AGREEMENT FOR PROFESSIONAL SERVICES

THIS AGREEMENT FOR PROFESSIONAL SERVICES ("**Agreement**") is made and entered into as of the date stated on the City's signature page below (the "**Effective Date**") by and between the **CITY AND COUNTY OF DENVER**, a municipal corporation of the State of Colorado acting on behalf of its Department of Aviation (the "**City**"), and **BEUMER LIFECYCLE MANAGEMENT, LLC**, a Delaware limited liability corporation authorized to do business in the State of Colorado ("**Contractor**") (collectively the "**Parties**").

W I T N E S S E T H:

WHEREAS, the City owns, operates, and maintains Denver International Airport ("**DEN**"); and

WHEREAS, the City desires to obtain operation and maintenance services for Contract No. 20205338, Individual Carrier System Baggage Handling System; and

WHEREAS, the City has undertaken a competitive process to solicit and receive proposals for such services, and has selected the proposal submitted by Contractor; and

WHEREAS, Contractor's proposal was selected for award of the BHS Individual Carrier System Operation and Maintenance Services contract; and

WHEREAS, Contractor is qualified, willing, and able to perform the services, as set forth in this Agreement in a timely, efficient, and economical manner; and

NOW, THEREFORE, for and in consideration of the premises and other good and valuable consideration, the Parties agree as follows:

ARTICLE I. LINE OF AUTHORITY

The Chief Executive Officer of the Department of Aviation (the "**CEO**"), his/her designee or successor in function, authorizes and directs all work performed under this Agreement. Until otherwise notified in writing by the CEO, the CEO has delegated the authority granted herein to the DEN Operations. The relevant Senior Vice President (the " **SVP**"), or his/her designee (the "**Director**"), will designate a Project Manager to coordinate professional services under this Agreement. Reports, memoranda, correspondence, and other submittals required of Contractor hereunder shall be processed in accordance with the Project Manager directions.

ARTICLE II. SCOPE OF WORK AND CONTRACTOR RESPONSIBILITIES

A. Scope of Services. Contractor shall provide the necessary labor, tools, equipment, supplies, and materials, and all other facilities and resources necessary to perform the work required by this Agreement and as described in ***Exhibit A*** ("**Scope of Work**") and in accordance with the budgets and schedules set by the City. The City may make minor changes, additions, or deletions to the Scope of Work without change to the Maximum Contract Amount.

B. Standard of Performance. Contractor shall faithfully perform the work required under this Agreement in accordance with the standard of care, skill, efficiency, knowledge, training, and judgment provided by highly competent professionals who perform work of a similar nature to the work described in this Agreement.

C. Time Is of the Essence. Contractor acknowledges that time is of the essence in its performance of all work and obligations under this Agreement. Contractor shall perform all work under this Agreement in a timely and diligent manner.

D. Exclusivity. This is a non-exclusive contract. The City reserves the right to purchase the same materials and services through other procurements in the sole discretion of the City. The City also reserves the right to purchase from other sources those items which are required on an emergency or other similarly expedited basis and that cannot be supplied promptly by Contractor.

E. Coordination of Work. Contractor agrees that it shall coordinate its work with any other DEN contractors and consultants and any City or other governmental agency as necessary for the orderly and timely progress of work under this Agreement.

F. Preparation for Performance. Contractor may undertake preparatory actions for the commencement of work under this Agreement, including setting up its office at DEN and hiring and training personnel. In order to conduct an orderly transition of any work assumed from DEN or another of DEN's contractors or consultants, Contractor will obtain, at least seven (7) calendar days prior to commencement of work under this Agreement, all badges, clearances, driver's licenses, or other approvals or authorizations required for performance of this Agreement.

G. Subcontractors.

1. In order to retain, hire, and/or contract with an outside subcontractor for work under this Agreement, Contractor must obtain the prior written consent of the CEO or the CEO's designee, which consent shall not be unreasonably withheld, conditioned, or delayed. Contractor shall request the CEO's approval in writing and shall include a description of the nature and extent of the services to be provided, the name, address and professional experience of the proposed subcontractor, and any other information requested by the City. For the avoidance of doubt, an "outside contractor" shall not include employees of Contractor's corporate affiliates, including subsidiaries and parent companies, nor shall it include third-parties from which Contractor purchases parts or materials.

2. The CEO shall have the right to reject any proposed outside subcontractor deemed by the CEO to be unqualified or unsuitable for any reason to perform the proposed services. The CEO shall have the right to limit the number of outside subcontractors and/or to limit the percentage of work to be performed by them.

3. Any final agreement or contract with an approved subcontractor must contain a valid and binding provision whereby the subcontractor waives any and all rights to make any claim of payment against the City or to file or claim any lien or encumbrance

against any City property arising out of the performance or non-performance of this Agreement and/or the subcontract.

4. Contractor is subject to Denver Revised Municipal Code ("**D.R.M.C.**") § 20-112, wherein Contractor shall pay its subcontractors in a timely fashion. A payment is timely if it is mailed to the subcontractor no later than seven (7) days after receipt of any payment from the City. Any late payments are subject to a late payment penalty as provided in the Denver Prompt Payment Ordinance (D.R.M.C. §§ 20-107 through 20-118).

5. This Section, or any other provision of this Agreement, shall not create any contractual relationship between the City and any subcontractor. The CEO or her designee's approval of a subcontractor shall not create in that subcontractor a right to any subcontract. The CEO or her designee's approval of a subcontractor does not relieve Contractor of its responsibilities under this Agreement, including the work to be performed by the subcontractor.

H. Personnel.

1. All personnel provided by Contractor to perform services under this Agreement shall be, and shall remain during the time of their employment, competent and qualified for the duties to which they are assigned.

2. If, during the Term of this Agreement, the Project Manager reasonably determines that the performance of any Personnel tasked by Contractor to perform any part of this Agreement is not acceptable, the City shall notify Contractor and may give Contractor notice of the period of time which the Project Manager considers reasonable to correct such performance.

3. If Contractor fails to correct such performance, then the Project Manager may notify Contractor that such personnel shall not be retained on this project. Within ten (10) days of receiving this notice or another longer time as specified in the notice, Contractor shall use its best efforts to obtain adequate substitute personnel who must be approved in writing by the Project Manager. Contractor's failure to obtain the Project Manager's approval shall be grounds for Termination for Cause in accordance with this Agreement.

4. If, during the Term of this Agreement, the City determines that one or more personnel or the staffing level specified in this Agreement are no longer necessary to the performance of the Agreement, the City may notify Contractor and the staffing level will be reduced as directed with the fees and charges reduced to reflect the reduced staffing.

ARTICLE III. OWNERSHIP AND DELIVERABLES

Upon payment to Contractor, all records, data, deliverables, and any other work product prepared by Contractor or any custom development work performed by Contractor for the purpose of performing this Agreement on or before the day of final payment shall become the sole property of the City. Upon request by the City, or based on any schedule agreed to by Contractor and the City, Contractor shall provide the City with copies of the data/files that have been uploaded to any

database maintained by or on behalf of Contractor or otherwise saved or maintained by Contractor as part of the services provided to the City under this Agreement. All such data/files shall be provided to the City electronically in a format agreed to by the Parties. Contractor also agrees to allow the City to review any of the procedures Contractor uses in performing any work or other obligations under this Agreement, and to make available for inspection any and all notes, documents, materials, and devices used in the preparation for or performance of any of the scope of work, for up to six (6) years after termination of this Agreement. Upon written request from the City, Contractor shall deliver any information requested pursuant to this Article within ten (10) business days in the event a schedule or otherwise agreed-upon timeframe does not exist. Contractor shall remain, the sole and exclusive owners of all right, title, and interest in and to any intellectual property which it owned at on before this Agreement's inception or which were not created pursuant to this Agreement or for DEN's baggage systems.

ARTICLE IV. TERM AND TERMINATION

A. Term. The Term of this Agreement shall commence on the Effective Date and shall expire three (3) years from the Effective Date, unless terminated in accordance with the terms stated herein (the "**Expiration Date**"). The Term of this Agreement may be extended for two periods of one (1) year each, on the same terms and conditions, by written notice from the CEO to Contractor. However, no extension of the Term shall increase the Maximum Contract Amount stated below.

B. If the Term expires prior to Contractor completing the work under this Agreement, subject to the prior written approval of the CEO or his/her authorized representative, this Agreement shall remain in full force and effect until the completion of any services commenced prior to the Expiration Date. Contractor has no right to compensation for services performed after the Expiration Date without such express approval from the CEO or his/her authorized representative.

C. Suspension and Termination.

1. Suspension. The City may suspend performance of this Agreement at any time with or without cause. Upon receipt of notice from the Director, Contractor shall stop work as directed in the notice and, as directed in the notice, shall submit an invoice for any work performed but not yet billed. Any milestones or other deadlines shall be extended by the period of suspension unless otherwise agreed to by the City and Contractor. The Expiration Date shall not be extended as a result of a suspension.

2. Termination for Convenience. The City may terminate this Agreement at any time without cause upon written notice to Contractor from the Director.

3. Termination for Cause. In the event Contractor fails to perform any provision of this Agreement, the City may either:

a. Terminate this Agreement for cause with ten (10) days prior written notice to Contractor; or

b. Provide Contractor with written notice of the breach and allow Contractor an Opportunity to Cure.

4. Opportunity to Cure. Upon receiving the City's notice of breach pursuant to Section C.3.b of this Article, Contractor shall have five (5) days to commence remedying the breach. If Contractor diligently cures its breach within a reasonable time as determined by the City, then this Agreement shall not terminate and shall remain in full force and effect. If Contractor fails to cure the breach to the City's satisfaction, then the City may terminate this Agreement effective immediately upon written notice.

5. Compensation for Services Performed Prior to Suspension or Termination Notice. If this Agreement is suspended or terminated, the City shall pay Contractor the reasonable cost of only those services performed to the satisfaction of the CEO or his/her authorized representative prior to the notice of suspension or termination. Contractor shall submit a final invoice for these costs within thirty (30) days of the date of the notice. Contractor has no right to compensation for services performed after the notice unless directed to perform those services by the City as part of the of termination process or as provided in Section 6 below.

6. Reimbursement for Cost of Orderly Termination. In the event of Termination for Convenience of this Agreement pursuant to Article IV, Section C.2., Contractor may request reimbursement from the City of the reasonable costs of orderly termination associated with the Termination for Convenience as part of its submittal of costs pursuant to Section C.5. In no event shall the total sums paid by the City pursuant to this Agreement, including Sections C.5 and C.6, exceed the Maximum Contract Amount.

7. No Claims. Upon termination of this Agreement, Contractor shall have no claim of any kind against the City by reason of such termination or by reason of any act incidental thereto. Contractor shall not be entitled to loss of anticipated profits or any other consequential damages as a result of termination.

D. Remedies. In the event Contractor breaches this Agreement and this Contract is terminated pursuant to this Article IV, Contractor shall be liable to the City for all costs of correcting the work without additional compensation, including but not limited to additional costs incurred by the City, its tenants, or its other contractors arising out of Contractor's defective work. Contractor's liability pursuant to this Section IV.D shall not exceed Fifty Million Dollars and No Cents ($50,000,000.00). These remedies are in addition to, and do not limit, the remedies available to the City in law or in equity. These remedies do not amend or limit the requirements of Article VIII and Article IX of this Agreement.

ARTICLE V. COMPENSATION AND PAYMENT

A. Maximum Contract Amount. Notwithstanding any other provision of this Agreement, the City shall not be liable under any theory for payment for services rendered and expenses incurred by Contractor under the terms of this Agreement for any amount in excess of the sum of **Thirty-Five Million Dollars and No Cents ($35,000,000.00)** ("**Maximum Contract**

Amount"). Contractor shall perform the services as provided in this Agreement up to the Maximum Contract Amount.

B. Limited Obligation of City. The obligations of the City under this Agreement shall extend only to monies encumbered for the purposes of this Agreement. Contractor acknowledges and understands the City does not by this Agreement irrevocably pledge present cash reserves for payments in future fiscal years, and this Agreement is not intended to create a multiple-fiscal year direct or indirect debt or financial obligation of the City. The City is not under any obligation to make any future encumbrances or appropriations for this Agreement nor is the City under any obligation to amend this Agreement to increase the Maximum Contract Amount above.

C. Payment Source. For payments required under this Agreement, the City shall make payments to Contractor solely from funds of the City and County of Denver Airport System Fund and from no other fund or source. The City has no obligation to make payments from any other source.

D. Payment. The City shall pay the fees and other charges as provided in ***Exhibit B*** ("**Schedule of Prices**") and elsewhere in this Agreement.

E. Payment Schedule. Subject to the Maximum Contract Amount, for payments required under this Agreement, the City shall pay Contractor's fees and expenses in accordance with this Agreement. Unless otherwise agreed to in writing, Contractor shall invoice the City on a monthly basis in arrears and the City shall pay each invoice in accordance with Denver's Prompt Payment Ordinance, D.R.M.C. § 20-107, *et seq*., subject to the Maximum Contract Amount.

F. Invoices. Contractor shall submit to the City within three (3) business days after the date of the invoice unless otherwise provided in this Agreement, a monthly invoice containing reimbursable costs and receipts from the previous month for professional services rendered under this Agreement to be audited and approved by the City ("**Invoice**"). Each Invoice shall provide the basis for payments to Contractor under this Agreement unless otherwise directed by the SVP or his designee. In submitting an Invoice, Contractor shall comply with all requirements of this Agreement and:

1. Include an executive summary and status report(s) that describe the progress of the services and summarize the work performed during the period covered by the Invoice;

2. Include a statement of recorded hours that are billed at an hourly rate;

3. Include the relevant purchase order ("**PO**") number related to the Invoice;

4. Ensure that amounts shown on the Invoices comply with and clearly reference the relevant services, indicate the hourly rate and multiplier where applicable, and identify the allowable reimbursable expenses;

5. For only those reimbursable costs incurred in the previous month, submit itemized business expense logs and, where billing is based upon receipts, include copies of receipts for all allowable reimbursable expenses;

6. Include the signature of an authorized officer of Contractor, along with such officer's certification they have examined the Invoice and found it to be correct; and

7. Submit each Invoice via email to ContractAdminInvoices@flydenver.com.

8. Late Fees. Contractor understands and agrees interest and late fees shall be payable by the City only to the extent authorized and provided for in the City's Prompt Payment Ordinance.

9. Travel Expenses. Travel and any other expenses are not reimbursable unless such expenses are related to and in furtherance of the purposes of Contractor's engagement, are in accordance with this Agreement, and Contractor receives prior written approval of the SVP or his/her authorized representative.

G. Timesheets. Contractor shall maintain all timesheets kept or created in relation to the services performed under this Agreement. The City may examine such timesheets upon the City's request.

H. Disputed Invoices. The City reserves the right to reject and not pay any Invoice or part thereof, including any final invoice resulting from a Termination of this Agreement, where the SVP or his/her authorized representative determines the amount invoiced exceeds the amount owed based upon the work satisfactorily performed. The City shall pay any undisputed items contained in an Invoice. Disputes concerning payments under this provision shall be resolved in accordance with procedures set forth in Article X.

I. Carry Over. If Contractor's total fees for any of the services provided under this Agreement are less than the amount budgeted for, the amount remaining in the budget may be used for additional and related services rendered by Contractor if the CEO or his/her authorized representative determines such fees are reasonable and appropriate and provides written approval of the expenditure.

ARTICLE VI. WAGES AND PROMPT PAYMENT

A. Prevailing Wage. To the extent required by law, Contractor shall comply with, and agrees to be bound by, all requirements, conditions and City determinations regarding the Payment of Prevailing Wages Ordinance, §§ 20-76 through 20-79, D.R.M.C. including, but not limited to, the requirement that every covered worker working on a City owned or leased building or on City-owned land shall be paid no less than the prevailing wages and fringe benefits in effect on the Effective Date of this Agreement. In the event a request for bids, or a request for proposal, was not advertised, Contractor shall pay every covered worker no less than the prevailing wages and fringe benefits in effect on the date funds for the contract were encumbered. The initial prevailing wage rates are attached as ***Exhibit D.***

Date bid or proposal issuance was advertised: December 8, 2020.

1. Prevailing wage and fringe rates will adjust on the anniversary of the actual date of bid or proposal issuance, if applicable, or the date of the written encumbrance if no bid/proposal is applicable. Unless expressly provided for in this Agreement, Contractor will receive no additional compensation for increases in prevailing wages or fringe benefits.

2. Contractor shall provide the Auditor with a list of all subcontractors providing any services under the Agreement.

3. Contractor shall provide the Auditor with electronically-certified payroll records for all covered workers employed under this Agreement.

4. Contractor shall prominently post at the work site the current prevailing wage and fringe benefit rates. The posting must inform workers that any complaints regarding the payment of prevailing wages or fringe benefits may be submitted to the Denver Auditor by calling 720-913-5000 or emailing auditor@denvergov.org.

5. If Contractor fails to pay workers as required by the Prevailing Wage Ordinance, Contractor will not be paid until documentation of payment satisfactory to the Auditor has been provided. The City may, by written notice, suspend or terminate work if Contractor fails to pay required wages and fringe benefits.

B. City Minimum Wage. To the extent required by law, Contractor shall comply with and agrees to be bound by all requirements, conditions, and the City determinations regarding the City's Minimum Wage Ordinance, §§ 20-82 through 20-84, D.R.M.C., including, but not limited to, the requirement that every covered worker shall be paid no less than the City Minimum Wage in accordance with the City's Minimum Wage Ordinance. By executing this Agreement, Contractor expressly acknowledges that Contractor is aware of the requirements of the City's Minimum Wage Ordinance and that any failure by Contractor, or any other individual or entity acting subject to this Agreement, to strictly comply with the foregoing D.R.M.C. Sections shall result in the penalties and other remedies authorized therein.

C. Prompt Pay. The City will make monthly progress payments to Contractor for all services performed under this Agreement based upon Contractor's monthly invoices. Such invoices shall be in a form acceptable to the City and shall include detail of the time worked by Contractor's own personnel, billings from subcontractors, and all other information necessary to assess Contractor's progress. Invoices shall be accompanied by documentation of expenses for which reimbursement is sought, and all other supporting documentation required by the City. The City's Prompt Payment Ordinance, §§ 20-107 to 20-118, D.R.M.C., applies to invoicing and payment under this Agreement.

1. Final Payment to Contractor shall not be made until after the Project is accepted, and all certificates of completion, record drawings and reproducible copies are delivered to the City, and the Agreement is otherwise fully performed by Contractor. The City may, at the discretion of the DSBO Director, withhold reasonable amounts from billing and the entirety of the final payment until all such requirements are performed to

the satisfaction of the Director. However, no deductions shall be made from Contractor's compensation because of penalty, liquidated damages or other sums withheld from payments to contractor(s)/consultants.

ARTICLE VII. INSURANCE REQUIREMENTS

A. Contractor shall obtain and keep in force all of the minimum insurance coverage forms and amounts set forth in ***Exhibit C*** ("**Insurance Requirements**") during the entire Term of this Agreement, including any extensions of the Agreement or other extended period stipulations stated in ***Exhibit C***. All certificates of insurance and any required endorsements must be received and approved by DEN Risk Management before any airport access or work commences.

B. Unless specifically excepted in writing by DEN Risk Management, if Contractor shall be using subcontractors to provide any part of the services under this Agreement, Contractor shall do one of the following:

1. Include all subcontractors performing services hereunder as insureds under its required insurance and specifically list on all submitted certificates of insurance required under ***Exhibit C***; or

2. Ensure that each subcontractor provides its own insurance coverage in accordance with the requirements set forth in this Agreement.

C. The City in no way warrants or represents the minimum limits contained herein are sufficient to protect Contractor from liabilities arising out of the performance of the terms and conditions of this Agreement by Contractor, its agents, representatives, employees, or subcontractors. Contractor shall assess its own risks and maintain higher limits and/or broader coverage as it deems appropriate and/or prudent. Contractor is not relieved of any liability or other obligations assumed or undertaken pursuant to this Agreement by reason of its failure to obtain or maintain insurance in sufficient amounts, duration, or types.

D. In no event shall the City be liable for any of the following: (i) business interruption or other consequential damages sustained by Contractor; (ii) damage, theft, or destruction of Contractor's inventory, or property of any kind; or (iii) damage, theft, or destruction of an automobile, whether or not insured.

E. The Parties understand and agree that the City, its elected and appointed officials, employees, agents and volunteers are relying on, and do not waive or intend to waive by any provisions of this Agreement, the monetary limitations and any other rights, immunities and protections provided by the Colorado Governmental Immunity Act, §§ 24-10-101 to 120, C.R.S., or otherwise available to the City, its elected and appointed officials, employees, agents and volunteers.

ARTICLE VIII. PAYMENT AND PERFORMANCE BOND

A. Contractor shall provide a Performance, Payment, and Guarantee Bond satisfactory to the City on the form required by the City, in an amount not less than One Million Dollars and No Cents ($1,000,000.00) to guarantee that it will perform the work in strict accordance with this

Agreement and shall pay all debts incurred under this Agreement. The Surety named in the Bond must be authorized to do business in the State of Colorado. The initial Bonds are attached as **Exhibit E**.

B. If the Bonds are limited by duration or other terms, they must be either renewed annually by the Surety named in the Bond or replaced with an identical Bond covering the subsequent year of the Agreement issued by another Surety which has been approved in advance by the CEO or her designee. If the CEO does not receive written notice from the Surety in the manner provided in the Bond at least one-hundred and twenty (120) days before it expires or does not receive a substitute Bond in the form required by the City from an approved Surety at least one-hundred and twenty days (120) before the Bond expires, then the Contractor shall be in default of this Agreement and the CEO may immediately terminate this Agreement by giving the Contractor written notice of such default. If the City elects to extend the Agreement for additional periods at the same prices, terms and conditions pursuant to Section 3 of this Agreement, the Contractor shall obtain and submit either an extension of the existing Performance, Payment and Guarantee Bond or the an identical Bond from another Surety that is acceptable to the City.

C. Under no circumstances shall the City be liable to the Contractor for any costs incurred or payments made by the Contractor to obtain an extension of an existing Bond or a new Bond.

D. Attorneys-in-Fact who sign Performance, Payment, and Guarantee Bonds must file with such Bonds a certified copy of their Power-of-Attorney to sign such Bonds that is certified to include the date of the Bond.

ARTICLE IX. DEFENSE AND INDEMNIFICATION

A. To the fullest extent provided by law, Contractor hereby agrees to defend, indemnify, reimburse and hold harmless City, its appointed and elected officials, agents and employees for, from and against all liabilities, claims, judgments, suits or demands for damages to persons or property arising out of, resulting from, or relating to the work performed under this Agreement ("**Claims**"), that are attributable to the negligence or fault of the Contractor or the Contractor's agents, representatives, subcontractors or suppliers. This indemnity shall be interpreted in the broadest possible manner to indemnify the City.

B. Contractor's duty to defend and indemnify City shall arise at the time written notice of the Claim is first provided to City regardless of whether Claimant has filed suit on the Claim. Contractor's duty to defend and indemnify City shall arise even if City is the only party sued by claimant and/or claimant alleges that City's negligence or willful misconduct was the sole cause of claimant's damages.

C. Contractor will defend any and all Claims which may be brought or threatened against City and will pay on behalf of City any expenses incurred by reason of such Claims including, but not limited to, court costs and attorney fees incurred in defending and investigating such Claims or seeking to enforce this indemnity obligation, including but not limited to time expended by the City Attorney Staff, whose costs shall be computed at the rate of two hundred dollars and no cents ($200.00) per hour of City Attorney time. Such payments on behalf of City

shall be in addition to any other legal remedies available to City and shall not be considered City's exclusive remedy.

D. Insurance coverage requirements specified in this Agreement shall in no way lessen or limit the liability of the Contractor under the terms of this indemnification obligation. The Contractor shall obtain, at its own expense, any additional insurance that it deems necessary for the City's protection.

E. This defense and indemnification obligation shall survive the expiration or termination of this Agreement.

F. Liability of Contractor. Except for Claims for (1) bodily injury or death, (2) damage to property, (3) infringement or other improper use of intellectual property as provided in Article XI.E below, (4) misconduct, including intentional or grossly negligent acts of Contractor or its subcontractors, or (5) improper use of or access to City computers, computer networks, or software whether intentional or negligent, Contractor's total liability pursuant to this Article and pursuant to Exhibit A, Section 10.10 (KPI Deductions) in any individual Contract Year shall be limited to two (2) times the total amount invoiced by Contractor to the City for that Contract Year. "Contract Year" shall mean a 365-day period commencing on the Effective Date of this Agreement for the first year, and the anniversary of the Effective Date for all other years of this Agreement. The date of the act or incident which is the cause of the Claim shall determine the Contract Year to which this provision applies. Notwithstanding the foregoing, in the event a Claim is covered by Contractor's insurance with a maximum coverage and payment greater than the limitation of liability set forth above, then the maximum liability shall be the amount of insurance proceeds actually paid.

G. Waiver of Consequential Damages. Neither Party to this Agreement shall be liable for consequential or indirect loss or damage, including loss of data, lost profits, lost business opportunities, lost revenues, goodwill or anticipated savings.

ARTICLE X. DISPUTES

All disputes arising under or related to this Agreement shall be resolved by administrative hearing under the procedures described in D.R.M.C. § 5-17 and all related rules and procedures. The determination resulting from said administrative hearing shall be final, subject only to Contractor's right to appeal the determination under Colorado Rule of Civil Procedure, Rule 106.

ARTICLE XI. GENERAL TERMS AND CONDITIONS

A. Status of Contractor. Parties agree that the status of Contractor shall be an independent Contractor retained on a contractual basis to perform professional or technical services for limited periods of time as described in § 9.1.1(E)(x) of the Charter of the City and County of Denver (the "**City Charter**"). It is not intended, nor shall it be construed, that Contractor or its personnel are employees or officers of the City under D.R.M.C. Chapter 18 for any purpose whatsoever.

B. Authority of the Contract Administrator. The day-to-day administration of this Agreement is vested in the Contract Administrator or other person designated to fill that function

by the SVP. The Contract Administrator shall have the right to inspect facilities and equipment to ensure compliance with this Agreement. The Contract Administrator will decide any issues that arise related to the quality and acceptability of supplies and equipment furnished and work performed, including the manner of performance and rate of progress of the work. The Contract Administrator may make changes to the specifications of work performed by Contractor, if such changes do not alter the general nature of the work being performed. Contract Administrator may provide notice of such changes orally if the duration of the change is less than one week; otherwise notice will be given in writing.

C. Assignment. Contractor shall not assign, pledge or transfer its duties, obligations, and rights under this Agreement, in whole or in part, without first obtaining the written consent of the CEO or his/her authorized representative. Any attempt by Contractor to assign or transfer its rights hereunder without such prior written consent shall, at the option of the CEO or his/her authorized representative, automatically terminate this Agreement and all rights of Contractor hereunder.

D. Compliance with all Laws and Regulations. Contractor and its subcontractor(s) shall perform all work under this Agreement in compliance with all existing and future applicable laws, rules, regulations, and codes of the United States, the State of Colorado and with the City Charter, ordinances, and rules and regulations of the City.

E. Compliance with Patent, Trademark and Copyright Laws.

1. Contractor agrees that all work performed under this Agreement shall comply with all applicable patent, trademark and copyright laws, rules, regulations and codes of the United States, as they may be amended from time to time. Contractor will not utilize any protected patent, trademark or copyright in performance of its work unless it has obtained proper permission, all releases, and other necessary documents. If Contractor prepares any documents which specify any material, equipment, process or procedure which is protected, Contractor shall identify any material, equipment, process or procedure which is protected in such documents, including the applicable patents, trademarks and copyrights.

2. Pursuant to Article IX, Contractor shall indemnify and defend the City from any and all claims, damages, suits, costs, expenses, liabilities, actions or proceedings resulting from, or arising out of, directly or indirectly, the performance of work under this Agreement which infringes upon any patent, trademark or copyright protected by law.

F. Notices.

1. Notices of Termination. Notices concerning termination of this Agreement, shall be made as follows:

by Contractor to:

Chief Executive Officer
Denver International Airport
Airport Office Building

8500 Peña Boulevard, 9th Floor
Denver, Colorado 80249-6340

And by the City to:

BEUMER LifeCycle Management, LLC
800 Apgar Drive
Somerset, New Jersey 08773

2. Delivery of Formal Notices. Formal notices of the termination of this Agreement shall be delivered personally during normal business hours to the appropriate office above or by prepaid U.S. certified mail, return receipt requested, or by electronic delivery directed to the person identified above and copied to the Project Manager through the electronic or software system used at the City's direction for other official communications and document transmittals. Mailed notices shall be deemed effective upon deposit with the U.S. Postal Service and electronically transmitted notices by pressing "send" or the equivalent on the email or other transmittal method sufficient to irretrievably transmit the document. Either party may from time to time designate substitute addresses or persons where and to whom such notices are to be mailed, delivered or emailed, but such substitutions shall not be effective until actual receipt of written or electronic notification thereof through the method contained in Subsection E.2.

3. Other Correspondence. Other notices and day-to-day correspondence between the Parties may be done via email directed to the Project Manager or through the electronic or software system used for work-related communications and transmittals at the City's direction.

G. Rights and Remedies Not Waived. In no event shall any payment by the City hereunder constitute or be construed to be a waiver by the City of any breach of covenant or default which may then exist on the part of Contractor. The City making any such payment when any breach or default exists shall not impair or prejudice any right or remedy available to the City with respect to such breach or default. The City's assent, expressed or implied, to any breach of any one or more covenants, provisions or conditions of this Agreement shall not be deemed or taken to be a waiver of any other breach.

H. No Third-Party Beneficiaries. The Parties agree that enforcement of the terms and conditions of this Agreement and all rights of action relating to such enforcement shall be strictly reserved to the City and Contractor, and nothing contained in this Agreement shall give or allow any such claim or right of action by any third party. It is the express intention of the Parties that any person or entity other than the City or Contractor receiving services or benefits under this Agreement shall be deemed an incidental beneficiary and shall not have any interest or rights under this Agreement.

I. Governing Law. This Agreement is made under and shall be governed by the laws of the State of Colorado. Each and every term, provision and condition herein is subject to the provisions of Colorado law, the City Charter, and the ordinances and regulations enacted pursuant thereto, as may be amended from time to time.

J. Bond Ordinances. This Agreement is in all respects subject and subordinate to any and all the City bond ordinances applicable to the Denver Municipal Airport System and to any other bond ordinances which amend, supplement, or replace such bond ordinances.

K. Venue. Venue for any action arising hereunder shall be in the City and County of Denver, Colorado.

L. Cooperation with Other Contractors.

1. The City may award other contracts for additional work, and Contractor shall fully cooperate with such other contractors. The City, in its sole discretion, may direct Contractor to coordinate its work under this Agreement with one or more such contractors.

2. Contractor shall have no claim against the City for additional payment due to delays or other conditions created by the operation of other contractors. The City will decide the respective rights of the various contractors in order to secure the completion of the work.

M. Inurement. The rights and obligations of the Parties herein set forth shall inure to the benefit of and be binding upon the Parties hereto and their respective successors and assigns permitted under this Agreement.

N. Force Majeure. The Parties shall not be liable for any failure to perform any of its obligations hereunder due to or caused by, in whole or in part, fire, strikes, lockouts, unusual delay by common carriers, unavoidable casualties, war, riots, acts of terrorism, acts of civil or military authority, acts of God, judicial action, pandemics or any other causes beyond the control of the Parties. The Parties shall have the duty to take reasonable actions to mitigate or prevent further delays or losses resulting from such causes.

O. Coordination and Liaison. Contractor agrees that during the term of this Agreement it shall fully coordinate all services that it has been directed to proceed upon and shall make every reasonable effort to fully coordinate all such services as directed by the SVP or his/her authorized representative, along with any City agency, or any person or firm under contract with the City doing work which affects Contractor's work.

P. No Authority to Bind City to Contracts. Contractor has no authority to bind the City on any contractual matters. Final approval of all contractual matters which obligate the City must be by the City as required by the City Charter and ordinances.

Q. Information Furnished by the City. The City will furnish to Contractor information concerning matters that may be necessary or useful in connection with the work to be performed by Contractor under this Agreement. The Parties shall make good faith efforts to ensure the accuracy of information provided to the other Party; however, Contractor understands and acknowledges that the information provided by the City to Contractor may contain unintended inaccuracies. Contractor shall be responsible for the verification of the information provided to Contractor.

R. Taxes and Costs. Contractor shall promptly pay, when due, all taxes, bills, debts and obligations that Contractor incurs performing work under this Agreement and shall allow no lien, mortgage, judgment or execution to be filed against land, facilities or improvements owned by the City.

S. Environmental Requirements. Contractor, in conducting its activities under this Agreement, shall comply with all existing and future applicable local, state and federal environmental rules, regulations, statutes, laws and orders (collectively "**Environmental Requirements**"), including but not limited to Environmental Requirements regarding the storage, use and disposal of Hazardous or Special Materials and Wastes, Clean Water Act legislation, Centralized Waste Treatment Regulations, and DEN Rules and Regulations.

1. For purposes of this Agreement the terms "Hazardous Materials" shall refer to those materials, including without limitation asbestos and asbestos-containing materials, polychlorinated biphenyls (PCBs), oil or any other petroleum products, natural gas, source material, pesticide, and any hazardous waste, toxic substance or related material, including any substance defined or treated as a "hazardous substance," "hazardous waste" or "toxic substance" (or comparable term) in the Comprehensive Environmental Response, Compensation and Liability Act (42 U.S.C. Sec. 9601 *et seq*. (1990)), the Toxic Substances Control Act (15 U.S.C. Sec. 2601 *et seq*. (1990)), and any rules and regulations promulgated pursuant to such statutes or any other applicable federal or state statute.

2. Contractor shall acquire all necessary federal, state and local environmental permits and comply with all applicable federal, state and local environmental permit requirements.

3. Contractor agrees to ensure that its activities under this Agreement are conducted in a manner that minimizes environmental impact through appropriate preventive measures. Contractor agrees to evaluate methods to reduce the generation and disposal of waste materials.

4. In the case of a release, spill or leak as a result of Contractor's activities under this Agreement, Contractor shall immediately control and remediate the contaminated media to applicable federal, state and local standards. Contractor shall reimburse the City for any penalties and all costs and expenses, including without limitation attorney's fees, incurred by the City as a result of the release or disposal by Contractor of any pollutant or hazardous material.

ARTICLE XII. RECORD RETENTION AND OTHER STANDARD CITY PROVISIONS

A. Diversity and Inclusiveness. The City encourages the use of qualified small businesses doing business within the metropolitan area that are owned and controlled by economically or socially disadvantaged individuals. Contractor is encouraged, with respect to the goods or services to be provided under this Agreement, to use a process that includes small businesses when considering and selecting any subcontractors or suppliers.

B. Non-Discrimination Policy. In connection with the performance of services under this Agreement, Contractor shall not refuse to hire, discharge, promote, demote, or to discriminate

in matters of compensation against any person otherwise qualified solely because of race, creed, color, religion, national origin, gender, age, military status, sexual orientation, gender variance, marital status, and/or physical and mental disability. Contractor further agrees to insert this provision in all subcontracts hereunder.

C. Advertising and Public Disclosures. Contractor shall not include any reference to this Agreement or to work performed hereunder in any of its advertising or public relations materials without first obtaining the written approval of the SVP or his/her authorized representative. Any oral presentation or written materials related to DEN shall include only presentation materials, work product, and technical data which have been accepted by the City, and designs and renderings, if any, which have been accepted by the City. Contractor shall notify the SVP in advance of the date and time of any such presentations. Nothing herein, however, shall preclude Contractor's transmittal of any information to officials of the City, including without limitation, the Mayor, the CEO, any member or members of Denver City Council, and the Auditor.

D. Colorado Open Records Act.

1. Contractor acknowledges that the City is subject to the provisions of the Colorado Open Records Act ("**CORA**"), C.R.S. §§ 24-72-201 *et seq*., and Contractor agrees that it will fully cooperate with the City in the event of a request or lawsuit arising under such act for the disclosure of any materials or information which Contractor asserts is confidential or otherwise exempt from disclosure. Any other provision of this Agreement notwithstanding, all materials, records, and information provided by Contractor to the City shall be considered confidential by the City only to the extent provided in CORA, and Contractor agrees that any disclosure of information by the City consistent with the provisions of CORA shall result in no liability of the City.

2. In the event of a request to the City for disclosure of such information, time and circumstances permitting, the City will make a good faith effort to advise Contractor of such request in order to give Contractor the opportunity to object to the disclosure of any material Contractor may consider confidential, proprietary, or otherwise exempt from disclosure. In the event Contractor objects to disclosure, the City, in its sole and absolute discretion, may file an application to the Denver District Court for a determination of whether disclosure is required or exempted. In the event a lawsuit to compel disclosure is filed, the City may tender all such material to the court for judicial determination of the issue of disclosure. In both situations, Contractor agrees it will either waive any claim of privilege or confidentiality or intervene in such legal process to protect materials Contractor does not wish disclosed. Contractor agrees to defend, indemnify, and hold harmless the City, its officers, agents, and employees from any claim, damages, expense, loss, or costs arising out of Contractor's objection to disclosure, including prompt reimbursement to the City of all reasonable attorney's fees, costs, and damages the City may incur directly or may be ordered to pay by such court, including but not limited to time expended by the City Attorney Staff, whose costs shall be computed at the rate of two hundred dollars and no cents ($200.00) per hour of City Attorney time.

E. Examination of Records and Audits.

1. Any authorized agent of the City, including the City Auditor or his or her representative, has the right to access, and the right to examine, copy and retain copies, at City's election in paper or electronic form, any pertinent books, documents, papers and records related to Contractor's performance pursuant to this Agreement, provision of any goods or services to the City, and any other transactions related to this Agreement. Contractor shall cooperate with City representatives and City representatives shall be granted access to the foregoing documents and information during reasonable business hours and until the latter of six (6) years after the final payment under the Agreement or expiration of the applicable statute of limitations. When conducting an audit of this Agreement, the City Auditor shall be subject to government auditing standards issued by the United States Government Accountability Office by the Comptroller General of the United States, including with respect to disclosure of information acquired during the course of an audit. No examination of records and audits pursuant to this paragraph shall require Contractor to make disclosures in violation of state or federal privacy laws. Contractor shall at all times comply with D.R.M.C. §20-276.

2. Additionally, Contractor agrees until the expiration of six (6) years after the final payment under the Agreement, any duly authorized representative of the City, including the CEO or his or her representative, shall have the right to examine any pertinent books, documents, papers and records of Contractor related to Contractor's performance of this Contract, including communications or correspondence related to Contractor's performance, without regard to whether the work was paid for in whole or in part with federal funds or was otherwise related to a federal grant program.

3. In the event the City receives federal funds to be used toward the services performed under this Agreement, the Federal Aviation Administration ("**FAA**"), the Comptroller General of the United States and any other duly authorized representatives shall have access to any books, documents, papers and records of Contractor which are directly pertinent to a specific grant program for the purpose of making audit, examination, excerpts and transcriptions. Contractor further agrees that such records will contain information concerning the hours and specific services performed along with the applicable federal project number.

F. Use, Possession or Sale of Alcohol or Drugs. Contractor shall cooperate and comply with the provisions of Denver Executive Order 94 and Attachment A thereto concerning the use, possession or sale of alcohol or drugs. Violation of these provisions or refusal to cooperate with implementation of the policy can result in the City barring Contractor from City facilities or participating in City operations.

G. City Smoking Policy. Contractor and its officers, agents and employees shall cooperate and comply with the provisions of Denver Executive Order No. 99 and the Colorado Indoor Clean Air Act, prohibiting smoking in all City buildings and facilities.

H. Conflict of Interest.

1. Contractor and its subsidiaries, affiliates, subcontractors, principals, or employees shall not engage in any transaction, activity or conduct which would result in a

conflict of interest. Contractor represents that it has disclosed any and all current or potential conflicts of interest, including transactions, activities, or conduct that would affect the judgment, actions, or work of Contractor by placing Contractor's own interests, or the interest of any party with whom Contractor has a contractual arrangement, in conflict with those of the City.

2. The City, in its sole discretion, shall determine the existence of a conflict of interest and may terminate this Agreement if such a conflict exists, after it has given Contractor written notice which describes such conflict. Contractor shall have thirty (30) days after the notice is received in which to eliminate or cure the conflict of interest in a manner which is acceptable to the City.

I. Prohibition Against Employment of Illegal Aliens to Perform Work Under this Agreement.

1. The Agreement is subject to § 8-17.5, C.R.S., and D.R.M.C. § 20-90 and Contractor is liable for any violations as provided in said statute and ordinance.

2. Contractor certifies that:

a. At the time of its execution of this Agreement, it does not knowingly employ or contract with an illegal alien who will perform work under this Agreement.

b. It will participate in the E-Verify Program, as defined in § 8-17.5-101(3.7), C.R.S., to confirm the employment eligibility of all employees who are newly hired for employment to perform work under this Agreement.

3. Contractor also agrees and represents that:

a. It shall not knowingly employ or contract with an illegal alien to perform work under the Agreement.

b. It shall not enter into a contract with a subcontractor or subconsultant that fails to certify to Contractor that it shall not knowingly employ or contract with an illegal alien to perform work under the Agreement.

c. It has confirmed the employment eligibility of all employees who are newly hired for employment to perform work under this Agreement, through participation in the E-Verify Program.

d. It is prohibited from using either the E-Verify Program or the Department Program procedures to undertake pre-employment screening of job applicants while performing its obligations under the Agreement and it has complied with all federal requirements regarding the use of the E-Verify program, including, by way of example, requirements related to employee notification and preservation of employee rights.

e. If it obtains actual knowledge that a subcontractor or subconsultant performing work under the Agreement knowingly employs or contracts with an illegal alien, it will notify such subcontractor and the City within three (3) days. Contractor will also then terminate such subcontractor or subconsultant if within three (3) days after such notice the subcontractor or subconsultant does not stop employing or contracting with the illegal alien, unless during such three-day period the subcontractor or subcontractor provides information to establish that the subcontractor or subconsultant has not knowingly employed or contracted with an illegal alien.

f. It will comply with any reasonable request made in the course of an investigation by the Colorado Department of Labor and Employment under authority of § 8-17.5-102(5), C.R.S. or the City Auditor under authority of D.R.M.C. § 20-90.3.

ARTICLE XIII. SENSITIVE SECURITY INFORMATION

Contractor acknowledges that, in the course of performing its work under this Agreement, Contractor may be given access to Sensitive Security Information ("**SSI**"), as material is described in the Code of Federal Regulations, 49 C.F.R. Part 1520. Contractor specifically agrees to comply with all requirements of the applicable federal regulations, including but not limited to, 49 C.F.R. Parts 15 and 1520. Contractor understands any questions it may have regarding its obligations with respect to SSI must be referred to the DEN's Security Office.

ARTICLE XIV. DEN SECURITY

A. Contractor, its officers, authorized officials, employees, agents, subcontractors, and those under its control, shall comply with safety, operational, or security measures required of Contractor or the City by the FAA or TSA. If Contractor, its officers, authorized officials, employees, agents, subcontractors or those under its control, fail or refuse to comply with said measures and such non-compliance results in a monetary penalty being assessed against the City, then, in addition to any other remedies available to the City, Contractor shall fully reimburse the City any fines or penalties levied against the City, and any attorney fees or related costs paid by the City as a result of any such violation. Contractor must pay this amount within fifteen (15) days from the date of the invoice or written notice. Any fines and fees assessed by the FAA or TSA against the City due to the actions of Contractor and/or its agents will be deducted directly from the invoice for that billing period.

B. Contractor is responsible for compliance with Airport Security regulations and 49 C.F.R. Parts 1542 (Airport Security) and 14 C.F.R. Parts 139 (Airport Certification and Operations). Any and all violations pertaining to Parts 1542 and 139 resulting in a fine will be passed on to and borne by Contractor. The fee/fine will be deducted from the invoice at time of billing.

ARTICLE XV. FEDERAL RIGHTS

This Agreement is subject and subordinate to the terms, reservations, restrictions and conditions of any existing or future agreements between the City and the United States, the

execution of which has been or may be required as a condition precedent to the transfer of federal rights or property to the City for airport purposes and the expenditure of federal funds for the extension, expansion or development of the Denver Municipal Airport System. As applicable, Contractor shall comply with the Standard Federal Assurances identified in Appendix 1.

ARTICLE XVI. CONTRACT DOCUMENTS; ORDER OF PRECEDENCE

A. Attachments. This Agreement consists of Article I through XVII which precede the signature page, and the following attachments which are incorporated herein and made a part hereof by reference:

Appendix 1: Standard Federal Assurances
Exhibit A: ICS Operations & Maintenance Services Scope of Work
Exhibit B: Schedule of Prices
Exhibit C: Insurance Requirements
Exhibit D: Prevailing Wage Rates
Exhibit E: Bonds

B. Order of Precedence. In the event of an irreconcilable conflict between a provision of Article I through XVII and any of the listed attachments or between provisions of any attachments, such that it is impossible to give effect to both, the order of precedence to determine which document shall control to resolve such conflict, is as follows, in descending order:

Appendix 1
Article I through XVII hereof
Exhibit A
Exhibit D
Exhibit B
Exhibit C
Exhibit E

ARTICLE XVII. CITY EXECUTION OF AGREEMENT

A. City Execution. This Agreement is expressly subject to, and shall become effective upon, the execution of all signatories of the City and, if required, the approval of Denver City Council. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same.

B. Electronic Signatures and Electronic Records. The Agreement, and any other documents requiring a signature hereunder, may be signed electronically by the City and/or Contractor in the manner specified by the City. The Parties agree not to deny the legal effect or enforceability of the Agreement solely because it is in electronic form or because an electronic record was used in its formation. The Parties agree not to object to the admissibility of the Agreement in the form of an electronic record, or a paper copy of an electronic document, or a paper copy of a document bearing an electronic signature, on the ground that it is an electronic record or electronic signature or that it is not in its original form or is not an original.

[SIGNATURE PAGES FOLLOW]

Contract Control Number: PLANE-202055338-00
Contractor Name: BEUMER Lifecycle Management LLC

IN WITNESS WHEREOF, the parties have set their hands and affixed their seals at Denver, Colorado as of:

SEAL

CITY AND COUNTY OF DENVER:

ATTEST:

By: _____

_____

APPROVED AS TO FORM:

Attorney for the City and County of Denver

By: _____

REGISTERED AND COUNTERSIGNED:

By: _____

By: _____

Contract Control Number: PLANE-202055338-00
Contractor Name: BEUMER Lifecycle Management LLC

By: DocuSigned by: Mark Sibley DAA97072DDCF47C...

Name: Mark Sibley
(please print)

Title: President
(please print)

ATTEST: [if required]

By: _____

Name: _____
(please print)

Title: _____
(please print)

Appendix No. 1

Standard Federal Assurances and Nondiscrimination Non-Federal Contract Provision

A5 CIVIL RIGHTS - GENERAL

A5.3.1 Clause that is used for Contracts

GENERAL CIVIL RIGHTS PROVISIONS

The Contractor agrees to comply with pertinent statutes, Executive Orders and such rules as are promulgated to ensure that no person shall, on the grounds of race, creed, color, national origin, sex, age, or disability be excluded from participating in any activity conducted with or benefiting from Federal assistance.

This provision binds the Contractor and subcontractors from the bid solicitation period through the completion of the contract. This provision is in addition to that required by Title VI of the Civil Rights Act of 1964.

A6 CIVIL RIGHTS – TITLE VI ASSURANCE

A6.3.1 Title VI Solicitation Notice

Title VI Solicitation Notice:

The (**Name of Sponsor**)**,** in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 USC §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders or offerors that it will affirmatively ensure that any contract entered into pursuant to this advertisement, [select disadvantaged business enterprises or airport concession disadvantaged business enterprises] will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

A6.4 CONTRACT CLAUSES

A6.4.1 Title VI Clauses for Compliance with Nondiscrimination Requirements

Compliance with Nondiscrimination Requirements:

During the performance of this contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "Contractor"), agrees as follows:

1. **Compliance with Regulations:** The Contractor (hereinafter includes consultants) will comply with the Title VI List of Pertinent Nondiscrimination Acts and Authorities, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
2. **Nondiscrimination:** The Contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Contractor will not participate directly or indirectly in the discrimination prohibited by the Nondiscrimination Acts and Authorities, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR part 21.

3. **Solicitations for Subcontracts, including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding or negotiation made by the Contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the Contractor of the contractor's obligations under this contract and the Nondiscrimination Acts and Authorities on the grounds of race, color, or national origin.
4. **Information and Reports:** The Contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the sponsor or the Federal Aviation Administration to be pertinent to ascertain compliance with such Nondiscrimination Acts and Authorities and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the Contractor will so certify to the sponsor or the Federal Aviation Administration, as appropriate, and will set forth what efforts it has made to obtain the information.
5. **Sanctions for Noncompliance:** In the event of a Contractor's noncompliance with the non-discrimination provisions of this contract, the sponsor will impose such contract sanctions as it or the Federal Aviation Administration may determine to be appropriate, including, but not limited to:
    a. Withholding payments to the Contractor under the contract until the Contractor complies; and/or
    b. Cancelling, terminating, or suspending a contract, in whole or in part.
6. **Incorporation of Provisions:** The Contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations, and directives issued pursuant thereto. The Contractor will take action with respect to any subcontract or procurement as the sponsor or the Federal Aviation Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the Contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the Contractor may request the sponsor to enter into any litigation to protect the interests of the sponsor. In addition, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.

A6.4.2 Title VI Clauses for Deeds Transferring United States Property

CLAUSES FOR DEEDS TRANSFERRING UNITED STATES PROPERTY

The following clauses will be included in deeds effecting or recording the transfer of real property, structures, or improvements thereon, or granting interest therein from the United States pursuant to the provisions of the Airport Improvement Program grant assurances.

NOW, THEREFORE, the Federal Aviation Administration as authorized by law and upon the condition that the (***Title of Sponsor***) will accept title to the lands and maintain the project

constructed thereon in accordance with (***Name of Appropriate Legislative Authority***), for the (**Airport Improvement Program or other program for which land is transferred**), and the policies and procedures prescribed by the Federal Aviation Administration of the U.S. Department of Transportation in accordance and in compliance with all requirements imposed by Title 49, Code of Federal Regulations, U.S. Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation pertaining to and effectuating the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252; 42 USC § 2000d to 2000d-4), does hereby remise, release, quitclaim and convey unto the (***Title of Sponsor***) all the right, title and interest of the U.S. Department of Transportation/Federal Aviation Administration in and to said lands described in (***Exhibit A attached hereto or other exhibit describing the transferred property***) and made a part hereof.

(HABENDUM CLAUSE)

TO HAVE AND TO HOLD said lands and interests therein unto (***Title of Sponsor***) and its successors forever, subject, however, to the covenants, conditions, restrictions and reservations herein contained as follows, which will remain in effect for the period during which the real property or structures are used for a purpose for which Federal financial assistance is extended or for another purpose involving the provision of similar services or benefits and will be binding on the (***Title of Sponsor),*** its successors and assigns.

The (***Title of Sponsor***), in consideration of the conveyance of said lands and interests in lands, does hereby covenant and agree as a covenant running with the land for itself, its successors and assigns, that (1) no person will on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination with regard to any facility located wholly or in part on, over, or under such lands hereby conveyed [,] [and]* (2) that the (Title of Sponsor) will use the lands and interests in lands and interests in lands so conveyed, in compliance with all requirements imposed by or pursuant to Title 49, Code of Federal Regulations, U.S. Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, Effectuation of Title VI of the Civil Rights Act of 1964, and as said Regulations and Acts may be amended[, and (3) that in the event of breach of any of the above-mentioned nondiscrimination conditions, the Department will have a right to enter or re-enter said lands and facilities on said land, and that above described land and facilities will thereon revert to and vest in and become the absolute property of the Federal Aviation Administration and its assigns as such interest existed prior to this instruction].*

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary in order to make clear the purpose of Title VI.)

A6.4.3 Title VI Clauses for Transfer of Real Property Acquired or Improved Under the Activity, Facility, or Program

CLAUSES FOR TRANSFER OF REAL PROPERTY ACQUIRED OR IMPROVED UNDER THE AIRPORT IMPROVEMENT PROGRAM

The following clauses will be included in (deeds, licenses, leases, permits, or similar instruments) entered into by the (***Title of Sponsor***) pursuant to the provisions of the Airport Improvement Program grant assurances.

A. The (grantee, lessee, permittee, etc. as appropriate) for himself/herself, his/her heirs, personal representatives, successors in interest, and assigns, as a part of the consideration hereof, does hereby covenant and agree [in the case of deeds and leases add "as a covenant running with the land"] that:

    1. In the event facilities are constructed, maintained, or otherwise operated on the property described in this (deed, license, lease, permit, etc.) for a purpose for which a Federal Aviation Administration activity, facility, or program is extended or for another purpose involving the provision of similar services or benefits, the (grantee, licensee, lessee, permittee, etc.) will maintain and operate such facilities and services in compliance with all requirements imposed by the Nondiscrimination Acts and Regulations listed in the Pertinent List of Nondiscrimination Authorities (as may be amended) such that no person on the grounds of race, color, or national origin, will be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities.

B. With respect to licenses, leases, permits, etc., in the event of breach of any of the above Nondiscrimination covenants, (***Title of Sponsor***) will have the right to terminate the (lease, license, permit, etc.) and to enter, re-enter, and repossess said lands and facilities thereon, and hold the same as if the (lease, license, permit, etc.) had never been made or issued.*

C. With respect to a deed, in the event of breach of any of the above Nondiscrimination covenants, the (***Title of Sponsor***) will have the right to enter or re-enter the lands and facilities thereon, and the above described lands and facilities will there upon revert to and vest in and become the absolute property of the (***Title of Sponsor***) and its assigns.*

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary to make clear the purpose of Title VI.)

A6.4.4 Title VI Clauses for Construction/Use/Access to Real Property Acquired Under the Activity, Facility or Program

CLAUSES FOR CONSTRUCTION/USE/ACCESS TO REAL PROPERTY ACQUIRED UNDER THE ACTIVITY, FACILITY OR PROGRAM

The following clauses will be included in deeds, licenses, permits, or similar instruments/agreements entered into by (***Title of Sponsor***) pursuant to the provisions of the Airport Improvement Program grant assurances.

A. The (grantee, licensee, permittee, etc., as appropriate) for himself/herself, his/her heirs, personal representatives, successors in interest, and assigns, as a part of the consideration hereof, does hereby covenant and agree (in the case of deeds and leases add, "as a covenant running with the land") that (1) no person on the ground of race, color, or

national origin, will be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities, (2) that in the construction of any improvements on, over, or under such land, and the furnishing of services thereon, no person on the ground of race, color, or national origin, will be excluded from participation in, denied the benefits of, or otherwise be subjected to discrimination, (3) that the (grantee, licensee, lessee, permittee, etc.) will use the premises in compliance with all other requirements imposed by or pursuant to the List of discrimination Acts And Authorities.

B. With respect to (licenses, leases, permits, etc.), in the event of breach of any of the above nondiscrimination covenants, (***Title of Sponsor***) will have the right to terminate the (license, permit, etc., as appropriate) and to enter or re-enter and repossess said land and the facilities thereon, and hold the same as if said (license, permit, etc., as appropriate) had never been made or issued.*

C. With respect to deeds, in the event of breach of any of the above nondiscrimination covenants, (***Title of Sponsor***) will there upon revert to and vest in and become the absolute property of (***Title of Sponsor***) and its assigns. *

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary to make clear the purpose of Title VI.)

A6.4.5 Title VI List of Pertinent Nondiscrimination Acts and Authorities

Title VI List of Pertinent Nondiscrimination Acts and Authorities

During the performance of this contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "Contractor") agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (42 USC § 2000d et seq., 78 stat. 252) (prohibits discrimination on the basis of race, color, national origin);
- 49 CFR part 21 (Non-discrimination in Federally-assisted programs of the Department of Transportation—Effectuation of Title VI of the Civil Rights Act of 1964);
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 USC § 4601) (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Section 504 of the Rehabilitation Act of 1973 (29 USC § 794 et seq.), as amended (prohibits discrimination on the basis of disability); and 49 CFR part 27;
- The Age Discrimination Act of 1975, as amended (42 USC § 6101 et seq.) (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982 (49 USC § 471, Section 47123), as amended (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987 (PL 100-209) (broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, the Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of

the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);

- Titles II and III of the Americans with Disabilities Act of 1990, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 USC §§ 12131 – 12189) as implemented by U.S. Department of Transportation regulations at 49 CFR parts 37 and 38;
- The Federal Aviation Administration's Nondiscrimination statute (49 USC § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures nondiscrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 USC 1681 et seq).

A17 FEDERAL FAIR LABOR STANDARDS ACT (FEDERAL MINIMUM WAGE)

A17.3 SOLICITATION CLAUSE

All contracts and subcontracts that result from this solicitation incorporate by reference the provisions of 29 CFR part 201, the Federal Fair Labor Standards Act (FLSA), with the same force and effect as if given in full text. The FLSA sets minimum wage, overtime pay, recordkeeping, and child labor standards for full and part-time workers.

The [***Contractor*** **|** ***Consultant***] has full responsibility to monitor compliance to the referenced statute or regulation. The [***Contractor*** **|** ***Consultant***] must address any claims or disputes that arise from this requirement directly with the U.S. Department of Labor – Wage and Hour Division.

A20 OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970

A20.3 CONTRACT CLAUSE

All contracts and subcontracts that result from this solicitation incorporate by reference the requirements of 29 CFR Part 1910 with the same force and effect as if given in full text. The employer must provide a work environment that is free from recognized hazards that may cause death or serious physical harm to the employee. The employer retains full responsibility to monitor its compliance and their subcontractor's compliance with the applicable requirements of

the Occupational Safety and Health Act of 1970 (20 CFR Part 1910). The employer must address any claims or disputes that pertain to a referenced requirement directly with the U.S. Department of Labor – Occupational Safety and Health Administration.

DENVER INTERNATIONAL AIRPORT

ICS Operations & Maintenance Services

Scope of Work

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Operation & Maintenance Requirements

TS-1. INTRODUCTION

1.1. This document provides the Contractor with the performance specifications/criteria, the minimal functional requirements to be maintained, and the minimum standards of quality for the Operations and Maintenance (O&M) of the Individual Carrier System (ICS) at Denver International Airport (the Airport).

1.2. The ICS shall be operated by the Contractor to the highest standard and shall be maintained on a Predictive and Preventive Maintenance basis such that the ICS can provide Airlines/Carriers at the Airport with sufficient service to enable unimpeded operation.

TS-2. ACRONYMS AND DEFINITIONS

Figure 1, Acronyms and Definitions

The following acronyms and definitions are used throughout the document.

Definition	Explanation of Definition or Abbreviation
Airlines	Refers to entities/companies which operate flights and/or services from the Airport, synonymous with Carrier.
Airport	Denver International Airport located in the City and County of Denver, Colorado.
Bag Identification Point	MES position where bag stops to allow operator to encode bag
BGFusion	Advanced SCADA reporting the status of the ICS
BHS	"BHS," "Baggage Handling System" means the City's baggage handling system at the Airport which is excluded from the scope of this document. This includes all aspects of the baggage system inclusive of Ticketing, CBIS, Makeup, Oversize/Odd-size System and Claim areas.
BIP	Baggage Inspection Position (includes all equipment necessary for an operational BIT)
BIT	Baggage Inspection Table, located in the CBRA for TSO operation
BMA	Baggage Measuring Array
BRP	Baggage Removal Point, located at each BIT in the CBRA
BSD	Baggage System Display, located at each BIT in the CBRA
BSM	Baggage Source Messages. An electronic message between a Carrier Host/Reservation system and the BHS.
Business Day	Monday through Friday excluding any day that is a recognized City and County of Denver Holiday. https://www.denvergov.org/content/denvergov/en/office-of-human-resources/employee-resources/holiday-schedule.html
Canadian load point	Designated load points in the BHS where baggage (typically from Canada) which requires EDS screening can be loaded on Level 3 of the Garages in Modules 2West and 3West.

Definition	Explanation of Definition or Abbreviation
Carrier	Synonymous with Airline.
CBIS	Checked Baggage Inspection System. A portion of the BHS responsible for security screening.
CBRA	Checked Baggage Resolution Area for standard sized bags
C-CBRA	Consolidated Checked Baggage Resolution Area
CCD	The City and County of Denver
CDI	Centralized Depository of Information
City	The City and County of Denver, Department of Aviation, or any governmental agency succeeding such entity in its role as operator of the Airport.
CM	Corrective Maintenance. A scheduled task or set of tasks to adjust, repair, maintain and/or replace components in order to avoid an unexpected failure.
CMF	Central Monitoring Facility where TSA monitor and direct BHS security screening operations 24/7.
CMMS	Computerized Maintenance Management System.
COOP	Continuity of operations plan, establishes policy and guidance ensuring that critical functions continue.
Computer Systems	Computer systems includes all information technologies including: servers, workstations, printers, networking hardware/media, power and software.
Contract Administrator	“Contract Administrator” means the person designated by the Director of O&M Contract Administration to perform day-to-day administration of this contract for the City. The Director of O&M Contract Administration may from time to time designate a substitute or successor Contract Administrator by written notice to the Contractor.
Contractor	Means a qualified and duly licensed independent Contractor, who is contracted by the City to operate and maintain the ICS as set forth in the Contract Documents.
Contractor Employee	“Contractor employee” or “Contractor personnel” shall include employees and personnel of the Contractor and sub-contractors, if any.
Contractor’s Proposal	"Contractor’s Proposal" shall mean the Proposal as finally submitted by Contractor and accepted by the City and consisting of Contractor’s plan of operation under this Contract.
Control room	Area where ICS operations are monitored and directed, inclusive with CMF.
CST	Controls System Technician
Curbside	Designated areas immediately adjacent to the Terminal where passenger baggage is loaded into the BHS.
Demand	An operational requirement imposed on any part of the ICS to process baggage.
Days	Unless otherwise specifically identified, ‘days’ shall mean consecutive calendar days.
DCS	Departure Control Systems for Carriers/ Airlines
DEN	IATA airport code for Denver International Airport (the Airport)

Definition	Explanation of Definition or Abbreviation
DIA	Denver International Airport, synonymous with DEN (the Airport).
Dieback	Synonymous with cascade. A condition where baggage stops due to a downstream fault and baggage continues transportation towards the stopped area. As baggage arrives and can no longer move forward, the conveyors stop in a cascading manner.
DT	Down time. Time during which equipment/components becomes unavailable for use to when it becomes available for use.
EDS	Explosive Detection System, TSA furnished and maintained checked baggage screening equipment.
EEP	Emergency Evacuation plan, a plan detailing how the Contractors personnel safely evacuate from the site.
EOB	End of Business, the time when normal business on a working day concludes, assumed to be 17:00hrs Monday to Friday excluding City published holidays unless otherwise stated.
EM	Emergency Maintenance. An unscheduled task or set of tasks to adjust, repair, maintain and/or replace components during an unexpected failure.
ESM	Entry Support Mechanic
FIDS	Flight Information Display System. A mechanism to display flight information at the Airport in real time.
Fiscal Year	Means January 1 through December 31 of any year or such other fiscal year as the City may adopt for the Airport.
Fall back	Methods and procedures to be implemented during events which affect operations.
Gridlock	A condition where the conveyors stop (dieback) and will not automatically restart. Manual intervention is required.
Final Destination	The make-up location assigned for airline baggage.
GSM	Graphic Work Station/SCADA reporting the status of Modules 3E.
GUI	Graphical User Interface. Synonymous with HMI
HMI	A Human-Machine Interface (HMI) is a user interface or dashboard that connects a person to a machine, system, or device.
HSD	High Speed Diverter. An electro-mechanical device for automatically directing baggage to an alternative route.
ICS	Individual Carrier System, includes all parts of the Beumer Autover including CBRA conveyors, MES conveyors and load/unload conveyors.
IMS	Inventory Management System
Inventory	Inventory shall mean all components including but not limited to spare parts, tools, machinery and reimbursable consumables.
KPI	Key Performance Indicators. Methods used to determine benchmarks for performance.
L3	Level 3 floor designation of either the Terminal or adjacent parking garages.

Definition	Explanation of Definition or Abbreviation
L5	Level 5 floor designation of the Terminal.
L5.5	Level 5.5 floor designation of the Terminal.
L6	Level 6 floor designation of the Terminal.
Lead Time	Lead time shall be defined as the time between order placement and the part becoming available in the store
LEO	Law Enforcement Officer
MES	Manual Encoding Station
MMM	Machinery Maintenance Mechanic
MSP	Motor Starter Protector. An electro-mechanical device intended to disconnect power to a motor in the event of a fault and/or overload condition.
Non-Working Day	City recognized holiday and/or weekends, Saturday and Sunday.
NTP	Notice to Proceed
OEM	Original Equipment Manufacturer.
Operator	Synonymous with Contractor.
Operation and Maintenance Manuals	Manuals that were delivered to the City for the design, installation, start-up, operation and maintenance of the ICS.
OS	Oversize/Odd-size system, all aspects of the OS system including but not limited to curbside and terminal inputs, lifts, conveyers, OS CBRA and sortation areas.
PdM	Predictive Maintenance shall mean techniques and procedures performed while equipment is still operating to determine when equipment is likely to fail. Performing PdM can reduce costs and provide higher system availability.
PLC	Programmable Logic Controller. An industrial digital computer control system used to control the ICS.
PM	Preventive Maintenance. A regularly scheduled task or set of tasks to inspect equipment, adjust, repair, maintain and/or replace so as to ensure no unexpected failures.
PMP	Preventive Maintenance Plan. A description and timeline of methods and procedures of tasks to be performed for maintenance. Synonymous with Preventive Maintenance Schedule (PMS).
PMS	Preventive Maintenance Schedule. Synonymous with Preventive Maintenance Plan.
PO	Purchase Order
PPE	Personal Protective Equipment.
Putty	A Windows based software interface emulation to allow user interface (UI) access to Unix based systems.
Reimbursable Expenses	“Reimbursable expenses” are specified approved expenses actually incurred and paid by Contractor in its performance of this Contract, which are reimbursed by the City in accordance with the provisions of this Contract on a dollar for dollar basis, with no overhead or profit margin added.

Definition	Explanation of Definition or Abbreviation
RFID	Radio Frequency IDentification
SCADA	Supervisory Control and Data Acquisition software.
Scheduled Maintenance	Synonymous with Preventive Maintenance.
SDS	Safety data sheets
Service Contract	Means the Operation, Maintenance and Management contract, in effect between the Contractor and the City as amended, revised, or replaced from time to time, providing for the operation, maintenance and management of the ICS.
Smiths	Smiths Group, a TSA contractor responsible for operation and maintenance of Government supplied EDS screening equipment.
SOP	Standard Operating Procedure. Written documents detailing the correct methods and procedures to complete a task.
Stake holders	Shall include the City, TSA and Carriers/Airlines operating at DEN as well as other parties with an interest in BHS and ICS Operations and Maintenance.
Start Date	Means commencement date of this Contract.
SSI	Security Sensitive Information controlled by USC 552 and 49 CFR parts 15 and 1520.
Sub-contract	Means all sub-contracts entered into by the Contractor with any supplier or sub-supplier of materials, furnisher of services, or any organization that may perform any labor or service in connection with this Contract.
Sub-supplier	Means Person hired by Contractor to act as agents or independent contractors in connection with the operation and maintenance of the ICS.
Skycaps	Personnel who perform provide assistance to the Carrier/Airline in moving baggage, usually but not always limited to the ticketing operations
SVS	Secondary Viewing Station
SWPP	Safe Work Practices and Procedures
Tampering	Unauthorized work performed by any person or persons under the control of the contractor or whom should be under the control of the contractor, including any work which effects the operation of the ICS in any way
Ticketing	Designated areas in the Terminal where passenger baggage is loaded into the BHS
TS	Technical Specification (this document).
TSA	Transportation Security Administration.
TSO	Transportation Security Officer
UI	User Interface
UNIX	A real time computer-based Operating System
USD	Unites States Dollars
WinCC	Advanced SCADA reporting the status of Modules, 1E/FIS, 2E, 3E, 1W, 2W and

Definition	Explanation of Definition or Abbreviation
	3W.
Windows	A registered trademark of Microsoft Corporation representing various computer-based software Operating Systems.
Workstation	Includes all components to provide a working HMI including PC, keyboard, mouse and monitor.

TS-3. AIRPORT OPERATIONS

A. The Airport operates 24 hours per day, seven days per week and 365 days per year (24/7/365) with the capability to process flights, passengers and baggage at any time of day through all weather conditions.
B. In 2019, DEN served 69 million passengers.
C. DEN is a hub for Frontier Airlines, Southwest Airlines and United Airlines.
D. The Contractor shall ensure that staffing is adequate to provide uninterrupted service to the Airlines/Carriers operating at the Airport 24/7/365.
E. The Contractor shall furnish all services impartially to all users of the Airport and shall not favor any Airline/Carrier or Itinerant User.

TS-4. SCOPE OF WORK

4.1. GENERAL

A. The ICS shall mean collectively all structures, improvements, facilities, equipment, inventories, conveyors, controls components, control systems, computer hardware and software, networks, systems, spare parts, and other components or equipment used for transporting baggage located within the Airport,; refer to 4.2 ICS Configuration.

1. Conveyors
2. Lift devices
3. Powered and non-powered doors for security, fire protection or other function
4. Motor control panels
5. Power distribution panels
6. Operator stations
7. Controls devices
8. Computers, battery backups, servers, Workstations, Field Monitoring stations and Video wall
9. Networks including but not limited to, Ethernet TCP/IP/Wifi, ControlNet, ProfiBus ,and Serial RS232/RS422 and other
10. Monitoring and fault annunciation (SCADA)
11. Other

B. The Contractor shall in a good, safe and efficient manner operate all portions of the ICS from the point where baggage is loaded into the ICS from the upstream BHS conveyor system to the exit of the ICS, including containment/ safety fencing, loading areas, unloading areas, Manual Encoding, and TSA inspection areas for standard sized baggage. The ICS shall be kept in a neat, orderly and

fully operational condition at all times.

C. The Contractor shall provide, manage, supervise and train all personnel required to perform the operations and maintenance at the minimum service standard defined in the Contract and monitored through the Key Performance Indicators (KPI). All materials, equipment, consumables and services required to achieve and maintain the KPIs shall be included and provided by the Contractor. The Contractor shall schedule, maintain, monitor and operate the ICS in accordance with the terms and provisions of this Contract.
D. The Contractor shall ensure that operations personnel are stationed in areas within the ICS where personnel can adequately respond to operational problems such that the defined KPIs of the Contract are maintained.
E. The Contractor shall maintain the ICS on a predictive maintenance and preventive maintenance basis in a safe and efficient manner such that equipment is inspected regularly and changed/repaired prior to actual failure so that equipment operates continuously without unexpected failure. The Contractor shall provide all labor and procure spare parts, materials and consumables to promptly repair, rebuild, and/or replace all damaged, worn or defective parts, components or materials should equipment fail despite the preventive maintenance efforts.
F. The Contractor shall maintain and manage the DEN owned spare parts to ensure adequate spare parts are on hand at all times for maintenance.
G. The Contractor shall be responsible for complete and accurate record keeping and shall maintain a good record keeping methodology so that information of the ICS operation, spare parts, maintenance, performance, and reliability can be readily and easily identified and reported.
H. The Contractor shall provide reports of the operation and the maintenance of the ICS as required or requested by the City.
I. The Contractor shall ensure that all personnel working on the ICS comply with the Airport and TSA security and safety requirements, additionally the Contractor shall abide by all Airport rules and regulations.
J. The Contractor shall keep proper records of events impacting the ICS. Records shall be uploaded to the Airport SharePoint site or other designated storage under the direction of the City. Electronic pictures shall be taken to provide an accurate record of the event including but not limited to the following;

    1. Baggage jams resulting in damaged equipment/baggage or delay in delivery of baggage.
    2. Repairs and contingency operation as a result of damage to ICS
    3. Repairs and contingency operation as a result of failure(s) of ICS equipment
    4. All equipment and resources which requires rebuild/ refurbishment (includes scheduling and management) shall be part of the scope of work under this contract.

K. The Contractor shall coordinate all ICS O&M work with the BHS O&M Contractor to ensure continuity of services. At all times the Contractor shall make every effort to allow baggage to be routed to an Airlines final destination using primary transport paths, minimizing baggage in-system travel time.

4.2. ICS CONFIGURATION

4.2.1. GENERAL

A. The number of assets in the ICS may change during the term of this contract. The monthly fee and staffing requirements may be subject to change (due to the change in asset count) as determined by the BHS Program Administrator.

B. The ICS consists of the following general components and sub-assemblies:

1. ICS track and support structure
2. ICS fleet
3. Manual Encoding Station, MES conveyors and MES controls
4. CBRA conveyors, table, BSD, hand scanners and MUX interface equipment. MUX equipment is excluded.
5. ICS network and networking equipment
6. ICS MCP's, controls and power including built-in environmental controls (air-conditioning)
7. ICS PDP's including built-in environmental controls (air-conditioning)
8. ICS maintenance area inclusive of all equipment within the fenced area
9. Lift devices
10. ICS operator control stations
11. ICS monitoring equipment (remote workstations, etc.)
12. ICS Server room equipment including networks (Ethernet, Profibus, serial, etc.), servers, UPS's, workstations and power distribution
13. Control room peripheral equipment, radios, printer consumables
14. Office, spare parts and equipment storage
15. Control room and Manual Encode Station furniture
16. All equipment related to ICS access fencing, gates and access control

C. The ICS delivers baggage to all six (6) BHS/ CBIS modules and receives baggage from all six (6) BHS/CBIS modules.

D. Refer to Appendix B - below (ICS Equipment Asset List) for a complete list of all conveyors and other ICS equipment, while the following sections will give a general description.

4.2.2. ICS CAPACITY

A. The ICS has the capability to process up to 4,000 bags per hour (2 loops with 2,000 bags per hour each).

B. The ICS is capable of delivering and picking up 810 bags per hour from each CBRA or 1,620 bags per hour across both CBRAs.

C. The MES is capable of processing 7 bags per minute using the hand scanner for encoding bags.

D. Single ICS load and unload positions are capable of processing 900 bags per hour.

E. Dual in-line load and unload positions are capable of processing 1,380 bags per hour.

4.2.3. CONSOLIDATED CBRA

A. The two CBRA screening areas are located on L4 in Modules 1 West and 1 East

of the Terminal.

1. Each module will be connected to the ICS which transports bags between the CBIS and the CBRAs.
2. Each CBRA consists of 24 inspection tables, each position consisting of one unload conveyor Baggage Removal Point (BRP), one Baggage Inspection Table (BIT) and one Baggage Load Point (BLP).
3. In close proximity to the East CBRA is a Manual Encoding station where bags with an unknown destination/ status are routed and encoded.
4. Fallback manual encode capability is included in the West CBRA, where the most upstream CBRA position has integrated MES functionality.
5. Baggage exiting CBRA can be routed via ICS to the makeup area or back to a CBIS for re-screening.

4.2.4. EQUIPMENT EXCLUDED FROM MAINTENANCE

A. The City reserves the right to exclude portions of the ICS from the Contractors responsibilities of maintenance. These excluded portions of the ICS are valuable assets of the airport and the Contractor shall not use these excluded portions of the ICS as a repository of spare parts.
B. If the City notifies the Contractor of a reduction in work scope, any reduction in work scope by the Contractor shall result in a corresponding reduction in fees paid to the Contractor. The exact amount of the reduction in fees shall be negotiated between the Parties.

4.2.5. CONTROL ROOM

A. The Contractor shall provide staffing to perform control room duties at all operational times in the designated Control Room (which may be shared with another Contractor, e.g. BHS operations). During personnel breaks the Contractor shall provide interim staff who are properly qualified to perform control room operator duties.
B. A primary control room is provided in the Terminal. A backup control room is provided in Concourse A. The Contractor shall ensure that service is maintained at all times from one of the control room locations; the only exception being a requirement to vacate the active control room and should this occur the Contractor shall dispatch personnel to the other control room immediately while using monitors adjacent to the active equipment to maintain service.

4.2.6. MANUAL ENCODING AREA

A. The Contractor shall provide staffing to perform manual encoding duties at all operational times in the designated MES area. During personnel breaks the Contractor shall provide interim staff who are properly qualified to perform manual encoding duties.
B. During equipment failure, as required the MES encoding operator shall relocate to the back-up manual encoding area.
C. At no times shall the Contractor make modifications to the manual encoding area without the written approval of the City.

4.2.7. ICS MAINTENANCE AREA

A. The Contractor shall provide staffing to perform ICS equipment preventive

maintenance in the designated ICS maintenance area. The Contractor shall provide sufficient staffing to ensure that in-service fleet equipment exceeds minimum availability requirements (refer 10.3 below).

B. All requested modifications to the ICS maintenance area shall be submitted to DEN. Written approval shall be provided by DEN before any work to modify the area commences.

4.2.8. SOFTWARE

A. The Contractor shall not modify any software code including the code contained in any PLC's unless approved by the City in writing.

4.3. THIRD PARTY CITY CONTRACTOR

A. The Contractor should note that certain parts of the BHS are maintained by City appointed Third Party's under direct contract with the City. The Contractor shall, during daily operations, cooperate with the Third Party's.

B. The following activities are performed by a Third Party on BHS/ CBIS equipment.

1. Area of Responsibility

    a. PLC software
    b. Server hardware and software
    c. Operator workstations hardware and software
    d. Network hardware

2. Activities Covered by Third Party

    a. Check for free server disk space and manage disk drives accordingly
    b. Verify automatic anti-virus protection software scans on servers and workstations
    c. Periodically update virus protection definitions and engine/program as required to maintain protection
    d. Run complete back-ups on each of the server disks and workstations
    e. Periodically complete shutdown routines on each server to ensure that each server can recover from a power failure
    f. Ensure reports are operational and available to be run by operators
    g. Archiving reports
    h. Ensure PLC code integrity is maintained in each PLC
    i. Ensure both primary and secondary PLC are operational
    j. Ensure both primary and secondary servers are operational
    k. Review daily operational logs and review any noted system issues with the Contractor
    l. Respond to requests for assistance by the Contractor in trouble-shooting problems with mechanical, electrical and control elements of the ICS that cannot be resolved by the Contractor in a timely manner

C. Operations and maintenance of the existing BHS/ CBIS which feeds baggage to the ICS and delivers CLEAR baggage from ICS to the Airline assigned Make-up (bag room) area is performed by a third party under a separate contract with the City. The ICS contractor shall cooperate with DEN and the third party to

ensure that all baggage is properly screened and routed to the correct area.

1. Area of Responsibility
    a. Existing BHS/ CBIS conveyor operations and maintenance
2. Activities Covered by Third Party
    a. Operations and maintenance

4.4. ICS OEM SUPPORT

A. The Contractor shall provide professional services to support the high-level computer systems of the ICS including but not limited to;
    1. BeSS (Sort Controller)
    2. BGFusion (SCADA)
    3. ISS (Controller).
    4. ICS networks (including integration with other BHS networks), TCP/IP and Profibus.
    5. System updates
    6. Remote support

4.5. BHS CONFIGURATION (NOT PART OF ICS SCOPE AS OF 2020)

4.5.1. GENERAL

A. The equipment in the field consists of six (6) separate BHS modules, each module capable of operating independently from each other.
B. Some modules have interconnecting conveyor systems so that multiple modules can operate as a single BHS.
C. Some modules have interconnecting conveyor lines to allow baggage to be transported between modules in the event of a serious incident where baggage cannot be routed to the make-up area or screening capability is compromised (e.g. between modules 2West and 3West).

4.5.2. THE CAPACITY OF EACH OUTBOUND BHS MODULE

A. Each Module currently has 2,000 bags per hour capacity based on five (5) installed CTX9000/CTX9400 EDS machines with the ability to expand to a total of eight (8) EDS machines and an increase in throughput. The capacity and EDS machine models may change in the term of this contract.
B. Conveyor expansion capacity for the EDS screening lines is existing and in place and shall be maintained in an operational state.
C. During acceptance testing, each module was capable of processing 2,100 bags within a 1-hour period.

4.5.3. CURRENT PEAK OUTBOUND OPERATIONS

A. Current operating peak hour per module is as high as one thousand four hundred (1,400) bags. In the past, peak hour of as high as one thousand seven hundred fifty (1,750) bags has been seen.
B. Current operating throughput per module ranges from three thousand (3,000) bags per day to twelve thousand (12,000) bags per day. In the past the BHS has seen as many as nineteen thousand (19,000) bags per day.
C. Certain parts of the BHS that were installed in 1995 when the airport opened remain operating, approximately twenty percent (20%). The remaining eighty

percent (80%) of the BHS was installed during the screening system upgrades completed in 2003 through 2006.

D. The Consolidated CBRA has capacity to address screening requirements in accordance with PGDS 5.0 for six (6) modules operating at peak capacity of 2,100 bags per hour with an additional capacity of 600 bags per hour crossing between modules for screening. Capacity can be increased as necessary by the addition of ICS baggage cars.

4.5.4. EQUIPMENT SUPPLIERS

A. Equipment across the BHS varies;
   1. Original equipment from 1995 consists of Portec, BAE, Stearns, Rapistan, Transnorm, PFlow, Overhead and Vigneaux
   2. The screening system (CBIS) upgrade installed between 2003 and 2006 utilized some of the original equipment, the remainder was installed by Siemens consisting of Siemens and Transnorm equipment.
   3. Standard size equipment consisting of Siemens and Portec was installed between the ticketing counters and the screening system in 2020.
   4. OS equipment consisting of Beumer and Portec was installed in 2020.
   5. Standard size equipment consisting of Beumer and Portec is currently being installed between the CBIS and the ICS, scheduled for go-live 2021.

4.5.5. MODULE 1EAST

A. Outbound from Ticketing (L6 Lobby, L6 Curbside and L5 Curbside) through screening to the Make-up area (Garage L3).
B. Inbound from the loading areas (Terminal L3) to the passenger Claim area (Terminal L5).
C. Odd-size Outbound from Ticketing (Terminal L6, L6 Curbside and L5 Curbside) through the designated TSA inspection area to the Airline/Carrier collection area.
D. Odd-size Inbound from the loading areas (Terminal L3) to the passenger Claim areas (Terminal L5).

4.5.6. MODULE 2EAST

A. Outbound from Ticketing (L6 Lobby, L6 Curbside and L5 Curbside) through screening to the Make-up area (Garage L3).
B. Inbound from the loading areas (Terminal L3) to the passenger Claim area (Terminal L5).
C. Odd-size Outbound from Ticketing (Terminal L6, L6 Curbside and L5 Curbside) through the designated TSA inspection area to the Airline/Carrier collection area.
D. Odd-size Inbound from the loading areas (Terminal L3) to the passenger Claim area (Terminal L5).

4.5.7. MODULE 3EAST

A. Outbound from Ticketing (L6 Lobby, L6 Curbside and L5 Curbside) through screening to the Make-up area (Terminal L3).
B. Inbound from the loading areas (Terminal L3) to the passenger Claim area (Terminal L5).
C. Odd-size Outbound from Ticketing (Terminal L6, L6 Curbside and L5 Curbside) to

the designated TSA inspection area.

D. Odd-size Inbound from the loading areas (Terminal L3) to the passenger Claim area (Terminal L5).

4.5.8. MODULE 1WEST

A. Outbound from Ticketing (L6 Lobby, L6 Curbside and L5 Curbside) through screening to the Make-up area (Garage L3).
B. Inbound from the loading areas (Terminal L3) to the passenger Claim area (Terminal L5).
C. Odd-size Outbound from Ticketing (Terminal L6, L6 Curbside and L5 Curbside) through the designated TSA inspection area to the Airline/Carrier collection area.
D. Odd-size Inbound from the loading areas (Terminal L3) to the passenger Claim area (Terminal L5).

4.5.9. MODULE 2WEST

A. Outbound from Ticketing (L6 Lobby, L6 Curbside and L5 Curbside) and Canadian load points (Garage L3) through screening to the Make-up area (Garage L3).
B. Interlinking crossover lines allowing baggage to be transported between 2West and 3West for normal.
C. Inbound from the loading areas (Terminal L3) to the passenger Claim area (Terminal L5).
D. Odd-size Outbound from Ticketing (L6 Lobby, L6 Curbside and L5 Curbside) through the designated TSA inspection areas.
E. Odd-size inbound from the loading areas (Terminal L3) to the passenger Claim area (Terminal L5).
F. Pet lift from the loading areas (Terminal L3) to the passenger Claim area (Terminal L5).

4.5.10. MODULE 3WEST

A. Outbound from Ticketing (L6 Lobby, L6 Curbside and L5 Curbside) and Canadian load points (Garage L3) through screening to the Make-up area (Garage L3).
B. Interlinking crossover lines allowing baggage to be transported between 2West and 3West for normal operations.
C. Inbound from the loading areas (Terminal L3) to the passenger Claim area (Terminal L5).
D. Odd-size Outbound from Ticketing (L6 Curbside and L5 Curbside) through the designated TSA inspection areas.
E. Odd-size inbound from the loading areas (Terminal L3) to the passenger Claim area (Terminal L5).
F. Pet lift from the loading areas (Terminal L3) to the passenger Claim area (Terminal L5).

4.5.11. CENTRALIZED OVERSIZE CBRA

A. Two (2) Over-size (OS) CBRA's are located on L3 of the Terminal in Modules 1West and 1East. Baggage from the curb-side inputs East/ West are routed to each CBRA and back to a designated make-up area for each module.
B. OS is the redundant path for standard baggage via interconnecting transport lines whenever the standard size system cannot transport baggage.

4.5.12. MODULE FIS (FEDERAL INSPECTION SYSTEMS).

A. Outbound from Ticketing (Terminal L5) and Mitigation load point (Terminal L3) through Module 1 East screening to the Module via the ICS as applicable.
B. Inbound from the loading areas (Terminal L3) to the passenger Claim area (Terminal L5).
C. Odd-size Outbound from Ticketing (Terminal L5) to the make-up areas Terminal L3).
D. Odd-size inbound from the loading areas (Terminal L3) to the passenger Claim areas (Terminal L5).

4.5.13. TSA ENABLING PROJECT

A. General

1. A conveyor system is being installed in L5.5 of the terminal to allow baggage to be checked in at any point within the East/ West terminal and be screened in the CBIS associated with the bags final destination make-up area.
2. Curbside inputs continue to route baggage directly to the adjacent CBIS (exception in 2 East South Curbside). If the bags final destination make-up is in another module, the bag will be routed onto the ICS and transfer to the BHS associated with the final destination for screening and sortation.

B. The work completed under the TSA enabling project in Level 5.5 is designed to have no impact on screening capacity.

4.5.14. CONTROL ROOM

A. The BHS has a primary control room in the Terminal and a backup control room in Concourse A which contains the following equipment;

1. Communication devices
2. Work stations
3. Servers
4. Printers
5. Video wall
6. BSM interface

4.5.15. SERVER ROOM

A. The BHS has multiple server rooms that contain the following equipment;

1. All BHS Servers
2. Sort Controller servers
3. Graphics and Web Navigator Servers
4. Unified Universal Interface server
5. VPN gateway
6. Virus Protection Management server
7. BSM gateway and Carrier Clients
8. Network switches
9. Network routers
10. Databases

4.6. ADJUSTMENTS TO THE SCOPE OF WORK

A. The Contractor shall provide as part of their bid, pricing (schedule of prices) to maintain additional/ reduced quantity of ICS equipment (e.g. quantity of cars, quantity of CBRA positions, etc.).
B. DEN and the Contractor shall work together to determine changes to resources/ personnel as a result of additional/ reduced quantity of ICS equipment.
C. Upon agreement, the Contractor shall adjust their invoicing based upon the agree contract schedule of prices. In the event that an agreement cannot be obtained, DEN's decision shall be final.
D. The Contractor shall provide fully loaded hourly rates for personnel.
E. Pricing shall remain valid for the entire period of the contract.

TS-5. QUALITY ASSURANCE

5.1. GENERAL

A. The Contractor shall ensure that a Quality Assurance plan is in place throughout the term of the Contract.
B. The Contractor shall submit complete details of the Contractor's Quality Assurance plan to the City for review and approval by the City no later than thirty (30) days after commencement of operations and/or maintenance.
C. The Contractor shall submit an updated plan to the City within seven (7) days of any changes being made to the Contractor's Quality Assurance plan. Any changes to this plan before being put into effect must be approved by the City.
D. The Contractor shall ensure that its employees and sub-contractors are in compliance with the Contractor's Quality Assurance plan at all times.

5.2. QUALITY CONTROL

A. The Contractor shall put in place an audit system to be performed by Supervisors to periodically verify that inspections and maintenance tasks are being performed properly. Such audits shall be fully documented and attached to the required monthly performance reports.
B. Any work found to not meet the QC standards shall be reworked with urgency and reported to the City.
C. Procedures shall ensure that persistent poor performance is detected and addressed.
D. Provide a quality inspection audit report, refer to § 17.4.10 below.

TS-6. STAFFING/PERSONNEL REQUIREMENTS

6.1. GENERAL

A. The Contractor shall at all times perform its services under this Contract by means of providing adequately trained and competent technical labor and supervisory personnel in sufficient numbers and classifications necessary to perform such services efficiently and in accordance with the Contract Documents.
B. The Airport operates twenty-four (24) hours a day, all days of the year, with periods of high usage. The Contractor is responsible to provide adequate staffing for operation and maintenance at all times, including times of high

usage such as holidays and peak seasonal events.

C. The Contactor is fully responsible for providing staffing to properly operate and maintain all parts of the ICS, support the Airport and/or Airline/Carrier operations. The Contractor shall provide personnel as required by the flight schedules, passenger loads and system utilization in effect during the term of this Contract. The Contractor accepts the fact that the flight schedule is subject to change and the work schedule may need to be adjusted at the Contractor's expense.
D. The Contractor shall ensure that all of their employees are sufficiently trained in ICS operation and maintenance practices, are competent and capable of attending to and resolving ICS problems such that downtime of the ICS is kept to a minimum and within the limitations defined in these specifications.
E. The Contractor shall only use skilled, competent personnel, who are experienced and knowledgeable in ICS operation and maintenance.
F. Each Contractor employee in a position involving matters of Safety and Security shall be fluent in speaking, reading and writing in the English language, at no less than the level required for competent and efficient performance of the duties of their position. The Contractor shall be responsible for the neat appearance, courtesy, efficiency, and conduct of all the Contractor's personnel at all times.
G. The City reserves the right to approve the Contractor's appointment of any person performing work at the Airport under this Contract.
H. The Contractor shall remove any person from the Airport at the City's request. The Contractor is responsible for returning all Airport property of the removed person in accordance with Airport rules.
I. The Contractor shall provide the following to the City;

    1. A detailed staffing schedule at the commencement of each calendar year, or as requested, detailing the staffing levels provided by the Contractor to properly operate and maintain the ICS and meet the KPI's detailed in the Contract.
    2. Staffing schedules shall be updated and resubmitted to the City as changes are made or upon request.

J. The Contractor shall provide and maintain an organizational chart detailing the hierarchy of the entire site organization including the following;

    1. Site Manager
    2. Assistant Site Manager
    3. Supervisor
    4. CST
    5. Designated Safety Officer (not a dedicated position)
    6. CMMS/Parts Technician
    7. Control Room Operators
    8. MMM
    9. ESM

K. The Contractor shall update the organizational chart whenever changes are made to appointments and submit all relevant documentation regarding such appointment changes including an updated organizational chart to the City, no

later than EOB on the next business day of such change.

L. The Contractor shall ensure that a minimum of one person per shift is certified as a competent forklift/hoist/scissor-lift operator capable of legally operating a forklift/scissor-lift and certification is current and a certified person is on site at all times.

M. The Contractor shall ensure that a minimum of one person per shift is a certified welder.

N. The Contractor shall comply with all Local, City, State and/or Federal requirements relating to work rules, including but not limited to;

1. Shift-work
2. Breaks, quantity, duration, and intervals
3. Over-time
4. Minimum rest periods
5. Multiple and consecutive shifts
6. Prevailing wage

O. The Contractor shall provide a time keeping mechanism to provide an auditable electronic record of shift start and shift finish times. The Contractor shall be required to ensure that all staff properly report all working hours.

6.2. KEY PERSONNEL

A. For the purposes of this Technical Specification, the following persons shall be regarded as Key personnel.

1. Site Manager
2. Assistant Site Manager
3. CMMS/Parts Technician
4. Supervisors
5. Control System Technicians

6.3. UNIFORMS

A. The Contractor shall furnish their employees with a uniform to standards approved by the City. The Contractor shall submit information pertaining to uniforms to the City for approval no later than 30 days after NTP and whenever the Contractor intends to materially alter uniforms.

B. The Contractor shall enforce a reasonable level of dress code ensuring that all employees will present a neat, clean, and orderly appearance at all times while at the Airport.

6.4. SUBSTITUTION OF EMPLOYEES

A. The Contractor personnel performing work under this Contract shall perform exclusively under this Contract, and shall not perform any work for the Contractor, or sub-contractor, as the case may be, except the work which is defined herein, consisting of ICS Operation & Maintenance services on site at DEN. The BHS Program Administrator or their designee may permit specific exceptions to this provision where such permission is obtained in writing.

B. The Contractor shall instruct all Contractor personnel that their employment with the Contractor, or sub-contractor, to work under this Contract is their primary employment. Additional employment shall in no way interfere with or

compromise an employee's ability to perform his or her duties for the Contractor or sub-contractor under this Contract.

C. The Contractor shall not reassign any key personnel holding one of those positions to duties away from the Airport, unless it notifies the BHS Program Administrator in writing, the name and qualifications of the person proposed to replace such person in the position and obtains the prior written approval of the BHS Program Administrator for such substitution. If the employee is promoted, resigns or otherwise terminates employment with the Contractor, the Contractor shall immediately notify the BHS Program Administrator, and provide the BHS Program Administrator written notice of the name and qualifications of the person proposed to replace such person in the position.

6.5. MINIMUM STAFFING LEVELS

A. The Contractor shall as an absolute minimum provide the following staffing levels at all times. It is the Contractor's responsibility to staff accordingly to meet the performance requirements of the Contract specifications.

Figure 2, Minimum Staffing Levels

Staff Position/Title	**Number of People**	**Minimum Staff per Shift***
Site Manager	1	
Assistant Site Manager	1	
CMMS/Parts Technician	1	
Supervisor	TBD by Contractor	1
Controls System Technician		2
Machinery Maintenance Mechanic/ Control Room Operator		3
Entry Support Mechanic/ Manual Encode Station Operator**		1
Safety Officer***		1
Quality Control Officer***	1	

NOTE: Minimum staffing levels updated to reflect Contractors proposed staffing levels.

*Shifts shall cover 24/7 unless the position specifically identifies less than 24/7

**It shall be acceptable to DEN for the Contractor to substitute higher levels of personnel due to skills/promotions at the Contractor's expense.

***This is not a dedicated position provided the person who is assigned this task is sufficiently competent and trained to perform the task as required.

B. The Contractors accepted staffing plan shall become the minimum staffing level.

C. The Contractor may choose to include additional staffing levels above the accepted staffing plan to ensure all KPI's are met.

D. During times of peak seasonal events the Contractor shall provide additional personnel to support operations ensuring that the scope-of-work defined by the

contract documents are fully satisfied.

1. President's weekend
   Three (3) days prior to Presidents day through to three (3) days after.
2. Memorial Day
   Three (3) days prior to Memorial Day through to two (2) days after.
3. Spring break
   As required to ensure the performance requirements of the contract are met.
4. Independence Day
   Two (2) days prior to Independence Day through to two (2) days after. If any black-out days coincide with a weekend, extend to include the Monday/Friday.
5. Labor Day
   The Friday prior to Labor Day through to and including the following Wednesday.
6. Thanksgiving
   The entire week of Thanksgiving through to and including the following Tuesday.
7. Christmas/ New Year period
   Five (5) calendar days prior to Christmas through four (4) days after New Year's Day.

6.6. STAFF DEFICIENCIES

A. Whenever the Contractor is unable to provide the minimum staffing levels, the Contractor shall decrease the monthly operations and maintenance fee (Item #1 in Schedule of Prices) accordingly based on the agreed rates between the Contractor and the City.
B. Personnel deductions shall be in quarter hour increments.
C. The Contractor shall make all efforts to address deficiencies in staffing.
D. Staff deficiencies shall be covered by personnel with the same qualification/ classification (e.g. A CST shall be substituted by a qualified CST).
E. The Contractor shall issue monthly to the City and on-demand a staff allocation report detailing all hours provided under this contract by staff position. Deficient hours in the past month based on minimum staffing levels shall be clearly detailed.
F. Should the Contractor fail to address such staffing deficiencies within thirty (30) calendar days, the City may at its sole discretion deduct from the monthly fee. Penalties shall be based on deficient calendar days.
G. The Contractor shall carefully schedule employee time off so that critical employees do not have scheduled time off at the same time (e.g. Site Manager and Assistant Site Manager).

   1. This requirement shall apply across the entire workforce based on different skill levels (e.g. allowing all supervisors time off at the same time shall not be allowed).
   2. Exceptions shall be considered by the City based on special circumstances (e.g. family bereavements, etc.). In these circumstances, the Contractor shall make all efforts to ensure continuity of services (e.g. provide additional

resources at no additional cost to the City) and notify the City in writing detailing the circumstances and the duration.

6.7. ON-SITE ADMINISTRATION STAFF

A. The Contractor shall at a minimum, but not limited to, provide the following staff for administration and management of the Contract.

6.7.2. SITE MANAGER

A. Working Hours

1. The Site Manager shall operate from the site for a minimum period of forty (40) hours per week, usually during normal business hours (8/5).
2. The Contractor shall provide a Site Manager on-site at DEN for 52 weeks of the year.

B. Responsibilities

1. The Site Manager shall be responsible for all day to day operations at the Airport and shall have the overall responsibility and authority to assure the Contractor's compliance with this Contract.
2. The Site Manager shall serve as the Contractor's representative and point of contact with the City for all matters concerning the Contract and representing the Contractor in all communications.
3. The Site Manager shall be on-call to address and/or coordinate activities on site should an incident occur that cannot be addressed by on-site personnel. The Contractor shall ensure that the Site Manager or their designated fill-in has the necessary tools that ensure the minimum availability as outlined in this document.
4. The Site Manager shall have the Contractor's full authorization to empower any employee, sub-supplier and/or resource of the Contractor to perform all of the requirements detailed in this document.
5. The Site manager shall attend regularly scheduled and as requested meetings with the City and/or Stakeholders to discuss the ICS.
6. Ensure timely submittal to the City of all invoices, reports, staffing plans and other documents required by the Contract.
7. The Site Manager is responsible for hiring, training, assigning, scheduling, promoting, disciplining and discharging employees to work for the Contractor under the Contract.
8. Review and revision as necessary of Contractor policies and procedures relating to the Contractor's performance of the Contract, including personnel, safety, security, and operational matters.
9. All other matters required for the Contractor's compliance with the Contract.
10. The Site Manager shall be responsible for the overall Quality Control systems. QC personnel shall report to the Site Manager.
11. Responsible for ensuring all maintenance/ operational literature (technical manuals, safety literature, schematics, etc.) is on-site, current/ up-to-date and available for review by all operations personnel.
12. Other duties as required.

C. Qualifications

1. High School diploma or equivalent.
2. The Contractor shall submit credentials for proposed Site Managers to the City for review prior to appointment.
3. The Site Manager shall have a minimum of five (5) years' experience in management of BHS Operations and Maintenance or equivalent Operations and Maintenance industry.

D. Replacement

1. Interim Site Managers shall be appointed by the Contractor for periods of no more than five (5) consecutive calendar days without approval from the City to address absences through sickness, leave, training etc.
2. Any interim Site Manager appointments exceeding seven (7) consecutive calendar days due to absence for any reason shall have credentials submitted to the City for approval fourteen (14) calendar days prior to such absences being planned and/or within twenty-four (24) hours of an unexpected absence. The City strongly encourages the Contractor to have on record an approved person to fill-in during an unexpected absence.
3. Any planned absences exceeding seven (7) consecutive calendar days (vacation, etc.) shall be reported to the City at least fourteen (14) days prior to the absence occurring.

6.7.3. ASSISTANT SITE MANAGER

A. Working Hours

1. The Assistant Site Manager shall operate from the site for a minimum period of forty (40) hours per week.

B. Responsibilities

1. Back-up to the Site Manager. Immediate fill-in for the Site manager during scheduled time off.
2. Implementation and verification of training/training materials.
3. Responsible for scheduling and prioritizing of work duties/maintenance activities.
4. Selection of equipment substitutions based on end-of-life and/or purchasing availability.
5. Responsible for ensuring QC targets are achieved.
6. Updating of maintenance procedures.

C. Qualifications

1. High School diploma or equivalent.
2. The Assistant Site Manager shall have a minimum of five (5) years' experience in BHS related work.

D. Replacement

1. Interim Assistant Site Managers shall be appointed by the Contractor for periods of no more than five (5) consecutive calendar days without approval from the City to address absences through sickness, leave, training etc.
2. Any interim Assistant Site Manager appointments exceeding seven (7)

consecutive calendar days due to absence for any reason shall have credentials submitted to the City for approval fourteen (14) calendar days prior to such absences being planned and/or within twenty-four (24) hours of an unexpected absence. The City strongly encourages the Contractor to have on record an approved person to fill-in during an unexpected absence.

3. Any planned absences exceeding seven (7) consecutive calendar days (vacation, etc.) shall be reported to the City at least fourteen (14) days prior to the absence occurring.

6.8. ON-SITE SUPPORT PERSONNEL

6.8.1. SUPERVISOR

A. Working Hours

1. At least one Supervisor shall be on site at all times (24/7).
2. The Contractor shall provide a Supervisor on-site at DEN for 52 weeks of the year for all shifts.

B. Responsibilities include but are not limited to

1. The day to day operations of the ICS.
2. Supervisors shall be fully conversant with all daily operations including all fallback procedures.
3. Supervisors shall coordinate work schedules for the day and be responsible for assignment of daily/nightly duties, Quality Control, Security and Safety.
4. Coordination of Maintenance tasks, review of work performed to ensure work is being done to the proper quality standard.
5. Schedule and Training of technicians.
6. Coordination with TSA, Airport Operations and the Airlines.
7. Supervisors shall be hands-on workers when other duties are complete.
8. The responsible Supervisor shall have authorization to make any decisions regarding ICS operations/maintenance including implementing any fallback modes. Delays in implementing fallback operations as a result of authorization to proceed from the Site Manager is unacceptable.
9. Other duties as required

C. Qualifications

1. High School diploma or equivalent.
2. Supervisors shall have a minimum of three (3) years' experience in BHS or equivalent industry.
3. Controls System Technician (CST) qualified.
4. Supervisors shall undertake a Contractor provided training course, defined in the training plan approved by the City, to ensure that they are proficient with all ICS operations including implementation of fallback procedures.

D. Replacement

1. Minimum qualification of replacement shall be CST.
2. Interim Supervisors shall be appointed by the Contractor for periods of no more than five (5) consecutive calendar days without approval from the City to address absences through sickness, leave, training etc.
3. Any interim Supervisor appointments exceeding five (5) consecutive

calendar days due to absence for any reason shall have credentials submitted to the City for approval fourteen (14) calendar days prior to such absences being planned and/or within twenty-four (24) hours of an unexpected absence. The City strongly encourages the Contractor to have on record an approved person to fill-in during an unexpected absence.

4. Any planned absences exceeding five (5) consecutive calendar days (vacation, etc.) shall be reported to the City at least fourteen (14) calendar days prior to the absence occurring.

6.8.2. CONTROL SYSTEMS TECHNICIAN

A. General

1. The Contractor shall provide a minimum of Control System Technicians as follows.

B. Working Hours

1. One (1) Control Systems Technician shall be on site at all times (24/7).
2. The Contractor shall provide a Control Systems Technician on-site at DEN for 52 weeks of the year for all shifts.

C. Responsibilities include but are not limited to

1. Performs Preventive Maintenance (PM) tasks.
2. Performs Scheduled Maintenance (CM) dismantling, repair and rebuilding of equipment.
3. Performs Unscheduled Maintenance (EM) dismantling, repair and rebuilding of equipment.
4. Capable of readily identifying the following;
    a. Unexpected system operation
    b. Implementing proper procedures
    c. Resolving operational issues including but not limited to, Dieback, Grid lock and Fallback procedures
5. Control room operations, capable of fulfilling control room operator duties in the event of an unexpected situation where support is required, or an unexpected absence occurs.
6. Capable of reading and understanding all electrical schematic diagrams.
7. Capable of troubleshooting and resolving mechanical, electrical, and control related issues.
8. Capable of using and understanding mechanical, electrical and controls test instruments.
9. Fully conversant with and capable of maintaining all mechanical and electrical components in the BHS/ICS.
10. Installation, inspection, assessment, maintenance, repair and/or refurbish of all parts, components and/or assemblies within the BHS/ICS.
11. Capable of clearing and resetting operational issues (jam, etc.)
12. Cleaning of BHS/ICS and surrounding areas.
13. Other duties as required

D. Qualifications

1. High School diploma or equivalent.
2. Controls Systems Technicians shall have a minimum of three (3) years' experience in BHS or equivalent industry.
3. The Control System Technician (CST) shall be capable of performing all work done by the Entry Support Mechanic (ESM) and Machinery Maintenance Mechanic (MMM) unsupervised.
4. The Control System Technician shall be capable of performing all work unattended and unsupervised.
5. Fully proficient with and capable of operating all BHS/ICS tools.

6.8.3. CONTROL ROOM OPERATOR

A. Working Hours

1. A Control Room Operator shall be present in the control room at all times (24/7).
2. The Contractor shall provide a Control Room Operator on-site in the control room at DEN for 52 weeks of the year for all shifts.
3. Shifts for Control Room operators shall overlap so that incoming personnel have an opportunity to get up-to-speed on current BHS/ICS operation so that hand-overs occur in an efficient and reliable manner.

B. Responsibilities

1. Control Room Operators shall regard all information obtained from operations in the BHS/ICS control room as Security Sensitive Information (SSI) and ensure that the provisions of SSI are maintained.
2. The Control Room Operator's primary task shall be to monitor proper operation of the ICS and direct resources to inspect/repair operation, so as to meet the performance requirements of this specification.
3. Control Room Operators shall be proficient and trained on the proper use of all equipment and interfaces in the ICS control room, including but not limited to;

    a. Workstations based on Microsoft Windows operating systems.
    b. Customized applications to monitor ICS operations including SCADA and CDI.
    c. Customized applications to monitor and identify baggage routing in the ICS including Putty (blue screens).
    d. Radios
    e. Telephones
    f. Reporting and recording the schedule of events, e.g. recording the sequence of events during an unexpected event.
    g. Collection/recording of operational data for reporting purposes.
    h. Cleaning printers, clearing paper jams, loading paper, changing printer cartridges, etc. and general usage of printers.
    i. Uploading flight schedules automatically and manually.
    j. Updating operations information, ensuring changes to operations flight schedules, sortation maps, etc. are current and accurate.
    k. Startup procedures, purging/ verifying operations/ sortation,

documenting proper routing of baggage.

l. Monitoring screening/ routing of baggage, investigating anomalies and bring all anomalies to the attention of the Supervisor for resolution.
m. Monitoring of BSM delivery and reporting to BHS operations all issues relating to proper delivery of BSMs to allow the responsible party to take appropriate actions to ensure that interruption to BSM delivery is promptly actioned/resolved.
n. Monitoring of Manual Encode baggage operations and adjustments to sortation schedules as required to sort bags correctly.
o. Inspection of Server Room equipment, reporting unexpected/ unusual equipment status to the supervisor for resolution.
p. Implement call tree notifications based on equipment failures.
q. Implement fallback procedures in accordance with adopted practices.
r. Monitoring of ICS usage and coordination with BHS operations and airport operations for optimum efficiency.
s. Other duties necessary to support control room operations.

4. Control Room Operators shall promptly report ICS alarms and events and shall direct personnel to inspect, clear blockages/jams and/or repair failed equipment as appropriate.
5. Control Room Operators shall be attentive of the state and condition of the entire ICS at all times in order to respond immediately to reported events and/or possible blockages/events and/or unusual ICS behavior, including but not limited to;

    a. Jams
    b. E-stops
    c. Faults
    d. Security
    e. Equipment malfunction
    f. Incorrect operation
    g. Incorrect routing of baggage
    h. Power outages
    i. Server outage
    j. Missing routing information
    k. Die-backs
    l. MES overload

6. Control Room Operators shall perform coordination of personnel and resources to ensure that the minimum service requirements defined are maintained.
7. Control Room Operators shall not be distracted from observance of system operation/state and/or direction of personnel/materials to address operations including but not limited to;

    a. Personal electronic devices
    b. Personal conversation
    c. Personal literature

d. Consumption of food, drinks, etc.

8. Control Room Operators shall record information as needed to meet the requirements of this specification.
9. Control Room Operators shall coordinate with all Stakeholders.
10. Control Room Operators shall respond to ICS related inquires either by persons or telephone in a courteous and efficient manner.
11. Other duties as required.

C. Qualifications

1. The minimum qualifications of the Control Room Operators are a Machinery Maintenance Mechanic (MMM) with additional skills capable of understanding the cause of a problem (even if uncertain how to resolve the problem) so that the proper resources/actions can be assigned and directed to address a fault.
2. The Contractor is responsible to develop a training program for the Control Room Operators. This course syllabus shall be submitted to the City for review and approval.
3. The Contractor shall keep a detailed record of all training completed by Control Room Operators. Control Room Operators shall complete a refresher course, as outlined in the approved training plan, on control room operations including fallback procedures every six (6) months. Proper records of training shall be kept by the Contractor and submitted to the City as identified elsewhere in this document.

6.8.4. MACHINERY MAINTENANCE MECHANIC

A. Working Hours

1. Shift-work covering all hours (24/7).
2. The Contractor shall provide Machinery Maintenance Mechanics on-site at DEN for 52 weeks of the year for all shifts.

B. Responsibilities include but are not limited to

1. Performs Preventive Maintenance (PM) inspections, dismantling, repair and rebuilding of equipment.
2. Performs scheduled maintenance dismantling, repair and rebuilding of equipment.
3. Performs unscheduled Maintenance dismantling, repair and rebuilding of equipment.
4. Fully conversant with and capable of maintaining all mechanical components in the ICS.
5. Installation, inspection, assessment, maintenance, repair and/or refurbish of all mechanical parts, components and/or assemblies within the ICS.
6. Control room operations, capable of fulfilling control room operator duties.
7. Capable of clearing and resetting operational issues (jam, etc.)
8. Capable of troubleshooting and resolving mechanical related issues.
9. Cleaning of ICS and surrounding areas.
10. Diagnosing, adjusting and/or resetting improper functions.
11. Maintain and operate the ICS according to the OEM manuals.

12. Other duties as required

C. Qualifications

1. High School diploma or equivalent.
2. A Journey level position.
3. Capable of performing all work performed by an Entry Support Mechanic unsupervised.
4. Capable of working unsupervised.
5. Skilled to diagnose, adjust and/or reset improper mechanical systems.
6. Fully proficient with and capable of operating and maintaining the ICS using all required tools.

6.8.5. ENTRY SUPPORT MECHANIC

A. Working Hours

1. Shift-work covering all hours (24/7).
2. The Contractor shall provide Entry Support Mechanics on-site at DEN for 52 weeks of the year for all shifts.

B. Responsibilities

1. Assists with adjustment and reset of improper function (belt tension/tracking, etc.)
2. Performs PM inspections
3. Performs scheduled Maintenance inspections, dismantling, repair and rebuilding of equipment.
4. Performs unscheduled Maintenance dismantling, repair and rebuilding of equipment with supervision or assistance.
5. Capable of clearing and resetting operational issues (jam, etc.) after proper training.
6. Cleaning of ICS and surrounding areas.
7. Other duties as required

C. Qualifications

1. High School diploma or equivalent.
2. Capable of completing a task with minimal supervision after proper training.
3. An understanding of mechanical systems.
4. An understanding of basis computer interfacing (logging-in, changing passwords, navigating dialogues, using help screens, collecting data, forwarding data/ analysis to immediate supervisor, etc.).
5. Competent with radio communication devise and telephone.
6. Capable of operating mechanical hand tools.

6.8.6. MANUAL ENCODING OPERATOR

A. Working Hours

1. Shift-work covering all hours (24/7).
2. The Contractor shall provide Manual Encoding Operator on-site at DEN for 52 weeks of the year for all shifts.

B. Responsibilities

1. Manually encoding baggage at the MES using a handheld barcode scanner and/or an operator workstation without supervision.
2. Handling problem bags
3. Duties assigned to ESM position
4. Other duties as required

C. Qualifications

1. The minimum qualifications of the Manual Encode Operator are Entry Support Mechanic (ESM).
2. Capable of performing manual encode function unsupervised after proper training.

6.8.7. CMMS/PARTS TECHNICIAN

A. Working Hours

1. The CMMS/Parts Technician shall be on site for a minimum of five (5) days/forty (40) hours per week (8/5). When the CMMS/Parts Technician is not on site, the Supervisor shall be responsible for securing the spare parts inventory and issuing items as required.
2. The Contractor shall provide a CMMS/Parts Technician on-site at DEN for 52 weeks of the year.

B. Responsibilities include but are not limited to;

1. The CMMS/Parts Technician shall be responsible for spare parts inventory related duties of the Contractor as well as the City purchased inventory items including but not limited to the following tasks;

    a. Maintenance and accuracy of inventory in the Computerized Maintenance Management Software (CMMS)
    b. Issuing replacements parts
    c. Securing all spare parts and specialty tools
    d. Maintaining minimum stock levels
    e. Auditing of stock as defined in the reports section. Compiling and issuing stock reports as required or requested
    f. Ordering and receiving of replacement parts
    g. Identifying critical long-lead items and ensuring sufficient spare parts inventory levels to meet system availability requirements
    h. Shipping of repairable parts
    i. Selecting vendors based on best value for the Airport
    j. Continual review and updating of vendors list
    k. Tracking orders and deliveries
    l. Coordination of deliveries
    m. Tracking equipment/component failures
    n. Reporting/Trend analysis as required or requested
    o. Coordination of all warranty related items and tasks
    p. Proper disposal and recycling of all waste and hazardous materials

2. The CMMS/Parts Technician shall be skilled to support the O&M team in

scheduling and performing repairs on ICS Cars
3. Other duties as required or requested

C. Qualifications

1. High School diploma or equivalent.
2. A minimum of one (1) year experience in clerical work involving computerized data entry, inventory control, computerized inventory maintenance, record keeping and purchase ordering/receipting.
3. Proficient with data analysis tools and MS Office (Excel) or equivalent
4. Proficient verbal and written communication skills.

D. Replacement

1. Shall follow the general staff replacement requirements of the Contract Documents.

TS-7. TRAINING

7.1. GENERAL

A. The Contractor shall submit a detailed training plan to the City for approval fifteen (15) days prior to commencement of operations. The Contractor shall resubmit the training plan whenever the plan is materially altered.
B. This plan shall demonstrate a continuous job-related training program covering specific ICS related tasks for each discipline performed by the employee during the normal course of each week's work. Training shall be a continuous process performed each week.
C. The Contractor shall perform all regulatory training required by Federal, State, City and local requirements (including OSHA) as part of this contract.
D. The Contractor shall provide each employee assigned to perform work under this Contract with training in the duties assigned to perform the work competently.

1. The Contractor shall establish a formal, written training program for each job classification and provide to the BHS Program Administrator a copy of the training material, which shall be kept current with all amendments to the manual.
2. Each employee shall be provided with a minimum of two (2) hours per week work related training specific to the tasks expected of the employee. As a minimum one (1) hour per week shall be hands-on training. This training shall be in addition to any training required by regulatory requirements.
3. It shall be acceptable to combine weekly training sessions into monthly sessions provided the minimum hourly requirement per month is met.

E. Regulatory and work specific training shall be reported separately.
F. The Contractor shall provide supervisory and management level training for all supervisors and managers performing work under this Contract. This training should include customer service and ICS specific training.
G. The Contractor shall maintain a training record for each employee. The training record shall show, at a minimum, the employee's name, date of employment,

and the type and date of each training class attended. Such records shall be provided monthly to the BHS Program Administrator and upon request.

H. The Contractor is responsible for training of all personnel working on the site, replacement training, including their own personnel and/or sub-suppliers, and provide all instructors, training aids and equipment/materials required to ensure that such personnel and sub-suppliers are fully proficient in the proper operation and maintenance of the ICS in compliance with all safety aspects. The BHS Program Administrator or designee may, from time to time, monitor the conduct of training classes.
I. Provide sufficient class-room and on-the-job training. Hands-on training using the ICS equipment and/or spare equipment shall be permitted provided it does not interfere with daily Airline/Carrier operations.
J. The Contractor shall develop a procedure to identify competence and understanding of the training and each staff member shall obtain a passing grade prior to allowing any staff to operate and/or maintain the ICS.
K. Where possible staff shall be fully cross-trained.
L. Training shall be tailored to the audience being trained (e.g. Entry Support Mechanics shall not be trained based on duties expected of more senior persons).
M. Refresher training for 'Control room Operators' shall be performed every six months to ensure that they are fully conversant with ICS operations, handling unexpected events and implementation of fallback methods.
N. Whenever a new method or procedure has been adopted and becomes part of the official SOP, the Contractor shall ensure that all persons requiring refresher training are fully trained within three (3) scheduled work days of the new SOP being put in place.
O. Whenever a new Safe Work Practice and Procedure has been officially adopted, all persons shall be trained in the new SWPP before being allowed to operate and/or maintain any equipment related to the new SWPP within three (3) scheduled work days of the new SWPP being put in place.

7.2. MINIMUM REQUIRED TRAINING

A. Safe Work Practices and Procedures (SWPP).
B. Approved Standard Operating Procedures (SOP).
C. Methods to inspect equipment and report possible/actual problems.
D. OSHA required training.
E. Compliance with all legally required or prudent safety practices.
F. Operations training in the correct procedures in handling normal/ abnormal/ unusual events including but not limited to the following;

1. Contingency plan
2. Rapid response
3. Equipment cleaning
4. Baggage caught in equipment
5. Stranded/ delayed baggage
6. Security events
7. Stranded ICS cars
8. Entering of the fenced ICS area during operations
9. Performing work in the ICS maintenance area, including calling and

dispatching ICS cars

G. Maintenance training in the correct procedures including but not limited to the following;

1. Equipment inspections
2. Preventive, Corrective and Emergency Maintenance
3. Evaluate and diagnose potential/ actual fault/failure
4. Proper tuning/ adjustment of equipment

H. Baggage Hygiene Training and Control.

1. The Contractor shall prepare, manage, and implement, in addition to and in support of the City's user video training course, a comprehensive program to train, monitor and correct (to include recurrent on-site training) all users of the ICS as necessary to ensure proper baggage hygiene, in coordination with the City and Stakeholders.
2. The Contractor's program shall result in highly-trained system users who might introduce or otherwise handle airline baggage into the ICS. The Contractor shall notify the City of any consistent or extraordinary non-compliance with this universal program.

I. Safety training.

1. The Contractor shall provide all appropriate safety training. Such training shall include periodic updates and retraining to maintain first-class safety conditions and practices for all employees, including proper instruction in use of safety data sheets and other legally required or prudent safety practices.

7.3. MINIMUM TRAINING RECORDS

A. Detailed records of all training shall be maintained by the Contractor including, but not limited to, the following and shall be submitted to City.

1. Training being performed
2. Each person being trained
3. When training was completed
4. Type for training (new, refresher, updated procedure, compliance, etc.)
5. Obtained grade

7.4. MINIMUM REFRESHER TRAINING

A. The Contractor shall provide refresher training as necessary to ensure that all persons working in, around and/or on the ICS are fully conversant with the most current requirements.

7.5. MES TRAINING

A. The Contractor shall recognize that MES operation is an important part of the ICS/ BHS overall operational performance. Incorrect or inappropriate handling of bags at MES can impact the security and performance metrics of the entire BHS.

B. The Contractor shall ensure that all MES personnel are properly training in the following including but not limited to the following;

1. Baggage hygiene
2. Hand-scanner operation of IATA baggage tags
3. Keyboard input versus hand-scanner
4. Flight lookup
5. Airline quick-key default baggage routing
6. Airport tag handling (manual tags)

TS-8. SAFETY

8.1. SAFETY AND CLEANLINESS

A. The Contractor is responsible for the health and safety of its employees, agents, suppliers, and other persons, who perform work under this Contract and for the protection and preservation of the ICS. The Contractor shall take all necessary and reasonable precautions and actions to protect all such persons and property. Such actions shall include, but are not limited to the following;

1. Compliance with all the applicable laws, regulations, ordinances, rules or orders of any public authority having jurisdiction relating to safety of persons or property.
2. Implementation of all practices, procedures and programs customarily implemented by contractors performing work of a similar nature.
3. The Contractor shall ensure that staff are provided with the proper safety equipment, are properly trained in the use of safety equipment and shall enforce the proper use of safety equipment when required by OSHA or the City, for example;

    a. Eye protection (safety glasses)
    b. Safety shoes
    c. Head protection (hard hats/bump caps)
    d. Noise protection (ear muffs)
    e. Electrical shock protection (gloves)
    f. Unintended use (lock-out tags/locks)
    g. Face masks

4. The Contractor shall ensure that all employees wear the correct PPE including foot wear appropriate for the task being performed.
5. The City shall have the right to require removal of any employee who fails to wear the proper uniform and PPE in a reasonable condition and the exercise of this right shall not limit the obligation of the Contractor to perform the services defined by this specification.

B. The Contractor shall immediately render assistance and take all practical steps to protect and seek assistance for any and all persons injured in an accident.

C. The Contractor shall ensure that areas for use by the Contractor are properly maintained, regularly cleaned and free from hazards.

D. Maintain all records, make all reports and post all documents required by Federal, State and Local laws and regulations on employee worker safety and protection from hazardous conditions and materials.

E. HAZMAT

1. The Contractor shall dispose of any hazardous material used by the Contractor during the term of this contract in a safe, secure and responsible manner using industry best practices.
2. No materials will be allowed to enter Denver's storm water sewer system. Only those products suitable for discharge via the sanitary system will be considered allowable discharges. All sanitary sewer discharges must comply with the Denver Revised Municipal Code Section 56-102 and Part 180 of the Denver Municipal Airport System Rules and Regulations, along with any other applicable federal, state, or local regulations.
3. Any other materials identified by the Contractor to be deemed hazardous shall be brought to the immediate attention of the Airport/ TSA/ LEO (as applicable). The Contractor shall ensure that the area containing hazardous material is marked off and secured where practical.
4. Under no circumstances shall the Contractor or any persons under the control of the Contractor take steps to move and or otherwise interfere with any material deemed to be hazardous until properly inspected/ disposed of or an 'all clear' has been given by authorized personnel.
5. The disposal of any hazardous wastes on Denver property is prohibited. All hazardous waste must be disposed off-site at an appropriately permitted facility. It shall be the Contractor's responsibility to determine any associated or potential cost of hazardous waste disposal compliance.

8.2. SAFETY OFFICER

A. The Contractor shall designate a person responsible for coordinating and enforcing all safety issues on site at the Airport.

B. Responsibilities include but are not limited to

1. The Contractor shall appoint a Safety Officer within their organization to perform safety related tasks.
2. The Safety Officer shall perform an annual audit of all safety practices and submit the report of the findings to the Contractor's Site Manager all Safe Work Practices and Procedures (SWPP).
3. Shall attend airport safety meetings and seminars as required by the City.
4. Anticipated as the first responder to all safety related incidents.
5. Required to submit a formal written report for all incidents involving injury or near miss incidents for the Contractor or the sub-contractors personnel.
6. Responsible for safety training of all the Contractor's personnel and/or sub-suppliers personnel working at the Airport.
7. Maintain all SDS documentation up-to-date.
8. Other duties as required

C. Qualifications

1. At least three (3) years' experience in BHS operations and maintenance procedures appointed to a position equal or better than a Maintenance Machinery Mechanic.
2. Extensive knowledge of principles and practices for evaluating and implementing a comprehensive safety program; training techniques; basic

principles of risk management, methods and techniques to ensure and enforce accident prevention.

3. Good observation, reporting, recording, oral and written communication skills with the ability to;

    a. Properly investigate and evaluate complex safety problems and issues.
    b. OSHA 30 hour general industry training.
    c. Establish and maintain an effective working relationship with personnel at all levels of the Contractor and the City organization.
    d. Analyze situations accurately through observation, and personnel interviews.
    e. Able to make timely and effective recommendations regarding personal safety and Safe Work Practices and Procedures.
    f. Able to clearly interpret applicable safety and environmental laws and regulations.
    g. Able to plan and present safety training programs.
    h. Able to communicate clearly with others to obtain compliance and cooperation with other personnel over whom one has no direct authority.

D. The Contractor shall have in place an official safety plan detailing the following as a minimum;

    1. All safe work practices and procedures to be implemented by employees and/or sub-suppliers when performing any work at the Airport.
    2. Review procedures to address deficiencies in actions taken.

E. The Contractor shall submit a safety plan to the City no later than 30 days after NTP or prior to the commencement of operations (whichever occurs first). The Contractor shall submit an updated safety plan whenever the Contractor alters the safety plan or there is a material change in State/Federal requirements which require an adjustment to the safety plan.

8.3. SAFE WORK PRACTICES AND PROCEDURES (SWPP)

A. The Contractor shall perform regular audits of safe work practices and procedure to ensure compliance by all its employees and sub-contractors.
B. The Contractor is solely responsible for ensuring that all personnel and sub-contractors working at the Airport are fully conversant with all safe working practices and procedures and enforcement of those SWPP.
C. The Contractor shall put in place a procedure to allow SWPP to be updated and/or corrected. The Contractor shall submit all changed SWPP to City by EOB on the next business day once SWPP have been reviewed, updated and put into place.

8.4. CONTRACTOR EMERGENCY EVACUATION PLAN (EEP)

A. The Contractor shall submit an emergency evacuation plan to address the safe evacuation of personnel under the control of the Contractor no later than commencement of operations, and within five days of the plan being updated,

or as requested by the City.

B. The Contractor's emergency plan shall be properly coordinated with the City's emergency plan. The plan shall at a minimum include the following:

1. Natural disasters
2. Injuries to employees or persons under the control of the Contractor
3. Fires
4. Emergency evacuation of offices and work spaces, identifying primary and alternative exit points
5. Bomb threat procedures
6. Automobile accidents

C. The Contractor will ensure that its employees are trained and responsive in accordance with the Contractor Emergency Plan and Airport Policies and Procedures. In the event of an emergency, employees are instructed to call the Airport Emergency number at 303-342-4211.

TS-9. CONTINUOUS SERVICE PLANNING

9.1. CONTINGENCY PLAN

A. The Contractor shall submit the Contingency plan no later than 30 days after commencement of operations and within five days of the plan being updated or as requested by the City.

B. The Contractor shall provide the City with Contingency Plans for all ICS related system failures. Each plan shall as a minimum contain the following information;

1. Description of contingency item (electrical failure, mechanical failure, etc.).
2. Notification of required stake holders, names and contact information.
3. Detail all the different actions to be taken based on the severity of the failure.
4. Procedure for handling baggage during the outage.
5. Provide a representative in the Airport Emergency Operations Center when requested by the City.

C. Ensure an Event Report detailed in this document is provided when Contingency Plans are activated.

1. Provide a narrative regarding impact to ICS, Airport, TSA, and Airline Operations
2. Timeframe, beginning and end of event
3. Actions taken by the Contractor during the event
4. Equipment effected by event, add photos as required to provide a clear picture of the event
5. Quantity of misrouted baggage (bags to CBRA, etc.) as provided by the City or Airline
6. Quantity of misconnected bags (failed to load on aircraft) as provided by the City or Airline
7. Quantity of Delayed aircraft as provided by the City or Airline

9.2. CONTINUITY OF OPERATIONS PLAN (COOP)

A. The Contractor shall submit the COOP plan no later than 60 days after

commencement of operations, within five days of the plan being updated, following implementation of COOP based on lessons learned, or as requested by the City.

B. ICS O&M is deemed by DEN to be an essential service and the Contractor shall continue to provide services in accordance with this contract.
C. Minimum staffing levels shall be provided/ adjusted under direction from DEN.
D. During events that result in reduced operations (volume and/or operating hours) the Contractor shall utilize staff to perform.
E. The plan shall detail how the Contractor intends to implement full operations once the situation that initiated the COOP has ended.

TS-10. KEY PERFORMANCE INDICATORS (KPI'S)

10.1. GENERAL

A. The Contractor shall through the ICS Operations and Maintenance activities, ensure that the Key Performance Indicators (KPI's) defined herein are fulfilled. The KPIs are intended to encourage the contractor perform at a high level with continuous improvements. KPI's provide a simple measuring system to evaluate the performance and quality of the operation and maintenance activities provided by the Contractor. Failing to meet KPIs may result in deductions in monthly payments as defined in § 10.10 below.
B. Baggage jams, emergency stop activations, ICS fencing/ gate access events and maintenance call requests shall be attended to and equipment shall be returned to service within five (5) minutes of the system reporting the condition.
C. Impact to ICS operations shall be minimized when the Contractor is requesting access to the ICS within the fenced area.
D. Provide at least minimum staffing levels at all times.
E. Issue reporting details as required by this specification.
F. Ensure that the ICS operates and is configured to ensure all baggage is screened in accordance with the description of operation and TSA requirements for screening of baggage.
G. Any operations involving bags missing connections with aircraft and/or aircraft being delayed, shall be recorded by the Contractor and reported to the City within four (4) hours of the incident being completed. An event report shall be submitted no later than 12:00 PM on the next business day.
H. Refer to § 10.10 below for deductions to the contract fee that may apply for non-performance or substandard performance of the Contractor.

10.2. FAILURES

A. ICS equipment which fails (cannot transport baggage anymore) during operations due to unexpected damage shall be repaired within two (2) hours of the condition becoming a stoppage requiring implementation of fallback methods.

    1. Conveyor components which fail during operations shall be repaired/replaced within one (1) hour of the condition becoming a stoppage requiring implementation of fallback methods.
    2. Control and power distribution components which fail during operations

shall be repaired/replaced within one (1) hour of the condition becoming a stoppage.

3. ICS cars which become non-operational shall be repaired and returned to service/ operations within 30 days. At no time shall more than five (5) cars shall be non-operational (excluding cars under active scheduled maintenance).

10.3. AVAILABILITY

10.3.1. GENERAL

A. Availability shall be calculated based on any equipment being available for service during operations with the exception of;

1. Equipment that is scheduled for downtime (EQsdt).
2. Maintenance work that can be completed without affecting the ICS's ability to meet the demand imposed upon it by operations (Msdt).

B. Scheduled Operating Time SOT is equivalent to the amount of time that the equipment is required to be in service less the items identified above.

1. Daily availability would be equivalent to (1440 minutes – (EQsdt + Msdt)).
2. Monthly availability for a 30-day month would be equivalent to (30 days * 1440 minutes – (EQsdt + Msdt)).
3. Annual availability would be equivalent to (365 days* 1440 minutes – (EQ_{sdt} + M_{sdt})).

C. Removing any portion of the ICS from operation in order to perform maintenance whether scheduled or unscheduled which results in dieback, bags mis-connecting as a result of ICS delays (which could have normally connected) and/or aircraft delays (in order to ensure bags connect) shall be regarded as NOT meeting availability.

10.3.2. CALCULATION

Figure 3, Availability Calculation

$$\text{Availability \%} = \frac{(\text{scheduled operating time}^{soT} - \text{downtime}) * 100}{\text{scheduled operating time}^{soT}}$$

A. Availability shall be calculated per sub-components defined in the table below.

Item	DT/Day	DT/Month[1]
MES	15 minutes (98.95%)	60 minutes (99.86%)
$CBRA_{positions}$	2 positions per CBRA @ max. 60 minutes each. (99.65%)	8 positions per CBRA @ max. 60 minutes each. (99.95%)
$Track_{byMod}$[3]	15 minutes (98.96%)	60 minutes (99.86%)
$Load/Unload_{byMod}$[2]	15 minutes	60 minutes

	(98.96%)	(99.86%)
ICS Cars[4.]	2 cars per day (98.75%)[5]	5 cars days per month (96.88%)5
Servers[6]		21 minutes, 40 seconds per month (99.95%)

1. Month is defined as calendar days.
2. Where a module has more than one (1) load or one (1) unload station the SOT shall be adjusted accordingly for the module based on the number of load/ unload stations.
3. Track is unavailable to process cars, includes complimentary systems (MCP's, inductive power, network, leaky wave WiFi, etc.). Includes all equipment in maintenance area.
4. Car shall mean an individual asset. Car which is not available for commercial operation outside of the scheduled maintenance routine;
   OR following scheduled maintenance the car cannot be returned to commercial operation.
5. Percentage calculation varies based on the total fleet size, Figure 3, Availability Calculation) above is based on a fleet size of 160 cars.
   Examples
   With a fleet size of 50 cars, the daily percentage is equivalent to 96.00% (1-(2/50) , the monthly percentage is equivalent to 90.00% (1-(5/160).
   With a fleet size of 100 cars, the daily percentage is equivalent to 98.00% (1-(2/100) , the monthly percentage is equivalent to 95.00% (1-(5/160).
   With a fleet size of 160 cars, the daily percentage is equivalent to 98.75% (1-(2/160), the monthly percentage is equivalent to 96.88% (1-(5/160).
6. No more than 1 unplanned failure within a 3-month period.

B. The following is intended as an example only and may not represent the actual system;

	Daily					Monthly (30D)				
Location	Limit	SOT	Qty	DT	Av%	Limit	SOT	Qty	DT	
MES	98.95%	1440		8	99.44%	99.86%	43,200		40	99.91%
CBRA-E	99.65%	34560	2	57	99.84%	99.65%	1036800	7	140	94.78%
CBRA-W	99.65%	34560	4	61	99.82%	99.65%	1036800	9	189	93.28%
Track-1E	98.96%	1440		39	97.29%	99.86%	43,200		39	99.91%
...										
Track-2W	98.96%	1440		16	98.89%	99.86%	43,200		66	99.85%
Track-3W	98.96%	1440		0	100.00%	99.86%	43,200		0	100.00%
Load-1E	98.96%	2880		10	99.65%	99.86%	86400		21	99.98%
Load-2E	98.96%	1440		8	99.44%	99.86%	43200		65	99.85%
...										
Load-3W	98.96%	1440		16	98.89%	99.86%	43200		33	99.92%
Unload-1E	98.96%	2880		0	100.00%	99.86%	86400		0	100.00%
ICS Cars	98.51%		160	2	98.75%	96.27%		160	5	96.88%

10.3.3. MINIMUM SYSTEM AVAILABILITY

A. The Contractor shall be deemed to have failed to meet the KPI performance requirements of the contract if the Contractor fails to meet or exceed any of the availability requirements defined above.

10.4. MANUAL BAG IDENTIFICATION (MES OPERATION)

A. All personnel performing MES operation shall be properly trained in the use of the MES and proficient in handling all baggage arriving/ departing from the MES including handling of problem bags.
B. Bags sent to the manual encode station shall be encoded in the most efficient procedure available.
C. Every bag arriving at the bag identification point shall be dispatched within 30 seconds. Assignment as a problem bag shall be the last resort based on the operator being unable to identify the responsible airline (no tag).
D. Special conditions (e.g. hand-written bag tags) shall be recorded by the Contractor.
E. Upon notification that MES location will be changed (for example from Mod 1 East MES to Mod 1 West MES), the new MES location shall be active within 5 minutes. For availability calculations, after a time of more than 5 minutes the MES is identified as unavailable until the moment the new MES location is activated.

10.5. TRACKING ACCURACY

10.5.1. GENERAL

A. Tracking performance shall exceed ninety-nine-point nine five percent (99.95%) of all bags being processed over a twenty-four (24) hour period.
B. Bags lost in tracking can be identified as;

1. The total number of bags which received valid tracking information and was routed through MES due to a tracking error.
2. Malfunction of the tracking interface will count against the bags lost in tracking accuracy.

10.5.2. CALCULATION

Figure 4, Tracking Performance Calculation

$$\text{Tracking Performance \%} = \frac{(\text{Total Bags loaded} - \text{Bags lost in tracking}) * 100}{(\text{Total bags loaded})}$$

10.6. MEAN TIME TO REPAIR (MTTR)

A. MTTR analysis shall commence from when equipment goes out of service until equipment is returned back into service.
B. The Contractor shall report to the City with information supporting MTTR for the following components as a minimum;

1. ICS car (complete)
2. ICS car controller
3. Fencing/gate access system
4. Wi-Fi, including all components
5. BSD

6. Motor and/or reducer/gearbox change
7. VFD replacement

C. Provide the following details;

1. Reporting period and date
2. Quantity of events
3. Maximum, minimum and average time to perform the work (hh:mm)

10.7. OPERATION

A. The Contractor shall ensure that all operational activities are performed in accordance with the Contract. Should the Contractor fail to perform the required operational activities, penalties defined in § 10.10 below may apply.

10.8. MAINTENANCE

A. All maintenance performed under this contract shall be categorized as one of the following items:

1. Preventive Maintenance (PM)
2. Predictive Maintenance (PdM)
3. Scheduled/Corrective Maintenance (CM)
4. Unscheduled/Emergency Maintenance (EM)

B. The Contractor shall ensure that all maintenance activities are performed in a timely manner. Should the Contractor fail to perform the required maintenance, penalties defined in § 10.10 below may apply.

10.9. FAILURE TO MEET KPI

A. Should the Contractor fail to meet any KPI within a calendar month, the Contractor shall provide the City a written explanation detailing the reasons why the Contractor was unable to meet the KPI. In addition, the Contractor shall provide the City with a written proposal detailing what corrective actions the Contractor will take in order to meet the KPI's identified in this document.

B. Should the Contractor fail to meet any KPI, the City may at the City's sole discretion deduct from the Contractor's invoice an amount equivalent to the penalties according to § 10.10 below.

C. Should the Contractor fail to meet KPI's due to an error on the part of the Contractor, their employees, sub-suppliers or other persons under the immediate direction of the Contractor, which results in baggage not being screened, baggage that fails to load on an aircraft and/or aircraft being delayed (so as to allow baggage to load on departing aircraft), the City at its sole discretion may deduct from the Contractor's invoice according to § 10.10 below in addition to any penalties imposed by lawful government agencies.

10.10. KPI DEDUCTIONS

10.10.1. GENERAL

A. The Contractor acknowledges that its services under this Contract require handling and accounting for mission critical equipment and services for the airlines and passengers at the Airport, and therefore the highest standards of competence, integrity, reliability and courtesy are required in the performance

of the Contractor's duties hereunder for the protection of the City's revenues and delivery of quality service to the public at the Airport. Therefore, it is agreed that deviations below the standards of performance required under this Contract may result in deductions from the compensation payable for such services, as described below.

B. Accordingly, the City agrees to a temporary waiver of performance deductions and non-essential reports for up to 60 days from the ICS being used for live operation – with a review at 30 days after the system goes live, however should there be a decline in service, the City shall, in its sole discretion, exercise the right to revert all measures back to their original form as defined in the technical specifications.
C. For any month where the Contractor does not fulfill the requirements of this Contract, the City reserves the right to assess penalties and deduct sums from the Contractor's monthly invoice.
D. Deductions which the City elects to impose on the Contractor in its sole discretion shall not exceed 10% of the Contractor's monthly operations and maintenance fee. In the case of the operations and maintenance fee being reduced due to staffing deficiencies as mentioned in Section 6.6 above, the 10% cap will be based on the invoiced amount. An example is provided below:

    1. When normal operations and maintenance fee of $100,000 is reduced by $1,000 due to staffing deficiencies, the monthly cap shall be 10% of $99,000 ($9,900).

10.10.2. PAYMENT DEDUCTIONS

Figure 5, Payment Deductions

Incident	Deduction	Remark
Failure to address staff vacancies within 30 calendar days.	USD 100 per calendar day, per person	On day 31 the penalty applies.
Unauthorized tampering with the ICS computer system	USD 2,000 per occurrence	
Failure to complete Preventive Maintenance (PM) inspections within required time frame	USD 50 per occurrence. USD 100 per each additional day the PM is not completed.	
Failure to perform scheduled Corrective Maintenance (CM) within the required time frame	USD 50 per occurrence plus USD 100 for every day that the corrective maintenance is not completed	
Failure to implement fallback operational procedures on time	USD 500 per occurrence	
Failure to address bag jams, E-stop conditions, Maintenance Calls and fence/gate access events on time	USD 25 per occurrence	
Penalty for each unscreened bag bypassing CBRA due to improper operation, maintenance or configuration of the ICS by the Contractor	Any fee/ fines imposed on the City shall be reimbursed by the Contractor	This penalty is in addition to recovery of any fines and/or penalties imposed on the City.

Incident	Deduction	Remark
Penalty for not meeting System Availability	USD 500 per Month	For each occurrence, for the minimum criteria defined § 10.3.3 above is not met.
Penalty for not having replacements spare parts on site during equipment failure	2x equivalent USD of component being replaced, minimum USD 100	For each part not on site for replacement.
Failure to maintain minimum in-service fleet (defined as fleet size – 5 cars)	USD 50 per day per vehicle	

TS-11. OPERATIONS

11.1. GENERAL

A. The Contractor shall operate all portions of the ICS in an efficient and safe manner from the point where baggage is loaded into the ICS to the final point where the bags are unloaded, inclusive of all ICS equipment between load/unload areas and TSA inspection areas.

B. The Contractor shall not in any way interfere with or obstruct the rights of the users of the Airport except as reasonably required in the performance of its obligations and functions hereunder or cause the ICS to be used for any improper or unlawful purposes.

C. The Contractor shall keep all sidewalks or passageways of stairways in front of, within or adjacent to the BHS, ICS and CBRA clear of obstructions except as reasonably required in the performance of its obligations and functions hereunder.

D. The Contractor shall ensure that operations personnel are stationed in areas within the ICS where personnel can adequately respond to operational problems maintaining KPI's.

E. The Contractor shall report any behavior of the ICS which deviates from the system design which results in unsafe, unsecure or inefficient operation to the Airport immediately. This shall include but not be limited to;

1. Common faults with cars
2. Consistent fencing/gate access issues
3. Reduced performance

11.2. OPERATIONAL TASKS

11.2.1. GENERAL

A. The Contractor shall be responsible for providing the following services;

1. Monitoring system operation and performance
2. Assigning personnel as required to attend/resolve system events
3. Updating sortation configuration
4. Coordinating updates to carrier/airlines make-up assignments
5. Collecting data and distributing to Stakeholders as required and/or as requested
6. Assigning personnel to perform maintenance

B. The Contractor shall provide labor as required to support fallback operations.

11.2.2. STANDARD OPERATING PROCEDURES (SOP)

A. The Contractor shall develop, document and maintain Standard Operating Procedures, approved by and provided to the City, including but not limited to;

1. ICS car recovery procedure
2. ICS fencing/gate access procedure
3. MES staffing and encoding procedure
4. Problem bag procedure
5. Inserting of bags from maintenance area
6. Training of new personnel
7. LEO/threat containment procedure
8. Jam clearing procedure
9. Crossing equipment
10. Working on operational equipment
11. Belt tracking, alignment & tension
12. Other equipment alignment and tension
13. Motor/reducer inspection/replacement
14. Sensor calibration and/or adjustment
15. VFD parameter setting
16. PLC redundancy switch-over
17. Lock-out/tag-out procedure
18. Control room operation
19. Radio communications
20. Fault analysis
21. Report generation

11.2.3. COORDINATION WITH STAKEHOLDERS

A. The Contractor shall only follow direction from the City. Any requests shall be brought to the City's attention.

B. Provide support and logistics to the City for coordination with Stakeholders including, but not limited to;

1. Airlines/Carriers
2. TSA
3. Third parties, who perform duties/tasks in support of ICS operations including but not limited to, EDS operation and BSM operation
4. The City and its assigned representatives

C. The Contractor shall coordinate ICS operations with airport construction activities in progress from time to time.

D. The Contractor shall work with all responsible parties to address scheduled shutdowns.

11.3. INSPECTIONS

A. Perform inspections of all portions of the ICS at the end of each daily operation to verify that no baggage has become stranded in the ICS and failed to load/unload.

B. The Contractor shall perform periodic checks of the ICS in areas not manned by Stakeholders and as necessary manually handle stranded baggage and move such bags to an operational area of the ICS for proper processing. The

Contractor shall take appropriate actions to prevent the occurrence of stranded bags at the end of daily operations.

11.4. MANUAL BAG HANDLING

A. The Contractor shall perform all necessary manual handling of baggage as a result of improper operation of the ICS including but not limited to any of the following;

1. Bags that become stranded (due to equipment failure/no longer available)
2. Bags that have fallen off equipment
3. Bags that have become trapped (straps, snags or other)
4. Bags that need relocation in connection with implementation of or execution of fallback modes

B. During emergency operations, when parts of the ICS are out of service, the Contractor is expected to assist with manual movement of baggage.

11.5. INDIVIDUAL CARRIER SYSTEM (ICS)

A. The Contractor shall respond and resolve all unexpected ICS stoppages within five (5) minutes.
B. The Contractor shall respond and resolve all bags fallen off the ICS cars within five (5) minutes of notification. The Contractor shall create a detailed report for every bag that has fallen off an ICS car to identify common problems. Include the ICS car ID, location, type of bag (material, shape, size); include pictures of the bag in the report.
C. Special attention shall be given to unauthorized fencing/gate access. The Contractor shall immediately dispatch personnel to investigate.

11.6. RECORDS

A. Keep records of and provide a written report of all stranded, trapped or bags found fallen off the equipment to the appropriate Carrier/Airline.
B. Provide a written report of all areas which require modifications, to the City prior to commencing any modifications to the ICS which are required to address stranding of baggage.
C. Prepare and submit all regular reports defined herein.

11.7. MEETINGS

A. The Contractor shall provide appropriate management and technical personnel to attend meetings required or appropriate for the orderly and efficient operation and maintenance of the ICS, including meeting with the City, Airlines/Carriers and others as may be reasonably required.
B. The Site Manager shall attend a scheduled weekly meeting (to be determined by The City) to update the City of the status of the ICS. The Contractor shall be prepared to supply information detailing the performance of ICS operation and maintenance.

11.8. BAG SECURITY SCREENING

A. The Contractor shall comply with all TSA regulatory requirements.
B. The Contractor shall ensure that all baggage entering any part of the ICS is properly screened in accordance with TSA regulatory requirements, which are

subject to change, before being transported to cleared bag outputs. Under no circumstances shall the Contractor allow baggage to exit the ICS and bypass any TSA mandated screening.

C. Should an incident occur where baggage exiting the ICS is not properly screened, the Contractor shall take immediate steps to;

1. Ensure that no additional bags exit the ICS without being screened. If necessary, the effected sub-systems, which do allow bags to by-pass TSA screening, shall be stopped.
2. Immediately alert the City and local TSA by phone or in person of any situations where the Contractor knows or believes that baggage may have exited the ICS and not been properly screened.
3. The Contractor shall follow up all incidents where baggage exiting the ICS has not been properly screened with an interim written report to the City within four (4) hours of the situation becoming known to the Contractor. A final written report shall be submitted to the City no later than 12:00 PM on the next business day detailing the following;

    a. All actions, activities and/or events taken by the Contractor to identify the cause(s) leading up to baggage not being screened.
    b. All actions taken by the Contractor to mitigate the impact.
    c. All actions taken by the Contractor to ensure that the incident cannot be repeated.
    d. Any changes to procedures required to ensure that the incident cannot be repeated.
    e. Any changes in ICS operation required to ensure that the incident cannot be repeated.
    f. Persons notified.

11.9. CONTROL ROOM ACTIVITIES

11.9.1. GENERAL ACTIVITES

A. Remote control room duties in lieu of a 24/7 person stationed on site in the approved control room (e.g. via VPN connections) shall not be permitted.
B. The Contractor is responsible for manning the ICS Control room during all operations of the ICS for the continued monitoring of the complete ICS, and dispatching personnel to correct any malfunction.
C. The control room may be shared with others, including the TSA, who are performing a critical security function. Information and the activities in the control room are considered Security Sensitive and are covered by SSI (49 CFR parts 15 and 1520).
D. The use of electronic devices not required for ICS operations, consuming food/drink and general distractions unrelated to ICS operations is prohibited.
E. It is the Contractor’s responsibility to ensure the proper cleaning and housekeeping of the work space and all ICS equipment in the control room.
F. It is the Contractor’s responsibility to ensure that Control Room Operators are trained in the proper use of all control room equipment and user interfaces to properly and efficiently monitor ICS operation/performance.
G. The Contractor shall take appropriate actions in a timely manner to ensure that the minimum performance requirements of the ICS are met and maintained.

H. General Housekeeping such as files, folders, organization of ICS items shall be kept in an organized and orderly fashion.
I. Monitoring the graphic status displays for security of baggage inputs and dispatching personnel to any areas, which have open security access or have been accessible without the operation of the ICS equipment.
J. Monitor the performance of the CBRA operation and coordinate with TSA (staffing, baggage flow based on demand, etc.).
K. Dispatching operations personnel to operational issues within the ICS (jams, faults, stoppages, fencing/ gate access, etc.).
L. Any operational issue taking more than fifteen (15) minutes to resolve shall be fully documented in the required event log reports provided to the City.
M. Observe ICS operation for unexpected events, dispatch and direct personnel to areas which could indicate unexpected operation and/or delay baggage delivery to the make-up area.
N. Follow up of all operational issues within three (3) minutes of the event and provide an update every subsequent five (5) minutes or as requested thereafter to the BHS Program Administrator (and/ or designated contacts) and Airline(s) affected by the issue until the issue is resolved.
O. When equipment has been taken out of service and baggage has been routed through alternative means, progress shall be checked every thirty (30) minutes until equipment has been returned to service.
P. Coordination and implementation of fallback strategies. The Control Room Operator shall be properly trained so that in the event of the implementation of any fallback strategy, be capable of implementing and coordinating the fallback strategy and communicating with all parties affected by the strategy.
Q. Collect and compile data for reporting purposes.
R. Coordinate with Maintenance personnel as required to ensure equipment in immediate need of maintenance is properly supported or requires scheduled maintenance during system downtime.
S. The Contractor shall be the primary point of contact for coordination and implementation of any fallback operations in the ICS.
T. Collect/ compile information for reporting purposes.
U. General cleaning of the ICS Control Room space and equipment.
V. Replenishing of printer consumables, etc.
W. Check and verify proper operation of all external and internal interfaces, including but not limited to;

    1. BSM's (from Sort controller for MES operation).
    2. Time synchronization
    3. Baggage sortation/ Final destination assignments.
    4. Flight schedules

X. If the Contractor identifies a problem with a specific interface the Contractor shall take the appropriate action, including but not limited to;

    1. The Contractor is responsible for contacting the necessary support personnel/third parties and initiating corrective actions.
    2. The Contractor is responsible for coordinating with the Carrier/Airlines/Stakeholders affected by the failed interface and initiating

actions to minimize impact to ICS operations.

3. The Contractor shall report any incidents, which effect Carrier/airline operations as soon as the Contractor has established that the problem cannot be immediately resolved.
4. Followed up in writing to the City no later than 12:00 PM on the next business day in the event report.

Y. Provide a detailed task list in both control rooms of all duties and required tasks including but not limited to the following list.

1. Startup procedures to be performed each calendar day.
2. Event handling.
3. Shift hand-over/ pass-down details.
4. Record keeping requirements (details and format).
5. Telephone/ radio/ communication etiquette.
6. End-of-day procedures to be performed each calendar day.

11.9.2. CONCOURSE A CONTROL ROOM

A. The Contractor shall perform ICS Control Room Operations from the Terminal Control Room as normal day-to-day operations, in close coordination with BHS operations, TSA and stakeholders.

B. The Contractor shall perform ICS Control Room Operations from the Terminal Control Room as normal day-to-day operations, in close coordination with BHS operations, TSA and stakeholders.

C. The Contractor shall continuously monitor the status of equipment in the Concourse A Control Room by performing operations on a shift basis at least once per week. The Contractor shall keep detailed records of all operation performed from the Concourse A Control Room and provided to DEN upon request.

D. During Terminal Control Room events resulting in loss of service, the Contractor shall relocate and operate from the Concourse A Control Room until such time as service is restored in the Terminal Control room. Coordinate relocation with DEN, BHS operations, TSA and stakeholders.

E. The Contractor shall relocate ICS Control Room operations to the Concourse A Control Room under direction from DEN.

11.9.3. OPERATIONAL COORDINATION

A. The Contractor is responsible for the coordination between the ICS operations, Stakeholders and other third parties involved including but not limited to the following.

1. Airport Operations
2. TSA
3. Airlines/Carriers, (subject to frequent changes)
4. Service baggage handlers/Skycaps
5. Airport Maintenance.
6. Other BHS O&M Contractors

B. The Contractor is responsible for contacting Airport Maintenance Control Center regarding any abnormal environmental issues (high temperatures, water leaks,

etc.) in the ICS control and/or ICS Server rooms.

C. The responsible party shall be immediately contacted of an abnormal environmental condition becoming known to the Contractor. The Contractor shall follow up with the responsible party, who was assigned the task to perform the repair every fifteen (15) minutes until the event has been attended to. Once satisfied that the issue is being addressed the Contractor shall follow up with the responsible party every thirty (30) minutes until resolved.

11.9.4. RECORD KEEPING

A. The Contractor shall keep good records of all operational events detailing the following;

1. Operational Event Recording
2. Description of the event
3. Time event identified and resolved
4. Time and status for follow-up checks
5. Personnel involved
6. Fallback Operations

B. The Contractor shall provide a detailed report of the situation to the City no later than 12:00 PM of the next business day.

11.10. BAG JAM CLEARING

A. The Contractor shall furnish bag jam clearing services in a timely, safe and efficient manner throughout the ICS at all times while the ICS is in active operation.

B. The objective for clearing baggage jams and returning equipment back into service shall be completed within five (5) minutes.

C. The Contractor shall be responsible for ensuring personnel acknowledge notification to the Control Room Operator using a two-way radio (or other approved) communication device.

D. The Contractor shall keep detailed written records including photographic evidence of any Jam which cannot be cleared, and equipment cannot be returned to service (e.g. broken due to Jam condition, etc.) within the defined time frame above.

1. Pictures of JAMs shall clearly show the reason why a JAM occurred and why it was not possible to clear the Jam within the objective above.
2. Pictures shall be identified based on the asset name where the JAM occurred and the Date/Time of the JAM in such a manner that the location and time of the JAM is easily identifiable.

E. At the completion of each month the Contractor shall present all pictures of JAMs exceeding the objective above to the DEN for review and approval.

11.11. MANUAL ENCODING

A. The Contractor shall provide staffing for the manual encoding operation during all operational hours.

B. The manual encoding area shall be kept in a clean and orderly manner, the area shall NOT be used for the storage of equipment and/ or materials including personal items.

C. The manual encoding area is a no food/ no drinks environment and shall be enforced by the Contractor.
D. Baggage arriving for manual encoding shall be processed immediately. Any bag which cannot be processed typically within thirty (30) seconds shall be dispatched to the problem bag area and handled by the ICS Contractor as a problem bag. The ICS Contractor shall assign personnel to identify the airline responsible for the bag, if an airline cannot be identified the Contractor shall transport the bag to DEN Lost & Found in a timely manner.
E. A detailed record shall be kept in the daily pass down log of all problem bags including but not limited to the following information;

1. Baggage tag ID (if known)/ manual tag
2. Time(s) handled
3. Airline/ Lost & Found
4. Location delivered to
5. Photograph(s), electronic pictures show general representation of the bag and any specific identification marks/ damage.

11.12. RESPONSE TIMES

A. The Contractor shall maintain the following response times identified in this specification including but not limited to;

1. Time to respond to a stranded car, clear the track and allow car/ baggage movement to resume. Five (5) minutes).
2. Time to respond to a stranded bag, allow baggage movement to resume. Five (5) minutes).
3. Time to respond to a bag JAM, refer 11.10 above (Bag JAM Clearing).
4. Time to respond to a bag parked at MES, refer 10.4 above (Manual Bag Identification (MES Operation)).

TS-12. INDIVIDUAL CARRIER SYSTEM MAINTENANCE

12.1. GENERAL RESPONSIBILITIES

A. The Contractor shall maintain all portions of the ICS from the point where baggage is loaded into the ICS to the final point where the bags are unloaded, inclusive of all ICS equipment between, including load/unload areas and TSA inspection areas. All maintenance activities shall comply with the latest Operation and Maintenance Manuals at a minimum.
B. The Contractor shall ensure that maintenance personnel are stationed in areas within the ICS where personnel can adequately perform preventive maintenance as well as any corrective maintenance activities required to respond to operational problems in order to maintain the defined KPI's.
C. The Contractor is responsible for keeping on site all OSHA required equipment to safely operate and provide the workforce with the appropriate PPE necessary to maintain the ICS, including but not limited to the following required safety equipment.

1. Eye protection
2. Harnesses
3. Fall arrest/tie-offs

4. Hard hats/Bump caps
5. Safety shoes
6. Ear plugs or ear protection
7. Safety cones
8. Eye wash stations
9. Respirators
10. Hand cleaner
11. Hand protection
12. Protective clothing
13. First aid kit
14. Face masks

D. The Contractor is responsible for all mechanical and electrical areas identified as a part of the ICS (refer to 4.2 above).
E. The Contractor is responsible for development of a scheduled Preventive Maintenance Plan.
F. The Contractor is responsible for all maintenance tasks scheduled and non-scheduled.
G. The Contractor shall develop, document and maintain Standard Maintenance Procedures including but not limited to the following items listed below;

12.2. STANDARD MAINTENANCE PROCEDURES (SMP)

12.2.1. GENERAL

A. The Contractor shall develop, document and maintain Standard Maintenance Procedures, approved by and provided to the City, including but not limited to;

1. ICS car maintenance scheduling procedure
2. ICS car maintenance procedure
3. ICS car visual checks and performance tests
4. ICS track visual checks and performance tests (incl. maintenance area and ICS lift)
5. Load/Unload stations visual checks and performance tests
6. MES visual checks and performance tests
7. ICS fencing/ gate access visual checks and performance tests
8. Replacement of Motor/reducer
9. Belt replacement
10. Replacement of electrical components
11. Repair and/or replacement of tracking sensors such as shaft encoders, photocells and other related components.
12. Lubrication schedules and procedures
13. Equipment adjustment procedures
14. Equipment testing upon completion of repair and/or adjustments

B. Based on the original ICS Supplier's maintenance manuals, the Contractor shall review on an as-needed basis the Maintenance Manuals and shall in coordination with the City and Stakeholders, recommend updates and revisions to the manuals and procedures to improve on safety, efficiency, quality control/ assurance, equipment lifetime, cost of operation or other potential benefit to the City. Any recommended change shall be approved by the City prior to

implementation.

C. The Contractor is responsible for maintaining legible copies of electrical schematics in MCPs at all times.
D. The Contractor shall provide and maintain all necessary radios, tools, vehicles, lifts, scaffolding, ladders, golf carts, battery charging stations, chargers, etc. required to effectively maintain and operate the ICS. A list of the City owned equipment shall be provided to the Contractor at commencement of this Contract. The Contactor shall provide a list of additional tools required at the time of bid to be provided by the Contractor and reviewed/agreed with the City.

12.2.2. CLEANING ACTIVITIES

A. General cleaning of all ICS equipment including the areas immediately around and under ICS equipment shall be performed by the Contractor.
B. Areas with ceilings above occupied areas (offices) that constitute a potential fire hazard shall be inspected and cleared of all debris during preventive maintenance tasks.
C. Thorough cleaning of all barcode scanner array heads on a daily basis.
D. The Contractor shall correctly dispose of used materials that are deemed hazardous in accordance with the City rules and requirements.
E. The Contractor shall keep the office and maintenance space in a clean, and orderly manner at all times. Office furniture and equipment will at all times be presentable and in safe working order. Broken, defaced or unnecessary items should be promptly removed and, if appropriate, replaced at no cost to the City.
F. The Contractor shall keep the spare parts inventory storage areas clean and orderly.
G. The Contractor shall not allow rubbish or trash to accumulate in its employees' work areas.
H. Cleaning activities shall be performed no less than once every month.
I. Cleaning activities shall be performed so as not to impact airline operations.
J. Cleaning activities shall include removing debris, stickers, etc. which accumulates on the ICS equipment, in addition to general cleaning.
K. The Contractor will not be reimbursed for any cleaning costs identified above.

12.2.3. LIGHTING

A. Lighting fixtures within the ICS areas shall be maintained by the City. At any time during the life of the Contract a light fixture is determined to be broken, the Contractor is responsible to identify the location of the broken fixture and coordinate with the City for the repairs to be scheduled so as not to interfere with ICS operations.

12.3. MAINTENANCE INSPECTIONS ACTIVITIES

A. The Contractor shall perform regular inspections to determine the status of all components within the ICS and to ensure that such equipment is compatible with the safe and efficient operation of the ICS.
B. Daily inspections shall be performed throughout the ICS to identify proper operation and adjustment on the entire system. The intention of this requirement is that the City requires the Contractor to inspect, observe and monitor every operating component in the ICS for potential failure and/or adjustment on a daily basis.

C. Records shall be kept properly detailing that scheduled inspections were performed, the labor performing the inspections, and man-hours required to perform the inspection by the Contractor.
D. Inspections shall be performed as required by the approved maintenance plan.
E. The Contractor shall promptly inspect any equipment deemed to have failed and shall immediately repair or replace any equipment, assembly or component in order to return the equipment to service.
F. Equipment/components with long inspection intervals, deemed to be in imminent threat of failure before the next inspection, but with a reasonable useful life shall have the inspection interval temporarily adjusted so that the best cost benefit is provided without actual failure during operation.
G. The Contractor shall be mindful of the overall costs of components. Components should be removed and/or rebuilt/refurbished whenever practical and only replaced with a new spare part at the end of its useful life prior to actual failure.
H. The Contractor shall keep an adequate supply of consumables on site to perform all maintenance activities.
I. The City shall have the right to have others repair or replace any components or assemblies that the City deemed to be inadequately or improperly maintained at the sole discretion of the City, all such costs to be the responsibility of the Contractor.
J. The Contractor shall properly coordinate all maintenance and equipment being taken out of service due to scheduled or unscheduled maintenance with all Stakeholders to ensure that maximum possible service can be provided to the Carriers/Airlines at all times.
K. Any equipment taken out of service for scheduled maintenance inspections shall not;

    1. Force bags to recirculate
    2. Route baggage to a higher screening level (CBRA)

12.4. PREVENTION OF BAG DAMAGE ACTIVITIES

A. The Contractor shall immediately undertake corrective actions and repairs to any part of the ICS system that causes damage to baggage in an effort to prevent any further damage to baggage, including but not limited to;

    1. Temporary removal of equipment from service until remedial actions can be completed.
    2. Routing baggage around the equipment/area causing damage.
    3. Performing periodic inspections of the equipment to ensure baggage is not being damaged.
    4. Assigning the Contractor’s personnel to be stationed in the immediate area so as to manipulate baggage and ensure baggage does not become damaged in the event that the equipment/area cannot be taken out of service due to Carrier/Airline schedules, equipment availability, other routes being unavailable and/or baggage load.

12.5. MAINTENANCE COORDINATION

A. The Contractor shall, as required provide support to other parties, who maintain

parts of the Airport on behalf of stakeholders including but not limited to;

1. Computer systems
2. CCTV
3. HVAC, maintenance
4. Lighting, change/replacement
5. Sprinkler, maintenance, testing
6. Electrical services

12.6. MAINTENANCE TOOLS AND EQUIPMENT

A. The Contractor is responsible for providing tools and vehicles necessary to complete all maintenance tasks not provided by the City. The Contractor shall maintain all such tools and vehicles provided as part of the maintenance program including but not limited to;

1. Radios and battery chargers
2. Scissor lifts
3. Hand tools
4. Power tools
5. Golf carts and battery charging stations
6. Trucks
7. Forklifts
8. Shop equipment
9. Office equipment
10. Spare parts store equipment
11. O&M computer servers/workstations
12. Test instruments
13. Special tools

B. The Contractor is required to keep all the City furnished and owned tools in good and safe operating condition, properly maintained and in good working order.

1. Any of the City provided tools, which need to be replaced shall be replaced with the same manufacturer of equivalent quality and usability at the Contractors expense unless the tool has reached end of life.
2. Replacement of tools by an alternative manufacturer shall only be done if the alternative tool is of equivalent quality and usability and only when approved by the City at the Contractor’s expense.

C. The Contractor shall report to the City of any City provided tool that has reached the end of its useful life and/or the cost of maintenance for a tool has become unreasonable or can no longer be maintained. A written summary report shall be provided to the City identifying the following.

1. The tool and an assessment of the tools condition
2. Current age of the tool
3. The reasons why the tool needs to be replaced
4. Previous costs associated with maintenance of the tool
5. Replacement tool being proposed

12.7. PREVENTIVE MAINTENANCE (PM)

12.7.1. GENERAL

A. The Contractor shall perform preventive maintenance tasks based on an agreed upon schedule in accordance with the OEM operation and maintenance manuals, and requirements of DEN. As a minimum, ALL equipment shall have preventive maintenance completed at least once every calendar month.
B. The DEN approved preventive maintenance plan shall be a detailed plan for performing PM tasks.
C. The Contractor shall submit to the BHS Program Administrator for review and approval the preventive maintenance plan within thirty (30) days of operations commencing and shall resubmit whenever the Contractor materially alters either the plan or schedule.
D. The Preventive Maintenance plan shall be single asset based. For the purpose of track segregation, physical sections of track shall be acceptable.
It shall not be acceptable to identify an entire line of track as a single asset, e.g. track transiting more than a single Terminal BHS module shall be broken into multiple assets no larger than the module.
E. The Contractor shall adjust the preventive maintenance plan (schedule and procedures) based on equipment usage, site conditions and/or under direction from the City, to ensure that equipment is properly maintained and not exposed to unexpected failure (refer 12.7.2 below).
F. The Contractor shall keep detailed records of all personnel and spare parts required to perform preventive maintenance tasks.
G. The Contractor shall report to the City on any equipment that has reached the end of its useful life and/or the cost of maintenance for a piece of equipment or an individual component has become unreasonably expensive to maintain or can no longer be maintained. A written summary report shall be provided to the City on an as-required basis.
H. All equipment whether in use or not in use shall have a PM/ inspection performed.
I. The Preventive Maintenance schedule shall be evenly distributed over the inspection period, e.g. similar quantities of monthly inspections shall be performed each day of the month.

12.7.2. ADJUSTMENTS TO MAINTENANCE SCHEDULE

A. Should the Contractor decide the OEM inspection timeframes are no longer appropriate based on equipment usage and age, the Contractor shall seek approval from the City to adjust the inspection schedule as necessary to ensure that equipment is adequately inspected. Examples of changes to PM Activities based on usage include but are not limited to the following;

    1. Environmental filters in MCP's, cabinets, control stations due to contamination.
    2. Equipment based on usage, (e.g. increased run time).
    3. Premature equipment failure.

B. The Contractor shall submit to the City any requested changes to the maintenance plan for approval by the City.
C. Modifications to the agreed schedule shall be properly documented including

improvement in availability and reported in writing to the City within seventy-two (72) hours of the changes. A follow-up report shall be issued in writing to the City confirming the expected improvement in performance shall be submitted with thirty (30) days of changes being implemented.

D. The Contractor shall properly document all changes made to the maintenance plan.

12.7.3. TIMELY COMPLETION OF PM INSPECTIONS

A. The Contractor shall ensure that all PM/inspections are completed as follows.

1. Daily PM/inspections, due the day assigned.
2. Weekly PM/inspections, within one (1) day of the PM/inspection becoming due.
3. Monthly PM/inspections, within three (3) days of the PM/inspection becoming due.
4. Quarterly PM/inspections, within five (5) days of the PM/inspection becoming due.
5. Bi-annual PM/inspections, within one (1) week of the PM/inspection becoming due.
6. Annual PM/inspections, one (1) week of the PM/inspection becoming due.
7. Travel based PM/inspections, within 1% of the interval not to exceed 100 miles,
   (e.g. if the interval is 200 miles, the PM/inspection must be completed within 2 miles of the PM/inspection becoming due; if the interval is 15,000 miles, the PM/inspection must be completed within 100 miles of the PM/inspection becoming due, etc.).

B. If an inspection is performed later than expected, the next required inspection shall be performed as if the inspection had been completed as scheduled.

12.7.4. INDICATORS FOR POTENTIAL EQUIPMENT FAILURES

A. The Contractor shall inspect all parts of the ICS and promptly initiate preventive action to correct any known defects including but not limited to;

1. Abnormal, intermittent and/or excessive noise
2. Abnormal, intermittent and/or excessive vibration including vibration effecting other equipment
3. Tracking issues of conveyor belting, at no time shall belting mis-track into conveyor side walls
4. Proper alignment of conveyor components
5. Leakage of lubricants, such leakage shall be promptly cleaned up and disposed of in accordance with the City, Local, State and/or Federal regulations. Contractor shall promptly notify the City of any spills listed in this Section A. 5.
6. Intermittent Wi-Fi connectivity.
7. Unusual or excessive wear and tear.
8. Issues with the engagement of pivot arms
9. If any of the above indicators identify a common pattern on multiple ICS cars, the Contractor shall conduct an analysis of the entire fleet. The analysis shall be shared with the Airport.

12.8. SCHEDULED CORRECTIVE MAINTENANCE (CM)

A. The Contractor shall schedule repairs to minimize impact on Airline/Carrier operations and correct any equipment or operational deficiencies discovered as a result of periodic inspections performed by the Contractor's personnel or the City's.
B. The Contractor shall minimize impact to any effected stakeholders by completing Scheduled Corrective Maintenance as follows;

1. When baggage operations have been completed for the day.
2. Equipment being repaired/ impacted by repair is no longer required by the stakeholder.
3. Stakeholder agrees to relocate to redundant equipment and repair does not affect redundant equipment.

C. Any item scheduled for corrective maintenance shall be completed within 72 hours of the event becoming known/ reported to the Contractor.

12.9. UNSCHEDULED CORRECTIVE MAINTENANCE (EM)

12.9.1. GENERAL REQUIREMENTS

A. The Contractor shall notify the City immediately when unscheduled corrective maintenance becomes necessary.
B. Unscheduled corrective maintenance shall be regarded as Emergency Maintenance (EM) following a failure or malfunction/ improper function of equipment in use by any stakeholder, irrespective of the impact on the stakeholder.

1. The Contractor shall immediately assign resources to address any unscheduled failure effecting operations without impact to other Contractor's duties.
2. Any unscheduled failure not affecting operations shall be resolved within four (4) hours

C. The Contractor shall coordinate all unexpected repairs with Stakeholders including Airlines/Carriers, TSA, TSA equipment maintenance contractor(s), City maintenance, City operations and third parties as necessary to ensure that any impact to others is properly communicated and minimized.
D. As necessary additional personnel shall be provided to complete corrective action and/or move baggage around the failure in order to minimize impact to operations.
E. During multiple EM failures, the Contractor shall prioritize work based on the greatest impact to operations. For example, the Contractor shall repair a faulty fence access system resulting in impact to a large portion of the ICS prior to working on an individual car fault.

12.9.2. CONTENTS OF REPORT FOR UNSCHEDULED EMERGENCY MAINTENANCE (EM)

A. Incorporate into the event report, refer to § 17.8.2 below for additional details.
B. The Contractor shall report all unscheduled emergency maintenance performed on equipment by the end of the business day and/or on demand as requested by the City. The report shall contain a detailed description detailing the

following;

1. Impact to Stakeholders
2. All personnel used to address the failure
3. Components replaced
4. Type and cause of failure
5. Maintenance history
6. Verification that daily inspections were completed on the day of the unscheduled emergency maintenance
7. Pictures of any damaged equipment
8. If a failed car is manually moved to a local ICS car removal point, report the following;
    a. the time when the ICS car failed
    b. the location where the ICS car failed
    c. the time when the ICS car was brought to a local removal point (portion of the track shut down)
    d. the location of a local removal point where the car was temporarily stored
    e. the time when the full system was returned to full operations
    f. the time when the ICS car was retrieved from the local removal point

12.10. ICS CARS

A. If resolving the unscheduled failure has a greater impact on operations than addressing the failure (e.g. retrieving a defect ICS car from an emergency removal location), it is acceptable to address the failure when demand levels allow to address the failure with no impact on airport operations.

12.11. GROUND VEHICLES

12.11.1. GENERAL

A. All vehicles operated within the terminal, access tunnels and/or Concourses shall be CNG or battery powered in accordance with City rules and regulations.
B. All Contractor vehicles and transportation equipment shall conform to all applicable rules, regulations, ordinances, city, state and federal laws, shall be maintained regularly as part of the Contractor's contract, shall at all times be in a safe condition, and shall present a good appearance acceptable to the City.
C. The Contractor shall provide all gas, maintenance, insurance, licenses, bonds, etc. for the vehicles.
D. All vehicles shall contain a company logo affixed on the sides of each vehicle. All vehicles shall be dedicated to this Contract only and shall be operable.
E. The Contractor shall detail a complete list of vehicles to the City in their proposal which are being provided by the Contractor to operate and maintain the ICS in an efficient and timely manner, including but not limited to;
    1. Golf carts
    2. Truck(s)
    3. Passenger vehicle(s)
    4. Lifts

12.11.2. PASSENGER VEHICLES

A. The Contractor shall ensure that all vehicles used in the operation and maintenance of the ICS shall be maintained in accordance with City requirements as if the vehicle is operated on a Public road.

12.11.3. FORK LIFTS AND SCISSOR LIFTS

A. The Contractor shall ensure that all fork-lifts and scissor lifts used in the operation and maintenance of the ICS are maintained and kept in a safe operating condition.

12.12. DOCUMENTATION

A. The Contractor shall promptly bring to the City's attention any errors/ deficiencies in City supplied documentation including but not limited to the following;

1. Electrical drawings including MCP prints
2. Mechanical layouts
3. Operations and Maintenance literature

B. The Contractor shall ensure that ALL MCP's have a complete and up-to-date copy of electrical drawings/ prints.
C. Any errors/ omissions identified in City supplied documentation shall be red-lined by the Contractor prior to being submitted for review. Red-lined documents shall be kept in the field until such time as the City has issued new updated documents or instructed the Contractor to revert back to the last approved version of the document.
D. The Contractor shall keep an accurate archive of all City supplied documentation in a secured space.
E. Due to the sensitive/ secure nature of the ICS, the Contractor shall not remove any City supplied documentation from the site, either hardcopy or in electronic form without the written approval of the City (document specific).
F. The Contractor shall follow all TSA SSI rules and regulations.
G. Upon termination of the contract;

1. The Contractor shall ensure that all City supplied documentation is transferred back to the City.
2. The Contractor shall not retain any copies of City supplied documentation without the written approval of the City.

12.13. RECYCLING

A. All ICS components/ equipment which becomes surplus/ scrap through the course of this contract shall be properly recycled through the City recycling dumpsters or as directed by the City representative.
B. The Contractor shall ensure that all recycling is performed in an environmentally friendly manner in line with government regulations.

12.14. THREAT HANDLING

A. Whenever a threat bag is routed to the threat containment area (ICS maintenance area), the Contractor shall be notified by the Control Room Operator and via active warning devices in the ICS maintenance area. The

Contractor shall ensure that Autover car parking positions are clear (remove from track or send back into service), then evacuate all personnel from the ICS maintenance area until an all clear (active warning devices are extinguished) has been issued by TSA/ LEO.

B. The Contractor shall coordinate all their work with TSA/ LEO/ Airport operations and follow all lawful directions provided.

TS-13. COMPUTERIZED MAINTENANCE MANAGEMENT SOFTWARE (CMMS)

A. The Contractor shall be responsible for providing, setting up, configuring, managing and maintaining a Computerized Maintenance Management System (CMMS), which shall be used throughout the duration of the Contract to manage, plan, and document maintenance and related activities of the ICS.

1. The Contractor shall utilize such CMMS to schedule and document all maintenance and repairs, initiate system work orders, manage system resources, track inventory for all parts of the ICS and related systems.
2. The CMMS shall be an integrated system to properly tack spare parts usage by asset for reporting purposes. Upon demand it shall be possible to determine from the CMMMS what spare parts have been used on an individual asset over a define period of time.
3. The Contractor agrees to populate and/or update the CMMS throughout the term of the Contract, as determined appropriate by the City
4. The CMMS shall be tested and operational thirty (30) days prior to operations commencing.

B. Asset Tracking

1. The CMMS shall track maintenance by individual assets. Examples include the following;
   a. A single ICS car
   b. A single conveyor
   c. Individual ICS track sections
   d. Equipment at each BIT (workstation, SVS interface)
   e. Equipment at each MES (workstation, hand-scanner, printer)
   f. Individual computer workstations
   g. Individual monitors
   h. Individual electrical panels (e.g. MCP, LCP, RIO, PDP, etc.)
   i. Individual network panels
   j. Individual Server racks
2. The CMMS shall keep maintenance/ asset data readily available for the entire period of the contract.
3. It shall be possible to review/ research data for an individual asset or group of assets for any period of time over the entire duration of the contract.

TS-14. SPARE PARTS

14.1. GENERAL

A. The City shall issue to the Contractor, the City's purchased Spare Parts as detailed in Appendix C - below (ICS Spare Parts Inventory). The Contractor shall

as a minimum maintain the City's issued spare parts to the same inventory levels provided by the City, ensuring components used to maintain the ICS are promptly replaced to ensure adequate spare parts are on hand at all times for replacement of parts.

B. The Contractor shall be responsible for procurement and management of any spare parts and components not included in the City spare parts inventory at the outset of this Contract in order to properly maintain and operate the ICS. The cost of Spare Parts will be reimbursed by the City on a monthly basis based on received and delivered materials with no markup. All spare parts purchased and received shall be itemized to the City on the monthly invoice and accompanied by original receipts.
C. In the event that Spare Parts are exhausted in time of need that prevents the operation of the ICS or parts of the ICS, the Contractor shall be liable for any additional costs incurred as the result of expedited shipping and other costs to the City. Proper record keeping shall be maintained and the City shall be immediately notified of any such circumstances.
D. Expedited shipping as a result of abnormal replacement of spare parts shall require written approval by the City.
E. The Contractor shall ensure that Spare Parts are stored in designated spare parts storage areas, are stored in an efficient and logical manner so that Spare Parts can be easily obtained minimizing time required to identify location and obtain replacement components.
F. All Spare Parts, materials, equipment and consumables shall be kept in locked, secured areas of the ICS under the control of the CMMS/Parts Technician. The Contractor shall develop and implement methods to prevent waste, theft, breakage or misuse of Spare Parts, materials, equipment and consumables.
G. The Contractor shall maintain an inventory system, which shall include the following information;

    1. OEM/supplier part number
    2. Supplier
    3. Pricing (last purchase price)
    4. Minimum and maximum stock quantities
    5. Stock on hand (qty)
    6. Reorder point
    7. Lead time
    8. Description of component
    9. Classification (Equipment, consumable, etc.).
    10. Location (shelf/ bin)

H. The Inventory Management System (IMS) shall be an integral part of the CMMS (refer to § TS-13 above) so that orders and shipments can be tracked from placement of the order to receipt of the goods.
I. The Contractor shall perform reviews to ensure that the procurement process of Spare Parts is based on best value.
J. The Contractor shall perform bi-annual inventory audits and reconcile all Spare Parts. Inventory shall be reconciled for stock levels against the inventory system. A written audit report shall be provided to the City following audits for review

containing the following;

1. When the audit was performed
2. Component description
3. Component location
4. CMMS/IMS stock quantity
5. Actual stock quantity on hand
6. Adjustment quantity
7. Adjustment value (by component and grand total)

K. The City reserves the right to perform its own audits of the inventory stock levels, with or without the Contractors participation, at any time and frequency throughout the terms of the Contract.

L. The Contractor is responsible for identifying stock level requirements and adjustments to the stock levels to ensure the spare parts inventory is adequate for ICS operations and maintenance.

M. All inventory, purchase, usage, and stock locations shall be recorded in the IMS no later than by 12:00 PM AM of the morning following the date of the activity to ensure proper records and audits can be easily accessed for accuracy.

N. The Contractor shall work in cooperation with the City to ensure the purchase of spare parts provides the most cost-effective solution.

O. At the termination of this Contract the Contractor shall return to the City all Spare Parts, City owned tools, equipment and components.

P. Upon request the Contractor shall provide multiple quotes to the City for review and approval of spare part purchases.

Q. Upon request the Contractor shall submit spare purchases to the City for approval prior to purchase.

R. Spare parts which are used, salvaged and/ or rebuilt/ refurbished shall be identified by a separate part number that is uniquely different from the OEM/ new spare part, to ensure accurate valuation of inventory.

14.2. CITY SUPPLIED SPARE PARTS

A. The City may choose to supply replacement Spare Parts to the Contractor, who shall promptly place such parts into the ICS Spare Parts inventory. Any replacement Spare Parts provided by the City shall not be subjected to any markup under this Contract.

B. Should the City decide to supply some or all Spare Parts for the use under this Contract, then the Contractor shall submit a list of the parts that are needed to the City for review. The list should be prepared to ensure delivery times are in keeping with the needs of the ICS maintenance.

C. Should the City elect to purchase some or all of the parts on the list, these items shall be deleted from the approved monthly purchase list and the remaining items shall be purchased by the Contractor.

D. The Contractor is not responsible for delivery in a timely manner or availability of Spare Parts ordered by the city but shall receive, handle and record such items.

14.3. EQUIPMENT UNDER WARRANTY

A. Spare Parts for equipment under Original Equipment Manufacturer’s warranty

shall be provided to the Contractor by the appropriate manufacturer. If the manufacturer does not promptly supply the required Spare Parts under Warranty, the Contractor shall provide such Spare Parts as though the Warranty has expired.

B. The Contractor is required to track the warranty status of all ICS equipment throughout the term of the contract in the CMMS.

1. The Contractor shall work with the supplier to ensure that failed components/ assembles are promptly replenished.
2. The Contractor shall ensure that failed components/ assemblies are properly identified and reported to the supplier to ensure that any failed equipment is properly replaced during the warranty period.
3. The Contractor shall properly track all time and materials used in the repair of equipment under warranty and make such records available to the City upon request.
4. Any component that fails during the warranty period shall be brought to the attention of the City to ensure that proper warranty provisions that apply under the supply/ installation contract can be properly tracked/ actioned by the City.

TS-15. CONSUMABLES

A. The Contractor shall furnish all such materials and supplies that are normally consumed in the conduct of a comprehensive maintenance program for the covered systems and equipment as described herein.

B. The Contractor shall keep an adequate supply of non-reimbursable consumables on site to perform all maintenance of not less than one month's usage including, but not limited to;

1. Rags
2. Cleaning chemicals and supplies (e.g. General-purpose cleaner, Stainless Steel cleaner, hand cleaner, etc.)
3. Electrical components, zip ties, wire-nuts, labels, etc.
4. Batteries not used for ICS components (e.g. tools, flash lights, radios, multi-meter, etc.)
5. Lock-out/Tag-out supplies
6. Tapes
7. Adhesives
8. Safety and environmental compliance materials

C. The Contractor shall keep an adequate supply on site to perform all maintenance of not less than one (1) month's usage for the following reimbursable consumables;

1. Bag tag stock for MES operation
2. BHS control room printer consumables
3. Batteries for ICS equipment (e.g. PLCs, UPS)
4. Oil (gearbox and hydraulic), grease and chain lubricant
5. Cabinet environmental filters (e.g. MCP, VFD boxes, etc.)
6. Nuts, bolts, screws and fasteners

D. The Contractor shall follow an environmentally efficient and conservative approach to consumables. The use of rags and oil absorbent material shall be minimized to reduce the impact on environmental waste. Where possible the use of environmentally friendly materials (biodegradable and/ or multiple reusable) and processes (recycling) shall be encouraged.

TS-16. RECORD KEEPING

A. The Contractor is responsible for accurate record keeping and statistics in both electronic and hard copy format as applicable and approved by the City.
B. All records, electronic or hardcopy shall be maintained on-site at the Airport at all times.
C. The Contractor shall put in place mechanisms to ensure that backups and/or duplicate records are stored in a secured area such that a localized event (fire, etc.) cannot destroy all records, as directed and provided by the City.
D. Archived records shall be provided to the City at the end of this contract or as requested.
E. All records pertaining to the Operation and Maintenance of the ICS at the Airport shall remain the exclusive property of the City including, but not limited to the following;

    1. System performance
    2. Equipment in use
    3. Cost associated with operation and/or maintenance at the Airport
    4. Personnel
    5. Carrier information
    6. ICS Usage
    7. Security status
    8. Maintenance records
    9. Training of Airlines

F. The Contractor shall allow the City unrestricted access for a minimum of two (2) users to all electronic records/ reports pertaining to ICS Operations and Maintenance including CMMS at no additional cost to the City.

TS-17. REPORTING

17.1. GENERAL

A. The Contractor shall maintain a good record keeping methodology so that information of the ICS operation, performance and reliability can be readily and easily identified and reported.
B. The Contractor shall utilize consistent naming and tagging conventions for all reports. The use of serialized numbers shall be included on each report, the same serialized number shall be included on every page of the report.
C. The Contractor shall provide reports of ICS operation as well as ICS Maintenance as required by the City and such reports shall be provided as requested.
D. Reports shall be provided to the City in electronic format.

    1. The Contractor shall provide spreadsheets in native Microsoft Excel format (.xls, .xlsx), or other City approved format, unlocked with working formulas/

macros to allow proper auditing.

2. Hard copies shall be provided by the Contractor upon request by the City.

E. As a minimum, the Contractor shall provide to the City all of the reports listed in this specification. All reports shall be dated appropriately to identify when the report was issued to the City.

F. The Contractor shall keep a log of all unscheduled E-stop and unscheduled fencing/gate access events longer than five (5) minutes as part of record keeping. Each event shall be properly reconciled.

G. Samples of the required reports have been produced and attached as Appendix D - below (Report Samples), to this specification. The Contractor may choose to provide standard and/or customized reports that do not conform to the layout of these samples, provided that all of the content defined in this specification and identified in the samples is provided.

H. Scheduled reports which returns no data shall identify that no data was available, a blank page is not acceptable.
e.g. 'No overdue maintenance for this period'

17.2. DAILY REPORTS

17.2.1. GENERAL

A. Daily reports shall be issued no later than 12:00 PM of the following business day.

17.2.2. DAILY PASS-DOWN

A. Provide a daily pass-down report to the City detailing the following items as a minimum:

1. All activities performed during the previous day of operation (itemized by shift)
    a. Abnormal startup operation events
    b. System configuration changes
    c. Equipment malfunctions and failures, implementation of fallback/ contingency procedures
    d. Airport, Airline, TSA and stakeholder notifications (record time, contact person)
    e. External activities impacting BHS operation (e.g. Airport construction, etc.)
    f. Equipment in-service count (e.g. cars, BIP's, load stations)
2. Required maintenance that is incomplete (itemized)
3. Corrective Maintenance completed (CM, itemized)
4. Maintenance quantity scheduled vs quantity completed for each category (PM, CM and EM)
5. All unscheduled maintenance, (EM) a description of the work done.
6. List of all in-service equipment that is non-operational, e.g. cars
7. Special MES events (e.g. hand-written tags quantity, etc.), Add a brief description, include time and duration of event.
8. Damaged bags (including photos)
9. ICS cars which require retrieval from local ICS car removal points

17.3. WEEKLY REPORTS

17.3.1. GENERAL

A. Weekly reports shall be issued no later than 12:00 PM on the day prior to the scheduled weekly meeting or 12:00 PM of the next business day should the scheduled day be a non-working day.

17.3.2. O&M PERFORMANCE REPORT

A. Provide a weekly report to the City detailing the following items as a minimum;

1. A complete list of all corrective maintenance (EM/ CM) performed in the past week.
2. A complete list of all overdue maintenance (PM, CM and EM).
3. A complete list of all spare parts not in stock. Identify estimated delivery schedule by item.
4. Spare Parts status, current expenditure/ POs for the month, PO accrued expenses from previous month(s)/ value.

17.4. MONTHLY REPORTS

17.4.1. GENERAL

A. Monthly reports shall be issued no later than 12:00 PM on or before the fifth day of the Month or 12:00 PM of the next business day should the fifth day of the month be a non-working day.

17.4.2. REPLACEMENT SPARE PARTS PURCHASING

A. Provide a detailed breakdown to the City by the following categories including but not limited to;

1. ICS cars
2. CBRA (BIT and conveyors)
3. ICS lift
4. Computer systems
5. Power distribution
6. Fencing/gate
7. Reimbursable consumables
8. Interroll Portec power turns
9. Queue conveyors
10. Transport conveyors
11. Merges (if applicable)
12. Controls Components (various)
13. PLC

B. Where applicable, provide information per component for the following in the list (A.) above.

a. Belting
b. Motors
c. Gearboxes
d. Rollers
e. Bearings
f. VFD controllers

C. Where applicable for control components (A.15 above) provide categories including but not limited to the following;

a. Disconnects
b. Photosensors
c. Positional sensors
d. Warning devices
e. Control station components (e.g. Estop push button)
f. Wi-Fi components
g. Contactors/ relays
h. Power supplies
i. Switches
j. Fuses
k. Circuit breakers/ Motor Starter Protectors

17.4.3. EQUIPMENT REBUILT OR REFURBISHED.

A. Provide a detailed report to the City of all equipment rebuilt or refurbished. Indicate the following minimum information including but not limited to;

1. Who performed the work?
2. Date when the work was completed/returned to stock
3. Location from where the component was removed
4. Description of the component/assembly
5. Date when the item was removed from service

17.4.4. SPARE PARTS BUDGET PERFORMANCE SUMMARY

A. Provide a detailed budget summary to the City identifying areas, which performed under-/over budget detailing as a minimum the following;

1. Actual budget
2. Actual expenditure
3. Difference between budget and expenditure as a percentage

B. Provide information by the following Categories including but not limited to;

1. ICS cars
2. CBRA (BIT and conveyors)
3. ICS lift
4. Computer systems
5. Power distribution
6. Fencing/gate
7. Consumables
8. Interroll Portec power turns
9. Queue conveyors
10. Transport conveyors
11. Belting
12. Merges (if applicable)
13. Motors
14. Gearboxes
15. Rollers
16. Bearings

17. VFD controllers
18. Controls Components
19. PLC

17.4.5. PERSONNEL LABOR USAGE SUMMARY REPORT

A. Provide a summary to the City identifying personnel -labor usage by discipline for each area broken down by the following list as a minimum;

1. Scheduled/Corrective Maintenance/CM
2. Preventive Maintenance/PM
3. Unscheduled/Emergency Maintenance/EM
4. Daily Inspections
5. Cleaning
6. Training
7. Operations
8. Other

17.4.6. STAFF ALLOCATION REPORT

A. Provide a report to the City containing the following information;

1. Staffing count by discipline per shift
2. Total hours worked by discipline per shift
3. Actual outstanding contract hours this period

B. This report may be requested on-demand.

17.4.7. SYSTEMS PERFORMANCE REPORT

A. Provide System Performance information to the City detailing the following including but not limited to;

1. Tracking Accuracy by Module
2. System data defined below;

    a. System downtime effecting operations by Module
    b. Total baggage processing through ICS by Module (loaded and off-loaded)
    c. CBRA bags by Module
    d. MES bags by station
    e. Peak hour (loaded/off-loaded) by Module
    f. Average, min, max bag wait time at load/un-load positions
    g. Average, min, max in-system time by destination Module
    h. Average, minimum, maximum ICS cars utilized (active cars – cars in park positions)

3. Threat bag handling. Identify the following information for each bag;

    a. Date/ time
    b. Each bag handled, identify uniquely (baggage tag)
    c. Airline, destination (if BSM bag)
    d. Location where bag was resolved.

B. Provide Equipment reliability information to the City by the following categories

by Module and System (total) as a minimum including but not limited to;

1. ICS cars
2. CBRA (BIT and conveyors)
3. ICS lift
4. Computer systems
5. Power distribution
6. Fencing/gate
7. Interroll Portec power turns
8. Queue conveyors
9. Transport conveyors
10. Belting
11. Merges (if applicable)
12. Motors
13. Gearboxes
14. Rollers
15. Bearings
16. VFD controllers
17. Controls Components
18. PLC's

C. Refer to § 10.3 above for calculation details of availability.

17.4.8. SPARE PARTS EXCEPTION SUMMARY REPORT

A. Provide a spare parts inventory exception summary report to the City including but not limited to the following list;

1. All spares on order and delivery is overdue
2. All spares ordered during the period of the report and not supplied during their expected lead time
3. All spares of a critical nature, which are not available on-site
4. Borrowed spares
5. Borrowed spares that have not been replaced
6. Spare parts with zero quantity on site
7. Spare parts with expedited delivery during the past month, identify the reason for expedited delivery

17.4.9. TRAINING COMPLETED/OVERDUE REPORT

A. Provide a detailed list to the City of training activities completed and overdue for the month indicating the following as a minimum.

1. Name of the person trained
2. Type of training performed
3. Quantity (hours) of training performed by type (hands-on or class-room)
4. Date training was completed, was scheduled or has been rescheduled
5. Grade provided for training

B. Provide a list of all overdue training or rescheduled training.

17.4.10. QUALITY INSPECTION AUDIT

A. Provide to the City a report identifying inspection audits.

1. Date Audit was performed
2. WO number
3. WO type (PM, CM, EM)
4. Date that work was performed (not date work was generated)
5. Description of the asset
6. Name of person who was responsible for performing the work
7. Grade provided for the work performed
8. Scheduled date of retraining if applicable (failed grade)

17.4.11. ICS EQUIPMENT OPERATION

A. Provide to the City an ICS equipment report containing the following;

1. ICS car run-times
2. ICS car start-stop cycles
3. ICS discharges

B. Provide information for the following;

1. Equipment in-service
2. Equipment in-service requiring service
3. Equipment removed from service

17.5. QUARTERLY REPORTS

17.5.1. GENERAL

A. Quarterly reports shall be issued no later than 12:00 PM on the fifth day of January, April, July and October or 12:00 PM of the next business day should the fifth day of the month be a non-working day.

17.5.2. UPDATED SPARE PARTS BUDGET PROJECTIONS REPORT

A. Provide an updated budget projection for Spare Parts to the City for the following 12 months. Detail the following information;

1. Update Annual projection in USD.
2. Monthly projection in USD for each of the following Categories including but not limited to;

a. ICS cars
b. CBRA (BIT and conveyors)
c. ICS lift
d. Computer systems
e. Power distribution
f. Fencing/gate
g. Interroll Portec power turns
h. Queue conveyors
i. Transport conveyors
j. Belting
k. Merges (if applicable)
l. Motors
m. Gearboxes
n. Rollers
o. Bearings

p. VFD controllers
q. Controls Components
r. PLC

17.5.3. MTTR REPORT

A. Provide to the City a report detailing MTTR per equipment type. Refer to § 10.6 above.

17.6. BI-ANNUALLY REPORTS

17.6.1. GENERAL

A. Bi-Annual reports shall be issued no later than 12:00 PM on the tenth day of January and July or 12:00 PM of the next business day should the tenth day of the month be a non-working day.

17.6.2. SPARE PARTS INVENTORY AUDIT AND RECONCILIATION REPORT

A. Provide result of bi-annual audit to the City.
B. Refer to §14.1.J above

17.7. ANNUAL REPORTS

17.7.1. GENERAL

A. Annual reports shall be issued no later than 12:00 PM on the fifteenth day of January or 12:00 PM of the next business day should the fifteenth day of the month be a non-working day.

17.7.2. NEXT FISCAL YEAR BUDGET PROJECTIONS REPORT

A. Provide a report to the City no later than February 15 detailing the budget projection for the next fiscal year. The report shall contain the following information as a minimum.

1. Total budget projection
2. Increase in budget year on year
3. Increase in budget year versus known costs for the year
4. Previous year costs
5. Escalation (increase in cost of goods, aging equipment, stock depletion, etc.)
6. Operations and Maintenance fee
7. Other fees not identified above
8. Spare parts broken down by the following categories;

a. Base cost
b. Non recurring costs (replacements, rebuilds, etc.)
c. Other (not covered above).

B. Provide actual values and percentage increase/decrease from the last fiscal year.

17.7.3. SYSTEM PERFORMANCE REPORT

A. Provide System Performance information to the City detailing the following;

1. Tracking Accuracy by Module

2. System data defined below;

    a. System downtime by Module
    b. Total baggage processing through ICS by Module (loaded/off-loaded)
    c. CBRA bags by Module
    d. MES bags by Module
    e. Peak hour (loaded/off-loaded) by Module
    f. Average, min, max bag wait time at load/un-load positions
    g. Average, min, max in-system time by destination Module
    h. Average, min, max ICS cars utilized (active cars – cars in park positions)

B. Provide Equipment reliability information to the City by the following categories as a minimum including but not limited to;

1. ICS cars
2. CBRA (BIT and conveyors)
3. ICS lift
4. Computer systems
5. Power distribution
6. Fencing/gate
7. Consumables
8. Interroll Portec power turns
9. Queue conveyors
10. Transport conveyors
11. Belting
12. Merges (if applicable)
13. Motors
14. Gearboxes
15. Rollers
16. Bearings
17. VFD controllers
18. Controls Components
19. PLC

17.7.4. EQUIPMENT REPAIR COST REPORT

A. Provide a report to the City detailing the repair status and costs associated with the following categories for the past 12 months including but not limited to;

1. ICS cars
2. CBRA (BIT and conveyors)
3. ICS lift
4. Computer systems
5. Power distribution
6. Fencing/gate
7. Consumables
8. Interroll Portec power turns
9. Queue conveyors
10. Transport conveyors

11. Belting
12. Merges (if applicable)
13. Motors
14. Gearboxes
15. Rollers
16. Bearings
17. VFD controllers
18. Controls Components
19. PLC

17.7.5. SAFETY AUDIT REPORT

A. Provide the results of the safety audit to the City.

17.7.6. STAFFING SCHEDULE

A. Provide a current and or updated staffing schedule to the City.
B. Refer to § 6.1.I above.

17.8. REPORTS AS REQUIRED

17.8.1. ACCIDENT/ NEAR-MISS REPORTS

A. An accident shall include all near-miss accidents or injury to personnel employed by or sub-contracted to the Contractor or property damage irrespective of the Owner, of which the Contractor has knowledge arising out of or in connection with the services hereunder.
B. The Contractor shall provide in writing to the City within twenty-four (24) hours an interim report of any accident if a complete report is not available. Should a complete report not be available, the Contractor shall report all the information available as an interim report.
C. The Contractor shall provide in writing to the City within seventy-two (72) hours or sooner a complete report of any accident. If all information is not available within seventy-two hours to provide a complete report, the Contractor shall provide an update every twenty-four (24) hours until a complete report can be issued.
D. The Contractor shall promptly conduct a full investigation and provide details and statements of witnesses as part of the Accident Report. The Contractor shall make available its personnel to speak with investigators of the accident or incident and, if necessary, to testify in legal proceedings.
E. Written documents shall include events leading up to the incident, the persons involved, the injuries sustained and any other pertinent information. Witness statements shall also be included.
F. In the event of a death or serious injury arising from an accident to personnel employed by or sub-contracted to the Contractor, the Contractor shall immediately notify **the City** by any means available including telephone, SMS or in person. A serious injury shall include any of the following;

    1. An injury where an employee requires hospitalization
    2. Loss of bodily fluids in a life-threatening manner.
    3. Loss of any part of the body, regardless of how minor
    4. Disassembly of equipment in order to extract an employee regardless of the injury

17.8.2. EVENT REPORTS

A. The Contractor shall provide event reports as required or as requested by the City. Event reports as a result of equipment failure or operational problems shall comprehensively document each event.
B. Event reports shall be provided for the following list of events, the list is summarized and not all inclusive;

1. Baggage misconnecting aircraft and/ or delayed aircraft events.
2. Equipment failures
3. Events for determine system availability.
4. Power outages
5. Interface failures
6. Excessive transit time of baggage

C. Contents of Event Reports

1. Description of the event
2. Timestamps for activities leading up to the event and subsequent activities. Identify when the event started and when the event was resolved.
3. Actions taken by personnel
4. Personnel contacted
5. Incomplete remedial activities
6. Impact to operations and/or Airlines/Carriers

D. Provide with each event report as a result of equipment failure, previous maintenance information showing history and scheduled/unscheduled work shall be provided.
E. Attach pictures taken of the event (before, during and after if applicable).
F. Refer to § 11.9.1.L above, TS-11.9.4.A.1 above.

17.8.3. O&M PLAN CHANGE REPORT

A. The Contractor shall provide O&M change reports as required or as requested by the City. Such reports shall comprehensively document the changes implemented by the Contractor in respect to the O&M procedures and plans.
B. Refer to § 12.7.2.B above
C. Contents of O&M Schedule Change Reports

1. Existing O&M procedure
2. Modification to the procedure
3. Expected improvement in performance
4. Actual improvement in performance

17.8.4. STATUTORY REPORTS

A. The Contractor shall prepare and provide statutory reports as required by Local, City, State or Federal law, ordinances or regulations to be submitted.

17.8.5. PLANNED ABSENCE OF KEY PERSONNEL

A. Refer to § 6.7.2.D above, § 6.7.2.D above and § 6.8.1.D above.

17.8.6. FAILURE TO FOLLOW SWPP

A. Refer to § 8.3.C above

17.8.7. UNSCREENED BAGGAGE REPORT

A. Refer to § 11.8.C.3 above.

17.8.8. INTERIM INSPECTION REPORT

A. Refer to § 21.3.D below.

17.8.9. STRANDED BAG SOLUTION

A. Refer to § 11.6.B above.

17.8.10. ADJUSTMENT TO MAINTENANCE SCHEDULE

A. Refer to § 12.7.2.C above.

17.8.11. EMERGENCY ICS MODIFICATION

A. Refer to § 21.2.A below.

17.8.12. REQUEST FOR ICS MODIFICATION

A. Refer to § 21.3 below.

17.8.13. INTERIM INSPECTION REPORT

A. Refer to § 21.3.D below.

17.8.14. STAFFING SCHEDULE

A. Provide a current and or updated staffing schedule to the City as changes occur.
B. Refer to § 6.1.I above.

17.8.15. END OF USEFUL LIFE.

A. Refer to § 12.6.C above and § 12.7.1.G above.

TS-18. COMMUNICATION

18.1. GENERAL

A. Communication between the Parties relative to any issues involving staffing, billing, or any other questions about the Contract (including but not limited to Contract interpretation) shall be made in writing and considered delivered when sent by email to an authorized representative.
B. The Contractor shall communicate with the City on contractual or commercial issues by email. Hardcopies of all communication shall be provided upon request by the City.
C. The parties may from time to time designate substitute addresses or persons where and to whom such correspondence is to be mailed or delivered, but such substitutions shall not be effective until actual receipt of written notification.
D. The Contractor shall keep an up to date list of primary and secondary communication methods for all Stakeholders.
E. All correspondence shall be serialized in accordance with instructions from the City.

18.2. COMMUNICATION WITH THE CITY

A. Contractual disputes shall be discussed in weekly meetings. Disputes that can't be resolved in weekly meetings shall be put in writing to the City.

Figure 6, Official Point of Contact

Item	Description
Attention	Lee Katchen
Department	Airport Operations
Company	Denver International Airport
Building	Airport Office Building (AOB)
Address	8500 Peña Boulevard Denver, CO 80249 USA

B. The City may at its discretion update the above personnel and/or methods of communication at any time.

18.3. COMMUNICATION WITH CONTRACTOR

A. The Contractor shall provide the Site Management and Shift Supervisor with a mobile phone capable of receiving and making telephone calls.
B. The phone shall be capable of sending and receiving emails and SMS in addition to telephone operation in order to receive system alerts. The Contractor shall promptly inform the City of any changes in the Supervisor phone number in order to update the delivery of system alerts.
C. The phone shall be provided to the Supervisor and shall be carried by the Supervisor at all times so as to be readily contactable and fully informed of alerts via email or messaging services.
D. Notices from the City to the Contractor shall be to the Contractor's office. Contractor will supply address for notices.

TS-19. FACILITIES

19.1. CONTRACTOR'S RESPONSIBILITIES

19.1.1. GENERAL

A. The Contractor shall furnish all equipment, furniture, materials and consumables necessary and incidental to the performance of its ICS Operation & Maintenance services, except the equipment and vehicles required to be furnished by the City under this Contract.
B. The Contractor is responsible for maintaining all equipment furnished by the City as part of this Contract including, but not limited to.

1. City Owned Equipment
2. Computer workstations
3. Computer Servers
4. Software
5. Tools/appliances
6. Vehicles
7. CMMS (if provided by the City)

C. The Contractor shall be responsible for all upkeep and general house-keeping of all areas provided by the City for use by the Contractor.
D. All and any modifications made to the City provided facilities to the Contractor

shall be approved in writing prior to any work commencing. Any approved work shall be completed in accordance with the City's rules and regulations and shall be at the expense of the Contractor.

19.1.2. EQUIPMENT PROVIDED BY CONTRACTOR

A. Specifically, and without limiting the foregoing, the Contractor will provide and maintain the following:

1. Office furniture and equipment, including telephone and internet service, for its offices at the Airport, which shall be of good quality and appearance and which shall be kept in good repair and replaced as necessary.

B. The Contractor shall setup all facilities and equipment required to perform the work defined by the Contract.

C. The Contractor shall allow the City unrestricted access to the facilities provided by the City as necessary for the City to perform inspections, maintenance and/or other needs requiring access.

19.1.3. REASONS TO VACATE PREMISES

A. The Contractor shall immediately comply with all requests by the City to vacate the facilities, which are provided by the City, including, but not limited to the following reasons;

1. Safety
2. Security
3. Threats to life and/or property

19.2. THE CITY'S RESPONSIBILITIES

19.2.1. FACILITIES MADE AVAILABLE FOR THE CONTRACTOR

A. The City shall make the following available for the Contractor in order to perform the scope of work defined herein (Subject to Change);

1. Office space
2. Work/ repair space
3. Spare Parts storage area

19.3. PARKING

A. The Contractor shall pay the Airport's parking fees for all parking spaces required by their staff and sub-contractors at the going rate throughout the term of the Contract. Parking shall be furnished at no cost to the employee.

B. The City will provide the Contractor with six (6) parking spaces at the cost of the Contractor.

C. Additional parking spaces may be provided in employee parking lots upon request with the Airport's parking division at the cost of the Contractor. Buses between the off-site parking lots and the Terminal operate to a published schedule (subject to change) and are provided by the City at no additional cost to the Contractor.

D. All Contractor employees shall park in an area designated by the City. At no time shall it be permissible for employees to park their personal vehicles within the Public Parking facilities during work hours, unless they pay the full rate for their parking.

19.4. SIDA BADGE

A. The Contractor shall ensure that all employees working under this contract comply with the airports badging requirements at the cost of the Contractor.
B. Federal Inspection Services may have additional requirements that the Contractor shall comply with at the cost of the Contractor.

19.5. CONTRACTOR ACTIVITIES UPON NOTICE OF TERMINATION

A. Discontinue performance under the Contract on the date specified in the Notice of Termination.
B. Place no further orders for materials, services, or facilities except as may be necessary for completion of services to the date of termination.
C. To the extent, manner and time, as directed by the City, in its sole discretion, assign to the City all of the rights, title, and interest of the Contractor under any outstanding orders for spare parts, equipment, expendables, consumables, existing sub-contract agreements for parts, equipment, supplies and work performed at the Airport.
D. Deliver to the City, to the extent, manner, and time as directed by the City, in its sole discretion, the completed, or partially completed documents, information, and other property, which would have been required to be furnished to the City had the Contract not been terminated.
E. Deliver to the City, to the extent, manner, and time as directed by the City, in its sole discretion, all software, defined as computer programs and routines contained on magnetic tape, disc, semi-conductor device or other memory device or system memory including all documentation used to describe, maintain and use such programs and routines.
F. Take such actions as may be necessary, or as the City may direct, for the protection and preservation of any property related to the Contract, which is the possession of the Contractor and in which the City has or may acquire an interest.
G. Return the facilities to the same or better condition as received at commencement of the Contract. All repairs and schedule maintenance activities due prior to the date specified in the Notice of Termination shall have been completed.
H. Provide the City with updated and current versions of all documentation used to execute this Contract. This shall as a minimum include, but not limited to;

    1. Operational Manuals
    2. Maintenance Procedures
    3. As-Built Documentation
    4. Standard Operating Procedures
    5. Management Plans

I. Return all spare parts provided by the City or purchased by the City under this agreement to the City in workable condition.
J. Return all equipment provided by the City or purchased by the City under this agreement to the City in workable condition.
K. Provide the City with a current and detailed list of all CMMS data in an agreed upon electronic format. If no agreement can be reached on the format, DEN shall determine the format. Provide a hardcopy in .pdf upon request.

L. Remove all trash, debris in the Contractor occupied facilities.
M. Remove all equipment in the Contractor occupied facilities not owned by the City.
N. A certificate from the Contractor that all claims for labor arising from this Contract have been settled and that all expenses and invoices for materials, services and equipment have been paid by the Contractor.
O. The Contractor shall provide the City with a complete release of all liens, which might arise from this Contract, for which the Contractor has been reimbursed by the City.
P. Vacate the facilities in a timely and orderly fashion.
Q. Make reasonable efforts for current employees to be available for interviews as potential new hires for the incoming contractor.

19.6. PROTECTION OF PROPERTY

A. In the event of damage to any City facilities as a result of the Contractor's operations, the Contractor shall take immediate steps to notify the BHS Program Administrator and subsequently repair or restore all services to the satisfactory approval of the City. Furthermore, the Contractor shall engage any additional outside services which may be necessary to complete repairs until services are restored. The Contractor shall coordinate all repairs with the City. All costs involved in making repairs and restoring disrupted service shall be borne by the Contractor, and the Contractor shall be fully responsible for any and all claims resulting from the damage. The City, at its option, may elect to perform such repairs and deduct the cost of such repairs, replacements, and outside service from the amounts due to the Contractor under a monthly invoice.
B. The Contractor will repair or be liable for the cost to repair any damaged City facilities or property when such damage is caused by the Contractor, its employees, agents or sub-contractors, to the extent that the cost of such repair is not covered by insurance provided by the City. Any insurance deductible will be the responsibility of the Contractor.

TS-20. INSPECTIONS

20.1. SITE INSPECTIONS

20.1.1. GENERAL

A. Inspectors, either employees of the City or their representatives, may be assigned to inspect or observe the work. These inspectors will perform tests and observe the Contractor's work to determine whether or not work performed satisfies the requirements of this Contract. The Contractor shall, therefore, provide these inspectors access to the ICS as needed to perform the inspections, as well as whatever access is needed to off-site facilities used to store materials and components to be incorporated into the ICS. The Contractor shall cooperate with and support this effort.
B. At any time, the City can inspect the ICS operation and/or maintenance being performed by the Contractor.
C. At any time, the City can request the Contractor's presence during inspections of the ICS at no additional cost to the City. The Contractor shall not unreasonably delay attendance at such inspections.

D. Any deficiencies identified by the City shall be addressed by the Contractor as a priority item with existing personnel and materials, provided it does not impact on system operations and scheduled preventive maintenance. In the event that identified work cannot be completed within the inspection classification time frames below, the Contractor shall at their own cost provide the necessary resources to have the work completed.
E. For the purpose of these inspections, deficiencies shall include but not be limited to the following;

1. Excessive heat
2. Excessive wear
3. Distortion
4. Leakage
5. Unusual, excessive and/ or unexplained noise
6. Unusual vibration
7. Equipment/ component failure
8. Incorrect adjustment
9. Safety issues
10. Cleanliness

20.1.2. INSPECTION CLASSIFICATION

A. Deficiencies will be classified by the City as follows;

1. Priority 1

a. Work to be started immediately and be completed as soon as possible without affecting operations. Equipment in a condition where there is the potential for imminent failure, damage to the equipment and life safety with potential to result in injury.

2. Priority 2

a. Work to be completed within twenty-four (24) hours. Equipment in a condition where imminent failure is not anticipated, but is subject to unreasonable wear and tear, and life safety where potential for injury is low.

3. Priority 3

a. Work to be completed within (72) hours. Equipment not subject to imminent failure or unreasonable wear and tear but requires adjustment.

20.1.3. TOURS/DEMONSTRATIONS

A. The Contractor shall accommodate tours of the ICS by the Airline/Carriers representatives as necessary to ensure the Carrier/Airlines are fully familiar with ICS operations in order to ensure proper induction, orientation and tagging of baggage.
B. The Contractor shall accommodate tours of the ICS by others as requested by the City.
C. The Contractor shall accommodate demonstrations of operating and maintenance procedures as requested by the City.

TS-21. MODIFICATIONS

21.1. GENERAL

A. Changes to any part of the ICS shall only be made by the Contractor after written approval from the City with the exception of any changes required on an emergency basis in order to ensure safe and/or continued operation.
B. Wherever possible modifications to the ICS shall be made using existing personnel and/or materials at no cost to the City.
C. Any modifications made to the ICS by the Contractor shall comply with all the City, Local, State and Federal regulations and requirements applicable, at the time modifications are made.
D. All authorizations and permits required to complete the work shall be the responsibility of the Contractor.
E. The Contractor shall update all As-built documentation to reflect changes made by the Contractor.
F. All subcontract work shall be subject to no more than three (3) percent markup. All proposals shall be made available for review by the City.

21.2. CONTENTS OF EMERGENCY ICS CHANGE REPORT

A. Any modifications made by the Contractor on an emergency basis shall be brought to the attention of the City no later than 12:00 PM on the next business day detailing the following;

1. Work completed by the Contractor
2. Reason work needed to be completed
3. Reasonable additional costs associated with the work that the Contractor would not have normally covered by the work detailed in this technical specification.

21.3. REQUEST FOR ICS MODIFICATIONS

A. Should the Contractor identify methods to improve efficiency either in time to operate, maintain and/or repair, performance and/or improvements in reliability of the ICS through modifications to any part of the ICS without degrading system performance the Contractor shall submit their recommendations in a proposal to the City for evaluation and approval. Each proposal for modifications to the ICS shall include as a minimum.

1. Description of the problem or issue that the modification will address and improve.
2. Detailed description of the work to be done.
3. Expected improvement as a result of the modification.
4. Time schedule to complete the work on an individual basis and for all like equipment requiring modifications.
5. Costs to the City associated with the modifications, if none, denote ‘No cost’. Break out the following as a minimum;

    a. Labor
    b. Materials
    c. Overhead costs
    d. Fees (itemize permits, freight etc.)

e. Taxes

6. Required time for implementing the modifications
7. Post modification inspection schedule including inspection frequency and time frame to monitor modifications to verify effects from the agreed modification.
8. The Contractor shall prepare a monitoring plan that includes roll-back procedures to the original condition in the event of unexpected results.
9. Planned testing and commissioning procedures.

B. Should the City request that the Contractor perform modifications to any part of the ICS in addition to work required by this specification, the Contractor shall promptly put together a detailed proposal for evaluation by the City, including as a minimum;

1. Detailed description of the work to be done.
2. Time schedule to complete the work. If the work is required to be phased due to interference with airport operations, indicate so.
3. Costs to the City associated with the modifications, if none, denote 'No cost'. Break out the following as a minimum;

   a. Labor
   b. Materials
   c. Overhead costs
   d. Fees (itemize permits, freight etc.)
   e. Taxes

4. Post modification inspection schedule including inspection frequency and time frame to monitor modifications to verify compliance with the City's required modifications.
5. The Contractor shall prepare a monitoring plan that includes roll-back procedures to the original condition in the event of unexpected results.
6. Planned testing and commissioning procedures.

C. Any modifications approved by the City and performed by the Contractor shall be monitored for a mutually agreed period between the City and the Contractor after the completion of the modification.

D. During the monitoring period the Contractor shall submit interim inspection reports on a weekly basis until the completion of the monitoring period detailing the following items. In the event that no abnormal and/or unexpected results are identified after one month of inspections (assuming the inspection period exceeds one month), interim inspection reports can be issued every two (2) weeks. The interim inspection reports shall cover the following as a minimum.

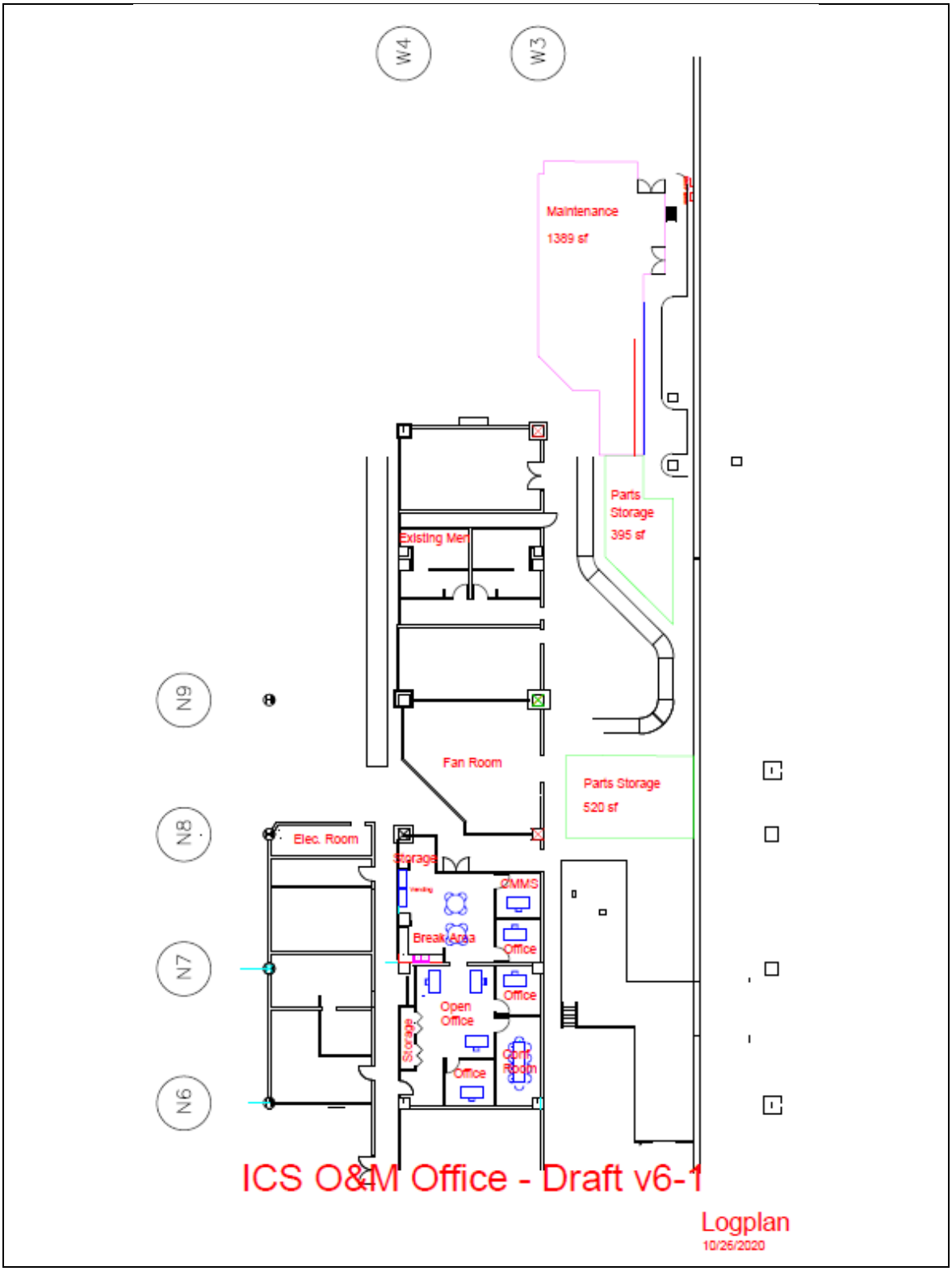
1. Date/time inspections were completed
2. Inspections being completed
3. Abnormal and/or unacceptably unexpected results
4. Improvements identified
5. Bags processed during inspection period
6. Faults observed during inspection period
7. Correction of any punch list items identified through inspections or

operational issues with the modified ICS

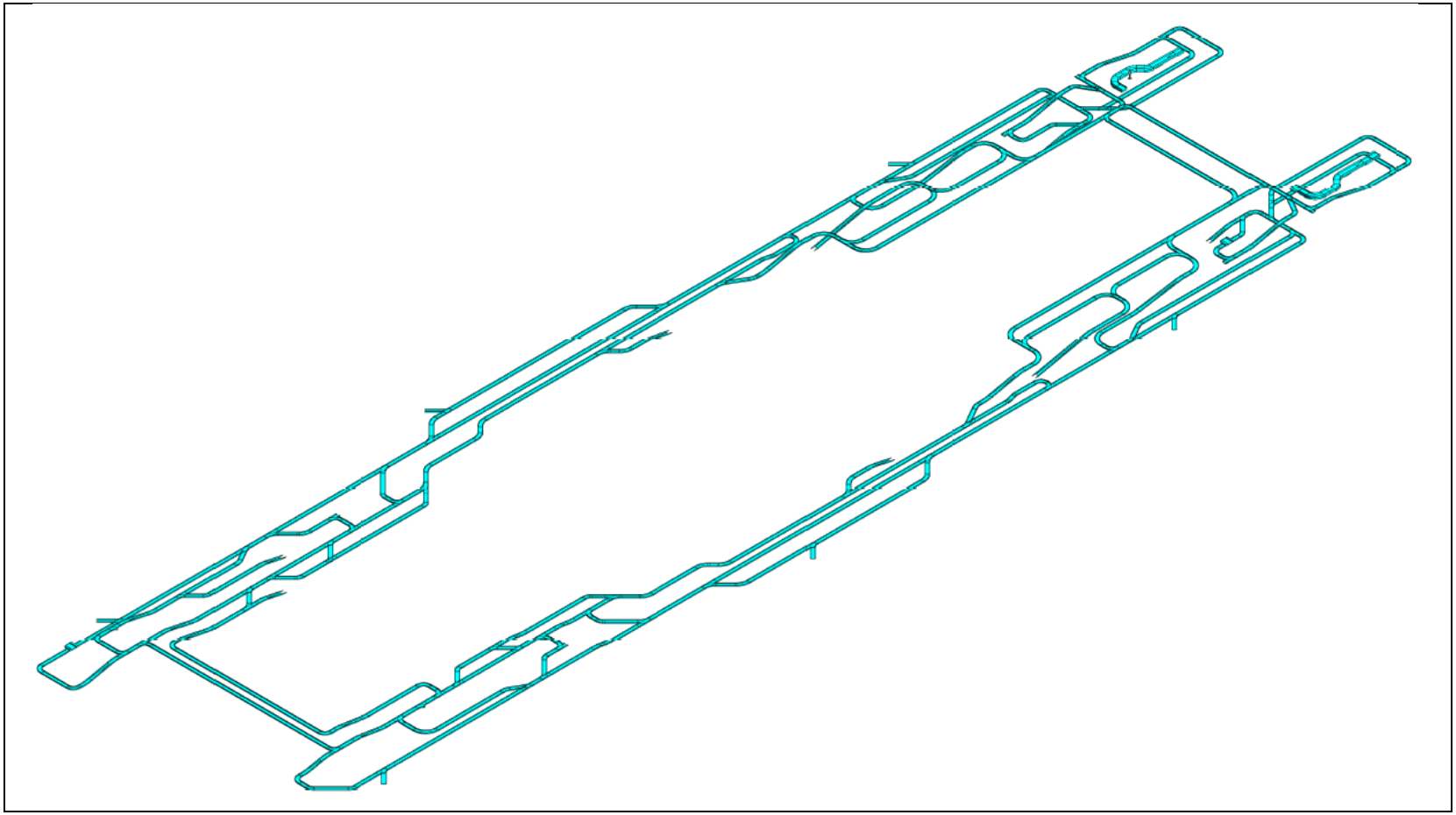
E. At the completion of the agreed monitoring period, the Contractor shall submit a final report fully detailing the modification/inspections completed and report the effect the modifications have had on the operation. All interim inspection reports shall be attached.
F. The City reserves the right to request site inspections with the Contractor to identify/observe the modifications and/or improvements as a result of the modifications at no cost to the City.
G. In the event that the modifications have an unacceptably and/or adverse effect on operations/maintenance, the Contractor shall immediately proceed to remove the modification.

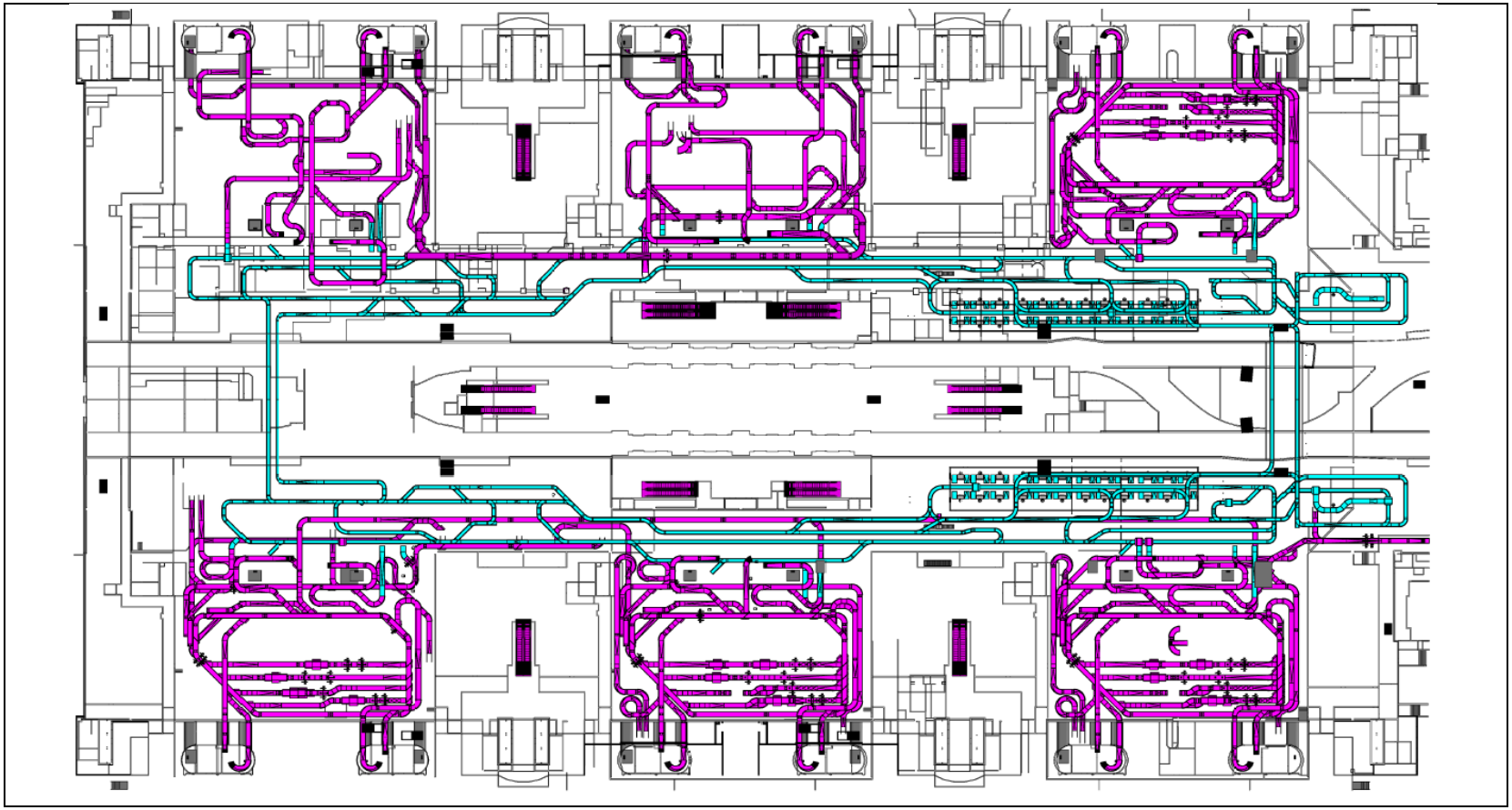
APPENDIX A - FACILITIES MAP

CONTRACTOR FACILITIES



ICS LAYOUT





APPENDIX B - ICS EQUIPMENT ASSET LIST

134 pc.	autoca from original order
26 pc.	autoca from additional order
Total: 160 cars	

1 East			
Index	Segment Type	Layer	Functional Name
1	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 30° L
2	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 30° L
3	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 30° L
4	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 30° R
5	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
6	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1930
7	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1930
8	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
9	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1000
10	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
11	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
12	Curve Horizontal	BGH_AUT_RAI_East_Mod1_Upper ICS	Curve Horizontal - R1250 45°
13	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L1350
14	Junction H	BGH_AUT_RAI_East_Mod1_Upper ICS	Junction H - R1250 45° R
15	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
16	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2283
17	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L1312
18	Junction H	BGH_AUT_RAI_East_Mod1_Upper ICS	Junction H - R1250 45° L
19	Curve Horizontal	BGH_AUT_RAI_East_Mod1_Upper ICS	Curve Horizontal - R1250 45°
20	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L1350
21	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
22	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
23	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 30°
24	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1050
25	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1392
26	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2512
27	Curve Vertical	BGH_AUT_RAI_Middle ICS	Curve Vertical - R7500 8°
28	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
29	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2437
30	Curve Vertical	BGH_AUT_RAI_Middle ICS	Curve Vertical - R7500 8°
31	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
32	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
33	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
34	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
35	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
36	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
37	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
38	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
39	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
40	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
41	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
42	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
43	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
44	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900

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45	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
46	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
47	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
48	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
49	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
50	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
51	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
52	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
53	Junction H	BGH_AUT_RAI_East_Mod1_Upper ICS	Junction H - R1250 90° R
54	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2000
55	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L1007
56	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
57	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
58	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
59	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L300
60	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
61	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 30° L
62	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 30°
63	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2880
64	Straight	BGH_AUT_RAI_Middle ICS	Straight - L660
65	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
66	Junction H	BGH_AUT_RAI_East_Mod1_Upper ICS	Junction H - R1250 90° L
67	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2600
68	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2100
69	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2100
70	Curve Horizontal	BGH_AUT_RAI_East_Mod1_Upper ICS	Curve Horizontal - R1250 90°
71	Curve Horizontal	BGH_AUT_RAI_East_Mod1_Upper ICS	Curve Horizontal - R1250 90°
72	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
73	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L800
74	Junction H	BGH_AUT_RAI_East_Mod1_Upper ICS	Junction H - R1250 90° L
75	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2000
76	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
77	Curve Horizontal	BGH_AUT_RAI_East_Mod1_Upper ICS	Curve Horizontal - R1250 45°
78	Junction H	BGH_AUT_RAI_East_Mod1_Upper ICS	Junction H - R1250 45° L
79	Curve Vertical	BGH_AUT_RAI_East_Mod1_Upper ICS	Curve Vertical - R7500 8°
80	Curve Vertical	BGH_AUT_RAI_East_Mod1_Upper ICS	Curve Vertical - R7500 8°
81	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L300
82	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L300
83	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L1435
84	Curve Vertical	BGH_AUT_RAI_East_Mod1_Upper ICS	Curve Vertical - R7500 8°
85	Curve Vertical	BGH_AUT_RAI_East_Mod1_Upper ICS	Curve Vertical - R7500 8°
86	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L300
87	Junction H	BGH_AUT_RAI_East_Mod1_Upper ICS	Junction H - R1250 90° L
88	Curve Vertical	BGH_AUT_RAI_East_Mod1_Upper ICS	Curve Vertical - R7500 8°
89	Curve Vertical	BGH_AUT_RAI_East_Mod1_Upper ICS	Curve Vertical - R7500 8°
90	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L300

91	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 90° R
92	Straight	BGH_AUT_RAI_CBRA	Straight - L597
93	Junction K	BGH_AUT_RAI_Middle ICS	Junction K - R1250 90° R
94	Curve Horizontal	BGH_AUT_RAI_East_Mod1_Upper ICS	Curve Horizontal - R1250 90°
95	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2000
96	Straight	BGH_AUT_RAI_Middle ICS	Straight - L300
97	Curve Vertical	BGH_AUT_RAI_East_Mod1_Upper ICS	Curve Vertical - R7500 8°
98	Curve Vertical	BGH_AUT_RAI_East_Mod1_Upper ICS	Curve Vertical - R7500 8°
99	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L1363
100	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L1747
101	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 30°
102	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2606
103	Straight	BGH_AUT_RAI_Middle ICS	Straight - L300
104	Curve Vertical	BGH_AUT_RAI_East_Mod1_Upper ICS	Curve Vertical - R7500 8°
105	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
106	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L1363
107	Curve Vertical	BGH_AUT_RAI_East_Mod1_Upper ICS	Curve Vertical - R7500 8°
108	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
109	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
110	Junction Y	BGH_AUT_RAI_Middle ICS	Junction Y - R1250 90°/90°
111	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2400
112	Junction H	BGH_AUT_RAI_East_Mod1_Upper ICS	Junction H - R1250 90° L
113	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2000
114	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 45° R
115	Straight	BGH_AUT_RAI_Middle ICS	Straight - L300
116	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 45°
117	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2177
118	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
119	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 45°
120	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 45° R
121	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1436
122	Straight	BGH_AUT_RAI_Middle ICS	Straight - L300
123	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 45°
124	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1697
125	Curve Horizontal	BGH_AUT_RAI_East_Mod1_Upper ICS	Curve Horizontal - R1250 45°
126	Curve Horizontal	BGH_AUT_RAI_East_Mod1_Upper ICS	Curve Horizontal - R1250 45°
127	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L950
128	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L1338
129	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L577
130	Curve Vertical	BGH_AUT_RAI_East_Mod1_Upper ICS	Curve Vertical - R7500 8°
131	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
132	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L1357
133	Curve Vertical	BGH_AUT_RAI_East_Mod1_Upper ICS	Curve Vertical - R7500 8°
134	Straight	BGH_AUT_RAI_Middle ICS	Straight - L300
135	Curve Vertical	BGH_AUT_RAI_East_Mod1_Upper ICS	Curve Vertical - R7500 8°
136	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900

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137	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L1357
138	Curve Vertical	BGH_AUT_RAI_East_Mod1_Upper ICS	Curve Vertical - R7500 8°
139	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L300
140	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L300
141	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L300
142	Curve Vertical	BGH_AUT_RAI_CBRA	Curve Vertical - R7500 8°
143	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
144	Straight	BGH_AUT_RAI_CBRA	Straight - L2437
145	Curve Vertical	BGH_AUT_RAI_CBRA	Curve Vertical - R7500 8°
146	Straight	BGH_AUT_RAI_CBRA	Straight - L477
147	Curve Horizontal	BGH_AUT_RAI_East_Mod1_Upper ICS	Curve Horizontal - R1250 180°
148	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
149	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
150	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
151	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
152	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
153	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
154	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
155	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
156	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
157	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
158	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
159	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
160	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
161	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
162	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
163	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
164	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
165	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
166	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
167	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
168	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
169	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
170	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
171	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
172	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
173	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
174	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
175	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
176	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
177	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
178	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
179	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 30° L
180	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 30° L
181	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1350
182	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900

183	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2052
184	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
185	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1065
186	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1506
187	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1906
188	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
189	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
190	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
191	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
192	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
193	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
194	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
195	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
196	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
197	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 30°
198	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 45°
199	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 45° R
200	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1857
201	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
202	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
203	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2880
204	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
205	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1676
206	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
207	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900

2 East			
Index	Segment Type	Layer	Functional Name
1	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
2	Straight	BGH_AUT_RAI_Middle ICS	Straight - L902
3	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 90° R
4	Straight	BGH_AUT_RAI_Middle ICS	Straight - L900
5	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
6	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 90° L
7	Straight	BGH_AUT_RAI_Middle ICS	Straight - L900
8	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
9	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 30° R
10	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2880
11	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 30°
12	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2100
13	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
14	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
15	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
16	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
17	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
18	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900

19	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
20	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
21	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
22	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
23	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 45° R
24	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
25	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
26	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2163
27	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
28	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1843
29	Straight	BGH_AUT_RAI_Middle ICS	Straight - L828
30	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2200
31	Straight	BGH_AUT_RAI_Middle ICS	Straight - L315
32	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
33	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2100
34	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2100
35	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2100
36	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2100
37	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
38	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2091
39	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 45° L
40	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2163
41	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 45°
42	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 45°
43	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
44	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
45	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
46	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 30°
47	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
48	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 30° L
49	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2880
50	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 90° L
51	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 90° R
52	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
53	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1695
54	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1495
55	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1143
56	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
57	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
58	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
59	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
60	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
61	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
62	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
63	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
64	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900

65	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
66	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
67	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
68	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
69	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
70	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
71	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
72	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
73	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
74	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
75	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
76	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
77	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
78	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
79	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
80	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
81	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
82	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 90° R
83	Straight	BGH_AUT_RAI_Middle ICS	Straight - L900
84	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
85	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 90° L
86	Straight	BGH_AUT_RAI_Middle ICS	Straight - L900
87	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1970
88	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
89	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 30° R
90	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2880
91	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 30°
92	Junction Y	BGH_AUT_RAI_CBRA	Junction Y - R1250 90°/90°
93	Straight	BGH_AUT_RAI_Middle ICS	Straight - L300
94	Straight	BGH_AUT_RAI_CBRA	Straight - L300
95	Straight	BGH_AUT_RAI_CBRA	Straight - L300
96	Straight	BGH_AUT_RAI_CBRA	Straight - L2487
97	Junction H	BGH_AUT_RAI_CBRA	Junction H - R1250 60° L
98	Straight	BGH_AUT_RAI_CBRA	Straight - L1868
99	Straight	BGH_AUT_RAI_CBRA	Straight - L1019
100	Curve Horizontal	BGH_AUT_RAI_CBRA	Curve Horizontal - R1250 60°
101	Curve Horizontal	BGH_AUT_RAI_CBRA	Curve Horizontal - R1250 60°
102	Curve Horizontal	BGH_AUT_RAI_CBRA	Curve Horizontal - R1250 90°
103	Junction Y	BGH_AUT_RAI_CBRA	Junction Y - R1250 90°/60°
104	Straight	BGH_AUT_RAI_CBRA	Straight - L2572
105	Straight	BGH_AUT_RAI_CBRA	Straight - L300
106	Curve Vertical	BGH_AUT_RAI_East_Mod1_Upper ICS	Curve Vertical - R7500 8°
107	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
108	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L1363
109	Curve Vertical	BGH_AUT_RAI_East_Mod1_Upper ICS	Curve Vertical - R7500 8°
110	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L740

111	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
112	Curve Horizontal	BGH_AUT_RAI_East_Mod1_Upper ICS	Curve Horizontal - R1250 90°
113	Curve Horizontal	BGH_AUT_RAI_East_Mod1_Upper ICS	Curve Horizontal - R1250 90°
114	Curve Vertical	BGH_AUT_RAI_Middle ICS	Curve Vertical - R7500 8°
115	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
116	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2437
117	Curve Vertical	BGH_AUT_RAI_Middle ICS	Curve Vertical - R7500 8°
118	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2499
119	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2565
120	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
121	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
122	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
123	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
124	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
125	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
126	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
127	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
128	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
129	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
130	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
131	Straight	BGH_AUT_RAI_East_Mod1_Upper ICS	Straight - L2900
132	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
133	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
134	Straight	BGH_AUT_RAI_CBRA	Straight - L2900

3 East			
Index	Segment Type	Layer	Functional Name
1	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
2	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2100
3	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2100
4	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 90° L
5	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 90° R
6	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
7	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
8	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 30° L
9	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 30° L
10	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
11	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1457
12	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 30°
13	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2880
14	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
15	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1227
16	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2100
17	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
18	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
19	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1000

20	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2100
21	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2100
22	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
23	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2100
24	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
25	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
26	Straight	BGH_AUT_RAI_Middle ICS	Straight - L727
27	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 30°
28	Straight	BGH_AUT_RAI_Middle ICS	Straight - L950
29	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 30° L
30	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
31	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1074
32	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
33	Straight	BGH_AUT_RAI_Middle ICS	Straight - L825
34	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 30°
35	Straight	BGH_AUT_RAI_Middle ICS	Straight - L950
36	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
37	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1074
38	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 30° R
39	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
40	Straight	BGH_AUT_RAI_Middle ICS	Straight - L907
41	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2700
42	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
43	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 90°
44	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
45	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
46	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 90°
47	Straight	BGH_AUT_RAI_Middle ICS	Straight - L972
48	Straight	BGH_AUT_RAI_Middle ICS	Straight - L400
49	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 90° L
50	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2384
51	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 90°
52	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2800
53	Straight	BGH_AUT_RAI_Middle ICS	Straight - L572
54	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
55	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2600
56	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2396
57	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 90° L
58	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
59	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1000
60	Curve Vertical	BGH_AUT_RAI_East_Mod3_Upper ICS	Curve Vertical - R7500 8°
61	Straight	BGH_AUT_RAI_East_Mod3_Upper ICS	Straight - L2900
62	Straight	BGH_AUT_RAI_East_Mod3_Upper ICS	Straight - L1860
63	Curve Vertical	BGH_AUT_RAI_East_Mod3_Upper ICS	Curve Vertical - R7500 8°
64	Straight	BGH_AUT_RAI_East_Mod3_Upper ICS	Straight - L2900
65	Junction K	BGH_AUT_RAI_Middle ICS	Junction K - R1250 90° L

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66	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
67	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1390
68	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
69	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
70	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1030
71	Straight	BGH_AUT_RAI_Middle ICS	Straight - L774
72	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
73	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 30°
74	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 30°
75	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 30°
76	Straight	BGH_AUT_RAI_Middle ICS	Straight - L300
77	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2880
78	Curve Vertical	BGH_AUT_RAI_East_Mod3_Upper ICS	Curve Vertical - R7500 8°
79	Straight	BGH_AUT_RAI_East_Mod3_Upper ICS	Straight - L2900
80	Straight	BGH_AUT_RAI_East_Mod3_Upper ICS	Straight - L1860
81	Curve Vertical	BGH_AUT_RAI_East_Mod3_Upper ICS	Curve Vertical - R7500 8°
82	Junction H	BGH_AUT_RAI_East_Mod3_Upper ICS	Junction H - R1250 90° R
83	Straight	BGH_AUT_RAI_East_Mod3_Upper ICS	Straight - L1400
84	Junction H	BGH_AUT_RAI_East_Mod3_Upper ICS	Junction H - R1250 90° R
85	Straight	BGH_AUT_RAI_East_Mod3_Upper ICS	Straight - L2900
86	Straight	BGH_AUT_RAI_East_Mod3_Upper ICS	Straight - L1481
87	Junction H	BGH_AUT_RAI_East_Mod3_Upper ICS	Junction H - R1250 90° R
88	Straight	BGH_AUT_RAI_East_Mod3_Upper ICS	Straight - L2372
89	Junction H	BGH_AUT_RAI_East_Mod3_Upper ICS	Junction H - R1250 90° R
90	Straight	BGH_AUT_RAI_East_Mod3_Upper ICS	Straight - L499
91	Straight	BGH_AUT_RAI_East_Mod3_Upper ICS	Straight - L485
92	Straight	BGH_AUT_RAI_East_Mod3_Upper ICS	Straight - L1600
93	Straight	BGH_AUT_RAI_East_Mod3_Upper ICS	Straight - L2500
94	Curve Vertical	BGH_AUT_RAI_East_Mod3_Upper ICS	Curve Vertical - R7500 8°
95	Curve Vertical	BGH_AUT_RAI_East_Mod3_Upper ICS	Curve Vertical - R7500 8°
96	Straight	BGH_AUT_RAI_East_Mod3_Upper ICS	Straight - L707
97	Curve Vertical	BGH_AUT_RAI_East_Mod3_Upper ICS	Curve Vertical - R7500 8°
98	Curve Vertical	BGH_AUT_RAI_East_Mod3_Upper ICS	Curve Vertical - R7500 8°
99	Straight	BGH_AUT_RAI_East_Mod3_Upper ICS	Straight - L707
100	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2100
101	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
102	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
103	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
104	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
105	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
106	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
107	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
108	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
109	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
110	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
111	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900

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112	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
113	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
114	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
115	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
116	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
117	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
118	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
119	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
120	Straight	BGH_AUT_RAI_East_Mod3_Upper ICS	Straight - L2900
121	Straight	BGH_AUT_RAI_East_Mod3_Upper ICS	Straight - L2900
122	Straight	BGH_AUT_RAI_East_Mod3_Upper ICS	Straight - L2900
123	Straight	BGH_AUT_RAI_East_Mod3_Upper ICS	Straight - L2900
124	Straight	BGH_AUT_RAI_East_Mod3_Upper ICS	Straight - L2900
125	Straight	BGH_AUT_RAI_East_Mod3_Upper ICS	Straight - L2900
126	Straight	BGH_AUT_RAI_East_Mod3_Upper ICS	Straight - L2900
127	Straight	BGH_AUT_RAI_East_Mod3_Upper ICS	Straight - L2900
128	Straight	BGH_AUT_RAI_East_Mod3_Upper ICS	Straight - L2900
129	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
130	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
131	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
132	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
133	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
134	Straight	BGH_AUT_RAI_East_Mod3_Upper ICS	Straight - L2900
135	Straight	BGH_AUT_RAI_East_Mod3_Upper ICS	Straight - L2900
136	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
137	Straight	BGH_AUT_RAI_East_Mod3_Upper ICS	Straight - L2900
138	Straight	BGH_AUT_RAI_East_Mod3_Upper ICS	Straight - L2900
139	Straight	BGH_AUT_RAI_East_Mod3_Upper ICS	Straight - L2900

1 West			
Index	Segment Type	Layer	Functional Name
1	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
2	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 30° R
3	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 30° L
4	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 30° L
5	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 30° L
6	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
7	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1930
8	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1930
9	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
10	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1050
11	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1392
12	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
13	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1000
14	Curve Vertical	BGH_AUT_RAI_Middle ICS	Curve Vertical - R7500 8°
15	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2437

16	Curve Vertical	BGH_AUT_RAI_Middle ICS	Curve Vertical - R7500 8°
17	Straight	BGH_AUT_RAI_CBRA	Straight - L300
18	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
19	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2100
20	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2100
21	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2283
22	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
23	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
24	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 30°
25	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2512
26	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
27	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
28	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
29	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
30	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
31	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
32	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
33	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
34	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
35	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
36	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
37	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
38	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
39	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
40	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
41	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
42	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
43	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
44	Straight	BGH_AUT_RAI_Connections West-East	Straight - L2900
45	Straight	BGH_AUT_RAI_Connections West-East	Straight - L2900
46	Straight	BGH_AUT_RAI_Connections West-East	Straight - L300
47	Curve Horizontal	BGH_AUT_RAI_Connections West-East	Curve Horizontal - R1250 90°
48	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 30° R
49	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
50	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
51	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1560
52	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
53	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
54	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
55	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1000
56	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
57	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2086
58	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2100
59	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2100
60	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2100
61	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2100

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62	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2100
63	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
64	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
65	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
66	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
67	Straight	BGH_AUT_RAI_Middle ICS	Straight - L421
68	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 45°
69	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 45° L
70	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1350
71	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 30°
72	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2880
73	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 90°
74	Straight	BGH_AUT_RAI_Middle ICS	Straight - L338
75	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2664
76	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2100
77	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 60°
78	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 30° R
79	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2145
80	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
81	Junction H	BGH_AUT_RAI_West_Mod1_Upper ICS	Junction H - R1250 90° L
82	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2100
83	Curve Horizontal	BGH_AUT_RAI_West_Mod1_Upper ICS	Curve Horizontal - R1250 90°
84	Junction H	BGH_AUT_RAI_West_Mod1_Upper ICS	Junction H - R1250 90° R
85	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2100
86	Curve Horizontal	BGH_AUT_RAI_West_Mod1_Upper ICS	Curve Horizontal - R1250 90°
87	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
88	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
89	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2600
90	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L800
91	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L1007
92	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2000
93	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2000
94	Junction H	BGH_AUT_RAI_West_Mod1_Upper ICS	Junction H - R1250 90° L
95	Curve Vertical	BGH_AUT_RAI_West_Mod1_Upper ICS	Curve Vertical - R7500 8°
96	Curve Vertical	BGH_AUT_RAI_West_Mod1_Upper ICS	Curve Vertical - R7500 8°
97	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L1200
98	Junction Y	BGH_AUT_RAI_West_Mod1_Upper ICS	Junction Y - R1250 90°/90°
99	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L300
100	Curve Vertical	BGH_AUT_RAI_West_Mod1_Upper ICS	Curve Vertical - R7500 8°
101	Curve Vertical	BGH_AUT_RAI_West_Mod1_Upper ICS	Curve Vertical - R7500 8°
102	Straight	BGH_AUT_RAI_Middle ICS	Straight - L381
103	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2402
104	Junction H	BGH_AUT_RAI_West_Mod1_Upper ICS	Junction H - R1250 90° L
105	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L300
106	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
107	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900

108	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 30°
109	Straight	BGH_AUT_RAI_Middle ICS	Straight - L300
110	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2606
111	Curve Vertical	BGH_AUT_RAI_West_Mod1_Upper ICS	Curve Vertical - R7500 8°
112	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
113	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L1363
114	Curve Vertical	BGH_AUT_RAI_West_Mod1_Upper ICS	Curve Vertical - R7500 8°
115	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L1869
116	Curve Horizontal	BGH_AUT_RAI_West_Mod1_Upper ICS	Curve Horizontal - R1250 90°
117	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
118	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2128
119	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 30° L
120	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2753
121	Curve Vertical	BGH_AUT_RAI_CBRA	Curve Vertical - R7500 8°
122	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
123	Straight	BGH_AUT_RAI_CBRA	Straight - L2437
124	Curve Vertical	BGH_AUT_RAI_CBRA	Curve Vertical - R7500 8°
125	Straight	BGH_AUT_RAI_Middle ICS	Straight - L300
126	Straight	BGH_AUT_RAI_CBRA	Straight - L477
127	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 30° L
128	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 30°
129	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
130	Straight	BGH_AUT_RAI_Middle ICS	Straight - L880
131	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2230
132	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1480
133	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1930
134	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2100
135	Curve Vertical	BGH_AUT_RAI_West_Mod1_Upper ICS	Curve Vertical - R7500 8°
136	Curve Vertical	BGH_AUT_RAI_West_Mod1_Upper ICS	Curve Vertical - R7500 8°
137	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2137
138	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L303
139	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L300
140	Curve Vertical	BGH_AUT_RAI_West_Mod1_Upper ICS	Curve Vertical - R7500 8°
141	Curve Vertical	BGH_AUT_RAI_West_Mod1_Upper ICS	Curve Vertical - R7500 8°
142	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
143	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L1627
144	Straight	BGH_AUT_RAI_Connections West-East	Straight - L2822
145	Curve Vertical	BGH_AUT_RAI_Connections West-East	Curve Vertical - R7500 8°
146	Curve Vertical	BGH_AUT_RAI_Connections West-East	Curve Vertical - R7500 8°
147	Straight	BGH_AUT_RAI_Connections West-East	Straight - L300
148	Straight	BGH_AUT_RAI_Connections West-East	Straight - L1400
149	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
150	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2610
151	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
152	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L1363
153	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900

154	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L1363
155	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1560
156	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
157	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
158	Straight	BGH_AUT_RAI_Middle ICS	Straight - L300
159	Curve Horizontal	BGH_AUT_RAI_West_Mod1_Upper ICS	Curve Horizontal - R1250 180°
160	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
161	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
162	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
163	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
164	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
165	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
166	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
167	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
168	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
169	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
170	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
171	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
172	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
173	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
174	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
175	Straight	BGH_AUT_RAI_Connections West-East	Straight - L2900
176	Straight	BGH_AUT_RAI_Connections West-East	Straight - L2900
177	Straight	BGH_AUT_RAI_Connections West-East	Straight - L2900
178	Straight	BGH_AUT_RAI_Connections West-East	Straight - L2900
179	Straight	BGH_AUT_RAI_Connections West-East	Straight - L2900
180	Straight	BGH_AUT_RAI_Connections West-East	Straight - L2900
181	Straight	BGH_AUT_RAI_Connections West-East	Straight - L2900
182	Straight	BGH_AUT_RAI_Connections West-East	Straight - L2900
183	Straight	BGH_AUT_RAI_Connections West-East	Straight - L2900
184	Straight	BGH_AUT_RAI_Connections West-East	Straight - L2900
185	Straight	BGH_AUT_RAI_Connections West-East	Straight - L2900
186	Straight	BGH_AUT_RAI_Connections West-East	Straight - L2900
187	Straight	BGH_AUT_RAI_Connections West-East	Straight - L2900
188	Straight	BGH_AUT_RAI_Connections West-East	Straight - L2900
189	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
190	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
191	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
192	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
193	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
194	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
195	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
196	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
197	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
198	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
199	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900

200	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
201	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
202	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
203	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
204	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
205	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
206	Straight	BGH_AUT_RAI_CBRA	Straight - L2900
207	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
208	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1500
209	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1400

2 West			
Index	Segment Type	Layer	Functional Name
1	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2100
2	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
3	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 90° R
4	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
5	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 30° L
6	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 30°
7	Straight	BGH_AUT_RAI_Middle ICS	Straight - L900
8	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2880
9	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
10	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 90° L
11	Straight	BGH_AUT_RAI_Middle ICS	Straight - L900
12	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
13	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
14	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
15	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
16	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
17	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
18	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 45° L
19	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
20	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
21	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
22	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
23	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 90° L
24	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 90° R
25	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
26	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 90° R
27	Straight	BGH_AUT_RAI_Middle ICS	Straight - L900
28	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 90° L
29	Straight	BGH_AUT_RAI_Middle ICS	Straight - L900
30	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
31	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 30° L
32	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 30°
33	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2880

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34	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1695
35	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1495
36	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
37	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
38	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2163
39	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
40	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2746
41	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1731
42	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2200
43	Straight	BGH_AUT_RAI_Middle ICS	Straight - L315
44	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
45	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1143
46	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2100
47	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2100
48	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2100
49	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2100
50	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
51	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2091
52	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 45° L
53	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 45°
54	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2163
55	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 45°
56	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
57	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
58	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
59	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
60	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
61	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
62	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
63	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
64	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
65	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
66	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
67	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
68	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
69	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
70	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
71	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
72	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
73	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
74	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
75	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
76	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
77	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
78	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
79	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900

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80	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
81	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
82	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
83	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
84	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
85	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
86	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
87	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1970
88	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
89	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 30° L
90	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 30°
91	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2880
92	Curve Vertical	BGH_AUT_RAI_Middle ICS	Curve Vertical - R7500 8°
93	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
94	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2437
95	Curve Vertical	BGH_AUT_RAI_Middle ICS	Curve Vertical - R7500 8°
96	Straight	BGH_AUT_RAI_CBRA	Straight - L2487
97	Junction H	BGH_AUT_RAI_CBRA	Junction H - R1250 60° R
98	Straight	BGH_AUT_RAI_CBRA	Straight - L1868
99	Straight	BGH_AUT_RAI_CBRA	Straight - L1019
100	Curve Horizontal	BGH_AUT_RAI_CBRA	Curve Horizontal - R1250 60°
101	Curve Horizontal	BGH_AUT_RAI_CBRA	Curve Horizontal - R1250 60°
102	Curve Horizontal	BGH_AUT_RAI_CBRA	Curve Horizontal - R1250 90°
103	Straight	BGH_AUT_RAI_Middle ICS	Straight - L300
104	Junction Y	BGH_AUT_RAI_CBRA	Junction Y - R1250 90°/90°
105	Straight	BGH_AUT_RAI_CBRA	Straight - L300
106	Junction Y	BGH_AUT_RAI_CBRA	Junction Y - R1250 90°/60°
107	Straight	BGH_AUT_RAI_CBRA	Straight - L2571
108	Curve Vertical	BGH_AUT_RAI_West_Mod1_Upper ICS	Curve Vertical - R7500 8°
109	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
110	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L1363
111	Curve Vertical	BGH_AUT_RAI_West_Mod1_Upper ICS	Curve Vertical - R7500 8°
112	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2499
113	Curve Horizontal	BGH_AUT_RAI_West_Mod1_Upper ICS	Curve Horizontal - R1250 90°
114	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
115	Curve Horizontal	BGH_AUT_RAI_West_Mod1_Upper ICS	Curve Horizontal - R1250 90°
116	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L739
117	Straight	BGH_AUT_RAI_CBRA	Straight - L300
118	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2565
119	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
120	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
121	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
122	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
123	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
124	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
125	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900

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126	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
127	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
128	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
129	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
130	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
131	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
132	Straight	BGH_AUT_RAI_West_Mod1_Upper ICS	Straight - L2900
133	Straight	BGH_AUT_RAI_CBRA	Straight - L2900

3 West			
Index	Segment Type	Layer	Functional Name
1	Curve Vertical	BGH_AUT_RAI_West_Mod3_Upper ICS	Curve Vertical - R7500 8°
2	Curve Vertical	BGH_AUT_RAI_West_Mod3_Upper ICS	Curve Vertical - R7500 8°
3	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
4	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
5	Junction H	BGH_AUT_RAI_West_Mod3_Upper ICS	Junction H - R1250 90° R
6	Junction H	BGH_AUT_RAI_West_Mod3_Upper ICS	Junction H - R1250 90° R
7	Straight	BGH_AUT_RAI_West_Mod3_Upper ICS	Straight - L499
8	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2100
9	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 30° L
10	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 90° L
11	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 30°
12	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 30°
13	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 90° R
14	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
15	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 90°
16	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
17	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
18	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 90°
19	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
20	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2100
21	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2236
22	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2100
23	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2100
24	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
25	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
26	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
27	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1000
28	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
29	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
30	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2100
31	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
32	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2100
33	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
34	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 30° L
35	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1227

36	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 30°
37	Straight	BGH_AUT_RAI_Middle ICS	Straight - L727
38	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2880
39	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
40	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1457
41	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
42	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2880
43	Straight	BGH_AUT_RAI_Middle ICS	Straight - L300
44	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
45	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
46	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1031
47	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
48	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 30°
49	Straight	BGH_AUT_RAI_Middle ICS	Straight - L950
50	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 90°
51	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 90° R
52	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2600
53	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
54	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1372
55	Straight	BGH_AUT_RAI_Middle ICS	Straight - L972
56	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2836
57	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 30°
58	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
59	Straight	BGH_AUT_RAI_Middle ICS	Straight - L825
60	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 30° L
61	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2383
62	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
63	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1124
64	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
65	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1507
66	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
67	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 90° R
68	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 30° L
69	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
70	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 90° R
71	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
72	Junction H	BGH_AUT_RAI_Middle ICS	Junction H - R1250 90° L
73	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2000
74	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1074
75	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 90°
76	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1600
77	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
78	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1100
79	Straight	BGH_AUT_RAI_Middle ICS	Straight - L843
80	Straight	BGH_AUT_RAI_Middle ICS	Straight - L843
81	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 30°

82	Straight	BGH_AUT_RAI_Middle ICS	Straight - L774
83	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2785
84	Curve Vertical	BGH_AUT_RAI_West_Mod3_Upper ICS	Curve Vertical - R7500 8°
85	Straight	BGH_AUT_RAI_West_Mod3_Upper ICS	Straight - L2900
86	Straight	BGH_AUT_RAI_West_Mod3_Upper ICS	Straight - L1860
87	Curve Vertical	BGH_AUT_RAI_West_Mod3_Upper ICS	Curve Vertical - R7500 8°
88	Straight	BGH_AUT_RAI_West_Mod3_Upper ICS	Straight - L2900
89	Straight	BGH_AUT_RAI_West_Mod3_Upper ICS	Straight - L1899
90	Straight	BGH_AUT_RAI_West_Mod3_Upper ICS	Straight - L300
91	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2888
92	Curve Vertical	BGH_AUT_RAI_West_Mod3_Upper ICS	Curve Vertical - R7500 8°
93	Curve Vertical	BGH_AUT_RAI_West_Mod3_Upper ICS	Curve Vertical - R7500 8°
94	Straight	BGH_AUT_RAI_West_Mod3_Upper ICS	Straight - L707
95	Straight	BGH_AUT_RAI_West_Mod3_Upper ICS	Straight - L2000
96	Straight	BGH_AUT_RAI_West_Mod3_Upper ICS	Straight - L707
97	Straight	BGH_AUT_RAI_West_Mod3_Upper ICS	Straight - L2900
98	Curve Vertical	BGH_AUT_RAI_West_Mod3_Upper ICS	Curve Vertical - R7500 8°
99	Straight	BGH_AUT_RAI_West_Mod3_Upper ICS	Straight - L2900
100	Straight	BGH_AUT_RAI_West_Mod3_Upper ICS	Straight - L1860
101	Curve Vertical	BGH_AUT_RAI_West_Mod3_Upper ICS	Curve Vertical - R7500 8°
102	Straight	BGH_AUT_RAI_West_Mod3_Upper ICS	Straight - L2900
103	Straight	BGH_AUT_RAI_West_Mod3_Upper ICS	Straight - L2900
104	Curve Horizontal	BGH_AUT_RAI_West_Mod3_Upper ICS	Curve Horizontal - R1250 90°
105	Straight	BGH_AUT_RAI_West_Mod3_Upper ICS	Straight - L2572
106	Straight	BGH_AUT_RAI_West_Mod3_Upper ICS	Straight - L1783
107	Curve Vertical	BGH_AUT_RAI_Maintenance	Curve Vertical - R7500 8°
108	Straight	BGH_AUT_RAI_Maintenance	Straight - L2900
109	Curve Vertical	BGH_AUT_RAI_Maintenance	Curve Vertical - R7500 8°
110	Straight	BGH_AUT_RAI_Maintenance	Straight - L648
111	Straight	BGH_AUT_RAI_Maintenance	Straight - L2900
112	Straight	BGH_AUT_RAI_Maintenance	Straight - L300
113	Curve Horizontal	BGH_AUT_RAI_Middle ICS	Curve Horizontal - R1250 90°
114	Straight	BGH_AUT_RAI_Middle ICS	Straight - L1100
115	Junction T	BGH_AUT_RAI_Middle ICS	Junction T - R1250
116	Straight	BGH_AUT_RAI_Connections West-East	Straight - L2900
117	Straight	BGH_AUT_RAI_Connections West-East	Straight - L2900
118	Straight	BGH_AUT_RAI_Connections West-East	Straight - L870
119	Straight	BGH_AUT_RAI_Connections West-East	Straight - L870
120	Straight	BGH_AUT_RAI_Maintenance_Level3	Straight - L2000
121	Junction T	BGH_AUT_RAI_Maintenance_Level3	Junction T - R1250
122	Straight	BGH_AUT_RAI_Maintenance_Level3	Straight - L2000
123	Straight	BGH_AUT_RAI_Maintenance_Level3	Straight - L2500
124	Curve Horizontal	BGH_AUT_RAI_West_Mod3_Upper ICS	Curve Horizontal - R1250 180°
125	Straight	BGH_AUT_RAI_West_Mod3_Upper ICS	Straight - L2900
126	Straight	BGH_AUT_RAI_West_Mod3_Upper ICS	Straight - L2900
127	Straight	BGH_AUT_RAI_West_Mod3_Upper ICS	Straight - L2900

128	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
129	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
130	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
131	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
132	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
133	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
134	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
135	Straight	BGH_AUT_RAI_Connections West-East	Straight - L2900
136	Straight	BGH_AUT_RAI_Connections West-East	Straight - L2900
137	Straight	BGH_AUT_RAI_Connections West-East	Straight - L2900
138	Straight	BGH_AUT_RAI_Connections West-East	Straight - L2900
139	Straight	BGH_AUT_RAI_Connections West-East	Straight - L2900
140	Straight	BGH_AUT_RAI_Connections West-East	Straight - L2900
141	Straight	BGH_AUT_RAI_Connections West-East	Straight - L2900
142	Straight	BGH_AUT_RAI_Connections West-East	Straight - L2900
143	Straight	BGH_AUT_RAI_Connections West-East	Straight - L2900
144	Straight	BGH_AUT_RAI_Connections West-East	Straight - L2900
145	Straight	BGH_AUT_RAI_Connections West-East	Straight - L2900
146	Straight	BGH_AUT_RAI_Connections West-East	Straight - L2900
147	Straight	BGH_AUT_RAI_Connections West-East	Straight - L2900
148	Straight	BGH_AUT_RAI_Connections West-East	Straight - L2900
149	Straight	BGH_AUT_RAI_West_Mod3_Upper ICS	Straight - L2900
150	Straight	BGH_AUT_RAI_West_Mod3_Upper ICS	Straight - L2900
151	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
152	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
153	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
154	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
155	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
156	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
157	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
158	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
159	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
160	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
161	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
162	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
163	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
164	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
165	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
166	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
167	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
168	Straight	BGH_AUT_RAI_West_Mod3_Upper ICS	Straight - L2900
169	Straight	BGH_AUT_RAI_West_Mod3_Upper ICS	Straight - L2900
170	Straight	BGH_AUT_RAI_West_Mod3_Upper ICS	Straight - L2900
171	Straight	BGH_AUT_RAI_West_Mod3_Upper ICS	Straight - L2900
172	Straight	BGH_AUT_RAI_West_Mod3_Upper ICS	Straight - L2900
173	Straight	BGH_AUT_RAI_West_Mod3_Upper ICS	Straight - L2900

174	Straight	BGH_AUT_RAI_West_Mod3_Upper ICS	Straight - L2900
175	Straight	BGH_AUT_RAI_West_Mod3_Upper ICS	Straight - L2900
176	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
177	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
178	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
179	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
180	Straight	BGH_AUT_RAI_West_Mod3_Upper ICS	Straight - L2900
181	Straight	BGH_AUT_RAI_West_Mod3_Upper ICS	Straight - L2900
182	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
183	Straight	BGH_AUT_RAI_Maintenance	Straight - L2900
184	Straight	BGH_AUT_RAI_Maintenance	Straight - L2900
185	Straight	BGH_AUT_RAI_Maintenance	Straight - L2900
186	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
187	Straight	BGH_AUT_RAI_Middle ICS	Straight - L2900
188	Straight	BGH_AUT_RAI_Maintenance_Level3	Straight - L2000

Total track length: 8061ft

CBRAE inspection positions:	24	
CBRAE conveyors	48	
CBRAW inspection positions:	24	
CBRAW conveyors	48	
Major components supplied by BEUMER per each CBRA station:		
Bag Status Display (BSD)	1	Touch screen based PC, including power supply
Wireless barcode scanner (ZEBRA)	1	power supply via USB
COM server (Moxa)	1	translates Ethernet to RS232 communication, including power supply
Bag removal point (BRP) conveyor	1	
Load conveyor Clear Line (CL)	1	
E-Stop pushbutton	1	
Motor disconnector switch	2	
Manual intervention control switch (MICS)	2	
Each CBRA room is in addition equipped with:		
E-Stop pushbuttons	4	
CBRA active threat operator panel	4	
Jam Reset and Maintenance call (JRMC) operator station	6	Next to each fencing access control box, including E-Stop pushbutton
audible / visual CBRA alarm beacon	1	

MES position 1E:	1	
MES conveyors 1E:	10	2 of them are curved belt conveyors
MES backup position 1W:	1	integrated in a CBRA inspection table in 1W CBRA room
Major components supplied by BEUMER at 1E MES station:		
Bag Status Display (BSD)	1	Touch screen based PC, including power supply
Wireless barcode scanner (ZEBRA)	1	power supply via USB
COM server (Moxa)	1	translates Ethernet to RS232 communication, including power supply
Label printer	1	for IATA code
MES conveyor	1	
MES station feeding and leaving conveyors	9	
Jam Reset and Maintenance call (JRMC) operator station	1	
Motor disconnector switch	10	
Manual intervention control switch (MICS)	10	
Major components supplied by BEUMER at 1W backup MES station:		all other items at this station are re-used from CBRA station equipment
Label printer	1	for IATA code

ID	Speed (fpm)	Type	CS	Disconnect	Warning	PEC	MES CS
MES					1	1	
MES-01	120	Queue	1	1		2	
MES-02	120	Queue	1	1		2	
MES-03	120	PowerTurn	1	1		2	
MES-04	120	Queue	1	1		2	
MES-05	120	Queue	1	1		2	
MES-06	120	Queue	1	1		2	
MES-07	120	Queue	2	1		2	1
MES-08	120	PowerTurn	1	1		2	
MES-09	120	Queue	1	1		3	
MES-10	120	Queue	1	1		3	

1E:		
Load stations	2	
Load conveyors	4	
Unload stations	2	
unload conveyors	4	
Motor disconnector switch	8	
Manual intervention control switch (MICS)	8	
Jam Reset (JR) operator station	2	close to loading and unloadings, including E-Stop pushbutton
3D bag measuring camera	2	1 camera per loading line
2E:		
Load stations	1	
Load conveyors	2	
Unload stations	2	
unload conveyors	4	
Motor disconnector switch	6	
Manual intervention control switch (MICS)	6	
Jam Reset (JR) operator station	2	close to loading and unloadings, including E-Stop pushbutton
3D bag measuring camera	1	1 camera per loading line
3E:		
Load stations	1	
Load conveyors	2	
Unload stations	2	
unload conveyors	4	
Motor disconnector switch	6	
Manual intervention control switch (MICS)	6	
Jam Reset (JR) operator station	2	close to loading and unloadings, including E-Stop pushbutton
3D bag measuring camera	1	1 camera per loading line
1W:		
Load stations	1	
Load conveyors	2	
Unload stations	2	
unload conveyors	4	
Motor disconnector switch	6	
Manual intervention control switch (MICS)	6	
Jam Reset (JR) operator station	2	close to loading and unloadings, including E-Stop pushbutton
3D bag measuring camera	1	1 camera per loading line
2W:		
Load stations	1	
Load conveyors	2	
Unload stations	2	
unload conveyors	4	
Motor disconnector switch	6	
Manual intervention control switch (MICS)	6	
Jam Reset (JR) operator station	2	close to loading and unloadings, including E-Stop pushbutton
3D bag measuring camera	1	1 camera per loading line
3W:		
Load stations	1	

Load conveyors	2	
Unload stations	2	
unload conveyors	4	
Motor disconnector switch	6	
Manual intervention control switch (MICS)	6	
Jam Reset (JR) operator station	2	close to loading and unloadings, including E-Stop pushbutton
3D bag measuring camera	1	1 camera per loading line

1E:		
MCP	2	MCP0xC, MCP1xC
CSC	13	CSCxxyyC, 16kW SEW movitrans
NW	2	NW0xC
2E:		
MCP	2	MCP0xC, MCP1xC
CSC	7	CSCxxyyC, 16kW SEW movitrans
NW	2	NW0xC
3E:		
MCP	2	MCP0xC, MCP1xC
CSC	8	CSCxxyyC, 16kW SEW movitrans
NW	2	NW0xC
1W:		
MCP	2	MCP0xC, MCP1xC
CSC	12	CSCxxyyC, 16kW SEW movitrans
NW	2	NW0xC
2W:		
MCP	2	MCP0xC, MCP1xC
CSC	7	CSCxxyyC, 16kW SEW movitrans
NW	2	NW0xC
3W:		
MCP	3	MCP0xC, MCP1xC, MCP2xC
CSC	8	CSCxxyyC, 16kW SEW movitrans
CSC	2	CSCxxyyC, 4kW SEW movitrans
NW	2	NW0xC
CBRAE:		
MCP	1	MCP0xC
CSC	2	CSCxxyyC, 16kW SEW movitrans
NW	1	NW01C
CBRAW:		
MCP	1	MCP0xC
CSC	2	CSCxxyyC, 16kW SEW movitrans
NW	1	NW01C

ACC doors	info	All access doors are equipped with a safety dor switch make Schmersal type AZM201. All doors are equipped with an access control operator station
ACC gates	info	All access gates are equipped with a safety dor switch make Schmersal type MZM100. All doors are equipped with an access control operator station
Exit doors	info	Also named ACC in system and separating Mods at tunnel transfers. Equipped with safety dor switch make Schmersal type AZM201 in 1 Mod and a safety proximity switch make SICK type IN30 series in the other Mod. No control operator station
ES	info	E-Stop operator station

1E:		
ACC doors	15	
ACC gates	15	
Exit door	1	
ES	14	next to each access door control box. 2 E-Stops are covered in list for loading and unloading stations as in addition there is a Jam reset integrated in same operator station
2E:		
ACC doors	8	
ACC gates	3	
ES	6	next to each access door control box. 2 E-Stops are covered in list for loading and unloading stations as in addition there is a Jam reset integrated in same operator station
3E:		
ACC doors	13	
ACC gates	9	
Exit door	1	
ES	11	next to each access door control box. 2 E-Stops are covered in list for loading and unloading stations as in addition there is a Jam reset integrated in same operator station
1W:		
ACC doors	14	
ACC gates	14	
Exit door	1	
ES	12	next to each access door control box. 2 E-Stops are covered in list for loading and unloading stations as in addition there is a Jam reset integrated in same operator station
2W:		
ACC doors	8	
ACC gates	3	
ES	6	next to each access door control box. 2 E-Stops are covered in list for loading and unloading stations as in addition there is a Jam reset integrated in same operator station
3W:		
ACC doors	18	
ACC gates	9	
Exit door	1	
ES	16	next to each access door control box. 2 E-Stops are covered in list for loading and unloading stations as in addition there is a Jam reset integrated in same operator station

CBRAE:		
ACC doors	9	
ACC gates	0	
ES	3	next to each access door control box. 6 E-Stops are covered in list for CBRA stations as in addition there is a Jam reset and Maintenance call integrated in same operator station

CBRAW:		
ACC doors	9	
ACC gates	0	
ES	3	next to each access door control box. 6 E-Stops are covered in list for CBRA stations as in addition there is a Jam reset and Maintenance call integrated in same operator station

Module 3W is equipped with the ICS system maintenance area.
In addition this area covers the functionality of threat bag handling.

BEUMER (Maintenance area) operator station (BeOS)	1	ICS3W.BEOS01C
Maintenance area pushbutton operator station	1	
Active threat reset operator station	1	
LEO track free operator station	1	
Maintenance area E-Stop operator control station	1	
entry quing area full visual indicator	1	
autoca arrival audible and visual indicator	1	
Threat bag arrival audible and visual indicator	2	
track monitoring photo eyes for threat bag handling	3	

server and network equipment in control rooms supplied by BEUMER:

Terminal primary control room

servers	4	rack mounted
Switch	1	ICS WiFi system, inside panel
Switch	2	ICS ICS LAN system, inside panel
patch panel	2	rack mounted
UPS	2	rack mounted
UPS battery pack	2	rack mounted

Con. A secondary control room

servers	3	rack mounted
Switch	1	ICS WiFi system, inside panel
Switch	2	ICS ICS LAN system, inside panel
patch panel	2	rack mounted
UPS	2	rack mounted
UPS battery pack	2	rack mounted

server and network equipment in control rooms supplied by BEUMER:

Terminal primary control room			
	servers	1	Offline server
	Switch	1	ICS ICS LAN system, inside panel
	patch panel	1	rack mounted
	terminals incl. monitors	1	
Con. A secondary control room			
	terminals incl. monitors	2	

Electric and control tools for operation and maintenance:

PDA	6	handheld wireless operator device to operate communicating autoca inside the track
battery pack	6	operator device to support operation of broken autoca inside the track

Local visualisation station	7	21.5" industrial display together with an industrial PC installed in a field mounted panel Locations: CBRA East room CBRA West room Central position between Mod 1E and 2E Central position between Mod 2E and 3E Central position between Mod 1W and 2W Central position between Mod 2W and 3W MES (1E)

Field network panel and field network equipment supplied by BEUMER:

1E:			
ICS1E.NW01C	Switch	1	ICS WiFi system, inside panel
	Switch	1	ICS ICS LAN system, inside panel
	patch panel	1	inside panel
	UPS	1	inside panel
	Ethernet Thermometer and Hygrometer	1	inside panel
	Access Point	4	field equipment connected to panel
	AirMagnet WiFi sensors	3	field equipment connected to panel
	Sensor of Thermometer and Hygrometer	1	field equipment connected to panel
ICS1E.NW02C	Switch	1	ICS WiFi system, inside panel
	Switch	0	ICS ICS LAN system, inside panel
	patch panel	1	inside panel
	UPS	0	inside panel
	Ethernet Thermometer and Hygrometer	0	inside panel
	Access Point	3	field equipment connected to panel
	AirMagnet WiFi sensors	3	field equipment connected to panel
	Sensor of Thermometer and Hygrometer	0	field equipment connected to panel
2E:			
ICS2E.NW01C	Switch	1	ICS WiFi system, inside panel
	Switch	0	ICS ICS LAN system, inside panel
	patch panel	1	inside panel
	UPS	0	inside panel
	Ethernet Thermometer and Hygrometer	1	inside panel
	Access Point	2	field equipment connected to panel
	AirMagnet WiFi sensors	2	field equipment connected to panel
	Sensor of Thermometer and Hygrometer	1	field equipment connected to panel
ICS2E.NW02C	Switch	1	ICS WiFi system, inside panel
	Switch	0	ICS ICS LAN system, inside panel
	patch panel	1	inside panel
	UPS	0	inside panel
	Ethernet Thermometer and Hygrometer	0	inside panel
	Access Point	1	field equipment connected to panel
	AirMagnet WiFi sensors	1	field equipment connected to panel
	Sensor of Thermometer and Hygrometer	0	field equipment connected to panel
3E:			
ICS3E.NW01C	Switch	1	ICS WiFi system, inside panel
	Switch	1	ICS ICS LAN system, inside panel
	patch panel	1	inside panel
	UPS	1	inside panel
	Ethernet Thermometer and Hygrometer	1	inside panel
	Access Point	3	field equipment connected to panel

	AirMagnet WiFi sensors	2	field equipment connected to panel
	Sensor of Thermometer and Hygrometer	1	field equipment connected to panel
ICS3E.NW02C	Switch	1	ICS WiFi system, inside panel
	Switch	0	ICS ICS LAN system, inside panel
	patch panel	1	inside panel
	UPS	0	inside panel
	Ethernet Thermometer and Hygrometer	0	inside panel
	Access Point	2	field equipment connected to panel
	AirMagnet WiFi sensors	1	field equipment connected to panel
	Sensor of Thermometer and Hygrometer	0	field equipment connected to panel
1W:			
ICS1W.NW01C	Switch	1	ICS WiFi system, inside panel
	Switch	1	ICS ICS LAN system, inside panel
	patch panel	1	inside panel
	UPS	1	inside panel
	Ethernet Thermometer and Hygrometer	1	inside panel
	Access Point	5	field equipment connected to panel
	AirMagnet WiFi sensors	4	field equipment connected to panel
	Sensor of Thermometer and Hygrometer	1	field equipment connected to panel
ICS1W.NW02C	Switch	1	ICS WiFi system, inside panel
	Switch	0	ICS ICS LAN system, inside panel
	patch panel	1	inside panel
	UPS	0	inside panel
	Ethernet Thermometer and Hygrometer	0	inside panel
	Access Point	2	field equipment connected to panel
	AirMagnet WiFi sensors	2	field equipment connected to panel
	Sensor of Thermometer and Hygrometer	0	field equipment connected to panel
2W:			
ICS2W.NW01C	Switch	1	ICS WiFi system, inside panel
	Switch	0	ICS ICS LAN system, inside panel
	patch panel	1	inside panel
	UPS	1	inside panel
	Ethernet Thermometer and Hygrometer	1	inside panel
	Access Point	4	field equipment connected to panel
	AirMagnet WiFi sensors	3	field equipment connected to panel
	Sensor of Thermometer and Hygrometer	1	field equipment connected to panel
ICS2W.NW02C	Switch	1	ICS WiFi system, inside panel
	Switch	0	ICS ICS LAN system, inside panel
	patch panel	1	inside panel
	UPS	0	inside panel
	Ethernet Thermometer and Hygrometer	0	inside panel
	Access Point	1	field equipment connected to panel
	AirMagnet WiFi sensors	2	field equipment connected to panel
	Sensor of Thermometer and Hygrometer	0	field equipment connected to panel

3W:			
ICS3W.NW01C	Switch	1	ICS WiFi system, inside panel
	Switch	1	ICS ICS LAN system, inside panel
	patch panel	1	inside panel
	UPS	1	inside panel
	Ethernet Thermometer and Hygrometer	1	inside panel
	Access Point	3	field equipment connected to panel
	AirMagnet WiFi sensors	3	field equipment connected to panel
	Sensor of Thermometer and Hygrometer	1	field equipment connected to panel
ICS3W.NW02C	Switch	1	ICS WiFi system, inside panel
	Switch	0	ICS ICS LAN system, inside panel
	patch panel	1	inside panel
	UPS	0	inside panel
	Ethernet Thermometer and Hygrometer	0	inside panel
	Access Point	3	field equipment connected to panel
	AirMagnet WiFi sensors	1	field equipment connected to panel
	Sensor of Thermometer and Hygrometer	0	field equipment connected to panel
CBRAE:			
CBRAE.NW01C	Switch	1	ICS WiFi system, inside panel
	Switch	3	ICS ICS LAN system, inside panel
	patch panel	2	inside panel
	UPS	1	inside panel
	Ethernet Thermometer and Hygrometer	0	inside panel
	Access Point	1	field equipment connected to panel
	AirMagnet WiFi sensors	2	field equipment connected to panel
	Sensor of Thermometer and Hygrometer	0	field equipment connected to panel
CBRAW:			
CBRAW.NW01C	Switch	1	ICS WiFi system, inside panel
	Switch	3	ICS ICS LAN system, inside panel
	patch panel	2	inside panel
	UPS	1	inside panel
	Ethernet Thermometer and Hygrometer	0	inside panel
	Access Point	1	field equipment connected to panel
	AirMagnet WiFi sensors	2	field equipment connected to panel
	Sensor of Thermometer and Hygrometer	0	field equipment connected to panel

The ICS system PLCs are executed with Master and Backup device and in cold backup arrangement.
Only 1 PLC of a control system will be the active PLC at a time.

CPU:	Siemens SIMATIC S7-300 CPU319F-3 PN/DP, 2.5MB	
1E:		
MCP03C	Master	PLC of East side ICS system
3E:		
MCP03C	Backup	PLC of East side ICS system
1W:		
MCP03C	Master	PLC of West side ICS system
3W:		
MCP03C	Backup	PLC of West side ICS system
CBRAE:		
MCP03C	Master	PLC of East side CBRA system
MCP03C	Backup	PLC of East side CBRA system
CBRAW:		
MCP03C	Master	PLC of West side CBRA system
MCP03C	Backup	PLC of West side CBRA system

Mod 3W is equipped with an autoca (car) lift to be able to reach the ICS maintenance area and threat bag handling area, both located on building level 3. 1 level below the general system.

General components:		
Hoist drive	1	SEW FH57/GDRL80M4 including thermal protection (TF)
brake		BE2
Transmitter		AS7W
Frequency converter		SEW movidrive, 4kW, DHF41B
brake resistor		SEW, BW268-T
Locking drive	1	SEW FH47/GDRL71M4 including thermal protection (TF)
brake		BE1
Transmitter		AS7W
Frequency converter		SEW movidrive, 1,5kW, DEH11B
brake resistor		SEW, BW100-005
vehicle safety locking bolt	2	operated by 24V DC linear drive, 1 is installed on level 4 before lift, 1 is installed on lift itself
Track power	1	CSC1101C, 4kW SEW movitrans
Lift safety system:		
Speed controller	1	SEW Movisafe, UCS11B/PS, for regular testing of Lift hoist drive brake
Lift control:		
Proximity switches Lift positioning	4	
Lift Limit switches	2	
Proximity switch Lift Safety Locking bolt	1	
Proximity switch Lift Gap control	2	
Proximity switch Lift Locking Drive	2	
Standard Proximity switch vehicle safety locking l	3	
Safety Proximity switch vehicle safety locking bol	1	1 of safety locking bolts on level 4 is monitored by a safety sensor
Photo eyes track height check and track monitori	2	1 on level 3 and 1 on level 4
Motor disconnector switch	2	Lift hoist drive, Lift locking drive
Vehicle lock disconnector switch	2	vehicle safety locking bolts
Manual intervention control switch (MICS)	4	Lift hoist drive, Lift locking drive, vehicle safety locking bolts
pushbutton operator station on level 4	1	ACL1105CB, Lift operation (request/send)
pushbutton operator station on level 3	1	MA1202CB, Lift operation (Auto/Purge/Start), located at Maintenance place

APPENDIX C - ICS SPARE PARTS INVENTORY

Part Category	Part Sub-Category	Part Description	BEUMER Group Part Number	Minimum Stock Levels For Site	Maximum delivery time (lead time_weeks)	Total quantity of type installed in CBS/BHS by BEUMER Group (fleet/piece)	Unit of Measure (UOM)	Classification: Component, part or assembly	OEM Manufacturer	OEM Manufacturer Part Number	A/B/C Classification A= Critical B=Less Critical C=Uncritical
(1.05.N.3.a.1)	(1.05.N.2.b)	(1.05.N.3.a.2)	(1.05.N.3.a.3)	(1.05.N.3.a.6)	(1.05.N.3.a.7)	(1.05.N.3.a.8)		(1.05.N.3.a.9)	(1.05.N.3.a.10)	(1.05.N.3.a.11)	
AUTOCA®	Electrical	Actuating element	3016355	2	6	59	ea	Component	BEUMER	AZ/AZM201-B30-RTAG1P1	A
AUTOCA®	Electrical	Actuating element	3016356	2	6	40	ea	Component	BEUMER	AZ/AZM201-B30-LTAG1P1	A
AUTOCA®	Electrical	Actuating element	52563	2	9	53	ea	Component	BEUMER	MZM100-B1.1	A
AUTOCA®	Electrical	Limit switch	3016351	4	6	99	ea	Component	BEUMER	AZM201Z-I2-CC-T-1P2PW	A
AUTOCA®	Electrical	Electromagnetic end switch	52562	2	6	53	ea	Component	BEUMER	MZM100ST-1P2PI-a	A
AUTOCA®	Electrical	Plug-in connector with cable	52564	2	6	53	ea	Component	BEUMER	1189931	A
AUTOCA®	Electrical	Assembly material	768931	4	8	134	ea	Component	BEUMER	ground straps	C
AUTOCA®	Electrical	Braking resistor	60835	2	3	134	ea	Component	BEUMER	BW068-006T	B
AUTOCA®	Electrical	Indicator light	45303	1	8	15	ea	Component	BEUMER	Wamlicht-Hupe	C
AUTOCA®	Electrical	Reflector	27877	10	6	307	ea	Component	BEUMER	P250	A
AUTOCA®	Electrical	Plug-in connector with cable	65729	2	10	144	ea	Component	BEUMER	P29016-M5	A
AUTOCA®	Electrical	Plug-in connect.w.cable	65776	2	8	144	ea	Component	BEUMER	RKM26-5M	A
AUTOCA®	Electrical	Plug-in connect.w.cable	65777	2	13	144	ea	Component	BEUMER	RKM36-5M/S3059	A
AUTOCA®	Electrical	Plug-in connect.w.cable	64963	4	8	304	ea	Component	BEUMER	SAC-4P-5,0-PUR	A
AUTOCA®	Electrical	Plug-in connector	51669	2	7	144	ea	Component	BEUMER	SACC-M12FSB-3SC SH PB	A
AUTOCA®	Electrical	Plug-in connector	52984	3	8	304	ea	Component	BEUMER	SACC-M12MS-4CON-PG7	A
AUTOCA®	Electrical	Plug-in connector	51670	2	7	144	ea	Component	BEUMER	SACC-M12MSB-3SC SH PB	A
AUTOCA®	Electrical	Junction box	64780	1	5	7	ea	Component	BEUMER	E-DAT module	A
AUTOCA®	Electrical	Support	3014105	1	6	7	ea	Component	BEUMER	E3D301	C
AUTOCA®	Electrical	Camera	3014101	1	5	7	ea	Component	BEUMER	O3DIRDKG/E1/GM/S/60	C
AUTOCA®	Electrical	Plug-in connector with cable	3014102	1	6	7	ea	Component	BEUMER	ADOGH080MSS0005B08	C
AUTOCA®	Electrical	Plug-in connector with cable	3014104	1	6	7	ea	Component	BEUMER	VSTGN040ZDS0010L04STGP080--S	C
AUTOCA®	Electrical	Indicator light	3018287	1	8	4	ea	Component	BEUMER	855H-BCD24ADR5	C
AUTOCA®	Electrical	Indicator light	60722	1	8	4	ea	Component	BEUMER	855E-24TL3	C
AUTOCA®	Electrical	Interconnecting cable	60448	1	6	48	ea	Component	BEUMER	60448	C
AUTOCA®	Electrical	Switching element	3006042	2	8	1222	ea	Component	BEUMER	3SU1550-0AA10-0AA0	B
AUTOCA®	Electrical	Switching element	64902	2	6	454	ea	Component	BEUMER	3SU1	A
AUTOCA®	Electrical	Switching element	65045	2	6	934	ea	Component	BEUMER	3SU1	A
AUTOCA®	Electrical	Lamphoider	3017616	1	5	111	ea	Component	BEUMER	3SU1	A
AUTOCA®	Electrical	Lamphoider	65046	1	6	40	ea	Component	BEUMER	3SU1	A
AUTOCA®	Electrical	Lamphoider	3017614	2	5	341	ea	Component	BEUMER	3SU1	A
AUTOCA®	Electrical	Lamphoider	3018613	1	8	171	ea	Component	BEUMER	3SU1401-1BB60-3AA0	A
AUTOCA®	Electrical	Phase sequence relay	3018614	1	8	15	ea	Component	BEUMER	3UG4511-1AQ20	A
AUTOCA®	Electrical	Coupling relay	65760	2	8	86	ea	Component	BEUMER	3RQ3118-1AB00	A
AUTOCA®	Electrical	Exhaust filter	3000568	1	8	1	ea	Component	BEUMER	148,5x148,5mm	B
AUTOCA®	Electrical	Exhaust filter	61157	1	7	32	ea	Component	BEUMER	SK3240.200	B
AUTOCA®	Electrical	Pushbutton	3018604	1	8	53	ea	Component	BEUMER	3SU1050-0AB50-0AA0	A
AUTOCA®	Electrical	Pushbutton	3018603	1	8	40	ea	Component	BEUMER	3SU1050-0AB40-0AA0	A
AUTOCA®	Electrical	Pushbutton head black	3014302	1	8	30	ea	Component	BEUMER	3SU1050-0AB10-0AA0	A
AUTOCA®	Electrical	Pushbutton	3018602	1	8	1	ea	Component	BEUMER	3SU1050-0AA10-0AA0	A
AUTOCA®	Electrical	Fan	3015270	1	8	1	ea	Component	BEUMER	148,5x148,5mm 115V	A
AUTOCA®	Electrical	Fan	63065	1	8	32	ea	Component	BEUMER	SK3241.110	A
AUTOCA®	Electrical	Main switch	3018595	1	8	1	ea	Component	BEUMER	3LD2017-0TK11	A
AUTOCA®	Electrical	Main switch	3018597	2	8	64	ea	Component	BEUMER	3LD2217-0TK11	A
AUTOCA®	Electrical	Auxiliary switch	84640	2	8	79	ea	Component	BEUMER	1NO+1NC 3LD9200-5C	A
AUTOCA®	Electrical	Auxiliary switch	63812	2	5	301	ea	Component	BEUMER	5ST3010-0HG	A
AUTOCA®	Electrical	Auxiliary switch	61723	2	5	235	ea	Component	BEUMER	61723	A
AUTOCA®	Electrical	Auxiliary switch	3018624	1	8	22	ea	Component	BEUMER	3VA9978-0AA12	A
AUTOCA®	Electrical	Auxiliary switch	63699	1	8	52	ea	Component	BEUMER	3RH2911-1HA01	A
AUTOCA®	Electrical	Auxiliary switch 1NO+1NC	63649	1	8	6	ea	Component	BEUMER	3RH2911-1HA11	A
AUTOCA®	Electrical	Auxiliary switch	3017611	1	5	58	ea	Component	BEUMER	3RV2901	A
AUTOCA®	Electrical	Cabinet cooler	65754	1	8	61	ea	Component	BEUMER	SK3385.510	A
AUTOCA®	Electrical	Head selector switch 3 pos.1-0-2	3008883	2	8	248	ea	Component	BEUMER	3SU1052-2BL10-0AA0	A
AUTOCA®	Electrical	Head selector switch 3 pos.1>0<2	7316888	1	8	2	ea	Component	BEUMER	3SU1052-2BM10-0AA0	A
AUTOCA®	Electrical	Coupling relay	3018598	1	8	4	ea	Component	BEUMER	3RS1800-1BW00	A
AUTOCA®	Electrical	Main switch	3018594	1	8	4	ea	Component	BEUMER	3LD2003-1TP53	A
AUTOCA®	Electrical	Main switch	3018596	2	8	145	ea	Component	BEUMER	3LD2103-1TP53	A
AUTOCA®	Electrical	Main switch 3 pole disconnector	3008527	1	8	11	ea	Component	BEUMER	3LD2130-0TK11	A
AUTOCA®	Electrical	Main switch	3000365	1	8	4	ea	Component	BEUMER	3000365	A
AUTOCA®	Electrical	Lamphoider	3018612	1	8	36	ea	Component	BEUMER	3SU1401-1BB50-3AA0	A
AUTOCA®	Electrical	Circuit-breaker	3018600	1	8	2	ea	Component	BEUMER	3RV2811-0JD10	A
AUTOCA®	Electrical	Circuit-breaker	63902	1	5	16	ea	Component	BEUMER	3RV2711-1JD10	A
AUTOCA®	Electrical	Circuit-breaker	64610	1	7	33	ea	Component	BEUMER	64610	A
AUTOCA®	Electrical	Circuit-breaker	3018601	1	8	1	ea	Component	BEUMER	3RV2811-4AD10	A
AUTOCA®	Electrical	Circuit-breaker	3016257	1	5	15	ea	Component	BEUMER	3RV2711-1BD10	A
AUTOCA®	Electrical	Circuit-breaker	61722	1	5	1	ea	Component	BEUMER	61722	A
AUTOCA®	Electrical	Circuit-breaker	3016258	2	5	61	ea	Component	BEUMER	3RV2821-4BD10	A
AUTOCA®	Electrical	Circuit-breaker	61329	1	5	30	ea	Component	BEUMER	61329	A
AUTOCA®	Electrical	Circuit-breaker	3018615	1	8	2	ea	Component	BEUMER	3VA5112-5ED31-0AA0	A
AUTOCA®	Electrical	Circuit-breaker	3018616	1	8	2	ea	Component	BEUMER	3VA5140-5ED31-0AA0	A
AUTOCA®	Electrical	Circuit-breaker	3018617	1	8	2	ea	Component	BEUMER	3VA5150-5ED31-0AA0	A

AUTOCA®	Electrical	Circuit-breaker	3018618	1	8	6	ea	Component	BEUMER	3VA5170-5ED31-0AA0	A
AUTOCA®	Electrical	Circuit-breaker	3018619	1	8	2	ea	Component	BEUMER	3VA5180-5ED31-0AA0	A
AUTOCA®	Electrical	Circuit-breaker	3018620	1	8	2	ea	Component	BEUMER	3VA5215-6ED31-0AA0	A
AUTOCA®	Electrical	Circuit-breaker	3018621	1	8	3	ea	Component	BEUMER	3VA5217-6ED31-0AA0	A
AUTOCA®	Electrical	Circuit-breaker	3018622	1	8	2	ea	Component	BEUMER	3VA5225-6ED31-0AA0	A
AUTOCA®	Electrical	Circuit-breaker	3018623	1	8	1	ea	Component	BEUMER	3VA6340-6HL31-0AA0	A
AUTOCA®	Electrical	Circuit-breaker	61330	2	5	76	ea	Component	BEUMER	61330	A
AUTOCA®	Electrical	Circuit-breaker	3017610	2	5	58	ea	Component	BEUMER	3RV2	A
AUTOCA®	Electrical	Automatic circuit breaker	3012787	2	6	128	ea	Component	BEUMER	5SJ4102-7HG40	A
AUTOCA®	Electrical	Automatic circuit breaker	52716	3	5	264	ea	Component	BEUMER	5SJ4104-7HG40	A
AUTOCA®	Electrical	Automatic circuit breaker	52665	1	5	22	ea	Component	BEUMER	52665	A
AUTOCA®	Electrical	Illuminated pushbutton	3018610	1	8	25	ea	Component	BEUMER	3SU1051-0AB30-0AA0	A
AUTOCA®	Electrical	Illuminated pushbutton	3015501	2	8	177	ea	Component	BEUMER	3SU1	A
AUTOCA®	Electrical	Illuminated pushbutton	3006035	1	8	3	ea	Component	BEUMER	3006035	A
AUTOCA®	Electrical	Indicator light	3006029	1	8	15	ea	Component	BEUMER	3006029	A
AUTOCA®	Electrical	Indicator light	3015505	1	8	15	ea	Component	BEUMER	3SU1	A
AUTOCA®	Electrical	Indicator light	3006026	2	8	164	ea	Component	BEUMER	3006026	A
AUTOCA®	Electrical	Indicator light	3006027	2	8	111	ea	Component	BEUMER	3006027	A
AUTOCA®	Electrical	Illuminated mushroom pushbutton	3018611	1	8	21	ea	Component	BEUMER	3SU1051-1BA50-0AA0	A
AUTOCA®	Electrical	Power supply	60349	2	6	26	ea	Component	BEUMER	6EP1436-3BA10	A
AUTOCA®	Electrical	Power supply	63709	1	5	4	ea	Component	BEUMER	6EP1437-3BA10	A
AUTOCA®	Electrical	Illuminated mushroom head red	3013975	3	8	169	ea	Component	BEUMER	3SU1051-1HB20-0AA0	A
AUTOCA®	Electrical	Patch panel	61520	1	6	14	ea	Component	BEUMER	61520	B
AUTOCA®	Electrical	Mushroom button	3018605	1	8	1	ea	Component	BEUMER	3SU1050-1BA20-0AA0	A
AUTOCA®	Electrical	Mushroom button	3018606	2	8	53	ea	Component	BEUMER	3SU1050-1BD20-0AA0	A
AUTOCA®	Electrical	Cabinet cooler	61214	1	8	1	ea	Component	BEUMER	SK3305.510	A
AUTOCA®	Electrical	Thermostat	3017600	1	9	3	ea	Component	BEUMER	7T.91-2403	A
AUTOCA®	Electrical	Control cabinet lamp	65755	1	8	109	ea	Component	BEUMER	SZ2500.220	C
AUTOCA®	Electrical	Key-operated switch	3018607	2	8	85	ea	Component	BEUMER	3SU1050-4BC01-0AA0	A
AUTOCA®	Electrical	Key-operated switch	3018608	1	8	11	ea	Component	BEUMER	3SU1050-4BF01-0AA0	A
AUTOCA®	Electrical	Key-operated switch	3018609	1	8	1	ea	Component	BEUMER	3SU1050-4BF11-0AA0	A
AUTOCA®	Electrical	Power contactor	63247	1	8	1	ea	Component	BEUMER	3RT2026-1BB40	A
AUTOCA®	Electrical	Power contactor	62576	3	8	122	ea	Component	BEUMER	3RT2027-1BB40	A
AUTOCA®	Electrical	Power contactor	62559	2	5	58	ea	Component	BEUMER	3RT2015-1BB41	A
AUTOCA®	Electrical	Power contactor	3000669	1	5	1	ea	Component	BEUMER	3RT2024-1BB40	A
AUTOCA®	Electrical	Power contactor	63397	1	8	6	ea	Component	BEUMER	3RT2025-1BB40	A
AUTOCA®	Electrical	Automatic circuit breaker	3018588	1	8	1	ea	Component	BEUMER	S201U-K10A	A
AUTOCA®	Electrical	Automatic circuit breaker	3012770	1	5	15	ea	Component	BEUMER	S201U-K20A	A
AUTOCA®	Electrical	Control-power transformer	3018589	1	8	1	ea	Component	BEUMER	ETKU 1000VA	A
AUTOCA®	Electrical	Control-power transformer	3012785	1	6	76	ea	Component	BEUMER	ETKU 2500VA	A
AUTOCA®	Electrical	Control-power transformer	3017570	1	7	2	ea	Component	BEUMER	ETKU 400VA	A
AUTOCA®	Electrical	Thermostat for control cabinet	65028	1	5	17	ea	Component	BEUMER	7T	A
AUTOCA®	Electrical	RC link	3018599	2	8	58	ea	Component	BEUMER	3RT2916-1CB00	A
AUTOCA®	Electrical	RC link	3000956	3	8	130	ea	Component	BEUMER	3RT2926-1CB00	A
AUTOCA®	Electrical	Actuating element	3018265	2	8	2	ea	Component	BEUMER	ZCKY43	A
AUTOCA®	Electrical	Braking resistor	3016326	1	6	1	ea	Component	BEUMER	BW268-T	A
AUTOCA®	Electrical	Braking resistor	29294	1	6	1	ea	Component	BEUMER	BW 100-005	A
AUTOCA®	Electrical	Limit switch	3016342	2	8	2	ea	Component	BEUMER	XCKJ205H7	A
AUTOCA®	Electrical	Proximity switch	3017203	2	5	11	ea	Component	BEUMER	FK3004BBPKG/K1/US-104	A
AUTOCA®	Electrical	Reflection photocell	65190	6	7	307	ea	Component	BEUMER	GL6-P4511	A
AUTOCA®	Electrical	Plug-in connector with cable	3016415	1	7	1	ea	Component	BEUMER	13617648/15.0	A
AUTOCA®	Electrical	Plug-in connector with cable	3016416	1	7	1	ea	Component	BEUMER	13617648/20.0	A
AUTOCA®	Electrical	Proximity switch	IN30-E0407K	1	4	1	ea	Component	BEUMER	IN30-E0407K	A
ALL MODS	Electrical	Reflector	27877	1	6	1	ea	Component	BEUMER	P250	A
ALL MODS	Electrical	Reflector	50115	2	3	9	ea	Component	BEUMER	TKS 20x40	A
ALL MODS	Electrical	Reflection photocell	65190	1	7	1	ea	Component	BEUMER	GL6-P4511	A
AUTOCA®	Electrical	DC/DC convert	64080	3	6	134	ea	Component	BEUMER	MINI-PS-12-24DC/48	B
AUTOCA®	Electrical	HF slip-on lead	64562	2	7	134	ea	Component	BEUMER	Low Loss 195 FR,	C
AUTOCA®	Electrical	Bulkhead cable gland	61599	3	7	134	ea	Component	BEUMER	Access.set	C
AUTOCA®	Electrical	Fan option SEW	3009906	3	3	268	ea	Component	BEUMER	field control movipro®	C
AUTOCA®	Electrical	Power supply unit SITOP PSU400M	61595	3	7	134	ea	Component	BEUMER	6EP1536-3AA00	A
AUTOCA®	Electrical	Reflection photocell	61275	20	3	938	ea	Component	BEUMER	PRK5/4P	A
AUTOCA®	Electrical	Fuse-link	3017185	3	5	134	ea	Component	BEUMER	KLDR004.TXP	B
AUTOCA®	Electrical	Fuse-link	3018333	3	7	134	ea	Component	BEUMER	KLDR007.TXP	B
AUTOCA®	Electrical	Plug	61596	10	8	938	ea	Component	BEUMER	STGK-M8 3POL SNK	A
AUTOCA®	Electrical	Plug-in connector with cable	46779	2	7	134	ea	Component	BEUMER	L00010A1233	C
AUTOCA®	Electrical	Control unit	64533	2	12	134	ea	Component	BEUMER	Master Control Unit	A
AUTOCA®	Electrical	Operator panel	854418	1	8	6	ea	Component	BEUMER	battery pack	C
AUTOCA®	Electrical	Earthing jumper	49639	4	3	800	ea	Component	BEUMER	Ground Strap 80mm	A
AUTOCA®	Electrical	Cable lug	46762	15	6	300	ea	Component	BEUMER	5R/8	A
AUTOCA®	Electrical	Rail system	753331	4	3	4838	ea	Component	BEUMER	753331	B
AUTOCA®	Electrical	Line cable	64581	100	5	5500	ea	Component	BEUMER	MF Litze 3168x0,1	B
AUTOCA®	Electrical	Measuring cable	3012928	50	6	1700	ea	Component	BEUMER	41x1,5 HFFR	B
AUTOCA®	Electrical	Holding profile for radio cable	753675	60	3	3373	ea	Component	BEUMER	753675	C
AUTOCA®	Electrical	HF slip-on lead	46757	1	8	5	ea	Component	BEUMER	1/4" WSt-WstN	A
AUTOCA®	Electrical	HF slip-on lead	49419	2	6	10	ea	Component	BEUMER	1/4" WSt-WstN	A
AUTOCA®	Electrical	HF slip-on lead	46878	2	7	40	ea	Component	BEUMER	1/4" WSt-WstN	A

AUTOCA®	Electrical	HF slip-on lead	46758	2	7	20	ea	Component	BEUMER	1/4" WSt-WstN	A
AUTOCA®	Electrical	HF slip-on lead	46760	1	7	5	ea	Component	BEUMER	1/4" WSt-WstN	A
AUTOCA®	Electrical	HF slip-on lead	46759	1	7	5	ea	Component	BEUMER	1/4" WSt-WstN	A
AUTOCA®	Electrical	HF slip-on lead	46764	2	7	15	ea	Component	BEUMER	1/4" WSt-WstN	A
AUTOCA®	Electrical	HF slip-on lead	46763	1	7	5	ea	Component	BEUMER	1/4" WSt-WstN	A
AUTOCA®	Electrical	HF slip-on lead	46765	2	7	25	ea	Component	BEUMER	1/4" WSt-WstN	A
AUTOCA®	Electrical	HF slip-on lead	48838	2	7	10	ea	Component	BEUMER	1/4" WSt-WstN	A
AUTOCA®	Electrical	HF slip-on lead	48839	1	7	5	ea	Component	BEUMER	1/4" WSt-WstN	A
AUTOCA®	Electrical	Coaxial cable	3018009	25	6	800	ea	Component	BEUMER	5128-HLFRU	B
AUTOCA®	Electrical	Coaxial cable	49422	25	3	600	ea	Component	BEUMER	LMR-400-FR	B
AUTOCA®	Electrical	Coaxial cable	64063	50	14	3768	ea	Component	BEUMER	RMC12-CH-HLFR	B
AUTOCA®	Electrical	Memory submodule	3018258	2	9	33	ea	Component	BEUMER	ACA11-M12 (EEC)	A
AUTOCA®	Electrical	Plug-in connector	3018010	2	7	50	ea	Component	BEUMER	NF50V12	A
AUTOCA®	Electrical	Plug-in connector	49424	2	6	110	ea	Component	BEUMER	Bushing	A
AUTOCA®	Electrical	Plug-in connector	46772	6	10	806	ea	Component	BEUMER	CNF50R12E	A
AUTOCA®	HLC	Battery	3016506	1	5	48	ea	Component	BEUMER	BTRY-LS42RAA0E-01	C
AUTOCA®	HLC	Handheld laser scanning	3016507	1	5	48	ea	Component	BEUMER	LI4278 USB Kit	C
AUTOCA®	HLC	Power supply unit	60438	1	6	48	ea	Component	BEUMER	DV-NZT-00001-0-107-A	C
AUTOCA®	HLC	Ethernet Switch HP 2524	3018480	2	8	14	ea	Component	BEUMER	WS-C3560CX-12PC-S	A
AUTOCA®	HLC	Interface module	64894	2	8	28	ea	Component	BEUMER	GLC-LH-SMD=	A
AUTOCA®	HLC	Terminating resistor	46766	3	7	234	ea	Component	BEUMER	J01026A0012	A
AUTOCA®	HLC	Ethernet Wireless LAN	3014169	2	8	33	ea	Component	BEUMER	BAT450-F	A
AUTOCA®	HLC	Ethernet com-server	NPort 5410	1	4	48	ea	Component	BEUMER	NPort 5410	C
AUTOCA®	HLC	Power supply unit	PWR-12125-WPUSJP-S1	1	4	48	ea	Component	BEUMER	PWR-12125-WPUSJP-S1	C
AUTOCA®	HLC	Support	DK-35A	1	4	48	ea	Component	BEUMER	DK-35A	C
AUTOCA®	HLC	Printer	ZT230, 203 dpi	1	3	1	ea	Component	BEUMER	ZT230, 203 dpi	A
AUTOCA®	Mechanical	Retaining ring	713	8	3	268	ea	Component	BEUMER	ø 25	B
AUTOCA®	Mechanical	Retaining ring	730	15	3	1072	ea	Component	BEUMER	ø 32,0	B
AUTOCA®	Mechanical	Retaining ring	736	8	3	268	ea	Component	BEUMER	ø 62,0	B
AUTOCA®	Mechanical	Deep groove ball bearing	7952	10	3	1072	ea	Component	BEUMER	d= 12,0	B
AUTOCA®	Mechanical	Pan head screw, micro-capsuled	36565	15	3	1340	ea	Component	BEUMER	M8 x 16 mm	B
AUTOCA®	Mechanical	Micro-capsuled hexagon head screw	38491	7	3	134	ea	Component	BEUMER	M6x20, microcapsuled	B
AUTOCA®	Mechanical	Micro-capsuled counters.head scr.	38817	8	3	268	ea	Component	BEUMER	M 6x 20	B
AUTOCA®	Mechanical	Adjusting ball bearing	42392	5	3	268	ea	Component	BEUMER	d= 20,0	B
AUTOCA®	Mechanical	Washers/seals	43956	5	3	268	ea	Component	BEUMER	20x24 3071 half	B
AUTOCA®	Mechanical	Sleeve bearing bushing	46042	5	6	268	ea	Component	BEUMER	70,0/ 75,0- 42,0	B
AUTOCA®	Mechanical	Sleeve bearing bushing	46044	10	6	1340	ea	Component	BEUMER	20,0/ 23,0- 11,5	B
AUTOCA®	Mechanical	Terminating resistor	46766	5	7	134	ea	Component	BEUMER	J01026A0012	B
AUTOCA®	Mechanical	Plug-in connector with cable	46779	5	7	134	ea	Component	BEUMER	L00010A1233	B
AUTOCA®	Mechanical	Proximity switch	3018999	6	6	278	ea	Component	BEUMER	IGK3012-BPKG/US-104	B
AUTOCA®	Mechanical	Protection cap	51660	8	6	670	ea	Component	BEUMER	PROT-M12	C
AUTOCA®	Mechanical	Protection cap	51661	5	8	134	ea	Component	BEUMER	PROT-M12-M	C
AUTOCA®	Mechanical	Plug-in connector with cable	54790	2	10	134	ea	Component	BEUMER	Cable B3	B
AUTOCA®	Mechanical	Plug-in connector with cable	54792	2	9	134	ea	Component	BEUMER	Cable M6	B
AUTOCA®	Mechanical	Plug-in connector with cable	54793	2	8	134	ea	Component	BEUMER	Cable X10	B
AUTOCA®	Mechanical	Plug-in connector with cable	54796	2	8	134	ea	Component	BEUMER	Cable R23A	B
AUTOCA®	Mechanical	Plug-in connector with cable	54797	2	8	134	ea	Component	BEUMER	Cable M41	B
AUTOCA®	Mechanical	Plug-in connector with cable	54798	2	8	134	ea	Component	BEUMER	Cable M111	B
AUTOCA®	Mechanical	Earthing jumper	54953	3	8	268	ea	Component	BEUMER	Earth Lead 300mm	B
AUTOCA®	Mechanical	Earthing jumper	54954	5	7	804	ea	Component	BEUMER	Ground Strap 200mm	B
AUTOCA®	Mechanical	Earthing jumper	54959	5	7	268	ea	Component	BEUMER	Ground Strap 100mm	B
AUTOCA®	Mechanical	Fuse-link	54977	7	5	134	ea	Component	BEUMER	10A 5x20mm	B
AUTOCA®	Mechanical	Tension set	57560	2	3	268	ea	Component	BEUMER	AS 10-12 dw=9 Bauf. A	B
AUTOCA®	Mechanical	Servomotor	57563	2	9	268	ea	Part	BEUMER	Mo=0,26 Nm	B
AUTOCA®	Mechanical	Buffer	58837	8	3	536	ea	Component	BEUMER	TR29-17	B
AUTOCA®	Mechanical	Reflection photocell	61275	10	3	938	ea	Component	BEUMER	PRK5/4P	B
AUTOCA®	Mechanical	Earthing jumper	61601	4	7	134	ea	Component	BEUMER	Ground Strap 300mm	B
AUTOCA®	Mechanical	Plug-in connector with cable	61602	2	7	134	ea	Component	BEUMER	61602	B
AUTOCA®	Mechanical	Plug-in connector with cable	61606	2	14	134	ea	Component	BEUMER	61606	B
AUTOCA®	Mechanical	Control unit	64533	2	12	134	ea	Component	BEUMER	Control Unit Master	B
AUTOCA®	Mechanical	HF slip-on lead	64562	2	7	134	ea	Component	BEUMER	Low Loss 195 FR,	B
AUTOCA®	Mechanical	Plug-in connector with cable	64563	2	7	134	ea	Component	BEUMER	X25C1	B
AUTOCA®	Mechanical	Plug-in connector with cable	64564	2	7	134	ea	Component	BEUMER	STW4-M12/STW8-M12 0,45m PUR	B
AUTOCA®	Mechanical	Plug-in connector with cable	64572	2	8	134	ea	Component	BEUMER	X21	B
AUTOCA®	Mechanical	Plug-in connector with cable	64573	2	8	134	ea	Component	BEUMER	CCM1	B
AUTOCA®	Mechanical	Toothed belt	70407	5	7	134	ea	Component	BEUMER	70407	B
AUTOCA®	Mechanical	Flanged bearing housing	79053	3	3	268	ea	Component	BEUMER	79053	B
AUTOCA®	Mechanical	Flanged bearing unit	79055	3	3	268	ea	Component	BEUMER	d=20,0	B
AUTOCA®	Mechanical	Sealing strip	86290	5	3	24.12	ea	Component	BEUMER	86290	B
AUTOCA®	Mechanical	Buffer	86705	5	5	536	ea	Component	BEUMER	20,0/25	B
AUTOCA®	Mechanical	Runner	728277	8	3	1072	ea	Component	BEUMER	ø 80,00x 25	B
AUTOCA®	Mechanical	Brush	739782	6	8	268	ea	Component	BEUMER	ABL 100005-K1	B
AUTOCA®	Mechanical	Runner	740633	8	3	1072	ea	Component	BEUMER	ø 50,00x 20	B
AUTOCA®	Mechanical	Toothed disk	742496	2	3	134	ea	Component	BEUMER	SMR-31S-25,Typ 6F	B
AUTOCA®	Mechanical	Special gear unit	749600	2	3	134	ea	Component	BEUMER	i= 3,40	B
AUTOCA®	Mechanical	Runner	750115	5	3	268	ea	Component	BEUMER	ø150,00x 25	B
AUTOCA®	Mechanical	Runner	750331	5	3	268	ea	Component	BEUMER	ø150,00x 25	B

AUTOCA®	Mechanical	Brush	750567	6	8	268	ea	Component	BEUMER	STL 2004 K85	B
AUTOCA®	Mechanical	Toothed disk	752476	2	3	134	ea	Component	BEUMER	5MR-3OS-25,Typ 6F	B
AUTOCA®	Mechanical	Pivot, bolt	753036	8	8	1072	ea	Component	BEUMER	ø12/ M8 - 41	B
AUTOCA®	Mechanical	Bush	753038	8	8	1072	ea	Component	BEUMER	ø 16,0/ 12,2- 10,00	B
AUTOCA®	Mechanical	Bush	753544	5	10	134	ea	Component	BEUMER	ø100/ 80,0	B
AUTOCA®	Mechanical	Bush	753545	5	8	134	ea	Component	BEUMER	ø100/ 80,0/ 70,0- 31,00	B
AUTOCA®	Mechanical	Buffer	753878	3	3	268	ea	Component	BEUMER	160x110	C
AUTOCA®	Mechanical	Wheel	754009	8	8	1072	ea	Component	BEUMER	ø50	B
AUTOCA®	Mechanical	Bolt	760540	8	10	1072	ea	Component	BEUMER	d=20/25 x6	B
AUTOCA®	Mechanical	Runner body	762101	5	3	536	ea	Component	BEUMER	ø25-12	B
AUTOCA®	Mechanical	Pivot arm assembly	768285	4	3	268	ea	Component	BEUMER	768285	B
AUTOCA®	Mechanical	Pivot arm assembly	768287	4	3	268	ea	Component	BEUMER	768287	B
AUTOCA®	Mechanical	Toothed disk	777294	4	3	268	ea	Component	BEUMER	T10 Z=25 Bo.25H7	B
AUTOCA®	Mechanical	Drive pulley	777964	4	3	268	ea	Component	BEUMER	ø 76,4- 948	B
AUTOCA®	Mechanical	Toothed disk	777970	4	3	268	ea	Component	BEUMER	ø 69,2	B
AUTOCA®	Mechanical	Drive unit	778029	1	8	134	ea	Component	BEUMER	778029	B
AUTOCA®	Mechanical	Plug-in connector with cable	3012245	2	8	134	ea	Component	BEUMER	05904412/0.7	B
AUTOCA®	Mechanical	Conveyor belt	3714145	3	8	134	ea	Component	BEUMER	Gbr1000-3350mm	B
AUTOCA®	Mechanical	Drive unit housing	767665	1	3	134	ea	Component	BEUMER	767665	B
AUTOCA®	Mechanical	Follower unit housing	767666	1	3	134	ea	Component	BEUMER	767666	B
AUTOCA®	Mechanical	Bush	753469	2	8	134	ea	Component	BEUMER	ø120/ 90.0/ 75.0- 43.00	B
AUTOCA®	Mechanical	Bush for centre of rotation	758162	2	7	134	ea	Component	BEUMER	758162	B
AUTOCA®	Mechanical	Bolt	758158	2	8	134	ea	Component	BEUMER	ø20x65	B
AUTOCA®	Mechanical	Bush	753468	2	8	134	ea	Component	BEUMER	ø120/ 90.0/ 75.0- 46.00	B
ALL MODS	ICS	Retaining ring	707	2	3	12	ea	Component	BEUMER	ø 10	B
ALL MODS	ICS	Retaining ring	708	1	3	4	ea	Component	BEUMER	ø 12	B
ALL MODS	ICS	Wearing plate	787933	5	7	104	ea	Component	BEUMER	25x35x1000	A
ALL MODS	ICS	Compression spring	66162	2	3	36	ea	Component	BEUMER	12,5 / 36,5	A
ALL MODS	ICS	Compression spring	79743	1	3	2	ea	Component	BEUMER	28/76,0	A
ALL MODS	ICS	Bush	86005	1	3	8	ea	Component	BEUMER	86005	A
ALL MODS	ICS	Holding profile for radio cable	753675	100	3	3372.8	ea	Component	BEUMER	753675	A
ALL MODS	ICS	Fastening clip for cable clamp	753676	100	3	8135	ea	Component	BEUMER	753676	A
ALL MODS	ICS	Nip guard	753197	2	7	16	ea	Part	BEUMER	753197	A
ALL MODS	ICS	Nip guard	754206	1	7	5	ea	Part	BEUMER	754206	A
ALL MODS	ICS	Nip guard	753442	2	7	19	ea	Part	BEUMER	753442	A
ALL MODS	ICS	Nip guard	753428	2	7	15	ea	Part	BEUMER	753428	A
ALL MODS	ICS	Nip guard	754211	1	7	7	ea	Part	BEUMER	754211	A
ALL MODS	ICS	Nip guard	753448	2	7	21	ea	Part	BEUMER	753448	A
ALL MODS	ICS	Nip guard	753543	1	7	2	ea	Part	BEUMER	753543	A
ALL MODS	ICS	Nip guard	753992	1	7	6	ea	Part	BEUMER	753992	A
AUTOCA®	LLC	Bus coupler	60881	1	6	28	ea	Component	BEUMER	6GK1503-3CC00	A
AUTOCA®	LLC	Plug	64764	2	5	64	ea	Component	BEUMER	SIMATIC DP	A

APPENDIX D - REPORT SAMPLES

D.1 DAILY REPORTS

ICS O&M Daily Report

A DAILY PASS-DOWN

Reference § TS-17.2.2

Date of report 07/16/2021

Activities performed during the previous day (…A.1.)

Abnormal startup operation events (…A.1.a.)

NONE

System configuration changes (…A.1.b.)

Car 29 damaged, send to maintenance

Contingency procedures (…A.1.c.)

1E Load station belt damaged, down 15 minutes

Stakeholder notifications (…A.1.d.)

(08:31) Alaska (Add Name) Problem bag

(16:22) TSA (Add name) issue at E-CBRA position #7

External activities (…A.1.e.)

Fire alarm 1E caused TSA to relocate CBRA operation to West

Equipment in-service count (…A.1.f.)

Cars (159 of 160)	CBRA positions (47 of 48)
MES (1 of 1)	Maintenance (1 of 1)

Keep with next page

Required Maintenance that is not complete (…A.2.)

WO xxx (Detail)	WO xxx (Detail)

Corrective Maintenance completed (…A.3.)

WO xxx (Detail)	WO xxx (Detail)

Maintenance scheduled vs completed (…A.4.)

Scheduled	Completed
PM (Qty)	(Qty)
CM (Qty)	(Qty)
EM (Qty)	(Qty)

Unscheduled Maintenance (EM) (…A.5.)

(Name)	(Work Done)	(Downtime)

Non-operational Equipment (…A.6.)

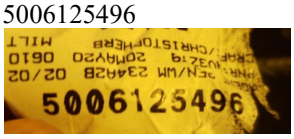
WO xxx (Car29 broken belt)	WO xxx (E-CBRA #7, BSD failed)

Special MES events (…A.7.)

SWA manual tagging 08:15-09:26, 131 Airport tags used.

Damaged bags (…A.8.)

5006125496



Bag was sucked into finger guard at head roller, needed to be cut to remove.

Keep with next page

ICS cars requiring retrieval (…A.9.)

Car#	Car #
#001	#160

NOTES.

Threat bag in E-CBRA, TSA moved to W-CBRA, TSA continued operation from W-CBRA for the remainder of the day.

END OF REPORT

D.2 WEEKLY REPORTS

BHS O&M Weekly Report

A O&M PERFORMANCE REPORT

Reference § TS-17.3.2

Date of report 07/16/2021

CM / CM performed (…A.1.)

WO xxx (Detail)	WO xxx (Detail)

Overdue Maintenance (NOT DONE) (…A.2.)

WO xxx (Detail)	WO xxx (Detail)

Spare Parts NOT in stock (…A.3.)

PO/ Component	Schedule Date of Delivery
PO 11725698 (SEW Gearmotor SO 4523189674390)	(06/18/2021)
PO xxx (Component)	(Scheduled Date)

Spare parts status (…A.5.)

This month PO expenditure	$ 81,476.23
PO accrued expenses	$ 279,324.89

NOTES

END OF REPORT

D.3 MONTHLY REPORT

BHS O&M Monthly Report

A REPLACEMENT SPARE PARTS PURCHASING

Note: Provide in electronic spreadsheet format

Reference	§ TS-17.4.2.
Month	JULY 2021
Date of report	08/01/2021

ICS cars (…A.1.)	Qty	Price	Total
Motors			
Electronics			
Belting			
Etc.			
		Sub total	

CBRA, (…A2.)	Qty	Price	Total
Motor/gearbox			
Electrical			
Electronic			
Belting			
Etc.			
		Sub total	

ICS Lift (…A.3.)	Qty	Price	Total
Belting			
IGUS chain			
Electronics			
Motor/ gearbox			
Etc.			
		Sub total	

Keep with next page

Computer Systems (…A.4.)	Qty	Price	Total
Servers			
Hard disks			
Network switches			
Etc.			
		Sub total	

Power Distribution (…A.5.)	Qty	Price	Total
Power supply			
Fuses			
Wireless transfer thingy			
Etc.			
		Sub total	

Fencing/ gate (…A.6.)	Qty	Price	Total
Sensors			
Locks			
Hinges			
Etc.			
		Sub total	

Reimbursable Consumables (…A.7.)	Qty	Price	Total
MES bag tag stock			
Control room printer consumables			
ICS equipment batteries			
Oil/ grease (lubricants)			
Environmental filters			
Fasteners			
		Sub total	

Keep with next page

Interroll Power turns (…A.8.)	Qty	Price	Total
Rollers			
Belting			
UHMW			
Motor/ gearbox			
Guide wheels			
Etc.			
		Sub total	

Queue conveyors (…A.9)	Qty	Price	Total
Rollers			
Belting			
Motor/ gearbox			
Etc.			
		Sub total	

Transport conveyors (…A.10.)	Qty	Price	Total
Rollers			
Belting			
Bearings			
Motor/ gearbox			
Etc.			
		Sub total	

Merge conveyors (…A.11.)	Qty	Price	Total
Rollers			
Belting			
Bearings			
Motor/ gearbox			
Etc.			
		Sub total	

Keep with next page

Controls components (…A.13.) & (…C.)	Qty	Price	Total
Disconnect			
Photosensors			
Positional sensor			
Warning devices			
Control stations (itemize)			
Wi-Fi components			
Contactors/ Relays			
Power supplies			
Switches			
Fuses			
CB's/ MSP's			
Etc.			
		Sub total	

PLC's (…A.14.)	Qty	Price	Total
Power supplies			
Processors /RAM/ SD/ Flash			
Communication cards			
Input/ Output cards			
Etc.			
		Sub total	

NOTES

END OF REPORT

BHS O&M Monthly Report

B EQUIPMENT REBUILT OR REFURBISHED

Reference § TS 17.4.3.

Month JULY 2021

Date of report 08/01/2021

Completed (…2.)	Store Location (…3.)	Description (…4.)	Removed (…5.)	Technician (…1.)
7/4/2021	M/R4/02-03	SEW ICS car controller	(Date)	(Enter name)

NOTES

END OF REPORT

BHS O&M Monthly Report

C SPARE PARTS BUDGET PERFORMANCE SUMMARY

Reference	§ TS-17.4.4.
Month	JULY 2021
Date of report	07/16/2021

CCD identified deficiencies.

	Budget (…A.1.)	Actual (…A.2.)	Diff (…A.3.)
ICS Cars (…B.1.)	250,000.00	234,678.45	-6.1%
CBRA (…B.2.)	18,000.00	18,400.00	2.22%
ICS Lift (…B.3.)	4000.00	12.56	-99.569%
Computer Systems (…B.4.)	7500.00	2,200.34	-70.66
Power Distribution (…B.5.)	8000.00	0.00	-100.00%
Fencing/ Gate (…B.6.)	2500.00	3780.34	51.21%
Consumables (…B.7.)	900.00	821.32	-8.7%
Interroll Portec PT (…B.8.)	500.00	505.45	1.1%
Queue Conveyors (…B.9.)	1500.00	1729.64	15.31%
Transnorm Conveyors (…B.10)	4,500.00	5,510.00	22.4%
Belting (…B.11.)	1,500.00	1,100.56	-26.6%
Merges (…B.12.)	600.00	550.00	-8.3%
Motors (…B.13.)	1,750.00	1,425.20	-18.6%
Gearboxes (…B.14.)	3,200.00	3,500.89	9.4%
Rollers (…B.15.)	1,200.00	1,150.00	-4.2%
Bearings (…B.16.)	300.00	250.25	-16.6%
VFD Controllers (…B.17)	3,400.00	3,612.58	6.3%
Security Doors (…B.18.)	500.00	490.58	-1.9%
Controls components (…B.19.)	2,200.00	2,645.00	20.2%
PLC (…B.20)	600.00	155.12	-74.1%
Other(…B.)			
Totals	311750	281696.86	-9.64%

Keep with next page

Comment

END OF REPORT

BHS O&M Monthly Report

D PERSONNEL LABOR USAGE SUMMARY

Reference § TS-17.4.5.

Month JULY 2021

Date of report 07/16/2021

Manager (…A.)

	1E	2E	3E	1W	2W	3W	TOTAL
Scheduled Maint (CM) (…A.1.)							
Preventative Maint (PM) (…A.2.)							
Unscheduled Maint (EM) (…A.3.)							
Daily Inspections (…A.4.)							
Cleaning (…A.5.)							
Training (…A.6.)							
Operations (…A.7.)							
Other							
Totals							

Assistant Manager (…A.)

	1E	2E	3E	1W	2W	3W	TOTAL
Scheduled Maint (CM) (…A.1.)							
Preventative Maint (PM) (…A.2.)							
Unscheduled Maint (EM) (…A.3.)							
Daily Inspections (…A.4.)							
Cleaning (…A.5.)							
Training (…A.6.)							
Operations (…A.7.)							
Other							
Totals							

CMMS/ Parts Technician (…A.)

	1E	2E	3E	1W	2W	3W	TOTAL
Scheduled Maint (CM) (…A.1.)							
Preventative Maint (PM) (…A.2.)							
Unscheduled Maint (EM) (…A.3.)							
Daily Inspections (…A.4.)							
Cleaning (…A.5.)							
Training (…A.6.)							
Operations (…A.7.)							
Other							
Totals							

Supervisor (…A.)

	1E	2E	3E	1W	2W	3W	TOTAL
Scheduled Maint (CM) (…A.1.)							
Preventative Maint (PM) (…A.2.)							
Unscheduled Maint (EM) (…A.3.)							
Daily Inspections (…A.4.)							
Cleaning (…A.5.)							
Training (…A.6.)							
Operations (…A.7.)							
Other							
Totals							

Control System Technician (…A.)

	1E	2E	3E	1W	2W	3W	TOTAL
Scheduled Maint (CM) (…A.1.)							
Preventative Maint (PM) (…A.2.)							
Unscheduled Maint (EM) (…A.3.)							
Daily Inspections (…A.4.)							
Cleaning (…A.5.)							
Training (…A.6.)							
Operations (…A.7.)							
Other							

Totals							
Machinery Maintenance Mechanic (…A.)	1E	2E	3E	1W	2W	3W	TOTAL
Scheduled Maint (CM) (…A.1.)							
Preventative Maint (PM) (…A.2.)							
Unscheduled Maint (EM) (…A.3.)							
Daily Inspections (…A.4.)							
Cleaning (…A.5.)							
Training (…A.6.)							
Operations (…A.7.)							
Other							
Totals							
Entry Support Mechanic (…A.)	1E	2E	3E	1W	2W	3W	TOTAL
Scheduled Maint (CM) (…A.1.)							
Preventative Maint (PM) (…A.2.)							
Unscheduled Maint (EM) (…A.3.)							
Daily Inspections (…A.4.)							
Cleaning (…A.5.)							
Training (…A.6.)							
Operations (…A.7.)							
Other							
Totals							

Repeat for all employee categories

Keep with next page

Comment

END OF REPORT

BHS O&M Monthly Report

E STAFF ALLOCATION REPORT

Reference § TS-17.4.5.

Month JULY 2021

Date of report 07/16/2021

Shift # (…A.1)

	Req Hrs	Worked Hrs (…A.2)	Missed Hrs (…A.3)
Manager			
Assist Manager			
CMMS/Parts			
Supervisor1			
Supervisor..n			
CST1			
CST…n			
MMM1			
MMM…n			
ESM1			
ESM…n			
Total			

Repeat for all shifts (…A.1)

Comment

END OF REPORT

BHS O&M Monthly Report

F SYSTEM PERFORMANCE REPORT

Reference § TS-17.4.7.

Month JULY 2021

Date of report 07/16/2021

Tracking Accuracy (…A.1.)

	1E	2E	3E	1W	2W	3W	TOTAL
CBIS Tracking [1]							

System data (…A.2.)

	1E	2E	3E	1W	2W	3W	TOTAL
Down time Total[2]							
Total bags (…A.2.b.)							
CBRA total bags (…A.2.c.)							
MES bags (…A.2.d.)							
Peak Hour [3] (…A.2.e.)							
Avg Wait Time ICS Load (…A.2.f.)							
Min Wait Time ICS Load (…A.2.f.)							
Max Wait Time ICS Load (…A.2.f.)							
Avg In-System Time (…A.2.g.)							
Min In-System Time (…A.2.g.)							
Max In-System Time (…A.2.g.)							
Avg Car Utilization (…A.2.h.)							
Mix Car Utilization (…A.2.h.)							
Max Car Utilization (…A.2.h.)							

[1] (Error Bags to CBRA/Total bags delivered to MU) as a percentage

[2] Total down time ((…A.2.a.)

[3] Peak total bags processed in a 1 hour period (xx:00 to xx:59)

Threat Bag Handling (…A.3.)

Date/Time (…A.3.a.)	Bag Tag (…A.3.b.)	Airline/MU (…A.3.c.)	E/W CBRA/ MAINT (…A.3.d.)
[Enter Date]	3016123456	UA/2007/JFK/2WMU3	E CBRA

Equipment reliability

	1E	2E	3E	1W	2W	3W	TOTAL
ICS Cars (…B.1.)							
CBRA (…B.2.)							
ICS Lift (…B.3.)							
Computer Systems (…B.4.)							
Power Distribution (…B.5.)							
Fencing/ Gate (…B.6.)							
Interroll Portec PT (…B.7.)							
Queue Conveyor (…B.8.)							
Transport Convey (…B.9.)							
Belting (…B.10.)							
Transport Conveyors (…B.11.)							
Motors (…B.12.)							
Gearboxes (…B.13.)							
Rollers (…B.14.)							
Bearings (…B.15.)							
VFD Controllers (…B.16.)							
Control components (…B.17.)							
PLC's (…B.18.)							

Comment

END OF REPORT

BHS O&M Monthly Report

G SPARE PARTS EXCEPTION SUMMARY

Reference	§ TS-17.4.8
Month	JULY 2021
Date of report	07/16/2021

Spares on order, delivery is overdue (…A.1.)

	Quantity	Value	On hand
RH wrap spring clutches	2	6,412.92	2
	Total value		Total value

Spares not arriving during expected lead time (…A.2.)

	Days late	Quantity	Value
RH wrap spring clutches	10	2	6,412.92
Transnorm 45 spiral belt +12”	4	2	1620.46
		Total value	

Critical spares not on-site during Month (…A.3.)

	No of days	Quantity	Value
Transnorm 45 spiral belt +12”	2	2	1620.46
		Total value	

Keep with next page

Borrowed spares (…A.4.)

	No of days	Quantity	Value
Coffee Pot	7	1	0.00
		Total value	

Borrowed spares not replaced by End of Month (…A.5.)

	Quantity	Value
Itemize		
	Total value	

Spares with zero quantity on site (…A.6.)

	No of days	Quantity	Value
Itemize	7		
		Total value	

Spares with expedited delivery (…A.7.)

	Quantity	Value	Reason
Itemize			
	Total value		

Comment

END OF REPORT

BHS O&M Monthly Report

H TRAINING COMPLETED/ OVERDUE REPORT

Reference § TS-17.4.9.

Month JULY 2021

Date of report 07/16/2021

Completed

Who (…A.1.)	Type (…A.2.)	Qty (Hrs) (…A.3.)	Completion date (…A.4.)	Grade* (…A.5.)
John Doe	Sick ATR head replacement	3	5/12/2021	3
John Doe	General conveyor PM	1.5	5/14/2021	4
John Doe	MCP PM	1	5/21/2021	4
John Doe	E-stop fault finding	4	5/29/2021	5

Outstanding

Who (…B.)	Type (…B.)	Scheduled (…B.)
John Doe	HSD paddle replacement	6/7/2021

GRADE 1 Fail (not proficient to perform the work)
2 Requires additional training (not proficient to work unsupervised)
3 Proficient (work requires periodic checking/verification)
4 Excellent (works unsupervised)
5 Advanced (capable of providing training to others)

Comment

END OF REPORT

BHS O&M Monthly Report

I QUALITY INSPECTION AUDIT

Reference § TS-17.4.10, TS-5.2.D

Month JULY 2021

Date of report (…A.1.) 07/16/2021

WO (…A.2.)	TYPE (…A.3.)	Date (…A.4.)	Description (…A.5.)	Personnel (…A.6.)	Grade (…A.7.)	Training Scheduled (…A.8.)
117924	PM	PM	HSD-2WML1	Excellent Work	4	
117969	CM	CM	MCP20E2	Not Good	2	08/05/2018
117985	EM	EM	ATR-1EUSS1-15	Advanced Work	5	

GRADE 1 Fail (not proficient to perform the work)
2 Requires additional training (not proficient to work unsupervised)
3 Proficient (work requires periodic checking/verification)
4 Excellent (works unsupervised)
5 Advanced (capable of providing training to others)

Comment

END OF REPORT

BHS O&M Monthly Report

J ICS EQUIPMENT OPERATION

Reference	§ TS-17.4.11
Month	JULY 2021
Date of report(…A.1.)	07/16/2021

Equipment in Service (…B.1.)

CAR#	Run Time (…A.1.)	Stop/ starts (…A.2.)	ICS discharges (…A.3.)
A001	13d16h49m	32678	4789
B115	8d12h33m	44879	12560
D160	21d23h49m	56205	8734

Equipment in Service Requiring Service (…B.2.)

CAR#	Run Time (…A.1.)	Stop/ starts (…A.2.)	ICS discharges (…A.3.)
B110	13d16h49m	32678	4789
C135	8d12h33m	44879	12560

Equipment Removed from Service (…B.3.)

CAR#	Run Time (…A.1.)	Stop/ starts (…A.2.)	ICS discharges (…A.3.)
A009	13d16h49m	32678	4789

Comment

END OF REPORT

K MONTHLY INVOICE

Reference § Article V.F (as noted below)

Refer to CCD requirements for content and format in addition to breakout defined by this specification.
Attach supporting documentation as follows for the period;

1. All parts received (legible copy of original invoices) § TS-14.1.B
2. Spare parts may need consolidated by airline and/ or module as directed (separate line item)
3. Staffing deductions § TS-6.6
4. Key performance indicator deductions § TS-10.10
5. Documentation confirming and verifying compliance with CCD minimum/prevailing wage for the period
6. Justification of all billable overtime.

END OF REPORT

D.4 QUARTERLY REPORTS

BHS O&M Quarterly Report

A UPDATED SPARE PARTS BUDGET PROJECTIONS REPORT

Reference § TS-17.5.2.

Month JULY 2021

Date of report 07/17/2021

Updated Annual Total projection (…A.1.) _____

1st/2nd Quarter (…A.2.)	Jan	Feb	Mar	Apr	May	Jun
ICS cars (…A.2.a.)						
CBRA (…A.2.b.)						
ICS Lift (…A.2.c.)						
Computer Systems (…A.2.d.)						
Power Distribution (…A.2.e.)						
Fencing/ gate (…A.2.f.)						
Power Turns (…A.2.g.)						
Queue(…A.2.h.)						
Transport (…A.2.i.)						
Belting (…A.2.j.)						
Motors (…A.2.l.)						
Gearbox (…A.2.m.)						
Rollers (…A.2.n.)						
Bearings (…A.2.o.)						
VFD (…A.2.q.)						
Controls (…A.2.s.)						
PLC (…A.2.t.)						
Other						
Monthly Total						

Keep with next page

3rd/4th Quarter (…A.2.)	Jul	Aug	Sep	Oct	Nov	Dec
ICS cars (…A.2.a.)						
CBRA (…A.2.b.)						
ICS Lift (…A.2.c.)						
Computer Systems (…A.2.d.)						
Power Distribution (…A.2.e.)						
Fencing/ gate (…A.2.f.)						
Power Turns (…A.2.g.)						
Queue(…A.2.h.)						
Transport (…A.2.i.)						
Belting (…A.2.j.)						
Motors (…A.2.l.)						
Gearbox (…A.2.m.)						
Rollers (…A.2.n.)						
Bearings (…A.2.o.)						
VFD (…A.2.q.)						
Controls (…A.2.s.)						
PLC (…A.2.t.)						
Other						
Monthly Total						

Comment

END OF REPORT

BHS O&M Quarterly Report

B MTTR REPORT

Reference § TS-17.5.3, TS-10.6.

Month (…C.1.) JULY 2021

Date of report (…C.1.) 07/16/2021

Device (…B.)	Qty (…C.2.)	Min (…C.3.)	Max (…C.3.)	Avg (…C.3.)
ICS Car (…B.1.)	2	1hr50m	1hr55m	1hr53m
ICS Controller (…B.2.)	5	1hr30m	1hr50m	1hr35m
Fencing/ gate (…B.3.)	1	20m	20m	20m
WiFi (…B.4.)	1	50m	50m	50m
BSD (…B.5.)	1	45m	45m	45m
Motor/ gearbox (…B.6.)	5	15m	22m	20m
VFD (…B.7.)	0			
Other (…B.)	1	52m	52m	52m

Comment

END OF REPORT

D.5 BI-ANNUAL REPORTS

BHS O&M Bi-Annual Report

A SPARE PARTS INVENTORY AUDIT AND RECONCILIATION REPORT

Reference § TS-17.6.2, TS-14.1.J.

Month (…1.) JULY 2021

Date of report (…1.) 07/16/2021

(Description)	(Location)	(Qty) end[4]	(Qty) on-hand[5]	(Qty) adjust[6]	(Value) $[7]
Relay 120V AC	R17-4-4	19	19	0	0.00
Roller Portec drive	R07-0-0	14	14	0	00.00
Contactor 24V DC	R17-3-0	21	19	-2	-62:42
Photoeye AB 24VDC	R13-3-9	14	15	1	125.13
$Total_{Adjustment}$[8]				1	$ 62.71

Per CMSS for all components containing as a minimum

Comment

END OF REPORT

[4] CMMS/IMS ending stock quantity (…2.)

[5] Actual stock quantity counted/ on hand (…3.)

[6] Adjustment quantity (…4.)

[7] Adjustment value (…5.)

[8] Total adjustment in stock value ($) (…5.)

D.6 ANNUAL REPORTS

BHS O&M Annual Report

A NEXT FISCAL YEAR BUDGET PROJECTION REPORT

Reference	§ TS-17.7.2.
Period	Fiscal Year 2023
Date of report	02/14/2022

	Value	Percentage[9]
Total budget projection (…A.1.)	$	%
Increase, budget Year on Year (invoices) (…A.2.)	$	%
Increase, budget Year on Year (from store) (…3.)	$	%
Previous Year (invoices) (…A.4.)	$	
Escalation (increase in goods) (…A.5.)	$	%
Escalation (Ageing of equipment) (…A.5.)	$	%
Escalation (Stock depletion) (…A.5.)	$	%
Escalation (other) (…A.5.)	$	%
Fixed costs		
O&M fee (…A.6.)	$	%
Other fee (…A.7.)	$	%
Spare parts (request) (…A.8.a.)	$	%

Non-Recurring Costs (request) (…A.8.b.)

ATR replacement	(Qty)	$
Door replacement	(Qty)	$
MU rebuilds	(Qty)	$
[Other]	(Qty)	$

Comment

END OF REPORT

[9] Percentage change from last fiscal year.
E.g. If last fiscal year was $2 and this fiscal year is $1.90, then percentage will be -5%

BHS O&M Annual Report

B SYSTEM PERFORMANCE REPORT

Reference § TS-17.7.3.

Month JULY 2021

Date of report 07/16/2021

Tracking (…A.1.)

	1E	2E	3E	1W	2W	3W	TOTAL
ICS Tracking							

System data (…A.2.)

	E	E	E	W	W	W	OTAL T
Downtime (…A.2.a.)							
Baggage Processed (…A.2.b.)							
CBRA bags (…A.2.c.)							
MES bags (…A.2.d.)							
Peak Hour loaded (…A.2.e.)							
Peak Hour off-loaded (…A.2.e.)							

Wait time load stations (…A.2.e.)

	1E	2E	3E	1W	2W	3W	TOTAL
Minimum							
Maximum							
Average							

Wait time unload stations (…A.2.e.)

	1E	2E	3E	1W	2W	3W	TOTAL
Minimum							
Maximum							
Average							

In-system time (…A.2.g)

	1E	2E	3E	1W	2W	3W	TOTAL
Minimum							
Maximum							
Average							

ICS car utilization (…A.2.h.)

	1E	2E	3E	1W	2W	3W	TOTAL
Minimum							
Maximum							
Average							

Equipment reliability

	1E	2E	3E	1W	2W	3W	TOTAL
ICS cars (…B.1.)							
CBRA (…B.2.)							
ICS Lift (…B.3.)							
Computer Systems (…B.4.)							
Power Distribution (…B.5.)							
Fencing/ gate (…B.6.)							
Power Turns (…B.8.)							
Queue(…B.9.)							
Transport (…B.10.)							
Belting (…B.11.)							
Motors (…B.13.)							
Gearbox (…B.14.)							
Rollers (…B.15.)							
Bearings (…B.16.)							
VFD (…B.18.)							
Controls (…B.18.)							
PLC (…B.19.)							
Other (…B.)							

Comment

END OF REPORT

BHS O&M Annual Report

C EQUIPMENT REPAIR STATUS/ COST REPORT

Reference § TS-17.7.4.

Month JULY 2021

Date of report 07/16/2021

	Qtr(s) Labor	Qtr(s) Materials	YTD Labor	YTD Materials
ICS cars (…A.1.)				
CBRA (…A.2.)				
ICS Lift (…A.3.)				
Computer Systems (…A.4.)				
Power Distribution (…A.5.)				
Fencing/ gate (…A.6.)				
Power Turns (…A.8.)				
Queue(…A.9.)				
Transport (…A.10.)				
Belting (…A.11.)				
Motors (…A.13.)				
Gearbox (…A.14.)				
Rollers (…A.15.)				
Bearings (…A.16.)				
VFD (…A.18.)				
Controls (…A.20.)				
PLC (…A.21.)				
Other (…A..)				

Comment

END OF REPORT

BHS O&M Annual Report

D SAFETY AUDIT REPORT.

Reference § TS-17.7.5

Date of notification 07/16/2021

Auditor John Doe

Substances involved

SWPP-15. Change procedure to restrict access to oil

SWPP deficiencies

SWPP-14. Change wrap spring clutch in HSD

Requires additional details to instruct persons performing work to ensure that a second observer is present.

SWPP to be updated.

All SWPP are up to date

Comment

END OF REPORT

E STAFFING SCHEDULE

Reference § TS-17.7.6, § TS-6.1.I

D.7 AS REQUIRED REPORTS

BHS O&M

A ACCIDENT REPORT.

Reference § TS-17.8.1

Date of notification 07/16/2021

☑ Local treatment ❑ Hospitalization ❑ Permanent Injury ❑ DEATH

☑ Personal Injury ❑ Vehicle ❑ Other

Date 07/16/2021

Injured party John Doe

Time Off 2 Days

Follow up required

❑ Yes ☑ No

Injury cause

Employee was carrying materials and failed to notice yellow marked change in elevation adjacent to BHS Conveyor 3EML1-01. Employee lost balance and fell down.

Injury description

Superficial cuts to left hand, minor sprain to left ankle, some visible swelling. Employee was seen by first aid certified employee. Employee elected NOT to visit doctor. Employee given 2 days paid leave to recuperate.

Corrective action required

All employees were given additional safety training to ensure that they were aware of marked and/or unmarked hazards in the area being worked. Employees were specifically discouraged from carrying loads that hindered visibility.

Comment

END OF REPORT

B EVENT REPORT.

Reference TS-17.8.2
§ TS-9.1.C, § TS-10.1.G , § TS-12.9.2.A

Follow CCD standard report format

END OF REPORT

BHS O&M

C O&M PLAN CHANGE REPORT.

Reference	§ TS-17.8.3, § TS-12.7.2.B.
Date of notification	07/16/2021

Date	06/11/2021
Last Change Date	02/10/2021
Effective Change Date	06/08/2021

Attach old procedure (identify procedure as no longer effective on all pages).
Attach new procedure (easily identify changes).

D PLANNED ABSENCE OF KEY PERSONNEL

Reference § TS-17.8.5
§ TS-6.7.2.D, § TS-6.7.3.D, § TS-6.8.1.D

Date of notification 07/16/2021

☑ Site Manager ❑ Office Manager ❑ Supervisor

Date starting 07/26/2021

Date Ending 08/04/2021

Reason for assignment of replacement person

Staff member sustained a personal injury requiring hospitalization. Staff member anticipated back to work no later than 8/4/2021.

Detail the replacement person assigned by the Contractor.

Replacement person John Doe

Contact Phone number 303-342-0000

Comment

END OF REPORT

E FAILURE TO FOLLOW SWPP

Reference § TS-17.8.6, § TS-8.3.C

Date of notification 07/16/2021

☑ Resolved ❑ Work in Progress ☑ Follow up

Date Starting 7/16/2021

Date Ending 7/21/2021

Follow up 7/28/2021
8/21/2021

Description of event and action taken

Employee failed to follow SWPP in replacement of queue belt during routine adjustment 7/16/2021. Queue belt failed during operations 7/21/2021 shortly after 17:50. Supervisor inspected and found that the queue belt had been laced incorrectly. New queue belt was installed, supervisor inspected remedial work and confirmed proper installation.

Conveyor line was down from 18:10 until 20:15. Minor impact to operations during busy period 19:00 to 19:30. Supervisor confirmed with TSA and Carrier that event did not result in delayed/late bags.

Remedial action

Employee has been re-trained on the correct SWPP 7/22/2021. Additional retraining is scheduled for the employee 7/29/2021.

A follow up inspection is planned for night shift 07/28/2021 and 08/21/2021

Keep with next page

Material costs	$ 1,994.84	Spare parts inventory attached
Remedial Labor	4.5 hr	
Follow up	1.0 hr	
Other (define)	4.0 hr	Training

Note: Attach supporting CMSS Maintenance report identifying material costs.

Comment

END OF REPORT

Denver International Airport
Baggage Handling System
CMMS Maintenance Report

Module	1E
Conveyor	2WML1-01
Date	6/3/2021

Item code	Description	Qty	Cost	Ext cost
A1072	45 degree merge belt	1	1,943.50	1,943.50
C441	Merge cold bond kit	1	51.34	51.34
		Total Cost		1,994.84

F UNSCREENED BAGGAGE REPORT

Reference § TS-17.8.7, § TS-11.8.C.3.

Date of notification 07/16/2021

☑ Resolved ❑ Further testing required ❑ Failed

Event Started 10:41

Event Finish 11:22

Module 1E

Quantity 1

Persons Notified.

[City representative] [O&M Supervisor]

[TSA CMF/ Manager]

Reason for failure to screen bags[10]

Bag rolled into another bag, exited MES with another bag that was cleared.

Action taken by Contractor to resolve problem

Located bag and re-inserted for rescreening.

Changes to operations and/or Maintenance Procedures

Continue baggage hygiene training of airlines.

Keep with next page

[10] Attach sketch as necessary

Changes to BHS operation

Monitor baggage through BHS to identify poor hygiene issues, identify baggage tag. Notify Airlines supervisor and reschedule hygiene training.

Comment

END OF REPORT

G INTERIM INSPECTION REPORT

Reference	§ TS-17.8.8, § TS-21.3.D
Date of notification	07/16/2021
Date /Time of inspection	07/16/2021 @ 11:00
Type	Functional inspection

Work done

Installed replacement network switch in agreement with DEN.

Abnormal unacceptable unexpected results

None

Improvements Identified

None at this stage, monitoring for reliability.

Bags processed during inspection period

N/A

Faults observed during inspection period

None

Punch items corrected

Labelling to be updated

END OF REPORT

BHS O&M

H STRANDED BAG SOLUTION

Reference	§ TS-16.8.9, TS-11.6.B
Month	JULY 2021
Date of report	08/01/2021
Location	MAINT

Stranded bag information.

Date	Qty
7/5//2021	1

Solution

Problem bag sent to maintenance area, Airlines called, no one responded about a missing bag.

Bag taken to Lost & Found.

Comment

END OF REPORT

BHS O&M Report

I ADJUSTMENT TO MAINTENANCE SCHEDULE

Reference § TS-17.8.10, TS-12.7.2.C

Month MAY 2021

Date of report 06/04/2021

Change to Schedule

Item	New Schedule	Effective
Cleaning all MCP and VFD box filters	Weekly	5/28/2021

Improvements

Reduction in particles entering MCP and VFD boxes.

☑ As expected ❑ Needs follow up

Change to Schedule

Item	New Schedule	Effective
Replace VFD filters	Every Quarter	5/28/2021

Improvements

Reduction in particles entering VFD boxes.

❑ As expected ☑ Needs follow up

Note: Attach new updated procedure

Comment

END OF REPORT

BHS O&M Report

J EMERGENCY BHS MODIFICATION

Reference	§ TS-17.8.11, § TS-21.2.A
Month	JULY 2021
Date of report	07/27/2021

Item

Hazard strips

Work completed.

Yellow safety striping was added to a section of the 1E ICS MES platform to improve visibility of changes in floor levels.

Reason for work.

An accident occurred 07/27/2021 where a third party tripped moving from one area to another in the 1E ICS MES Platform area.

Replacement parts

Item	Qty	Cost
Yellow safety paint	¼ gallon	14.25
Brush cleaning fluid	¼ gallon	8.10
	Sub total	22.35

Manpower usage

Who	Work done	Man hours	Cost
Machinery Maint Mechanic	Painting	3.5	0.00
Supervisor,	Supervision	0.5	0.00
	Total	4.0	0.00

Comment

END OF REPORT

BHS O&M Report

K REQUEST FOR BHS MODIFICATION

Reference § TS-17.8.12, § TS-21.3.

Month JULY 2021

Date of report 07/29/2021

Identified problem.

Work to do.

Time schedule.

Replacement parts

Item	Qty	Cost
None	0	0.00
	Sub total	0.00

Manpower usage

Who	Work done	Man hours	Cost
	Total		

Attach: Rollback plan
Detailed schedule of work
Detailed follow up schedule

Keep with next page

Comment

_____

_____

_____

_____

☑ Authorized to Proceed ❑ Requires more supporting information (see comment ❑ Not authorized to proceed

	PRINT NAME	SIGNATURE
Authorizing person	_____	_____

END OF REPORT

BHS O&M Report

L INTERIM INSPECTION REPORT

Reference	§ TS-17.8.13, § TS-21.3.D
Month	JULY 2021
Date of report	07/31/2021
Date of inspection	07/30/2021
Location	MAINT
Type of inspection	Verify operation

Identified a catch point when cars arrived for maintenance

Unexpected results/Faults observed.

Potential damage to track/ cars

Improvements identified.

Reset track, eliminated catch point

Cars processed

Type	Quantity
Cars	20
Other	

Punch items.

Item	Completed
None	

Comment

END OF REPORT

BHS O&M Report

M STAFFING SCHEDULE

Reference § TS-16.8.14, § TS-6.1.I

Month JULY 2022

Date of report 07/16/2022

Period From 07/01/2022

Period To (Leave BLANK if OPEN)

	Shift 1	Shift 1A	Shift 2	Shift 2A	Shift 3	Shift 3A	Shift 4	Shift 4A
Days	SMT	W	SMT	W	TFS	W	TFS	W
Period	22:00-10:15	22:00-04:15	10:00-22:15	04:00-10:15	22:00-10:15	10:00-16:15	10:00-22:15	16:00-22:15
Supervisor	(Name)	(Name)	(Name)	(Name)	(Name)	(Name)	(Name)	(Name)
Control room (MMM)	(Name)	(Name)	(Name)	(Name)	(Name)	(Name)	(Name)	(Name)
Control System Technician	(Name)	(Name)	(Name)	(Name)	(Name)	(Name)	(Name)	(Name)
Machinery Mechanic #1	(Name)	(Name)	(Name)	(Name)	(Name)	(Name)	(Name)	(Name)
Machinery Mechanic #2	(Name)	(Name)	(Name)	(Name)	(Name)	(Name)	(Name)	(Name)
Machinery Mechanic #3	(Name)	(Name)	(Name)	(Name)	(Name)	(Name)	(Name)	(Name)
Machinery Mechanic #4	(Name)	(Name)	(Name)	(Name)				
Entry Mechanic #1	(Name)	(Name)	(Name)	(Name)	(Name)	(Name)	(Name)	(Name)
Entry Mechanic #2					(Name)	(Name)	(Name)	(Name)
Safety Officer	(Name)	(Name)	(Name)	(Name)	(Name)	(Name)	(Name)	(Name)
Other #1	(Name)	(Name)	(Name)	(Name)	(Name)	(Name)	(Name)	(Name)
Other #2	(Name)	(Name)	(Name)	(Name)	(Name)	(Name)	(Name)	(Name)

Comment

END OF REPORT

BHS O&M

N END OF USEFUL LIFE

Reference	§ TS-17.8.15 TS-12.6.C, TS-12.7.1.G.
Month	JULY 2021
Date of report	07/16/2021

Required	End of life	Replacement by
MES Hand-scanner	04/2023	02/2023

Reason for End of life.

The equipment supplier stopped manufacturing spare parts in 12/2022 and will no longer provide repair services for equipment past 04/2023.

Proposed Solution.

The existing equipment needs to be replaced with equipment which is readily available on the market and has a reasonable life expectancy. Current equipment in other areas of the airport utilize the latest product from the equipment supplier which provides good read rates. It is recommended that consideration be given to using this product due to good read rates, equipment familiarity and spare parts inventory. The supplier of the proposed hardware has indicated that the that proposed replacement equipment is still be manufactured and there is no known schedule for replacement or end of life announcement.

Comment

END OF REPORT

APPENDIX E - CONTRACTORS PROPOSED ORGANIZATION CHART

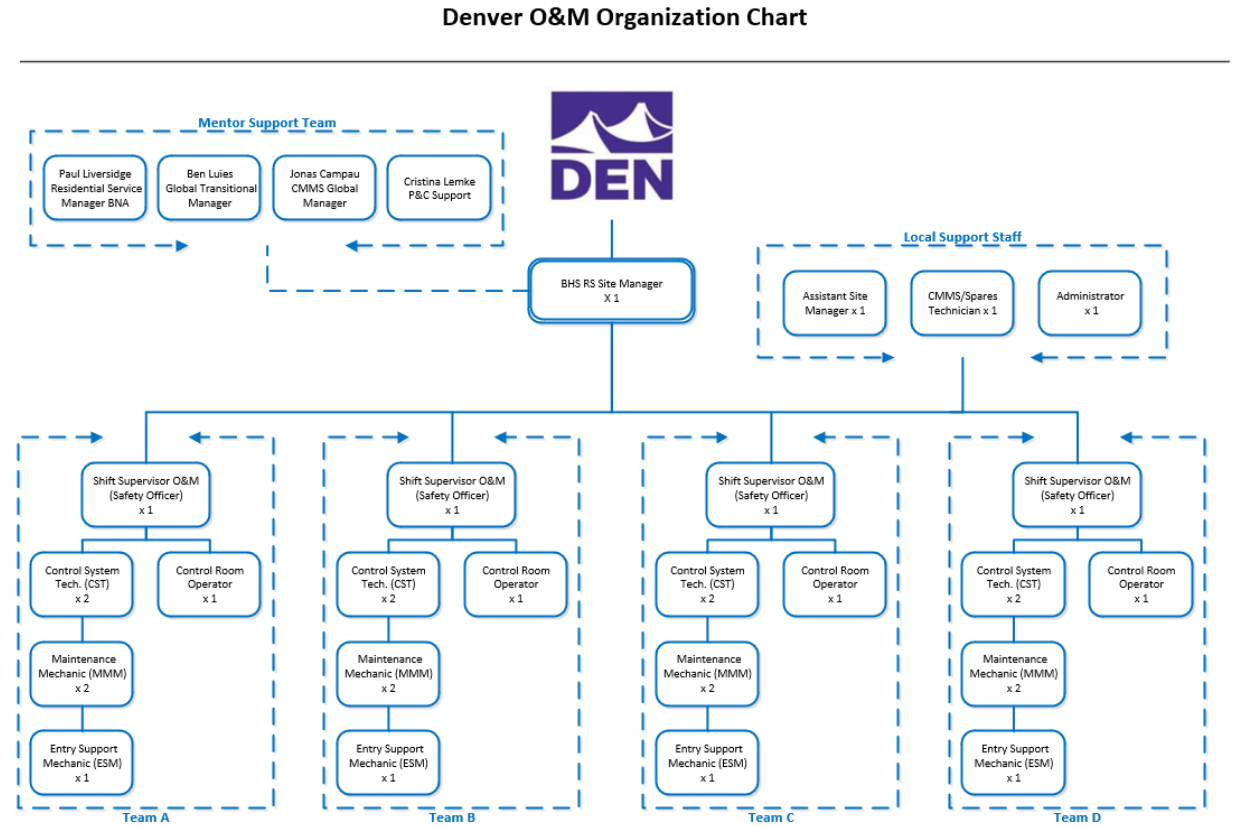


Figure 7, Organization Chart

END OF TECHNICAL SPECIFICATION

EXHIBIT B
SCHEDULE OF PRICES

ITEM #1

Monthly and Annual Charges for maintenance, repair, and operational services for the Baggage Handling System at Denver International Airport as outlined in the Technical Specifications—this price is inclusive of any overtime compensation owed to contractor employees for work covered by this agreement.

YEAR	Monthly Price	Yearly Price	Annual Increase %
Year 1	$412,853	$4,954,235	--
Year 2	$425,239	$5,102,862	3%
Year 3	$437,996	$5,255,948	3%
Year 4 (renewal year)	$451,136	$5,413,627	3%
Year 5 (renewal year)	$464,670	$5,576,035	3%

ITEM #2

Mobilization to be billed at cost not to exceed amount below.

Mobilization	$700,000

ITEM #3

Billable rates for services not covered by this agreement by position – these rates will also be used to deduct the monthly invoices for staffing deficiencies as stated in Section 6.6 of the Technical Specifications.

Position	Year 1	Year 2	Year 3	Year 4	Year 5
Site Manager	$89.61	$92.30	$95.07	$97.92	$100.86
Assistant Site Manager	$70.87	$73.00	$75.19	$77.45	$79.77
Administrator	$49.10	$50.57	$52.09	$53.65	$55.26
CMMS/Parts Administrator	$62.52	$64.40	$66.33	$68.32	$70.37
Shift Supervisor – Regular	$66.87	$68.87	$70.94	$73.07	$75.26
Shift Supervisor – Shift Differential	$72.19	$74.35	$76.58	$78.88	$81.25
Control Systems Technician – Regular	$59.95	$61.75	$63.60	$65.51	$67.47
Control Systems Technician – Shift Differential	$64.49	$66.43	$68.42	$70.47	$72.59
Machinery Maintenance Mechanic/Control Room Operator – Regular	$55.01	$56.66	$58.36	$60.11	$61.91
Machinery Maintenance Mechanic/Control Room Operator – Shift Differential	$59.12	$60.89	$62.72	$64.60	$66.54
Entry Support Mechanic/Manual Encode Station Operator – Regular	$50.15	$51.66	$53.21	$54.80	$56.45
Entry Support Mechanic/Manual Encode Station Operator – Shift Differential	$53.81	$55.43	$57.09	$58.80	$60.57

EXHIBIT C

CITY AND COUNTY OF DENVER
INSURANCE REQUIREMENTS FOR DEPARTMENT OF AVIATION
INFRASTRUCTURE MAINTENANCE AGREEMENT

A. Certificate Holder

The certificate shall be issued to:

CITY AND COUNTY OF DENVER
Denver International Airport
8500 Peña Boulevard, Suite 8810
Denver CO 80249
Attn: Risk Management

B. Acceptable Certificate of Insurance Form and Submission Instructions

Please read these requirements carefully to ensure proper documentation and receipt of your certificate(s) of insurance.

- ACORD FORM (or equivalent) certificate is required.
- SUBMIT via emailed in pdf format to: contractadmininvoices@flydenver.com
- HARD COPIES of certificates and/or copies of insurance policies will not be accepted.
- THIRD PARTY SOFTWARE may be implemented during the term of this Agreement to manage insurance compliance and documents with required use by Vendor of such system.
- REFERENCE on the certificate must include the DEN assigned Contract Number.

C. Coverages and Limits

1. Commercial General Liability:
   Vendor shall maintain insurance coverage including bodily injury, property damage, personal injury, advertising injury, independent contractors, host liquor, and products and completed operations in minimum limits of $1,000,000 each occurrence, $2,000,000 products and completed operations aggregate; ; if policy contains a general aggregate, a minimum $2,000,000 annual per location aggregate must be maintained.

   a. Such insurance shall also provide contractual liability covering liability assumed under this Agreement (including defense costs assumed under contract) within the scope of coverages provided.
   b. Such insurance shall include Mobile Equipment Liability, if such equipment will be used to perform services under this Agreement.

2. Business Automobile Liability:
   Vendor shall maintain a minimum limit of $1,000,000 combined single limit each occurrence for bodily injury and property damage for all owned, leased, hired and/or non-owned vehicles used in performing services under this Agreement.

   a. If operating vehicles unescorted airside at DEN, a $10,000,000 combined single limit each occurrence for bodily injury and property damage is required.
   b. If Vendor does not have blanket coverage on all owned and operated vehicles and will require unescorted airside driving privileges, then a schedule of insured vehicles (including year, make, model and VIN number) must be submitted with the Certificate of Insurance.
   c. The policy must not contain an exclusion related to operations on airport premises
   d. If transporting waste, hazardous material, or regulated substances, Vendor shall carry a Broadened Pollution Endorsement and an MCS 90 endorsement on its policy.
   e. If Vendor is an individual or represents that Vendor does not own any motor vehicles and Vendor's owners, officers, directors, and employees use their personal vehicles for business purposes, Personal Automobile Liability insurance coverage will be accepted provided it includes a business use

endorsement.

f. If Vendor will be completing all services to DEN under this Agreement remotely this requirement will be waived.

3. Workers' Compensation and Employer's Liability Insurance:
Vendor shall maintain workers compensation coverage in compliance with the statutory requirements of the state(s) of operation and Employer's Liability insurance with limits no less than $100,000 per occurrence for each bodily injury claim, $100,000 per occurrence for each bodily injury caused by disease claim, and $500,000 aggregate for all bodily injuries caused by disease claims.

   a. If Vendor is a sole proprietor, Workers' Compensation and Employer's Liability is exempt under the Colorado Workers' Compensation Act. It is the sole responsibility of the Vendor to determine their eligibility for providing this coverage and executing all required documentation with the State of Colorado.

4. Technology Errors and Omissions, Network Security, and Privacy Liability (Cyber):
Vendor shall maintain a limit no less than $1,000,000 each claim and $2,000,000 annual aggregate.

   a. Coverage shall include, but not be limited to, professional misconduct or lack of ordinary skill, liability arising from theft, dissemination and/or use of personal, private, confidential, information subject to a non-disclosure agreement, including information stored or transmitted, privacy or cyber laws, damage to or destruction of information, intentional and/or unintentional release of private information, costs associated with breach notification, credit monitoring, PCI and regulatory fines and penalties, alteration of information, extortion and network security, introduction of a computer virus into, or otherwise causing damage to, a customer's or third person's computer, computer system, network or similar computer related property and the data, software, and programs thereon, advertising injury, personal injury (including invasion of privacy) and intellectual property offenses related to internet.
   b. Vendor shall maintain such insurance for an additional period of one (1) year following termination of this Agreement.

5. Installation Floater:
Vendor shall provide coverage with a limit equal to the full insurable value of materials and equipment and be written on a Special Covered Cause of Loss Form including theft, faulty workmanship, mechanical or electrical damage during testing and labor costs to repair damaged work, and soft costs. The policy shall cover property while located at the project site, at temporary locations, or in transit; and name the City as the loss payee on the policy, as its interests may appear. Coverage shall remain in force until acceptance of the work by the City.

6. Property Insurance – Business Personal Property:
Vendor is solely responsible for any loss or damage to their business personal property or personal property of its employees, including, without limitation, furnishings, materials, tools, and equipment. If Vendor carries property insurance on its personal property located on DEN premises, a waiver of subrogation as outlined in Section E will be required from its insurer.

7. Excess/Umbrella Liability:
Combination of primary and excess coverage may be used to achieve minimum required coverage limits. Excess policy(es) must follow form of the primary policies with which they are related to provide the minimum limits.

D. Additional Insured

For all coverages required under this Agreement (excluding Workers' Compensation, Employer's Liability and Professional Liability), Vendor's insurer(s) shall include the City and County of Denver, its elected and appointed officials, successors, agents, employees and volunteers as Additional Insureds by policy endorsement.

E. Waiver of Subrogation

For all coverages required under this Agreement, Vendor's insurer(s) shall waive subrogation rights against the City and County of Denver, its elected and appointed officials, successors, agents, employees and volunteers by policy endorsement.

F. Notice of Material Change, Cancellation or Nonrenewal

Each certificate and related policy shall contain a valid provision requiring notification to the Certificate Holder in the event any of the required policies be canceled or non-renewed or reduction in coverage before the expiration date thereof.

1. Such notice shall reference the DEN assigned contract number related to this Agreement.
2. Said notice shall be sent thirty (30) days prior to such cancellation or non-renewal or reduction in coverage unless due to non-payment of premiums for which notice shall be sent ten (10) days prior.
3. If such written notice is unavailable from the insurer or afforded as outlined above, Vendor shall provide written notice of cancellation, non-renewal and any reduction in coverage to the Certificate Holder within seven (7) business days of receiving such notice by its insurer(s) and include documentation of the formal notice received from its insurer's as verification.

G. Additional Provisions

1. Deductibles, Self-Insured Retentions, or any other type of retention are the sole responsibility of the Vendor.
2. Defense costs shall be in addition to the limits of liability. If this provision is unavailable that limitation must be evidenced on the Certificate of Insurance.
3. A severability of interests or separation of insureds provision (no insured vs. insured exclusion) is included under all policies where Additional Insured status is required.
4. Provision that coverage is primary and non-contributory with other coverage or self-insurance maintained by the City shall be provided on policies which the City requires Additional Insured status.
5. The insurance requirements under this Agreement shall be the greater of (i) the minimum limits and coverage specified hereunder or (ii) the broader coverage and maximum limits of coverage of any insurance policy or proceeds available to the Lessee. It is agreed that the insurance requirements set forth herein shall not in any way act to reduce coverage that is broader or that includes higher limits than the minimums set forth in this Agreement.
6. All policies shall be written on an occurrence form. If an occurrence form is unavailable or not industry norm for a given policy type, claims-made coverage will be accepted by the City provided the retroactive date is on or before the Agreement Effective Date or the first date when any goods or services were provided to the City, whichever is earlier, and continuous coverage will be maintained or an extended discovery period of three years beginning at the time work under this Agreement is completed or the Agreement is terminated, whichever is later.
7. Vendor shall advise DEN in the event any general aggregate or other aggregate limits are reduced below the required per occurrence limits. At their own expense, and where such general aggregate or other aggregate limits have been reduced below the required per occurrence limit, the Vendor will procure such per occurrence limits and furnish a new certificate of insurance showing such coverage is in force.
8. Certificates of Insurance must specify the issuing companies, policy numbers and policy periods for each required form of coverage. The certificates for each insurance policy are to be signed by a person authorized by the insurer to bind coverage on its behalf and must be submitted to the City at the time the Vendor signed this Agreement.
9. The insurance shall be underwritten by an insurer licensed or authorized to do business in the State of Colorado and rated by A.M. Best Company as A- VIII or better.
10. Certificate of Insurance and Related Endorsements: The City's acceptance or approval of a certificate of insurance or other proof of insurance that does not comply with all insurance requirements set forth in this Agreement shall not act as a waiver of Vendor's breach of this Agreement or of any of the City's rights or remedies under this Agreement. The City's acceptance or approval of any submitted insurance certificate is subject to the approval of DEN Risk Management or its designee. All coverage requirements specified in the certificate shall be enforced unless waived or otherwise modified in writing by DEN Risk Management. Vendor is solely responsible for ensuring they are in compliance with all insurance requirements and that all formal policy endorsements are issued by their insurers to support the requirements herein.

11. The City shall have the right to verify or confirm, at any time, all coverage, information or representations, and the insured and its insurance providers shall promptly and fully cooperate in any such audit the City may elect to undertake.
12. No material changes that negatively impact DEN or reductions in the coverage required herein shall be allowed without the review and written approval of DEN Risk Management.
13. Vendor shall be responsible for ensuring DEN is provided updated Certificate(s) of Insurance ten (10) days prior to each policy renewal.
14. Vendor's failure to maintain the insurance required by this Agreement shall be the basis for immediate termination of this Agreement at DEN's sole discretion and without penalty to the City.

EXHIBIT D

DENVER
THE MILE HIGH CITY

TO: All Users of the City and County of Denver Prevailing Wage Schedules

FROM: Ryland Feno, OHR Compensation and Classification

DATE: July 16, 2020

SUBJECT: Latest Update to Prevailing Wage Schedules

Please find an attachment to this memorandum of all the current Office of Human Resources Prevailing Wage Schedules issued in accordance with the City and County of Denver's Revised Municipal Code, Section 20-76(c). This schedule does not include the Davis-Bacon rates. The Davis-Bacon wage rates will continue to be published separately as they are announced.

Modification No. 152
Publication Date: July 16, 2020
(12 pages)

Unless otherwise specified in this document, apprentices shall be permitted only if they are employed pursuant to, and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor. The employer and the individual apprentice must be registered in a program, which has received prior approval by the U.S. Department of Labor. Any employer who employs an apprentice and is found to be in violation of this provision shall be required to pay said apprentice the full journeyman scale.

Attachments as listed above.

Office of Human Resources
201 W. Colfax Ave. Dept. 412 | Denver, CO 80202
p: 720.913.5751 | f: 720.913.5720
www.denvergov.org/humanresources

APPLIANCE MECHANIC

Effective Date: 07-16-20
Last Revision: 05-16-19

Classification	Base Wage/Hour	Fringes/Hour
Appliance Mechanic	$23.21	$7.22

Plus 10% shift differential for regularly scheduled hours worked between 6:00 p.m. and 6:00 a.m.

The Appliance Mechanic installs, services and repairs stoves, refrigerators, dishwashing machines, exercise equipment and other electrical household or commercial appliances, using hand tools, test equipment and following wiring diagrams and manufacturer's specifications. Responsibilities include: connects appliance to power source and test meters, such as wattmeter, ammeter, or voltmeter, observes readings on meters and graphic recorders, examines appliance during operating cycle to detect excess vibration, overheating, fluid leaks and loose parts, and disassembles appliances and examines mechanical and electrical parts. Additional duties include: traces electrical circuits, following diagram and locates shorts and grounds, using ohmmeter, calibrates timers, thermostats and adjusts contact points, and cleans and washes parts, using wire brush, buffer, and solvent to remove carbon, grease and dust. Replaces worn or defective parts, such as switches, pumps, bearings, transmissions, belts, gears, blowers and defective wiring, repairs and adjusts appliance motors, reassembles appliance, adjusts pulleys and lubricates moving parts, using hand tools and lubricating equipment.

Note: This position does not perform installations done at new construction.

BUILDING ENGINEER

Effective Date: 08-15-19
Last Revision: 04-05-18

Classification	Base Wage/Hour	Fringes/Hour
Building Engineer	$29.55	$7.89

This classification of work is responsible for operating, monitoring, maintaining/repairing the facilities mechanical systems to ensure peak performance of the systems. This includes performing P.M. and repair work of the building mechanical systems, inspecting, adjusting, and monitoring the building automation and life safety systems, contacting vendors and place order replacement parts, responding to customer service requests and performing maintenance/repairs I tenant or public spaces, performing routine P.M. i.e. light plumbing and electrical repairs, ballast lamp and tube replacement, operating mechanical systems both on site and via a remote laptop computer, maintaining inventory of spare parts and tools, painting and cleaning mechanical equipment and machine rooms, etc.

CONVEYANCE SYSTEM MAINTENANCE SERIES

Effective Date: 09-19-19
Last Revision: 09-20-18

Classification	Base Wage/Hour	Fringes/Hour
Entry-Support Mechanic	$24.44	$7.36
Machinery Maintenance Mechanic	$27.36	$7.70
Controls System Technician	$30.33	$8.04

Plus 10% shift differential for regularly scheduled hours worked between 6:00 p.m. and 6:00 a.m.

This classification was previously listed as Baggage Handling System Maintenance. The title of the series has been changed to be inclusive of other types of similar work.

Entry Support Mechanic
The Entry Support Mechanic (ESM) applies basic mechanical knowledge to perform maintenance and operational tasks on a conveyance system. Under supervision of a Machinery Maintenance Mechanic (MMM) or Control Systems Technician (CRO), the ESM performs cleaning, routine inspections, preventive, corrective and emergency maintenance based on an established maintenance program. The ESM clears jams and faults and may physically move items during failures.

Machinery Maintenance Mechanic
The Machinery Maintenance Mechanic (MMM) applies advanced mechanical knowledge to perform maintenance and operational tasks on a conveyance system. Performs cleaning of all parts of the system, routine inspections, preventive maintenance, corrective maintenance, and emergency maintenance within the system based on an established maintenance program. The MMM shall inspect all equipment for proper operation and performance including but not limited to conveyors, lifts, diverters and automatic tag readers. The MMM troubleshoots, repairs, replaces, and rebuilds conveyor components including but not limited to; motors, gearboxes, bearings, rollers, sheaves, hydraulic systems, conveyor belting, clutch brakes, tools, independent carrier systems, and other complex devices using basic hand tools, power tools, welders and specialized tools. The MMM may assist the Control Systems Technician (CST) with clearing electrical faults and electrical repairs. The MMM reads and interprets manufacturers' maintenance manuals, service bulletins, technical data, engineering data, and other specifications to determine feasibility and method of repairing or replacing malfunctioning or damaged components. The MMM clears jams and faults in the system and may physically move items during failures. The MMM will operate a Central Monitoring Facility/Control Room, these duties include; using multiple computer systems for monitoring the system and running reports, communicating faults in the system using a radio and telephone, and communicating with stakeholders. The MMM performs on-site training of ESM.

Controls System Technician
The Control Systems Technician (CST) applies advanced technical knowledge to perform maintenance and operational tasks on a conveyance system. Performs all duties assigned to an MMM in addition to the following routine inspections, preventive maintenance, corrective maintenance, and emergency maintenance of complex components within the system based on an established maintenance program. The CST is responsible for resolving difficult controls, electrical and mechanical problems. The CST troubleshoots, repairs, replaces, and rebuilds complex electro-mechanical systems and conveyor components including but not limited to; programmable logic controllers, input and output modules, electrical switches, variable frequency drives, 110V AC and 24V DC controls devices, automatic tag readers, electrical control panels, 110V - 480V AC components and motors, gearboxes, bearings, rollers, sheaves, hydraulic systems, conveyor belting, clutch brakes, tools, independent carrier systems, and other complex devices using basic hand tools, power tools, welders and specialized mechanical and electrical tools. The CST reads and interprets manufacturers' maintenance manuals, service bulletins, technical data, engineering data, and other specifications to determine feasibility and method of repairing or replacing malfunctioning or damaged components. The CST clears mechanical, electrical and controls faults, jams and may physically move items during failures. The CST performs on-site training and competency evaluations of MMM and ESM.

Note: Incumbents must possess an Electrician's license when work warrants.

CUSTODIANS

Effective Date: 12-19-19
Last Revision: **01-17-19**

Classification	Base Wage/Hour	Fringes/Hour
Custodian I	$15.98	$6.53 (Single) $9.71 (Children) $10.41 (2-party) $13.59 (Family)
Custodian II	$16.33	$6.59 (Single) $9.76 (Children) $10.47 (2-party) $13.65 (Family)

Benefits and Overtime

Parking	With valid receipt from approved parking lot, employees are reimbursed the actual monthly cost of parking.
RTD Bus Pass	Employer will provide employees with the Bus Pass or pay ($0.23) per hour for travel differential.
Shift Differential	2nd shift (2:30 p.m.-10:30 p.m.): $.50/hour 3rd shift (10:31 p.m.-6:30 a.m.): $1.00/hour
Overtime	Time worked in excess of seven and one-half (7 ½) hours in one (1) day or in excess of thirty-seven and one-half (37 ½) hours in one week shall constitute overtime and shall be paid for at the rate of time and one-half (1 ½) at the employee's basic straight time hourly rate of pay.
Lunch	Any employee working seven and a half (7.5) hours in a day is entitled to a thirty (30) minute paid lunch.
Note	The Career Service Board in their public hearing on March 15, 2007 approved to amend prevailing wages paid to the Custodian as follows: "All contractors shall provide fringe benefits or cash equivalent at not less than the single rate amount. Contractors who offer health insurance shall provide an employer contribution to such insurance of not less than the 2-party or family rate for any employee who elects 2-party or family coverage. Contractors who offer such coverage will be reimbursed for their employer contributions at the above rates under any City contract incorporating this wage specification."

Custodian I

Any employee performing general clean-up duties using equipment that does not require special training: i.e., dust mopping, damp mopping, vacuuming, emptying trash, spray cleaning, washing toilets, sinks, walls, cleaning chairs, etc.

Custodian II

Any employee performing specialized cleaning duties requiring technical training and the use of heavy and technical equipment, i.e., heavy machine operators, floor strippers and waxers, carpet shampooers, spray buffing, re-lamping, mopping behind machines, high ladder work, chemical stripping and finishing of stainless steel.

DIA OIL & GAS

Effective Date: 04-16-20
Last Revision: 06-20-19

Classification	Base Wage/Hour	Fringes/Hour
Derrick Hand/Roustabout	$14.49	$6.21
Electrician	$26.44	$7.59
Mechanic	$25.44	$7.48
Pipefitter	$26.70	$7.62
Rig/Drill Operator	$23.02	$7.20
Truck Driver	$23.62	$7.27

Heavy Equipment Mechanic (Mechanic)
The Heavy Equipment Mechanic analyzes malfunctions and repairs, rebuilds and maintains power equipment, such as cranes, power shovels, scrapers, paving machines, motor graders, trench-digging machines, conveyors, bulldozers, dredges, pumps, compressors and pneumatic tools. This worker operates and inspects machines or equipment to diagnose defects, dismantles and reassembles equipment, using hoists and hand tools, examines parts for damage or excessive wear, using micrometers and gauges, replaces defective engines and subassemblies, such as transmissions, and tests overhauled equipment to insure operating efficiency. The mechanic welds broken parts and structural members, may direct workers engaged in cleaning parts and assisting with assembly and disassembly of equipment, and may repair, adjust and maintain mining machinery, such as stripping and loading shovels, drilling and cutting machines, and continuous mining machines.

Pipefitter
The Pipefitter, Maintenance installs or repairs water, steam, gas or other types of pipe and pipefitting. Work involves most of the following: laying out work and measuring to locate position of pipe from drawings or other written specifications, cutting various sizes of pipe to correct lengths with chisel and hammer, oxyacetylene torch or pipe-cutting machines, threading pipe with stocks and dies. This person is responsible for bending pipe by hand-driven or power-driven machines, assembling pipe with couplings and fastening pipe to hangers, making standard shop computations relating to pressures, flow and size of pipe required; and making standard tests to determine whether finished pipes meet specifications. In general, the work of the Maintenance Pipefitter requires rounded training and experience usually acquired through a formal apprenticeship or equivalent training and experience.

Well Driller (Rig/Drill Operator)
This incumbent sets up and operates portable drilling rig (machine and related equipment) to drill wells, extends stabilizing jackscrews to support and level drilling rig, moves levers to control power-driven winch that raises and extends telescoping mast. This person bolts trusses and guy wires to raise mast and anchors them to machine frame and stakes, and assembles drilling tools, using hand tools or power tools. The Well Driller moves levers and pedals to raise tools into vertical drilling position and lowers well casing (pipe that shores up walls of well) into well bore, using winch, moves levers and pedals and turns hand wells to control reciprocating action of machine and to drive or extract well casing.

Laborer (Derrick Hand/Roustabout)
The Laborer performs tasks that require mainly physical abilities and effort involving little or no specialized skill or prior work experience. The following tasks are typical of this occupation: The Laborer loads and unloads trucks, and other conveyances, moves supplies and materials to proper location by wheelbarrow or hand truck; stacks materials for storage or binning, collects refuse and salvageable materials, and digs, fills, and tamps earth excavations, The Laborer levels ground using pick, shovel, tamper and rake, shovels concrete and snow; cleans culverts and ditches, cuts tree and brush; operates power lawnmowers, moves and arranges heavy pieces of office and household furniture, equipment, and appliance, moves heavy pieces of automotive, medical engineering, and other types of machinery and equipment, spreads sand and salt on icy roads and walkways, and picks up leaves and trash.

Truckdriver
Straight truck, over 4 tons, usually 10 wheels. The Truckdriver drives a truck to transport materials, merchandise, equipment, or workers between various types of establishments such as: manufacturing plants, freight depots, warehouses, wholesale and retail establishments, or between retail establishments and customers' houses or places of business. This driver may also load or unload truck with or without helpers, make minor mechanical repairs, and keep truck in good working order.

ELEVATOR MECHANIC

Effective 1-18-2018, the Elevator Mechanic classification will utilize the base pay and fringe benefits for the Elevator Mechanic classification under the Davis Bacon Building Wage Determination**.**

FINISHER & JOURNEYMAN

TILE, MARBLE AND TERRAZZO

Effective Date: 06-20-19
Last Revision: 09-20-18

Classification	Base Wage/Hour	Fringes/Hour
Finisher	$25.01	$10.06
Journeyman	$31.21	$10.12

Effective May 1, 2008, Local Union 7 of Colorado combined three classes of Finishers, Floor Grinders, and Base Grinders into Finisher using one pay schedule.

Tile Setter: Applies to workers who apply tile to floors, walls, ceilings, stair treads, promenade roof decks, garden walks, swimming pools and all places where tiles may be used to form a finished surface for practical use, sanitary finish or decorative purpose.

FIRE EXTINGUISHER REPAIRER

Effective Date: 07-16-20
Last Revision: 07-19-19

Classification	Base Wage/Hour	Fringes/Hour
Fire Extinguisher Repairer	$20.72	$6.93

The Fire Extinguisher Repairer performs the following duties: repairs and tests fire extinguishers in repair shops and in establishments, such as factories, homes, garages, and office buildings, using hand tools and hydrostatic test equipment, this repairer dismantles extinguisher and examines tubing, horns, head gaskets, cutter disks, and other parts for defects, and replaces worn or damaged parts. Using hand tools, this repairer cleans extinguishers and recharges them with materials, (such as soda water and sulfuric acid, carbon tetrachloride, nitrogen or patented solutions); tests extinguishers for conformity with legal specifications using hydrostatic test equipment and may install cabinets and brackets to hold extinguishers.

FUEL HANDLER SERIES

Effective Date: 10-17-19
Last Revision: 11-15-18

Classification	Base Wage/Hour	Fringes/Hour
Fuel Distribution System Operator	$23.41	$7.18
Lead Fuel Distribution System Operator	$24.48	$7.36
Fuel Distribution System Mechanic	$30.74	$8.09
Lead Fuel Distribution System Mechanic	$32.14	$8.25

Plus 10% shift differential for hours worked between 6:00 p.m. and 6:00 a.m.

Fuel Distribution System Operator
Receives, stores, transfers, and issues fuel. Performs various testing procedures and documentation on fuel samples. Gauges tanks for water, temperature and fuel levels. Performs temperature and gravity testing for correct weight of fuel. Checks pumping systems for correct operating pressure or unusual noises. Inspects fuel receiving, storage, and distribution facilities to detect leakage, corrosion, faulty fittings, and malfunction of mechanical units, meters, and gauges such as distribution lines, float gauges, piping valves, pumps, and roof sumps. Operates a 24-hour control center; operates various computer equipment to determine potential equipment failure, leak and cathodic protection systems, pump failure, and emergency fuel shutoff systems. Monitors quality of fuel and drains excess condensation from fuel sumps and underground fuel pits. Inspects fuel tank farm for such items as leaks, low pressure, and unauthorized personnel. Performs general housekeeping and grounds maintenance for terminal, pipeline and dock areas, including fuel pits and valve vault cleaning and pump out activities. May connect lines, grounding wires, and loading and off-loading arms of hoses to pipelines. May assist Fuel Distribution System Mechanics by preparing work areas. Maintains record of inspections, observations and test results.

Lead Fuel Distribution System Operator
Performs lead duties such as making and approving work assignments and conducting on-the-job training as well as performing the various tasks performed by the Operator classification.

Fuel Distribution System Mechanic
Maintains and repairs fuel storage and distribution systems, equipment and filtration systems, and differential pressure valves. Corrects leakage, corrosion, faulty fittings, and malfunction of mechanical units, meters, and gauges such as distribution lines, float gauges, piping valves, pumps, and roof sumps. Inspects electrical wiring, switches, and controls for safe-operating condition, grounding, and adjustment; may make minor repairs. Lubricates and repacks valves. Lubricates pumps, replaces gaskets, and corrects pumping equipment misalignment. May clean strainers and filters, service water separators, and check meters for correct delivery and calibration. Overhauls system components such as pressure regulating valves and excess valves. Disassembles, adjusts, aligns, and calibrates gauges and meters or replaces them. Removes and installs equipment such as filters and piping to modify system or repair and replace system component. Cleans fuel tanks and distribution lines. Removes corrosion and repaints surfaces. Overhauls vacuum and pressure vents, floating roof seals, hangers, and roof sumps. Some positions maintain fuel-servicing equipment such as hydrant and tanker trucks. Maintains record of inspections and repairs and other related paperwork as required.

Lead Fuel Distribution System Mechanic
Performs lead duties such as making and approving work assignments and conducting on-the-job training as well as performing the various tasks performed by the Mechanic classification.

These classifications are recommended to be inclusive and to supersede any previously adopted classifications.

FURNITURE MOVERS

Moving, Storage and Cartage Workers

Effective Date: **10-17-19**
Last Revision: 11-15-18

Classification	Base Wage/Hour	Fringes/Hour
Laborer/Helper	$17.36	$6.54
Furniture Driver/Packer	$17.66	$6.58
Lead Furniture Mover	$18.46	$6.67

GLYCOL FACILITY

Effective Date: **07-16-20**
Last Revision: 06-20-19

Classification	Base Wage/Hour	Fringes/Hour
De-icing Facility Operator	$27.77	$7.74
Maintenance Mechanic	$27.64	$7.73
Glycol Plant Specialist	$17.36	$6.54

De-icing Facility Operator
The De-icing Facility Operator is responsible for the safe and efficient daily operation of all aircraft de-icing fluid equipment to include: mechanical vapor recompression (concentrators), distillation, polishing, distribution, and collection systems as well as daily routine chores to include: operating and controlling all facility machines and equipment associates with the aircraft deicing fluid system (ADS). Operate electrical motors, pumps and valves to regulate flow, add specific amounts of chemicals such as hydrochloric acid or sodium hydroxide to fluid(s) for adjustment as required, turn valves, change filters/activated carbon, and clean tanks as needed to optimize productivity. Monitor panel boards/HMI/PLC's, adjust control flow rates, repairs, and lubricate machinery and equipment using hand powered tools. Test fluids to determine quality controlling methods. Record data as necessary and maintain good housekeeping of the facility.

Maintenance Mechanic
The position of the Machinery Maintenance Mechanic will be primarily responsible for the routine maintenance and repairs of all facility equipment. Responsible for repairs to machinery and mechanical equipment, examine machines and mechanic equipment to diagnose source of trouble, dismantling or partly dismantling machines and performing repairs that mainly involve the use of hand tools in scraping and fitting parts, replacing broken or defective parts with items obtained from stock, ordering replacement parts, sending parts to a machine shop or equivalent for major repairs, preparing specific written specifications for repairs, SOP's for minor repairs, reassembly of machines and mechanical equipment, and making any necessary adjustments to all equipment for operational optimization.

Glycol Plant Specialist/Material Handling Laborer
The Material Handling Laborer is responsible for the safe and efficient daily documentation/recording of all ADF processors, distillation and polishing systems, as well as the distribution and collection system. Performing physical tasks to transport and/or store materials or fluids. Duties involve one or more of the following: manually loading or unloading trucks, tankers, tanks, totes, drums, pallets, unpacking, placing items on storage bins or proper locations. Utilizing hand carts, forklift, or wheelbarrow. Completing daily fluid inventory, to include tank measuring and completing fluid accountability records. Responsible for the overall facility housekeeping and general cleanliness. Escort vehicles and tankers in and out of the facility, change out filters as required on all systems, take samples and test for quality control and document the findings.

PARKING ELECTRONICS TECHNICIAN

Effective Date: 10-17-19

Last Revision: 11-15-18

Classification	Base Wage/Hour	Fringes/Hour
Parking Electronics Technician	$24.85	$7.41

Plus 10% shift differential for regularly scheduled hours worked between 6:00 p.m. and 6:00 a.m.

This classification of work installs, modifies, troubleshoots, repairs and maintains revenue control equipment at manned and unmanned parking entrance and exit gates. Replaces consumable items such as tickets, printer ribbons, and light bulbs. Replaces modules and related equipment as needed to repair existing equipment, modify applications, or resolve unusual problems. Troubleshoots, tests, diagnoses, calibrates, and performs field repairs. Performs preventive maintenance such as inspection, testing, cleaning, lubricating, adjusting and replacing of serviceable parts to prevent equipment failure for electromechanical control to minimize repair problems and meet manufacturers' specifications.

PEST CONTROLLER

Effective Date: 07-16-20

Last Revision: 07-19-19

*OHR pulled the wages in July of 2020 and data has remained the same so there is no recommendation to change the base wage or fringes.

Classification	Base Wage/Hour	Fringes/Hour
Pest Controller	$20.41	$6.90

The Pest Controller sprays chemical solutions or toxic gases and sets mechanical traps to kill pests that infest buildings and surrounding areas, fumigates rooms and buildings using toxic gases, sprays chemical solutions or dusts powders in rooms and work areas, places poisonous paste or bait and mechanical traps where pests are present; may clean areas that harbor pests, using rakes, brooms, shovels, and mops preparatory to fumigating; and may be required to hold State license

QUALITY CONTROL & ASSURANCE TECHNICIAN

Effective Date: 04-16-20

Last Revision: 05-16-19

Classification	Base Wage/Hour	Fringes/Hour
Quality Control & Assurance Technician	$25.81	$7.52

The Quality Control & Assurance Technician provides support to Inland Technologies operations by independently performing standard analysis on samples related to the manufacture of spent de-icing fluid to a 99% recycled glycol product and waste water discharge. The Quality Control and Assurance Technician will continually look at ways to improve products and processes to exceed customer quality demands and decrease operational costs.

SIGN ERECTOR

Effective Date: 03-15-18

Last Revision: 10-15-10

Classification	Base Wage/Hour	Fringes/Hour
Sign Erector	$23.82	$7.16

This classification of work erects, assembles, and/or maintains signs, sign structures and/or billboards using various tools. Erects pre-assembled illuminated signs on buildings or other structures according to sketches, drawings, or blueprints. Digs and fills holes, places poles. Bolts, screws. or nails sign panels to sign post or frame. Replaces or repairs damaged or worn

signs. May use welding equipment when installing sign. This classification is not a licensed electrician and therefore cannot make connections to power sources (i.e., provide exit lighting).

TRANSIT TECHNICIANS

Effective 1-18-2018, the Transit Technician classification series and associated wages will no longer be published because these classifications are not being used at this time.

TREE TRIMMERS

Effective Date: 09-19-19
Last Revision: **09-20-18**

Classification	Base Wage/Hour	Fringes/Hour
Tree Trimmer	$20.55	$6.91

This classification of work trims, removes, and applies insecticides to trees and shrubbery including trimming dead, diseased, or broken limbs from trees utilizing rope and saddle, chain, handsaw and other related equipment common to the care of trees and shrubs. Removes limbs, branches and other litter from the work area, observes safety rules, inspects and identifies tree diseases and insects of the area distinguishing beneficial insects and environmental stress, takes samples form diseased or insect infested trees for lab analysis, operates a wide variety of heavy and power equipment in trimming and removing trees and shrubbery i.e. mobile aerial tower unit, tandem trucks, loaders, chipper, etc., maintains all equipment.

WINDOW CLEANER

Effective Date: 05-21-20
Last Revision: 12-19-19

Classification	Base Wage/Hour	Fringes/Hour
Window Cleaner	$26.64	$9.06 (Single) $10.63 (Children) $10.84 (2-party) $12.94 (Family)

Benefits/Overtime

Parking	With valid monthly parking receipt from approved parking lot, employees are reimbursed for the cost of parking. The employer shall reimburse employees for parking expenses from other parking lots up to the amount reimbursed for DIA Employee Parking Lot upon the submission of a monthly parking receipt. Only (1) one receipt per month.
Shift Differential	$0.75 per hour for employees assigned to 3rd shift (11:00 p.m. to 7:00 a.m.)
Overtime	One and one-half (1½) times the basic rate of pay in excess of 7.5 hours worked per day or 37.5 hours worked per week.
Lunch	Any employee working seven and a half (7.5) hours in a day is entitled to a thirty (30) minute paid lunch.
Lead Work	$1.25 per hour above highest paid employee under supervision
High Work	$1.75 per hour (21 feet or more from ground (base) to top of surface/structure being cleaned)
Training	$0.25 per hour
ECOPASS	The Company will provide an Eco-Pass to all bargaining unit employees or pay $.24 per hour for travel differential.
Note:	The Career Service Board in their public hearing on April 3, 2008, approved to amend prevailing wages paid to the Window Cleaners as follows: “All contractors shall provide fringe benefits or cash equivalent at not less than the single rate amount. Contractors who offer health insurance shall provide an employer contribution to such insurance of not less than the 2-party or family

rate for any employee who elects 2-party or family coverage. Contractors who offer such coverage will be reimbursed for their employer contributions at the above rates under any City contract incorporating this wage specification."

Bond No. ES00000230

EXHIBIT E

CITY AND COUNTY OF DENVER
DEPARTMENT OF AVIATION

PERFORMANCE AND PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned **BEUMER LifeCycle Management, LLC**, a corporation organized and existing under and by virtue of the laws of the State of Delaware, hereafter referred to as the "Contractor", and **Everest Reinsurance Company**, a corporation organized and existing under and by virtue of the laws of the State of **Delaware**, and authorized to transact business in the State of Colorado, as Surety, are held and firmly bound unto the **CITY AND COUNTY OF DENVER**, a municipal corporation of the State of Colorado, hereafter referred to as the "City", in the penal sum of **ONE MILLION DOLLARS AND NO CENTS ($1,000,000.00)**, lawful money of the United States of America, for the payment of which sum, well and truly to be made, we bind ourselves and our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents;

THE CONDITION OF THE FOREGOING OBLIGATION IS SUCH THAT:

WHEREAS, the above bounden Contractor has entered into a written contract with the City for furnishing all labor and tools, supplies, equipment, superintendence, materials and everything necessary for and required to do, perform and complete **CONTRACT NO. 202055338,** Denver, Colorado, and has bound itself to complete the project within the time or times specified or pay liquidated damages, all as designated, defined and described in the said Contract and Conditions thereof, and in accordance with the Plans and Technical Specifications therefore, a copy of said Contract being made a part hereof;

NOW, THEREFORE, if the said Contractor shall and will, in all particulars well and truly and faithfully observe, perform and abide by each and every Covenant, Condition and part of said Contract, and the Conditions, Technical Specifications, Plans, and other Contract Documents thereto attached, or by reference made a part thereof and any alterations in and additions thereto, according to the true intent and meaning in such case, then this obligation shall be and become null and void; otherwise, it shall remain in full force and effect;

PROVIDED FURTHER, that if the said Contractor shall satisfy all claims and demands incurred by the Contractor in the performance of said Contract, and shall fully indemnify and save harmless the City from all damages (liquidated or actual, including, but not limited to, damages caused by delays in the performance of the Contract), claims, demands, expense and charge of every kind (including claims of patent infringement) arising from any act, omission, or neglect of said Contractor, its agents, or employees with relation to said work; and shall fully reimburse and repay to the City all costs, damages, losses and expenses which it may incur in making good any breach or default based upon the failure of the Contractor to fulfill its obligation to furnish maintenance, repairs, services, or replacements for the full guarantee period provided in the Contract Documents, then this obligation shall be null and void; otherwise it shall remain in full force and effect;

PROVIDED FURTHER, that if said Contractor shall at all times promptly make payments of all amounts lawfully due to all persons supplying or furnishing it or its subcontractors with labor and materials, rental machinery, tools or equipment used or performed in the prosecution of work provided for in the above Contract and that if the Contractor will indemnify and save harmless the City for the extent of any and all payments in connection with the carrying out of such Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect;

PROVIDED FURTHER, that if the said Contractor fails to duly pay for any labor, materials, team hire, sustenance, provisions, provender, gasoline, lubricating oils, fuel oils, grease, coal, or any other supplies or materials used or consumed by said Contractor or its subcontractors in performance of the work contracted to be done, or fails to pay any person who supplies rental machinery, tools or equipment, all amounts due as the result of the use of such machinery, tools or equipment in the prosecution of the work, the Surety will pay the same in any amount not exceeding the amount of this obligation, together with interest as provided by law;

PROVIDED FURTHER, that the said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract, or to contracts with others in connection with this project, or the work to be performed thereunder, or the Technical Specifications and Plans accompanying the same, shall in any way affect its obligation on this bond and it does hereby waive notice of any change, extension of time, alteration or addition to the terms of the Contract, or contracts, or to the work, or to the Technical Specifications and Plans.

IN WITNESS WHEREOF, said Contractor and said Surety have executed these presents as of this _____ day of _____, 20__.

BEUMER LifeCycle Management, LLC
Contractor

Attest: Michael Mamaras

By:_____
President

Secretary

Everest Reinsurance Company
Surety

By:_____
Jeffrey Todd McIntosh, Attorney-In-Fact

(Accompany this bond with Attorney-in-Fact's authority from the Surety to execute bond, certified to include the date of the bond).

APPROVED AS TO FORM:

KRISTIN M. BRONSON,
City Attorney for the City and County of Denver

By:_____
Assistant City Attorney

APPROVED FOR THE CITY AND COUNTY OF DENVER

By:_____
MAYOR

By:_____
CEO DEPARTMENT OF AVIATION

Signatures by CEO, CAO and the Mayor will be provided later and shall be fully incorporated herein

EVEREST

ES014R10042

POWER OF ATTORNEY
EVEREST REINSURANCE COMPANY
DELAWARE

KNOW ALL PERSONS BY THESE PRESENTS: That Everest Reinsurance Company, a corporation of the State of Delaware ("Company") having its principal office located at 477 Martinsville Road, Liberty Corner, New Jersey 07938, do hereby nominate, constitute, and appoint:

Jeffrey Todd McIntosh, Connie Jean Kregel

its true and lawful Attorney(s)-in-fact to make, execute, attest, seal and deliver for and on its behalf, as surety, and as its act and deed, where required, any and all bonds and undertakings in the nature thereof, for the penal sum of no one of which is in any event to exceed UNLIMITED, reserving for itself the full power of substitution and revocation.

Such bonds and undertakings, when duly executed by the aforesaid Attorney(s)-in-fact shall be binding upon the Company as fully and to the same extent as if such bonds and undertakings were signed by the President and Secretary of the Company and sealed with its corporate seal.

This Power of Attorney is granted and is signed by facsimile under and by the authority of the following Resolutions adopted by the Board of Directors of Company ("Board") on the 28th day of July 2016:

***RESOLVED**, that the President, any Executive Vice President, and any Senior Vice President and Anthony Romano are hereby appointed by the Board as authorized to make, execute, seal and deliver for and on behalf of the Company, any and all bonds, undertakings, contracts or obligations in surety or co-surety with others and that the Secretary or any Assistant Secretary of the Company be and that each of them hereby is authorized to attest to the execution of any such bonds, undertakings, contracts or obligations in surety or co-surety and attach thereto the corporate seal of the Company.*

***RESOLVED, FURTHER**, that the President, any Executive Vice President, and any Senior Vice President and Anthony Romano are hereby authorized to execute powers of attorney qualifying the attorney named in the given power of attorney to execute, on behalf of the Company, bonds and undertakings in surety or co-surety with others, and that the Secretary or any Assistant Secretary of the Company be, and that each of them is hereby authorized to attest the execution of any such power of attorney, and to attach thereto the corporate seal of the Company.*

***RESOLVED, FURTHER**, that the signature of such officers named in the preceding resolutions and the corporate seal of the Company may be affixed to such powers of attorney or to any certificate relating thereto by facsimile, and any such power of attorney or certificate bearing such facsimile signatures or facsimile seal shall be thereafter valid and binding upon the Company with respect to any bond, undertaking, contract or obligation in surety or co-surety with others to which it is attached.*

IN WITNESS WHEREOF, Everest Reinsurance Company has caused their corporate seals to be affixed hereto, and these presents to be signed by their duly authorized officers this 28th day of July 2016.

Everest Reinsurance Company

Everest Reinsurance Company CORPORATE SEAL 1973 DELAWARE

Attest: Kevin Helewa, Secretary

By: Anthony Romano, Vice President

On this 28th day of July 2016, before me personally came Anthony Romano, known to me, who, being duly sworn, did execute the above instrument; that he knows the seal of said Company; that the seal affixed to the aforesaid instrument is such corporate seal and was affixed thereto; and that he executed said instrument by like order.

LINDA BOISSELLE
Notary Public, State of New York
No 01B06239736
Qualified in Queens County
Term Expires April 25, 2019

Linda, Boisselle, Notary Public

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of said Company, at the Liberty Corner, this _____ day of _____ 20_____.