



Aitkin Airport-NAVAID Replacement

Wetland Replacement Plan Application

City of Aitkin
March 29, 2024

Submitted by:
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Real People. Real Solutions.

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FIGURE 1 – LOCATION MAP
FIGURE 2 – PROJECT LAYOUT & IMPACTS
PLAN SET

PART ONE: Applicant Information

If applicant is an entity (company, government entity, partnership, etc.), an authorized contact person must be identified. If the applicant is using an agent (consultant, lawyer, or other third party) and has authorized them to act on their behalf, the agent's contact information must also be provided.

Applicant/Landowner Name:	Jen Thompson Deputy Clerk City of Aitkin
Mailing Address:	130 Southgate Drive-Suite 200 Aitkin, MN 56431
Phone:	(218)-927-2527
E-mail Address:	accountingclerk@ci.aitkin.mn.us

Authorized Contact (do not complete if same as above):	
Mailing Address:	
Phone:	
E-mail Address:	

Agent Name:	Bolton & Menk, Inc. Addeline Theis Natural Resources Specialist
Mailing Address:	1960 Premier Dr Mankato, MN 56001
Phone:	(507) 280-4528
E-mail Address:	Addeline.theis@bolton-menk.com

PART TWO: Site Location Information

County:	Aitkin	City/Township:	Aitkin
Parcel ID and/or Address:	See Figure 1: Location Map		
Legal Description (Section, Township, Range):	18, 47N, 26W		
Lat/Long (decimal degrees):			
Attach a map showing the location of the site in relation to local streets, roads, highways.			
Approximate size of site (acres) or if a linear project, length (feet):	56 acres		

If you know that your proposal will require an individual Permit from the U.S. Army Corps of Engineers, you must provide the names and addresses of all property owners adjacent to the project site. This information may be provided by attaching a list to your application or by using block 25 of the Application for Department of the Army permit which can be obtained at:

http://www.mvp.usace.army.mil/Portals/57/docs/regulatory/RegulatoryDocs/engform_4345_2012oct.pdf

PART THREE: General Project/Site Information

If this application is related to a delineation approval, exemption determination, jurisdictional determination, or other correspondence submitted **prior to** this application then describe that here and provide the Corps of Engineers project number.

*A wetland delineation for the project was submitted on October 4, 2022. The LGU issued a NOD approving the delineated boundary on October 28, 2022. The approved delineated wetland boundary is shown on **Figure 3**. No Army Corps correspondence has occurred for this project yet.*

Describe the project that is being proposed, the project purpose and need, and schedule for implementation and completion. The project description must fully describe the nature and scope of the proposed activity including a description of all project elements that effect aquatic resources (wetland, lake, tributary, etc.) and must also include plans and cross section or profile drawings showing the location, character, and dimensions of all proposed activities and aquatic resource impacts.

The proposed project is located in the City of Aitkin, in the west portion of Aitkin County, Minnesota (Figure 1). The goal of this project is to install two 4-box Precision Approach Path Indicator (PAPI) systems and changing location for Runway End Identifier Lights (REIL) at each end of runway. The construction of the PAPI system involves bringing material in for the base of the concrete pad, grading of the area, adding a concrete pad for the PAPI system to sit on and installing a new electric line to power the lights (Figure 2). The new electric line will cross the runway once and will be installed through horizontal directional drilling. The current system-Visual Approach Path Indicator (VASI) is not up to Federal Aviation Administration (FAA) standard for VGSI systems. The 4-box Precision Approach Path Indicator (PAPI) is a critical system that is used by pilots to measure their glide slope for landing. Therefore, it is crucial that this system is replaced for increased safety measures.

The estimated state date for the proposed work is late summer 2024.

The proposed wetland impact for the installation of the concrete pad for the new PAPI system consists of 0.21 acres of permanent fill with 0.14 acres of temporary impact due to vegetation removal for grading of permanent fill. Only temporary impacts are associated with the relocation of the northern REIL system which total to 680-square feet. See Figure 3 for proposed wetland impact figures. Temporary wetland impacts will be rectified through the seeding of state mix 25-131 and through returning the area to original contours.

These impacts have been minimized in design through grading of steep side slopes.

PART FOUR: Aquatic Resource Impact¹ Summary

If your proposed project involves a direct or indirect impact to an aquatic resource (wetland, lake, tributary, etc.) identify each impact in the table below. Include all anticipated impacts, including those expected to be temporary. Attach an overhead view map, aerial photo, and/or drawing showing all of the aquatic resources in the project area and the location(s) of the proposed impacts. Label each aquatic resource on the map with a reference number or letter and identify the impacts in the following table.

Aquatic Resource ID (as noted on overhead view)	Aquatic Resource Type (wetland, lake, tributary etc.)	Type of Impact (fill, excavate, drain, or remove vegetation)	Duration of Impact Permanent (P) or Temporary (T) ¹	Size of Impact ²	Overall Size of Aquatic Resource ³	Existing Plant Community Type(s) in Impact Area ⁴	County, Major Watershed #, and Bank Service Area # of Impact Area ⁵
Wetland 3	Wetland	Remove Vegetation	T (90)	2,413-sq ft	1.15 acres	Type 2- Fresh (wet) Meadow	Mississippi River-Brainerd, 10, 5
Wetland 2	Wetland	Remove Vegetation	T (90)	3,874-sq ft	25.9 acres	Type 2- Fresh (wet) Meadow	Mississippi River-Brainerd, 10, 5
Wetland 2	Wetland	Remove Vegetation	T (90)	680-sq ft	25.9 acres	Type 2- Fresh (wet) Meadow	Mississippi River-Brainerd, 10, 5
Wetland 3	Wetland	Fill	P	5,346-sq ft	1.15 acres	Type 2- Fresh (wet) Meadow	Mississippi River-Brainerd, 10, 5
Wetland 2	Wetland	Fill	P	3,874-sq ft	25.9 acres	Type 2- Fresh (wet) Meadow	Mississippi River-Brainerd, 10, 5

¹If impacts are temporary; enter the duration of the impacts in days next to the "T". For example, a project with a temporary access fill that would be removed after 220 days would be entered "T (220)".

²Impacts less than 0.01 acre should be reported in square feet. Impacts 0.01 acre or greater should be reported as acres and rounded to the nearest 0.01 acre. Tributary impacts must be reported in linear feet of impact and an area of impact by indicating first the linear feet of impact along the flowline of the stream followed by the area impact in parentheses). For example, a project that impacts 50 feet of a stream that is 6 feet wide would be reported as 50 ft (300 square feet).

³This is generally only applicable if you are applying for a de minimis exemption under MN Rules 8420.0420 Subp. 8, otherwise enter "N/A".

⁴Use *Wetland Plants and Plant Community Types of Minnesota and Wisconsin* 3rd Ed. as modified in MN Rules 8420.0405 Subp. 2.

⁵Refer to Major Watershed and Bank Service Area maps in MN Rules 8420.0522 Subp. 7.

If any of the above identified impacts have already occurred, identify which impacts they are and the circumstances associated with each:

N/A

PART FIVE: Applicant Signature

Check here if you are requesting a pre-application consultation with the Corps and LGU based on the information you have provided. Regulatory entities will not initiate a formal application review if this box is checked.

By signature below, I attest that the information in this application is complete and accurate. I further attest that I possess the authority to undertake the work described herein.

Signature:  Date: 4/1/24

I hereby authorize _____ to act on my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this application.

¹ The term "impact" as used in this joint application form is a generic term used for disclosure purposes to identify activities that may require approval from one or more regulatory agencies. For purposes of this form it is not meant to indicate whether or not those activities may require mitigation/replacement.

Attachment C

Avoidance and Minimization

Project Purpose, Need, and Requirements. Clearly state the purpose of your project and need for your project. Also include a description of any specific requirements of the project as they relate to project location, project footprint, water management, and any other applicable requirements. Attach an overhead plan sheet showing all relevant features of the project (buildings, roads, etc.), aquatic resource features (impact areas noted) and construction details (grading plans, storm water management plans, etc.), referencing these as necessary:

The City of Aitkin is proposing improvements at the airport located in western Aitkin County, Minnesota. Airport improvements include installing two 4-box Precision Approach Path Indicator (PAPI) systems and changing the location of existing Runway End Identifier Lights (REIL) at each end of runway. The current system, Visual Approach Path Indicator (VASI), is not up to Federal Aviation Administration (FAA) standard. The 4-box PAPI system is a critical system that is used by pilots to measure their glide slope during landing. Therefore, it is crucial that this system is replaced for increased safety measures.

Construction of improvements involves bringing in material for the base of the concrete pad, grading of the area, adding a concrete pad for the PAPI system to sit on and installing a new electric line to power the lights. The new electric line will cross the runway once and will be installed through horizontal directional drilling.

Aquatic resource impacts are associated with the permanent fill for the base of the PAPI system. Temporary impacts are associated with access around the wetland to bring in fill. Permanent impacts to wetlands total to 0.21 acres.

Avoidance. Both the CWA and the WCA require that impacts to aquatic resources be avoided if practicable alternatives exist. Clearly describe all on-site measures considered to avoid impacts to aquatic resources and discuss at least two project alternatives that avoid all impacts to aquatic resources on the site. These alternatives may include alternative site plans, alternate sites, and/or not doing the project. Alternatives should be feasible and prudent (see MN Rules 8420.0520 Subp. 2 C). Applicants are encouraged to attach drawings and plans to support their analysis:

No-Build Alternative:

While the no-build alternative does not impact any wetlands, it fails to meet current FAA standards. Therefore, the no-build alternative was not considered.

No Fill Alternative:

In an effort to avoid wetland impacts, the applicant explored other design options. Design including installing PAPI lights without fill for the base and installed on pole. This would result in a reduction of permanent impacts from the airport improvements. This design option was ruled out for several reasons, including:

- The PAPI system requires a stable base due to the precision of angle the lights for the system needs to be to assist pilots during the landing process. If installed not on stable base, freeze and thaw could impact systems precision.*
- Fill is necessary to install PAPI system at the same elevation as runway.*
- For safety, the PAPI system also requires a frangibility point, where the light will easily break off in case of collision with airplanes.*

Minimization. Both the CWA and the WCA require that all unavoidable impacts to aquatic resources be minimized to the greatest extent practicable. Discuss all features of the proposed project that have been modified to minimize the impacts to water resources (see MN Rules 8420.0520 Subp. 4):

- Existing site constraints made wetland minimization challenging for this project. Design options that could have minimized impacts are hindered by specific location requirements needed for the installation of the new PAPI systems. Around the PAPI systems steep slope will be graded to reduce more permanent wetland impact.*

Off-Site Alternatives. An off-site alternatives analysis is not required for all permit applications. If you know that your proposal will require an individual permit (standard permit or letter of permission) from the U.S. Army Corps of Engineers, you may be required to provide an off-site alternatives analysis. The alternatives analysis is not required for a complete application but must be provided during the review process in order for the Corps to complete the evaluation of your application and reach a final decision. Applicants with questions about when an off-site alternatives analysis is required should contact their Corps Project Manager.

N/A

Attachment D

Replacement/Compensatory Mitigation

Complete this part *if* your application involves wetland replacement/compensatory mitigation not associated with the local road wetland replacement program. Applicants should consult Corps mitigation guidelines and WCA rules for requirements.

Replacement/Compensatory Mitigation via Wetland Banking. Complete this section if you are proposing to use credits from an existing wetland bank (with an account number in the State wetland banking system) for all or part of your replacement/compensatory mitigation requirements.

Wetland Bank Account #	County	Major Watershed #	Bank Service Area #	Credit Type (if applicable)	Number of Credits
1485	Aitkin	10	5	Type 2	0.2100

Applicants should attach documentation indicating that they have contacted the wetland bank account owner and reached at least a tentative agreement to utilize the identified credits for the project. This documentation could be a signed purchase agreement, signed application for withdrawal of credits or some other correspondence indicating an agreement between the applicant and the bank owner. *However, applicants are advised not to enter into a binding agreement to purchase credits until the mitigation plan is approved by the Corps and LGU.*

Project-Specific Replacement/Permittee Responsible Mitigation. Complete this section if you are proposing to pursue actions (restoration, creation, preservation, etc.) to generate wetland replacement/compensatory mitigation credits for this proposed project.

WCA Action Eligible for Credit ¹	Corps Mitigation Compensation Technique ²	Acres	Credit % Requested	Credits Anticipated ³	County	Major Watershed #	Bank Service Area #

¹Refer to the name and subpart number in MN Rule 8420.0526.

²Refer to the technique listed in *St. Paul District Policy for Wetland Compensatory Mitigation in Minnesota*.

³If WCA and Corps crediting differs, then enter both numbers and distinguish which is Corps and which is WCA.

Explain how each proposed action or technique will be completed (e.g. wetland hydrology will be restored by breaking the tile.....) and how the proposal meets the crediting criteria associated with it. Applicants should refer to the Corps mitigation policy language, WCA rule language, and all associated Corps and WCA guidance related to the action or technique:

N/A

Attach a site location map, soils map, recent aerial photograph, and any other maps to show the location and other relevant features of each wetland replacement/mitigation site. Discuss in detail existing vegetation, existing landscape features, land use (on and surrounding the site), existing soils, drainage systems (if present), and water sources and movement. Include a topographic map showing key features related to hydrology and water flow (inlets, outlets, ditches, pumps, etc.):

N/A

Attach a map of the existing aquatic resources, associated delineation report, and any documentation of regulatory review or approval. Discuss as necessary:

N/A

For actions involving construction activities, attach construction plans and specifications with all relevant details. Discuss and provide documentation of a hydrologic and hydraulic analysis of the site to define existing conditions, predict project outcomes, identify specific project performance standards and avoid adverse offsite impacts. Plans and specifications should be prepared by a licensed engineer following standard engineering practices. Discuss anticipated construction sequence and timing:

N/A

For projects involving vegetation restoration, provide a vegetation establishment plan that includes information on site preparation, seed mixes and plant materials, seeding/planting plan (attach seeding/planting zone map), planting/seeding methods, vegetation maintenance, and an anticipated schedule of activities:

N/A

For projects involving construction or vegetation restoration, identify and discuss goals and specific outcomes that can be determined for credit allocation. Provide a proposed credit allocation table tied to outcomes:

N/A

Provide a five-year monitoring plan to address project outcomes and credit allocation:

N/A

Discuss and provide evidence of ownership or rights to conduct wetland replacement/mitigation on each site:

N/A

Quantify all proposed wetland credits and compare to wetland impacts to identify a proposed wetland replacement ratio. Discuss how this replacement ratio is consistent with Corps and WCA requirements:

N/A

By signature below, the applicant attests to the following (only required if application involves project-specific/permittee responsible replacement):

- All proposed replacement wetlands were not:
 - Previously restored or created under a prior approved replacement plan or permit
 - Drained or filled under an exemption during the previous 10 years
 - Restored with financial assistance from public conservation programs
 - Restored using private funds, other than landowner funds, unless the funds are paid back with interest to the individual or organization that funded the restoration and the individual or organization notifies the local government unit in writing that the restored wetland may be considered for replacement.
- The wetland will be replaced before or concurrent with the actual draining or filling of a wetland.
- An irrevocable bank letter of credit, performance bond, or other acceptable security will be provided to guarantee successful completion of the wetland replacement.
- Within 30 days of either receiving approval of this application or beginning work on the project, I will record the Declaration of Restrictions and Covenants on the deed for the property on which the replacement wetland(s) will be located and submit proof of such recording to the LGU and the Corps.

Applicant or Representative: N/A

Title: N/A

Signature: N/A

Date:

**PURCHASE AGREEMENT
FOR
WETLAND BANKING CREDITS**

THIS PURCHASE AGREEMENT is made this 29th day of March, 2024 between the Aitkin County Highway Department (Seller) and City of Aitkin.

1. Seller agrees to sell to Buyer and Buyer agrees to buy from Seller, the wetland banking credits (Credits) listed below:

CREDITS TO BE SOLD					
Credit Sub-Group ¹	Wetland Circ. 39 Type ²	Plant Community Type ³	Acres	Cost per acre	Cost Estimate
B	2	Sedge Meadow	0.2100	\$19,602	\$4,116.42
Totals			0.2100	\$19,602	\$4,116.42
<input type="checkbox"/> Check here if additional credit sub-groups are part of this account and are listed on an attachment to this document.					
¹ A separate credit sub-group shall be established for each wetland or wetland area that has different wetland characteristics.					
² Circular 39 types: 1, 1L, 2, 3, 4, 5, 6, 7, 8, B, U.					
³ Wetland plant community type: shallow open water, deep marsh, shallow marsh, sedge meadow, fresh meadow, wet to wet-mesic prairie, calcareous fen, open bog or coniferous bog, shrub-carr/alder thicket, hardwood swamp or coniferous swamp, floodplain forest, seasonally flooded basin. See <i>Wetland Plants and Plant Communities of Minnesota and Wisconsin (Eggers and Reed, 1997)</i> as modified by the Board of Water and Soil Resources, United States Army Corps of Engineers..					

Withdrawal/Stewardship Fee	
Total Acres of Credits to Be Sold*	0.2100
BWSR Withdrawal Fee of \$685 per Credit (acre) ^	\$143.85
BWSR Easement Stewardship Fee of \$302 per Credit (acre) `	\$63.42
Total Fee	\$207.27
* Square Feet to Acre Conversion Factor = 1/43,560	
^Based on BWSR Withdrawal Fee Schedule for Bank Service Area (BSA) 5	
`Based on BWSR Easement Stewardship Fee	

2. Seller represents and warrants as follows:
- a) The US Army Corps of Engineers (USACE) approved Wetland Credits are deposited in an account (1485) in the Minnesota Wetland Bank administered by the Minnesota Board of Water and Soil Resources pursuant to Minn. Rules Chapter 8420.0700-.0760.
 - b) Seller owns the Credits and has the right to sell the Credits to Buyer.

3. Buyer will pay Seller a total of **\$ 4,116.42** for the Wetland Banking Credits payable to Aitkin County **AND** Buyer also agrees to pay the BWSR Withdrawal Fee of \$143.85 & the BWSR Easement Stewardship Fee of \$63.42 for a total of **\$207.27** payable to the Minnesota Board of Water and Soil Resources (BWSR). Both payments shall be submitted to Aitkin County – 1211 Airpark Drive – Aitkin, MN 56431. The check made payable to the Minnesota Board of Water and Soil Resources will be forwarded to BWSR by Aitkin County with the finalized Transaction Form document.
4. The Closing Date of the purchase and sale shall occur on or before 10-1-24. Beyond this date this agreement will no longer be valid. In addition, this Purchase Agreement must be signed by both parties to be valid, otherwise the Seller will not reserve the above referenced Wetland Credits for the Buyer if this Purchase Agreement is not signed.
5. Buyer has applied or will apply to the Local Governmental Unit (LGU (or other regulatory authority)) for approval of a replacement plan utilizing the above listed Wetland Credits as the means of replacing impacted wetlands. Upon payment of the purchase price, Seller will sign a fully executed Transaction Form to Withdraw Credits as specified by BWSR, provide a copy of the signed Transaction Form to Withdraw Credits to the Buyer and forward the same to BWSR along with the payment for the Withdrawal/Stewardship Fees.
6. If the LGU does not approve the Buyer’s application for a replacement plan utilizing these Credits by the Closing Date, and no extension of the Closing Date has been agreed to, this Agreement will be cancelled and neither Buyer nor Seller shall have any further obligations under this Agreement.

John Welle Digitally signed by John Welle
Date: 2024.03.29 06:21:46
CST'00 3-29-24

 (Signature of Seller) (Date)

City of Aitkin
 Jennifer Thompson, City Clerk

 (Name of Buyer)

Quiper Thompson 4/1/24

 (Signature of Buyer) (Date)



Standard Credit Withdrawal Form

Minnesota Wetland Bank Program

(Incomplete forms may be returned unprocessed)

1. Credit User		<i>This space for BWSR use only.</i>
Name: Jen Thompson	Organization/Company (if any): City of Aitkin-Deputy Clerk	
Address: 130 Southgate Drive Suite 200 Aitkin, MN 56431	Phone: (218) 927-2527	
	E-mail: accountingclerk@ci.aitkin.mn.us	
If others should receive withdrawal verification email, please include their email below (e.g., Consultants, partners, etc.): Addeline.theis@bolton-menk.com		

2. Wetland Impact Information			
Project Name: Aitkin Airport-NAVAID Replacement		Project Type: Other	ACRES of Impact: 0.21
City (if applicable): Aitkin	County: Aitkin	Sec/Twp/Range: (Project Center) Sec. 18 T. 47N R. 26W	Major Watershed No./Bank Service Area (BSA): 10 / 5
WCA LGU Name: Aitkin-Henry Eglund		Majority Impact Wetland Type: 2 - Wet Meadow	Majority HGM Class: Riverine
Corps of Engineers Letter/Email Received? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		If Yes, Corps File No.: (e.g. 2021-00101-ABC)	If Yes, is Corps Replacement Required? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unknown
Comments:			

3. Credits to be Withdrawn				
Bank Account No./Name: 1485		Bank County: Aitkin		Bank BSA: 5
Credit Subgroup	Wetland Type/Plant Community Type	Federally Approved?	Cost per Credit	Credit Amounts
B	2 - Wet Meadow	Yes	\$19,602/sf	0.2100
---Select---	---Select---	---Select---	\$	
---Select---	---Select---	---Select---	\$	
---Select---	---Select---	---Select---	\$	
---Select---	---Select---	---Select---	\$	
Per Credit Withdrawal Fee by BSA			Total Credits: 0.2100	
BSA 1	\$520	BSA 6	\$1,083	Withdrawal Fee: \$143.85 <i>(Withdrawal Fee X total credits)</i>
BSA 2	\$371	BSA 7	\$1,992	
BSA 3	\$725	BSA 8	\$2,577	Stewardship Fee: \$63.42 <i>(Easement Stewardship fee x total credits)</i>
BSA 4	\$1,412	BSA 9	\$2,628	
BSA 5	\$685	BSA 10	\$3,099	Total Fees: \$207.27

Please make checks payable to the Minnesota Board of Water and Soil Resources. BWSR does not accept cash.

Project Name: Aitkin Airport: NAVAID Replacement

After completing all necessary fields, select "Request Signatures" option in the Home tab of your toolbar to convert your agreement to a PDF version and add your digital signature. See these [instructions](#) if you do not know how to create a digital signature.

4. WCA Authorization *(Must include representative's name and email address)*

By signing below, the identified Wetland Conservation Act Local Government Unit (LGU) representative attests that the LGU has approved the use of the credits in Box 3 for wetland replacement/mitigation.

WCA LGU: Aitkin County	Representative's Name: Henry Eglund	Email Address: Henry.egland@co.aitkin.mn.us
----------------------------------	---	---

Signature:

Date:

5. Other Agency/Program Authorization *(Must include representative's name and email address)*

By signing below, the identified agency representative attests that the agency has approved the use of the credits in Box 3 for wetland replacement/mitigation.

Agency:	Representative's Name:	Email Address:
----------------	-------------------------------	-----------------------

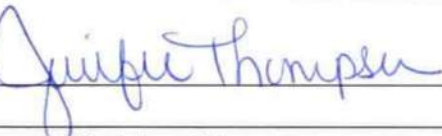
Signature:

Date:

6. Credit User Signature

By signing below the credit user attests that they have secured use of the credits in Box 3 from the account holder for wetland replacement/mitigation.

Signature:



Date:

4/1/24

7. Account Holder Signature *(Must include seller/manager name and email address)*

By signing below the account holder authorizes BWSR to withdraw the credits identified in Box 3 from their account to satisfy wetland replacement/mitigation requirements for the credit user indicated in Box 1. The account holder attests that the identified credits have not been sold or used by a different credit user.

Seller/Manager: John Welle	Email Address: John.welle@co.aitkin.mn.us
--------------------------------------	---

Signature:

Date:

SEND COMPLETED FORM AND FEE PAYMENT TO:

Wetland Bank Administration
Minnesota Board of Water and Soil Resources
520 Lafayette Road North
Saint Paul, MN 55155



➤ Landowner Statement and Contractor Responsibility For Work in Wetlands or Public Waters



MN Statutes Sections 103G.2212 and 103G.241 stipulate that an agent or employee of another may not:

- 1) drain, excavate, or fill a wetland, wholly or partially; or
- 2) construct, reconstruct, remove, or make any change in any reservoir, dam, or the course, current, or cross-section of any public water;

unless the agent or employee has obtained a signed statement from the property owner stating that any permit or wetland replacement plan required for the work has been obtained, or that a permit or replacement plan is not required; **AND** this statement is mailed to the appropriate office with jurisdiction over the wetland or public water prior to initiating the work (see next page for information on where to send this notification).

This form is a notification only and is not an application or authorization for any activities described in it.

1. PROJECT INFORMATION

Project will affect (check all that apply):

<input type="checkbox"/> Lake, Watercourse, or Public Waters Wetland	<input checked="" type="checkbox"/> Non-Public Waters Wetland	<input type="checkbox"/> Wetland of Unknown Jurisdiction
--	---	--

Address or description of project location (attach map if necessary):

Legal address 1190 Air Park Dr Aitkin, MN 56431						
County Aitkin	Gov't Lot(s)	Quarter Section(s)	Section(s) 18	Township(s) 47	Range(s) 26	Lot, Block, Subd.

Description of proposed work (include sketch and/or attach additional pages if needed):

<p>The proposed project is located in Aitkin, in the west portion of Aitkin County, Minnesota. The goal of this project is to install two 4-box Precision Approach Path Indicator (PAPI) systems and changing location for Runway End Identifier Lights (REIL) at each end of runway. The construction of the PAPI system involves brining material in for the base of the concrete pad, grading of the area, adding a concrete pad for the PAPI system to sit on and installing a new electric line to power the lights. The new electric line will cross the runway once and will be installed through horizontal directional drilling.</p>

2. LANDOWNER STATEMENT

I certify that, as the owner of the property listed on this form (check one):

- I have obtained all permits or approvals required to perform the work described above.
 No permits or approvals are required for this work.

Property Owner (Print Name) Jen Thompson	Address 130 Southgate Drive-Suite 200 Aitkin, MN 56431	
Signature 	Date 4/1/24	Phone Number and E-mail Address (Optional) (218) 927-2527

3. CONTRACTOR VERIFICATION

By signing below, I verify that I have received a signed copy of this form and will be performing the indicated work as described above.

Company and Individual Performing Proposed Work (Print)	Address	
Signature	Date	Phone Number and E-mail Address (Optional)

Note: The contractor is responsible for ensuring this form is mailed to the appropriate office when complete.

This statement is invalid if any of the above information is not supplied or is inaccurate. Work in violation of this notification requirement is a separate and independent offense from other violations of Minnesota Statutes chapter § 103G and is a misdemeanor punishable by fines up to \$1,000 and/or 90 days in jail. The State Department of Natural Resources (DNR) Commissioner also has the authority to require restoration of any work done without the necessary permits or approvals or work that is beyond what was authorized.

4. INFORMATION AND RESOURCES

A Wetland Conservation Act (WCA) replacement plan is required for any wetland draining, excavation, or filling activity that is not exempt under Minnesota Rules Chapter 8420.0420. A DNR Waters permit is required for any work in public waters. National wetland inventory maps are available for review at the County Soil and Water Conservation District (SWCD) office and online at <http://www.fws.gov/wetlands/Data/Mapper.html>. Many wetlands are not identified on the maps but are still restricted from draining, excavating, or filling. If you are unsure the proposed work will affect a wetland, contact your local government unit (LGU) or SWCD for assistance.

Public Waters of the State of Minnesota include the channel to the top of the channel bank for watercourses and the basin from the ordinary high water level waterward for public waters (i.e. lakes) and public waters wetlands. Public waters inventory maps are available for review at the County Auditor's office, DNR Division of Waters regional offices, and online at http://www.dnr.state.mn.us/waters/watermgmt_section/pwi/download.html.

General information about public waters, wetlands, and related regulations are available on the DNR website at <http://mndnr.gov> and the MN Board of Water and Soil Resources (BWSR) website at <http://www.bwsr.state.mn.us>.

5. WHERE TO SEND THIS NOTIFICATION

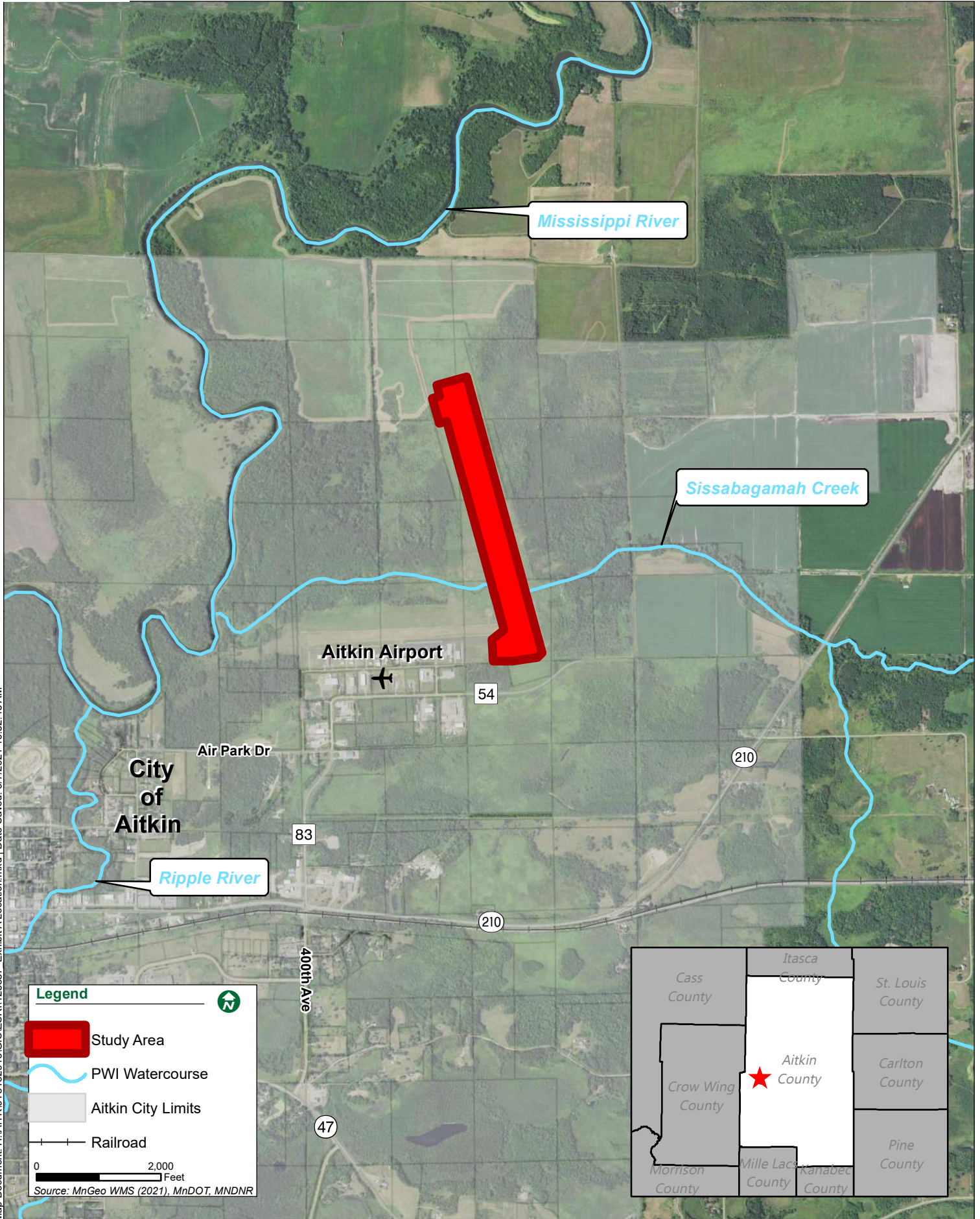
- For work in public waters (lake, watercourse, or public waters wetland), send this completed form to the DNR Regional Enforcement Office serving the project's area. See below for DNR regional office information. A map of DNR regions can be found on the DNR website at: http://files.dnr.state.mn.us/aboutdnr/dnr_regions.pdf
- For work in any wetland that is not a public waters wetland, send this completed form to the WCA LGU with jurisdiction over the project area. The LGU is usually the County or SWCD, except in urban areas the City is often the LGU. Contact any of these local governments or BWSR for assistance. BWSR also maintains a list of LGUs on its website at: <http://www.bwsr.state.mn.us/directories/WCA.pdf>.
- If it is not known if the wetland is a public waters wetland, send the completed form to both the DNR Regional Enforcement Office and the WCA LGU.

Department of Natural Resources Regional Offices

<u>Northwest Region:</u> 2115 Birchmont Beach Rd. NE Bemidji, MN 56601 Phone: 218-308-2700	<u>Northeast Region:</u> 1201 E. Hwy. 2 Grand Rapids, MN 55744 Phone: 218-327-4455	<u>Central Region:</u> 1200 Warner Road St. Paul, MN 55106 Phone: 651-259-5800	<u>Southern Region:</u> 261 Hwy. 15 South New Ulm, MN 56073 Phone: 507-359-6000
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Keep a copy of this form for your records!

Appendix

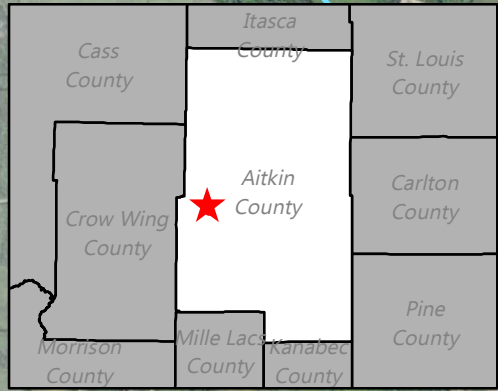


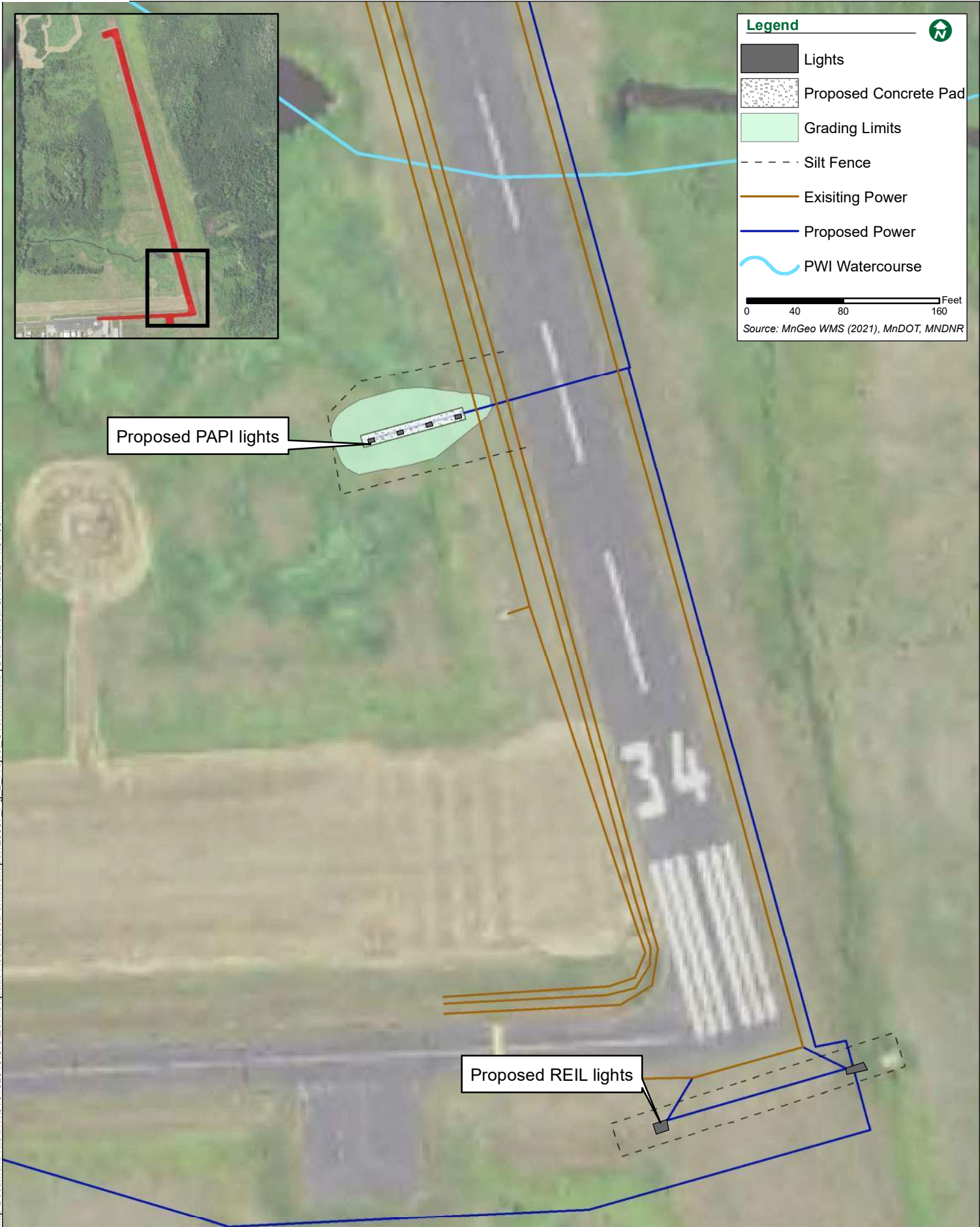
Map Document: H:\AITK\051329\13\GIS\ESRI\129887 Exhibit A Location.mxd | Date Saved: 3/7/2024 10:52:45 AM

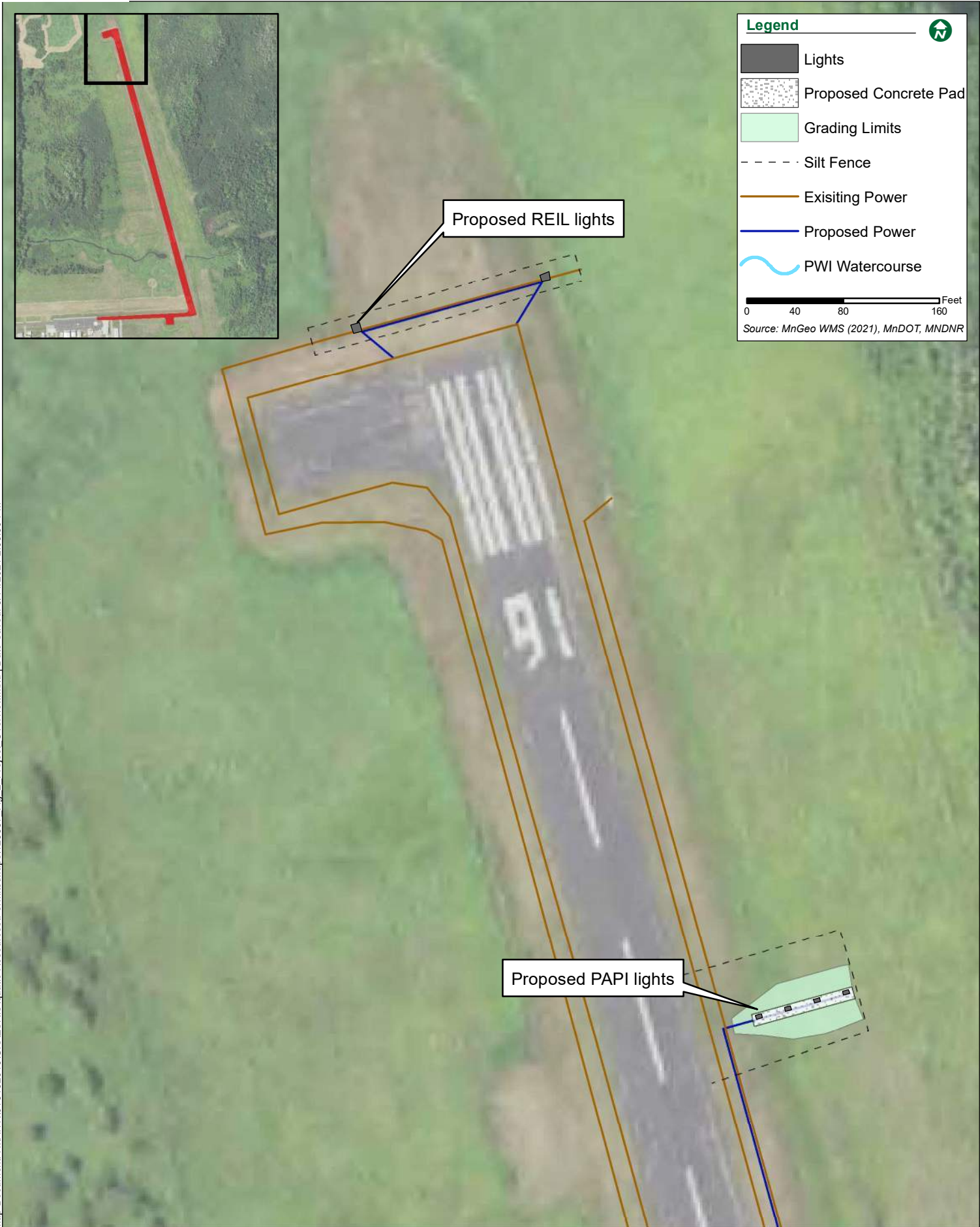
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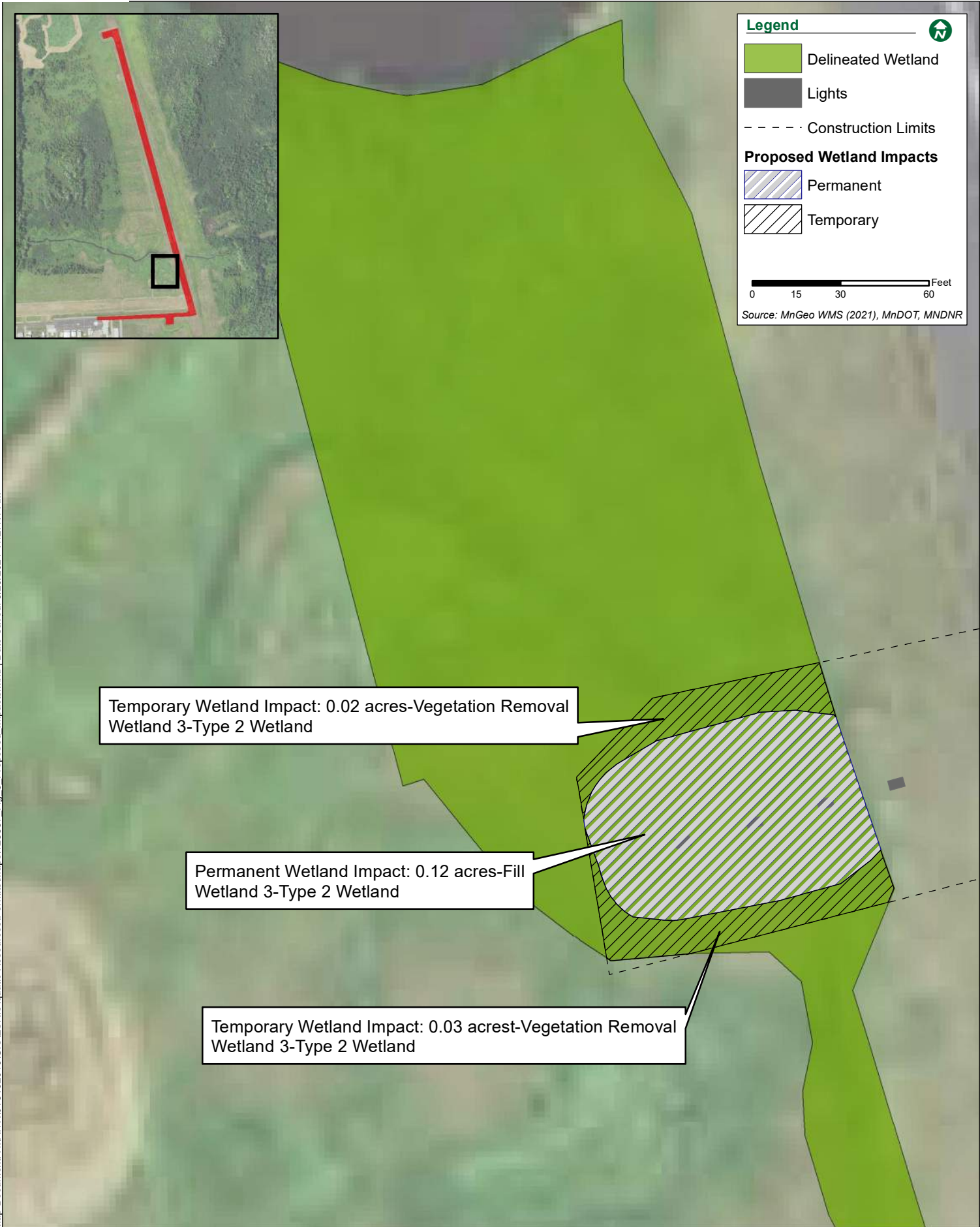
- Study Area
- PWI Watercourse
- Aitkin City Limits
- Railroad

0 2,000 Feet
Source: MnGeo WMS (2021), MnDOT, MNDNR









Legend

- Delineated Wetland
- Lights
- - - - - Construction Limits

Proposed Wetland Impacts

- Permanent
- Temporary

0 15 30 60 Feet

Source: MnGeo WMS (2021), MnDOT, MNDNR

Temporary Wetland Impact: 0.02 acres-Vegetation Removal
Wetland 3-Type 2 Wetland

Permanent Wetland Impact: 0.12 acres-Fill
Wetland 3-Type 2 Wetland

Temporary Wetland Impact: 0.03 acres-Vegetation Removal
Wetland 3-Type 2 Wetland



Legend

- Delineated Wetland
- Lights
- Construction Limits

Proposed Wetland Impacts

- Permanent
- Temporary

0 15 30 60 Feet

Source: MnGeo WMS (2021), MnDOT, MNDNR

Temporary Wetland Impact: 0.09 acres-Vegetation Removal
Wetland 2-Type 2 Wetland

Permanent Wetland Impact: 0.09 acres-Fill
Wetland 2-Type 2 Wetland



Legend

- Delineated Wetland
- Lights
- Construction Limits

Proposed Wetland Impacts

- Permanent
- Temporary

0 20 40 80 Feet

Source: MnGeo WMS (2021), MnDOT, MNDNR

Temporary Wetland Impact: 0.02 acrest-Vegetation Removal
Wetland 2-Type 2 Wetland

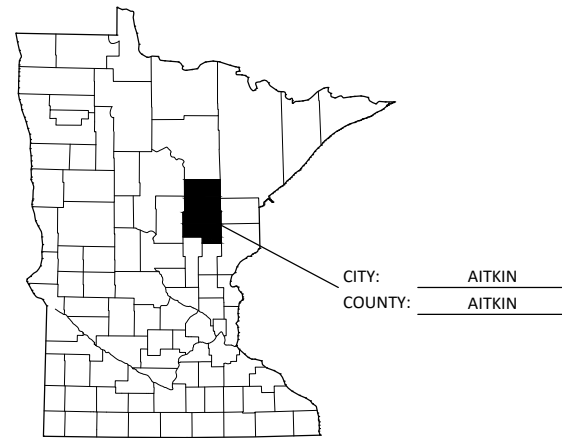
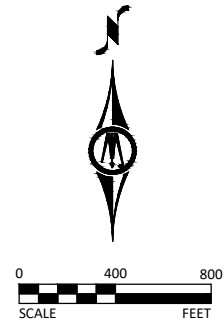
AITKIN MUNICIPAL AIRPORT (AIT)

CONSTRUCTION PLANS FOR

RUNWAY 16/34 NAVAID REPLACEMENT

AIP NO. 3-27-0002-025-2024
SP NO. A0101-54

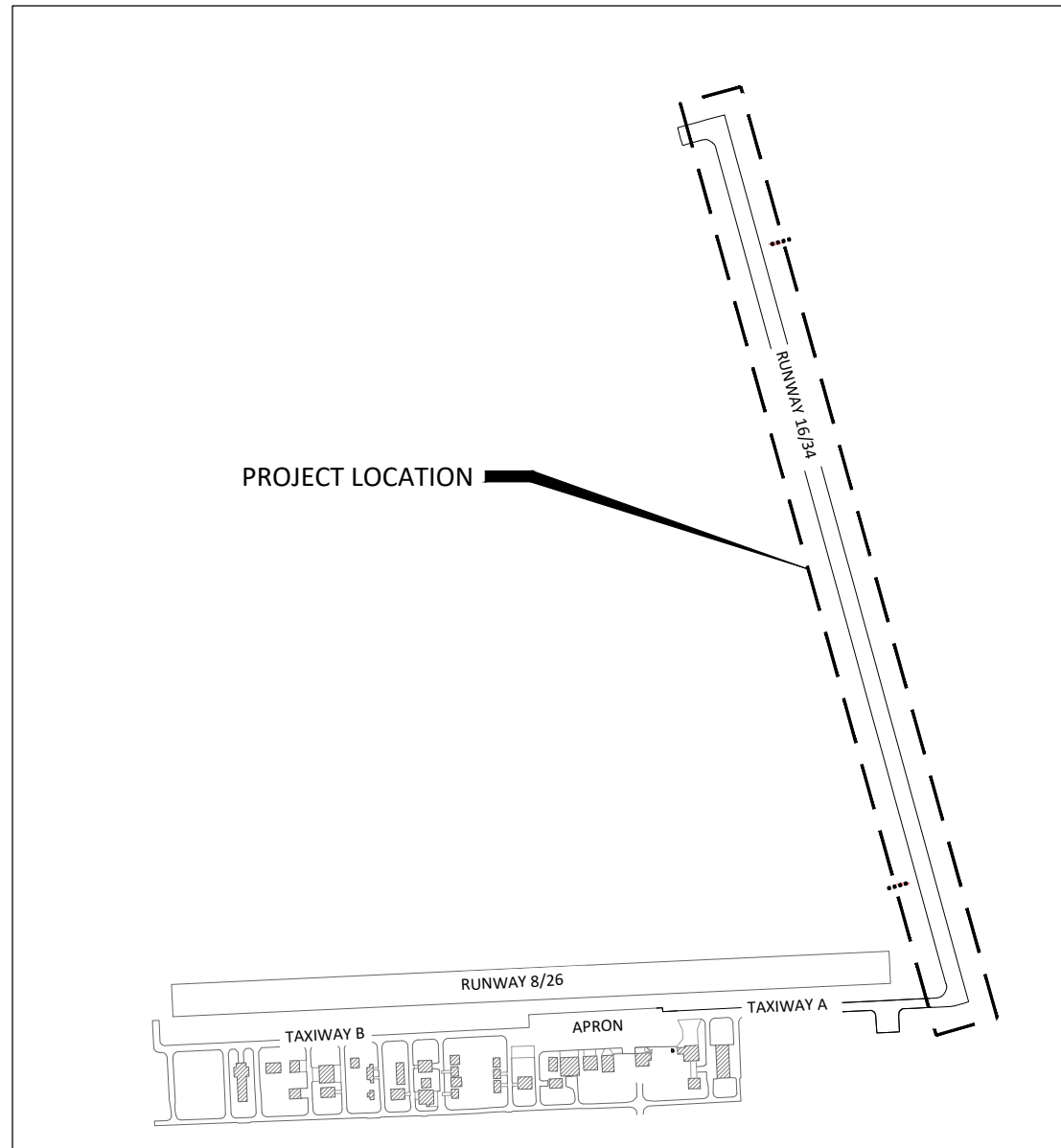
FEBRUARY, 2024



PROJECT LOCATION

NOTE: EXISTING UTILITY INFORMATION SHOWN ON THIS PLAN HAS BEEN PROVIDED BY THE UTILITY OWNER. THE CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS PRIOR TO COMMENCING CONSTRUCTION AS REQUIRED BY STATE LAW. NOTIFY GOPHER STATE ONE CALL, 1-800-252-1166 OR 651-454-0002.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D UNLESS OTHERWISE NOTED. THIS UTILITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-22, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."



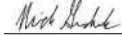
SHEET NUMBER	SHEET TITLE
GENERAL	
G0.01	TITLE SHEET & STATEMENT OF ESTIMATED QUANTITIES
G2.01	CONSTRUCTION SAFETY & PHASING PLAN
CIVIL	
C0.01	EXISTING CONDITIONS, REMOVALS PLAN
C3.01	GRADING PLAN
E1.01 - E1.03	ELECTRICAL DETAILS, PAPI DETAILS, REIL DETAILS, EXISTING PHOTOS
E6.01	ELECTRICAL PLAN
THIS PLAN SET CONTAINS <u>8</u> SHEETS.	

STATEMENT OF ESTIMATED QUANTITIES

ITEM NO.	SPEC NO.	ITEM	UNIT	EST. QUANTITY
RUNWAY 16/34 NAVAID REPLACEMENT				
1	C-105	MOBILIZATION	LUMP SUM	1
2	GP 40-05	RUNWAY CLOSURE CROSSES	SET	2
3	GP 40-05	LOW PROFILE BARRICADES	EACH	4
4	P-101-5.1	REMOVE VASIS	SET	2
5	P-101-5.2	REMOVE REILS	SET	2
6	P-101-5.3	REMOVE ELECTRICAL VAULT EQUIPMENT	LUMP SUM	1
7	2106.507	COMMON EXCAVATION	CU YD	500
8	2106.507	GRANULAR BORROW	CU YD	840
9	2573.503	SILT FENCE, TYPE MS	LIN FT	800
10	2575.602	SITE RESTORATION	LS	1
11	L-108-5.1	#6 AWG, 5KV CABLE INSTALLED IN DUCT BANK OR CONDUIT	LIN FT	11,200
12	L-108-5.2	#8 AWG, 5KV CABLE INSTALLED IN DUCT BANK OR CONDUIT	LIN FT	316
13	L-108-5.3	#12 AWG, 600 V CABLE, INSTALLED IN DUCT BANK OR CONDUIT	LIN FT	640
14	L-108-5.4	#6 AWG, 600V CABLE, INSTALLED IN DUCT BANK OR CONDUIT	LIN FT	6,100
15	L-110-5.1	2-INCH SCH. 40 PVC OR HDPE, INCLUDING TRENCHING	LIN FT	6,100
16	L-110-5.2	2 CELL DUCT BANK, INCLUDING TRENCH, DIR. BORE	LIN FT	190
17	L-125-5.1	L-867 ELECTRICAL HANDHOLE	EACH	15
18	L-125-5.2	LED RUNWAY END IDENTIFIER LIGHTING (REIL) SYSTEM	SET	2
19	L-125-5.3	LED PRECISION APPROACH PATH INDICATOR (PAPI) SYSTEM	SET	2
20	L-125-5.4	VAULT ELECTRICAL SYSTEMS AND TESTING	LS	1

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NICHOLAS R. GRAHEK, P.E.
LIC. NO. 61802 DATE 02/28/2024



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Email: baxter@bolton-menk.com
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AITKIN MUNICIPAL AIRPORT (AIT)
RUNWAY 16/34 NAVAID REPLACEMENT

TITLE SHEET & STATEMENT OF ESTIMATED QUANTITIES

SHEET

G0.01

POINT LAT/LONG DATA						
POINT NUMBER	RAW DESCRIPTION	LATITUDE	LONGITUDE	ELEVATION	HEIGHT	DISTANCE TO RUNWAY 16/34 CENTERLINE
1	16 REILS	N46°33'21.69"	W93°40'36.72"	1203	20	97.5
2	16 REILS	N46°33'22.19"	W93°40'34.10"	1202	20	97.5
3	16 REILS	N46°33'21.22"	W93°40'36.53"	1204	20	97.5
4	16 REILS	N46°33'21.71"	W93°40'33.91"	1202	20	97.5
5	16 PAPIS	N46°33'16.14"	W93°40'32.50"	1205	20	37.5
6	16 PAPIS	N46°33'16.47"	W93°40'30.78"	1201	20	162.5
7	16 PAPIS	N46°33'15.57"	W93°40'32.27"	1205	20	37.5
8	16 PAPIS	N46°33'15.90"	W93°40'30.55"	1201	20	162.5
9	34 REILS	N46°32'43.67"	W93°40'18.55"	1202	20	97.5
10	34 REILS	N46°32'43.19"	W93°40'18.36"	1202	20	97.5
11	34 REILS	N46°32'42.69"	W93°40'20.97"	1204	20	97.5
12	34 REILS	N46°32'43.17"	W93°40'21.17"	1205	20	97.5
13	36 PAPIS	N46°32'48.66"	W93°40'22.52"	1205	20	37.5
14	36 PAPIS	N46°32'49.23"	W93°40'22.75"	1205	20	37.5
15	36 PAPIS	N46°32'48.90"	W93°40'24.48"	1198	20	162.5
16	36 PAPIS	N46°32'48.33"	W93°40'24.25"	1200	20	162.5
17	STAGING AREA	N46°32'42.07"	W93°40'33.20"	1206	20	937
18	STAGING AREA	N46°32'42.12"	W93°40'32.13"	1206	20	864
19	STAGING AREA	N46°32'41.38"	W93°40'32.06"	1206	20	879
20	STAGING AREA	N46°32'41.33"	W93°40'33.14"	1206	20	951
21	HAUL ROUTE	N46°32'40.53"	W93°40'33.66"	1206	20	1009
22	HAUL ROUTE	N46°32'39.39"	W93°40'36.71"	1206	20	1245
23	HAUL ROUTE	N46°32'39.05"	W93°40'39.82"	1206	20	1463
24	HAUL ROUTE	N46°32'36.90"	W93°40'39.66"	1206	20	1511
25	HAUL ROUTE	N46°32'34.75"	W93°40'39.50"	1206	20	1558
26	HAUL ROUTE	N46°32'43.14"	W93°40'30.79"	1204	20	752
27	HAUL ROUTE	N46°32'44.68"	W93°40'19.70"	1205	20	37.5
28	HAUL ROUTE	N46°33'21.11"	W93°40'34.62"	1205	20	37.5



SAFETY AND CONSTRUCTION NOTES
(SEE CONSTRUCTION SAFETY AND PHASING PLAN IN SPECIFICATIONS FOR ADDITIONAL DETAIL)

- AIRCRAFT OPERATIONS AREA**
- RUNWAY 16/34 SHALL BE CLOSED DURING WORK
 - RUNWAY 34 CLOSURE CROSS TO BE PLACED AS SHOWN OUTSIDE OF RUNWAY 8/26 ROFA
 - AIRPORT SHALL DEACTIVATE RUNWAY 16/34 LIGHTING SYSTEM
 - RUNWAY 8/26 SHALL BE CLOSED DURING PHASE 1
 - AIRPORT SHALL ISSUE ALL NOTAMS.

- CONSTRUCTION EQUIPMENT:**
- ALL CONSTRUCTION EQUIPMENT MUST BE MARKED WITH A 3-FEET X 3-FEET ORANGE AND WHITE CHECKERED FLAG.
 - A FLASHING AMBER BEACON IS OPTIONAL BUT IS REQUIRED DURING TIMES OF LOW VISIBILITY.
 - CONTRACTOR MUST OBTAIN APPROVAL FROM THE ENGINEER FOR ANY EQUIPMENT WHICH EXCEEDS A HEIGHT OF 20-FEET.

- SWEEPING AND CLEANING:**
- CONTRACTOR SHALL HAVE A SWEEPER ON-SITE AT ALL TIMES TO PICKUP DEBRIS FROM ACTIVE PAVEMENT AREA AS IT OCCURS.

- HAUL ROUTES:**
- HAUL ROUTES AND ACCESS TO THE CONSTRUCTION SITE ARE DEPICTED ON THIS SHEET.
 - GROUND OPERATIONS ARE UNCONTROLLED AT THE AIRPORT. WHEN A RUNWAY OR TAXIWAY IS OPEN TO AIR TRAFFIC, THE CONTRACTOR MUST ADVISE THEIR MOVEMENT ON CTAF.
 - THE AIRPORT FREQUENCY IS 123.05 MHZ.

- STAGING AREA:**
- STAGING AREA SHALL BE RESTORED TO ORIGINAL CONDITION AT CONTRACTOR'S EXPENSE AFTER PROJECT IS COMPLETED.
 - EXACT LOCATION TO BE DETERMINED BY ENGINEER.

CONSTRUCTION NOTES: PHASE 1

- WORK ELEMENTS:**
- REMOVE EXISTING RUNWAY 34 REILS & VASIS
 - INSTALL NEW RUNWAY 34 REILS & PAPIS

- ACTIVE AREAS AFFECTED:**
- RUNWAY 16/34 SHALL BE CLOSED FOR PHASE 1
 - RUNWAY 8/26 SHALL BE CLOSED FOR PHASE 1

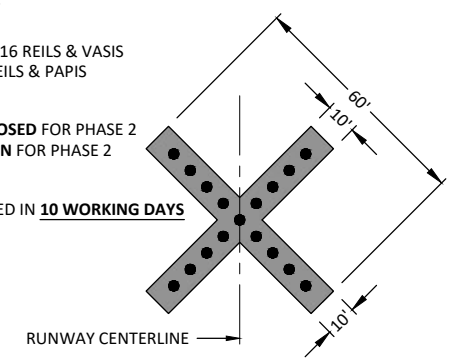
- DURATION:**
- PHASE 1 SHALL BE COMPLETED IN **10 WORKING DAYS**

CONSTRUCTION NOTES: PHASE 2

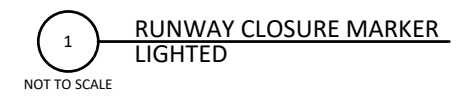
- WORK ELEMENTS:**
- REMOVE EXISTING RUNWAY 16 REILS & VASIS
 - INSTALL NEW RUNWAY 16 REILS & PAPIS

- ACTIVE AREAS AFFECTED:**
- RUNWAY 16/34 SHALL BE CLOSED FOR PHASE 2
 - RUNWAY 8/26 SHALL BE OPEN FOR PHASE 2

- DURATION:**
- PHASE 2 SHALL BE COMPLETED IN **10 WORKING DAYS**

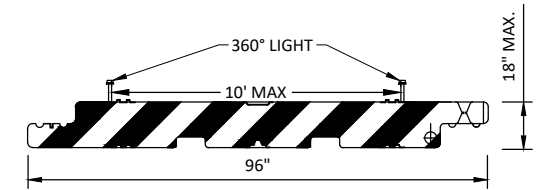


- NOTES:**
1. CLOSURE CROSSES SHALL BE PLACED ON NUMERALS
 2. LIGHTS SHALL BE SPACED AT 10-FOOT INTERVALS.
 3. CLOSURE CROSSES SHALL BE ADEQUATELY SECURED TO THE GROUND.

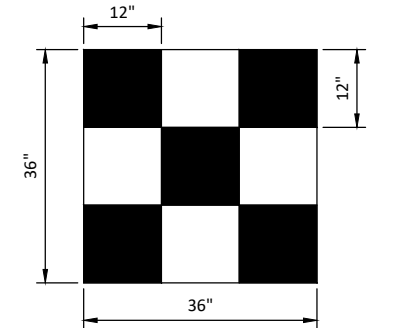
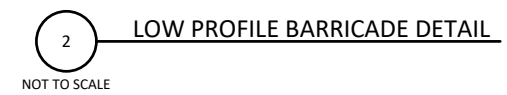


LEGEND

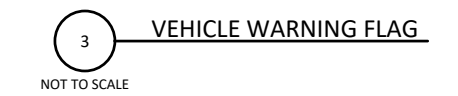
- CONTRACTORS ACCESS ROUTE
- RUNWAY CLOSURE MARKER
- LOW-PROFILE BARRICADES
- CONSTRUCTION STAGING LOCATION
- CONSTRUCTION - PHASE 1
- CONSTRUCTION - PHASE 2



- NOTES:**
1. GAPS BETWEEN BARRICADES SHALL BE NO MORE THAN 4 FEET.



- NOTES:**
1. FLAG SHALL HAVE A CHECKERED PATTERN OF INTERNATIONAL ORANGE AND WHITE SQUARES



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Nicholas R. Grahek
NICHOLAS R. GRAHEK, P.E.
LIC. NO. 61802 DATE 02/28/2024



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Phone: (218) 825-0684
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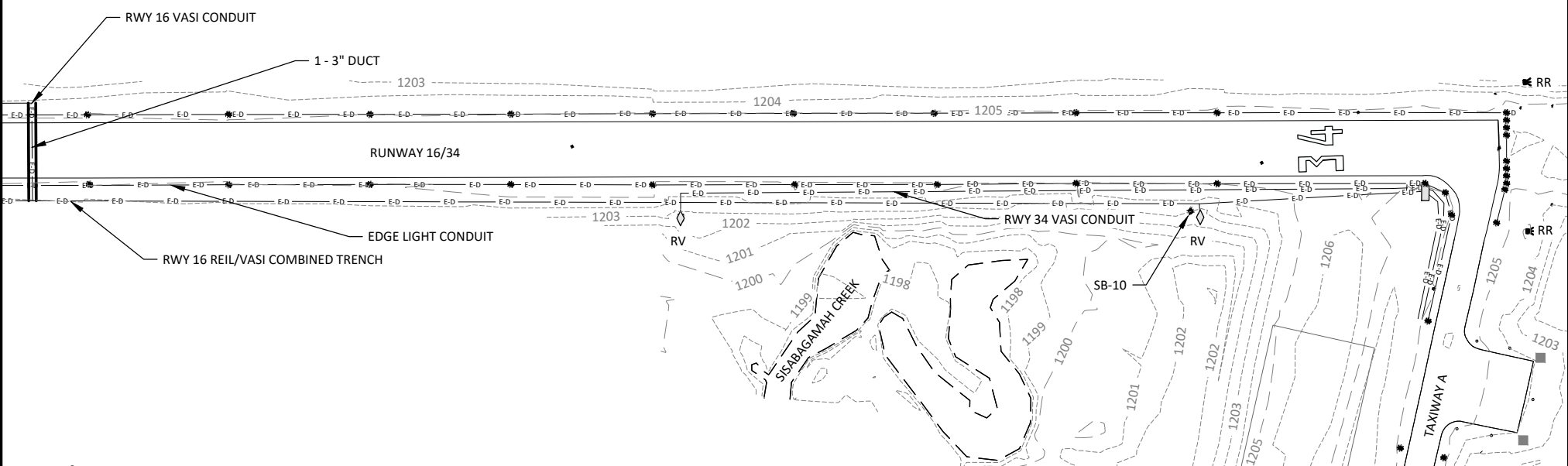
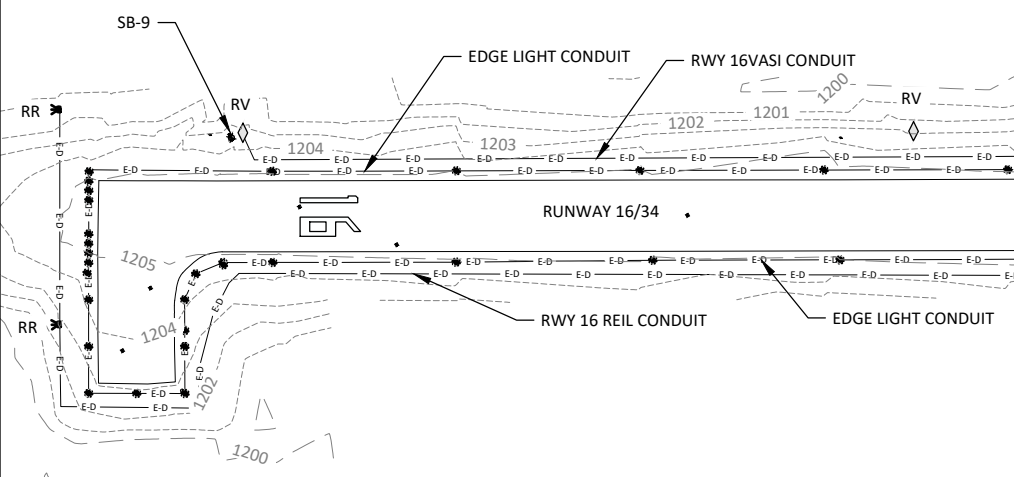


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AITKIN MUNICIPAL AIRPORT (AIT)
RUNWAY 16/34 NAVAID REPLACEMENT
CONSTRUCTION SAFETY & PHASING PLAN

SHEET
G2.01

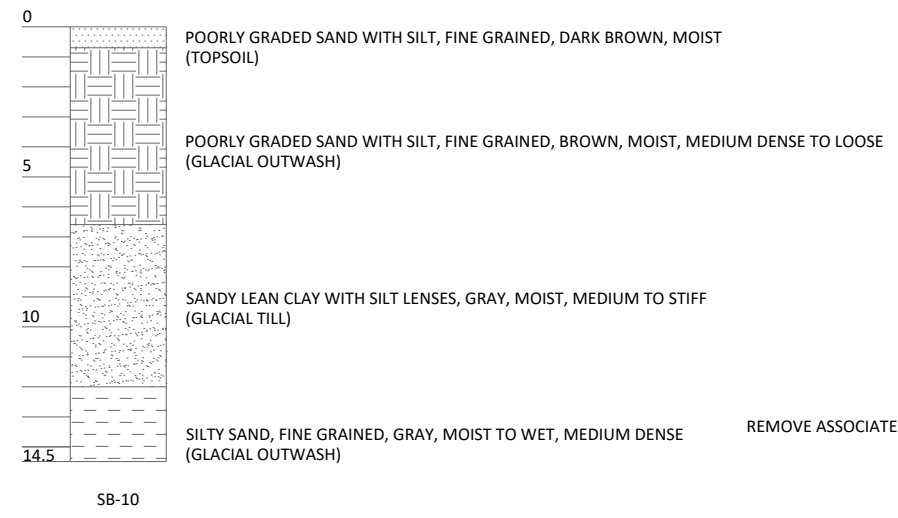
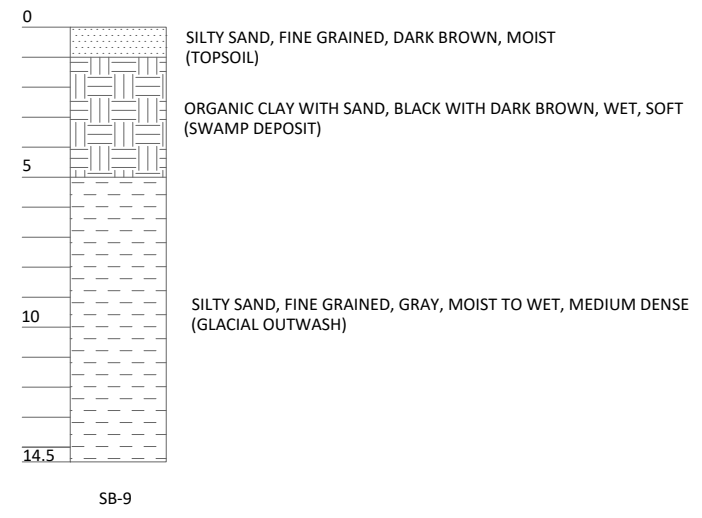
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LEGEND:

	RR REMOVE REILS (SET OF 2)
	RP REMOVE VASIS (SET OF 2)
	EXISTING MIRLS
	EXISTING SIGN
	EXISTING HANDHOLE
	EXISTING DUCT BANK

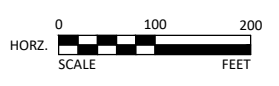
- NOTES:**
- VASI & REIL REMOVALS SHALL INCLUDE UNIT, FOOTING, FOUNDATION, CABLING, AND SITE RESTORATION.
 - ALL EXISTING CONDITIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR



1 - 3" DUCT
FIELD VERIFY

EXISTING ELECTRICAL VAULT
REMOVE ASSOCIATED EQUIPMENT WITH EXISTING VASIS AND REILS

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Nicholas R. Grahek
NICHOLAS R. GRAHEK, P.E.
LIC. NO. 61802 DATE 02/28/2024



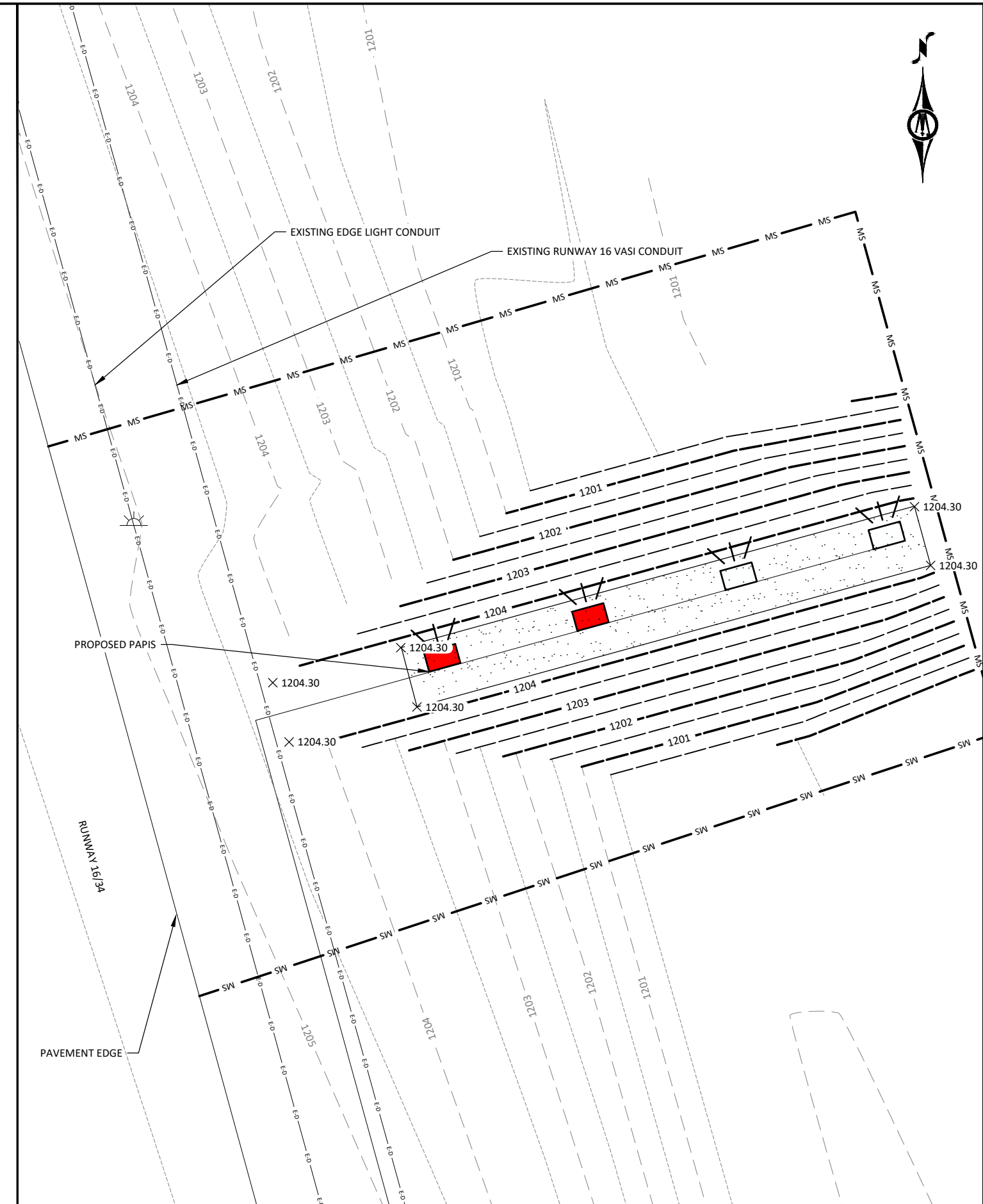
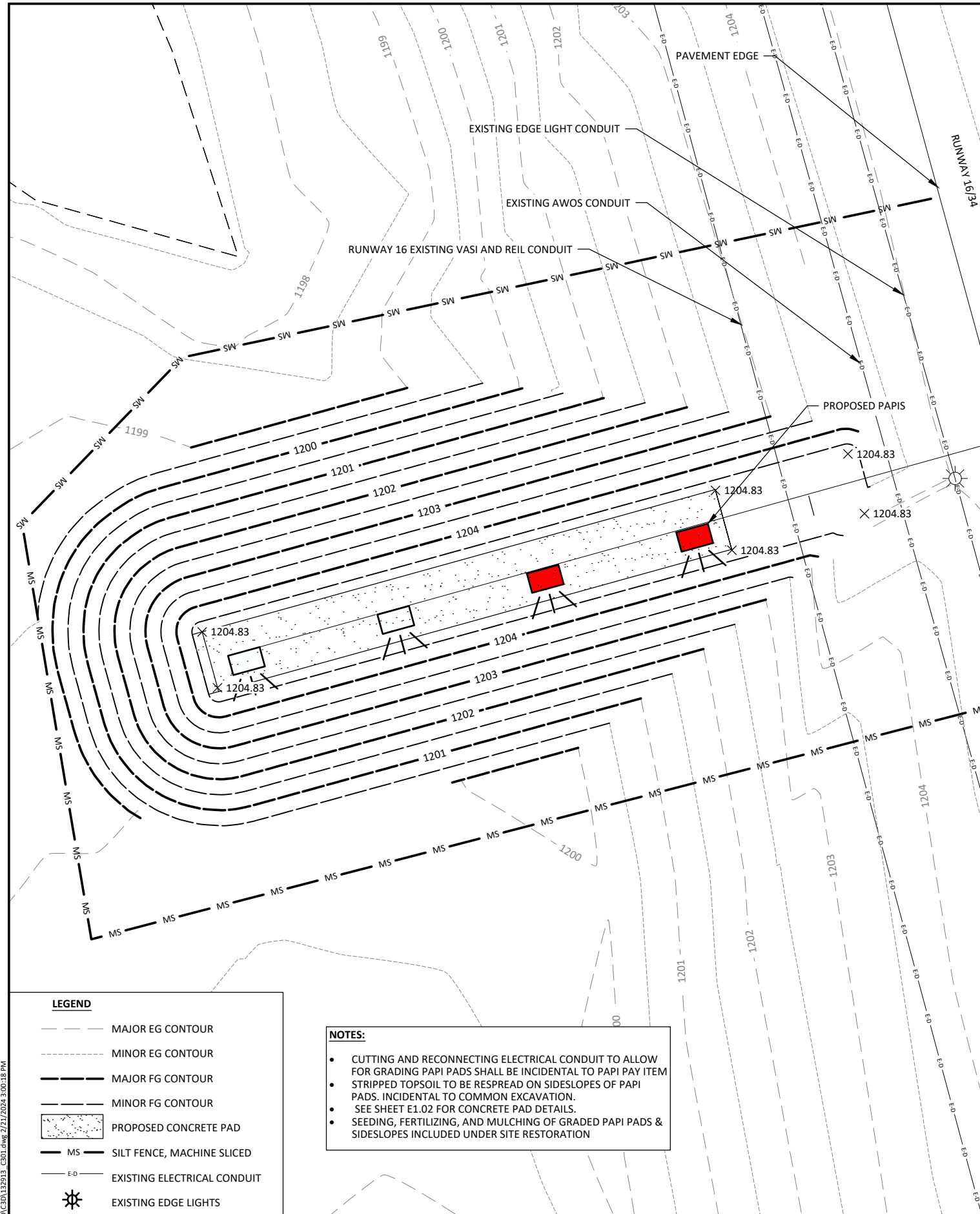
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AITKIN MUNICIPAL AIRPORT (AIT)
RUNWAY 16/34 NAVAID REPLACEMENT
EXISTING CONDITIONS & REMOVALS

SHEET
C0.01



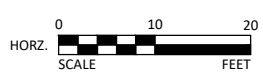
LEGEND

- MAJOR EG CONTOUR
- - - MINOR EG CONTOUR
- MAJOR FG CONTOUR
- - - MINOR FG CONTOUR
- PROPOSED CONCRETE PAD
- MS — SILT FENCE, MACHINE SLICED
- E-D — EXISTING ELECTRICAL CONDUIT
- ☼ EXISTING EDGE LIGHTS

NOTES:

- CUTTING AND RECONNECTING ELECTRICAL CONDUIT TO ALLOW FOR GRADING PAPI PADS SHALL BE INCIDENTAL TO PAPI PAY ITEM
- STRIPPED TOPSOIL TO BE RESPREAD ON SIDESLOPES OF PAPI PADS. INCIDENTAL TO COMMON EXCAVATION.
- SEE SHEET E1.02 FOR CONCRETE PAD DETAILS.
- SEEDING, FERTILIZING, AND MULCHING OF GRADED PAPI PADS & SIDESLOPES INCLUDED UNDER SITE RESTORATION

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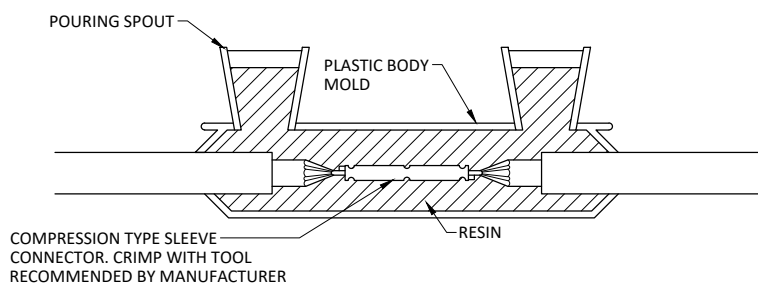
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AITKIN MUNICIPAL AIRPORT (AIT)
RUNWAY 16/34 NAVAID REPLACEMENT
GRADING PLAN

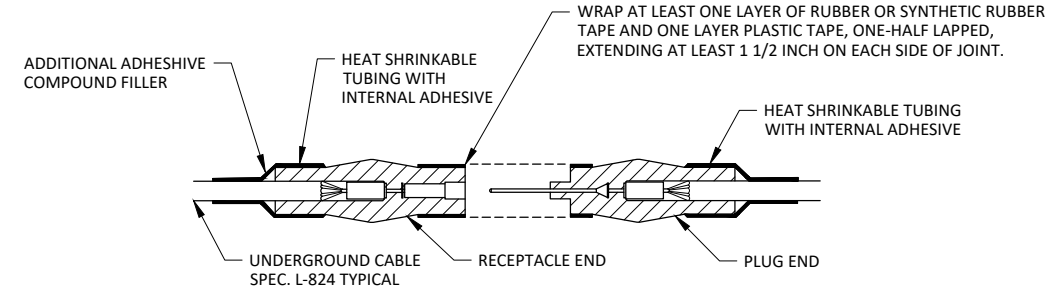
SHEET
C3.01



NOTE:
CONNECTION OF CONDUCTORS MUST BE MADE BY USING CRIMP CONNECTORS AND A CRIMPING TOOL APPROVED BY THE CONNECTOR/LUG MANUFACTURER. THE TOOL MUST PRODUCE A COMPLETE CRIMP BEFORE IT CAN BE REMOVED. THE CRIMPING TOOL USED MUST BE LISTED BY THE L-823 KIT MANUFACTURER. MAKE THE NUMBER AND TYPE OF CRIMPS PER THE KIT MANUFACTURER'S INSTRUCTIONS.

FOR SPLICES IN HOMERUNS AND EXTENSIONS TO EXISTING CABLE ONLY

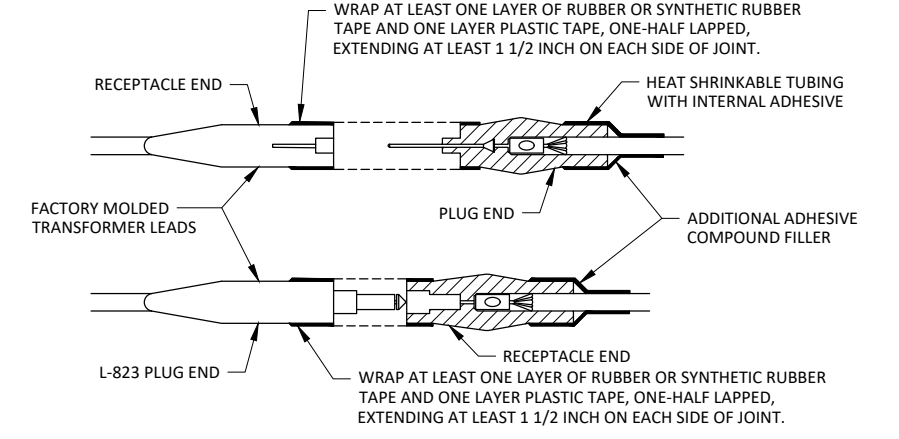
1 TYPE A CONNECTION
NOT TO SCALE



NOTE:
CONNECTION OF CONDUCTORS MUST BE MADE BY USING CRIMP CONNECTORS AND A CRIMPING TOOL APPROVED BY THE CONNECTOR/LUG MANUFACTURER. THE TOOL MUST PRODUCE A COMPLETE CRIMP BEFORE IT CAN BE REMOVED. THE CRIMPING TOOL USED MUST BE LISTED BY THE L-823 KIT MANUFACTURER. MAKE THE NUMBER AND TYPE OF CRIMPS PER THE KIT MANUFACTURER'S INSTRUCTIONS.

FOR SPLICES FOR USE AT JUNCTION OF HOMERUN WITH LOOP CIRCUIT

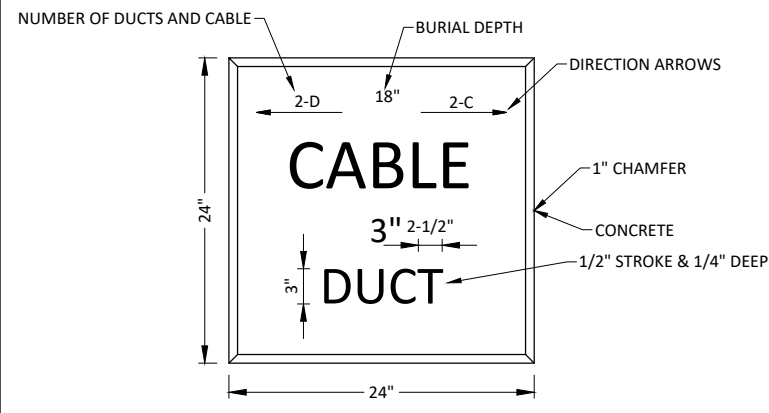
2 TYPE B CONNECTION
NOT TO SCALE



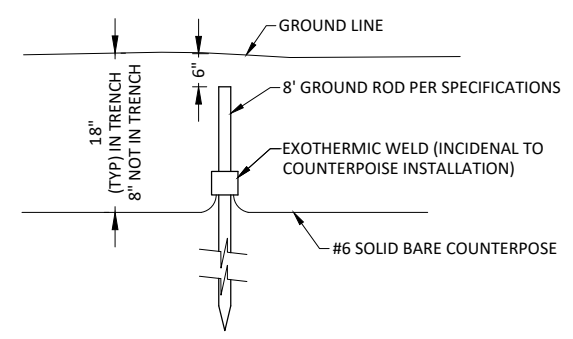
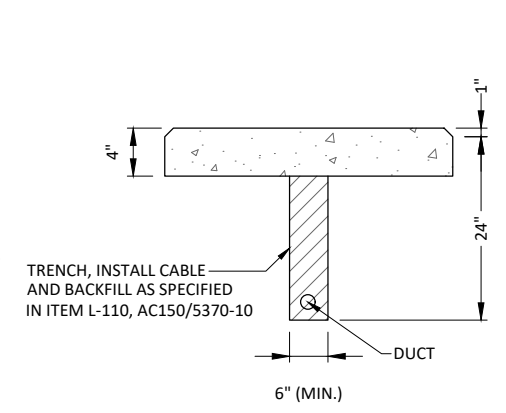
NOTE:
CONNECTION OF CONDUCTORS MUST BE MADE BY USING CRIMP CONNECTORS AND A CRIMPING TOOL APPROVED BY THE CONNECTOR/LUG MANUFACTURER. THE TOOL MUST PRODUCE A COMPLETE CRIMP BEFORE IT CAN BE REMOVED. THE CRIMPING TOOL USED MUST BE LISTED BY THE L-823 KIT MANUFACTURER. MAKE THE NUMBER AND TYPE OF CRIMPS PER THE KIT MANUFACTURER'S INSTRUCTIONS.

FOR SPLICES AT TAXIWAY/RUNWAY LIGHTS

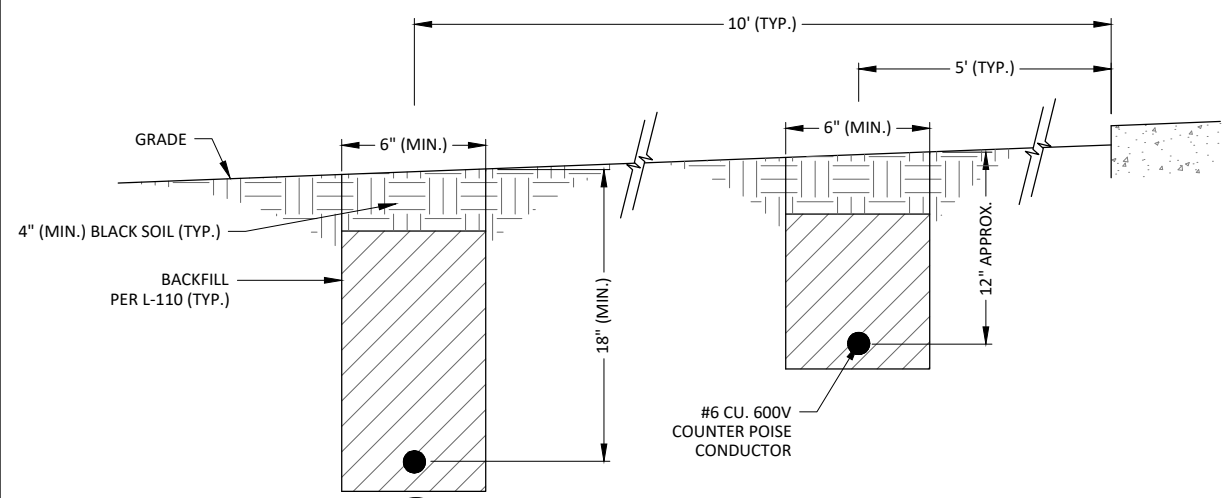
3 TYPE C CONNECTION
NOT TO SCALE



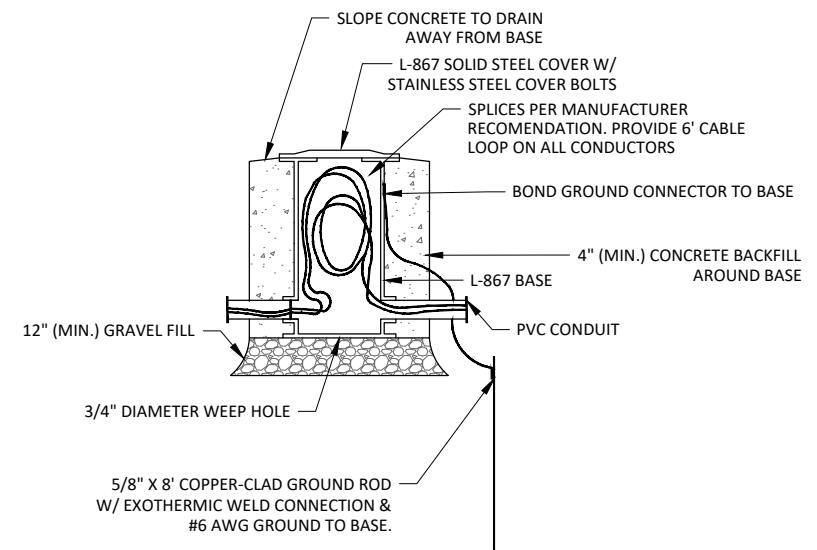
4 CONCRETE MARKER DETAIL
NOT TO SCALE



5 GROUND ROD DETAIL
NOT TO SCALE



6 TYPICAL TRENCH DETAIL
NOT TO SCALE



7 HANDHOLE
NOT TO SCALE

GENERAL ELECTRICAL NOTES:

- GENERAL ELECTRICAL REQUIREMENTS - ALL ELECTRICAL WORK SHALL MEET ALL LOCAL AND NATIONAL CODES. WORK SHALL BE COMPLETED BY CONTRACTORS MEETING RECENTLY UPDATED IOWA STATE REQUIREMENTS FOR USING QUALIFIED PERSONNEL FOR ELECTRICAL WORK. CONTRACTOR SHALL HAVE A CLASS A MASTER'S LICENSE AND A STATE OF IOWA CONTRACTOR'S LICENSE. ALL ELECTRICAL WORK SHALL BE INSPECTED AS NECESSARY BY APPROPRIATE INSPECTOR(S), AND ANY COSTS ASSOCIATED WITH INSPECTIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. CURRENTLY, ELECTRICAL INSPECTIONS ARE CONDUCTED BY THE STATE OF IOWA, WITH A MINIMUM OF 72-HOUR NOTICE TO COMPLETE THE INSPECTION.
- MEASUREMENT OF ANY CONDUIT SHALL END AT THE HANDHOLES AND/OR LIGHT BASES. CABLES SHALL BE MEASURED TO THE CENTER OF EACH HANDHOLE, BUT SLACK NECESSARY FOR SPLICES SHALL NOT BE MEASURED.
- ALL WIRING SHALL BE COPPER. ALL UNDERGROUND CONDUIT WILL BE PVC (INCLUDING CONDUIT ENCASED IN CONCRETE), WITH THE EXCEPTION OF CONDUIT BORED UNDER PAVEMENT, WHICH SHALL BE SCHEDULE 80 HDPE. EXPOSED (ABOVE-GROUND) CONDUIT SHALL BE RGS, AND THE RGS SHALL EXTEND TO THE BOTTOM OF EACH SWEEP PRIOR TO TRANSITIONING TO PVC UNDERGROUND.
- ALL ELECTRICAL EQUIPMENT INSTALLED IN THIS PROJECT SHALL MEET THE REQUIREMENTS OF THE MOST RECENT VERSION OF THE APPLICABLE FAA ADVISORY CIRCULAR (A.C.) RELATING TO THAT PIECE OF EQUIPMENT. SHOULD THE CONTRACTOR REQUIRE ADDITIONAL INFORMATION ON THE MOST RECENT APPLICABLE STANDARDS, THEY SHALL CONTACT THE ENGINEER FOR ASSISTANCE PRIOR TO ORDERING EQUIPMENT.
- DUCT MARKERS - DUCT MARKERS, AS SHOWN ON THE PLANS, ARE REQUIRED AT EACH END OF BURIED CONDUITS (IF CONDUITS DON'T END AT HANDHOLES). MARKERS ARE CONSIDERED INCIDENTAL TO THE PRICE OF THE BURIED DUCT, AND NO SEPARATE BID ITEM IS INCLUDED FOR THEM.
- RESTORATION - THE CONTRACTOR SHALL TOPSOIL, FERTILIZE, SEED, AND MULCH DISTURBED AREAS. COST OF THIS RESTORATION WORK IS CONSIDERED INCIDENTAL AND WILL NOT BE MEASURED FOR PAYMENT.

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Nicholas R. Grahek
NICHOLAS R. GRAHEK, P.E.
LIC. NO. 61802 DATE 02/28/2024



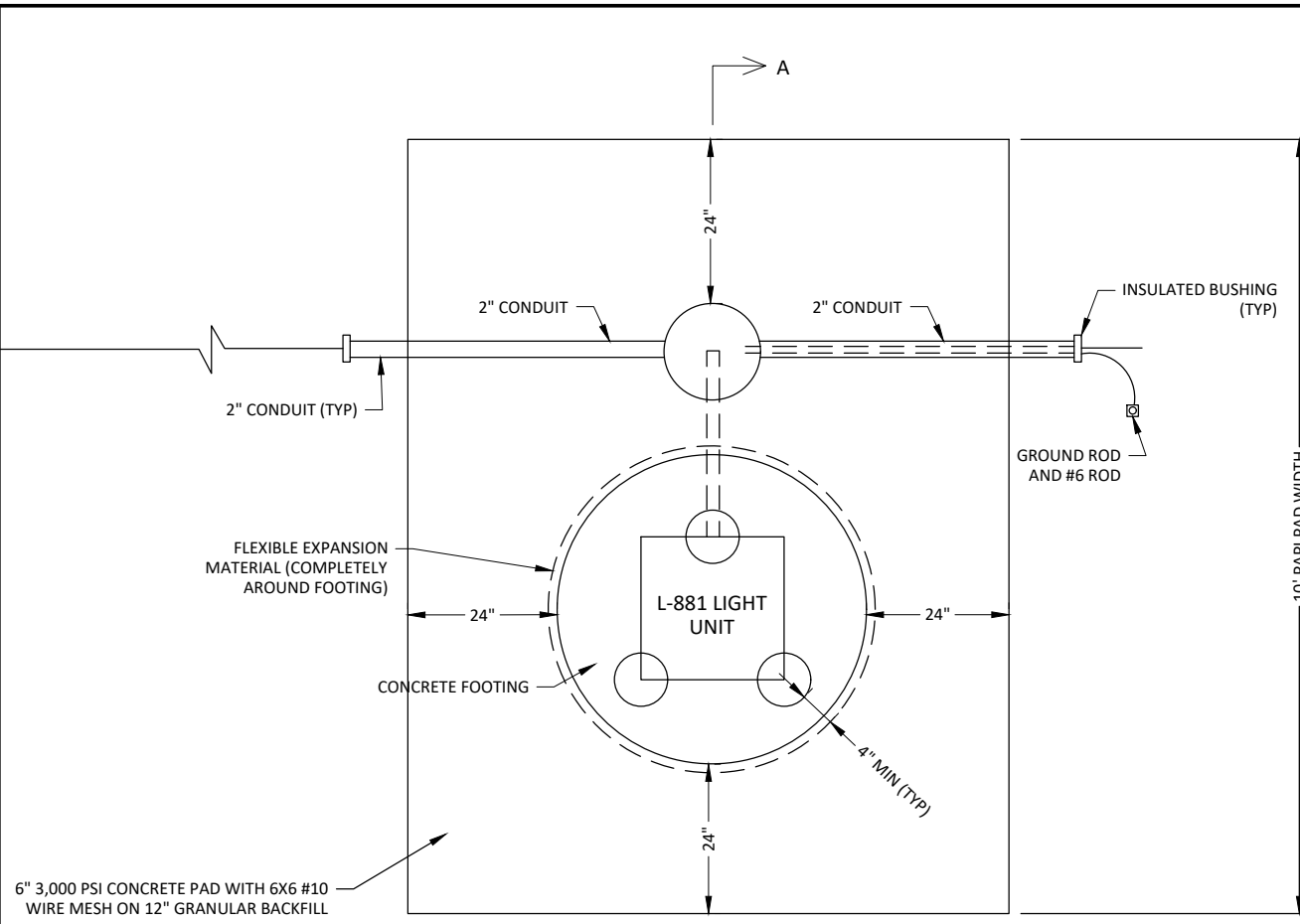
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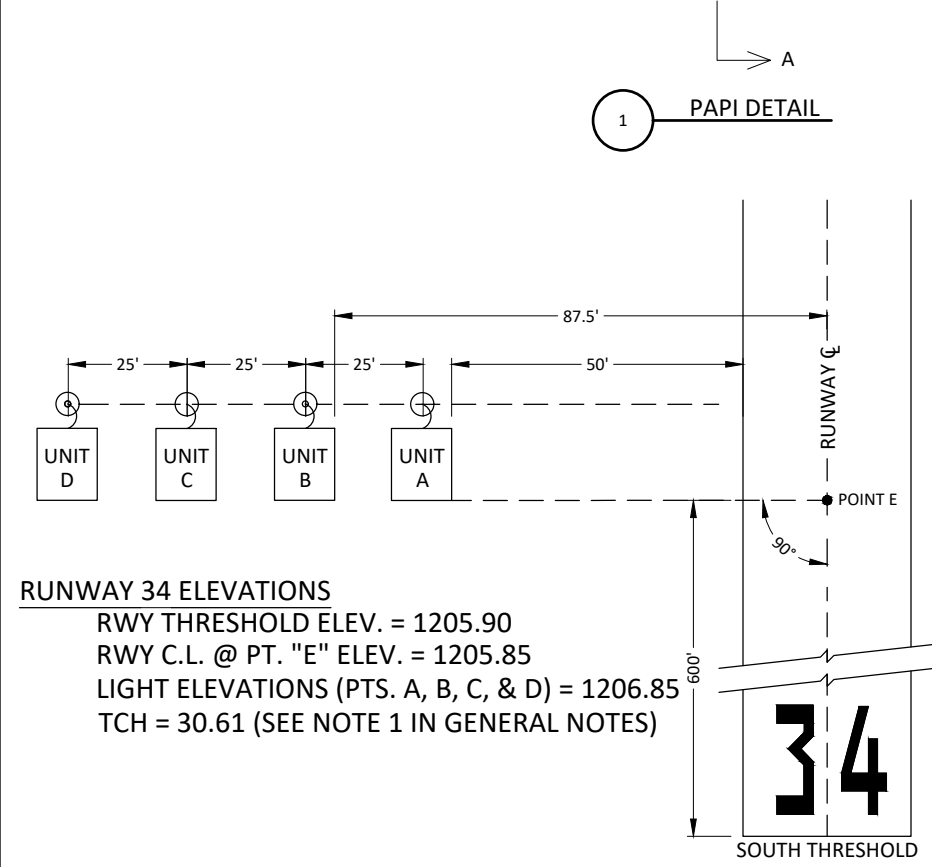
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AITKIN MUNICIPAL AIRPORT (AIT)
RUNWAY 16/34 NAVAID REPLACEMENT
ELECTRICAL DETAILS

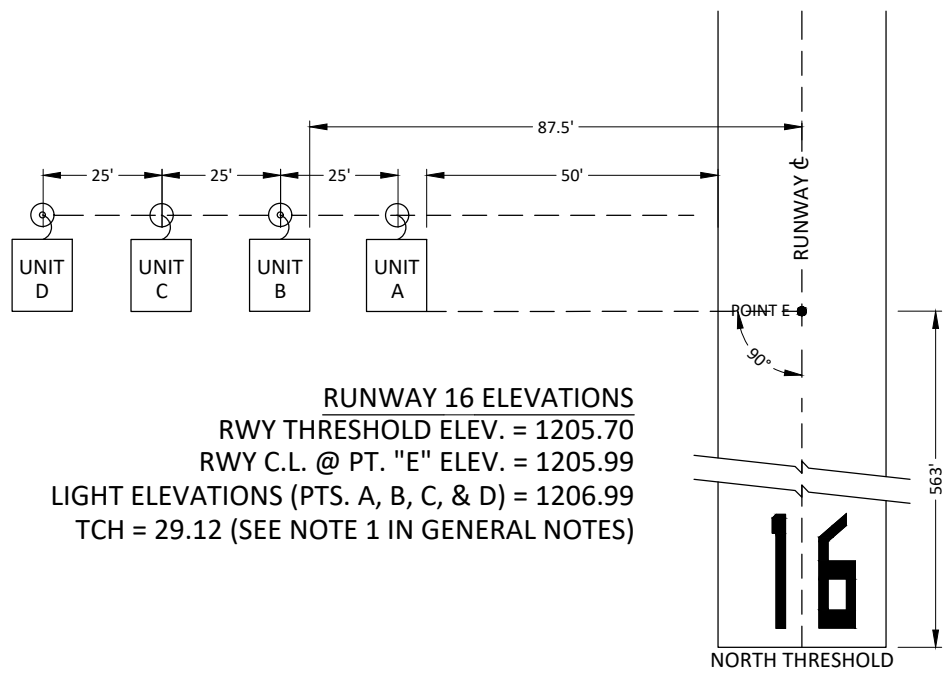
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1 PAPI DETAIL

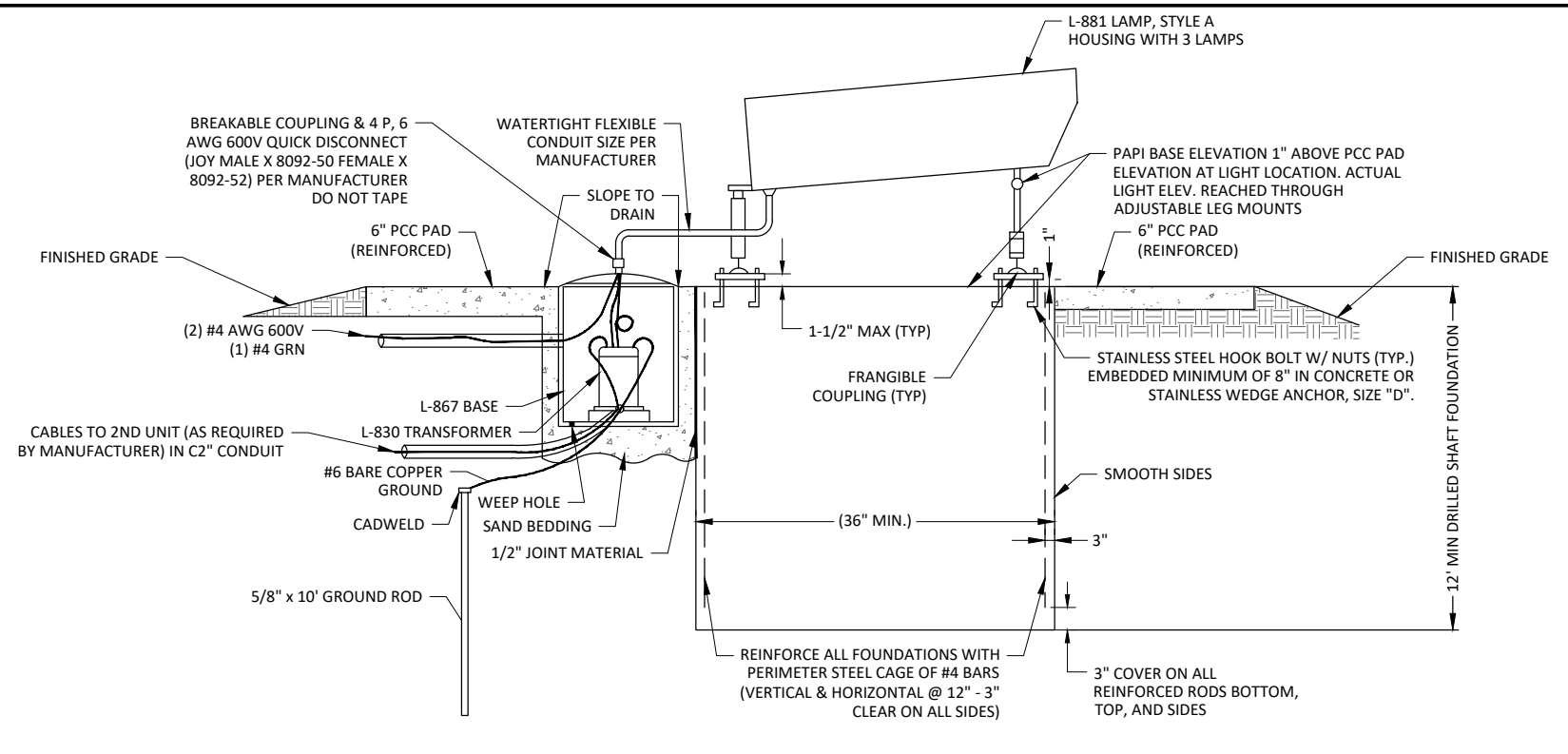


RUNWAY 34 ELEVATIONS
 RWY THRESHOLD ELEV. = 1205.90
 RWY C.L. @ PT. "E" ELEV. = 1205.85
 LIGHT ELEVATIONS (PTS. A, B, C, & D) = 1206.85
 TCH = 30.61 (SEE NOTE 1 IN GENERAL NOTES)

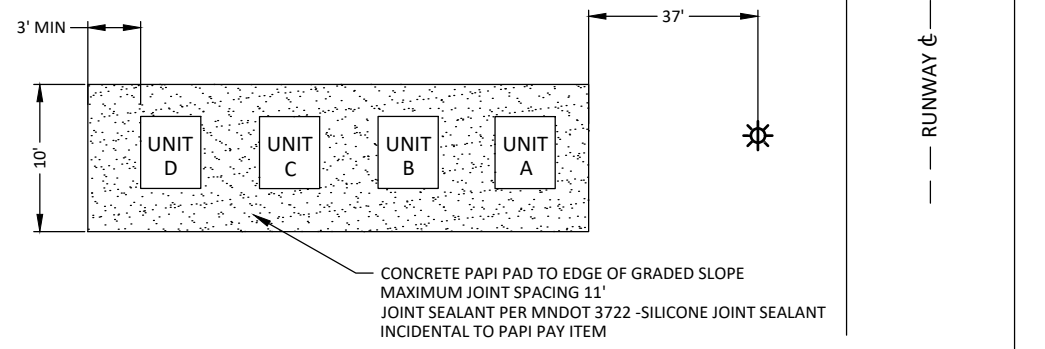


RUNWAY 16 ELEVATIONS
 RWY THRESHOLD ELEV. = 1205.70
 RWY C.L. @ PT. "E" ELEV. = 1205.99
 LIGHT ELEVATIONS (PTS. A, B, C, & D) = 1206.99
 TCH = 29.12 (SEE NOTE 1 IN GENERAL NOTES)

3 PAPI PLAN - LOCATION



2 PAPI DETAIL - SECTION A-A



4 PAPI CONCRETE PAD

- PAPI SYSTEM GENERAL NOTES**
- AIMING ANGLES PER FAA A/C 150-5340-301, TABLE 7-3, AS FOLLOWS
 UNIT A: 3° - 30' ABOVE GLIDE PATH
 UNIT B: 3° - 10' ABOVE GLIDE PATH
 UNIT C: 2° - 50' BELOW GLIDE PATH
 UNIT D: 2° - 30' BELOW GLIDE PATH
 - AZIMUTHAL AIMING. EACH LIGHT SHALL BE AIMED OUTWARD INTO THE APPROACH ZONE ON A LINE PARALLEL TO THE RUNWAY CENTERLINE WITHIN A TOLERANCE OF +/- 1/2 DEGREE
 - MOUNTING HEIGHT TOLERANCE: THE BEAM CENTERS OF ALL LIGHTS UNITS SHALL BE WITHIN +/- 1 INCH OF A HORIZONTAL PLANE. THIS HORIZONTAL PLANE SHALL BE WITHIN +/- 1 FOOT (0.3 M) OF THE ELEVATION OF THE RUNWAY CENTERLINE AT THE INTERCEPT POINT OF THE VISUAL GLIDE PATH WITH THE RUNWAY EXCEPT AT LOCATIONS RAISED TO BE CLEAR OF SNOW BUILDUP ON THE GROUND AT THE PAPI LOCATIONS.
 - TOLERANCE ALONG LINE PERPENDICULAR TO RUNWAY. THE FRONT FACE OF EACH LIGHT UNIT IN A BAR SHALL BE LOCATED ON A LINE PERPENDICULAR TO THE RUNWAY CENTERLINE WITHIN +/- 6 INCHES.
 - NON-METALLIC COMPONENTS IN LIGHT FIXTURE'S, STEMS AND BREAKABLE COUPLINGS ARE NOT PERMITTED. L-867 PLASTIC TRANSFORMER HOUSINGS ARE NOT ACCEPTABLE.
 - ALL HARDWARE SHALL BE STAINLESS STEEL. ALL THREADED CONNECTIONS SHALL HAVE ANTI-SETTING COMPOUND.
 - LAYOUT OF PAPI LEGS VARIES PER MANUFACTURERS DESIGN. CONFIRM ARRANGEMENT & DIMENSION WITH MANUFACTURER.

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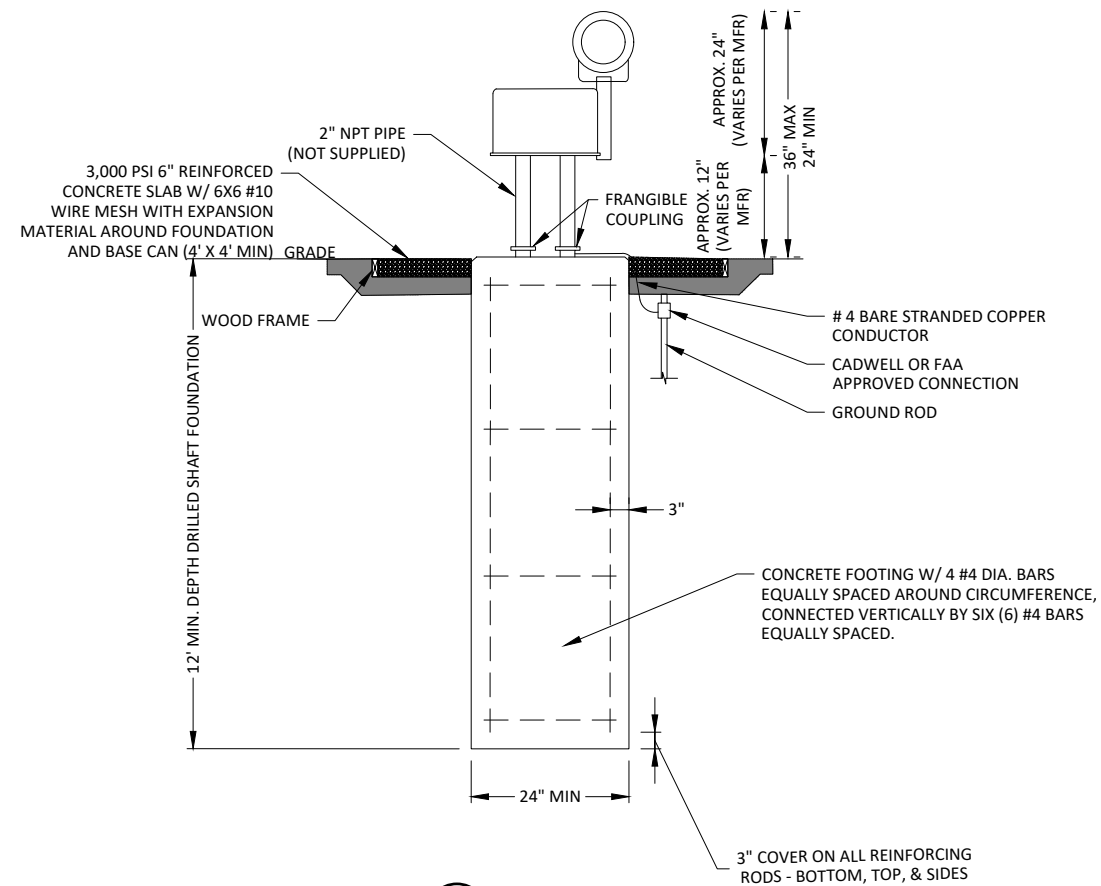
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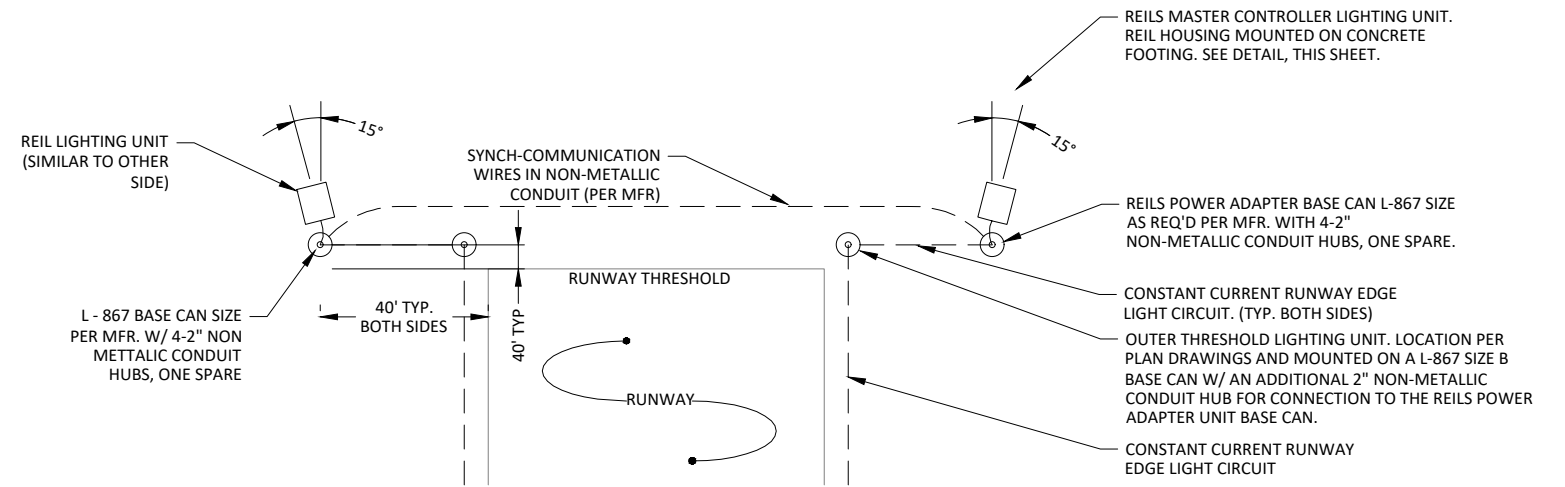
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AITKIN MUNICIPAL AIRPORT (AIT)
 RUNWAY 16/34 NAVAID REPLACEMENT
 PAPI DETAILS

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1 REIL DETAIL



2 LIGHT SYSTEM LAYOUT FOR CONSTANT CURRENT POWERED REIL UNITS



EXISTING REIL UNITS

EXISTING VASI UNITS



EXISTING VAULT INTERIOR

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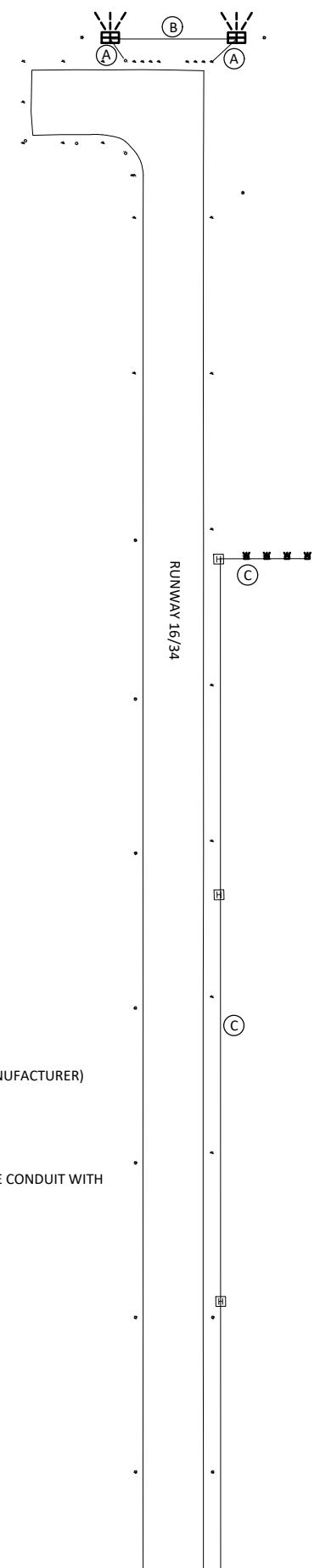
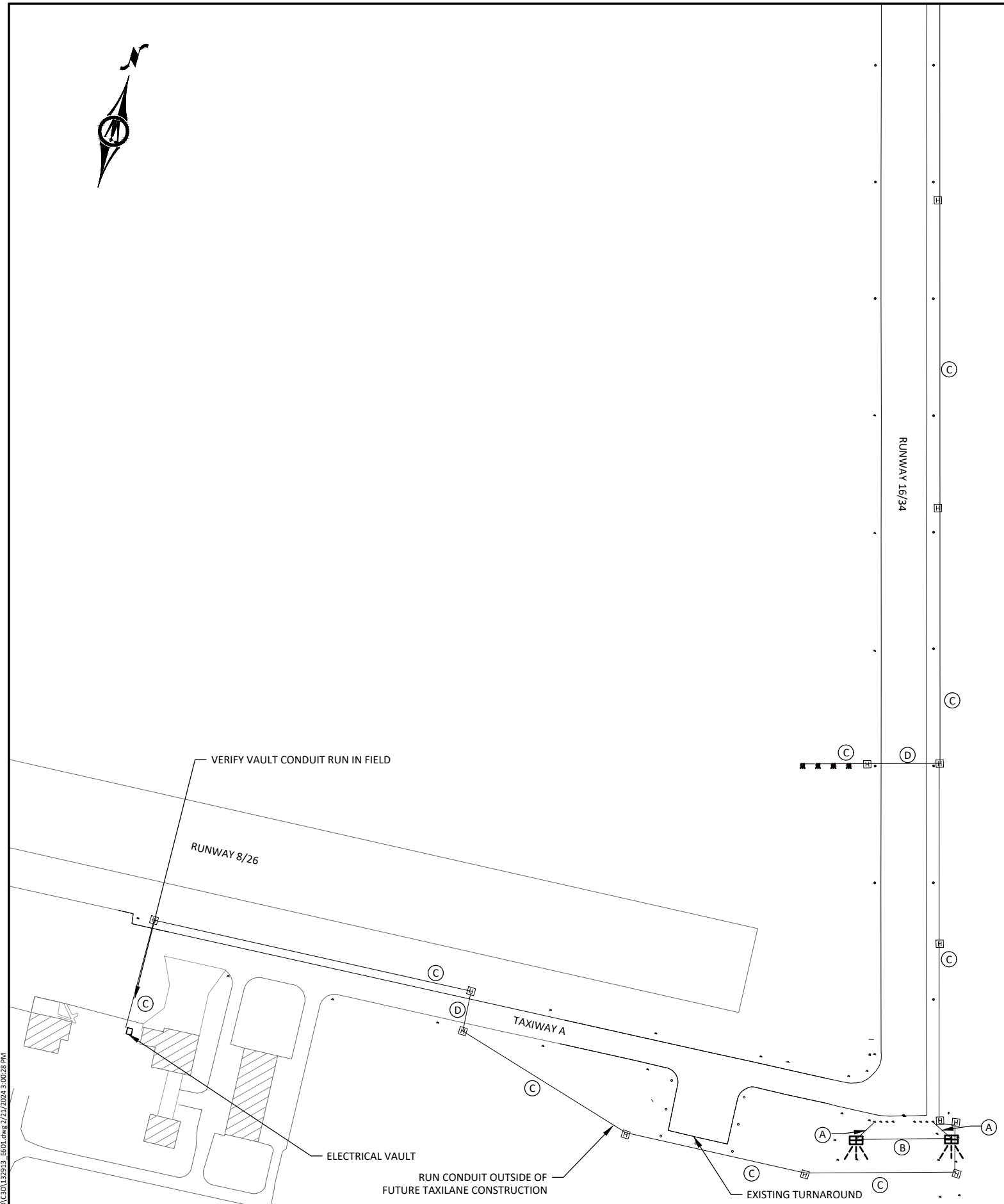
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AITKIN MUNICIPAL AIRPORT (AIT)
 RUNWAY 16/34 NAVAID REPLACEMENT
 REIL DETAILS & EXISTING PHOTOS

SHEET
 E1.03



LIGHTING LEGEND:

	REIL
	PAPI
	PROPOSED HANDHOLE
	EXISTING MITLS

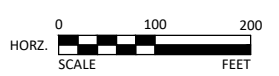
GENERAL NOTES:

1. FIELD VERIFY LOCATIONS OF EXISTING UNDERGROUND CABLES, DUCTS, AND UTILITIES PRIOR TO CONSTRUCTION.
2. EXISTING UNDERGROUND CABLES ARE NOT ALL SHOWN. CONTRACTOR SHALL ELECTRONICALLY LOCATE AND MARK ALL EXISTING CABLE LOCATION PRIOR TO CONSTRUCTION.
3. REPAIR ALL UNDERGROUND CABLES, DUCTS, AND UTILITIES THAT ARE DAMAGED DURING CONSTRUCTION WHICH MUST REMAIN IN OPERATION.
4. TEST NEW UNDERGROUND CIRCUITRY AFTER CONSTRUCTION. SEE SPECIFICATION.
5. REFER TO REMOVAL SHEETS FOR EXISTING SYSTEM REMOVALS.
6. INSTALL HANDHOLES EVERY 500' FOR PAPI HOMERUN
7. INSTALL SHUT OFF SWITCH AT MASTER UNIT OF PAPI'S

CIRCUITRY NOTES:

- (A) 2" SCHEDULE 40 PVC/HDPE CONDUIT WITH:
2-1/C#8, 5KV (REIL CONNECTION)
1-1/C#6, 600V (GROUND)
- (B) 2" SCHEDULE 40 PVC/HDPE CONDUIT WITH:
2-1/C#12, 600V (REIL, CONFIRM W/ MANUFACTURER)
- (C) 2" SCHEDULE 40 PVC/HDPE CONDUIT WITH:
2-1/C-#6, 5KV (PAPI HOMERUN)
1-1/C-#6 600V (GROUND)
- (D) DIRECTIONAL BORE 2" SCHEDULE 40 PVC/HDPE CONDUIT WITH:
2-1/C-#6 5KV (PAPI HOMERUN)
1-1/C-#6 600V (GROUND)

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