SHIVEHATTERY
ARCHITECTURE + ENGINEERING

May 29, 2024

Iowa Department of Administrative Services
Attn: James Trower
109 SE 13th Street
Des Moines, IA 50319

Re: DOC North Central Correctional Facility – IPI Sally Port Vehicle Gate Review
DAS Project No.: 9366.00

Dear Mr. Trower,

On April 5, 2024, Shive-Hattery civil engineer Chris Bauer, PE, electrical engineer Kevin Bruxvoort, PE and architect Phillip Parrott, AIA completed an onsite review of the west/north Vehicular Sallyport for IPI located on the east side of the North Central Correctional Facility (NCCF) in Rockwell City, IA. The objective of this investigation was to provide a functional review of the two gates operation and condition and provide a summary of any recommendations of repairs that the State may consider. The gates are currently budgeted for replacement with major maintenance funding.

Both gates and the entire sallyport enclosure is chain link construction with razor wire coils at the top and bottom. The gate panels have been customized/retrofitted over the years with supplemental supports and bottom extensions. The gates are operated by a Chamberlin, electric, chain drive, operator with listed manufacturer dates of 07/02/2010. The two gate operator enclosure boxes and associated equipment and controls all appeared to be in good working order for their age and the facility did not report any current issues with the chain drive systems or recent performance. However, with the operators and equipment approaching 15 years old they are likely due for replacement before maintenance costs, lack of available repair parts, and operational issues start increasing. There were no observed or reported issues with power or controls to the gates and it is anticipated that existing power and control wiring could be reused as part of the gate replacements.

The clear opening width of the west gate is approximately 15’ with a cantilever type support system, whereas the east gate clear opening is approximately 13’ and rides on an overhead track. The facility stated that they would prefer a uniform 15’ clear opening for the sallyport to accommodate larger trucks. It was also reported that the current height clearance with the existing overhead track system was acceptable for their operational use of this sallyport.

Under the perimeter fencing and surrounding the gate posts of the sallyport, an approximate 2’ wide by 4” thick concrete maintenance strip is installed. This concrete maintenance strip continues across the drive under the gate and is not believed to be frost protected or isolated from the fence and gate posts. There is evidence that this maintenance strip may be adversely moving/heaving the fence and gate posts leading to some of the continuous alignment issues the automated gate and locking system has been experiencing. The rest of the drive is asphalt paving.

It was reported and observed that the operation of both automated gates is marginal and typically requires a person to steady and guide the gate as it slides into the locking mechanism to allow it to be engaged/locked. The gate’s guides and rollers are aged and are not currently aligned or operating smoothly.

The IPI facilities at NCCF that the sally port and gates serve have a secondary access point with manually operated sally port gates which can be utilized during construction as needed. The facility stated that the sally port could be fully closed for construction with no need for phasing or temporary access considerations.

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S-H recommends complete replacement of the two gates utilizing new overhead sliding track type systems. This type of automated gate systems typically operate well in winter weather climates avoiding the need for ground guidance and support systems and are anticipated to meet the current operational and security needs of the facility.

The gate replacement recommendations would include the following scope items:

1. Removal of the existing sally port gates and select gate/jamb posts of the existing fencing as required to accommodate the new gate systems and allowing for both gates to be designed with 15' clear openings. It is not anticipated that adjacent pedestrian gates will require replacement.
2. Removal and replacement of existing razor wire and the motion detection system wiring on adjacent fencing as required for gate replacement and adjustments.
3. Removal and salvage of the existing chain drive operators, associated equipment, and gate locking hardware that could be provided to the facility as spare parts.
4. Removal and replacement of the 2' wide concrete maintenance strip under the adjacent fencing and gates. Replacement of the maintenance strip should be isolated from the fence posts to provide independent movement.
5. Depending on the maximum clearance allowed under the gates by the facilities security requirements consideration to add a frost protected stoop/slab under the gate could be considered to prevent access drive frost heave or settlement from impacting gate operation and maximum allowed clearance.
6. Installation of new overheard sliding track type system gate assemblies with consideration during design to include lower gate horizontal guides to maintain alignment with wind loading. Horizontal guides should be mounted approximately 2' above the ground surface to avoid impacts of winter conditions and snow accumulation.
7. Provide new chain driven operators and associated equipment and controls utilizing existing power and control conduit and wiring.
8. Provide new automated locking hardware for new gates matching existing lock types to keep consistency on campus.
9. Facility stated that they can complete all required reprograming for the gate and lock replacements.

Please review the photos that are attached. We would be happy to discuss with you our findings and recommendation. If you have any questions or concerns, please do not hesitate to contact us.

Sincerely,

Shive-Hattery, Inc.

Chris Bauer, PE, PMP
Project Manager – Civil Engineer

PHOTOS

PHOTO NUMBER 1-1	DESCRIPTION: South gates, looking Southerly

PHOTO NUMBER 1-2	DESCRIPTION: North gates, looking Northerly

PHOTO NUMBER 1-3	DESCRIPTION: North Gates, looking Southerly

PHOTO NUMBER 1-4	DESCRIPTION: Gate operator control box

PHOTO NUMBER 1-5	DESCRIPTION: Gate operator controls

PHOTO NUMBER 1-6	DESCRIPTION: South gate operator control box

PHOTO NUMBER 1-7	DESCRIPTION: North gate

PHOTO NUMBER 1-8	DESCRIPTION: North gate locking mechanism and wiring connection

PHOTO NUMBER 1-9	DESCRIPTION:	North gate receiving post and concrete maintenance pad

PHOTO NUMBER 1-10	DESCRIPTION:	Excavation along maintenance pad showing approximate depth concrete slab depth of 4”

PHOTO NUMBER 1-11	DESCRIPTION: North gate operator control box

PHOTO NUMBER 1-12	DESCRIPTION: South gate locking mechanisms and wiring connections

PHOTO NUMBER 1-13	DESCRIPTION: Typical gate gap when closed

PHOTO NUMBER 1-14	DESCRIPTION: Typical gate locking mechanism enclosure