DOCUMENT 00 00 12

ADDENDUM NO. 2
June 2, 2023

2023 RECONSTRUCT TERMINAL BUILDING
AIP No. 3-27-0025-20-2023
SKY HARBOR AIRPORT
DULUTH, MN

SEH No. DULAI 172133

From: Short Elliott Hendrickson Inc.
3535 Vadnais Center Drive
St. Paul, MN 55110-3507
651.490.2000

To: Document Holders

DOCUMENT HOLDERS on the above-named project are hereby notified that this document shall be appended to, take precedence over and become part of the original bidding documents dated May 17, 2023 and Addenda dated May 31, 2023 for this work. Bids submitted for the construction of this work shall conform to this document.

This addendum consists of 3 pages and 00 01 00 Table of Contents (6 pages), 00 52 00 Standard Form of Agreement (8 pages), 01 45 10 Quality Control for Building Construction (8 pages), 32 13 10 Concrete Pavement (6 pages), 32 92 00 Landscaping (2 pages), 32 93 12 Plant Installation and Establishment (3 pages), T-905 Topsoil (4 pages), Appendix H – Asbestos Inspection and Regulated Waste Assessment Report (28 pages), and Drawing Nos. G0.01, G1.10, G2.00, G2.10, C2.00, C2.10, C2.20, C3.00, C4.00, C5.00, C5.01, C5.02, C5.03, A003, A004, A100, A101, A102, A200, A201, A300, A500, S001, S101, S201, S501, S502, and S504.

Contractors shall be aware of upcoming Addendum No.3, that will be posted on Monday, June 5th addressing minor revisions to the structural & architectural plan sheets.

Pre-Bid Meeting Recording:

1. DYT Terminal Building - PreBid Meeting
    - Link can be provided separately. Reach out to the Project Manager.

Changes to Bidding Requirements:

2. Document 00 01 00 – Table of Contents, DELETE in its entirety and REPLACE with attached specification.
3. Document 00 52 00 – Standard Form of Agreement, DELETE in its entirety and REPLACE with attached specification.

Changes to Specifications:

4. Section 01 45 10 – Quality Control for Building Construction, DELETE in its entirety and REPLACE with attached specification.
5. Section 32 13 10 – Concrete Pavement, ADD in its entirety.
6. Section 32 92 00 – Landscaping, DELETE in its entirety and REPLACE with attached specification.
7. Section 32 93 12 – Plant Installation and Establishment, ADD in its entirety.
8. Section T-905 – Topsoil, DELETE in its entirety and REPLACE with attached specification.

Changes to Appendix

9. Appendix H – Asbestos Inspection and Regulated Waste Assessment Report, ADD in its entirety.

Changes to Drawings:

10. Drawing G0.01 – Table of Contents, DELETE in its entirety and REPLACE with the attached revised drawing.
11. Drawing G1.10 – Construction Phasing Plan, DELETE in its entirety and REPLACE with the attached revised drawing.
    - Updated general notes.
12. Drawing G2.00 – General Notes, DELETE in its entirety and REPLACE with the attached revised drawing.
    - Updated general notes.
13. Drawing G2.10 – Statement of Estimated Quantities, DELETE in its entirety and REPLACE with the attached revised drawing.
    - Updated Statement of Quantities Table.
    - Updated SEQ notes.
14. Drawing C2.00 – Demolition Plan (Building), DELETE in its entirety and REPLACE with the attached revised drawing.
    - Clarified plan notes.
15. Drawing C2.10 – Demolition Plan (Site), DELETE in its entirety and REPLACE with the attached revised drawing.
    - Clarified plan notes.
    - Added concrete pavement removal on existing hangar approach.
16. Drawing C2.20 – Interim Terminal Facility & Temporary Setup, DELETE in its entirety and REPLACE with the attached revised drawing.
    - Clarified plan notes.
    - Corrected hatch pattern in legend
    - Jobsite camera notes
    - Fueling monitor equipment notes
17. Drawing C3.00 – Typical Sections, DELETE in its entirety and REPLACE with the attached revised drawing.
    - Clarified plan notes.
    - Add concrete pavement typical section.
18. Drawing C4.00 – Pavement Plan, DELETE in its entirety and REPLACE with the attached revised drawing.
    - Added additional concrete pavement area.
19. Drawing C5.00 – Grading Plan, DELETE in its entirety and REPLACE with the attached revised drawing.
    - Added plan elevations.
20. Drawing C5.01 – Grading Plan, DELETE in its entirety and REPLACE with the attached revised drawing.
    - Added plan elevations.
21. Drawing C5.02 – Grading Plan, DELETE in its entirety and REPLACE with the attached revised drawing.
    - Added plan elevations.
22. Drawing C5.03 – Landscaping Plan, ADD in its entirety.
23. DELETE the following drawings and REPLACE in their entirety with the attached revised drawings:
    - A003, A004, A100, A101, A102, A300, A500, S001, S101, S201, S501, S502, and S504.

24. ADD drawings A200 and A201 in their entirety.

Product Substitution Request Log: N/A

Note: Receipt of this Addendum No. 2, dated June 2, 2023, shall be acknowledged on Bid Express. Failure to do so will not allow Bidder to submit Bid.

END OF ADDENDUM

DOCUMENT 00 01 10

TABLE OF CONTENTS

DOCUMENT 00 52 00

STANDARD FORM OF AGREEMENT
BETWEEN OWNER AND CONTRACTOR
ON THE BASIS OF A STIPULATED PRICE

THIS AGREEMENT is by and between the Sky Harbor Airport on behalf of the Duluth Airport Authority (Owner) and _____ (Contractor).

Owner and Contractor hereby agree as follows:

ARTICLE 1 – WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows: 2023 Reconstruct Terminal Building, Sky Harbor Airport.

ARTICLE 2 – THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: Construction of a terminal building at Sky Harbor Airport.

ARTICLE 3 – ENGINEER

3.01 The Project has been designed by Short Elliott Hendrickson Inc. (SEH®).

3.02 The Owner has retained SEH (Engineer) to act as Owner's representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

4.01 *Time of the Essence*

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 *Contract Times: Days*

A. The Work will be substantially completed within **270 calendar days** after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within **300 calendar days** after the date when the Contract Times commence to run.

1. The Contractor shall notify the Owner of long lead-time for procurement of materials. The Owner will determine on a case-by-case basis if liquidated damages may be waived for these occurrences.

B. Sitework Milestone. All earthwork (excavation, foundation, footings, etc.), sitework (utilities, paving, concrete, concrete patio, sloped walks, etc.) and all related construction elements at or below finished grade must be completed by **October 31, 2023.**

C. Excavation and Restoration Requirement. The contractor must complete all excavation (below existing grade including but not limited to excavation for new structure foundation, footings and utilities) **within 21 calendar days.** This requirement is for the airport to coordinate with tribal monitoring, which is subject to contracting outside of the scope of the project. The restoration work must be completed **within 3 calendar days.** Notification prior to commencing is required.

4.03 *Liquidated Damages*

A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with the Contract. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):

1. Sitework Milestone Completion: Contractor shall pay Owner **$1,000.00 for each day** that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is substantially complete.

2. Substantial Completion: Contractor shall pay Owner **$500.00 for each day** that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is substantially complete.

3. Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner **$200.00 for each day** that expires after such time until the Work is completed and ready for final payment.

4. Liquidated damages for failing to timely attain Substantial Completion and final completion are not additive and will not be imposed concurrently.

4.04 *Special Damages*

A. Should taxiway lights be damaged or knocked down, the Contractor shall be assessed **$1,000 per light occurrence**.

B. In addition to the amount provided for liquidated damages, Contractor shall reimburse Owner (1) for any fines or penalties imposed on Owner as a direct result of the Contractor's failure to attain Substantial Completion according to the Contract Times, and (2) for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Substantial Completion (as duly adjusted pursuant to the Contract), until the Work is substantially complete.

C. After Contractor achieves Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times, Contractor shall reimburse Owner for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Work to be completed and ready for final payment (as duly adjusted pursuant to the Contract), until the Work is completed and ready for final payment.

D. The special damages imposed in this paragraph are supplemental to any liquidated damages for delayed completion established in this Agreement.

ARTICLE 5 – CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents the amounts that follow, subject to adjustment under the Contract:

A. For all Unit Price Work, an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the actual quantity of that item as indicated in Contractor's Bid.

The Bid Prices for Unit Price Work set forth as of the Effective Date of the Agreement are based on estimated quantities. As provided in Paragraph 13.03 of the General Conditions, estimated quantities

are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer as provided in Paragraph 10.06 of the General Conditions.

The Estimated Total of All Unit Price Work is: $_____

ARTICLE 6 – PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions. Payments will be due 30 days after approval.

6.02 *Progress Payments; Retainage*

A. Subject to the provisions of SC-15.01.C, Owner shall make monthly progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications of Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract:

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract:

a. 95 percent of Work completed (with the balance being retainage).

b. 95 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

B. Within 60 days of Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 100 percent of the Work completed; less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions; and less 250 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment. Upon completion or correction and acceptance of said Work, Owner shall pay the amounts withheld within 60 days as recommended by Engineer.

1. After Substantial Completion Owner shall also withhold one percent of the value of the Contract or $500, whichever is greater, pending completion and submission of all "final paperwork" by the Contractor as defined by Minnesota Statutes, section 15.72, subdivision 2.(e)(2). Owner shall pay said amount withheld after Substantial Completion within 60 days of submission of all final paperwork as recommended by Engineer.

6.03 *Final Payment*

A. Upon final completion and acceptance of the Work in accordance with Paragraph 15.06 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 15.06.

6.04 *Interest*

All amounts not paid when due shall bear interest at the rate of four percent (4%) per annum.

6.05 Electronic Payment Requirements

A. All payments to the successful Contractor are required to be via Automated Clearing House (ACH). Reference Article 24 of Document 00 21 13 Instructions to Bidders Online Bidding.

B. Contractor delay in submitting forms in **Appendix E** to the Sponsor shall negate the Contractor's right to collect interest as referenced in Section 6.04 until the issue is resolved.

ARTICLE 7 – CONTRACT DOCUMENTS

7.01 *Contents*

A. The Contract Documents consist of the following:

1. Addenda (numbers 00 00 1__ to 00 00 1__, inclusive).
2. This Agreement (pages 00 52 00-1 to 00 52 00-7, inclusive).
3. Performance Bond (Document 00 61 13).
4. Payment Bond (Document 00 61 14).
5. General Conditions (pages 00 72 00-1 to 00 72 00-66, inclusive).
6. Supplementary Conditions (pages 00 73 00-1 to 00 73 00-8, inclusive).
7. Specifications as listed in the table of contents of the Project Manual.
8. The Drawings listed in the index located on Drawing Sheet G000 (Title Sheet).
9. Exhibits to this Agreement (enumerated as follows).
    a. Contractor's Bid (Document 00 41 00).
    b. Documentation submitted by Contractor prior to Notice of Award (pages ___ to ___, inclusive).
    c. Certificate of Insurance.
10. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
    a. Notice to Proceed.
    b. Field Order(s).
    c. Work Change Directive(s).
    d. Change Order(s).

B. The documents listed in Paragraph 7.01.A are attached to this Agreement (except as expressly noted otherwise above).

C. There are no Contract Documents other than those listed above in this Article 7.

D. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

ARTICLE 8 – REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS

8.01 *Contractor's Representations*

A. In order to induce Owner to enter into this Contract, Contractor makes the following representations:

1. Contractor has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.
2. Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
3. Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
4. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing

surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

5. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor's safety precautions and programs.

6. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.

7. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.

8. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

9. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

10. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

8.02 *Contractor's Certifications*

A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 8.02:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and

4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 9 – MISCELLANEOUS

9.01 *Terms*

A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

9.02 *Assignment of Contract*

A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

9.03 *Successors and Assigns*

A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

9.04 *Severability*

A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on _____, _____ (which is the Effective Date of the Contract).

OWNER:
Sky Harbor Airport on behalf of the Duluth Airport Authority

By: _____

Title: _____

[CORPORATE SEAL]

Attest: _____

Title: _____

Address for Giving Notices:

_____

_____

_____

(If Owner is a corporation, attach evidence of authority to sign. If Owner is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of Owner-Contractor Agreement).

Designated Representative:

Name: _____

Title: _____

Address: 4701 Grinden Drive

Duluth, Minnesota 558811

Phone: _____

Facsimile: _____

CONTRACTOR:

_____

By: _____

Title: _____

[CORPORATE SEAL]

Attest: _____

Title: _____

Address for Giving Notices:

_____

_____

_____

License No. _____
(Where Applicable)

Agent for service of process: _____

_____
(If Contractor is a corporation or a partnership, attach evidence of authority to sign.)

Designated Representative:

Name: _____

Title: _____

Address _____

_____

Phone: _____

Facsimile: _____

END OF DOCUMENT

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SECTION 01 45 10

QUALITY CONTROL FOR BUILDING CONSTRUCTION

PART 1 GENERAL

1.01 SUMMARY

A. Section includes:
   1. Administrative and procedural requirements for quality control.
   2. Inspection and testing services to assist in determination of work with specifications and regulations.
   3. Requirements for Contractor cooperation.
   4. Responsibility for payment.
   5. Schedule of required tests.

B. Contractor Responsibility: These required services do not relieve Contractor of responsibility for compliance with any requirements.

C. Quality Control section shall be completed and submitted with the building permit.

1.02 REFERENCES

A. IBC Code: Currently in effect and adopted by state in which Project is located.

B. ASTM:
   1. D3740 - Minimum Requirements for Agencies Engaged in Testing or Inspection of Soil and Rock
   2. E329 - Requirements for Agencies Engaged in Testing or Inspection of Materials Used in Construction

1.03 DEFINITIONS

A. Quality Control: Inspections, tests, related actions including reports, performed by independent agencies and governing authorities, as well as directed by Contractor.

1.04 SUBMITTALS

A. Submit copy of report of laboratory facilities inspection made by Materials Reference Laboratory of National Bureau of Standards (NBS) during most recent tour of inspection, with memorandum of remedies of any deficiencies reported by the inspection.

B. Prior to start of Work, submit testing laboratory name, address, and telephone number, and names of full-time registered Specialist and responsible officer.

C. After each inspection and test, submit two written copies of report to Engineer and to Contractor no later than 3 working days after completion of inspection or test. Include:
   1. Date issued
   2. Project title and number
   3. Name of inspector
   4. Date and time of sampling or inspection
   5. Identification of product and Specifications Section
   6. Location in the Project
   7. Type of inspection or test
   8. Date of test
   9. Results of tests
   10. Conformance with Contract Documents

D. When requested by Engineer, provide interpretation of test results.

1.05 QUALITY ASSURANCE

A. Codes and Standards: Comply with requirements of ASTM D3740 and E329.

B. Testing:
   1. Owner shall employ and pay for services of an independent testing laboratory to perform specified inspection and testing.
   2. Employment of testing laboratory shall in no way relieve Contractor of obligation to perform work in accordance with requirements of Contract Documents.

C. Laboratory Qualifications:
   1. Qualified in accordance with referenced ASTM standard to acceptance of Engineer.
   2. Authorized to operate in state in which Project is located.
   3. Staff: Maintain a full-time registered Engineer Specialist on staff to review services.
   4. Testing Equipment: Calibrated at reasonable intervals with devices of an accuracy traceable to either National Bureau of Standards (NBS) Standards or accepted values of natural physical constants.

1.06 RESPONSIBILITIES

A. Contractor Responsibility:
   1. Quality control testing or inspections scheduled to be Contractor's responsibility.
   2. Code Compliance Testing: Quality control required by codes or ordinances, or by plan approval authority, made by legally constituted authority unless otherwise provided in Contract Documents.

   Verification of conformance of the Work within specified construction tolerances.
   3. Contractor's Convenience Testing.
   4. Notify Engineer and laboratory 48 hours prior to expected time for operations requiring inspections and testing services.
   5. Provide incidental labor and facilities to:
      a. Provide access to Work to be tested.
      b. Obtain and handle samples at the Site or at source of products to be tested.
      c. Facilitate tests and inspections, and storage and curing of test samples.
   6. Coordinate with each independent agency the sequence of activities to accommodate required services with minimum delay in progress of Work and to avoid removing and replacing Work. Schedule times for quality control.

B. Owner Responsibility: Quality control not specifically indicated as Contractor's responsibility, or to be provided by another identified entity.

C. Laboratory Responsibility:
   1. Ascertain compliance of materials and mixes with requirements of Contract Documents.
   2. Promptly notify Engineer and Contractor of observed irregularities or non-conformance of Work or Products.
   3. Perform additional inspections and tests required by Engineer.
   4. Limits on Laboratory Authority:
      a. Laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
      b. Laboratory may not approve or accept any portion of the Work.
      c. Laboratory may not assume any duties of Contractor.
      d. Laboratory has no authority to stop the Work. If a situation arises in which, in the judgment of the Laboratory, work should be stopped; Laboratory shall bring it to the attention of the Contractor's Superintendent and the Engineer.

D. Retest Responsibility:
   1. Where results of quality control prove unsatisfactory and do not indicate compliance of related Work with requirements of the Contract Documents, retests are responsibility of Contractor, regardless of whether the original test was Contractor's responsibility.

2. Retest of Work revised or replaced by Contractor is Contractor's responsibility, where required tests were performed on original Work.
3. Retesting costs will be deducted from Contract amount by Change Order.
4. Provide 2 retests for each failed test.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 ADJUSTING

A. Upon completion of quality control performed on Work, repair damaged Work, restore substrates and finishes to eliminate deficiencies, including deficiencies in visual qualities of exposed finishes. Comply with Contract Document requirements for "Cutting and Patching."

3.02 PROTECTION

A. Protect Work exposed by or for quality control service activities, and protect repaired Work.

3.03 RESPONSIBILITY FOR ADJUSTING AND REPAIR

A. Contractor's responsibility, regardless of assignment of responsibility for quality control.

3.04 FIELD QUALITY CONTROL

A. Testing Agency responsibilities are included in the Street and Utility Quality Control Testing Schedule for general site testing and the Special Structural Testing and Inspection Program Summary Schedule for structural testing.

B. Special Inspections:
   1. The following inspections and testing shall be conducted by an Independent Testing Agency, arranged and paid for by the Owner with the results being reported to Architect, Engineer, Building Inspector, Contractor and Structural Engineer of Record.
      a. For the items listed in the Special Structural Testing and Inspection Program Schedule herein, see guidelines in IBC Chapter 17.
      b. Tests and inspections will be paid for by the Owner Unless Noted Otherwise.
   2. Preconstruction Meeting:
      a. If requested by Engineer, conduct 1 meeting at Site to review the scope of special structural testing and inspection.
      b. Comply with requirements of Section 01 31 19.
   3. Post Special Structural Testing and Inspection Summary in field office at job Site. Retain all reports submitted by special inspectors for review of the Building Official upon request.
   4. The schedule of special structural testing and inspections is attached to this section. In addition, provide testing and inspection of the following:
      a. Excavating, Filling, Grading:
         1) Periodically verify excavations are extended to proper depth and have reached proper material.
         2) Periodically observe subgrade and verify that site has been prepared properly prior to placement of compacted fill or rock pad.
         3) Continuously verify use of proper materials, densities and lift thicknesses during placement and compaction of compacted fill.
         4) Classification and compaction testing for building pads: 1 test per 2,500 square feet per 12-inch lift; minimum 3 tests.
         5) Classification and compaction testing for paved areas: Refer to P-152 specification.

6) Foundation wall backfill: 1 test per 100 feet or less of wall length, but no fewer than 2 tests.
7) Footing subgrades: At least At least 2 tests of each soil stratum to verify design bearing capacities. Refer to “Design Loads” section of General Structural Notes.
8) Utility trenches: 1 test for each 150 feet or less of trench length, but no fewer than 2 tests.
9) Roadway grading: Refer to P-152 Specification.

b. Proof rolling of parking areas and sidewalks subject to vehicular traffic.
c. Secure inspection and acceptance of subgrades and fill layers before subsequent construction is permitted.
d. See “Frequency” descriptions at the end of this section for structural testing and inspection descriptions.

Street and Utility Quality Control Testing Schedule

Specification Section	Product	Type of Test	Location		Responsibility
			Source	Field	
03 30 00	Concrete Aggregate	Gradation	x		Contractor
31 22 10	Subbase Granular	Gradation	x		Contractor
31 22 10	Subbase Granular	Moisture, Density		x	Ind. Testing Agency
31 22 20	Earthwork-Building Pads	Moisture, Density		x	Ind. Testing Agency
31 22 20	Foundation Wall Backfill	Moisture, Density		x	Ind. Testing Agency
31 22 20	Earthwork – Interior of Structures	Moisture, Density		x	Ind. Testing Agency
31 22 20	Footing Subgrades	Moisture, Density		x	Ind. Testing Agency
31 23 33	Utility Trenches	Moisture, Density		x	Ind. Testing Agency
P-152	Roadway Grading and Paved Areas	Moisture, Density		x	Ind. Testing Agency
P-152	Borrow for Embankment	Moisture, Density		x	Ind. Testing Agency
32 16 20	Concrete Curb	Slump, Air, Temp, Cylinder Compression		x	Ind. Testing Agency
32 13 10	Concrete Pavement	Slump, Air, Temp, Cylinder Compression		x	Ind. Testing Agency
P-152	Subgrade	Test Rolling		x	Contractor
32 11 22	Aggregate Base	Moisture, Density		x	Ind. Testing Agency
32 11 22	Aggregate Base	Gradation	x		Contractor
32 12 16	Asphalt Pavement	Source Quality Control per MnDOT 2360.4	x		Contractor/Fabricator
32 12 16	Asphalt Pavement	Compaction Testing		x	Ind. Testing Agency
32 18 20	Walks - Concrete	Slump, Air, Temperature, Cylinder Compression		x	Ind. Testing Agency
2504	Plant Water Main	Pressure/Leakage		x	Contractor
2504	Plant Water Main	Conductivity		x	Contractor
2504	Potable Water Main	Coliform/Disinfection		x	Contractor
2503	Sanitary Sewer	Infiltration		x	Contractor
2503	Sanitary Sewer	Air/Pressure		x	Contractor

SPECIAL STRUCTURAL TESTING AND INSPECTION PROGRAM
SUMMARY SCHEDULE

Project Name: 2023 Reconstruct Terminal Building Project Number: DULAI 172133

Location: Sky Harbor Airport, Duluth, Minnesota

Permit Number (1): _____

Technical (2)		Description (3)	Type of Inspector (4)	Frequency (5)	Assigned Firm (6)
Section	Article				
01 45 10	3.04	Soils	TA	See 01 45 10	
03 11 00	3.01	Concrete Formwork	SI-S	F3	
03 20 00	3.04	Concrete Reinforcement	SI-S	F3, F4	
03 30 00	3.18	Concrete Placement Techniques	SI-S	F5	
01 45 10	N/A	Concrete Testing	TA	F5	
06 10 00		Rough Carpentry	SI-S	F10, F11	
Drawings	N/A	Anchors in Concrete	TA	See structural drawing notes	

Notes: This schedule shall be filled out and included in the Special Structural Testing and Inspection Program.
(1) Permit number to be provided by the Building Official.
(2) Referenced to the specific technical scope section in the program (specification section).
(3) Use descriptions per IBC Chapter 17, as adopted by the State Building Code.
(4) Special Inspector - Technical, Special Inspector - Structural
(5) Weekly, monthly, per test/inspection, per floor, etc. – See “Frequency” section following this schedule.
(6) Firm contracted to perform services.

ACKNOWLEDGMENTS

Each appropriate representative shall sign below:

Owner:	_____	Firm:	_____	Date:	_____
Contractor:	_____	Firm:	_____	Date:	_____
Architect:	_____	Firm:	_____	Date:	_____
SER:	_____	Firm:	SEH	Date:	_____
SI-S:	_____	Firm:	_____	Date:	_____
SI-T:	_____	Firm:	_____	Date:	_____
TA:	_____	Firm:	_____	Date:	_____
F:	_____	Firm:	_____	Date:	_____

If requested by Engineer of record or Building Official, the individual names of all prospective special inspectors and the Work they intend to observe shall be identified (Use reverse side of form if necessary).

Legend: SER = Structural Engineer of Record SI-T = Special Inspector - Technical TA = Testing Agency
SI-S = Special Inspector - Structural F = Fabricator

Accepted for the Building Department by _____ **Date** _____

1. FREQUENCY

If conflicting information is provided in technical specification sections, the more stringent requirement governs.

A. CATEGORIES

F1. Not used.

F2. Not used.

F3. The inspector shall periodically see all formwork, reinforcing steel, pre-stressing tendon, and anchor bolts prior to concrete placement to inspect for conformance with the drawings.

F4. The inspector shall see all structural steel and reinforcing steel field welds prior to application of finishes to inspect for conformance with the approved plans. If applicable, the inspector shall request the testing agency perform Ultrasonic Testing on 50% of all full penetration field welds for the project. If the failure of welding test is 25% of all tests performed, 100% of all full penetration field welds shall be tested.

F5. Concrete Placement: Continuous Inspection - Inspector to review placement of all cast-in-place concrete. Periodically verify use of required design mix. Periodically inspect for maintenance of specified curing temperature and techniques. Test shall be made by a Level 1 Technician as certified by ACI.

a. Concrete Specimens:
   1) Compression Strength Testing: The method of making cylinders, storage and testing shall be in accordance with ASTM Specification C31, latest edition. Record any deviations from the requirements of ASTM C31 in the test report.
      a) Cast 4 six inch cylinders per set (or an additional cylinder if four inch cylinders are used):
         (1) One at 7 days for information
         (2) Two at 28 days for acceptance
         (3) One for hold (test at 56 days if desired by Engineer, or if other tests were lower than specified).
      b) Conduct at least 1 strength test for each 75 yards or fraction thereof for each mixture design placed in any 1 day.
      c) Furnish a copy of the test results to Engineer as soon as available.
      d) Field cure cylinders (2 per set) to check concrete strength prior to critical shoring removal as recommended in Section 03 30 00.
      e) Acceptance test results shall be the average strengths of the 2 specimens tested at 28 days.
      f) Conduct load test on test cores of concrete that fail to meet the specified strength, in accordance with ASTM C42.
      g) Failure to meet strength requirements of the cores, shall be a cause for rejection by Engineer.
      h) The cost of remedial measures required due to test failures shall be paid for by the Contractor.

b. Standard Field Tests to be performed on fresh concrete for the first truck and every third truck thereafter (1st, 4th, 7th, etc.) or when a change in properties is noticed, at the final location (test after pump, not at truck):
   1) Concrete Slump Tests:
      a) Testing agency will determine slump of concrete from each truck in accordance with ASTM Specification C143, latest edition.
      b) If slump exceeds maximum allowed, remove batch from work and dispose of off-site.
      c) Test slump at end of conveying system.
   2) Concrete Air Content Tests:
      a) Testing agency will determine air content of concrete from each truck in accordance with ASTM Specification C231, latest edition.
      b) Air content shall be tested at end of conveying system.

3) Concrete Temperature:
   a) Testing agency will determine temperature of concrete from each truck in accordance with ASTM C1064.
   b) Test temperature at end of conveying system.

F6. All bolts shall be checked for snug tight condition.

F7. Not used.

F8. Periodic inspection of steel erection for conformance with the drawings.

F9. Not used.

F10. Periodic inspection of structural wood roof deck including:
1. Roof deck installation in accordance with the construction documents, installation drawings, shop drawings, design documents and applicable referenced standards.

F11. Periodic inspection of bearing and shearwall construction for conformance with the drawings including installation of hold-down anchors.

END OF SECTION

SECTION 32 13 10

CONCRETE PAVEMENT
(MnDOT 2301)

PART 1 GENERAL

1.01 SUMMARY

A. Provide portland cement concrete pavement without reinforcement. Concrete pavement is for outside of the building footprint, only for the existing hangar approach replacement area.

B. Method of Measurement:
   1. Measurement will be made by the square yard.
   2. No separate measurement will be made for tie bars.

C. Basis of Payment:
   1. Payment for concrete construction shall be included in the Building Construction Item at the Contract Unit Price listed on Bid Form. All associated Work items shall be considered incidental.

1.02 REFERENCES

A. MnDOT:
   1. 2301 - Concrete Pavement
   2. 2461 - Structural Concrete
   3. 3151 - Bituminous Material
   4. 3702 - Preformed Joint Fillers
   5. 3754 - Poly-Alpha Methylstyrene (AMS) Membrane Curing Compound
   6. 3756 - Plastic Curing Blankets

1.03 SUBMITTALS

A. Refer to Section 01 33 00.

B. Concrete Mix Submittals:
   1. Include name and address of transit-mix concrete supplier with submissions.
   2. Catalog information on admixtures or agents to be included in mix.
   3. List of concrete mix designs at least 21 days prior to start of Work. Include alternate mixture designs when characteristics of materials, Project conditions, weather, test or other circumstances warrant adjustments.

C. Quality Assurance/Control Submittals:
   1. Test Reports: Report test results to Engineer.
   2. Material Certificates: Signed by manufacturers certifying materials comply with requirements of Construction Documents.

D. Provide with Product Data: Buy-American Certification and/or Build America, Buy America (BABA) for manufactured goods of products supplied, steel or iron products, if applicable.

1.04 QUALITY ASSURANCE

A. Regulatory Agencies: Comply with local governing regulations if more stringent than specified.

B. Preinstallation Meeting: Meet with Engineer prior to the start of installation.

C. Produce concrete from MnDOT certified plants.

1.05 PROJECT CONDITIONS

A. Existing Conditions:
   1. Drawings do not purport to show actual dimensions but are intended only to establish location and scope of Work.
   2. Field-verify dimensions and assume full responsibility for their accuracy.
   3. Match existing concrete thickness of adjacent hangar approach.

B. Maintain access for vehicular and pedestrian traffic.

PART 2 PRODUCTS

2.01 MATERIALS

A. Materials and accessories shall comply with MnDOT specifications:
   1. Concrete: MnDOT 2461.
   2. Steel Reinforcement Tie Bars: MnDOT 2301
   3. Preformed Joint Filler: MnDOT 3702.
      a. Emulsified asphalt: MnDOT 3151.
   4. Curing Materials:
      a. Plastic curing blankets: MnDOT 3756.
      b. Poly-Alpha Methyl Styrene (AMS) Membrane curing compound: MnDOT 3754.
   5. Forms:
      a. Wood or metal with smooth contact face.
      b. Minimum form height: That of proposed concrete thickness.
      c. Use flexible or curved forms for curves with radius 100 feet or less.
      d. Form sections shall be not less than 10 feet long, except that wood forms can be 8 feet or greater.
      e. Top of form shall show no deviations greater than 1/8 inch from a straight edge equal to form section.
      f. Face of straight forms shall show no deviation greater than 1/4 inch from a 10-foot straight edge.
   6. Form Release Agent: Commercially formulated; will not bond with, stain, or adversely affect concrete surfaces provided in the Approved/Qualified Products List.

2.02 CONCRETE MIX PROPORTIONS

A. Slipform Placement: Mix No. 3A21.

B. Fixed Form Placement: Mix No. 3A41.

PART 3 EXECUTION

3.01 PREPARATION

A. Base Preparation:
   1. Examine exposed subgrades and base surfaces for compliance with requirements for dimensional, grading, and elevation tolerances.
   2. Remove loose material from compacted subgrade and base layer.
   3. Proof-roll base surface with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Correct nonconforming conditions.
   4. Complete fine grading at least 3 hours in advance of concrete placement.
   5. Moisten subgrade in upper 3 inches to provide uniform dampened condition.
   6. Do not place concrete on frozen surface.

B. Forms:

1. Set forms to required grade on alignment for a distance equal to minimum 3 hours paving time.
2. Clean after each use and coat contact face with chemical release agent.
3. Do not remove for 24 hours after concrete has been placed.

C. Steel Reinforcement Tie Bars:
1. Tie Bars: Epoxy coated.
2. Provide 12” in length for tie bars to tie new concrete to existing.
3. Drill a minimum 6” into existing concrete.
4. Space tie bars 12” on center.

3.02 INSTALLATION

A. Concrete Pavement:
1. Place in accordance with MnDOT 2461 and 2301.
2. Use either fixed form or slip form construction.
3. Prevent segregation of mix.
4. Do not add water to concrete during delivery, at Site, or to fresh concrete after testing.
5. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator.
6. Prevent dislocation of reinforcing, dowels, and joint devices.
7. Deposit and spread concrete in a continuous operation.
8. Do not move concrete with vibrator.

B. Joints:
1. Construct and space as shown on Drawings and perpendicular to grade.
2. Joining existing pavement: Place transverse joints to align with previously placed joints, unless otherwise indicated.
3. Construction Joints: Set at side and end terminations of pavement and at locations where pavement operations are stopped for more than 1/2 hour, unless pavement terminates at isolation joints.
4. Tie Bars: Provide at sides of pavement strips where indicated.
5. Butt Joints: Use epoxy bonding adhesive at joint locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
6. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt-coat 1/2 of dowel length to prevent concrete bonding to 1 side of joint.
7. Isolation Joints: Preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, walks, other fixed objects, and where indicated.
    a. Furnish in one-piece lengths. Where more than 1 length is required, lace or clip joint-filler sections together.
    b. Protect top edge of joint filler during concrete placement with temporary preformed cap. Remove cap after concrete placed on both sides of joint.
8. Contraction Joints: Construct to match jointing of existing adjacent concrete pavement.
9. Edging:
    a. Tool edges of pavement after initial floating with edging tool.
    b. Repeat after applying surface finishes.
    c. Eliminate tool marks on concrete surfaces.
10. After removal of forms, clean ends of joints and point-up any minor honeycombed areas.
11. Remove and replace areas or sections with major defects, as directed by Engineer.

C. Surface Finish:
1. After concrete is consolidated, screeded and floated, final finish texture shall be obtained by drawing a carpet drag longitudinally. Provide a textured depth of at least 1.0 millimeters in accordance with ASTM E965-87.
2. Carpet shall be:
    a. Artificial grass type.
    b. Total minimum weight of 70 ounces per square yard.
    c. Molded polyethylene pile face with blade length of 5/8 to 1 inch.

3. Transverse Metal-tine Texture: Not required on subsidiary paving areas such as cross-overs, parking lanes etc.
4. Slip-Resistive Aggregate Finish:
    a. Spread on pavement surfaces according to manufacturer's written instructions before final floating.
    b. Use curing compound recommended by this manufacturer; apply immediately.
    c. After curing, lightly work surface with steel wire brush or abrasive stone and water to expose nonslip aggregate.

D. Curing and Protection:
1. Cure minimum 72 hours after finishing.
2. Protect from loss of moisture, rain damage, traffic, and extreme hot or cold temperatures.
3. Apply curing media within 30 minutes after side forms are removed.
4. Blanket Curing Method:
    a. Envelop concrete with waterproof paper or plastic after finishing, and seal with waterproof tape or adhesive.
    b. Prevent water vapor loss.
    c. After curing, treat exposed surfaces with 2 coats treating oil.
5. Curing Compound Method:
    a. Coat exposed surfaces with curing compound immediately after finishing.
    b. Apply uniformly at a rate of 1 gallon per 150 square feet of surface area with approved airless sprayer.
    c. Spray on second coat within 3 hours.

E. Joint Sealing:
1. Engineer to inspect and approve concrete base before sealing.
2. Apply epoxy polyester sealer to sound, clean, oil-free, dry concrete in 2-coat application, and in accordance with manufacturer's recommendations.

3.03 TOLERANCES

A. Surface Smoothness:
1. Deviations greater than 0.25 inches in in 10 feet measured with a straight edge in the longitudinal direction will be considered unacceptable work.
2. Deviations greater than 0.25 inches in 10 feet measured with straight edge in transverse direction will be considered unacceptable work.

B. Thickness: Survey data (see Section 01 71 23 Field Engineering) of aggregate prior to placement will verify thickness of concrete pavement.

C. Unacceptable Work: Remove and replace as directed by Engineer.

3.04 FIELD TESTING

A. Testing and Analysis of Concrete: See 01 45 10.

3.05 REPAIRS AND PROTECTION

A. Remove and replace concrete that is broken, damaged, or defective, or does not comply with requirements.

B. Drill test cores where directed by Engineer when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes with portland cement concrete bonded to pavement with epoxy adhesive.

C. Protect concrete from damage. Exclude traffic from pavement for minimum 14 days after placement. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials as they occur.

D. Maintain concrete pavement free of stains, discoloration, dirt, and other foreign material. Sweep not more than 2 days before date scheduled for Substantial Completion inspections.

3.06 CLEAN-UP

A. The Contractor shall provide a contained area for concrete wash out area as part of this Item.

B. Washing out concrete trucks other than contractor provided area will not be allowed.

END OF SECTION

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SECTION 32 92 00

LANDSCAPING

PART 1 GENERAL

1.01 SUMMARY

A. Provide the following:
   1. Accessories including, but not limited to:
      a. Weed barrier.
      b. Landscape rock.

B. Method of Measurement: Landscaping: Measure by area in square feet.

C. Basis of Payment:
   1. Payment for landscaping shall be at the Contract Unit Price as listed on the Bid Form. All associated Work items, shall be considered incidental.
   2. No separate payment will be made for supplying and placing weed barrier.
   3. No separate payment will be made for supplying and placing landscape rock.

1.02 SUBMITTALS

A. Refer to Section 01 33 00.
   1. Product Data:
      a. For each type of product indicated.
      b. Verify with Owner on selection of River Rock. Provide sample of rock to Airport.

B. Provide with Product Data: Buy-American Certification and/or Build America, Buy America (BABA) for manufactured goods of products supplied, steel or iron products, if applicable.

C. Qualification Data: For landscape installer.

1.03 QUALITY ASSURANCE

A. Qualifications:
   1. Installer: A qualified landscape installer whose work has resulted in successful installations.

B. Substitutions: Refer to Section 01 25 13.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Landscape rock: Place in an area not to disruption construction or airfield operations.

1.05 PROJECT CONDITIONS

A. Existing Conditions:
   1. Inspect the Project prior to installation.
   2. If conditions do not meet approval, notify Engineer.
   3. Proceeding without notification implies acceptance of conditions.

1.06 WARRANTY

A. Warranty for a period of 1 year after date of substantial completion against defects, including death and unsatisfactory growth, except for defects resulting from neglect by Owner, abuse or damage by others, or unusual phenomena or incidents which are beyond landscape installer’s control.

PART 2 PRODUCTS

2.01 LANDSCAPE ACCESSORIES

A. Landscape Rock:
   1. Rock shall be MN River Rock, Lake Superior River Rock or WI River Rock.

B. Weed Barrier:
   1. 6-mil black polyethylene film **OR** Filtration/Separation Fabric: Water permeable filtration fabric of fiberglass or polypropylene fabric.

PART 3 EXECUTION

3.01 LANDSCAPE WORK

A. Landscape Layout:
   1. Install the landscaping at the location shown on the Plans. Landscaping shall size and shape shall be coordinated with the Airport prior to installation.

B. Weed Barrier:
   1. Lay film continuously over compacted subgrade prior to placing landscape rock. Overlap edges 4 inches at joints between sheets. Secure to ground with nails to prevent rolling or movement when placing landscape rock.

C. Landscape Rock:
   1. Weed barrier must be placed prior to placing of landscape rock.
   2. Install landscape rock to a depth of 4-inches.
   3. Place rock to meet grades, as shown on the Plans.

3.02 CLEANUP, MAINTENANCE, AND PROTECTION

A. During landscape work, keep pavements clean and work area in an orderly condition.

B. Promptly remove soil and debris created by lawn work from paved areas.

C. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.

D. Disposal:
   1. Remove waste and foreign materials, including weeds, stones, soil cores, grass, vegetation, and sod and legally dispose of them off Owner’s property.
   2. Divert from landfill disposal whenever possible.
   3. Topsoil containing foreign materials resulting from Contractor’s operations, including oil drippings, fuel spills, shall be disposed of legally.

3.03 INSPECTION AND ACCEPTANCE

A. Inspection: When landscape work is completed, including maintenance, Engineer will, upon request, inspect to determine acceptability.

B. Rejected Work: When inspected landscape work does not comply with requirements, replace rejected work and continue specified maintenance until reinspected by Engineer and found to be acceptable.

END OF SECTION

SECTION 32 93 12

PLANT INSTALLATION AND ESTABLISHMENT
(MnDOT 2571)

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Furnishing, planting, and establishing shrubs.
      a. The term 'plant or plants' shall be considered a general reference to any plant type of shrub l throughout this specification section.

B. Related Section:
   1. Section T-905 - Topsoil

C. Method of Measurement:
   1. Furnishing, Planting and Establishing Shrubs: Measure as a unit for each shrub acceptably planted.
   2. Furnishing and installing Topsoil Borrow (Imported): See Section T-905.

D. Basis of Payment:
   1. Payment for acceptable quantities of furnished and planted shrubs includes:
      a. Furnishing and planting the materials as specified.
      b. Furnishing and installing planting soil, mulch, material, protective materials and other specified materials.
      c. Plant maintenance and replacement until acceptable.
      d. Disposal of all excess excavated material.
      e. Restoration in kind of all areas disturbed by Contractor's operations.
   2. Payment for acceptable quantities:
      a. Payment for furnishing, installing and establishing shrubs shall be at the Contract Unit Price as listed on the Bid Form.
      b. Payment for furnishing and installing Topsoil Borrow (Imported) shall be at the Contract Unit Price as listed on the Bid Form
      c. All associated work items not otherwise compensated shall be considered incidental.
   3. All costs of plant establishment work shall be at the Contractor's expense, including the costs of any replacement materials required.
   4. Payment for acceptable quantities or furnishing and planting and transplanting shrubs will be based on the following schedule:

Item	**Unit**	
Deciduous Shrub size and root category	Each	
Note: State Root Category: , - Container Grown - Balled and Burlapped		

1.02 REFERENCES

A. Perform work in accordance with the current edition of the *Inspection and Contract Administration Manual for MnDOT Landscape Project* (ICAMMLP).

B. MnDOT:
   1. 2571 - Plant Installation and Establishment
   2. 3861 - Plant Stock

3. 3877 - Topsoil Material
4. 3881 - Fertilizer
5. 3882 - Mulch Material
6. 3890 - Compost

1.03 SUBMITTALS

A. Provide supply assurances, plant stock and material documentation, and substitution requests in accordance with MnDOT 2571.2.A.

PART 2 MATERIALS

2.01 MATERIALS

A. Plant Stock: MnDOT 3861
   1. See planting schedule in Drawings for common and botanical names, types and sizes.

B. Growing Medium Materials:
   1. Depth: See thickness requirements on the Drawings.
   2. Topsoil Borrow: Section T-905.
   3. Fertilizer: MnDOT 3881.
   4. Water: Shall be suitable for human consumption.

PART 3 EXECUTION

3.01 EXAMINATION

A. Notify Engineer 3 Calendar Days prior to delivery of plant materials to arrange for inspection.

3.02 INSTALLATION

A. General:
   1. Install and maintain plants only with an experienced crew under direct supervision of a qualified nurseryman or landscape specialist in accordance with MnDOT 2571.3.A.1.
   2. Plant only under favorable weather and soil conditions as approved by Engineer.
   3. Engineer will consider Work performed as follows to be unauthorized Work:
      a. Without attending a landscaping preconstruction meeting.
      b. Without required and acceptable documentation and notifications.
      c. Without supervision by a certified landscape specialist.
      d. Without conducting required and acceptable competency tests.
      e. In conflict with the working hours of the Contract.

B. Delivery and Storage of Plants:
   1. Install plants on day of delivery to Site.
   2. New plantings shall be containerized as indicated in the Drawings.

C. Preparing Plant Holes:
   1. Prepare planting holes, widths and depths per Planting Details in Drawings.
   2. Scarify sides and bottom of hole.
   3. Maintain undisturbed soil in hole beneath the root ball, or compact planting soil to receive plants.

D. Plant Installation:
   1. Do not drop plant material.
   2. Lift only from the bottom of pot or ball, never with the trunk, using dollies and front end loaders as necessary.

3. Containerized Shrubs:
    a. If root bound, remove from pot by carefully rolling and pressing on the pot which has been placed on its side.
    b. Score outside of soil mass to redirect and prevent circling fibrous roots. Remove or correct stem girdling roots.
    c. Set plant in hole so the top of the root flare is at or up to 2 inches above the finished grade.
    d. Plumb and backfill with planting soil.
    e. Water thoroughly within 2 hours to settle plant and fill voids.
    f. Backfill voids and water a second time.
    g. Place mulch within 48 hours of the second watering, unless soil moisture is excessive.

E. Topgrowth and Pruning:
    1. Prune only broken or dead branches and bare roots.

F. Watering and Rock Mulch:
    1. Water each plant within 2 hours of planting.
    2. Water to thoroughly saturate all planting soil.
    3. Do not water trunk.
    4. Place rock mulch within 48 hours and as detailed in the Drawings.
    5. Water all plants when soil is dry at a 2-inch depth.
    6. Water all plants thoroughly at least once per week until the work is accepted.

G. Disposal of Excavated Materials: Disposal of all excess excavated materials is the responsibility of the Contractor.

H. Cleanup and Restoration:
    1. Collect and dispose of all excess materials, packaging and containers.
    2. Restore or replace in kind all turf or other facilities damaged by Contractor's operations.

I. Plant Establishment Period:
    1. Maintain the work and care for plants installed as necessary all plantings for the plant establishment period which shall be up to 2 calendar years A plant establishment period begins on the date that initial planting operations on the project are completed and continues until final acceptance of the project, unless otherwise noted on the Drawings.
    2. Maintenance includes:
        a. Keeping all plants in healthy growing condition.
        b. Maintaining adequate, but not excessive, soil moisture at all times.
        c. Repairing or replacing as necessary mulch material and planting soil.
        d. Manually removing all weed growth in and 3 feet beyond all mulched areas.
        e. Applying insecticide spray as necessary.
        f. Furnishing and installing replacement plants as needed, including new mulch and planting soil.
        g. Keeping all plants upright.
        h. Contractor will be held responsible for all plants lost due to acts of vandalism, theft and rodent damage.

J. Acceptance of Work:
    1. Engineer will Inspect Project:
        a. Upon delivery of plant materials.
        b. At the end of the plant establishment period.
        c. Engineer will notify Contractor of any defective materials or work.
    2. Contractor will replace all defective work immediately on or at the beginning of the next planting season if directed by Engineer.
    3. Only plants that have completed the plant establishment period of care will be subject to acceptance.
    4. No payment will be made for unacceptable plantings.

END OF SECTION

Item T-905 Topsoil

DESCRIPTION

905-1.1 This item shall consist of preparing the ground surface for topsoil application, removing topsoil from designated stockpiles or areas to be stripped on the site or from approved sources off the site, and placing and spreading the topsoil on prepared areas in accordance with this specification at the locations shown on the plans or as directed by the RPR.

MATERIALS

905-2.1 Topsoil. Topsoil shall be the surface layer of soil with no admixture of refuse or any material toxic to plant growth, and it shall be reasonably free from subsoil and stumps, roots, brush, stones (2 inches (50 mm) or more in diameter), and clay lumps or similar objects. Brush and other vegetation that will not be incorporated with the soil during handling operations shall be cut and removed. Ordinary sod and herbaceous growth such as grass and weeds are not to be removed, but shall be thoroughly broken up and intermixed with the soil during handling operations. Heavy sod or other cover, which cannot be incorporated into the topsoil by discing or other means, shall be removed. The topsoil or soil mixture, unless otherwise specified or approved, shall have a pH range of approximately 5.5 pH to 7.6 pH, when tested in accordance with the methods of testing of the Association of Official Agricultural Chemists in effect on the date of invitation of bids. The organic content shall be not less than 3% nor more than 20% as determined by the wet-combustion method (chromic acid reduction). There shall be not less than 20% nor more than 80% of the material passing the 200 mesh (75 μm) sieve as determined by the wash test in accordance with ASTM C117.

Natural topsoil may be amended by the Contractor with approved materials and methods to meet the above specifications.

905-2.2 Inspection and tests. Within 10 days following acceptance of the bid, the RPR shall be notified of the source of topsoil to be furnished by the Contractor. The topsoil shall be inspected to determine if the selected soil meets the requirements specified and to determine the depth to which stripping will be permitted. At this time, the Contractor may be required to take representative soil samples from several locations within the area under consideration and to the proposed stripping depths, for testing purposes as specified in paragraph 905-2.1.

CONSTRUCTION METHODS

905-3.1 General. Areas to be topsoiled shall be shown on the plans. If topsoil is available on the site, the location of the stockpiles or areas to be stripped of topsoil and the stripping depths shall be shown on the plans.

Suitable equipment necessary for proper preparation and treatment of the ground surface, stripping of topsoil, and for the handling and placing of all required materials shall be on hand, in good condition, and approved by the RPR before the various operations are started.

905-3.2 Preparing the ground surface. Immediately prior to dumping and spreading the topsoil on any area, the surface shall be loosened by discs or spike-tooth harrows, or by other means approved by the RPR, to a minimum depth of 2 inches (50 mm) to facilitate bonding of the topsoil to the covered subgrade soil. The surface of the area to be topsoiled shall be cleared of all stones larger than 2 inches (50 mm) in any diameter and all litter or other material which may be detrimental to proper bonding, the rise of

capillary moisture, or the proper growth of the desired planting. Limited areas, as shown on the plans, which are too compact to respond to these operations shall receive special scarification.

Grades on the area to be topsoiled, which have been established by others as shown on the plans, shall be maintained in a true and even condition. Where grades have not been established, the areas shall be smooth-graded and the surface left at the prescribed grades in an even and compacted condition to prevent the formation of low places or pockets where water will stand.

905-3.3 Obtaining topsoil. Prior to the stripping of topsoil from designated areas, any vegetation, briars, stumps and large roots, rubbish or stones found on such areas, which may interfere with subsequent operations, shall be removed using methods approved by the RPR. Heavy sod or other cover, which cannot be incorporated into the topsoil by discing or other means shall be removed.

When suitable topsoil is available on the site, the Contractor shall remove this material from the designated areas and to the depth as directed by the RPR. The topsoil shall be spread on areas already tilled and smooth-graded, or stockpiled in areas approved by the RPR. Any topsoil stockpiled by the Contractor shall be rehandled and placed without additional compensation. Any topsoil that has been stockpiled on the site by others, and is required for topsoil purposes, shall be removed and placed by the Contractor. The sites of all stockpiles and areas adjacent thereto which have been disturbed by the Contractor shall be graded if required and put into a condition acceptable for seeding.

When suitable topsoil is secured off the airport site, the Contractor shall locate and obtain the supply, subject to the approval of the RPR. The Contractor shall notify the RPR sufficiently in advance of operations in order that necessary measurements and tests can be made. The Contractor shall remove the topsoil from approved areas and to the depth as directed. The topsoil shall be hauled to the site of the work and placed for spreading, or spread as required. Any topsoil hauled to the site of the work and stockpiled shall be rehandled and placed without additional compensation.

905-3.4 Placing topsoil. The topsoil shall be evenly spread on the prepared areas to a uniform depth of 4 inches (50 mm) for restoration and depth of 6-inches for landscape planting after compaction, unless otherwise shown on the plans or stated in the special provisions. Spreading shall not be done when the ground or topsoil is frozen, excessively wet, or otherwise in a condition detrimental to the work. Spreading shall be carried on so that turfing operations can proceed with a minimum of soil preparation or tilling.

After spreading, any large, stiff clods and hard lumps shall be broken with a pulverizer or by other effective means, and all stones or rocks (2 inches (50 mm) or more in diameter), roots, litter, or any foreign matter shall be raked up and disposed of by the Contractor. after spreading is completed, the topsoil shall be satisfactorily compacted by rolling with a cultipacker or by other means approved by the RPR. The compacted topsoil surface shall conform to the required lines, grades, and cross-sections. Any topsoil or other dirt falling upon pavements as a result of hauling or handling of topsoil shall be promptly removed.

METHOD OF MEASUREMENT

905-4.1 Topsoil obtained on the site shall be measured by the number of cubic yards (cubic meters) of topsoil measured in its original position and stripped or excavated. Topsoil stockpiled by others and removed for topsoil by the Contractor shall be measured by the number of cubic yards (cubic meters) of topsoil measured in the stockpile. Topsoil shall be measured by volume in cubic yards (cubic meters) computed by the method of end areas.

905-4.2 Topsoil obtained off the site shall be measured by the number of cubic yards (cubic meters) of topsoil measured in its original position and stripped or excavated. Topsoil shall be measured by volume in cubic yards (meters) computed by the method of end areas.

BASIS OF PAYMENT

905-5.1 Payment will be made at the contract unit price per cubic yard (cubic meter) for topsoil (salvaged from stripping operations and importing for landscape planting) This price shall be full compensation for furnishing all materials and for all preparation, placing, and spreading of the materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item T-905-5.1	Select Topsoil Borrow (Salvaged) (CV)
Item T-905-5.2	Select Topsoil Borrow (Imported) (CV)

REFERENCES

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

ASTM International (ASTM)

ASTM C117	Materials Finer than 75 μm (No. 200) Sieve in Mineral Aggregates by Washing

Advisory Circulars (AC)

AC 150/5200-33	Hazardous Wildlife Attractants on or Near Airports

FAA/United States Department of Agriculture

Wildlife Hazard Management at Airports, A Manual for Airport Personnel

END OF ITEM T-905

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Building a Better World for All of Us®

May 31, 2023

RE: Sky Harbor Airport Terminal
Asbestos Inspection and
Regulated Waste Assessment
5000 Minnesota Ave
Duluth, MN 55802
SEH No. DULAI 172133

Mr. Mark Papko
Duluth Airport Authority
4701 Grinden Drive
Duluth, MN 55811

Dear Mr. Papko:

Short Elliott Hendrickson Inc. (SEH®) was retained by Duluth Airport Authority to complete an asbestos inspection and regulated waste assessment (RWA) at the Sky Harbor Airport Terminal site located at 5000 Minnesota Ave in Duluth, Minnesota.

ASBESTOS INSPECTION

Robert Hawkins, a certified asbestos inspector (**See Attachment A**, **Minnesota Department of Health [MDH] Certification**), completed the asbestos inspection on May 23, 2023. The asbestos inspections were conducted in accordance with MDH asbestos inspection and assessment rules (Section 4620.3460) and U.S. Environmental Protection Agency (USEPA) guidance documents. The asbestos inspection is intended to meet the requirements of the National Emission Standard for Hazardous Air Pollutants (NESHAP) Subpart M – National Emission Standard for Asbestos. The Minnesota Pollution Control Agency (MPCA) enforces the NESHAP regulation in Minnesota.

The parcel was occupied by an airport terminal building. The structure was constructed as a slab on grade, two-story building with concrete masonry unit (CMU) block foundation walls and wood and steel framing. Wall coverings consisted primarily of drywall. Floor coverings included carpet, vinyl sheeting, vinyl tile, and wood. The structure's exterior was primarily metal sheeting.

A walk-through inspection was conducted to identify suspect asbestos containing material (ACM). Select photographs of the building and samples are included in **Attachment B, Photo Journal Log**. Non-Destructive bulk samples of each suspect ACM were collected in accordance with USEPA guidance documents for the occupied structure. Samples were submitted directly to EMSL Analytical, Inc. (EMSL) and analyzed by polarized light microscopy (PLM). The EMSL laboratory is accredited by the National Institute of Science and Technology (NIST) through the National Voluntary Laboratory Accreditation Program (NVLAP) (NIST-NVLAP No. 200019-0). Results of the asbestos inspection indicate the presence of building materials in or on the structures meet the definition of ACM (i.e., contain more than 1% asbestos). The PLM analytical results for the structure are summarized in the table below**.** PLM analytical results are also included in **Attachment C, EMSL Analytical Report**.

Sample ID	Location	Description, ACM feature	Estimated Quantity	Asbestos Result
M-1-1	Kitchen and Laundry Room	Vinyl flooring, gray/orange layer	88 ft^2	30% Chrysotile
S-1-1	Kitchen	Coating on sink bottom	4 ft^2	6% Chrysotile
M-6-1	BR1	Vinyl flooring, white/green layer	64 ft^2	25% Chrysotile
M-10-1	BR2, BR3, and Lobby	Tile flooring, mastic	560 ft^2	10% Chrysotile

REGULATED WASTE ASSESSMENT

SEH conducted a regulated waste assessment and collected caulk and peeling paint samples on April 13, 2023.

The purpose of a regulated waste assessment (RWA) is to identify materials, other than ACMs, that were encountered at the properties and would need to be segregated from construction and demolition debris prior to demolition. Hazardous and regulated waste items must be removed and properly disposed prior to demolition of the basement foundations and cannot be treated as construction and demolition waste material as defined in MN Administrative Rule 7035.0030, subpart 30.

The building was occupied at the time of the RWA. Items stored inside the building that will be removed prior to demolition were not included in the RWA. The following regulated waste observations were made at the Sky Harbor terminal building:

Ground Floor

- 4’ Fluorescent Bulbs – 22
- Ballasts – 11
- Thermostats – 2
- Exit Signs – 2
- Security Camera – 1

Upstairs

- 4’ Fluorescent Bulbs – 20
- Ballasts – 10
- Thermostats – 2
- Heater – 1
- Water Heater – 1
- 7’ Baseboard Heater – 1

During the regulated waste assessment, caulking was observed around several of the windows on the ground floor of the building. A representative sample of the material was collected (Caulk-1) and analyzed using EPA Method 8082A. No PCB concentrations were detected in the sample above method reporting limits.

Additionally, SEH observed peeling paint on several interior components of the terminal building. A sample of the peeling paint was collected and submitted to the EMSL for lead analysis. The table below includes a description, location and reported analytical lead concentration of the collected sample. Lead based paint is defined as 0.5% or 5,000 mg/kg in accordance with the EPA’s Renovation, Repair, and Painting Rule (RRP), MDHs Lead Poisoning Prevention statutes and Residential Lead Abatement rules, and the MPCAs Lead Paint Removal rules. Laboratory Results are included in **Attachment A**.

Sample ID	Location	Description	Analytical Results
Paint-1	Kitchen	Bottom layer of wall paint	<110 ppm

LIMITATIONS

To minimize disturbance of the structure, discrete sampling techniques were used during completion of the asbestos inspection. Due to the limited nature of the discrete sampling activities, the potential exists for unidentified ACM to be present in the structure. Additionally, in order to maintain the integrity of the structures, the roofing materials of the structure were not sampled.

Thank you for choosing SEH to complete this assessment. Please feel free to contact Jennifer at 612.839.2430 if you have any questions.

Sincerely,

SHORT ELLIOTT HENDRICKSON INC.

Elliott Allen, GIT
Environmental Technician

Robert Hawkins, GIT
Graduate Scientist II

Jennifer Force, PG (MN)
Senior Scientist II

Efa

Attachments:

Figures
- Figure 1, Project Location
- Figure 2, Sample Locations

Attachment A, Inspector Certification
Attachment B, Photo Journal Log
Attachment C, EMSL Laboratory Reports

Figures

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SEH
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110
PHONE: (651) 490-2000
FAX: (651) 490-2150
WATTS: 800-325-2055
www.sehinc.com

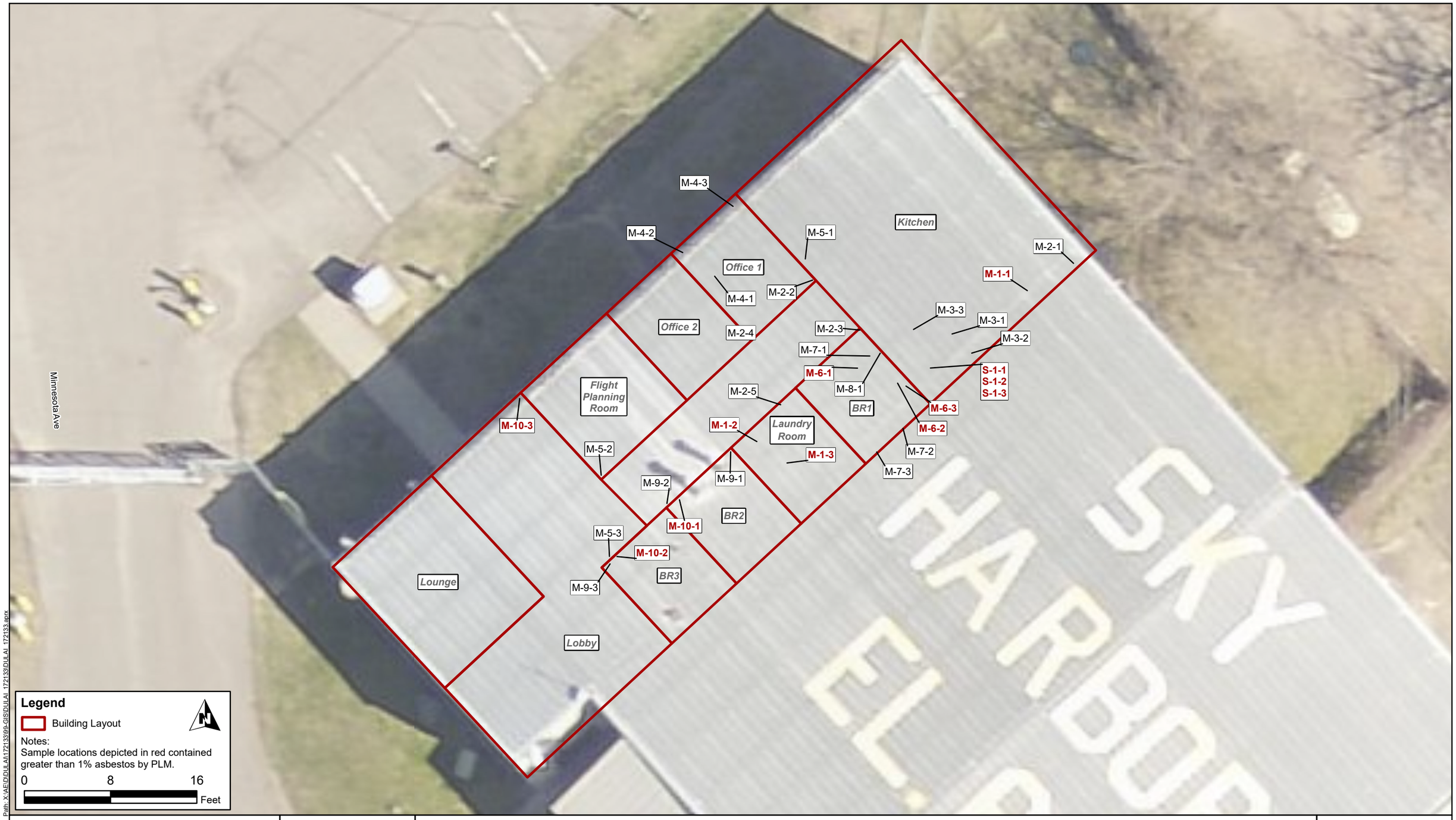
Project: DULAI 172133
Print Date: 5/8/2023

Map by: rhawkins
Projection: NAD 1897 UTM Zone 15N
Source: ESRI, St. Louis County, MnDOT, SEH Digi

Project Area

Asbestos Inspection and Regulated Waste Assessment
Duluth Sky Harbor Airport 2023 Reconstruct Terminal Building
Duluth, Minnesota

Figure 1



Legend

Building Layout

Notes:
Sample locations depicted in red contained greater than 1% asbestos by PLM.

0 8 16 Feet

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SEH

3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110
PHONE: (651) 490-2000
FAX: (888) 908-8166
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www.sehinc.com

Project: DUALI 172133
Print Date: 5/11/2023

User Name: rhawkins
Projection: NAD 1983 UTM Zone 15N
Source: ESRI, St. Louis County, MnDOT, SEH Digi

Sample Locations

Asbestos Inspection and Regulated Waste Assessment
Duluth Sky Harbor Airport 2023 Reconstruct Terminal Building
Duluth, Minnesota

Figure 2

Attachment A

Inspector Certifications

Certificate No: 5LM02142306IR *Expiration Date: February 14, 2024*

This is to certify that

Robert Hawkins

has attended and successfully completed an

ASBESTOS INSPECTOR

REFRESHER TRAINING COURSE

permitted by

the State of Minnesota under Minnesota Rules 4620.3702 to 4620.3722

and meets the requirements of

Section 206 of Title II of the Toxic Substances Control Act (TSCA)

conducted by

Lake States Environmental, Ltd.

in

St. Paul, MN on February 14, 2023

Examination Date: February 14, 2023

Lake States Environmental, Ltd.
P. O. Box 645, Rice Lake, WI 54868
www.lakestates.com
(800) 254-9811

Grant J Grassle

Training Instructor

DEPARTMENT OF HEALTH

ASBESTOS INSPECTOR

Certified by:
State of Minnesota
Department of Health

Expires: 02/14/2024

Robert R Hawkins
2224 Westview Dr
Hastings, MN 55033

Director, Env. Health Div.

No. AI14377

Issued: 03/31/2023

Attachment B

Photo Journal Log

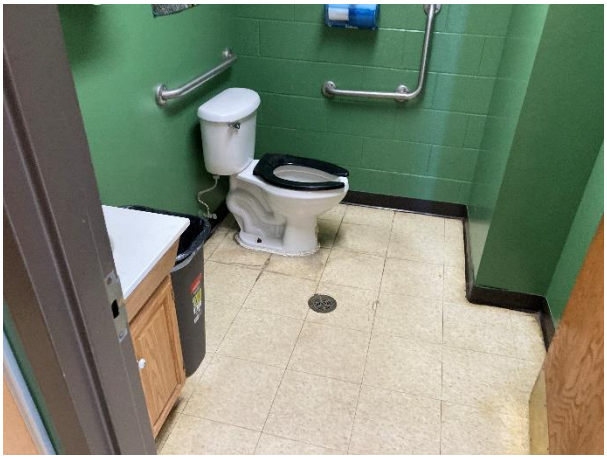

Photo 1 Bathroom with vinyl flooring

Photo 2 Lounge with vinyl tile flooring

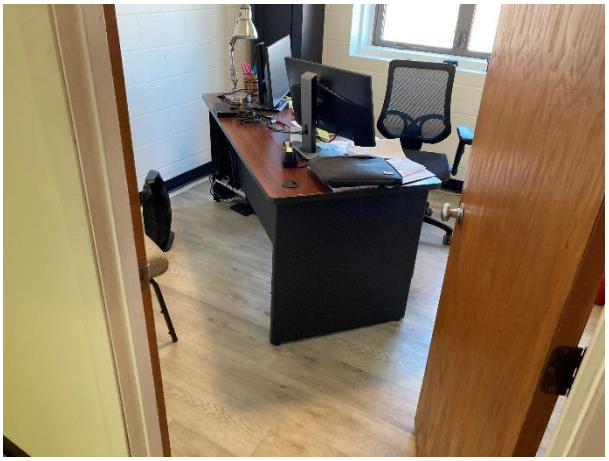

Photo 3 Office area

Photo 4 Laundry room with vinyl flooring

Photo 5 Office area

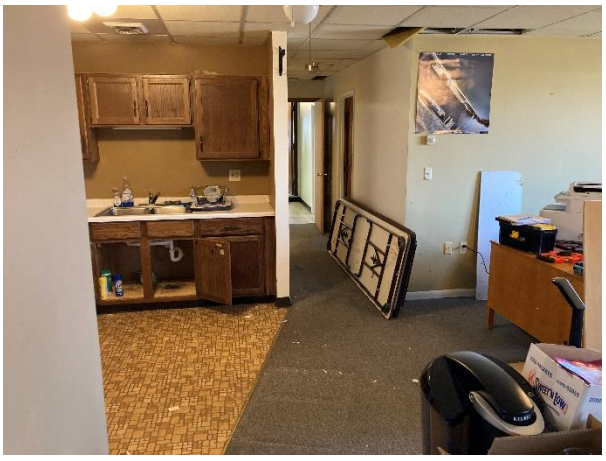

Photo 6 Kitchen area

Photo 7 Kitchen area with vinyl flooring and paint

Photo 8 Exterior of building

Photo 9 Sample M-10-1

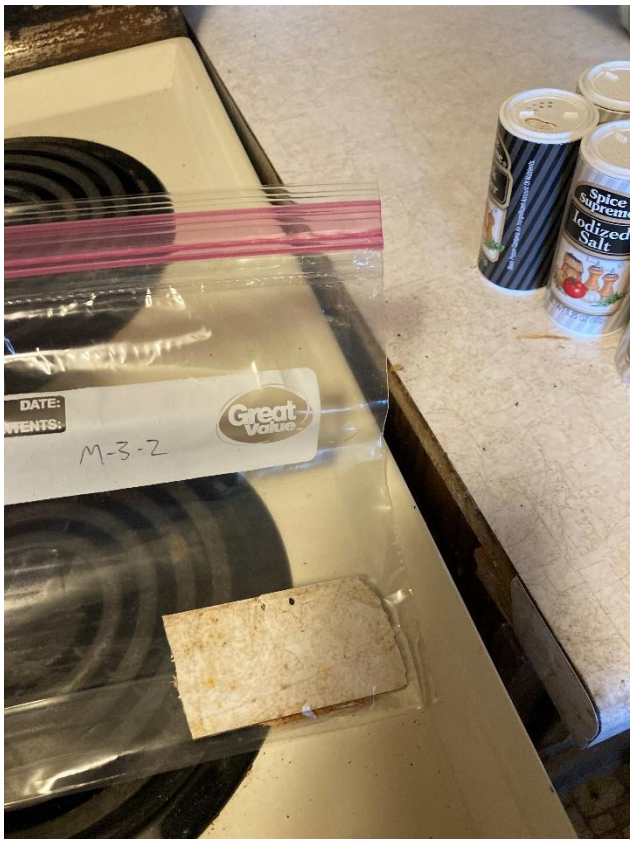

Photo 10 Sample M-3-2

Photo 11 Sample S-1-3

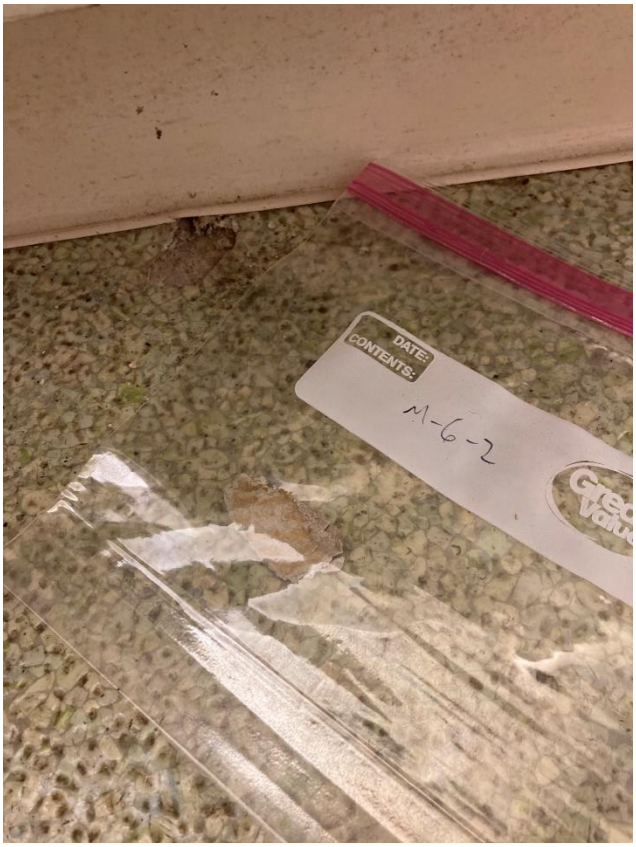

Photo 12 Sample M-6-2

Attachment C

EMSL Laboratory Reports

EMSL Analytical, Inc.

3410 Winnetka Avenue North New Hope, MN 55427

Tel/Fax: (763) 449-4922 / (763) 449-4924

http://www.EMSL.com / minneapolislab@emsl.com

EMSL Order:	352304525
Customer ID:	SEHI80
Customer PO:	
Project ID:	

Attention:	Jennifer Force	**Phone:**	(651) 490-2000
	Short Elliot & Hendrickson	**Fax:**	(651) 490-2150
	3535 Vadnais Center Drive	**Received Date:**	05/25/2023 10:05 AM
	Saint Paul, MN 55110	**Analysis Date:**	05/31/2023
		Collected Date:	05/23/2023
Project:	DULAI 172133 Sky Harbor		

Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
M-1-1-Vinyl Sheet Flooring *352304525-0001*	Kitchen, vinyl flooring	Gray/Orange Fibrous Heterogeneous		70% Non-fibrous (Other)	30% Chrysotile
M-1-1-Adhesive *352304525-0001A*	Kitchen, vinyl flooring	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-1-2 *352304525-0002* *No adhesive on sample.*	Laundry Room, vinyl flooring				Positive Stop (Not Analyzed)
M-1-3-Vinyl Sheet Flooring *352304525-0003*	Laundry Room, vinyl flooring				Positive Stop (Not Analyzed)
M-1-3-Adhesive *352304525-0003A*	Laundry Room, vinyl flooring	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-2-1 *352304525-0004*	Kitchen Closte, drywall	Tan/White Fibrous Heterogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
M-2-2 *352304525-0005*	Office 1, drywall	Tan/White Fibrous Heterogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
M-2-3 *352304525-0006*	BR 1, drywall	Tan/White Fibrous Heterogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
M-2-4 *352304525-0007*	Office 2, drywall	Tan/White Fibrous Heterogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
M-2-5-Drywall Composite *352304525-0008* *This is a composite result of drywall and joint compound*	Laundry Room, drywall	Tan/White Fibrous Heterogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
M-2-5-Adhesive *352304525-0008A*	Laundry Room, drywall	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-3-1-Countertop *352304525-0009*	Kitchen, vinyl kitchen coutertop	Brown/White Non-Fibrous Heterogeneous	90% Cellulose	10% Non-fibrous (Other)	None Detected
M-3-1-Adhesive *352304525-0009A*	Kitchen, vinyl kitchen coutertop	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-3-2-Countertop *352304525-0010*	Kitchen, vinyl kitchen coutertop	Brown/White Non-Fibrous Heterogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected

Initial report from: 05/31/2023 12:35:29

EMSL Analytical, Inc.
3410 Winnetka Avenue North New Hope, MN 55427
Tel/Fax: (763) 449-4922 / (763) 449-4924
http://www.EMSL.com / minneapolislab@emsl.com

EMSL Order:	352304525
Customer ID:	SEHI80
Customer PO:	
Project ID:	

Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
M-3-2-Adhesive *352304525-0010A*	Kitchen, vinyl kitchen coutertop	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-3-3-Countertop *352304525-0011*	Kitchen, vinyl kitchen coutertop	Brown/White Non-Fibrous Heterogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
M-3-3-Adhesive *352304525-0011A*	Kitchen, vinyl kitchen coutertop	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
S-1-1 *352304525-0012*	Coating on Kitchen Sink	Pink Non-Fibrous Homogeneous		94% Non-fibrous (Other)	6% Chrysotile
S-1-2 *352304525-0013*	Coating on Kitchen Sink				Positive Stop (Not Analyzed)
S-1-3 *352304525-0014*	Coating on Kitchen Sink				Positive Stop (Not Analyzed)
M-4-1-Baseboard *352304525-0015*	Office 1, vinyl baseboard trim w/adhesive	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-4-1-Yellow Adhesive *352304525-0015A*	Office 1, vinyl baseboard trim w/adhesive	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-4-1-Brown Adhesive *352304525-0015B*	Office 1, vinyl baseboard trim w/adhesive	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-4-2-Baseboard *352304525-0016*	Office 1, vinyl baseboard trim w/adhesive	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-4-2-Yellow Adhesive *352304525-0016A*	Office 1, vinyl baseboard trim w/adhesive	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-4-2-Brown Adhesive *352304525-0016B*	Office 1, vinyl baseboard trim w/adhesive	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-4-3-Baseboard *352304525-0017*	Office 1, vinyl baseboard trim w/adhesive	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-4-3-Yellow Adhesive *352304525-0017A*	Office 1, vinyl baseboard trim w/adhesive	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-4-3-Brown Adhesive *352304525-0017B*	Office 1, vinyl baseboard trim w/adhesive	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-5-1 *352304525-0018*	Office 2, ceiling tile w/swirls	Tan/White Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
M-5-2 *352304525-0019*	Office 2, ceiling tile w/swirls	Tan/White Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
M-5-3 *352304525-0020*	Office 2, ceiling tile w/swirls	Tan/White Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
M-6-1-Vinyl Sheet Flooring *352304525-0021*	BR 1, vinyl flooring	White/Green Fibrous Heterogeneous		75% Non-fibrous (Other)	25% Chrysotile

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http://www.EMSL.com / minneapolislab@emsl.com

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Project ID:	

Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
M-6-1-Adhesive *352304525-0021A*	BR 1, vinyl flooring	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-6-2 *352304525-0022* *No adhesive on sample*	BR 1, vinyl flooring				Positive Stop (Not Analyzed)
M-6-3 *352304525-0023* *No adhesive on sample*	BR 1, vinyl flooring				Positive Stop (Not Analyzed)
M-7-1-Baseboard *352304525-0024*	BR 1, vinyl baseboard trim w/adhesive	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-7-1-Adhesive *352304525-0024A*	BR 1, vinyl baseboard trim w/adhesive	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-7-1-Caulking *352304525-0024B*	BR 1, vinyl baseboard trim w/adhesive	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-7-2-Baseboard *352304525-0025*	BR 1, vinyl baseboard trim w/adhesive	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-7-2-Adhesive *352304525-0025A*	BR 1, vinyl baseboard trim w/adhesive	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-7-3-Baseboard *352304525-0026*	BR 1, vinyl baseboard trim w/adhesive	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-7-3-Adhesive *352304525-0026A*	BR 1, vinyl baseboard trim w/adhesive	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-8-1 *352304525-0027*	BR 1, caulk under sink	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-9-1-Baseboard *352304525-0028*	BR 2, vinyl baseboard trim w/adhesive	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-9-1-Yellow Adhesive *352304525-0028A*	BR 2, vinyl baseboard trim w/adhesive	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-9-1-Brown Adhesive *352304525-0028B*	BR 2, vinyl baseboard trim w/adhesive	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-9-2-Baseboard *352304525-0029*	Hallway, vinyl baseboard trim w/adhesive	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-9-2-Adhesive *352304525-0029A*	Hallway, vinyl baseboard trim w/adhesive	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-9-3-Baseboard *352304525-0030*	BR 3, vinyl baseboard trim w/adhesive	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-9-3-Adhesive *352304525-0030A*	BR 3, vinyl baseboard trim w/adhesive	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 05/31/2023 12:35:29

EMSL Analytical, Inc.
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EMSL Order:	352304525
Customer ID:	SEHI80
Customer PO:	
Project ID:	

Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
M-10-1-Floor Tile *352304525-0031*	BR 2, tile flooring	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-10-1-Mastic *352304525-0031A*	BR 2, tile flooring	Black Non-Fibrous Homogeneous		90% Non-fibrous (Other)	10% Chrysotile
M-10-2-Floor Tile *352304525-0032*	BR 3, tile flooring	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-10-2-Mastic *352304525-0032A*	BR 3, tile flooring				Positive Stop (Not Analyzed)
M-10-3-Floor Tile *352304525-0033*	Lobby, tile flooring	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-10-3-Mastic *352304525-0033A*	Lobby, tile flooring				Positive Stop (Not Analyzed)
M-11-1 *352304525-0034*	Kitchen, cinder block wall	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-12-1 *352304525-0035*	Upstairs by Stairwell, concrete floor	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Analyst(s)
Daniel Nordland (51)

Rachel Travis, Laboratory Manager
or Other Approved Signatory

Initial report from: 05/31/2023 12:35:29

OrderID: 352304525

EMSL ANALYTICAL, INC.
TESTING LABS • PRODUCTS • TRAINING

Asbestos Chain of Custody (Air, Bulk, Soil)

EMSL Order Number / Lab Use Only: 352304525

EMSL Analytical, Inc.
200 Route 130 North
Cinnaminson, NJ 08077

PHONE: (800) 220-3675
EMAIL: CinnAslab@EMSL.com

If Bill-To is the same as Report-To leave this section blank. Third-party billing requires written authorization.

Customer Information		Billing Information	
Customer ID:		Billing ID:	
Company Name:	SEH	Company Name:	
Contact Name:	Jennifer Force	Billing Contact:	
Street Address:	3535 Vadnais Center Dr.	Street Address:	
City, State, Zip:	St. Paul MN 55110	City, State, Zip:	
Country:		Country:	
Phone:	612 839 2430	Phone:	
Email(s) for Report:	JForce@SEHinc.com	Email(s) for Invoice:	

Project Information

Project Name/No:	DULAI 172133 Sky Harbor	Purchase Order:	
EMSL LIMS Project ID: (if applicable, EMSL will provide)		US State where samples collected:	MN
State of Connecticut (CT) must select project location:	☐ Commercial (Taxable) ☐ Residential (Non-Taxable)		
Sampled By Name:	Robert Hawkins	Sampled By Signature:	
No. of Samples In Shipment:			

Turn-Around-Time (TAT)

☐ 3 Hour ☐ 4-4.6 Hour AHERA ONLY ☐ 6 Hour ☐ 24 Hour ☐ 32 Hour ☐ 48 Hour ☒ 72 Hour ☐ 96 Hour ☐ 1 Week ☐ 2 Week

TEM Air 3-6 Hour, please call ahead to schedule. 32 Hour TAT available for select tests only; samples must be submitted by 11:30 am.

Test Selection

PCM Air
- ☐ NIOSH 7400
- ☐ NIOSH 7400 w/ 8hr. TWA

PLM - Bulk (reporting limit)
- ☒ PLM EPA 600/R-93/116 (<1%)
- ☐ PLM EPA NOB (<1%)
- ☐ POINT COUNT
  - ☐ 400 (<0.25%) ☐ 1,000 (<0.1%)
- POINT COUNT w/ GRAVIMETRIC
  - ☐ 400 (<0.25%) ☐ 1,000 (<0.1%)
- ☐ NIOSH 9002 (<1%)
- ☐ NYS 198.1 (Friable - NY)
- ☐ NYS 198.6 NOB (Non-Friable - NY)
- ☐ NYS 198.8 (Vermiculite SM-V)

TEM - Air
- ☐ AHERA 40 CFR, Part 763
- ☐ NIOSH 7402
- ☐ EPA Level II
- ☐ ISO 10312*

TEM - Bulk
- ☐ TEM EPA NOB
- ☐ NYS NOB 198.4 (Non-Friable-NY)
- ☐ TEM EPA 600/R-93/116 w Milling Prep (0.1%)

Other Test (please specify)

TEM - Settled Dust
- ☐ Microvac - ASTM D5755
- ☐ Wipe - ASTM D6480
- ☐ Qualitative via Filtration Prep
- ☐ Qualitative via Drop Mount Prep

Soil - Rock - Vermiculite (reporting limit)*
- ☐ PLM EPA 600/R-93/116 with milling prep (<0.25%)
- ☐ PLM EPA 600/R-93/116 with milling prep (<0.1%)
- ☐ TEM EPA 600/R-93/116 with milling prep (<0.1%)
- ☐ TEM Qualitative via Filtration Prep
- ☐ TEM Qualitative via Drop Mount Prep

*Please call with your project-specific requirements.

☒ Positive Stop - Clearly Identified Homogeneous Areas (HA) | Filter Pore Size (Air Samples) ☐ 0.8um ☐ 0.45um

Sample Number	Sample Location / Description	Volume, Area or Homogeneous Area	Date / Time Sampled (Air Monitoring Only)
M-1-1	Kitchen, Vinyl Flooring	88ft²	5/23/23
M-1-2	Laundry Room, Vinyl Flooring	" "	
M-1-3	" "	" "	
M-2-1	Kitchen Closet, Drywall	1,032ft²	
M-2-2	Office 1, " "	" "	
M-2-3	BR 1, " "	" "	
M-2-4	Office 2, " "	" "	
M-2-5	Laundry Room, " "	" "	

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

Method of Shipment:		Sample Condition Upon Receipt:	
Relinquished by:	Date/Time:	Received by:	Date/Time: 5/25/23 10:05
Relinquished by:	Date/Time:	Received by:	Date/Time

Controlled Document - COC-05 Asbestos R16 10/25/2021

☐ AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature.)

EMSL Analytical, Inc.'s Laboratory Terms and Conditions are incorporated into this Chain of Custody by reference in their entirety. Submission of samples to EMSL Analytical, Inc. constitutes acceptance and acknowledgment of all terms and conditions by Customer.

FE. 7960 3770 7304

EMSL ANALYTICAL, INC.
TESTING LABS • PRODUCTS • TRAINING

Asbestos Chain of Custody (Air, Bulk, Soil)

EMSL Order Number / Lab Use Only

4525

EMSL Analytical, Inc.
200 Route 130 North
Cinnaminson, NJ 08077

PHONE: (800) 220-3675
EMAIL: CinnAsblab@EMSL.com

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

Sample Number	Sample Location / Description	Volume, Area or Homogeneous Area	Date / Time Sampled (Air Monitoring Only)
M-3-1	Kitchen, Vinyl Kitchen Countertop	16 ft²	5/23/23
M-3-2	" "	" "	
M-3-3	" "	" "	
S-1-1	Coating on Kitchen Sink	4 ft²	
S-1-2	" "	" "	
S-1-3	" "	" "	
M-4-1	Office 1, Vinyl baseboard trim w/ Adhesive	12 ft²	
M-4-2	" "	" "	
M-4-3	" "	" "	
M-5-1	Office 2, Ceiling tile w/ swirls	584 ft²	
M-5-2	" "	" "	
M-5-3	" "	" "	
M-6-1	BR1, Vinyl flooring	64 ft²	
M-6-2	" "	" "	
M-6-3	" "	" "	
M-7-1	BR1, Vinyl baseboard trim w/ Adhesive	9 ft²	
M-7-2	" "	" "	
M-7-3	" "	" "	
M-8-1	BR1, Caulk under Sink	<1 ft²	
M-9-1	BR2, Vinyl baseboard trim w/ Adhesive	50 ft²	
M-9-2	Hallway, " "	" "	
M-9-3	BR3, " "	" "	
M-10-1	BR2, Tile Flooring	560 ft²	
M-10-2	BR3, " "	" "	
M-10-3	Lobby, " "	" "	

Method of Shipment		Sample Condition Upon Receipt:	
Relinquished by:	Date/Time:	Received by:	Date/Time
Relinquished by:	Date/Time:	Received by:	Date/Time

Controlled Document - COC-05 Asbestos R16 10/26/2021

☐ AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature.)

EMSL Analytical, Inc.'s *Laboratory Terms* and Conditions are incorporated into this Chain of Custody by reference in their entirety. Submission of samples to EMSL Analytical, Inc. *constitutes* acceptance and acknowledgment of all terms and conditions by *Customer.*

Page of

EMSL ANALYTICAL, INC.
TESTING LABS • PRODUCTS • TRAINING

Asbestos Chain of Custody (Air, Bulk, Soil)

EMSL Order Number / Lab Use Only

4525

EMSL Analytical, Inc.
200 Route 130 North
Cinnaminson, NJ 08077

PHONE: (800) 220-3675
EMAIL: CinnAsblab@EMSL.com

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

Sample Number	Sample Location / Description	Volume, Area or Homogeneous Area	Date / Time Sampled (Air Monitoring Only)
M-11-1	Kitchen, Cinder Block Wall	1,584 ft²	5/23/23
M-12-1	Upstairs by Stairwell, Concrete Floor	1,452 ft²	↓

Method of Shipment		Sample Condition Upon Receipt:	
Relinquished by:	Date/Time:	Received by:	Date/Time
Relinquished by:	Date/Time:	Received by:	Date/Time

Controlled Document - COC-05 Asbestos R16 10/25/2021

☐ AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature.)

EMSL Analytical, Inc.'s Laboratory Terms and Conditions are incorporated into this Chain of Custody by reference in their entirety. Submission of samples to EMSL Analytical, Inc. constitutes acceptance and acknowledgment of all terms and conditions by Customer.

Page of

EMSL Analytical, Inc.
3410 Winnetka Avenue North, New Hope, MN 55427
Phone/Fax: (763) 449-4922 / (763) 449-4924
http://www.EMSL.com minneapolislab@emsl.com

EMSL Order:	352303133
CustomerID:	SEHI80
CustomerPO:	
ProjectID:	

Attn: **Jennifer Force**
Short Elliot & Hendrickson
3535 Vadnais Center Drive
Saint Paul, MN 55110

Phone:	(651) 490-2000
Fax:	(651) 490-2150
Received:	4/14/2023 09:20 AM
Collected:	4/13/2023

Project: **Sky Harbor Survey Dulai 172133**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client SampleDescription	*Collected*	*Analyzed*	*Weight*	*RDL*	*Lead Concentration*
Paint-1	4/13/2023	4/24/2023	0.1872 g	110 ppm	<110 ppm
352303133-0001	Site: Kitchen Wall				

Rachel Travis, Laboratory Manager
or other approved signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted.
* Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.008% wt based on the minimum sample weight per our SOP. "<" (less than) result signifies the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. Definitions of modifications are available upon request.
Samples analyzed by EMSL Analytical, Inc. New Hope, MN AIHA LAP, LLC-ELLAP Accredited #101103

Initial report from 04/24/2023 16:25:30

EMSL Analytical, Inc.
3410 Winnetka Avenue North
New Hope, MN 55427
(763) 449-4922

Jennifer Force
Short Elliot & Hendrickson
3535 Vadnais Center Drive
Saint Paul, MN 55110

May 09, 2023
Report #: 2300165

RE: Sky Harbor Survey Dulai 172133

Dear Jennifer Force:

EMSL Analytical, Inc. received samples for the project identified above on April 14, 2023. All samples were received in acceptable condition and analyzed in the EMSL Analytical, Inc. laboratory unless otherwise noted. Analytical results are summarized in the following report. These results are not method blank or field blank corrected unless otherwise indicated. All routine quality assurance procedures were followed and all quality control acceptance criteria were met, unless otherwise noted.

EMSL Analytical, Inc. (ID 101103) is an EPA-recognized NLLAP laboratory based on its accreditation by the AIHA Laboratory Accreditation Programs, LLC (AIHA-LAP, LLC) in the Environmental Lead and Industrial Hygiene laboratory accreditation programs as documented by the Scope of Accreditation Certificate and associated Scope.

Where possible, the samples will be retained by the laboratory for 60 days following issuance of the initial final report. The samples will be disposed of or returned at that time. Arrangements can be made for extended storage by contacting me at this time.

We appreciate your decision to use EMSL Analytical, Inc. for this project. We are committed to being your vendor of choice to meet your analytical chemistry needs.

If you have any questions please contact me at the above phone number.

Sincerely,

Mark Erickson
Project Manager

EMSL Analytical, Inc.
3410 Winnetka Avenue North
New Hope, MN 55427
(763) 449-4922

Short Elliot & Hendrickson	Client Ref: Sky Harbor Survey Dulai 172133	Report #: 2300165
3535 Vadnais Center Drive	Client Contact: Jennifer Force	Project Mgr: Mark Erickson
Saint Paul, MN 55110	PO Number: NA	Account ID: SEHI80

Qualifiers and Abbreviations

qn	The spike recovery is outside of laboratory control limits for the matrix spike (MS) and/or the matrix spike duplicate (MSD).
COC	Chain of Custody
MRL	Method Reporting Limit
ppm	Parts per million in Air
NA	Not Applicable
NR	Not Reported
%Rec	Percent Recovery
RPD	Relative Percent Difference

EMSL Analytical, Inc.
3410 Winnetka Avenue North
New Hope, MN 55427
(763) 449-4922

Short Elliot & Hendrickson	Client Ref: Sky Harbor Survey Dulai 172133	Report #: 2300165
3535 Vadnais Center Drive	Client Contact: Jennifer Force	Project Mgr: Mark Erickson
Saint Paul, MN 55110	PO Number: NA	Account ID: SEHI80

Sample Summary

Sample ID	Laboratory ID	Matrix	Area, Air Volume or Time Sampled	Date Sampled	Date Received
Caulk-1 - Window caulk sample	2300165-01	Solid	NA	04/13/23 00:00	04/14/23 09:20

EMSL Analytical, Inc.
3410 Winnetka Avenue North
New Hope, MN 55427
(763) 449-4922

Short Elliot & Hendrickson	Client Ref: Sky Harbor Survey Dulai 172133	Report #: 2300165
3535 Vadnais Center Drive	Client Contact: Jennifer Force	Project Mgr: Mark Erickson
Saint Paul, MN 55110	PO Number: NA	Account ID: SEHI80

Analyte	Result	MRL	Units	Dilution	Prepared	Analyzed	Analyst	Method	Notes
EMSL Analytical, Inc.									
2300165-01 Caulk-1 - Window caulk sample (Solid)									
Aroclor-1016	< 0.45	0.45	mg/kg	1	4/27/23	5/5/23	MDE	EPA 8082A	
Aroclor-1221	< 0.45	0.45	mg/kg	1	4/27/23	5/5/23	MDE	EPA 8082A	
Aroclor-1232	< 0.45	0.45	mg/kg	1	4/27/23	5/5/23	MDE	EPA 8082A	
Aroclor-1242	< 0.45	0.45	mg/kg	1	4/27/23	5/5/23	MDE	EPA 8082A	
Aroclor-1248	< 0.45	0.45	mg/kg	1	4/27/23	5/5/23	MDE	EPA 8082A	
Aroclor-1254	< 0.45	0.45	mg/kg	1	4/27/23	5/5/23	MDE	EPA 8082A	
Aroclor-1260	< 0.45	0.45	mg/kg	1	4/27/23	5/5/23	MDE	EPA 8082A	
Aroclor-1262	< 0.45	0.45	mg/kg	1	4/27/23	5/5/23	MDE	EPA 8082A	
Aroclor-1268	< 0.45	0.45	mg/kg	1	4/27/23	5/5/23	MDE	EPA 8082A	
Surrogate: Decachlorobiphenyl	*73.9 %*	*Limits: 50-150%*			*4/27/23*	*5/5/23*	*MDE*	*EPA 8082A*	
Surrogate: TCMX	*81.9 %*	*Limits: 50-140%*			*4/27/23*	*5/5/23*	*MDE*	*EPA 8082A*	

EMSL Analytical, Inc.
3410 Winnetka Avenue North
New Hope, MN 55427
(763) 449-4922

Short Elliot & Hendrickson	Client Ref: Sky Harbor Survey Dulai 172133	Report #: 2300165
3535 Vadnais Center Drive	Client Contact: Jennifer Force	Project Mgr: Mark Erickson
Saint Paul, MN 55110	PO Number: NA	Account ID: SEHI80

Environmental Chemistry Chain of Custody

EMSL ANALYTICAL, INC.

EMSL Order Number / Lab Use Only: 2300165 – 352303045

EMSL Analytical, Inc.
200 Rt. 130 N
Cinnaminson, NJ 08077
PHONE: (800) 220-3675
EMAIL: EnvChemistry2@EMSL.com

Customer Information

Customer ID:
Company Name: SEH
Contact Name: Jennifer Force
Street Address: 3535 Vadnais Center Dr.
City, State, Zip: St. Paul, MN 55110 Country: USA
Phone: 651.424.0535
Email(s) for Report: jforce@sehinc.com

Billing Information

Billing ID:
Company Name:
Billing Contact:
Street Address:
City, State, Zip: Country:
Phone:
Email(s) for Invoice:

Project Name/No: SKY Harbor Survey Dulai 172133
Purchase Order:
EMSL LIMS Project ID: (If applicable, EMSL will provide)
US State where samples collected:
State of Connecticut (CT) must select project location: ☐ Commercial (Taxable) ☐ Residential (Non-Taxable)
Samples for Compliance? ☐ Yes ☐ No If Yes, for NPDES? ☐ Yes ☐ No
Other (Specify)
PWS ID:
State Reporting Required? ☐ Yes ☐ No
Samples Collected by (Check One): ☐ EMSL ☒ CLIENT
Samples Received Chilled? ☐ Yes ☒ No
Sample(s) Temperature Upon Receipt (LAB ONLY)
Sampled By Name: Elliott Allen
Sampled By Signature:
No. of Samples in Shipment:

Turn-Around-Time (TAT) Standard Turn-Around-Time: ☑ 2 Weeks
The following TAT's are subject to Lab approval. Call lab to confirm TAT before submittal: ☐ 1 Week ☐ 4 Days ☐ 3 Days ☐ 2 Days ☐ 1 Day

Client Sample ID	Comp	Grab	Date / Time Collected	Matrix (W=Water S=Soil A=Air SL=Sludge O=Other)	Preservative (1 HCL 2 HNO3 3 H2SO4 4 ICE 5 Other – Describe below in Special Instructions)	List Test(s) Needed (Write in test below, then check on sample line:) Test 1: PCBs	Test 2:	Test 3:	Test 4:	Test 5:	Test 6:	Test 7:	Test 8:	Comments
Caulk-1	☐	☒	4/13	O		X								Window caulk Sample
	☐	☐												
	☐	☐												
	☐	☐												

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

Reporting Requirements: ☐ Results Only ☑ Results and QC ☐ Reduced Deliverables ☐ Hzresults EDD ☐ Excel ☐ Other (Describe Above)

Method of Shipment: Fedex
Sample Condition Upon Receipt:
Relinquished by: Elliott Allen Date/Time: 1515 4/13/23
Received by: DR Date/Time 4/14/23 9:20am
Relinquished by: Date/Time: Received by: Date/Time

Controlled Document - COC-07 Chemistry R11 02/26/2021

☐ AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature.)

FE: 3969 9913 5815

Page 1 of

EMSL Analytical, Inc.'s Laboratory Terms and Conditions are incorporated into this Chain of Custody by reference in their entirety. Submission of samples to EMSL Analytical, Inc. constitutes acceptance and acknowledgment of all terms and conditions by

Building a Better World for All of Us®

Sustainable buildings, sound infrastructure, safe transportation systems, clean water, renewable energy and a balanced environment. Building a Better World for All of Us communicates a companywide commitment to act in the best interests of our clients and the world around us.

We're confident in our ability to balance these requirements.

SEH®

Statement of Estimated Quantities

Page #	Sheet #	Sheet Title
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4 of 55	G1.10	CONSTRUCTION PHASING PLAN
5 of 55	G2.00	GENERAL NOTES
6 of 55	G2.10	STATEMENT OF ESTIMATED QUANTITIES
7 of 55	G3.00	SURVEY CONTROL AND EXISTING CONDITIONS PLAN
8 of 55	C1.00	EROSION CONTROL PLAN
9 of 55	C1.10	EROSION CONTROL DETAILS
10 of 55	C2.00	DEMOLITION PLAN (BUILDING)
11 of 55	C2.10	DEMOLITION PLAN (SITE)
12 of 55	C2.20	INTERIM TERMINAL FACILITY & TEMPORARY SETUP
13 of 55	C3.00	TYPICAL SECTIONS
14 of 55	C3.10	PEDESTRIAN CURB RAMP DETAILS (1 OF 6)
15 of 55	C3.11	PEDESTRIAN CURB RAMP DETAILS (2 OF 6)
16 of 55	C3.12	PEDESTRIAN CURB RAMP DETAILS (3 OF 6)
17 of 55	C3.13	PEDESTRIAN CURB RAMP DETAILS (4 OF 6)
18 of 55	C3.14	PEDESTRIAN CURB RAMP DETAILS (5 OF 6)
19 of 55	C3.15	PEDESTRIAN CURB RAMP DETAILS (6 OF 6)
20 of 55	C4.00	PAVEMENT PLAN
21 of 55	C5.00	GRADING PLAN
22 of 55	C5.01	GRADING PLAN (AIRSIDE SLAB & SLOPED WALKWAY)
23 of 55	C5.02	GRADING PLAN
1	C5.03	LANDSCAPE PLAN
24 of 55	C6.00	UTILITY PLAN (SEWER & WATER)
25 of 55	C6.01	UTILITY DETAILS - WATER & SANITARY
26 of 55	C7.00	PAVEMENT MARKING AND FENCING PLAN
27 of 55	S001	GENERAL ABBREVIATIONS AND SYMBOLS
28 of 55	S002	GENERAL STRUCTURAL NOTES
29 of 55	S003	GENERAL STRUCTURAL NOTES
30 of 55	S101	FOUNDATION PLAN
31 of 55	S201	ROOF FRAMING PLAN
32 of 55	S501	FOUNDATION DETAILS
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36 of 55	A002	CODE ANALYSIS
37 of 55	A003	ARCHITECTURAL SYMBOLS, LEGEND, NOTES, WALL TYPES AND ACCESSIBILITY DETAILS
38 of 55	A004	DEMOLITION PLANS AND SECTIONS
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	A200	EXTERIOR ELEVATIONS
	A201	EXTERIOR ELEVATIONS
	A300	WALL SECTIONS AND DETAILS
	A301	WALL SECTIONS AND DETAILS
1 42 of 55	A400	INTERIOR ELEVATIONS AND DETAILS
43 of 55	A500	SCHEDULES, DOOR, WINDOW AND FRAME TYPES
44 of 55	MEP100	EQUIPMENT SCHEDULE
45 of 55	MP000	MECHANICAL/PLUMBING DEMOLITION PLAN
46 of 55	P100	UNDERFLOOR PLUMBING PLAN
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48 of 55	P102	PLUMBING RISERS
49 of 55	M100	HVAC PLAN
50 of 55	EOOO	LOWER LEVEL AND UPPER LEVEL ELECTRICAL DEMOLITION PLAN
51 of 55	E100	POWER PLAN
52 of 55	E200	LIGHTING PLAN
53 of 55	E300	ELECTRICAL SCHEDULES & DETAILS
54 of 55	E301	ELECTRICAL SCHEDULES & DETAILS
55 of 55	E400	ELECTRICAL SITE PLAN

SEH

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

RYAN FALCH, PE

DATE 05/17/2023 LICENSE NO. 60494

DULUTH INTERNATIONAL AIRPORT

SKY HARBOR AIRPORT
2023 RECONSTRUCT TERMINAL BUILDING
DULUTH, MN

SEH Project	DULAI_172133
Checked By	RF
Drawn By	ALS

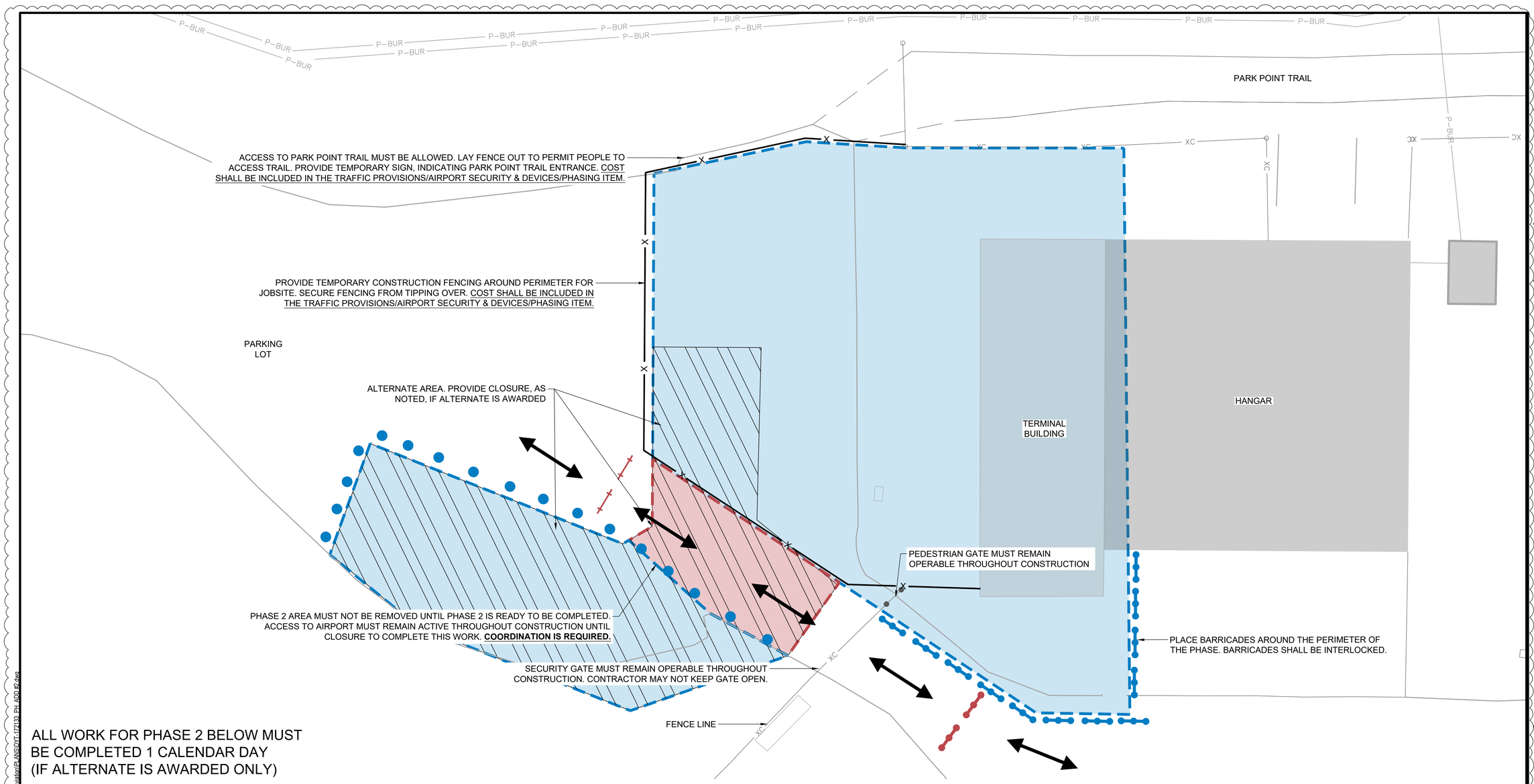
Project Status	Issue Date
CONSTRUCTION PLANS	05/17/2023

REVISION SCHEDULE

REV. #	DESCRIPTION	DATE
1	ADDENDUM #2	6/2/2023

TABLE OF CONTENTS

G0.01

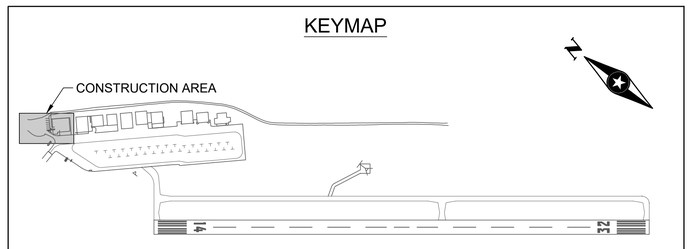


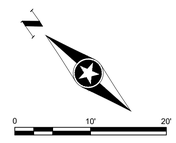
ALL WORK FOR PHASE 2 BELOW MUST BE COMPLETED 1 CALENDAR DAY (IF ALTERNATE IS AWARDED ONLY)

PHASE 2 AREA - ACCESS DRIVE TO AIRPORT

1. NOTIFY AIRPORT 72-HOURS IN ADVANCE OF WORK COMMENCING.
2. PLACE BARRICADES AS SHOWN ON THE PLAN.
3. REMOVE ASPHALT, AGGREGATE BASE AND SUBBASE TO PLAN ELEVATIONS.
4. PLACE GEOTEXTILE FABRIC, SUBBASE AND AGGREGATE MATERIAL.
5. PLACE ASPHALT - BASE COURSE LAYER. (SEPARATE CLOSURE FOR PLACEMENT OF ALL HMA SURFACE COURSE LAYER)
6. SWEEP PAVEMENT CLEAR OF FOD BEFORE OPENING TO VEHICLE TRAFFIC TO ENTER AIRFIELD. INSPECTION BY AIRPORT AND/OR ENGINEER BEFORE OPENING TO VEHICLE TRAFFIC.
7. REMOVE BARRICADES.

KEYMAP





LEGEND

- PHASE 1 (THROUGHOUT CONSTRUCTION)
- PHASE 2 (1 CALENDAR DAY CLOSURE)
- ALTERNATE AREA (CONSTRUCT ONLY IF AWARDED)
- X — 6-FT TEMPORARY FENCE (SECURED AND WEIGHTED DOWN)
- XC — EXISTING FENCE
- LOW PROFILE BARRICADE - PHASE 1
- LOW PROFILE BARRICADE - PHASE 2
- VEHICLE ACCESS FOR TENANTS - PHASE 1
- TYPE III BARRICADE (LIGHTED)
- TRAFFIC CONTROL DRUM (NON-LIGHTED)

GENERAL PHASING NOTES:

1. THERE MUST BE ACCESS TO THE AIRFIELD AT ALL TIMES, EXCEPT DURING PHASE 2. CLOSURE IS LIMITED TO 1 CALENDAR DAY TO COMPLETE WORK INDICATED ON THE SHEET. UNDER NO CIRCUMSTANCES MAY PHASE 2 AREA BE CLOSED LONGER THAN A CALENDAR DAY OR CONSECUTIVE CALENDAR DAYS.
2. PHASE 2 AREA PAVEMENTS MUST NOT BE REMOVED UNTIL PHASE 2 BEGINS.
3. PHASE 2 WORK AREA INCLUDES BITUMINOUS/AGGREGATE REMOVALS AND COMPLETION OF TYPICAL PAVEMENT SECTION THROUGH BITUMINOUS BASE COURSE. THIS WORK MUST BE COMPLETED IN 1 CALENDAR DAY. COORDINATION WITH PAVING SCHEDULE IS REQUIRED.
4. AN ADDITIONAL CLOSURE WILL BE REQUIRED TO COMPLETE THE FINAL BITUMINOUS PAVING LIFT.
5. **PHASE 2 WORK MUST BE COORDINATED WITH 72-HRS NOTICE. CONTRACTOR TO NOTIFY AIRPORT PRIOR TO WORK BEING COMPLETED. TENANT NOTIFICATION IS REQUIRED.**
6. THE CONTRACTOR MUST PROVIDE TEMPORARY PERIMETER FENCING ALONG PAVEMENT REMOVAL LIMITS TO ENSURE A SECURE SITE. THE FENCE MUST BE SECURED TO THE GROUND TO PREVENT TIPPING AND MAINTAINED THROUGHOUT CONSTRUCTION. THE COST SHALL BE INCLUDED IN TRAFFIC CONTROL ITEM.
7. BARRICADES NOT SHOWN TO SCALE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ADEQUATE AMOUNT OF BARRICADES.

SEH

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

RYAN FALCH, PE
DATE 05/17/2023 LICENSE NO. 60494

DULUTH INTERNATIONAL AIRPORT

SKY HARBOR AIRPORT
2023 RECONSTRUCT TERMINAL BUILDING
DULUTH, MN

SEH Project	DULAI_172133
Checked By	RF
Drawn By	ALS

Project Status	Issue Date
CONSTRUCTION PLANS	05/17/2023

REVISION SCHEDULE

REV. #	DESCRIPTION	DATE
1	ADDENDUM #2	6/2/2023

CONSTRUCTION PHASING PLAN

G1.10

GENERAL NOTES:

1. THE EXISTING UTILITY LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MAY NOT INCLUDE ALL UTILITIES PRESENT. THE CONTRACTOR SHALL BE RESPONSIBLE TO CALL MINNESOTA'S ONE-CALL NOTIFICATION CENTER (GSOC) AT 1-800-252-1166, AND COORDINATE FIELD LOCATIONS OF EXISTING UNDERGROUND UTILITIES PRIOR TO BEGINNING GRADING AND UTILITY WORK. THE CONTRACTOR SHALL IMMEDIATELY REPAIR ANY UTILITIES DAMAGED DURING CONSTRUCTION TO THE SATISFACTION OF THE UTILITY OWNER AT NO COST.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS INCLUDING APPLICABLE CITY OF DULUTH PERMITS AND PAY ALL FEES AS REQUIRED BY THE CONSTRUCTION COVERED IN THESE PLANS.
3. ALL WORK SHALL CONFORM TO APPLICABLE LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS.
4. THE CONTRACTOR SHALL CONTACT THE ENGINEER IMMEDIATELY UPON DISCOVERY OF ANY ERRORS OR INCONSISTENCIES.
5. ALL ESTIMATES OF QUANTITIES ARE FOR INFORMATIONAL PURPOSES ONLY. THE CONTRACTOR AND SUBCONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING ALL QUANTITIES THROUGH CERTIFIED SURVEYS OR AGREEMENTS WITH ENGINEERING STAFF PRIOR TO EXCAVATION AND EMBANKMENT EFFORTS. THE CONTRACTOR SHALL PROVIDE ALL WORK AND MATERIALS AS SHOWN ON THE PLANS.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ALL EXISTING AREAS, PAVEMENTS, STRUCTURES, OR OTHER FACILITIES DAMAGED DURING CONSTRUCTION ACTIVITIES TO EQUAL OR BETTER CONDITION.
7. THE CONTRACTOR SHALL REMOVE ALL DEBRIS RESULTING FROM WORK UNDER THIS CONTRACT TO AN APPROVED DUMP SITE.
8. THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL BE GOVERN EXCEPT AS MODIFIED BY THE SPECIFICATIONS FOR THIS PROJECT.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE OWNER OR THE OWNER'S REPRESENTATIVE WITH REDLINED PLANS AND AS-BUILTS SURVEYS, CERTIFIED BY A PROFESSIONAL LAND SURVEYOR IN THE STATE OF MINNESOTA.
10. LOCATING OF ANY AIRPORT OWNED UTILITIES SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND INCIDENTAL TO THE PROJECT.
11. CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION STAKING, PAID UNDER FIELD ENGINEERING BID ITEM AND PERMITTING, PAID FOR UNDER GENERAL CONDITIONS.
12. CONTRACTOR STORAGE AREA - IT IS EXPECTED THE CONTRACTOR STORAGE AREA WILL BE USED BY TWO SEPARATE PROJECTS OVER THE DURATION OF THIS PROJECT. THE CONTRACTOR SHALL COORDINATE WITH THE OTHER PROJECT CONTRACTOR THROUGHOUT CONSTRUCTION TO ENSURE ADEQUATE SPACING, USE AND EFFORTS BETWEEN BOTH PARTIES.

GRADING NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING THE PUBLIC STREETS AND ACCESS ROUTES IN THE VICINITY OF THE JOB SITE CLEAN AND FREE OF ROCKS, SOILS AND DEBRIS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTROLLING DOWNSTREAM EROSION AND SILTATION DURING ALL PHASES OF CONSTRUCTION. EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO BEGINNING SOIL DISTURBANCE ACTIVITIES.
3. CONTRACTOR AND ENGINEER TO VERIFY EXISTING TOPSOIL CONDITIONS BEFORE PROPOSED CONSTRUCTION AREAS ARE TO BE DISTURBED. STRIPPING, STOCKPILING, PLACING OF TOPSOIL CONSIDERED INCIDENTAL TO THE PROJECT.
4. **IF THE CONTRACTOR ENCOUNTERS SAND MATERIAL NOT SUITABLE FOR REUSE, THE MATERIAL MUST REMAIN ONSITE. THE CONTRACTOR SHALL PLACE THE MATERIAL IN THE CONTRACTOR STORAGE AREA AND GRADE TO DRAIN FOR RESTORATION.**

SECURITY REQUIREMENTS:

1. GENERAL INTENT: IT IS INTENDED THAT THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS OF THE AIRPORT SECURITY PLAN AND WITH THE SECURITY REQUIREMENTS SPECIFIED BY AIRPORT OPERATIONS. THE CONTRACTOR SHALL DESIGNATE TO THE ENGINEER AND AIRPORT OPERATIONS, IN WRITING, THE NAME OF HIS "CONTRACTOR SECURITY AND SAFETY OFFICER (CSSO)." THE CSSO SHALL BE AN EMPLOYEE OF THE CONTRACTOR AND REPRESENT THE CONTRACTOR ON THE SECURITY REQUIREMENTS FOR THE CONTRACT. THE AIRPORT WILL PROVIDE A SECURITY PLAN OVERVIEW PRIOR TO CONSTRUCTION COMMENCING. (1)
2. IDENTIFICATION - VEHICLES: THE CONTRACTOR, THROUGH THE CSSO, SHALL ESTABLISH AND MAINTAIN A LIST OF CONTRACTOR AND SUBCONTRACTOR VEHICLES AUTHORIZED TO OPERATE ON THE SITE OR DELIVER TO THE SITE. THE LIST MAY BE UPDATED, AS NEEDED, TO ACCOUNT FOR DIFFERENT OPERATIONAL COMPONENTS OF THE WORK.
3. SECURE ACCESS TO THE AIRFIELD: CONTRACTOR'S ACCESS TO THE SITE SHALL BE AS SHOWN ON THE PLANS. NO OTHER ACCESS POINTS SHALL BE ALLOWED UNLESS APPROVED BY AIRPORT OPERATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TRAFFIC CONTROL TO AND FROM THE VARIOUS CONSTRUCTION AREAS ON THE SITE.
4. TEMPORARY FENCING: PROVIDE TEMPORARY FENCING, AS REQUIRED AND WHERE EXISTING FENCE HAS BEEN REMOVED FOR CONSTRUCTION, TO MAINTAIN SECURITY PERIMETER. THIS COST SHALL BE INCLUDED IN TRAFFIC PROVISIONS/AIRPORT SECURITY & DEVICE/PHASING ITEM. TEMPORARY FENCING SHALL INCLUDE PROVIDING SECURING FENCE FROM WIND/TIPPING OVER AND MAINTAINING THROUGHOUT. (1)

PROJECT SIGNAGE

A

NTS

PROJECT SIGNAGE

B

NTS

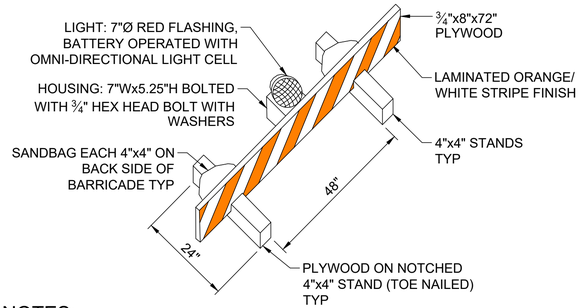
PROJECT SIGNAGE

C

NTS

SIGN NOTES:

1. SIGNS SHALL BE ALUMINUM AT LEAST 0.10" THICK.
2. SIGNS TO BE PLACED, SUPPLIED AND MAINTAINED BY CONTRACTOR.
3. SIGNS SHALL BE ORANGE RETROREFLECTIVE BACKGROUND WITH THE EXCEPTION OF THE BLACK LETTERING.

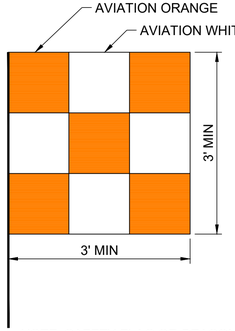


NOTES:

1. BARRICADES SHALL BE CONSTRUCTED AND PLACED A MAXIMUM OF 20' APART ACROSS THE FULL WIDTH OF CLOSED PAVEMENT PER FAA ADVISORY CIRCULAR 150/5370-2G.
2. ALL LOW PROFILE BARRICADES SHALL BE CONSTRUCTED AS SHOWN UNLESS OTHERWISE APPROVED BY THE ENGINEER.

LOW PROFILE BARRICADE

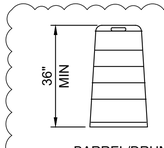
NTS



NOTE: SAFETY FLAG OR BEACON SHALL BE PROMINENTLY DISPLAYED ON ALL CONSTRUCTION EQUIPMENT.

CONSTRUCTION SAFETY FLAG

NTS



NOTES:

1. BARRICADES SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
2. EXACT INSTALLATION LOCATIONS TO BE DETERMINED BY THE ENGINEER.
3. DRUMS ARE INCIDENTAL TO TRAFFIC PROVISIONS/AIRPORT SECURITY & DEVICE/PHASING ITEM.

BARREL/DRUM BARRICADE DETAIL

NTS (1)

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2023 RECONSTRUCT TERMINAL BUILDING
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SEH Project	DULAI_172133
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Project Status	**Issue Date**
CONSTRUCTION PLANS	05/17/2023

REVISION SCHEDULE

REV. #	DESCRIPTION	DATE
1	ADDENDUM #2	6/2/2023

GENERAL NOTES

G2.00

STATEMENT OF ESTIMATED QUANTITIES

BASE BID SCHEDULE A - CONSTRUCT SITE WORK (FAA ELIGIBLE)

LINE NO.	ITEM NO.	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	FINAL QUANTITY
1	C-105	MOBILIZATION (10% OF OVERALL BID SCHEDULE A)	LS	1	
2	70-08	TRAFFIC PROVISIONS/AIRPORT SECURITY & DEVICES/PHASING	LS	1	
3	70-08	ORANGE CONSTRUCTION FENCE	LF	150	
4	01 51 00	TEMPORARY UTILITIES	LS	1	
5	01 55 15	MAINTENANCE AND RESTORATION OF HAUL ROADS	LS	1	
6	01 58 13	CONSTRUCTION PROJECT SIGN ($1,000 MAXIMUM ALLOWED)	LS	1	
7	01 71 23	FIELD ENGINEERING	LS	1	
8	02 41 33	REMOVE AND SALVAGE EXISTING SIGN AND POST	LS	3	
9	02 41 33	REMOVE AND SALVAGE EXISTING 6-FT CHAIN-LINK FENCE (BY ENTRANCE GATE)	LF	15	
10	02 41 33	REMOVE EXISTING 6-FT CHAIN-LINK FENCE (BY TRAIL)	LF	25	
11	2540.602	RELOCATE MAIL BOX SUPPORT	EACH	1	
12	02 41 33	REMOVE SEWER PIPE (SANITARY)	LF	15	
13	02 41 33	REMOVE WATER SERVICE PIPE (INCLUDING DISCONNECTION OF CURB STOP & CAPPING)	LF	25	
14	02 41 33	REMOVE CONCRETE SIDEWALK, PATIO & APPROACH	SF	475	
15	02 41 33	REMOVE DRY WELL	LS	1	
16	02 41 33	REMOVE & RELOCATE TELEPHONE LINE	LS	1	
17	02 41 33	REMOVE ELECTRICAL HANDHOLE	EACH	1	
18	02 41 33	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LF	245	
19	02 41 33	REMOVE BITUMINOUS PAVEMENT (6.5" THICK)	SY	300	
20	02 41 13	SELECTIVE DEMOLITION	LS	1	
21	02 41 13	REGULATED WASTE REMOVAL	LS	1	
22	02 82 20	REGULATED ABESTOS REMOVAL	LS	1	
23	P-152	COMMON EXCAVATION (EV)	CY	135	
24	P-152	UNCLASSIFIED OVER EXCAVATION (EV)	CY	50	
25	P-152	BORROW (EV) (OFFSITE)	CY	50	
26	31 25 10	ROCK CONSTRUCTION ENTRANCE (INCLUDES MAINTENANCE AND REMOVAL)	EACH	1	
27	31 25 10	SILT FENCE, TYPE PREASSEMBLED (INCLUDES MAINTENANCE AND REMOVAL)	LF	835	
28	31 25 10	SEDIMENT CONTROL LOG (INCLUDES MAINTENANCE AND REMOVAL)	LF	225	
29	31 34 10	GEOTEXTILE FABRIC, TYPE 7 (SEPARATION FABRIC)	SY	300	
30	32 10 22	SUBBASE MATERIAL (SELECT GRANULAR MATERIAL) (CV)	CY	85	
31	32 11 22	AGGREGATE BASE (CLASS 5) (CV)	CY	65	
32	32 12 13	BITUMINOUS MATERIAL FOR TACK COAT	GAL	10	
33	32 12 16	BITUMINOUS 1.75" (SPWEA340C)	TON	30	
34	32 12 16	BITUMINOUS 2.25" (SPNWB330C)	TON	40	
35	32 13 10	6" CONCRETE PAVEMENT (HANGAR APPROACH)	SY	15	
36	32 16 20	CONCRETE CURBING (6" HEIGHT - V CURB)	LF	110	
37	32 17 23	PAVEMENT MARKING LINEAR, 4-INCH WIDTH, WHITE TYPE I (EPOXY)	LF	140	
38	32 17 23	PAVEMENT MARKING MESSAGES, HANDICAP SYMBOL & NO PARKING, WHITE TYPE I (EPOXY)	EACH	2	
39	32 18 20	4-INCH CONCRETE SIDEWALK (5-FOOT WIDE, INCLUDES SLOPED WALK)	SF	430	
40	32 18 20	DETECTABLE WARNING PANELS	SF	15	
41	32 40 00	HANDICAP PARKING AND NO PARKING SIGNS (INCLUDING POST AND FASTENERS)	EACH	2	
42	2503.603	4" PVC SANITARY SERVICE PIPE (SDR 35)	LF	75	
43	2503.603	4" PVC SANITARY CLEANOUT (INCLUDING BENDS AND FITTINGS)	EACH	2	
44	33 36 10	INSTALL 1,000 GALLON SEPTIC HOLDING TANK (FOR HANGAR FLOOR DRAINS)	LS	1	
45	33 36 10	UPGRADES TO EXISTING 1,500 SEPTIC TANK	LS	1	
46	2504.602	8" x 2" TAPPING TEE W/ ELECTROFUSION SADDLE	EACH	1	
47	2504.602	2" CURB STOP AND BOX	EACH	1	
48	2504.602	WATER TRACER BOX	EACH	1	
49	2504.603	2" HDPE SDR 11 SERVICE PIPE (INCLUDING FITTINGS AND TRACE WIRE)	LF	20	
50	F-162.5.1	CHAIN-LINK FENCE, 6-FT HEIGHT (REINSTALL SALVAGED)	LF	15	
51	32 90 00	LANDSCAPING (INCLUDES ROCK & FABRIC)	SF	800	
52	T-901.5.1	TURF ESTABLISHMENT (INCLUDES FERTILIZER, SEED, MULCHING AND STABLIZATION)	LS	1	
53	T-905.5.1	SELECT TOPSOIL BORROW (SALVAGED) (CV)	CY	75	

BASE BID SCHEDULE B - CONSTRUCT TERMINAL BUILDING (PRORATED - FAA ATP ELIGIBLE)

LINE NO.	ITEM NO.	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	FINAL QUANTITY
54	GENERAL	GENERAL CONDITIONS	LS	1	
55	01 71 23	FIELD ENGINEERING	LS	1	
56	31 22 20	STRUCTURE EXCAVATION	CY	675	
57	31 22 30	STRUCTURE BACKFILL (ENGINEERED FILL)	CY	675	
58	P-152	UNCLASSIFIED OVER EXCAVATION (EV)	CY	100	
59	ARCH/STRC.	BUILDING CONSTRUCTION	LS	1	
60	MECH.	BUIDLING PLUMBING AND HVAC	LS	1	
61	ELEC.	BUILDING ELECTRICAL AND UTILITIES	LS	1	

ALTERNATE A - CONSTRUCT BUILDING ELEMENTS (FAA INELIGIBLE)

LINE NO.	ITEM NO.	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	FINAL QUANTITY
62	GENERAL	GENERAL CONDITIONS	LS	1	
63	ARCH.	KITCHNETTE AREA (COUNTERTOP, BASE CABINETS, SINK, AND ASSOCIATED PLUMBING TO KITCHENTTE SINK)	LS	1	
64	ELEC.	CONDUIT & WIRING INSTALLATION FOR FUTURE SECURITY CAMERAS	LS	1	
65	ELEC.	ELECTRICAL PEDESTAL FOR EXTERIOR VENDING TRUCK (INCLUDING CONDUIT & WIRING)	LS	1	
66	32 18 20	EXTERIOR 5" CONCRETE SLAB (8' x 14') (1)	SF	112	
67	31 34 10	GEOTEXTILE FABRIC, TYPE 7 (SEPARATION FABRIC)	SY	25	
68	32 10 22	SUBBASE MATERIAL (SELECT GRANULAR MATERIAL) (CV)	CY	10	
69	32 11 22	AGGREGATE BASE (CLASS 5) (CV)	CY	10	
70	32 93 12	LANDSCAPE PLANTING, SIZE 5 GALLON (DECIDUOUS SHRUB)	EACH	17	
71	T-905.5.2	SELECT TOPSOIL BORROW (IMPORTED) (CV)	CY	5	

ALTERNATE B - RECONSTRUCT AUTO PARKING AREA (FAA BIL ELIGIBLE)

LINE NO.	ITEM NO.	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	FINAL QUANTITY
72	C-105	MOBILIZATION (10% OF OVERALL BID SCHEDULE ALTERNATE B)	LS	1	
73	70-08	TRAFFIC PROVISIONS/AIRPORT SECURITY & DEVICES/PHASING	LS	1	
74	01 71 23	FIELD ENGINEERING	LS	1	
75	02 41 33	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LF	130	
76	02 41 33	REMOVE BITUMINOUS PAVEMENT (6.5" THICK)	SY	350	
77	P-152	COMMON EXCAVATION (EV)	CY	205	
78	31 34 10	GEOTEXTILE FABRIC, TYPE 7 (SEPARATION FABRIC)	SY	385	
79	32 10 22	SUBBASE MATERIAL (GRANULAR) (CV)	CY	145	
80	32 11 22	AGGREGATE BASE (CLASS 5) (CV)	CY	100	
81	32 12 13	BITUMINOUS MATERIAL FOR TACK COAT	GAL	20	
82	32 12 16	BITUMINOUS 1.75" (SPNWB330B)	TON	50	
83	32 12 16	BITUMINOUS 2.25" (SPWEA340B)	TON	65	
84	32 17 23	PAVEMENT MARKING LINEAR, 4-INCH WIDTH, WHITE TYPE I (EPOXY)	LF	550	
85	32 17 23	PAVEMENT MARKING MESSAGE, NO PARKING, WHITE TYPE 1 (EPOXY)	EACH	1	
86	32 92 12	TURF ESTABLISHMENT (INCLUDES FERTILIZER, SEED, MULCHING AND STABLIZATION)	LS	1	
87	T-905.5.1	SELECT TOPSOIL BORROW (SALVAGED) (CV)	CY	20	

ALTERNATE C - REPLACE EXISTING HANGAR ROOFING AND SIDING (FAA BIL ELIGIBLE)

LINE NO.	ITEM NO.	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	FINAL QUANTITY
88	GENERAL	GENERAL CONDITIONS	LS	1	
89	ARCH.	REMOVE EXISTING HANGAR ROOFING AND SIDING	LS	1	
90	ARCH.	INSTALL METAL ROOFING	LS	1	
91	ARCH.	INSTALL METAL WALL PANEL SIDING	LS	1	

ALTERNATE D - PROVIDE INTERIM TERMINAL FACILITY AND TOILET FACILITIES (FAA ATP ELIGIBLE)

LINE NO.	ITEM NO.	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	FINAL QUANTITY
92	C-105	MOBILIZATION (10% OF OVERALL BID SCHEDULE ALTERNATE D)	LS	1	
93	01 52 13	ADA ACCESSIBLE INTERIM TERMINAL FACILITY	LS	1	
94	01 52 13	ADA ACCESSIBLE TEMPORARY SANITARY FACILITIES	LS	1	

STATEMENT OF ESTIMATE QUANTITY NOTES:

ITEMS NO.1/72/92: LIMITED TO 10% OF THE TOTAL PROJECT COSTS RELATED TO THE BID SCHEDULE.
ITEM NO.2: INCLUDES INSTALLATION, MAINTENANCE AND REMOVAL OF ALL TRAFFIC CONTROL SIGNAGE, BARRICADES, TEMPORARY FENCING, AND TRAFFIC CONTROL DEVICES.
ITEM NO.4: PROVIDE TEMPORARY UTILITIES FOR FUELING MONITORING EQUIPMENT, FUEL SYSTEM, AWOS, SECURITY GATE, AND CAMERA OBSERVATION SETUP.
ITEM NO. 7: PROVIDING CONSTRUCTION SURVEY THROUGHOUT THE PROJECT, INCLUDING DOCUMENTING ELEVATIONS OF STRUCTURE EXCAVATION, STRUCTURAL FILL, SUBGRADE, BASE COURSE AND OTHER QUANTITY SURVEYS SUPPLIED TO THE ENGINEER FOR PAYMENT.
ITEM NO. 11: COORDINATION WITH USPS TO RELOCATE MAILBOX AND TEMPORARILY SET UP LOCATION FOR DURATION OF PROJECT.
ITEM NO. 14 REMOVING CONCRETE SIDEWALK, CONCRETE PATIO AND ASSOCIATED LANDSCAPING ADJACENT TO THE SIDEWALK.
ITEM NO. 16: COORDINATION WITH LOCAL PROVIDER TO RELOCATE EXISTING TELEPHONE LINE OUTSIDE BUILDING FOOTPRINT.
ITEM NO. 36: PROVIDING CONCRETE PAVEMENT THAT WAS REMOVED FOR INSTALLATION OF FOUNDATION AND STAIRS NEXT TO EXISTING HANGAR APPROACH. THIS ITEM INCLUDES PROVIDING AND INSTALLING TIE BARS AND NECESSARY DRILLING TO EXISTING CONCRETE PAVEMENT.
ITEM NO. 39: CONSTRUCTING SLOPED SIDEWALK INCLUDING REINFORCEMENT AND THICKENED EDGE.
ITEMS NO. 42/43: PROVIDING SANITARY SERVICE TO THE TERMINAL BUILDING. ITEMS INCIDENTAL TO THE WORK INCLUDE TRACER WIRE, PVC FITTINGS, TESTING AND OTHER APPLICABLE CITY OF DULUTH SPECIFICATION REQUIREMENTS.
ITEM NO. 44: PROVIDING SEPTIC HOLDING TANK FOR EXISTING HANGAR DRAINS, INCLUDING CONNECTIONS, PERMITTING, OVERFILL ALARM, EQUIPMENT AND ACCESSORIES TO MAKE AN OPERABLE SYSTEM.
ITEM NO. 45: PROVIDING UPGRADES TO EXISTING SEPTIC SYSTEM TANK, INCLUDING REPLACING PUMP, FLOAT, REMOVING EXISTING ELECTRICAL SERVICE, OVERFILL ALARM AND ACCESSORIES TO MAKE AN OPERABLE SYSTEM.
ITEMS NO. 46-49: PROVIDING WATER SERVICE TO THE TERMINAL BUILDING. ITEMS INCIDENTAL TO THE WORK INCLUDE TRACER WIRE, FITTINGS, BACKFILL, TRENCHING, TESTING, AND OTHER APPLICABLE CITY OF DULUTH SPECIFICATION REQUIREMENTS.
ITEM NO. 50: REINSTALLING SALVAGED 6-FT HIGH FENCE, POSTS, FABRIC AND FASTENERS.
ITEM NO. 51: INSTALLING LANDSCAPE ROCK AND WEED BARRIER FABRIC.
ITEMS NO. 54/62/88: THE TERM "GENERAL CONDITIONS" IS USED TO DESCRIBE EXPENSES THAT SUPPORT A PROJECT WITHOUT DIRECTLY RELATING TO JOBSITE ACTIVITIES, INCLUDING BUT NOT LIMITED TO SITE MANAGEMENT, PERMITTING, PROJECT MANAGEMENT AND COORDINATION FOR EACH SCHEDULE.
ITEM NO 63: PROVIDING AND INSTALLING BASE CABINETS, COUNTERTOP AND SINK IN KITCHENETTE AREA AND INSTALLING ASSOCIATED PLUMBING TO SUPPLY THE SINK.
ITEM NO. 64: PROVIDING CONDUIT AND WIRING FOR FUTURE INSTALLATION OF SECURITY CAMERAS.
ITEM NO. 65: PROVIDING ELECTRICAL PEDESTAL FOR EXTERIOR VENDING TRUCK, WHICH INCLUDES CONDUIT, WIRING AND BORING (IF EXISTING DUCT IS NOT SUITABLE) TO MAKE AN OPERABLE SYSTEM.
ITEM NO. 66: PROVIDING CONCRETE SLAB ON AIRSIDE OF BUILDING SITE, INCLUDING REINFORCEMENT AND THICKENED EDGE.
ITEM NO. 70/71: PROVIDING LANDSCAPE PLANTING ALONG THE TERMINAL BUILDING AND IMPORTED TOPSOIL FOR PLANTING MIX.
ITEM NO. 93: PROVIDING ADA-COMPLIANT INTERIM TERMINAL AND OTHER ITEMS TO SET UP THE FACILITY.
ITEM NO. 94: PROVIDING TEMPORARY TOILET FACILITIES FOR DURATION OF PROJECT (ADA-COMPLIANT AND NON-ADA COMPLIANT).

ALTERNATE A: SCHEDULE IS TO INSTALL FAA INELIGIBLE BUILDING ELEMENTS FOR THE TERMINAL BUILDING.
ALTERNATE B: SCHEDULE IS TO CONSTRUCT AN FAA INELIGIBLE ADDITIONAL PARKING AREA FOR AUTO PARKING SPOTS.
ALTERNATE C: SCHEDULE IS TO REMOVE AND REPLACE SIDING AND ROOFING ASSOCIATED WITH THE EXISTING HANGAR.
ALTERNATE D: SCHEDULE IS TO PROVIDE TEMPORARY INTERIM TERMINAL FACILITY AND TOILET FACILITIES. (2) (1)

SEH

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RYAN FALCH, PE
DATE 05/17/2023 LICENSE NO. 60494

DULUTH INTERNATIONAL AIRPORT

SKY HARBOR AIRPORT
2023 RECONSTRUCT TERMINAL BUILDING
DULUTH, MN

SEH Project	DULAI_172133
Checked By	RF
Drawn By	ALS

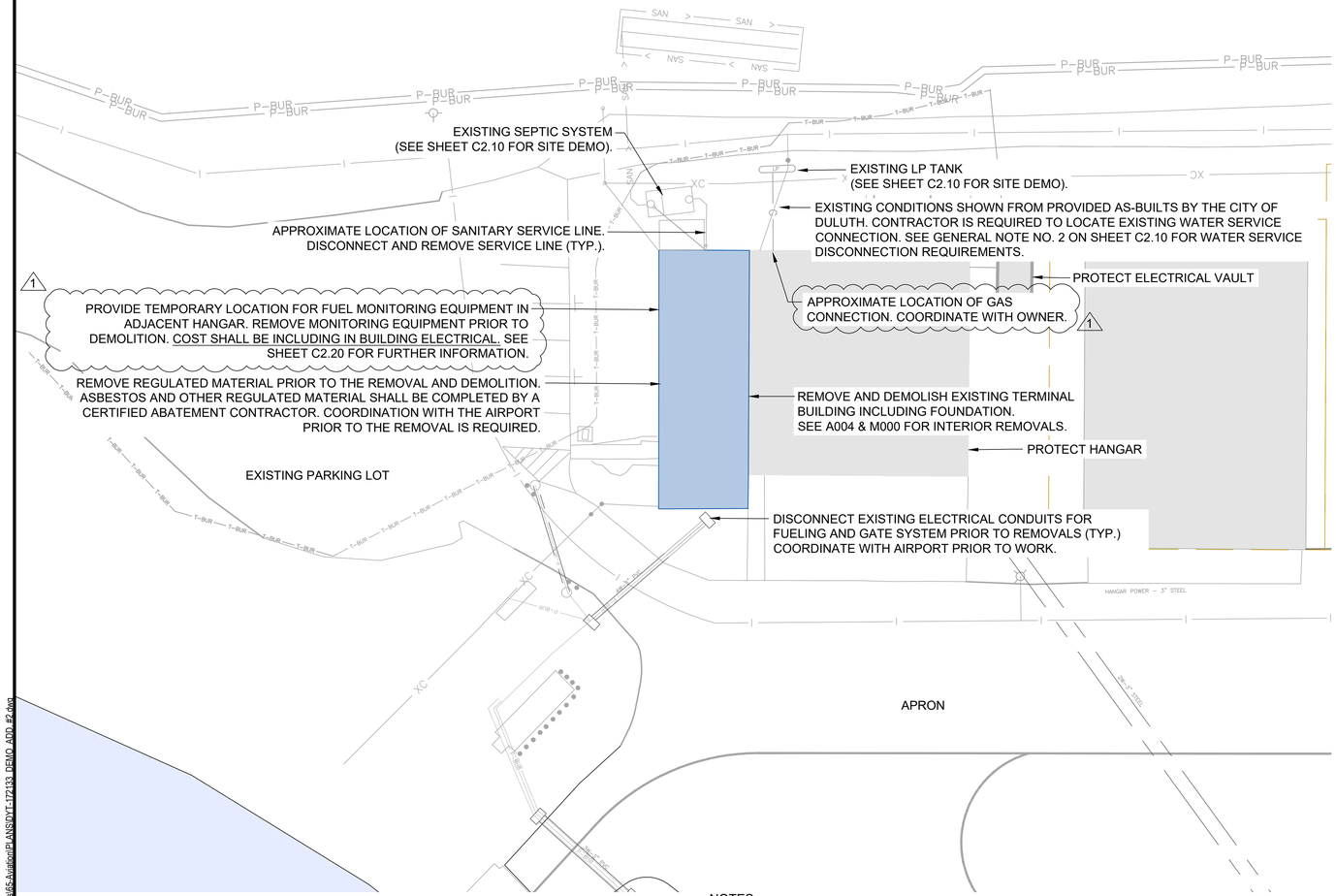
Project Status	Issue Date
CONSTRUCTION PLANS	05/17/2023

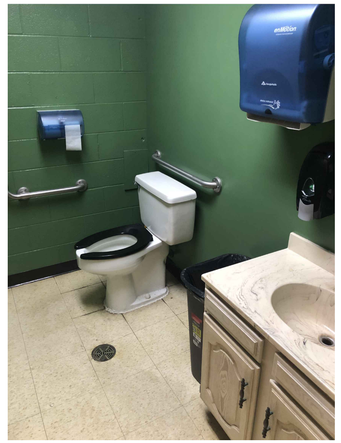
REVISION SCHEDULE

REV. #	DESCRIPTION	DATE
1	ADDENDUM #1	5/30/2023
2	ADDENDUM #2	6/2/2023

STATEMENT OF ESTIMATED QUANTITIES

G2.10



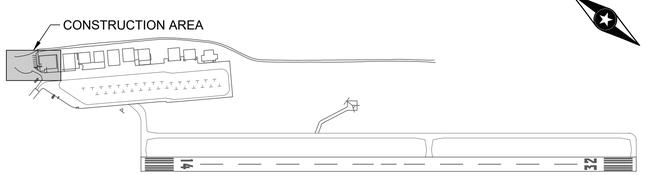


LEGEND

REMOVE EXISTING TERMINAL BUILDING

0 20' 40'

KEYMAP



NOTES:

1. **PRIOR TO ANY OTHER WORK, THE INTERIM TERMINAL FACILITY AND OTHER TEMPORARY CONDITIONS MUST BE SET UP AND OPERATIONAL. REFER TO SHEET C2.20.**
2. COORDINATE WITH ENGINEER, AIRPORT AND MNDOT PRIOR TO BEGINNING. EXISTING EQUIPMENT, MATERIALS AND ITEMS NEED TO BE REMOVED PRIOR TO DEMOLITION. INTERIM TERMINAL FACILITY MUST BE SET-UP PRIOR TO DEMOLITION AND REMOVALS. ADDITIONALLY, NOTIFY ENGINEER & AIRPORT A MINIMUM OF 3-DAYS PRIOR TO DISCONNECTION OF SERVICES.
3. EXISTING TERMINAL BUILDING IS KNOWN TO CONTAIN ASBESTOS CONTAINING MATERIALS (ACM) AND REGULATED WASTE MATERIALS (RWM). ASSESSMENT REPORT IS INCLUDED IN THE PROJECT MANUAL. (1)
4. MATERIALS INSIDE OF THE TERMINAL BUILDING TO BE REMOVED PRIOR TO DEMOLITION. MATERIALS INCLUDE BUT NOT LIMITED TO: FLUORESCENT LIGHT BULBS, THERMOSTATS, BALLASTS, EXIT SIGNS, FURNACE, SPACE HEATER CONTROLS, AND BOILERS. THIS WORK SHALL BE INCLUDED IN THE BID ITEM FOR REGULATED WASTE REMOVAL.
5. THE ABATEMENT CONTRACTOR SHALL CONFIRM AND VERIFY ASBESTOS CONTAINING MATERIALS IN THE BUILDING WALLS, CEILING AND ROOF FOR HIDDEN MATERIALS PRIOR TO DEMOLITION AND REMOVAL. THIS WORK SHALL BE INCLUDED IN THE BID ITEM FOR REGULATED ASBESTOS REMOVAL.
6. UTILITIES SHOWN ON PLANS ARE APPROXIMATE. ALL UTILITIES AND ELECTRICAL DUCTS TO BE PROTECTED BY CONTRACTOR. ANY DAMAGED UTILITIES TO BE REPAIRED BY CONTRACTOR AT NO COST TO OWNER.
7. CONCRETE HANGAR PADS, AIRPORT PARKING LOT, AND APRON PAVEMENT TO BE MATCHED AS DIRECTED BY THE ENGINEER. SAWCUTTING MAY BE NECESSARY TO PROPERLY MATCH EXISTING PAVEMENTS.
8. SEE SHEET C2.10 FOR SITE DEMOLITION.
9. COORDINATE DISCONNECTION AND TRANSFER OF INTERNET AND TELEPHONE LINES WITH TELECOMMUNICATION UTILITY. THIS IS RESPONSIBILITY OF THE CONTRACTOR. THE COST SHALL BE INCLUDED IN THE BID ITEM FOR REMOVE & RELOCATE TELEPHONE LINE FOR COORDINATION AND COMPLETING THE WORK.

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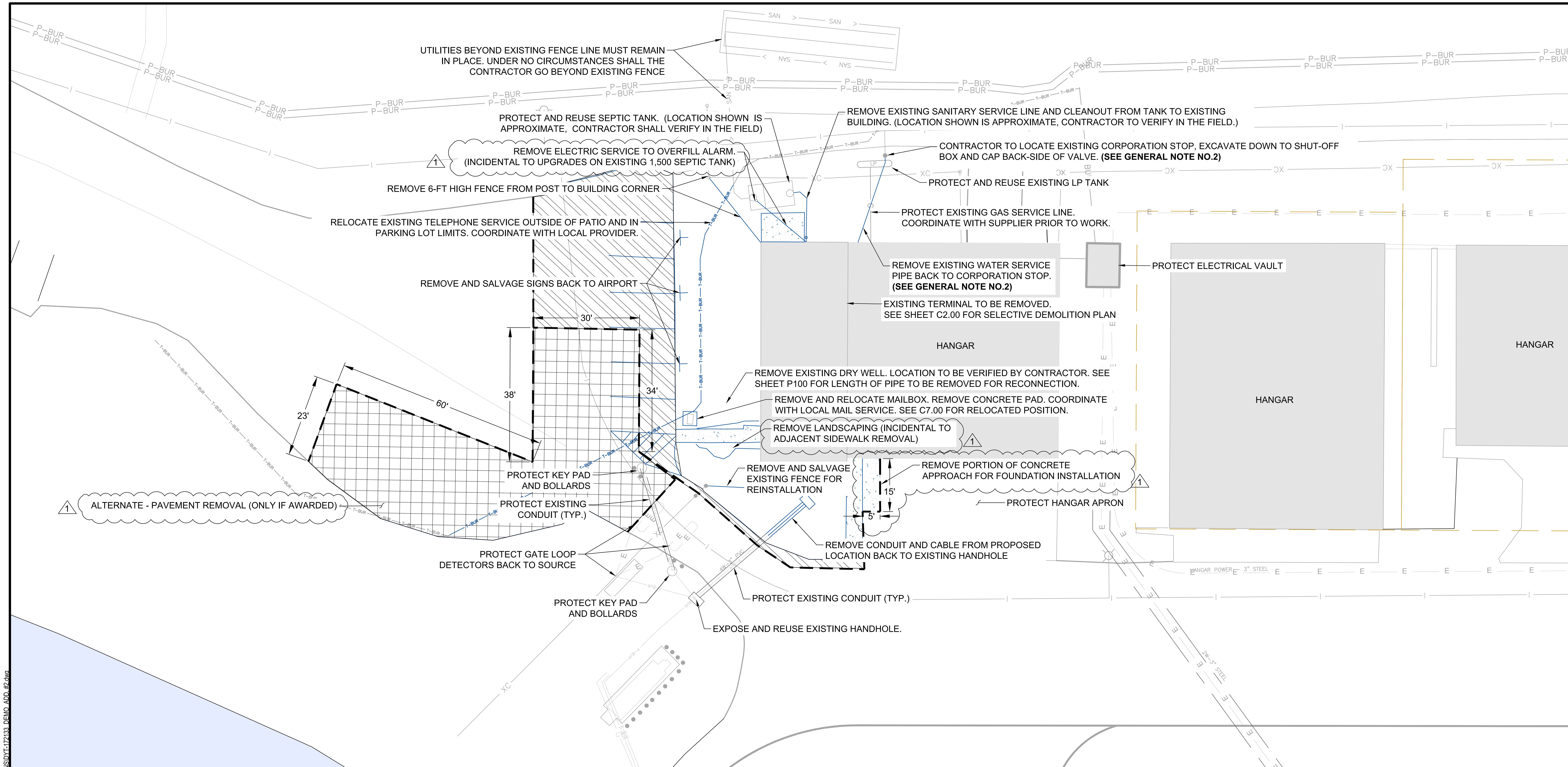
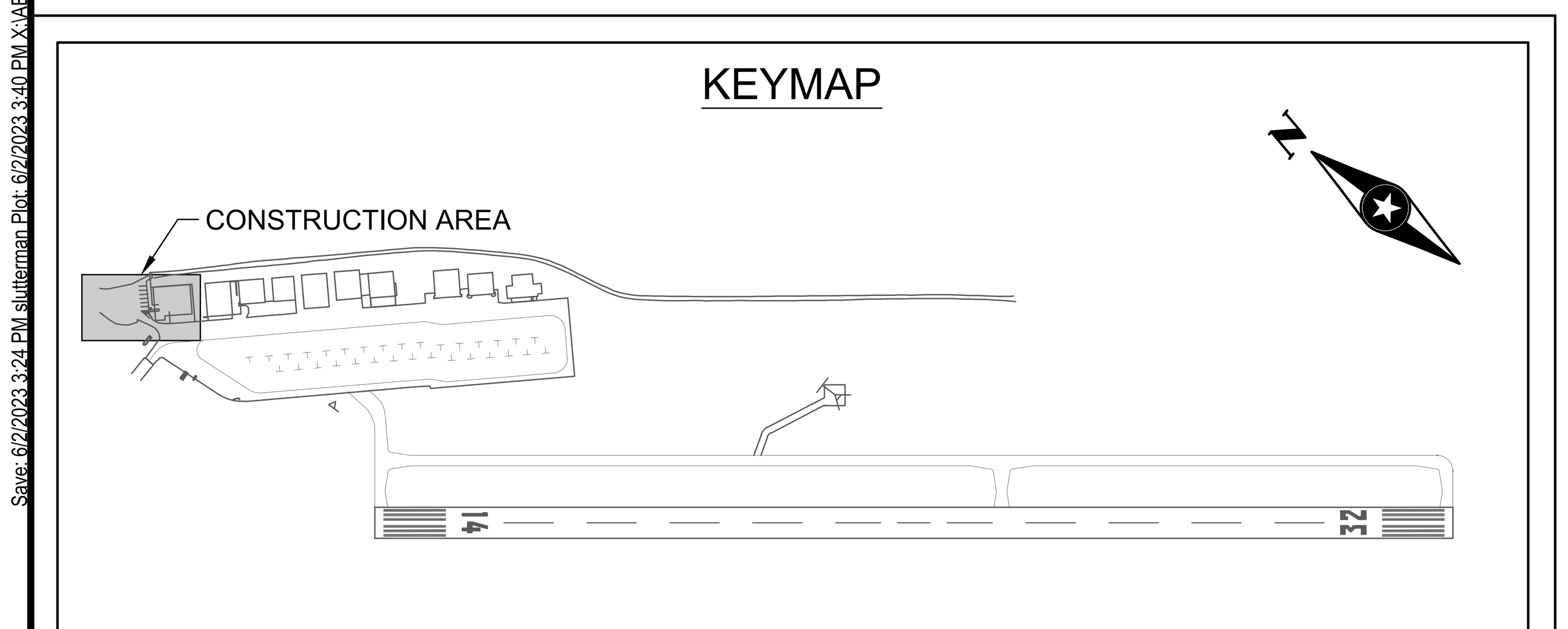
1	ADDENDUM #2	6/2/2023

DEMOLITION PLAN (BUILDING)

C2.00





LEGEND

- REMOVAL (PAVEMENT AND AGGREGATE)
- ALTERNATE - REMOVAL (PAVEMENT AND AGGREGATE)
- DEMO ITEMS
- SAWCUT LIMITS

NOTES:

1. PRIOR TO ANY OTHER WORK, THE INTERIM TERMINAL FACILITY MUST BE SET UP AND OPERATIONAL INCLUDING FUELING MONITORING EQUIPMENT WHICH SHALL BE TEMPORARILY SET UP IN THE HANGAR.
2. **REMOVAL OF EXISTING WATER SERVICE MUST NOT TAKE PLACE UNTIL NEW WATER SERVICE TO 8" HPDE WATER MAIN HAS BEEN INSTALLED, TESTED, AND OPERABLE. EXISTING WATER TO BUILDING MUST REMAIN OPERABLE FOR SERVICE TO TEMPORARY SANITARY FACILITY. IF SERVICE MUST BE DISCONNECTED, CONTRACTOR MUST PROVIDE ALTERNATIVE SETUP.**
3. UTILITIES SHOWN ON PLANS ARE APPROXIMATE. ALL UTILITIES AND ELECTRICAL DUCTS TO BE PROTECTED BY CONTRACTOR. ANY DAMAGED UTILITIES TO BE REPAIRED BY CONTRACTOR AT NO COST TO OWNER.
4. CONCRETE HANGAR PADS, AIRPORT PARKING LOT, AND APRON PAVEMENT TO BE MATCHED AS DIRECTED BY THE ENGINEER. SAWCUTTING MAY BE NECESSARY TO PROPERLY MATCH EXISTING PAVEMENTS.
5. ALL PAVEMENTS REMOVALS SHALL BE PERFORMED SUCH THAT NO DAMAGE IS DONE TO ADJACENT PAVEMENTS AND/OR UNDERLYING BASE LAYERS. DAMAGE TO PAVEMENTS AND UNDERLYING BASE LAYERS TO REMAIN CAUSED BY CONTRACTOR SHALL BE REPAIRED AT THE DIRECTION OF THE ENGINEER AT NO ADDITIONAL COST.
6. ALL SURFACES (PAVEMENT, TURF, OR OTHERS) SHALL BE RESTORED TO THEIR PRECONSTRUCTION CONDITION OR BETTER TO THE SATISFACTION OF THE ENGINEER AT NO ADDITIONAL COST.
7. ALL SAWCUTS ARE TO BE FULL DEPTH AND PROTECTED. PAYMENT WILL BE ONLY FOR ONE-TIME.
8. SEE SHEET C2.00 FOR SELECTIVE DEMOLITION.
9. OTHER THAN HMA, THE EXCAVATED MATERIAL FOR NEW TERMINAL BUILDING MAY BE USED OUTSIDE OF PAVEMENT LIMITS FOR FILL ON THE SLOPES. DISPOSE OF UNUSED MATERIAL OFFSITE. PLACEMENT OF EXCAVATED MATERIAL ON AREAS OUTSIDE OF PAVEMENT WILL BE PAID FOR BY COMMON BORROW.

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DEMOLITION PLAN (SITE)

C2.10

PROVIDE TEMPORARY DATA CABLE TO INTERIM TERMINAL FACILITY TO MAKE AN OPERABLE AWOS SYSTEM. COST SHALL BE INCLUDED IN THE BID ITEM FOR TEMPORARY UTILITIES.

INSTALL PERMANENT ANTENNA MOUNTS, AS SHOWN ON E400, ON EXISTING HANGAR FOR AWOS AND UNICOM RADIO PRIOR TO INSTALLATION OF INTERIM FACILITY. MOUNTS WILL ASSIST WORK BY OTHERS IN SETTING UP INTERIM TERMINAL FACILITY FOR AWOS EQUIPMENT. COST FOR MOUNTS SHALL BE INCLUDED IN THE BID ITEM FOR BUILDING ELECTRICAL.

DOOR ACCESS TO EXISTING HANGAR. SEE SHEET A004 FOR FURTHER INFORMATION. TEMPORARY CONSTRUCTION DOOR MAY BE REQUIRED.

EXISTING HANGAR BUILDING

IT IS EXPECTED THE OWNER WILL UTILIZE THE ADJACENT HANGAR DURING CONSTRUCTION, OTHER THAN DURING SELECTIVE DEMOLITION. THE CONTRACTOR WILL BE REQUIRED TO SEEK PERMISSION TO ACCESS AREA AS PRIVATE AIRCRAFT WILL BE STORED.

EXISTING TERMINAL BUILDING

PROVIDE TEMPORARY FENCING AND RAISED TARP TO CEILING INSIDE EXISTING HANGAR. COST FOR FENCING SHALL BE INCLUDED IN THE BID ITEM FOR TRAFFIC CONTROL AND FOR TARP SHALL BE SELECTIVE DEMOLITION.

8' (MAX)

PROVIDE TEMPORARY WATER SERVICE TO DEDICATED TOILET FACILITY. CONNECT TO EXISTING HOSE BIB. COST SHALL BE INCLUDED IN THE BID ITEM FOR TEMPORARY SANITARY FACILITIES.

EXPOSE AND CONNECT TEMPORARY UTILITIES AT PROPOSED HANDHOLE LOCATION

INSTALL THESE ITEMS PRIOR TO ANY WORK BEGINNING

PROVIDE TEMPORARY POWER AND DATA CABLING TO OBSERVATION CAMERA. ALSO PROVIDE WEATHERPROOF ELECTRICAL AC OUTLET (110/120V) AT THE BASE OF THE POLE. COSTS SHALL BE INCLUDED IN TEMPORARY UTILITIES.

PROVIDE TEMPORARY WOOD POLE (16-FT TALL, ABOVE GRADE) FOR SECURING OBSERVATION CAMERA. COSTS SHALL BE INCLUDED IN TEMPORARY UTILITIES.

INSTALL OBSERVATION CAMERA (CAMERA TO BE PROVIDED BY OTHERS). COSTS SHALL BE INCLUDED IN TEMPORARY UTILITIES, INCLUDING REMOVAL OF EQUIPMENT. 1

2

30'

PROVIDE AND MAINTAIN TEMPORARY 6-FT HIGH PERIMETER FENCING FROM EXISTING POST TO POST. SECURE TO EXISTING FENCE POSTS. PROVIDE NECESSARY SECURING METHODS TO PREVENT FENCE FROM TIPPING OVER. COST SHALL BE INCLUDED IN BID ITEM FOR TRAFFIC CONTROL.

DISCONNECT AND ROLL BACK EXISTING FENCING FABRIC TO ALLOW ADA WALKWAY PATH THROUGH. CONTRACTOR SHALL PERFORM WORK IN A MANNER TO PREVENT DAMAGE TO EXISTING FENCE. FABRIC MUST BE REINSTALLED ONCE TERMINAL IS CONSTRUCTED. COST SHALL BE INCLUDED IN BID ITEM FOR SELECTIVE DEMOLITION.

EXISTING ELECTRICAL VAULT

PLACE TEMPORARY FUELING MONITORING EQUIPMENT INSIDE HANGAR. VERIFY WITH AIRPORT PRIOR TO SETUP. COST SHALL BE INCLUDED IN BID ITEM FOR BUILDING ELECTRICAL. 2

PROVIDE 4-FT WIDE GRAVEL WALKWAY TO BACK OF HANGAR. COST SHALL BE INCLUDED IN BID ITEM FOR SELECTIVE DEMOLITION. IF ALTERNATE FOR INTERIM FACILITY IS NOT AWARDED, THE CONTRACTOR MUST COMPLETE THE GRAVEL WALKWAY BACK TO THE APRON.

HANGAR

GRAVEL

ADA WALKWAY

PROVIDE 4-FT WIDE ADA WALKWAY APRON TO INTERIM FACILITY. SEE GENERAL NOTE NO.7. COST SHALL BE INCLUDED IN BID ITEM FOR INTERIM TERMINAL FACILITY.

PROVIDE DEDICATION ADA-COMPLAINT PORT-A-POTTY RESTROOM FACILITY NEXT TO INTERIM FACILITY. SEE SPECIFICATION SECTION FOR FURTHER DETAILS.

PROVIDE DEDICATION RESTROOM FACILITY NEXT TO INTERIM FACILITY. SEE SPECIFICATION SECTION FOR FURTHER DETAILS.

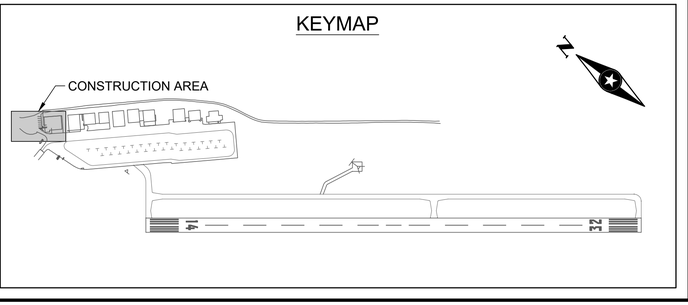
SEE GENERAL NOTE 9.

PROVIDE INTERIM FACILITY FOR DURATION OF THE PROJECT, OUTSIDE OF HANGAR LEASE BOUNDARIES. SEE SPECIFICATION SECTION FOR FURTHER DETAILS. 1

PROVIDE TEMPORARY POWER TO FUELING SYSTEM AND SECURITY GATE FOR THE DURATION OF THE PROJECT. SECURE ABOVE GROUND IN SCH. 80 PVC CONDUIT. CONDUIT SHALL BE SECURED TO THE GROUND. COST SHALL BE INCLUDED IN BID ITEM FOR TEMPORARY UTILITIES.

PROVIDE TEMPORARY DATA CABLING FOR FUELING MONITORING EQUIPMENT FOR THE DURATION OF THE PROJECT. SECURE ABOVE GROUND IN SCH. 80 PVC CONDUIT. CONDUIT SHALL BE SECURED TO THE GROUND. COST SHALL BE INCLUDED IN BID ITEM FOR TEMPORARY UTILITIES.

KEYMAP



LEGEND

- 2 — MINIMUM 8-FEET WIDE BY 20-FEET LONG FACILITY (FIELD OFFICE STYLE) ADA COMPLIANT - PROVIDE NECESSARY ACCOMODATIONS
- 1 — TOILET FACILITIES
- TEMPORARY POWER INTERIM FACILITY AND TOILET FACILITY
- TEMPORARY WATER SERVICE TO DEDICATED TOILET FACILITY
- TEMPORARY PERIMETER FENCING AND INSIDE EXISTING HANGAR
- TEMPORARY DATA CABLE FOR FUEL MONITORING EQUIPMENT
- TEMPORARY POWER FOR FUEL SYSTEM AND SECURITY GATE
- TEMPORARY DATA CABLE FOR AWOS IN INTERIM FACILITY
- TEMPORARY POWER FOR OBSERVATION CAMERA
- 1 — HANGAR LEASE BOUNDARIES

0 10' 20'

NOTES:

1. UTILITIES SHOWN ON PLANS ARE APPROXIMATE. ALL UTILITIES AND ELECTRICAL DUCTS TO BE PROTECTED BY CONTRACTOR. ANY DAMAGED UTILITIES TO BE REPAIRED BY CONTRACTOR AT NO COST TO OWNER.
2. FACILITY MUST BE INSTALLED FIRST, TO ALLOW FOR EXISTING TERMINAL EQUIPMENT TO BE INSTALLED IN THE INTERIM BEFORE ANY REMOVALS TO THE EXISTING TERMINAL BUILDING OCCUR. THIS WORK IS BY OTHERS.
3. FACILITY MUST BE ABLE TO BE USED IN SUMMER AND WINTER MONTHS (I.E. HEATING AND COOLING FUNCTIONALITY)
4. PROVIDE ELECTRICAL POWER AND WIFI INTERNET CAPABILITIES TO INTERIM TERMINAL FACILITY. THE CONTRACTOR SHALL DETERMINE BEST ROUTE TO SERVICE THE INTERIM FACILITY (ROUTE SHOWN ON THE PLANS AS AN OPTION). COST SHALL BE INCLUDED IN TEMPORARY UTILITIES.
5. PROVIDE PORTABLE TOILET FACILITY FOR USER(S) USE ALONG WITH INTERIM TERMINAL FACILITY. PROVIDE SEPARATE PORTABLE TOILET (PORTA-POTTY) TO MEET ADA-COMPLIANT.
6. FACILITY MUST INCLUDE (4) SEATING CHAIRS AND DRINKABLE WATER COOLER.
7. PROVIDE ADA WALKWAY TO INTERIM FACILITY AND BACKSIDE OF HANGAR FROM APRON. WALKWAY MAY BE MADE OF WOOD, METAL OR OTHER APPROVED METHODS TO ALLOW ACCESS (GRAVEL NOT ACCEPTABLE FOR THIS PORTION OF WALKWAY). CONTRACTOR WILL BE RESPONSIBLE TO MAINTAIN AND REPAIR THROUGHOUT CONSTRUCTION.
8. TEMPORARY SETUP FOR FUELING MONITORING EQUIPMENT, POWER TO FUEL SYSTEM AND SECURITY GATE MUST BE INSTALLED PRIOR TO ANY REMOVALS
9. CONDUITS MUST BE PROTECTED AND INSTALLED IN SCH. 80 PIPING. MUST ALLOW AIRPORT TO MOVE AIRCRAFT IN AND OUT OF HANGAR AND TO PASS OVER CONDUITS THROUGHOUT. CONTRACTOR MAY PROVIDE ALTERNATE ROUTE TO SUPPLY TEMPORARY UTILITIES.
10. 2 — CONTRACTOR SHALL COORDINATE WITH THE OWNER ON ENSURING INTERNET CAPABILITIES IS PROVIDED TO THE EXISTING HANGAR FOR THE OBSERVATION CAMERA EQUIPMENT.

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SKY HARBOR AIRPORT
2023 RECONSTRUCT TERMINAL BUILDING
DULUTH, MN

SEH Project	DULAI_172133
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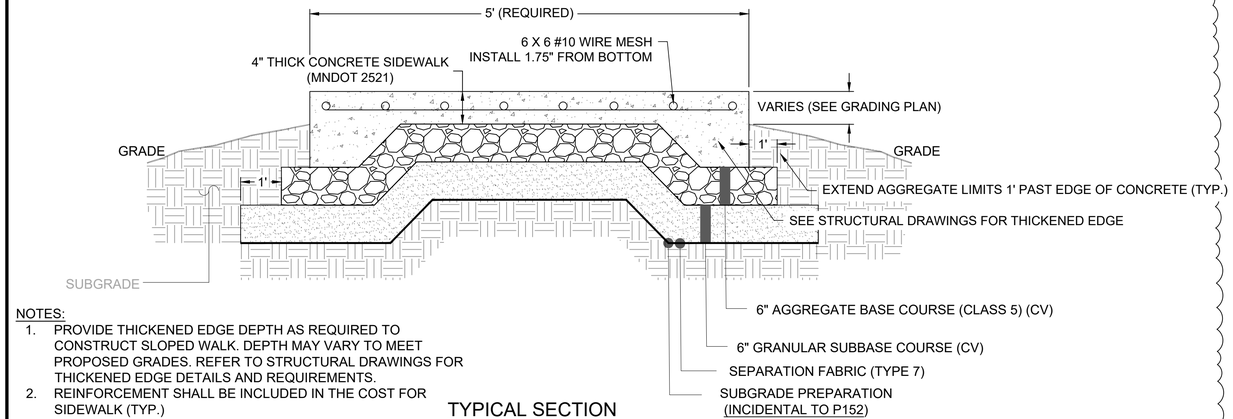
1	ADDENDUM #1	5/30/2023
2	ADDENDUM #2	6/2/2023

INTERIM TERMINAL FACILITY & TEMPORARY SETUP

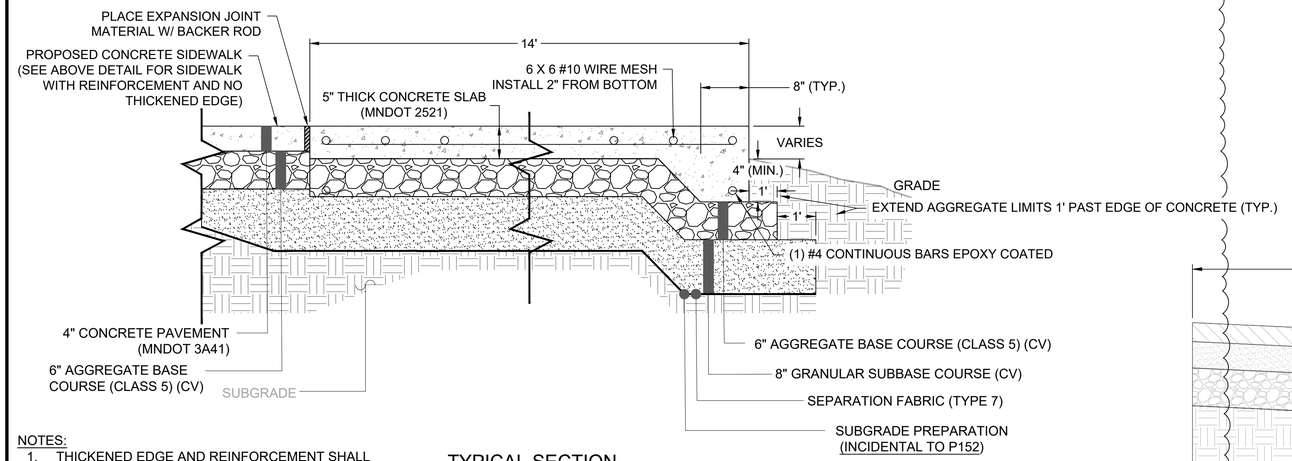
C2.20

Save: 6/2/2023 3:24 PM slutterman Plot: 6/2/2023 3:40 PM X:\AE\D\DULAI\172133\5-final-design\51-drawings\65-Aviation\PLANS\DWT-172133 DEMO ADD #2.dwg



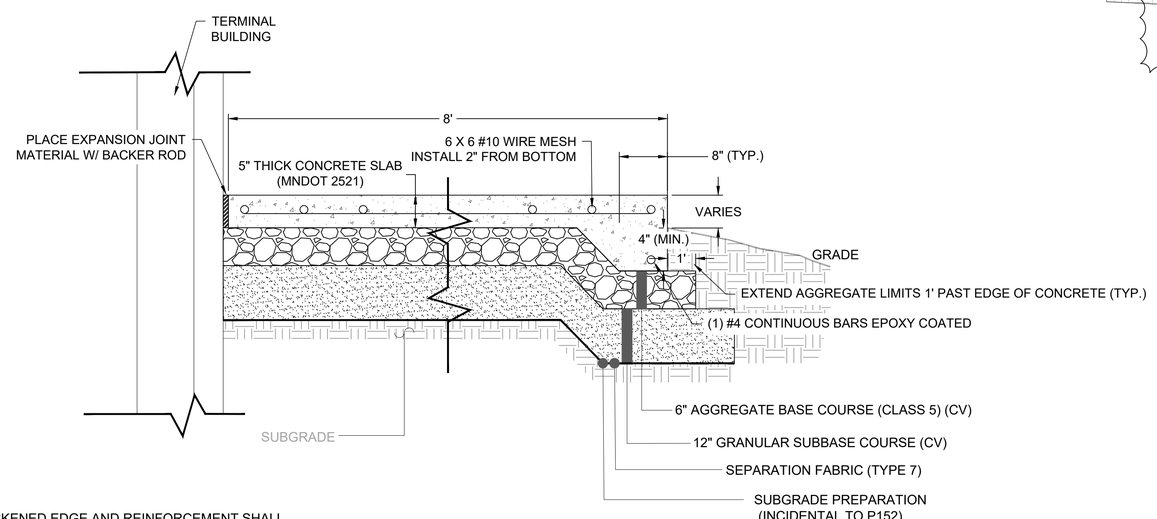
NOTES:
1. PROVIDE THICKENED EDGE DEPTH AS REQUIRED TO CONSTRUCT SLOPED WALK. DEPTH MAY VARY TO MEET PROPOSED GRADES. REFER TO STRUCTURAL DRAWINGS FOR THICKENED EDGE DETAILS AND REQUIREMENTS.
2. REINFORCEMENT SHALL BE INCLUDED IN THE COST FOR SIDEWALK (TYP.)

TYPICAL SECTION
CONCRETE SLOPED WALK W/ THICKENED EDGE
(NORTHSIDE OF TERMINAL)



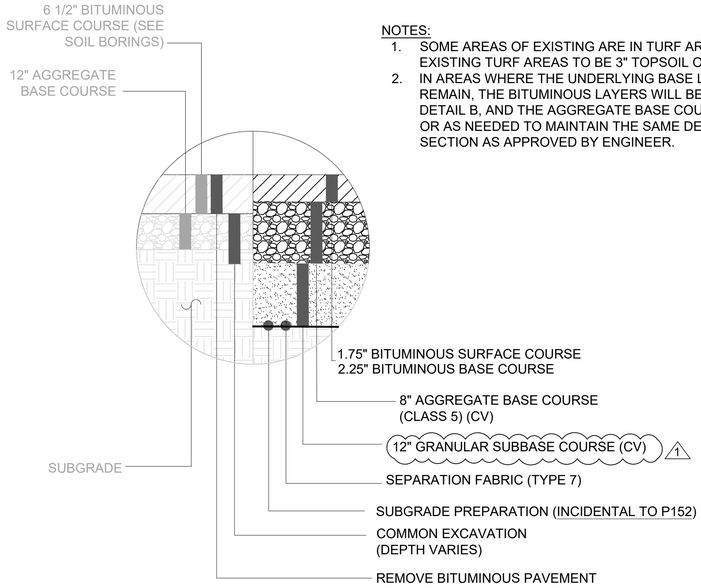
NOTES:
1. THICKENED EDGE AND REINFORCEMENT SHALL BE INCLUDED IN COST FOR SLAB (TYP.)

TYPICAL SECTION
AIRSIDE CONCRETE SLAB W/ THICKENED EDGE
(NEXT TO SLOPED WALK)



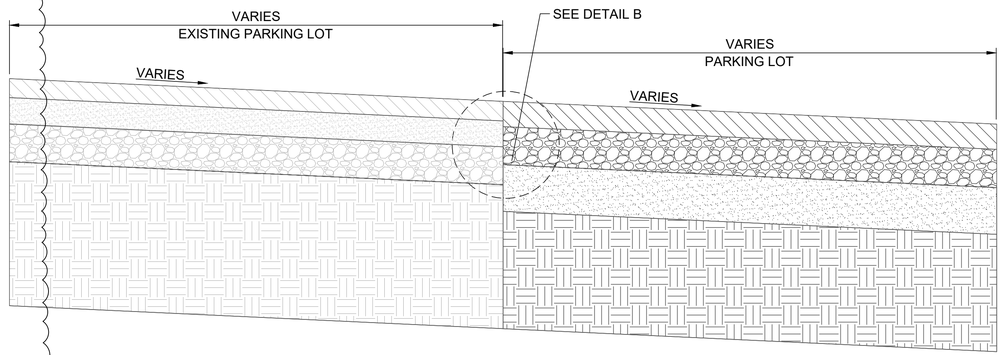
NOTES:
1. THICKENED EDGE AND REINFORCEMENT SHALL BE INCLUDED IN COST FOR SLAB (TYP.)

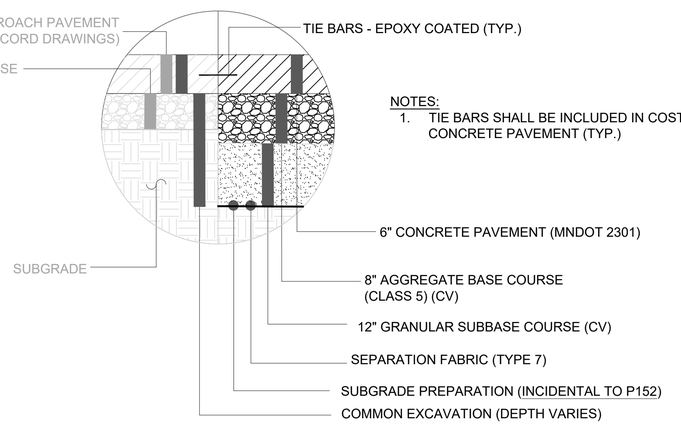
TYPICAL SECTION
AIRSIDE CONCRETE SLAB W/ THICKENED EDGE
(NEXT TO BUILDING)



NOTES:
1. SOME AREAS OF EXISTING ARE IN TURF AREAS. ANTICIPATE EXISTING TURF AREAS TO BE 3" TOPSOIL OVER NATIVE.
2. IN AREAS WHERE THE UNDERLYING BASE LAYER IS TO REMAIN, THE BITUMINOUS LAYERS WILL BE AS SHOWN IN DETAIL B, AND THE AGGREGATE BASE COURSE WILL BE 1.5" OR AS NEEDED TO MAINTAIN THE SAME DEPTH OF PAVEMENT SECTION AS APPROVED BY ENGINEER.

DETAIL B
TYPICAL SECTION
EXISTING/PROPOSED APRON/PARKING LOT





NOTES:
1. TIE BARS SHALL BE INCLUDED IN COST FOR CONCRETE PAVEMENT (TYP.)

TYPICAL SECTION
EXISTING/PROPOSED CONCRETE APPROACH

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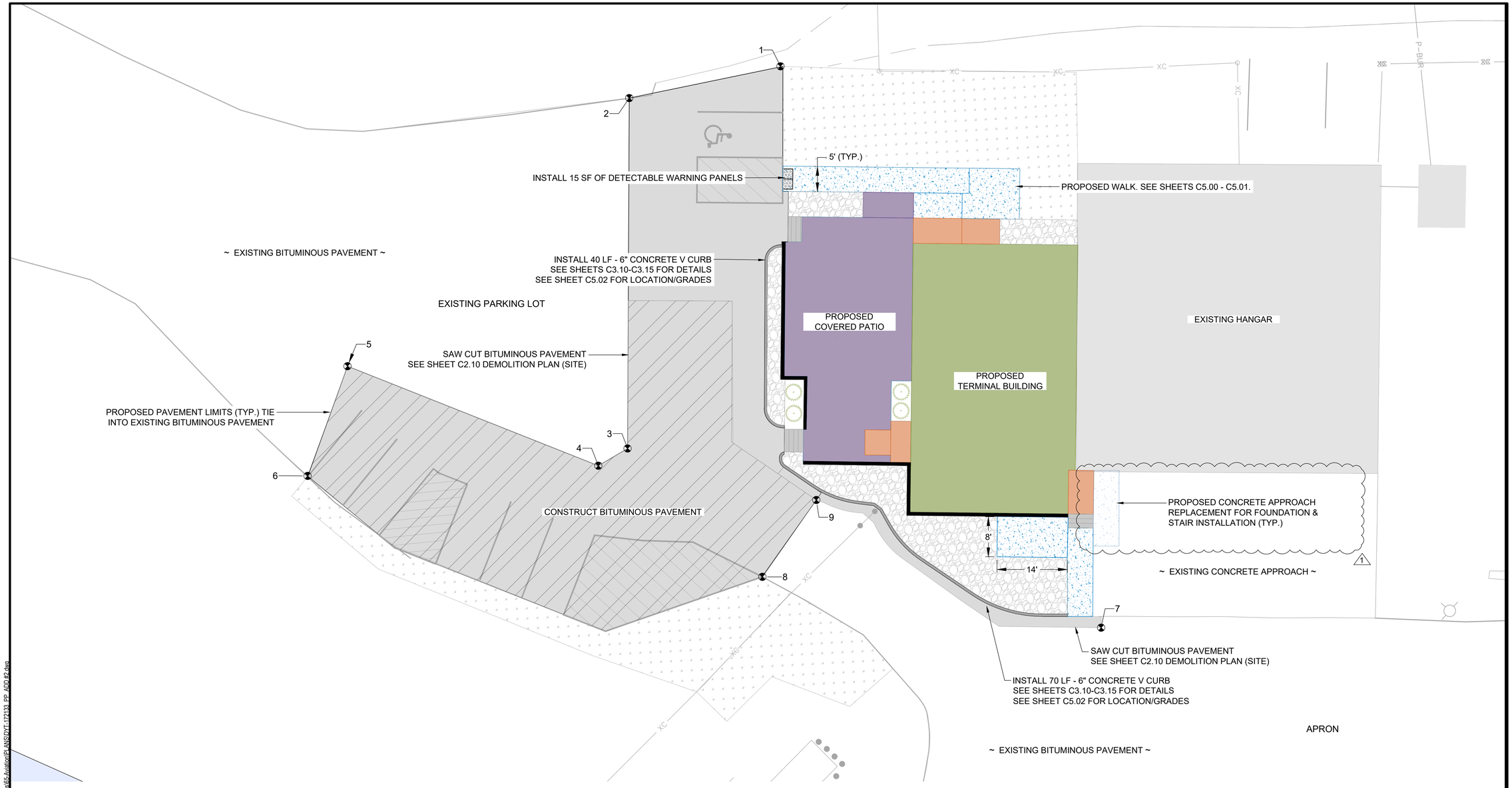
1	ADDENDUM #2	6/2/2023

TYPICAL SECTIONS

C3.00



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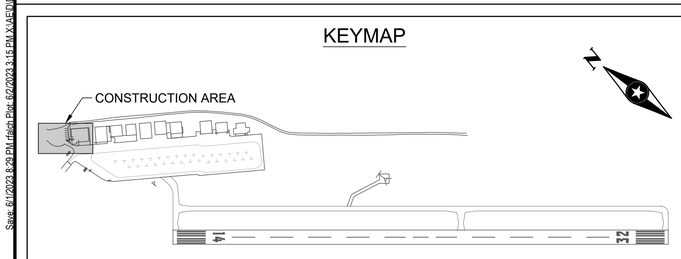

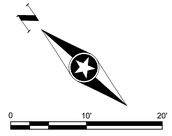

LEGEND

- PROPOSED TERMINAL BUILDING (SEE ARCHITECTURAL)
- CONCRETE WALK & SLAB (SEE TYPICAL SECTIONS)
- BITUMINOUS PAVEMENT - ELIGIBLE (SEE TYPICAL SECTIONS)
- ALTERNATE - BITUMINOUS PAVEMENT - INELIGIBLE (SEE TYPICAL SECTIONS)
- CONCRETE STOOP (SEE STRUCTURAL)
- PATIO (SEE STRUCTURAL)
- CONCRETE APPROACH (SEE TYPICAL SECTIONS) 1

Point Table

Point #	Northing	Easting	Latitude	Longitude	Raw Description
1	128407.0295	601085.0083	N46° 43' 37.82"	W92° 02' 49.08"	PAVEMENT LIMITS
2	128425.1094	601060.2916	N46° 43' 37.99"	W92° 02' 49.43"	PAVEMENT LIMITS
3	128378.9051	601008.3880	N46° 43' 37.54"	W92° 02' 50.18"	PAVEMENT LIMITS
4	128380.9405	601001.9705	N46° 43' 37.56"	W92° 02' 50.27"	PAVEMENT LIMITS
5	128431.1090	600983.4067	N46° 43' 38.06"	W92° 02' 50.53"	PAVEMENT LIMITS
6	128422.4455	600961.9371	N46° 43' 37.97"	W92° 02' 50.84"	PAVEMENT LIMITS
7	128285.3385	601044.7350	N46° 43' 36.62"	W92° 02' 49.66"	PAVEMENT LIMITS
8	128342.0269	601007.3250	N46° 43' 37.18"	W92° 02' 50.20"	PAVEMENT LIMITS
9	128344.2471	601025.8181	N46° 43' 37.20"	W92° 02' 49.93"	PAVEMENT LIMITS

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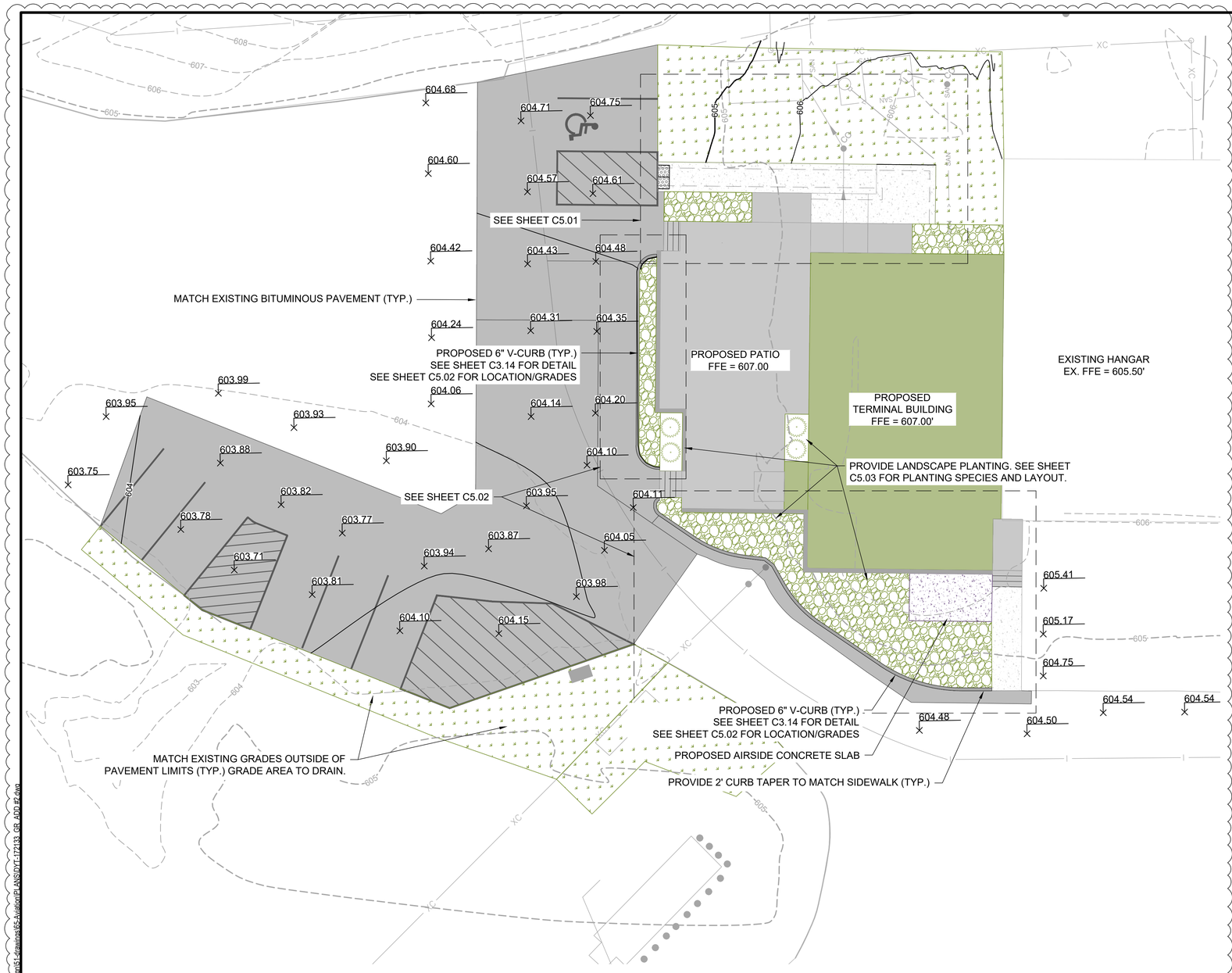
PAVEMENT PLAN

C4.00

Save: 6/1/2023 8:29 PM rfalch Plot: 6/2/2023 3:15 PM X:\AE\D\DULAI\172133\5-final-dsgn\51-drawings\65-Aviation\PLANS\DYT-172133_PP_ADD#2.dwg



GENERAL NOTES:

1. STRIPPING, SALVAGE, AND STOCKPILE OF EXISTING ON-SITE TOPSOIL SHALL BE COVERED UNDER ITEM "COMMON EXCAVATION". EXCESS STOCKPILED TOPSOIL SHALL BE DISPOSED OF OFF AIRPORT PROPERTY. NO EXCESS STOCKPILED TOPSOIL SHALL BE WASTED AT THE SITE UNLESS APPROVED BY ENGINEER. EXCESS STOCKPILED TOPSOIL OFF SITE DISPOSAL OR RELOCATION WITH APPROVAL FROM ENGINEER SHALL BE PAID FOR UNDER "COMMON EXCAVATION".
2. SUBGRADE EXCAVATION AS DIRECTED BY ENGINEER IN FIELD ONLY INCLUDES PAVEMENT AREAS. PAYMENT FOR SUBGRADE EXCAVATION INCLUDES REPLACEMENT OF REMOVED MATERIAL WITH SUITABLE GRANULAR MATERIAL WILL BE COVERED UNDER ITEM NO. P-152, "UNCLASSIFIED OVER EXCAVATION (EV)"
3. SUBGRADE EXCAVATION FOR TERMINAL BUILDING FLOOR, FOOTINGS AND SLAB WILL BE COVERED UNDER ITEM NO. P-152, "UNCLASSIFIED OVER EXCAVATION (EV)"
4. COMMON EXCAVATION FOR TERMINAL BUILDING FOUNDATION, FOOTINGS AND SLAB WILL BE COVERED UNDER ITEM NO. 31 20 30, "STRUCTURE EXCAVATION."
5. AGGREGATE BASE FOR TERMINAL BUILDING FLOOR WILL BE COVERED UNDER ITEM "BUILDING CONSTRUCTION."
6. SELECT GRANULAR BORROW, FOR TERMINAL BUILDING FLOOR WILL BE COVERED UNDER ITEM NO. 31 22 30, "STRUCTURAL BACKFILL (ENGINEERED FILL)."
7. EARTHWORK CONVERSION FACTORS ARE FOR REFERENCE ONLY. QUANTITIES WILL BE DETERMINED BY PRE AND POST EXCAVATION SURVEYS PERFORMED BY CONTRACTOR AT NO ADDITIONAL COST TO OWNER.
8. EXCAVATION OR FIELD GRADING QUANTITIES OUTSIDE OF THE GRADING LIMITS SHALL BE DETERMINED FROM A TOPOGRAPHIC SURVEY FROM BEFORE & AFTER THE WORK. THE SURVEY DATA SHALL BE SUBMITTED TO THE ENGINEER.
9. UNCLASSIFIED OVER EXCAVATION QUANTITIES ARE ESTIMATES ONLY. QUANTITIES FOR PAYMENT MUST BE JUSTIFIED FROM A TOPOGRAPHIC SURVEY FROM BEFORE & AFTER THE WORK OR AS AGREED UPON BY THE ENGINEER. THE SURVEY DATA SHALL BE SUBMITTED TO THE ENGINEER.
10. EXCAVATION WASTE MATERIALS REMOVED FROM THE CONSTRUCTION AREA SHALL BE DISPOSED OF OFF THE AIRPORT PROPERTY. NO MATERIAL SHALL BE WASTED ON THE AIRPORT SITE UNLESS APPROVED BY ENGINEER. WASTE AND DISPOSAL AREAS SHALL BE SEEDED AND RESTORED IN A SMOOTH, GRADED AND DRAINABLE CONDITION. BORROW AREAS, IF REQUIRED, SHALL BE LOCATED AS DIRECTED BY THE FIELD ENGINEER AND SHALL ALSO BE RESTORED IN A SMOOTH, GRADED AND DRAINABLE CONDITION.
11. CONTRACTOR SHALL VERIFY ALL EXISTING PIPES, INLETS MANHOLE INVERTS AND ALL OTHER ELEVATIONS FOR TIE IN TO PROPOSED PAVEMENT TO EXISTING PAVEMENT.
12. WORK WITHIN OBJECT FREE AREAS AND SAFETY AREAS SHALL BE COORDINATED WITH AIRPORT AUTHORITY FOR APPROPRIATE CLOSURE LIMITS AND DATES TO OPTIMIZE AIRPORT OPERATIONS.
13. PLACEMENT OF SALVAGED TOPSOIL WILL BE PAID UNDER "SELECT TOPSOIL BORROW (SALVAGED)"
14. **IF THE CONTRACTOR ENCOUNTERS SAND MATERIAL NOT SUITABLE FOR REUSE, THE MATERIAL MUST REMAIN ONSITE. THE CONTRACTOR SHALL PLACE THE MATERIALS IN THE CONTRACTOR STORAGE AREA AND GRADE TO DRAIN FOR RESTORATION.**

GEOMETRIC CONTROL NOTES:

1. COORDINATES SHOWN ARE BASED ON THE ST. LOUIS COUNTY COORDINATE SYSTEM. PACS/SACS CONTROL INFORMATION AT THE AIRPORT WILL BE PROVIDED TO THE CONTRACTOR TO SET PROJECT CONTROL SHOWN ON SHEET G3.00.
2. CONTRACTOR SHALL FIELD VERIFY ALL ELEVATIONS FOR TIE IN OF PROPOSED PAVEMENT TO EXISTING PAVEMENT.

GRADING NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING THE PUBLIC STREETS AND ACCESS ROUTES IN THE VICINITY OF THE JOB SITE CLEAN AND FREE OF ROCKS, SOILS AND DEBRIS. SWEEP DAILY AROUND ALL CONSTRUCTION LIMITS AND WITHIN 3 HOURS OF NOTICE BY ENGINEER.
2. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL CONTROL POINTS. ANY CONTROL POINTS DISTURBED OR DAMAGED BY GRADING ACTIVITIES SHALL BE RESET BY A PROFESSIONAL LAND SURVEYOR LICENSED IN THE STATE OF MINNESOTA, AT THE CONTRACTOR'S EXPENSE.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTROLLING DOWNSTREAM EROSION AND SILTATION DURING ALL PHASES OF CONSTRUCTION. EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO BEGINNING SOIL DISTURBANCE ACTIVITIES.
4. NUMEROUS EROSION CONTROL FEATURES MAY EXIST ON THE PROJECT SITE. CONTRACTOR SHALL KEEP AS MANY OF THOSE FEATURES IN PLACE AS POSSIBLE, UNTIL THE SITE IS STABILIZED.

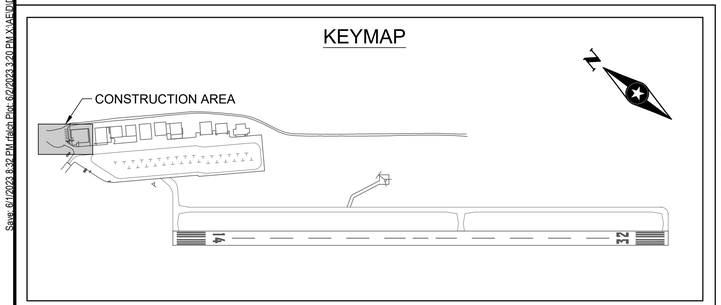
EARTHWORK SUMMARY & NOTES:

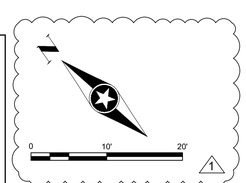
EXCAVATION SHALL BE DEFINED AS FOLLOWS:

COMMON EXCAVATION = ALL AREAS REQUIRING EXCAVATION TO MEET PROPOSED ELEVATION.
***UNCLASSIFIED EXCAVATION* =** ADDITIONAL AREAS BELOW PROPOSED SUBGRADE NOT MEETING COMPACTION SPECIFICATIONS AND NEED TO BE REMOVED AND REPLACED.
BORROW EXCAVATION = ALL AREAS REQUIRED BORROW MATERIAL TO BE BROUGHT IN TO MEET PROPOSED ELEVATIONS.

1.00 CY (EV) = 1.15 CY (LV)
1.00 CY (CV) = 1.30 CY (LV)
1.00 CY (CV) AGGREGATE BASE, CLASS 5 = 1.8 TONS

KEYMAP





LEGEND

- PROPOSED TERMINAL BUILDING
- PROPOSED SIDEWALK (SEE TYPICAL SECTIONS)
- PROPOSED AIRSIDE CONCRETE SLAB (SEE TYPICAL SECTIONS)
- PROPOSED BITUMINOUS PAVEMENT (SEE TYPICAL SECTIONS)
- PROPOSED TURF ESTABLISHMENT
- PROPOSED LANDSCAPE AREA (INCLUDES 4" THICK OF ROCK & WEED BARRIER)
- x 995.50 — PROPOSED/EXISTING ELEVATIONS
- 1.50% — PROPOSED SLOPE AND DIRECTION

SEH

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RYAN FALCH, PE
DATE 05/17/2023 LICENSE NO. 60494

DULUTH INTERNATIONAL AIRPORT

SKY HARBOR AIRPORT
2023 RECONSTRUCT TERMINAL BUILDING
DULUTH, MN

SEH Project	DULAI_172133
Checked By	RF
Drawn By	ALS

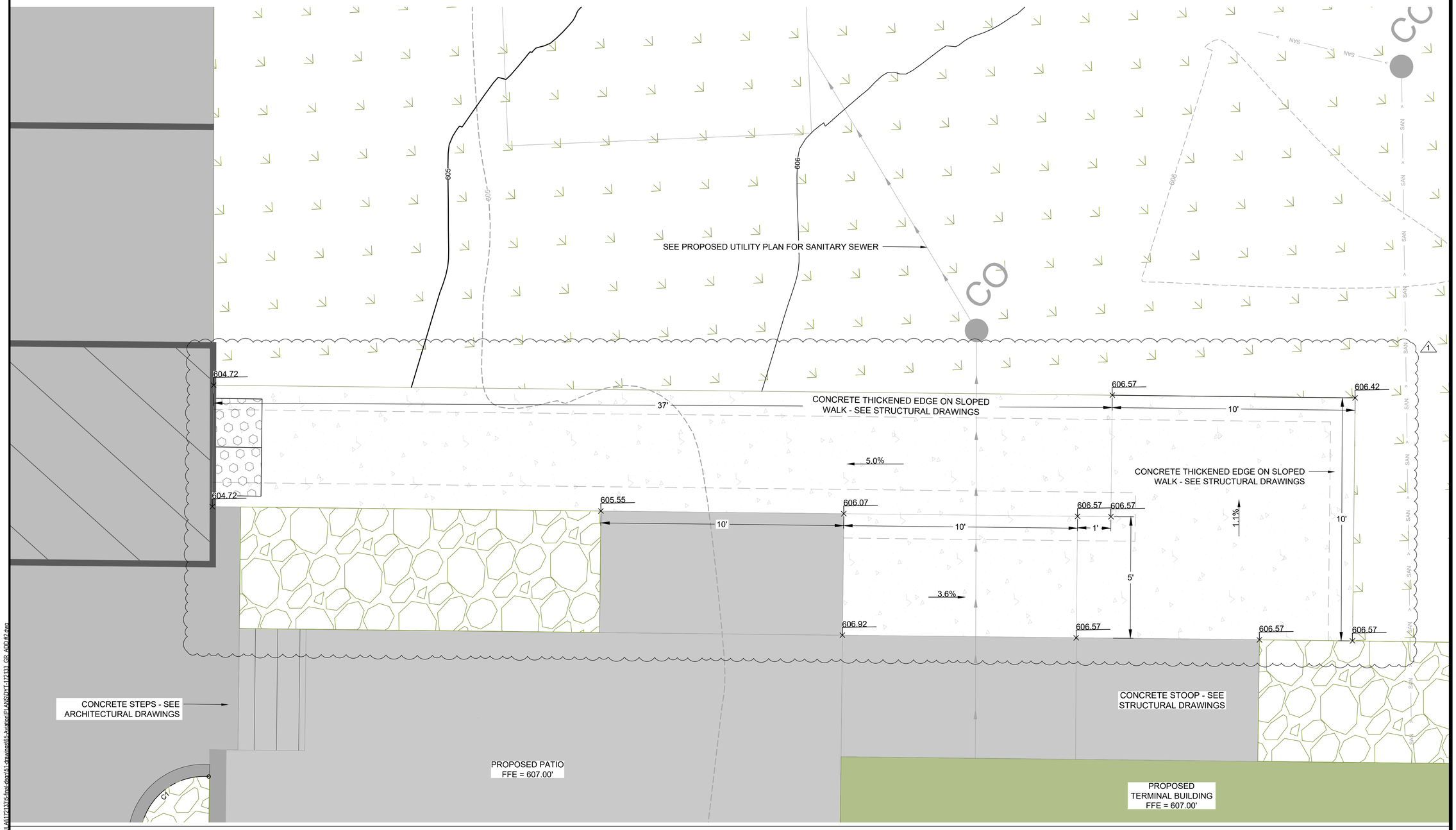
Project Status	Issue Date
CONSTRUCTION PLANS	05/17/2023

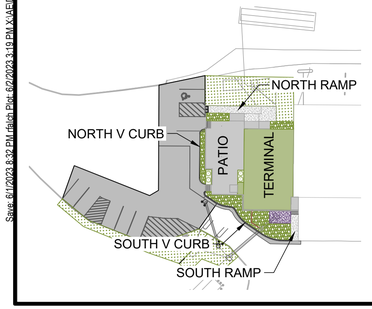
REVISION SCHEDULE

REV. #	DESCRIPTION	DATE
1	ADDENDUM #2	6/2/2023

GRADING PLAN

C5.00





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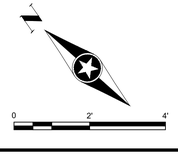

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GRADING PLAN (AIRSIDE SLAB & SLOPED WALKWAY)

C5.01

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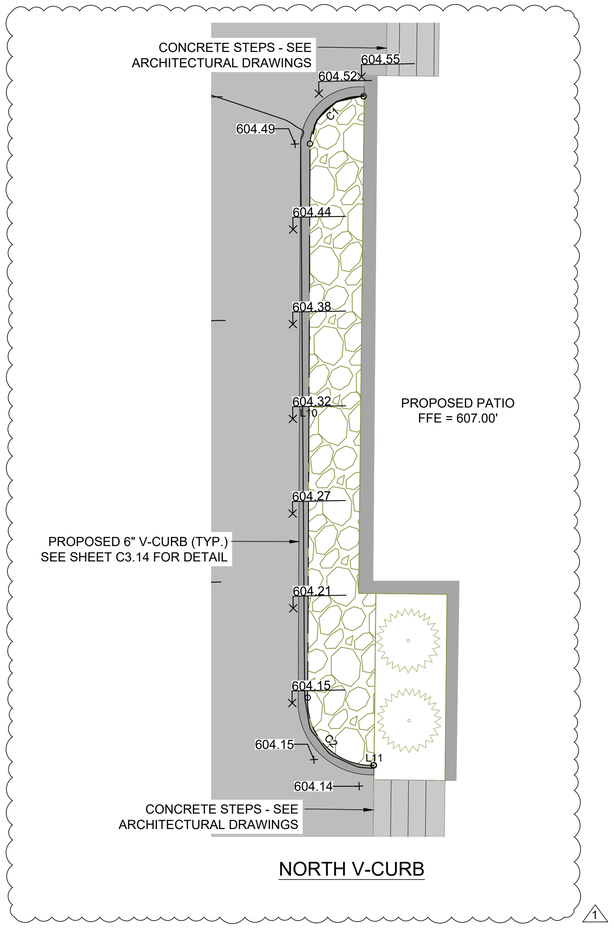


NORTH V-CURB

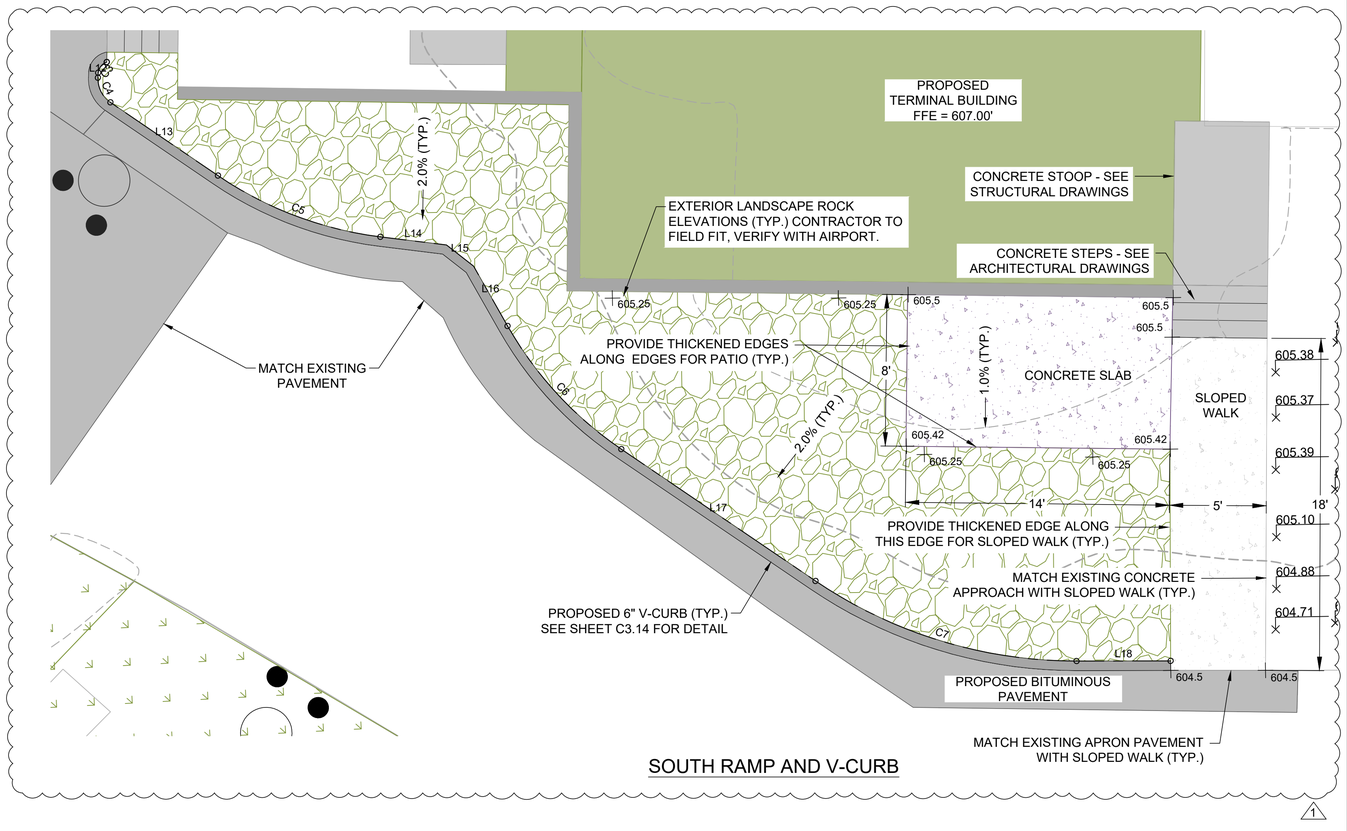
1

ALIGNMENT TABULATION - BACK OF CURB - NORTH

POINT ID	POINT	STATION	DELTA	RADIUS	TANGENT	LENGTH	NORTHING	EASTING	BEARING	START STATION	END STATION	START NORTHING	START EASTING	END NORTHING	END EASTING
C1		-0+00.00	091° 42' 36"	2.63	2.71	4.21	128382.8462	601058.4924		-0+00.00	0+04.21	128382.8462	601058.4924	128383.2781	601054.7406
L10		0+04.21				29.23	128383.2781	601054.7406	S 48° 16' 51" W	0+04.21	0+33.44	128383.2781	601054.7406	128363.8248	601032.9213
C2		0+33.44	095° 51' 33"	3.36	3.72	5.61	128363.8248	601032.9213		0+33.44	0+39.06	128363.8248	601032.9213	128358.8539	601032.5853
L11		0+39.06				0.02	128358.8539	601032.5853	S 41° 19' 07" E	0+39.06	0+39.08	128358.8539	601032.5853	128358.8359	601032.6011

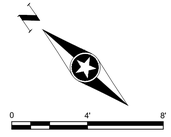
ALIGNMENT TABULATION - BACK OF CURB - SOUTH

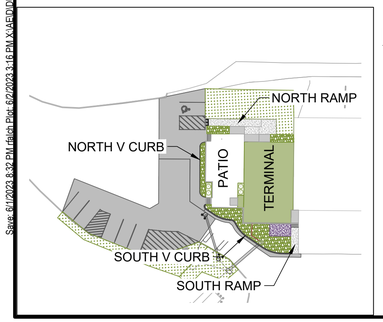
POINT ID	POINT	STATION	DELTA	RADIUS	TANGENT	LENGTH	NORTHING	EASTING	BEARING	START STATION	END STATION	START NORTHING	START EASTING	END NORTHING	END EASTING
C3		0+00.00	063° 57' 38"	0.68	0.42	0.76	128355.0205	601028.2610		0+00.00	0+00.76	128355.0205	601028.2610	128354.9834	601027.5412
L12		0+00.76				0.27	128354.9834	601027.5412	S 50° 26' 57" W	0+00.76	0+01.03	128354.9834	601027.5412	128354.8128	601027.3346
C4		0+01.03	058° 10' 21"	1.50	0.83	1.52	128354.8128	601027.3346		0+01.03	0+02.55	128354.8128	601027.3346	128353.4546	601026.8033
L13		0+02.55				6.87	128353.4546	601026.8033	S 07° 43' 24" E	0+02.55	0+09.42	128353.4546	601026.8033	128346.6443	601027.7270
C5		0+09.42	027° 10' 39"	19.50	4.71	9.25	128346.6443	601027.7270		0+09.42	0+18.67	128346.6443	601027.7270	128338.1078	601031.0573
L14		0+18.67				3.51	128338.1078	601031.0573	S 34° 54' 04" E	0+18.67	0+22.18	128338.1078	601031.0573	128335.2286	601033.0659
L15		0+22.18				1.82	128335.2286	601033.0659	S 04° 09' 01" E	0+22.18	0+24.00	128335.2286	601033.0659	128333.4150	601033.1975
L16		0+24.00				3.63	128333.4150	601033.1975	S 18° 26' 25" W	0+24.00	0+27.64	128333.4150	601033.1975	128329.9671	601032.0479
C6		0+27.64	026° 13' 57"	19.50	4.54	8.93	128329.9671	601032.0479		0+27.64	0+36.56	128329.9671	601032.0479	128321.1551	601031.2267
L17		0+36.56				12.39	128321.1551	601031.2267	S 07° 47' 33" E	0+36.56	0+48.95	128321.1551	601031.2267	128308.8802	601032.9065
C7		0+48.95	034° 13' 31"	24.50	7.54	14.63	128308.8802	601032.9065		0+48.95	0+63.59	128308.8802	601032.9065	128295.8030	601038.9788
L18		0+63.59				4.97	128295.8030	601038.9788	S 42° 01' 12" E	0+63.59	0+68.55	128295.8030	601038.9788	128292.1138	601042.3028



SOUTH RAMP AND V-CURB

1





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05/17/2023 LICENSE NO. 60494

DULUTH INTERNATIONAL AIRPORT

SKY HARBOR AIRPORT
2023 RECONSTRUCT TERMINAL BUILDING
DULUTH, MN

SEH Project	DULAI_172133
Checked By	RF
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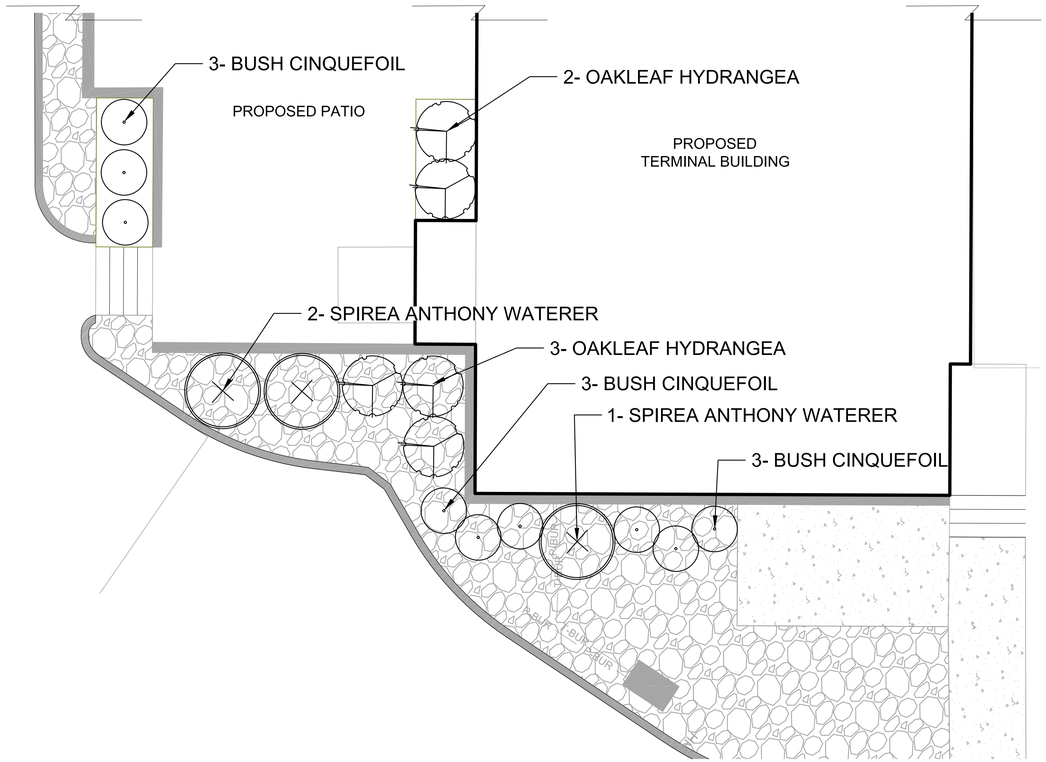
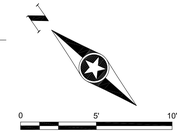
REVISION SCHEDULE

REV. #	DESCRIPTION	DATE
1	ADDENDUM #2	6/2/2023

GRADING PLAN

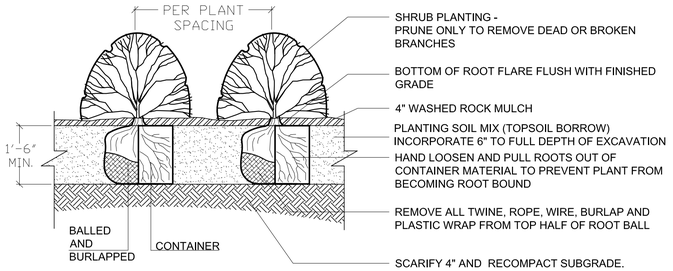
C5.02





LANDSCAPE PLAN

Plant Schedule			
QTY	Common Name	Botanical Name	Size
9	Bush Cinquefoil	*Potentilla fruticosa*	5 Gal. Cont.
5	Oakleaf Hydrangea	*Hydrangea quercifolia*	5 Gal. Cont.
3	Spirea Anthony Waterer	Spirea x bumalda 'Anthony Waterer'	5 Gal. Cont.



SHRUB PLANTING DETAIL

NOT TO SCALE

LANDSCAPE SPECIFICATIONS

TREES, SHRUBS, AND PERENNIALS

1. REFERENCES
   - A. MNDOT - MINESOTA DEPARTMENT OF TRANSPORTATION, 2020 EDITION.
   - B. AMERICAN STANDARD FOR NURSERY STOCK, ANSI Z60.1-2014.
2. QUALITY ASSURANCE
   - A. WORK SHALL BE PERFORMED BY A LANDSCAPE CONTRACTOR WITH EXTENSIVE HORTICULTURE KNOWLEDGE, AND A MIN. OF 3 YEARS EXPERIENCE.
   - B. HANDLE PLANTS IN SUCH A WAY AS TO PROTECT FROM DAMAGE EITHER PHYSICAL OR BY EXPOSURE TO SUN AND WIND. MISHANDLED PLANTS ARE SUBJECT TO REJECTION BY LANDSCAPE ARCHITECT.
   - C. PLANTS USED ON THIS PROJECT SHALL MEET THE GRADING STANDARDS RECOMMENDED BY THE ANSI Z60.1-2014.
3. PRODUCTS
   - A. PLANTS: PROVIDE AS SPECIFIED ON PLANT SCHEDULE.
   - B. EDGING: RYERSON STEEL EDGING $\frac{3}{16}$" X 5" W/ 18" STAKES, OR EQUAL.
   - C. MULCH: WASHED ROCK MULCH, COLOR AS APPROVED BY THE LANDSCAPE ARCHITECT.
   - D. WATER: CONTRACTOR TO PROVIDE.
   - E. PLANTING SOIL MIX: RICH SANDY LOAM, FREE OF DEBRIS AND SEEDS, AND CONFORMING TO MNDOT 3877 (TOPSOIL MATERIAL).
   - F. SOIL AMENDMENTS: CONFORMING TO MNDOT 3877 (TOPSOIL MATERIAL) AND ALL OTHER APPLICABLE MNDOT MATERIALS AND CONSTRUCTION REQUIREMENTS.
4. PLANTING DATES: SPRING PLANTING: APR. 1- JUNE 15. THESE DATES MAY BE EXTENDED IF DAYTIME TEMPS. REMAIN BELOW 80 DEGREES. FALL: SEPT . 30 - OCT. 30TH. DAYTIME TEMPS. NEED TO DROP BELOW 80 DEGREES BEFORE PLANTING BEGINS, AND MAY CONTINUE UNTIL FREEZE UP. CONIFEROUS TREES AUG.15- OCT. 1ST. PLANT UNDER FAVORABLE WEATHER CONDITIONS, DO NO PLANT DURING DAYS OF EXTREME HEAT.
5. EXECUTION
   - A. PLANT INTO PREPARED PLANTING BEDS.
   - B. PRIOR TO DIGGING, CONTRACTOR TO HAVE UTILITIES LOCATED AND MARKED.
   - C. CONTRACTOR TO NOTIFY LANDSCAPE ARCHITECT 3 DAYS IN ADVANCE OF WHEN PLANTING WORK WILL OCCUR.
   - D. INSTALL SHRUBS PER PLANTING DETAILS, ADJUST LOCATION IF IN CONFLICT WITH UTILITIES. VERIFY NEW LOCATION WITH LANDSCAPE ARCHITECT PRIOR TO PLANTING.
   - E. SEPARATE ALL SHRUB BEDS FROM SOD AREAS WITH METAL EDGER.
   - F. CLEAN-UP ENTIRE SITE FOLLOWING PLANTING OPERATIONS.
6. ACCEPTANCE OF PLANTING WORK
   - A. CONTRACTOR TO NOTIFY OWNER WHEN PLANTING WORK IS COMPLETE FOR REVIEW AND PUNCH LIST.
   - B. CONTRACTOR TO WATER AND MAINTAIN THE SHRUBS UNTIL OWNER ACCEPTANCE.
   - C. OWNER WILL GIVE ACCEPTANCE OF WORK, FOLLOWING SATISFACTORY CORRECTION OF PUNCH LIST ITEMS.
   - D. WATERING AND REGULAR LANDSCAPE MAINTENANCE OF SHRUBS WILL BE OWNERS RESPONSIBILITY FOLLOWING OWNER ACCEPTANCE OF WORK.
7. GUARANTEE PERIOD
   - A. CONTRACTOR TO WARRANTY SHRUBS FOR TWO YEARS FOLLOWING ACCEPTANCE OF WORK BY OWNER.
   - B. REPLACEMENTS: AT THE END OF THE GUARANTEE PERIOD, ALL PLANTS WHICH ARE UNHEALTHY, DEAD, NOT HAVING A NORMAL DENSITY, SIZE, SHAPE OR COLOR SHALL BE REPLACED. REPLACEMENTS SHALL MATCH CALIPER AND/OR HEIGHT OF THE OTHER PLANTS AT TIME OF REPLACEMENT. SELECTION OF REPLACEMENT MATERIAL AND INSTALLATION PRACTICES SHALL FOLLOW THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS.

SEH

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LANDSCAPE PLAN

C5.03

ARCHITECTURE SYMBOLS LEGEND

- A1 / A400 — BUILDING SECTION CUT
- A1 / A400 — WALL SECTION CUT
- A1 / A400 — DETAIL CUT
- A1 / A400 — DETAIL AREA
- A1 / A400 — ENLARGED PLAN
- A1 / A400 — ELEVATIONS
- North — NORTH ARROW
- 9A — WALL TYPES
- C5 — CONSTRUCTION KEY NOTE
- 101A — ROOM OPENING NUMBER
- ROOM 101 — ROOM NAME, ROOM NUMBER
- NEW DOOR
- W22 — WINDOW TYPE
- T. MASONRY 114'–0" — VERTICAL HEIGHT IDENTIFIER
- 3 — REVISION TAG WITH CLOUD

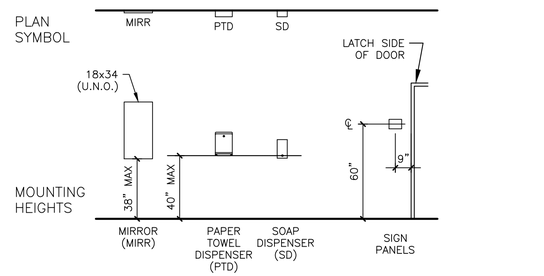
MATERIALS LEGEND

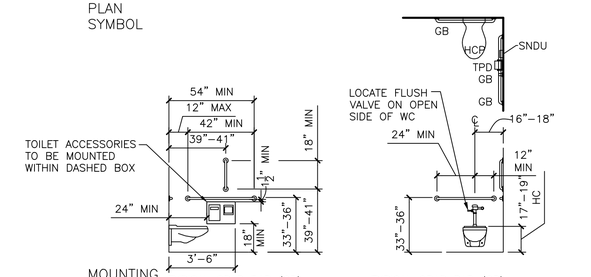
- BRICK / STONE VENEER
- C.I.P. CONCRETE OR PRECAST CONCRETE
- GROUT
- CONCRETE MASONRY UNIT
- EARTH
- EXISTING
- GRANULAR FILL
- GYPSUM BOARD
- INSULATION – BATT
- INSULATION – RIGID
- INSULATION – SPRAYED
- METAL
- PLYWOOD
- WOOD – FINISH
- WOOD – ROUGH

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE ACCORDING TO STATE AND LOCAL CODES.
2. ALL CONTRACTORS SHALL VERIFY EXISTING CONDITIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES.
3. ALL CONTRACTORS SHALL FAMILIARIZE THEMSELVES WITH THE CONSTRUCTION DOCUMENTS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES.
4. MECHANICAL AND ELECTRICAL PLANS ARE DIAGRAMMATIC ONLY. CROSS–REFERENCE ARCHITECTURAL DRAWINGS WITH STRUCTURAL, MECHANICAL AND ELECTRICAL DRAWINGS TO ASSURE COORDINATION OF LOCATIONS, SIZES, AND MATERIALS.
5. VERIFY LOCATION, SIZE AND WALL THICKNESS REQD TO RECESS MECHANICAL AND ELECTRICAL ITEMS AND MAINTAIN FIRE RATING REQ'S OF THE WALL AT THESE BUILT–INS: UNIT HEATERS, CONVECTORS, ELECTRICAL PANELS, FIRE EXTINGUISHER CABINETS, DUCTS, PIPING, AND ALL OTHER SUCH RECESSES.
6. VERIFY ELEVATION OF ALL FLOOR SLAB DEPRESSIONS TO RECEIVE FLOOR MATERIAL PER FINISH SCHEDULE REQUIRED AND DETAILS.
7. EXTEND ALL NONBEARING GYPSUM BDARD PARTITIONS TO UNDERSIDE OF STRUCTURE OR DECK
8. MAINTAIN BUILDING FIRE EXITS DURING CONSTRUCTION.
9. PROVIDE BLOCKING IN GYP BD. PARTITIONS AS REQD.
10. DO NOT SCALE DRAWINGS FOR DIMENSIONS

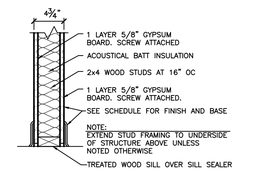
TYPICAL MOUNTING HEIGHTS



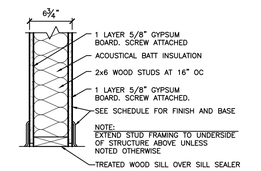


STANDARD ABBREVIATIONS

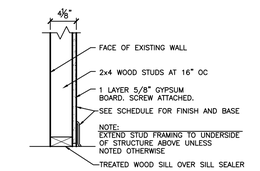
AFF	ABOVE FINISH FLOOR
AP	ACCESS PANEL
ACT	ACOUSTICAL CEILING TILE
ADJ	ADJUSTABLE
AGG	AGGREGATE
ALT	ALTERNATE
ALUM	ALUMINUM
ANCH	ANCHOR
AB	ANCHOR BOLT
APPROX	APPROXIMATE
ARCH	ARCHITECT(URAL)
AS	ATTIC SCUTTLE
AV	AUDIO VISUAL
ACOUST	ACOUSTICAL
ADO	AUTOMATIC DOOR OPERATOR
BCS	BABY CHANGING STATION
BLK	BLOCK
BCMU	BURNISHED CONCRETE MASONRY UNIT
BD	BOARD
BOT	BOTTOM
BFE	BOTTOM FOOTING ELEVATION
BR	BRICK
BR C	BRICK COURSE
BR L	BRICK LEDGE
BLDG	BUILDING
B.O.	BY OWNER
B BO	BULLETIN BOARD
CAB	CABINET
CPT	CARPET
CSWK	CASEWORK
CI	CAST IRON
CIP	CAST IRON PIPE
CB	CEMENT BOARD
CBD	CORKBOARD
CLG	CEILING
CEM	CEMENT
CL	CENTERLINE
C TO C	CENTER TO CENTER
CT	CERAMIC TILE
C BD	CHALK BOARD
CIRC	CIRCUIT (CIRCUMFERENCE)
CO	CLEANOUT
CLOS	CLOSET
CH	CLOTHES HOOK
CR	COLD ROLLED
COL	COMMUNICATION PANEL
CONC	CONCRETE
CONC BLK	CONCRETE BLOCK (STD)
C BLK	CONCRETE BLOCK
CMU	CONCRETE MASONRY UNIT
CONST	CONSTRUCTION
CONTR	CONTRACTOR
CJ	CONTROL JOINT
CONT	CONTINUOUS
CONV	CONVECTOR
CG	CORNER GUARD
CMP	CORRUGATED METAL PIPE
CSK	COUNTER SINK
CS	COURSE
CU	CUBIC
CFM	CUBIC FOOT PER MINUTE
CUH	CABINET UNIT HEATER
CORR	CORRUGATED–CORRIDOR
DPG	DAMPROOFING
DEPT	DEPARTMENT
DET	DETAIL
DGB	DEMOUNTABLE GRAB BAR
DIA	DIAMETER
DIM	DIMENSION
DISP	DISPENSER
DO	DITTO
DR	DOOR
DWS	DOWELS
DN	DOWN
DS	DOWNSPOUT
DWG	DRAWING
DF	DRINKING FOUNTAIN
DP	DUCTILE IRON PIPE
DKG	DECKING
EA	EACH
EF	EACH FACE, EXHAUST FAN
EWY	EACH WAY
E	EAST
EL	ELEVATION
ELEC	ELECTRIC(AL)
EWC	ELECTRIC WATER COOLER
ELEV	ELEVATION (BLDG);
ELEV	ELEVATOR
ENAM	ENAMEL
ENT	ENTRANCE
EP	EPOXY PAINT
EQ	EQUAL
EQUIP	EQUIPMENT
ETC	ET CETERA
EX	EXISTING
EJ	EXPANSION JOINT
EXT	EXTERIOR
EP	ELECTRICAL PANEL
ELUH	ELECTRICAL UNIT HEATER
EW	EYE WASH STATION
FLRG	FLOORING
FB	FACE BRICK
FAP	FIRE ALARM PANEL
FIN	FINISH
FR	FIRE RATED
FIXT	FIXTURE
FHS	FLAT HEAD SCREW
FD	FLOOR DRAIN
FFAS	FLOOR FINISH AS SCHEDULE
FFE	FINISHED FLOOR ELEVATION
FE	FIRE EXTINGUISHER
FT	FOOT, FEET
FTG	FOOTING
FDN	FOUNDATION
FR	FRAME
FA	FRESH AIR
FS	FULL SIZE
FURR	FURRING
FRMG	FRAMING
GL BLK	GLASS BLOCK
GPM	GALLONS PER MINUTE
GALV	GALVANIZED
GI	GALVANIZED IRON
G	GAS
GA	GAUGE
GEN	GENERAL
GC	GENERAL CONTRACTOR
GL	GLASS OR GLAZING
GCMU	GLAZED CONCRETE MASONRY UNIT
GB	GRAB BAR
GR	GRADE
GRV	GRAVITY ROOF VENTILATOR
GYP BD	GYPSUM BOARD
HCP	HANDICAPPED
HD	HAND DRYER
HR	HAND RAIL
HS	HAND SET
HDBD	HARDBOARD
HDW	HARDWARE
HDWD	HARDWOOD
HT	HEIGHT
HP	HIGH POINT
HM	HOLLOW METAL
HRD	HAIR DRYER
HORIZ	HORIZONTAL
HC	HANDICAPPED
H	HARDENER
HR	HOUR
HYD	HYDRANT
IN	INCH
ID	INSIDE DIAMETER
IF	INSIDE FACE
INSUL	INSULATION
INT	INTERIOR
INV	INVERT
JAN	JANITOR
JT	JOINT
JST	JOIST
KP	KICK PLATE
KD	KNOCK DOWN
KO	KNOCK OUT
LAB	LABORATORY
LAM	LAMINATED
LAV	LAVATORY
LDR	LADDER
LIN	LINOLEUM
LOC	LOCATE
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LP	LOW POINT
LB	POUND
LWCB	LIGHT WEIGHT CONC BLOCK
MB	MARKER BOARD
MBH	MOP & BROOM HOLDER
MFR	MANUFACTURER
MAS	MASONRY
MO	MASONRY OPENING
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MLBX	MAIL BOX
MEMB	MEMBRANE
MET	METAL
MEZZ	MEZZANINE
MIN	MINIMUM
MIR	MIRROR
M/S	MIRROR WITH SHELF
MISC	MISCELLANEOUS
MM	MISCELLANEOUS METAL
MLDG	MOULDING
MP	METAL PANEL
MTG	MOUNTING
MULL	MULLION
MSU	MOBILE STORAGE UNIT
MSC	METAL STORAGE CABINET
MPBC	MASTER PUSH BUTTON CONTROL STATION
NOM	NOMINAL
N	NORTH
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
NO	NUMBER
OBS	OBSCURE
OC	ON CENTER
OCEW	ON CENTER EACH WAY
OFS	OVERFLOW SCUPPER
OPNG	OPENING
OPP	OPPOSITE
OZ	OUNCE
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OA	OVERALL
OH	OVERHEAD
OHM	OVERHEAD MOTORIZED
ORD	OVERFLOW ROOF DRAIN
PT	PAINT
PNL	PANEL OR PANELING
PTD	PAPER TOWEL DISPENSER
PTD/R	PAPER TOWEL DISPENSER & RECEPTOR
PART	PARTITION
P BD	PEG BOARD
PERF	PERFORATED
PLAS	PLASTER
PLAM	PLASTIC LAMINATE
PL	PLATE
PL GL	PLATE GLASS
PLBG	PLUMBING
PLYWD	PLYWOOD
POL	POLISHED
PORT C	PORTLAND CEMENT
PRE FIN	PREFINISHED
PROJ	PROJECTION
PC	PRECAST
PVMT	PAVEMENT
QT	QUARRY TILE
RAD	RADIATION RADIATOR
REINF CONC	REINFORCED CONCRETE
RWL	RAIN WATER LEADER
REC	RECESSED
RDWD	REDWOOD
REF	REFRIGERATOR
REINF	REINFORCED(ING)
REM	RECESSED ENTRY MAT
REQD	REQUIRED
RES	RESILIENT
RA	RETURN AIR
RH	RIGHT HAND
R	RISER OR RADIUS
RD	ROOF DRAIN
RV	ROOF VENT
RM	ROOM
RO	ROUGH OPENING
RUB	RUBBER
RT	RUBBER TILE OR TREAD
RS	ROUGH SLAB
RCP	REINFORCED CONCRETE PIPE
RPS	ROLL DOWN PROJECTION SCREEN
SCU	SCUPPER
SHLVG	SHELVING
SNDU	SANITARY NAPKIN DISPOSAL UNIT
SF	SQUARE FOOT
SCHED	SCHEDULE
SLNT	SEALANT
SLR	SEALER
SRF	SEAMLESS RESILIENT FLOOR
SECT	SECTION
SS	SERVICE SINK
SHT	SHEET
SIM	SIMILAR
SOG	SLAB ON GRADE
SD	SOAP DISPENSER
S	SOUTH OR SINK
SH	SPRINKLER HEAD
SQ	SQUARE
S ST	STAINLESS STEEL
ST	STONE
STD	STANDARD
STL	STEEL
STOR	STORAGE
STRUCT	STRUCTURAL
SA	SUPPLY AIR
SUSP	SUSPENDED
SW	SWITCH
SRCUH	SEMI–RECESSED CABINET UNIT HEATER
SU	SHELVING UNIT
TS	TACK STRIP
TVL	TOP OF VENEER LEDGE
TEL	TELEPHONE
TV	TELEVISION
TEMP	TEMPERED, TEMPORARY
TERR	TERRAZZO
TH	TEST HOLE
THRES	THRESHOLD
TD	TOILET PAPER DISPENSER
TLT PTN	TOILET PARTITION
T AND G	TONGUE AND GROOVE
T AND B	TOP AND BOTTOM
TFE	TOP OF FOOTING ELEVATION
TO MAS	TOP OF MASONRY
TOS	TOP OF STEEL
TB	TACK BOARD
T	TREAD
TF	TROWELED FINISH
TS	TUBE STEEL
TYP	TYPICAL
UNFIN	UNFINISHED
UH	UNIT HEATERS
UV	UNIT VENTILATOR
UNO	UNLESS NOTED OTHERWISE
UON	UNLESS OTHERWISE NOTED
UR	URINAL
UR SCR	URINAL SCREEN
VAC	VACUUM
VB	VINYL BASE
VENT	VENTILATOR
VERM	VERMICULITE
V PLAS	VERMICULITE PLASTER
VERT	VERTICAL
VEST	VESTIBULE
VCT	VINYL COMPOSITE TILE
VT	VINYL TILE
VTR	VENT THROUGH ROOF
VWC	VINYL WALL COVERING
VWF	VINYL WALL FABRIC
WSCT	WAINSCOT
WF	WALL FABRIC
WC	WATER CLOSET
WH	WATER HEATER
WMP	WIRE MESH PARTITION
WP	WATER PROOFING
WR	WATER RESISTANT
WS	WATER SOFTENER
WSP	WEATHERSTRIP
WT	WEIGHT/WALL TILE
WWF	WELDED WIRE FABRIC
W	WEST, WIRE
WF	WIDE FLANGE (STEEL)
WDW	WINDOW
W/	WITH
W/O	WITH OUT
WG	WIRE GLASS
WD	WOOD
WR	WASTE RECEPTACLE
YD	YARD
@	AT
℄	CENTER LINE
Ø	DIAMETER



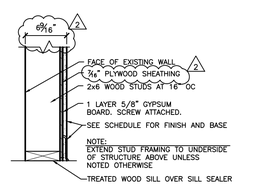
6A DRYWALL – SINGLE LAYER



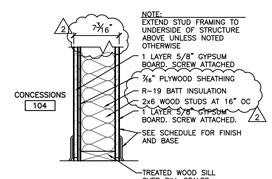
6B DRYWALL – SINGLE LAYER



6C DRYWALL – SINGLE LAYER



6D DRYWALL – SINGLE LAYER



6E DRYWALL – SINGLE LAYER

TYPICAL WALL TYPES NOTES:
1. EXTEND WALL TO UNDERSIDE OF STRUCTURE ROOF ABOVE.
2. SEE FINISH SCHEDULE FOR WALL FINISH AND BASE MATERIAL.
3. PROVIDE CONTROLS JOINTS IN GYPSUM BOARD WALLS AT 30'–0" OC MAXIMUM OR WHERE INDICATED IN CONTRACT DOCUMENTS.

7 WALL TYPES

0 6" 1'–0" 1'–6"

SEH

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Scott Blank, AIA

DATE 5-16-2023 LICENSE NO. 51092

DULUTH INTERNATIONAL AIRPORT

SKY HARBOR AIRPORT
2023 RECONSTRUCT TERMINAL BUILDING
DULUTH, MN

SEH Project	DULAI_172133
Checked By	SB
Drawn By	BB

Project Status	**Issue Date**
CONSTRUCTION PLANS	5.16.23

REVISION SCHEDULE

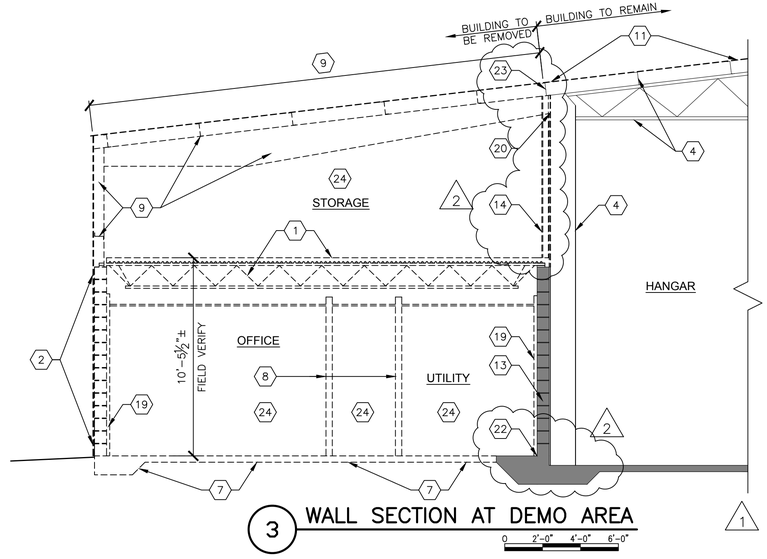
REV. #	DESCRIPTION	DATE
2	ADDENDUM #2	6.2.2023

ARCHITECTURAL SYMBOLS, LEGEND, NOTES, WALL TYPES AND ACCESSIBILITY DETAILS

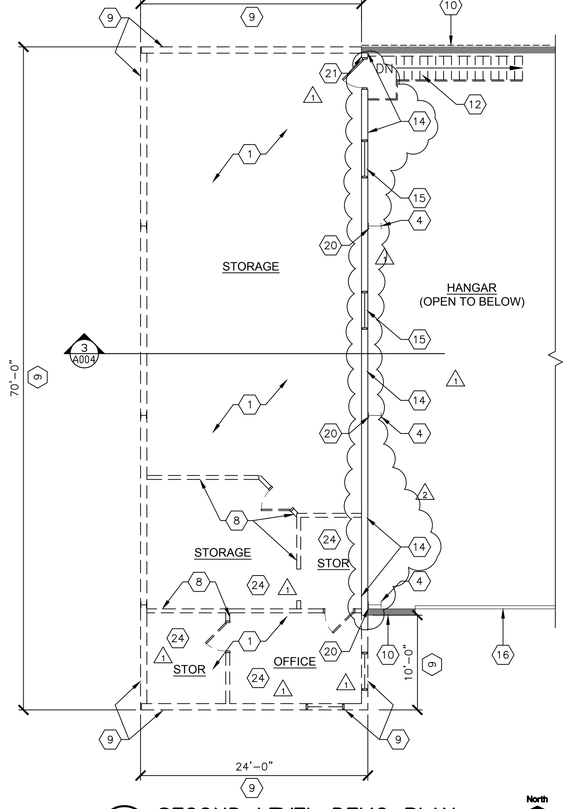
A003

DEMOLITION PLAN KEYNOTES:

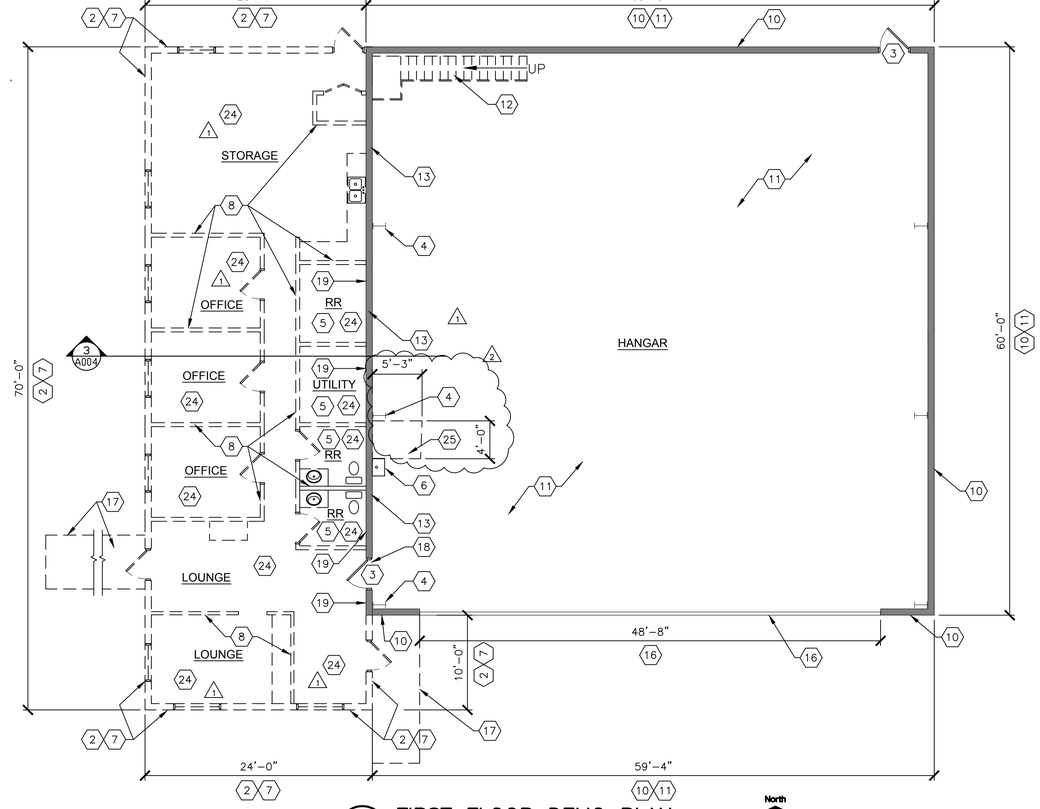
1. REMOVE EXISTING CONCRETE FLOOR, METAL DECK AND BAR JOIST STRUCTURAL FRAMING
2. REMOVE EXISTING MASONRY BEARING WALLS WITH EXTERIOR FURRING, INSULATION, METAL SIDING AND WINDOWS
3. REMOVE EXISTING DOOR AND FRAME, PREP OPENING FOR NEW FRAME
4. EXISTING STEEL FRAME TO REMAIN
5. REMOVE EXISTING PLUMBING FIXTURES AND RESTROOM ACCESSORIES
6. REMOVE EXISTING SINK, SEE PLUMBING
7. REMOVE EXISTING CONCRETE FLOOR SLAB AND FOUNDATIONS
8. REMOVE EXISTING INTERIOR WOOD STUD AND GYPSUM BOARD WALL
9. REMOVE EXISTING PRE-ENGINEERED BUILDING FRAME, GIRTS, PURLINS, SIDING AND INSULATION
10. REMOVE EXISTING EXTERIOR METAL SIDING, PREP FOR REPLACEMENT SIDING INSTALLATION
11. REMOVE EXISTING METAL ROOFING PANELS, PREP FOR STANDING SEAM METAL ROOFING REPLACEMENT PANELS (INSULATION TO REMAIN) (1)
12. REMOVE EXISTING WOOD STAIR AND GUARDRAIL
13. EXISTING CMU WALL TO REMAIN (2)
14. EXISTING WOOD STUD WALL, SHEATHING AND INSULATION TO BE REMOVED
15. EXISTING WINDOW TO BE REMOVED
16. REMOVE EXISTING METAL PANEL CLADDING ON HANGAR DOOR, PREP DOOR FOR INSTALLATION OF NEW METAL CLADDING
17. REMOVE CONCRETE STOOP, FOUNDATION AND PAVEMENT
18. SAW CUT AND REMOVE PORTION OF EXISTING MASONRY WALL TO RAISE DOOR OPENING. PREP FOR STEEL LINTEL PER STRUCTURAL
19. REMOVE EXISTING FURRING AND GYPSUM BOARD TO EXPOSE EXISTING CMU WALL (1)
20. DISCONNECT EXISTING ROOF BEAM FROM STEEL COLUMN, COLUMN TO REMAIN
21. CUT EXISTING STEEL ROOF BEAM FLUSH WITH FACE OF STEEL COLUMN, COLUMN TO REMAIN (2)
22. SAW CUT AND REMOVE PORTION OF EXISTING CONCRETE SLAB - THICKENED EDGE FOUNDATION TO REMAIN
23. SUPPORT EXISTING ROOF PURLIN PRIOR TO REMOVING STEEL MAINFRAME SUPPORT, COORDINATE WITH STRUCTURAL
24. REMOVE EXISTING INTERIOR FINISHES INCLUDING, BUT NOT LIMITED TO, FLOORING, CEILINGS, WALL FURRING AND GYPSUM BOARD, CASEWORK, AND TRIM (2)
25. GRIND OR SAW CUT 2" DEEP DEPRESSION IN EXISTING CONCRETE SLAB FOR SLOPED RAMP



3 WALL SECTION AT DEMO AREA
0 2'-0" 4'-0" 6'-0"



2 SECOND LEVEL DEMO PLAN
0 4'-0" 8'-0" 12'-0"
North



1 FIRST FLOOR DEMO PLAN
0 4'-0" 8'-0" 12'-0"
North

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DATE 5-16-2023 LICENSE NO. 51092

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SKY HARBOR AIRPORT
2023 RECONSTRUCT TERMINAL BUILDING
DULUTH, MN

SEH Project	DULAI_172133
Checked By	SB
Drawn By	BB

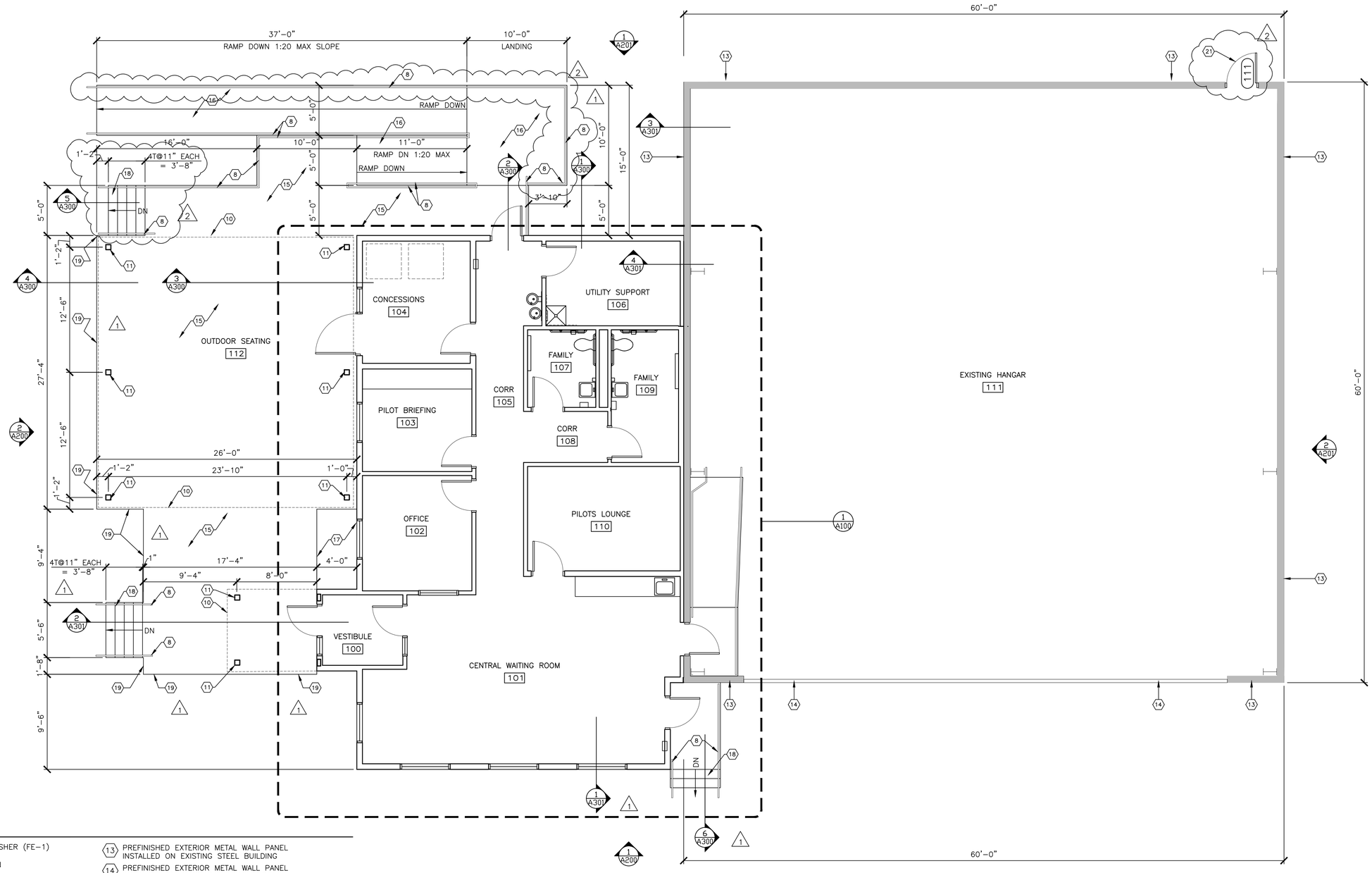
Project Status	Issue Date
CONSTRUCTION PLANS	5.16.23

REVISION SCHEDULE

REV. #	DESCRIPTION	DATE
1	ADDENDUM #1	5.30.2023
2	ADDENDUM #2	6.2.2023

DEMOLITION PLANS AND SECTIONS

A004



FLOOR PLAN KEYNOTES:

1. CABINET MOUNTED FIRE EXTINGUISHER (FE-1)
2. DUAL-HEIGHT DRINKING FOUNTAIN
3. FLOOR MOUNTED MOP SINK, SEE MECHANICAL
4. 4'-0" HIGH FRP WALL FINISH AT MOP SINK
5. DIMENSION TO EXTERIOR FACE OF WALL SHEATHING
6. PLASTIC LAMINATE COUNTERTOP AT 30" ABOVE FINISHED FLOOR WITH SUPPORT BRACKETS AT 36" OC, SCRIBE TO WALL
7. VENDING MACHINE, BY OWNER
8. 1½" DIAMETER STEEL PIPE HANDRAIL (PAINT) – EMBED RAILING IN THICKENED CONCRETE EDGE OR WALL IN SLEEVE AND GROUT SOLID, TYPICAL
9. CONCRETE RAMP AND LANDING, SLOPE DOWN AT 1:12 MAXIMUM – FIELD VERIFY FINAL RAMP LENGTH
10. CANOPY ABOVE (SHOWN DASHED)
11. STEEL COLUMN, SEE STRUCTURAL (PAINT)
12. STEEL COLUMN IN STUD CAVITY, SEE STRUCTURAL
13. PREFINISHED EXTERIOR METAL WALL PANEL INSTALLED ON EXISTING STEEL BUILDING
14. PREFINISHED EXTERIOR METAL WALL PANEL INSTALLED ON EXISTING HANGAR DOOR
15. RAISED CONCRETE PATIO, SEE STRUCTURAL
16. CONCRETE PAVEMENT/WALK, SEE CIVIL – THICKEN EDGE FOR HANDRAIL EMBEDMENT, TYPICAL (1)
17. 4" THICK LANDSCAPE ROCK OVER LANDSCAPING FABRIC
18. CONCRETE STAIRS
19. CLAD FACE OF RAISED CONCRETE PATIO WALL WITH SIMULATED MASONRY VENEER
20. 2x8 WOOD STUD WALL CONSTRUCTED ON TOP OF EXISTING CMU WALL AND EXTENDED TO UNDERSIDE OR EXISTING ROOF STRUCTURE, SEE 3/A301 AND 4/A301 (2)
21. PRIOR TO COMMENCEMENT OF CONSTRUCTION THE CONTRACTOR SHALL PROVIDE A CONSTRUCTION CORE IN THE EXISTING DOOR OR REPLACE DOOR WITH A TEMPORARY CONSTRUCTION DOOR AND PROVIDE (10) KEYS TO OWNER FOR DISTRIBUTION TO AIRPORT TENANTS

1 OVERALL FLOOR PLAN

0 2'-8" 5'-3 3/4" 7'-11 3/4"

North

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SKY HARBOR AIRPORT
2023 RECONSTRUCT TERMINAL BUILDING

DULUTH, MN

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Drawn By	BB

Project Status	Issue Date
CONSTRUCTION PLANS	5.16.23

REVISION SCHEDULE

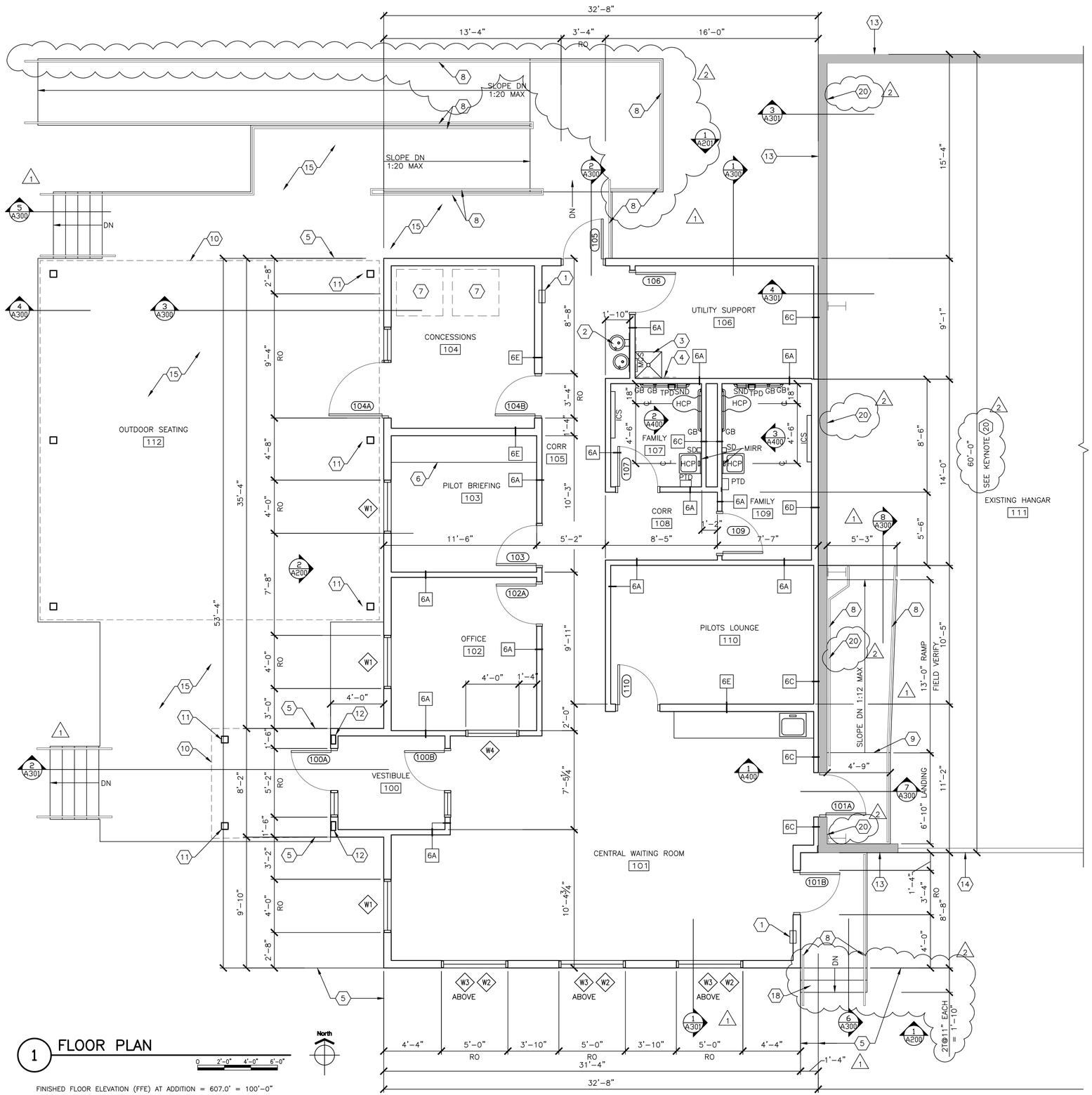
REV. #	DESCRIPTION	DATE
1	ADDENDUM #1	5.30.2023
2	ADDENDUM #2	6.2.2023

OVERALL FLOOR PLAN

A100

FLOOR PLAN KEYNOTES:

1. CABINET MOUNTED FIRE EXTINGUISHER (FE-1)
2. DUAL-HEIGHT DRINKING FOUNTAIN
3. FLOOR MOUNTED MOP SINK, SEE MECHANICAL
4. 4'-0" HIGH FRP WALL FINISH AT MOP SINK
5. DIMENSION TO EXTERIOR FACE OF WALL SHEATHING
6. PLASTIC LAMINATE COUNTERTOP AT 30" ABOVE FINISHED FLOOR WITH SUPPORT BRACKETS AT 36" OC, SCRIBE TO WALL
7. ~~VENDING MACHINE, BY OWNER~~
8. 1½" DIAMETER STEEL PIPE HANDRAIL (PAINT) – EMBED RAILING IN THICKENED CONCRETE EDGE OR WALL IN SLEEVE AND GROUT SOLID, TYPICAL (2)
9. CONCRETE RAMP AND LANDING, SLOPE DOWN AT 1:12 MAXIMUM – FIELD VERIFY FINAL RAMP LENGTH
10. CANOPY ABOVE (SHOWN DASHED)
11. STEEL COLUMN, SEE STRUCTURAL (PAINT)
12. STEEL COLUMN IN STUD CAVITY, SEE STRUCTURAL
13. PREFINISHED EXTERIOR METAL WALL PANEL INSTALLED ON EXISTING STEEL BUILDING
14. PREFINISHED EXTERIOR METAL WALL PANEL INSTALLED ON EXISTING HANGAR DOOR
15. RAISED CONCRETE PATIO, SEE STRUCTURAL
16. CONCRETE PAVEMENT/WALK, SEE CIVIL – THICKEN EDGE FOR HANDRAIL EMBEDMENT, TYPICAL
17. 4" THICK LANDSCAPE ROCK OVER LANDSCAPING FABRIC
18. CONCRETE STAIRS (1)
19. CLAD FACE OF RAISED CONCRETE PATIO WALL WITH SIMULATED MASONRY VENEER (2)
20. 2x8 WOOD STUD WALL CONSTRUCTED ON TOP OF EXISTING CMU WALL AND EXTENDED TO UNDERSIDE OR EXISTING ROOF STRUCTURE, SEE 3/A301 AND 4/A301
21. PRIOR TO COMMENCEMENT OF CONSTRUCTION THE CONTRACTOR SHALL PROVIDE A CONSTRUCTION CORE IN THE EXISTING DOOR OR REPLACE DOOR WITH A TEMPORARY CONSTRUCTION DOOR AND PROVIDE (10) KEYS TO OWNER FOR DISTRIBUTION TO AIRPORT TENANTS



1 FLOOR PLAN

0 2'-0" 4'-0" 6'-0"

North

FINISHED FLOOR ELEVATION (FFE) AT ADDITION = 607.0' = 100'-0"

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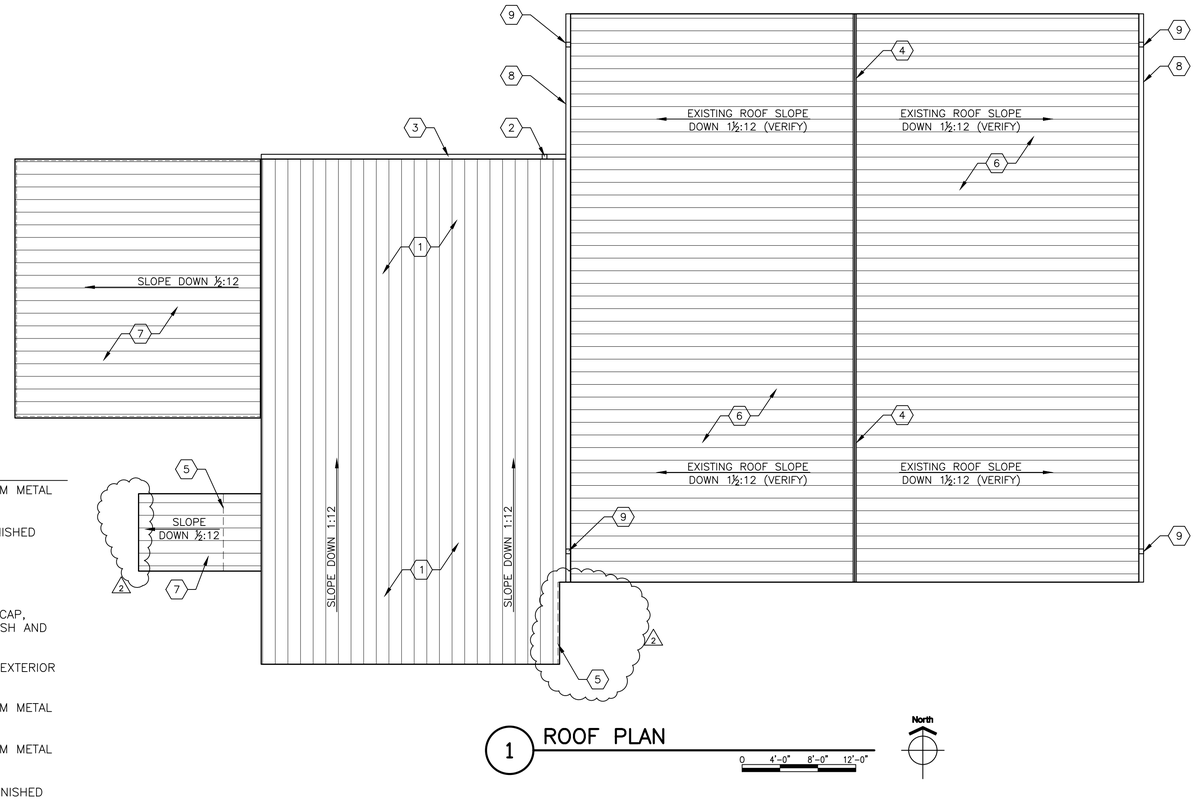
ADDITION FLOOR PLAN

A101



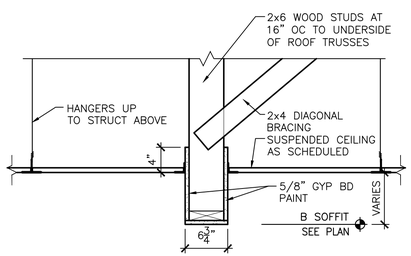
1 ROOF PLAN

0 4'-0" 8'-0" 12'-0"

North

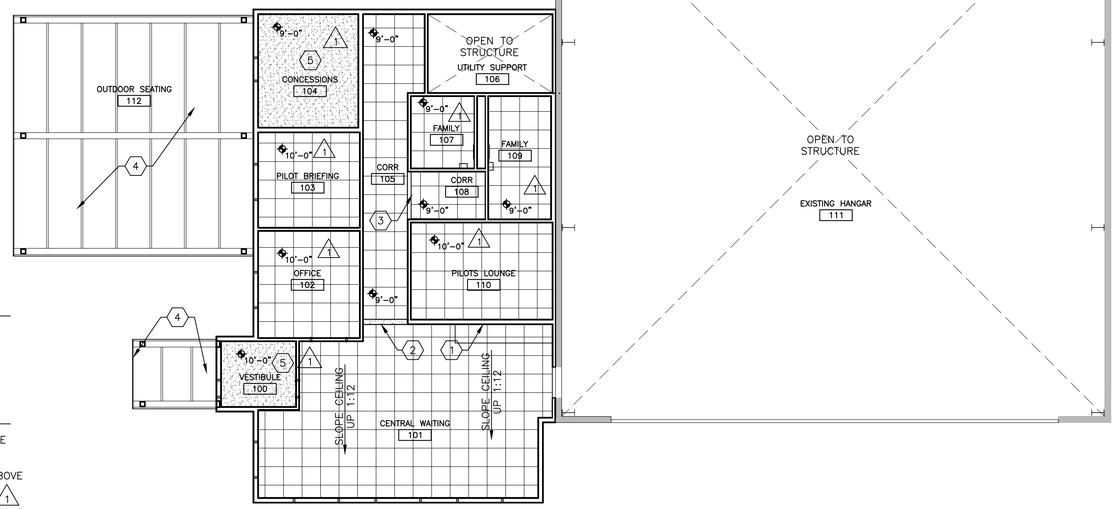
ROOF PLAN KEYNOTES

1. PREFINISHED STANDING SEAM METAL ROOFING (PANEL TYPE–1)
2. 8" WIDE x 6" DEEP PREFINISHED METAL GUTTER
3. 4"x5" PREFINISHED METAL DOWNSPOUT
4. PREFINISHED METAL RIDGE CAP, MATCH METAL ROOFING FINISH AND COLOR
5. DASHED LINE REPRESENTS EXTERIOR FACE OF WALL BELOW
6. PREFINISHED STANDING SEAM METAL ROOFING (PANEL TYPE–2)
7. PREFINISHED STANDING SEAM METAL ROOFING (PANEL TYPE–3)
8. 6" WIDE x 4½" DEEP PREFINISHED METAL GUTTER
9. 3"x4" PREFINISHED METAL DOWNSPOUT



3 TYPICAL BULK HEAD DETAIL

0 6" 1'-0" 1'-6"



CEILING PLAN LEGEND:

- ⅝" GYPSUM BOARD
- 2'x2' ACOUSTICAL CEILING PANELS

CEILING PLAN KEYNOTES:

1. ACOUSTICAL CEILING AT 11'–0" ABOVE FINISHED FLOOR AT FACE OF WALL
2. GYPSUM BOARD SOFFIT AT 8'–10" ABOVE FINISHED FLOOR, SEE 3/A102
3. GYPSUM BOARD SOFFIT AT 8'–10" ABOVE FINISHED FLOOR, SEE 3/A102
4. PAINT UNDERSIDE OF CANOPY INCLUDING, BUT NOT LIMITED TO, STRUCTURAL STEEL FRAMING, METAL DECKING AND EXPOSED CONDUIT
5. ⅝" GYPSUM BOARD CEILING FASTENED TO 2x6 WOOD FRAMING AT 16" OC

2 CEILING PLAN

0 4'-0" 8'-0" 12'-0"

North

SEH

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Scott Blank, AIA

DATE 5-16-2023 LICENSE NO. 51092

DULUTH INTERNATIONAL AIRPORT

SKY HARBOR AIRPORT
2023 RECONSTRUCT TERMINAL BUILDING
DULUTH, MN

SEH Project	DULAI_172133
Checked By	SB
Drawn By	BB

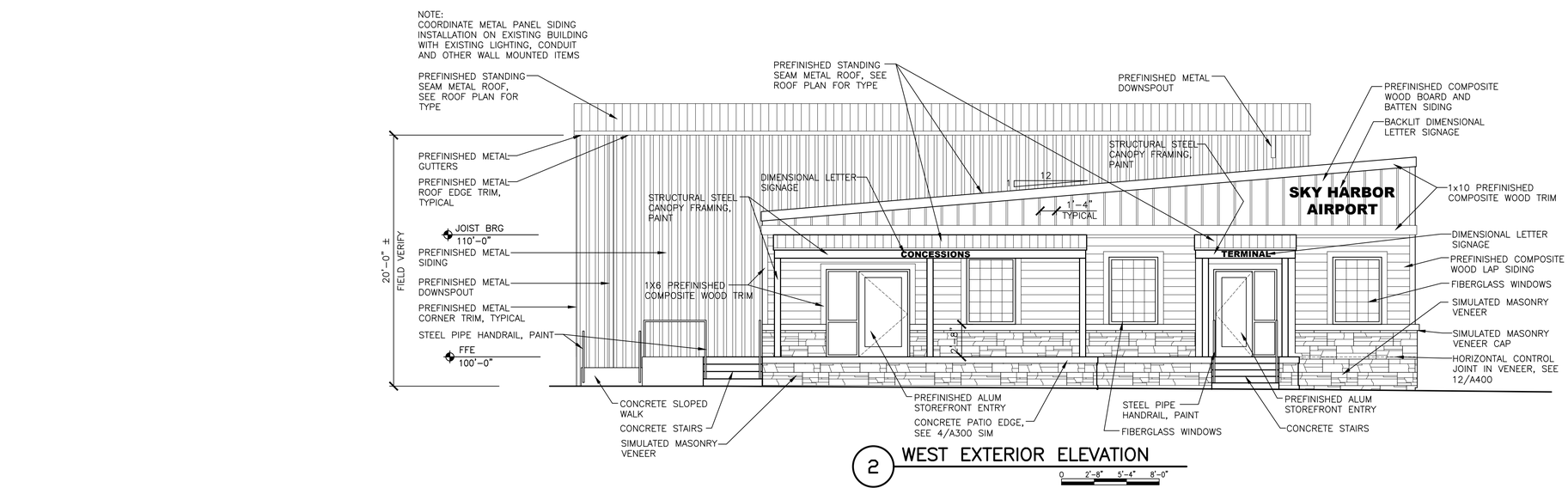
Project Status	**Issue Date**
CONSTRUCTION PLANS	5.16.23

REVISION SCHEDULE

REV. #	DESCRIPTION	DATE
1	ADDENDUM #1	5.30.2023
2	ADDENDUM #2	6.2.2023

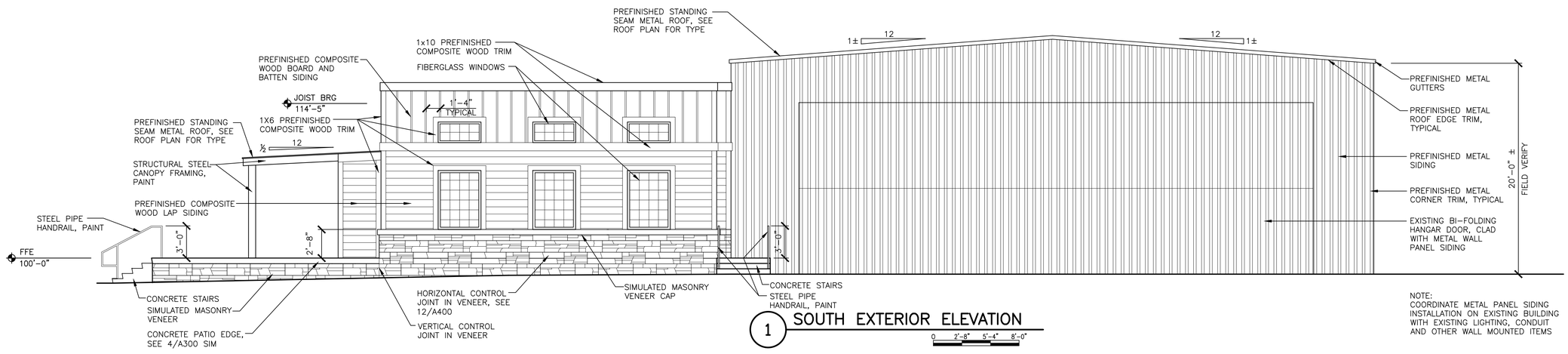
ROOF PLAN AND CEILING PLAN

A102



2 WEST EXTERIOR ELEVATION

0 2'-8" 5'-4" 8'-0"



1 SOUTH EXTERIOR ELEVATION

0 2'-8" 5'-4" 8'-0"

NOTE:
COORDINATE METAL PANEL SIDING INSTALLATION ON EXISTING BUILDING WITH EXISTING LIGHTING, CONDUIT AND OTHER WALL MOUNTED ITEMS

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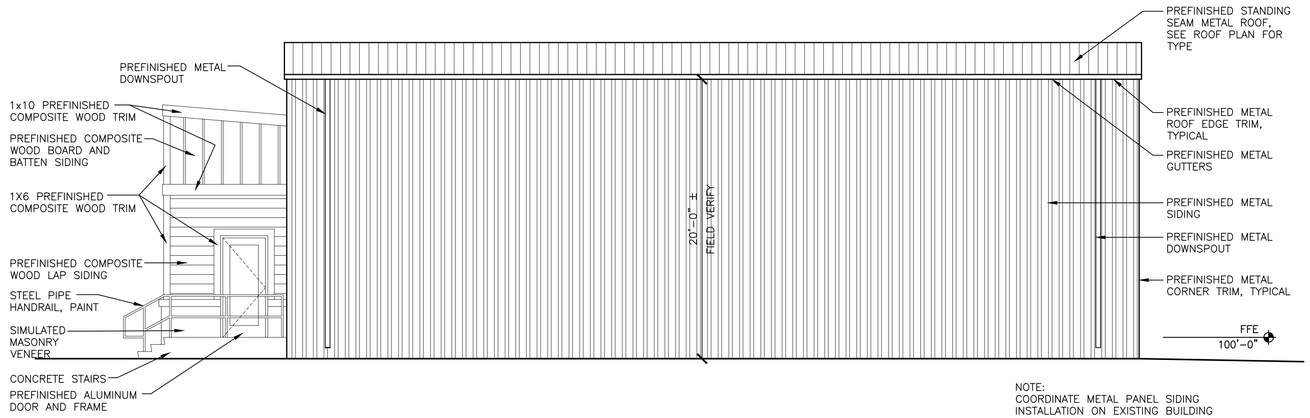
2	ADDENDUM #2	6.2.2023

2 EXTERIOR ELEVATIONS

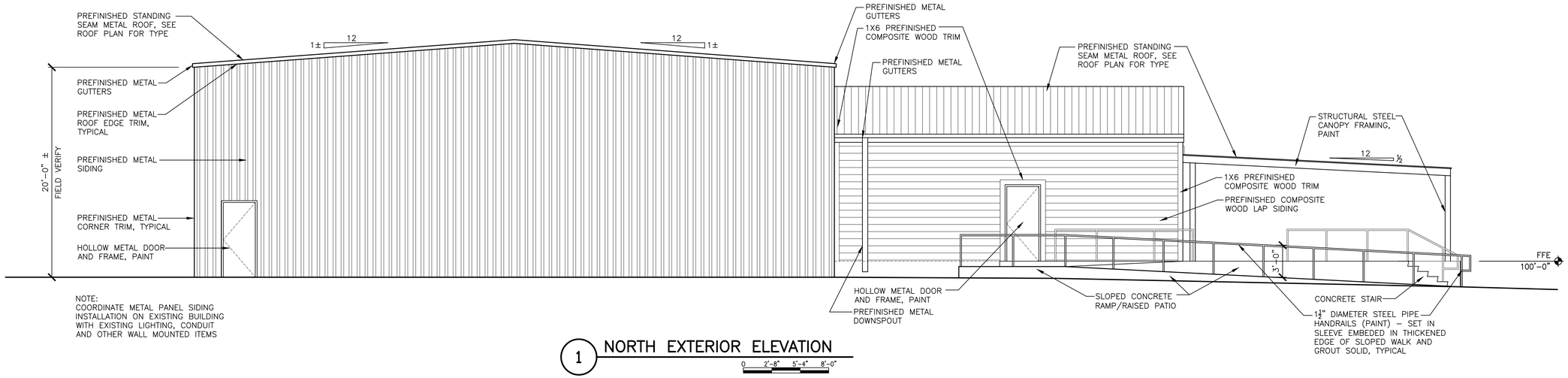
A200



NOTE:
COORDINATE METAL PANEL SIDING INSTALLATION ON EXISTING BUILDING WITH EXISTING LIGHTING, CONDUIT AND OTHER WALL MOUNTED ITEMS

2 EAST EXTERIOR ELEVATION

0 2'-8" 5'-4" 8'-0"



NOTE:
COORDINATE METAL PANEL SIDING INSTALLATION ON EXISTING BUILDING WITH EXISTING LIGHTING, CONDUIT AND OTHER WALL MOUNTED ITEMS

1 NORTH EXTERIOR ELEVATION

0 2'-8" 5'-4" 8'-0"

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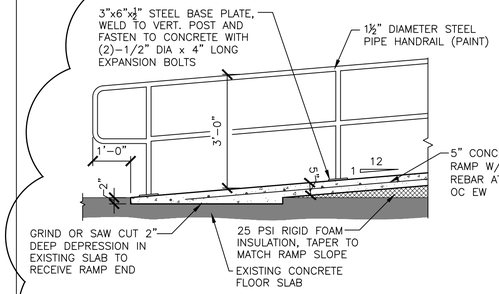
2	ADDENDUM #2	6.2.2023

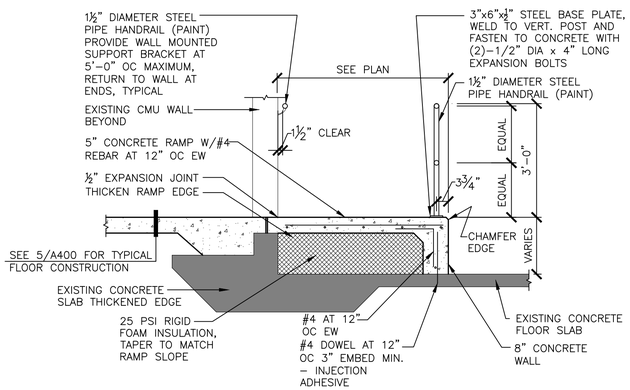
2 EXTERIOR ELEVATIONS

A201



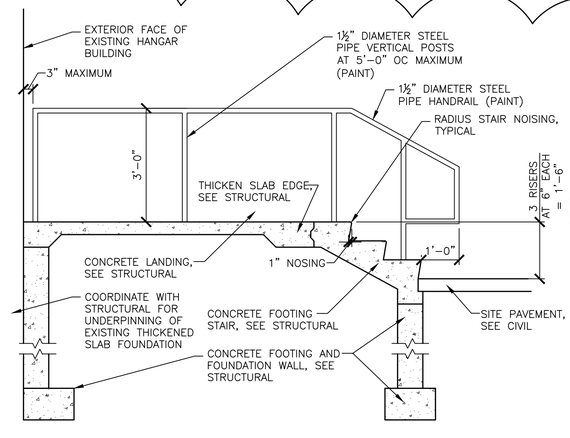
8 SECTION AT INTERIOR RAMP

0 1'–0" 2'–0" 3'–0"



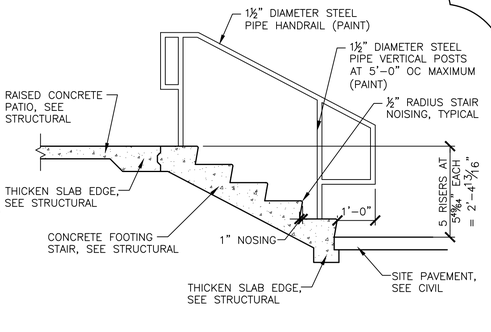
7 SECTION AT INTERIOR RAMP

0 1'–0" 2'–0" 3'–0"



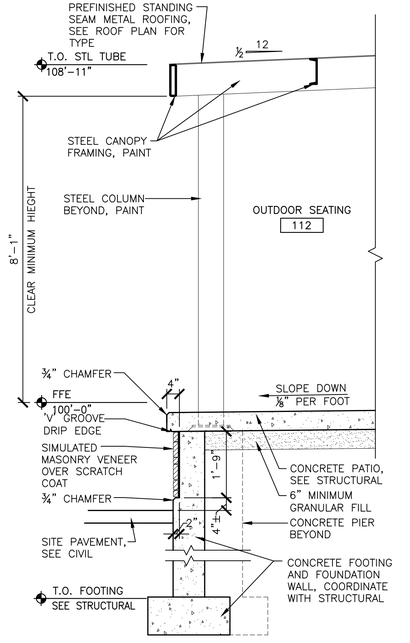
6 SECTION AT STAIR

0 1'–0" 2'–0" 3'–0"



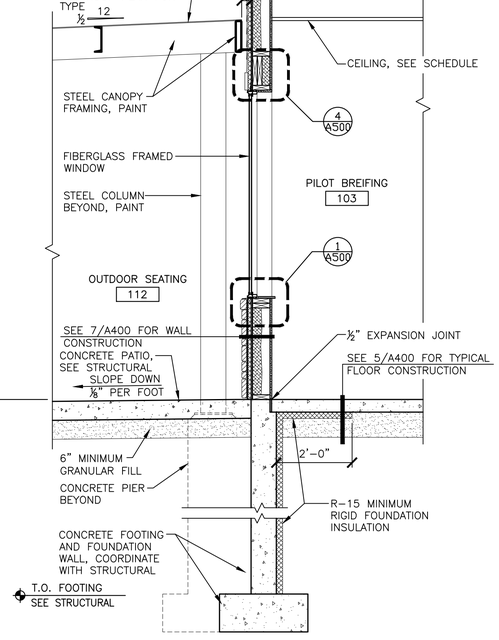
5 SECTION AT STAIR

0 1'–0" 2'–0" 3'–0"



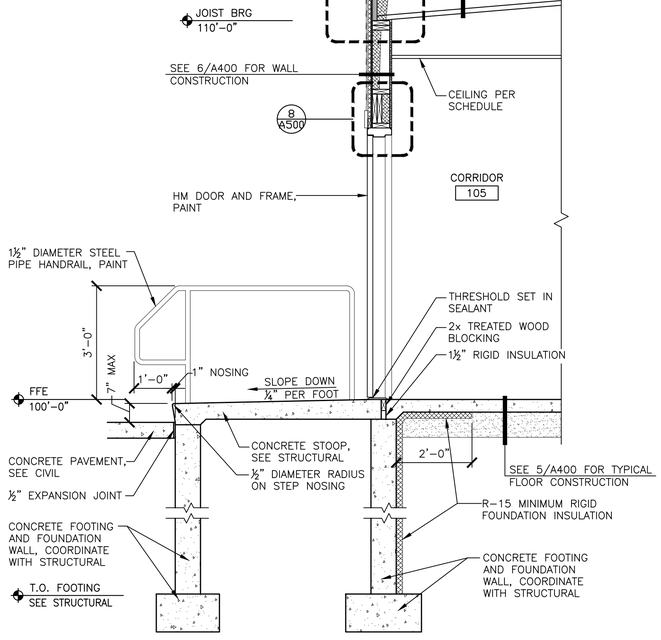
4 WALL SECTION

0 1'–0" 2'–0" 3'–0"



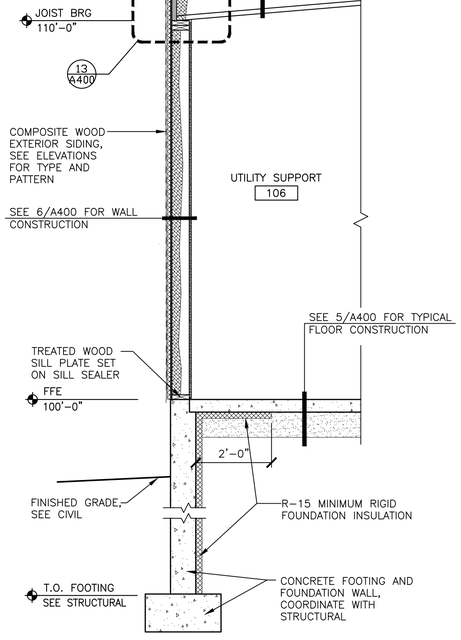
3 WALL SECTION

0 1'–0" 2'–0" 3'–0"



2 WALL SECTION

0 1'–0" 2'–0" 3'–0"



1 WALL SECTION

0 1'–0" 2'–0" 3'–0"

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1 WALL SECTIONS AND DETAILS

A300

ROOM FINISH SCHEDULE

NO.	ROOM NAME	FLOOR		BASE	WALL FINISH				CEILING			REMARKS
		MAT'L	FIN		NORTH	EAST	SOUTH	WEST	MAT'L	FIN	HEIGHT	
100	VESTIBULE	CONC	PC	VB	PT	PT	PT	PT	GB	PT	SEE CEILING PLAN	Note 1
101	CENTRAL WAITING ROOM	CONC	PC	VB	PT	PT	PT	PT	ACP	–		Note 1, 2
102	OFFICE	CONC	PC	VB	PT	PT	PT	PT	ACP	–		Note 1
103	PILOT BRIEFING	CONC	PC	VB	PT	PT	PT	PT	ACP	–		Note 1
104	CONCESSIONS	CONC	SL	VB	PT	PT	PT	PT	GB	PT		Note 1
105	CORRIDOR	CONC	PC	VB	PT	PT	PT	PT	ACP	–		Note 1, 3
106	UTILITY SUPPORT	CONC	SL	VB	PT	PT	PT	PT	–	–		Note 1
107	FAMILY RESTROOM	CONC	PC	TILE–1	TILE–1/PT	TILE–1/PT	TILE–1/PT	TILE–1/PT	ACP	–		Note 1, 4, 5
108	CORRIDOR	CONC	PC	VB	PT	PT	PT	PT	ACP	–		Note 1, 3
109	FAMILY RESTROOM	CONC	PC	TILE–1	TILE–1/PT	TILE–1/PT	TILE–1/PT	TILE–1/PT	ACP	–		Note 1, 4, 5
110	PIOLTS LOUNGE	CONC	PC	VB	PT	PT	PT	PT	ACP	–		Note 1,
111	EXISTING HANGAR	–	–	–	–	–	–	–	–	–		Note 1, 6

ROOM OPENING SCHEDULE

OPEN NO.	LEAFS	OPENING SIZE WD	HGT	THK	TYPE	MAT'L	FIRE RATING	FRAME TYPE	FRAME MAT'L	FRAME DETAILS HEAD	JAMB	SILL	HDWR GROUP	REMARKS
100A	1	3'–0"	7'–0"	1 3/4"	FG1	ALUM	–		ALUM	10/A500	9/A500	–	02	–
100B	1	3'–0"	7'–0"	1 3/4"	FG2	ALUM	–	F5	ALUM			–	03	–
101A	1	3'–0"	7'–0"	1 3/4"	FL	HM	–	F1	HM	5/A500	6/A500	–	04	NOTE 1
101B	1	3'–0"	7'–0"	1 3/4"	FG1	ALUM	–	F3	ALUM	10/A500	9/A500	–	02	–
102A	1	3'–0"	7'–0"	1 3/4"	FL	WD	–	F1	HM	4/A400 SIM	4/A400	–	08	NOTE 1
103	1	3'–0"	7'–0"	1 3/4"	FL	WD	–	F1	HM	4/A400 SIM	4/A400	–	08	NOTE 1
104A	1	4'–0"	7'–0"	1 3/4"	FG1	ALUM	–	F6	ALUM	10/A500	9/A500	–	01	–
104B	1	3'–0"	7'–0"	1 3/4"	FL	HM	–	F1	HM	4/A400 SIM	4/A400	–	09	NOTE 1
105	1	3'–0"	7'–0"	1 3/4"	FL	HM	–	F1	HM	8/A500	7/A500	–	05	NOTE 1
106	1	3'–0"	7'–0"	1 3/4"	FL	WD	–	F1	HM	4/A400 SIM	4/A400	–	09	NOTE 1
107	1	3'–0"	7'–0"	1 3/4"	FL	WD	–	F1	HM	4/A400 SIM	4/A400	–	06	NOTE 1
109	1	3'–0"	7'–0"	1 3/4"	FL	WD	–	F1	HM	4/A400 SIM	4/A400	–	06	NOTE 1
110	1	3'–0"	7'–0"	1 3/4"	FL	WD	–	F1	HM	4/A400 SIM	4/A400	–	07	NOTE 1
111	1	3'–0"	7'–0"	1 3/4"	FL	HM	–	F1	HM			–	04	NOTE 1

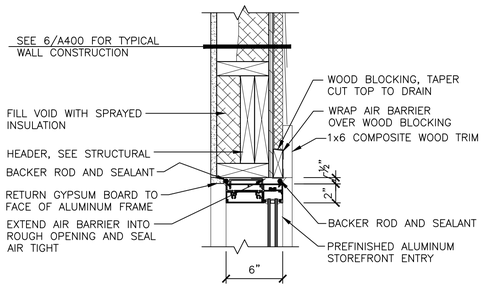
*PROVIDE ONE (1) HARDWARE GROUP 10 (1)

SCHEDULE NOTES:

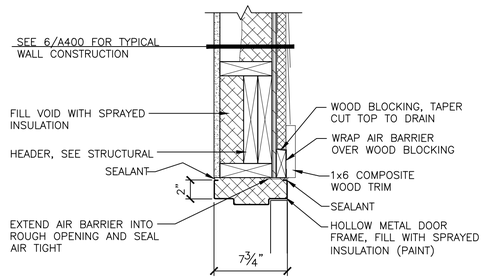
1.) PAINT HOLLOW METAL DOOR AND FRAME BOTH SIDES
2.) SLOPE ACOUSTICAL CEILING, SEE CEILING PLAN
3.) PAINT GYPSUM BOARD BULKHEAD
4.) PROVIDE COVED TILE WALL BASE AND BULLNOSE WAINSCOT CAP
5.) SEE INTERIOR ELEVATIONS FOR HEIGHT OF WALL TILE WAINSCOT
6.) PAINT STEEL HANDRAILS

SCHEDULE LEGEND:

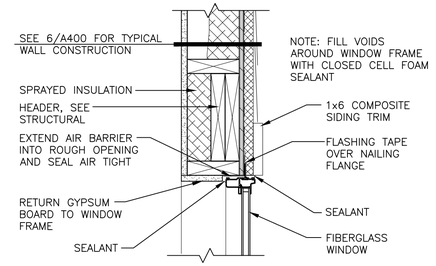
ALUM	ALUMINUM
ACP	ACOUSTICAL CEILING PANEL
CONC	CONCRETE
HM	HOLLOW METAL
PC	POLISHED CONCRETE
PT	PAINT
SL	SEALER
VB	VINYL BASE
WD	WOOD



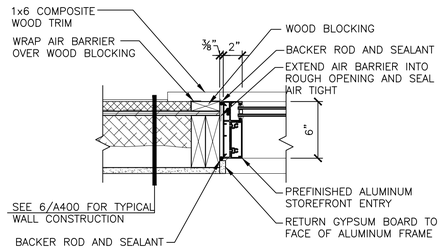
10 EXTERIOR STOREFRONT HEAD



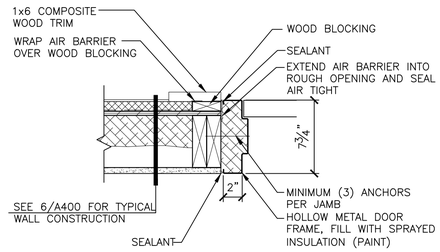
8 EXTERIOR HM DOOR HEAD



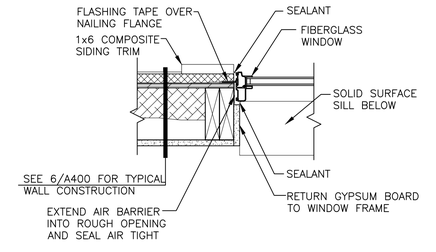
4 FIBERGLASS WINDOW HEAD



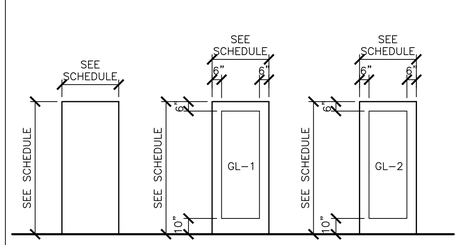
9 EXTERIOR STOREFRONT JAMB



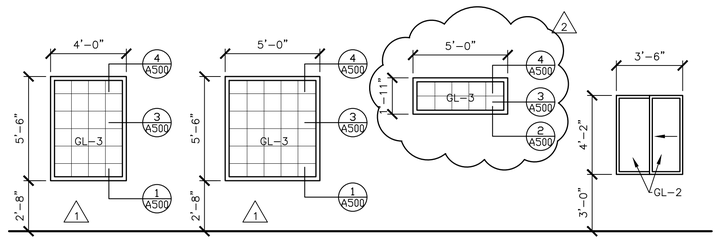
7 EXTERIOR HM DOOR JAMB



3 FIBERGLASS WINDOW JAMB



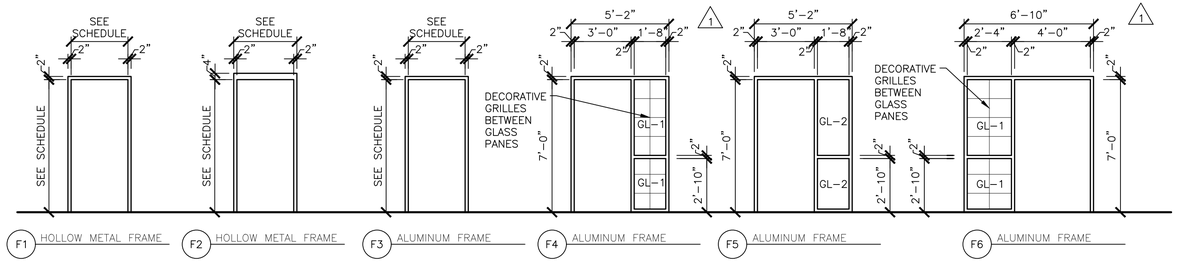
FL FLUSH DOOR | FG1 FULL GLASS DOOR | FG2 FULL GLASS DOOR



W1 FIBERGLASS FRAME | W2 FIBERGLASS FRAME | W3 FIBERGLASS FRAME | W4 SLIDING ALUMINUM

12 DOOR TYPES

13 WINDOW TYPES

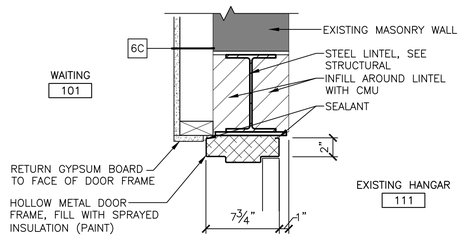


F1 HOLLOW METAL FRAME | F2 HOLLOW METAL FRAME | F3 ALUMINUM FRAME | F4 ALUMINUM FRAME | F5 ALUMINUM FRAME | F6 ALUMINUM FRAME

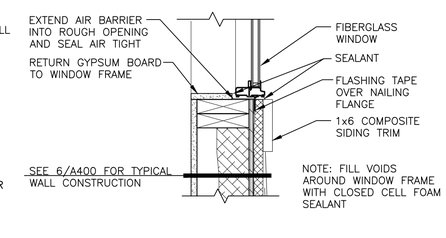
11 FRAME TYPES

GLASS TYPES

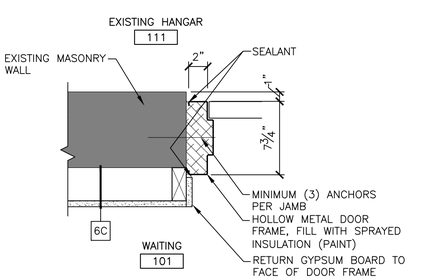
GL–1	1" THICK, INSULATED, TEMPERED GLASS
GL–2	¼" THICK TEMPERED GLASS
GL–3	PRE–GLAZED WITH INSULATED GLASS, MULLION BETWEEN PANES



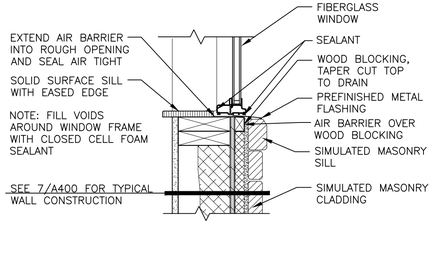
6 HM DOOR HEAD AT EXISTING



2 FIBERGLASS WINDOW SILL



5 HM DOOR JAMB AT EXISTING



1 FIBERGLASS WINDOW SILL

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SCHEDULES, DOOR, WINDOW AND FRAME TYPES

A500

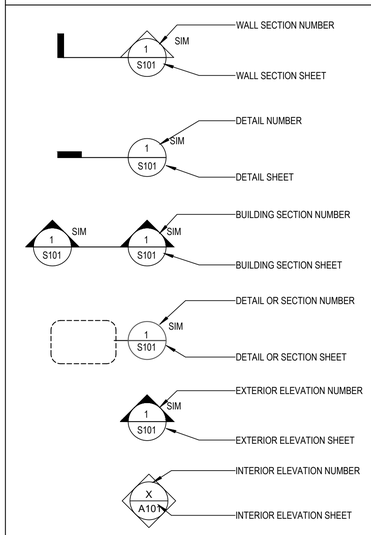
ABBREVIATIONS

&	AND
L	ANGLE
@	AT
℄	CENTERLINE
ø	DIAMETER/ROUND
(E)	EXISTING
#	POUND/NUMBER
+/-	PLUS OR MINUS
SQ	SQUARE
AB	ANCHOR BOLT
ADD	ADDENDUM
ADDL	ADDITIONAL
ADH	ADHESIVE
ADJ	ADJUSTABLE
ADJA	ADJACENT
AGGR	AGGREGATE
ALUM	ALUMINUM
ALT	ALTER OR ALTERNATE
ANCH	ANCHOR
ANG	ANGLE
ANOD	ANODIZED
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ASPH	ASPHALT (PAVING)
BITUM	BITUMINOUS
BLDG	BUILDING
BLK	BLOCK
BM	BEAM
BOT	BOTTOM
BRG	BEARING
BRKT	BRACKET
BTWN	BETWEEN
C	CHANNEL
CANT	CANTILEVER
CIP	CAST-IN-PLACE
CJ	CONTROL JOINT
CLR	CLEAR
CM	CENTIMETER
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
COMP	COMPOSITE
CONC	CONCRETE
COND	CONDITION
CONN	CONNECTION
CONSTR	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACTOR
COORD	COORDINATE
CORR	CORRIDOR
CRM	CONCRETE RUBBLE MASONRY
CTR	CENTER
d	PENNY (NAILS)
D	DEEP/DEPTH
DBL	DOUBLE
DET	DETAIL
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DL	DEAD LOAD
DN	DOWN
DO	DOOR OPENING
DR	DOOR
DWL	DOWEL
DWG	DRAWING
DWR	DRAWER
E	EAST
EA	EACH
EF	EACH FACE
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATION
ENCL	ENCLOSURE
EQ	EQUAL
EQPT	EQUIPMENT
EW	EACH WAY
EXP	EXPANSION
EXIST	EXISTING
EXT	EXTERIOR
EXTN	EXTENSION
FD	FLOOR DRAIN
FFE	FINISHED FLOOR ELEVATION
FH	FLAT HEAD
FL	FLOOR
FND	FOUNDATION
FR	FRAME
FRP	FIBERGLASS REINFORCED POLYESTER/PLASTIC
FS	FOOTING STEP
FT	FOOT/FEET
FTG	FOOTING
FV	FIELD VERIFY
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GB	GRADE BEAM
GEN	GENERATOR
GP	GUSSET PLATE
GR	GRADE
H	HEIGHT/HIGH
HC	HOLLOW CORE
HD	HEAD
HEF	HORIZONTAL EACH FACE
HIF	HORIZONTAL INSIDE FACE
HOF	HORIZONTAL OUTSIDE FACE
HORIZ	HORIZONTAL
HR	HOUR
HS	HEADED STUD
HSS	HOLLOW STRUCTURAL SHAPE
ID	INSIDE DIAMETER (DIMENSION)
IN	INCH
INFO	INFORMATION
INSUL	INSULATION
INT	INTERIOR
INV	INVERT
JBE	JOIST BEARING ELEVATION
JGBE	JOIST GIRDER BEARING ELEVATION
JST	JOIST
JT	JOINT
K	KIPS
KG	KILOGRAM
KM	KILOMETER
KO	KNOCK-OUT
KW	KILOWATT
L	LENGTH/LONG
L#	LINTEL
LB	POUND
LF	LINEAL FOOT
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LOC	LOCATION
LONG	LONGITUDINAL
LTL	LINTEL
LVR	LOUVER
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MEMB	MEMBRANE
MFR	MANUFACTURER
MFG	MANUFACTURING
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MM	MILLIMETER
MTL	METAL
N	NORTH
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NS	NO SCALE
NTS	NOT TO SCALE
OA	OVERALL
OC	ON CENTER
OD	OUTSIDE DIAMETER (DIMENSION)
OPNG	OPENING
OPP	OPPOSITE
OVHD	OVERHEAD
PC	PRECAST
PCF	POUNDS PER CUBIC FOOT
PERIM	PERIMETER
PERP	PERPENDICULAR
PL	PLATE
PLYWD	PLYWOOD
PNL	PANEL
PREFAB	PREFABRICATED
PSI	POUNDS PER SQUARE INCH
PSF	POUNDS PER SQUARE FOOT
QT	QUARRY TILE
R	RISER
RAD	RADIUS
REF	REFERENCE/REFER
REINF	REINFORCED/REINFORCING
REQ	REQUIRED
REV	REVISED/REVISION
RH	ROUND HEAD
RLG	RAILING
RM	ROOM
RO	ROUGH OPENING
RTU	ROOF TOP UNIT
S	SOUTH
SCHED	SCHEDULE
SECT	SECTION
SER	STRUCTURAL ENGINEER OF RECORD
SF	SQUARE FOOT
SHT	SHEET
SIM	SIMILAR
SL	SLOPE
SLNT	SEALANT
SLH	SHORT LEG HORIZONTAL
SLV	SHORT LEG VERTICAL
SM	SQUARE METER
SOG	SLAB ON GRADE
SP	SPACED
SPEC	SPECIFICATIONS
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STL	STEEL
STRUC	STRUCTURE/STRUCTURAL
SUSP	SUSPEND/SUSPENDED
SYM	SYMMETRICAL
T	TREAD
T&B	TOP AND BOTTOM
TBE	TOP OF BEAM ELEVATION
TD	TRENCH DRAIN
TFE	TOP OF FOOTING ELEVATION
THK	THICK/THICKNESS
THR	THRESHOLD
THRD	THREADED
TOS	TOP OF STEEL
TRANS	TRANSVERSE
TSE	TOP OF SLAB ELEVATION
TWE	TOP OF WALL ELEVATION
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VAR	VARIES
VEF	VERTICAL EACH FACE
VERT	VERTICAL
VIF	VERTICAL INSIDE FACE OR VERIFY IN FIELD
VL#	VENEER LINTEL
VLE	VENEER LEDGE ELEVATION
VLS	VENEER LEDGE STEP
VOF	VERTICAL OUTSIDE FACE
VOL	VOLUME
W	WEST/WIDTH/WIDE
W	WIDE FLANGE (STEEL)
WF	WIDE FLANGE (ALUMINUM)
W/	WITH
W/O	WITHOUT
WP	WATERPROOF
WPM	WATERPROOF MEMBRANE
WS	WATER STOP
WR	WATER RESISTANT
WT	WEIGHT
WWF	WELDED WIRE FABRIC

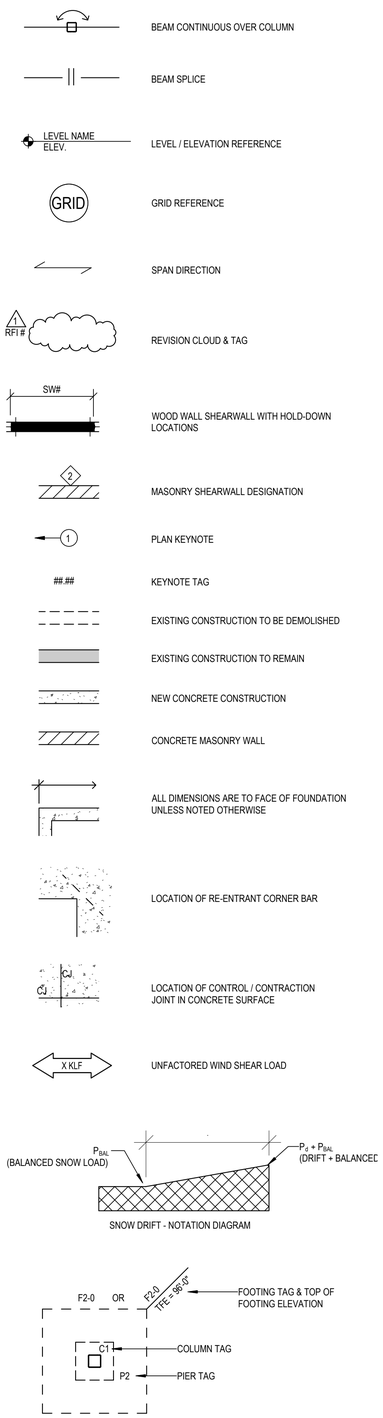
MATERIAL SYMBOLS

- GRAVEL
- SOIL
- BASE COURSE, SUB-BASE, GRAVEL, CRUSHED ROCK
- CONCRETE
- BRICK MASONRY
- CUT STONE, SAND, MORTAR, PLASTER
- CONCRETE MASONRY UNITS
- STEEL
- ALUMINUM (OMIT IN THIN MATERIAL)
- INSULATION BOARD
- RIGID INSULATION
- WOOD FRAMING THROUGH MEMBER
- WOOD FRAMING INTERRUPTED MEMBER
- PLYWOOD
- GYPSUM BOARD
- PARTICLE BOARD

CALLOUT SYMBOLS



ANNOTATION SYMBOLS



STRUCTURAL SHEET INDEX

SEH

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

BENJAMIN A. WOLF

DATE 5.16.2023 LICENSE NO. 40807

DULUTH INTERNATIONAL AIRPORT

SKY HARBOR AIRPORT
2023 RECONSTRUCT TERMINAL BUILDING
DULUTH, MN

SEH Project	DULAI_172133
Checked By	BW
Drawn By	JS

Project Status	**Issue Date**
CONSTRUCTION PLANS	5.16.2023

REVISION SCHEDULE

REV. #	DESCRIPTION	DATE
1	ADDENDUM #2	6.2.2023

GENERAL ABBREVIATIONS AND SYMBOLS

S001

COLUMN SCHEDULE

MARK	DESIGNATION	BASE PLATE	ANCHOR RODS	TOP PLATE	NOTES
C1	HSS8x8x1/4	14"x14"x1/2" THICK	(4) 3/4"Ø	N/A	SEE DETAILS
C2	HSS8x4x1/4	SEE DETAILS	(4) 3/4"Ø	N/A	SEE DETAILS

FOOTING SCHEDULE

MARK	SIZE	REINFORCING
F1	CONT. 1'-4" x 10" DEEP	(2) CONT. #4 REBAR, BOTTOM
F2	CONT. 2'-0" x 1'-0" DEEP	(3) CONT. #5 REBAR, BOTTOM
F3	CONT. 3'-0" x 1'-0" DEEP	(4) CONT. #5 REBAR, BOTTOM
F4	2'-6" x 2'-6" x 1'-0" DEEP	(4) #5 REBAR EACH WAY, BOTTOM
F5	3'-0" x 3'-0" x 1'-0" DEEP	(4) #5 REBAR EACH WAY, BOTTOM

FOUNDATION PLAN NOTES:

(TYPICAL UNLESS NOTED OTHERWISE)

1. FINISH LOWER LEVEL ELEVATION = 100'-0" (U.N.O.)
   (ELEVATIONS AT PERIMETER - SEE CIVIL FOR SPOT ELEVATIONS)
2. FORM CONTRACTION JOINTS (C.J.) OR SAWCUT WITHIN 18 HOURS OF CONCRETE PLACEMENT - SEE D/S501
   MAXIMUM SPACING OF CONTRACTION JOINTS TO BE 15'-0"
3. VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS.
4. VERIFY ALL SIZES AND LOCATIONS OF OPENINGS WITH ARCHITECTURAL DRAWINGS.
5. TOP OF FOOTING ELEVATION (TFE) = INTERIOR: 98'-0" U.N.O.
   EXTERIOR: 95'-0" U.N.O.
6. DESIGN ALLOWABLE SOIL BEARING CAPACITY: (REF. GEOTECH REPORT)
   MAIN BUILDING ELEMENTS: 2,500 psf
7. STEPPED FOOTING DETAIL - SEE C/S501. USE WHERE NEEDED TO MAINTAIN BOTTOM OF FOOTING DEPTH OF 5'-0" MIN. BELOW GRADE.
8. CONTRACTOR OPTIONS AT MECHANICAL & ELECTRICAL LINES THROUGH FOUNDATION - SEE A/S501 AND B/S501.
9. TFE= TOP OF FOOTING ELEVATION
   TSE= TOP OF SLAB ELEVATION
   TPE= TOP OF PIER ELEVATION
   TWE= TOP OF WALL ELEVATION
   FS= FOOTING STEP
   CJ= CONTROL JOINT
10. 'Fx' DENOTES FOOTING TYPE.
    REF. SCHEDULES ON THIS SHEET AND DETAILS.
11. CONTRACTOR TO IMMEDIATELY CONTACT STRUCTURAL ENGINEER FOR FIELD VERIFICATION IF EXISTING CONDITIONS VARY FROM THOSE INDICATED IN THESE DOCUMENTS. ASSUMPTIONS MADE HERE WITHIN HAVE BEEN BASED UPON LIMITED EXISTING DOCUMENTATION.
12. SEE DETAIL H/S501 FOR TYPICAL STOOP DETAIL.
13. SEE DETAIL G/S501 FOR TYPICAL CONCRETE WALL CORNER REINFORCING.
14. SEE DETAIL F/S501 FOR TYPICAL REINFORCING AT PENETRATION CAST INTO CONCRETE WALL OR SLAB.
15. ⊕ DESIGNATED SHEARWALL HOLD-DOWN TO FOUNDATION WALL - SEE FRAMING PLAN AND SHEARWALL SECTIONS AND DETAILS.

FOUNDATION PLAN KEYNOTES:

① PROVIDE (1) #4 REBAR x 2'-0" LONG AT EACH RE-ENTRANT CORNER AND WHERE CONTROL JOINTS TERMINATE AWAY FROM SLAB EDGE. SEE DETAIL E/S501.

② HSS4x4x3/8 POST.

③ DRAIN LOCATION FOR SERVICE BASIN - SEE PLUMBING AND ARCHITECTURAL DRAWINGS.

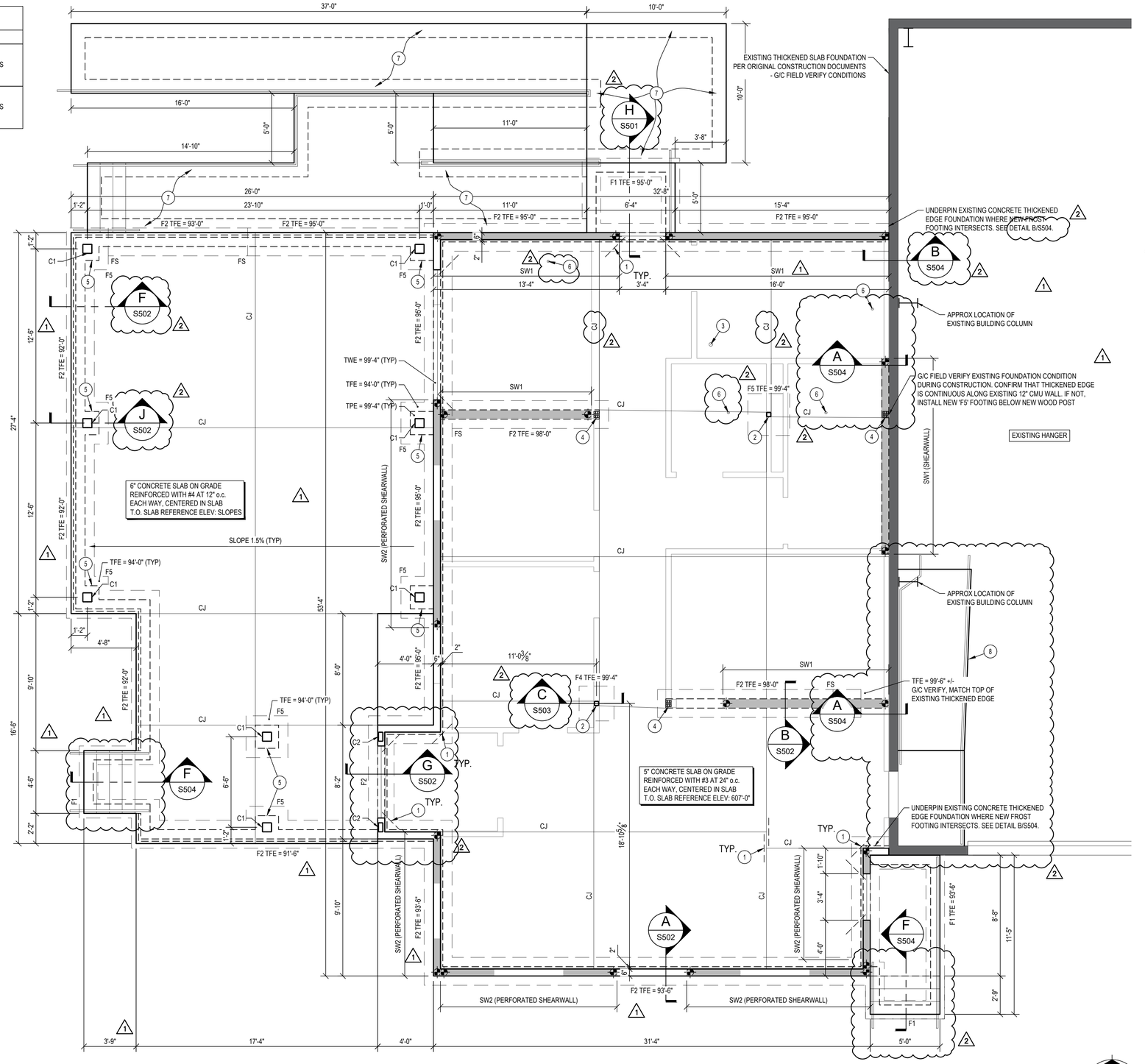
④ (3) 2x6 POST.

⑤ TYPICAL PATIO PIERS: 1'-8" x 1'-8" CONCRETE PIER
EXTEND TO FROST FOOTING EL. (AS SHOWN ON PLAN)
(8) #6 REBAR VERTICAL
#3 TIES AT 12" OC PLUS (3) AT 2" OC AT TOP

⑥ FLOOR DRAIN - SEE MECHANICAL DRAWINGS.

⑦ 6" CONCRETE RAMP AND STAIR ON GRADE. REINFORCE WITH #4 REBAR AT 12" OC EW. PROVIDE MIN. 12" WIDE THICKENED EDGES AT ALL EDGES OF RAMP AND AT HEIGHT TRANSITIONS. THICKENED EDGE SHALL EXTEND MIN. 12" BELOW ADJACENT FINISHED GRADE OR AT TOP OF SLAB, WHICHEVER IS LOWER. REINFORCE THICKENED EDGE WITH (2) #5 REBAR TOP AND BOTTOM. SEE DETAIL F/S504.

⑧ 4" CONCRETE LANDING AND RAMP WITH 6" EDGE WALLS. RIGID INSULATION TO FILL BETWEEN EXISTING SLAB AND CONCRETE. REINFORCE WITH #4 REBAR AT 12" OC EACH WAY, DOWELED TO SLAB AT EDGES. CUT EXISTING SLAB DOWN 2" AT BASE OF RAMP TO CREATE SMOOTH TRANSITION. SEE ARCH SECTION.



1
S101
FOUNDATION PLAN
ORIGINAL SCALE: 1/4" = 1'-0"

NORTH

SEH

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1	ADDENDUM #1	5.30.2023
2	ADDENDUM #2	6.2.2023

FOUNDATION PLAN

S101

SHEARWALL SCHEDULE

MARK	SHEATHING	THICKNESS	NAILS	SPACING		ANCHOR RODS			HOLD-DOWNS			
				EDGE	INTER.	SIZE	SPACING	EMBED.	POST	TYPE	ANCHORS	EMBED.
SW1	APA STRUCT I PLYWOOD SHEATHING OUTSIDE FACE	7/16" MIN.	8d	6" o.c.	12" o.c.	5/8" DIA.	48" MAX.	7" MIN.	(2) 2x STUDS MINIMUM	SIMPSON HDU2-SDS2.5 HOLD-DOWN EA. END	5/8" DIA. 16" LONG HEADED ROD	12" MIN. - ADHESIVE ANCHOR IN EXISTING (NOTE 6)
SW2 (PERFORATED SHEARWALL)	APA STRUCT I PLYWOOD SHEATHING OUTSIDE FACE	7/16" MIN.	8d	6" o.c.	12" o.c.	5/8" DIA.	48" MAX.	7" MIN.	(2) 2x STUDS MINIMUM	SIMPSON HDU8-SDS2.5 HOLD-DOWN EA. END	7/8" DIA. 32" LONG HEADED ROD	28" MIN. (NOTE 6)

1. SHEARWALL FRAMING TO BE 2x6 AT 16" o.c. UNLESS NOTED OTHERWISE. PROVIDE 2x BLOCKING FOR ALL JOINTS IN SHEATHING.
2. SHEARWALL FRAMING SHALL BE SPRUCE PINE FIR (SPF) GRADE No 2 OR ANOTHER SPECIES WITH SPECIFIC GRAVITY OF 0.42 OR GREATER.
3. AT PERFORATED SHEARWALLS PROVIDE 2x BLOCKING (WITH NAILING AS INDICATED FOR PANEL EDGES) AT LEAST 2 FRAMING SPACES (MIN. 32") EACH SIDE OF EACH WINDOW AT HEAD AND SILL (SEE DIAGRAM BELOW FOR ILLUSTRATION)
4. PROVIDE LVL RIM BOARD ALONG EXTERIOR BEARING WALLS ABOVE SHEARWALLS. CONTINUE SHEARWALL SHEATHING UP TO ROOF DECK.
5. ANCHOR RODS INDICATED AS HEADED MAY CONSIST OF THREADED ROD WITH STANDARD HEX NUT TACK WELDED TO EMBEDDED END.
6. INDICATED EMBEDMENT IS INTENDED TO DEVELOP LAP WITH WALL REINFORCING BARS. ADD 2 ADDITIONAL #5 REBAR ADJACENT TO ANCHOR ROD IF WALL REBAR IS NOT PRESENT AT ANCHOR LOCATION.

HEADER / JAMB SCHEDULE

MARK	HEADER	JAMB
H1	(2) 2x10	(1) 2x TO BRG (1) 2x FULL HT
H2	(3) 1 3/4" x 14" LVL	(3) 2x TO BRG (2) 2x FULL HT
H3	(2) 1 3/4" x 14" LVL	(3) 2x TO BRG (2) 2x FULL HT

NOTES:
1. CONTINUOUS 2x TOP AND BOTTOM PLATE AT HEADERS TYPICAL. SEE DETAIL H/S503.

I-JOIST FRAMING SCHEDULE

MARK	JOIST DEPTH	JOIST DESIGNATION	ALT. DESIGNATION	SPACING	WEB STIFFENERS
J1	16"	APA PRI-40	TJI 230	24" o.c.	YES
J2	16"	APA PRI-70	TJI 360	24" o.c.	YES
J3	16"	APA PRI-70	TJI 360	16" o.c.	YES

NOTES:
1. JOIST DESIGNATIONS NOTED 'PRI-XX' ARE TO BE JOISTS MEETING ALL CRITERIA OF APA DOCUMENT PRI-400, PERFORMANCE STANDARD FOR APA EWS I-JOIST.

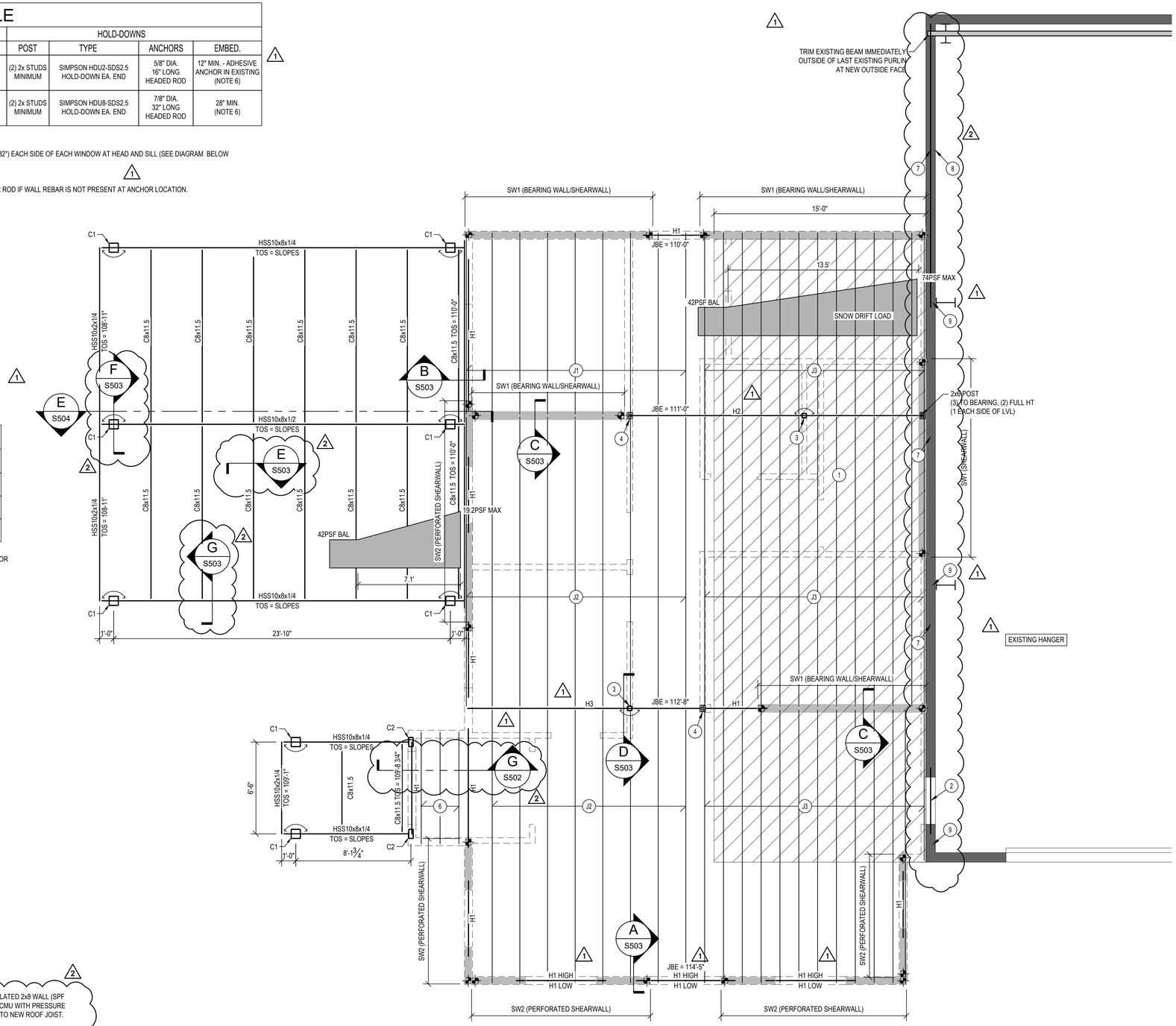
ROOF FRAMING NOTES:

(TYPICAL UNLESS NOTED OTHERWISE)

1. TYPICAL ROOF JOIST BEARING ELEVATION = SLOPES
2. ROOF JOISTS:
   - SPACE JOISTS AT 2'-0" o.c. MAX. U.N.O.
   - ATTACHMENT OF JOISTS TO DOUBLE TOP PLATE: TYPICAL JOISTS: SIMPSON H2 HURRICANE TIE EACH SIDE
3. JOIST LOADING/SPACING:
   - REF. THIS SHEET FOR DESIGN DEAD LOADS AND SNOW LOAD / SNOW DRIFT.
   - DESIGN DEAD LOAD = 20PSF
4. ROOF SHEATHING: 5/8" APA RATED SHEATHING. MINIMUM 40/20 APA RATING.
5. DIAPHRAGM NAILING: UNBLOCKED DIAPHRAGM, WITH 10d NAILS AT 6" o.c. AT PANEL EDGES, 12" o.c. IN FIELD.
6. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS TO WALL OPENINGS AND FOR LOCATIONS OF PARTITION WALLS NOT NOTED.
7. JOIST SUPPLIER SHALL VERIFY ALL JOIST END TO END LENGTHS AND BEARING CONDITIONS.
8. DASHED WALLS SHOWN ARE MAIN LEVEL WALLS (BELOW).
9. INDICATES BEAM CANTILEVERED OVER COLUMN.

ROOF FRAMING PLAN KEYNOTES:

1. HATCHED AREA REPRESENTS SLIDING SNOW FROM EXISTING UPPER ROOF. APPLY 37PSF ACROSS 15' OF NEW ROOF.
2. EXISTING PASSAGE DOOR TO HANGER. CUT MASONRY ABOVE TO EXTEND OPENING HIGHER. INSTALL NEW W8x18 LINTEL WITH 5/16" THK BOTTOM PLATE AT HEAD. 6" x 6" x 3/8" THK BEARING PLATE EACH END. SEE DETAILS D/SS04 AND C/SS04.
3. HSS4x4x3/8 STEEL POST WITH SADDLE AT TOP. SEE DETAIL D/SS03.
4. (3) 2x6 POST (LUMBER N-PLY, SPF No.1/No.2).
5. TJI JOIST MINIMUM BEARING LENGTH = 3 1/2".
6. 2x10 AT 16" OC (D. FIR L No. 2).
7. REPLACE EXISTING 2x4 PARTITION WALL WITH INSULATED 2x8 WALL (SPF No.1/No.2) AT 16" OC. SECURE TO TOP OF EXISTING CMU WITH PRESSURE TREATED 2x8. INSTALL HURRICANE TIE EACH STUD TO NEW ROOF JOIST.
8. WITHIN WALL AND ABOVE TREATED 2x8 PLATE, INSTALL (2) 1 3/4" x 7 1/4" LVL FLATWISE, CONTINUOUS BETWEEN PRE-ENGINEERED METAL BUILDING (PEMB) COLUMNS. SECURE TO EACH PEMB COLUMN WITH 6" x 4" x 3/16" THK WELDED CLIP PLATE WITH (6) 3" LONG SDS SCREWS.
9. FABRICATE SLOPED STIFFENED SEAT TO SUPPORT EXISTING BUILDING ROOF PURLIN WHERE EXISTING MONOSLOPE BEAM WILL BE REMOVED. FABRICATE 5" LONG STIFFENED SEAT WITH 4" WIDE x 1/4" THK SEAT PLATE, 6" DEEP x 1/4" THK VERTICAL PLATE AND 1/4" THK STIFFENER AT MIDDLE. WELD TO STEEL COLUMN WITH 1/4" FILLET WELD ALL AROUND.



1 S201 ORIGINAL SCALE: 1/4" = 1'-0"

ROOF FRAMING PLAN

NORTH

SEH

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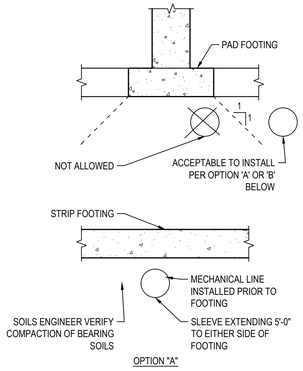
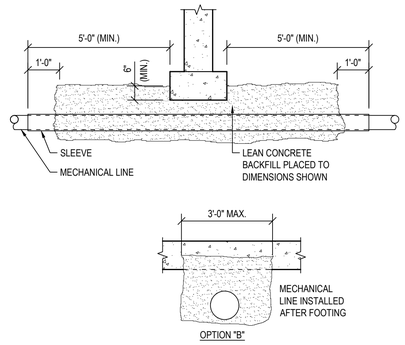
ROOF FRAMING PLAN

S201

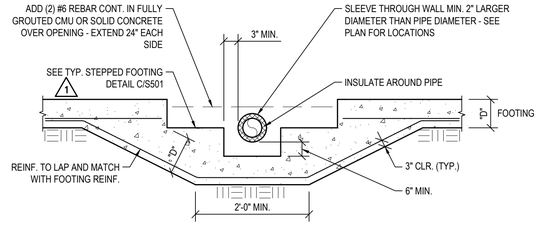


NOTE: DO NOT RUN LINES BENEATH OR WITHIN A 1:1 SLOPE FROM THE EDGE OF PAD FOOTINGS



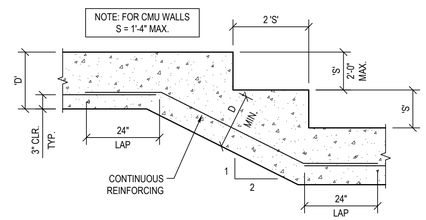
A S501 CONTRACTOR OPTION

ORIGINAL SCALE: 3/4" = 1'-0"



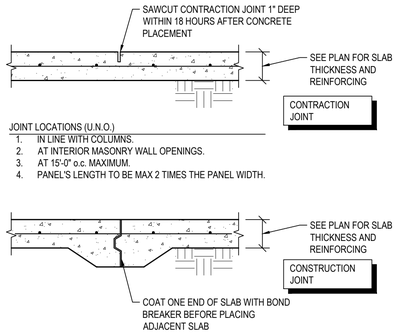
B S501 TYPICAL UTILITY OPENING THROUGH WALL DETAIL

ORIGINAL SCALE: 3/4" = 1'-0"



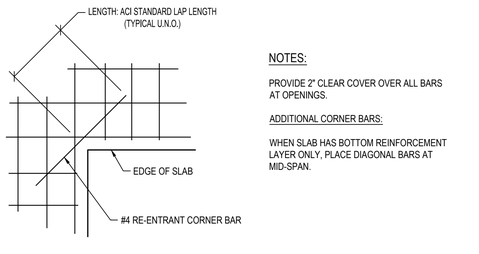
C S501 STEPPED FOOTING DETAIL

ORIGINAL SCALE: 3/4" = 1'-0"



D S501 CONSTRUCTION CONTRACTION JOINT DETAIL

ORIGINAL SCALE: 3/4" = 1'-0"



NOTES:

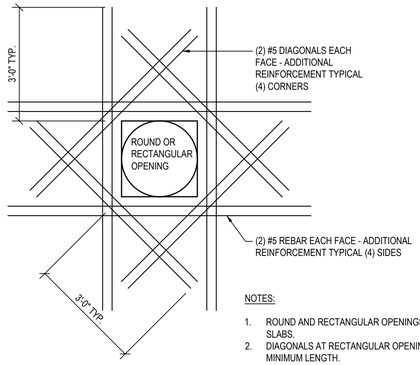
PROVIDE 2" CLEAR COVER OVER ALL BARS AT OPENINGS.

ADDITIONAL CORNER BARS:

WHEN SLAB HAS BOTTOM REINFORCEMENT LAYER ONLY, PLACE DIAGONAL BARS AT MID-SPAN.

E S501 SLAB RE-ENTRANT CORNER DETAIL

ORIGINAL SCALE: 3/4" = 1'-0"

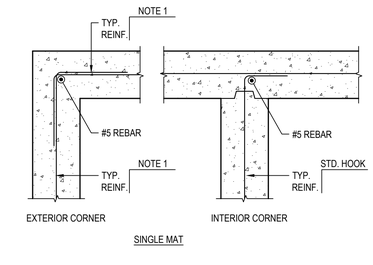


NOTES:

1. ROUND AND RECTANGULAR OPENINGS, WALL AND FLOOR SLABS.
2. DIAGONALS AT RECTANGULAR OPENINGS SHALL BE 6'-0" MINIMUM LENGTH.

F S501 TYPICAL REINFORCEMENT AT OPENING

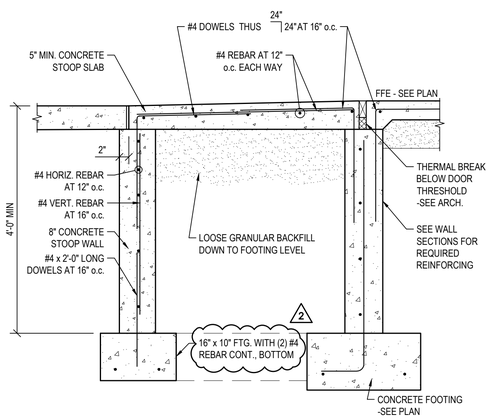
ORIGINAL SCALE: 3/4" = 1'-0"



NOTE:
1. 90° HOOK SHALL BE OF SUFFICIENT LENGTH TO PROVIDE THE HORIZONTAL BAR LAP LENGTH SHOWN IN THE SPLICE LAP TABLE BELOW.
2. TYPICAL FOR ALL CORNERS UNLESS OTHERWISE SHOWN ON THE PLANS.

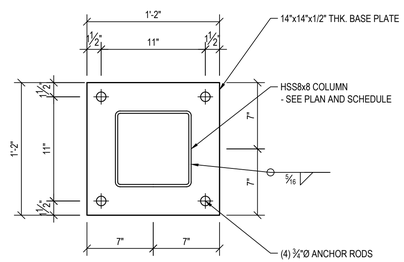
G S501 CONCRETE CORNER WALL REINFORCING DETAIL

ORIGINAL SCALE: 3/4" = 1'-0"



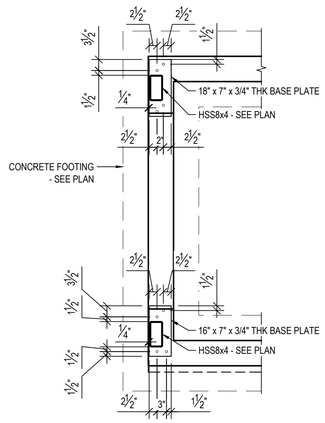
H S501 TYPICAL CONCRETE STOOP DETAIL

ORIGINAL SCALE: 3/4" = 1'-0"



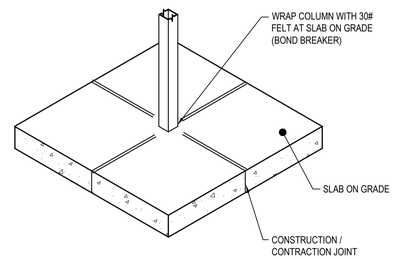
J S501 BASE PLATE DETAIL

ORIGINAL SCALE: 1 1/2" = 1'-0"



K S501 BASE PLATE DETAIL AT VESTIBULE

ORIGINAL SCALE: 1/2" = 1'-0"



L S501 ISOLATION JOINT AT STEEL COLUMN

ORIGINAL SCALE: 3/4" = 1'-0"

SEH

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BENJAMIN A. WOLF

DATE 5.16.2023 LICENSE NO. 40807

DULUTH INTERNATIONAL AIRPORT

SKY HARBOR AIRPORT
2023 RECONSTRUCT TERMINAL BUILDING
DULUTH, MN

SEH Project	DULAI_172133
Checked By	BW
Drawn By	JS

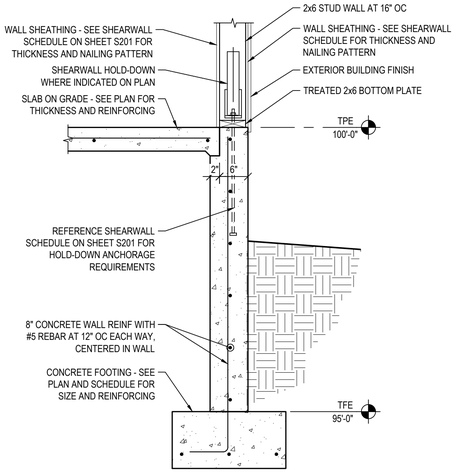
Project Status	Issue Date
CONSTRUCTION PLANS	5.16.2023

REVISION SCHEDULE

REV. #	DESCRIPTION	DATE
1	ADDENDUM #1	5.30.2023
2	ADDENDUM #2	6.2.2023

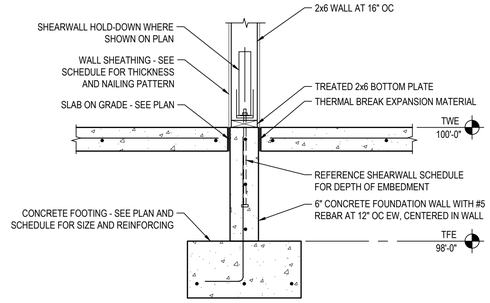
FOUNDATION DETAILS

S501



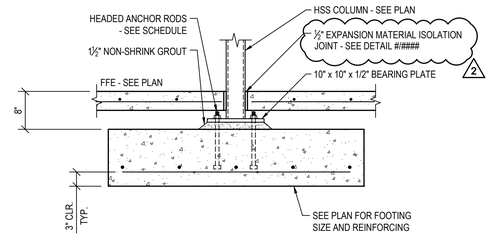
A S502 TYPICAL FOUNDATION WALL SECTION

ORIGINAL SCALE: 3/4" = 1'-0"



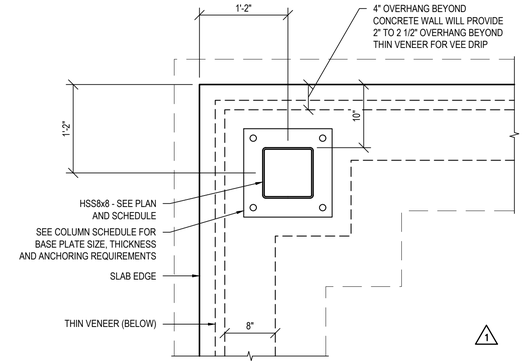
B S502 FOUNDATION WALL SECTION - INTERIOR

ORIGINAL SCALE: 3/4" = 1'-0"



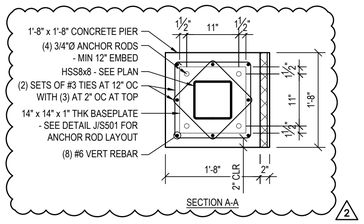
C S502 INTERIOR COLUMN FOOTING DETAIL

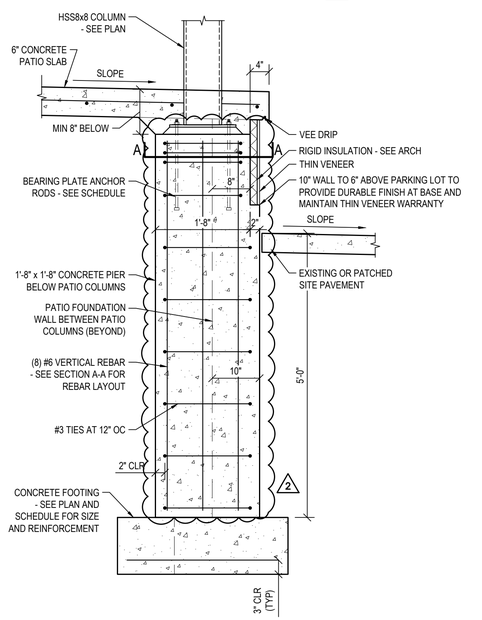
ORIGINAL SCALE: 3/4" = 1'-0"



D S502 ENLARGED PATIO COLUMN AT CORNER DETAIL

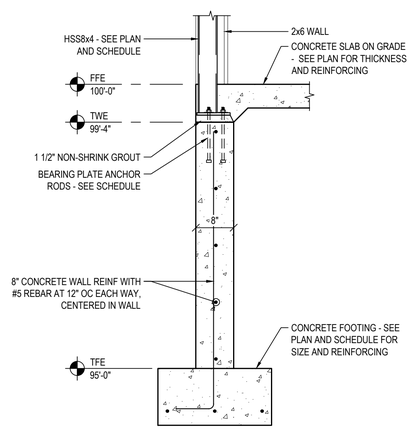
ORIGINAL SCALE: 1" = 1'-0"





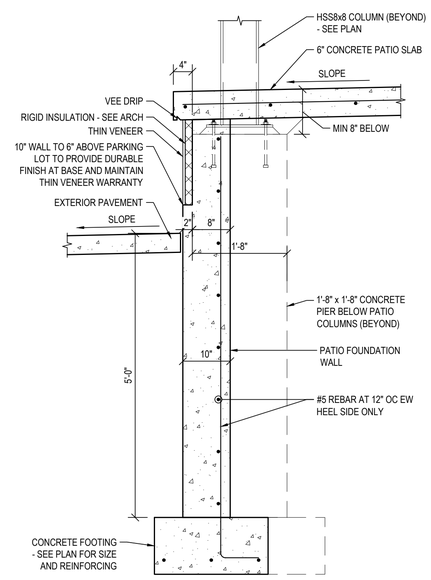
J S502 PATIO PIER FOUNDATION SECTION

ORIGINAL SCALE: 3/4" = 1'-0"



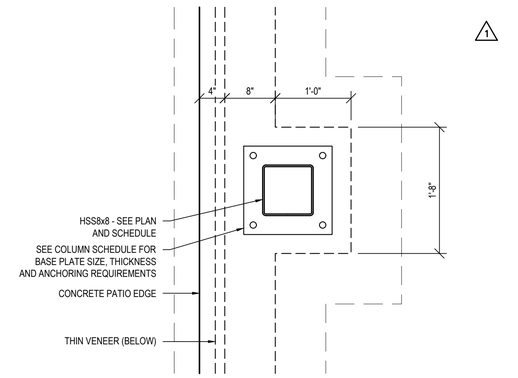
F S502 FOUNDATION SECTION AT VESTIBULE

ORIGINAL SCALE: 3/4" = 1'-0"



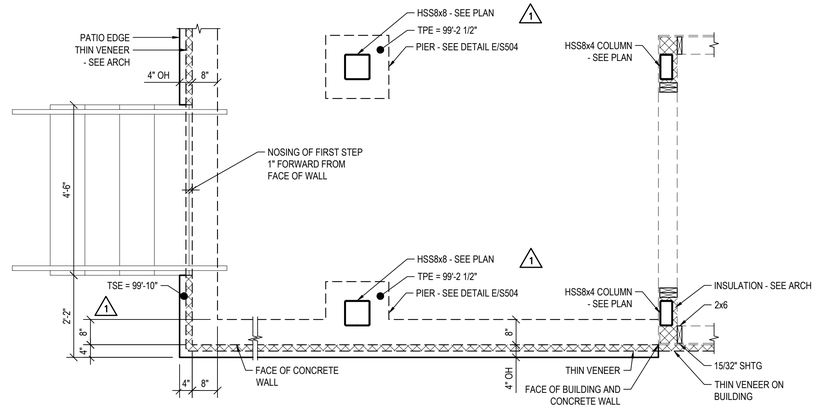
G S502 PATIO FOUNDATION SECTION

ORIGINAL SCALE: 3/4" = 1'-0"



E S502 ENLARGED PATIO COLUMN DETAIL

ORIGINAL SCALE: 1" = 1'-0"



H S502 PATIO EDGE DETAIL AT FRONT ENTRY

ORIGINAL SCALE: 1/2" = 1'-0"

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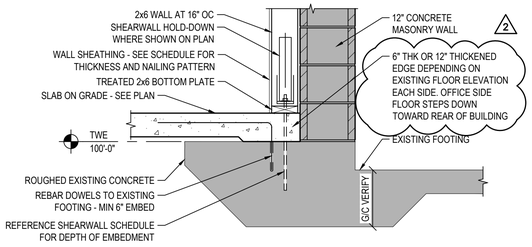
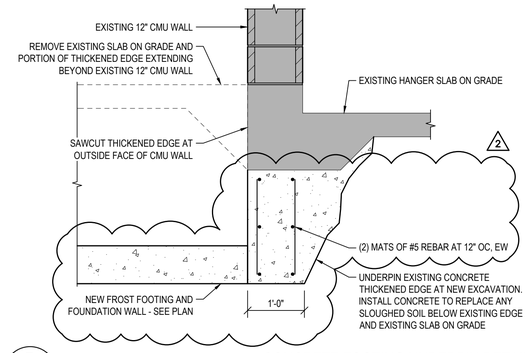
FOUNDATION DETAILS

S502



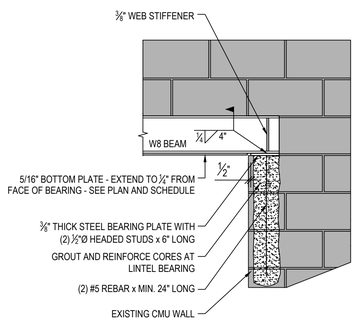
A S504 TYPICAL FOUNDATION SECTION AT EAST WALL

ORIGINAL SCALE: 3/4" = 1'-0"



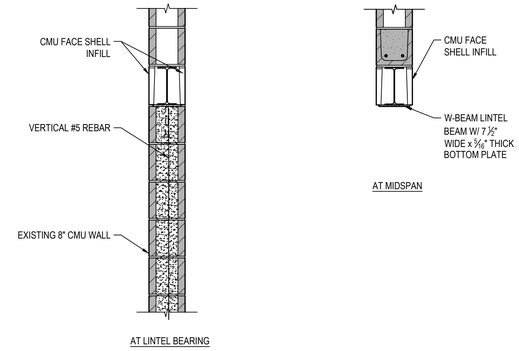
B S504 CONCRETE FOOTING UNDERPIN DETAIL

ORIGINAL SCALE: 3/4" = 1'-0"



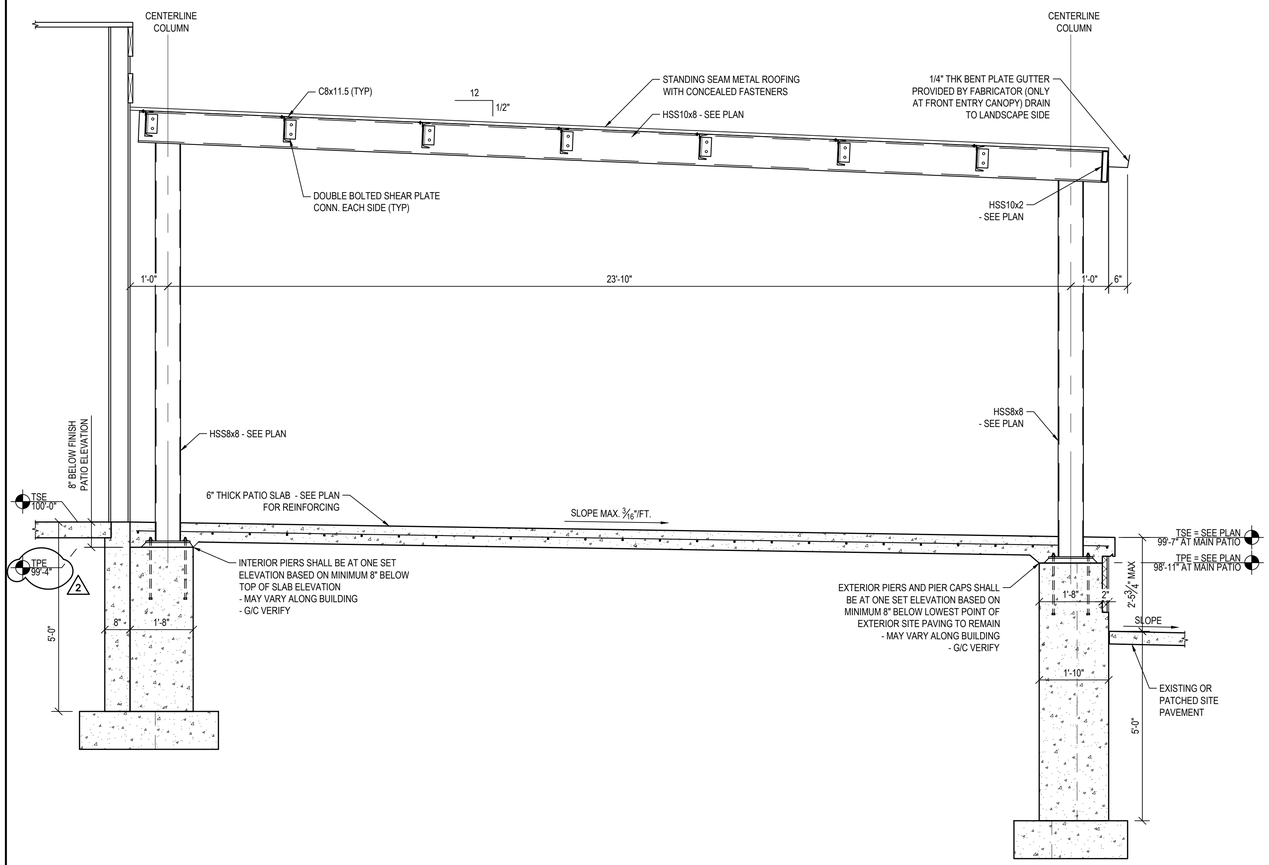
C S504 STEEL LINTEL ELEVATION AT EXISTING PASSAGE DOOR TO HANGER

ORIGINAL SCALE: 3/4" = 1'-0"



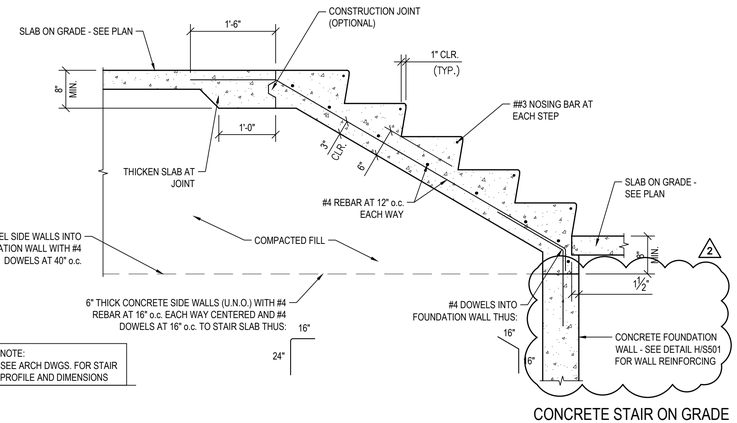
D S504 STEEL LINTEL SECTIONS AT EXISTING HANGER

ORIGINAL SCALE: 3/4" = 1'-0"



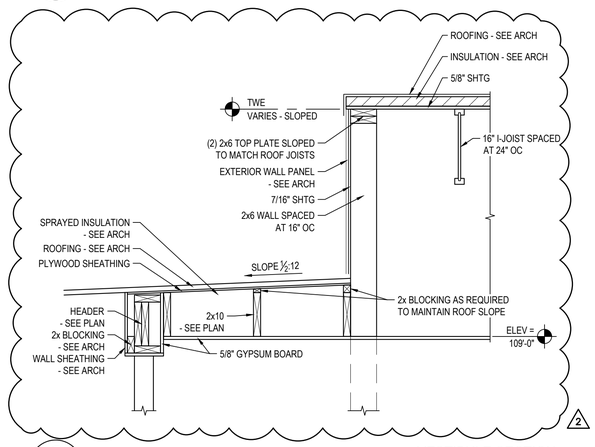
E S504 SECTION THROUGH CANOPY

ORIGINAL SCALE: 1/2" = 1'-0"



F S504 CONCRETE STAIR ON GRADE

ORIGINAL SCALE: 3/4" = 1'-0"



G S504 VESTIBULE SECTION

ORIGINAL SCALE: 3/4" = 1'-0"

1 ADDED SHEET AND REVISED SECTION THROUGH CANOPY

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STRUCTURAL DETAILS

S504