULL DEPTH PAVEMENT REPAIRS WILL INCLUDE REINFORCEMENT.

2.) WIRE FABRIC SHALL BE PLACED AT THE VERTICAL POSITION OF T/4 + 1" AS SHOWN.

3.) WHEN A STRUCTURE IS LOCATED WITHIN A PANEL, WIRE FABRIC SHALL BE PLACED WITHIN 3 INCHES OF THE STRUCTURE.

4.) MINIMUM WWF LAP IS 18 INCHES.

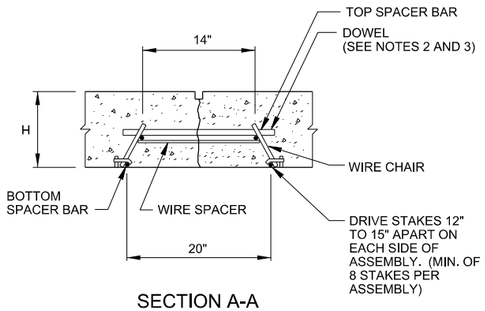


CHAIR DETAIL

N.T.S.

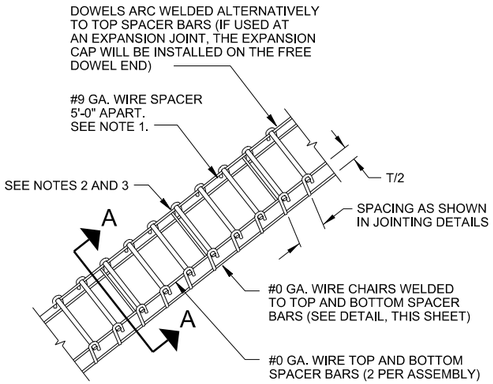
× = SHOWS ARC WELDING

" = SHOWS RESISTANCE WELDING



SECTION A-A

N.T.S.



DOWEL BASKET ASSEMBLY DETAIL

N.T.S.

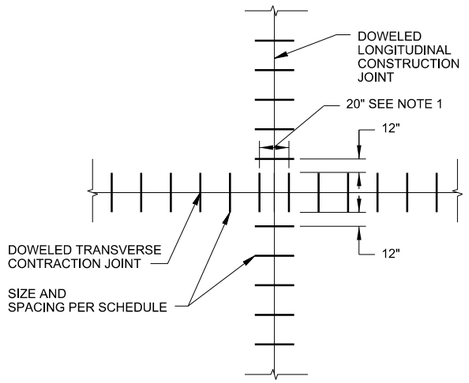
DOWEL BASKET ASSEMBLY NOTES

1.) #9 GA. WIRE SPACER BAR ARC WELDED TO THE BOTTOM OF TOP SPACER BAR. (MAY BE MECHANICALLY ATTACHED IN LIEU OF WELDING) 3 REQUIRED PER UNIT.

2.) DOWEL BAR DIAMETER, LENGTH AND SPACING SHALL BE AS SHOWN ON THE DOWEL BAR SCHEDULE.

3.) DOWELS SHALL BE PAINTED OR EPOXY COATED FULL LENGTH OF DOWEL. A LUBRICANT BOND BREAKER SHALL BE APPLIED TO THE FREE END OF THE DOWEL IMMEDIATELY PRIOR TO PAVING.

4.) WHERE DOWEL BASKETS ARE USED ALONG THICKENED EDGE SLABS, DOWEL SUPPORT BASKETS SHALL BE TAPERED TO POSITION THE DOWELS AT THE SAME DISTANCE BELOW THE PAVEMENT SURFACE THROUGHOUT.



DOWEL SPACING REQUIREMENTS AT INTERSECTING JOINTS

N.T.S.

DOWEL SPACING NOTES

1.) DO NOT INSTALL DOWEL BARS WITHIN 10" OF A LONGITUDINAL CONSTRUCTION JOINT.

NO.	REVISION	DATE

DATE 05 / 26 / 17

SCALE AS SHOWN

METROPOLITAN WASHINGTON AIRPORTS AUTHORITY

OFFICE OF ENGINEERING DESIGN DEPARTMENT

CONCOURSE C / D APRON REHABILITATION

WASHINGTON DULLES INTERNATIONAL AIRPORT
WASHINGTON, D.C.

JOINTING DETAILS 2

PROJECT IDENTIFIER: IA1702

SHEET NAME: CV05.0102

VOLUME NUMBER: 1 of 1

SHEET NUMBER: 26 of 26

5/26/2017

NOT FOR CONSTRUCTION